

## Nebraska's Business Plan

By Jamie Reinke, PE, CFM

As part of NeDNR's Cooperating Technical Partners (CTP) agreement with FEMA, the Floodplain Management team is tasked with developing a vision for mapping priorities for several years into the future. NeDNR and FEMA have separate mechanisms for how projects are selected, but often the mapping priorities of the two agencies are well aligned.

NeDNR, by state statute, prioritizes mapping needs by considering the following factors:

1. Potential for future development;
2. Potential for flood damage or loss of life;
3. Probability that adequate data and maps will be prepared within a reasonable time by other sources;
4. Availability and adequacy of any existing maps;
5. Availability of flood data and other information necessary to produce adequate maps; and
6. Degree of interest shown by the local governments in the area in utilizing flood data and maps in an effective floodplain management program.

Similarly, FEMA has identified the following types of projects as the highest priority:

1. On-hold County Wide Projects
2. Levee Physical Map Revision (PMR) Projects
3. On-going Watershed Projects
4. Watershed Projects
5. Paper Inventory Reduction Projects

NeDNR uses the data associated with regulatory maps throughout the state regularly, whether for a Base Flood Elevation (BFE) Determination or for providing technical assistance to communities. When we use this data, it often becomes clear which areas of the state are in need of updated regulatory maps, however, we are still required to consider the state statutes and FEMA's priorities before identifying a project for future funding.

NeDNR works to sequence projects in our business plan in a logical manner to address these mapping needs. Projects are selected at a watershed level and, when possible, NeDNR is leveraging the work of other agencies to avoid overlapping efforts and to maintain cost-efficiency. This allows NeDNR to maximize funding opportunities to provide more of the state with updated, high-quality regulatory products.

The FEMA Fiscal Year 2021 Business Plan update was due in April. Due to changes in FEMA's priorities there are significant changes to NeDNR's Business Plan, and those changes continue to be modified as we analyze state and federal priorities. To view changes to NeDNR's future mapping project sequencing please view the current business plan [here](#).

Questions or comments can be directed to Katie Ringland at [katie.ringland@nebraska.gov](mailto:katie.ringland@nebraska.gov). ■

## Before and After Disaster Strikes: A New Handbook for Floodplain Administrators

By Adele Phillips, CFM

While we cannot predict when, where, or what disasters will impact our communities, we do know that disasters occur. We learned a lot from the 2019 floods and have developed the **Substantial Damage Assessment Handbook** to help Nebraska's floodplain administrators to correctly implement procedures necessitated by participation in the National Flood Insurance Program. The guide combines FEMA-recommended guidance and best practices, with insight reported by floodplain administrators and building officials from across Nebraska.

Use the handbook to guide your actions before, during, and after a disaster impacts your community. Included in the handbook are lists and tools for specific actions that you can implement in your community today. Doing so will reduce the amount of work required of you after a disaster has occurred and aid in a smoother and quicker recovery process for the community overall.

New features added to the handbook include:

- Diagrams and decision trees to help you visualize when and where the guidance applies
- Clarification of the Substantial Damage Assessment process.

- See [Handbook](#) cont. on page 2.

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- 5 Training & Events

**Handbook** continued from page 1.

Also included in the new book are new template letters, forms, and tables, such as:

- Pre-disaster and Fieldwork preparation checklists
- Floodplain Development Permit
- Interior and Exterior Inspection Guides
- Percent Damage Estimation Tables
- Contractor Damage Repair Cost Estimation Form
- Flood Zone A Compliance Requirements table

Figure 1 below and Figure 2 on page 3 of this newsletter are included within the handbook. These handy visuals will further aid floodplain administrators in confidently implementing the Substantial Damage Assessment process by understanding where and when the process applies.

