

An aerial photograph showing a bridge crossing a wide, muddy river. The bridge is partially collapsed or damaged, with a large section missing. A road on the left side of the river is closed, indicated by several orange traffic barrels. A few people are standing on the remaining part of the road near the bridge. The surrounding area is lush with green trees and grass.

FLOOD MITIGATION CONCEPTS & FUNDING

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AGENDA

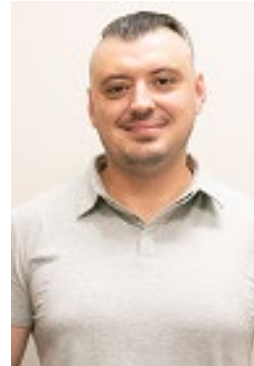
- 01 Welcome and Introductions
- 02 Flood Mitigation Concepts
- 03 Resources
- 04 Grant Application Tips
- 05 NEMA's Role and Resources

01 WELCOME & INTRODUCTIONS



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02 FLOOD RISK

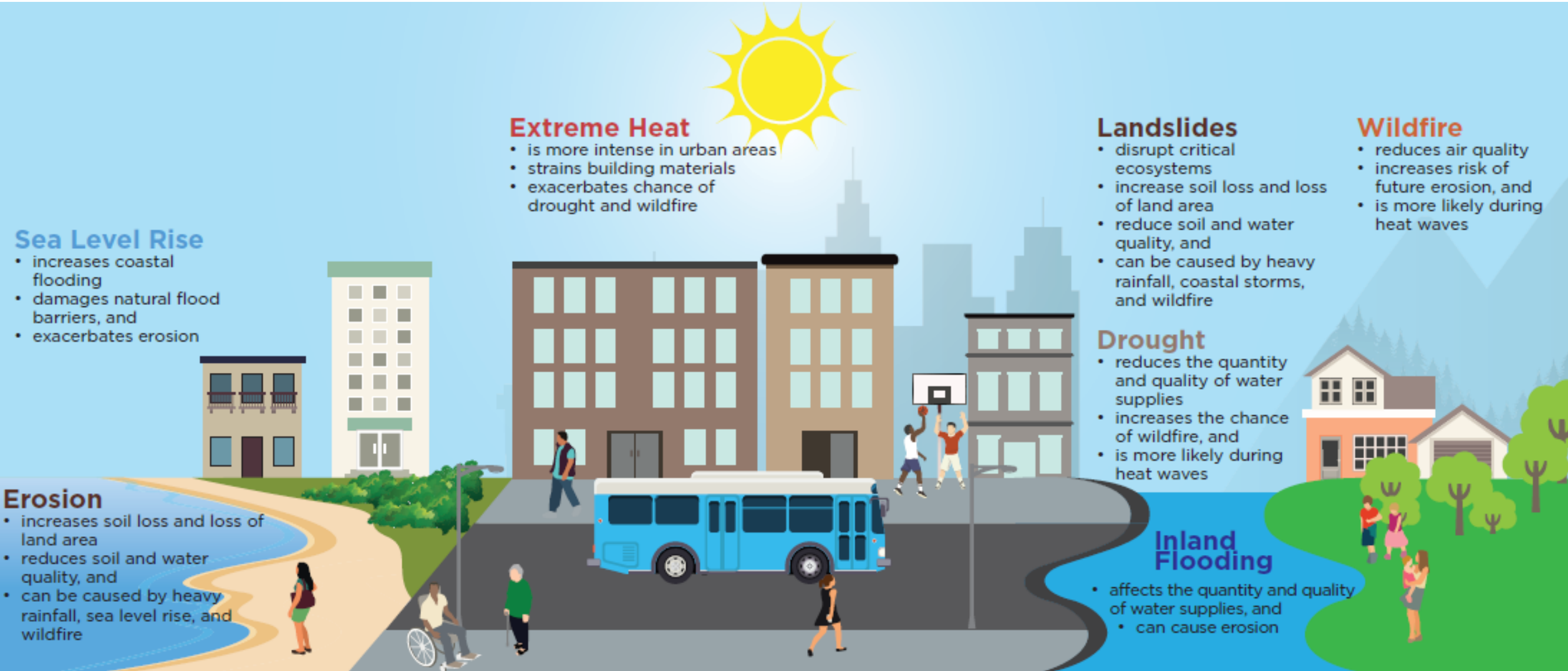


- Floodplains are inherently hazardous
- Flooding is the most frequently reported hazard in Nebraska
- 30-year mortgage: a floodplain residence has 26% chance of flooding
- Climate models show that NE is getting wetter*, and
- Storm events will:
 - ↑ Frequency
 - ↑ Scale and Intensity
 - ↓ Predictability

02 FLOOD RISK *REDUCTION*

- Life and property safeguarded
- Quality of life improves
- Natural floodplain functions preserved
- Flood insurance costs decrease
- Local economy benefits
- Community resilience improves

02 COMPLEX HAZARDS



Sea Level Rise

- increases coastal flooding
- damages natural flood barriers, and
- exacerbates erosion

Erosion

- increases soil loss and loss of land area
- reduces soil and water quality, and
- can be caused by heavy rainfall, sea level rise, and wildfire

Extreme Heat

- is more intense in urban areas
- strains building materials
- exacerbates chance of drought and wildfire

Landslides

- disrupt critical ecosystems
- increase soil loss and loss of land area
- reduce soil and water quality, and
- can be caused by heavy rainfall, coastal storms, and wildfire

Drought

- reduces the quantity and quality of water supplies
- increases the chance of wildfire, and
- is more likely during heat waves

