

# Central Platte NRD Hazard Mitigation Plan

August 2017



---

## Hazard Mitigation Planning Team

<b>NAME</b>	<b>TITLE</b>
Jesse Mintken-----	Central Platte NRD Assistant General Manager
Darrin Lewis-----	Buffalo County Emergency Management Director
Brian Woldt-----	Dawson County Emergency Management Director
Jon Rosenlund-----	Hall County Emergency Management Director
Tom Smith-----	Region 44 Emergency Management Director
Bob Carey-----	Polk County Emergency Management Director
*Mary Baker-----	NEMA State Hazard Mitigation Officer
*Mitch Paine-----	NDNR State NFIP Coordinator
*Jeff Henson-----	JEO Consulting Group, Inc.
*Rebecca Appleford-----	JEO Consulting Group, Inc.
*Ellana Haakenstad-----	JEO Consulting Group, Inc.

*\*Served as an advisory or consultant role*



**TABLE OF CONTENTS**

**EXECUTIVE SUMMARY..... XI**  
 Introduction..... xi  
 Goals and Objectives .....xiii  
 Summary of Changes.....xiv  
 Plan Implementation .....xiv  
 Hazard Profiles.....xiv  
**SECTION ONE: INTRODUCTION ..... 1**  
 Hazard Mitigation Planning ..... 1  
 Disaster Mitigation Act of 2000 ..... 1  
 Hazard Mitigation Assistance ..... 2  
 Plan Financing and Preparation..... 2  
**SECTION TWO: PLANNING PROCESS..... 3**  
 Introduction..... 3  
 Multi-Jurisdictional Approach ..... 3  
 Hazard Mitigation Planning Process..... 3  
 Organization of Resources ..... 4  
 Assessment of Risk..... 10  
 Mitigation Plan Development ..... 13  
 Public Review and Project Funding ..... 16  
 Plan Integration ..... 17  
 Plan Adoption..... 19  
 Plan Implementation and Progress Monitoring..... 19  
**SECTION THREE: DEMOGRAPHICS AND ASSET INVENTORY ..... 21**  
 Introduction..... 21  
 Demographic Changes..... 21  
 Built Environment ..... 27  
 Agricultural Asset Inventory ..... 29  
**SECTION FOUR: RISK ASSESSMENT ..... 31**  
 Introduction..... 31  
 Methodology ..... 31  
 Average Annual Damages and Frequency..... 33  
 Hazard Identification..... 33  
 Hazard Assessment Summary Tables ..... 36  
 Historical Disaster Declarations ..... 38  
 Climate Adaptation..... 43  
 Hazard Profiles..... 44  
 Agricultural Animal and Plant Disease ..... 45

Chemical Transportation .....	52
Dam Failure .....	57
Drought .....	63
Earthquakes .....	68
Extreme Heat .....	71
Flooding .....	75
Grass/Wildfire .....	84
Hail .....	88
High Winds .....	91
Levee Failure .....	94
Severe Thunderstorms .....	98
Severe Winter Storms .....	101
Terrorism .....	106
Tornadoes .....	110
<b><u>SECTION FIVE: MITIGATION STRATEGY .....</u></b>	<b><u>115</u></b>
Introduction .....	115
Summary of Changes .....	115
Goals and Objectives .....	115
Mitigation Alternatives (Action Items) .....	117
Completed Mitigation Efforts .....	131
<b><u>SECTION SIX: PLAN IMPLEMENTATION AND MAINTENANCE .....</u></b>	<b><u>133</u></b>
Monitoring, Evaluating, and Updating the Plan .....	133
Incorporation into Existing Planning Mechanisms .....	134
<b><u>SECTION SEVEN: PARTICIPANT SECTIONS .....</u></b>	<b><u>135</u></b>
Purpose of Participant Sections .....	135

## **LIST OF FIGURES**

Figure 1: Map of Planning Area .....	xii
Figure 2: Project Timeline .....	4
Figure 3: CPNRD HMP Workshop .....	6
Figure 4: Planning Area Population Trends.....	22
Figure 5: Population by Age in the Planning Area .....	24
Figure 6: Regional School Districts.....	26
Figure 7: Billion Dollar Disasters .....	43
Figure 8: Land Use in the Planning Area.....	47
Figure 9: Major Transportation Routes with Half Mile Buffer .....	56
Figure 10: Dam Locations .....	60
Figure 11: Sequence and Impacts of Drought Types.....	64
Figure 12: Palmer Drought Severity Index .....	65
Figure 13: U.S. Seasonal Drought Outlook .....	67
Figure 14: Fault Lines in Nebraska.....	68
Figure 15: Earthquake Probability .....	70
Figure 16: Number of Days Above 90 F .....	72
Figure 17: NOAA Heat Index.....	73
Figure 18: 1% Annual Chance Flood Risk Area .....	77
Figure 19: Planning Area Average Monthly Precipitation .....	82
Figure 20: Monthly Trend for Floods in the Planning Area (1996-2015) .....	82
Figure 21: Wildfires by Cause for the Planning Area 2000-2014 .....	85
Figure 22: Number of Wildfires by Year for the Planning Area .....	85
Figure 23: Mean Fire Return Interval .....	87
Figure 24: Hail Events by Size .....	90
Figure 25: Wind Zones in the U.S. ....	91
Figure 26: High Wind Events by Month.....	92
Figure 27: Leveed Area in the Planning Area .....	95
Figure 28: Average Number of Thunderstorms.....	98
Figure 29: Severe Thunderstorms by Month .....	99
Figure 30: SPIA Index .....	103
Figure 31: Wind Chill Index Chart .....	104
Figure 32: Monthly Normal (1981-2010) and Record Temperatures.....	104
Figure 33: Monthly Normal (1981-2010) Snowfall by Month.....	105
Figure 34: Tornado Activity in the United States.....	110
Figure 35: Tornadoes by Month in the Planning Area .....	111
Figure 36: Historic Tornado Tracks with Population Density.....	112

**LIST OF TABLES**

Table 1: Participating Jurisdictions..... xi  
Table 2: Hazard Occurrence ..... xv  
Table 3: Hazard Loss History ..... xv  
Table 4: Hazard Mitigation Regional Planning Team ..... 5  
Table 5: Meeting Locations and Times ..... 5  
Table 6: Planning Workshop Attendees ..... 7  
Table 7: Notified Stakeholder Groups ..... 7  
Table 8: Neighboring Jurisdictions Notified..... 9  
Table 9: Outreach Activity Summary ..... 10  
Table 10: Round 1 Meeting Dates and Locations..... 10  
Table 11: Round 1 Public Meeting Attendees ..... 11  
Table 12: Round 1 One-on-One Meetings..... 12  
Table 13: Round 2 Meeting Dates and Locations..... 13  
Table 14: Round 2 Public Meeting Attendees ..... 13  
Table 15: Round 2 One-on-One Meetings..... 14  
Table 16: Jurisdictional Involvement and Meeting Summary ..... 15  
Table 17: Funding Agencies Present at Workshop..... 17  
Table 18: Funding Workshop Attendees ..... 17  
Table 19: General Plans, Documents, and Information..... 18  
Table 20: School Inventory..... 24  
Table 21: Inventory of Care Facilities ..... 25  
Table 22: At Risk Populations ..... 25  
Table 23: Selected Housing Characteristics ..... 27  
Table 24: State and Federally Owned Facilities ..... 28  
Table 25: Regional Farm Data..... 29  
Table 26: Crops by County ..... 30  
Table 27: Livestock Inventory by County ..... 30  
Table 28: Market Value of Agricultural Products Sold..... 30  
Table 29: Term Definitions..... 31  
Table 30: Risk Assessment Data Sources..... 32  
Table 31: Hazards Addressed in the Plan ..... 34  
Table 32: Landslides by County ..... 35  
Table 33: Urban Fire..... 35  
Table 34: Regional Risk Assessment..... 37  
Table 35: Loss Estimation for the Planning Area..... 38  
Table 36: SBA Declarations ..... 39  
Table 37: Presidential Disaster Declarations ..... 40  
Table 38: Livestock Inventory ..... 45  
Table 39: Land and Value of Farms in the Planning Area ..... 45  
Table 40: Crop Values ..... 46  
Table 41: Land Use Types ..... 46  
Table 42: Livestock Diseases Reported in Nebraska..... 48  
Table 43: Recorded Animal Diseases ..... 48  
Table 44: Common Crop Diseases in Nebraska by Crop Types ..... 49  
Table 45: Agricultural Plant Disease Losses ..... 50

Table 46: Regional Agricultural Vulnerabilities.....	51
Table 47: Historical Chemical Spills 1980 – 2015 .....	53
Table 48: Chemical Transportation Losses.....	55
Table 49: Regional Chemical Transportation Vulnerabilities .....	55
Table 50: Dams in the Planning Area .....	58
Table 51: High Hazard Potential Dams .....	58
Table 52: Upstream Platte River Dam .....	59
Table 53: Regional Dam Failure Vulnerabilities .....	62
Table 54: Palmer Drought Severity Index Classification .....	64
Table 55: Loss Estimate for Drought.....	65
Table 56: Drought Magnitude and Probability .....	66
Table 57: Regional Drought Vulnerabilities.....	67
Table 58: Richter Scale .....	68
Table 59: Modified Mercalli Intensity Scale .....	69
Table 60: Regional Earthquake Vulnerabilities .....	70
Table 61: Extreme Heat Loss Estimation .....	72
Table 62: Loss of Electricity - Assumed Damage by Jurisdiction.....	73
Table 63: Regional Extreme Heat Vulnerabilities .....	74
Table 64: Number of Flooding Events.....	76
Table 65: Flood Loss Estimate .....	76
Table 66: NFIP Participants.....	78
Table 67: NFIP Polices in Place and Total Payments.....	79
Table 68: Repetitive Loss Structures .....	80
Table 69: Flooding Stages .....	81
Table 70: Regional Flooding Vulnerabilities.....	83
Table 71: Reported Wildfires by County .....	84
Table 72: Wildfire Loss Estimation.....	86
Table 73: Regional Wildfire Vulnerabilities.....	86
Table 74: Hail Loss Estimate.....	88
Table 75: TORRO Hail Scale .....	89
Table 76: Regional Hail Vulnerabilities .....	90
Table 77: Wind Events by County.....	92
Table 78: High Wind Loss Estimate.....	92
Table 79: Beaufort Wind Ranking.....	93
Table 80: Regional High Wind Vulnerabilities .....	93
Table 81: CPNRD Levees.....	94
Table 82: Potential Losses in Levee Breach Area .....	96
Table 83: USACE Levee Rating Categories.....	96
Table 84: Regional Levee Failure Vulnerabilities .....	97
Table 85: Thunderstorm and Lightning Events by County .....	99
Table 86: Severe Thunderstorms Loss Estimate.....	100
Table 87: Regional Thunderstorm Vulnerabilities .....	100
Table 88: Severe Winter Storm Events by County.....	102
Table 89: Severe Winter Storm Loss Estimate.....	102
Table 90: Regional Severe Winter Storms Vulnerabilities.....	105
Table 91: Regional Terrorism Vulnerabilities .....	109

Table 92: Tornado Loss Estimate .....	111
Table 93: Enhanced Fujita Scale.....	113
Table 94: Enhanced Fujita Scale Damage Indicator.....	113
Table 95: Regional Tornado Vulnerabilities.....	114
Table 96: Mitigation Alternatives Selected by Each Jurisdiction.....	119
Table 97: Mitigation Alternatives Selected by Each Jurisdiction – Continued .....	126

**LIST OF ACRONYMS**

ACS – American Community Survey  
CAA – Clean Air Act  
CF – Critical Facilities  
CFR – Code of Federal Regulations  
CIKR – Critical Infrastructure and Key Resources  
CPNRD – Central Platte Natural Resources District  
CRS – Community Rating System  
CWD – Chronic Wasting Disease  
DEM – Digital Elevation Model  
DFIRM – Digital Flood Insurance Rate Map  
DHS – Department of Homeland Security  
DMA 2000 – Disaster Mitigation Act of 2000  
EAP – Emergency Action Plan  
EHD – Epizootic Hemorrhagic Disease  
ELAP – Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program  
EPCRA – Emergency Planning & Community Right to Know Act  
ESL – English Language Learners  
FBI – Federal Bureau of Investigations  
FEMA – Federal Emergency Management Agency  
FIRM – Flood Insurance Rate Map  
FMA – Flood Mitigation Assistance Program  
FR – FEMA’s Final Rule  
GIS – Geographic Information Systems  
HAZUS-MH – Hazards United States Multi-Hazard  
HMA – Hazard Mitigation Assistance  
HMGP – Hazard Mitigation Grant Program  
HMP – Hazard Mitigation Plan  
HSAS – Homeland Security Advisory System  
JEO – JEO Consulting Group, Inc.  
LEOP – Local Emergency Operations Plan  
LFD – Livestock Forage Disaster Assistance Program  
LGA – Liquid Gallon  
LIP – Livestock Indemnity Program  
MPH – Miles Per Hour  
MRCC – Midwestern Regional Climate Center  
NCEI – National Centers for Environmental Information  
NDA – Nebraska Department of Agriculture  
NDMC – National Drought Mitigation Center  
NDNR – Nebraska Department of Natural Resources  
NEMA – Nebraska Emergency Management Agency  
NFIP – National Flood Insurance Program  
NFS – Nebraska Forest Service  
NIPP – National Infrastructure Protection Plan  
NOAA – National Oceanic and Atmospheric Administration  
NRD – Natural Resources District  
NTAS – National Terrorism Advisory System  
NWS – National Weather Service  
PDM – Pre-Disaster Mitigation Program  
PDSI – Palmer Drought Severity Index  
PHMSA – U.S. Pipeline and Hazardous Material Safety Administration

PL – Public Law  
RMA – Risk Management Agency  
SBA – Small Business Administration  
SCEDD – South Central Economic District  
SPIA – Sperry-Piltz Ice Accumulation Index  
SSA – Sector-Specific Agency  
START – National Consortium for the Study of Terrorism and Responses to Terrorism  
SURE – Supplemental Revenue Assistance Payments  
TAP – Tree Assistance Program  
TORRO – Tornado & Storm Research Organization  
UBBNRD – Upper Big Blue Natural Resource District  
USACE – United States Army Corps of Engineer  
USDA – United States Department of Agriculture  
USGS – United States Geological Survey  
VS – Vesicular Stomatitis  
WARN – Water/Wastewater Agency Response Network

## EXECUTIVE SUMMARY

### ***INTRODUCTION***

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, in order to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

Thirty-seven jurisdictions participated directly in the planning process. This includes one NRD, five counties, 29 cities and villages, and two school districts.

**Table 1: Participating Jurisdictions**

<b>Participating Jurisdictions</b>	
Central Platte Natural Resources District	
<b>Buffalo County</b>	<b>Hall County</b>
Village of Amherst	Village of Alda
Village of Elm Creek	Village of Cairo
City of Gibbon	Village of Doniphan
City of Kearney	City of Grand Island
Village of Pleasanton	City of Wood River
City of Ravenna	<b>Merrick County</b>
Village of Riverdale	City of Central City
Village of Shelton	Village of Chapman
<b>Dawson County</b>	Village of Clarks
City of Cozad	Village of Palmer
Village of Farnam	Village of Silver Creek
City of Gothenburg	<b>Polk County</b>
City of Lexington	City of Osceola
Village of Overton	Village of Polk
Village of Eustis (Frontier County)	Village of Shelby
Village of Oconto (Custer County)	City of Stromsburg
<b>Special Districts</b>	
Grand Island Public School District	Doniphan-Trumbull Public School District



## **GOALS AND OBJECTIVES**

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind the update of this hazard mitigation plan is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives which helped guide the process of identifying both broad-based and community specific mitigation strategies and projects that will, if implemented, reduce their vulnerability and help build stronger, more resilient communities.

These goals and objectives were reviewed, and minor revisions were made to the list. Two objectives were removed for clarity, and they are:

- Maintain NFIP Participation
  - Reason for removal: Jurisdictions that are members of the NFIP will continue to participate, however this is no longer considered to be a mitigation action.
- Reduce Water Demand/Improve Drought Education
  - This was repeated from Objective 1.8.

The Regional Planning Team and participating jurisdictions agreed with the changes and the identified goals and objectives. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***SUMMARY OF CHANGES***

Several changes were made to the 2012 Hazard Mitigation Plan and planning process, including: the inclusion of agricultural animal and plant disease, chemical transportation spills, and terrorism based on the threats addressed in the 2014 State of Nebraska Hazard Mitigation Plan; greater efforts to reach out to and include stakeholder groups; an expanded risk assessment for the entire area; separate participant sections for schools and the CPNRD; and the inclusion of additional mitigation strategies. This update also works to unify the various planning mechanisms in place throughout the participating communities (i.e. Comprehensive Plans, Local Emergency Operation Plans, Zoning Ordinances, Building Codes, etc.) to ensure that the goals and objectives identified in those planning mechanisms are consistent with the strategies and projects included in this Hazard Mitigation Plan.

***PLAN IMPLEMENTATION***

Various communities across the planning area have implemented hazard mitigation projects following the 2012 Hazard Mitigation Plan. Many of these projects are related to hazard monitoring, warning systems and/or educating community members. Examples include: updating or improving warning and alert systems at the community level, educational newsletters, and back-up power generators.

To build upon these prior successes and to continue to implement mitigation projects, despite limited resources, communities will need to continue relying upon multi-agency coordination as a means of leveraging resources. Communities across the CPNRD have been able to work with a range of entities to complete projects; potential partners for future project implementation include, but are not limited to: Silver Jackets, counties, Nebraska Department of Natural Resources (NDNR), Nebraska Emergency Management Agency (NEMA), United States Department of Agriculture (USDA), local industry, and others.

***HAZARD PROFILES***

The Hazard Mitigation Plan includes a description of the hazards considered, including a risk and vulnerability assessment. Data considered during the risk assessment process includes: historic occurrence and probability of future events, historic losses (physical and monetary), impacts to the built environment (including privately-owned structures as well as critical facilities), and the jurisdictional risk assessment. These components were used to develop a balanced and well-rounded risk assessment. The following tables provide an overview of the risk assessment for each hazard and the losses associated with each hazard.

Table 2: Hazard Occurrence

Regional Risk Assessment			
Hazard	Previous Occurrence Events/Years	Approximate Annual Probability	Likely Extent
Agricultural Animal Disease	2,819/2.9	100%	Unavailable
Agricultural Plant Disease	154/16	100%	Unavailable
Chemical Transportation	256/46	100%	Limited (<0.25 mile from release site)
Dam Failure	0	1%	Varies
Drought	70/121	58%	Mild Drought
Earthquakes	0/44	<1%	<4.0
Extreme Heat	43/1	100%	>90°F
Flooding	84/20	100%	Some inundation of structures* (<1% of structures) and roads near streams. Some evacuations of people may be necessary (<1% of population)
Grass/Wildfires	1,165/15	100%	<100 acres
Hail	952/20	100%	H3 – H6 (0.8 – 2.4 inches)
High Winds	103/20	100%	9 BWF (47 – 54 mph)
Levee Failure	0/14	1%	3,520 parcels located in leveed areas
Severe Thunderstorms	429/20	100%	Wind ≥ 58 mph and/or Hail ≤ 1.00 inch
Severe Winter Storms	333/20	100%	0.25 ice 20 - 40°F below zero (wind chills) 3 – 7" snow 25 – 40 mph winds
Terrorism	0/46	<1%	Isolated to a single building
Tornadoes	70/20	100%	EF0 - EF1

\*Quantification of vulnerable structures provided in Section Seven: Participant Sections

Table 3: Hazard Loss History

Hazard Type	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Agricultural Animal Disease	N/A	N/A	Unknown	Unknown
Agricultural Plant Disease	N/A	N/A	\$942,249	\$58,891
Chemical Transportation	\$661,540	\$14,381	Unknown	Unknown
Dam Failure	\$0	\$0	\$0	\$0
Drought	\$0	\$0	\$72,725,194	\$4,545,325
Earthquake	\$0	\$0	\$0	\$0
Extreme Heat	\$2,200,000	\$110,000	\$22,660,532	\$1,416,283
Flooding	\$20,224,000	\$1,011,200	\$3,586,051	\$224,128
Grass/Wildfires <sup>3</sup>	\$0	\$0	\$5,003	\$313
Hail Events	\$93,554,000	\$4,677,700	\$108,997,391	\$6,812,337
High Winds	\$866,400	\$43,320	\$16,407,299	\$1,025,456

Hazard Type	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Levee Failure	\$0	\$0	\$0	\$0
Severe Thunderstorms	\$26,823,000	\$1,341,150	\$28,304,224	\$1,769,014
Severe Winter Storms	\$25,075,000	\$1,253,750	\$2,491,486	\$155,718
Terrorism	\$0	\$0	N/A	N/A
Tornadoes	\$31,385,000	\$1,569,250	\$29,727	\$1,858

<sup>1</sup> Indicates data is from NCEI (1996 to 2015)

<sup>2</sup> Indicates data is from USDA (2000 to 2015)

<sup>3</sup> Indicates data is from NFS (2000 to 2014)

Many natural hazards, like agricultural disease, flooding, extreme heat, grass and wildfires, severe thunderstorms, severe winter storms, and tornadoes can be expected to occur annually within the planning area. Other natural hazards like drought or earthquake will occur less often. What is not known regarding hazard occurrences is the scope of events, how they will manifest themselves locally, and how the occurrence or probability will change in the future. Historically, hail, tornadoes, severe thunderstorms, severe winter storms, and flooding have resulted in the most significant structural damage within the planning area. These five hazards are summarized below.

### HAIL

Hail events occur on an annual basis in conjunction with severe thunderstorms. Common impacts resulting from hail include, but are not limited to: damage to roofs, windows, and siding; damage to mechanical systems located outdoors including HVAC systems; damage to vehicles; and destruction of crops.

Hail events are usually large-scale events which can impact multiple communities as well as unincorporated areas of the County. While all segments of the population are vulnerable to the impacts of hail, there are a few groups with higher levels of vulnerability. Community members who reside in mobile homes are at an increased risk of injury and loss resulting from hail storms.

### **Mitigation Strategies Identified:**

The following list includes strategies identified by participating jurisdictions to address local needs and vulnerabilities. A complete list for each jurisdiction is include in each participant section.

- Install hail resistant roofing materials
- Ensuring hail is covered by municipal insurance policies

### TORNADOES

Tornadoes occur in the planning area on a near annual basis. The National Centers for Environmental Information (NCEI) reports 70 tornadoes for the five-county area since 1996. Of the reported events, all were ranked between an F/EF0 and F/EF3 and 36 of the events reported damages. The most damaging tornado since 1996 struck the City of Kearney on May 29, 2008. It damaged an apartment complex, cars, and removed a part of the hospital’s roof. It moved over the Kearney Airport where it destroyed a hanger and the corporate jet housed inside. In total, the tornado caused \$11 million in damages. Based on historic records, tornadoes have occurred most frequently in the months of May, June, and October with 26, 17, and 13 events reported respectively. Impacts from past tornadoes in the planning area include: damages to homes, vehicles, and agricultural buildings; snapping of power poles and downing of power lines; and destruction of silos and center pivot irrigation systems.

Vulnerable populations within the planning area include residents living in mobile homes, facilities without storm shelters which house large numbers of people (such as nursing homes, schools, factories, etc.), homeowners without storm shelters or basements, and residents with decreased mobility. All communities in the planning area have outdoor warning sirens as well as access to voluntary SMS text message warnings.

**Mitigation Strategies Identified:**

The following list includes strategies identified by participating jurisdictions to address local needs and vulnerabilities. A complete list for each jurisdiction is include in each participant section.

- Implementing hazardous tree removal programs
- Constructing storm shelters
- Installing backup generators
- Improve notification and warning systems

**SEVERE THUNDERSTORMS**

Thunderstorms differ from many other hazards in that they are generally large-scale events, have a long duration, and travel across large areas and through multiple jurisdictions. Additionally, thunderstorms often occur in a series, with one area having the potential to be impacted multiple times in one day. Severe thunderstorms are most likely to occur between the months of April and September with the highest number of events occurring in June. Typical impacts resulting from severe thunderstorms include, but are not limited to: loss of power, obstruction to transportation routes, grass/wildfires starting from lightning strikes, localized flooding, and damages discussed in the hazard profiles for hail and high winds as these are typical components of severe thunderstorms.

Vulnerable populations related to severe thunderstorms include: residents of mobile homes; citizens with decreased mobility; and those caught outside during storm events. Most residents within the planning area are familiar with severe thunderstorms and know how to appropriately prepare and respond to events. Most participating jurisdictions have reported updates or improvements to risk communication and outdoor warning systems. In addition, the use of text notifications has helped decrease the human vulnerability to this hazard.

**Mitigation Strategies Identified:**

The following list includes strategies identified by participating jurisdictions to address local needs and vulnerabilities. A complete list for each jurisdiction is include in each participant section.

- Installing backup generators
- Implementing hazardous tree removal programs
- Upgrading/improving warning systems
- Participation in the Tree City USA program
- Installing surge protectors for critical jurisdictional equipment

**SEVERE WINTER STORMS**

Severe winter storms are an annual occurrence for the planning area. Winter storms can bring extreme cold temperatures, freezing rain and ice, and heavy or drifting snow. Blizzards are particularly dangerous and can have significant impacts throughout the planning area. Severe winter storms typically occur between November and March, but early and late season storms have occurred in the past and can have dramatic impacts in the planning area. Impacts resulting from severe winter storms include, but are not limited to: hypothermia and frost bite, death to those trapped outdoors, closure of transportation routes, downed power lines and prolonged power outages, collapse of roofs from heavy snow loads, death of livestock, and closure of critical facilities.

The most vulnerable citizens within the planning area are children (14.9 percent of the total population), the elderly (13.5 percent of the total population), individuals and families below the poverty line (12.3 percent of the total population), and those new to the area or state. Given the probability of occurrence and potential impacts, participating jurisdictions identified many strategies that can help reduce the level of vulnerability related to severe winter storms. Multiple communities identified increasing risk communication and warnings, developing a database of vulnerable populations, and improving snow routes and snow removal processes.

**Mitigation Strategies Identified:**

The following list includes strategies identified by participating jurisdictions to address local needs and vulnerabilities. A complete list for each jurisdiction is include in each participant section.

- Implementing hazardous tree removal programs
- Planting windbreaks and living snow fences
- Installing backup generators
- Removal of unhealthy trees or trees threatening critical facilities and infrastructure
- Public awareness
- Develop snow removal plans and designate snow routes
- Review and update snow removal plans and policies

**FLOODING**

Flash flooding, riverine flooding, and ice jam flooding are common for the planning area due to the regular occurrence of severe thunderstorms in spring and summer, and the proximity of many communities next to rivers. Within the planning area, flooding can occur on a local level, only affecting a few streets, but can also extend throughout an entire district, affecting whole drainage basins. The most damaging event since 1996 occurred on May 11, 2005 when a severe thunderstorm caused a flash flood across Buffalo and Hall Counties. Four to twelve inches of rain fell across the region with Wood River reporting over 11 inches of rain and Grand Island with 7.2 inches. In Wood River, 12 people were evacuated due to rising water, and it was estimated that every structure in Wood River sustained some sort of storm damage. Thirty-six homes were evacuated in the city of Grand Island as flooding was rampant over the west and north part of the City. In total, the flash flood caused \$10 million in damages.

Vulnerable populations within the planning area include the elderly that have decreased mobility, residents living in low-lying areas or the floodplain, and low income and minority populations, which may lack the resources needed for evacuation, response, or to mitigate the potential for flooding

The planning area expects loss inducing floods to occur on an annual basis with 84 flooding events being recorded by the NCEI over 20 years. These 84 events have resulted in approximately \$20,224,000 in property losses.

**Mitigation Strategies Identified:**

The following list includes strategies identified by participating jurisdictions to address local needs and vulnerabilities. A complete list for each jurisdiction is include in each participant section.

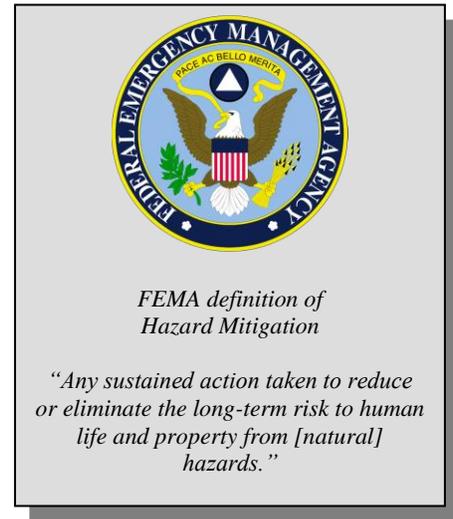
- Drainage studies and stormwater master plan(s)
- Update floodplain information
- Improve flood and stormwater detention/retention capacity
- Reduce property damage by improving sanitary and storm sewer systems
- Rehabilitate flood control structures
- Update/enhance floodplain regulations
- Improve drainage structures
- Bank stabilization projects

## SECTION ONE: INTRODUCTION

### ***HAZARD MITIGATION PLANNING***

Hazard events are inevitable; it is just a matter of when they happen and how well a community is prepared for such events. Mitigation reduces risk and is a socially and economically responsible action to prevent long term risks from natural and man-made hazard events.

Natural hazards, such as severe winter storms, tornadoes and high winds, severe thunderstorms, flooding, extreme heat, drought, agriculture diseases (plant and animal), earthquakes, and wildfires are a part of the world around us. Their occurrence is natural and inevitable, and there is little that can be done to control their force and intensity. Man-made hazards are a product of the society and can occur with significant impacts to communities. Man-made hazards include levee failure, dam failure, chemical transportation incidents, and terrorism. These hazard events can occur naturally or because of human error. All jurisdictions participating in this planning process are vulnerable to a wide range of natural and man-made hazards that threaten the safety of residents, and have the potential to damage or destroy both public and private property, cause environmental degradation, or disrupt the local economy and overall quality of life.



The Central Platte Natural Resources District (CPNRD) prepared this Multi-Jurisdictional Hazard Mitigation Plan to reduce impacts from natural and man-made hazards and to better protect the people and property of the region from the effects of hazards. This plan demonstrates the communities' commitment to reducing risks from hazards and serves as a tool to help decision makers establish mitigation activities and resources. This plan was developed to make CPNRD and participating jurisdictions eligible for federal pre-disaster funding programs and to accomplish the following objectives:

- Minimize the disruption to each jurisdiction following a disaster.
- Establish actions to reduce or eliminate future damages to efficiently recover from disasters.
- Investigate, review, and implement activities or actions to ensure disaster related hazards are addressed by the most efficient and appropriate solution.
- Educate citizens about potential hazards.
- Facilitate development and implementation of hazard mitigation management activities to ensure a sustainable community.

### ***DISASTER MITIGATION ACT OF 2000***

The U.S. Congress passed the Disaster Mitigation Act (DMA) 2000 to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 of the DMA 2000 requires that state and local governments develop, adopt, and routinely update a hazard mitigation plan to remain eligible for pre- and post-disaster mitigation funding. These funds include the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), and the Flood Mitigation Assistance Program (FMA). These programs are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security (DHS).

This plan was developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans. The plan shall be monitored and updated on a routine basis to maintain compliance with the legislation – Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the DMA 2000 (P.L. 106-390) and by FEMA’s Final Rule (FR) published in the Federal Register on November 30, 2007, at 44 Code of Federal Regulations (CFR) Part 201.

### ***HAZARD MITIGATION ASSISTANCE***

On June 1, 2009, FEMA initiated the Hazard Mitigation Assistance (HMA) program integration, which aligned certain policies and timelines of the various mitigation programs. These HMA programs present a critical opportunity to minimize the risk to individuals and property from hazards while simultaneously reducing the reliance on federal disaster funds.

Each HMA program was authorized by separate legislative actions, and as such, each program differs slightly in scope and intent.

**Mitigation** is the cornerstone of emergency management. Mitigation focuses on breaking the cycle of disaster damage, reconstruction, and repeated damage. Mitigation lessens the impact disasters have on people's lives and property through damage prevention, appropriate development standards, and affordable flood insurance. Through measures such as avoiding building in damage-prone areas, stringent building codes, and floodplain management regulations, the impact on lives and communities is lessened.

- FEMA Mitigation Directorate

- **HMGP:** To qualify for post-disaster mitigation funds, local jurisdictions must have adopted a mitigation plan that is approved by FEMA. HMGP provides funds to states, territories, Indian tribal governments, local governments, and eligible private non-profits following a presidential disaster declaration. The DMA 2000 authorizes up to seven percent of HMGP funds available to a state after a disaster to be used for the development of state, tribal, and local mitigation plans.
- **FMA:** To qualify to receive grant funds to implement projects such as acquisition or elevation of flood-prone homes, local jurisdictions must prepare a mitigation plan. Furthermore, local jurisdictions must be participating communities in the NFIP. The goal of FMA is to reduce or eliminate claims under the NFIP.
- **PDM:** To qualify for pre-disaster mitigation funds, local jurisdictions must adopt a mitigation plan that is approved by FEMA. PDM assists states, territories, Indian tribal governments, and local governments in implementing a sustained pre-disaster hazard mitigation program.

### ***PLAN FINANCING AND PREPARATION***

Regarding plan financing and preparation, in general, the local government of the CPNRD is the “sub-applicant” that is the eligible entity that submits a sub-application for FEMA assistance to the “Applicant”. The “Applicant,” in this case is the State of Nebraska. If HMA funding is awarded, the sub-applicant becomes the “sub-grantee” and is responsible for managing the sub-grant and complying with program requirements and other applicable federal, state, territorial, tribal, and local laws and regulation.

## SECTION TWO: PLANNING PROCESS

### **INTRODUCTION**

The process utilized to develop a hazard mitigation plan is often as important as the final planning document. For this planning process, the CPNRD adapted the four-step hazard mitigation planning process outlined by FEMA to fit the needs of the participating jurisdictions. The following pages will outline how the Regional Planning Team was established; the function of the Regional Planning Team; key project meetings and community representatives; outreach efforts to the public; key stakeholders and neighboring jurisdictions; general information relative to the risk assessment process; general information relative to local/regional capabilities; plan review and adoption; and ongoing plan maintenance.

### **MULTI-JURISDICTIONAL APPROACH**

Per FEMA, “A multi-jurisdictional hazard mitigation plan is a plan jointly prepared by more than one jurisdiction.” The term ‘jurisdiction’ means ‘local government’. Title 44 Part 201, Mitigation Planning in the CFR, defines a ‘local government’ as “any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments, regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, any rural community, unincorporated town or village, or other public entity.” For the purposes of this plan, a ‘taxing authority’ was utilized as the qualifier for jurisdictional participation.

FEMA recommends the multi-jurisdictional approach under the DMA 2000 for the following reasons:

- It provides a comprehensive approach to the mitigation of hazards that affect multiple jurisdictions;
- It allows economies of scale by leveraging individual capabilities and sharing cost and resources;
- It avoids duplication of efforts; and
- It imposes an external discipline on the process.

Both FEMA and NEMA recommend this multi-jurisdictional approach through the cooperation of counties, regional emergency management agencies, and natural resources districts. The CPNRD utilized the multi-jurisdictional planning process recommended by FEMA (Local Mitigation Plan Review Guide [October 2011], Local Mitigation Planning Handbook [March 2013], and Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards [January 2013]) to develop this plan.

### **HAZARD MITIGATION PLANNING PROCESS**

The hazard mitigation planning process as outlined by FEMA has four general steps, which include: organization of resources; assessment of risks; development of mitigation strategies; and, implementation

**Requirement §201.6(b):** *Planning process. An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:*

*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*

*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*

*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

**Requirement §201.6(c)(1):** *[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

and annual monitoring of the plan’s progress. The mitigation planning process is rarely a linear process. It is characteristic of the process that ideas developed during the initial assessment of risks may need revision later in the process, or that additional information may be identified while developing the mitigation plan or during the implementation of the plan that may result in new goals or additional risk assessment.

Here is a description of FEMA’s recommended four general steps:

- Organization of Resources
  - Focus on the resources needed for a successful mitigation planning process. Essential steps include:
    - Organizing interested community members
    - Identifying technical expertise needed
- Assessment of Risks
  - Identify the characteristics and potential consequences of the hazard. Identify how much of the jurisdiction can be affected by specific hazards and the impacts they could have on local assets.
- Mitigation Plan Development
  - Determine priorities and identify possible solutions to avoid or minimize the undesired effects. The result is a hazard mitigation plan and strategy for implementation.
- Plan Implementation and Progress Monitoring
  - Bring the plan to life by implementing specific mitigation projects and changing day-to-day operations. It is critical that the plan remains relevant to succeed. Thus, it is important to conduct periodic evaluations and revisions, as needed.

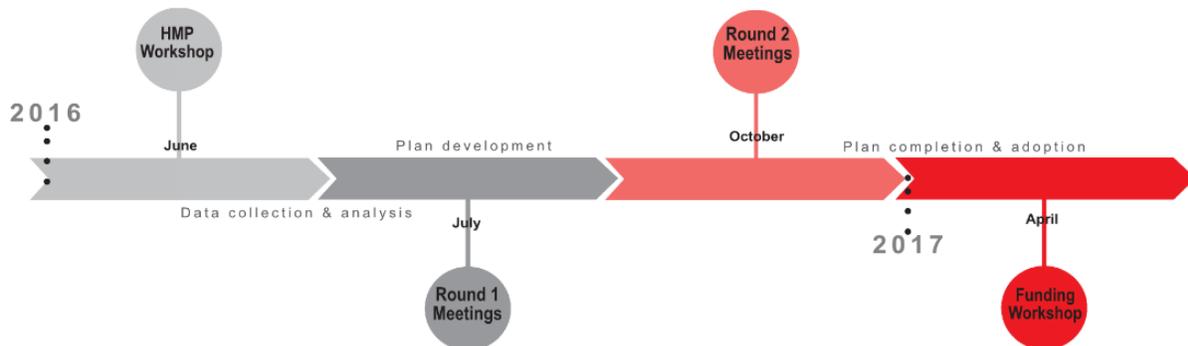
## ***ORGANIZATION OF RESOURCES***

### ***PLAN UPDATE PROCESS***

The CPNRD began the process of securing funding for their Multi-Jurisdictional Hazard Mitigation Plan during the summer of 2015. JEO Consulting Group, INC. (JEO) was contracted to guide and facilitate the planning process and assemble the Multi-Jurisdictional Hazard Mitigation Plan. For the planning area, Jesse Mintken (Projects Manager with CPNRD) led the development of the plan and served as the primary point-of-contact throughout the project.

The first activity in the development process for the CPNRD HMP update was coordination of efforts with local, state, and federal agencies and organizations. The Nebraska Department of Natural Resources (NDNR) and Nebraska Emergency Management Agency (NEMA) became involved in the planning process. CPNRD and JEO worked together to identify elected officials and key stakeholders to lead the planning effort. A timeline of this plan update progress is provided in Figure 2, Project Timeline.

**Figure 2: Project Timeline**



**REGIONAL PLANNING TEAM**

At the beginning of the planning process, the Planning Team, comprised of local participants and the consultant, was established to guide the planning process, review the existing plan, and serve as a liaison to plan participants throughout the planning area. A list of Planning Team members can be found in Table 4. Additional technical support was provided to the Planning Team by staff from NEMA and the NDNR.

**Table 4: Hazard Mitigation Regional Planning Team**

Name	Title	Jurisdiction
Jesse Mintken	Projects Manager	CPNRD
Darrin Lewis	Emergency Management Director	Buffalo County
Brian Woldt	Emergency Management Director	Dawson County
Jon Rosenlund	Emergency Management Director	Hall County
Tom Smith	Emergency Management Director	Region 44/Merrick County
Bob Carey	Emergency Management Director	Polk County
Mary Baker*	State Hazard Mitigation Officer	NEMA
Mitch Paine*	NDNR State NFIP Coordinator	NDNR
Jeff Henson*	Department Manager/Project Manager	JEO
Rebecca Appleford*	Project Coordinator/Planner	JEO
Ellana Haakenstad*	Intern Planner	JEO

\*Served as a consultant or advisory role

The first Planning Team meeting was held April 14, 2016 with the CPNRD and JEO staff. The meeting provided an overview and discussion of the work to be completed over the next several months, including: whether to host a hazard mitigation workshop and a funding workshop for plan participants, when and where to host public meetings, plan goals and objectives, discussion of what types of information would be needed to be collected for the HMP, and public outreach methods.

The Regional Planning Team was also kept up to date on the status of the HMP via emails and phone calls throughout the planning process. Meeting attendance, best ways to engage communities that weren't participating in the planning process, collected data, and plan timeline updates were all provided and discussed during these notifications.

Table 5 shows the date and location of notifications held for the Regional Planning Team.

**Table 5: Meeting Locations and Times**

Location and Time	Agenda Items
<b>April 14, 2016</b>	
CPNRD Offices 215 Kaufman Avenue, Grand Island, NE 2:00 PM	Planning Team responsibilities, dates and locations for meetings, plan goals and objectives, workshop details, public involvement
<b>Various Dates</b>	
Emails and phone calls	Review progress to date, meeting attendance and worksheets collected from communities, public outreach, next steps

**HMP WORKSHOP**

A Hazard Mitigation Planning Workshop was held prior to the start of Round 1 meetings on June 14, 2016. All jurisdictions within the planning area were invited to attend. The workshop enabled plan participants to better understand the hazard mitigation planning process, the value of having a hazard mitigation plan, and what information and data participating jurisdictions would need to develop through the plan update. A hazard scenario table-top exercise kicked off the workshop where attendees were put into small groups for discussion of the response and impacts a tornado may have on their communities. The goal of the exercise was to have participants complete many of the steps that would be included during the update of the HMP. Specific efforts addressed during the exercise include: identification of critical facilities and vulnerable infrastructure; identification of vulnerable populations; a review of previously completed mitigation measures; and the identification of local needs to reduce vulnerabilities to future events. In addition to these components, the exercise was used to engage local officials in the planning process and help them apply the ideas of mitigation planning to their community – better preparing them for the upcoming planning process.

The exercise was followed by a facilitated session where participants reviewed the principals of hazard mitigation and the benefits of having an approved and adopted plan; the risk assessment process; the procedure for identifying mitigation actions; and the importance of public outreach. During each of these phases, local officials were asked to apply the topic discussed to their jurisdiction. For example, when discussing the risk assessment process, local officials were asked to develop a problem statement for their jurisdiction. This was followed by identifying mitigation alternatives to address the problem statement.

**Figure 3: CPNRD HMP Workshop**



*Source: JEO photo*

The following table list the attendees for the planning workshop.

**Table 6: Planning Workshop Attendees**

Name	Title	Jurisdiction
Tom Cordsen	Zoning Administrator	City of Central City
Josh Aspegren	Emergency Management Director	Region 44
Jon Rosenlund	Emergency Management Director	Grand Island/Hall County
Bob Carey	Emergency Manager/Chief Deputy	Polk County
Brian Woldt	Emergency Management Director	Dawson County
Darrin Lewis	Emergency Management Director	Buffalo County
Kirk Russell	Superintendent	Doniphan-Trumbull Public Schools
Jamie Rathman	Clerk	Village of Cairo
Mark Streit	Surveyor	Dawson County
Tom Smith	Emergency Management Director	Region 44/Merrick County
Jesse Mintken	Projects Manager	CPNRD
Jeff Henson	Department Manager	JEO
Caitlin Olson	Assistant Project Coordinator	JEO

### **PUBLIC INVOLVEMENT AND OUTREACH**

At the beginning of the planning process, the Regional Planning Team worked to identify stakeholder groups that could serve as “hubs of communication” throughout the planning process. A wide range of stakeholder groups were contacted and encouraged to participate. There were 69 stakeholders that were identified and sent letters to participate. This included nine hospitals, 19 nursing homes, and 30 fire and rescue departments. The following table lists the groups that were also invited to participate in the planning process. Tom Smith, Emergency Manager for Merrick County (Region 44 Emergency Management) invited representatives from Tallgrass Energy to attend the public meeting and are also listed below.

**Table 7: Notified Stakeholder Groups**

Organization	Name	Title	Participation Summary
Annie Jeffrey Memorial County Health Center	Joseph Lohrman	Chief Executive Officer	Did not participate
Area Senior Citizens Center	-	-	Did not participate
CHI Health Richard Young Behavioral Health Center	Michael Schnieders	Administrator	Did not participate
CHI Health St Francis	Dan McElligott	Administrator	Did not participate
CHI Health Good Samaritan	Michael Schnieders	Administrator	Did not participate
Central City Care Center	-	-	Did not participate
Cozad Community Hospital	Lyle Davis	Administrator	Did not participate
Eustis Senior Center	Cindy Schurr	-	Did not participate
Farnam Senior Center	-	-	Did not participate
Golden Living Center – Grand Island Lakeview	Joyce Cantrell	Administrator	Did not participate
Golden Living Center – Grand Island Park Place	Leslie Fennell	Administrator	Did not participate
Golden Living Center – Cozad	Barry Emerson	Administrator	Did not participate
Good Samaritan Hospital	Michael Schnieders	Administrator	Did not participate
Good Samaritan Society - Ravenna	Michael Schnieders	Administrator	Did not participate
Good Samaritan Society – St. Johns	Michael Schnieders	Administrator	Did not participate

*Section Two: Planning Process*

<b>Organization</b>	<b>Name</b>	<b>Title</b>	<b>Participation Summary</b>
Good Samaritan Society – Wood River	Michael Schnieders	Administrator	Did not participate
Good Samaritan Society – St. Luke’s Village	Michael Schnieders	Administrator	Did not participate
Good Samaritan Society – Grand Island	Michael Schnieders	Administrator	Did not participate
Gothenburg Memorial Hospital	Michael Brant	Administrator	Did not participate
Gothenburg Senior Center	-	-	Did not participate
Grand Generation Center	-	-	Did not participate
Grand Island Veterans Home	Nancy Klimek	Activity Manager	Did not participate
Hilltop Estates	Scott Bahe	Administrator	Did not participate
Kearney Regional Medical Center	Larry Speicher	Administrator	Did not participate
Lexington Regional Health Center	Leslie Marsh	Administrator	Did not participate
Litzenberg Memorial County Hospital	Julie Murray	Administrator	Did not participate
Midland Area Agency on Aging	-	-	Did not participate
Mother Hull Home	Stephanie Simmons	Administrator	Did not participate
Mt Carmel Home – Keens Memorial	Cherlyn Hunt	Administrator	Did not participate
Nebraska VOAD	Brent Curtis	Voluntary Agency Liaison	Did not participate
Overton Senior Meal Site	-	-	Did not participate
Plum Creek Health Care Community	Gayle Rogers	Administrator	Did not participate
Project Interfaith	John Levy	Board President	Did not participate
South Central Agency on Aging	Rod Horsley	Executive Director	Did not participate
St. Francis Memorial Health Center	Jerry Wordekemper	Administrator	Did not participate
Tallgrass Energy	Val Snyder and Rob Bomberger	-	Attended Round 1 Meeting
Tiffany Square Care Center	Dustin Frey	Administrator	Did not participate
Union Pacific Railroad Company	Mike Blackley	Manager of Industry & Public Projects	Did not participate
Wedgewood Care Center	-	-	Did not participate

**NEIGHBORING JURISDICTIONS**

Neighboring jurisdictions were notified and invited as well. The following table indicates which neighboring jurisdictions were notified of the planning process. Letters were sent to county clerks, county emergency managers, city and village clerks, and NRDs, at their respective jurisdictions and disseminated appropriately.

The Village of Pleasanton and City of Ravenna opted to participate in this planning process and are considered full participants in the plan. Additionally, the Lead Engineering Tech from the Upper Big Blue NRD (UBBNRD) attended the Round 1 and Round 2 meetings as a stakeholder.

**Table 8: Neighboring Jurisdictions Notified**

<b>Notified Neighboring Jurisdictions</b>	
Adams County	Lower Loup NRD
Butler County	Lower Platte North NRD
Custer County	Middle Republican NRD
Frontier County	Tri Basin NRD
Gosper County	Twin Platte NRD
Hamilton County	Upper Big Blue NRD
Howard County	Village of Pleasanton
Kearney County	City of Ravenna
Lincoln County	City of Aurora
Nance County	City of Columbus
Phelps County	City of David City
Platte County	City of Hastings
Sherman County	City of York
York County	

**PARTICIPANT INVOLVEMENT**

Elected officials, key stakeholders, and residents within CPNRD experience the area hazards firsthand and play a key role in providing local information necessary to complete the plan. Participants are important in the identification of hazards; providing a record of historical disaster occurrences and localized impacts; identification and prioritization of potential mitigation projects and strategies; and, the development of annual review procedures.

To be a participant in the development of this plan update, jurisdictions were required to have, at a minimum, one representative present at the Round 1 and Round 2 meetings. Some jurisdictions were able to send multiple representatives to meetings. Jurisdictions also were encouraged to invite stakeholder groups from within their communities to participate in the public meetings. However, jurisdictions that were unable to attend the scheduled public meetings were able to request a meeting with members of the Regional Planning Team to satisfy the meeting attendance requirement. Sign-in sheets from all public meetings can be found in *Appendix A*.

Outreach to eligible jurisdictions included notification (letters and postcards) prior to all public meetings, a phone call reminder of upcoming meetings, and email reminders to complete worksheets required for the planning process. Table 10 provides a summary of outreach activities utilized in this process.

**Table 9: Outreach Activity Summary**

Action	Intent
Project Website	Inform the public and local/regional Planning Team members of past, current, and future activities ( <a href="http://jeo.com/cphmp/">http://jeo.com/cphmp/</a> )
Posting of 2012 CPNRD HMP	Current HMP posted for public viewing on JEO Hazard Mitigation Planning project website ( <a href="http://jeo.com/cphmp/">http://jeo.com/cphmp/</a> )
Project Announcement and Press Release	CPNRD's <i>In Perspective</i> newsletter, August 2016
Planning Workshop Letter & Postcard (30/15 day notification)	Inform local officials of the event; provide basic project related information
Planning Team Letter (30/15 day notification)	Inform the Planning Team of upcoming meetings
Round 1 Meeting Letters or Postcards (30/15 day notification)	Send to participants to discuss the agenda/dates/times/locations of the first round of public meetings
Round 2 Meeting Letters or Postcards (30/15 day notification)	Send to participants to discuss the agenda/dates/times/locations of the second round of public meetings
Neighboring Jurisdictions Letter	Inform neighboring jurisdictions about the planning effort
Stakeholder Group Letters	Notification regarding the planning process and project meeting dates and locations
Notification Phone Calls	Call potential participants to remind them about upcoming meetings
Follow-up Emails and Phone Calls	Remind and assist participating jurisdictions in the collection and submission of required local data
Project Flyer	Post flyers about the CPNRD HMP and how to get involved; flyers were posted at multiple locations throughout all counties
Word-of-Mouth	Staff discuss the plan with jurisdictions throughout the planning process

**ASSESSMENT OF RISK**

**ROUND 1 MEETINGS: HAZARD IDENTIFICATION**

At the Round 1 meetings, local officials updated information from the 2012 CPNRD HMP. Data reviewed included: location of critical facilities (CF); local hazard prioritization and vulnerability assessment; population and demographics; and other relevant local data. In addition, local officials reviewed and updated the mitigation actions identified in the 2012 HMP specific to their jurisdictions. The review of previously identified mitigation measures included the status of the action; quantifying (when possible) progress in action implementation; and identifying actions that were no longer relevant or likely to be implemented. For meeting materials utilized for the Round 1 meeting, please refer to *Appendices A* and *C*. Table 10 shows the date and location of meetings held for the Round 1 meeting phase of the project. One-on-one meeting dates are not included in this table, but can be found in Table 12.

**Table 10: Round 1 Meeting Dates and Locations**

Agenda Items	
General overview of the HMP planning process, discuss participation requirements, begin the process of risk assessment and impact reporting, update critical facilities, capabilities assessment, and status update on current mitigation projects	
Location and Time	Date
Merrick/Polk Counties: Central City, NE 6:00PM	July 12, 2016
Dawson/Buffalo Counties: Elm Creek, NE 6:00 PM	July 14, 2016
Hall County: Grand Island, NE 1:00 PM	July 20, 2016

Table 11 provides a list of Round 1 meeting attendees, their titles, and the jurisdiction they represent.

**Table 11: Round 1 Public Meeting Attendees**

<b>Name</b>	<b>Title</b>	<b>Jurisdiction</b>
<b>Merrick and Polk Counties: Central City</b>		
Tom Cordsen	Zoning Administrator	City of Central City
John Jarmin	Utilities Superintendent	City of Osceola
Nancy Bryan	City Clerk/Treasurer	City of Stromsburg
Tom Smith	Emergency Manager	Merrick County/Region 44
Bob Carey	Emergency Manager	Polk County
Mike Simonsen	Commissioner	Polk County
Val Snyder	Tallgrass Energy	Tallgrass Energy Pipeline
Rob Bomberger	Tallgrass Energy	Tallgrass Energy Pipeline
Francis McCulla	Fire Chief	Village of Chapman
Sarah Davis	Clerk/Treasurer	Village of Palmer
Matt Redman	Utilities Superintendent	Village of Polk
Jeff Ball	Lead Engineering Tech	UBBNRD
Jesse Mintken	Projects Manager	CPNRD
Caitlin Olson	Planner	JEO
Phil Luebbert	Planner	JEO
Anne Johnson	Intern Planner	JEO
Viv Novotny	Client Relations	JEO
<b>Dawson and Buffalo Counties: Elm Creek</b>		
LeAnn Klein	Zoning and Floodplain Admin	Buffalo County
Scott Fisher	Maintenance	Buffalo County
Darrin Lewis	Emergency Manager	Buffalo County
Russ Crowell	Ravenna EMC	City of Ravenna
Brian Woldt	Emergency Manager	Dawson County
Glen Brown	Amherst FD Chief	Village of Amherst
Jim Gunderson	Board Chairman at Elm Creek	Village of Elm Creek
Clint Carr	Utility Supt.	Village of Elm Creek
Wendy Clabough	Village Clerk/treasurer	Village of Elm Creek
Ronald Kuspp	Assistant Rescue Chief	Village of Elm Creek
Carol Jorgensen	Rescue Chief	Village of Elm Creek
Leora Hofmann	Clerk/Treasurer	Village of Pleasanton
Jim Cudaback	Riverdale Clerk	Village of Riverdale
Tim Pratt	Riverdale Board Chairman	Village of Riverdale
Marlin Schroeder	Fire Chief	Village of Shelton
Jason Wiehn	Assistant Fire Chief	Village of Shelton
Jesse Mintken	Projects Manager	CPNRD
Jeff Henson	Department Manager	JEO
Caitlin Olson	Planner	JEO
Phil Luebbert	Planner	JEO
<b>Hall County: Grand Island</b>		
Brian Woldt	Emergency Manager	City of Cozad
Chris Rector	City Administrator	City of Gibbon
Bruce Clymer	City Administrator	City of Gothenburg
Chad Nabity	Planning Director	City of Grand Island/Hall County
Dennis Burnside	Assistant City Manager	City of Lexington
Kirk Russell	Superintendent	Doniphan-Trumbull Public Schools
Ramona Schafer	Clerk/Treasurer	Village of Alda
Jeff Greis	Water Operator, Asst fire chief	Village of Clarks

Name	Title	Jurisdiction
Calvin Krepcik	Fireman	Village of Farnam
Aaron Brown	Utilities Superintendent	Village of Overton
Deanna Perry	Clerk/Treasurer	Village of Shelby
Pat Robinson	Utilities Superintendent	Village of Silver Creek
Jesse Mintken	Projects Manager	CPNRD
Jeff Henson	Department Manager	JEO
Caitlin Olson	Planner	JEO
Phil Luebbert	Planner	JEO

As noted earlier, jurisdictional representatives that were unable to attend a public meeting met with a member of the Regional Planning Team one-on-one. Representatives that attended these one-on-one meetings are listed in the following table.

**Table 12: Round 1 One-on-One Meetings**

Name	Title	Jurisdiction
<b>City of Kearney: July 14, 2016</b>		
Terry Eirich	Kearney Fire Inspector	City of Kearney
Max Richardson	Building Officer	City of Kearney
Paul Briscno	Assistant City Manager	City of Kearney
Darrin Lewis	Director EMA	Buffalo County
Colette Gruber	Planner	City of Kearney
Andy Harter	Assistant Public Works Director	City of Kearney
Tony Jelinek	Interim Director of Utilities	City of Kearney
Eric Hellriegel	Asst. Park and Rec Director	City of Kearney
Rod Wiederspan	Public Works Director	City of Kearney
Shawna Erbsen	Director of Admin Services	City of Kearney
Shelley Dennis	Risk Management Coordinator	City of Kearney
Daniel Lynch	Kearney Police	City of Kearney
Jeff Henson	Department Manager	JEO
Caitlin Olson	Planner	JEO
Phil Luebbert	Planner	JEO
Anne Johnson	Intern Planner	JEO
<b>Village of Oconto: August 1, 2016</b>		
Penny Jeffrey	Clerk	Oconto Village
Jim Rempe	Chairman	Oconto Village
Daniel Eggleston	Board member	Oconto Village
Karen Dockweiler	Board member	Oconto Village
Jeff Henson	Department Manager	JEO
Caitlin Olson	Planner	JEO
<b>City of Wood River: August 4, 2016</b>		
Greg Cramer	Mayor	Wood River
Caitlin Olson	Planner	JEO Consulting Group, Inc.
<b>Village of Cairo: September 14, 2016</b>		
Jamie Rathman	Clerk	Village of Cairo
Rebecca Appleford	Project Coordinator	JEO
<b>Village of Eustis: November 23, 2016</b>		
Deanna Perry	Clerk/Floodplain Administrator	Village of Eustis
Rebecca Appleford	Project Coordinator	JEO

**MITIGATION PLAN DEVELOPMENT****ROUND 2 MEETINGS: MITIGATION STRATEGIES**

At the Round 2 meetings, participating jurisdictions identified new mitigation actions to address hazards of concern for their jurisdictions. Participating jurisdictions were also asked to review the information collected from the Round 1 meetings related to their jurisdictions. Local planning teams were asked to ensure all information included was up-to-date and accurate.

The discussion also addressed the remaining component in the planning process. Topics related to the planning process included: when and where the plan would be available for public review and comment; the annual review requirements as defined in Section 6 of this plan; and the grant funding opportunities and processes participants were eligible to pursue upon plan adoption and approval. Table 13 provides the date and location of meetings held for the Mitigation Strategies phase of this project. One-on-one meeting dates are not included in this table but can be found in Table 15.

**Table 13: Round 2 Meeting Dates and Locations**

<b>Agenda Items</b>	
Identify new mitigation actions, plan integration, review of local data, annual review process, and applying for grants	
<b>Location and Time</b>	<b>Date</b>
Merrick/Polk Counties: Central City, NE 6:30PM	October 11, 2016
Dawson/Buffalo Counties: Elm Creek, NE 6:30 PM	October 13, 2016
Hall County: Grand Island, NE 1:00 PM	October 18, 2016

Table 14 and Table 15 provide a list of Round 2 public and one-on-one meeting attendees, their titles, and the jurisdictions they represent.

**Table 14: Round 2 Public Meeting Attendees**

<b>Name</b>	<b>Title</b>	<b>Jurisdiction</b>
<b>Merrick and Polk Counties: Central City</b>		
Tom Cordsen	Zoning Administrator	City of Central City
Nancy Bryan	Clerk/Treasurer	City of Stromsburg
Jeff Gress	Maintenance Superintendent	Village of Clarks
Tom Smith	Region 44 Emergency Manager	Merrick County
Russell Kreachbaum	County Supervisor	Merrick County
Jeff Ball	Leading Engineer Tech	UBBNRD
Jesse Mintken	Projects Manager	CPNRD
Jeff Henson	Department Manager	JEO
Rebecca Appleford	Project Coordinator	JEO
<b>Dawson and Buffalo Counties: Elm Creek</b>		
Darrin Lewis	Emergency Manager	Buffalo County
LeAnn Klein	Zoning Administrator	Buffalo County
Bruce Clymer	City Administrator	City of Gothenburg
Coellette Gruber	City Planner	City of Kearney
Dennis Burnside	Assistant City Manager	City of Lexington
Russ Crowell	Emergency Manager	City of Ravenna
Brian Woldt	Emergency Manager	Dawson County
Scott Fisher	Maintenance	Village of Amherst
Carol Jorgensen	Rescue Chief	Village of Elm Creek
Ron Knapp	Assistant Rescue Chief	Village of Elm Creek
Jim Gunderson	Board Chairman	Village of Elm Creek

Name	Title	Jurisdiction
Leora Hofmann	Clerk/Treasurer	Village of Pleasanton
Rebecca Appleford	Project Coordinator	JEO
John Brennan	Planner/GIS Specialist	JEO
<b>Hall County: Grand Island</b>		
Chad Nabity	Planning Director	City of Grand Island/Hall County
Vince Boudreau	City Council Member	City of Wood River
Jon Rosenlund	Emergency Manager	Hall County
Steve Riehle	Engineer	Hall County
Ramona Schafer	Clerk/Treasurer	Village of Alda
Jaime Rathman	Clerk	Village of Cairo
Francis Hannon	Maintenance Supervisor	Village of Doniphan
Sarah Davis	Clerk/Treasurer	Village of Palmer
Pat Robinson	Maintenance Supervisor	Village of Silver Creek
Chad Nabity	Planning Director	City of Grand Island/Hall County
Jesse Mintken	Projects Manager	CPNRD
Jeff Henson	Department Manager	JEO
Rebecca Appleford	Project Coordinator	JEO
Brooke Welsh	Intern Planner	JEO

**Table 15: Round 2 One-on-One Meetings**

Name	Title	Jurisdiction
<b>Village of Farnam: October 13, 2016</b>		
Calvin Krepcik	Fireman	Village of Farnam
Rod Klein	Fire Chief	Village of Farnam
Dan Widick	Village Board	Village of Farnam
Rebecca Appleford	Project Coordinator	JEO
<b>Grand Island Public Schools: October 18, 2016</b>		
Robin Dexter	Associate Superintendent	Grand Island Public Schools
Dan O. Petsch	Director of Buildings & Grounds	Grand Island Public Schools
Rick Ressel	School Safety Coordinator	Grand Island Public Schools
Jon Rosenlund	Emergency Manager	City of Grand Island/Hall County
Rebecca Appleford	Project Coordinator	JEO
Brooke Welsh	Intern Planner	JEO
<b>Village of Overton: November 1, 2016</b>		
Aaron Brown	Utilities Superintendent	Village of Overton
Rebecca Appleford	Project Coordinator	JEO
Ellana Haakenstad	Intern Planner	JEO
<b>City of Osceola: November 3, 2016</b>		
John Jarmin	Utilities Superintendent	City of Osceola
Rebecca Appleford	Project Coordinator	JEO
Ellana Haakenstad	Intern Planner	JEO
<b>Polk County: November 3, 2016</b>		
Bob Carey	Emergency Manager	Polk County
Rebecca Appleford	Project Coordinator	JEO
<b>Village of Chapman: November 3, 2016</b>		
Francis McCulla	Fire Chief	Village of Chapman
Rebecca Appleford	Project Coordinator	JEO

Name	Title	Jurisdiction
<b>Village of Riverdale: November 7, 2016</b>		
David Pratt	Board Member	Village of Riverdale
Timothy Pratt	Board Member	Village of Riverdale
Jim Cudabeck	Board Secretary	Village of Riverdale
Rebecca Appleford	Projector Coordinator	JEO
<b>Village of Polk: November 21, 2016</b>		
Matt Redman	Utilities Superintendent	Village of Polk
Rebecca Appleford	Projector Coordinator	JEO
<b>Village of Eustis: November 29, 2016</b>		
Susan Strong	Clerk/Floodplain Administrator	Village of Eustis
Rebecca Appleford	Projector Coordinator	JEO
<b>Doniphan-Trumbull Public Schools: December 2, 2016</b>		
Kirk Russell	Superintendent	Doniphan-Trumbull Schools
Rebecca Appleford	Projector Coordinator	JEO
<b>Village of Oconto: December 5, 2016</b>		
Mark D. Rempe	Emergency Management Director	Custer County
Stacy Kubert	Board Member	Village of Oconto
Karen Dockweiler	Board Member	Village of Oconto
Tim Pflaster	Board Member	Village of Oconto
Penny Jeffrey	Board Member	Village of Oconto
Daniel Eggleston	Board Chairman	Village of Oconto
Rebecca Appleford	Projector Coordinator	JEO
<b>Village of Shelby: March 3, 2017</b>		
Deanna Perry	Clerk/Treasurer	Village of Shelby
Rebecca Appleford	Projector Coordinator	JEO

The following table provides a summary of jurisdictions in the planning area that attended meetings, submitted at least one mitigation project, and are eligible to adopt the HMP.

**Table 16: Jurisdictional Involvement and Meeting Summary**

Jurisdiction	Attended Round 1 and/or Completed Required Worksheets	Attended Round 2 and/or Completed Required Worksheets	Submitted One or More Mitigation Projects	Jurisdiction Eligible to Adopt HMP
<b>Natural Resources Districts</b>				
Central Platte NRD	X	X	X	X
Upper Big Blue NRD	X	X		
<b>Buffalo County</b>				
Buffalo County	X	X	X	X
Village of Amherst	X	X	X	X
Village of Elm Creek	X	X	X	X
City of Gibbon	X	X	X	X
City of Kearney	X	X	X	X
Village of Miller				
Village of Pleasanton	X	X	X	X
City of Ravenna	X	X	X	X
Village of Riverdale	X	X	X	X
Village of Shelton	X	X	X	X
<b>Custer County</b>				

Jurisdiction	Attended Round 1 and/or Completed Required Worksheets	Attended Round 2 and/or Completed Required Worksheets	Submitted One or More Mitigation Projects	Jurisdiction Eligible to Adopt HMP
Village of Oconto	X	X	X	X
<b>Dawson County</b>				
Dawson County	X	X	X	X
City of Cozad	X	X	X	X
Village of Eddyville				
Village of Farnam	X	X	X	X
City of Gothenburg	X	X	X	X
City of Lexington	X	X	X	X
Village of Overton	X	X	X	X
Village of Sumner				
<b>Frontier County</b>				
Village of Eustis	X	X	X	X
<b>Hall County</b>				
Hall County	X	X	X	X
Village of Alda	X	X	X	X
Village of Cairo	X	X	X	X
Village of Doniphan	X	X	X	X
City of Grand Island	X	X	X	X
City of Wood River	X	X	X	X
<b>Merrick County</b>				
Merrick County	X	X	X	X
City of Central City	X	X	X	X
Village of Chapman	X	X	X	X
Village of Clarks	X	X	X	X
Village of Palmer	X	X	X	X
Village of Silver Creek	X	X	X	X
<b>Platte County</b>				
Village of Duncan				
<b>Polk County</b>				
Polk County	X	X	X	X
City of Osceola	X	X	X	X
Village of Polk	X	X	X	X
Village of Shelby	X	X	X	X
City of Stromsburg	X	X	X	X
<b>School Districts</b>				
Doniphan-Trumbull Public Schools	X	X	X	X
Grand Island Public Schools	X	X	X	X

**PUBLIC REVIEW AND PROJECT FUNDING**

Once the draft of the HMP was completed, a public review period was opened to allow for participants and community members at large to review the plan and provide comments and changes, if any at that time. The public review period was open from March 15, 2017 through April 17, 2017. Participating jurisdictions were emailed and mailed a letter notifying them of this public review period. The HMP was also made available on the project website (<http://jeo.com/cphmp/>) for download. Received comments and changes were incorporated into the plan.

***FUNDING WORKSHOP***

The focus of the Funding Workshop, held on April 20<sup>th</sup>, 2017 at the CPNRD office in Grand Island, was to provide participating jurisdictions with information on potential funding sources that could be accessed in implementing the mitigation actions identified by each jurisdiction. To discuss funding strategies, multiple agencies were asked to provide information to local officials regarding grant, loan, and other funding programs that might be appropriate to assist with project mitigation action implementation. The following table provides a list of agencies and entities that shared funding information.

**Table 17: Funding Agencies Present at Workshop**

Name	Agency	Funding Programs Reviewed
Mary Baker	NEMA	HMGP, PDM, FMA
Tara Sampson	Nebraska Department of Environmental Quality (NDEQ)	Nebraska State Revolving Fund Program
Lori Ferguson	South Central Economic Development District (SCEDD)	CDBG, Community Development Assistance Act, Civic & Community Center Financing Fund, Nebraska Game & Parks Land/water Conservation Fund, Nebraska Investment Finance Authority
Bert Mues	US Department of Agriculture (USDA) Rural Development	Water and Waste Disposal Loan/Grant Program, Community Facilities Direct Loan Program, Community Facilities Guaranteed Loan Program, Rural Housing Site Loan Program

Table 18 provides a list of attendees, their titles and the jurisdictions they represent.

**Table 18: Funding Workshop Attendees**

Name	Title	Jurisdiction
John R. Danforth	Environmental Assistant Coordinator	NDEQ
Tara Sampson	Environmental Program Specialist	NDEQ
Lori Ferguson	Community Consultant	SCEDD
Bert Mues	Community Programs Specialist	USDA Rural Development
Kathie Carlstrom	Village Clerk	Village of Polk
Dennis Burnside	Assistant City Manger	City of Lexington
Rod Klein	Fire Chief	Village of Farnam
Scott Fisher	Maintenance	Village of Amherst
Jon Rosenlund	Emergency Management Director	Grand Island/Hall County
Chad Nabity	Planning Director	Grand Island/Hall County
Barb Church	Clerk	Village of Clarks
Eric Hellriegel	Assistant Parks & Recreation Director	City of Kearney
Jesse Mintken	Assistant General Manager	CPNRD
Rebecca Appleford	Project Coordinator	JEO

***PLAN INTEGRATION***

The following table identifies many of the sources utilized during this planning process.

