

be adopted if communities want to make development safer from flooding. These higher standards include a 2-foot freeboard, restricting uses in floodways, and implementing cumulative substantial damage. The optional standards include accessory structures and LOMR-F procedures. These higher and optional standards are clearly highlighted in the new model ordinances and can be removed if the community does not want to adopt them. Communities will have to review their ordinances closely before adopting them.

Third, language has been added and clarified in the violations and enforcement section of the ordinance. The added language more clearly identifies a violation and the remedies to correct it. The language also outlines a better path for the community to resolve the violation.

Fourth, the new model ordinances now include language that relates to 44 CFR 65.12, which requires any development that increases the base flood elevation in the floodway to obtain a Conditional Letter of Map Revision (CLOMR). A CLOMR requires an acknowledgement form to be filled out by community officials, and the updated language includes a requirement that the applicant supply the full CLOMR package to the floodplain administrator. This language will make it easier for communities to ensure major developments in floodways are done properly.

Lastly, the committee identified a need for clear language about the requirements for existing structures. While the existing ordinances already include requirements for non-substantially improved structures to obtain permits via the definition of development, the local officials on the committee asked to include language specifically calling out the need for property owners with existing structures in the floodplain to apply for permits to improve them. The existing structures language will help clarify the requirements for any property owner.

The new model ordinances will be required when communities update their own ordinances. Communities may take this opportunity to review their ordinance and consider adopting a new one with this template. The community's attorney and floodplain administrator should review each piece of the ordinance and ensure that it integrates into the broader set of community ordinances. Before adopting, the draft should be sent to NeDNR for review and approval. The final adopted ordinance will then be kept by FEMA.

The goal of updating the model ordinances is to make the documents more user friendly to the public, to floodplain administrators, and to community officials. This goal is accomplished by streamlining many sections of the model ordinances, making them easier to read and understand, and by providing higher and optional standards which communities can adopt, incorporate, and put into practice. It's important for the public to understand their requirements for permitting and constructing within the floodplain, for floodplain administrators to be able to engage permit applicants in making sound floodplain management decisions, and for community officials to have the means to ensure their community is minimizing flood risk. The new model ordinances assure these important aspects of floodplain management are more efficiently met.

Executive Order 13690 Is Revoked

By Shuhai Zheng, Ph.D., PE, CFM

On August 15, President Donald Trump signed Executive Order 13807 establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects. This new executive order also revoked President Obama's Executive Order 13690.

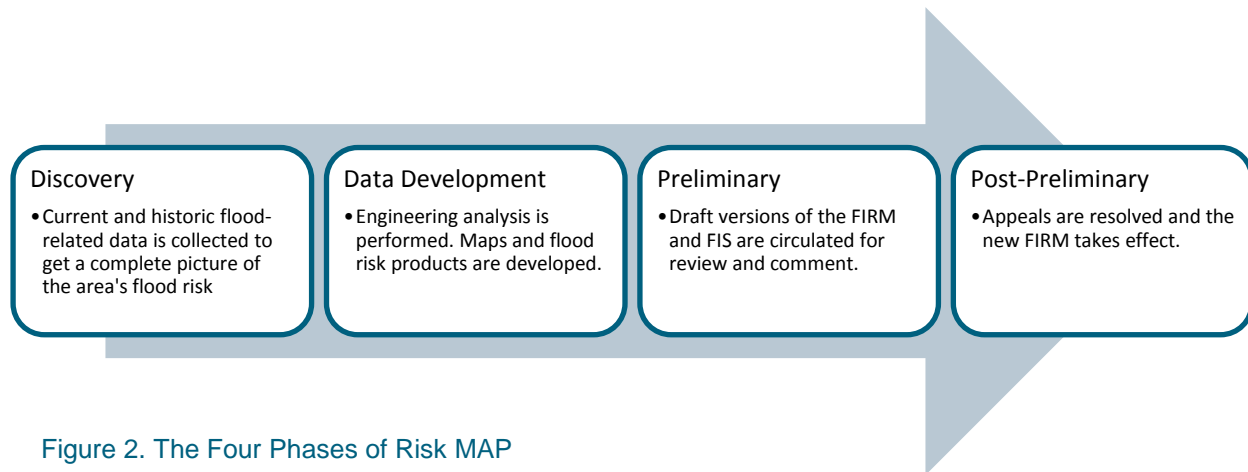


Figure 2. The Four Phases of Risk MAP

Phase II: Data Development

Data Development is the project phase where the engineering data is calculated, the draft maps and draft Flood Insurance Study are prepared, and Flood Risk Products are created. Data Development begins with a Kickoff Meeting for the project's potential stakeholders; these include, but are not limited to local Floodplain Administrators, CEOs, and Natural Resources Districts (NRDs). The purpose of the Kickoff Meeting is to engage the stakeholders, so they can have an active role in the Risk MAP project. During the Kickoff Meeting project specifics will be discussed, such as scope, engineering methods, schedule, and stakeholder roles.