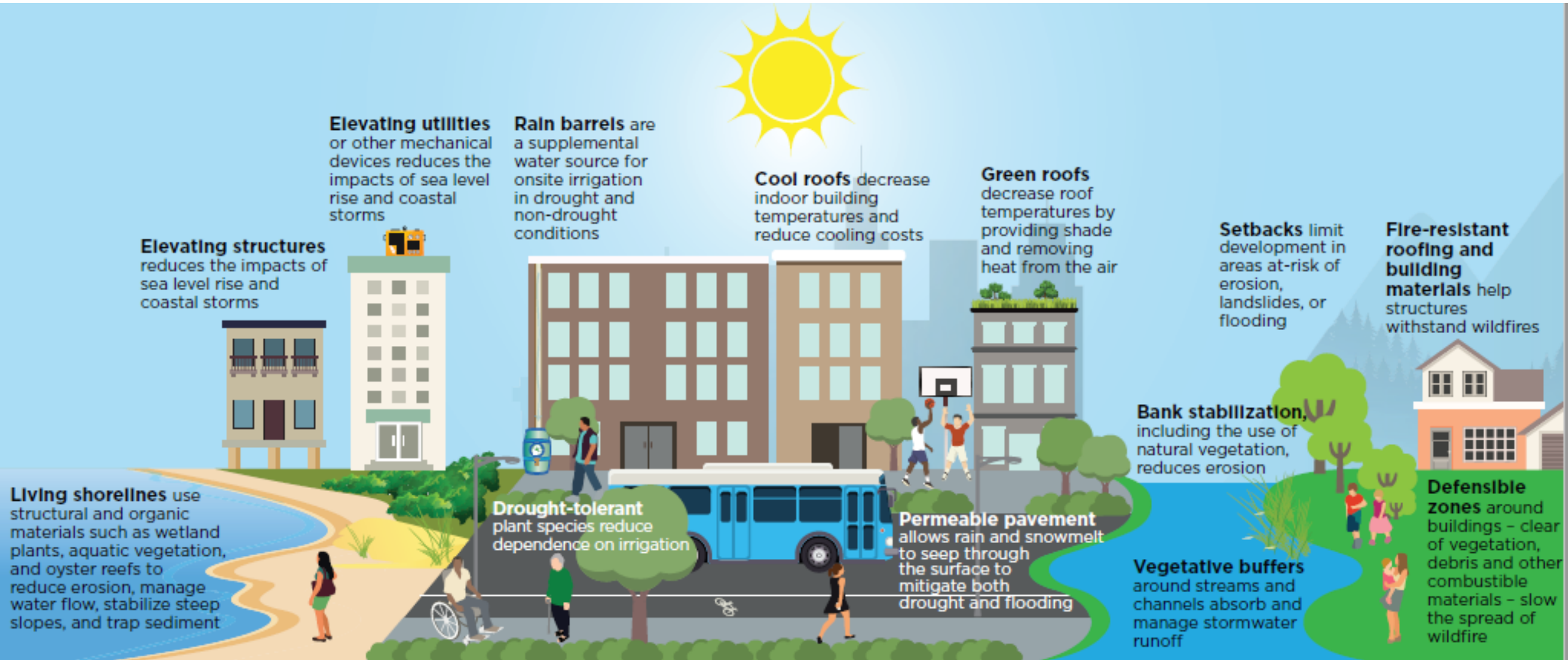
Wildfire

- reduces air quality
- increases risk of future erosion, and
- is more likely during heat waves

Inland Flooding

- affects the quantity and quality of water supplies, and
 - can cause erosion

02 MITIGATION



Elevating structures reduces the impacts of sea level rise and coastal storms

Elevating utilities or other mechanical devices reduces the impacts of sea level rise and coastal storms

Rain barrels are a supplemental water source for onsite irrigation in drought and non-drought conditions

Cool roofs decrease indoor building temperatures and reduce cooling costs

Green roofs decrease roof temperatures by providing shade and removing heat from the air

Setbacks limit development in areas at-risk of erosion, landslides, or flooding

Fire-resistant roofing and building materials help structures withstand wildfires

Living shorelines use structural and organic materials such as wetland plants, aquatic vegetation, and oyster reefs to reduce erosion, manage water flow, stabilize steep slopes, and trap sediment

Drought-tolerant plant species reduce dependence on irrigation

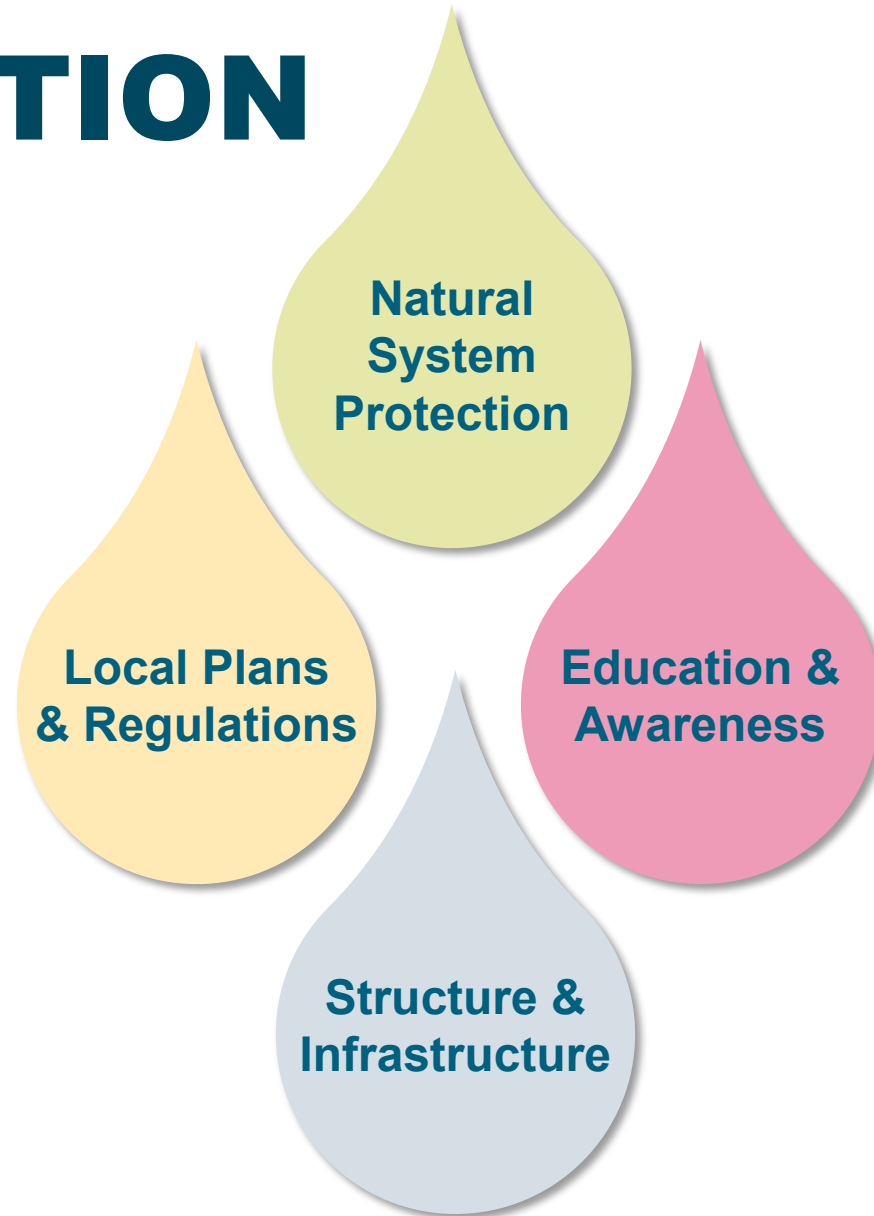
Permeable pavement allows rain and snowmelt to seep through the surface to mitigate both drought and flooding