**Table 19: General Plans, Documents, and Information**

<b>Documents</b>	<b>Source</b>
Disaster Mitigation Act of 2000 DMA	<a href="http://www.fema.gov/media-library/assets/documents/4596?id=1935">http://www.fema.gov/media-library/assets/documents/4596?id=1935</a>
Final Rule (2007)	<a href="http://www.fema.gov">http://www.fema.gov</a>
Local Multi-Hazard Mitigation Planning Guidance (Blue Book) (2008)	<a href="http://www.fema.gov">http://www.fema.gov</a>
Local Mitigation Planning Handbook (2013)	<a href="http://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf">http://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf</a>
Hazard Mitigation Assistance Unified Guidance (2013)	<a href="http://www.fema.gov/hazard-mitigation-assistance">http://www.fema.gov/hazard-mitigation-assistance</a>
What is a Benefit: Guidance on Benefit-Cost Analysis on Hazard Mitigation Projects (2015)	<a href="http://www.fema.gov/benefit-cost-analysis">http://www.fema.gov/benefit-cost-analysis</a>
The Census of Agriculture (2012)	<a href="http://www.agcensus.usda.gov/">http://www.agcensus.usda.gov/</a>
National Flood Insurance Program Community Status Book (2016)	<a href="http://www.fema.gov/cis/NE.html">http://www.fema.gov/cis/NE.html</a>
Local Mitigation Plan Review Guide (2011)	<a href="https://www.fema.gov/media-library-data/20130726-1809-25045-7498/plan_review_guide_final_9_30_11.pdf">https://www.fema.gov/media-library-data/20130726-1809-25045-7498/plan_review_guide_final_9_30_11.pdf</a>
<b>Plans/Studies</b>	<b>Source</b>
Nebraska Drought Mitigation and Response Plan (2000)	<a href="http://carc.nebraska.gov/docs/NebraskaDrought.pdf">http://carc.nebraska.gov/docs/NebraskaDrought.pdf</a>
Flood Insurance Studies (where applicable)	<a href="http://www.fema.gov/floodplain-management/flood-insurance-study">http://www.fema.gov/floodplain-management/flood-insurance-study</a>
State of Nebraska Hazard Mitigation Plan (2014)	<a href="http://www.nema.ne.gov/pdf/hazmitplan.pdf">http://www.nema.ne.gov/pdf/hazmitplan.pdf</a>
Nebraska Geological Survey Landslide Study (2006)	<a href="http://snr.unl.edu/csd/surveyareas/geology.asp">http://snr.unl.edu/csd/surveyareas/geology.asp</a>
Community Comprehensive Plans/Zoning and Subdivision regulations	From respective communities
<b>Data Sources/Technical Resources</b>	<b>Source</b>
Federal Emergency Management Agency	<a href="http://www.fema.gov">http://www.fema.gov</a>
United States Department of Commerce	<a href="http://www.commerce.gov/">http://www.commerce.gov/</a>
National Oceanic Atmospheric Administration	<a href="http://www.noaa.gov/">http://www.noaa.gov/</a>
National Centers for Environmental Information	<a href="http://www.ncei.noaa.gov">http://www.ncei.noaa.gov</a>
Storm Prediction Center Statistics	<a href="http://www.spc.noaa.gov">http://www.spc.noaa.gov</a>
United States Geological Survey (USGS)	<a href="http://www.usgs.gov/">http://www.usgs.gov/</a>
United States Department of Agriculture	<a href="http://www.usda.gov">http://www.usda.gov</a>
United States Department of Agriculture – Risk Assessment Agency	<a href="http://www.rma.usda.gov">http://www.rma.usda.gov</a>
National Agricultural Statistics Service	<a href="http://www.nass.usda.gov/">http://www.nass.usda.gov/</a>
High Plains Regional Climate Center	<a href="http://www.hprcc.unl.edu">http://www.hprcc.unl.edu</a>
United States Census Bureau	<a href="http://www.census.gov">http://www.census.gov</a>
National Consortium for the Study of Terrorism and Responses to Terrorism (START) (2013)	<a href="http://www.start.umd.edu/gtd/">http://www.start.umd.edu/gtd/</a>
National Flood Insurance Program	<a href="http://www.fema.gov">http://www.fema.gov</a> <a href="http://dnrdata.dnr.ne.gov">http://dnrdata.dnr.ne.gov</a>
National Flood Insurance Program Bureau and Statistical Agent	<a href="http://www.fema.gov/national-flood-insurance-program">http://www.fema.gov/national-flood-insurance-program</a>
FEMA Map Service Center	<a href="http://www.msc.fema.gov">http://www.msc.fema.gov</a>
National Drought Mitigation Center – Drought Monitor	<a href="http://drought.unl.edu/dm/monitor.html">http://drought.unl.edu/dm/monitor.html</a>

Documents	Source
National Historic Registry	<a href="http://www.nps.gov/nr">http://www.nps.gov/nr</a>
United States Small Business Administration	<a href="http://www.sba.gov">http://www.sba.gov</a>
Nebraska Emergency Management Agency	<a href="http://www.nema.ne.gov">http://www.nema.ne.gov</a>
Nebraska Climate Assessment Response Committee	<a href="http://carc.agr.ne.gov">http://carc.agr.ne.gov</a>
Nebraska Department of Education	<a href="http://reportcard.education.ne.gov/">http://reportcard.education.ne.gov/</a> <a href="http://educdirsrc.education.ne.gov/">http://educdirsrc.education.ne.gov/</a>
Nebraska Department of Natural Resources	<a href="http://www.dnr.ne.gov">http://www.dnr.ne.gov</a>
Nebraska Department of Natural Resources – Dam Inventory	<a href="http://dnr.ne.gov/dam/dam-inventory-database">http://dnr.ne.gov/dam/dam-inventory-database</a>
Natural Resources Conservation Service	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/site/ne/home/">http://www.nrcs.usda.gov/wps/portal/nrcs/site/ne/home/</a>
Nebraska Forest Service (NFS)	<a href="http://www.nfs.unl.edu/">http://www.nfs.unl.edu/</a>
Nebraska Forest Service – Wildland Fire Protection Program	<a href="http://nfs.unl.edu/program-wildlandfireprotection.asp">http://nfs.unl.edu/program-wildlandfireprotection.asp</a>
Nebraska Association of Resources Districts	<a href="http://www.nrdnet.org">http://www.nrdnet.org</a>
Nebraska Public Power District Service	<a href="http://sites.nppd.com">http://sites.nppd.com</a>
Nebraska Department of Revenue – Property Assessment Division	<a href="http://www.revenue.nebraska.gov/PAD/">http://www.revenue.nebraska.gov/PAD/</a>
UNL – College of Agricultural Sciences and Natural Resources – Schools of Natural Resources	<a href="http://casnr.unl.edu">http://casnr.unl.edu</a>
Nebraska Department of Health & Human Services	<a href="http://dhhs.ne.gov/publichealth/Pages/crl_rosters.aspx">http://dhhs.ne.gov/publichealth/Pages/crl_rosters.aspx</a>
Stanford University’s National Performance of Dams Program	<a href="http://npdp.stanford.edu/">http://npdp.stanford.edu/</a>

### ***PLAN ADOPTION***

Based on FEMA requirements, this multi-jurisdictional hazard mitigation plan must be formally adopted by each participant through approval of a resolution. This approval will create ‘individual ownership’ of the plan by each participant. Formal adoption provides evidence of a participant’s full commitment to implement the plan’s goals and objectives and action items.

**Requirement §201.6(c)(5):** For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

In addition, the plan will need to be reviewed annually or when a hazard event occurs that significantly affects the area or individual participants and updated as appropriate at those times. A copy of the resolution draft submitted to participating jurisdictions is located in *Appendix A*. Copies of adoption resolutions may be requested from the State Hazard Mitigation Officer.

### ***PLAN IMPLEMENTATION AND PROGRESS MONITORING***

*Section Six* describes the system that participating jurisdictions in the CPNRD have established to monitor the plan; provides a description of how, when, and by whom the HMP process and mitigation actions will be evaluated; presents the criteria used to evaluate the plan; and explains how the plan will be maintained and updated.

THIS PAGE IS INTENTIONALLY BLANK

## SECTION THREE: DEMOGRAPHICS AND ASSET INVENTORY

---

### ***INTRODUCTION***

This section includes information on: changes in demographics within the planning area; a summary of “at risk populations” for the planning area; housing statistics; government owned lands; and an inventory of agricultural assets. It is a summary for the planning area, so specific information with individual demographics (e.g. structural inventory, total housing units, properties on the National Historic Registry, etc.) for each participating jurisdiction can be found in their participant sections in *Section Seven*.

### ***DEMOGRAPHIC CHANGES***

As populations change, either growing or declining, the vulnerability of the community is impacted. If a community experiences rapid growth it may lack sufficient resources to adequately provide services for all members of the community in a reasonable timeframe. Examples of potential growth related complications include: insufficient snow removal and roadway maintenance; lack of emergency storm shelters in vulnerable areas; inability to complete repairs to damaged infrastructure; and tracking the location of vulnerable populations. Communities experiencing population decline may be more vulnerable to hazards due to: vacant and/or dilapidated structures; an inability to properly maintain critical facilities and/or infrastructure; and higher levels of unemployment and population living in poverty. It is important for communities to monitor their population changes and ensure that those issues are incorporated into hazard mitigation plans, as well as other planning mechanisms within the community.

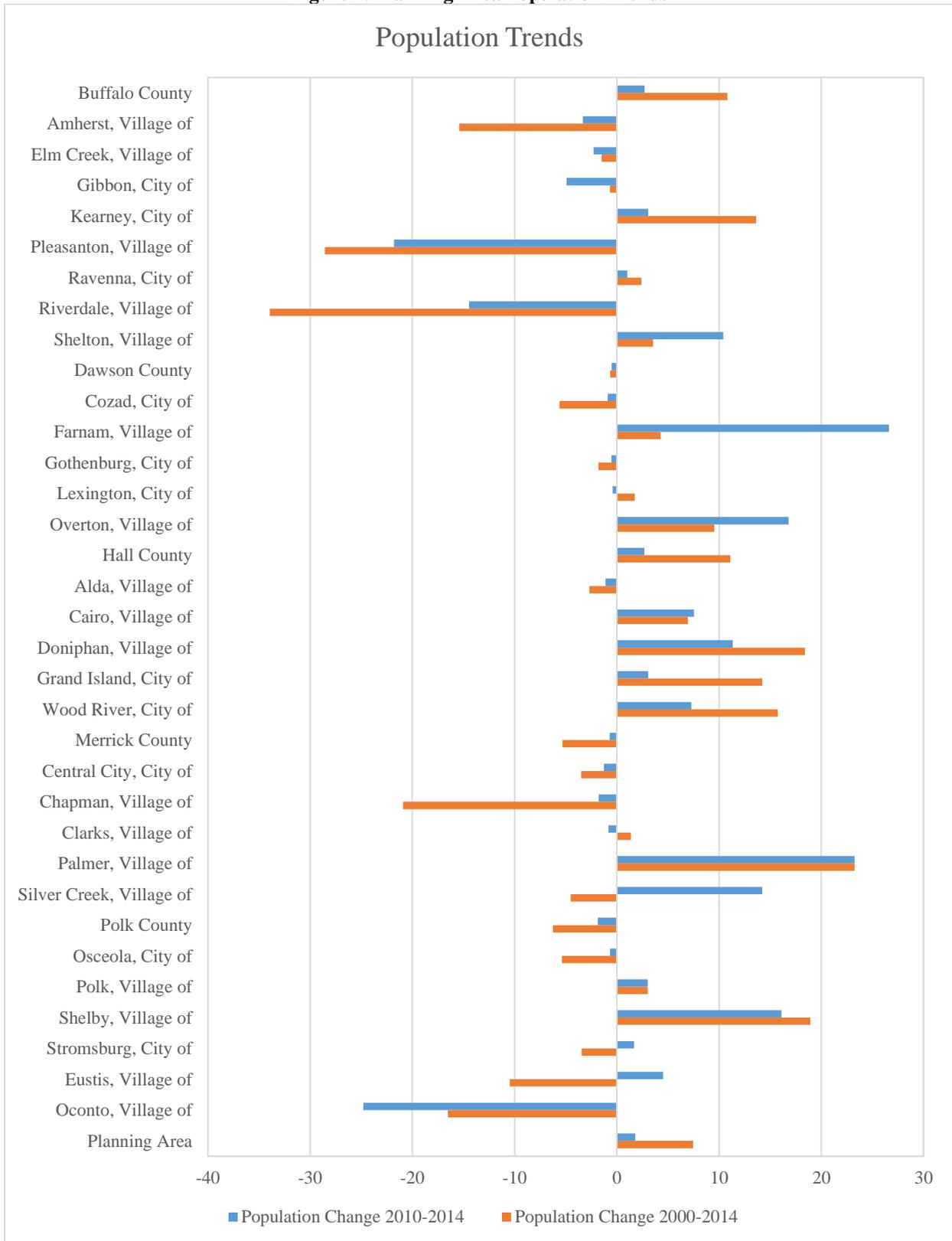
In general, the planning area is a mixture of rural and metropolitan areas. Per the US Census, the regional population for 2014 (estimated) is 145,454 persons. This represents an increase of 1.8 percent from the 2010 census and nearly 7.5 percent since 2000. To determine the growth and decline in population of communities across the planning area, the percent change was calculated. The following figure provides a summary of the percent changes from 2000 to 2010 and from 2010 to 2014 for each community and county in the planning area.

For percent change between 2010 and 2014 across the planning area, 17 of the 34 jurisdictions experienced growth in population between 2010 and 2014. Of the 17, seven had population growth greater than 10 percent, which are the Village of: Shelton, Farnam, Overton, Doniphan, Palmer, Silver Creek, and Shelby. Grand Island Public Schools and Doniphan-Trumbull Public Schools (not listed in the figure) also experienced student enrollment growth between 2010 and 2014 of 5.6 percent and 4.5 percent respectively.

For the 17 other jurisdictions that experienced decline in population, two had a decline greater than -10 percent, which are the Villages of Pleasanton, Riverdale, and Oconto. The decline is likely attributed to the lack of opportunities for residents. However, it should be noted that the Village of Riverdale stated that many residents did not properly receive the census survey, which may have led to the high decline in population.

Despite an overall decline in population between 2000 and 2014, there are communities that are showing a rebound in growth between 2010 and 2014. The Villages of Eustis and Silver Creek as well as the City of Stromsburg are indicating growth since 2010. If this trend continues, these communities are expected to reach their 2000 population within the next few years.

**Figure 4: Planning Area Population Trends**



Source: U.S. Census Bureau – 2000, 2010, 2014 (ACS Estimates)

**AT RISK POPULATIONS**

In general, at risk populations may have difficulty with medical issues, poverty, extremes in age, and communications due to language barriers. Several outliers may be considered when discussing potentially at risk populations, including:

- Not all people who are considered “at risk” are at risk
- Outward appearance does not necessarily mark a person as at risk
- A hazard event will, in many cases, impact at risk populations in different ways

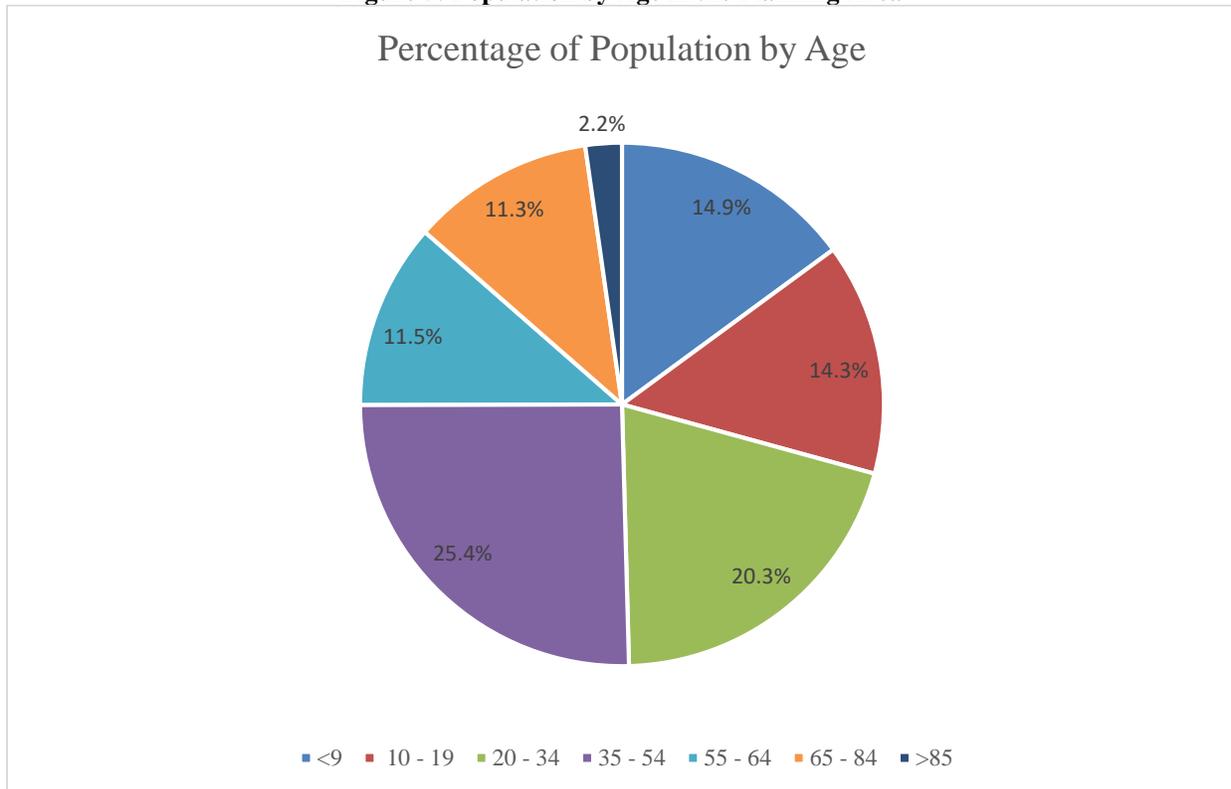
The National Response Framework defines at risk populations as “...populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to: maintaining independence, communication, transportation, supervision, and medical care.”

Figure 5 provides a breakdown of the population by age for the planning area. The figure shows that the largest demographic cohort for the planning area is that of residents between the ages of 35 and 54 years at 25.4 percent. Minors (ages 0 to 19) constitute an estimated 29.2 percent of the population while seniors (65 and over) comprise approximately 13.5 percent of the total population.

Residents under the age of 19 experience higher levels of vulnerability related to hazards for a range of reasons. General vulnerabilities that can be identified for this group include: lack of independent transportation, significant concentrations of the demographic during daytime hours (attending schools), and the potential for greater impacts resulting from environmental stimuli (chemical release, extreme temperatures, contamination of air/water). Thus, this demographic group experiences increased vulnerability to the following list of hazards: tornadoes (especially daytime events), severe thunderstorms, severe winter storms, extreme heat, water shortage created by drought, and chemical releases. Lack of awareness can at times be a concern for people in this age range as well as an inability to recognize and respond to environmental stimuli, which could lead to increased vulnerability to flooding (especially flash flooding), severe thunderstorms, tornadoes, and severe winter storms.

Like minors, seniors (age 65 and greater) are often more significantly impacted by temperature extremes. During prolonged heat waves, seniors may lack resources to effectively address the hazards and as a result may incur injury or potentially death. Prolonged power outages (either standalone events or as the result of other contributing factors) can have significant impacts on any citizen relying on medical devices for proper bodily functions. One study conducted by the Center for Injury Research and Policy found that increases in vulnerability related to severe winter storms (with significant snow accumulations) begin at age 55. The 2011 study found that on average there are 11,500 injuries and 100 deaths annually related to snow removal. People, especially males, over the age of 55 are 4.25 times more likely to experience cardiac symptoms during snow removal.

**Figure 5: Population by Age in the Planning Area**



Source: U.S. Census Bureau – ACS 2014 5-year estimate

Furthermore, there are several school districts within the planning area. Schools house a high number of “at risk” residents within the planning area during the daytime hours of weekdays as well as during special events on evenings and weekends. The following table identifies the various school districts located within the planning area, and Figure 6 is a map of the school district boundaries. This list is comprehensive and does not represent only the school districts that are participating in this plan.

**Table 20: School Inventory**

School District	Total Enrollment (2014 - 2015)
Amherst Public Schools	358
Central City Public Schools	688
Centura Public Schools	496
Cozad City Schools	958
Cross County Community Schools	370
Doniphan-Trumbull Public Schools	489
Elm Creek Public Schools	355
Eustis-Farnam Public Schools	205
Gibbon Public Schools	599
Gothenburg Public Schools	936
Grand Island Public Schools	9,553
High Plains Community Schools	247
Kearney Public Schools	5,374
Lexington Public Schools	2,995
Northwest Public Schools	1,453
Osceola Public Schools	276

School District	Total Enrollment (2014 - 2015)
Overton Public Schools	328
Palmer Public Schools	287
Pleasanton Public Schools	264
Ravenna Public Schools	460
Shelby-Rising City Public Schools	391
Shelton Public Schools	286
Sumner-Eddyville-Miller Schools	204
Twin Rivers Public Schools	494
Wood River Rural Schools	572

Source: Nebraska Department of Education

While the previously identified populations do live throughout the planning area, there is the potential that they will be located in higher concentrations at care facilities. The following table identifies the location and capacity of care facilities throughout the planning area.

**Table 21: Inventory of Care Facilities**

Jurisdiction	Number of Hospitals	Number of Hospital Beds	Adult Care Home	Adult Care Beds	Assisted Living Homes	Assisted Living Beds
Buffalo County	3	277	6	353	7	351
Dawson County	3	57	3	197	5	213
Hall County	1	159	8	833	9	334
Merrick County	1	20	2	110	4	94
Polk County	1	16	2	105	2	44

Source: Nebraska Department of Health and Human Services

In addition to residents being classified as at risk by age, there are other specific groups within the planning area that experience vulnerabilities related to their ability to communicate or their economic status. Table 22 provide statistics per county regarding households with English as a second language (ESL) and population reported as living below the poverty level within the past 12 months.

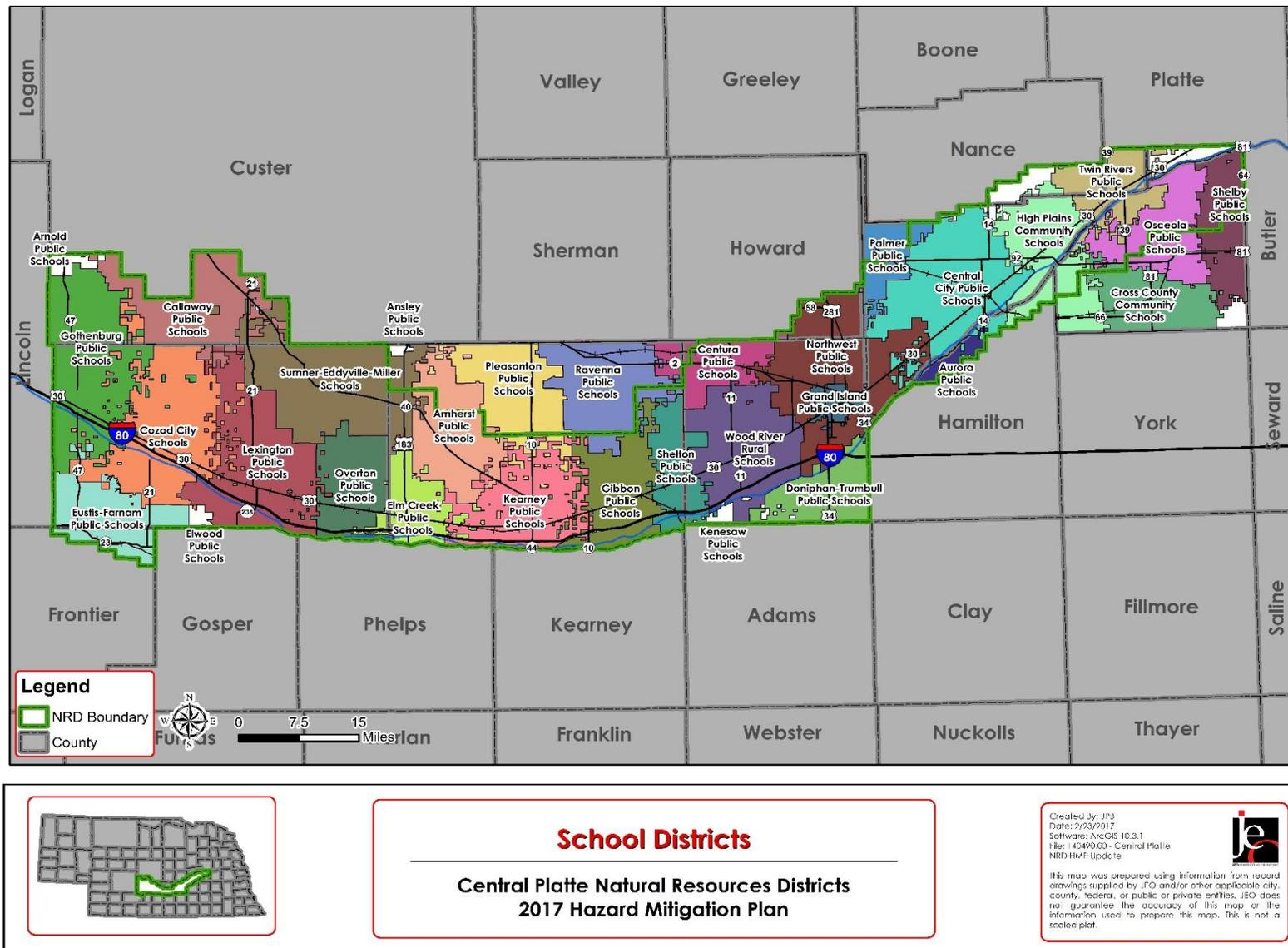
Dawson County has about a third of its population identified as ESL and Hall County at about a fifth of its population. According the US Census, the majority (around 88 percent) of the ESL population speak Spanish. It is important the planning area, particularly Dawson and Hall Counties, also craft messages for the Spanish speaking communities to better convey the risk of hazards.

**Table 22: At Risk Populations**

County	Population that speaks English as Second Language	Percent of Total Population	Population Below Poverty Level	Percent of Total Population
Buffalo County	3,405	7.7%	5,423	12.3%
Dawson County	7,348	32.9%	3,107	13.9%
Hall County	11,442	20.6%	8,724	15.7%
Merrick County	301	4.1%	816	11.1%
Polk County	231	4.6%	422	8.4%

Source: Language Spoken at Home: 2014 ACS 5-year estimate, Selected Economic Characteristics: 2014 ACS 5-year estimate

Figure 6: Regional School Districts



Resident who speak English as a second language may struggle with a range of issues before, during, and after hazard events. General vulnerabilities revolve around what could be an inability to effectively communicate with others or an inability to comprehend materials aimed at notification and/or education. When presented with a hazardous situation it is important that all community members be able to receive, decipher, and act on relevant information. An inability to understand warnings and notifications may prevent not native English speakers from reacting in a timely manner. Further, educational materials related to regional hazards are most often developed in the dominant language for the area, for the planning area that would most likely be English. Residents who struggle with English in the written form may not have sufficient information related to local concerns to effectively mitigate potential impacts. Residents with limited English proficiency would be at an increased vulnerability to all hazards within the planning area.

Residents below the poverty line may lack resources to prepare for, respond to, or recover from hazard events. Residents with limited economic resources will struggle to prioritize the implementation of mitigation measures over more immediate needs. Further, residents with limited economic resources are more likely to live in older, more vulnerable structures. These structures could be: mobile homes; located in the floodplain; located near know hazard sites (i.e. chemical storage areas); or older poorly maintained structures. Residents below the poverty line will be more vulnerable to all hazards within the planning area.

### ***BUILT ENVIRONMENT***

Data related to the built environment is an important component of a hazard mitigation plan. It is essential that during the planning process communities and participating jurisdictions display an understanding of their built environment and work to identify needs that may exist within their planning area. This section includes: selected housing characteristics; state and federally owned properties. Additional information specific to each jurisdiction can be found in the *Participant Sections*.

### ***HOUSING STATISTICS***

The US Census provides some additional information related to housing units and potential areas of vulnerability. This information is taken from the 2010 – 2014 ACS 5-year estimate data regarding selected housing characteristics. The selected characteristic examined in Table 23 include: lack of complete plumbing facilities, lacking complete kitchen facilities, no telephone service available, housing units that are mobile homes, and housing units with no vehicles.

**Table 23: Selected Housing Characteristics**

	<b>Buffalo County</b>	<b>Dawson County</b>	<b>Hall County</b>	<b>Merrick County</b>	<b>Polk County</b>	<b>Total</b>
<b>Occupied housing units</b>	<b>18,018</b>	<b>8,731</b>	<b>22,418</b>	<b>3,331</b>	<b>2,238</b>	<b>54,736</b>
Lacking complete plumbing facilities	57 (0.3%)	52 (0.6%)	58 (0.3%)	0 (0.0%)	3 (0.1%)	<b>170 (0.3%)</b>
Lacking complete kitchen facilities	150 (0.8%)	186 (2.1%)	342 (1.5%)	24 (0.7%)	17 (0.8%)	<b>701 (1.3%)</b>
No telephone service available	528 (2.9%)	176 (2.0%)	759 (3.4%)	80 (2.4%)	47 (2.1%)	<b>1,590 (2.9%)</b>
Housing Unit with No vehicles available	847 (4.7%)	335 (3.8%)	1,444 (6.4%)	133 (4.0%)	59 (2.6%)	<b>2,818 (5.2%)</b>

Source: Selected Housing Characteristics: 2014 ACS 5-year estimate

Approximately 2.9 percent of housing units lack access to landline telephone service. This does not necessarily indicate that there is not a phone in the housing unit, as cellular telephones are increasingly a primary form of telephone service. However, this lack of access to landline telephone service does represent a population at increased risk to disaster impacts. Reverse 911 systems are designed to contact households

via landline services and as a result, some homes in hazard prone areas may not receive notification of potential impacts in time to take protective actions. Emergency Managers should work to promote the registration of cell phone numbers with Reverse 911 systems or other notification systems, such as SMS text messaging.

Furthermore, approximately 5.2 percent of all occupied housing units do not have a vehicle available. Households without vehicles may have difficulty evacuating during a hazardous event and a reduced ability to access resources in time of need.

**STATE AND FEDERALLY OWNED PROPERTIES**

The following table provides an inventory of state and federally owned properties within the planning area by county.

**Table 24: State and Federally Owned Facilities**

Facility	Nearest Community
<b>Buffalo County</b>	
Sandy Channel State Recreation Area	Elm Creek
Union Pacific State Recreation Area	Kearney
Fort Kearney State Recreation Area	Kearney
Windmill State Recreation Area	Gibbon
War Axe State Recreation Area	Shelton
Mormon Pioneer National Historic Trail	-
California National Historic Trail	-
Bassway Strip Wildlife Management Area	Kearney
East Odessa Wildlife Management Area	Kearney
Coot Shallows Wildlife Management Area	Elm Creek
Blue Hole Wildlife Management Area	Elm Creek
Kea West Wildlife Management Area	Kearney
Kea Lake Wildlife Management Area	Kearney
Bufflehead Wildlife Management Area	Kearney
<b>Dawson County</b>	
Gallagher Canyon State Recreation Area	Eustis
Mormon Pioneer National Historic Trail	-
California National Historic Trail	-
Oregon National Historic Trail	-
Pony Express National Historic Trail	-
Blue Heron Wildlife Management Area	Gothenburg
East Gothenburg Wildlife Management Area	Gothenburg
Willow Island Wildlife Management Area	Gothenburg
East Willow Island Wildlife Management Area	Cozad
West Cozad Wildlife Management Area	Cozad
Cozad Wildlife Management Area	Cozad
Darr Strip Wildlife Management Area	Cozad
Bittern's Call Wildlife Management Area	Cozad
Plum Creek Wildlife Management Area	Farnam

Facility	Nearest Community
Darr Wildlife Management Area	Lexington
Dogwood Wildlife Management Area	Overton
<b>Hall County</b>	
Cheyenne State Recreation Area	Wood River
Mormon Island State Recreation Area	Grand Island
Mormon Pioneer National Historic Trail	-
Cornhusker Wildlife Management Area	Grand Island
Waterfowl Protection Area	Wood River
Martin's Reach Wildlife Management Area	Wood River
Loch Linda Wildlife Management Area	Grand Island
<b>Merrick County</b>	
California National Historic Trail	-
Dr. Bruce Cowgill Wildlife Management Area	Silver Creek
<b>Polk County</b>	
California National Historic Trail	-
Flatsedge Wildlife Management Area	Shelby

Sources: Nebraska Game & Parks, U.S. National Park Service

### ***AGRICULTURAL ASSET INVENTORY***

Agriculture is a major component of the economy for the planning area and all of Nebraska. Per the Nebraska Department of Agriculture:

- The livestock industry contributes more than \$6 billion annually to the state's economy
- Farmlands across the state accounted for 92% of the state's total land area
- More than 8.3 million acres of farmland are irrigated (44% of all farmland) in 2012
- 1 in 4 jobs are related to agriculture

The following tables present information from the USDA 2007 and 2012 Agricultural Census.

**Table 25: Regional Farm Data**

County	Number of Farms, 2007	Number of Farms, 2012	Percent Change	Farm Acreage, 2007	Farm Acreage, 2012	Percent Change
Buffalo	949	1,046	9.3%	612,171	580,579	-5.4%
Dawson	728	806	9.7%	640,541	630,466	-1.6%
Hall	608	593	-2.5%	328,294	329,668	0.4%
Merrick	473	492	3.9%	247,927	235,072	-5.5%
Polk	505	466	-8.4%	269,195	245,268	-9.8%
<b>Total</b>	<b>3,263</b>	<b>3,403</b>	<b>4.1%</b>	<b>2,098,128</b>	<b>2,021,053</b>	<b>-3.8%</b>

Source: USDA 2007 and 2012 Agricultural Census

### ***CROP INVENTORY***

The following table provides information related to the crops grown within the planning area. The data was collected from the 2012 USDA Agricultural Census.

**Table 26: Crops by County**

County	Wheat (acres)	Soybeans (acres)	Forage (acres)	Corn (acres)
Buffalo	5,008	79,414	35,897	196,474
Dawson	3,536	58,365	43,807	188,841
Hall	447	32,833	13,032	189,239
Merrick	1,176	57,448	9,168	121,521
Polk	303	77,751	7,694	114,915
<b>Total</b>	<b>10,470</b>	<b>305,811</b>	<b>109,598</b>	<b>810,990</b>

Source: 2012 USDA Agricultural Census

**LIVESTOCK INVENTORY**

The following table provides information related to the livestock within the planning area. The data was collected from the 2012 USDA Agricultural Census.

**Table 27: Livestock Inventory by County**

County	Cattle and Calves	Hogs and Pigs	Horse and Ponies	Poultry Egg Layers	Poultry Broilers	Sheep and Lambs
Buffalo	106,059	3,150	942	1,227	118	2,251
Dawson	238,107	58,385	1,244	1,903	492	419
Hall	68,546	3,394	578	563	N/A	749
Merrick	44,952	29,592	818	563	185	219
Polk	68,799	49,891	370	N/A	275	137
<b>Total</b>	<b>526,463</b>	<b>144,412</b>	<b>3,952</b>	<b>4,256</b>	<b>1,070</b>	<b>3,775</b>

Source: 2012 USDA Agricultural Census

N/A: Data withheld

**AGRICULTURAL VALUATION PER COUNTY**

The following table provides information related to the market value of agricultural resources located within the planning area. The data was collected from the 2007 and 2012 USDA Agricultural Census.

**Table 28: Market Value of Agricultural Products Sold**

County	Market Value of Products Sold, 2007	Market Value of Products Sold, 2012	Percent Change
Buffalo	\$164,997,000	\$195,431,000	18.5%
Dawson	\$588,547,000	\$826,281,000	40.4%
Hall	\$228,940,000	\$353,075,000	54.2%
Merrick	\$198,000,000	\$275,222,000	39.0%
Polk	\$254,739,000	\$326,239,000	28.1%
<b>Total</b>	<b>\$1,435,223,000</b>	<b>\$1,976,248,000</b>	<b>37.7%</b>

Source: USDA 2007 and 2012 Agricultural Census

## SECTION FOUR: RISK ASSESSMENT

### INTRODUCTION

The ultimate purpose of this hazard mitigation plan is to minimize the loss of life and property across the planning area. The basis for the planning process is the regional and local risk assessment. This section contains a description of potential hazards, regional vulnerabilities and exposures, probability of future occurrences, and potential impacts and losses. By conducting a regional and local risk assessment participating jurisdictions are able to develop specific strategies to address areas of concern identified through this process. The following table defines terms that will be used throughout this section of the plan.

**Table 29: Term Definitions**

Term	Definition
Hazard	A potential source of injury, death, or damages
Asset	People, structures, facilities, and systems that have value to the community
Risk	The potential for damages, loss, or other impacts created by the interaction of hazards and assets
Vulnerability	Susceptibility to injury, death, or damages to a specific hazard
Impact	The consequence or effect of a hazard on the community or assets
Historical Occurrence	The number of hazard events reported during a defined period of time
Extent	The strength or magnitude relative to a specific hazard
Probability	Likelihood of a hazard occurring in the future

### METHODOLOGY

The risk assessment methodology utilized for this plan follows the risk assessment methodology outlined in the FEMA Local Mitigation Planning Handbook (March 2013). This process consists of four primary steps: 1) Describe the hazard; 2) Identify vulnerable community assets; 3) Analyze risk; and 4) Summarize vulnerability.

When describing the hazard, this plan will examine the following items: previous occurrences of the hazard within the planning area; locations where the hazard has occurred in the past or is likely to occur in the future; extent of past events and likely extent for future occurrences; and probability of future occurrences. The identification of vulnerable assets will be across the entire planning area, *Section Seven* will include discussion of community specific assets at risk for relevant hazards. Analysis for regional risk will examine historic impacts and losses and what is possible should the hazard occur in the future. Risk analysis will include both qualitative (i.e. description of historic or potential impacts) and quantitative data (i.e. assigning values and measurements for potential loss of assets).

**Requirement §201.6(c)(2):** Risk assessment. The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

**Requirement §201.6(c)(2)(i):** The risk assessment shall include a] description of the type ... of all natural hazards that can affect the jurisdiction.

**Requirement §201.6(c)(2)(i):** The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

**Requirement §201.6(c)(2)(ii):** The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

**Requirement §201.6(c)(2)(ii):** The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

**Requirement §201.6(c)(2)(ii)(A):** The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.

**Requirement §201.6(c)(2)(iii):** For multi-jurisdictional plans, the risk assessment must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

Finally, for each hazard identified the plan will provide a summary statement encapsulating the information provided during each of the previous steps of the risk assessment process.

For each of the hazards profiled the best and most appropriate data available will be considered. The following table outlines the data sources utilized to examine each individual hazard. Further discussion relative to each hazard is discussed in the hazard profile portion of this section.

**Table 30: Risk Assessment Data Sources**

Type of Data	Data Source
Property Damage*	NCEI Storm Events Database
Crop Damage	USDA RMA
Sperry-Piltz Ice Accumulation Index (SPIA)	National Weather Service (NWS)
Temperature, Precipitation, Snowfall,	Weather Stations
TORRO Hailstone Scale	The Tornado and Storm Research Organization
Monthly Tornado Averages	National Oceanic and Atmospheric Administration (NOAA)
Tornado Time of Occurrence	NOAA
Tornado Activity in the United States	NOAA
Wind Zones in the United States	FEMA
Beaufort Wind Force Rankings	NWS
Historical Drought Impacts	National Drought Mitigation Center, University of Nebraska-Lincoln
Palmer Drought Severity Index	NOAA NCEI
USDA Secretarial Disaster Designations	U.S. Department of Agriculture
Heat Index	NOAA
Number of Wildfires by Cause in Nebraska 2004-2010	Nebraska Forest Service
Acres Burned by Cause in Nebraska 2004-2010	Nebraska Forest Service
Wildfire Risk Potential Map	USDA Forest Service 2013
NFIP Status	Nebraska Department of Natural Resources, National Flood Insurance Program
NFIP Policies - December 2012	Nebraska Department of Natural Resources, National Flood Insurance Program
NFIP Claims Statistics	National Flood Insurance Program Loss Statistics
2013 Recorded Animal Diseases	Nebraska Department of Agriculture
High Hazard Dams in the Planning Area	Nebraska Department of Natural Resources
Fault Lines in Nebraska	Nebraska Department of Natural Resources
Richter Scale	Federal Emergency Management Agency
Modified Mercalli Intensity Scale	Federal Emergency Management Agency
Nebraska Seismic Hazard Map	United States Geological Survey
Urban Fires by Type and Community	Nebraska State Fire Marshall
Fire Death Rates for the State of Nebraska	U.S. Fire Administration
Chemical Spills from 1980 to 2015	Pipeline and Hazardous Materials Safety Administration
Global Terrorism Database (1970-2015)	National Consortium for the Study of Terrorism and Responses to Terrorism
Database of Dam Failures	Stanford University's National Performance of Dams Program

\*NCEI data was used for property damage, unless otherwise noted.

### ***AVERAGE ANNUAL DAMAGES AND FREQUENCY***

FEMA Requirement §201.6(c)(2)(ii) (B) suggests that when the appropriate data is available, hazard mitigation plans should also provide an estimate of potential dollar losses for structures in vulnerable areas. This risk assessment methodology includes an overview of assets at risk and provides historic average annual dollar losses for all hazards for which historic event data is available. Additional loss estimates are provided separately for those hazards for which sufficient data is available. These estimates can be found within the relevant hazard profiles.

Average annual losses from historical occurrences can be calculated for those hazards for which there is a robust historic record and for which monetary damages are recorded. There are three main pieces of data that are used throughout this formula.

- **Total Damages in Dollars:** This is the total dollar amount of all property damages and crop damages as recorded in federal, state, and local data sources. The limitation to these data sources is that dollar figures usually are estimates and often do not include all damages from every event, but rather only officially recorded damages from reported events.
- **Total Years of Record:** This is the span of years there is data available for recorded events. Vetted and cleaned up NCEI data is available for January 1996 to December 2015. Although some data is available back to 1950, this plan update utilizes only the more current and more accurate data available. Wildfire data is available from the Nebraska Forest Service from 2000 to 2014.
- **Number of Hazard Event:** This shows how often an event occurs. The frequency of a hazard event will affect how a community responds. A thunderstorm may not cause much damage each time, but multiple storms can have an incremental effect on housing and utilities. In contrast, a rare tornado can have a widespread effect on a city.

An example of the Event Damage Estimate is found below:

$$\text{Annual Frequency (\#)} = \frac{\text{Total Events Recorded (\#)}}{\text{Total Years of Record (\#)}}$$

$$\text{Annual Damages (\$)} = \frac{\text{Total Damages in Dollars (\$)}}{\text{Total Years Recorded (\#)}}$$

Each hazard will be included, while those which have caused significant damages or in significant numbers are discussed in detail. It should be noted NCEI data is not all inclusive and it provides very limited information on crop losses. In order to provide a better picture of the crop losses associated with the hazards within the planning area, crop loss information provided by the Risk Management Agency (RMA) of the USDA was also utilized for this update of the plan. The collected data was from 2000 to 2014. Data for all the hazards are not always available, so only those with an available dataset are included in the loss estimation table (Table 35).

### ***HAZARD IDENTIFICATION***

The identification of relevant hazards for the planning area began with a review of the 2014 State of Nebraska Hazard Mitigation Plan. The Regional Planning Team and participating jurisdictions reviewed the list of hazards addressed in the state mitigation plan and determined which hazards were appropriate for discussion relative to the planning area. The hazards for which a risk assessment was completed for this planning process are included in the following table.

**Table 31: Hazards Addressed in the Plan**

Hazards Addressed in the Plan			
Agricultural Animal Disease	Drought	Grass/Wildfire	Severe Thunderstorms
Agricultural Plant Disease	Earthquake	Hail	Severe Winter Storms
Chemical Transportation	Extreme Heat	High Wind	Terrorism
Dam Failure	Flooding	Levee Failure	Tornadoes

**HAZARD ELIMINATION**

Given the location and history of the planning area the following hazards were eliminated from further review. An explanation of how and why the hazards were eliminated is provided.

**Avalanche:** No historic occurrence; due to topography of the planning area this type of hazard has a very low probability of future occurrence.

**Chemical Fixed Sites:** Because chemical storage facilities fall under the Emergency Planning and Community Right to Know Act (EPCRA) and the Clean Air Act (CAA), they are heavily regulated and have existing plans to minimize chemical releases and how to respond appropriately. For that reason, they will not be profiled in this plan. Chemical storage locations will, however, be factored into the risk assessment process for other hazards (i.e. flooding) as appropriate for the planning area. Chemical storage locations are identified for each participating jurisdiction in *Section Seven*.

**Civil Disorder:** For the entire state, there have been a small number of civil disorder events reported, most reported events date back to the 1960s. The absence of civil unrest in recent years does not necessarily indicate there will not be events in the future, but there are other planning mechanisms in place to address this concern. This approach is consistent with the 2014 Nebraska State Hazard Mitigation Plan.

**Coastal Erosion:** While it is likely that the planning area will be impacted by a changing climate there is no coast line located in the planning area, for this reason this hazard has been eliminated.

**Expansive Soils:** Consistent with the 2014 Nebraska HMP, this hazard has been eliminated from further examination. There is not sufficient data available to examine historic impacts or project future probability or losses. Any impact from expansive soils in Nebraska (and the planning area) are likely to be manifested as localized flooding and will be reported as such. This approach is consistent with the 2014 Nebraska HMP.

**Hurricane:** Given the location of the planning area in the central plains, hurricanes are not expected to occur. This is supported by the historical record.

**Land Subsistence (Sinkholes):** Land subsistence is common in areas of karst topography; there are no recognized areas of true karst topography in planning area or even in Nebraska. This approach is consistent with the 2014 Nebraska HMP.

**Landslides:** While there is data available related to landslides which have occurred in the planning area and across the state, the database has not been maintained in recent years. Further landslides that have occurred (in the planning area and across the state) have resulted in no reported damages. The following table outlined the number of recorded landslide events, which have occurred in the planning area. This is consistent with the 2014 Nebraska HMP.

**Table 32: Landslides by County**

County	Number of Landslides	Total Estimated Damages
Buffalo	0	-
Dawson	0	-
Hall	0	-
Merrick	0	-
Polk	1	\$0
<b>Total</b>	<b>1</b>	<b>\$0</b>

Source: Nebraska Hazard Mitigation Plan, 2014

**Radiological Fixed Sites:** Both state and local agencies have developed appropriate and extensive plans and protocols relative to the two nuclear facilities located in the state. The existing plans and protocols are reviewed, updated, and exercised on a regular basis. Due to the extensive planning and regulations related to this threat, it will not be further profiled in this plan. This approach is consistent with the 2014 Nebraska State Hazard Mitigation Plan.

**Radiological Transportation:** There have been no incidents reported in the planning area or the state that have required assistance beyond what is considered regular roadside services. Further, the transportation of radiological materials is heavily regulated and monitored. There are other plans across the state that have thoroughly addressed this threat, therefore it will not be profiled further for this plan. This approach is consistent with the 2014 Nebraska HMP.

**Tsunami:** Given the location of the planning area in the central plains tsunamis are not expected to occur. This is supported by the historical record.

**Urban Fire:** The following table provides the data available from the Nebraska State Fire Marshal relevant for the planning area. The provided data suggests that the planning area has, and will continue to experience fires in urban areas. Fire departments within the planning area have mutual aid agreements in place to address this threat. Typically, this hazard is addressed through existing plans and resources. Urban fire will not be fully profiled for this plan. Discussion relative to fire will be focused on wildfire and the potential impacts they could have on the built environment. This approach is consistent with the 2014 Nebraska State Hazard Mitigation Plan.

**Table 33: Urban Fire**

Fire Department	Fires	Over Pressure Rupture	Rescue/ EMS	Hazardous Materials	Service Calls	Severe Weather Calls	Special Incidents
<b>Buffalo County</b>							
Amherst FD	31	0	0	0	0	0	0
Elm Creek FD	31	1	10	2	1	0	0
Gibbon FD	75	0	422	15	0	8	1
Kearney FD	607	17	539	147	133	17	736
Miller FD	27	0	3	0	1	3	0
Pleasanton FD	64	0	9	3	1	10	0
Ravenna FD	104	3	63	20	27	20	1
Shelton FD	100	1	21	12	4	11	1
<b>Dawson County</b>							
Cozad FD	77	3	34	2	3	1	0
Eddyville FD	1	0	0	0	0	0	0
Farnam FD	58	0	70	0	0	13	0
Gothenburg FD	165	2	46	17	13	0	1
Lexington FD	196	1	1,562	5	164	7	11

Fire Department	Fires	Over Pressure Rupture	Rescue/ EMS	Hazardous Materials	Service Calls	Severe Weather Calls	Special Incidents
Overton FD	78	0	0	2	0	0	0
Sumner FD	0	0	0	0	0	0	0
<b>Hall County</b>							
Alda FD	27	1	3	3	0	0	1
Cairo FD	0	0	0	0	0	0	0
Doniphan FD	15	3	2	3	1	0	0
Grand Island City FD	796	30	18,495	418	706	4	81
Grand Island Rural FD	217	1	701	29	21	3	4
Wood River FD	0	0	0	0	0	0	0
<b>Merrick County</b>							
Central City FD	1	0	0	0	1	0	0
Chapman FD	58	1	2	1	1	0	0
Clarks FD	0	0	0	0	0	0	0
Palmer FD	67	0	21	1	17	4	0
Silver Creek FD	0	0	0	0	0	0	0
<b>Polk County</b>							
Osceola FD	39	0	25	2	0	6	0
Polk FD	17	0	4	0	1	0	0
Shelby FD	43	0	238	3	4	6	0
Stromsburg FD	4	0	1	0	0	0	0
<b>Other Fire Departments</b>							
Oconto FD	0	0	0	0	0	0	0
Eustis FD	22	0	8	2	0	0	0

Source: Nebraska State Fire Marshal, 2007-2012

**Volcano:** Given the location of the planning area, volcanos are not expected to occur. This is supported by the historical record.

***HAZARD ASSESSMENT SUMMARY TABLES***

The following table provides an overview of the data contained in the hazard profiles, hazards listed in this table and throughout the section are in alphabetical. This table is intended to be a quick reference for people using the plan and does not contain source information, source information and full discussion of individual hazards are included in this section.

Table 34: Regional Risk Assessment

Regional Risk Assessment			
Hazard	Previous Occurrence Events/Years	Approximate Annual Probability	Likely Extent
Agricultural Animal Disease	2,819/2.9	100%	Unavailable
Agricultural Plant Disease	154/16	100%	Unavailable
Chemical Transportation	256/46	100%	Limited (<0.25 mile from release site)
Dam Failure	0	1%	Varies
Drought	70/121	58%	Mild Drought
Earthquakes	0/44	<1%	<4.0
Extreme Heat	43/1	100%	>90°F
Flooding	84/20	100%	Some inundation of structures* (<1% of structures) and roads near streams. Some evacuations of people may be necessary (<1% of population)
Grass/Wildfires	1,165/15	100%	<100 acres
Hail	952/20	100%	H3 – H6 (0.8 – 2.4 inches)
High Winds	103/20	100%	9 BWF (47 – 54 mph)
Levee Failure	0/14	1%	3,520 parcels located in leveed areas
Severe Thunderstorms	429/20	100%	Wind ≥ 58 mph and/or Hail ≤ 1.00 inch
Severe Winter Storms	333/20	100%	0.25 ice 20 - 40°F below zero (wind chills) 3 – 7" snow 25 – 40 mph winds
Terrorism	0/46	<1%	Isolated to a single building
Tornadoes	70/20	100%	EF0 - EF1

\*Quantification of vulnerable structures provided in Section Seven: Participant Sections

The following table provides loss estimates for hazards with sufficient data. Description of major events are included in the individual hazard profiles later in this section.

**Table 35: Loss Estimation for the Planning Area**

Hazard Type	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Agricultural Animal Disease	N/A	N/A	Unknown	Unknown
Agricultural Plant Disease	N/A	N/A	\$942,249	\$58,891
Chemical Transportation	\$661,540	\$14,381	Unknown	Unknown
Dam Failure	\$0	\$0	\$0	\$0
Drought	\$0	\$0	\$72,725,194	\$4,545.325
Earthquake	\$0	\$0	\$0	\$0
Extreme Heat	\$2,200,000	\$110,000	\$22,660,532	\$1,416,283
Flooding	\$20,224,000	\$1,011,200	\$3,586,051	\$224,128
Grass/Wildfires <sup>3</sup>	\$0	\$0	\$5,003	\$313
Hail Events	\$93,554,000	\$4,677,700	\$108,997,391	\$6,812,337
High Winds	\$866,400	\$43,320	\$16,407,299	\$1,025,456
Levee Failure	\$0	\$0	\$0	\$0
Severe Thunderstorms	\$26,823,000	\$1,341,150	\$28,304,224	\$1,769,014
Severe Winter Storms	\$25,075,000	\$1,253,750	\$2,491,486	\$155,718
Terrorism	\$0	\$0	N/A	N/A
Tornadoes	\$31,385,000	\$1,569,250	\$29,727	\$1,858

<sup>1</sup> Indicates data is from NCEI (1996 to 2015)

<sup>2</sup> Indicates data is from USDA (2000 to 2015)

<sup>3</sup> Indicates data is from NFS (2000 to 2014)

### ***HISTORICAL DISASTER DECLARATIONS***

The following tables show disaster declarations that have been granted within the planning area in the past.

#### **FARM SERVICE AGENCY SMALL BUSINESS ADMINISTRATION DISASTERS**

The U.S. Small Business Administration (SBA) was created in 1953 as an independent agency of the federal government to aid, counsel, assist, and protect the interests of small business concerns, to preserve free competitive enterprise, and maintain and strengthen the overall economy of our nation. A program of the SBA includes disaster assistance for those affected by major natural disasters. The following table summarizes the SBA Disasters involving the planning area.

Table 36: SBA Declarations

Disaster Declaration Number	Declaration Date	Description	Primary Counties in the Planning Area	Contiguous Counties in the Planning Area
NE-00063	7/28/2014	Tornadoes, Straight-line Winds, and Flooding	Polk	N/A
NE-00059	1/28/2015*	Drought	Dawson	Buffalo, Frontier
NE-00057	5/30/2014	Severe Weather and Tornado	N/A	Polk
NE-00056	12/9/2014*	Drought	Frontier	Custer, Dawson
NE-00053	12/10/2013*	Drought	Buffalo, Custer, Dawson, Frontier, Hall, Merrick, Polk	N/A
NE-00051	4/15/2013*	Drought	N/A	Polk
NE-00050	4/8/2013*	Drought	Polk	Buffalo, Hall, Merrick
NE-00049	4/1/2013*	Drought	Buffalo, Dawson, Hall	Custer, Frontier, Merrick, Polk
NE-00048	3/25/2013*	Drought	Custer, Merrick	Buffalo, Dawson, Hall, Polk
NE-00047	3/12/2013*	Drought	Frontier	Dawson
NE-00046	11/9/2011	Severe Storms, Excessive Rain, Flash Flooding, Hail, and High Winds	N/A	Frontier
NE-00044	8/12/2011 & 8/25/2011	Severe Storms, Tornadoes, Straight-line Winds, and Flooding	Buffalo, Polk	N/A
NE-00042	7/18/2011	Flooding	N/A	Custer, Dawson, Frontier
NE-00041	9/7/2011, 8/12/2011 & 11/18/2011	Flooding	N/A	Custer, Dawson, Frontier
NE-00038	7/15/2010, 8/29/2010 & 9/1/2010	Severe Storms, Tornadoes, and Flooding	Custer, Frontier	N/A
NE-00035	4/21/2010 & 6/10/2010	Severe Storms, Ice Jams, and Flooding	Polk	N/A
NE-00033	2/25/2010 & 3/26/2010	Severe Winter Storms and Snowstorms	N/A	Frontier, Merrick, Polk
NE-00027	7/31/2009 & 8/10/2009	Severe Storms, Tornadoes, and Flooding	Custer	N/A
NE-00021	6/20/2008, 6/24/2008 & 7/29/2008	Severe Storms, Tornadoes, and Flooding	Buffalo, Custer, Dawson, Frontier, Hall, Merrick, Polk	N/A

Disaster Declaration Number	Declaration Date	Description	Primary Counties in the Planning Area	Contiguous Counties in the Planning Area
NE-00020	6/20/2008, 6/24/2008 & 7/29/2008	Severe Storms, Tornadoes, and Flooding	Buffalo, Dawson	Custer, Frontier, Hall, Merrick, Polk
NE-00014	7/24/2007	Severe Storms and Flooding	Buffalo, Custer, Dawson, Frontier	N/A
NE-00013	6/6/2007 & 7/6/2007	Severe Storms, Tornadoes, and Flooding	Custer	N/A
NE-00011	1/7/2007	Severe Winter Storms	Buffalo, Custer, Dawson, Frontier, Hall, Merrick, Polk	N/A
NE-00005	1/26/2006	Severe Winter Storms	Custer, Dawson, Frontier	N/A
NE-00002	6/23/2005	Severe Storms and Flooding	Buffalo, Frontier, Hall, Merrick	N/A

*\*Denotes date of grant application deadline, rather than disaster declaration date*

**PRESIDENTIAL DISASTER DECLARATIONS**

The presidential disaster declarations involving the planning area through October 2015 are summarized in the following table. Declarations prior to 1965 are available on the FEMA website, but do not list designated counties.

**Table 37: Presidential Disaster Declarations**

Disaster Declaration Number	Declaration Date	Disaster Type	Individual Assistance Counties in the Planning Area	Total Individual Assistance	Public Assistance Counties in the Planning Area	Total Public Assistance Grants
4185	7/28/2014	Severe Storms, Tornadoes, Straight-line Winds, Flooding	None	N/A	Polk	\$4,900,301
4014	8/25/2011	Severe Storms, Tornadoes, Straight-line Winds, Flooding	None	N/A	Buffalo, Polk	\$3,362,468
1924	7/15/2010	Severe Storms, Flooding, and Tornadoes	None	N/A	Custer, Frontier	\$49,810,258
1902	4/21/2010	Severe Storms, Ice Jams, and Flooding	None	N/A	Polk	\$3,111,659
1853	7/31/2009	Floods, Tornadoes, Severe Storms	None	N/A	Custer	\$4,489,444

<b>Disaster Declaration Number</b>	<b>Declaration Date</b>	<b>Disaster Type</b>	<b>Individual Assistance Counties in the Planning Area</b>	<b>Total Individual Assistance</b>	<b>Public Assistance Counties in the Planning Area</b>	<b>Total Public Assistance Grants</b>
1770	6/20/2008	Floods, Tornadoes, Severe Storms	Buffalo, Custer, Dawson	\$1,560,230	Buffalo, Custer, Dawson, Frontier, Hall, Merrick, Polk	\$14,891
1714	7/24/2007	Severe Storms and Flooding	None	N/A	Buffalo, Custer, Dawson, Frontier	\$13,819
1706	6/6/2007	Floods, Severe Storms	None	N/A	Custer	\$22,131
1674	1/7/2007	Severe Winter Storms	None	N/A	Buffalo, Custer, Dawson, Frontier, Hall, Merrick, Polk	\$56,946
1627	1/26/2006	Severe Winter Storms	None	N/A	Custer, Dawson, Frontier	\$9,140
1590	6/23/2005	Floods, Severe Storms	None	N/A	Buffalo, Frontier, Hall, Merrick	\$16,099
1517	5/25/2004	Floods, Tornadoes, Severe Storms	Buffalo, Hall	\$829,909	Buffalo	\$48,110
1480	7/21/2003	Tornadoes, Severe Storms	None	N/A	Polk	\$28,495
1373	5/16/2001	Severe Storms	None	N/A	Custer	\$75,649
1190	11/01/1997	Severe Snow Storms	None	N/A	Buffalo, Custer, Dawson, Frontier, Hall, Polk	Not Available
1027	5/9/1994	Snow Storm, Ice Storm	None	N/A	Buffalo, Custer, Dawson, Frontier	Not Available
998	7/19/1993	Flooding, Severe Storms	Buffalo, Custer, Dawson, Frontier, Hall, Merrick, Polk	Not Available	Buffalo, Custer, Dawson, Frontier, Hall, Merrick, Polk	Not Available
983	4/2/1993	Ice Jams, Flooding	None	N/A	Hall, Merrick	Not Available
873	7/4/1990	Flooding, Severe Storm, Tornado	Buffalo, Custer, Hall	Not Available	Hall	Not Available
625	6/4/1980	Severe Storms, Tornadoes	Hall	Not Available	Hall, Merrick	Not Available

*Section Four: Risk Assessment*

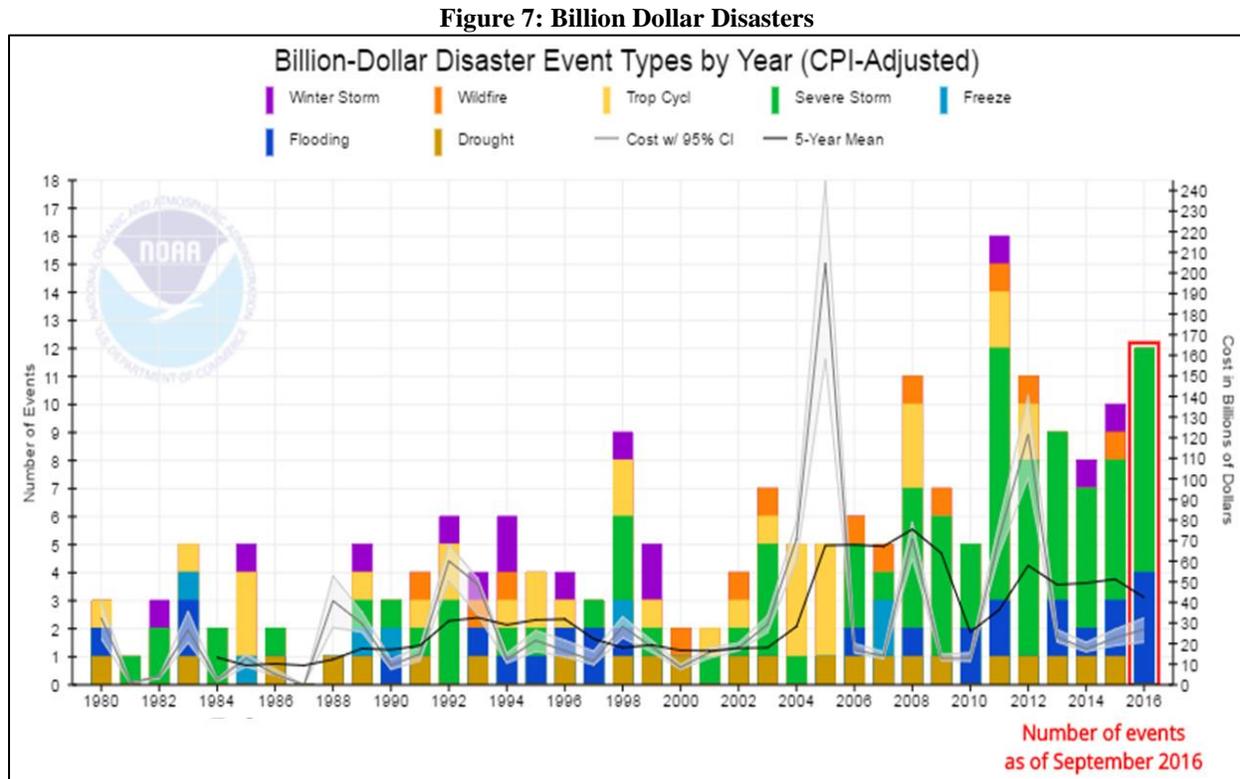
<b>Disaster Declaration Number</b>	<b>Declaration Date</b>	<b>Disaster Type</b>	<b>Individual Assistance Counties in the Planning Area</b>	<b>Total Individual Assistance</b>	<b>Public Assistance Counties in the Planning Area</b>	<b>Total Public Assistance Grants</b>
552	3/24/1978	Storms, Ice Jams, Snowmelt, Flooding	Buffalo, Custer, Dawson, Merrick	Not Available	Buffalo, Custer, Dawson, Merrick	Not Available
500	4/8/1976	Ice Storms, High Winds	None	N/A	Hall, Merrick, Polk	Not Available
228	7/18/1967	Severe Storms, Flooding	Buffalo, Frontier, Hall, Merrick, Polk	Not Available	Buffalo, Frontier, Hall, Merrick, Polk	Not Available

*Source: Federal Emergency Management Agency, 1965-2016*

## CLIMATE ADAPTATION

Long term climate trends have and will continue to increase the risk to hazards within the planning area. Since 1895, Nebraska's overall average temperature has increased by about 1°F. This trend will lead to an increase in the frequency and intensity of hazardous events, which will cause a number of significant economic, social, and environmental impacts on Nebraskans.

As indicated in Figure 7, the United States is experiencing an increase in the number of billion dollar natural disasters. Regardless of whether this trend is due to a change in weather patterns or due to increased development, the trend exists.



According to a recent University of Nebraska report (*Understanding and Assessing Climate Change: Implications for Nebraska, 2014*), Nebraskan's can expect the following from the future climate:

- Increase in extreme heat events
- Decrease in soil moisture by 5-10%
- Increase in drought frequency and severity
- Increase in heavy rainfall events
- Increase in flood magnitude
- Decrease in water flow in the Missouri River from reduced snowpack in the Rocky Mountains
- Additional 30-40 days in the frost-free season

These trends will have a direct impact on water and energy demands. As the number of 100°F days increase along with warming nights, the stress placed on the energy grid will likely increase possibly leading to more power outages. Critical facilities and vulnerable populations that are not prepared to handle periods of

power outages, particularly during heat waves, will be at risk. Furthermore, the agricultural sector will experience an increase in droughts, changes in the growth cycle as winters warm, and changes in the timing and magnitude of rainfall. These added stressors on agriculture could have devastating economic effects if new agricultural and livestock management practices are not adopted.

The planning area will have to adapt to these changes, or experience an increase in economic losses, loss of life, property damages, and crop damages. HMPs have typically been informed by *past* events in order to be more resilient to future events, and this HMP includes strategies for the planning area to address these changes and increase resiliency. However, future updates to this plan should consider including adaptation as a core strategy to be better informed by *future* projections on the frequency, intensity, and distribution of hazards as well.

### ***HAZARD PROFILES***

Based on research and the experiences of the participating jurisdictions the hazards profiled were determined to either have a historical record of occurrence or the potential for occurrence in the future. As the planning area is generally uniform in climate, topography, building characteristics, and development trends, overall hazards and vulnerability do not vary greatly across the planning area. The following profiles will examine the identified hazards across the region, local concerns or deviations from the regional risk assessment will be addressed in *Section Seven* of this plan.

## ***AGRICULTURAL ANIMAL AND PLANT DISEASE HAZARD PROFILE***

Agriculture disease is any biological disease or infection that can reduce the quality or quantity of either livestock or vegetative crops. This section looks at both animal disease and plant disease as both make up a significant portion of Nebraska's and the planning area's economy.

The State of Nebraska has one of the country's largest economy's that is vested in both livestock and crop sales. According to the Nebraska Department of Agriculture (NDA) in 2012, the market value of agricultural products sold was estimated at more than \$23 billion; this total is split between crops (estimated \$11.37 billion) and livestock (estimated \$11.69 billion). For the planning area, sold agricultural products were estimated at \$3,234,965,000 with the cost split at \$2,175,944,000 for crops and \$1,059,021,000 for livestock.

Table 38 shows the population of livestock within the planning area. This count does not include wild populations that are also at risk from animal diseases.

**Table 38: Livestock Inventory**

County	Market Value of 2012 Livestock Sales	Cattle and Calves	Hogs and Pigs	Horses and Ponies	Poultry Egg Layers	Poultry Broilers	Sheep and Lambs
Buffalo	\$122,738,000	106,059	3,150	942	1,227	118	2,251
Dawson	\$542,833,000	238,107	58,385	1,244	1,903	492	419
Hall	\$120,232,000	68,546	3,394	578	563	N/A	749
Merrick	\$114,027,000	44,952	29,592	818	563	185	219
Polk	\$159,191,000	68,799	49,891	370	N/A	275	137
<b>Total</b>	<b>\$1,059,021,000</b>	<b>526,463</b>	<b>144,412</b>	<b>3,952</b>	<b>4,256</b>	<b>1,070</b>	<b>3,775</b>

Source: 2012 U.S. Census of Agriculture

According to the NDA, the primary crops grown throughout the state include alfalfa, corn, sorghum, soybeans, and wheat. The following table provides the value and acres of land in farms for the planning area.

**Table 39: Land and Value of Farms in the Planning Area**

County	Number of Farms	Land in Farms (acres)	Percent of Land Area Used by Farms	Market Value of 2012 Crop Sales
Buffalo	1,046	580,579	93.7%	\$395,127,000
Dawson	806	630,466	97.2%	\$826,281,000
Hall	593	329,668	94.3%	\$353,075,000
Merrick	492	235,072	75.7%	\$275,222,000
Polk	466	245,268	87.5%	\$326,239,000
<b>Planning Area Total</b>	<b>3,403</b>	<b>2,021,053</b>	<b>91.5%</b>	<b>\$2,175,944,000</b>

Source: 2012 U.S. Census of Agriculture

The crops in Table 40 make up the bulk of the crop portion of the planning area's agricultural product. Buffalo County has the highest grain production followed by Dawson and Hall Counties.

**Table 40: Crop Values**

County	Corn		Soybeans		Wheat	
	Acres Planted	Value (2012)	Acres Planted	Value (2012)	Acres Planted	Value (2012)
Buffalo	204,186	\$208,336,000	79,414	\$48,638,000	5,008	\$1,682,000
Dawson	194,167	\$213,288,000	58,365	\$44,804,000	3,536	\$1,287,000
Hall	192,243	\$206,385,000	32,833	\$22,052,000	447	-
Merrick	123,365	\$117,892,000	57,488	\$38,741,000	1,176	-
Polk	119,716	\$118,026,000	77,715	\$47,450,000	303	-

Source: 2012 U.S. Census of Agriculture  
 - Data not available

**LOCATION**

Given the agricultural presence in the planning area, animal and plant disease have the potential to occur across the area. If a major infestation event were to occur, the economy in the entire planning area would be affected, including urban areas. Table 41 shows that the highest percentage of land use type is grassland/herbaceous (55.7 percent) with only six percent of lands as developed. The following figure demonstrates the land use types across the planning area.

