Welcome to the Statewide Flood Hazard Mitigation Plan Update

Planning Committee Meeting

4/12/2022



WELCOME & INTRODUCTIONS



STUDY TEAM

Nebraska Department of Natural Resources

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AGENDA

- **01** Welcome and Introductions
- 02 Upcoming Public Meetings
- 03 Overview of SFHMP Document
- 04 Next Steps



02 UPCOMING PUBLIC MEETINGS



- Meets statutory requirements
 - 61-228 State flood mitigation plan; department; duties. The Department of Natural Resources shall: ... (8) Hold two public hearings, one prior to the first state flood mitigation plan development meeting and one prior to the completion of such plan. Notice of each hearing shall be published at least thirty days prior to the hearing date.

Source: Laws 2020, LB632, § 12. Effective Date: November 14, 2020

Goals:

- Facilitate review of Plan and receive comments
- Build public awareness of flood hazard resources at State level



- Open house format with staffed information stations:
 - Flood Insurance Claims Analysis
 - Funding/Recovery Resources
 - Flood Risk Maps
 - Mitigation Actions
 - DNR Website Demo
 - Draft Plan/Comments



- Lincoln: April 26, 2022; 11:00 a.m.-1:00 p.m. CDT (public hearing to begin at 12 p.m.), Auld Pavilion, 1650 Memorial Drive
- **Kearney:** April 26, 2022; 5:00 p.m.-7:00 p.m. CDT, Yanney Heritage Park, 2020 W 11th St
- Scottsbluff: April 27, 2022 11:00 a.m.-1:00 p.m. MDT, Lied Scottsbluff Public Library, 1809 3rd Avenue, Community Room
- Norfolk: April 28, 2022 11:00 a.m.-1:00 p.m. CDT,
 Norfolk Public Library, 309 North 5th Street, Meeting Room A
- Fremont: April 28, 2022 5:00 p.m. 7:00 p.m. CDT, Fremont City Auditorium, 925 North Broad Street, Community Room West



- Draft Plan made available April 11, 2022
- Comments received until May 11, 2022
- Collected comments then considered for potential plan revisions prior to finalizing draft by June 1, 2022.

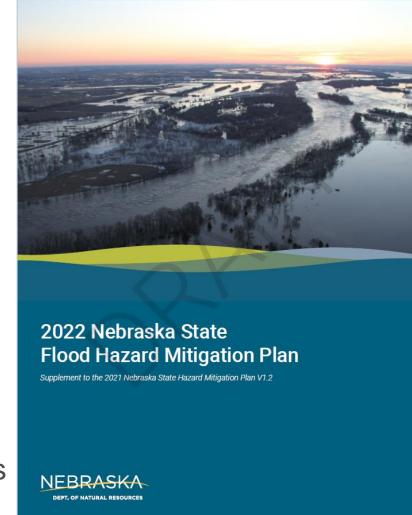


03 OVERVIEW OF State of Nebraska Flood Hazard Mitigation Plan DOCUMENT



PLAN DOCUMENT

- 1. Introduction
- 2. Planning Process
- 3. Risk Assessment
- 4. Mitigation Strategy
- 5. Recovery and Funding Resources
- 6. Capabilities and Challenges of Nebraska Flood Hazard Mitigation Programs
- Appx A: Participating Agencies and Stakeholder Organizations
- Appx B: Risk Assessment Supplemental Content
- Appx C: Flood Mitigation Strategies and Practices Project Sheets





