

NeFSMA **Helping Protect the Good Life**

2023 Newsletter Volume 1

MESSAGE FROM THE CHAIR

It has been another busy year – as you can tell by the belated publication of this annual newsletter! Our NeFSMA board is about to kick off meetings for the 2024 year, welcoming a new board chair in Aaron Hirsch. Aaron has been an active member for many years and has spent several years with the board already – I am looking forward to what NeFSMA can do these next few years! As we plan, we are always asking ourselves “How can we better help our members get their continuing education needs met? Are we providing the right opportunities? Could changes be made to better serve our membership?” I greatly appreciate the commitment of our board to supporting the floodplain and stormwater management community in Nebraska.

This year I had the pleasure of attending my first Association of State Floodplain Managers Conference (ASFPM). The 2023 ASFPM Conference, hosted in Raleigh, North Carolina, was a significant event focusing on floodplain management and resilience. The conference annually brings together experts, policymakers, and stakeholders from various states, including several attendees from Nebraska. Participants engaged in discussions on the latest flood risk mitigation strategies, policy developments, and innovative technologies to better protect communities from the devastating impacts of flooding. Being able to see Nebraska's presence at the conference highlighted our state's commitment to proactive floodplain management and our efforts to address the unique flood-related challenges we face.

July 2023 brought us back to Kearney for our yearly conference events. There was a tour of the Harlan County Reservoir, including valuable presentations on the bus ride to and from the dam. We appreciate the hospitality from the USACE and the time of our presenters. Later that day was the 2nd Annual Golf Scramble, as well as a Hazard Mitigation Planning Workshop. The day before the conference was capped by a social event at Cunningham’s Journal on the Lake. Our annual conference was a full day event, exchanging knowledge, sharing research findings, fostering collaboration, and networking. Thank you to everyone who made it possible – and to everyone who took the time and effort to attend and help increase the collective strength and knowledge of our stormwater and floodplain managers in Nebraska.

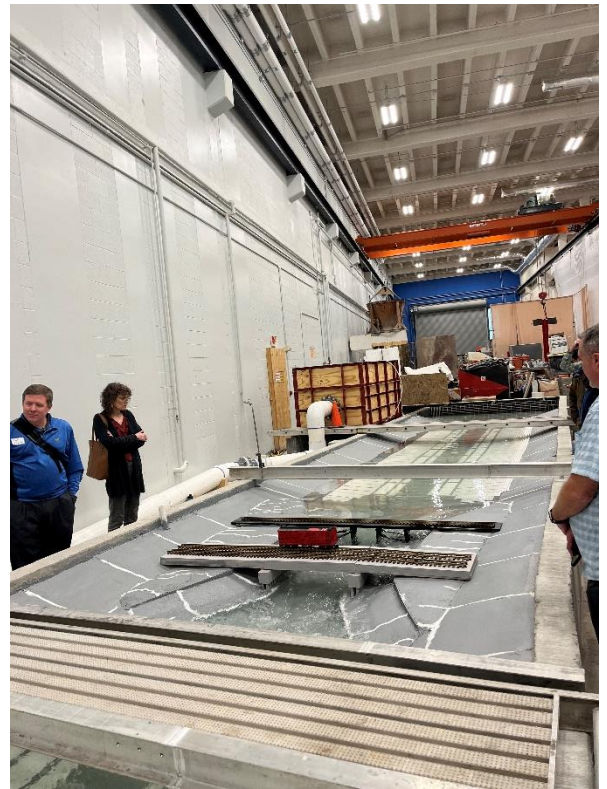
On November 14, 2023, NeFSMA hosted our annual Membership Meeting at the unique space at the Nebraska Innovation Campus Conference Center at UNL. This year, the agenda included a tour of the model flume for the Deadman’s Run project, constructed at the UNL College of Engineering. In association with the Lower Platte South NRD, the UNL College of Engineering developed and constructed the model flume specifically for the Deadman’s Run Project, to gather data required to complete design on the Deadman’s Run Flood Reduction Project. We had a great walk through of Nebraska Hall, which brought back memories for

many of the tour attendees. Dr. David Admiraal, Associate Professor of Civil and Environmental Engineering, gave us an amazing review of the Deadman's Run project and allowed us access to the model flume. The group was able to see the model in action, and it was fascinating! NeFSMA appreciated the chance to get this look at how the University of Nebraska can help solve some of the stormwater and flooding issues faced by communities in the state.