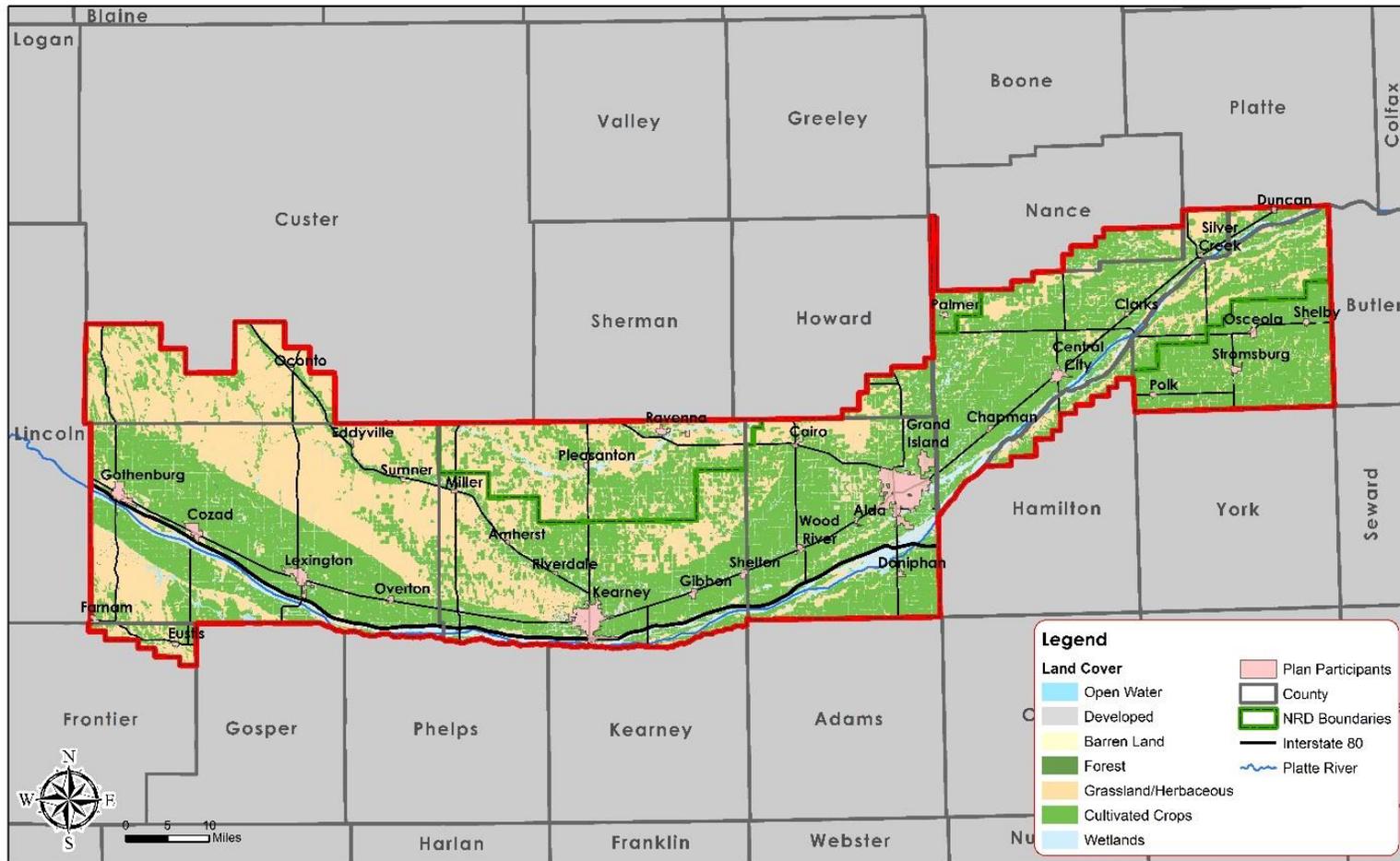
The land use data is from a 2011 dataset, and while some of the uses may have changed since 2011, it is the most recent data available. The main land uses where animal and plant disease will be observed include: planted/cultivated lands, grassland/herbaceous, and forests. It is possible for animal or plant disease to occur in domestic animals or crops in urban areas.

The following table provides a tabulation of land use by type across the planning area.

**Table 41: Land Use Types**

Type of Land Use	Total Area in the Planning Area (Square Miles)	Percent of Total Lands
Open Water	95,403,829	0.92%
Developed	617,162,217	5.98%
Barren Land	5,320,908	0.05%
Forest	61,321,728	0.59%
Shrubland	3,341,949,089	32.37%
Grassland/Herbaceous	5,749,438,299	55.68%
Planted/Cultivated	454,359,205	4.40%
Wetlands	95,403,829	0.92%

Figure 8: Land Use in the Planning Area



**Central Platte Natural Resources District**  
**2017 Hazard Mitigation Plan**  
**Land Cover**

Created by JPB  
Date: 2/23/2017  
Software: ArcGIS 10.3.1  
File: 142849\_00 - Central Platte NRD Map Update  
je  
This map was prepared using information from record drawings supplied by JED and/or other applicable city, county, federal, or state or private entities. JED does not guarantee the accuracy of this map or the information used to prepare this map. This is not a scaled plot.

**HISTORICAL OCCURRENCES**

**Animal Disease**

According to the 2014 State of Nebraska Hazard Mitigation Plan and the NDA, the following diseases with impacts upon livestock were reported as having occurred throughout the 93 counties in Nebraska.

**Table 42: Livestock Diseases Reported in Nebraska**

Disease	Date(s) Reported	Population Impacted	Effects of the disease
<b>Chronic Wasting Disease (CWD)</b>	1997 – 2006	117 positive test; Deer and Elk (wild populations)	Weight loss, incessant drinking and urination
<b>Vesicular Stomatitis (VS)</b>	2005; 2014	Three horses; Two cows (Wheeler County, NE)	Blistering on lips, tongues, coronary bands. Unable to eat or drink causing weight loss.
<b>Epizootic Hemorrhagic Disease (EHD (Blue Tongue)</b>	Ongoing; usually occurs in late summer or fall	Wild deer	Extensive hemorrhaging
<b>Bovine Tuberculosis</b>	2009	Three head of cattle infected; 21,764 head tested; 61 quarantined	Emaciation, lethargy, weakness, anorexia, low-grade fever, and pneumonia with a chronic, moist cough

Source: 2014 State of Nebraska Hazard Mitigation Plan and NDA

NDA provides reports on diseases occurring in the planning area. The following table includes those animal diseases and numbers of occurrences within the planning area between January 1, 2014 and November 30, 2016.

**Table 43: Recorded Animal Diseases**

Disease	Species Impacted	Number of Occurrences
Anaplasmosis	Bovine	6
Bluetongue	Bovine	8
Bovine Viral Diarrhea	Bovine	9
Enzootic Bovine Leukosis	Bovine	206
Infectious Bovine Rhinotracheitis/Infectious Pustula	Bovine	1
Leptospirosis	Bovine	8
Paratuberculosis	Bovine	1,526
Equine Herpes Myeloencephalopathy	Equine	1
Equine Rhinopneumonitis	Equine	1
Porcine Circovirus	Porcine	520
Porcine Delta Coronavirus	Porcine	2
Porcine Epidemic Diarrhea	Porcine	8
Porcine Reproductive and Respiratory Disease	Porcine	522
Trichomoniasis	Bovine	1
	<b>Total</b>	<b>2,819</b>

Source: Nebraska Department of Agriculture, January 2014 – November 2016

Animals could be susceptible to diseases beyond those outlined above. Data related to diseases and rates of disease among “free range game” is limited due to lack of laboratory testing, reporting, and field study.

**Plant Disease**

A variety of diseases can impact crops and often vary from year to year. The Department of Agriculture provides information on some of the most common, being:

**Table 44: Common Crop Diseases in Nebraska by Crop Types**

Crop	Diseases	
Corn	<ul style="list-style-type: none"> <li>• Anthracnose</li> <li>• Bacterial Stalk Rot</li> <li>• Common Rust</li> <li>• Fusarium Stalk Rot</li> <li>• Fusarium Root Rot</li> <li>• Gray Leaf Spot</li> <li>• Maize Chlorotic Mottle Virus</li> </ul>	<ul style="list-style-type: none"> <li>• Southern Rust</li> <li>• Stewart’s Wilt</li> <li>• Common Smut</li> <li>• Goss’s Wilt</li> <li>• Head Smut</li> <li>• Physoderma</li> </ul>
Soybeans	<ul style="list-style-type: none"> <li>• Anthracnose</li> <li>• Bacterial Blight</li> <li>• Bean Pod Mottle</li> <li>• Brown Spot</li> <li>• Brown Stem Rot</li> <li>• Charcoal Rot</li> <li>• Frogeye Leaf Spot</li> <li>• Phytophthora Root and Stem Rot</li> <li>• Pod and Stem Blight</li> </ul>	<ul style="list-style-type: none"> <li>• Purple Seed Stain</li> <li>• Rhizoctonia Root Rot</li> <li>• Sclerotinia Stem Rot</li> <li>• Soybean Mosaic Virus</li> <li>• Soybean Rust</li> <li>• Stem Canker</li> <li>• Sudden Death Syndrome</li> </ul>
Wheat	<ul style="list-style-type: none"> <li>• Barley Yellow Dwarf</li> <li>• Black Chaff</li> <li>• Crown and Root Rot</li> <li>• Fusarium Head Blight</li> </ul>	<ul style="list-style-type: none"> <li>• Leaf Rust</li> <li>• Tan Spot</li> <li>• Wheat Soil-borne Mosaic</li> <li>• Wheat Streak Mosaic</li> </ul>
Sorghum	<ul style="list-style-type: none"> <li>• Ergot</li> <li>• Sooty Stripe</li> <li>• Zonate Leaf Spot</li> </ul>	

Source: Department of Agriculture

In addition to the viral and bacterial disease that could impact crops, pests can also result in crop loss or detract from the quality of crop. Those pests are:

- Grasshoppers
- Western Bean Cutworm
- European Corn Borer
- Corn Rootworm
- Corn Nematodes, Bean Weevil
- Mexican Bean Beetle
- Soybean Aphids
- Rootworm Beetles

Nebraska farmers also lose a significant amount of crops each year as a result of wildlife foraging. This can be particularly problematic in areas where natural habitat has been diminished or in years where weather patterns such as early or late frost, deep snow, or drought has caused the wild food sources to be limited.

**AVERAGE ANNUAL LOSSES**

Using data from the USDA RMA (2000-2015), annual crop losses from plant disease, insects, and wildlife can be estimated. However, the RMA does not track losses for livestock, so it is not possible to estimate losses due to animal disease.

**Table 45: Agricultural Plant Disease Losses**

Hazard Type	Number of Events	Total Crop Loss	Average Annual Crop Loss
Plant Disease	51	\$582,521	\$36,408
Insects	74	\$314,726	\$19,670
Wildlife	29	\$45,001	\$2,813
<b>Total</b>	<b>154</b>	<b>\$942,248</b>	<b>\$58,891</b>

Source: USDA RMA, 2000-2015

**EXTENT**

There is no standard for measuring the magnitude of animal disease. Historically events have impacted relatively small numbers of livestock. The average event to occur in the planning area is the infection of 5 or less animals per event. However, the largest historical event has been the infection of 104 porcine animals in 2015 with Porcine Reproductive and Respiratory Disease.

The RMA data utilized for historic events does not provide a scale or quantification of impacts other than monetary losses. To measure extent related to plant disease, the average annual losses (including plant disease, insects, and wildlife in Table 46) will be divided by the total market value for crops (Table 40) to establish a percent loss annually:

$$Extent = \left( \frac{\$58,891}{\$2,175,944,000} \right) * (100\%) = 0.003\% \text{ crop loss annually}$$

**PROBABILITY**

Given the historic record of occurrence (2,819 counts of animal disease reported in 1.9 years), the annual probability of occurrence for animal disease is 100 percent. For plant disease, the historic record of occurrence (51 number of plant diseases reported in 16 years), the annual probability of occurrence is 100 percent.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 46: Regional Agricultural Vulnerabilities**

Sector	Vulnerability
People	<ul style="list-style-type: none"> <li>-Those in direct contact with infected livestock</li> <li>-Potential food shortage during prolonged events</li> <li>-Residents in poverty if food prices increase</li> <li>-Loss of employment or economic difficulties</li> </ul>
Economic	<ul style="list-style-type: none"> <li>-3% of people are employed in the agricultural industry</li> <li>-Large scale or prolonged events may impact tax revenues and local capabilities</li> </ul>
Built Environment	None
Infrastructure	-Transportation routes can be closed during quarantine
Critical Facilities	None

## ***CHEMICAL TRANSPORTATION***

### ***HAZARD PROFILE***

The transportation of hazardous materials is defined by the U.S. Pipeline and Hazardous Materials Safety Administration (PHMSA) as "...a substance that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce..."

According to PHMSA, hazardous materials traffic in the U.S. now exceeds 800,000 shipments per day, transporting 3.1 billion tons of hazardous materials annually.

Nationally, the U.S. averages 28 deaths per year due to accidents resulting from the transportation of hazardous materials. While such fatalities are a low probability risk, even one event can harm many people. For example, a train derailment in Crete, Nebraska in 1969 allowed anhydrous ammonia to leak from a rupture tanker. The resulting poisonous fog killed nine people and injured 53.

### ***LOCATION***

Chemical releases can occur during transportation primarily on major transportation routes as identified in Figure 9. A large number of spills also occur during the loading and unloading of chemicals. Participating communities specifically reported transportation along railroads as having the potential to impact communities. Railroads providing service through the planning area have developed plans to respond to chemical release along rail routes.

### ***HISTORICAL OCCURRENCES***

PHMSA reports that 256 chemical spills occurred during transportation in the planning area between January 1, 1970 and December 31, 2015. During these events, there were 20 of injuries, one fatality, and \$661,540 in damages.

The following table provides a list of the largest spills and incidents which reported damages or losses of \$10,000 or greater.

Table 47: Historical Chemical Spills 1980 – 2015

Date of Event	Location of Release	Failure Description	Material Involved	Method of Transport	Total Damage	Fatalities	Injuries	Evacuation (Yes/No)
7/8/1974	Elm Creek	Vehicle Accident	Gasoline	Highway	\$0	1	4	No
6/4/1977	Polk	Vehicle Hose Failure	Gasoline	Highway	\$0	0	0	No
10/20/1977	Elm Creek	Punctured Vehicle Tank	Insecticide	Highway	\$0	0	3	No
7/12/1979	Kearney	Improper Package Handling	Hydrochloric Acid	Highway	\$0	0	1	No
4/3/1980	Cozad	Vehicle Accident	Gasoline	Highway	\$0	0	0	No
6/30/1980	Kearney	High Temperatures	Ammonia	Highway	\$0	0	1	No
6/3/1983	Kearney	N/A	Gasoline	Highway	\$0	0	0	No
8/1/1983	Stromsburg	Vehicle Accident	Acetylene	Highway	\$0	0	0	No
8/2/1986	Alda	Punctured Vehicle Tank	Corrosive Liquids	Highway	\$0	0	1	No
6/26/1996	Grand Island	Vehicle Fitting Failure	Sulfuric Acid	Highway	\$10,500	0	1	Yes
1/15/2003	Wood River	Vehicle Accident	Helium Refrigerated Liquid	Highway	\$130,000	0	0	No
2/21/2003	Grand Island	Train Car Liner Failure	Ferric Chloride	Railway	\$15,000	0	0	No
10/15/2005	Cozad	Improper Loading of Vehicle	Hydrogen Peroxide	Highway	\$0	0	3	Yes
12/6/2006	Grand Island	Broken Component	Ammonium Nitrate Liquid	Rail	\$33,872	0	0	No
5/27/2011	Kearney	Fire, Temperature, or Heat	Corrosive Liquids	Highway	\$82,854	0	0	No
8/2/2012	Overton	Vehicle Accident	Sodium Hydroxide	Highway	\$81,270	0	0	No
4/13/2013	Grand Island	N/A	Hypochlorite	Highway	\$94,000	0	6	Yes
6/29/2013	Elm Creek	Broken Component	Compounds Cleaning Liquid	Highway	\$10,000	0	0	No

*Section Four: Risk Assessment*

<b>Date of Event</b>	<b>Location of Release</b>	<b>Failure Description</b>	<b>Material Involved</b>	<b>Method of Transport</b>	<b>Total Damage</b>	<b>Fatalities</b>	<b>Injuries</b>	<b>Evacuation (Yes/No)</b>
7/13/2013	Elm Creek	Broken Component; Inadequate Bracing	Polychlorinated Biphenyls Liquid	Highway	\$53,000	0	0	No
2/8/2015	Alda	Impact with Sharp Object	Gasoline	Highway	\$10,000	0	0	No
6/21/2015	Duncan*		Corrosive Liquids	Rail	\$81,000	0	0	Yes

Source: PHMSA, 1970-2015

\*Community is not a participant, however the spill occurred within the planning area

**AVERAGE ANNUAL DAMAGES**

The average damage per event estimate was determined based upon PHMSA’s Incidents Reports since 1980 and number of historical occurrences. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life. This hazard causes an average of \$14,381 per year in property damages.

**Table 48: Chemical Transportation Losses**

Hazard Type	Number of Events	Events Per Year	Total Property Loss	Average Annual Property Loss
Chemical Transportation Spills	256	5.6	\$661,540	\$14,381

Source: PHMSA (1970 to 2015)

**EXTENT**

The probable extent of chemical spills during transportation is difficult to anticipate and depends on the type and quantity of chemical that is released. Releases that have occurred during transportation in the planning area ranged from less than 1 Liquid Gallon (LGA) to 8,355 LGAs. Also four of the incidents lead to an evacuation, but it is not known the extent of the evacuations. However, it is likely that any spill involving hazardous materials will not affect an area larger than a quarter mile from the spill location.

**PROBABILITY**

The historical record indicates that chemical releases during transport have a 100 percent chance of occurring annually in the planning area with 256 events over a 46 year period.

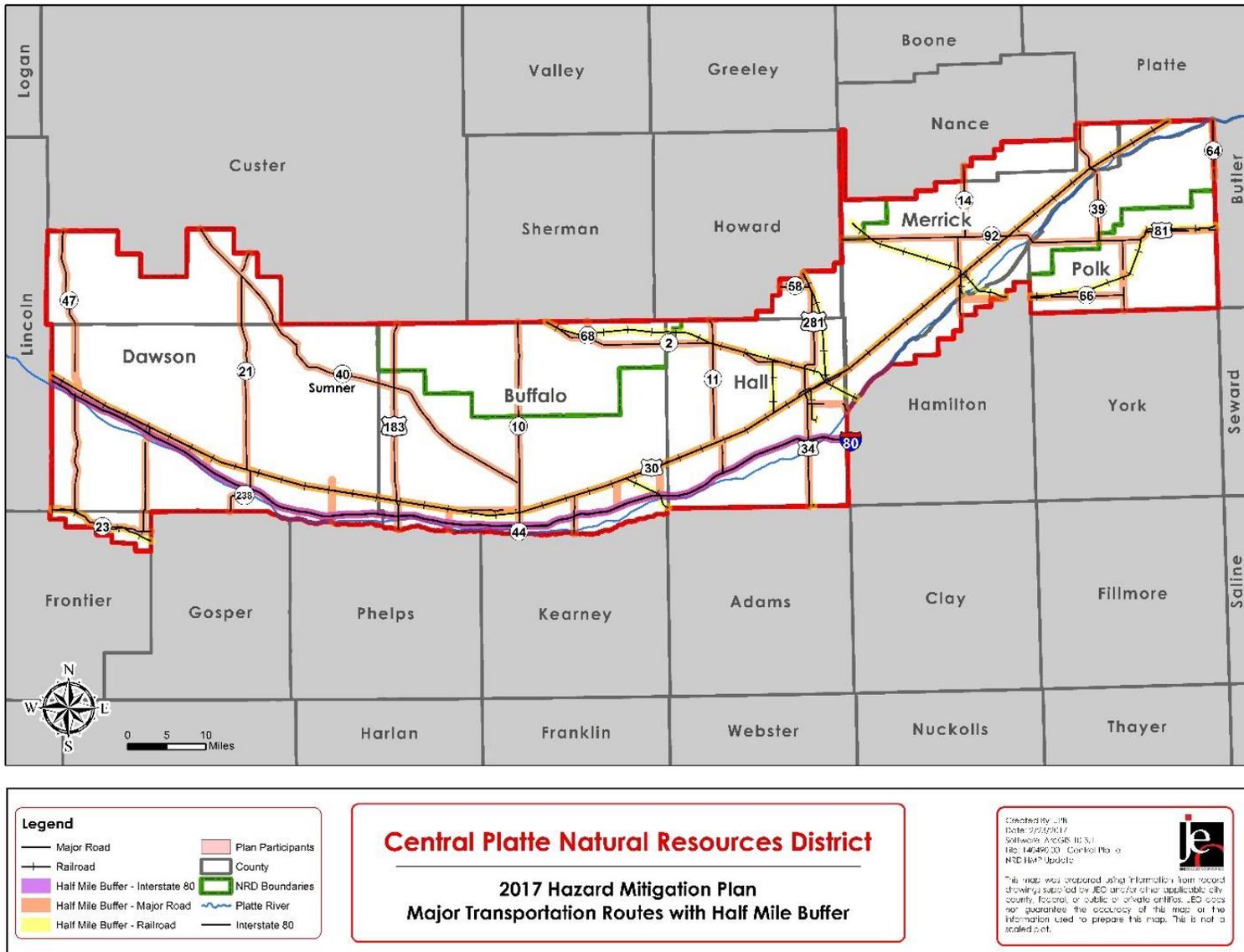
**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 49: Regional Chemical Transportation Vulnerabilities**

Sector	Vulnerability
People	-Those in close proximity could have minor to moderate health impacts -Possible evacuation -Hospitals, nursing homes, and the elderly at greater risk due to low mobility
Economic	-Evacuations and closed transportation routes could impact businesses near spill
Built Environment	-Risk of fire or explosion
Infrastructure	-Transportation routes can be closed
Critical Facilities	-Critical facilities near major transportation corridors at risk

Figure 9: Major Transportation Routes with Half Mile Buffer



## ***DAM FAILURE***

### ***HAZARD PROFILE***

According to the Nebraska Administrative Code, Title 458, Chapter 1, Part 001.09, dams are “ any artificial barrier, including appurtenant works, with the ability to impound water, wastewater, or liquid-borne materials and which is:

- is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to the maximum storage elevation or
- has an impounding capacity at maximum storage elevation of fifty acre- feet or more, except that any barrier described in this subsection which is not in excess of six feet in height or which has an impounding capacity at maximum storage elevation of not greater than fifteen acre-feet shall be exempt, unless such barrier, due to its location or other physical characteristics, is classified as a high hazard potential dam. Dam does not include:
  - an obstruction in a canal used to raise or lower water;
  - a fill or structure for highway or railroad use, but if such structure serves, either primarily or secondarily, additional purposes commonly associated with dams it shall be subject to review by the department;
  - canals, including the diversion structure, and levees; or
  - water storage or evaporation ponds regulated by the United States Nuclear Regulatory Commission.”

Dam failure, as a hazard, is described as a structural failure of water impounding structure. Structural failure can occur during extreme conditions, which include but are not limited to:

- Reservoir inflows in excess of design flows
- Flood pools higher than previously attained
- Unexpected drop in pool level
- Pool near maximum level and rising
- Excessive rainfall or snowmelt
- Large discharge through spillway
- Erosion, landslide, seepage, settlement, and cracks in the dam or area
- Earthquakes
- Vandalism
- Terrorism

NDNR regulates dam safety and has classified dams by the potential hazard each poses to human life and economic loss. The following are classifications and descriptions for each hazard class:

- **Minimal Hazard Potential** - failure of the dam expected to result in no economic loss beyond the cost of the structure itself and losses principally limited to the owner's property.
- **Low Hazard Potential** - failure of the dam expected to result in no probable loss of human life and in low economic loss. Failure may damage storage buildings, agricultural land, and county roads.
- **Significant Hazard Potential** - failure of the dam expected to result in no probable loss of human life but could result in major economic loss, environmental damage, or disruption of lifeline facilities. Failure may result in shallow flooding of homes and commercial buildings or damage to main highways, minor railroads, or important public utilities.

- **High Hazard Potential** - failure of the dam expected to result in loss of human life is probable. Failure may cause serious damage to homes, industrial or commercial buildings, four-lane highways, or major railroads. Failure may cause shallow flooding of hospitals, nursing homes, or schools.

In total, there are 180 dams located within the planning area with classifications ranging from low hazard to high hazard. Most of the dams (140) are rated low, 15 are significant, and seven are rated a high hazard potential dam. Figure 10 maps the location of these dams in the planning area.

**Table 50: Dams in the Planning Area**

County	Minimal Hazard	Low Hazard	Significant Hazard	High Hazard
Buffalo	5	35	4	6
Dawson	13	62	7	1
Hall	0	9	1	0
Merrick	0	1	0	0
Polk	0	33	3	0
<b>Total</b>	<b>18</b>	<b>140</b>	<b>15</b>	<b>7</b>

Source: NDNR

\*Two are approved for construction

Dams that are classified with high hazard potential require the creation of an Emergency Action Plan (EAP). The EAP defines responsibilities and provides procedures designed to identify unusual and unlikely conditions which may endanger the structural integrity of the dam within sufficient time to take mitigating actions and to notify the appropriate emergency management officials of possible, impending, or actual failure of the dam. The EAP may also be used to provide notification when flood releases will create major flooding. An emergency situation can occur at any time; however, emergencies are more likely to happen when extreme conditions are present.

Table 51 lists those dams classified as “High Hazard Potential”. None of the dams in the planning area are included in the 2014 Nebraska State HMP’s list of “Top 30 Ranked High Hazard Dams Based on Population at Risk”.

**Table 51: High Hazard Potential Dams**

NID	Dam Name	Owner	Downstream Location	Stream Name	Maximum Storage (acre-feet)	Last Inspection Date
<b>Buffalo County</b>						
NE00465	Kearney Dam	Nebraska Public Power District	Kearney	Kearney Canal Off Platte River	161	5/3/2016
NE02332	4th Avenue Storm Detention Dam	Johnson Imperial Home Company	Kearney	Wood River	91	5/3/2016
NE02492	Ravenna Northwest Dam	City of Ravenna	Ravenna	South Loup river	295	5/17/2016
NE03239	Stoneridge Dam	Np Land Development, Inc.	Kearney	Wood River – Platte River	393.3	5/3/2016

NID	Dam Name	Owner	Downstream Location	Stream Name	Maximum Storage (acre-feet)	Last Inspection Date
NE09348	Prairie Creek Upland Dam 2 (Pcul 2)	Central Platte Natural Resources District	Grand Island	Tributary to Prairie Creek	4,465.3	5/3/2016
NE09349	Prairie Creek Upland Dam 1 (Pcul 1)	Central Platte Natural Resources District	Grand Island	Prairie Creek	5776.3	5/3/2016
<b>Dawson County</b>						
NE02393	Lake Helen Dam	City of Gothenburg	Gothenburg	Gothenburg Canal Off Platte River	547.5	6/7/2016

Source: NDNR, 2016

### Upstream Dams Outside the Planning Area

There are two dams located upstream from the CPNRD boundary, Kingsley Dam and Jeffrey Dam that could impact the planning area were they to fail.

**Table 52: Upstream Platte River Dam**

Dam	Location	River	Year Operational
Kingsley Dam	Keystone, NE (Keith County)	North Platte River	1941
Jeffrey Dam	Brady, NE (Lincoln County)	Tri-County Canal off Platte River	1941

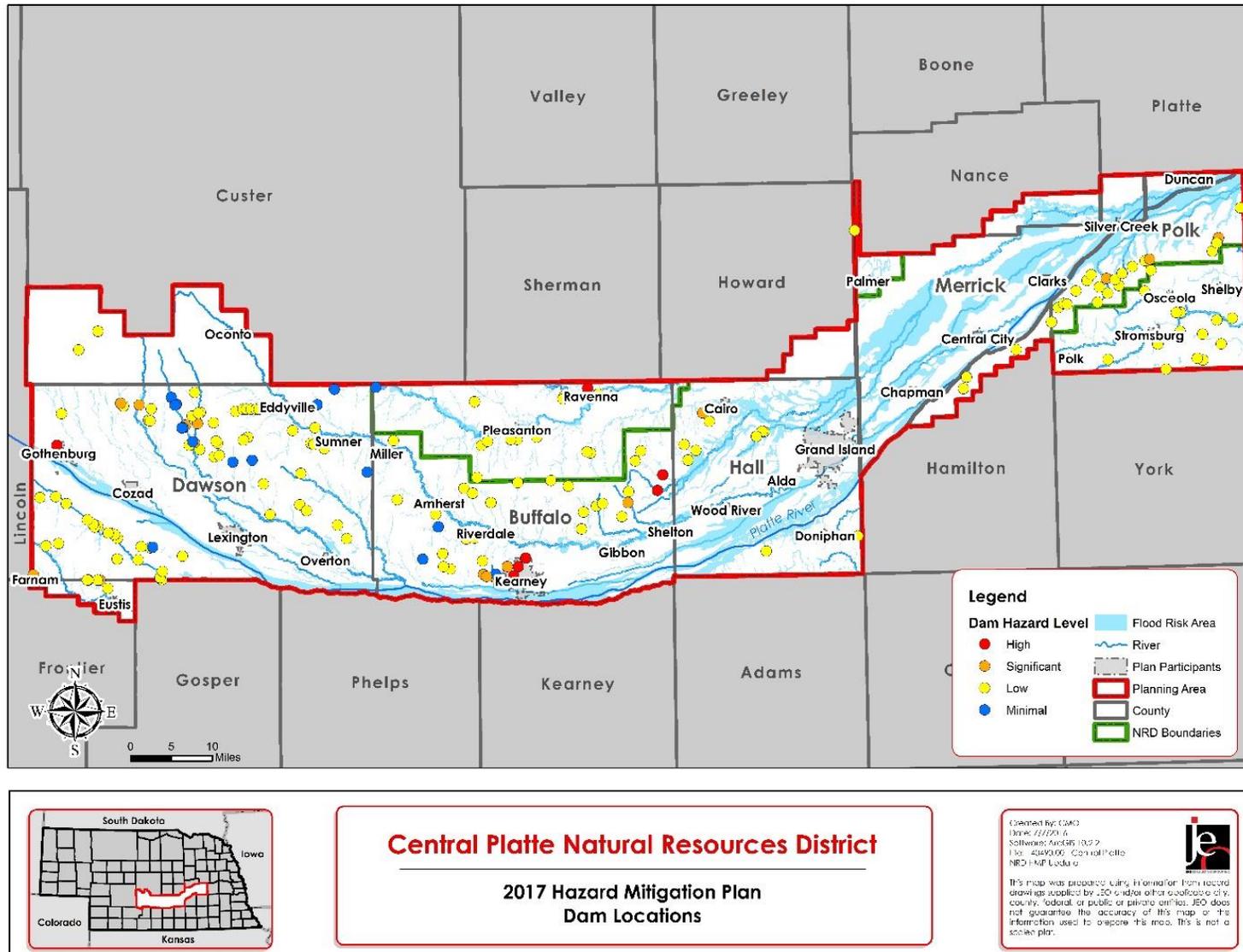
All dams are inspected on a regular basis and after area flash flood events. If problems are found during an inspection, the proper course of action is taken to ensure the structural integrity of the dam is preserved. In the event that dam failure is imminent, the EAP for the dam governs the course of action. For more information, a request can be made to the county emergency managers, CPNRD, NDNR, or dam owner(s).

Due to public safety concerns, dam breach inundation maps are not provided in this plan, and it is against NDNR's policy to provide inundation maps for use in HMPs. Therefore, neither jurisdiction-specific inundation data nor maps will be included in this plan update. A request can be made at NDNR to view inundation maps at their offices and will be decided on a case-by-case basis. Additionally, for more information on dams in the planning area or to make a request to view an EAP, contact the county emergency manager or CPNRD.

### LOCATION

Communities or areas downstream of a dam, especially high hazard potential dams, are at greatest risk of dam failure. Figure 10 shows the location of the dams. To view the mapped location of dams by county or jurisdiction, please refer to *Section Seven: Participant Sections*.

Figure 10: Dam Locations



### **HISTORICAL OCCURRENCES**

To determine previous occurrences of dam failure within the CPNRD counties, the previous mitigation plan was referenced as well as the 2014 Nebraska HMP and the Stanford University's National Performance of Dams Program. No record of dam failure within the CPNRD was found.

### **AVERAGE ANNUAL DAMAGES**

Due to lack of data and the sensitive nature of this hazard, potential losses are not calculated for this hazard. Community members in the planning area that wish to quantify the threat of dam failure should contact their County Emergency Management, CPNRD, or the NDNR.

### **EXTENT**

While a breach of a high hazard dam would certainly impact those in inundation areas, the total number of people and property exposed to this threat would vary based on the dam location. Since inundation maps are not made publicly available for security reasons, the following is provided as a description of areas affected in the inundation area from the County's Local Emergency Operations Plan (LEOP) where available for specific high hazard potential dams. Note that not all of the high hazard potential dams in each county are given extended descriptions in the LEOP.

#### **Buffalo County**

*Kingsley Dam - Keith County* – The inundation area would affect the Platte River, possibly as far as the Missouri River. In Buffalo County, the area affected would be greater than the 100-year floodplain with approximately 45 percent inundation in Kearney and Odessa would approach 100 percent inundation. About 30 percent of rural Buffalo County would also be inundated, and Interstate 80 would be completely under water in the Odessa area and the eastern edge of Kearney.

*Cottonmill Dam – Kearney* - The inundation area would affect an area directly south of the dam to U.S. Highway 30. The highway could also be inundated.

Approximately ten percent of the population of Buffalo County could be affected by the failure of one or another of these dams.

#### **Dawson County**

*Kingsley Dam – Keith County* – The inundation area would affect the Platte River as far east as the Missouri River. In Dawson County, the area affected would be slightly greater than the 100-year floodplain with the greatest effect on Gothenburg and Lexington, which would approach 100 percent inundation.

*Jeffrey Dam – southwest of Brady* – The inundation area would affect the Platte River as far east as the Dawson/Buffalo County line. In Dawson County, the area affected would be Cozad, Gothenburg, and Lexington.

*Johnson Dam – south of Lexington* – The inundation area would affect the Platte River as far east as the Dawson/Buffalo County line. In Dawson County, the area affected would be areas south of Lexington and Overton.

Approximately 75 percent of the population of Dawson County could be affected by the failure of one or another of these dams.

#### **Hall County**

*Kingsley Dam – Keith County* – The inundation area would affect the Plate River as far east as the Missouri River. In Hall County, the area affected would be slightly greater than the 100-year floodplain with the greatest effect on Grand Island, which would approach 20 percent inundation.

Approximately 5.9 percent of the population of Hall County would be affected by the failure of one or another of these dams.

**Merrick County**

*Kingsley Dam – Keith County* – The inundation area would affect the Platte River as far east as the Missouri River. In Merrick County, the area affected would be slightly greater than the 100-year floodplain with the greatest effect on Central City, Chapman, Clarks, and Silver Creek, which would approach 100 percent inundation.

Approximately 54 percent of the population of Merrick County could be affected by the failure of one or more of these dams.

**Polk County**

*Kingsley Dam – Keith County* - The inundation area would affect the Platte River as far east as the Missouri River. In Polk County, land affected would be similar to the area of the 100-year floodplain and would thus include primarily lowland rural areas on the entire northern border of the County. Within the inundation area, Highways 92, 39, and 81 as well as county roads and several rural schools and churches would be flooded.

Approximately 34 percent of the population of Polk County could be affected by the failure of this dam.

**PROBABILITY**

Dam failure has a low probability of occurring in the future. For the purpose of this plan, the probability of dam failure will be stated as one percent annually.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 53: Regional Dam Failure Vulnerabilities**

Sector	Vulnerability
People	<ul style="list-style-type: none"> <li>-Those living downstream of high hazard dams</li> <li>-Evacuation likely with high hazard dams</li> <li>-Hospitals, nursing homes, and the elderly at greater risk due to low mobility</li> </ul>
Economic	<ul style="list-style-type: none"> <li>-Businesses located in the inundation areas would be impacted and closed for an extended period of time</li> <li>-Employees working in the inundation area may be out of work for an extended period of time</li> </ul>
Built Environment	<ul style="list-style-type: none"> <li>-Damage to homes and buildings</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>-Transportation routes could be closed for extended period of time</li> </ul>
Critical Facilities	<ul style="list-style-type: none"> <li>-Critical facilities in inundation areas are vulnerable to damages</li> </ul>

***DROUGHT******HAZARD PROFILE***

Drought is generally defined as a natural hazard that results from a substantial period of below normal precipitation. Although many erroneously consider it a rare and random event, drought is actually a normal, recurrent feature of climate. A drought often coexists with periods of extreme heat, which together can cause significant social stress, economic losses, and environmental degradation.

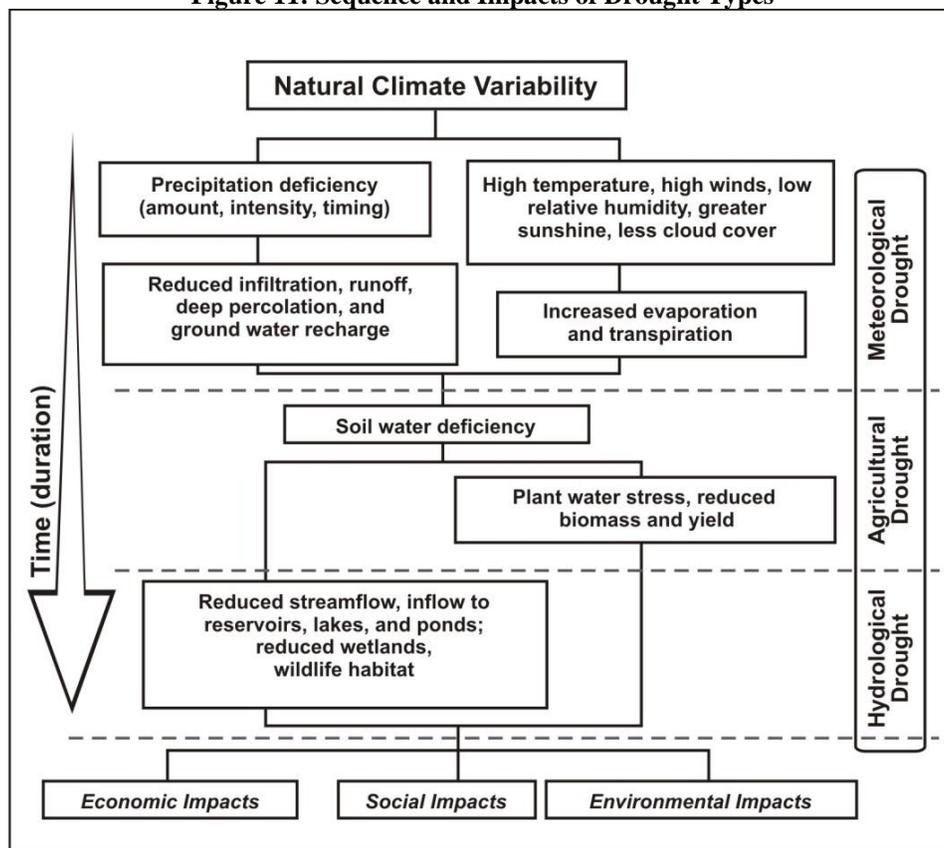
Drought is a slow-onset, creeping phenomenon that can affect a wide range of people and industries. Drought normally affects more people than other natural hazards, and its impacts are spread over a larger geographical area. As a result, the detection and early warning signs of drought conditions and assessment of impacts are more difficult to identify than that of quick-onset natural hazards (e.g., flood) that results in more visible impacts. According to the National Drought Mitigation Center (NDMC), droughts are classified into four major types:

*According to the National Drought Mitigation Center, “drought is a normal, recurrent feature of climate, although many erroneously consider it a rare and random event. It occurs in virtually all climatic zones, but its characteristics vary significantly from one region to another.”*

- **Meteorological Drought** – is defined based on the degree of dryness and the duration of the dry period. Meteorological drought is often the first type of drought to be identified and should be defined regionally as precipitation rates and frequencies (“norms”) vary.
- **Agricultural Drought** – occurs when there is deficient moisture that hinders planting germination, leading to low plant population per hectare and a reduction of final yield. Agricultural drought is closely linked with meteorological and hydrological drought, as agricultural water supplies are contingent upon the two sectors.
- **Hydrologic Drought** – occurs when water available in aquifers, lakes, and reservoirs falls below the statistical average. This situation can arise even when the area of interest receives average precipitation. This is due to the reserves diminishing from increased water usage, usually from agricultural use or high levels of evapotranspiration, resulting from prolonged high temperatures. Hydrological drought often is identified later than meteorological and agricultural drought. Impacts from hydrological drought may manifest themselves in decreased hydropower production and loss of water based recreation.
- **Socioeconomic Drought** – occurs when the demand for an economic good exceeds supply due to a weather-related shortfall in water supply. The supply of many economic goods include, but are not limited to, water, forage, food grains, fish, and hydroelectric power.

The following figure indicates different types of droughts, their temporal sequence, and the various types of effects that they can have on a community.

Figure 11: Sequence and Impacts of Drought Types



Source: National Drought Mitigation Center, University of Nebraska-Lincoln

**LOCATION**

The entire planning area is susceptible to the impacts resulting from drought.

**HISTORICAL OCCURRENCES**

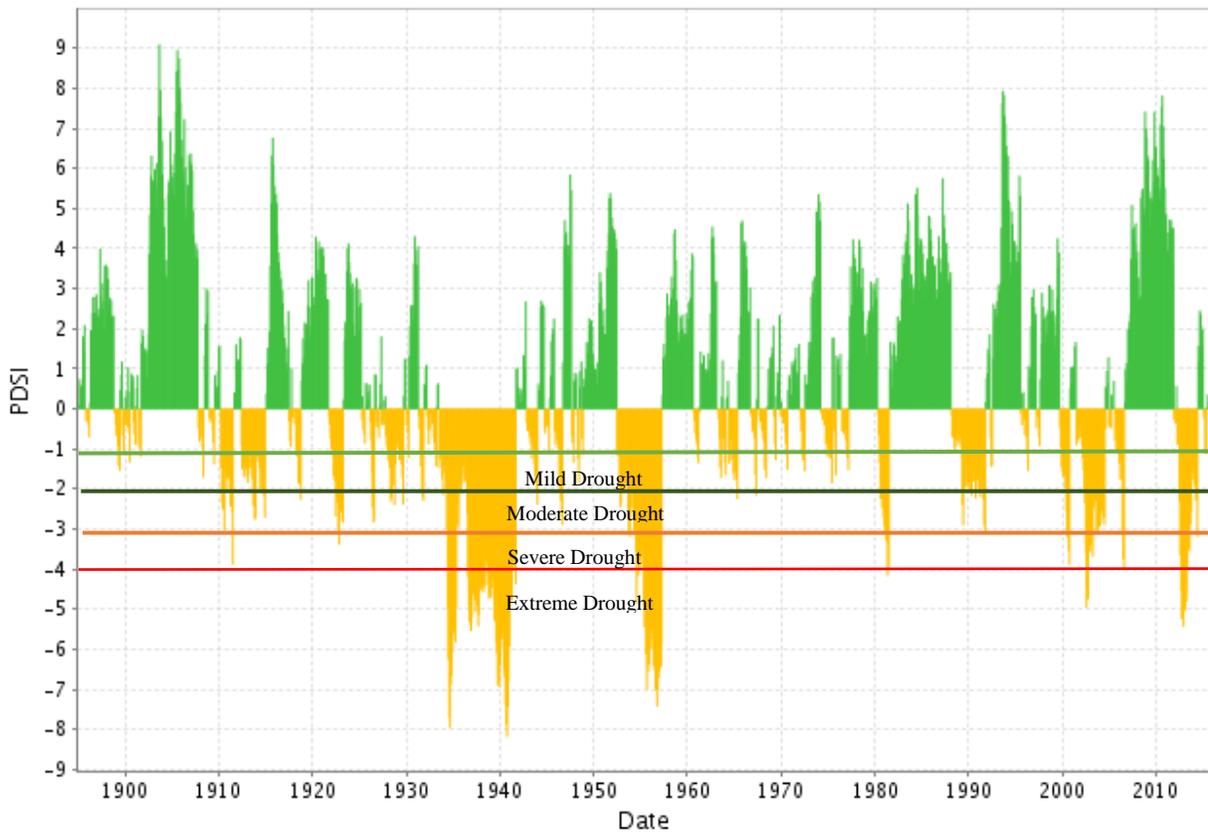
The Palmer Drought Severity Index (PDSI) is utilized by climatologists to standardize global long-term drought analysis. The data for the planning area was collected from Climate Division 5 – Central Nebraska, which includes part of the planning area, between the years of 1895 and 2015. Figure 12 shows the data from this time period. The negative Y axis represents a drought, for which ‘-2’ indicates a moderate drought, ‘-3’ a severe drought, and ‘-4’ an extreme drought. Table 55 shows the details of the Palmer classifications. According to this dataset, extreme droughts were recorded every 15-20 years dating back to 1895 and major events include the Dust Bowl in the 1930s and the 1950s and the recent 2012 drought.

Table 54: Palmer Drought Severity Index Classification

Numerical Value	Description	Numerical Value	Description
4.0 or more	Extremely wet	-0.5 to -0.99	Incipient dry spell
3.0 to 3.99	Very wet	-1.0 to -1.99	Mild drought
2.0 to 2.99	Moderately wet	-2.0 to -2.99	Moderate drought
1.0 to 1.99	Slightly wet	-3.0 to -3.99	Severe drought
0.5 to 0.99	Incipient wet spell	-4.0 or less	Extreme drought
0.49 to -0.49	Near normal	--	--

Source: Climate Prediction Center

**Figure 12: Palmer Drought Severity Index  
NE Central - PDSI  
189501 - 201512**



Source: NCEI

Using the data from the PDSI, the planning area had extreme droughts 14 times since 1895 (1934-1937, 1939-1940, 1954-1957, 1981, 2002, and 2012-2013). Severe droughts (or worse) occurred in most decades dating back to the 1910’s with the exception of the 1960s and 1970s. Over half of all years dating back to 1895 experienced precipitation levels below what is considered normal for the planning area. The most recent drought of note for the planning area began in 2012 and ended in 2013. Local planning teams reported a few impacts from the 2012 drought which was primarily lower water well levels.

**AVERAGE ANNUAL LOSSES**

The annual property estimate was determined based upon NCEI Storm Events Database since 1996. The annual crop loss was determined based upon the RMA Cause of Loss Historical Database since 2000. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life.

**Table 55: Loss Estimate for Drought**

Hazard Type	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Drought	\$0	\$0	\$72,725,194	\$4,545,325

*1 Indicates the data is from NCEI (1996 to 2015); 2 Indicates data is from USDA RMA (2000 to 2015)*

The extreme drought in 2012 significantly affected the agricultural sector of the state. Although the full impacts are yet to be studied, the USDA reported a total of \$139,957,809 in drought relief to Nebraska from 2008 to 2011 for all five disaster programs: Supplemental Revenue Assistance Payments (SURE),

Livestock Forage Disaster Assistance Program (LFD), Emergency Assistance for Livestock, Honeybees, and Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish Program (ELAP), Livestock Indemnity Program (LIP), and Tree Assistance Program (TAP). Per the PDSI, 2012’s average severity index was ranked at a -4.47, with extremes in August and September, of -7.35 and -7.57, respectively. In addition, this event reported \$50,000 in property loss. This was related to extreme demands placed on the electrical infrastructure. The need for power was so great that the local public power district was forced into rolling blackouts.

**EXTENT**

Using the data presented in Figure 12 (PDSI) it is reasonable to expect extreme drought to occur in 12 percent of years for the planning area (14 extreme drought years in 121 years). Severe drought occurred in approximately 9 years of the 121 years of record (7 percent of years). Moderate drought occurred in approximately 20 years of the period reviewed (17 percent of years), and mild drought occurred in approximately 27 of the 121 years recorded (22 percent of years). Non-drought conditions (incipient dry spell, near normal, or wet spell conditions) occurred in 42 percent of years. It is important to remember that any given year can include months with some or all of the drought conditions. For instance, a year that starts out rainy and ends very dry can include months with no drought, mild drought, and moderate drought.

**PROBABILITY**

The following table summarizes the magnitude of drought and annual probability of occurrence.

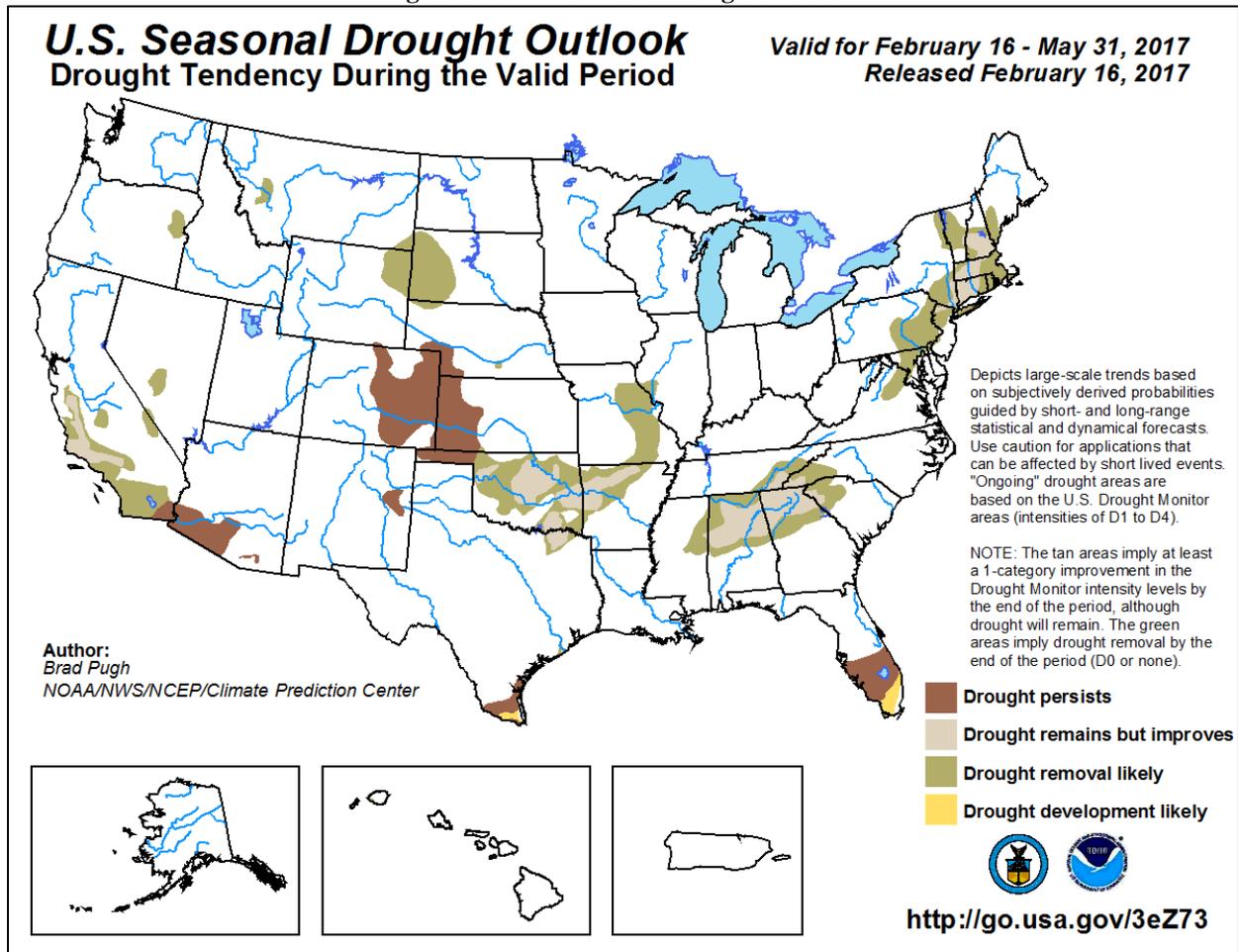
**Table 56: Drought Magnitude and Probability**

<b>Magnitude</b>	<b>Years of Record</b>	<b>Annual Probability</b>
Mild Drought	27/121	22%
Moderate Drought	20/121	17%
Severe Drought	9/121	7%
Extreme Drought	14/121	12%

Source: NCEI, 1895-2015

The U.S. Seasonal Drought Outlook provides a short-term drought forecast that can be utilized by local officials and residents to examine the likelihood of drought developing or continuing depending on the current situation. The following figure provides the drought outlook for February 16 through May 31, 2017. According to the U.S. Seasonal Drought Outlook, drought is likely to persist in eastern Colorado, western Kansas, far southwestern Nebraska, the panhandle of Oklahoma, southwestern Arizona, and southern Florida. The planning area should experience seasonal norms relative to precipitation and temperatures.

Figure 13: U.S. Seasonal Drought Outlook



Source: NOAA CPC

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities. For jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

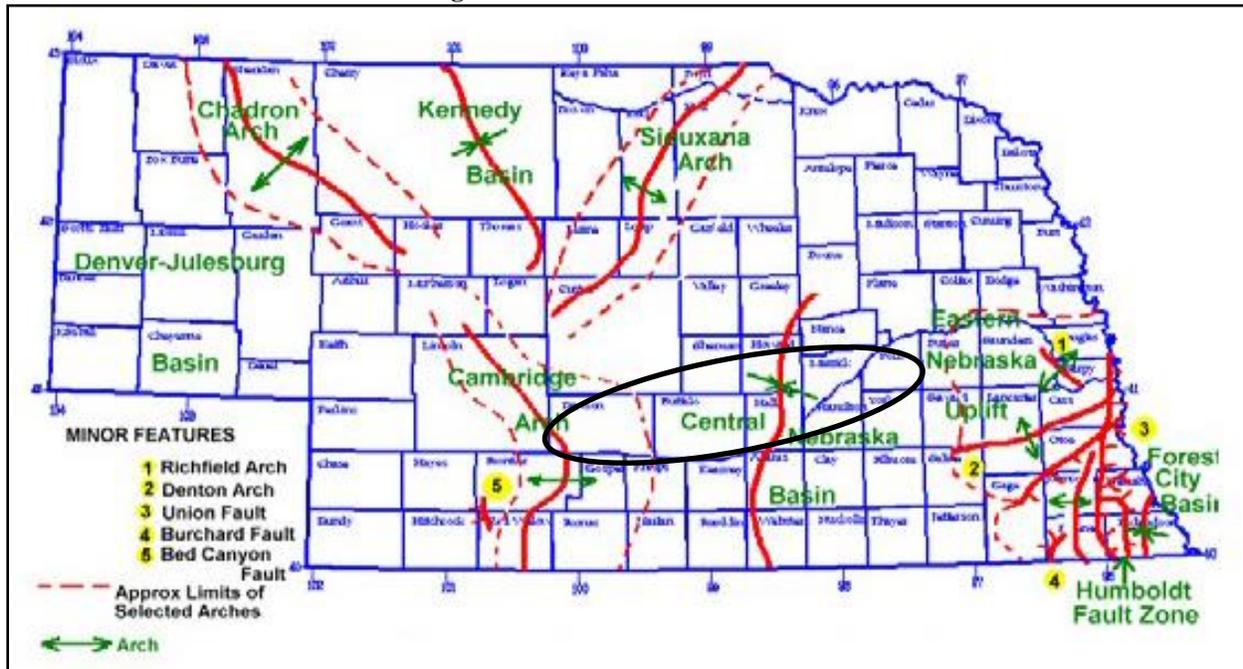
**Table 57: Regional Drought Vulnerabilities**

Sector	Vulnerability
People	-Insufficient water supply -Loss of jobs in agricultural sector -Residents in poverty if food prices increase
Economic	-3% of people are employed in the agricultural industry -Closure of water intensive businesses (carwashes, pools, etc.) -Loss of tourism dollars
Built Environment	-Cracking of foundations (residential and commercial structures) -Damages to landscapes
Infrastructure	-Damages to waterlines below ground -Damages to roadways (prolonged extreme events) -Stressing of electrical systems (brownouts during peak usage)
Critical Facilities	None
Other	-Increase in wildfires and wildfire intensity

**EARTHQUAKES**  
**HAZARD PROFILE**

An earthquake is the result of a sudden release of energy in the Earth’s tectonic plates that creates seismic waves. The seismic activity of an area refers to the frequency, type, and size of earthquakes experienced over a period of time. Although rather uncommon, earthquakes do occur in Nebraska and are usually small, generally not felt, and cause little to no damage. Earthquakes are measured by magnitude and intensity. Magnitude is measured by the Richter Scale, a base-10 logarithmic scale, which uses seismographs around the world to measure the amount of energy released by an earthquake. Intensity is measured by the Modified Mercalli Intensity Scale, which determines the intensity of an earthquake by comparing actual damage against damage patterns of earthquakes with known intensities. The following figure shows the fault lines in Nebraska and the following tables summarize the Richter Scale and Modified Mercalli Scale.

**Figure 14: Fault Lines in Nebraska**



Source: Nebraska Department of Natural Resources

**Table 58: Richter Scale**

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5 – 5.4	Often felt, but rarely causes damage.
Under 6.0	At most, slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 – 6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0 – 7.9	Major earthquake. Can cause serious damage over larger areas.
8 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Source: Federal Emergency Management Agency

**Table 59: Modified Mercalli Intensity Scale**

Scale	Intensity	Description of Effects	Corresponding Richter Scale Magnitude
I	Instrumental	Detected only on seismographs	
II	Feeble	Some people feel it	< 4.2
III	Slight	Felt by people resting, like a truck rumbling by	
IV	Moderate	Felt by people walking	
V	Slightly Strong	Sleepers awake; church bells ring	< 4.8
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves	< 5.4
VII	Very Strong	Mild Alarm; walls crack; plaster falls	< 6.1
VIII	Destructive	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open	< 6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	< 7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards	< 8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves	> 8.1

Source: Federal Emergency Management Agency

### **LOCATION**

Dawson and Hall Counties have fault lines located within their boundaries and are therefore most likely to experience seismic events.

### **HISTORICAL OCCURRENCES**

According to the USGS Earthquake Hazards Program, there have been no earthquakes in recent history within the planning area.

### **AVERAGE ANNUAL LOSSES**

Due to the lack of sufficient earthquake data, limited resources, extremely low earthquake risk for the area, and zero reports of historical occurrences with recorded damages, it is not feasible to utilize the 'event damage estimate formula' to estimate potential losses for the planning area.

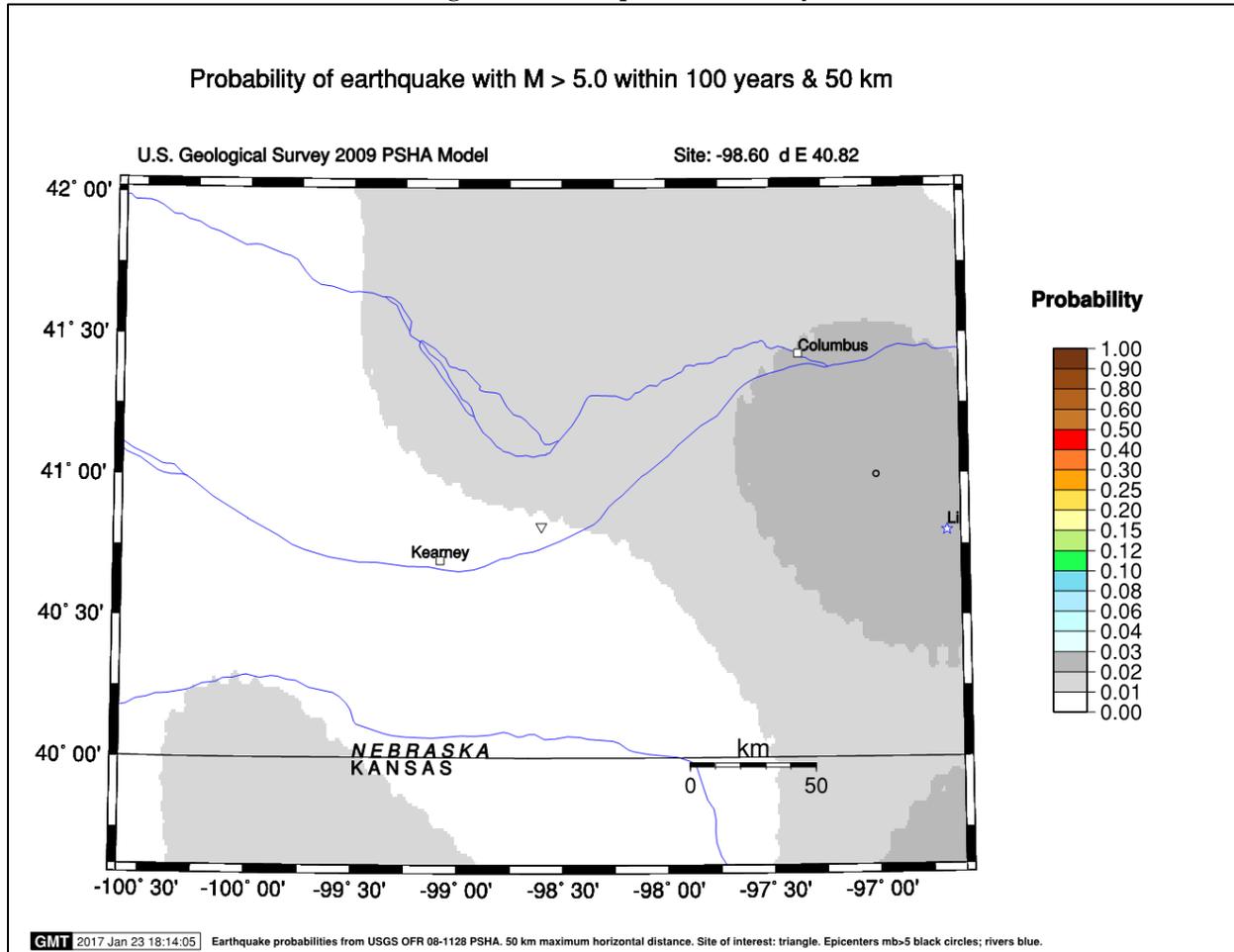
### **EXTENT**

If an earthquake were to occur in the planning area, it would likely measure 4.0 or less on the Richter Scale.

### **PROBABILITY**

The following figure summarizes the probability of a 5.0 or greater earthquake occurring in the planning area within 100 years, which is less than 1 percent.

**Figure 15: Earthquake Probability**



Source: USGS 2009 PSHA Model

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 60: Regional Earthquake Vulnerabilities**

Sector	Vulnerability
People	-Falling objects
Economic	-Short-term interruption of business
Built Environment	-Cracking of foundations (residential and commercial structures) -Damage to structures
Infrastructure	-Damages to subterranean infrastructure (e.g. waterlines, gas lines, etc.) -Damages to roadways
Critical Facilities	-Same as all other structures

## ***EXTREME HEAT***

### ***HAZARD PROFILE***

Extreme heat is often associated with periods of drought, but can also be characterized by long periods of high temperatures in combination with high humidity. During these conditions, the human body has difficulties cooling through the normal method of the evaporation of perspiration. Health risks arise when a person is overexposed to heat. Extreme heat can also cause people to overuse air conditioners, which can lead to power failures. Power outages for prolonged periods increase the risk of heat stroke and subsequent fatalities due to loss of cooling and proper ventilation. Other secondary concerns that are connected to extreme heat hazards include water shortages brought on by drought-like conditions and high demand.

Along with humans, animals also can be affected by high temperatures and humidity. For instance, cattle and other farm animals respond to heat by reducing feed intake, increasing their respiration rate, and increasing their body temperature. These responses assist the animal in cooling itself, but this is usually not sufficient. The hotter the animal is, the more it will begin to shut down body processes not vital to its survival, such as milk production, reproduction, or muscle building.

For the planning area, the months with the highest temperatures are May, June, July, August, and September. The National Weather Service is responsible for issuing excessive heat outlooks, excessive heat watches, and excessive heat warnings. Excessive heat outlooks are issued when the potential exists for an excessive heat event in the next 3 to 7 days. Excessive heat outlooks can be utilized by public utility staffs, emergency managers, and public health officials to plan for extreme heat events. Excessive heat watches are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. Finally, excessive heat warnings are issued when an excessive heat event is expected in the next 36 hours. Excessive heat warnings are issued when an extreme heat event is occurring, is imminent, or has a very high probability of occurring.

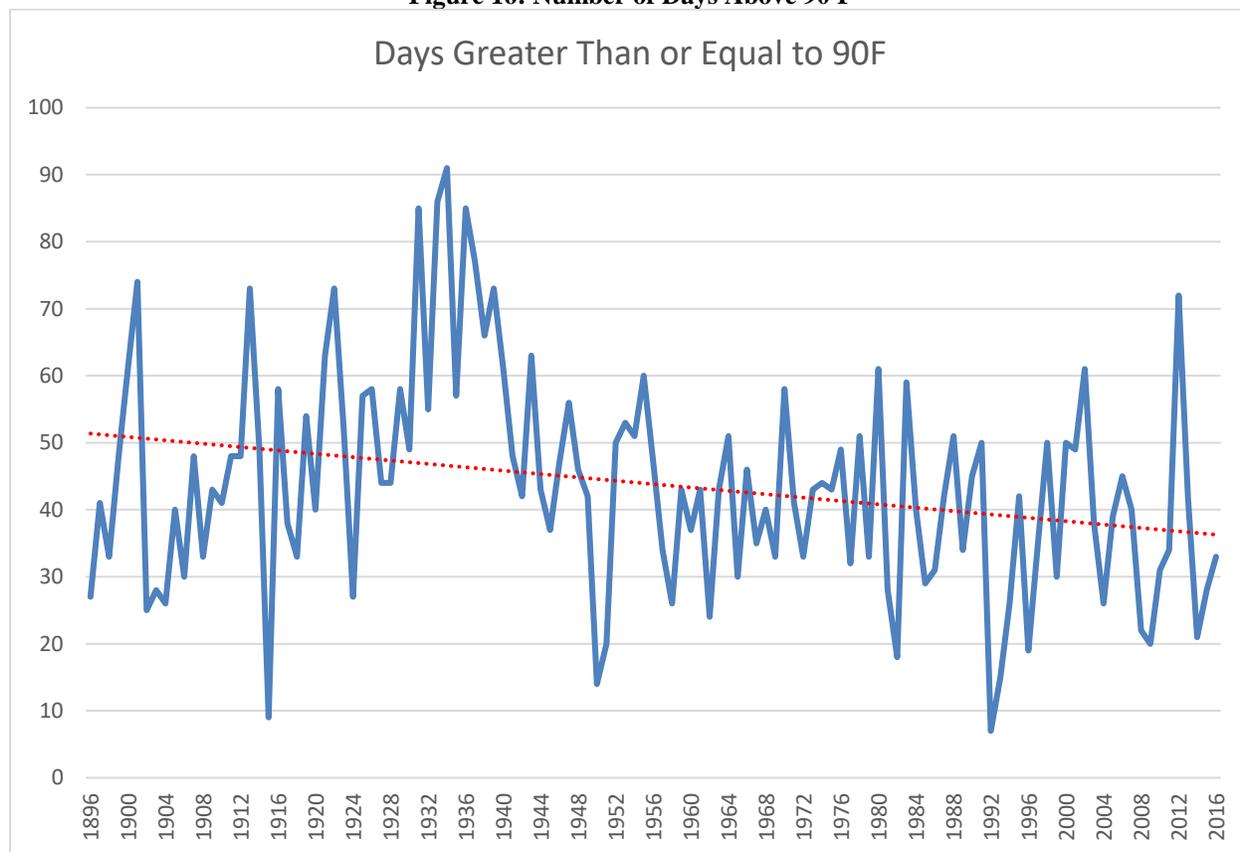
### ***LOCATION***

This hazard may occur anywhere in the planning area.

### ***HISTORICAL OCCURRENCES***

The Midwestern Regional Climate Center (MRCC) reports an average of 43 days annually where maximum temperatures are 90° Fahrenheit or greater, which generally occur from June through September but are most prevalent in the months of July and August. The year with the highest number of days of 90°F or greater on record occurred during the Dust Bowl in 1934 with 91 days. Conversely, the year with the lowest number of days on record was 1992 with only seven days.

**Figure 16: Number of Days Above 90 F**



Source: NOAA, MRCC (1896 – 2016)

**AVERAGE ANNUAL LOSSES**

The direct and indirect effects of extreme heat are difficult to quantify. There is no way to place a value on the loss of human life. Potential losses such as power outages could affect businesses, homes, and critical facilities. High demand and intense use of air conditioning can overload the electrical systems and cause damages to infrastructure.

It is estimated from the NCEI database that \$2.2 million in property damages were reported over just two events. The majority of these property damages were a result of the loss of livestock during extreme heat.

**Table 61: Extreme Heat Loss Estimation**

Hazard Type	Number of Average Days Per Year at 90°F <sup>1</sup>	Property Damages <sup>2</sup>	Average Annual Property Damage <sup>2</sup>	Total Crop Loss <sup>3</sup>	Annual Crop Loss <sup>3</sup>
Extreme Heat	43	\$2,200,000	\$110,000	\$22,660,532	\$1,416,283

Source: 1 indicates the data is from MRCC; 2 NCEI (1996 to 2015); 3 USDA RMA (2000 to 2015)

**Estimated Loss of Electricity**

According to the FEMA publication “What is a Benefit: Guidance on Benefit-Cost Analysis of Hazard Mitigation Project (June 2009)”, if an extreme heat event occurred within the planning area, the following table assumes the event could potentially cause a loss of electricity for 10 percent of the population at a cost of \$126 per person per day. In rural areas, the percent of the population affected and duration may increase during extreme events. The assumed damages do not take into account physical damages to utility equipment and infrastructure.