At the Kickoff Meeting, NeDNR will ask the communities for information. The types of materials requested includes engineering studies or reports, historical flooding records, survey data, and upcoming infrastructure projects that could be incorporated into the mapping project. NeDNR will take information gathered at the meeting and begin working on the engineering analyses.

Hydrology

A hydrologic study is an engineering analysis that determines the amount of floodwater a stream will discharge for a given storm frequency. Typically, Risk MAP studies include 0.2%, 1%, 4%, and 10% annual chance floods. In a basic study, NeDNR uses regression equations to determine flow amounts for every stream in a project area that drains more than one square mile. In an enhanced study, NeDNR typically uses HEC-HMS, a program developed by the U.S. Army Corps of Engineers (USACE), which allows for a more detailed analysis of the timing of a storm.

Hydraulics

A hydraulic study is an analysis that takes the flood flow amounts from a hydrologic study, along with elevation and land use data, and determines flood elevations. In a basic study, NeDNR uses Nebraska's Flood Assessment Calculation Tool (NFACT) to perform normal depth calculations on bare earth with no structures. In an enhanced study, NeDNR uses HEC-RAS, a program developed by USACE, which allows structures, such as levees, bridges, and culverts, to be modeled. HEC-RAS also allows NeDNR to determine floodway encroachments.

Floodplain Mapping

Floodplain boundaries are determined by subtracting the flood water surface elevations from the ground elevations. Any place where the water surface elevation is higher than the ground elevation is included in the floodplain.

Flood Risk Products

Flood risk products are an extremely useful tool to help communities view and visualize their flood risk. These products allow communities to make informed decisions about reducing flood loss and mitigating potential damage from flood hazards. NeDNR typically provides three flood risk products for communities undergoing a Risk MAP project.

1. **Percent Annual Chance:** As an enhancement to the “in or out” format of the FIRM, the Percent Annual Chance grid provides local stakeholders with a better understanding of the relative probability that a given location in the floodplain will flood in any single year.
2. **Percent 30-year chance:** The Percent Chance of Flooding over a 30-year Period Grid shows the probability that a location in the floodplain will experience at least one flood event of any magnitude over the life of an average mortgage.
3. **Depth Grids:** This product illustrates how depth varies within a floodplain. The Flood Depth Grid is presented in a raster data file. Each raster cell indicates the flood depth at that location for the defined flood return period.

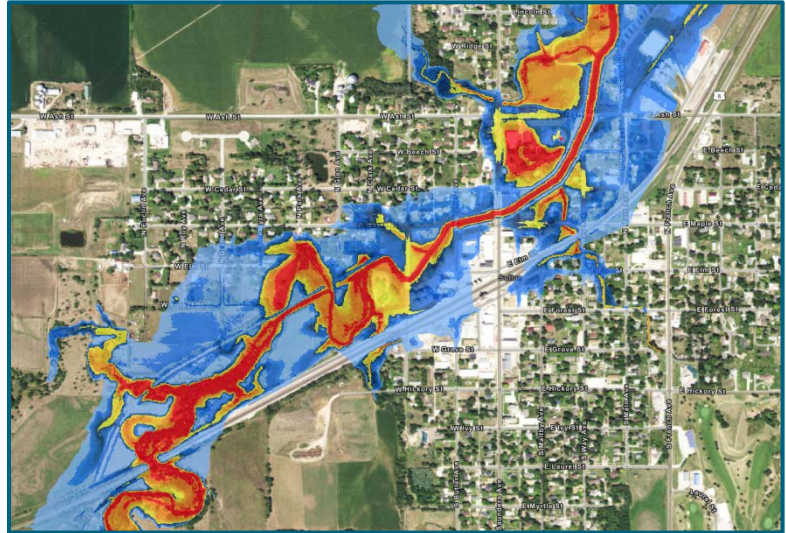


Figure 3. 1-percent Annual Chance Flood Depth Grid.

At the end of Data Development, NeDNR hosts a Flood Risk Review Meeting. The goal of this meeting is to present the results of Data Development with community stakeholders and to give them an opportunity to ask questions or make comments on the draft floodplain boundaries. It also allows for communities to view the flood risk products.

Flood Studies throughout the State

By Jamie Reinke, PE, CFM

The NeDNR Floodplain Management Section works with FEMA to update flood risk information for communities throughout the state. The FEMA program this work is completed under is called Risk Mapping Assessment and Planning (Risk MAP). Our department receives financial support from FEMA and conducts flood studies using Department staff, which is somewhat unique among state governments in the country. We use this opportunity to help connect flood study areas with floodplain management technical assistance and training.