We hope this disaster handbook will serve as a tool and resource in 2021 and beyond. Hard copies of the handbook can be requested by contacting this NeDNR. Additionally, all components of the handbook are available as individually downloadable files at **Nebraska Department of Natural Resources' Digital Desk Reference.** ■

## Updates to Technical Bulletin 3: Non-Residential Floodproofing - Requirements and Certification

By Cheyenne Sun Eagle,  
Kansas Department of Agriculture

The Federal Emergency Management Agency (FEMA) has released an update to **Technical Bulletin 3, "Requirements for the Design and Certification of Dry Floodproofed Non-Residential and Mixed-Use Buildings."** It expands in detail each section and floodproofing is now explained as a 10-step process. There is a longer explanation of how dry floodproofed buildings are rated with credits for these techniques, aside from the basic rule of floodproofing to 1 ft above the BFE for credit; it is based on the specific information about the techniques that accompany the insurance application. Mixed-use building techniques are expanded. The bulletin also explains where floodproofing is allowed under the NFIP in terms of flood zones and velocities. Next, the NFIP regulations from the Code of Federal Regulations (CFR) Chapter 60.3 (C) (3) (4) (8) are presented with more detail on how

they apply to various flood zones. It is followed by a section on higher standards and how they may impact floodproofing requirements. The bulletin also covers the various versions of building codes that can be adopted as well as the American Society of Civil Engineers standard, "Flood Resistant Design and Construction" (ASCE 24), which applies to structures that are subject to building codes. It is the standard for materials and practice, and highly recommended due to the technical requirements of dry floodproofing, and promotion of building codes by FEMA. A table compares the latest changes to ASCE 24 and the International Building Code (IBC) compared to NFIP minimum requirements. In most cases, they meet or exceed the NFIP.

New, are interpretations on flood shields from ASCE as well as FEMA on their configurations for dry

- See [Updates](#) cont. on page 4.

Figure 1: Applicability of Substantial Damage Assessment Handbook Guidance:

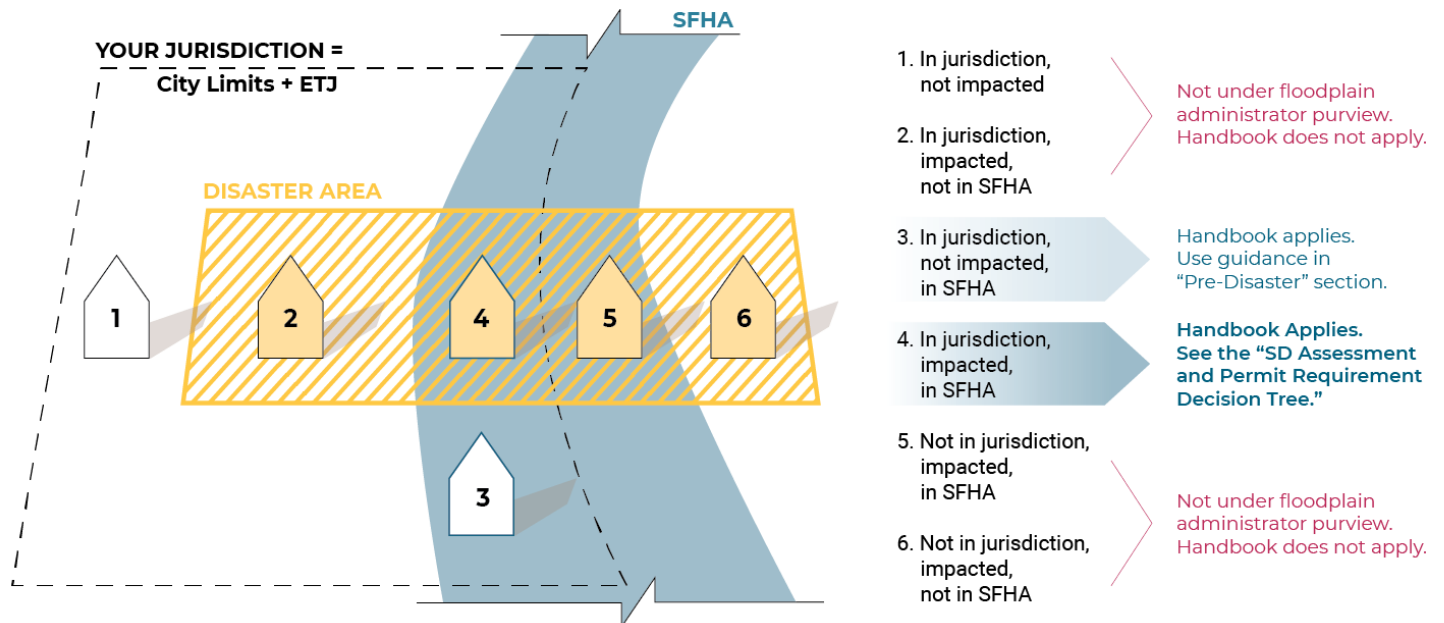
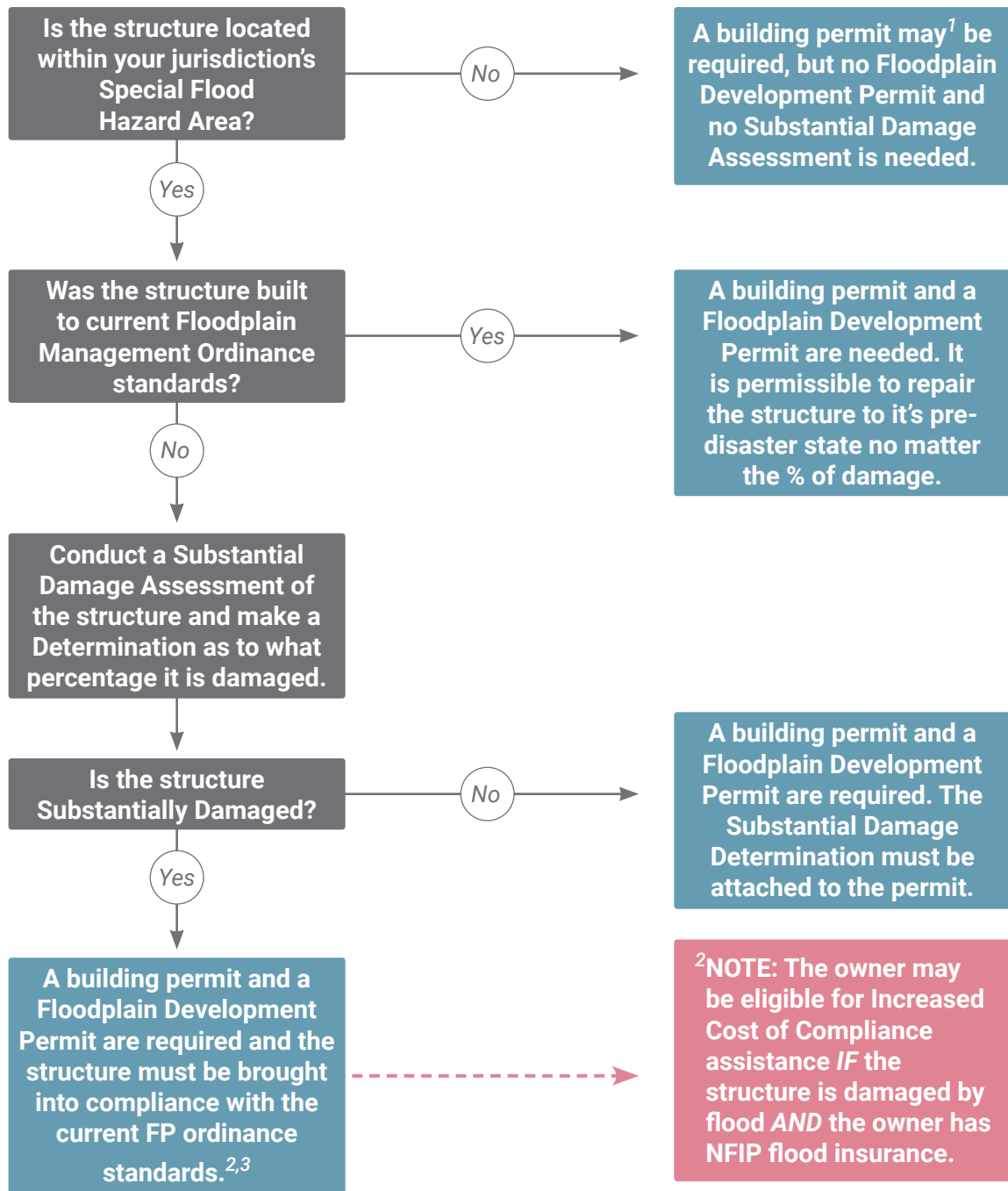