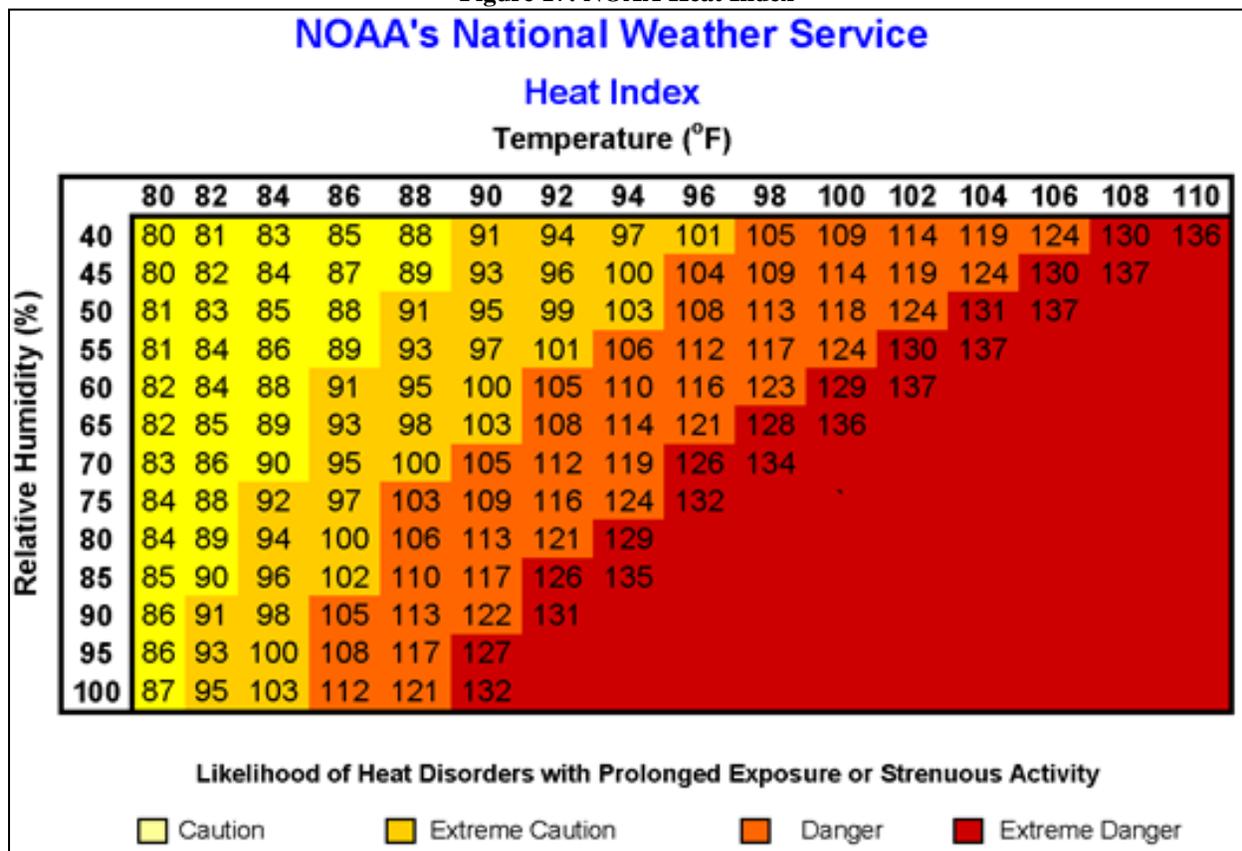
**Table 62: Loss of Electricity - Assumed Damage by Jurisdiction**

Jurisdiction	2014 Population of Planning Area	Population Affected (Assumed)	Electric Loss of Use Assumed Damage Per Day
Buffalo County	47,388	4,739	\$597,089
Dawson County	24,205	2,421	\$304,983
Hall County	60,223	6,022	\$758,810
Merrick County	7,790	779	\$98,154
Polk County	5,307	531	\$66,868

**EXTENT**

A key factor to consider in regards to extreme heat situations is the humidity level relative to the temperature. As is indicated in the following figure, as the Relative Humidity increases, the temperature needed to cause a dangerous situation decreases. For example, for 100 percent Relative Humidity, dangerous levels of heat begin at 86°F whereas a Relative Humidity of 50 percent, require 94°F. The combination of Relative Humidity and Temperature result in a Heat Index: 100 percent Relative Humidity + 86°F = 112° Heat Index.

**Figure 17: NOAA Heat Index**



Source: NOAA

For the purpose of this plan (due to available data), extreme heat is being defined as temperatures of 90°F or greater.

**PROBABILITY**

Extreme heat is a regular part of the climate for the planning area; there is a 100 percent probability that temperatures greater than 90°F will occur annually.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 63: Regional Extreme Heat Vulnerabilities**

Sector	Vulnerability
People	-Heat exhaustion -Heat Stroke -Vulnerable populations include: -People working outdoors -People without air conditioning -Young children outdoors or without air conditioning -Elderly outdoors or without air conditioning
Economic	-Short-term interruption of business -Loss of power -Agricultural losses
Built Environment	None
Infrastructure	-Overload of electrical systems -Damages to roadways
Critical Facilities	-Loss of power

## ***FLOODING***

### ***HAZARD PROFILE***

Flooding has been a major problem for many of the communities in the CPNRD. Many of the communities were settled and developed largely because of their proximity to water resources. Flooding can occur on a local level, sometimes affecting only a few streets, but can also extend throughout an entire district, affecting whole drainage basins and impacting property in multiple states. Heavy accumulations of ice or snow can also cause flooding during the melting stage. These events are complicated by the freeze/thaw cycles characterized by moisture thawing during the day and freezing at night. There are four main types of flooding in the planning area: riverine flooding, flash flooding, sheet flooding, and ice jam flooding.

#### **Riverine Flooding**

Riverine flooding, slower in nature, is defined as the overflow of rivers, streams, drains, and lakes due to excessive rainfall, rapid snowmelt or ice melt. The areas adjacent to rivers and stream banks that carry excess floodwater during rapid runoff are called floodplains. A floodplain is defined as the lowland and relatively flat area adjoining a river or stream. The terms “base flood” and “100-year flood” refer to the area in the floodplain that is subject to a 1 percent or greater chance of flooding in any given year. Floodplains are part of a larger entity called a basin or watershed, which is defined as all the land drained by a river and its tributaries.

#### **Flash Flooding**

Flash floods, faster in nature, result from convective precipitation usually due to intense thunderstorms or sudden release from an upstream impoundment created behind a dam, landslide, or levee. Flash floods are distinguished from a regular flood by a timescale less than six hours and cause the most flood-related deaths as a result of this shorter timescale. Flooding from excessive rainfall in Nebraska usually occurs between late spring and early fall.

#### **Sheet Flooding**

In some cases, flooding may not be directly attributable to a river, stream, or lake overflowing its banks. Rather, it may simply be the combination of excessive rainfall or snowmelt, saturated ground, and inadequate drainage. With no place to go, the water will find the lowest elevations—areas that are often not in a floodplain. This type of flooding, often referred to as sheet flooding, is becoming increasingly prevalent as development exceeds the capacity of the drainage infrastructure, therefore limiting its ability to properly carry and disburse the water flow. Flooding also occurs due to combined storm and sanitary sewers being overwhelmed by the tremendous flow of water that often accompanies storm events.

#### **Ice Jam Flooding**

Ice jams occur when ice breaks up in moving waterways, and then stacks on itself where channels narrow or man-made obstructions constrict the channel. This creates an ice dam, often causing flooding within minutes of the dam formation.

Ice formation in streams occurs during periods of cold weather when finely divided colloidal particles called "frazil ice" form. These particles combine to form what is commonly known as “sheet ice” (particularly in the Platte River). This type of ice covers the entire river. The thickness of this ice sheet depends upon the degree and duration of cold weather in the area. On the Platte River, especially, this ice sheet can freeze to the bottom of the channel in places. During spring thaw, the Platte River becomes clogged with this winter accumulation of ice. Because of relatively low stream banks and channels blocked with ice, these rivers overtop existing banks and flow overland.

### ***LOCATION***

The CPNRD has one primary river within the planning area, the Platte River.

**Platte River**

The Platte River is one of Nebraska’s major rivers in the state coming in at second place just behind the Missouri River. It flows from west to east through all five counties in the planning area.

**FLOODPLAIN MAPS**

Effective Digital Flood Insurance Rate Maps (DFIRM) were available for all five counties in the planning area: Buffalo, Dawson, Hall, Merrick, and Polk Counties. However, the CPNRD covers a portion of southwestern Custer County, which does not have an effective DFIRM but rather a paper map floodplain. Therefore, the best available digital data for depicting the flood hazard for this Custer County is a modeled floodplain using Hazards United States Multi-Hazard (HAZUS-MH). In the absence of DFIRM data, HAZUS-MH was used to generate a 1 percent annual flood event for major rivers and creeks (those with a 10 square mile minimum drainage area). HAZUS does not provide a perfect reflection of the situation on the ground. There may be rivers or streams which cause flooding damages, but have drainage areas smaller than 10 square miles. These streams will not be included for analysis. A USGS 30-meter resolution digital elevation model (DEM) was used as the terrain base in the model; features smaller than 30 square meters may not be included in the analysis. The Special Flood Hazard Areas shown in this plan are not regulatory, and are only approximations of vulnerability.

Figure 18 shows the DFIRMS and modeled floodplain for the planning area. For jurisdictional specific maps as well as an inventory of structures in the floodplain, please refer to *Section Seven: Participant Sections*.

**HISTORICAL OCCURRENCES**

According to the NCEI, flash flooding resulted in \$19,791,000 in property damage, while riverine flooding caused \$433,000 in property damage. USDA RMA data does not distinguish the difference between riverine flooding damages and flash flooding damages. The total crop loss according to the RMA is \$3,586,051.

**Table 64: Number of Flooding Events**

County	Flooding Events	Flash Flooding Events
Buffalo County	8	11
Dawson County	5	9
Hall County	11	11
Merrick County	7	7
Polk County	5	10
<b>Totals</b>	<b>36</b>	<b>48</b>

Source: NCEI (January 1996 to December 2015)

**AVERAGE ANNUAL DAMAGES**

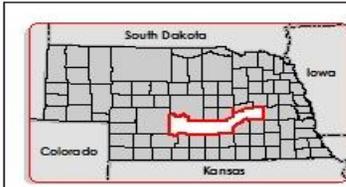
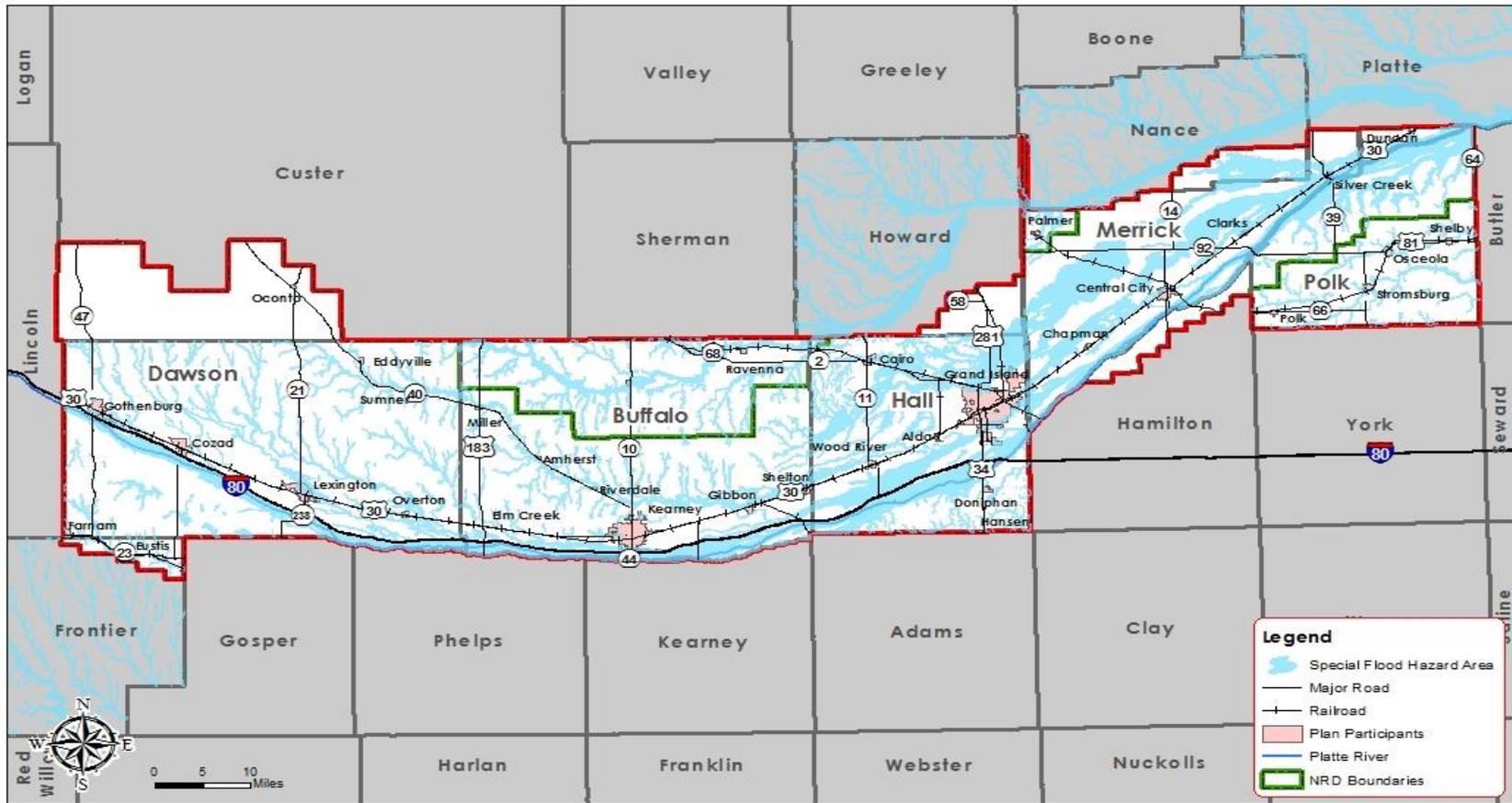
The average damage per event estimate was determined based upon NCEI Storm Events Database since 1996, the RMA databases from 2000 to 2015, and the number of historical occurrences. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life. Flooding causes an average of \$1,011,200 in property damages and \$224,128 in crop losses per year for the planning area.

**Table 65: Flood Loss Estimate**

Hazard Type	Number of Events <sup>1</sup>	Number of Events Per Year	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Flood Events	84	4.2	\$20,224,000	\$1,011,200	\$3,586,051	\$224,128

<sup>1</sup> Indicates data from NCEI (1996 to 2015) <sup>2</sup> Indicates data from RMA (2000 to 2015)

Figure 18: 1% Annual Chance Flood Risk Area



**Central Platte Natural Resources District**

**2017 Hazard Mitigation Plan  
Special Flood Hazard Area**

Created by JPS  
Date: 2/23/2017  
Software: ArcGIS 10.5.1  
Map: 1100000 - Central Platte  
NRD HMP Update

This map was prepared using information from records drawings supplied by JPS and/or other applicable city, county, federal, or public or private entities. JPS does not guarantee the accuracy of this map or the information used to prepare this map. This is not a sealed plan.



**NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

The following table summarizes NFIP participation and active policies within the planning area.

**Table 66: NFIP Participants**

<b>Jurisdiction</b>	<b>Eligible- Regular Program</b>	<b>Date Current Map</b>	<b>Sanction</b>	<b>Participation in NFIP</b>
<b>Buffalo County</b>	3/1/1990	11/26/2010	-	Yes
Amherst	9/27/1985	11/26/2010	-	Yes
Elm Creek	8/19/1987	11/26/2010	-	Yes
Gibbon	9/27/1985	11/26/2010	-	Yes
Kearney	7/5/1984	11/26/2010	-	Yes
Pleasanton	9/27/1985	11/26/2010	-	Yes
Ravenna	9/4/1985	11/26/2010	-	Yes
Riverdale	12/21/2010	11/26/2010	-	Yes
Shelton	9/27/1985	11/26/2010	-	Yes
<b>Dawson County</b>	7/1/1988	5/3/2011	-	Yes
Cozad	6/30/1976	5/3/2011	-	Yes
Farnam	-	5/3/2011	11/8/1975	No
Gothenburg	1/3/1990	5/3/2011	-	Yes
Lexington	5/15/1984	5/3/2011	-	Yes
Overton	9/27/1985	5/3/2011	-	Yes
<b>Hall County</b>	8/1/1990	9/26/2008	-	Yes
Alda	6/20/1978	9/26/2008	-	Yes
Cairo	6/20/1978	9/26/2008	-	Yes
Doniphan	8/1/1978	9/26/2008	-	Yes
Grand Island	3/2/1983	9/26/2008	-	Yes
Wood River	12/1/1978	9/26/2008	-	Yes
<b>Merrick County</b>	1/31/1994	1/6/2010	-	Yes
Central City	8/15/1979	1/6/2010	-	Yes
Chapman	2/1/2002	1/6/2010	-	Yes
Clarks	8/19/1987	1/6/2010	-	Yes
Palmer	-	1/6/2010	6/27/1976	No
Silver Creek	8/26/1977	1/6/2010	-	Yes
<b>Polk County</b>	8/19/2008	8/19/2008	-	Yes
Osceola	7/2/1987	8/19/2008	-	Yes
Polk	-	8/19/2008	6/27/1976	No
Shelby	-	8/19/2008	8/19/2009	No
Stromsburg	6/17/1986	8/19/2008	-	Yes
Eustis	3/1/1990	4/2/2008	-	Yes
Oconto	-	-	-	No

Source: Nebraska Department of Natural Resources, National Flood Insurance Program

**Table 67: NFIP Policies in Place and Total Payments**

Jurisdiction	Policies In-force	Total Coverage	Total Premium	Closed Losses*	Total Payments
<b>Buffalo County</b>	58	\$8,569,400	\$37,744	6	\$34,045
Amherst	0	N/A	N/A	0	\$0
Elm Creek	2	\$424,000	\$1,723	1	\$3,599
Gibbon	10	\$1,480,500	\$6,693	0	\$0
Kearney	100	\$31,607,100	\$82,088	2	\$6,479
Pleasanton	17	\$1,350,100	\$17,852	0	\$0
Ravenna	2	\$300,000	\$4,270	1	\$740
Riverdale	2	\$279,900	\$794	0	\$0
Shelton	2	\$228,000	\$2,842	0	\$0
<b>Dawson County</b>	43	\$7,624,000	\$38,892	17	\$110,094
Cozad	0	N/A	N/A	4	\$41,567
Farnam	0	N/A	N/A	0	\$0
Gothenburg	21	\$6,017,700	\$22,960	6	\$20,130
Lexington	159	\$29,724,400	\$79,834	5	\$35,844
Overton	4	\$682,200	\$3,288	8	\$49,278
<b>Hall County</b>	91	\$7,797,900	\$63,835	9	\$123,787
Aldo	0	N/A	N/A	0	\$0
Cairo	6	\$754,900	\$5,096	0	\$0
Doniphan	0	N/A	N/A	1	\$619
Grand Island	149	\$29,405,100	\$198,090	46	\$280,208
Wood River	2	\$383,000	\$1,070	2	\$641
<b>Merrick County</b>	63	\$10,587,700	\$48,693	2	\$14,134
Central City	14	\$767,600	\$6,450	5	\$2,140
Chapman	0	N/A	N/A	0	\$0
Clarks	4	\$1,071,500	\$5,511	0	\$0
Palmer	0	N/A	N/A	0	\$0
Silver Creek	6	\$632,100	\$3,185	0	\$0
<b>Polk County</b>	53	\$3,984,800	\$39,774	0	\$0
Osceola	3	\$436,900	\$2,479	1	\$150
Polk	0	N/A	N/A	0	\$0
Shelby	0	N/A	N/A	0	\$0
Stromsburg	1	\$95,000	\$1,603	0	\$0
<b>Other Participating Communities</b>					
Eustis	0	N/A	N/A	0	\$0
Oconto	0	N/A	N/A	0	\$0
<b>Planning Area Total</b>	<b>812</b>	<b>\$144,203,800</b>	<b>\$674,766</b>	<b>116</b>	<b>\$723,455</b>

Source: NFIP Community Status Book, August 2015; NFIP Claim Statistics

N/A: Not Applicable; \*Closed Losses are those flood insurance claims that resulted in payment

This plan highly recommends and strongly encourages each plan participant to remain in good standing and continue involvement with the NFIP. Compliance with the NFIP should remain a top priority for each participant, regardless of whether or not a flooding hazard area map has been delineated for the jurisdiction. Jurisdictions are encouraged to initiate activities above the minimum participation requirements, which are described in the CRS Coordinator’s Manual (FIA-15/2013).

***NFIP REPETITIVE LOSS STRUCTURES***

NDNR was contacted to determine if any existing buildings, infrastructure, or critical facilities are classified as an NFIP Repetitive Loss Structure. There is a total of six repetitive loss properties in the CPNRD, and none are located in Merrick or Polk Counties. The following table indicates the number, type, and location of these properties in the planning area.

**Table 68: Repetitive Loss Structures**

<b>Jurisdiction</b>	<b>Number of Properties</b>	<b>Type of Property</b>
<b>Buffalo County</b>	1	Single Family
Amherst	0	-
Elm Creek	0	-
Gibbon	0	-
Kearney	0	-
Pleasanton	0	-
Ravenna	0	-
Riverdale	0	-
Shelton	0	-
<b>Dawson County</b>	2	Single Family
Cozad	0	-
Farnam	0	-
Gothenburg	0	-
Lexington	0	-
Overton	0	-
<b>Hall County</b>	1	Single Family
Alda	0	-
Cairo	0	-
Doniphan	0	-
Grand Island	2	Single Family
Wood River	0	-
<b>Merrick County</b>	0	-
Central City	0	-
Chapman	0	-
Clarks	0	-
Palmer	0	-

Jurisdiction	Number of Properties	Type of Property
Silver Creek	0	-
<b>Polk County</b>	0	-
Osceola	0	-
Polk	0	-
Shelby	0	-
Stromsburg	0	-
<b>Other Communities</b>		
Eustis	0	-
Oconto	0	-

Source: NDNR

### **EXTENT**

The NWS has three categories to define the severity of a flood once a river reaches flood stage as indicated in Table 69.

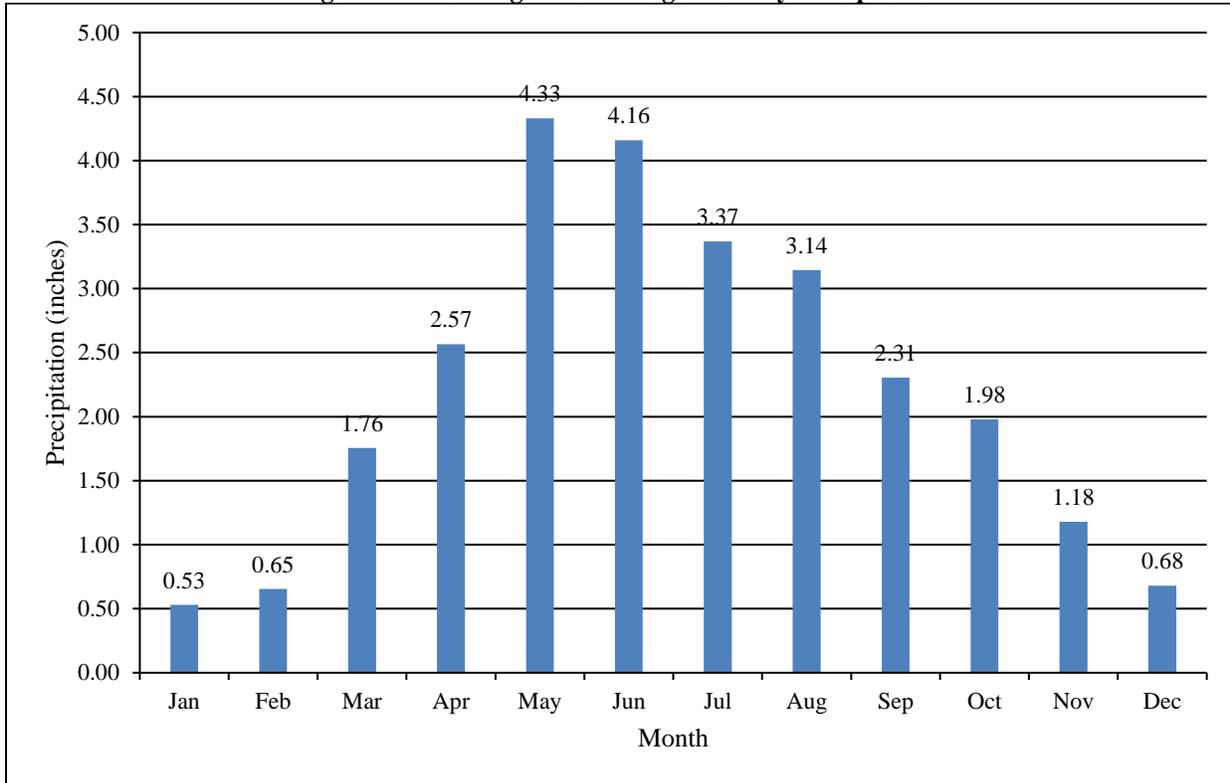
**Table 69: Flooding Stages**

Flood Stage	Description of flood impacts
Minor Flooding	Minimal or no property damage, but possible some public threat or inconvenience
Moderate Flooding	Some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations are necessary
Major Flooding	Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations

Source: NOAA

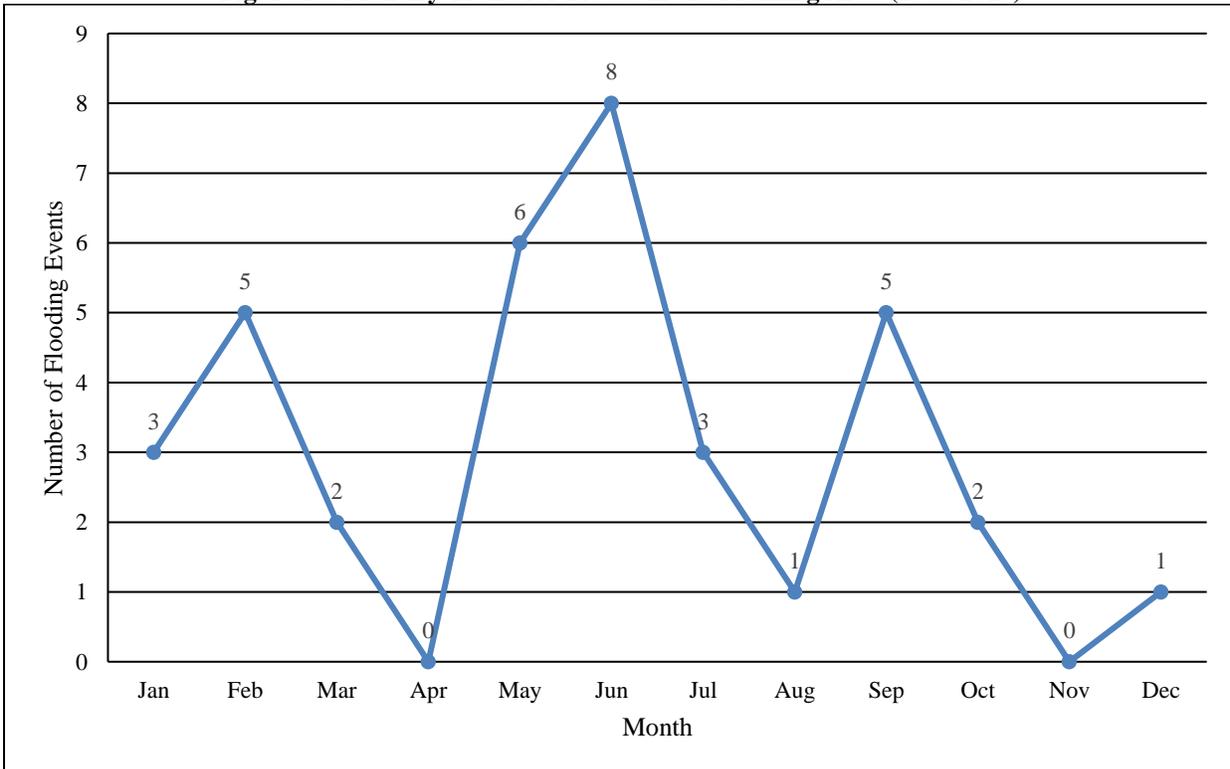
Figure 19 shows the normal average monthly precipitation for the planning area, which is helpful in determining whether any given month is above, below, or near normal in precipitation. As indicated in Figure 20, the most common months for flooding within the planning area are February, May, June, and September. While it is possible that major flood events will occur, the likely extent of flood events within the planning area is classified as moderate (Table 69).

**Figure 19: Planning Area Average Monthly Precipitation**



Source: MRCC

**Figure 20: Monthly Trend for Floods in the Planning Area (1996-2015)**



Source: NOAA

**PROBABILITY**

The NCEI reports 84 flooding events from January 1996 to December 2015. Of these events, 48 were flash flooding and 36 were riverine flooding. Based on the historic record and reported incidents by participating communities, there is a 100 percent probability of flooding will occur annually in the planning area.

**REGIONAL VULNERABILITY**

A 2008 study examining social vulnerability as it relates to flood events found that low-income and minority populations are disproportionately vulnerable to flood events. These groups may lack resources for evacuation and response. In addition, low income residents are more likely to live in areas vulnerable to the threat of flooding, but lack the resources necessary to purchase flood insurance. Also, elderly residents may suffer from a decrease or complete lack of mobility and as a result, be caught in flood-prone areas.

However, on a state level, Nebraska’s State National Flood Insurance Program Coordinator has done some interesting work, studying who lives in special flood hazard areas. According to the NDNR, floodplain areas have a few unique characteristics which differ from non-floodplain areas:

- Higher Vacancy Rates within floodplain
- Far higher percentage of renters within floodplain
- Higher percentage of non-family households in floodplain
- More diverse population in floodplain
- Much higher percentage of Hispanic/Latino populations in the floodplain

The following table is a summary of regional vulnerabilities. For jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 70: Regional Flooding Vulnerabilities**

Sector	Vulnerability
People	-Low income and minority populations may lack the resources needed for evacuation, response, or to mitigate the potential for flooding -The elderly have decreased mobility -Residents in low-lying areas, especially campgrounds, are vulnerable during flash flood events -Residents living in the floodplain may need to evacuate for extended periods
Economic	-Business closures or damages may have significant impacts -Agricultural losses from flooded fields -Closed roads and railways would impact commercial transportation of goods
Built Environment	-Buildings damages
Infrastructure	-Damages to roadways and railways
Critical Facilities	-Wastewater facilities are at risk, particularly those in the floodplain -Critical facilities, especially those in the floodplain, are at risk to damage

## ***GRASS/WILDFIRE***

### ***HAZARD PROFILE***

Wildfires, also known as brushfires, forest fires, or wildland fires, are any uncontrolled fire that occurs in the countryside or wildland. Wildland areas may include, but are not limited to, grasslands, forests, woodlands, agricultural fields, and other vegetated areas. Wildfires differ from other fires by their extensive size, the speed at which they can spread out from the original source, their ability to change direction unexpectedly, and to jump gaps, such as roads, rivers, and fire breaks. While some wildfires burn in remote forested regions, others can cause extensive destruction of homes and other property located in the wildland-urban interface, the zone of transition between developed areas and undeveloped wilderness.

Wildfires are a growing hazard in most regions of the United States, posing a threat to life and property, particularly where native ecosystems meet urban developed areas. Although fire is a natural and often beneficial process, fire suppression can lead to more severe fires due to the buildup of vegetation, which creates more fuel and increases the intensity and devastation of future fires.

*Lightning starts approximately 10,000 forest fires each year, yet ninety percent of forest fires are started by humans.*

*-National Park Service*

Wildfires are characterized in terms of their physical properties including topography, weather, and fuels. Wildfire behavior is often complex and variably dependent on factors such as fuel type, moisture content in the fuel, humidity, wind speed, topography, geographic location, ambient temperature, the effect of weather on the fire, and the cause of ignition. Fuel is the only physical property humans can control and is the target of most mitigation efforts. The NWS monitors the risk factors including high temperature, high wind speed, fuel moisture (greenness of vegetation), low humidity, and cloud cover in the state daily.

### ***LOCATION***

Based on the total number of acres burned, the greatest threat of wildfire that could impact people and homes is in Dawson and Hall Counties. Buffalo County had the highest number of reported wildfires in the planning area at 458.

### ***HISTORICAL OCCURRENCES***

For the planning area, there were 1,165 reported wildfires by 32 different fire departments according to the NFS from 2000 to 2014. The reported events burned 35,727.3 acres of range land, 198 acres of forest land, and 4,250.9 acres of crop land (40,176 total acres burned). The reported fire events caused \$5,003 in crop damages according to the RMA.

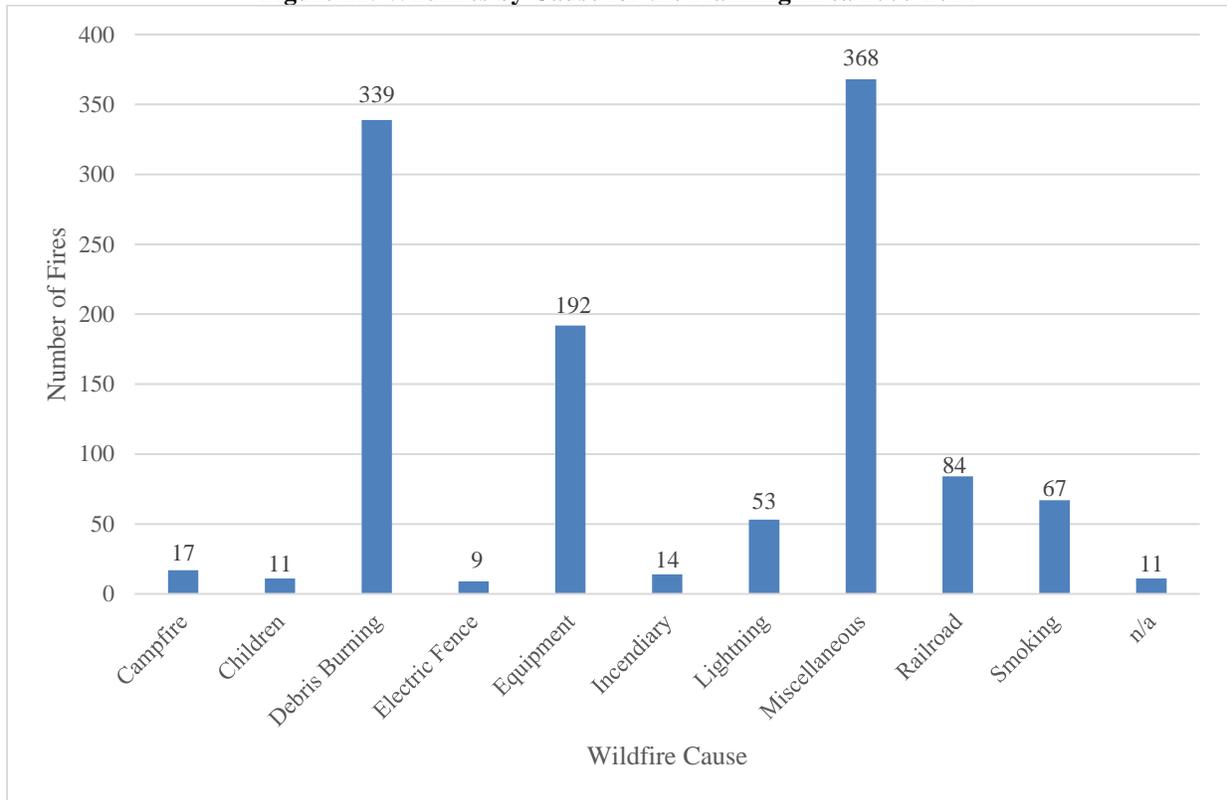
**Table 71: Reported Wildfires by County**

<b>County</b>	<b>Reported Wildfires</b>	<b>Acres Burned</b>
Buffalo County	458	4,195.4
Dawson County	382	26,542.1
Hall County	51	5,247.8
Merrick County	146	819.7
Polk County	84	532.9
Other (Eustis and Oconto)	44	2,838.3
<b>Total</b>	<b>1,165</b>	<b>40,176.2</b>

*Source: Nebraska Forest Service, 2000-2014*

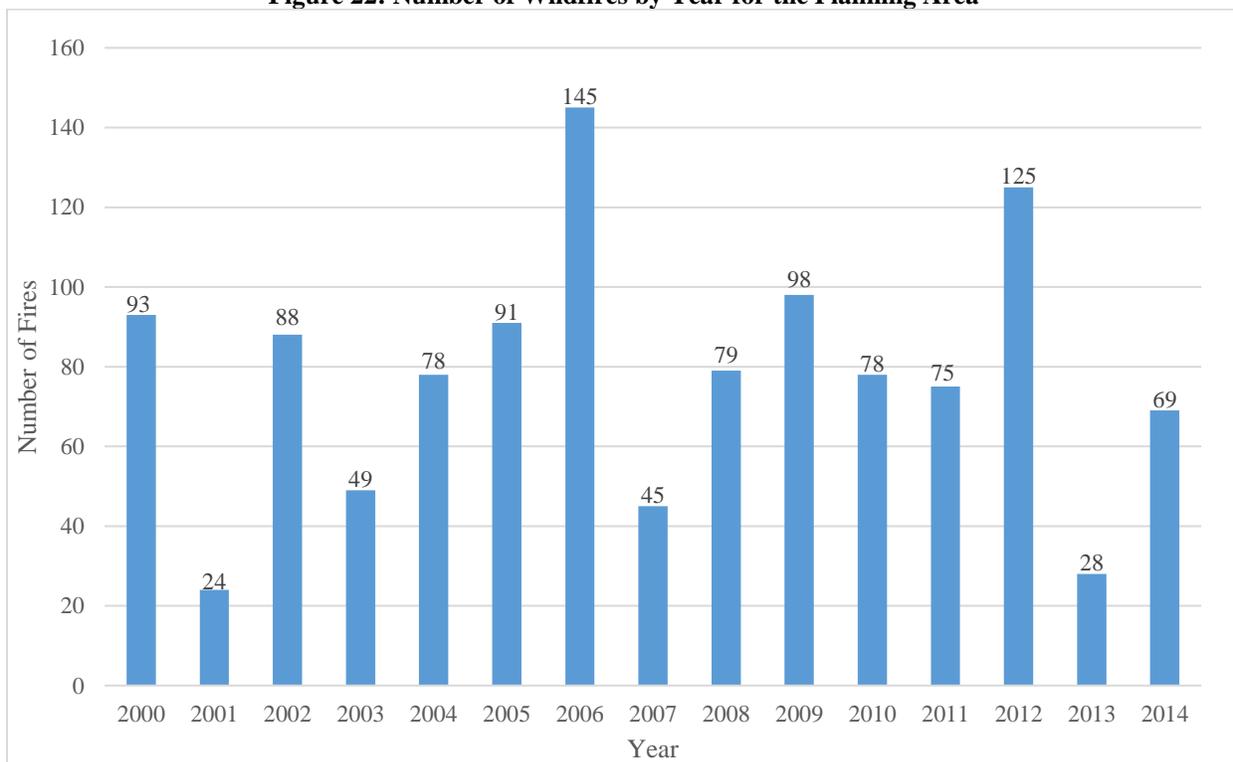
Wildfires are most likely to be started by miscellaneous causes (32 percent). Debris burning (29 percent) and equipment (17 percent) are the second and third leading causes of fires in the planning area.

**Figure 21: Wildfires by Cause for the Planning Area 2000-2014**



Source: Nebraska Forest Service

**Figure 22: Number of Wildfires by Year for the Planning Area**



Source: Nebraska Forest Service

**AVERAGE ANNUAL DAMAGES**

The average damage per event estimate was determined based upon U.S. Forest Service wildfires database from 2000 to 2014 and number of historical occurrences. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life. Wildfires caused no damages in property damage, and \$313 per year on average in crop damage in the planning area.

**Table 72: Wildfire Loss Estimation**

Hazard Type	Number of Events <sup>2</sup>	Events Per Year	Total Property Loss <sup>1</sup>	Total Crop Loss <sup>3</sup>	Average Annual Crop Loss
Grass/Wildfires	1,165	77.7	\$0	\$5,003	\$313

*1 Indicates data is from NCEI (1996 to 2015); 2 NFS (2000 to 2014); 3 RMA (2000 to 2015)*

**EXTENT**

There were 1,165 reported wildfires in the planning area between 2000 and 2014, which consumed 40,176 acres. This provides an average of 34.5 acres burned per event. It should be noted that there were fires which consumed more than the average 35 acres. Twenty-three of the fires burned 100 acres or more, with the largest wildfire burning 22,000 acres in Dawson County in August 2002.

**PROBABILITY**

Probability of grass/wildfire occurrence is based on the historic record provided by the NFS and reported potential by participating jurisdictions. Based on the historic record, there is a 100 percent annual probability or about 78 wildfires happening in the planning area each year.

Figure 23 shows the USGS’ Mean Fire Return Interval. This model considers a variety of factors, including landscape, fire dynamics, fire spread, fire effects and spatial context. These values show how often fires occur in each area, under natural conditions. While much of the planning area has adopted a culture of absolute fire suppression, due to agricultural concerns, it is important to recognize that in a natural environment, some areas experience higher levels of vulnerability to grass and wildfires. According to the map, much of the planning area has wide range of fire regimes

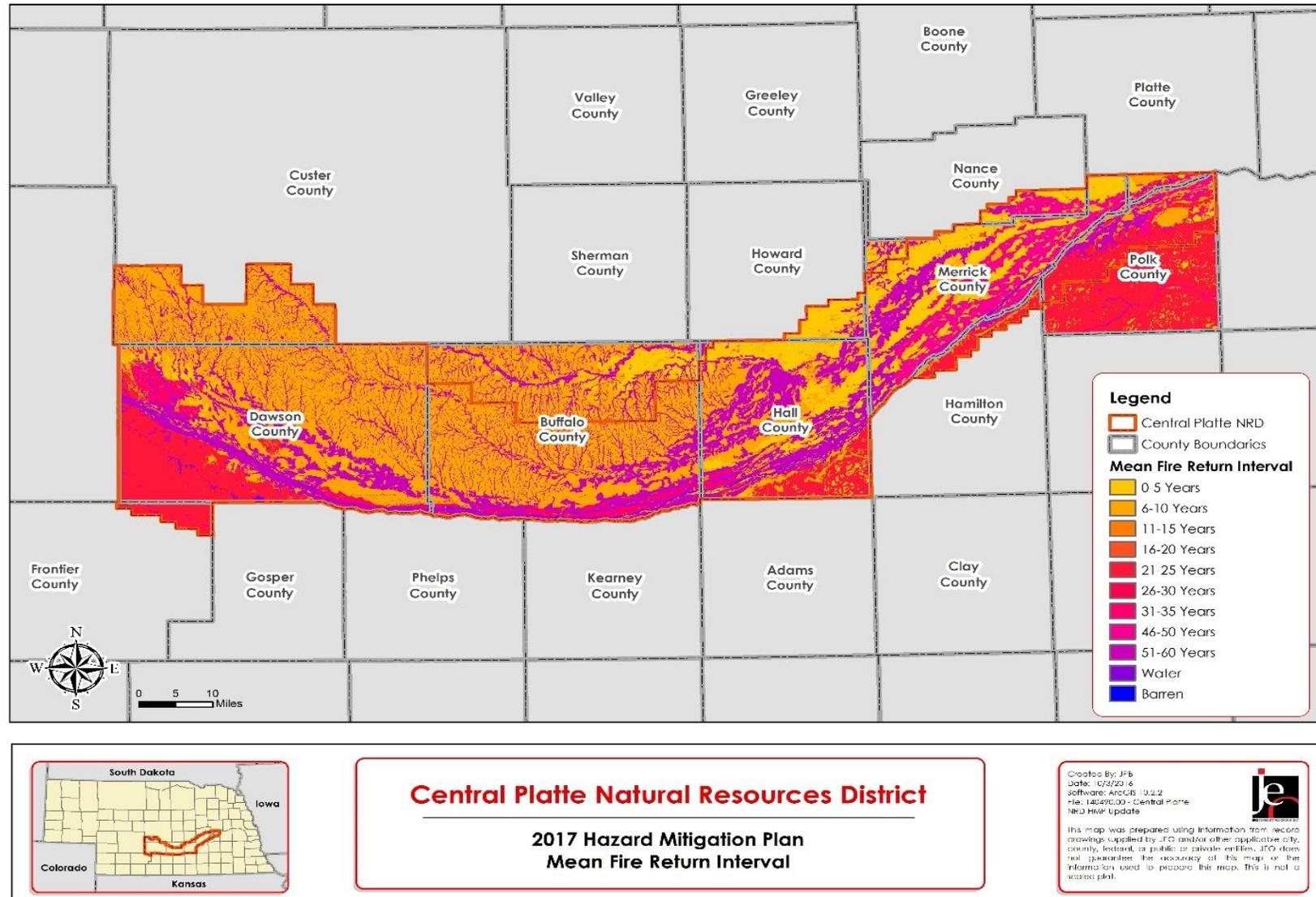
**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 73: Regional Wildfire Vulnerabilities**

Sector	Vulnerability
People	-Risk of injury or death -Displacement of people and loss of homes -Lack of transportation poses risk to low income individuals, families, and elderly
Economic	-Loss of businesses
Built Environment	-Property damages
Infrastructure	-Transportation routes may be closed -Damage to power lines
Critical Facilities	-Risk of damages
Other	-Increase chance of landslides and erosion -May lead to poor water quality

Figure 23: Mean Fire Return Interval



Source: USGS LANDFIRE Database

## ***HAIL***

### ***HAZARD PROFILE***

According to the NWS, hail is defined as a showery precipitation in the form of irregular pellets or balls of ice more than five millimeters in diameter, falling from a cumulonimbus cloud (NWS, 2005). Early in the developmental stages of a hailstorm, ice crystals form within a low pressure front due to the rapid rising of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight; they fall as precipitation, in the form of balls or irregularly shaped masses of ice. The size of hailstones is a direct function of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the Earth’s surface. Higher temperature gradients relative to elevation above the surface result in increased suspension time and hailstone size. Hail cause over \$1 billion in crop and property damages each year in the U.S., making hailstorms one of the costliest natural disasters (Federal Alliance for Safe Homes, Inc., 2006).

### ***LOCATION***

The entire planning area is at risk to hail due to the regional nature of this type of event.

### ***HISTORICAL OCCURRENCES***

The NCEI reports events as they occur in each community. A single hail event can affect multiple communities and counties at a time; the NCEI reports these large scale, multi-county events as separate events. The result is a single hail event covering a large portion of the planning area that could be reported by the NCEI as several events. The NCEI reports a total of 952 hail events in the planning area between 1996 and 2015. These events were responsible for \$93,554,000 in property damages and \$108,997,391 in crop damages. These events resulted in eighteen injuries and no fatalities.

Hail events from NCEI reported by each community are listed in the participant sections in *Section Seven: Participant Sections*.

### ***AVERAGE ANNUAL DAMAGES***

The average damage per event estimate was based on the NCEI Storm Events Database since 1996 and number of historical occurrences as described above. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life.

**Table 74: Hail Loss Estimate**

<b>Hazard Type</b>	<b>Number of Events<sup>1</sup></b>	<b>Events Per Year</b>	<b>Total Property Loss<sup>1</sup></b>	<b>Average Annual Property Loss<sup>1</sup></b>	<b>Total Crop Loss<sup>2</sup></b>	<b>Average Annual Crop Loss <sup>2</sup></b>
Hail Events	952	47.6	\$93,554,000	\$4,677,700	\$108,997,391	\$6,812,337

*1 Indicates the data is from NCEI (1996 to 2015); 2 Indicates data is from USDA RMA (2000 to 2015)*

**EXTENT**

The TORRO scale is used to classify hailstones and provides some detail related to the potential impacts from hail. Table 76 outlines the TORRO Hailstone Scale.

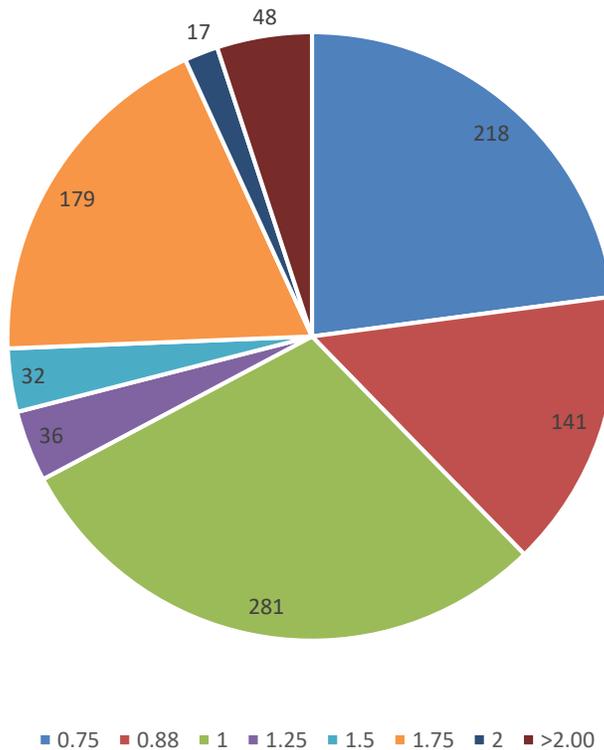
**Table 75: TORRO Hail Scale**

<b>TORRO Classification / Intensity</b>	<b>Typical Hail Diameter</b>	<b>Typical Damage Impacts</b>
H0: Hard Hail	5 mm; Pea size; 0.2 in	No damage
H1: Potentially Damaging	5 -15 mm (marble); 0.2 – 0.6 in	Slight general damage to plants and crops
H2: Significant	10 -20 mm (grape); 0.4 – 0.8 in.	Significant damage to fruit, crops, and vegetation
H3: Severe	20 -30 mm (Walnut); 0.8 – 1.2 in	Severe damage to fruit and crops, damage to glass and plastic structures
H4: Severe	30 -40 mm (Squash Ball); 1.2 – 1.6 in	Widespread damage to glass, vehicle bodywork damaged
H5: Destructive	40 – 50 mm (Golf ball); 1.6 – 2.0 in.	Wholesale destruction of glass, damage to tiled roofs; significant risk or injury
H6: Destructive	50 – 60 mm (chicken egg); 2.0 – 2.4 in	Grounded aircrafts damaged, brick walls pitted; significant risk of injury
H7: Destructive	60 – 75 mm (Tennis ball); 2.4 – 3.0 in	Severe roof damage; risk of serious injuries
H8: Destructive	75 – 90 mm (Large orange); 3.0 – 3.5 in.	Severe damage to structures, vehicles, airplanes; risk of serious injuries
H9: Super Hail	90 – 100 mm (Grapefruit); 3.5 – 4.0 in	Extensive structural damage; risk of severe or even fatal injuries to persons outdoors
H10: Super Hail	>100 mm (Melon); > 4.0 in	Extensive structural damage; risk or severe or even fatal injuries to persons outdoors

Source: TORRO

Of the 952 hail events reported for the planning area, the average hailstone size is 1.21 inches. Events of this magnitude correlate to an H4 classification. It is reasonable to expect H4 classified events to occur several times in a year throughout the planning area. In addition, it is reasonable, based on the number of occurrence, to expect larger hailstones to occur in the planning area annually. The planning area has endured five H10 hail events (>4.0 inches) during the period of record. For this area it is realistic to expect an H6 event (2.0-2.4 inches) or larger to occur approximately every year in the planning area. Figure 24 shows hail events based on the size of the hail.

**Figure 24: Hail Events by Size**



Source: NCEI, 1996--2015

**PROBABILITY**

Based on historic records and reported events, hail events are likely to occur several times annually within the planning area. The NCEI reported 952 hail events between 1996 and 2015, or on average 48 hail occurrences per year.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 76: Regional Hail Vulnerabilities**

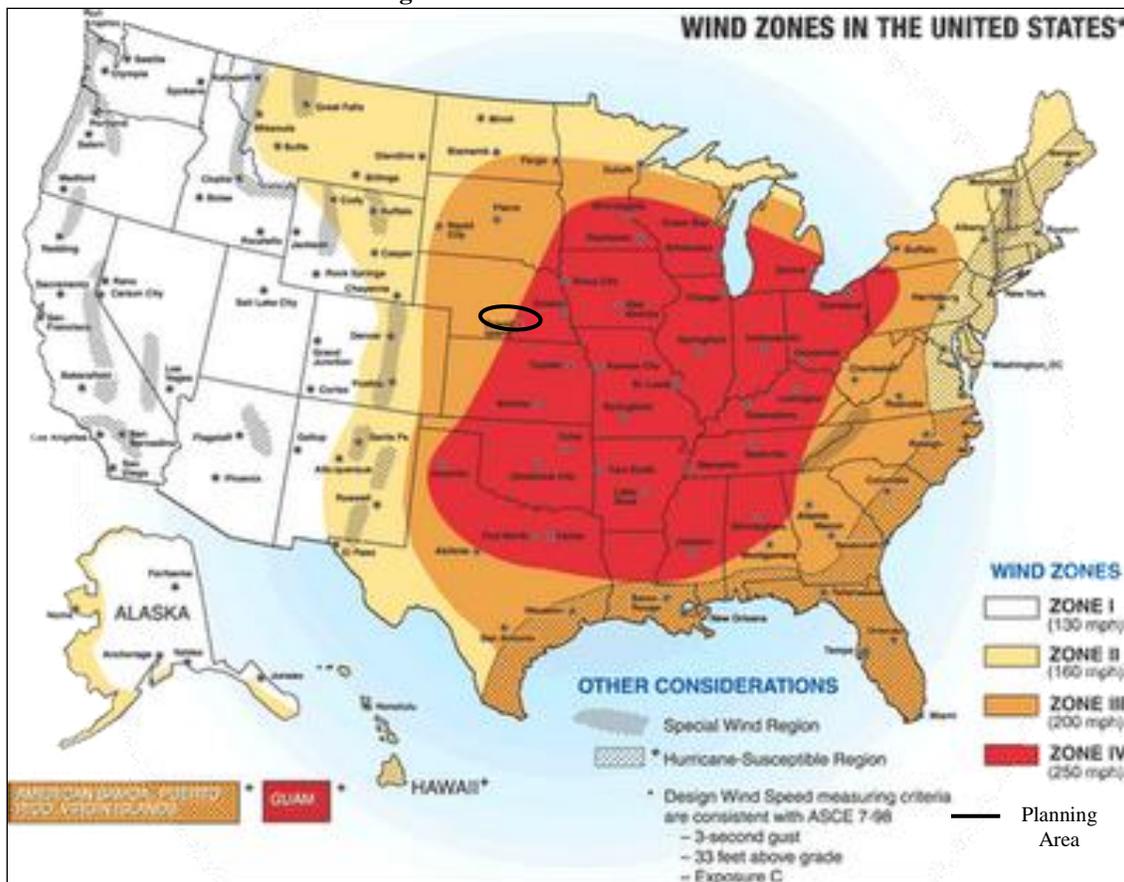
Sector	Vulnerability
People	-Injuries can occur from: not seeking shelter, standing near windows, and shattered windshields in vehicles
Economic	-Damages to buildings and property can cause significant losses to business owners
Built Environment	-Roofs, siding, windows, gutters, HVAC systems, etc. can incur damage
Infrastructure	-Power lines and utilities can be damaged
Critical Facilities	-Property damages and power outages
Other	-High winds, lightning, heavy rain, and possibly tornadoes can occur with this hazard

***HIGH WINDS******HAZARD PROFILE***

High winds typically accompany severe thunderstorms, severe winter storms, and other large low pressure systems, which can cause significant property and crop damage, downed power lines, loss of electricity, obstruction to traffic flow, and significant damage to trees and center-pivot irrigation systems.

The NWS defines high winds as sustained winds speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration. The NWS issues High Wind Advisories when there are sustained winds of 25 to 39 mph and/or gusts to 57 mph. Figure 25 shows the wind zones in the United States. The wind zones are based on the maximum wind speeds that can occur from a tornado or hurricane event. The planning area is located in Zone III/IV which has maximum winds of 250 mph equivalent to an EF5 tornado.

**Figure 25: Wind Zones in the U.S.**



Source: FEMA

***LOCATION***

High winds commonly occur throughout the planning area.

***HISTORICAL OCCURRENCES***

Due to the regional scale of high winds, the NCEI reports events as they occur in each county. While a single event can affect two or more counties at a time, the NCEI reports them as separate events.

There were 103 high wind events that occurred between January 1996 and December 2015.

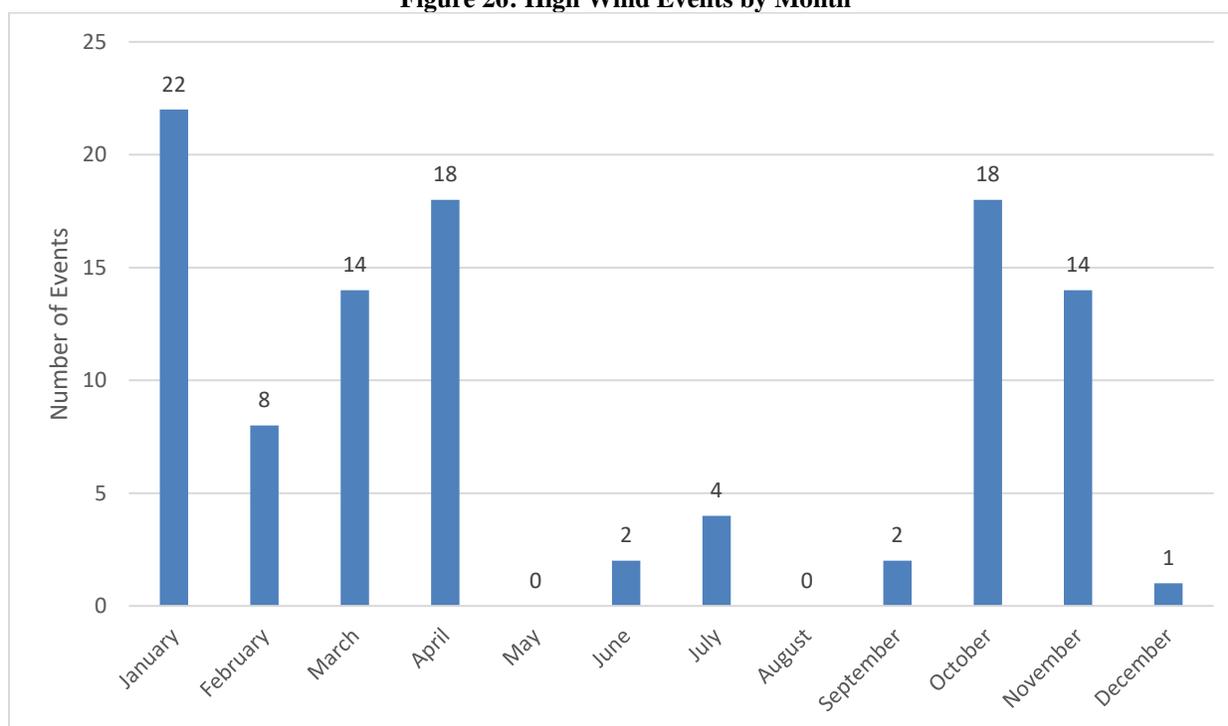
**Table 77: Wind Events by County**

County	Number of Wind Events
Buffalo County	18
Dawson County	24
Hall County	31
Merrick County	15
Polk County	15

Data is from NCEI (January 1996 to December 2015)

As seen in Figure 26, most high wind events occur in the fall, winter, and spring months. The events identified by NCEI are listed in *Section Seven: Participant Sections* for each county.

**Figure 26: High Wind Events by Month**



Source: NCEI

**AVERAGE ANNUAL DAMAGES**

The average damage per event estimate was determined based upon NCEI Storm Events Database since 1996 and number of historical occurrences. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life. It is estimated that high wind events can cause an average of \$43,320 per year in property damage, and an average of \$1,025,456 per year in crop damage for the planning area.

**Table 78: High Wind Loss Estimate**

Hazard Type	Number of Events <sup>1</sup>	Events Per Year	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
High Winds	103	5.2	\$866,400	\$43,320	\$16,407,299	\$1,025,456

<sup>1</sup> Indicates the data is from NCEI (1996 to 2015); <sup>2</sup> Indicates data is from USDA RMA (2000 to 2015)

**EXTENT**

The Beaufort Wind Scale can be used to classify wind strength. Table 80 outlines the scale, providing wind speed ranking, range of wind speeds per ranking, and a brief description of conditions for each ranking.

**Table 79: Beaufort Wind Ranking**

Beaufort Wind Force Ranking	Range of Wind Speeds	Conditions
0	<1 mph	Smoke rises vertically
1	1 – 3 mph	Direction shown by smoke but not wind vanes
2	4 – 7 mph	Wind felt on face; leaves rustle; wind vanes move
3	8 – 12 mph	Leaves and small twigs in constant motion
4	13 – 18 mph	Raises dust and loose paper; small branches move
5	19 – 24 mph	Small trees in leaf begin to move
6	25 – 31 mph	Large branches in motion; umbrellas used with difficulty
7	32 – 38 mph	Whole trees in motion; inconvenience felt when walking against the wind
8	39 – 46 mph	Breaks twigs off tree; generally impedes progress
9	47 – 54 mph	Slight structural damage; chimneypots and slates removed
10	55 – 63 mph	Trees uprooted; considerable structural damages; improperly or mobiles homes with no anchors turned over
11	64 – 72 mph	Widespread damages; very rarely experienced
12 – 17	72 - >200 mph	Hurricane; devastation

Source: Storm Prediction Center

Using the NCEI reported events, the most common high wind event is a level 9. The reported high wind events had an average of 48 mph winds. It is likely that this level of event will occur several times annually.

**PROBABILITY**

Based on historical records and reported events, it is likely that high winds will occur within the planning area several times annually.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 80: Regional High Wind Vulnerabilities**

Sector	Vulnerability
People	-Vulnerable populations include those living in mobile homes, especially if they are not anchored properly -People outdoors during events
Economic	-Agricultural losses -Damages to businesses and prolonged power outages can cause significant impacts to the local economy
Built Environment	-All building stock are at risk to damages from high winds
Infrastructure	-Downed power lines and power outages -Downed trees blocking road access
Critical Facilities	-All critical facilities are at risk to damages from high winds

**LEVEE FAILURE**

**HAZARD PROFILE**

According to FEMA:

“The United States has thousands of miles of levee systems. These manmade structures are most commonly earthen embankments designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to provide some level of protection from flooding. Some levee systems date back as far as 150 years. Some levee systems were built for agricultural purposes. Those levee systems designed to protect urban areas have typically been built to higher standards. Levee systems are designed to provide a specific level of flood protection. No levee system provides full protection from all flooding events to the people and structures located behind it. Thus, some level of flood risk exists in these levee-impacted areas.”

Levee failure can occur several ways. A breach of a levee is when part of the levee breaks away, leaving a large opening for floodwaters to flow through. A levee breach can be gradual by surface or subsurface erosion, or it can be sudden. A sudden breach of a levee often occurs when there are soil pores in the levee that allow water to flow through causing an upward pressure greater than the downward pressure from the weight of the soil of the levee. This under seepage can then resurface on the backside of the levee and can quickly erode a hole to cause a breach. Sometimes the levee actually sinks into a liquefied subsurface below.

Another way a levee failure can occur is when the water overtops the crest of the levee. This happens when the flood waters simply exceed the lowest crest elevation of the levee. An overtopping can lead to significant erosion of the backside of the levee and can result to a breach and thus a levee failure.

**LOCATION**

There is one federal levee located within the planning area as reported in USACE’s National Levee Database. It is located at Grand Island. See Figure 27 and Table 81 for information on the levee protected area.

Beyond the USACE’s National Levee Database, there is no known comprehensive list of levees that exists in the planning area especially for private agricultural levees. Thus, it is not possible at this time to document the location of non-federal levees, the areas they protect, nor the potential impact of these levees.

**Table 81: CPNRD Levees**

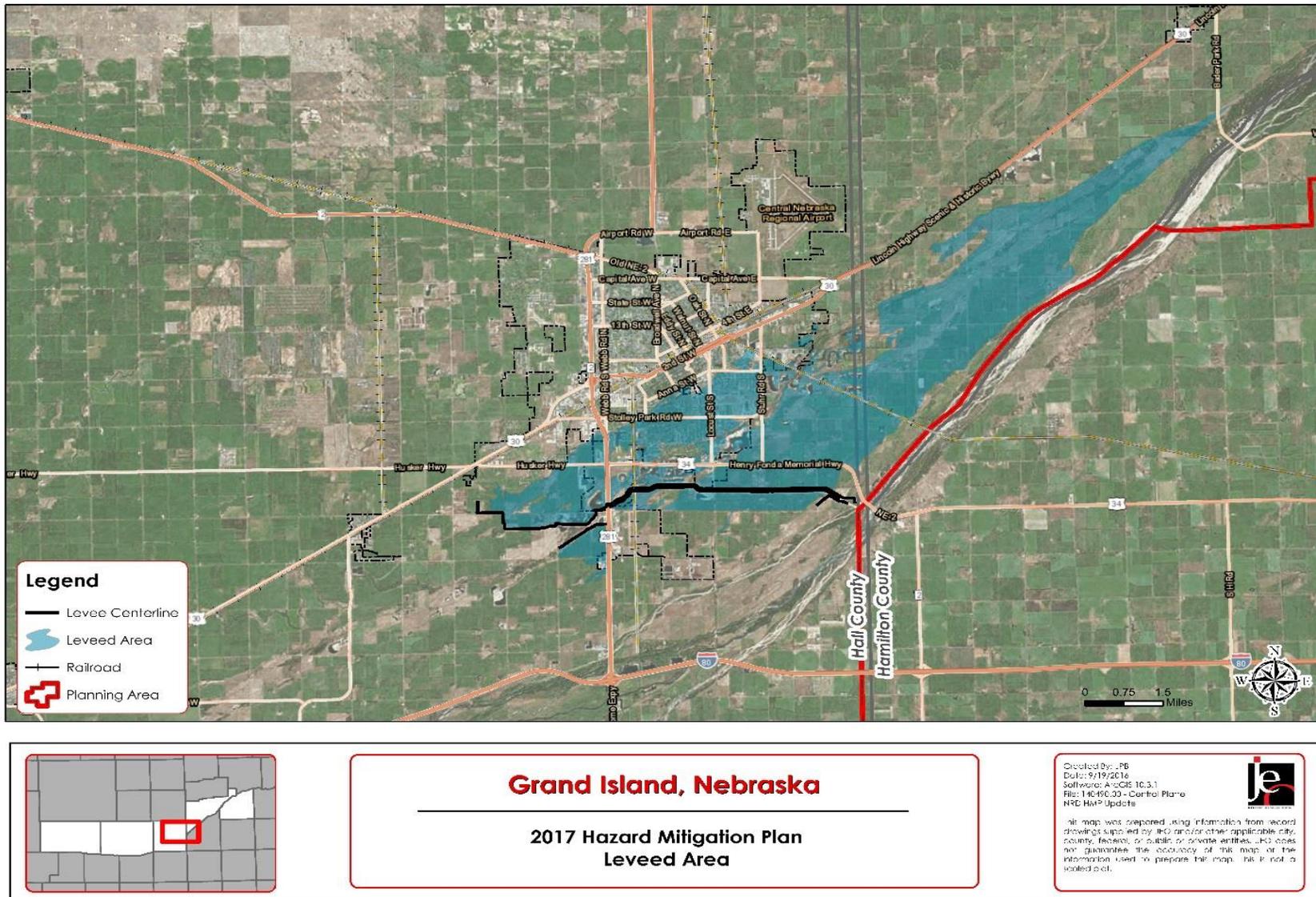
Name	Sponsor	City	County	River	Length (miles)	Type of Protection	Protected Area (sq miles)	Approximate Level of Protection
Wood River FPP	Central Platte NRD	Grand Island	Hall County	Wood River	12.3	Urban	25-49	50-99 Year Flood

Source: USACE Levee Database

**HISTORICAL OCCURRENCES**

There is no history of levee failure in the planning area. As there is no formal database of historical levee failures, the following sources were consulted: members of the Planning Team, local newspapers, Association of State Dam Safety Officials, and the USACE.

Figure 27: Leveed Area in the Planning Area



**POTENTIAL LOSSES**

To determine potential losses from levee failure, a parcel inventory from the levee breach area was utilized. Based on the nature of the assessor’s parcel data, it is not possible to do a true structural inventory with structure-specific impacts. Instead, inundated parcels were used as a proxy for structural data. The following tables show the number of parcels included in the leveed area for Grand Island. A total of 3,520 parcels are within the leveed area, which are valued at \$547,146,804 with a mean value of \$155,439 per parcel.

**Table 82: Potential Losses in Levee Breach Area**

Number of Parcels in Leveed Area	Value of All Parcels in Leveed Area	Mean Value of Parcels in Leveed Area
3,520	\$547,146,804	\$155,439

Source: Hall County Assessor

**EXTENT**

The USACE, who is responsible for federal levee oversight and inspection of levees, has three ratings for levee inspections.

**Table 83: USACE Levee Rating Categories**

Ratings	Description
Acceptable	All inspection items are rated as Acceptable
Minimally Acceptable	One or more inspection items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering determination concludes that the Unacceptable inspection items would not prevent the segment/system from performing as intended during the next flood event.
Unacceptable	One or more items are rated as Unacceptable and would prevent the segment/system from performing as intended, or a serious deficiency noted in past inspections has not been corrected within the established timeframe, not to exceed two years.

Source: USACE

The Wood River FPP levee is rated as Minimally Acceptable.