Bank stabilization, including the use of natural vegetation, reduces erosion

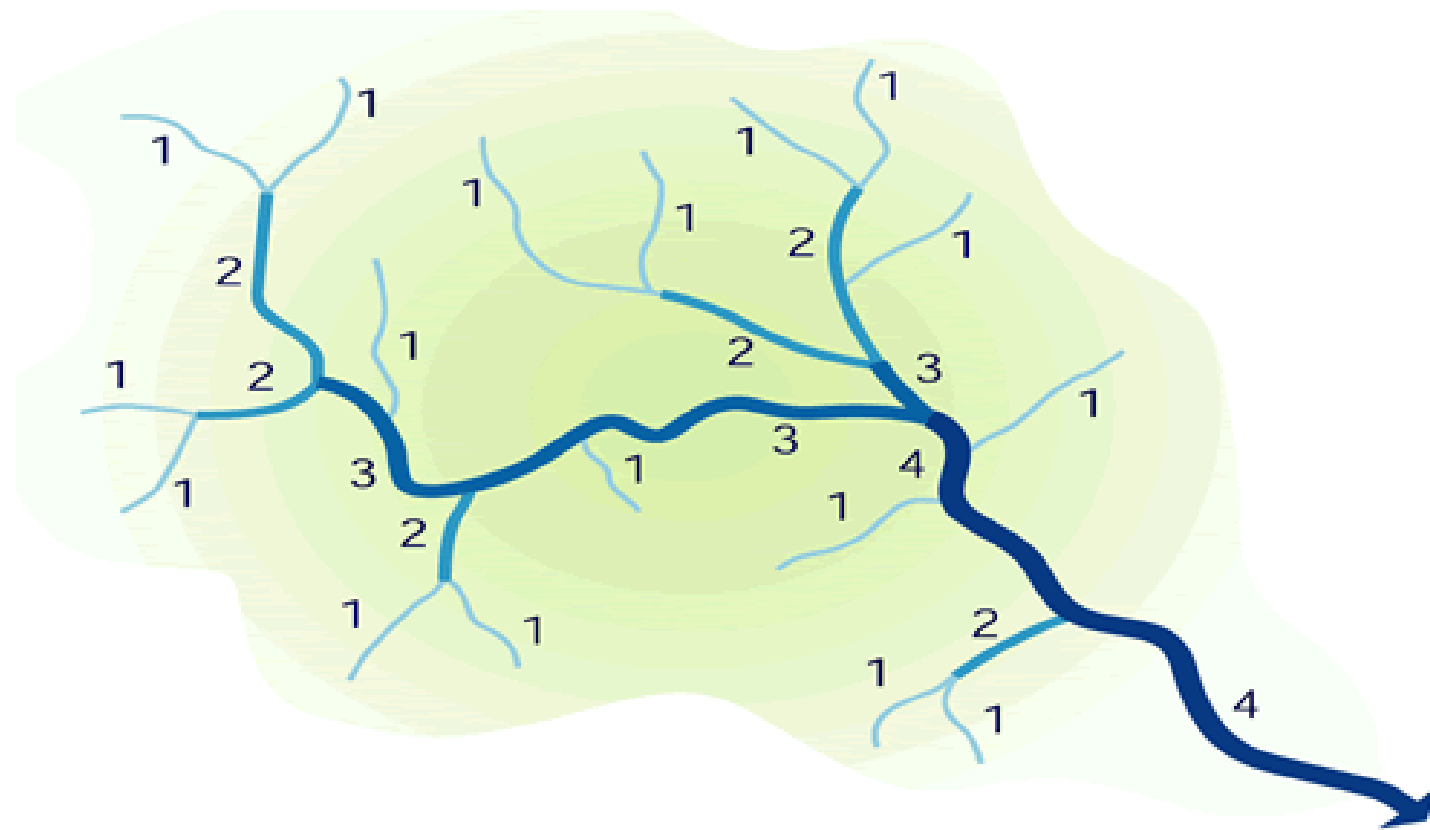
Vegetative buffers around streams and channels absorb and manage stormwater runoff