1. INTRODUCTION

- Purpose and objectives
- Statutory requirements and compliance
- Authorities



1. INTRODUCTION

Nebraska Revised Statute §61-228	Location in Plan:
(1) Evaluate the flood issues that occurred in 2019, and identify cost-effective flood mitigation strategies	Section 3.4 Historic Flood EventsSection 4.0 Mitigation Strategy
(2) Identify opportunities to implement flood hazard mitigation strategies with the intent to reduce the impact of flood events;	 Section 4.2 Mitigation Actions Appendix C – Flood Mitigation Strategies and Practices Project
(3)improve knowledgeof available recovery resources while identifying potential gaps in current disaster program delivery;	Section 5 Recovery and Funding SourcesSection 6 Capabilities and Challenges of Nebraska Flood Hazard Mitigation Programs
(4) Identifyfunding sources that can be accessed to improve the resilience of the state through flood mitigation and post-flood disaster recovery. The funding sources shall include, but not be limited to [FEMA FMA, BRIC, HMGP, PA, IA, HUD CDBG, USDA NRCS]	 Section 5 Recovery and Funding Sources Additionally, common funding issues and challenges faced by local communities summarized in Section 6 Capabilities and Challenges of Nebraska Flood Hazard Mitigation Programs.
(5) Compile a centralized list of critical infrastructure and state-owned facilities and identify those with the highest risk of floodingconsultother state and local agencies that have information that identifies vulnerable facilities;	 A database of critical infrastructure and state-owned facilities was created with input from local hazard mitigation planning areas and state agencies. Section 3.5 Flood Risk Assessment.
(6) Evaluate state laws, rules, regulations, policies, and programs related to flood hazard mitigation	Section 6 Capabilities and Challenges of Nebraska Flood Hazard Mitigation Programs
(7) Examine existing law and, if necessary, recommend statutory or administrative changes	Section 6.5 Evaluation of Regulatory Framework
(8) Hold two public hearings, one prior to the first state flood mitigation plan development meeting and one prior to the completion of such plan. Notice of each hearing shall be published at least thirty days prior to the hearing date.	• Section 2 Planning Process NEBRASKA

DEPT. OF NATURAL RESOURCES

2. PLANNING PROCESS

- Review of plan history and development
- Summary of planning process
- Coordination with other agencies
- Integration with other planning efforts



- Flood hazard overview
- Flood hazard types
- Flooding history
- Flood Risk Assessment
- Flood Insurance Claims Analysis



Two sources of information for Flood Risk Assessment

- National Risk Index (NRI)
 - FEMA's national database of records of flood occurrence since 1950
 - Data used to calculate an annualized frequency for riverine flooding and risk exposure:
 - Structures
 - Population
 - Agriculture
 - Expected annual loss (qualitative/relative)
 - Flood risk rating (qualitative/relative)



Two sources of information for Flood Risk Assessment

- GIS-Based Risk Assessment
 - NeDNR GIS tool currently being developed
 - Relies on databases specific to Nebraska compiled from federal, state, and local agencies
 - Potential hazards evaluated:
 - Riverine flooding
 - Areas protected by levees
 - Dam breach



Two sources of information for Flood Risk Assessment

- GIS-Based Risk Assessment (cont.)
 - Potential impacts evaluated
 - Total risk exposure in floodplain
 - Critical facilities
 - Roadways and bridges
 - Railroads
 - Electric Transmission lines
 - Agricultural Lands
 - T&E Species Ranges
 - Wetlands
 - Cultural/Historical Properties
 - Results summarized in heat maps, top 10 counties for each category, and full county summary in Appendix B

 NFBRASKA

Figure 21: Number of Structures Located within Floodplain

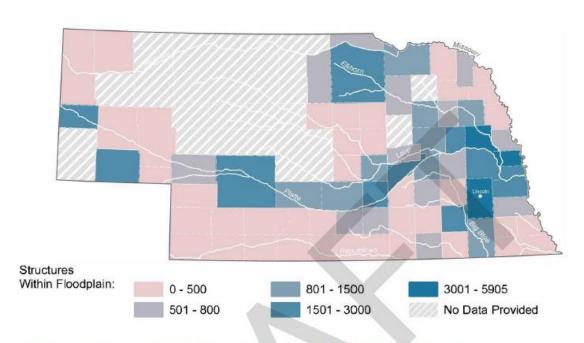


Table 20: Top 10 Nebraska Counties by Number of Structures Within Floodplain

Rank	County	Total Number of Structures within Floodplain
1.	Douglas	5905
2.	Dodge	5137
3.	Lancaster	4798
4.	Scotts Bluff	2877
5.	Merrick	2551
6.	Hall	2227
7.	Sarpy	2197
8.	Lincoln	2092
9.	Holt	1892
10.	Colfax	1834



4.0 MITIGATION STRATEGIES

- Mission, goals, and objectives
- Mitigation Actions by category
- Prioritization
- Monitoring and documentation
- Repetitive Loss strategy
- Summary of previous and ongoing mitigation activities