**PROBABILITY**

The Wood River FPP levee has never been breached. While it is possible for levee failure to occur in the future, this is considered a low probability of occurring in the future. For the purposes of this plan, the probability of levee failure will be stated as one percent annually.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 84: Regional Levee Failure Vulnerabilities**

Sector	Vulnerability
People	<ul style="list-style-type: none"> <li>-Those living in federal levee protected areas</li> <li>-Residents with low mobility or with no access to a vehicle are more vulnerable during a levee failure</li> <li>-Students at Barr Middle School, Career Pathways Institute, Starr Elementary (Original and New), and Stolley Park Elementary who may need additional assistance while evacuating</li> </ul>
Economic	-Business and industry protected by levees are at risk
Built Environment	-All buildings within levee protected areas are at risk to damages
Infrastructure	-Major transportation corridors and bridges at risk to levee failure
Critical Facilities	Critical facilities including the following: <ul style="list-style-type: none"> <li>-Grand Island Fire Station #1</li> <li>-Barr Middle School</li> <li>-Career Pathways Institute</li> <li>-Star Elementary School</li> <li>-Stolley Park Elementary School</li> <li>-New Star Elementary School</li> </ul>

## ***SEVERE THUNDERSTORMS***

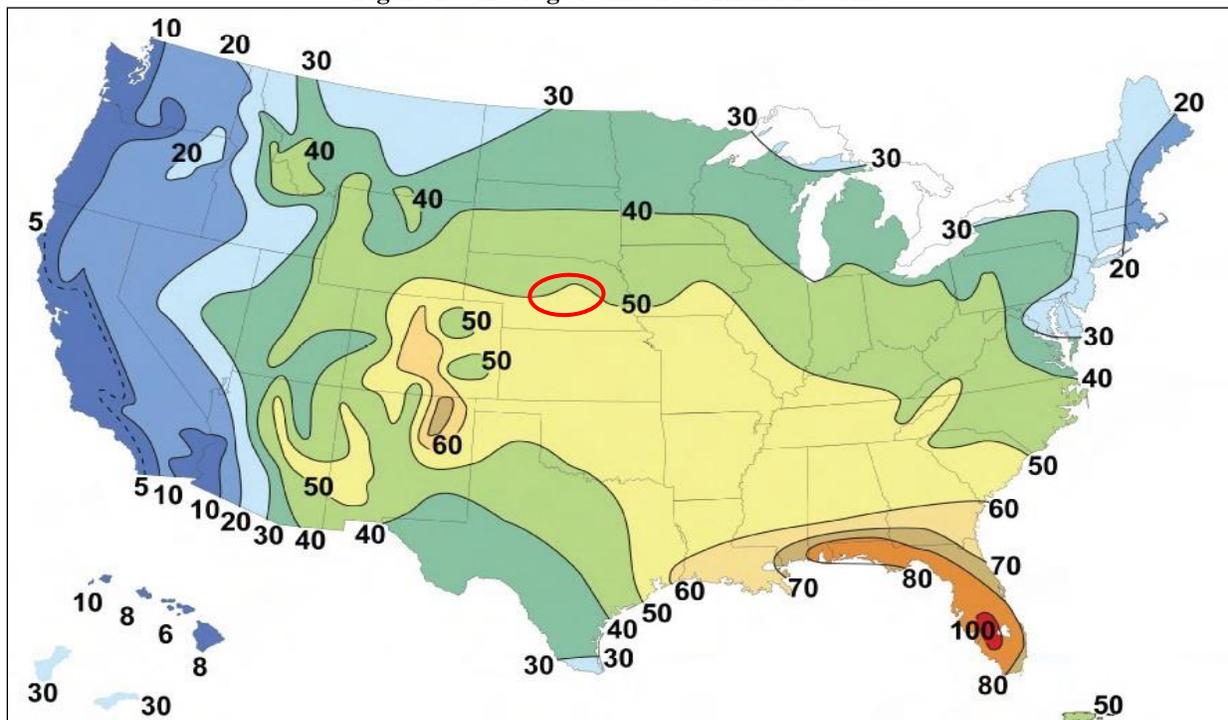
### ***HAZARD PROFILE***

Severe thunderstorms are common and unpredictable seasonal events throughout Nebraska. A thunderstorm is defined as a storm that contains lightning and thunder, which is caused by unstable atmospheric conditions. When the upper air, which is cold, sinks and the warm, moist air rises, storm clouds or “thunderheads” develop resulting in thunderstorms. This can occur singularly, in clusters, or in lines.

Thunderstorms can develop in less than 30 minutes, and can grow to an elevation of eight miles into the atmosphere. Lightning, by definition, is present in all thunderstorms and can be harmful to humans and animals, cause fires to buildings and agricultural lands, and cause electrical outages in municipal electrical systems. Lightning can strike up to 10 miles from the portion of the storm depositing precipitation. There are three primary types of lightning: intra-cloud, inter-cloud, and cloud to ground. While intra and inter-cloud lightning are more common, it is when lightning comes in contact with the ground that society is potentially impacted. Lightning generally occurs when warm air is mixed with colder air masses resulting in atmospheric disturbances necessary for polarizing the atmosphere. Between 2006 and 2013, an average of 33 people were killed each year by lightning in the United States. In Nebraska one fatality was attributed to lightning between 2004 and 2013.

Economically, thunderstorms are generally beneficial in that they provide moisture necessary to support Nebraska’s largest industry, agriculture. The majority of thunderstorms do not cause damage, but when they escalate to the point of becoming severe, the potential for damages include crop losses from wind and hail, property losses due to building and automobile damages due to hail, wind, or flash flooding, and death or injury to humans and animals from lightning, drowning, or getting struck by falling or flying debris. Figure 28 displays the average number of days with thunderstorms across the country each year. The planning area experiences an average of 50 thunderstorms over the course of one year.

**Figure 28: Average Number of Thunderstorms**



Source: NWS

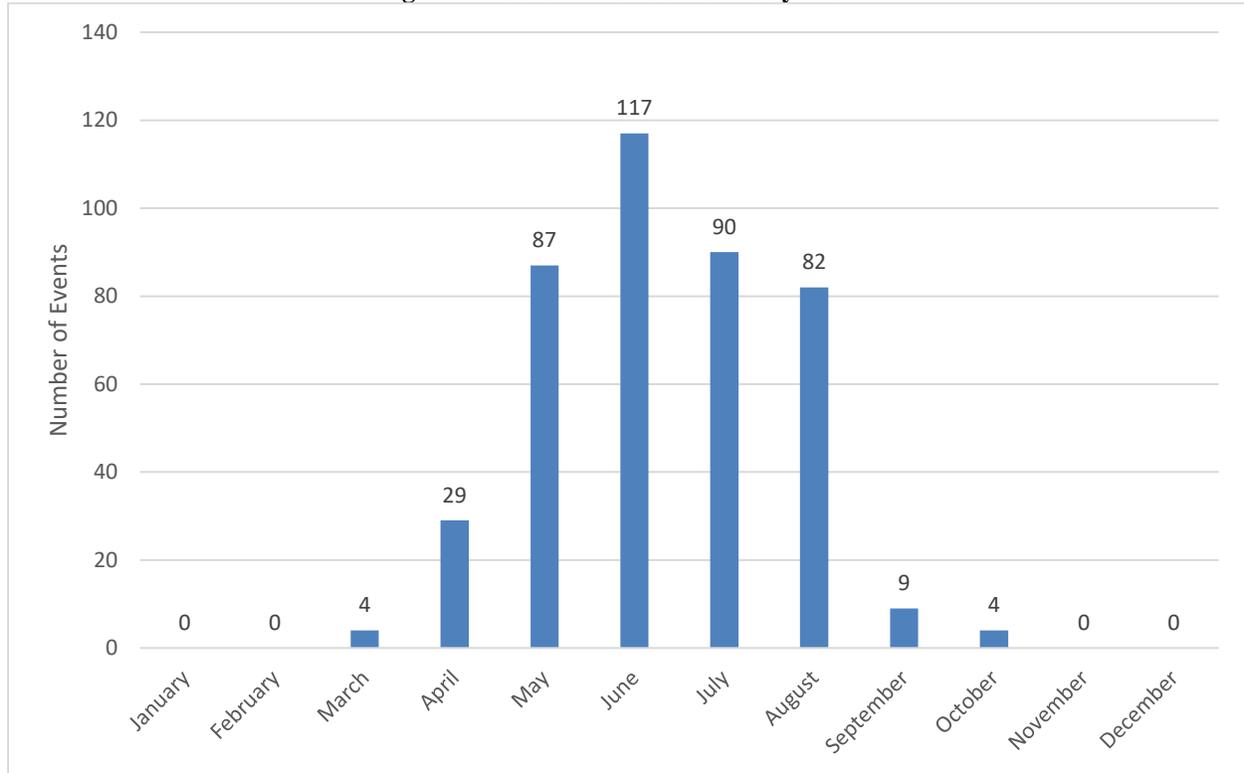
**LOCATION**

The entire planning area is at risk of severe thunderstorms.

**HISTORICAL OCCURRENCES**

Severe thunderstorms in the planning area usually occur in the afternoon and evening during the spring and summer months (Figure 29).

**Figure 29: Severe Thunderstorms by Month**



Source: NCEI, 1996-2015

The NCEI reports events as they occur in each community. A single severe thunderstorm event can affect multiple communities and counties at a time; the NCEI reports these large scale, multi-county events as separate events. The result is a single thunderstorm event covering the entire region could be reported by the NCEI as several events. The NCEI reports a total of 422 thunderstorm (wind) and 7 lightning events in the planning area from January 1996 to December 2015. There were no deaths from these storms, but a total of seven injuries occurred.

**Table 85: Thunderstorm and Lightning Events by County**

County	Severe Thunderstorm Events	Lightning Events
Buffalo County	106	3
Dawson County	119	2
Hall County	102	0
Merrick County	36	2
Polk County	39	0
Other (Eustis and Oconto)	20	0

Data is from NCEI (1996 - 2015)

**AVERAGE ANNUAL DAMAGES**

The average damage per event estimate was determined based upon NCEI Storm Events Database since 1996 and number of historical occurrences. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life. Severe thunderstorms and lightning cause an average of \$1,341,150 per year in property damages.

**Table 86: Severe Thunderstorms Loss Estimate**

Hazard Type	Number of Events <sup>1</sup>	Events Per Year	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Severe Thunderstorms	422	21.1	\$26,336,000	\$1,316,800	\$28,304,224	\$1,769,014
Lightning	7	0.4	\$487,000	\$24,350	N/A	N/A
<b>Total</b>	<b>429</b>	<b>21.5</b>	<b>\$26,823,000</b>	<b>\$1,341,150</b>	<b>\$28,304,224</b>	<b>\$1,769,014</b>

*1 Indicates the data is from NCEI (1996 to 2015); 2 Indicates data is from USDA RMA (2000 to 2015)*

**EXTENT**

The geographic extent of a severe thunderstorm event may be large enough to impact the entire planning area (such as in the case of a squall line, derecho, or long-lived supercell) or just a few square miles, in the case of a single cell that marginally meets severe criteria.

The NWS defines a thunderstorm as severe if it contains hail that is one inch in diameter or capable of wind gusts of 58 mph or higher.

**PROBABILITY**

Based on historical records and reported events, severe thunderstorms are likely to occur on an annual basis. The NCEI reported 422 severe thunderstorms between 1996 and 2015; this results in a 100 percent chance annually for thunderstorms.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 87: Regional Thunderstorm Vulnerabilities**

Sector	Vulnerability
People	-The elderly is vulnerable as they are less mobile than other members of the community -Mobile home residents are risk of injury and damage to their property if the mobile home is not anchored properly
Economic	-Closed businesses from damage or closed roads are likely to lose revenue and loss of income to workers
Built Environment	-Buildings are at risk to hail damage -Downed trees and tree limbs
Infrastructure	-High winds and lightning can cause power outages and down power lines -Roads may wash out from heavy rains and become blocked from downed tree limbs
Critical Facilities	-Power outages are possible -Critical facilities may sustain damage from hail, lightning, and wind

## ***SEVERE WINTER STORMS***

### **HAZARD PROFILE**

Severe winter storms are an annual occurrence in Nebraska. Winter storms can bring extreme cold, freezing rain, heavy or drifting snow, and blizzards. Blizzards are particularly dangerous due to drifting snow and the potential for rapidly occurring whiteout conditions which greatly inhibits vehicular traffic. Generally, winter storms occur between the months of November and March, but may occur as early as October and as late as April. Heavy snow is usually the most defining element of a winter storm. Large snow events can cripple an entire jurisdiction by hindering transportation, knocking down tree limbs and utility lines, and causing structural damage to buildings.

### **Extreme Cold**

Along with snow and ice storm events, extreme cold can be dangerous to the well-being of people and animals. What constitutes extreme cold varies from region to region, but is generally accepted as being temperatures that are significantly lower than the average low temperature. For the planning area, the coldest months of the year are January, February, March, November and December. The average low temperature for these months are all below freezing (average low for the five months 20.2°F). The average high temperatures for the months of January, February, and December are near 43°F. Record lows for the region are -30°F in December and January, -34°F in February, and -23°F in March.

### **Freezing Rain**

Along with snow events, winter storms also have the potential to deposit significant amounts of ice. Ice buildup on tree limbs and power lines can cause them to collapse. This is most likely to occur when ice falls in the form of rain that freezes upon contact, especially in the presence of wind. Freezing rain is the name given to rain that falls when surface temperatures are below freezing. Unlike a mixture of rain and snow, ice pellets or hail, freezing rain is made entirely of liquid droplets. Freezing rain can also lead to many problems on the roads, as it makes them slick, causing automobile accidents, and making vehicle travel difficult.

### **Blizzards**

Blizzards are particularly dangerous due to drifting snow and the potential for rapidly occurring whiteout conditions, which greatly inhibits vehicular traffic. Heavy snow is usually the most defining element of a winter storm. Large snow events can cripple an entire jurisdiction for several days by hindering transportation, knocking down tree limbs and utility lines, and causing structural damage to buildings.

### **LOCATION**

The entire planning area is at risk of severe winter storms.

### **HISTORICAL OCCURRENCES**

Due to the regional scale of severe winter storms, the NCEI reports events as they occur in each county. According to the NCEI, there was a combined 333 severe winter storm events for the planning area from January 1996 to December 2015. These recorded events caused a total of \$25,075,000 in property damages and four fatalities. USDA RMA data also reported \$2,491,486 in crop damages between 2000 and 2015.

The NCEI recorded a total of 26 blizzard events, causing \$580,000 in property damages; 13 heavy snow events that caused no property damages; 29 ice storm events, causing over \$23 million in property damages; 73 winter weather events, causing \$80,000 in property damages; and 192 winter storm events, causing \$1,165,000 in property damages and four fatalities.

**Table 88: Severe Winter Storm Events by County**

County	Number of Events
Buffalo County	70
Dawson County	66
Hall County	68
Merrick County	63
Polk County	66

Source: NCEI Storm Events Database, 1996-2015

Additional information from these events from NCEI and reported by each community are listed in each participant section in *Section Seven: Participant Sections*.

**AVERAGE ANNUAL DAMAGES**

The average damage per event estimate was determined based upon NCEI Storm Events Database since 1996 and includes aggregated calculations for each of the five types of winter weather as provided in the database. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life. Severe winter storms have caused an average of \$1,253,750 per year in property damage, and an average of \$155,718 per year in crop damage for the planning area. It should be noted that the crop loss data from the USDA RMA only specifies cold wet weather, cold winter, freeze, and frost as the cause of loss during the winter events. These events were summed together into one group and placed with the winter weather row below.

**Table 89: Severe Winter Storm Loss Estimate**

Hazard Type	Number of Events <sup>1</sup>	Average Number of Events Per Year <sup>1</sup>	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Blizzard	26	1.3	\$580,000	\$29,000	N/A	N/A
Heavy Snow	13	0.7	\$0	-	N/A	N/A
Ice storm	29	1.5	\$23,250,000	\$1,162,500	N/A	N/A
Winter Weather	73	3.7	\$80,000	\$4,000	\$2,491,486	\$155,718
Winter Storm	192	9.6	\$1,165,000	\$58,250	N/A	N/A
<b>Severe Winter Storms</b>	<b>333</b>	<b>16.8</b>	<b>\$25,075,000</b>	<b>\$1,253,750</b>	<b>\$2,491,486</b>	<b>\$155,718</b>

<sup>1</sup> Indicates the data is from NCEI (1996 to 2015); <sup>2</sup> Indicates data is from USDA RMA (2000 to 2015)

**EXTENT**

The Sperry-Piltz Ice Accumulation Index (SPIA) was developed by the NWS to predict the accumulation of ice and resulting damages. The SPIA looks at total precipitation, wind, and temperatures to predict the intensity of ice storms. Figure 30 shows the SPIA index.

Figure 30: SPIA Index

**The Sperry-Piltz Ice Accumulation Index, or “SPIA Index” – Copyright, February, 2009**

ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) <small>*Revised-October, 2011</small>	WIND (mph)	DAMAGE AND IMPACT DESCRIPTIONS
<b>0</b>	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
<b>1</b>	0.10 – 0.25	15 - 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
	0.25 – 0.50	> 15	
<b>2</b>	0.10 – 0.25	25 - 35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
	0.25 – 0.50	15 - 25	
	0.50 – 0.75	< 15	
<b>3</b>	0.10 – 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
	0.25 – 0.50	25 - 35	
	0.50 – 0.75	15 - 25	
	0.75 – 1.00	< 15	
<b>4</b>	0.25 – 0.50	> = 35	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
	0.50 – 0.75	25 - 35	
	0.75 – 1.00	15 - 25	
	1.00 – 1.50	< 15	
<b>5</b>	0.50 – 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 – 1.00	> = 25	
	1.00 – 1.50	> = 15	
	> 1.50	Any	

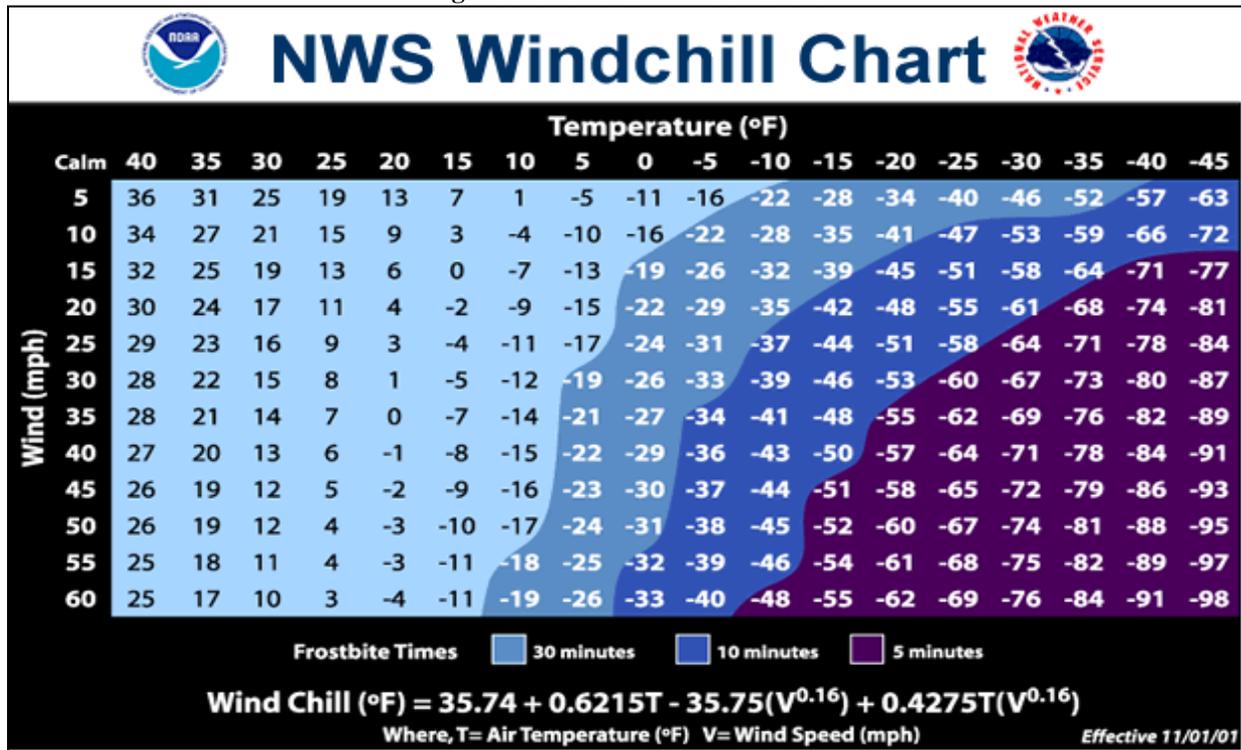
(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

*Source: <http://www.spia-index.com/index.php>*

Reviews of historical severe winter storms across the planning area show that there is a range of events that can occur. Ice Storm Warnings are issued when accumulation of at least 0.25 inches is expected from a storm, which controlling for high winds, would tend to classify ice storms in Nebraska as SPIA Level 2 or higher. The most common accumulation during ice storms was a quarter of an inch.

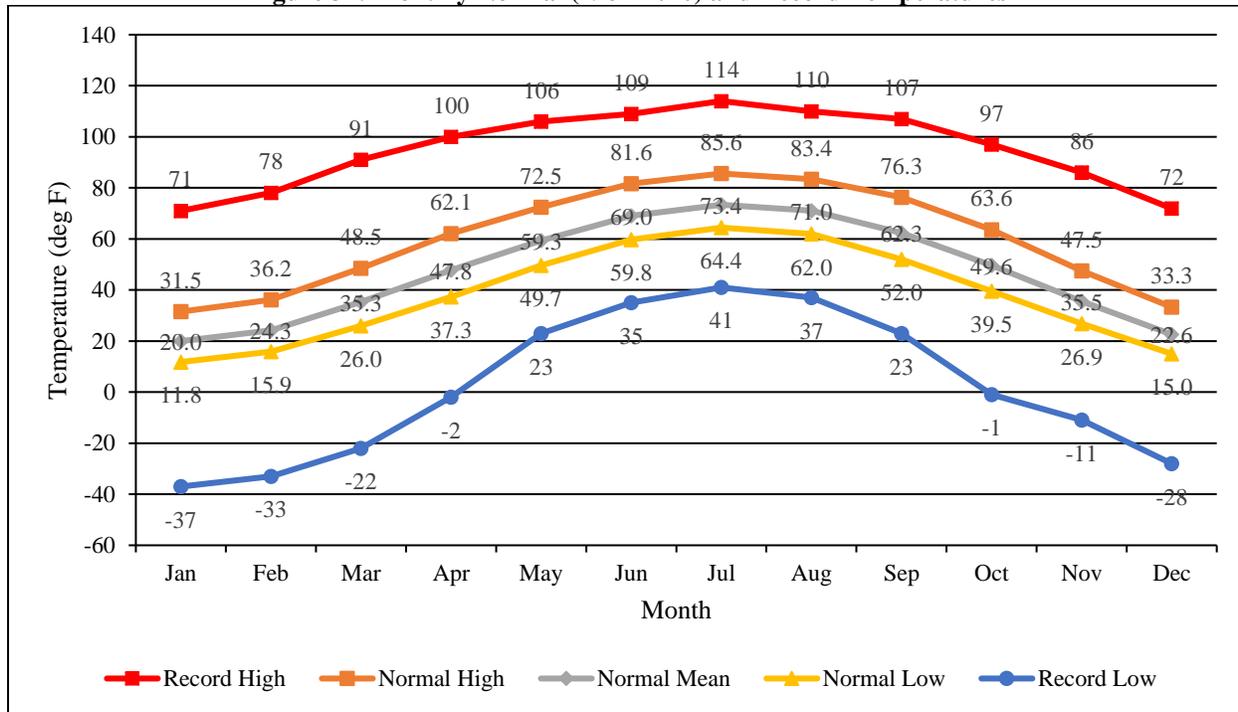
The Wind Chill Index was developed by the NWS to determine the decrease in air temperature felt by the body on exposed skin due to wind. The wind chill is always lower than the air temperature and can quicken the effects of hypothermia or frost bite as it gets lower. Figure 31 shows the wind chill index used by the NWS.

Figure 31: Wind Chill Index Chart



Source: NWS

Figure 32: Monthly Normal (1981-2010) and Record Temperatures



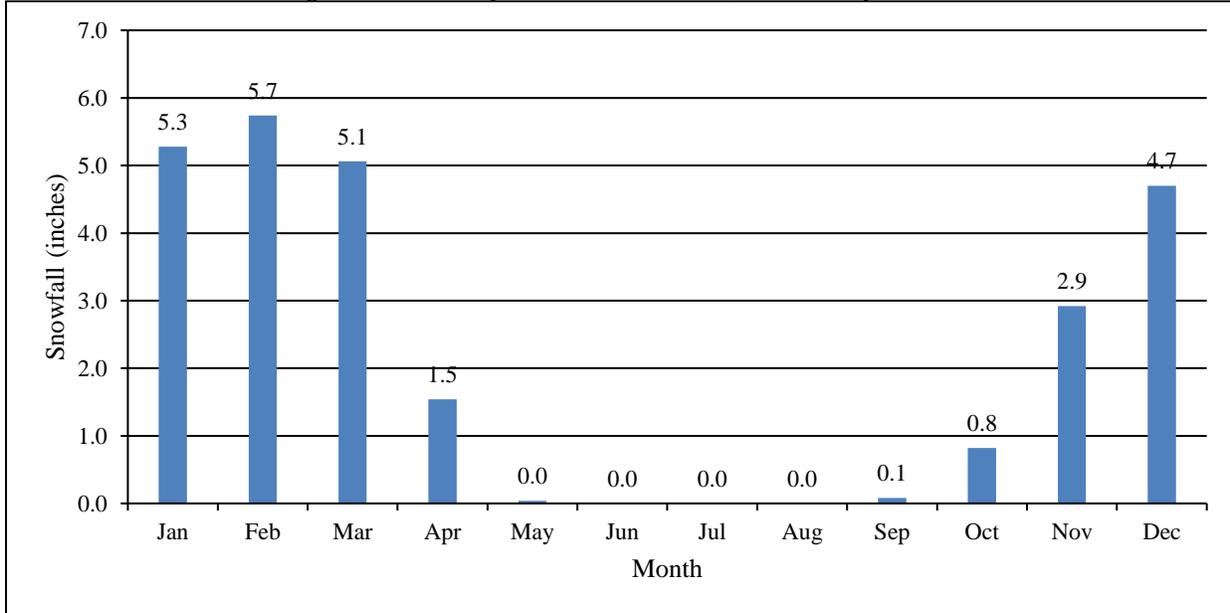
Source: Midwestern Regional Climate Center

The coldest months of the year are January, February, March, November, and December and normal lows for these months average around 20°F as shown in Figure 32.

**PROBABILITY**

Average monthly snowfall for the planning area is shown in Figure 33, which shows the snowiest months are between December and March. A common snow event (likely to occur annually) will result in accumulation totals between three and seven inches. Often these snow events are accompanied by high winds. It is reasonable to expect wind speeds of 25 to 35 mph with gusts reaching 50 mph or higher. Strong winds and low temperatures can combine to produce extreme wind chills of 20°F to 40°F below zero.

**Figure 33: Monthly Normal (1981-2010) Snowfall by Month**



Source: Midwestern Regional Climate Center

Based on historical records, it is likely that severe winter storms will occur annually within the planning area.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 90: Regional Severe Winter Storms Vulnerabilities**

Sector	Vulnerability
People	-Elderly citizens at higher risk of injury or death, especially during extreme cold and heavy snow accumulations -Citizens without adequate heat and shelter at higher risk of injury or death
Economic	-Closed roads and power outages can cripple a region for days, leading to significant revenue loss and loss of income for workers
Built Environment	-Heavy snow loads can cause roofs to collapse -Significant tree damage possible, downing power lines and blocking roads
Infrastructure	-Heavy snow and ice accumulation can lead to downed power lines and prolonged power outages -Transportation may be difficult or impossible during blizzards, heavy snow, and ice events
Critical Facilities	-Emergency response and recovery operations, communications, water treatment plants, and others are at risk to power outages, impassable roads, and other damages.

## ***TERRORISM***

According to the Federal Bureau of Investigation (FBI), there is no single, universally accepted, definition of terrorism. Terrorism is defined in the Code of Federal Regulations as “the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof in furtherance of a political or social objectives” (28 C.F.R. Section 0.85).

The FBI further describes terrorism as either domestic or international, depending on the origin, base, and objectives of the terrorist organization. For the purpose of this report, the following definitions from the FBI will be used:

- Domestic terrorism is the unlawful use, or threatened use, of force or violence by a group or individual based and operating entirely within the United States or Puerto Rico without foreign direction committed against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof in furtherance of political or social objectives.
- International terrorism involves violent acts or acts dangerous to human life that are a violation of the criminal laws of the United States or any state, or that would be a criminal violation if committed within the jurisdiction of the United States or any state. These acts appear to be intended to intimidate or coerce a civilian population, influence the policy of a government by intimidation or coercion, or affect the conduct of a government by assassination or kidnapping. International terrorist acts occur outside the United States or transcend national boundaries in terms of the means by which they are accomplished, the persons they appear intended to coerce or intimidate, or the locale in which their perpetrators operate or seek asylum.

There are different types of terrorism depending on the target of attack, which are

- Political Terrorism
- Bio-Terrorism
- Cyber-Terrorism
- Eco-Terrorism
- Nuclear-Terrorism
- Narco-terrorism
- Agro-terrorism

Terrorist activities are also classified based on motivation behind the event such as ideology (i.e. religious fundamentalism, national separatist movements, and social revolutionary movements). Terrorism can also be random with no ties to ideological reasoning.

The FBI also provides clear definitions of a terrorist incident and prevention:

- A terrorist *incident* is a violent act or an act dangerous to human life, in violation of the criminal laws of the United States, or of any state, to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.
- Terrorism *prevention* is a documented instance in which a violent act by a known or suspected terrorist group or individual with the means and a proven propensity for violence is successfully interdicted through investigative activity.

*Note: The FBI investigates terrorism-related matters without regard to race, religion, national origin, or gender. Reference to individual members of any political, ethnic, or religious group in this report is not meant to imply that all members of that group are terrorists. Terrorists represent a small criminal minority in any larger social context.*

Primarily, threat assessment, mitigation and response to terrorism are federal and state directives and work primarily with local law enforcement. The Office of Infrastructure Protection within the Federal Department of Homeland Security is a component within the National Programs and Protection Directorate.

The Office of Infrastructure Protection leads the coordinated national program to reduce and mitigate risk within 18 national critical infrastructure and key resources (CIKR) sectors from acts of terrorism and natural disasters and to strengthen sectors' ability to respond and quickly recover from an attack or other emergency. This is done through the National Infrastructure Protection Plan (NIPP).

Under the NIPP, a Sector-Specific Agency (SSA) is the federal agency assigned to lead a collaborative process for infrastructure protection for each of the 18 sectors. The NIPP's comprehensive framework allows the Office of Infrastructure Protection to provide the cross-sector coordination and collaboration needed to set national priorities, goals, and requirements for effective allocation of resources. More importantly, the NIPP framework integrates a broad range of public and private CIKR protection activities.

The SSAs provide guidance about the NIPP framework to state, tribal, territorial and local homeland security agencies and personnel. They coordinate NIPP implementation within the sector, which involves developing and sustaining partnerships and information-sharing processes, as well as assisting with contingency planning and incident management.

The Office of Infrastructure Protection has SSA responsibility for six of the 18 CIKR sectors. Those six are:

- Chemical
- Commercial Facilities
- Critical Manufacturing
- Dams
- Emergency Services
- Nuclear Reactors, Materials and Waste

SSA responsibility for the other 12 CIKR sectors is held by other Department of Homeland Security components and other federal agencies. Those 12 are:

- Agriculture and Food – Department of Agriculture; Food and Drug Administration
- Banking and Finance – Department of the Treasury
- Communications – Department of Homeland Security
- Defense Industrial Base – Department of Defense
- Energy – Department of Energy
- Government Facilities – Department of Homeland Security
- Information Technology – Department of Homeland Security
- National Monuments and Icons – Department of the Interior
- Postal and Shipping – Transportation Security Administration
- Healthcare and Public Health – Department of Health and Human Services
- Transportation Systems – Transportation Security Administration; U.S. Coast Guard
- Water – Environmental Protection Agency

The NIPP requires that each SSA prepare a Sector-Specific Plan, review it annually, and update it as appropriate.

The Department of Homeland Security and its affiliated agencies are responsible for disseminating any information regarding terrorist activities in the country. The system in place is the National Terrorism Advisory System (NTAS). NTAS replaced the Homeland Security Advisory System (HSAS) which was the color coded system put in place after the September 11<sup>th</sup> attacks by Presidential Directive 5 and 8 in March of 2002. NTAS replaced HSAS in 2011.

NTAS is based on a system of analyzing threat levels and providing either an imminent threat alert or an elevated threat alert.

An ***Imminent Threat Alert*** warns of a credible, specific and impending terrorist threat against the United States.

An ***Elevated Threat Alert*** warns of a credible terrorist threat against the United States.

The Department of Homeland Security, in conjunction with other federal agencies, will decide whether a threat alert of one kind or the other should be issued should credible information be available.

Each alert provides a statement summarizing the potential threat and what, if anything should be done to ensure public safety.

The NTAS Alerts will be based on the nature of the threat: in some cases, alerts will be sent directly to law enforcement or affected areas of the private sector, while in others, alerts will be issued more broadly to the American people through both official and media channels.

An individual threat alert is issued for a specific time period and then automatically expires. It may be extended if new information becomes available or the threat evolves. The ***sunset provision*** contains a specific date when the alert expires as there will not be a constant NTAS Alert or blanket warning that there is an overarching threat. If threat information changes for an alert, the Secretary of Homeland Security may announce an updated NTAS Alert. All changes, including the announcement that cancels an NTAS Alert, will be distributed the same way as the original alert.

#### **LOCATION**

Terrorist activities could occur throughout the entire planning area. In rural areas, concerns are primarily related to agro-terrorism and tampering with water supplies. In urban areas, concerns are related to political unrest, activist groups, and others that may be targeting businesses, police, and federal buildings.

#### **HISTORICAL OCCURRENCES**

The Global Terrorism Database, maintained by the University of Maryland and the National Consortium for the Study of Terrorism and Responses to Terrorism (START), was accessed to determine if acts of terrorism occurred in the planning area. This database contains information for over 140,000 terrorist attacks. According to this database, there have been no terrorist attacks in the planning area.

**AVERAGE ANNUAL DAMAGES**

Due to the lack of data and the very wide range of potential impacts, potential losses are not being calculated for this threat.

**EXTENT**

The extent of this hazard is unknown. Terrorist attacks can vary greatly in scale and magnitude.

**PROBABILITY**

Given no historical record, the probability of this event occurring during any given year is less than one percent.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 91: Regional Terrorism Vulnerabilities**

Sector	Vulnerability
People	-Police offices and first responders at risk of injury or death -People working in government buildings
Economic	-Damaged businesses can cause loss of revenue and loss of income for workers -Agricultural attacks could cause significant economic losses for the region
Built Environment	-Targeted buildings may sustain heavy damage
Infrastructure	-Water supply, power plants, utilities
Critical Facilities	-Police stations and government offices are at a higher risk

**TORNADOES**  
**HAZARD PROFILE**

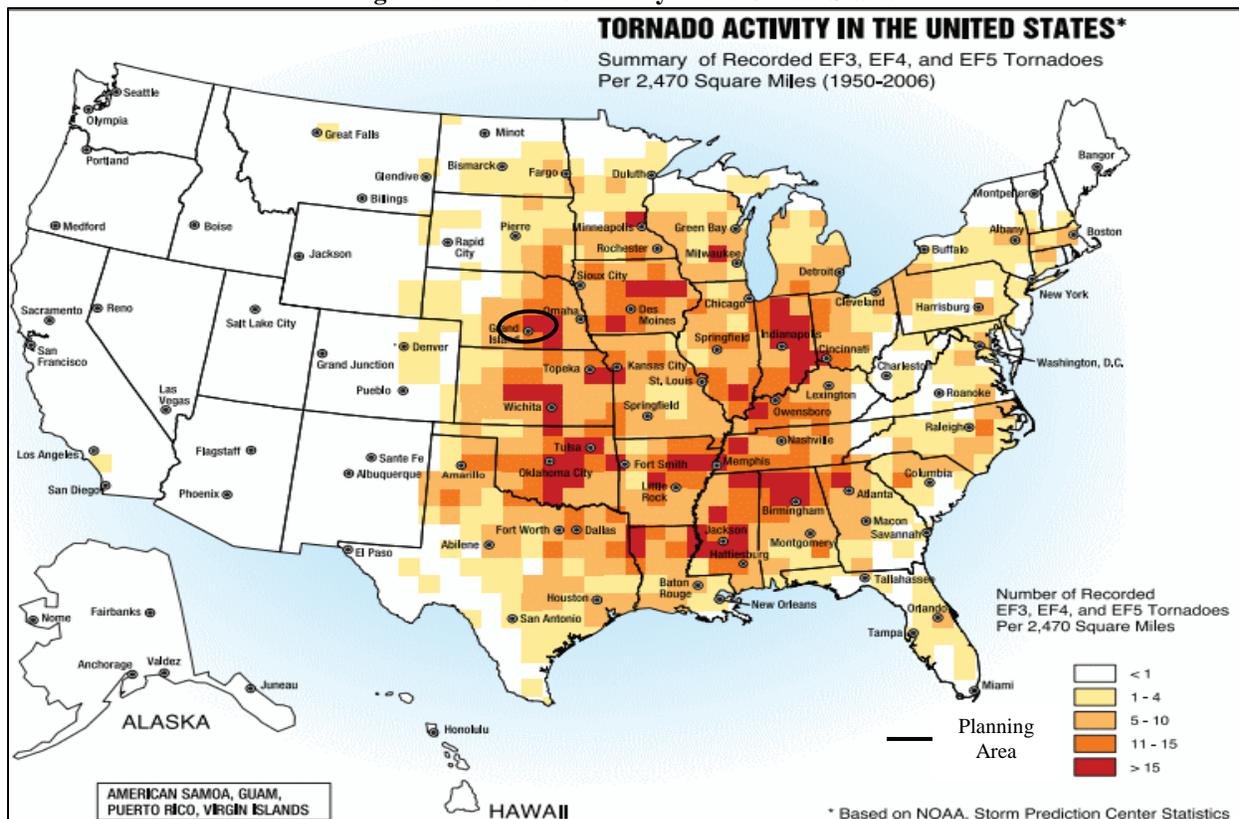
A tornado is typically associated with a supercell thunderstorm. In order for a rotation to be classified as a tornado, three characteristics must be met:

- There must be a microscale rotating area of wind, ranging in size from a few feet to a few miles wide;
- The rotating wind, or vortex, must be attached to a convective cloud base and must be in contact with the ground; and,
- The spinning vortex of air must have caused enough damage to be classified by the Fujita Scale as a tornado.

Once tornadoes are formed, they can be extremely violent and destructive. They have been recorded all over the world, but are most prevalent in the American Midwest and South, in an area known as “Tornado Alley.” Tornadoes can travel distances over 100 miles and reach over 11 miles above ground. Tornadoes usually stay on the ground no more than 20 minutes. On average, 80 percent of tornadoes occur between noon and midnight. In Nebraska, 77 percent of all tornadoes occur in the months of May, June, and July.

Nebraska is ranked fifth in the nation for tornado frequency with an annual average of 45 tornadoes between 1953 and 2004 (NOAA 2011). The annual average number of tornadoes for Nebraska from 1991 to 2011 has increased slightly to 57 (NOAA 2013). The following figure shows the tornado activity in the United States as a summary of recorded F3, F4, and F5 tornadoes per 2,470 square miles from 1950-2006.

Figure 34: Tornado Activity in the United States



Source: Storm Prediction Center

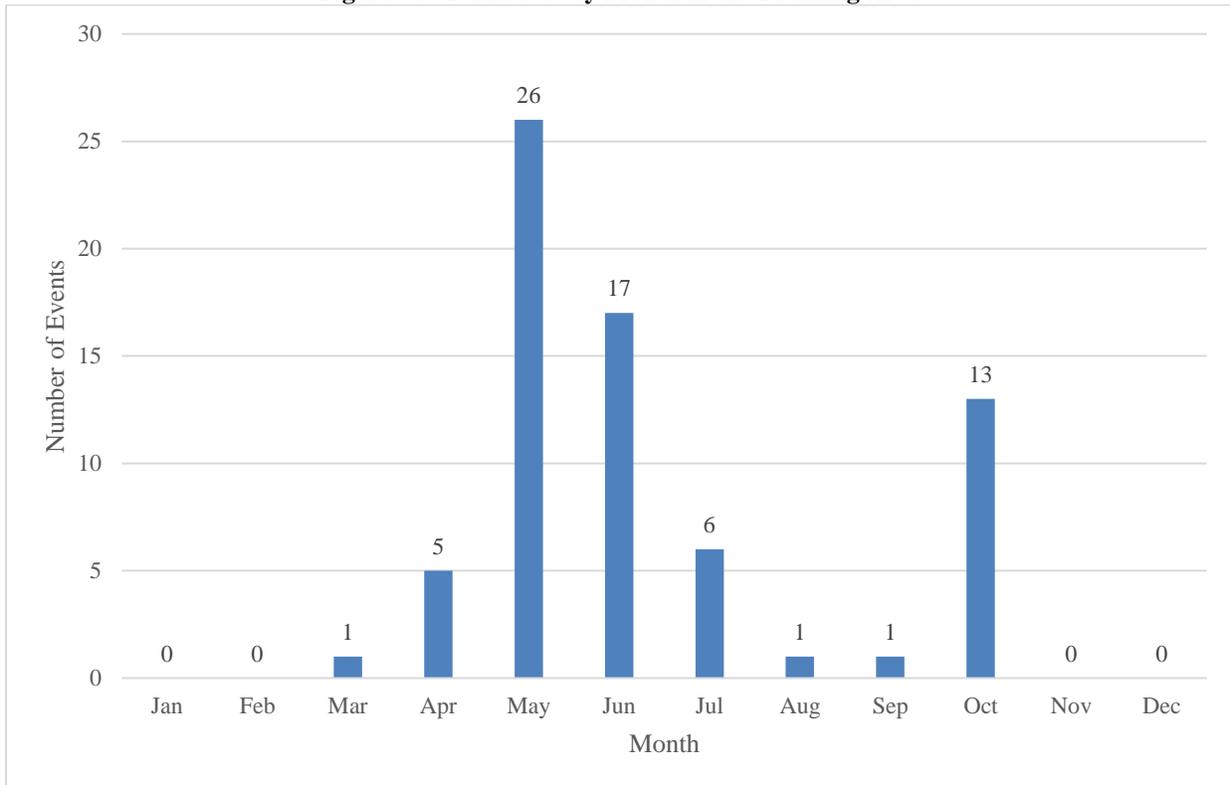
**LOCATION**

Tornadoes can occur anywhere in the planning area. The impacts would likely be greater in more densely populated areas such as in Grand Island and Kearney. The following map shows the historical track locations across the region since 1950. Note that this map does not show tornado tracks for EF-0 and EF-1.

**HISTORICAL OCCURRENCES**

NCEI cites 70 tornado events ranging from a magnitude of EF0 to EF3 between 1996 and 2015. These events were responsible for \$31,385,000 in property damages. No deaths were reported, however ten injuries were cited. The following figure shows that the month of May is the busiest month of the year with the highest number of tornadoes in the planning area.

**Figure 35: Tornadoes by Month in the Planning Area**



Source: NCEI, 1996-2015

**AVERAGE ANNUAL DAMAGES**

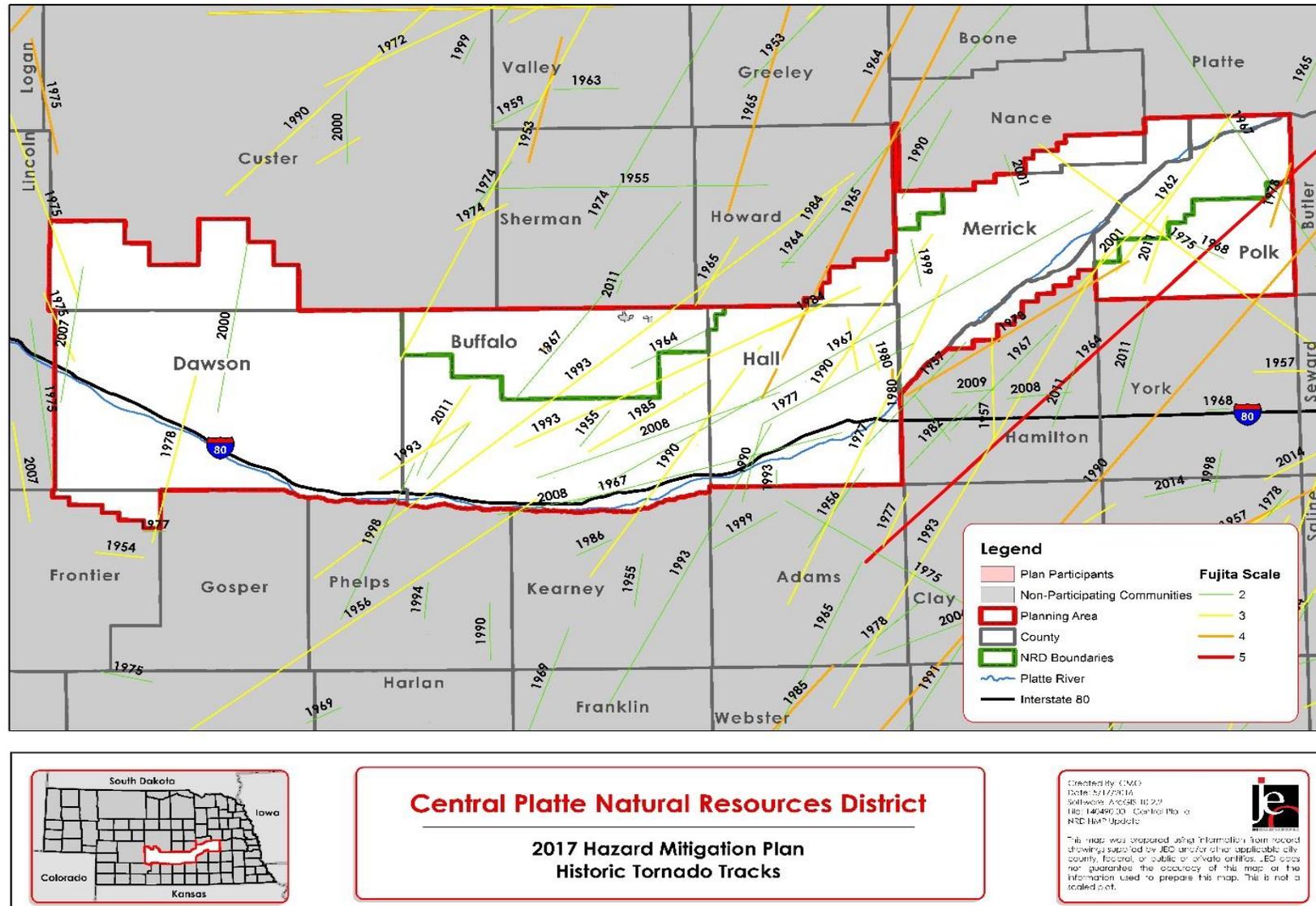
The average damage per event estimate was determined based upon NCEI Storm Events Database since 1996 and number of historical occurrences. This does not include losses from displacement, functional downtime, economic loss, injury, or loss of life. Tornadoes cause an average of \$1,569,250 per year in property damage, and \$1,858 in crop damages.

**Table 92: Tornado Loss Estimate**

Hazard Type	Number of Events <sup>1</sup>	Average Number of Events Per Year	Total Property Loss <sup>1</sup>	Average Annual Property Loss <sup>1</sup>	Total Crop Loss <sup>2</sup>	Average Annual Crop Loss <sup>2</sup>
Tornadoes	70	3.5	\$31,385,000	\$1,569,250	\$29,727	\$1,858

<sup>1</sup> Indicates the data is from NCEI (1996 to 2015); <sup>2</sup> Indicates data is from USDA RMA (2000 to 2015)

Figure 36: Historic Tornado Tracks with Population Density



**EXTENT**

After a tornado passes through an area, an official rating category is determined, which provides a common benchmark that allows comparisons to be made between different tornadoes. The magnitude of tornadoes is measured by the Enhanced Fujita Scale. The Enhanced Fujita Scale does not measure tornadoes by their size or width, but rather the amount of damage caused to human-built structures and trees. The Enhanced Fujita Scale replaced the Fujita Scale in 2007. The enhanced scale classifies EF0-EF5 damage as determined by engineers and meteorologists across 28 different types of damage indicators, including different types of building and tree damage. In order to establish a rating, engineers and meteorologists examine the damage, analyze the ground-swirl patterns, review damage imagery, collect media reports, and sometimes utilize photogrammetry and videogrammetry. Based on the most severe damage to any well-built frame house, or any comparable damage as determined by an engineer, an EF-Scale number is assigned to the tornado. Tables 93 and 94 summarize the Enhanced Fujita Scale and damage indicators. According to a recent report from the National Institute of Science and Technology on the Joplin Tornado, tornadoes rated EF3 or lower account for around 96 percent of all tornado damages.

**Table 93: Enhanced Fujita Scale**

Storm Category	3 Second Gust (mph)	Damage Level	Damage Description
EF0	65-85 mph	Gale	Some damages to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
EF1	86-110 mph	Weak	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages might be destroyed.
EF2	111-135 mph	Strong	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	136-165 mph	Severe	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
EF4	166-200 mph	Devastating	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
EF5	200+ mph	Incredible	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.
EF No rating	--	Inconceivable	Should a tornado with the maximum wind speed in excess of F5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures.

Source: NOAA; FEMA

**Table 94: Enhanced Fujita Scale Damage Indicator**

Number	Damage Indicator
1	Small barns, farm outbuildings
2	One- or two-family residences
3	Single-wide mobile home (MHSW)
4	Double-wide mobile home
5	Apartment, condo, townhouse (3 stories or less)
6	Motel
7	Masonry apartment or motel
8	Small retail bldg. (fast food)
9	Small professional (doctor office, branch bank)
10	Strip mall
11	Large shopping mall

Number	Damage Indicator
12	Large, isolated ("big box") retail bldg.
13	Automobile showroom
14	Automotive service building
15	School - 1-story elementary (interior or exterior halls)
16	School - Junior or Senior high school
17	Low-rise (1-4 story) bldg.
18	Mid-rise (5-20 story) bldg.
19	High-rise (over 20 stories)
20	Institutional bldg. (hospital, govt. or university)
21	Metal building system
22	Service station canopy
23	Warehouse (tilt-up walls or heavy timber)
24	Transmission line tower
25	Free-standing tower
26	Free standing pole (light, flag, luminary)
27	Tree - hardwood
28	Tree - softwood

Source: NOAA; FEMA

Based on the historic record, it is most likely that tornadoes that do occur within the planning area will be of EF0 or EF1 strength. Of the 70 reported events, 45 were F/EF0, 16 F/EF1, six F/EF2, and three F/EF3 tornadoes.

**PROBABILITY**

Given the 70 events over the course of 20 years, there is a 100 percent probability that a tornado event will occur in the planning area in any given year.

**REGIONAL VULNERABILITIES**

The following table provides information related to regional vulnerabilities; for jurisdictional specific vulnerabilities, refer to *Section Seven: Participant Sections*.

**Table 95: Regional Tornado Vulnerabilities**

Sector	Vulnerability
People	-Citizens living in mobile homes are at risk to death or injury -Citizens without access to shelter below ground or in safe room -Elderly with decreased mobility or poor hearing may be higher risk -Lack of multiple ways of receiving weather warnings, especially at night
Economic	-Significant economic losses possible, especially with EF3 tornadoes or greater
Built Environment	-All building stock are at risk of significant damages
Infrastructure	-All above ground infrastructure at risk to damages -Impassable roads due to debris blocking roadways
Critical Facilities	-All critical facilities at risk to significant damages and power outages

## SECTION FIVE: MITIGATION STRATEGY

### INTRODUCTION

The primary focus of the mitigation strategy is to establish goals and objectives, and identify action items to reduce the effects of hazards on existing infrastructure and property in a cost effective and technically feasible manner. The development of goals and objectives took place during the Planning Team meetings.

Meeting participants reviewed the goals from the 2012 HMP and discussed recommended additions and modifications. The intent of each goal and set of objectives is to develop strategies to account for risks associated with hazards and identify ways to reduce or eliminate those risks. Each goal and set of objectives is followed by ‘mitigation alternatives,’ or actions.

A preliminary list of goals and objectives was provided to the Planning Team and participants at the Round 1 public meetings. Each participant was asked to review all of the goals and objectives and comment on possible improvements or suggest how to make them meet the needs of their jurisdiction. Each participating jurisdiction decided to utilize the same goals and objectives.

### SUMMARY OF CHANGES

The development of the mitigation strategy for this plan update includes the addition of several mitigation actions, revisions to the mitigation alternative selection process, and the incorporation of mitigation actions for the additional hazards addressed in the update.

### GOALS AND OBJECTIVES

Below is the final list of goals and objectives as determined by the participants and Planning Team. These goals and objectives provide specific direction to guide participants in reducing future hazard related losses. The goals and objectives were numbered to assist in the development and organization of mitigation alternatives or ‘action items’, as discussed in *Section Seven: Participant Sections*.

#### Goal 1: Protect Public Health and Safety from Natural Hazard Events

**Objective 1.1:** Provide adequate public safe rooms and post disaster storm shelters

**Objective 1.2:** Improve/Provide adequate backup and emergency generators

**Objective 1.3:** Improve warning systems

**Objective 1.4:** Improve emergency communications

**Objective 1.5:** Improve electrical service

**Requirement §201.6(c)(3)(i):** [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

**Requirement §201.6(c)(3)(ii):** [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

**Requirement: §201.6(c)(3)(ii):** [The mitigation strategy] must also address the jurisdiction’s participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

**Requirement: §201.6(c)(3)(iii):** [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

**Requirement §201.6(c)(3)(iv):** For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

**Objective 1.6:** Develop emergency snow/evacuation routes

**Objective 1.7:** Study/Improve drinking water supply

**Objective 1.8:** Reduce drought impact/water demand

**Objective 1.9:** Improve response to hazardous materials incidents

**Objective 1.10:** Improve flood and dam failure warning system

**Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce stream & drainage bottlenecks/ flow restrictions

**Objective 2.2:** Maintain NFIP participation

**Objective 2.3:** Reduce wildfire damage

**Objective 2.4:** Reduce storm water damage

**Objective 2.5:** Develop/Update floodplain information

**Objective 2.6:** Reduce damages in floodplain

**Objective 2.7:** Flood proofing critical facilities

**Objective 2.8:** Reduce tree damage & damage from trees

**Objective 2.9:** Reduce road damage

**Objective 2.10:** Improve stream bed/bank stabilization

**Objective 2.11:** Improve construction standards and building survivability

**Objective 2.12:** Improve floodwall/levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Provide information to citizens about hazard events

**Objective 3.2:** Reduce water demand/improve drought education

**Objective 3.3:** Increase soil & water conservation

### ***MITIGATION ALTERNATIVES (ACTION ITEMS)***

After the establishment of the goals and objectives, mitigation alternatives were prioritized. The alternatives considered included: the mitigation actions in the previous plan, additional mitigation actions discussed during the planning process, and recommendations from JEO for additional mitigation actions. In addition, JEO provided each participant a preliminary list of mitigation alternatives to be used as a starting point. The prioritized list of alternatives helped participants determine which actions will best assist their respective jurisdiction in alleviating damages in the event of a disaster. The listed priority does not indicate which actions will be implemented first, but will serve as a guide in determining the order at which each action should be implemented.

These projects are the core of a hazard mitigation plan. The group was instructed that each alternative must be directly related to the goals and objectives. Alternatives must be specific activities that are concise and can be implemented individually.

Mitigation alternatives were evaluated based on referencing the community's risk assessment and capability assessment. Communities were encouraged to choose mitigation actions that were realistic and relevant to the concerns identified.

A final list of alternatives was established including: information on the associated hazard mitigated, description of the action, responsible party, priority, cost estimate, potential funding sources, and timeline.

It is important to note that not all of the mitigation actions identified by a community may ultimately be implemented due to limited capabilities, prohibitive costs, low benefit/cost ratio, or other concerns. The cost estimates, priority ranking, potential funding, and identified agencies are used to give communities an idea of what actions may be the most feasible over the next five years. This information will serve as a guide for the participants to assist in hazard mitigation for the future.

### ***PARTICIPANT MITIGATION ALTERNATIVES***

The following are specific actions listed by participants of the CPNRD HMP intended to be utilized in the implementation of mitigation alternatives. Each action is described by the following:

- Description – general summary of the action item
- Hazard(s) Addressed – which hazard the mitigation action aims to address
- Estimated Cost – the projected cost of the mitigation action
- Potential funding – a list of any potential funding mechanisms used to fund the action
- Status – a description of what has been done, if anything, to implement the action item
- Timeline – a general timeline as established by planning participants
- Priority – a general description of the importance and workability in which an action may be implemented (high/medium/low). Priority may vary between each community, mostly dependent on funding capabilities and the size of the local tax base
- Lead agency – listing of agencies or departments, which may lead or oversee the implementation of the action item

Implementation of the actions will vary between individual plan participants based upon the availability of existing information, funding opportunities and limitations, and administrative capabilities of smaller communities. Establishment of a cost-benefit analysis is out of the scope of this plan and could be completed prior to submittal of a project grant application or as part of a five-year update. Completed, ongoing and new mitigation alternatives for each participating jurisdiction can be found in *Section Seven: Participant Sections*.

**MITIGATION ALTERNATIVE PROJECT MATRIX**

Each participant was asked to review mitigation projects listed in the 2012 HMP and also review a list of potential mitigation alternatives which would lead to action items to reduce the effects of hazards. Projects selected varied from community to community depending upon the significance of each hazard present. The information listed in Tables 96 and 97 is a compilation of the mitigation alternatives identified by jurisdiction.

**Table 96: Mitigation Alternatives Selected by Each Jurisdiction**

Mitigation Alternatives		Amherst	Buffalo County	Elm Creek	Gibbon	Kearney	Pleasanton	Ravenna	Riverdale	Shelton	Cozad	Dawson County	Farnam	Gothenburg	Lexington	Overton	Alda	Cairo	Doniphan Village	Grand Island City	Hall County	Wood River	
		Buffalo County										Dawson County					Hall County						
<b>Goal 1</b>																							
Objective 1.1	Database of Vulnerable Population											X											
	Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters	X	X		X	X	X	X	X	X	X	X	X	X				X		X	X	X	X
	Storm Shelter Identification																	X	X				
Objective 1.2	Backup Municipal Records												X										
	Improve/Provide Adequate Backup and Emergency Generators	X	X		X	X	X		X		X	X	X		X	X		X	X			X	
	Surge Protectors																	X					
Objective 1.3	Ensure Adequate Severe Weather Notifications to Critical Facilities																		X				
	Improve Warning Systems	X	X			X	X		X	X			X	X	X	X					X		

Mitigation Alternatives		Amherst	Buffalo County	Elm Creek	Gibbon	Kearney	Pleasanton	Ravenna	Riverdale	Shelton	Cozad	Dawson County	Farnam	Gothenburg	Lexington	Overton	Alda	Cairo	Doniphan Village	Grand Island City	Hall County	Wood River	
		Buffalo County									Dawson County						Hall County						
Objective 1.4	Civil Service Improvements																X						
	Improve Emergency Communication Systems				X				X					X									
	Upgrade Emergency Responders Radio System																						
Objective 1.5	Improve Electrical Service	X	X			X		X						X	X	X			X	X	X		
Objective 1.6	Develop Emergency Snow/Evacuation Routes						X								X								
	Improve and Revise Snow/Ice Removal Program														X								
	Improve Snow Removal Resources																						
	Purchase Snow Removal Equipment																						
Objective 1.7	Ensure Adequate Water Supply for Health and Safety																						X
	Water System Emergency Response Plan					X																	

Mitigation Alternatives		Amherst	Buffalo County	Elm Creek	Gibbon	Kearney	Pleasanton	Ravenna	Riverdale	Shelton	Cozad	Dawson County	Farnam	Gothenburg	Lexington	Overton	Alda	Cairo	Doniphan Village	Grand Island City	Hall County	Wood River	
		Buffalo County									Dawson County						Hall County						
Objective 1.8	Conduct Water Supply Study			X																			
	Monitor Drought Conditions																						
	Reduce Impact from Drought																						
	Wind Breaks Studies																						
Objective 1.9	Emergency Exercise: Hazardous Spill			X													X						X
	Hazardous Waste Remediation												X										
	Highway/Railway Bypass					X																	
	Improve Response to Hazardous Materials (Hazmat) Incidents		X																				
Objective 1.10	Improve Flood / Dam Failure Warning System													X									
<b>Goal 2</b>																							
Objective 2.1	Reduce Bottleneck/Flow Restrictions	X	X			X							X										

Section Five: Mitigation Strategy

Mitigation Alternatives		Amherst	Buffalo County	Elm Creek	Gibbon	Kearney	Pleasanton	Ravenna	Riverdale	Shelton	Cozad	Dawson County	Farnam	Gothenburg	Lexington	Overton	Alda	Cairo	Doniphan Village	Grand Island City	Hall County	Wood River	
		Buffalo County									Dawson County						Hall County						
Objective 2.2	Hazardous Fuels Reduction		X			X																	
	Reduce Wildfire Damage												X										
	Remove Non-Native Species																						
	Replace Fire Hydrants	X																					
Objective 2.3	Drainage Study/Stormwater Master Plan																						
	Improve Drainage											X			X	X							
	Improve Flood and Stormwater Detention/Retention Capacity	X																					
	Reduce Property Damage by Improving Sanitary and Storm Sewer System	X																					
	Reduce Storm Water Damage					X		X						X									
Objective 2.4	Develop/Update Floodplain Information							X															

Mitigation Alternatives		Amherst	Buffalo County	Elm Creek	Gibbon	Kearney	Pleasanton	Ravenna	Riverdale	Shelton	Cozad	Dawson County	Farnam	Gothenburg	Lexington	Overton	Alda	Cairo	Doniphan Village	Grand Island City	Hall County	Wood River	
		Buffalo County									Dawson County						Hall County						
Objective 2.5	Bladder Gates																						
	Dredge Dams																						
	Eliminate Invasive Weeds																						
	Headgates for Water Diversion and Flood Control																						
	Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event		X			X						X	X				X				X	X	
	Reduce Damages in Floodplain														X						X		
	Reduce Flood/Water Damage to Roads and Property	X																					
	Rehabilitate Flood Control Structures																						
	Upgrade Irrigation Channels																						
Objective 2.6	Flood Proof Village Wells																						

Mitigation Alternatives		Amherst	Buffalo County	Elm Creek	Gibbon	Kearney	Pleasanton	Ravenna	Riverdale	Shelton	Cozad	Dawson County	Farnam	Gothenburg	Lexington	Overton	Alda	Cairo	Doniphan Village	Grand Island City	Hall County	Wood River	
		Buffalo County									Dawson County						Hall County						
Objective 2.7	Establish a Tree Board															X							
	Reduce Tree Damage & Damage from Trees		X			X	X	X			X	X		X	X	X				X	X	X	X
	Tree Care Ordinance														X								
	Tree Planting Assistance														X		X						
Objective 2.8	Evaluate Stream Channelization/ Bank Stabilization					X								X	X								
Objective 2.9	Hail Resistant Roofing														X								
	Improve Construction Standards and Building Survivability														X	X							
	Improve Roads and Improve Drainage																						
	Pave Village Roads																						
Objective 2.10	Evaluate and Improve Berm, Floodwall and/or Levee						X																

Mitigation Alternatives		Amherst	Buffalo County	Elm Creek	Gibbon	Kearney	Pleasanton	Ravenna	Riverdale	Shelton	Cozad	Dawson County	Farnam	Gothenburg	Lexington	Overton	Alda	Cairo	Doniphan Village	Grand Island City	Hall County	Wood River		
		Buffalo County									Dawson County						Hall County							
<b>Goal 3</b>																								
Objective 3.1	Community Education and Awareness		X	X	X	X		X	X		X	X				X		X				X		X
	Develop a Drought Management Plan											X												
	Develop an Emergency Preparedness Plan																				X	X		
	First Aid Training																							
	Promote First Aid																							
	Public Education on Tornadoes						X																	
	Reduce Water Demand/Improve Drought Education						X						X											
	School Continuity Plan																							
	Tabletop Emergency Exercises							X																
	Update Comprehensive Plan															X								
Objective 3.2	Increase Soil and Water Conservation						X					X												

**Table 97: Mitigation Alternatives Selected by Each Jurisdiction – Continued**

Mitigation Alternatives		Central City	Chapman	Clarks	Merrick County	Palmer	Silver Creek	Osceola	Polk Village	Polk County	Shelby Village	Stromsburg	Eustis	Oconto	Central Platte NRD	Doniphan Trumbull School District	Grand Island Public School District
		Merrick County						Polk County					Misc.				
<b>Goal 1</b>																	
Objective 1.1	Database of Vulnerable Population																
	Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters	X	X		X	X			X	X	X						X
	Storm Shelter Identification																
Objective 1.2	Backup Municipal Records					X											
	Improve/Provide Adequate Backup and Emergency Generators	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	Surge Protectors																
Objective 1.3	Ensure Adequate Severe Weather Notifications to Critical Facilities																
	Improve Warning Systems	X	X	X	X	X			X	X	X			X		X	X
Objective 1.4	Civil Service Improvements																
	Improve Emergency Communication Systems								X	X	X	X				X	
	Upgrade Emergency Responders Radio System		X														
Objective 1.5	Improve Electrical Service		X						X		X						

Mitigation Alternatives		Central City	Chapman	Clarks	Merrick County	Palmer	Silver Creek	Osceola	Polk Village	Polk County	Shelby Village	Stromsburg	Eustis	Oconto	Central Platte NRD	Doniphan Trumbull School District	Grand Island Public School District
		Merrick County						Polk County					Misc.				
Objective 1.6	Develop Emergency Snow/Evacuation Routes		X														
	Improve and Revise Snow/Ice Removal Program																
	Improve Snow Removal Resources					X											
	Purchase Snow Removal Equipment		X	X													
Objective 1.7	Ensure Adequate Water Supply for Health and Safety																
	Water System Emergency Response Plan																
Objective 1.8	Conduct Water Supply Study	X					X										
	Monitor Drought Conditions			X													
	Reduce Impact from Drought													X			
	Wind Breaks Studies									X							
Objective 1.9	Emergency Exercise: Hazardous Spill							X									
	Hazardous Waste Remediation																
	Highway/Railway Bypass																
	Improve Response to Hazardous Materials (Hazmat) Incidents																

Section Five: Mitigation Strategy

Mitigation Alternatives		Central City	Chapman	Clarks	Merrick County	Palmer	Silver Creek	Osceola	Polk Village	Polk County	Shelby Village	Stromsburg	Eustis	Oconto	Central Platte NRD	Doniphan Trumbull School District	Grand Island Public School District
		Merrick County					Polk County					Misc.					
Objective 1.10	Improve Flood / Dam Failure Warning System				X												
<b>Goal 2</b>																	
Objective 2.1	Reduce Bottleneck/Flow Restrictions						X	X		X					X		
Objective 2.2	Hazardous Fuels Reduction																
	Reduce Wildfire Damage																
	Remove Non-Native Species														X		
	Replace Fire Hydrants																
Objective 2.3	Drainage Study/Stormwater Master Plan															X	
	Improve Drainage		X											X			
	Improve Flood and Stormwater Detention/Retention Capacity	X								X					X		
	Reduce Property Damage by Improving Sanitary and Storm Sewer System																
	Reduce Storm Water Damage																
Objective 2.4	Develop/Update Floodplain Information	X															

Mitigation Alternatives		Central City	Chapman	Clarks	Merrick County	Palmer	Silver Creek	Osceola	Polk Village	Polk County	Shelby Village	Stromsburg	Eustis	Oconto	Central Platte NRD	Doniphan Trumbull School District	Grand Island Public School District
		Merrick County							Polk County					Misc.			
Objective 2.5	Bladder Gates														X		
	Dredge Dams														X		
	Eliminate Invasive Weeds														X		
	Headgates for Water Diversion and Flood Control														X		
	Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event	X	X		X				X		X	X					
	Reduce Damages in Floodplain																
	Reduce Flood/Water Damage to Roads and Property				X												
	Rehabilitate Flood Control Structures															X	
	Upgrade Irrigation Channels															X	
Objective 2.6	Flood Proof Village Wells					X											
Objective 2.7	Establish a Tree Board																
	Reduce Tree Damage & Damage from Trees								X		X	X		X		X	
	Tree Care Ordinance																
	Tree Planting Assistance																
Objective 2.8	Evaluate Stream Channelization/ Bank Stabilization									X					X		

Section Five: Mitigation Strategy

Mitigation Alternatives		Central City	Chapman	Clarks	Merrick County	Palmer	Silver Creek	Osceola	Polk Village	Polk County	Shelby Village	Stromsburg	Eustis	Oconto	Central Platte NRD	Doniphan Trumbull School District	Grand Island Public School District	
		Merrick County						Polk County					Misc.					
Objective 2.9	Hail Resistant Roofing																X	
	Improve Construction Standards and Building Survivability								X									
	Improve Roads and Improve Drainage												X					
	Pave Village Roads					X												
Objective 2.10	Evaluate and Improve Berm, Floodwall and/or Levee																	
<b>Goal 3</b>																		
Objective 3.1	Community Education and Awareness				X	X	X	X			X		X					
	Develop a Drought Management Plan							X							X			
	Develop an Emergency Preparedness Plan														X			
	First Aid Training															X		
	Promote First Aid																X	
	Public Education on Tornadoes																	
	Reduce Water Demand/Improve Drought Education									X					X			
	School Continuity Plan																	X
	Tabletop Emergency Exercises																	
	Update Comprehensive Plan																	

Mitigation Alternatives		Central City	Chapman	Clarks	Merrick County	Palmer	Silver Creek	Osceola	Polk Village	Polk County	Shelby Village	Stromsburg	Eustis	Oconto	Central Platte NRD	Doniphan Trumbull School District	Grand Island Public School District
		Merrick County						Polk County					Misc.				
Objective 3.2	Increase Soil and Water Conservation																

**COMPLETED MITIGATION EFFORTS**

Previously completed mitigation actions identified by the jurisdictions can be found in their specific participant section in *Section Seven: Participant Sections*.

THIS PAGE IS INTENTIONALLY BLANK

## SECTION SIX: PLAN IMPLEMENTATION AND MAINTENANCE

### ***MONITORING, EVALUATING, AND UPDATING THE PLAN***

Participants of the CPNRD HMP will be responsible for monitoring (annually at a minimum), evaluating, and updating of the plan. Hazard mitigation projects will be prioritized by each participant's governing body with support and suggestions from the public and business owners. Unless otherwise specified by each participant's governing body, the governing body will be responsible for implementation of the recommended projects. The responsible party for the various implementation actions will report on the status of all projects and include which implementation processes worked well, any difficulties encountered, how coordination efforts are proceeding, and which strategies could be revised.

To assist with monitoring of the plan, as each recommended project is completed, a detailed timeline of how that project was completed will be written and attached to the plan in a format selected by the governing body. Information that should be included will address project timelines, agencies involved, area(s) benefited, total funding (if complete), etc. At the discretion of each governing body, a local task force may be used to review the original draft of the mitigation plan and to recommend changes.