Our goal in conducting Risk MAP projects for Nebraska is to deliver high quality data that increases public awareness of flood risk which leads to actions that reduce risk to life and property. We engage communities throughout the project to help them understand the new data, NFIP requirements, and the best ways to communicate risk to citizens.

Risk MAP projects focus both on watersheds and counties. The watershed-wide components include creating non-regulatory flood risk products, which are ways to show additional details as discussed in the above article. Communities throughout the watershed are part of the community engagement process for these projects. At the county level, Flood Insurance Rate Maps (FIRM) and Flood Insurance Studies (FIS), which are regulatory products, are produced as part of a Risk MAP project.

The FY2016 grant period ended September 29, 2017 and we completed tasks for the following projects:

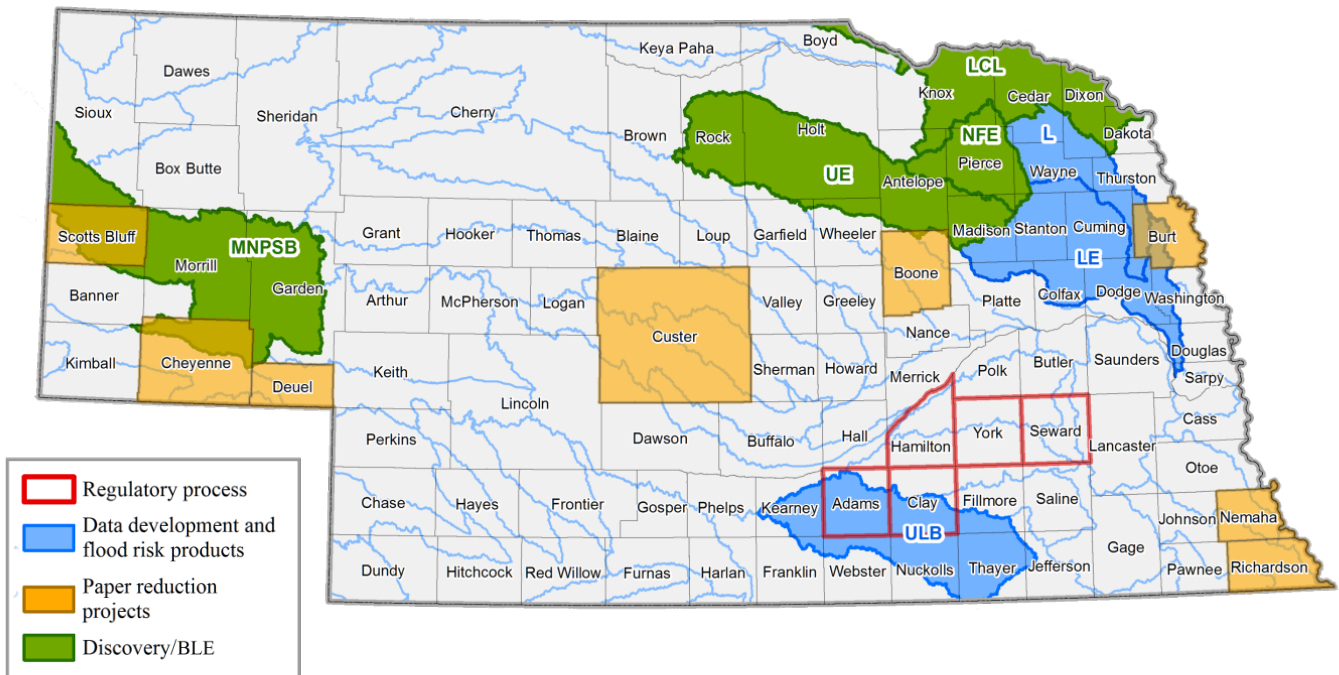
- **Adams & Clay Counties** – NeDNR continued to work through the regulatory process for both counties. The Appeals Period closed on September 19, 2017.
- **Hamilton & York Counties** – NeDNR began the regulatory process for both counties. Preliminary Flood Insurance Rate Maps (FIRMs) were distributed for Hamilton County on June 19, 2017. Preliminary FIRMs were distributed for York County on July 12, 2017. Public Open houses were held for both counties the week of September 25, 2017.
- **Upper Big Blue (Seward County)** – NeDNR finalized the floodplain mapping and flood risk product development. A Flood Risk Review meeting was held on September 19, 2017 to present the information to the project stakeholders.
- **Logan Creek Discovery** – NeDNR finalized the Discovery Report and the Base Level Engineering (BLE) analysis and included the boundaries in the Flood Awareness Area layer on the Floodplain Management Interactive Map (<http://maps.nebraska.gov/dnr/floodplain>).
- **Lower Elkhorn BLE** – NeDNR hosted a webinar on September 26, 2017 to present the BLE results to the communities. The BLE boundaries were also incorporated into the Flood Awareness Area layer on the Floodplain Management Interactive Map.
- **Middle North Platte – Scotts Bluff BLE** – NeDNR is working on the hydrologic and hydraulic calculations to develop the BLE boundaries.