Table 39: State of Nebraska 2022 flood hazard mitigation goals

Table 39. State of Nebraska 202.	
Goal	Objectives
	Objective 1.1: Promote and support initiatives that protect or exclude human habitation in flood zones. Objective1.2: Improve emergency communication and
Goal 1: Reduce or eliminate long term flood risk to human	flood warning systems. Objective 1.3: Manage development and growth to minimize flood risks.
life and property.	 Objective 1.4: Reduce, remove, or mitigate existing structures in flood hazard areas.
	Objective 1.5: Identify opportunities to mitigate vulnerable state facilities, local critical facilities, and other lifeline-related facilities.
	Objective 2.1: Encourage the use of green and natural infrastructure and promote resilient and sustainable construction to reduce vulnerabilities.
Goal 2: Preserve and enhance the natural and beneficial	 Objective 2.2: Encourage integration of future climate trends in planning and design.
functions of floodplains.	 Objective 2.4: Promote the continued use of natural systems and features and open space preservation in land use planning and development by local jurisdictions.
Goal 3: Promote public awareness of flood hazards and post-flooding response.	Objective 3.1: Provide educational opportunities to the public to learn about flood risk, flood mitigation, floodplain management, and post-flooding response.
	Objective 4.1: Provide technical assistance to communities, state agencies, and federal agencies to assist with flood hazard identification.
Goal 4: Coordinate with federal, state, and local	Objective 4.2: Provide best available floodplain mapping and regulatory data for floodplain management and hazard mitigation planning purposes.
partners for flood mitigation planning and program efforts.	 Objective 4.3: Coordinate with state and federal agencies regarding disaster response.
	Objective 4.4: Coordinate with state and local agencies on mitigation efforts and promote resiliency and sustainability.



4.0 MITIGATION STRATEGIES

- Mitigation Actions aligned with FEMA's mitigation action categories:
 - Structure and Infrastructure
 - Natural System Protection
 - Education and Awareness Programs
 - Local Plans and Regulations



5.0 RECOVERY AND FUNDING RESOURCES

- Summary of recovery and mitigation funding sources
 - Federal agencies and programs
 - State agencies and programs
 - Other Funding program sources



6.0 CAPABILITY AND CHALLENGES OF NEBRASKA FHM PROGRAMS

- State Capability: Looks at authorities, policies, and programs of state agencies.
- Federal Capability: Summarizes the programs of federal agencies primarily engaged in flood hazard mitigation in Nebraska and challenges to state/federal coordination
- Local Capability: Describes the policies, programs, and capabilities typical of local communities in Nebraska, and the challenges faced by local communities
 - Challenges to state, federal, and local capabilities were identified through the stakeholder engagement and surveys conducted through this planning process



6.0 CAPABILITY AND CHALLENGES OF NEBRASKA FHM PROGRAMS (CONT.)

- Lessons learned
- Evaluation of Nebraska's regulatory framework
- Plan Maintenance process



APPENDIX A - PARTICIPANTS

Summary of stakeholders engaged in planning process



APPENDIX B - RISK ASSESSMENT

- County by County tabular results of risk assessments, including
 - Results from the NRI Risk Assessment
 - Results from the Flood Insurance Claims analysis
 - Results from GIS-based tool analysis