Review and updating of this plan will occur at least every five years. At the discretion of each governing body, updates may be incorporated more frequently, especially in the event of a major hazard. The governing body shall start meeting to discuss mitigation updates at least six months prior to the deadline for completing the plan review. The persons overseeing the evaluation process will review the goals and objectives of the previous plan and evaluate them to determine whether they are still pertinent and current. Among other questions, they may want to consider the following:

- Do the goals and objectives address current and expected conditions?
- If any of the recommended projects have been completed, did they have the desired impact on the goal for which they were identified? If not, what was the reason it was not successful (lack of funds/resources, lack of political/popular support, underestimation of the amount of time needed, etc.)?
- Have the nature, magnitude, and/or type of risks changed?
- Are there implementation problems?
- Are current resources appropriate to implement the plan?
- Were the outcomes as expected?
- Did the plan partners participate as originally planned?
- Are there other agencies which should be included in the revision process?

Worksheets in *Appendix C* may also be used to assist with plan updates.

In addition, the governing body will be responsible for ensuring that the Hazard Mitigation Plan goals and objectives are incorporated into applicable revisions of each participant's comprehensive plan and any new planning projects undertaken by the participant. The HMP should also take into account any changes in the comprehensive plans, and incorporate the information accordingly in its next update.

**Requirement §201.6(c)(4)(i):** *[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.*

**Requirement §201.6(c)(4)(ii):** *[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

**Requirement §201.6(c)(4)(iii):** *[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.*

***CONTINUED PUBLIC INVOLVEMENT***

To ensure continued plan support and input from the public and business owners, public involvement should remain a top priority for each participant. Notices for public meetings involving discussion of or action on mitigation updates should be published and posted in the following locations a minimum of two weeks in advance:

- Public spaces around the jurisdiction
- City/Village Hall
- Websites
- Local newspapers
- Regionally-distributed newspaper

***UNFORESEEN OPPORTUNITIES***

If new, innovative mitigation strategies arise that could impact the planning area or elements of this plan, which are determined to be of importance, a plan amendment may be proposed and considered separate from the annual review and other proposed plan amendments. The CPNRD should compile a list of proposed amendments received annually and prepare a report providing applicable information for each proposal, and recommend action on the proposed amendments.

***INCORPORATION INTO EXISTING PLANNING MECHANISMS***

The Planning Team utilized a variety of plan integration tools to help communities determine how their existing planning mechanisms were related to the Hazard Mitigation Plan. Utilizing FEMA's *Integrating the Local Natural Hazard Mitigation Plan into a Community's Comprehensive Plan* Guidance, as well as FEMA's *2014 Plan Integration Guide*, each jurisdiction engaged in a plan integration discussion. Each jurisdiction referenced all relevant existing planning mechanisms and provided information on how these did or did not address hazards and vulnerability. Recommendations for improving this integration were discussed at the public meetings, but several communities did not have other relevant planning mechanisms. For these communities that lack existing planning mechanisms, especially smaller villages, the Hazard Mitigation Plan should be used as a guide for future activity and development in the community. Each community that has a comprehensive plan was encouraged to incorporate elements of the Hazard Mitigation Plan within it. This ensures that the mitigation component of the comprehensive plan would be consistently revisited and reviewed. In order to determine which pieces of the comprehensive plan overlap with the Hazard Mitigation Plan, communities can use the American Planning Association's Safe Growth Audit. However, care must be taken so that this mitigation portion is reviewed and updated every five years, as the evaluation and updating of the comprehensive plan is typically performed on a 10-year basis.

## SECTION SEVEN: PARTICIPANT SECTIONS

---

### ***PURPOSE OF PARTICIPANT SECTIONS***

Participant sections contain information specific to jurisdictions which have participated in the CPNRD planning effort. Information from individual jurisdictions was collected at public and one-on-one meetings and used to establish the plan. Participant sections include: location and geography, transportation, demographics, future development trends, critical facilities, local hazard prioritization, capability assessment, plan integration, and mitigation actions. In addition, maps specific only to each jurisdiction are included such as the critical facilities and hazardous material storage facilities mapped with the floodplain.

The risk assessment and hazard prioritization information, as provided by individual participants, in *Section Four: Risk Assessment* and *Section Seven: Participant Sections* varies due in large part to the extent of the geographical area, the jurisdiction's designated representatives (who were responsible for completing meeting worksheets), identification of hazards, and occurrence and risk of each hazard type. For example, a jurisdiction located near a river may list flooding as highly likely in probability and severe in extent of damage, where a jurisdiction located on a hill may list flooding as unlikely in probability and limited in extent of damage. The overall risk assessment for the identified hazard types represents the presence and vulnerability to each hazard type area wide throughout the entire planning area. The discussion of certain hazards selected for each participant section were prioritized by the local planning team based on the identification of hazards of greatest concern, hazard history, and the jurisdiction's capabilities. The hazards not examined in depth can be referred to in *Section Four: Risk Assessment*.

AUGUST 2017

CENTRAL PLATTE NRD APPENDIX  
CENTRAL PLATTE NRD MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN



THIS PAGE IS INTENTIONALLY BLANK

**CONTENTS**

**PLAN OVERVIEW .....1**  
**CENTRAL PLATTE NRD .....3**

THIS PAGE IS INTENTIONALLY BLANK



## **PLAN OVERVIEW**

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind this hazard mitigation plan update is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives, which helped guide the process of identifying both broad-based and community-specific mitigation strategies and projects. These projects and strategies will, if implemented, reduce vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (one for each of the five participating counties plus one for the Central Platte NRD and one for communities participating outside of the five participating counties)
- An appendix of procedural documentation and resolutions of adoption

This participant appendix includes the participant section for the Central Platte NRD. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION  
FOR THE  
CENTRAL PLATTE  
NATURAL RESOURCES DISTRICT

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

## ***PARTICIPATION***

### ***LOCAL PLANNING TEAM***

Table CPN.1 provides the list of participating members that comprised the CPNRD local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, ongoing projects, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the NRD.

**Table CPN.1: CPNRD Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Department / Organization</b>
Lyndon Vogt	General Manager	Central Platte NRD
Jesse Mintken	Assistant General Manager	Central Platte NRD

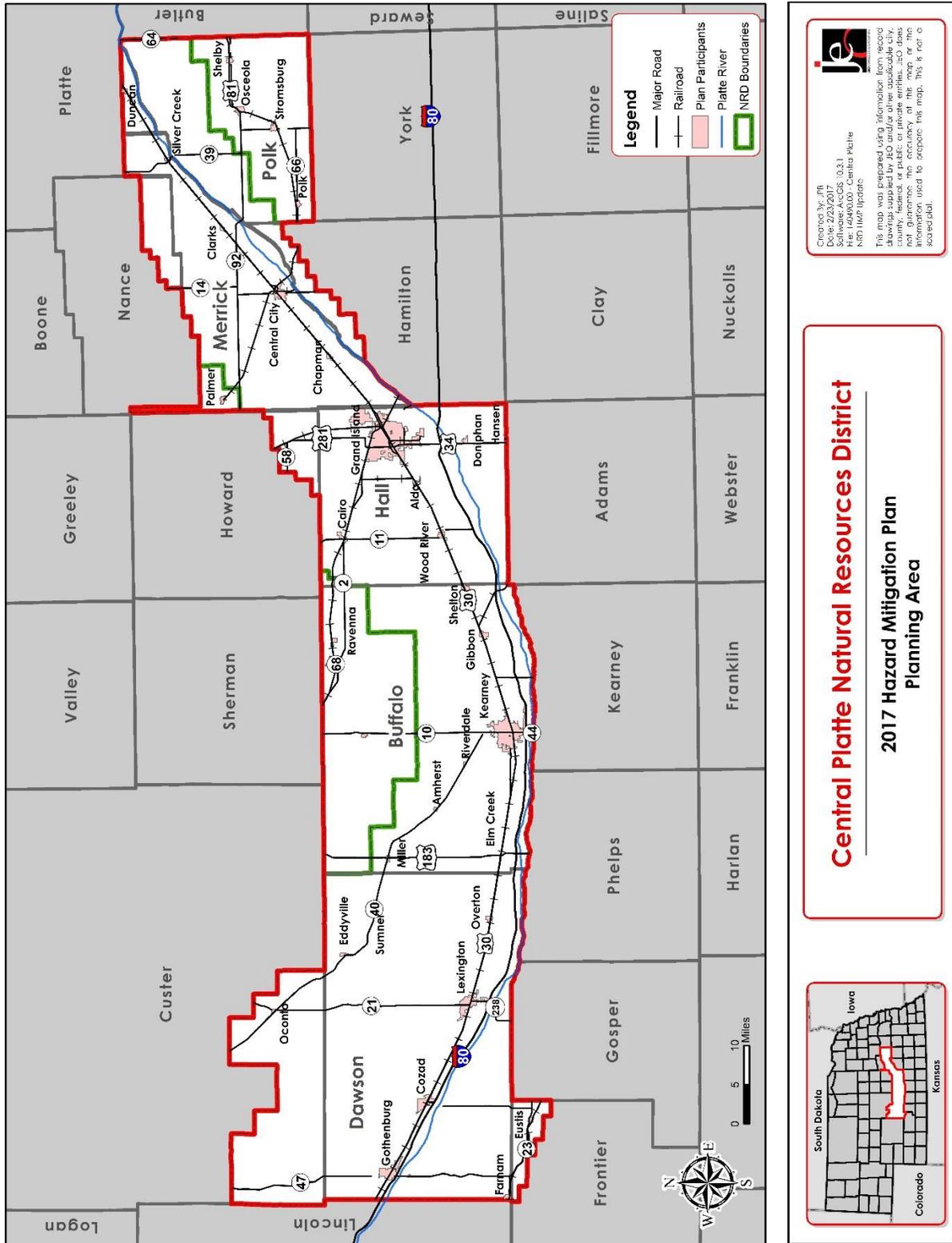
## ***LOCATION AND GEOGRAPHY***

The CPNRD is located in south-central Nebraska, straddling the Platte River encompassing 2,136,304 acres. It is comprised of all or parts of eleven counties: Buffalo, Custer, Dawson, Frontier, Hall, Hamilton, Howard, Merrick, Nance, Platte, and Polk Counties. Major waterways in the area include 205 miles of the Platte River, 49.9 miles of the North Channel, and 173 miles of the Wood River.

The district includes the broad Platte River valley lowlands, loess hills, dissected plains, and sandhills. In the western section, the upland tablelands merge into the rolling loess hills, which in turn drop into the flat lowlands of the valley. These lowlands, in some areas, consist of several flat terraces with relatively steep slopes between the terraces. The dissected plains and loess hills have a very well developed drainage pattern that discharges onto poorly drained flat valley lands. The valley is broad through the central portion and the drainage pattern becomes less well developed toward the eastern end of the district.

The Platte River is an important feature of the District. It is also the largest river in the state, traversing the entire length of the state from west to east and serving as a major tributary to the Missouri River. With origins in Colorado, the Platte is formed by two branches, the North and South Platte, converging near the City of North Platte. While there are some minor tributaries in the NRD that flow into the Platte, the major tributaries of the Loup and Elkhorn Rivers, join the Platte east of the District. The Platte River is too shallow for navigation and is used primarily for irrigation, recreation, generation of hydroelectric power and as a habitat for wildlife.

Figure CPN.1: Map of the CPNRD



## **CLIMATE**

The NRD shares all of the state’s climatic characterizations: temperature extremes and frequent, often violent, changes in the weather. Tornadoes, thunderstorms, blizzards, and hailstorms occur occasionally throughout the District. Summers are generally hot and winters can be severely cold, although the temperature and precipitation vary greatly from year to year.

For the CPNRD, the average high temperature for the month of July is 85.6°F. The average low temperature for the month of January is 11.8°F. On average, the planning area receives 30.64 inches of rainfall and 31.2 inches of snowfall per year. The following table compares these climate indicators with those of the entire state. Climate data are helpful in determining if certain events are higher or lower than normal. For example, if the high temperatures in the month of July are running well into the 90s, then this indicates extreme heat events, which could impact vulnerable populations.

**Table CPN.2: Climate Data for the NRD**

<b>Age</b>	<b>Planning Area</b>	<b>State of Nebraska</b>
July High Temp	85.6°F	88.0°F
January Low Temp	11.8°F	12.0°F
Annual Rainfall	30.64 inches	30.3 inches
Annual Snowfall	31.2 inches	25.9 inches

Source: NCDC Climate Data Online, 1981-2010 Climate Normals

\*Precipitation includes all rain and melted snow and ice.

## **TRANSPORTATION**

The CPNRD’s major transportation corridors include Interstate 80 and U.S. Highways 30, 34, 81, 183, and 281. The major railroads which travel through the NRD include the Burlington-Northern Santa Fe Railway, Union Pacific Railroad, and Nebraska Central Railroad Company. There are several airports across the area including Grand Island Central Regional Airport, Kearney Regional Airport, Jim Kelly Field, and Quinn Field. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors, as well as areas more at risk to transportation incidents.

## **DEMOGRAPHICS**

It is estimated that the CPNRD serves a population of about 145,000 people throughout eleven counties. However, the NRD does not collect information on age, or other demographics of their population, nor does the U.S. Census Bureau recognize the NRD. As a result, there is no additional population data for the NRD as a whole. For information regarding population data, please refer to the specific jurisdiction Participant Section or to *Section Three: Demographics and Asset Inventory*.

## **NRD PROJECTS AND PARTNERSHIPS**

### **OUTDOOR RECREATION**

The CPNRD facilitated a Task Force in 1993 to organize and develop the Central Platte Historic, Scenic & Trails Project, which is aimed to get people off roads and bridges during the Sandhill Crane viewing season. It includes plans for parking areas, access to the river for canoeists, scenic roads, viewing decks and turnouts, historic trail designations and proposed recreational trails. Phase 1 of the project has been completed, which included three roadside turnout areas between Doniphan and Shelton on the road along the south side of the Platte River. Additionally, there are two viewing decks along the Platte River located near Gibbon and the other near Alda. According to the CPNRD’s Master Plan, the NRD will continue to work with various governmental entities to complete the project. Full implementation of the plan will depend on the availability of financial resources, availability of sites and acceptance of use by the public.

**FLOOD CONTROL PROJECTS**

With 27 communities across the CPNRD with varying degrees of flood control issues and challenges, the NRD has worked with many of them on flood control projects ranging from dams to levees to clearing of creeks and streams. CPNRD works with landowners and other agencies to minimize damages that cause flooding. The goal is to use each acre within its capacity and to treat each acre according to its needs as set forth in the technical guidelines adopted by the NRD. The NRD has developed over 30 flood control structures. The plans for these structures have been designed to provide for orderly development of flood control and other related resource activities in watersheds, with each watershed plan encompassing a number of individual project plans in the total watershed development.

**ICE JAMS**

The CPNRD has an Interlocal Agreement with the Tri-Basin NRD and the Counties of Phelps, Buffalo, Merrick, Polk, and Hamilton to deal with ice jams in the Middle Platte River. If an ice jam begins to form, the NRD would be the first entity to start the process by calling FEMA and NEMA. The agreement between the seven partners includes the deposit of \$37,000 in emergency funds to use in the case of an ice jam.

**RE-OPERATION OF CANALS AND WATER BACK TO THE PLATTE RIVER**

CPNRD has been proactive in creating new ways to increase irrigation efficiency, protect water supplies, and increase flows to the river in Dawson County by working with the canal companies in the area. The Canal Rehab Project is the first conjunctive water management project in the CPNRD. 2015 marked the first year that all three of CPNRD’s irrigation canal rehabilitations in Dawson County have been in full operation. The Cozad Ditch, Thirty Mile Irrigation District, and Southside Irrigation District produced needed returns back to the Platte River from both excess flows and natural flow diversions, as they were designed to do. The flowing table shows the total returns achieved in 2015.

**Table CPN.3: Water Back to the Platte River for 2015**

Type of Return	Cozad	Thirty Mile	Southside	Totals (ac-ft)
Return of Surface Water to Platte	9,159.3	5,543.4	1,623.7	16,326.4
Return in 2015	204	796	221	1,221
Recharge Over Time	9,363.3	6,339	1,844.7	17,547

In total, the canals have recharged 8,000 acre-feet (ac-ft) of which 1,100 ac-ft were returned back to the Platte River this year. The remaining 6,900 ac-ft will return through groundwater over time. There are currently 24,000 ac-ft signed up for surface water natural flow rights to convert their consumptive use back to the Platte River, which resulted in 17,100 ac-ft of additional Platte River flows. In total, 18,200 ac-ft from both excess flows and natural flow diversions were put back into the Platte River during the irrigation season.

**CPNRD’S WATER BANKING PROGRAM**

The canal rehabs were developed as a result of the NRD’s Water Banking Program, which began in January 2007 to try to reduce the need to regulate irrigators within the District. As part of the program, the NRD purchases water rights as a solution to balance water that is being used with water that is available. Two major programs required the NRD to find a solution: the Platte River Recovery Implementation Program and Legislative Bill 962.

CPNRD’s water bank is the first to be implemented in Nebraska. Through the water bank program, the NRD acquires water rights from landowners. Every acre-foot of water that the NRD acquires impacts the river, thus reducing regulation and imposed cutbacks. The NRD has spent \$4.6 million to purchase water rights to return the over-appropriated area back to a fully appropriated status, resulting in 3,000 ac-ft of water returned to the Platte River.

***FUTURE DEVELOPMENT TRENDS***

Several flood control projects are planned for the next few years or are nearing completion in the CPNRD. The Upper Prairie Silver Moores Flood Control Project is a multi-phase project that began in 2005, and when completed, will provide the following benefits: protect northwestern Grand Island from Prairie and Silver Creek flooding; reduce future flooding damages to crops, properties, and other infrastructures; and eliminate an estimated \$130 million in damages during a 100-year event (or 1% annual chance event). The project includes the construction of dry dams, detention cells, and a levee. The four dry dams are completed and the detention cells are scheduled to be completed in early 2018. The mile-long levee is scheduled to begin later this year. Once construction of the project is completed, potential FEMA map revisions will be submitted for approval. The entire project is expected to be completed in 2019 with an overall estimated cost of \$30 million. Co-sponsors on the project include the CPNRD, Nebraska Department of Natural Resources, Natural Resources Development Fund, City of Grand Island, Hall County, and Merrick County.

The Odessa Area Flood Control Project consists of improvements to approximately two miles of existing roadside and filled drainage ditches, replacement of culverts, and supplementing existing culverts.

***PARCEL IMPROVEMENTS AND VALUATIONS***

Please refer to the individual Participant Sections for information regarding parcel improvements, valuation, and discussions for specific jurisdictions across the planning area.

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

Chemical sites are located throughout the NRD. Complete lists of chemical storage sites in each jurisdiction may be found in their community profiles.

***HISTORIC SITES***

The locations of historic sites in each jurisdiction, per the National Register of Historic Places for Nebraska, can be found in their respective participant sections.

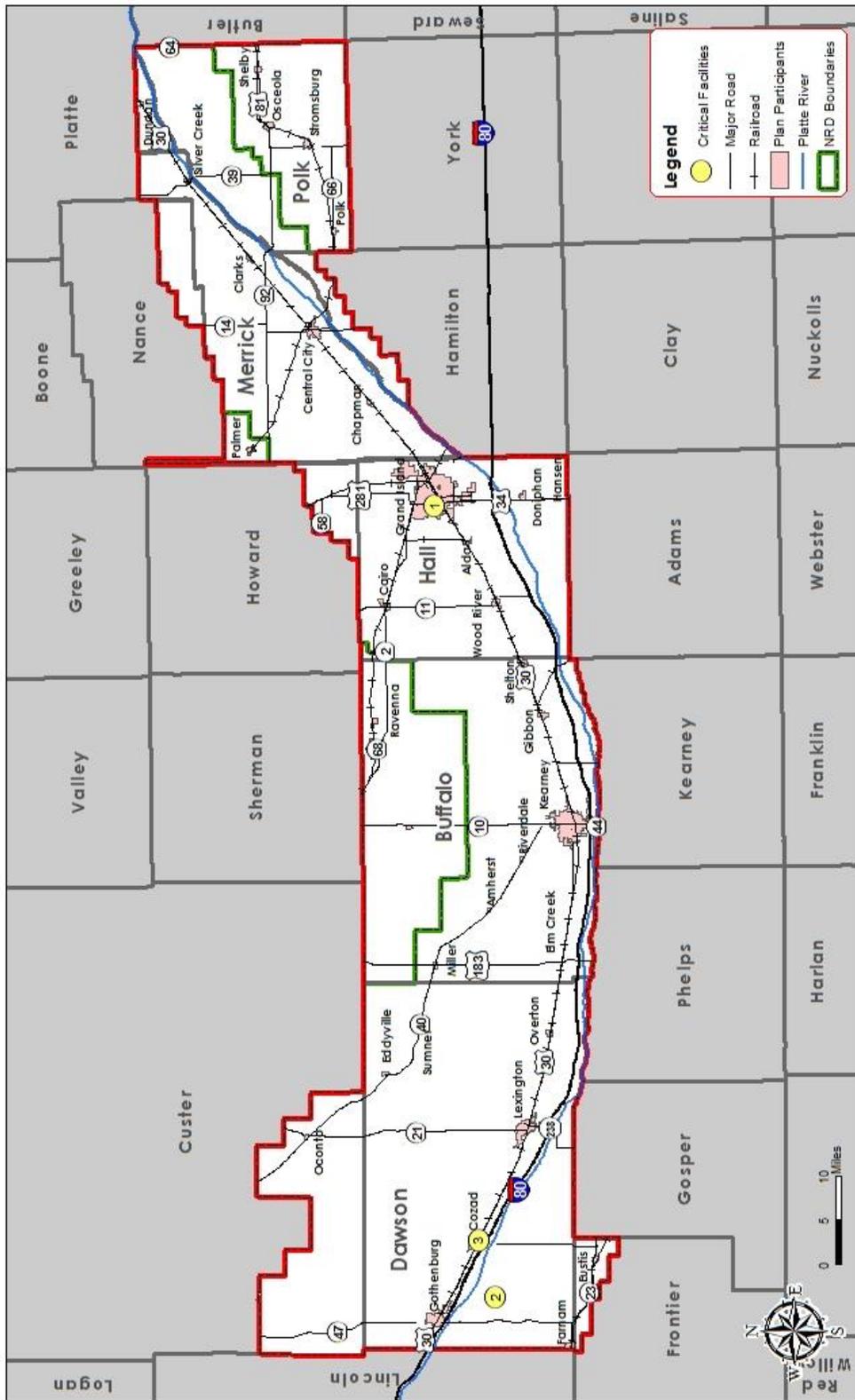
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the district.

**Table CPN.4: List of Critical Facilities**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	CPNRD Offices/Shop	215 Kaufman Avenue, Grand Island	N	N	N
2	30-Mile Irrigation District Office	75885 Road 414, Cozad	N	N	N
3	Cozad Ditch Shop/Office	105 E Highway 30, Cozad	N	N	N

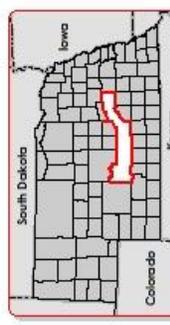
Figure CPN.2: Critical Facilities



Created by: JF  
Date: 2/23/2017  
Software: ArcGIS 10.3.1  
Map: 14000000 - Central Platte  
NRD Hazard Mitigation Plan

This map was prepared using information from various sources and is not intended to be used for any purpose other than that for which it was prepared. The user assumes all responsibility for any errors or omissions. This map is not a warranty, representation, or endorsement of any products or services mentioned herein. The user assumes all responsibility for any errors or omissions. This map is not a warranty, representation, or endorsement of any products or services mentioned herein.

**Central Platte Natural Resources District**  
2017 Hazard Mitigation Plan  
Critical Facilities



## ***HISTORICAL OCCURRENCES***

For the complete discussion on historical occurrences, please refer to *Section 4: Risk Assessment*.

## ***NRD HAZARD PRIORITIZATION***

The following provides community-specific information, reported in CPNRD's Risk Assessment Summary, relevant to each hazard. Only hazards identified either as a concern to the NRD by the local planning team or based on the occurrence and risk of the hazard to the NRD are discussed in detail below.

### **Earthquake**

Custer County experienced an earthquake about 6 years ago. The earthquake resulted in some concerns related to NRD-owned dams in the region, especially since one structure historically had problems with cracks developing in the earthen dam. In response to the event, the NRD hired an engineering firm to assist in the assessment of these structures and development of a plan to address identified deficiencies. The result of this process was the development of a protocol regarding how flood risk reduction structures will be addressed following any future earthquake events.

### **Flooding**

The NRD owns and/or sponsors several flood risk reduction structures. As such, there is concern related to the ongoing maintenance of these structures and some deficiencies/needed improvements to assist with the functionality of these structures. In addition, the NRD identified concerns related to ice jams that can result in flooding events during the winter and/or spring melt. In the past, Merrick, Dawson and Buffalo Counties have all experienced some level of flooding resulting from ice jams.

Other impediments have intensified the potential for flooding such as the growth of invasive species in the local waterways. Phragmites are an invasive species of large perennial grasses that grow in wetlands and intensify the compounding of water in areas that have historically not retained water. In recent years, the NRD has applied for and been awarded Riparian Vegetation Management grants through the State of Nebraska to address this problem, but there has been limited success in eliminating the problem. With the grasses being perennial, they return season after season, and unless all areas with the invasive species are addressed, the best that can be hoped for is to manage the most intensive infestations and to prioritize which areas are treated. This is a multi-jurisdictional issue affecting all NRDs along waterways. The state would benefit from the development of an annual fund to assist in managing this situation.

The NRD now owns a 50% share of the 30-Mile Irrigation district which maintains water distribution channels that provide irrigation waters to agricultural producers. The NRD is the management authority associated with this irrigation district, and while they are not part of the ownership structure for the Southside Irrigation District, they are in a long-term agreement to manage the system. These structures help provide water for agriculture during periods of drought, and are vulnerable to impacts during flooding events as canals can be washed out and damaged.

### **Levee Failure**

Levee failure may cause loss of life and injuries as well as damages to property, the environment, and the economy. There is one levee system located in the CPNRD, and it is located in Grand Island (Table CPN.5 and Figure CPN.3). There have been no reports of levee failure in the CPNRD or with the levee system. An Emergency Preparedness Plan (EPP) for the levee is being developed in coordination with the City of Grand Island and County Emergency Management. The EPP will include stakeholder roles and responsibilities, a risk awareness communication plan, an evacuation plan, and an activation process.

**Table CPN.5: Hall Levees**

Name	Sponsor	City	River	Length (miles)	Type of Protection	Protected Area (sq miles)	Approximate Level of Protection
Wood River FPP	Central Platte NRD	Grand Island	Wood River	12.3	Urban	25 – 49	50 - 99 Year Flood

Source: Nebraska State Mitigation Plan

The following map provides the location of leveed areas for the Wood River Levee System. Shaded areas indicate land areas that are protected by the levee and are therefore vulnerable if the levee were to fail. An estimated 9,480 people and 3,964 buildings reside within the leveed areas.

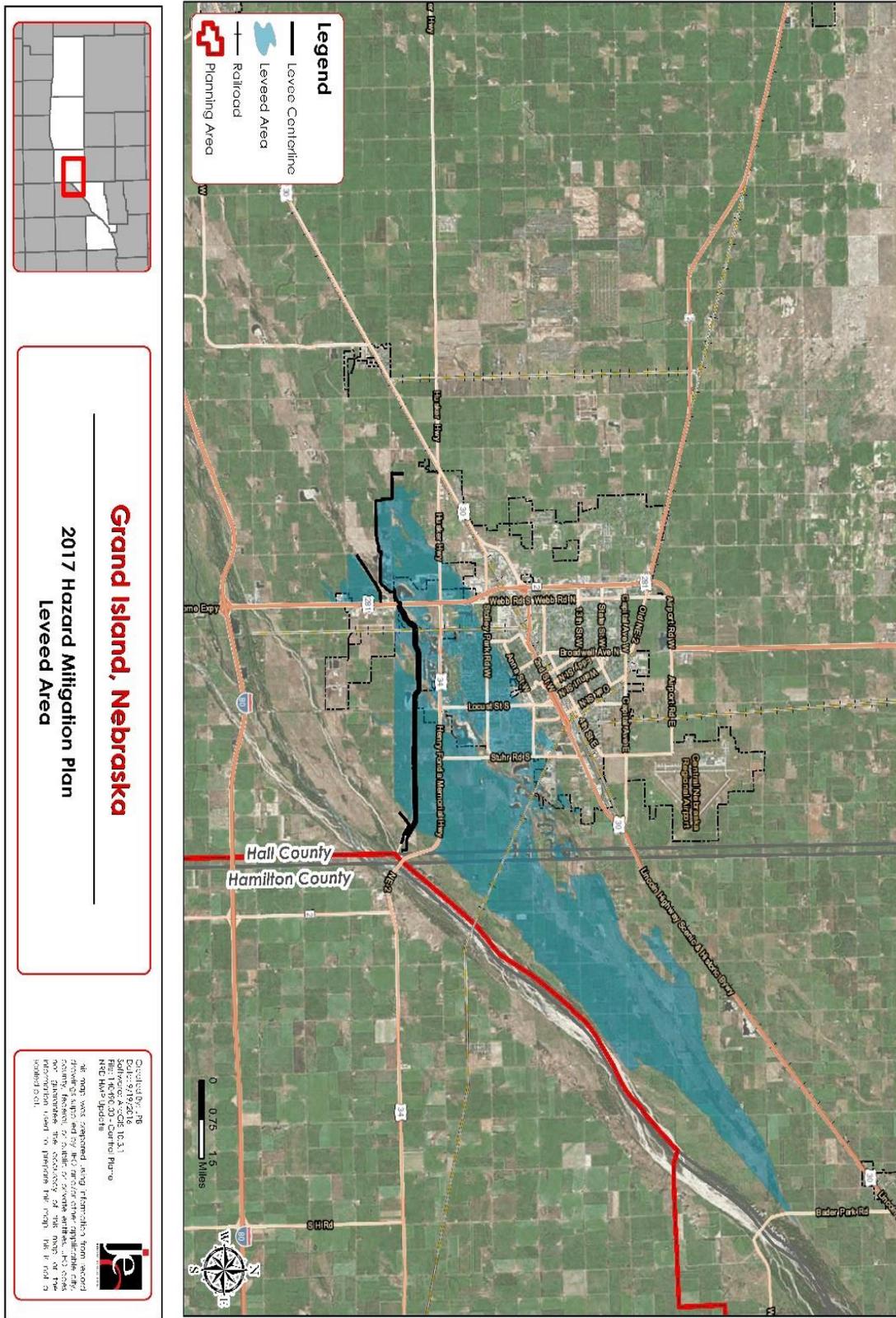
**Tornadoes**

While there has not been a recent event, the NRD is concerned about their recreational areas and the vulnerability of these areas to tornadic events during camping season. Specifically, the NRD is concerned with the lack of protection available to people in these recreational areas. The NRD might consider an installation of safe rooms at recreation areas in the future as improvements and/or upgrades are implemented. There are, however, no current plans or financial resources dedicated to address this issue.

**Wildfire**

The NRD is not responsible for fighting wildfires, but can assist in the reduction of fuel loads by encouraging land owners to utilize best management practices. There is an area near Kearney where the population of red cedar trees presents a serious concern. In the past, the NRD has assisted in land management and hazard mitigation through several avenues, including: the removal of red cedar, a non-native tree species that intensifies fire frequency and intensity; a cost share programs to encourage landowners to decrease grazing on agricultural lands; and collaboration in controlled burns to assist in fuel load management.

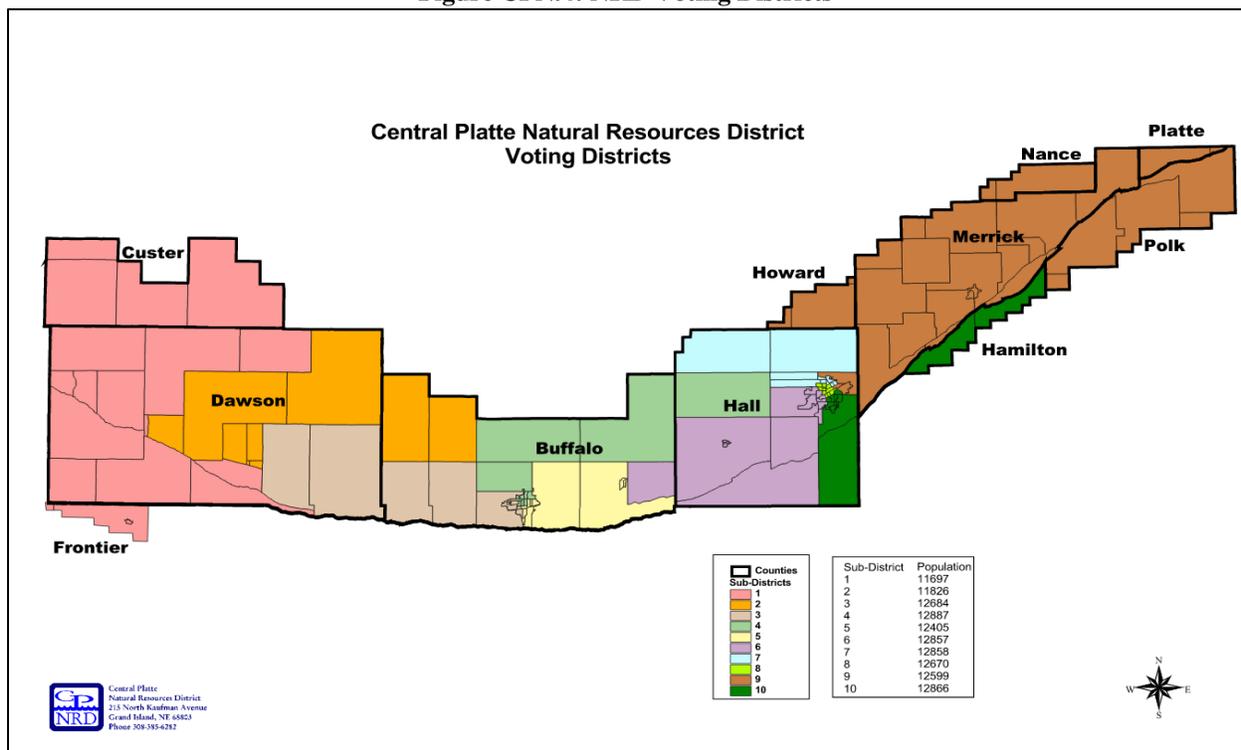
Figure CPN.3: Wood River Levee System



## GOVERNANCE

The CPNRD is governed locally by a group of 21 elected Board of Directors and entrusted with a broad range of responsibilities to protect and enhance Nebraska's many natural resources. The NRD serves both incorporated and unincorporated areas within their jurisdiction, and has the capability to financially and administratively assist villages, cities, and counties with mitigation actions, most commonly flood control and drainage improvements. The following may be able to help implement mitigation projects:

Figure CPN.4: NRD Voting Districts



Source: CPNRD website: <http://cpnrd.org/district-map/>

- General Manager
- Administrative Director
- Projects Assistant
- Secretary
- Range Management Specialist
- Water Resources Specialist
- Programs Coordinator
- Biologist
- Thirty Mile Canal Manager
- Cozad Ditch Company Canal Manager
- Information/Education Specialist
- Resources Conservationist
- Projects Manager
- Data and Compliance Officer
- Thirty Mile Irrigation Technician
- GIS Coordinator
- GIS Image Analyst
- Hydrologist

## CAPABILITY ASSESSMENT

The NRD does have the authority to levy taxes for specific purposes and to issue general obligation bonds to finance certain projects. The NRD also regularly engages in public education and information programs related to hazard mitigation in the area, and routinely works with other counties, cities, and villages within their jurisdictional boundaries.

**Table CPN.6: Overall Jurisdictional Capability**

<b>Overall Capability</b>	<b>Limited/Moderate/High</b>
Does the CPNRD have the financial resources needed to implement mitigation projects?	High
Does the CPNRD have the staff/expertise to implement projects?	High
Is there district support to implement projects?	High
Does the CPNRD staff have time to devote to hazard mitigation?	High

***PLAN INTEGRATION***

The NRD has developed multiple plans in the past, which have influenced its mitigation priorities. These include the following:

- Master Plan 2011
- Long Range Implementation Plan: For Fiscal Years 2014-2019
- Integrated Management Plan 2009
- Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin, Nebraska 2009

The purpose of the NRD is to protect and enhance the state’s natural resources through programs and projects, which align closely with hazard mitigation. Several of the NRD’s projects were discussed earlier under the *NRD Projects and Partnerships* section.

The Master Plan outlines an action plan for the NRD through 2021. Goals are identified with each of the NRD’s consolidated areas of responsibilities, listed below:

- Soil Conservation and Erosion Control
  - To use each acre within its capability and to treat each acre according to its needs as set forth in the technical guidelines adopted by the District
- Flood Prevention, Control, and Channel Rectification
  - To control floodwaters and/or to provide open floodways that will keep floodwater damages to an acceptable minimum
    - The HMP is mentioned in this section and outlines the planning process; it also lists some of the projects considered for the 2012 HMP
- Drainage
  - To help provide where needed and feasible, the open and closed drainage systems to dispose of excess surface and subsurface water from non-wetland areas
- Groundwater, Surface Water, and Water Supply
  - To assure an adequate supply of water for feasible & beneficial uses, through the proper management, conservation, development and utilization of the District’s water resources
- Water Quality, Pollution Control, Solid Waste Disposal, and Sanitary Drainage
  - To protect and enhance the quality of groundwater and surface water within the District
- Fish and Wildlife Habitat
  - The conservation and enhancement of fish and wildlife resources for the benefit of the people
- Forestry Management
  - To develop and manage trees and shrubs for the production of raw material for wood products; to reduce wind velocities; to conserve moisture; and to reduce wind erosion for the comfort of the people, livestock and wildlife; and for environmental recreation and aesthetic benefits

- Outdoor Recreation
  - To meet the parks and recreation needs of the District
- Range Management
  - To have rangelands in the District in a “high good” or “low excellent” condition
- Pollution Control and Solid Waste Disposal
  - To protect and enhance the quality of land, air, surface water and groundwater within the District
- Information and Education
  - Help the public develop a connection with natural resources conservation and management through accurate knowledge and understanding of the District’s objectives

The Long Range Implementation Plan summarizes the planned district activities and includes projections of financial, manpower, and land right needs of the District for the next five years, as well as a specific needs assessment upon which the NRD’s long range implement plan is reviewed and updated.

The Integrated Management Plan’s, in cooperation with the Nebraska Department of Natural Resources, aim is to achieve and/or maintain a balance between water uses and water supplies so that the economic viability, social and environmental health, safety, and welfare can be achieved and maintained for both the short and long term. Goals include:

1. To secure any future water supply projects that are shown to be feasible, beneficial and desirable.
2. To provide for a total consumption of water that does not exceed a fully appropriated status.
3. To maintain the District’s water resources for present and future generations while promoting programs that allow economic growth.
4. To provide, for present and future generations, an adequate supply of quality water for feasible and beneficial uses.
5. To minimize and/or resolve conflicts between water users.
6. To ensure that the plan complies with law and interstate agreements, and to meet basin-wide goals.

The Basin-Wide Plan is a cooperative effort by several NRDs located in the over appropriated Platte River Basin, including: North Platte NRD; South Platte NRD; Twin Platte NRD; Tri-Basin NRD; and Central Platte NRD. The goals of the plan aim to achieve and sustain a fully appropriated condition and to prevent reductions in the flow of a river or stream that would cause noncompliance with an interstate compact or decree. Also, the goal is to work cooperatively to identify and investigate disputes between ground water users and surface water appropriators, and if appropriate, implement management solutions to address such issues.

Currently, the CPNRD is developing an Emergency Preparedness Plan (EPP) for the Wood River Levee System. The CPNRD will incorporate portions of the HMP into the EPP. Specifically, the EPP will define roles and responsibilities of the CPNRD and community partners involved in levee-related mitigation responsibilities. In addition, the EPP will include a Risk Awareness Communication Plan that will be consistent with the ongoing public engagement outlined in the HMP.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

	<b>Reduce Bottleneck/Flow Restrictions</b>
Description	Evaluate restrictions and measures to prevent or reduce flood damage; implement appropriate nonstructural or structural methods on an emergency or permanent basis (monitoring or warning systems, ice jam dusting, excavation or blasting, reshaping channel, tree and debris removal, acquire property and/or construct additional channels or other flow improvements)
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000
Funding	General funds
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	CPNRD

	<b>Improve Flood and Stormwater Detention/Retention Capacity</b>
Description	Evaluate current stormwater and flood water capacity; implement measures to improve flood water and stormwater capacity
Hazard(s) Addressed	Flooding
Estimated Cost	\$25,000-\$100,000+
Funding	General funds, grants
Status	Not yet started.
Timeline	3-5 years
Priority	Medium
Lead Agency	CPNRD

	<b>Evaluate Stream Channelization/Bank Stabilization</b>
Description	Evaluate current stream bed and bank stabilization needs; implement stream bed and bank stabilization improvements including grade control structures, rock rip rap, vegetative cover, etc.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	General funds, grants
Status	Not yet started.
Timeline	3-5 years
Priority	Medium
Lead Agency	CPNRD

	<b>Reduce Water Demand/Improve Drought Education</b>
Description	Conduct water use study to evaluate/implement methods to conserve water/reduce consumption; evaluate/implement water use restriction ordinance; identify/evaluate current/additional potable water sources; develop or obtain drought education materials to conduct multi-faceted public education and awareness program
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	General funds
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	CPNRD

<b>Develop an Emergency Preparedness Plan</b>	
Description	Develop an Emergency Preparedness Plan (EPP) for the Levee System in coordination with County Emergency Management and the NRD.: the plan should include stakeholder roles and responsibilities, a risk communication plan, emergency activation levels, activation process, evacuation plan, and training and exercise plan
Hazard(s) Addressed	Levee Failure
Estimated Cost	\$10,000
Funding	General funds
Status	Early planning stages.
Timeline	1 year
Priority	High
Lead Agency	CPNRD, Hall County EMA, City of Grand Island

<b>Headgates for Water Diversion and Flood Control</b>	
Description	Install automated headgates for water diversion and flood control: at this time, the NRD struggles to access gates during periods of high water – this project would require new gates to be installed as it is not possible to automate the current gates
Hazard(s) Addressed	Flooding, Drought
Estimated Cost	Unknown
Funding	General funds, grants
Status	Not yet started.
Timeline	3-5 years
Priority	High
Lead Agency	CPNRD

<b>Bladder Gates</b>	
Description	Install bladder gates to facilitate diversion of water to headgates
Hazard(s) Addressed	Flooding, Drought
Estimated Cost	\$2-\$3 million
Funding	CPNRD, grants
Status	Not yet started.
Timeline	3-5 years
Priority	High
Lead Agency	CPNRD

<b>Upgrade Irrigation Channels</b>	
Description	Upgrade irrigation channels to reduce damages during flood events: this may include lining canals and/or increasing storage reservoirs to ensure water availability during critical management periods
Hazard(s) Addressed	Flooding
Estimated Cost	Unknown
Funding	General funds, grants
Status	Not yet started.
Timeline	3-5 years
Priority	Medium
Lead Agency	CPNRD

Section Seven: Central Platte NRD Participant Section

<b>Develop a Drought Management Plan</b>	
Description	Work with relevant stakeholders to develop a drought management plan; identify water monitoring protocols; outline drought responses; identify opportunities to reduce water consumption; establish the jurisdictional management procedures
Hazard(s) Addressed	Drought
Estimated Cost	\$50,000+
Funding	General funds
Status	Not yet started.
Timeline	3-5 years
Priority	Medium
Lead Agency	CPNRD

<b>Eliminate Invasive Weeds</b>	
Description	Elimination of invasive weeds from waterways in the District; work within the NRD and with neighboring NRDs to eliminate phragmites from the Platte River and other waterways in the region
Hazard(s) Addressed	Flooding
Estimated Cost	\$7 million
Funding	General funds, Riparian Vegetation Management grants
Status	Ongoing. The NRD has had limited success in eliminating phragmites, but the grasses are perennial and need constant management.
Timeline	Ongoing
Priority	High
Lead Agency	CPNRD

<b>Remove Non-Native Species</b>	
Description	Support property owners in removing non-native species that intensify wildfire vulnerability, specifically, remove red cedar trees
Hazard(s) Addressed	Grass/Wildfire
Estimated Cost	\$200,000
Funding	General funds, Nebraska Forest Service funds
Status	Not yet started.
Timeline	3-5 years
Priority	Medium
Lead Agency	CPNRD, Nebraska Forest Service

<b>Rehabilitate Flood Control Structures</b>	
Description	Rehabilitate flood control structures (i.e. dams) to assist in the retiming of water releases and to increase water storage capacity within the district: this will help ease flooding concerns, ensure water availability improvements for periods of drought, assist with the protection of vulnerable species, and assist with aquifer recharge
Hazard(s) Addressed	Flooding, Drought
Estimated Cost	\$25,000 - \$200,000 depending on structure
Funding	General funds
Status	Not yet started.
Timeline	3-5 years
Priority	Medium
Lead Agency	CPNRD

<b>Dredge Dams</b>	
Description	Dredge dams to restore the structures to their previous capacity, increase water retention abilities and improving water availability during periods of drought: this would also enable structures to better store water during periods with high precipitation
Hazard(s) Addressed	Flooding, Drought
Estimated Cost	\$25,000 - \$50,000
Funding	General funds
Status	Not yet started.
Timeline	3-5 years
Priority	Medium
Lead Agency	CPNRD

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	High Winds, Severe Winter Storms, Severe Thunderstorms, Flooding
Estimated Cost	\$3,500+
Funding	General funds, HMGP, PDM
Status	A generator is needed for the Wood River Levee site.
Timeline	5 years
Priority	Low
Lead Agency	CPNRD

AUGUST 2017

**BUFFALO COUNTY APPENDIX**  
CENTRAL PLATTE NRD MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN



THIS PAGE IS INTENTIONALLY BLANK

**CONTENTS**

**PLAN OVERVIEW .....1**  
**BUFFALO COUNTY .....3**  
**VILLAGE OF AMHERST .....25**  
**VILLAGE OF ELM CREEK .....39**  
**CITY OF GIBBON .....55**  
**CITY OF KEARNEY .....69**  
**VILLAGE OF PLEASANTON.....93**  
**CITY OF RAVENNA .....109**  
**VILLAGE OF RIVERDALE .....127**  
**VILLAGE OF SHELTON .....141**

THIS PAGE IS INTENTIONALLY BLANK



## ***PLAN OVERVIEW***

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind this hazard mitigation plan update is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives, which helped guide the process of identifying both broad-based and community-specific mitigation strategies and projects. These projects and strategies will, if implemented, reduce their vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (one for each of the five participating counties plus one for the Central Platte NRD and one for communities participating outside of the five participating counties)
- An appendix of procedural documentation and resolutions of adoption

This participant appendix includes all of the participating jurisdictions from Buffalo County, which includes jurisdictional-specific information for each participant. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION

FOR

BUFFALO COUNTY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### **LOCAL PLANNING TEAM**

Table BFC.1 provides the list of participating members that comprised the Buffalo County local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the County.

**Table BFC.1: Buffalo County Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Jurisdiction/Department</b>
Darrin Lewis	Emergency Manager	Buffalo County
LeAnn Klein	Zoning and Floodplain Administrator	Buffalo County

### **LOCATION AND GEOGRAPHY**

Buffalo County is located in south-central Nebraska and is bordered by Custer, Sherman, Howard, Hall, Kearney, Phelps, and Dawson Counties. The total area of Buffalo County is 975 square miles. Major waterways within the County include the Platte River in the southern portion of the County, and the South Loup River in the northern portion of the County. Buffalo County lies in the dissected plains and valleys topographic regions, with the vast majority of the County’s land characterized by agricultural fields.

### **CLIMATE**

For Buffalo County, the normal high temperature for the month of July is 86.7°F. The normal low temperature for the month of January is 13.3°F. On average, Buffalo County receives 25.23 inches of rain and 23.4 inches of snowfall per year. The following table compares these climate indicators with those of the entire state. Climate data are helpful in determining if certain events are more or less likely to occur in specific geographic locations.

**Table BFC.2: Climate Data for Buffalo County**

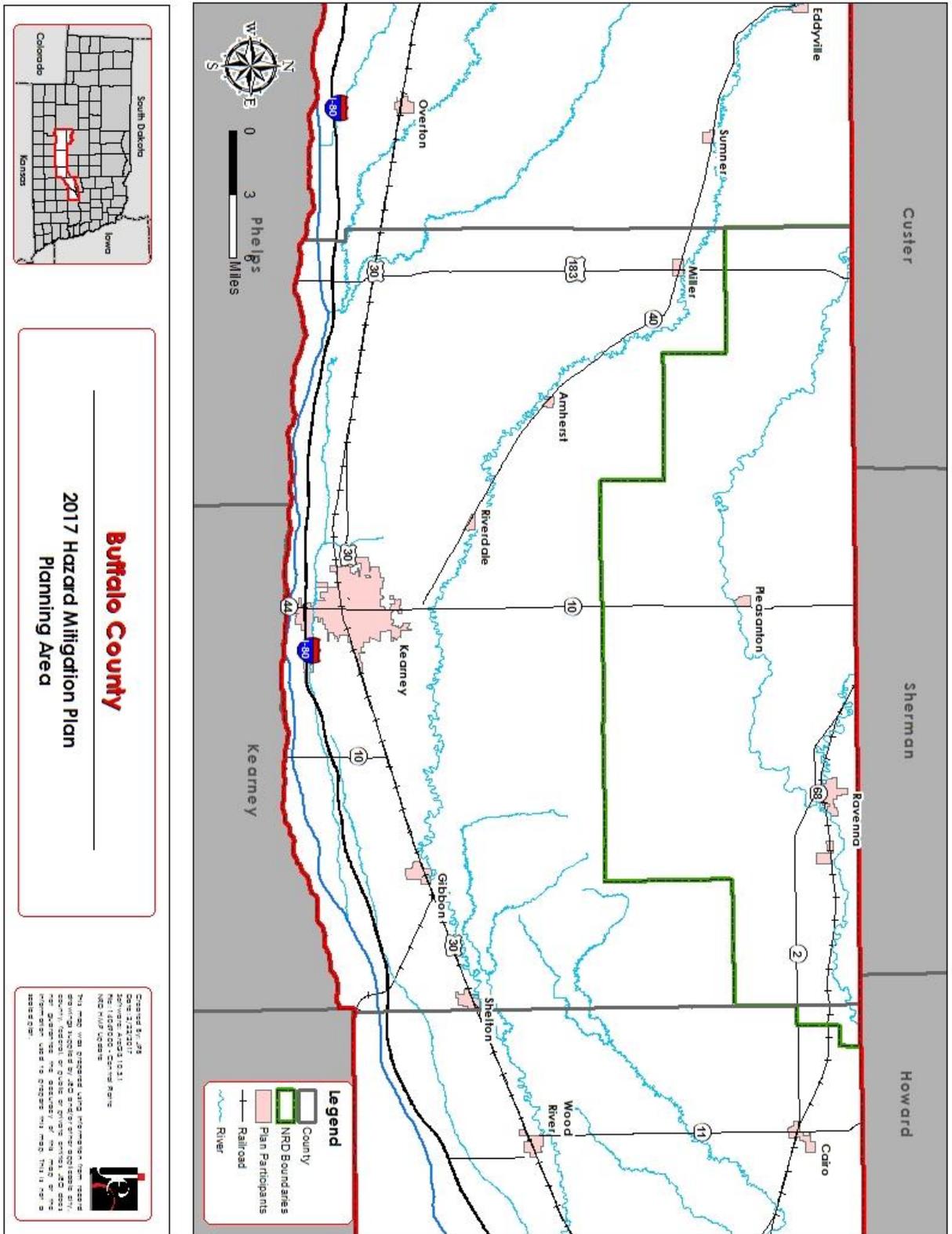
<b>Age</b>	<b>Buffalo County</b>	<b>Planning Area</b>	<b>State of Nebraska</b>
July Normal High Temp	86.7°F	87.0°F	88.0°F
January Normal Low Temp	13.3°F	14.2°F	12.0°F
Annual Normal Precipitation	25.23 inches	26.65 inches	23.89 inches
Annual Normal Snowfall	23.4 inches	26.2 inches	25.9 inches

Source: Midwestern Regional Climate Center, 1981-2010 Climate Normals  
 \*Precipitation includes all rain and melted snow and ice.

### **TRANSPORTATION**

Buffalo County’s major transportation corridors include Interstate 80, U.S. Highways 30 and 183, and Nebraska Highways 2, 10 and 40. The County also has an airfield located at the Kearney Regional Airport. The Union Pacific Railroad has rail lines that travel through Shelton, Gibbon, Kearney, and Elm Creek. The Burlington Northern Santa Fe Railroad has a rail line that goes through Ravenna in northeastern Buffalo County.

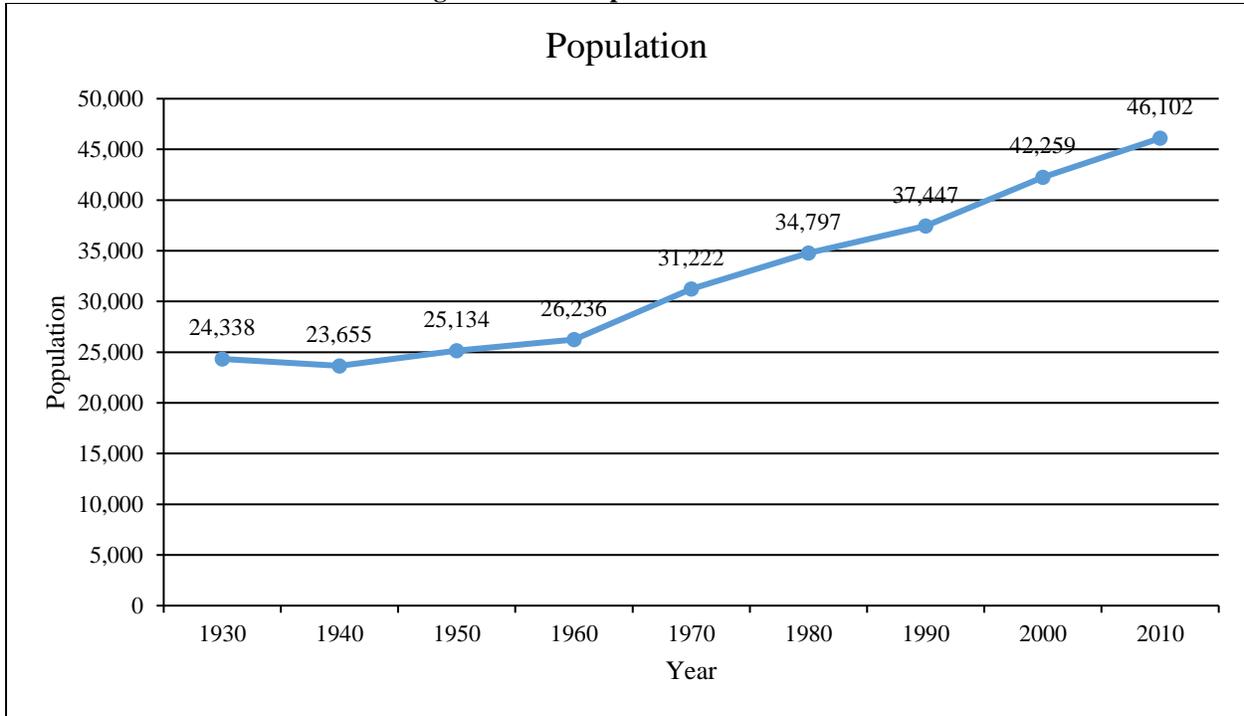
Figure BFC.1: Buffalo County Map



**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Buffalo County has been increasing since 1940.

**Figure BFC.2: Population 1930 – 2010**



Source: U.S. Census Bureau

The following table indicates that Buffalo County has similar age group demographics as compared to the State of Nebraska.

**Table BFC.3: Population by Age**

Age	Buffalo County	State of Nebraska
<5	7.2%	7.2%
5-64	80.7%	79.2%
>64	12.1%	13.6%
Median	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that the median household income and median home value are higher than the State of Nebraska. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the state as a whole.

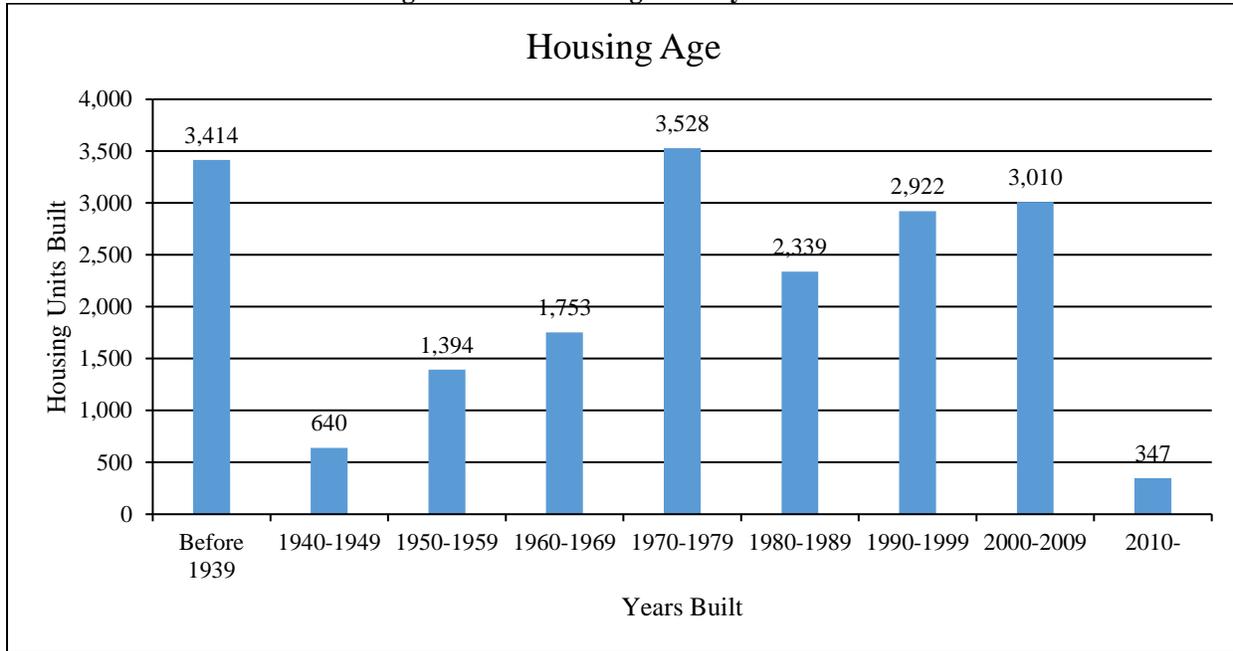
**Table BFC.4: Housing and Income**

	Buffalo County	State of Nebraska
Median Household Income	\$64,926	\$52,400
Per Capita Income	\$25,154	\$27,339
Median Home Value	\$142,800	\$130,100
Median Rent	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the County has 19,347 housing units with 93.1 percent of those units occupied. There are approximately 1,309 mobile homes in the County. The initial Flood Insurance Rate Map (FIRM) was developed in March 1990.

**Figure BFC.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table BFC.5: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%
Nebraska	731,347	90.8%	73,909	9.2%	486,036	66.5%	245,311	33.5%

Source: Selected Housing Characteristics: 2010 - 2014 ACS 5-year Estimates, DP04

**MAJOR EMPLOYERS**

According to 2014 Business Patterns Census Data, Buffalo County has 1,583 business establishments. The following table presents the number of establishments, the number of paid employees, and the annual pay role in thousands of dollars. This information is relevant to hazard mitigation insofar as it indicates the diversification of industry. Communities which have a diverse economic makeup may be more resilient following a hazardous event, especially if certain sectors are more impacted than others.

**Table BFC.6: Business in Buffalo County**

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
<b>Total for all Sectors</b>	1,583	22,081	\$753,973

Source: U.S Census 2014, Table CB1400A11

Agriculture is important to the economic fabric of Buffalo County as shown by the Land Cover Map (Figure BFC.4), and the state of Nebraska as a whole. Buffalo County’s 1,046 farms cover 580,579 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well. Related business contributions include producing, processing, and marketing farm and

food products. These businesses generate income, employment, and economic activity throughout the region.

**Table BFC.7: Buffalo County Agricultural Inventory**

<b>Buffalo County Agricultural Inventory</b>	
Number of Farms	1,046
Land in Farms	580,579 acres

Source: USDA 2012 Census of Agriculture

***FUTURE DEVELOPMENT TRENDS***

In the last five years, new housing has been built in the County. Some of these residential structures are located in the floodplain. The City of Kearney’s growth has precipitated this new construction and contributes to Buffalo County’s growing population. New industries and businesses are planned for Kearney’s jurisdiction, and new housing developments are planned northwest of Kearney within five miles of the planning jurisdiction. These areas are highlighted in the Future Land Use Map, Figure BFC.4, under rural residential.

***PARCEL IMPROVEMENTS AND VALUATION***

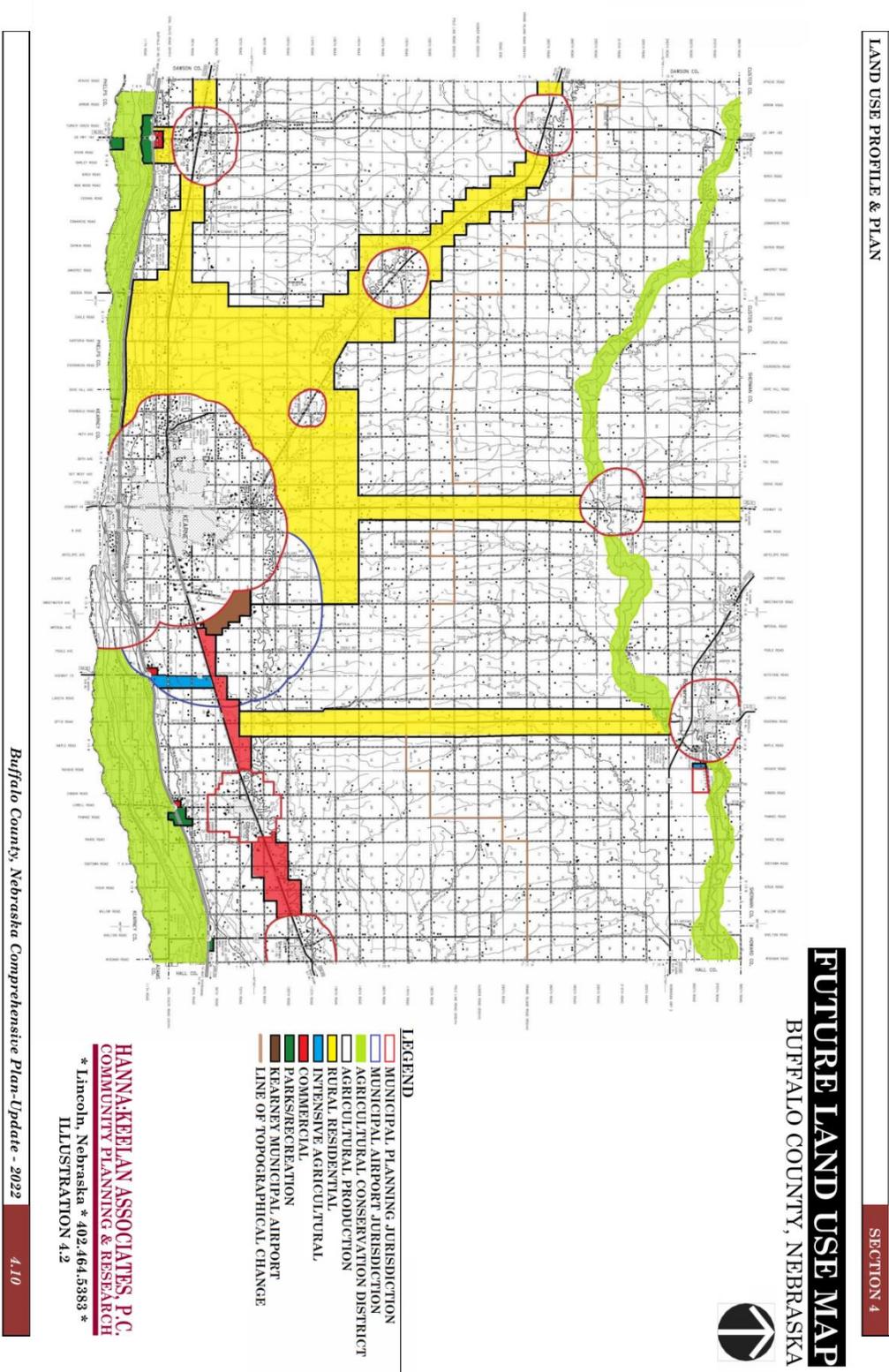
GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table BFC.8: Parcel Improvements**

<b>Number of Improvements</b>	<b>Total Improvement Value</b>	<b>Mean Value of Improvements Per Parcel</b>	<b>Number of Improvements in Floodplain</b>	<b>Value of Improvements in Floodplain</b>
14,585	\$2,472,490,720	\$169,523	1,316	\$263,680,755

Source: GIS Workshop/Buffalo County Assessor

Figure BFC.4: Future Land Use Map



**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of 35 chemical storage sites in Buffalo County that house hazardous materials. A total of three chemical storage sites are located in either the 1 percent or 0.2 percent floodplain (Figure BFC.5).

**Table BFC.9: Chemical Storage Fixed Sites**

Facility	Address	City	In Floodplain?
Abengoa Bioenergy of Nebraska	35955 Navaho Rd	Ravenna	No
Agricultural Services Inc	523 Railroad St	Shelton	No
AT&T	Jct Pine Rd & Highway 68	Ravenna	No
AT&T Interstate 6040	325 Ave	Pleasanton	No
Aurora Co-op Elevator Company	6540 E 39th St	Kearney	No
Aurora Co-op Elevator Company	44740 Highway 30	Gibbon	No
Aurora Co-op Elevator Company	2922 Antelope Ave	Kearney	No
Aurora Co-op Elevator Company	30250 Shelton Rd	Ravenna	No
Baldwin Filters Inc	4015 Antelope Ave	Kearney	Yes - 0.2%
Baldwin Filters Inc	4400 Highway 30 E	Kearney	No
Bowie Fertilizer Inc	204 North St	Miller	No
Bowie Fertilizer Inc	313 Railroad St	Riverdale	No
Cash-Wa Distribution Co	401 W 4th St	Kearney	Yes - 1%
CenturyLink	7420 Keystone Rd	Gibbon	No
Charter Communications	809 Central Ave	Kearney	No
CHS Agri Service Center	515 W Front St	Elm Creek	No
Columbus Metals Industries	4211 E 43rd Street Pl	Kearney	No
Crop Production Services Inc	1720 16th Ave	Kearney	No
Darling Ingredients Inc	102 Lincoln Ave	Ravenna	No
Farmers Co-op Assn Fertilizer	20805 Antelope Rd	Pleasanton	No
Frontier Communications	2302 1st Ave	Kearney	No
Frontier Communications	1918 W 39th St	Kearney	No
Henningsen Foods Inc	200 E Railway St	Ravenna	No
Kearney Crete & Block Company	2908 Highway 30 E	Kearney	No
Monsanto Company	2615 Antelope Ave	Kearney	No
Nebraska Central Telephone Co	22 La Barre St	Gibbon	No
Nebraska Central Telephone Co	113 W Genoa St	Ravenna	No
Nebraska Central Telephone Co	215 C St	Shelton	No
Sunbelt Rentals 413	3211 Antelope Ave	Kearney	No
The Andersons Inc	6090 Optic Rd	Gibbon	No
Trotter Fertilizer	307 E Cemetery	Pleasanton	No
Union Pacific Railroad	1327 E 25th St	Kearney	No
United Suppliers Inc	39560 39th Rd	Gibbon	No
West Pharmaceutical Services	923 W Railroad St	Kearney	No

Source: Nebraska Department of Environmental Quality, 2016

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there is one historic site located in rural Buffalo County. Urban sites for Buffalo County can be found in their respective participant sections.

**Table BFC.10: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Kilgore Bridge	6/29/1992	Yes

Source: Nebraska State Historical Society, 2016

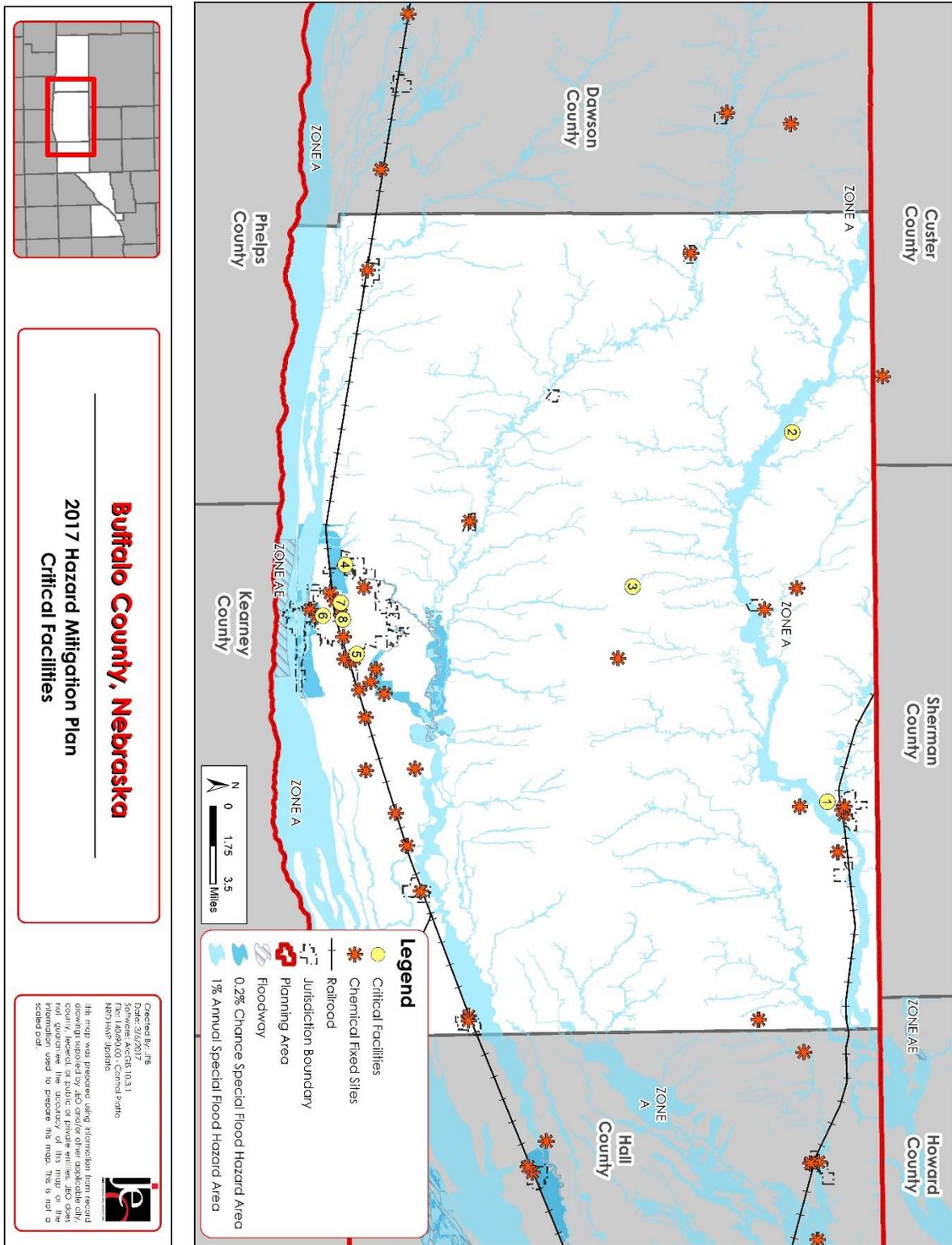
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table BFC.11: List of Critical Facilities in Buffalo County**

CF#	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Communication Tower	Not Available	N/A	Y	N
2	Communication Tower	Not Available	N/A	Y	N
3	Communication Tower	Not Available	N/A	Y	N
4	Communication Tower	Not Available	N/A	Y	N
5	Fairgrounds	39 <sup>th</sup> & N Kearney	N	N	N
6	Police/Buffalo County Building	2025 Avenue A, Kearney	N	Y	N
7	Communication Tower	Not Available	N	Y	N
8	Buffalo County Courthouse/Jail/EOC	1512 Central Avenue, Kearney	N	Y	N

Figure BFC.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



***HISTORICAL OCCURRENCES***

The following table provides a statistical summary for hazards that have occurred in the County. The property damages from the NCEI Storm Events Database (January 1996 – December 2015) should be considered only as broad estimates. Sources include, but are not limited to: emergency management, local law enforcement, Skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

Crop damages are from the USDA Risk Management Agency (RMA) between 2000 and 2015.