Carrie Romero, NeFSMA Chair



Overhead view of Deadman's Run physical model at UNL



The model is a representation of the location just west of 33rd Street in Lincoln, where Deadman's Run flows below a double mainline and single industrial lead track.

2024 SAVE THE DATES

Please mark your calendar for NeFSMA's Annual Conference on July 17-18, 2024. We will again be meeting in the center of the state at Kearney. For the first time, we will enjoy the facilities of Younes Conference Center North, an addition to the original Younes Conference Center that we have used for many years. Get ready for two days of insightful discussions, networking opportunities, and valuable presentations. Additional details and agenda to follow in the coming months. Save the date and prepare for an enriching experience.



Additionally, plan to attend the 2024 Membership Meeting on November 21, 2024, at the University of Nebraska Innovation Campus Conference Center in Lincoln.

Watch our website at <https://nefsma.com/> for more information and registration details.



2023 ASFPM Conference

Several NeFSMA members attended the 2023 ASFPM Conference in Raleigh, North Carolina. The event ran from May 7 – 11. NeFSMA again participated in “Chapter Row,” a feature in its second year at the ASFPM Conference. Representatives from the Kansas, Missouri, and Nebraska Chapters of ASFPM all contributed to a basket of goodies (sourced from our mid-western states) which was awarded to a lucky booth visitor in a raffle drawing.

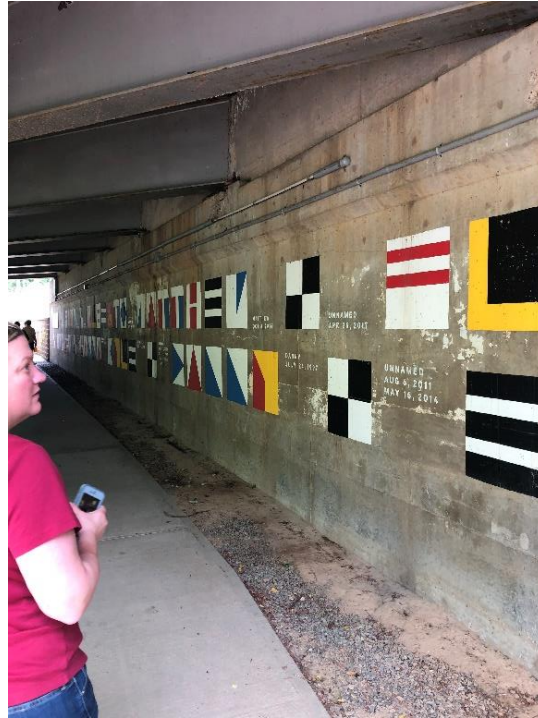


Exhibit Hall at 2023 ASFPM Conference – Location of Chapter Row

Among the options offered at the conference are several tours of the host city. One tour stopped at the location of frequent flooding along Crabtree Creek. The City of Raleigh, along with a local artist, has developed an art installation along a public trail at the creek to tell the story of the flooding history. Nautical flag designs and flagpoles identify the height of floodwaters during various events and give the community visual reference to help understand the magnitude of the problem. The project was an innovative and low-cost project that provides public education on the risks of flooding.