During this grant period, we also studied several counties as part of a Paper Inventory Reduction (PIR) project. PIR projects are similar to Risk MAP projects, but have the goal of reducing the amount of paper FIRMs still in effect for counties. We are currently working on Data Development for PIR projects in Cheyenne, Deuel, Scotts Bluff, Burt, Nemaha, and Richardson Counties.

During the next grant period (ending September 30, 2018), we will be working on the following Risk MAP projects:

- **Adams & Clay Counties** – Finishing the regulatory process and issuing Effective FIRMs
- **Hamilton & York Counties** – Continuing the regulatory process.
- **Seward County** – Producing Preliminary FIRMs
- **Logan Creek** – Data Development; basic analysis for all streams that drain more than one square mile and enhanced studies for some streams in Randolph, Wakefield, and Wayne.

- **Lower Elkhorn** – Data Development; basic analysis for all streams that drain more than one square mile and enhanced studies for some streams in Dodge, Hooper, Snyder, Scribner, and West Point. The entire Elkhorn River is anticipated to be part of an enhanced study.
- **Upper Little Blue** – Data Development; basic analysis for all streams that drain more than one square mile for areas outside of Adams & Clay Counties and an enhanced study for the Little Blue River in Hebron.
- **Lewis & Clark Lake** – Discovery; this includes a BLE analysis for streams that drain more than one square mile.
- **North Fork Elkhorn** – Discovery; this includes a BLE analysis for streams that drain more than one square mile.
- **Upper Elkhorn** – Discovery; this includes a BLE analysis for streams that drain more than one square mile.
- **Middle North Platte – Scotts Bluff** – Discovery; this includes a BLE analysis for streams that drain more than one square mile.



During the upcoming grant period we will be starting PIR projects in Custer and Boone Counties, and continuing PIR projects in Cheyenne, Deuel, Scotts Bluff, Burt, Nemaha, and Richardson Counties.

Each of these county or watershed projects will extend several years and we will continue to update stakeholders of each project’s status. FEMA has only provided funding for the tasks described above and funding full mapping projects to effective status will depend on future federal funding.

Mark Your Calendar

If you have questions about any of these opportunities, please contact Chuck Chase.

Iowa Floodplain & Stormwater Management Association (IFSMA) Conference

October 12, Ankeny, IA.

This annual conference hosts the latest updates from practitioners in the floodplain management and stormwater fields. Registration is required. The fee is \$85 for members and \$125 for non-members.

To register as a member or non-member, visit this [link](#).

Post Flood Responsibility

October 31, El Dorado, KS, 8:30am-12:30pm; 3.5 CECs for CFMs.

This free half-day course is intended for community officials responsible for administering floodplain management regulations. The course focuses on what to do during and after a disaster event. Topics include substantial damage, permitting, Increased Cost of Compliance, and violations. Limited to 20 participants.

NeFSMA Membership Meeting

The Nebraska Floodplain and Stormwater Managers Association will hold their annual membership meeting on Thursday, November 16th at the Strategic Air & Space Museum in Ashland. You can learn more and register at www.nefsma.com.

Elevation Certificates and Letters of Map Amendment

November 16, Wichita, KS, 8:30am-12:30pm; 3.5 CECs for CFMs.

This free half-day class is designed for community officials responsible for administering floodplain management regulations, as well as surveyors and engineers who complete Letters of Map Amendment (LOMAs) and Elevation Certificate forms. The course will focus on accurate completion of FEMA technical forms, building diagrams, and Base Flood Elevations. Limited to 20 participants.

Community Rating System Hosted Webinars

With the release of the 2017 CRS Coordinator's Manual, Atkins Global is hosting a series of webinars at no cost. The series provides training opportunities to communities that do not currently participate in the CRS, local government staff who are new to the CRS, and local government staff with experience in the CRS. The series includes basic introductory sessions and more advanced topics, most averaging about an hour in length. All classes begin at 12:00pm, Central Time. To register, visit this [link](#) and type "CRS" in the search field.

- Introduction to the CRS: October 17
- Developing a CRS Program for Public Information (PPI): October 18

CFM Exams:

November 4, 2017 Jefferson City, MO [Karen McHugh, CFM](#)

WANT MORE INFORMATION?

Visit NeDNR's Floodplain Website at
<https://dnr.nebraska.gov/floodplain>

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