Defensible zones around buildings – clear of vegetation, debris and other combustible materials – slow the spread of wildfire

02 MITIGATION



02 WATERSHED APPROACH



02 WATERSHED APPROACH

Capture rain WHERE IT LANDS



02 NATURE-BASED SOLUTIONS

Local solutions to manage rainwater where it falls



02 NATURE-BASED SOLUTIONS

Local solutions to manage rainwater where it falls



02 BUY-OUTS & RELOCATION

Restoring natural floodplain function & improving quality of life

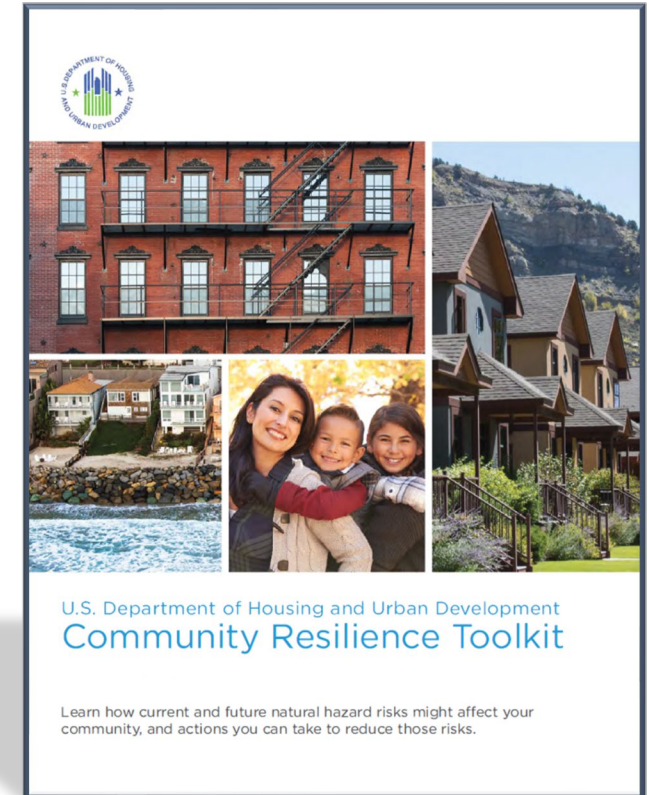
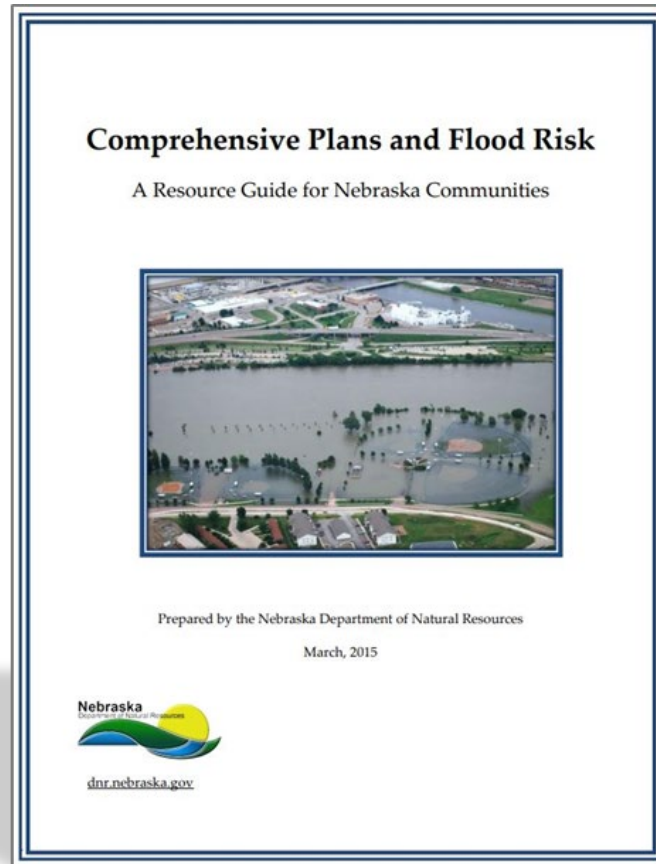
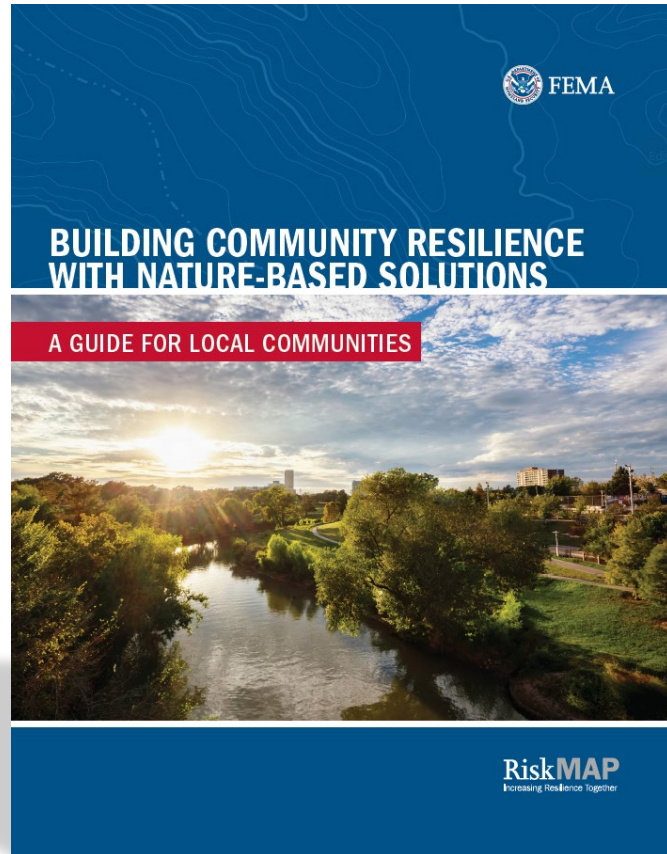