Figure 2: SDA and Permit Requirement Decision Tree:

**START:**



<sup>1</sup>Not all jurisdictions require building permits.

<sup>2</sup>NOTE: The owner may be eligible for Increased Cost of Compliance assistance IF the structure is damaged by flood AND the owner has NFIP flood insurance.

<sup>3</sup>NOTE: Reconstruction of a substantially damaged structure is new construction. No new habitable structures are permitted in the Floodway.

**Updates** continued from page 2.

floodproofing requirements. They meet ASCE's requirements, however, FEMA does not consider them to be impermeable nor able to resist flood loads; it is contrary to the NFIP requirements. It is one of only two interpretations where the NFIP is more restrictive than ASCE 24, the other is related to seepage. Also included is the American National Standard for Flood Mitigation Equipment, a suggested technical reference on floodproofing equipment and products that are tested for performance. The update includes more supplemental references than the 1993 version.

The bulletin discusses planning considerations for dry floodproofing, followed by individual categories. It gives a list of general concerns that should be considered before moving forward; local regulations, personnel safety, maintenance, operations, cleaning, site-specific conditions, and residual risk. The building should undergo an assessment beforehand for structural integrity to determine whether it is a good candidate for floodproofing. Owners should understand the residual risk, the risk remaining in case of failure of measures, what financial impacts it would lead to, and what can be offset by insurance. There are more considerations for flood warning time than before, emphasizing the site-specificity of each case, credible sources, flooding source, and the floodplain topography. The time is not how long it takes water to reach the height of floodproofing, but to reach the site and enter places where active measures have not been deployed. Each active measure implementation time must be considered in flood warning time. This includes notification, travel time, weather interference of deployment, installation, required tools, and evacuation.

The operations plan now includes a decision tree for the sequence and timeline, with triggers and

benchmarks that initiate the process. Additionally, there should be accompanying maps for storage locations, equipment, tools and materials for installations, as well as instructions. The inspection and maintenance plan section stresses the importance it plays in the success of floodproofing and that deficiencies in this area have played a significant part in floodproofing failure. The new considerations are following manufacturer recommendations for inspections and keeping their contact information updated. Owners are to examine inspection reports and make changes or repairs accordingly.

Previously, there were minimum engineering considerations: buoyancy, hydrodynamic and static forces and their engineering equations. For the design process in the update, measures must be designed and constructed with ASCE 24 or equivalent. They also recommend FEMA P-936 Floodproofing Non-Residential Buildings (2013) guidance. The section begins with a flowchart for designing floodproofing systems. The steps for creating a floodproof design is to first establish the Flood Design Class from ASCE 24 based on building use and risk to public if the building becomes damaged or impaired. Next, consider the flood loads, similar to the minimum considerations of the previous version. There are now considerations for wave loads, though floodproofing is still not allowed in V Zones or Coastal A Zones with a Limit of Moderate Wave Action. Combinations of these loads must also be considered.