Table B-5: State FHM GIS Data Sources

File Name	Data Type	Description	Source	Source URL	Acquisition Date
Railroad	Polyline	Railroad	North American Rail Lines USDOT BTS	https://hub.arcgis.com/dat asets/usdot::north- american-rail-lines/explore	3/5/2019
Electric Transmission Line	Polyline	Electric Power Transmission Line	Homeland Infrastructure Foundation- Level Data (HIFLD)	https://hifld- geoplatform.opendata.arcg is.com/datasets/electric- power-transmission-lines	1/1/2021
Levee Centerline	Polyline	Levee Centerlines	NeDNR	-	5/1/2021
Cultural Resource Building Point	Point	National Register Historic Places Public Dataset	National Parks Service (NPS)	https://irma.nps.gov/DataS tore/Reference/Profile/221 0280	3/3/2021
Cultural Resource District Point	Point	National Register Historic Places Public Dataset	NPS	https://irma.nps.gov/DataS tore/Reference/Profile/221 0280	3/3/2021
Cultural Resource Structure Point	Point	National Register Historic Places Public Dataset	NPS	https://irma.nps.gov/DataS tore/Reference/Profile/221 0280	3/3/2021
Cultural Resource Object Point	Point	National Register Historic Places Public Dataset	NPS	https://irma.nps.gov/DataS tore/Reference/Profile/221 0280	3/3/2021
Cultural Resource Historic Building Polygon	Polygon	National Register Historic Places Public Dataset	NPS	https://irma.nps.gov/DataS fore/Reference/Profile/221 0280	3/3/2021
Cultural Resource Historic District Polygon	Polygon	National Register Historic Places Public Dataset	NPS	https://irma.nps.gov/DataS tore/Reference/Profile/221 0280	3/3/2021
Cultural Resource Historic Site Polygon	Polygon	National Register Historic Places Public Dataset	NPS	https://irma.nps.gov/DataS tore/Reference/Profile/221 0280	3/3/2021
Cultural Resource Historic Object Polygon	Polygon	National Register Historic Places Public Dataset	NPS	https://irma.nps.gov/DataS tore/Reference/Profile/221 0280	3/3/2021
Municipal Limits	Polygon	2019 Tiger File City Boundaries	US Census Bureau	https://www.census.gov/g eo/maps- data/data/tiger.html	1/1/2019
Wetland NWI	Polygon	US Fish Wildlife Service Wetland Boundaries	US Fish and Wildlife Service (USFWS)	https://www.fws.qov/wetla nds/data/data- download.html	5/29/2019
	 		(55. 115)	https://www.copous.gov/g	



Table B-6: Critical Facilities¹ and Other Assets at Risk of Riverine Flooding²

Table B-0. CIT	able B-6: Critical Facilities' and Other Assets at Risk of Riverine Flooding																			
	Natu	ral and Cultural	Assets	Population	Stru	ctures	Land Use	Emerg	ency	Dams an	d Levees							Utilities		
		Threatened and										Roadway	y ¹⁶ (miles)	Br	idges and Culverts (count)		ela atula		Total Values of
County	Wetlands ⁵ (acres)	Endangered Species Range ⁶ (acres)	Cultural Resources ⁷ (count)	Vulnerable Population ⁸ (count)	State Owned ⁹ (count)	Local or Privately Owned ¹⁰ (count)	Agricultural Lands ¹¹ (acres)	Emergency Management ¹² (count)	Emergency Response 13 (count)	Dams ¹⁴ (count)	Levees ¹⁵ (miles)	State	Local	State Bridges ¹⁹	State Culverts ²⁰	Local	Railroad ¹⁷ (miles)	Electric Transmission Lines ¹⁸ (miles)	Other ³ (count)	Improvements at Risk ⁴ (\$)
Adams	3,946	40,206	1	1	0	671	23,324	2	2	21		5.5	99.6	9	10	179	10.6	26.9		\$49,228,153
Antelope	7,154	64,728	4		0	786	32,954			6		22.5	150.9	13	11	96	14.3	32.5		\$31,252,035
Arthur ²¹	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,-																		, - , ,
Banner ²¹																				
Blaine ²¹	0	0																		
Boone ²¹	0	4					0.3						0.9			2				
Box Butte ²¹																				
Boyd	11,163	35,870	1		0	527	4,792		1	19		6.0	50.9	6	11	41		3.3		\$6,880,900
Brown ²¹																				
Buffalo	19,525	88,065	2	1	0	1485	26,154	1	2	50		12.7	156.8	37	24	257	3.7	49.9		\$181,356,355
Burt	6,390	68,488	1	1	0	271	55,131		_1	13	0.7	8.1	69.2	15	9	97	6.4	18.4		\$3,229,214
Butler	4,973	41,772	4		0	792	23,143			41	0.0	12.9	111.9	19	13	167	7.7	6.8	1	\$23,179,215
Cass	7,717	40,443	2		0	1532	17,122	2	5	29	15.1	6.3	91.7	40	10	146	34.7	12.1		\$146,019,276
Cedar	7,273	50,113	1		0	472	33,201	1		6		13.8	107.7	27	16	144		9.5		\$19,569,430
Chase	4,256	14,267	1		0	36	4,413			14		1.1	17.9	3	3	20	1.4	3.9		\$1,428,647
Cherry ²¹																				
Cheyenne	3,320	80,973	5	1	0	1597	46,130		2	14	0.0	18.6	165.5	16	24	70	18.7	13.2		\$90,234,501
Clay	8,559	39,741	0		0	252	21,583			28	1.0	12.2	113.0	8	9	102	7.8	11.9		\$11,973,735
Colfax	4,813	62,006	1		0	1834	38,416	2		7	4.1	10.4	172.0	13	3	172	5.2	6.0		\$106,872,450
Cuming	7,057	55,260	0		0	1169	33,554	4	2	2	2.2	27.4	145.2	24	10	218		4.3	2	\$77,709,083
Custer ²¹	0	3					0						0.0							