02 BUY-OUTS & RELOCATION

Restoring natural floodplain function & improving quality of life



02 PLANNING GUIDES



02 STATE MITIGATION PLAN

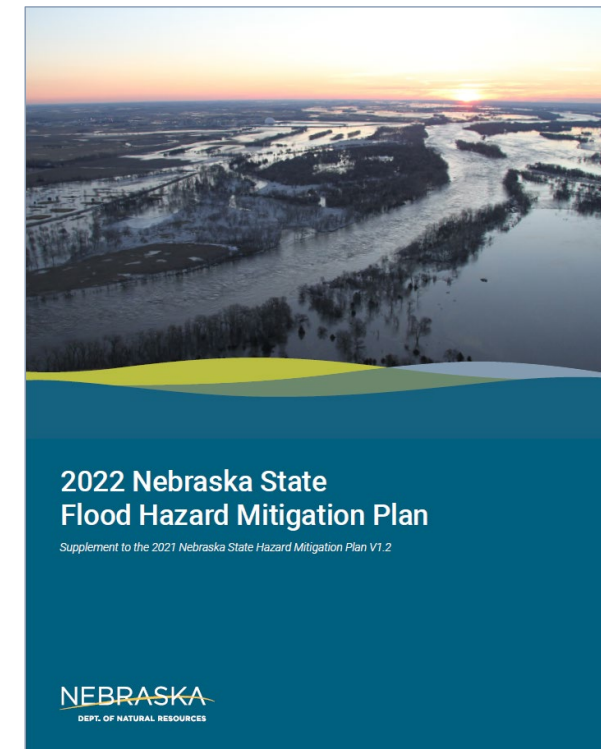
Ch. 3: Risk Assessment

Ch. 4: Mitigation Strategy

Ch. 5: Funding Resources

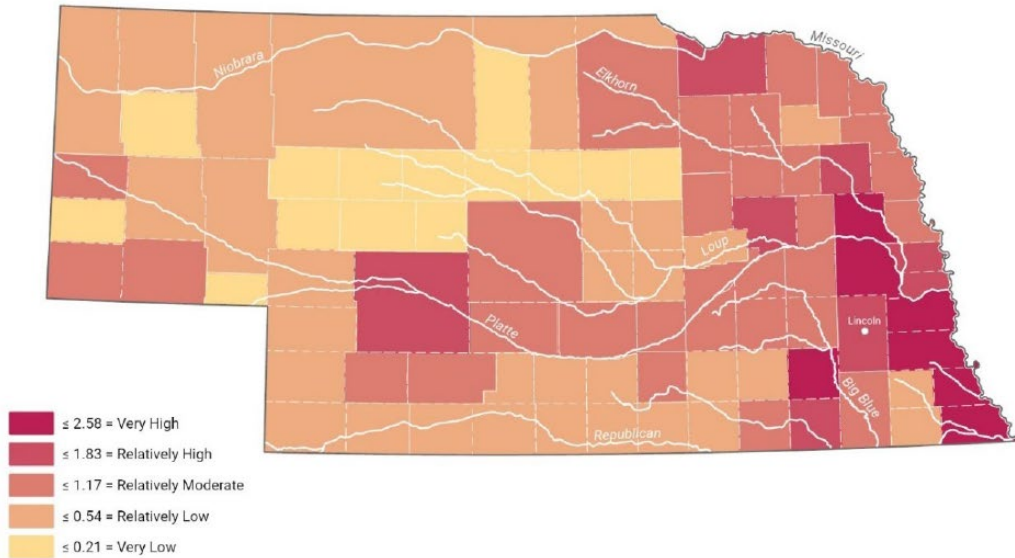
Appx B: Risk Assessment data

Appx C: Mitigation Action Project
Sheets



02 MITIGATION ACTIONS

Figure 10: Annualized Frequency of Riverine Flooding by County



Flood Mitigation Strategies and Practices Project Sheets

This appendix is a compilation of flood mitigation strategies and practices to assist local communities in their flood risk mitigation planning efforts. The appendix is divided into four sections based on the type of mitigation activity, respectively: Local Plans/Regulations, Education Awareness Programs, Natural Systems Protection, and Structure & Infrastructure. Each project page contains a description of the strategy, its applicability, step-wise approach to implementation, relative cost considerations, and references or links for additional information. The project pages are intended to serve as a menu of mitigation strategies (with supporting information) that communities can choose and incorporate directly into their mitigation planning activities.

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- Construction and Maintenance of Structural Measures.....15

Category	Strategies & Practices	Undeveloped Areas	Developed Areas	Low Cost	Low Maintenance	Nature-Based
Integration of Comprehensive		X	X	X	X	
			X	X		
			X	X		
		X	X	X		
		X	X	X		
			X	X		X
		X	X	X	X	
		X	X	X		X
			X	X	X	X
		X	X		X	X
			X			

2

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

County	Natural and Cultural Assets			Population	Structures		Land Use	Emergency		Dams and Levees		Transportation					Utilities		Total Values of Improvements at Risk ⁴ (\$)		
	Wetlands ⁵ (acres)	Threatened and 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)	Roadway ¹⁶ (miles)		Bridges and Culverts (count)			Railroad ¹⁷ (miles)	Electric Transmission Lines ¹⁸ (miles)		Other ³ (count)	
												State	Local	State Bridges ¹⁹	State Culverts ²⁰	Local					
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	1,485	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	1,532	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	80,960	5	1	0	1,597	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	1,834	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	1,169	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								
Dakota	3,568	22,581	1		0	384	15,094	4	1	7	20.2	6.2	46.4	10	2	40	6.4	16.4		\$54,269,570	
Dawes	8,577	58,030	1		0	359	5,956			43		3.2	32.7	19	17	38	8.1	8.6		\$20,501,745	
Dawson	13,552	68,487	1	2	0	1,147	18,372		1	52		13.2	123.6	25	27	106	5.6	40.5		\$96,646,180	
Deuel	2,340	36,201	0	2	0	383	20,837	3	1	4		29.5	102.7	18	22	11	13.2	9.3	1	\$16,071,185	

02 MITIGATION ACTIONS

Protect structures and utilities

Add or increase local **freeboard** requirements so that all housing and public facilities are built or rehabilitated to at least two feet above the **base flood elevation** or above the 500-year floodplain.