There is guidance on assessing the existing building before designing such as cracks in the walls or foundation that could lead to seepage, strengthening walls and floors, installing waterproof membranes, and locating where sump pumps will be. Consider the soil of the site and its characteristics. Next, consider utility systems and equipment; will they

be elevated, protected by backflow valves, or repairable if below the flood protection level? Elevation is the best practice. Design of flood shields and deployment time must be decided if there are windows and or doors that will be below the protection level. Then, the waterproofing system that makes the building substantially impermeable to flood water, limiting the rate of seepage to no more than 4 inches/24 hour period without the use of water removal devices. For this, the anticipated seepage must be estimated. In addition to wall systems, seepage through joints and penetrations must be estimated; sealants may be of use. Seepage around flood shields depends on flood duration and quality of the seal. Drainage pathways for expected seepage should be specified, where drains and pumps will be installed. ASCE 24 requires sump pumps for water removal and should be installed at the lowest point; they cannot be completely relied on because the chance of power failure, back up emergency power is necessary. Lastly, the floodproofing certificate is certified by a licensed professional, and operations and maintenance plans should be reviewed with the building owner.

FEMA is supportive of additional technical references and standards, such as building codes and performance-tested products, that go above NFIP minimum standards. The update is more holistic and comprehensive, with in depth explanations of each topic's relationship to one another for better decision making and coordinating various concerns. The bulletin is clearer on how a building is appropriately floodproofed, compliant, and protected. ■

## Mark Your Calendar

### 05.11 Mapping Risk: The National Risk Index for Natural Hazards

12:00 pm - 1:00 pm

The Natural Hazards Center, in partnership with FEMA, has created free one-hour webinars that feature innovative speakers and highlight recent progress in mitigation policy, practice, and research, and are approved for CECs. To learn more, visit this [link](#).

### 05.19 - 20 ■ Tools of Floodplain Management Workshop

1:00 pm - 5:00 pm; 8:00 am - 3:00 pm  
Jefferson City, MO

9 CECs for CFMs. This workshop is a two-day course designed for local floodplain administrators. It covers various issues as well as day-to-day activities, incorporating updated NFIP information and forms. This course is designed to provide basic knowledge of the NFIP. More details to come at this [link](#).

### 05.12 - 13 ■ Rapid Needs Assessment

8:00 am - 4:45 pm  
Weeping Water, NE

This course provides information and resources that will enable participants to plan an effective Damage Assessment Program and conduct rapid and effective damage assessments in order to save lives, protect property and the environment, and begin the process of recovery and mitigation. To learn more, visit this [link](#).

### 05.20 □ Basic Floodplain Management

10:00 am - 3:00 pm

3 CECs for CFMs. This course will address the following topics: floodplain development permits and the permitting process, map reading, Letters of Map Amendment (LOMAs) and Letters of Map Revision Based on Fill (LOMR-Fs), and substantial damage. To register, visit this [link](#).

### 05.13 - 15 ■ Emergency Planning

8:00 am - 4:45 pm  
Seward, NE

This course is designed for emergency management personnel who are involved in developing an effective emergency planning system. This course offers training in the fundamentals of the emergency planning process, including the rationale behind planning. It will develop your capability for effective participation in the all-hazard emergency operations planning process to save lives and protect property threatened by disaster. Register by May 7. To learn more, visit this [link](#).

### 06.09 ■ Substantial Damage Estimator 3.0 Training

9:00 am - 5:00 pm  
Boonville, MO

8 CECs for CFMs. This course discusses use of the SDE 3.0 software tool. When structures located within the Special Flood Hazard Area are improved or damaged, an inspection by the Floodplain Administrator must be made. When a structure meets the definition of substantial improvement or is substantially damaged, specific flood hazard reduction regulations become effective. FEMA has developed SDE 3.0 to assist local officials. To learn more, visit this [link](#).

## May

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			19	20		

## June

Su	M	Tu	W	Th	F	Sa
			09			
				24		

### 06.24 □ Post Flood Responsibility

10:00 am - 11:00 pm

1 CECs for CFMs. This course will cover community responsibilities after a flood. Topics will include surveying damages, substantial damages, permits for repairs and other considerations. The format will be an online webinar using the Zoom software platform. To learn more, visit this [link](#).

## Want More Information?

Visit Our Floodplain Website at: <https://dnr.nebraska.gov/floodplain>

Or, Contact:

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