ASFPM Conference attendees walk along the Crabtree Creek Trail



A portion of the nautical flag designs used to identify individual flood events on Crabtree Creek



Interpretive sign along the Crabtree Creek Trail. The text states *“Heavy rain from major storms can cause water in creeks to rise quickly. When a creek cannot handle any more rain, water flows into nearby areas. This is the floodplain. As water collects here, the impact of flooding downstream is less severe. The plants in the meadow filter and clean water as it flows through the area. Wildlife lives here too. This project tells the story of flooding at this site.”*

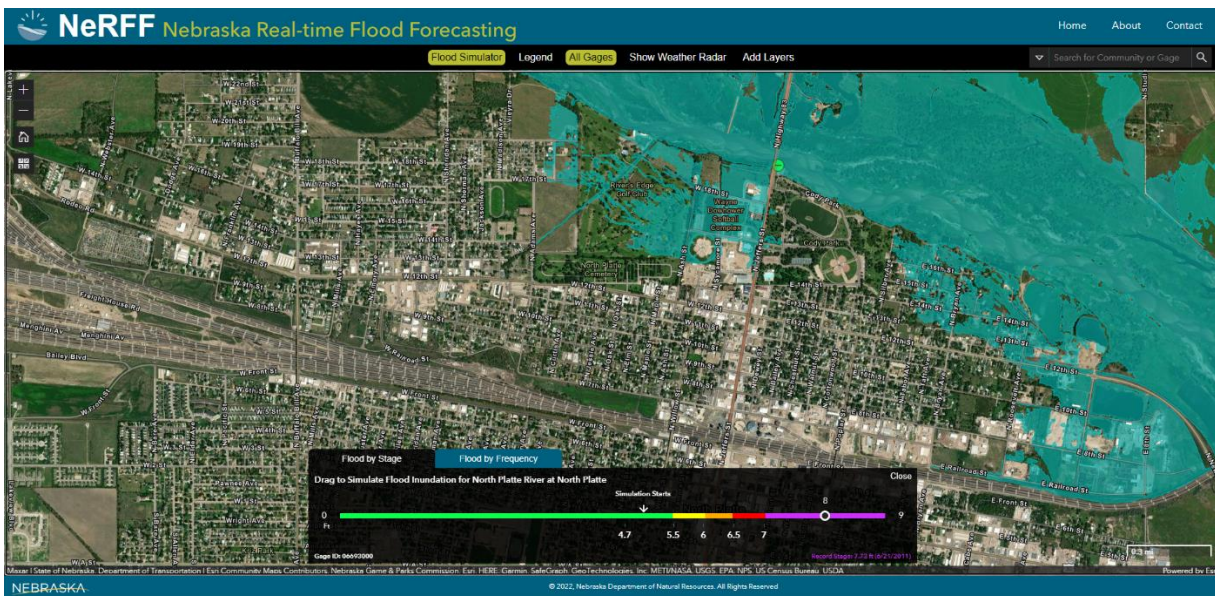
View Flooding in Real Time Across Nebraska

Stefan Schaepe, PE, CFM

In response to the 2019 flood event that plagued Nebraska, NeDNR developed the Nebraska Real-Time Flood Forecasting (NeRFF) interactive map to assist state and local officials, as well as private citizens in the event of imminent flooding. The interactive map took over two years to develop and was successfully launched on September 1st, 2023.

NeRFF provides a platform for users to view pre-calculated flood inundation boundaries and depths in real time. Inundation and depth data is available at 46 gage site locations, covering 54 communities across the state. For each site, inundation and depth data is available for every half foot stream stage interval. Additionally, current and forecasted river stages provided by the National Weather Service are displayed on the map for all active stream gages across the state. Additional data, such as weather radar, dams, levees, weather alerts and critical infrastructure are also features of the map. This combination of data in one website allows communities and citizens to quickly make informed decisions about the risks flooding poses to their lives and property.

The interactive map is a living website, with the NeDNR continuing to produce inundation and depth data for additional communities across the state every year. If you haven't done so already, take some time to checkout NeDNR's latest tool to assist with flood disaster planning at nerff.nebraska.gov. For more information regarding how your community can benefit from this new tool, please contact a member of the [NeDNR Floodplain Management Section staff](#).