Create programs to assist or incentivize landlords to relocate utilities or other mechanical devices such as water heaters, boilers, and air-conditioning units above base flood elevation.

Use check valves, sump pumps, and backflow prevention devices in homes and public facilities.

Use **natural bank stabilization techniques**, or revetments or hardened materials atop riverbanks or slopes to protect against floods. Reference **Shoreline Stabilization and Bank Stabilization Design** guidelines.

Design roadways, bridges, or utilities with protective measures (e.g., elevate bridges, build protective berms) to account for future flooding projections.

Use flood walls, levees, floodways, or diversions to control and direct floodwaters; and minimize upstream and downstream impacts.

Establish a fund to maintain or rehabilitate existing flood protection infrastructure such as flood walls, levees, and diversions.

Protect critical facilities

Require that all critical public facilities be built at least three feet above the base flood elevation or above the 500-year floodplain.

Build levees or earthen dikes around flood-threatened critical public facilities.

Ensure that multiple levels of safety and contingency plans (e.g., evacuation) exist.

Adopt building codes and development standards

In the design and construction of public facilities in flood hazard areas.

Consult additional flood-resistant **building codes**.

ENVIRONMENT

Protect and restore natural flood mitigation features

Eligible activities: Public facility improvements, infrastructure activities for publicly and privately owned projects such as flood drainage, and water and sewer improvements may be eligible activities in your community.

STRUCTURE

Buildings and efficient

Implementments such as rain barrels, and ensuring

financing programs for local governments, and owners to enhance that they can afford.

Use of **greywater**

Encourage residents to encourage single-family **WaterSense** toilets to

Consult experts to help building managers check for leaks in plumbing faucets.

Encourage landlords to install rain barrels, and to promote public facilities.

Water Conservation²

Encourage mortgages and a long-term plan, and water conservation. Its year-round measures such as landscaping rebate each; rebate, rebates (e.g., rebates water reuse, and control water losses and parts, the community water consumption

ENVIRONMENT

Enhance landscaping and design measures

Design and install **water-smart landscapes at parks or recreation facilities**.

Incorporate drought-tolerant plant species into landscaping to reduce dependence on irrigation. Use **xeriscape** landscaping instead of non-native grasses.

Use **permeable streets, parking lots, or**



Emeryville, CA
Managing Stormwater Runoff with Park Design Features¹

Emeryville in Alameda County, CA, used multiple sources of federal, state, and local funding, including Community Development Block Grant Program (CDBG) funds, to rehabilitate a brownfield into Doyle Hollis Park. The project incorporated many elements to manage site stormwater, including rain gardens, bathroom facilities with a green roof, and porous pavers. The park features signage to educate users about its unique stormwater management, and energy and water conservation elements. The site captures an estimated 85% of stormwater runoff.

Project cost: \$1,000,000-\$5,000,000 for similar projects.

Eligible activities: Public facility projects such as parks and recreational facility improvements, flood drainage improvements, sidewalk improvements, and tree planting may be eligible activities in your community.



Clayton County, GA
Increasing Water Supply through Constructed Wetlands⁴

Clayton County's innovative water recycling project enabled it to maintain abundant water supplies during the 2007-2008 drought. The project involved a series of constructed wetlands to recharge groundwater supplies and surface reservoirs. The county has also implemented water efficiency and leak detection programs.

Project cost: \$55 million for permitting, design, and construction of the wetland system from the late 1970s through 2025. Additional funding came from the Federal Construction Grants program under the Clean Water Act. Water rates and stormwater fees also contribute.

Eligible activities: Public facility improvements, infrastructure activities for publicly and privately owned projects such as flood drainage, and water and sewer improvements may be eligible activities in your community.

03 FINANCIAL RESOURCES

- Bonds
- Revolving Loan Funds
- Government Grants
- Private Foundation Grants
- Loans
- Local and Regional Fee Programs
- Public – Private Partnerships

03 GRANT SOURCES

- FEMA Hazard Mitigation Grant Program (HMGP)
- FEMA Building Resilient Infrastructure & Communities (BRIC)
- FEMA Flood Mitigation Assistance Grants (FMA)
- Land and Water Conservation Fund (LWCF)
- Nebraska Clean Water State Revolving Loan Fund

03 GRANT SOURCES

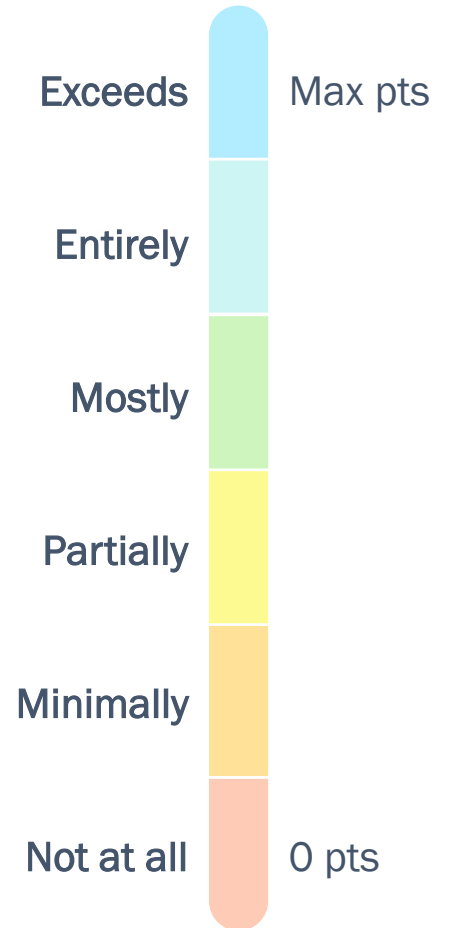
- Natural Resources Conservation Service (NRCS)
- HUD Community Development Block Grants (CDGB)
- USDA-Rural Development
- National Fish and Wildlife Foundation (NFWF)
- Nebraska Environmental Trust (NET)
- Nebraska Community Foundation (NCF)
- Transportation grants