Washington	4,468	54,037	2	0	730	36,414	1	30	0.6	7.4	92.7	21	5	86	10.4	19.1	\$130,096,470
Wayne	1,775	19,605	1	0	42	13,620		6		3.9	44.8	17	12	167		8.1	\$4,530,390
Webster	6,596	43,329	8	0	183	16,613		249		8.5	65.7	15	21	125	6.6	5.4	\$6,293,995
Wheeler	5,716	14,067	0	0	78	1,509		8		2.1	16.3	2	1	9		0.4	\$1,700,095
York	5,276	36,419	1	0	765	22,752	1	14		4.8	103.3	14	11	126	1.8	10.0	\$26,745,539

¹ Critical Facilities includes but is not limited to: hospitals; fire stations; police stations; vehicle and equipment storage locations; critical records storage locations; utility and transportation infrastructure; locations that produce, use, or store hazardous materials; and similar. A critical facility should not be located in a floodplain if at all possible. If location within a floodplain is unavoidable, then the facility should be protected from flooding to a level that will ensure its continued function during and after a flood. FEMA. FEMA 426, "Reference manual to Mitigate Potential Terrorist Attacks Against Buildings," (December 2003). Also https://www.fema.gov/glossary/critical-facility

- 2 Levee Protected Areas are based on data provided by the USACE National Levee Database and represents areas protected from flood risk by federal and local levees.
- 3 Other category includes features included in the critical facility database that didn't fall within defined categories. Typical Other features include post offices, parks and recreation facilities, and museums.
- ⁴ Total value of improvements was estimated based on the appraised value of improvements on parcels located within the riverine flooding limits. The State parcel database was used for estimating value of improvements.
- ⁵ Wetland areas are based on data from the USFWS National Wetland Inventory.
- 6 Threatened and Endangered Species Range areas are based on mapping for state and federal T&E species range data from the Nebraska Game and Parks Commission.
- ⁷ Cultural Resources are features with significant cultural or historical value. Data is from the National Register of Historic Places dataset of the National Park Service.
- 8 Vulnerable Populations data was derived from the state-wide Critical Facility database, as well as the state-wide public and private school databases. Typical vulnerable populations include schools, daycares, and assisted living facilities.
- 9 State Owned structure data was provided the Nebraska Department of Administrative Services.
- 10 Locally or Privately Owned structure data came from the state parcel database, as well as the Microsoft U.S. building footprint database.



APPENDIX C - PROJECT PAGES

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Natural Stormwater Best Management Practices (BMPs)

WHAT

Natural stormwater best management practices (BMPs) are practices that use bioengineering and vegetative approaches to treat, prevent, or reduce stormwater runoff. Examples include rain gardens, stormwater wetlands, bioretention features/facilities, and vegetated filter strips.

WHFRF

This mitigation action is applicable to new development and redevelopment and is therefore more common in urban areas. Natural stormwater BMPs include temporary construction measures and permanent (post-construction) measures. A common construction BMP is a silt fence placed to control erosion of disturbed soils. An example of a permanent or post-construction BMP is a wet or dry pond that provides runoff storage and reduces downstream peak discharges.

WHY

Natural stormwater BMPs improve water quality and reduce runoff through storage, infiltration, and/or evaporation. Selection of BMPs is context-sensitive, and the advantages or benefits also vary based on application. Potential benefits include reduced pollutants, reduced flooding, increased water supply, reduced watering/irrigation costs, and infrastructure cost savings. Natural stormwater BMPs complement community parks and open spaces, enhancing recreational use. Natural stormwater BMPs also provide wildlife and other natural habitat benefits.