National Institute of Building Sciences and Fannie Mae Release Disaster Mitigation Roadmap

Reprint from ASFPM News & Views

The National Institute of Building Sciences and Fannie Mae have developed the Resilience Incentivization Roadmap 2.0 on mitigation investment to help people in America prepare for and respond to natural disasters.

The 150-page paper focuses on the peril of urban pluvial flooding, specifically, and offers three major findings and several recommendations. Researchers said many of principles developed in the report could be adapted to apply to other types of flooding as well as wildfires, wind, temperature extremes, earthquakes, and others.

As disasters grow more frequent and destructive, preparing our infrastructure and communities for extreme weather is critical to protect lives and reduce economic losses. On a national average, natural hazard mitigation saves \$4-\$11 in avoided future losses for each \$1 invested, as found by the NIBS Natural Hazard Mitigation Saves study.

Climate resilience will be key to sustainable homeownership as the impacts of climate change increase,” said Tim Judge, head of modeling & chief climate official with Fannie Mae. “The roadmap provides tangible recommendations that the collective stakeholders can take to promote resilient investment that U.S. housing certainly needs. “

The Resilience Incentivization Roadmap 2.0 recently was unveiled at the NIBS Building Innovation conference in Washington, DC. The report was supported by NBIS Multi-Hazard Mitigation Council’s Committee on Finance, Insurance, and Real Estate (CFIRE). It explores the investment opportunities by lenders, insurers, developers, owners, and government.

“We looked at the motivations, barriers, and innovative ideas from each stakeholder group,” said Dr. Jiqui Yuan, vice president of engineering with NIBS. “The Resilience Incentivization Roadmap provides recommendations that would form the basis for real-world applications to create value for all stakeholders. Working together, we are looking for ways to move the needle, accelerate resilience investment, and create a more resilient economy.”

[Download the Resilience Incentivization Roadmap 2.0.](#)

Floodplain Storage: Safe or Risky?

Elijah Kaufman, CFM

Reprint from NeDNR Floodplain Management Today - October 2023

How much time does your community typically have during heavy rains before floodwaters are soaking Main Street, the local fairgrounds, or the RV park? Days? Hours? Minutes? Many communities in Nebraska are no strangers to flash flooding. Flash floods arrive quickly and without warning, bringing fast moving and extremely turbulent flow that can swiftly carry away any unfastened materials in harm's way. Fallen trees, sheds, trailers, construction materials, and cars can all be swept away in just inches of water.

Nebraska residents don't need to look far into the past to find destructive flash flood events. In the early morning hours of May 26th, 2023, a slow-moving severe thunderstorm impacted southwestern Nebraska, producing around 10 inches of rainfall within a few short hours for the town of Stratton. With such little warning time, water rescues were needed to save at least 4 citizens stranded in their homes, and one individual who became trapped in their vehicle. Cars, trucks, tractors, campers, and tool sheds were seen being carried down the Muddy Creek and the Republican River. This event was responsible for more than \$1 million in property damage, and \$162,000 in crop damage (NWS Storm Events Database). Until this event, the southwestern region of Nebraska was experiencing a severe drought, and communities were not prepared to be inundated with such high amounts of water. Many residents and community officials were unfortunately reminded of the 1935 Republican River flood, which occurred under similar conditions and displaced thousands of people.



There are a number of takeaways one can get from this story, but there are two you should remember from this article. One; flooding can happen anywhere at any time and with little warning. Two; any unanchored material in the path of a flood can and will become debris.

Flooding seen along the Republican River south of Stratton, NE, on May 26, 2023, sends vehicles and RV adrift. The flooding resulted from a slow-moving storm over southwestern Nebraska that dropped between 5 and 10 inches of rain on area communities. Photo: Scott McDonald

So, what happens when someone purchases a lot in the floodplain with the intent to store cars, trailers, construction materials, or equipment in an open environment? A floodplain administrator should first go to their floodplain ordinance to review their regulations on stored materials. According to Nebraska's Minimum Standards for Floodplain Management Programs Title 455, paragraph 004.15, which aligns with FEMA's regulations for storage of materials:

"The storage or processing of materials that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal or plant life is prohibited. Storage of other material or equipment may be allowed if not subject to major damage by floods and firmly anchored to prevent flotation or if readily removable from the area within the time available after flood warning."