04 TIPS

- Form partnerships
- Start small
- Fund project components or phases
- Research the grant:
 - Eligibility
 - The funder's interests / objectives
- Tell the story of your community
- Demonstrate prior success

04 **BRIC TIPS**

- SCORE POINTS (technical / qualitative criteria)
- Direct risk reduction results
- Leverage partnerships
- Demonstrate prior success
- Note contingencies / hurdles
- Include staff credentials
- CAPITALIZE key terminology
- Maximize attachments
- No fluff
- **Ask for reviewer comments**



04 **BRIC TIPS**

Key Elements and Scoring Prompts

Key Element: Implementation Measures (15 pt)

Does the subapplication describe how costs and schedule will be managed, how the project will be implemented, how innovative techniques to facilitate implementation will be incorporated and whether and how strong labor standards are incorporated to ensure high-quality work, avert disruptive and costly delays, and promote efficiency.

- *What potential **implementation challenges** and obstacles are identified ...*
- *What **pre- and post-implementation monitoring** strategies are proposed for the project?...*
- *What **technical and managerial staff and resources** are available to successfully implement the project?....*
- *Are strong **labor standards** incorporated?*


Hazard Mitigation at NEMA

Activities and Resources

Open Grants

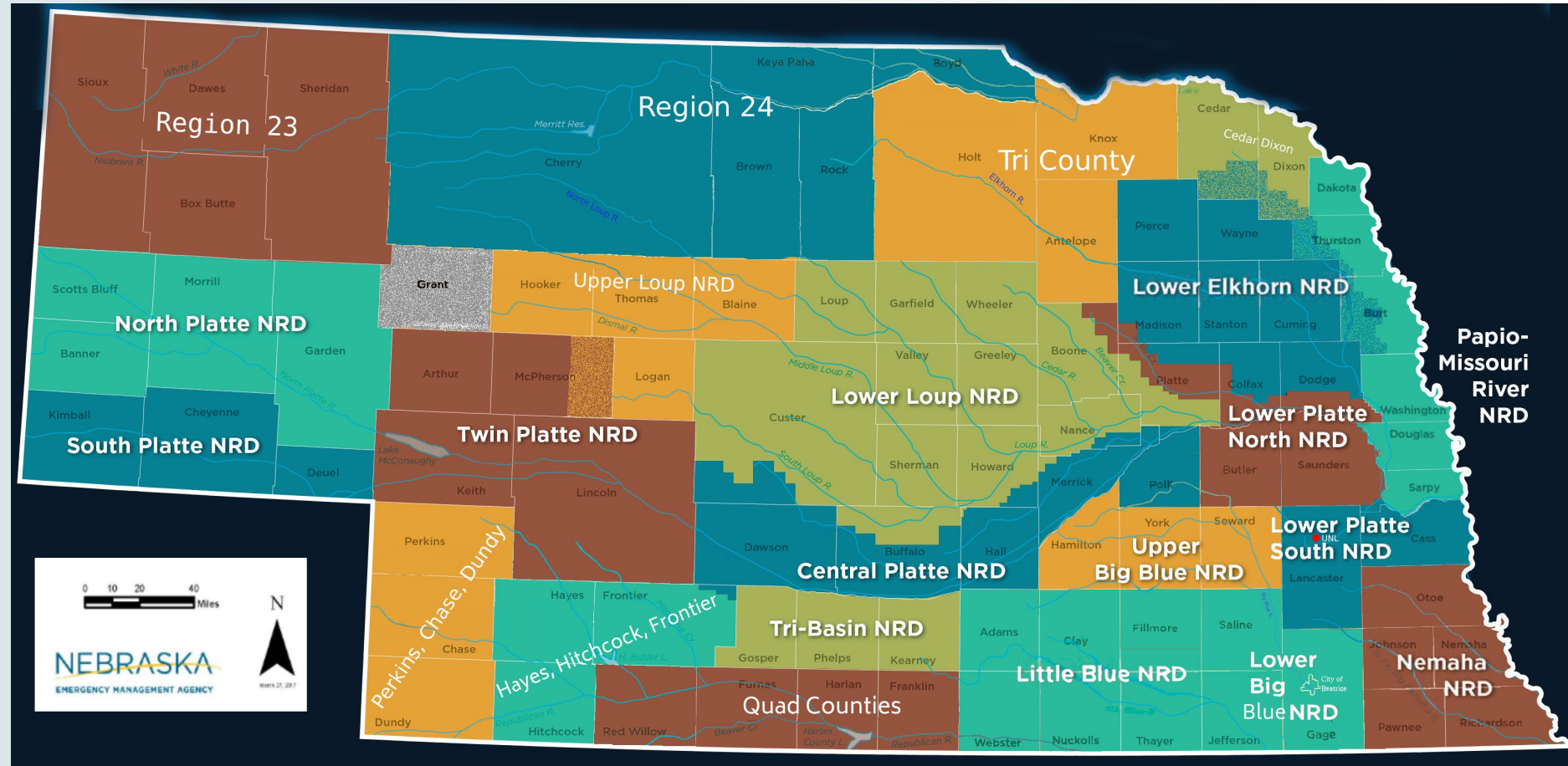
- DR-4420 (Spring 2019)
 - DR-4521 (Covid-19)
 - DR-4616 (Summer 2021)
 - DR-4641 (Winter 2022)
 - DR-4662 (Spring 2022)
 - FM-5436 (Spring 2022)
- Building Resilient Infrastructure in Communities (BRIC)
 - FY2020
 - FY2021
 - FY2022
- All grants combined estimate 67 million dollars