**Table BFC.12: NCEI Severe Weather Events**

HAZARD TYPE		COUNT	PROPERTY LOSS	CROP LOSS <sup>3</sup>
Agricultural Disease	Animal Disease <sup>2</sup>	9	-	-
	Plant Disease <sup>3</sup>	54	-	\$270,828
Chemical Spills-Transportation <sup>4</sup> 1 Death; 9 Injuries		75	\$157,220	-
Drought <sup>1</sup>		18	\$0	\$28,783,557
Extreme Heat <sup>1</sup>		1	\$0	\$5,416,428
Flooding <sup>1</sup>	Flash Flood	11	\$2,395,000	\$823,997
	Flood	8	\$85,000	
Grass/Wildfires <sup>5</sup> 2 Deaths; 3 Injuries		458	4,195.4 acres	\$2,561
High Winds <sup>1</sup> Average: 46 kts Range: 35 -55 kts		18	\$277,080	\$8,275,433
Severe Thunderstorms <sup>1</sup>	Thunderstorm Wind Average: 57.9 kts Range: 50-87 kts 5 Injuries	106	\$14,616,000	\$2,810,372
	Hail Average: 1.23 in. Range: 0.75 - 5.00 in.	213	\$80,245,000	\$50,126,533
	Heavy Rain	25	\$587,000	-
	Lightning	3	\$95,000	-
Severe Winter Storms <sup>1</sup>	Blizzard	5	\$250,000	\$887,407
	Heavy Snow	2	\$0	
	Ice Storm	6	\$5,420,000	
	Severe Winter Storm 6 Deaths; 4 Injuries	57	\$300,000	
Tornadoes <sup>1</sup>	Funnel Cloud	5	\$0	\$0
	Tornado Most Common Rating: EF0 Range: EF0 - EF3 1 Injury	20	\$18,420,000	\$17,904
<b>Total</b>			<b>\$122,847,300</b>	<b>\$97,415,020</b>

<sup>1</sup> Data from NCEI (1996 - 2015)

<sup>2</sup> Data from NDA (2014-2016)

<sup>3</sup> Data from USDA RMA (2000 – 2015)

<sup>4</sup> Data from PHMSA (1970 - 2016)

<sup>5</sup> Data from NFS (2000 – 2014)

in=inches; kts=knots

## COUNTY HAZARD PRIORITIZATION

For an in-depth discussion regarding area-wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides county-specific information as reported by the local planning team. Only hazards identified either as a concern to the County by the local planning team, or based on the occurrence and risk of the hazard to the County are discussed in detail below.

### Agricultural Animal and Plant Disease

Agriculture is a major portion of the economy in Buffalo County. Communities in the County rely heavily on the economy of farming, ranching, and stockyards. An outbreak of agricultural disease could impact taxes, businesses, family farms, and overall mental health and well-being of the community. Other local concerns include the containment of disease and disposal/clean-up of infected populations. It was noted by the planning team that there are good state educational programs available to farmers on plant and animal disease.

### Chemical Spills (Transportation)

Buffalo County has several major highways and two rail lines that transect the County and run through populated areas. Interstate 80, Highway 30, and both rail lines are of greatest concern due to the high traffic volume and the likelihood of chemicals being transported along these transportation routes on a regular basis. According to the PHMSA, chemical spills have occurred during transportation in Elm Creek, Gibbon, and Kearney. The largest spill occurred in May 2012 when 852 LGA of a corrosive liquid caught fire when a loaded trailer of mixed freight was left at the terminal over a long holiday weekend. It was suspected that it was caused by spontaneous combustion due to the high temperatures that weekend. Damages were reported to be over \$82,000. In 1974, one fatality and four injuries occurred during a vehicle crash near Elm Creek and over 8,300 LGA of gasoline was spilled. The County consistently educates and trains fire departments how to respond to hazardous material incidents.

### Dam Failure

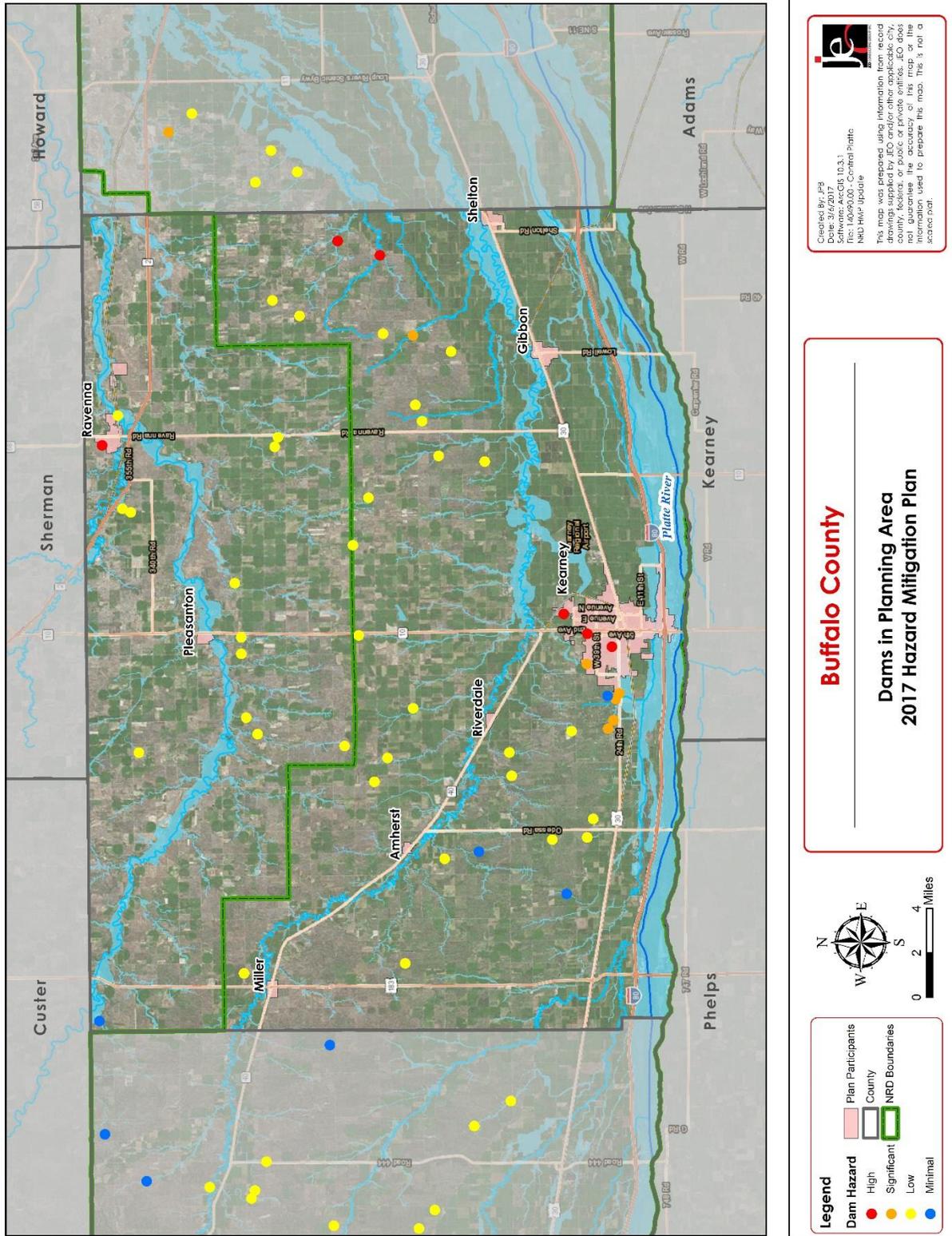
There are 51 dams in Buffalo County (Table BFC.13). Of these, six dams have been identified as high hazard dams and are listed in Table BFC.14. No dam failures have occurred at any of the dams located in the County. However, if one of the high hazard dams were to fail, there is a risk of fatalities, property damage, and flooding of agricultural lands. Furthermore, Kingsley Dam, located upstream, outside of the planning area in Keith County, could affect Buffalo County if it was to fail, with impacts likely felt all along the Platte River.

**Table BFC.13: Dams in Buffalo County**

	Number of Dams	Minimal	Low	Significant	High
Buffalo County	51	4	35	6	6
Planning Area	185	16	144	18	7

Source: NDNR

Figure BFC.6: Dam Locations in Buffalo County



**Table BFC.14: High Hazard Dams**

NIDID	Dam Name	Owner	Location	Name of Stream	Maximum Storage (acre-feet)	Last Inspection Date
NE00465	Kearney Dam	Nebraska Public Power District	Kearney	Kearney Canal Off Platte River	161	5/3/2016
NE02332	4 <sup>th</sup> Avenue Storm Detention Dam	Johnson Imperial Home Company	Kearney	Tributary to Wood River	91	5/3/2016
NE09348	Prairie Creek Upland Dam 2 (PCUL 2)	Central Platte NRD	Grand Island*	Tributary to Prairie Creek	4,465.3	5/3/2016
NE09349	Prairie Creek Upland Dam 1 (PCUL 1)	Central Platte NRD	Grand Island*	Prairie Creek	5,776.3	5/3/2016
NE03239	Stoneridge Dam	NP Land Development Inc.	Kearney	Tributary to Wood River – Platte River	393.3	5/3/2016
NE02492	Ravenna Northwest Dam	City of Ravenna	Ravenna	Tributary to South Loup River	295	10/15/2015

Source: NDNR

\*These dams are located in unincorporated Buffalo County but the downstream community affected is Grand Island

### Flooding

The unincorporated area of Buffalo County has 72 NFIP policies in-force for \$9,765,500. There is one single family repetitive flood loss property in an unincorporated area of Buffalo County. The following table is parcel improvement information as provided by GIS Workshop for the entire County area. It indicates that an estimated 9.0 percent of all parcel improvements in the County are located in the floodplain.

**Table BFC.15: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in County	Percentage of Improvements in Floodplain
\$263,680,755	1,316	14,585	9.0%

Source: GIS Workshop/Buffalo County Assessor

Flooding or flash flooding in the County has been caused by ice jams, heavy rain from thunderstorms, and high river runoff. The most significant flood event occurred in May 2005 when thunderstorms dropped upwards of a foot of rain across the entire County along with hail and high winds. Several people needed to be rescued during the flash flood event and several homes were damaged. Damages were estimated at \$2 million for Buffalo County. Mitigation projects to reduce the impact of flooding for the County include reducing bottlenecks and flow restrictions in streams and conducting a stormwater drainage study.

### Severe Thunderstorms

Severe thunderstorms are a regular part of the climate of Buffalo County, and they have caused wind damage, flooding, and hail damage across many parts of the County. The local planning team is concerned with possibility of loss of life, property damage, economic impacts, and the displacement of people if homes are damaged. Some of the critical facilities in the County have backup power generators, including the Emergency Operations Center, County Courthouse, and communication towers. However, many local communities still have facilities that need backup power. The County plans to mitigate the effects of thunderstorms by improving electrical services, improving citizen warning systems, and improving/providing adequate backup power generators.



### **Severe Winter Storms**

Severe winter storms occur annually in Buffalo County and can include high winds, blowing snow, ice, and high accumulations. The local planning team is most concerned with power outages, stranded motorists, and economic impacts. In December 2006, an ice storm caused widespread tree damage, downed power lines and poles, closed businesses, and many stranded motorists during the holiday period. In total, \$5 million in damages were reported from this storm. The County's snow removal resources are sufficient at this time, and the County regularly trims and maintains trees to reduce tree damage.

### **Tornadoes**

Significant tornado events include an EF2 that impacted Kearney in 2008 and an EF3 that impacted Elm Creek in 2011. These two tornadoes caused a total of \$17 million in damages. Every community has tornado sirens which are activated through 911 Dispatch. However, the local planning team noted that some subdivisions do not have warning sirens or adequate coverage. There are two safe rooms constructed to the standards set forth in the FEMA P-320 guidance in a high school and middle school in Kearney. However, these are not open to the general public. Providing adequate public safe rooms is a mitigation project identified for the County.

### **GOVERNANCE**

A community's governance structure impacts its capability to implement mitigation actions. Buffalo County is governed by a seven-member Board of Commissioners. The County also has the following offices and departments:

- County Clerk
- County Treasurer
- Emergency Management
- Highway Superintendent
- Planning and Zoning
- Floodplain Administrator
- Sheriff's Department
- Surveyor
- Deed Office
- District Court
- County Attorney's Office
- Assessor's Office
- Election Commissioner
- Board of Supervisors
- Weed Control

### **CAPABILITY ASSESSMENT**

Thus far the planning process has identified the major hazards for the County, and described and quantified the vulnerability of the County to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table BFC.16: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	Yes
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	Yes
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table BFC.17: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the County have the financial resources needed to implement mitigation projects?	Limited to Moderate
Does the County have the staff/expertise to implement projects?	Moderate
Is there County support to implement projects?	Moderate
Does the County staff have time to devote to hazard mitigation?	Limited

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Buffalo County Comprehensive Plan was last updated in 2012, and the plan identifies the South Loup and Platte River corridors as sensitive environmental areas consisting of floodplain and low-lying lands. The Planning Commission agreed that these two regions need to limit future development activities not associated with agricultural production. Furthermore, this plan encourages clustering of development in sensitive areas, elevation of structures located in the floodplain, and preservation of open space in hazard-prone areas. At this time, the County has not developed a strategy to further integrate the concepts of this HMP into the Comprehensive Plan.

Buffalo County’s Zoning Ordinance was last updated in 2014, and it discourages development in the floodplain and identifies floodplain areas as parks of open space. The Ordinance also prohibits development with the floodways, prohibits the filling of wetlands, and discourages development near chemical storage sites. It also accounts for current population trends and limits population density in the floodplain.

The County Emergency Operations Plan is reviewed and updated annually. However, a major rewrite occurs every five years, last completed in 2014. The plan is an all-hazards plan that assigns specific responsibilities to individual communities. It also identifies scenarios that would require evacuation including critical evacuation routes, and routes vulnerable to flooding. Shelter locations are also included for each community in the County.

### ***MITIGATION STRATEGY***

#### **Completed Mitigation Actions**

<b>Improve Emergency Communication Systems</b>	
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Funding	Local funds in Elm Creek
Status	Completed in 2014.
Lead Agency	Emergency Management and Elm Creek

**Ongoing and New Mitigation Actions**

<b>Hazardous Fuels Reduction</b>	
Description	Create a defensible space around residential and non-residential buildings in fire prone areas and to perform hazardous fuels reduction
Hazard(s) Addressed	Grass/Wildfire
Estimated Cost	\$5,000+
Funding	PDM, Nebraska Forest Service, FP&S, AFG
Status	Not yet started.
Timeline	1-3 years
Priority	Medium
Lead Agency	Highway Department, Utilities, Local Fire Departments, Nebraska Forest Service

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000 - \$75,000+ per generator
Funding	Fire Department funds, HMGP, PDM, Local budget
Status	Communication towers have generators but most fire departments are still in need of generators.
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management, Fire Departments

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000 - \$100,000+ depending on project
Funding	County budget, PDM, FMA
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Planning and Zoning

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	County or local budget, HMGP, PDM
Status	Continue to replace sirens or adding sirens where needed. NWS obtained grant to give out NOAA weather radios to schools. Continue to work with TV, radio stations, social media, and other types of notification systems to notify the public.
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management, County Board, and Village Boards

	<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	HMGP, PDM, Local school funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Local School District, Emergency Management

	<b>Improve Electrical Service</b>
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	Public Power District (PPD)
Status	Ongoing in cooperation with PPD.
Timeline	Ongoing
Priority	Low
Lead Agency	NPPD, Dawson PPD, Planning and Zoning

	<b>Improve Response to Hazardous Materials (Hazmat) Incidents</b>
Description	Evaluate current hazardous materials response plan and procedures; implement improved or higher level response plans and procedures; obtain additional hazmat response equipment and material; train additional hazmat team members/maintain high training level for all hazmat team members
Hazard(s) Addressed	Chemical Spills
Estimated Cost	\$20,000
Funding	County Budget, Firefighter grants
Status	Ongoing. City of Kearney has taken over responsibility for continued training. The rest of the fire departments in the County receive ongoing training, maintenance, and new equipment as needed.
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management

	<b>Reduce Bottlenecks/Flow Restrictions</b>
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000+
Funding	County budget, PDM, FMA
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	Planning and Zoning, Highway Department

<b>Reduce Tree Damage &amp; Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	\$10,000+ dependent on project
Funding	County Budget
Status	Trees are regularly maintained.
Timeline	Ongoing
Priority	Medium
Lead Agency	Highway Department, PPD

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$0-\$5,000+
Funding	County Budget, HMGP
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas. Adopt future floodplain maps when they become available. Additional floodplain mapping/remapping.
Reason for Removal	County will continue to participate in program, however, this is no longer considered a hazard mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF AMHERST

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table AHT.1 provides the list of participating members that comprised the Amherst local planning team. Members of the planning team attended Round 1 and Round 2 meetings and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table AHT.1: Amherst Local Planning Team**

Name	Title	Department / Organization
Scott Fisher	Maintenance	Village of Amherst
Glen Brown	Fire Chief	Amherst Fire Department

**LOCATION AND GEOGRAPHY**

The Village of Amherst is located in the east-central portion of Buffalo County and covers an area of 0.22 square miles. Wood River is the major waterway in the area and is located south and west of the community.

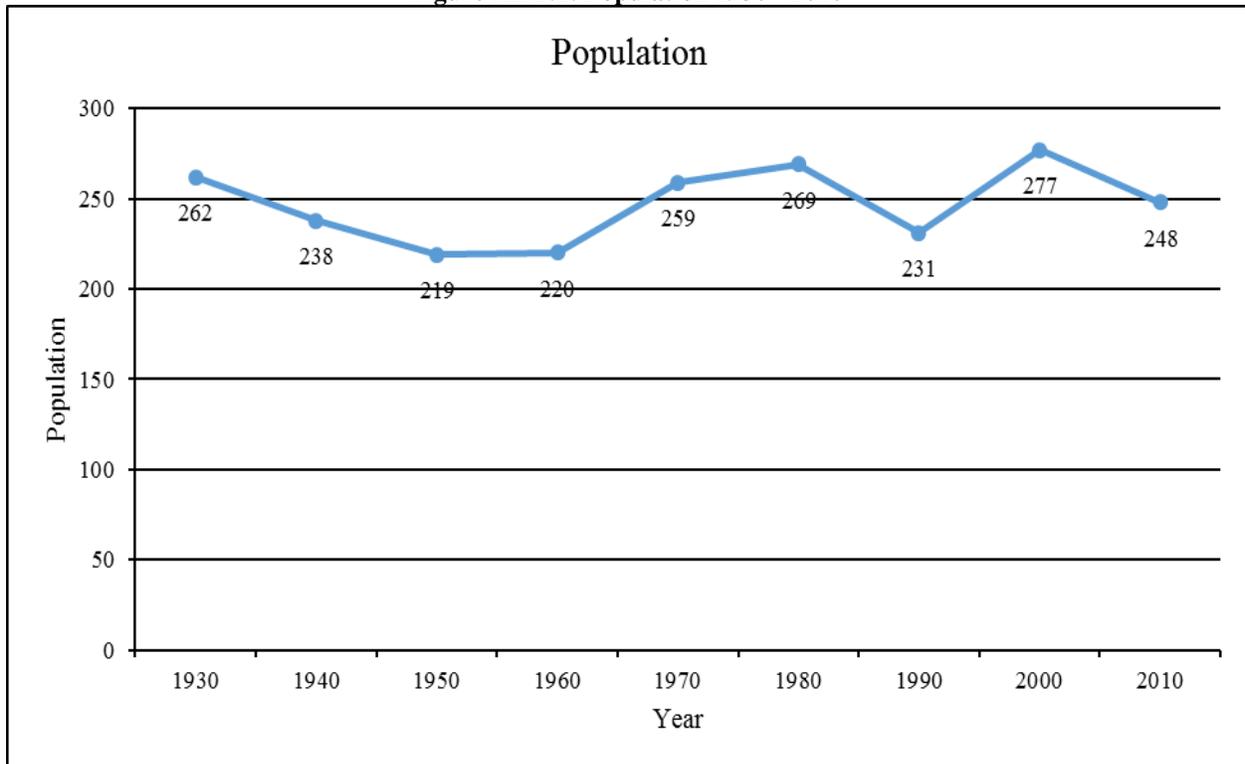
**TRANSPORTATION**

Amherst’s major transportation corridor is State Highway 40 with an average of 1,045 vehicles per day and 70 of those being heavy commercial vehicles. Amherst does not have a rail line that travels through the community.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. Amherst’s population has fluctuated over the past three decades, but most recently the population has decreased.

**Figure AHT.1: Population 1930 - 2010**



Source: U.S. Census Bureau

Figure AHT.2: Map of the Village of Amherst



The following table indicates that Amherst has a higher percentage of residents over the age of 64 when compared to the rest of the County.

**Table AHT.2: Population by Age**

Age	Village of Amherst	Buffalo County	State of Nebraska
<5	7.2%	7.2%	7.2%
5-64	76.2%	80.7%	79.2%
>64	17.7%	12.1%	13.6%
Median	46.3	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Amherst’s median household income is lower than the median income for Buffalo County. Amherst also has a lower median home value and median rent than the rest of the County.

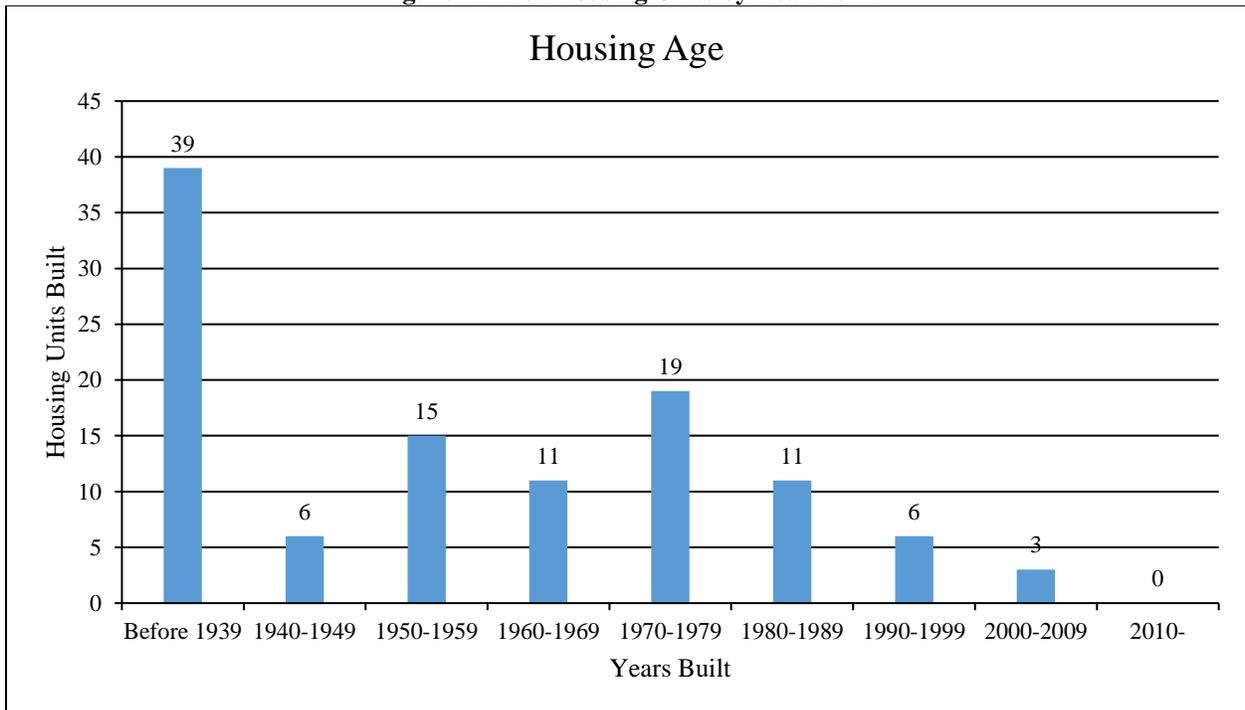
**Table AHT.3: Housing and Income**

	Village of Amherst	Buffalo County	State of Nebraska
Median Household Income	\$51,042	\$64,926	\$52,400
Per Capita Income	\$25,098	\$25,154	\$27,339
Median Home Value	\$96,900	\$142,800	\$130,100
Median Rent	\$467	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 110 housing units with 97.3 percent of those units occupied. The ACS 5-year estimates also report that approximately ten mobile homes are in the community. According to the local planning team, however, there are no mobile home parks in the Village. The initial Flood Insurance Rate Map (FIRM) was developed in September 1985.

**Figure AHT.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table AHT.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Amherst	107	97.3%	3	2.7%	91	85.0%	16	15.0%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the community are Belschner Custom Meats, Stockman’s Bar and Grill, and S&S Drywall. A large percentage of residents commute to work in Kearney.

**FUTURE DEVELOPMENT TRENDS**

In the past five years, S&S Drywall acquired a lot that used to house a gas station. Amherst hired a full-time maintenance person to care for all town buildings and grounds. No new structures were built in the floodplain. Census data suggests that Amherst’s population is declining, however, the local planning team disagrees. They report that the population could be on the rise, due to a new housing development in progress. The new housing subdivision is being built on the east side of town, south of Highway 40. The planning team also commented that people want to be part of the Amherst school district. There are no new businesses or industries planned for the next five years.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level for the community. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table AHT.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
138	\$5,953,060	\$43,138	5	\$151,770

Source: GIS Workshop/Buffalo County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are no chemical storage sites that house hazardous materials in Amherst.

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near the Village of Amherst.

**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table AHT.6: List of Critical Facilities in Amherst**

<b>CF Number</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in Floodplain (Y/N)</b>
1	Amherst Public Schools	206 Sycamore St	Y	N	N
2	Amherst Fire Department	302 S Ash St	N	N	N
3	Water Tower	Sycamore St	N	N	N
4	All Points Co-Op	300 S Main St	N	N	N
5	Amherst Community Center	115 N Main St	N	N	N
6	Post Office	119 N Main St	N	N	N
7	Village Office, Warning Siren	121 N Main St	N	N	N

Figure AHT.4: Critical Facilities with Floodplain



Created by JES  
 Date: 03/29/2017  
 Software: ArcGIS 10.3.1  
 File: 14490100 - Central Platte  
 NRD IIR Update

This map was prepared using information from records drawings supplied by JEO and/or other applicable city, county, federal, or public or private entities. JEO does not guarantee the accuracy of this map, or the information used to prepare the map. This is not a score sheet.

**Amherst**

2017 Hazard Mitigation Plan  
 Critical Facilities



### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

### ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

#### **Flooding**

The flood risk areas of concern for the Village of Amherst are local creeks, low road areas, and the sewer lagoon. The local planning team reports that the sewer lagoon is not able to keep up with demand, and needs to be relocated. The sewer lagoon is partially in the floodplain. A small northwest portion of the Village is impacted by this area.

Amherst is a member of the NFIP, but has 0 NFIP policies in-force. There are no repetitive flood loss properties in the community.

The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 3.6 percent of all parcel improvements in Amherst are located in the floodplain.

**Table AHT.7: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements in Community</b>	<b>Percentage of Improvements in Floodplain</b>
\$151,770	5	138	3.6%

Source: GIS Workshop/Buffalo County Assessor

Though Amherst has not experience any flooding events specific to their Village, one county-wide flooding event that occurred on May 11, 2005 caused \$2,000,000 in property damages across Buffalo County.

Amherst is planning to reduce their vulnerability to flooding by conducting a storm water drainage system study. Once the study is completed, the community plans to evaluate and implement the findings, thus controlling bottlenecks and flow restrictions, and improving storm and flood water capacity.

#### **Severe Thunderstorms**

According to the National Centers for Environmental Information (NCEI), there have been four severe thunderstorm events since 1996, which caused \$525,000 dollars in property damages. The Village is concerned about the potential of downed trees and power lines during severe thunderstorms. No power lines are buried. Amherst's Village generator is insufficient for the community, and the generator in the Fire Hall is only sufficient for that facility. The Fire Hall is the only critical facility with weather radios. Hazard mitigation projects identified by the planning team to address severe thunderstorms include identifying or building more community safe rooms.

#### **Severe Winter Storms**

There were six winter storms that resulted in death, injury, or more than \$100,000 in property damages in Buffalo County. The first of these storms occurred on February 10, 1999. Three inches of snow and wind gusts over 50 mph caused severe blowing and drifting snow, which resulted in two injuries from vehicular accidents and \$10,000 in property damages. A blizzard on November 28, 2005 caused a significant number of road closures, damages, and power outages across the County. These included: the closing of railways

and 220 miles of Interstate-80; power outages for over 5,000 customers and \$1,000,000 in losses for the Nebraska Public Power District; 60 damaged irrigation pivots resulting in \$250,000 in damages; school closures; and lost cattle. Three months later, on March 21, 2006, another winter storm caused \$200,000 in damages. Two injuries and five deaths were sustained, along with \$20,000 in property damages when freezing drizzle in November 2006 caused numerous car accidents. On December 19, 2006 a second ice storm caused \$400,000 in property damages from broken tree limbs, power lines, power poles, and power outages. The final severe winter storm to occur in the vicinity of Amherst was in December 8, 2011, when slick roads caused two fatalities in a vehicle accident. Based on previous severe winter storm impacts, the Village is concerned about power outages, and the need for backup generators. All of the Village's power lines are above ground. There are no designated snow routes nor snow fences in the community. The Village is responsible for snow removal and equipment is sufficient at this time. To mitigate the risk of power failure during blizzards, the community has identified backup power generators and burial of power lines as mitigation projects.

### **Tornadoes and High Winds**

There have been no reports of high winds or tornadoes in the Village of Amherst. However, the Village is concerned about electrical distribution during a high wind event which could require structural repairs, potentially impacting elderly residents more severely. Although tornadoes have not directly hit the Village since at least 1996, there have been several tornadic events, which have hit near the Village. In June of 2011, an EF3 tornado west of Amherst destroyed three homes, and downed electrical transmission lines. There were no personal injuries reported. The planning team noted that there are no true safe rooms in the Village, but the local high school has a basement level that can provide shelter for some. That space, however, cannot hold a large volume of people. Post-impact, community members take shelter in the Fire Hall and in the Community Hall when necessary. However, space is limited. Text alerts are offered for the Village, but there are no other educational outreach activities about high winds or tornadoes conducted in the community. The Village has Mutual Aid agreements with all of Buffalo County. Amherst plans to mitigate the risks associated with tornadoes and high winds by identifying or building community safe rooms and installing back up power generators.

### **Wildfire**

The local planning team ranked wildfire as a top concern in Amherst because of their insufficient fire suppressing infrastructure. Amherst has a volunteer fire department for fire response, but not all fire hydrants in Amherst are functional. Between 2007 and 2012, there were 458 reported wildfires and 4,195.4 acres burned in Buffalo County, and 31 urban fires requiring response from the Amherst Volunteer Fire Department in Amherst. Future opportunities for fire mitigation in Amherst include having a Wildland Urban Interface Code, encouraging defensible spaces around structures, and developing local incentive programs for landowners to use ignition-resistant material during construction. The current plan for mitigation is to install new fire hydrants.

## ***GOVERNANCE***

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Amherst is governed by a Chairperson and a five member Village Board. Furthermore, Amherst has a number of offices or departments that may be involved in implementing hazard mitigation initiatives;

- Clerk/Treasurer
- Fire Department
- Engineer
- Maintenance

**CAPABILITY ASSESSMENT**

Thus far the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table AHT.8: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	Yes
	Economic Development Plan	Under Development
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes

Survey Components/Subcomponents		Yes/No
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table AHT.9: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Amherst has an annex to the Buffalo County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, identifies critical evacuation routes and locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village’s Zoning Ordinance was last updated in 2000 and incorporates some of the goals and objectives included in the HMP. The Zoning Ordinance discourages development in the floodplain, identifies floodplain areas as parks for open space, and prohibits development within the floodways. Furthermore, the ordinance discourages development near chemical storage sites and along major transportation routes, and also limits development in the extraterritorial jurisdiction.

Amherst also has a Capital Improvements Plan, which contains plans for regular maintenance for drainage structures, installation of water meters for residential structures, construction of a new Fire Hall, and improvements to the existing public works facility and community center. The Capital Improvements Plan

also includes a plan to either improve or build a new waste water treatment plant. Future updates to the plan include: storm water projects; upsizing of culverts and drainage structures; updating electrical distribution system; burying power lines; and installing emergency generators in critical facilities.

There are currently no plans to further integrate hazard mitigation into existing planning mechanisms.

## **MITIGATION STRATEGY**

### **Completed Mitigation Actions**

	<b>Improve Emergency Communication Systems</b>
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Status	Completed July 2016.
Location	Fire Department

### **Ongoing and New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	General town funds, HMGP, PDM
Status	Ongoing - The Village has a generator, but it will not connect with the setup they have now. The Village needs a new generator that matches that direct connect setup.
Timeline	1 year
Priority	High
Lead Agency	Maintenance

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	General town funds, Fire Department funds, HMGP
Status	Siren has recently undergone maintenance. The Village needs handheld radios.
Timeline	1 year
Priority	Medium
Lead Agency	Maintenance

<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$150/sf for retrofit, \$300/sf for new construction
Funding	General town funds, HMPG, PDM
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Maintenance

<b>Improve Electrical Service</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	General town funds, Public Power District funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Maintenance

<b>Reduce Bottlenecks/Flow Restrictions</b>	
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000
Funding	General town funds, PDM, FMA
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Maintenance

<b>Reduce Property Damage by Improving Sanitary and Storm Sewer System</b>	
Description	Conduct sanitary and storm sewer system study; evaluate and implement recommendations or comparable measures
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-\$100,000+ depending on project
Funding	General town funds
Status	Some flow studies have been completed.
Timeline	2-5 years
Priority	High
Lead Agency	Maintenance

<b>Reduce Flood/Water Damage to Roads and Property</b>	
Description	Evaluate current control grade structures and implement measures to add/improve grade control structures including bridges, approaches and culverts
Hazard(s) Addressed	Flooding
Estimated Cost	+\$25,000
Funding	General town funds
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Maintenance

<b>Improve Flood and Stormwater Detention/Retention Capacity</b>	
Description	Evaluate current stormwater and flood water capacity; implement measures to improve flood water and stormwater capacity
Hazard(s) Addressed	Flooding
Estimated Cost	\$25,000-\$100,000+
Funding	General town funds, HMGP, PDM
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Maintenance

<b>Replace Fire Hydrants</b>	
Description	Purchase and install fire hydrants to replace those with failing functionality
Hazard(s) Addressed	Wildfire and Urban Fire
Estimated Cost	\$5,000/ hydrant
Funding	General town funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Public Works and Fire Department

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	Village will continue to participate in program, however this is no longer considered a hazard mitigation action.

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF ELM CREEK

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### LOCAL PLANNING TEAM

Table EMC.1 provides the list of participating members that comprised the Elm Creek local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table EMC.1: Elm Creek Local Planning Team**

Name	Title	Department / Organization
Jim Gunderson	Board Chairman	Elm Creek
Clint Carr	Utilities Superintendent	Elm Creek
Wendy Clabough	Clerk and Treasurer	Elm Creek
Carol Jorgensen	Rescue Chief	Elm Creek Fire and Rescue
Ronald Knapp	Assistant Rescue Chief	Elm Creek Fire and Rescue

### LOCATION AND GEOGRAPHY

The Village of Elm Creek is located in the southwestern portion of Buffalo County and covers an area of 0.70 square miles. Major waterways in the area include the Platte River, Elm Creek, and the Elm Creek Canal.

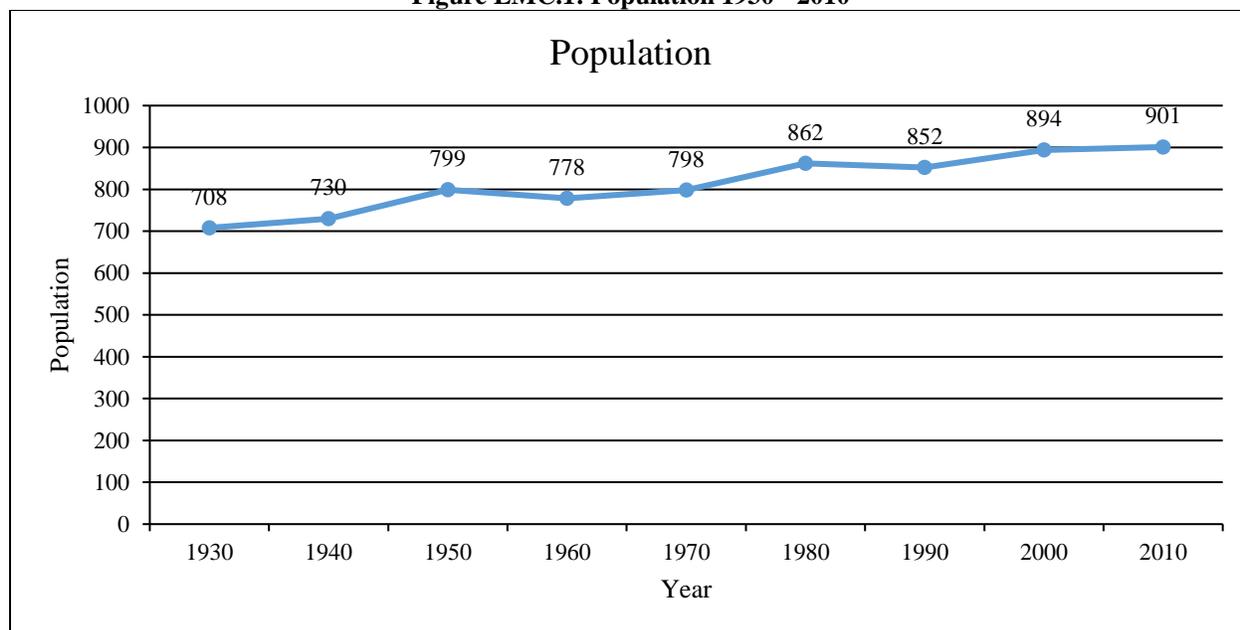
### TRANSPORTATION

Elm Creek’s major transportation corridors include U.S. highways 30 and 183. U.S. Highway 30 has on average 3,410 vehicles per day with 310 of those being heavy commercial vehicles. U.S. Highway 183 has on average 2,385 vehicles per day with 520 of those being heavy commercial. The Union Pacific Railroad has rail lines that travel through the southern portion of the community.

### DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. Elm Creek’s population has been increasing since 1990.

**Figure EMC.1: Population 1930 - 2010**



Source: U.S. Census Bureau

Figure EMC.2: Map of the Village of Elm Creek




  
 Created by: JES  
 Date: 2/16/2017, 10:55  
 File: 0400000 - Central Platte  
 NRD IMA Update  
 This map was prepared using information and drawings supplied by JES and/or other applicable city, county, federal, or public or private entities. JES does not guarantee the accuracy of this map or the information used to prepare this map. This is not a scale plot.

**Elm Creek, Nebraska**  
 Central Platte Natural Resources District  
 2017 Hazard Mitigation Plan

**Legend**  
 Corporate Limits  
 Planning Area  
 County  
 River

The following table indicates the Village of Elm Creek, when compared to the County, has a higher percentage of children under the age of five and residents over the age of 64.

**Table EMC.2: Population by Age**

Age	Village of Elm Creek	Buffalo County	State of Nebraska
<5	8.3%	7.2%	7.2%
5-64	78.2%	80.7%	79.2%
>64	13.4%	12.1%	13.6%
Median	32.0	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Elm Creek’s median household income is significantly lower than the median income for Buffalo County. Elm Creek’s median home values and rent are also lower than the rest of the County.

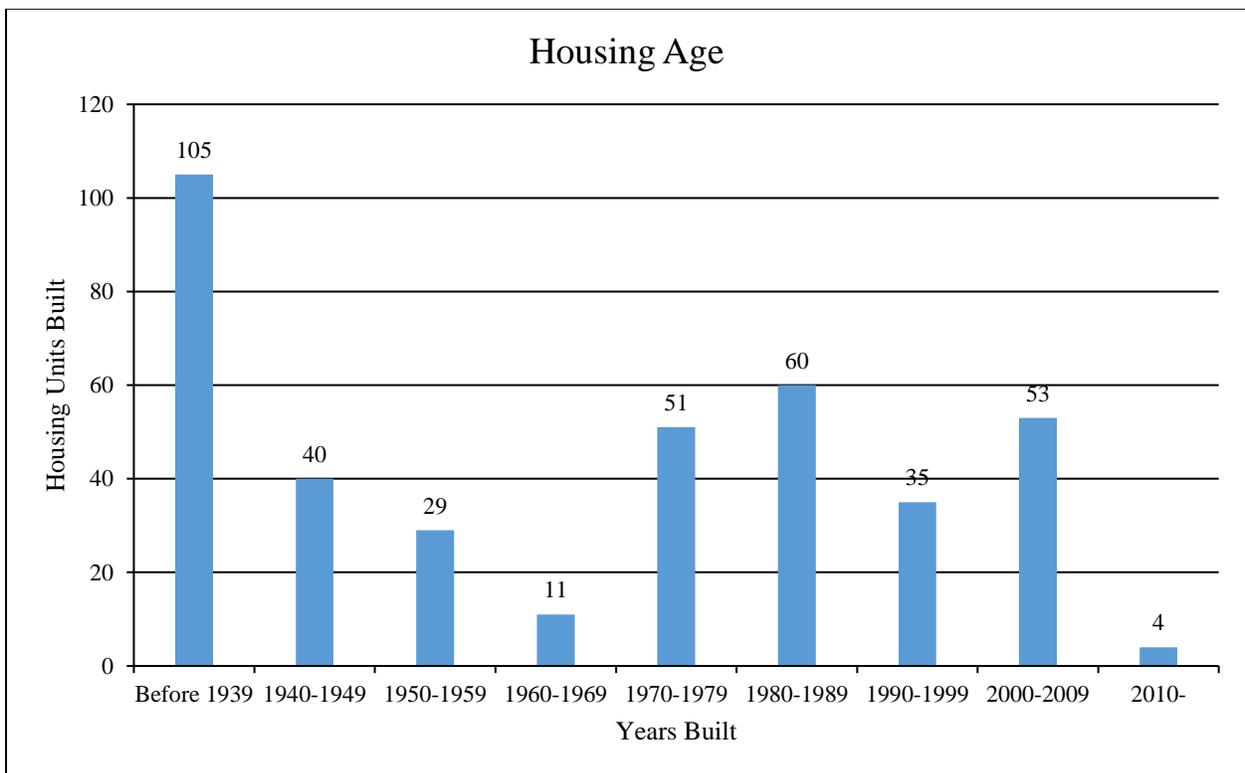
**Table EMC.3: Housing and Income**

	Village of Elm Creek	Buffalo County	State of Nebraska
Median Household Income	\$46,528	\$64,926	\$52,400
Per Capita Income	\$21,625	\$25,154	\$27,339
Median Home Value	\$92,500	\$142,800	\$130,100
Median Rent	\$650	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 388 housing units with 89.2 percent of those units occupied. There are approximately 72 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in August 1987.

**Figure EMC.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table EMC.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Elm Creek	346	89.2%	42	10.8%	238	68.8%	108	31.2%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the Village of Elm Creek are public education and agricultural business. Elm Creek Public Schools, KAAPA Grains, CHS Agri Service Center, and Ag Dryer Services are the major employers of Elm Creek. A large percentage of residents also commutes to Kearney, Holdrege, and Lexington for work.

**FUTURE DEVELOPMENT TRENDS**

In the last five years, there has been a new street added to Elm Creek, (called West Elm St.,) and the Western Alfalfa Hay mills have been demolished. According to the local planning team, Elm Creek’s population has been increasing due to the quality of the school system, the small community size, and the many public facilities, such as the park and swimming pool. No new businesses, industry, or housing developments are planned for the next five years. However, if development is to occur, it is recommended that the Village of Elm Creek prohibit any future development in the floodplain.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table EMC.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
337	\$34,097,425	\$101,179	19	\$2,831,275

Source: GIS Workshop/Buffalo County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there is one chemical storage site that houses hazardous materials in Elm Creek. This chemical storage site is not located in the floodplain (Figure EMC.5).

**Table EMC.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
CHS Agri Service Center	515 W Front St	No

Source: Nebraska Department of Environmental Quality



**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Elm Creek.

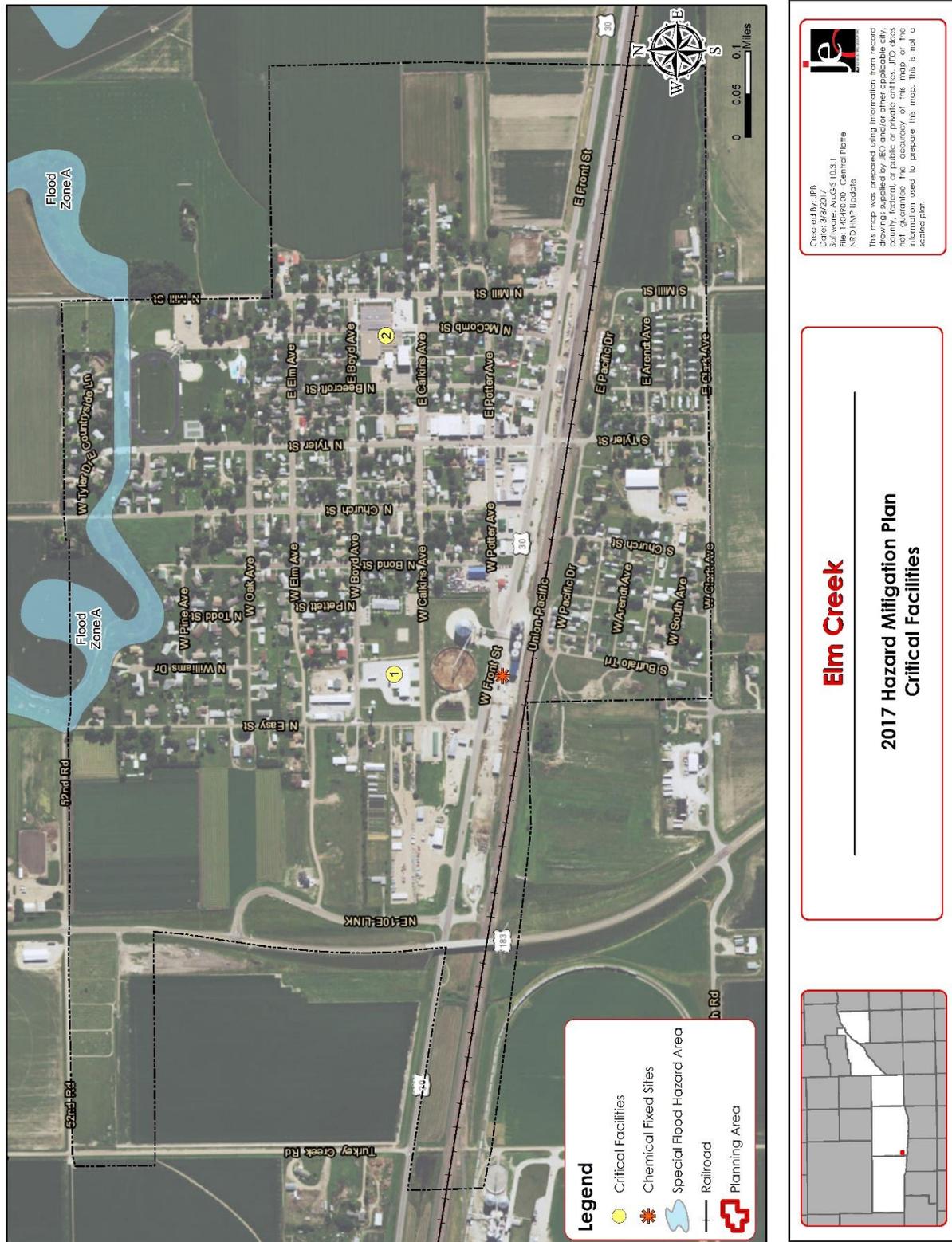
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table EMC.7: List of Critical Facilities in Elm Creek**

CF Number	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Village Hall/Fire Station	535 West Boyd Ave	N	Y	N
2	Elm Creek School #9	230 East Calkins Ave	Y	Y	N

Figure EMC.5: Critical Facilities and Hazardous Material Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spills (Transportation)**

Local concerns over chemical spills during transport center around Elm Creek’s ability to evacuate and provide medical care. The only serious chemical release event occurred in 1974, when a vehicular crash (releasing 8,355 LGA of gasoline) ended in one death and four injuries. Since that event, there have been three other chemical release incidents in Elm Creek, none of which were serious incidents.

The transportation routes of most concern are Highway 183, Highway 30, the railroad, and Interstate-80. A large variety of chemicals are regularly transported on these routes. The elementary school, Fire Hall, and village hall are all located within a quarter mile of Highway 30. The Village intends to work with the Fire Department and County Emergency Management to conduct a tabletop exercise on a chemical transportation spill scenario.

**Flooding**

The flood risk areas near the Village of Elm Creek are located north and east of the Village. The local planning team commented that Southwest Buffalo County is most prone to flooding, and the low-lying Village of Elm Creek is prone to flooding. Turkey Creek, Elm Creek, and Highway 183 to the Platte River all have tendencies to flood.

Elm Creek has two NFIP policies in-force for \$424,000. There are no repetitive flood loss properties in the Village. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 5.6 percent of all parcel improvements in Elm Creek are located in the floodplain.

**Table EMC.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$2,831,275	19	337	5.6%

Source: GIS Workshop/Bufalo County Assessor

NCEI reported four flooding events for Elm Creek from 2013-2015, which caused \$85,000 dollars in property damages. The local planning team cited significant flooding events from 2003 through 2007. One of these was a county-wide flooding event that resulted in \$2,000,000 in property damages across Buffalo County. During this time, flooding affected the community and businesses, including Fosters Family Foods. Furthermore, houses were jeopardized, animals needed to be rescued, and countless sandbags were filled and strategically placed to mitigate the flooding.

Elm Creek has improved their recurring flooding issues along North Tyler Street, and has identified providing educational material to community residents as a mitigation project. This project will work to better inform the public about ways to protect themselves from flooding.

### **Severe Thunderstorms**

The local planning team identified severe thunderstorms, with accompanying hail and high winds, as a top concern for the Village. NCEI reported nine severe thunderstorm wind events since 1996. Official reports accounted for \$2,595,000 dollars in property damage from those events. In the early 1980s, and again in 2004 and 2005, the Village of Elm Creek experienced 100mph winds. Elm Creek does not have any safe rooms or places for community members to seek shelter during severe thunderstorm events. The Village is in the process of backing up municipal records. Buffalo County's Emergency Management offers severe weather alerts through email and Facebook. The Village has sent newsletters to community members with information about sirens and their important purpose.

### **Severe Winter Storms**

The local planning team cited several severe winter storms that have impacted the community. In December 2007, a regional ice storm occurred so severely that Elm Creek opened a shelter for other communities who lost power for extended periods of time. This storm resulted in \$20,000 in property damages across Buffalo County. On February 2, 2016, there was a great accumulation of heavy snow, and conditions worsened through high winds and drifting snow. Roads were impassable, power outages occurred, and emergency response teams responded slowly to 911 calls because of the dangerous conditions. Despite the danger, there were no property damages resulting from this storm. The local planning team is concerned with severe winter storms because of power outages, infrastructure damages, transportation issues, and the lack of effective sheltering. Only ten percent of the Village's power lines are buried, and they do not use snow fences. The Village is responsible for snow removal, and equipment is sufficient at this time. The designated snow routes in Elm Creek are Tyler Street, Potter Avenue, and Calkins Street.

### **Tornadoes**

There have been four tornadoes since 1998 that impacted the Village of Elm Creek, causing a combined total of \$7,080,000 dollars in property damages. One tornadic event in 2011, which was rated an EF3, heavily damaged two houses, many roofs, sidings, windows, and trees. One person was injured when a semi overturned west of the Village. Elm Creek has installed backup power generators at the school and the combined Village Hall and Fire Hall. Weather radios are available at the school and Fire Hall, and tornado sirens were improved in 2007. The Village utilizes the community's website and newsletter to share hazard information to residents.

## ***GOVERNANCE***

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Elm Creek is governed by a Chairperson and a five member Village Board. Furthermore, Elm Creek has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Utility Superintendent
- Fire Department
- Sewage Plant Operator
- Street Commissioner
- Water Commissioner
- Engineer

**CAPABILITY ASSESSMENT**

Thus far the planning process has identified the major hazards for the community and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table EMC.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes (County)
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	No
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	No
	Applied for grants in the past	No

Survey Components/Subcomponents		Yes/No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
Other (if any)		

**Table EMC.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Limited to Moderate

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Village of Elm Creek has a Comprehensive Plan and Zoning Ordinance, which includes Floodplain Regulations. The Village’s Comprehensive Plan, last updated in 2004, directs development away from the floodplain, encourages preservation of open space in hazard-prone areas, and limits density in areas adjacent to known hazardous areas.

Elm Creek has an annex to the Buffalo County Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, identifies critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Elm Creek Zoning Ordinance, last updated in 2011, discourages development in the floodplain, requires one-foot of elevation above base flood elevation, identifies floodplain areas as parks of open space, and prohibits development in the floodway.

There are currently no plans to further integrate hazard mitigation into existing planning mechanisms.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	All Hazards
Funding	General town funds
Location	535 West Boyd Avenue (Village Hall/Fire Hall)
Status	Completed in 2005.

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Events</b>	
Description	Improve drainage in Elm Creek; evaluate and implement recommendations of storm water master plan; reduce stormwater flow bottlenecks/flow restrictions; evaluate and improve storm water system; evaluate and improve flood proofing of critical facilities; evaluate and improve bank stabilization of Elm Creek
Hazard(s) Addressed	Flooding
Location	N. Tyler St.
Funding	General town funds
Status	Completed in 2008/2009.

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Location	535 W. Boyd Ave (Village Hall/Fire Hall)
Funding	Keno Funds
Status	Completed in 2014.

<b>Develop Emergency Snow/Evacuation Routes</b>	
Description	Develop or improve snow and evacuation routes and programs to include parking, snow/ice/debris removal, etc.; obtain and install snow emergency route and evacuation signs; provide information on emergency routes to the public; construct snow fences where possible on main routes to prevent snow from disrupting transportation
Hazard(s) Addressed	Severe Winter Storms
Location	Maps of snow routes located in Utility Superintendent's Office
Funding	Street Funds
Status	Completed 1980, Updated 2006.

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Location	535 W. Boyd Ave / E. Pacific and S. Beecroft Sts./City Park
Funding	General Funds
Status	Completed in 2007.

### Ongoing and New Mitigation Actions

	<b>Conduct Water Supply Study</b>
Description	Evaluate the need to expand water storage capacity through new means (new water tower, stand pipe, etc.) or locate new water resources to provide a safe water supply for the community and nearby rural areas during periods of drought
Hazard(s) Addressed	Drought
Estimated Cost	\$30,000
Funding	Water Fees, Water Sustainability Fund, Water Smart grant
Timeline	Not yet started.
Priority	High
Lead Agency	Village Board, Water Commissioner
Status	Not yet started.

	<b>Community Education and Awareness</b>
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$1,000+
Funding	General town funds
Timeline	Ongoing
Priority	High
Lead Agency	Maintenance
Status	Ongoing. Use website and newsletter to provide information.

	<b>Emergency Exercise: Hazardous Spill</b>
Description	Utilize exercise to prepare for potential explosions or hazardous spills; ensure that nearby businesses and residents have appropriate plans in place
Hazard(s) Addressed	Chemical Spills
Estimated Cost	\$5,000+
Funding	General town funds, EMPG
Timeline	2-5 years
Priority	Low
Lead Agency	Fire Department
Status	Not yet started.

**Removed Mitigation Actions**

<b>Improve Electrical Service</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Reason for Removal	The local planning team reported that NPPD is responsible for Elm Creek’s electrical service.

<b>Improve Flood and Stormwater Detention/Retention Capacity</b>	
Description	Evaluate current stormwater and flood water capacity; implement measures to improve flood water and stormwater capacity
Reason for Removal	The local planning team decided not to prioritize this action.

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	The Village will continue to participate in the NFIP, however this is no longer considered a mitigation action.

<b>Reduce Tree Damage and Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Reason for Removal	The local planning team decided not to prioritize this action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE

CITY OF GIBBON

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table GBN.1 provides the list of participating members that comprised the Gibbon local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table GBN.1: Gibbon Local Planning Team**

Name	Title	Department / Organization
Chris Rector	City Administrator	City of Gibbon

**LOCATION AND GEOGRAPHY**

The City of Gibbon is located in the southeastern portion of Buffalo County and covers an area of 0.87 square miles. The major waterway in the area is the Wood River.

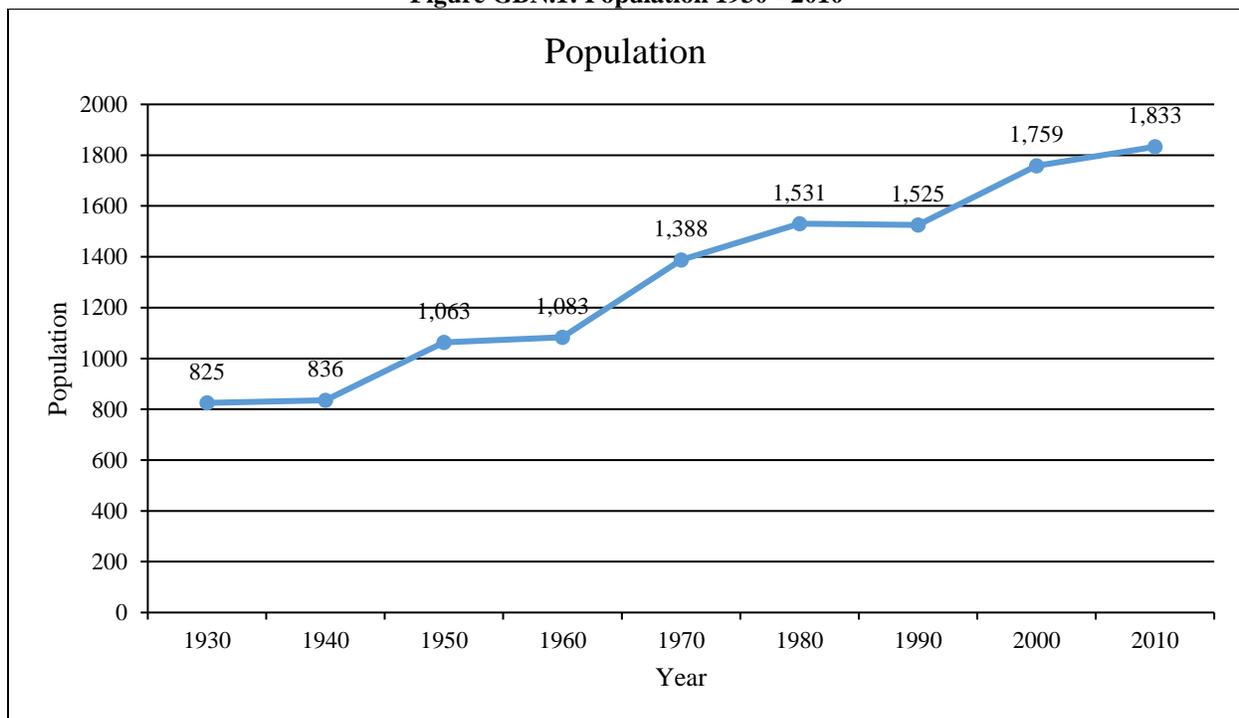
**TRANSPORTATION**

Gibbon’s major transportation corridors include U.S. Highway 30 and Nebraska Highway 10C. U.S. Highway 30 has on average 4,995 vehicles per day with 365 of those being heavy commercial vehicles. Nebraska Highway 10C has on average 1,445 vehicles per day with 140 of those being heavy commercial vehicles. The Union Pacific Railroad has rail lines that travel through the northern portion of the community along U.S. Highway 30.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. Gibbon’s population has been generally increasing since 1930.

**Figure GBN.1: Population 1930 - 2010**



Source: U.S. Census Bureau



The following table indicates the City of Gibbon has a higher percentage of residents under the age of five and over the age of 64 when compared to the rest of the County. The median age is almost two years older than Buffalo County.

**Table GBN.2: Population by Age**

Age	City of Gibbon	Buffalo County	State of Nebraska
<5	8.5%	7.2%	7.2%
5-64	77.2%	80.7%	79.2%
>64	14.3%	12.1%	13.6%
Median	34.4	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Gibbon’s median household income is over \$20,000 less than the median income for Buffalo County. Gibbon’s median home value is also lower than the County’s, but median rent costs are similar.

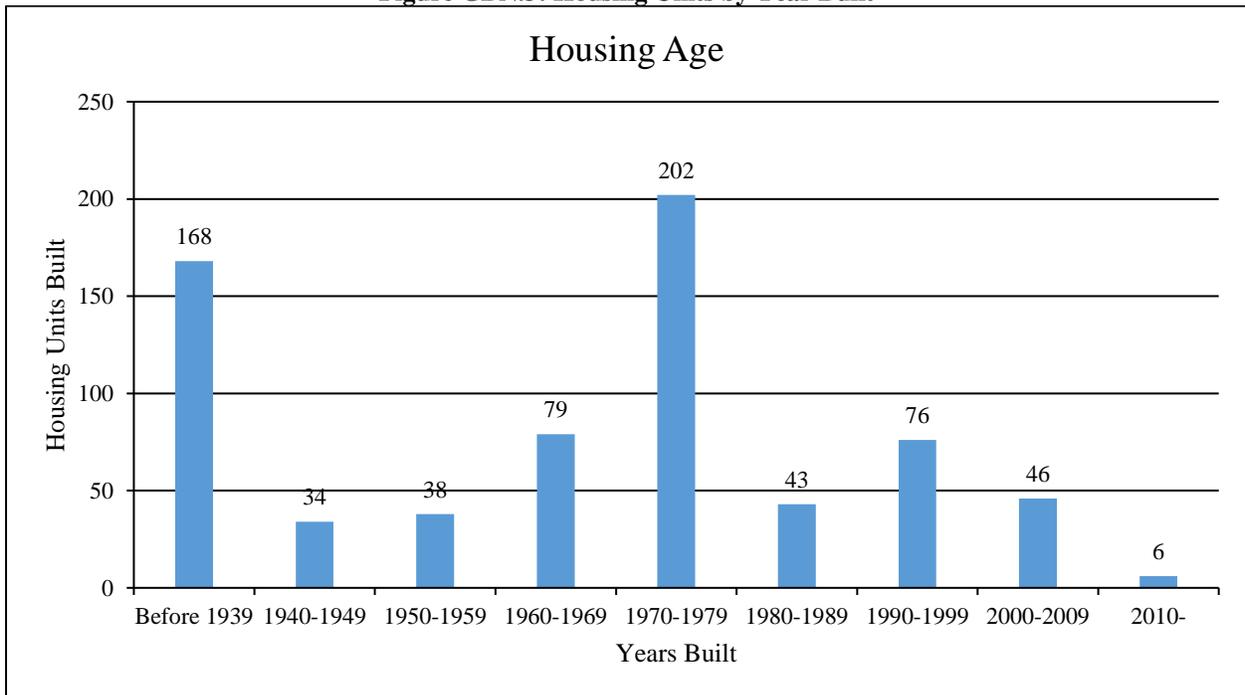
**Table GBN.3: Housing and Income**

	City of Gibbon	Buffalo County	State of Nebraska
Median Household Income	\$41,250	\$64,926	\$52,400
Per Capita Income	\$17,512	\$25,154	\$27,339
Median Home Value	\$102,000	\$142,800	\$130,100
Median Rent	\$714	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 692 housing units with 92.3 percent of those units occupied. There are approximately 73 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in September 1985. Mobile homes are located at 1203 7<sup>th</sup> Street and 1115 7<sup>th</sup> Street.

**Figure GBN.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table GBN.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Gibbon	639	92.3%	53	7.7%	429	67.1%	210	32.9%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

### **MAJOR EMPLOYERS**

The major employers and industries in the City of Gibbon are the public school system, transportation, meat packing, and banking. Gibbon Public Schools, Nebraska Transport Company, Gibbon Pack, and Exchange Bank are major employers in Gibbon. A large percentage of residents commute to Kearney and Grand Island for work.

### **FUTURE DEVELOPMENT TRENDS**

In the last five years, Nebraska Turkey Growers was closed and demolished, and a housing subdivision that was built in 1936 now has 10 of the 12 lots occupied. According to the local planning team, Gibbon's new school and proximity to Kearney have contributed to the increase in population. There are no new businesses, industry, or housing developments planned for the next five years.

### **PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table GBN.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
574	\$60,014,835	\$104,555	27	\$5,735,605

Source: GIS Workshop/Buffalo County Assessor

### **CRITICAL INFRASTRUCTURE/KEY RESOURCES**

#### **CHEMICAL STORAGE FIXED SITES**

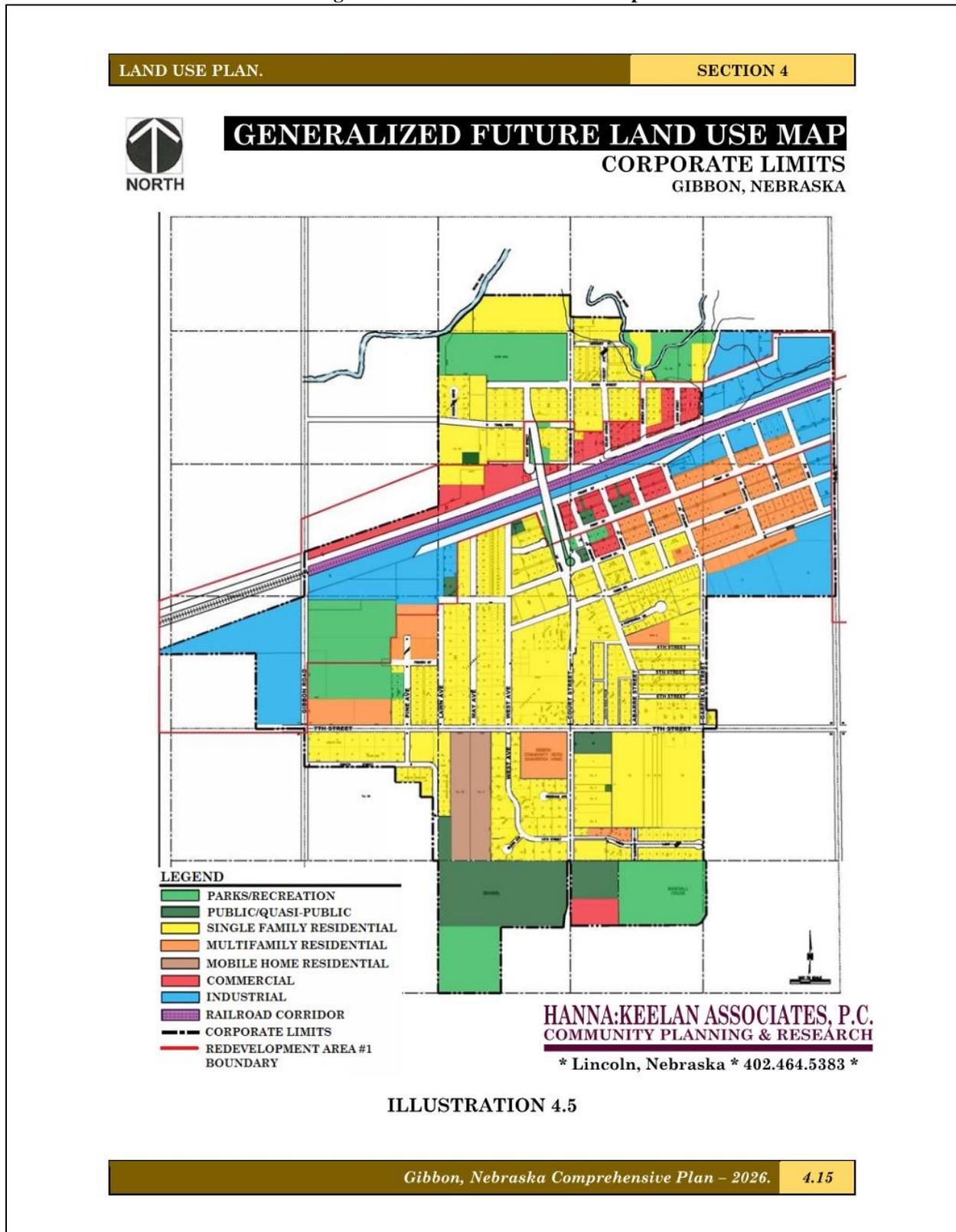
According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of five chemical storage sites that house hazardous materials in Gibbon. However, none of the chemical storage sites are located in the floodplain (Figure GBN.5).