To summarize these regulations, unless the stored items can be safely removed in the event of a flood, each individual stored item must be fully anchored to stop lateral movement and the effects of buoyancy. The determination on whether or not the removal of these items is feasible is one that the community will need to make. The property owner should provide evidence to show that they have the capacity, resources, time, and awareness to evacuate all stored items from the premises before a flood arrives. Evacuation routes must be predetermined, staff must be assigned duties, and equipment must be listed to prove to the floodplain administrator that their storage facility will not produce debris that could impact neighboring properties. This would also be a great time to meet with the local emergency manager to identify hazards and to draft an evacuation plan. Remember that the amount of warning time before a flood can vary between communities and rain events and that even the most well-developed plan may not be enough to accommodate for real world conditions. If it cannot be proven that each item can be removed in time before a flood event, then the items must be anchored to eliminate the effects of flotation, lateral movement, and buoyancy.

The regulations also state that materials that are flammable, explosive, or could be injurious to human, animal or plant life is prohibited. This means that trailers/ campers with propane tanks, gasoline storage, or other hazardous materials would not be allowed to be stored at this facility. Another item to note is that there are no elevation requirements for stored materials. Other potential concerns to address before the lot can be permitted for storage include:

- Materials stored in the floodplain below Base Flood Elevation (BFE) are at an increased risk of being in harm's way during a flood.
- Materials stored in the floodplain below BFE are at an increased risk of becoming debris that could cause damages to materials within this facility and property on neighboring lots. What does this mean from a liability perspective for the community or the lot owner?
- By having this storage below BFE, the lot owner would be making the conscious decision to allow renters to place their belongings potentially in harm's way.

- Can these items truly be removed in time in the event of a flood? Is that a realistic expectation/requirement?
- What anchoring methods can be realistically employed at this site?

Consider When Permitting

While there are no elevation requirements for stored materials of this type, floodplain administrators can require the property owner to compromise in some form. For example, elevating to reduce the depth of floodwater could reduce the costs of anchoring, and would also reduce the risk of the stored items becoming debris. Notice that in 004.15, stored materials cannot be subject to major damage by floods, so some actions should occur to reduce the depth of floodwater flowing through the property.

Additionally, it may be in the community's best interest to require the property owner to notify every individual using the site that the property is below BFE and is at risk of flooding. Whether this be in a waiver that is handed to every customer, signs posted along the fencing, or a notice posted at the entrance, the users of this storage facility need to know that their items must be anchored or readily removable in the event of a flood.

Communities could treat open storage facilities similarly to RV parks, where the duration of storage would be limited to a set number of consecutive days, or to a period of time during the year.

Communities may limit the floodplain development permit to a set duration of time, where the property owner must reapply for a new permit once the other has lapsed. This allows the floodplain administrator to review the site on a routine schedule and limits the opportunity for violations to occur.

If the property owner is not able to prove the items will be readily removable, and will not be able to anchor each item, they would have the option to have the area removed from the floodplain by Letter of Map Revision based on Fill (LOMR-F). This would require a permit for fill to elevate the area to 1-foot above the BFE, and the community to sign a Community Acknowledgment Form that all proposed development will be reasonably safe from flooding. Once the property owner obtains the LOMR-F, then the items within the removed area would not be required to follow the community's floodplain regulations unless otherwise specified by the community.



2023 NeFSMA BOARD MEMBERS

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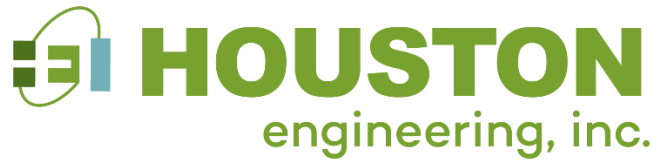
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