BRIC & FMA Update

- FEMA will likely release the 2023 Notice of Funding Opportunity (NOFO) in August 2023 and open the application window in September
 - BRIC 2022 applications are currently under FEMA review
 - BRIC 2021 projects are being awarded
 - BRIC 2020 projects are in progress
 - We are identifying potential mitigation projects now – still accepting NOIs
 - Please specify on the NOI if you want the project to be considered for BRIC
 - NEMA and NeDNR will work together to develop, review, and submit the BRIC and FMA applications for Nebraska
- 

Mitigation Planning

- 21 Mitigation Plans
- Most are housed within the NRD's
- Participating is required to receive any HMA Funding



HMA Funding

- **Hazard Mitigation Grant Program**
 - Becomes eligible after a federally declared disaster
 - Open to the entire State, not just the impacted area
 - Managed by the Hazard Mitigation Unit at NEMA
- **Building Resilient Infrastructure in Communities**
 - Yearly, 6% set-aside from all federally declared disasters in the previous year
 - 2 Categories: state set-aside and nationwide competitive
 - Managed by the Hazard Mitigation Unit at NEMA
- **Flood Mitigation Assistance**
 - Yearly appropriation from Congress
 - National Flood Insurance Program (NFIP) Requirement
 - Managed by NeDNR

How to Apply / NOI Process

- Notice of Funding Opportunity will be posted as they come available
 - Outline FEMA and NEMA's priorities for the funding
 - Eligibility criteria and grant timeline
- Fill out and Notice of Interest; found here: <https://nema.nebraska.gov/recovery/nebraska-state-hazard-mitigation-program>
- Return completed NOI to NEMA for review: nema.hazardmitigation@nebraska.gov
- NOI will be reviewed by the HM Team and submitted to the Governor's Task Force – Disaster Recovery for review, comment, and prioritization
- If prioritized, the NOI will move into the application phase

TO BE COMPLETED BY NEMA HM STAFF	
Eligible activity under FEMA HMGP	Choose an item
If eligible, please provide a brief explanation	Click or tap form to enter text
Local Hazard Mitigation Plan Verification	Choose an item
NEMA Point of Contact assigned to project	Choose an item
Date NOI received	Click or tap to enter a date

State of Nebraska Notice of Interest (NOI) Form FEMA Hazard Mitigation Assistance

This Notice of Interest (NOI) form gathers information required to apply for FEMA's Hazard Mitigation Assistance Programs, including the Hazard Mitigation Grant Program (HMGP) and the Building Resilient Infrastructure and Communities (BRIC) administered by the Nebraska Emergency Management Agency (NEMA). Hazard Mitigation Assistance makes federal funds available to states, US territories, Indian tribal governments, local governments, special districts, and eligible non-profits to implement mitigation activities. Hazard Mitigation Assistance grants may fund 75 percent of eligible project costs and require at least 25 percent local match. For more information and guidance material on the Hazard Mitigation Assistance programs, visit <https://www.fema.gov/grants/mitigation>.

To be considered to complete a full grant application, this NOI form must be completed and returned to NEMA. Applicants must have or participate in a FEMA-approved **Local Hazard Mitigation Plan (LHMP)**. The proposed mitigation project must be consistent with the LHMP and an eligible activity under **FEMA's Hazard Mitigation Assistance Guidance (2015)** for a project award. Please contact the NEMA Hazard Mitigation team to discuss program eligibility and requirements: nema.hazardmitigation@nebraska.gov.

Return this form to nema.hazardmitigation@nebraska.gov.

Upcoming Events

- Engagement Opportunities
 - The NEMA HM is looking for opportunities to talk with entities and organizations about mitigation
 - Many folks outside EM are involved in HM, like roads departments, school districts, clerks, planning committees – we want to talk to them!
 - Please pass our contact info to these groups
- G393 – Mitigation for Emergency Managers
 - The NEMA HM team is available to teach G393 to local officials
 - This course provides training in how to perform mitigation activities to reduce or eliminate long-term risk from hazards.
 - Request course through your PET region or the NEMA training team
 - Buffalo County June 27-29, 2023

NEMA – Hazard Mitigation Unit

Points of Contact:

- Chelsea Harris, State Hazard Mitigation Officer
 - chelsea.harris@nebraska.gov
- Erica Wertz, Deputy State Hazard Mitigation Officer
 - erica.wertz@nebraska.gov
- John Cook, Hazard Mitigation Program Specialist
 - john.cook@nebraska.gov
- Marisa Alvares, Hazard Mitigation Program Specialist
 - marisa.alvares@nebraska.gov
- Kevin Cotter, Hazard Mitigation Program Specialist
 - kevin.cotter@nebraska.gov
- Roland Schwichtenberg, Hazard Mitigation Planning Specialist
 - roland.schwichtenberg@nebraska.gov

An aerial photograph showing a bridge crossing a wide, brown river. The road leading to the bridge is partially closed with orange traffic barrels and a red pickup truck. Several people are standing on the road near the bridge. The surrounding area is lush with green trees and grass. The word "QUESTIONS?" is overlaid in large white text across the center of the image.

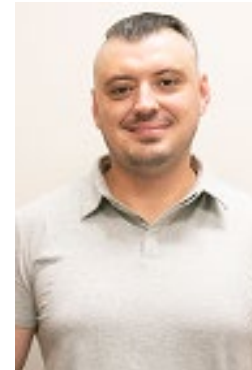
QUESTIONS?

THANK YOU!



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