HOW

A natural stormwater BMP program includes the following actions:

- · Address construction and post-construction periods
- · Protect natural streams, wetlands, and adjacent property
- Design and construct natural measures that limit peak runoff and impacts to downstream channels and stormwater features as part of building permit/platting approvals
- Inspect and maintain BMPs

COST CONSIDERATIONS AND BENEFITS

Costs to construct BMPs are borne by the owner/developer. Communities should also integrate natural BMPs into public works and engineering projects where applicable. Compared to traditional stormwater management infrastructure, natural BMP construction costs are typically less costly. Maintenance of natural BMPs may be required more frequently. While they generally require less capital cost, maintenance can be more time and labor intensive due to the landscaping (weeding, mulching, replanting) required to maintain the health of natural BMPs. Responsibility for maintenance costs of the BMPs will vary based on ownership and other factors. Responsible parties might include individual property owners, developers, sanitary and improvement districts (or other similar entities), and municipalities.

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Natural Stormwater Best Management Practices (BMPs)

RESOURCES



Bioswales are depressions that contain vegetation and allow for storage, infiltration, and evaporation of direct rainfall and surface runoff from adjacent areas.

Source: U.S. EPA, Different Shades of Green, October 2016.



Rainwater gardens are depressed landscape areas planted with grasses, flowers, and other plants that collect runoff from adjacent areas and allows it to infiltrate.

Source: U.S. EPA, Different Shades of Green, October 2016



Planter boxes have vertical walls and open or closed bottoms. They are well-suited to collect and absorb runoff in dense urban areas where limited space is available.

Source: U.S. EPA, Different Shades of Green, October 2016.

AGENCY/ COMMUNITY	GENERAL OR PROGRAM RESOURCES	BMP AND RELATED RESOURCES
EPA	National Pollutant Discharge, Elimination System (NPDES)	National Menu of Best Management Practices (BMPs) for Stormwater Construction BMPs Post-Construction BMPs
City of Omaha	Gmaha Stomwater	Construction • See Construction Downloads – Stormwater BMP Field Guide – 2018 <u>Post-Construction</u> • BMP Design, Certification, and Inspection Resources
City of Lincoln	Watershed Management	Beguitements and Procedures Post-Construction SMPs.
City of Grand Island	Stormwater Management Plan	Post Construction Stormwater BMP Master Plan
City of Kearney	Stormwater Management Overview Post-Construction Stormwater, Management Program Overview	Acceptable Stormwater Treatment Facilities (STFs)



PLAN DOCUMENT







- Draft Plan available now through May 11, 2022:
 - https://dnr.nebraska.gov/floodplain/nebraska-flood-hazardmitigation-plan
 - Review/comment form in upper right corner of webpage



04 NEXT STEPS



- Lincoln: April 26, 2022; 11:00 a.m.-1:00 p.m. CDT (public hearing to begin at 12 p.m.), Auld Pavilion, 1650 Memorial Drive
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- Fremont: April 28, 2022 5:00 p.m. 7:00 p.m. CDT, Fremont City Auditorium, 925 North Broad Street, Community Room West



PLAN DOCUMENT

- Comment period closes May 11, 2022
- Comments will be compiled, reviewed, and potential plan revisions considered
- Final plan document will be submitted to Legislature and FEMA simultaneously: June 1, 2022



MEETING TOPICS

ිලදු Meeting	Meeting Topic	
Kickoff Meeting (July 23)	Introduction and PurposePublic Meeting Recap	Flood Types and Flood HistoryNext Steps
Meeting #2 (August 10)	Recovery and Funding SourcesAssessment of Opportunities for Improvement	· Plan Maintenance Process
Meeting #3 (October 12)	· Flood Impact Analysis, Pt. 1	· Mitigation Strategy, Pt. 1
Meeting #4 (December 14)	· State Capability Assessments	· Regulatory Framework Evaluation
Meeting #5 (February 8)	Flood Impact Analysis, Pt. 2Mitigation Strategy, Pt. 2	 Coordination with Local Mitigation Planning
Meeting #6 (TODAY)	· Draft Plan Review	
Meeting #7 (if needed)	· Public Hearing Recap	· Final Draft Plan Approval



Visit the website to access the online meeting, more information, links

https://dnr.nebraska.gov/floodplain/nebraska-flood-hazard-mitigation-plan

QUESTIONS?