**Table GBN.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Aurora Co-op Elevator Company	44740 Highway 30	No
CenturyLink	7420 Keystone Rd	No
Nebraska Central Telephone Co	22 La Barre St	No
The Andersons Inc.	6090 Optic Rd	No
United Suppliers Inc.	39560 39th Rd	No

Source: Nebraska Department of Environmental Quality

Figure GBN.4: Future Land Use Map



**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Gibbon.

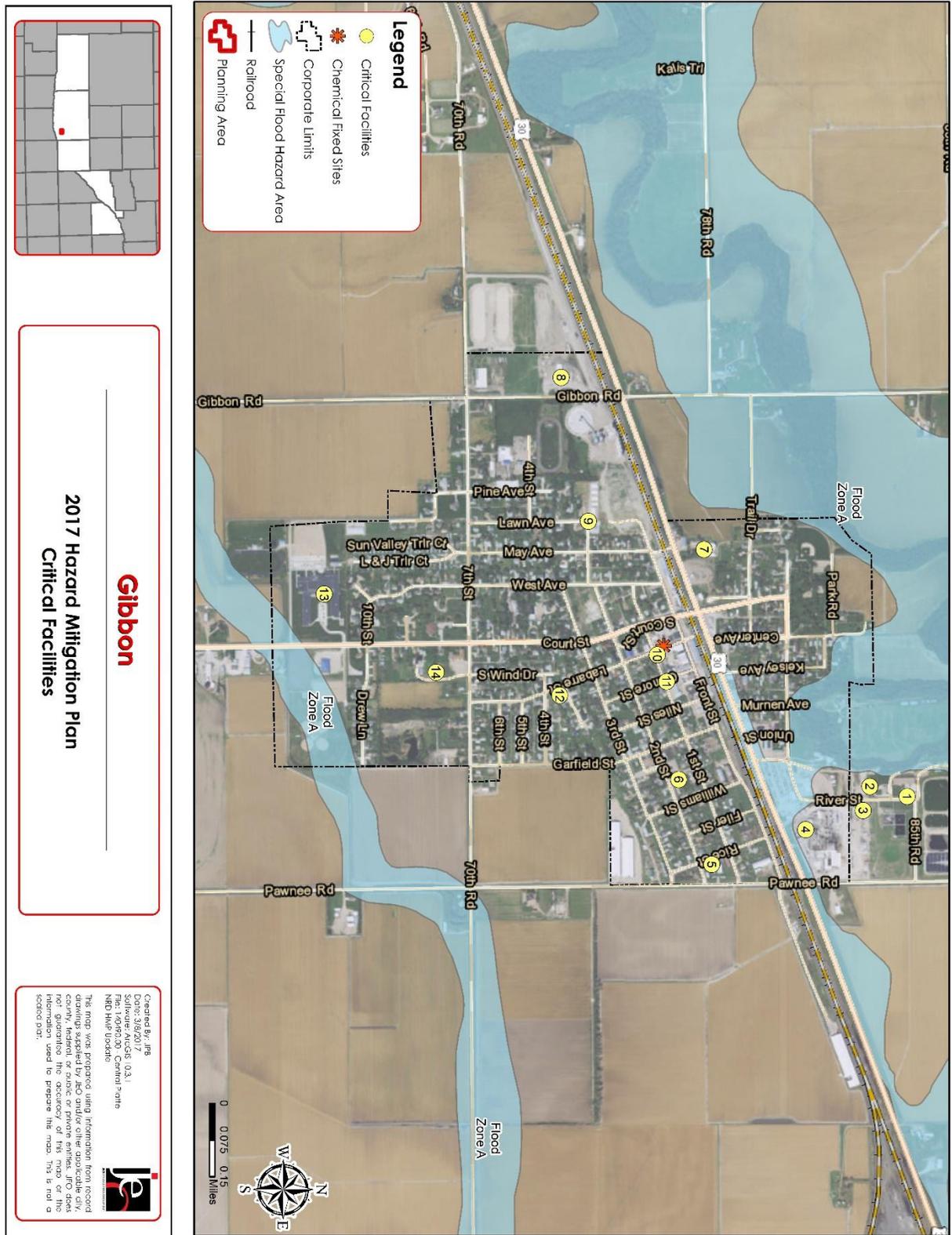
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table GBN.7: List of Critical Facilities in Gibbon**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Wastewater Treatment Plant	200 River St	N	Y	N
2	City Shop	220 River St	N	N	N
3	Pack Substation	201 River St	N	N	N
4	Gibbon Pack	218 Highway 30	N	N	N
5	Source Gas Border Station	Pawnee Road	N	N	N
6	Colony Acres	413 1 <sup>st</sup> Street	N	N	N
7	Water Station w/ Storage Tank	1121 Trail Drive	N	Y	N
8	Cargill	46750 70 <sup>th</sup> Rd	N	N	N
9	Turkey Plant Substation	None	N	N	N
10	Medical Clinic	814 1 <sup>st</sup> Street	N	N	N
11	Fire Hall	17 Gilmore Ave	N	Y	N
12	Electrical Power Station	4 <sup>th</sup> Street	N	N	N
13	Gibbon Public School	1019 Second St.	Y	N	N
14	Water Tower	908 7 <sup>th</sup> Street	N	N	N

Figure GBN.5: Critical Facilities and Hazardous Material Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spill (Transportation)**

The local planning team identified chemical transportation as a top concern for the City. Union Pacific Railroad’s main line runs through the middle of the City. Highway 30 is another route of concern. Chemicals are presumed to be transported daily by highway and railroad; however, the City is not sure which types of chemicals are being transported. According to the Pipeline and Hazardous Materials Safety Administration (PHMSA), there have not been any reports of chemical spills in Gibbon. Several critical facilities are located along these main transportation routes, including City Hall and a sewer lift station. Gibbon plans to mitigate the risk of chemical spills during transportation by improving their emergency communication system and educating the public about this potential hazard.

**Flooding**

The flood risk area of concern for the City of Gibbon is located north of the City and impacts a small portion of the City. The local planning team also identified the east part of the town as having been impacted by flooding events. Specific areas most prone to flooding include East Third street, Williams street, East Second street, Drew Lane, and the area around the local school. The biggest concern in the community is slow drainage due to drainage areas not being maintained.

Gibbon has five NFIP policies in-force for \$1,076,000. There are no repetitive flood loss properties in the City of Gibbon. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 4.7 percent of all parcel improvements in Gibbon are located in the floodplain.

**Table GBN.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$5,735,605	27	574	4.7%

Source: GIS Workshop/Bufallo County Assessor

Gibbon has experienced two flash floods since 1996, both caused by severe thunderstorms producing heavy rain. These floods have caused \$10,000 in property damages. There has also been one county-wide flooding event in May of 2005 that resulted in \$2,000,000 in property damages across Buffalo County. Gibbon has since improved their stormwater drainage systems and ordinances. Future plans to mitigate the risks associated with flooding include improving the backup and emergency generator system, improving the emergency communication system, and educating the public about flood hazards.

**Hail**

The planning team is concerned with the inability of those with inadequate insurance to repair their property. The NCEI reports 20 hail events since 1996 with the largest hail stone reported at 2.75 inches. The planning team referenced two dates, June and July of 2014, where hail events caused damages to all properties in the City. The Fire Hall has some shatterproof windows, but no other critical facilities are fitted

with hail resistant building materials. Gibbon’s critical facilities are insured. Gibbon intends to mitigate hail damage in their community by educating the public about the hazards associated with hail.

### **Severe Thunderstorms**

The local planning team identified severe thunderstorms as a top concern for the City. NCEI reported 11 thunderstorm wind events since 1996 with property damages topping \$4,130,000 dollars. In June and July of 2014, a severe thunderstorm event damaged every property in the City. Gibbon’s critical municipal records are protected with surge protectors, City Hall and City Shop have backup power generators, and the critical facilities have weather radios. Gibbon plans to improve, and add where necessary, public safe rooms to protect the community from thunderstorms.

### **Tornadoes**

The NCEI reports two tornadoes since 2005 in the City of Gibbon, causing \$75,000 dollars in property damages. The local planning team noted a lack of shelters for residents in the Trailer Courts. The City backs up their records, and takes them off site every day. The City has three sirens in the community, activated by Buffalo County Civil Defense. The County Emergency Management does offer text alerts, and has Mutual Aid with Kearney, Shelton, Ravenna, Minden, Wood River, and all other communities in Buffalo County. The identification and evaluation or creation of public safe rooms has been chosen as a hazard mitigation action for tornadoes.

## **GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Gibbon is governed by a Mayor and a four member City Council. Furthermore, Gibbon has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk
- Treasurer
- City Administrator
- Utility Superintendent
- Fire Department
- Sewage Plant Operator
- Planning Commissioner
- Street Superintendent

## **CAPABILITY ASSESSMENT**

Thus far the planning process has identified the major hazards for the communities and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table GBN.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes (2016)
	Capital Improvements Plan	No
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes (County)
	Floodplain Management Plan	Yes
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes (Contractor)
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	No
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table GBN.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Moderate

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Gibbon’s Comprehensive Plan, last updated in 2016, incorporates some of the goals and objectives included in the HMP. The plan encourages development away from major transportation routes, limits density in areas adjacent to known hazardous areas, and encourages preservation of open space in hazard-prone areas. Given the recent update, there are no current strategies to further incorporate the HMP into the Comprehensive Plan.

The City has a Floodplain Ordinance, which requires at least one-foot of elevation above base flood elevation in the floodplain and prohibits development in the floodway.

Gibbon has an annex to the Buffalo County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

### ***MITIGATION STRATEGY***

#### **Completed Mitigation Actions**

	<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Events</b>
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Location	River Street and south drainage
Funding	City Funds
Status	Completed in 2013-2014.

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by Project
Location	Davis Park New Siren
Funding	City Funds
Status	Completed in 2014.

**Ongoing and New Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	Tax money, City Revenues, NPPD Funds, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	City Hall
Status	In progress.

<b>Improve Emergency Communication Systems</b>	
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	City Funds
Timeline	5+ years
Priority	Low
Lead Agency	City Administrator
Status	Planning stage.

<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	City Funds, HMGP, PDM
Timeline	5+ years
Priority	Medium
Lead Agency	City Administrator
Status	Not yet started.

	<b>Community Education and Awareness</b>
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; Purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$1,000+
Funding	City Funds
Timeline	2-5 years
Priority	Low
Lead Agency	City Administrator
Status	Not yet started.

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	The City will continue to participate in the NFP, however this is no longer considered a mitigation action.

PARTICIPANT SECTION  
FOR THE

CITY OF KEARNEY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table KRY.1 provides the list of participating members that comprised the City of Kearney local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table KRY.1: City of Kearney Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Department / Organization</b>
Terry Eirich	Kearney Fire Inspector	City of Kearney
Max Richardson	Building Officer/Floodplain Administrator	City of Kearney
Paul Briseno	Assistant City Manager	City of Kearney
Coelette Gruber	Planner	City of Kearney
Andy Harter	Assistant Public Works Director	City of Kearney
Tony Jelinek	Director of Utilities	City of Kearney
Eric Hellriegel	Assistant Parks and Recreation Director	City of Kearney
Rod Wiederspan	Public Works Direction	City of Kearney
Shawna Erbsen	Director of Administrative Services	City of Kearney
Shelley Dennis	Risk Management Coordinator	City of Kearney
Daniel Lynch	Kearney Police Chief	City of Kearney
Sarah Sawin	Assistant Director of Utilities	City of Kearney

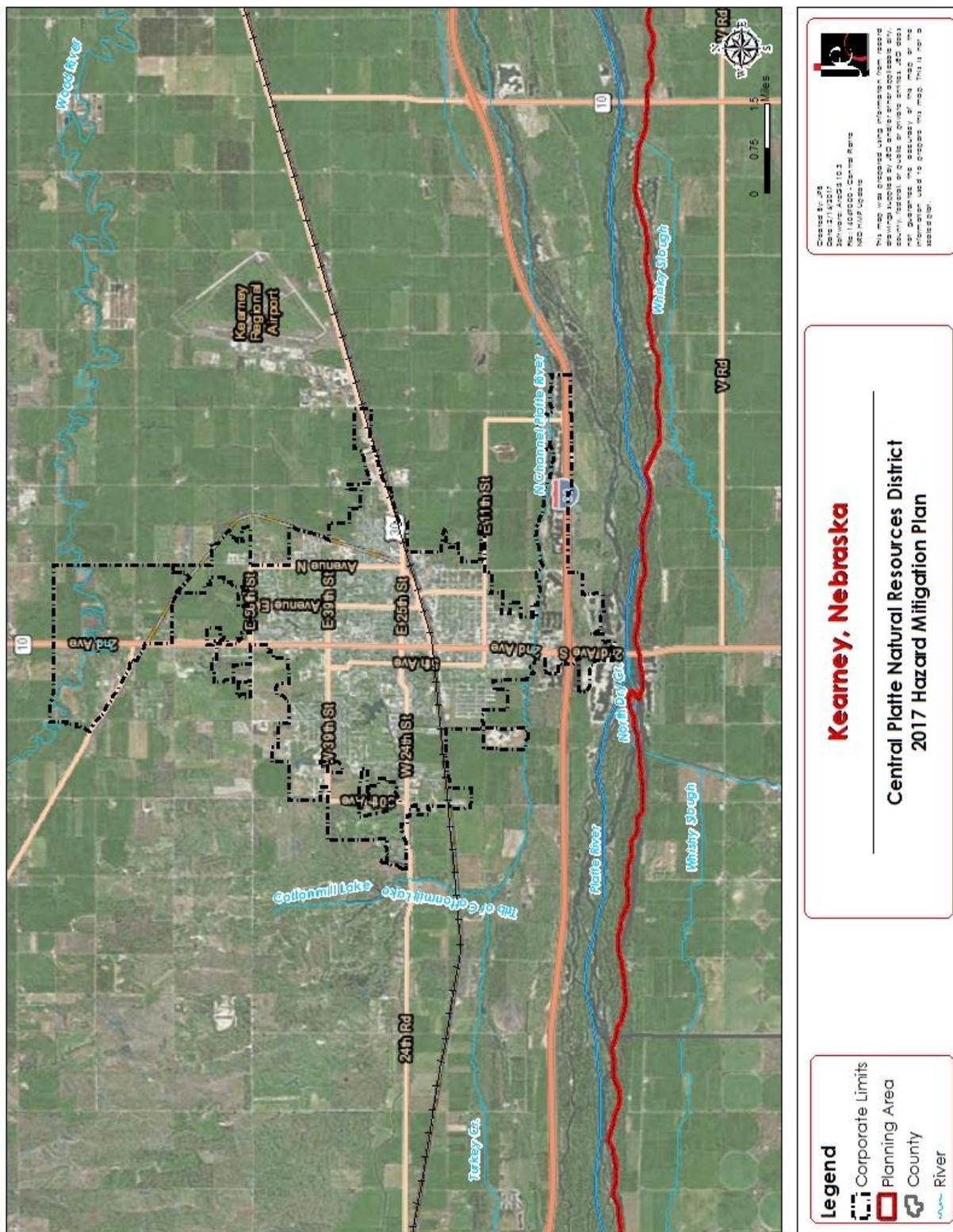
**LOCATION AND GEOGRAPHY**

The City of Kearney is located in the extreme south-central portion of Buffalo County and covers an area of 13 square miles. Major waterways in the area include the Platte River just south of the City, Cottonmill Reservoir, Kearney Reservoir, Yanney Lake, Lost Lake, and Hidden Lake.

**TRANSPORTATION**

The City of Kearney’s major transportation corridors include Interstate 80, U.S. Highway 30, and Nebraska Highway 10, which becomes Nebraska Highway 44. Interstate 80 has on average 17,715 vehicles per day with 7,075 of those being heavy commercial vehicles. U.S. Highway 30 has on average 17,880 vehicles per day with 580 of those being heavy commercial vehicles. Nebraska Highway 10 has on average 16,155 vehicles per day with 860 of those being heavy commercial vehicles. Kearney Regional Airport is located northeast of the City. The Union Pacific Railroad has rail lines that travel through the central portion of the community.

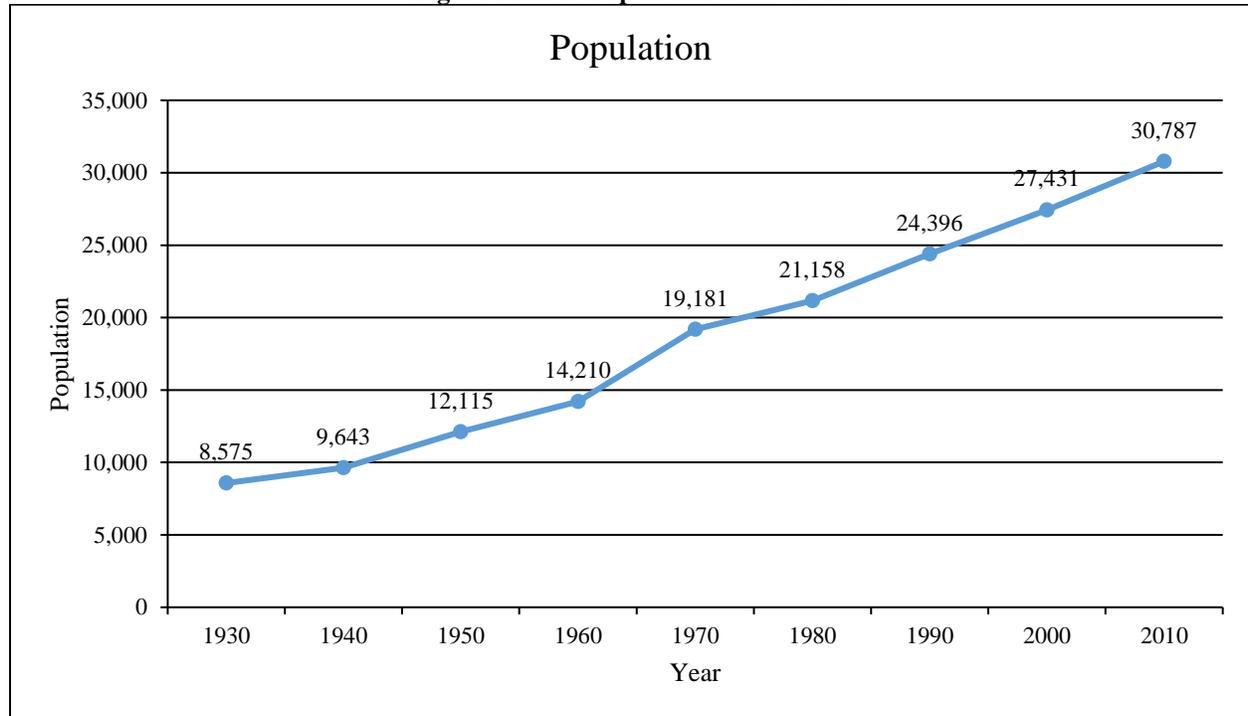
Figure KRY.1: Map of the City of Kearney



**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. Kearney’s population has been increasing since 1930.

**Figure KRY.2: Population 1930 - 2010**



Source: U.S. Census Bureau

The following table indicates that the City of Kearney, when compared to the rest of the County, has a slightly higher percentage of residents under the age of five and between the ages of five and 64. Kearney has a slightly lower percentage of residents over the age of 64 than Buffalo County.

**Table KRY.2: Population by Age**

Age	City of Kearney	Buffalo County	State of Nebraska
<5	7.5%	7.2%	7.2%
5-64	81.4%	80.7%	79.2%
>64	11.1%	12.1%	13.6%
Median	29.6	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Kearney’s median household income and per capita income are less than the median for the County, but median home values are similar to the County.

**Table KRY.3: Housing and Income**

	City of Kearney	Buffalo County	State of Nebraska
Median Household Income	\$48,433	\$64,926	\$52,400
Per Capita Income	\$24,918	\$25,154	\$27,339
Median Home Value	\$143,900	\$142,800	\$130,100
Median Rent	\$713	\$706	\$721

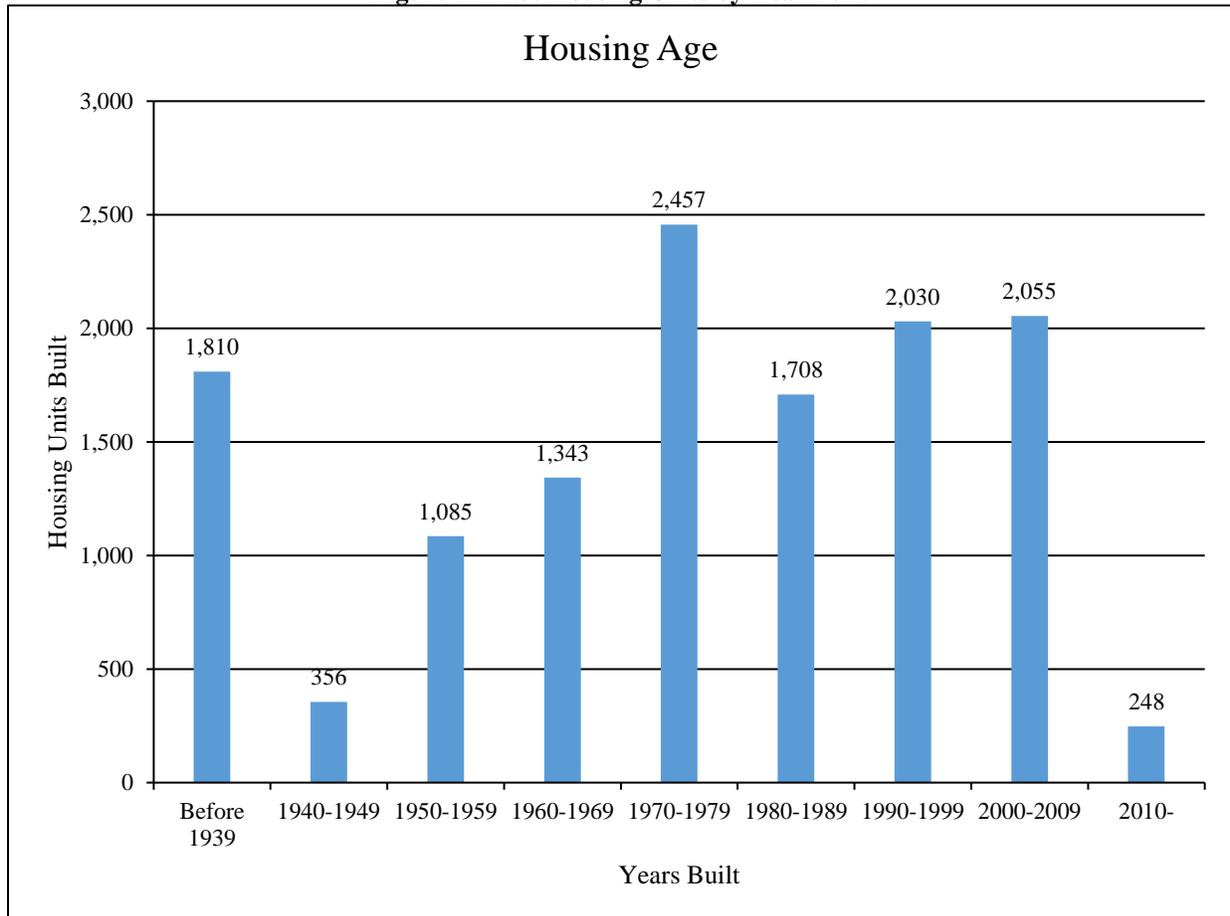
Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 13,092 housing units with 94.3 percent of those units occupied. There are approximately 814 mobile homes in the community. The following table lists the mobile home courts located in Kearney. The initial Flood Insurance Rate Map (FIRM) was developed in July 1984.

**Table KRY.4: Mobile Home Courts**

Court Name	Court Address
Cornhusker Mobile Home Park	1115 Avenue C
Countryside Mobile Park, Inc.	1920 15th Avenue
East Lawn Mobile Home Estates	2900 & 3010 Grand Avenue
L & M Mobile Home Park	1110 Central Avenue
Merriweather Mobile Home Village	914 West 17th Street
Rodeo Court	2414 West 24th Street
R-Villa E, W, & S	2500, 2719, 2803 West 24 <sup>th</sup> Street
Valley View Mobile Home Court	2701 Grand Avenue
Villa Park	2703 West 24th Street

**Figure KRY.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table KRY.5: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Kearney	12,351	94.3%	741	5.7%	7,141	57.8%	5,210	42.2%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

***MAJOR EMPLOYERS***

Major employers in the City of Kearney include: CHI Health Good Samaritan, Kearney Regional Medical Center, University of Nebraska – Kearney, Kearney Public School District, The Buckle, West Pharmaceutical Services, Baldwin Filters, Eaton Corporation, Walmart, Cabela’s, Cash-Wa, and City of Kearney.

***FUTURE DEVELOPMENT TRENDS***

In the last five years, both single family and commercial buildings have been built in the community. Many of these buildings were developed in the floodplain, but construction followed City Code regulations. Over the next five years, several housing and apartment developments are anticipated in the following locations: apartments at 56<sup>th</sup> Street and 11<sup>th</sup> Avenue; housing south of 11<sup>th</sup> Street and east of 6<sup>th</sup> Avenue; and housing north of 50<sup>th</sup> Street and west of 11<sup>th</sup> Avenue. Many new businesses are expected along 2<sup>nd</sup> Avenue, 56<sup>th</sup> Street, N Avenue, Talamadge Road, 11<sup>th</sup> Street, and Central Avenue. Additionally, a Veterans’ Home will be built at the intersection of 56<sup>th</sup> Street and Cherry Avenue.

***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table KRY.6: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
9,637	\$1,617,749,535	\$167,869	272	\$119,456,070

Source: GIS Workshop/Buffalo County Assessor

Figure KRY.4: Future Land Use Map

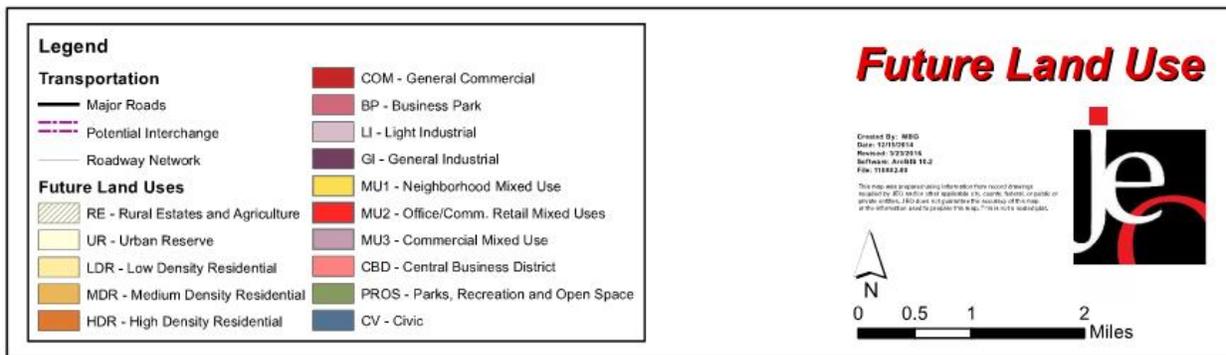
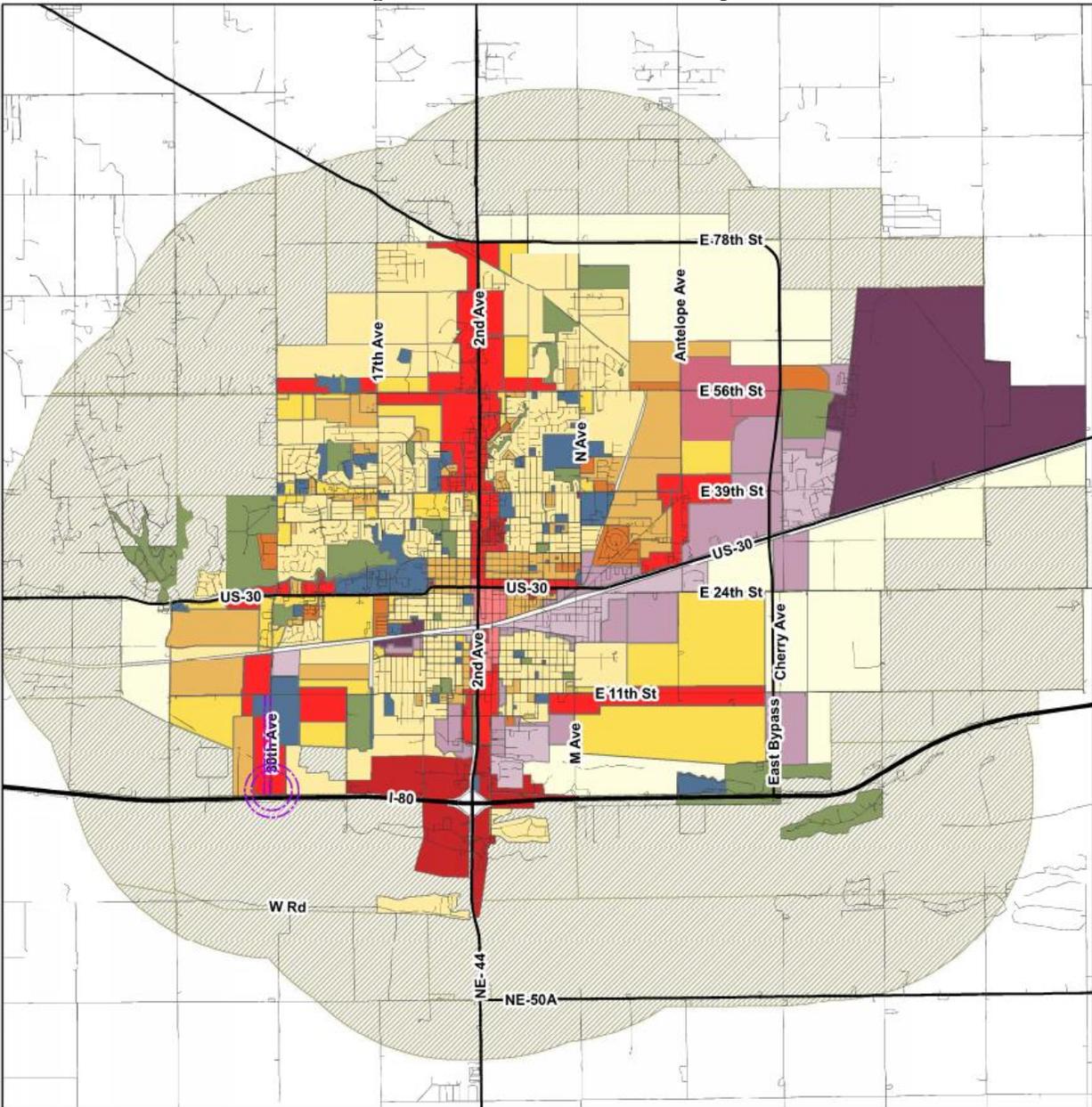
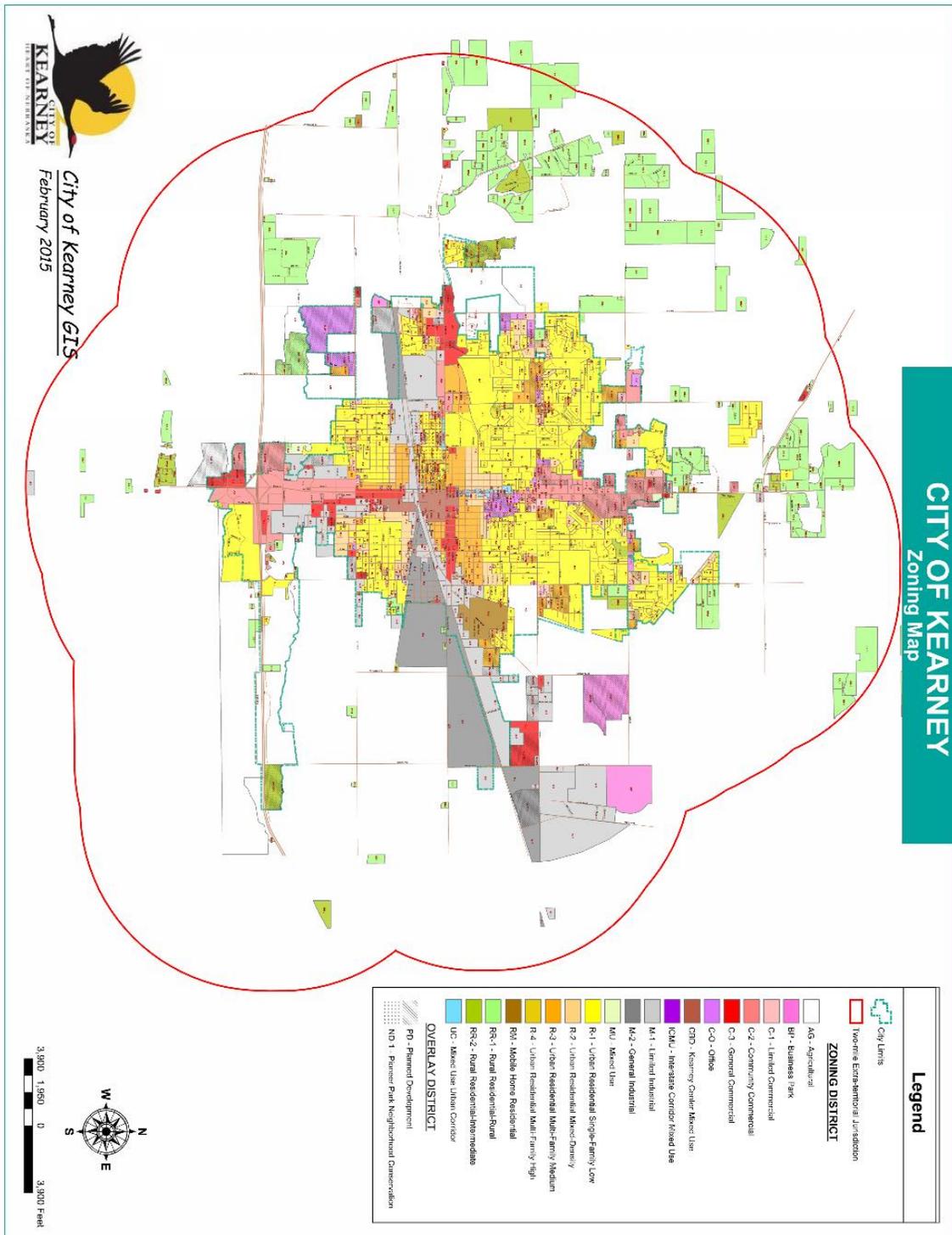


Figure KRY.5: Zoning Map



***CRITICAL INFRASTRUCTURE/KEY RESOURCES******CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of 16 chemical storage sites that house hazardous materials in Kearney. One of them is located in the 1 percent floodplain and two are located in the 0.2 percent floodplain.

**Table KRY.7: Chemical Storage Fixed Sites**

<b>Facility</b>	<b>Address</b>	<b>In Floodplain?</b>
Aurora Co-op Elevator Company	6540 E 39th St	No
Aurora Co-op Elevator Company	2922 Antelope Ave	No
Baldwin Filters Inc	4400 Highway 30 E	Yes – 0.2%
Baldwin Filters Inc	4015 Antelope Ave	No
Cash-Wa Distribution Co	401 W 4th St	Yes – 1%
Charter Communications	809 Central Ave	No
Columbus Metals Industries	4211 E 43rd Street Pl	No
Crop Production Services Inc	1720 16th Ave	No
Frontier Communications	2302 1st Ave	No
Frontier Communications	1918 W 39th St	No
Kearney Crete & Block Company	2908 Highway 30 E	No
Monsanto Company	2615 Antelope Ave	No
Sunbelt Rentals 413	3211 Antelope Ave	No
Union Pacific Railroad	1327 E 25th St	No
West Pharmaceutical Services	923 W Railroad St	No

Source: Nebraska Department of Environmental Quality, 2016

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are 14 historic sites located in or near Kearney.

**Table KRY.8: National Historic Registry**

<b>Site Name</b>	<b>Date Listed</b>	<b>In Floodplain?</b>
John Barnd House	3/31/1983	No
St. Luke's Protestant Episcopal Church	12/1/1986	No
Kearney Junior High School	7/5/2000	No
Dr. A. O. Thomas House	2/28/1980	No
John J. and Lenora Bartlett House	12/27/2007	No
George W. Frank House	2/23/1973	No
Hanson-Downing House	12/10/1980	No
Kearney United States Post Office	9/17/1981	No
Fort Theater	7/12/2006	No
Kearney National Guard Armory	7/16/2009	No
Walter Klehm House	3/25/1999	No
Harmon Park	12/10/2010	No
Masonic Temple and World Theater Building	11/10/2009	No
Meisner Bank	3/25/1999	No

Source: Nebraska State Historical Society, 2016

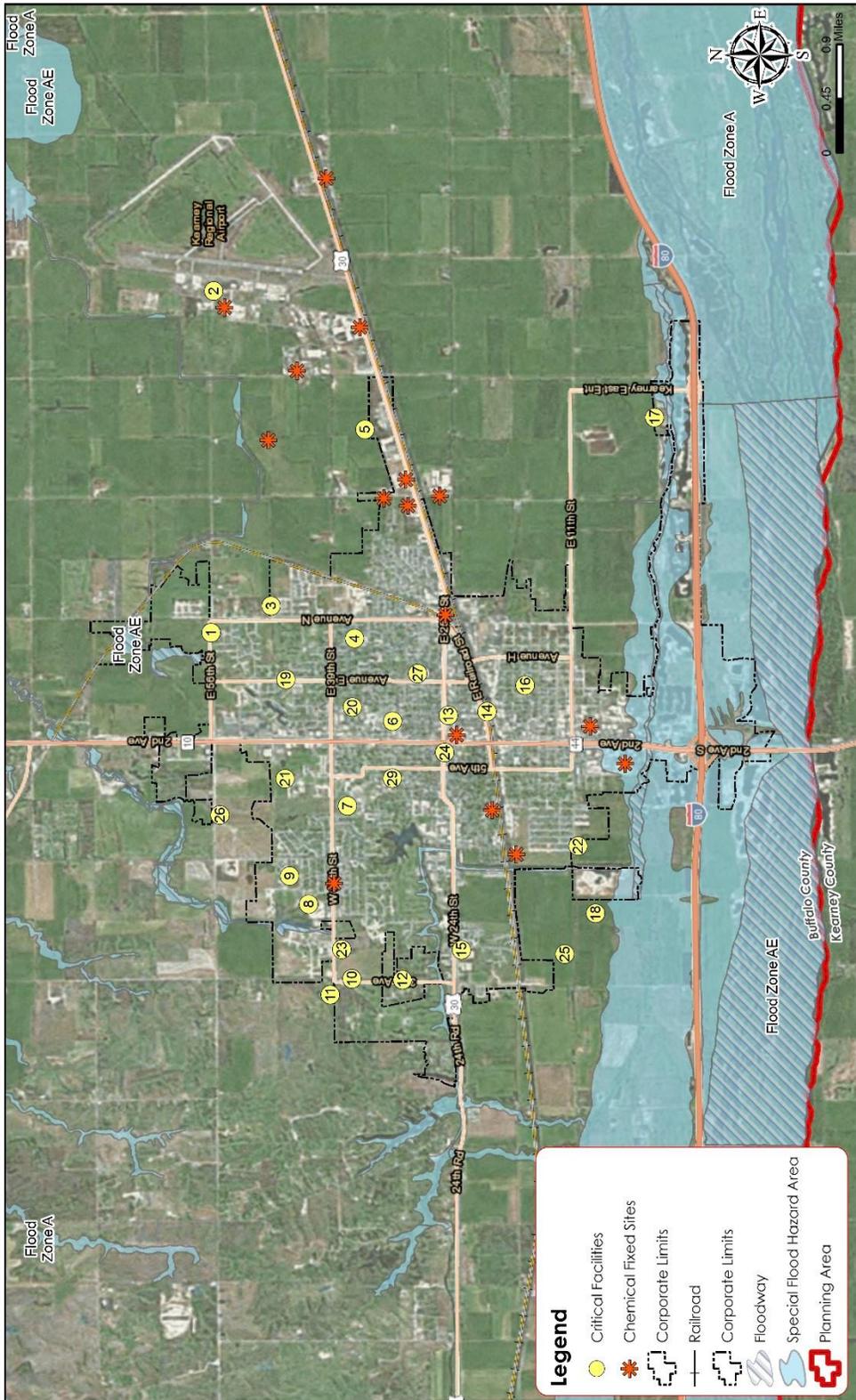
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table KRY.9: List of Critical Facilities in Kearney**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Meadowlark Elementary School	1010 E 53 <sup>rd</sup> St	N	N	N
2	Fire Station #3	5624 Airport Rd	N	N	N
3	Sunrise Middle School	4611 Ave N	N	N	N
4	Northeast Elementary School	910 E 34 <sup>th</sup> St	N	N	N
5	Cabela's Water Tower	3600 E Hwy 30	N	N	N
6	CHI Health	10 E 31 <sup>st</sup> St	N	N	N
7	Horizon Middle School	915 W 35 <sup>th</sup> St	N	N	N
8	Windy Hills Elementary School	4211 20 <sup>th</sup> Ave	N	N	N
9	Water Tower	8 <sup>th</sup> Ave and W 48 <sup>th</sup> St	N	N	N
10	Water Tower	30 <sup>th</sup> Ave and W 37 <sup>th</sup> St	N	N	N
11	Fire Station #2	3820 30 <sup>th</sup> Ave	N	N	N
12	YRTC School	2802 30 <sup>th</sup> Ave	N	N	N
13	Fire Station #1	2211 A Ave	N	N	N
14	Communication Tower	Avenue A and Railroad St	N	N	N
15	ESU 10 School	76 Plaza Blvd	N	N	N
16	Bryant School Elementary	1611 Avenue C	Y	N	N
17	Wastewater Treatment Plant	120 Cherry Ave	N	N	N
18	Kearney Regional Medical Center	804 22 <sup>nd</sup> Ave	Y	N	N
19	First United Methodist	4500 Linden Dr	Y	N	N
20	Kearney Catholic High School	110 East 35 <sup>th</sup>	Y	N	N
21	Kearney Family YMCA	4500 6 <sup>th</sup>	Y	N	N
22	Kenwood Elementary	915 16 <sup>th</sup> Ave	Y	N	N
23	New Life Assembly Church	2715 W. 39 <sup>th</sup> St	Y	N	N
24	Central Elementary	300 W 24 <sup>th</sup> St	Y	N	N
25	Kearney High School	2702 W. 11 <sup>th</sup> St	N	N	N
26	Buffalo Hills Elementary	6110 11 <sup>th</sup> Ave	N	N	N
27	Emerson Elementary	2705 Avenue E	N	N	N
28	Glenwood Elementary	8105 9 <sup>th</sup> Ave	N	N	N
29	Park Elementary	3000 7 <sup>th</sup> Ave	N	N	N

Figure KRY.6: Critical Facilities and Hazardous Material Storage with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Agricultural Animal Disease**

The risk of agricultural animal disease has been identified as a hazard priority due to economic impacts to the community. The City of Kearney hosts the County Fair, which involves many breeders, shippers, and showing of animals, and if the fair was cancelled, it could have economic impacts on the community. The City also has two animal sale barns where animal disease could spread quickly if an outbreak occurred. This concern has developed because of two recent animal disease events. The most recent was in the spring of 2016, when the horses at the horse track in nearby Grand Island were quarantined because of a horse herpes outbreak. Horse breeders and sellers were so concerned with the outbreak and poor response infrastructure that some avoided traveling through Grand Island with their horses. The second agricultural animal disease event that has precipitated concern in Kearney was the spread of avian flu in chickens from Dixon County in the summer of 2015. Although the avian flu outbreak was confined to northeast Nebraska, there is concern that a similar outbreak in Buffalo County would impact the economy in Kearney.

**Chemical Spills (Transportation)**

Kearney has experienced three major and 68 minor chemical release incidents on a transportation route from 1970-2015. The first major incident occurred in 1983, which involved 300 liquid gallons of gasoline released during transport on the highway. In 2010, 500 liquid gallons of nitrogen spilled after a vehicle accident on 78<sup>th</sup> and Ave N. The third major incident occurred in 2012 when 850 liquid gallons of an inorganic corrosive leaked from a tank traveling on a highway causing \$83,000 in damages.

Concern over chemical spills during transportation centers around the heavy traffic on the highways and rail lines surrounding and intersecting Kearney. Current mitigation plans involve the continuation of building a bypass for traffic around the City.

**Dam Failure**

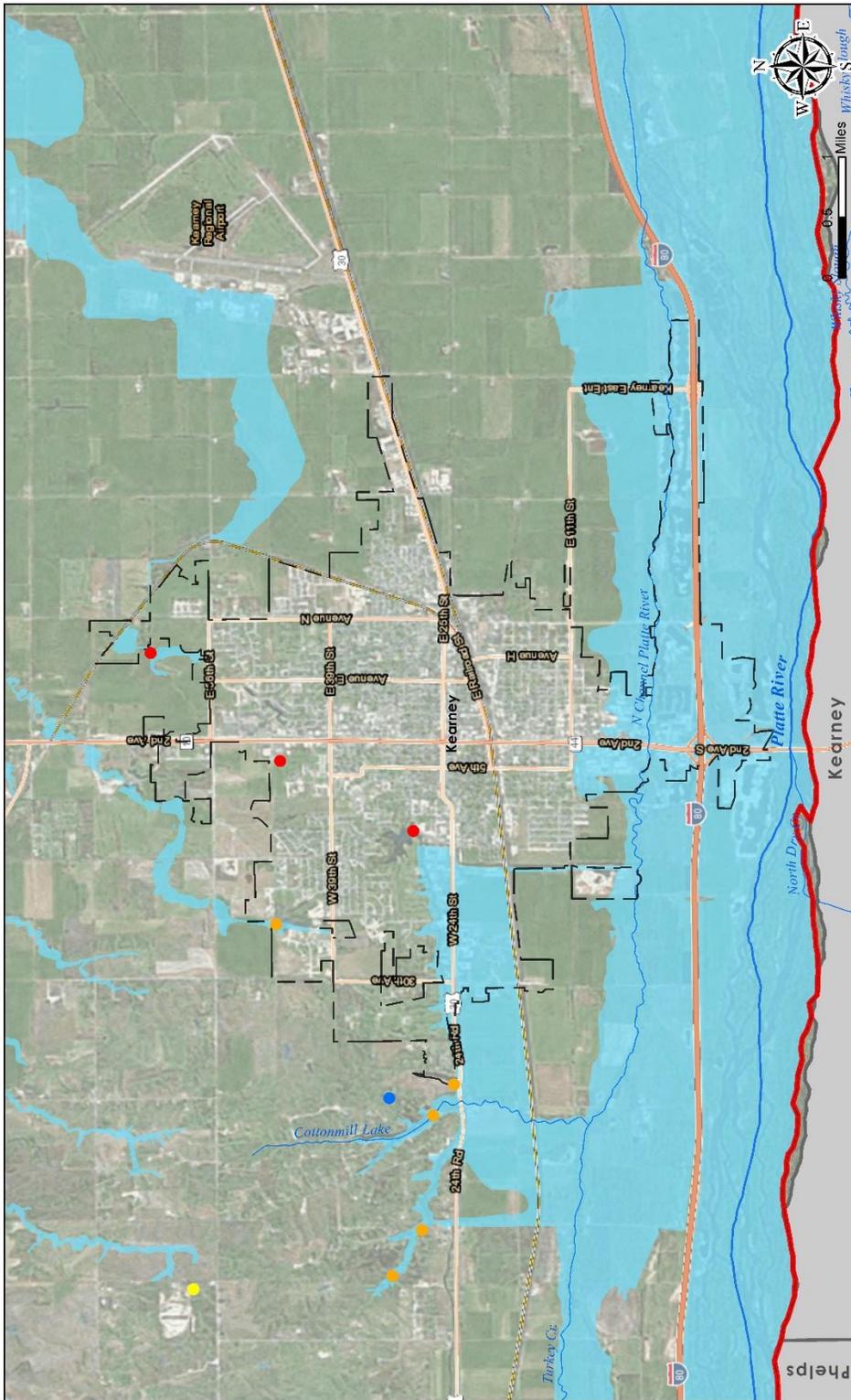
There are nine dams in the City of Kearney. Of these, three dams have been identified as high hazard dams.

**Table KRY.10: Dams in Buffalo County**

	Number of Dams	Minimal	Low	Significant	High
City of Kearney	9	0	2	4	3
Buffalo County	51	4	35	6	6
Planning Area	185	16	144	18	7

Source: NDNR

Figure KRY.7: Dam Locations



**Legend**

<span style="color: red;">●</span>	High	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span>	Flood Risk Areas
<span style="color: orange;">●</span>	Significant	<span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span>	Plan Participants
<span style="color: yellow;">●</span>	Low	<span style="border: 2px solid red; display: inline-block; width: 15px; height: 10px;"></span>	Planning Area
<span style="color: blue;">●</span>	Minimal	<span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span>	County
		<span style="border-bottom: 2px solid black; width: 15px; display: inline-block;"></span>	Interstate 80

**Kearney, Nebraska**

**Dam Locations**

**2017 Hazard Mitigation Plan**

Created by: JF  
 Created Date: 10/10/17  
 Software: ArcGIS 10.3.1  
 File: I:\049600 - Central Platte  
 NRD\HMP Update

This map was prepared using information from record drawings supplied by JFO and/or other applicable city, county, federal, or public or private entities. JFO does not warrant the accuracy of the information and the information used to prepare this map. This is not a scaled plot.

**Table KRY.11: High Hazard Dams in Kearney**

NIDID	Dam Name	Owner	Location	Name of Stream	Maximum Storage (acre-feet)	Last Inspection Date
NE00465	Kearney Dam	Nebraska Public Power District	Kearney	Kearney Canal Off Platte River	161	5/3/2016
NE02332	4 <sup>th</sup> Avenue Storm Detention Dam	Johnson Imperial Home Company	Kearney	Tributary to Wood River	91	5/3/2016
NE03239	Stoneridge Dam	NP Land Development Inc.	Kearney	Tributary to Wood River – Platte River	393.3	5/3/2016

Source: NDNR

No dam failures have occurred at any of the nine dams located in Kearney. However, if one of the high hazard dams were to fail, there is a risk of fatalities. The City of Kearney is also located in the inundation area of Kingsley Dam, which is located to the west of the planning area in Keith County. Kingsley Dam is one of the top 30 ranked high hazard dams based on population at risk. High hazard dams are inspected annually and emergency action plans are required.

Kearney plans to identify and evaluate their current public storms shelters to be used for mass sheltering post-disaster, and provide additional information to residents about hazard events, including dam failure.

**Drought**

If a prolonged drought occurred, the economic impacts to Kearney could be devastating for the community. During periods of drought where farmers are heavily impacted, farmers and residents reduce their costs by cutting back on their spending, which hinders businesses in Kearney. The local planning team also suggested that grass and wildfires would likely increase during this period putting added stress on the water availability and Fire Department. The Comprehensive Plan along with the local planning team noted that water storage is at 3.7 million gallons and can produce 28 million gallons of water per day. The City has not had to introduce water restrictions in the past but does provide residents with information on how to reduce their water consumption. The City’s Utilities Department continues to update and utilize a Water System Emergency Response Plan, which is implemented during drought periods, to preserve water in storage, and to restore service where needed.

**Flooding**

The flood risk areas of concern are located south and west of the City of Kearney. One major area of concern, the Platte River, runs parallel to Interstate 80 and impacts a large portion of that area of the City.

Kearney has 105 NFIP policies in-force for \$33,155,400. There are zero repetitive flood loss properties in the City of Kearney. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 2.8 percent of all parcel improvements in Kearney are located in the floodplain.

**Table KRY.12: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$119,456,070	272	9,637	2.8%

Source: GIS Workshop/Bufalo County Assessor

According to NCEI, there has been one flood and four flash floods since 1996, all caused by heavy rain and together resulting in \$145,000 in property damages. In addition to these Kearney-specific flooding events, there has been one county-wide flooding event that resulted in \$2,000,000 in property damages across Buffalo County. The local planning team also noted that a flash flood in August 2014 occurred when over five inches of rain fell in under an hour. This led to flooding of the hospital cafeteria causing \$5.5 million in damages. Many residential basements also flooded.

The City has already taken many actions to reduce the risk of flooding across the community. The stormwater system has been improved by upsizing pipes and the City continues to make improvements as needed.

Kearney plans to mitigate flooding hazards through several mitigation projects. The projects include: improving the drainage systems by evaluating and implementing recommendations of stormwater master plans; reducing stormwater flow bottlenecks and flow restrictions; evaluating dams and reservoirs; evaluating and improving stormwater systems; evaluating and improving flood proofing of critical facilities; evaluating and improving bank stabilization; identifying and evaluating current public storm shelters; and improving or adding public storm shelters.

### **Severe Thunderstorms and Lightning**

From 1996-2015, Kearney has experienced 47 thunderstorm events and three lightning events, with one injury sustained, according to the NCEI Storm Events Database. Aggregated losses from these events totaled \$2,769,000 in property damages. A rigorous early warning broadcast system has been implemented in Kearney to alert citizens of impending thunderstorms.

Plans to mitigate the hazards associated with severe thunderstorms and lightning include: identifying and evaluating current public safe rooms; improving or adding public safe rooms and safe rooms in schools; conducting a tree inventory; and implementing a tree maintenance and trimming program.

### **Severe Winter Storms**

According to the local planning team, severe winter storms have a large impact on the proper functioning of the Kearney government. 2016 had more snow than ever before, with three winter storms dropping a total of 16-20 inches of snow across Buffalo County. In December of 2007, Kearney experienced accumulations of one-half inch of ice that led to widespread power outages and road and business closures. NCEI reported \$20,000 in property damages from this event, in addition to economic losses stemming from the shut-down of the City. Kearney plans to conduct a tree inventory and implement a tree maintenance and trimming program to reduce vulnerabilities from severe winter storms.

### **Tornadoes**

There have been five tornadoes and one funnel cloud in Kearney between the years of 1996 and 2015. The most devastating tornado was an EF2 that occurred in May 2008 and caused \$11 million in damages (Figures KRY.8 and KRY.9). The tornado struck an apartment complex, ripping off the roof, damaged cars and trees, and destroyed a hangar housing corporate jets at the Kearney Airport. There were no fatalities or injuries from this event. The local planning team is concerned about losing the Kearney water tower and electrical infrastructure from a tornado. To mitigate the hazards associated with tornadoes, the planning team has chosen to identify and evaluate current public safe rooms, improve or add public safe rooms and safe rooms in school, conduct a tree inventory, and implement tree maintenance and trimming programs as mitigation actions.

**Figure KRY.8: Airport Damage – 2008 Kearney Tornado**



*Source: City of Kearney*

**Figure KRY.9: Tree Damage – 2008 Kearney Tornado**



*Source: City of Kearney*

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Kearney is governed by a Mayor, a City Manager, and a five member City Council. Furthermore, Kearney has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk
- City Manager
- Utilities Director
- Police Department
- Fire Department
- Sewage Plant Operator
- Street Commissioner
- Emergency Management Coordinator
- Finance Director
- Human Resource Director
- Park & Recreation Director
- Public Works Director

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table KRY.13: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State and Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		

Survey Components/Subcomponents		Yes/No
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	Yes
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	Yes
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
Other (if any)		

**Table KRY.14: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	High
Is there community support to implement projects?	High
Does the community staff have time to devote to hazard mitigation?	Moderate

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA's 2014 *Plan Integration Guide*.

The City of Kearney has many planning mechanisms, including a Comprehensive Plan, Zoning Ordinance, Building Codes, Capital Improvements Program, Wellhead Protection Plan, Subdivision Regulations, and Water Emergency Response Plan.

The City's Comprehensive Plan, most recently updated in 2016, does incorporate goals and objectives included in the HMP. Under Land Use, the plan encourages coordination with the HMP to ensure new development mitigates the loss of life and property from natural and man-made hazards. For Infrastructure and Public Facilities Action Strategies, the plan encourages coordination with Emergency Management and the CPNRD to maintain and implement the HMP. And finally, the plan advocates for the integration of other community policies into the annual review process, including the HMP.

The Zoning Ordinance had a major update in 2003, but is amended often to evolve with the community. The most recent amendments occurred in September 2016. The Ordinance discourages development in the floodplain, prohibits development in the floodway, and accounts for current population trends.

The City's Building Codes are based on the 2015 International Building Codes and International Residential Codes. These codes require the elevation of structures in the floodplain, require mechanical systems to be elevated in the floodplain, outline proper sump pump installation, encourage the use of hail resistant building materials, and require the use of fire resistant building materials.

The Capital Improvement Program is updated annually and includes many hazard mitigation principles. The plan includes storm water projects, upsizing of culverts and drainage structures, regular maintenance of drainage structures, bridge improvements, installing emergency generators in critical facilities, and improving the existing public works facility.

Subdivision Regulations were updated in 2002, with the last amendment adopted in 2012. The regulations provide for conservation subdivisions or cluster subdivisions to conserve environmental resources. They also restrict a subdivision of land within or adjacent to the floodplain.

The City of Kearney has a Water Emergency Response Plan, which was developed as a requirement of the Public Health Security and Bioterrorism Preparedness and Response Act. This plan includes the procedures and contacts for the City's response to many different types of incidences, caused both by natural and manmade hazards. The plan lists the procedures to notify personnel of the implementation of an emergency operations plan, how to preserve water in storage, how to isolate areas within the system and the restoring of service, and setting priorities on repair work. The types of emergency hazards identified within the plan are: flood, power failure, tornado, fire, drought, winter storm, construction accident, water contamination/hazardous material release, and vandalism, riot, or bomb threat.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

	<b>Backup Well Generators</b>
Description	Purchase and install backup generators for all wells
Hazard(s) Addressed	All Hazards
Estimated Cost	\$3,500+ depending on site requirements
Funding	Utilities Department
Status	Completed.

**Ongoing and New Mitigation Actions**

	<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	Local Funds
Timeline	Ongoing
Priority	Medium
Lead Agency	Public Works
Status	Ongoing. Following heavy rain events, the stormwater system is evaluated.

	<b>Evaluate Stream Channelization/Bank Stabilization</b>
Description	Improve Stream Bed/Bank Stabilization; evaluate current stream bed and bank stabilization needs; implement stream bed and bank stabilization improvements including grade control structures, rock rip rap, vegetative cover, etc.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies by project
Funding	Local Funds
Timeline	Ongoing
Priority	Medium
Lead Agency	NPPD, Public Works
Status	Ongoing.

	<b>Reduce Bottleneck/Flow Restrictions</b>
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	Local Funds, USACE
Timeline	Ongoing
Priority	Medium
Lead Agency	Public Works
Status	Ongoing.

	<b>Community Education and Awareness</b>
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$1,000+
Funding	City Funds and Emergency Management Funds
Timeline	Ongoing
Priority	Medium
Lead Agency	City Administration
Status	Ongoing.

	<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, Grass/Wildfire, Flooding, Dam Failure
Estimated Cost	\$10,000 - \$100,000
Funding	HMGP funds, Local funds
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management
Status	Not yet started.

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	Local City Funds
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management
Status	Siren warning improvements are ongoing with additional sirens being added as needed. Emergency Public Notifications come from a private vendor purchased through Buffalo County Emergency Management budget.

<b>Reduce Tree Damage and Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds
Estimated Cost	\$20,000
Funding	General Funds
Timeline	Ongoing
Priority	Medium
Lead Agency	Parks and Recreation, City Forester, Park Division
Status	Ongoing.

<b>Water System Emergency Response Plan</b>	
Description	Develop and maintain a plan listing procedures to notify personnel of the implementation of an Emergency Operations Plan, how to preserve water in storage, how to isolate areas within the system and the restoring of service, and the setting of priorities on repair work
Hazard(s) Addressed	All Hazards
Estimated Cost	\$4,000 to update
Funding	Utilities Department, Water Sustainability Fund, WaterSMART grant program
Timeline	As needed
Priority	High
Lead Agency	Utilities Department
Status	Revise as needed – ongoing.

<b>Improve Electrical Services</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	Nebraska Public Power District / City of Kearney
Timeline	As needed
Priority	High
Lead Agency	Nebraska Public Power District
Status	Ongoing.

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	Individual Department Funds, HMGP
Timeline	As needed
Priority	Medium
Lead Agency	Individual Department
Status	Ongoing.

	<b>Highway/Railway Bypass</b>
Description	Build and highway and railway bypass system to decrease traffic through Kearney
Hazard(s) Addressed	Chemical Spills (Transportation)
Estimated Cost	\$1,000,000
Funding	Department of Roads, City funds
Status	In progress.
Timeline	5+ years
Priority	High
Lead Agency	Public Works, Department of Roads.

	<b>Hazardous Fuel Reduction</b>
Description	Create a defensible space around residential and non-residential buildings in fire prone areas and to perform hazardous fuels reduction
Hazard(s) Addressed	Grass/Wildfire
Estimated Cost	\$5,000+
Funding	City Funds, PDM, Nebraska Forest Service, AFG grants
Status	Not yet started.
Timeline	1-3 years
Priority	Medium
Lead Agency	Fire Department, Nebraska Forest Service

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	The City will continue to participate in the program, however this is no longer considered a mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF PLEASANTON

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table PTN.1 provides the list of participating members that comprised the Village of Pleasanton local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table PTN.1: Village of Pleasanton Local Planning Team**

Name	Title	Department / Organization
Leora Hofmann	Clerk and Treasurer	Pleasanton

**LOCATION AND GEOGRAPHY**

The Village of Pleasanton is located in the north central portion of Buffalo County and covers an area of 0.34 square miles. The major waterway in the area is the South Loup River.

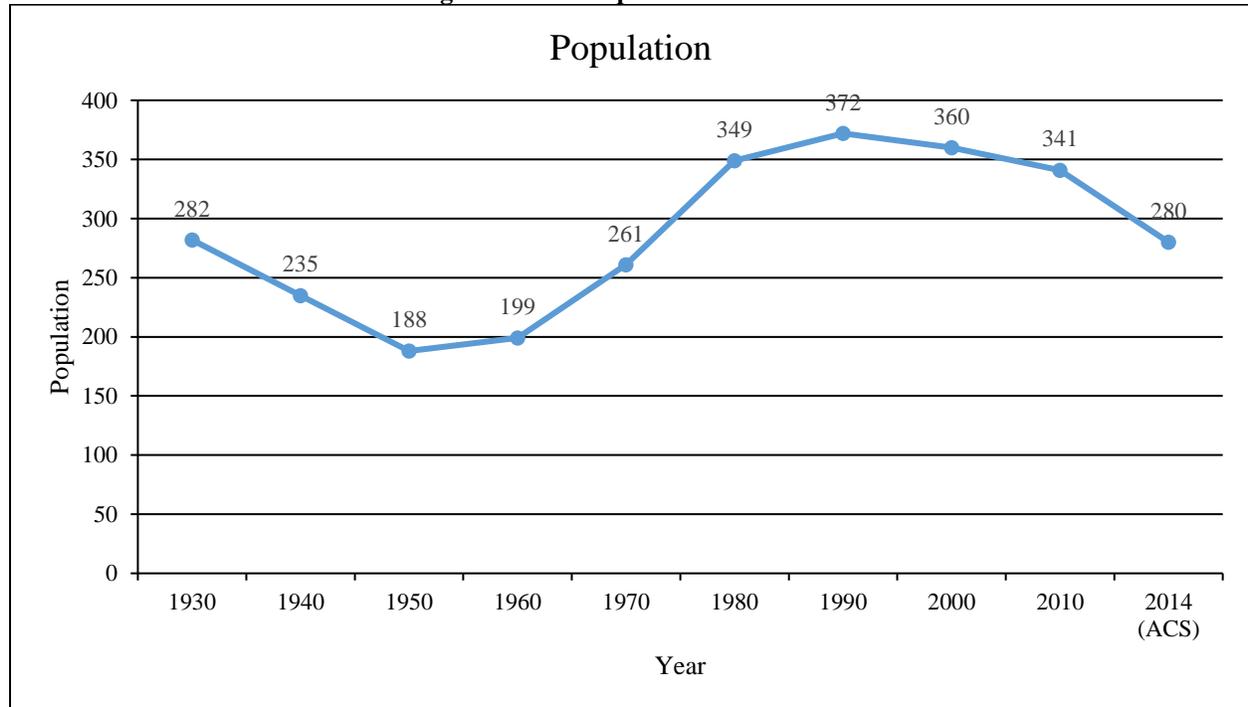
**TRANSPORTATION**

Pleasanton’s major transportation corridor is State Highway 10 which runs north to south through the Village. The average daily vehicle load on Highway 10 is 2,920 with 115 of those being categorized as heavy commercial vehicles. There are no railroads within or near the Village of Pleasanton.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. Pleasanton’s population has been fluctuating for the first half of the century, but most recently has been decreasing since 1990.

**Figure PTN.1: Population 1930 - 2014**



Source: U.S. Census Bureau



The following table indicates the Village has a higher percentage of the population under the age of 5 and a slightly lower percentage of population between 5 and 64 years of age when compared to the County. However, Pleasanton has both a higher median age and a higher percentage of population over the age of 64 when compared to the County.

**Table PTN.2: Population by Age**

Age	Village of Pleasanton	Buffalo County	State of Nebraska
<5	8.8%	7.2%	7.2%
5-64	74.8%	80.7%	79.2%
>64	16.5%	12.1%	13.6%
Median	35.80	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Pleasanton’s median household income, median home value, and per capita income are all lower than Buffalo County. However, Pleasanton has a higher median rent than the County.

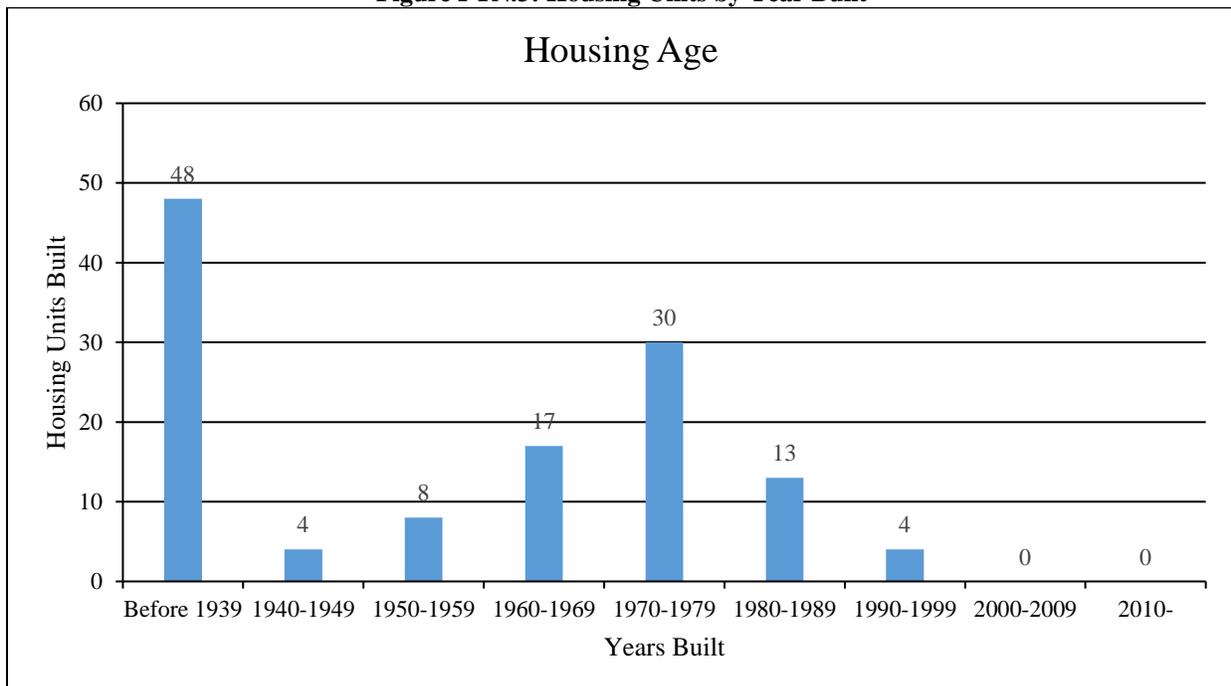
**Table PTN.3: Housing and Income**

	Village of Pleasanton	Buffalo County	State of Nebraska
Median Household Income	\$50,000	\$64,926	\$52,400
Per Capita Income	\$22,154	\$25,154	\$27,339
Median Home Value	\$99,200	\$142,800	\$130,100
Median Rent	\$763	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 124 housing units with 93.5 percent of those units occupied. There are approximately nine mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in September 1985. Per the planning team, the mobile homes in Pleasanton are located in a mobile home park at the intersection of Walnut and Spruce Streets.

**Figure PTN.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table PTN.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Pleasanton	116	93.5%	8	6.5%	93	80.2%	23	19.8%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major industries in Pleasanton are education, fertilizer production, and tool manufacturing. Major employers within the Village include Pleasanton Public Schools, Trotter Fertilizer, and Hand Machining Co. A large percentage of residents commute to Kearney and Ravenna for work.

**FUTURE DEVELOPMENT TRENDS**

In the last five years, two new subdivisions have been developed in Pleasanton. So far, the new subdivision on the north side of town has one house, and the new subdivision on the west side of town has two houses. All new housing to be developed in Pleasanton will be located in one of these two subdivisions. One building downtown was demolished in the last five years because it was in the floodplain. Hand Machining Co. was recently constructed of steel and concrete in the floodplain southwest of Pleasanton. According to the planning team, Pleasanton’s lack of housing options outside of the floodplain contributes to the decline in population. Future plans for Pleasanton include moving the Fire Hall out of the floodplain.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table PTN.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
209	\$13,331,600	\$63,788	95	\$5,268,390

Source: GIS Workshop/Buffalo County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

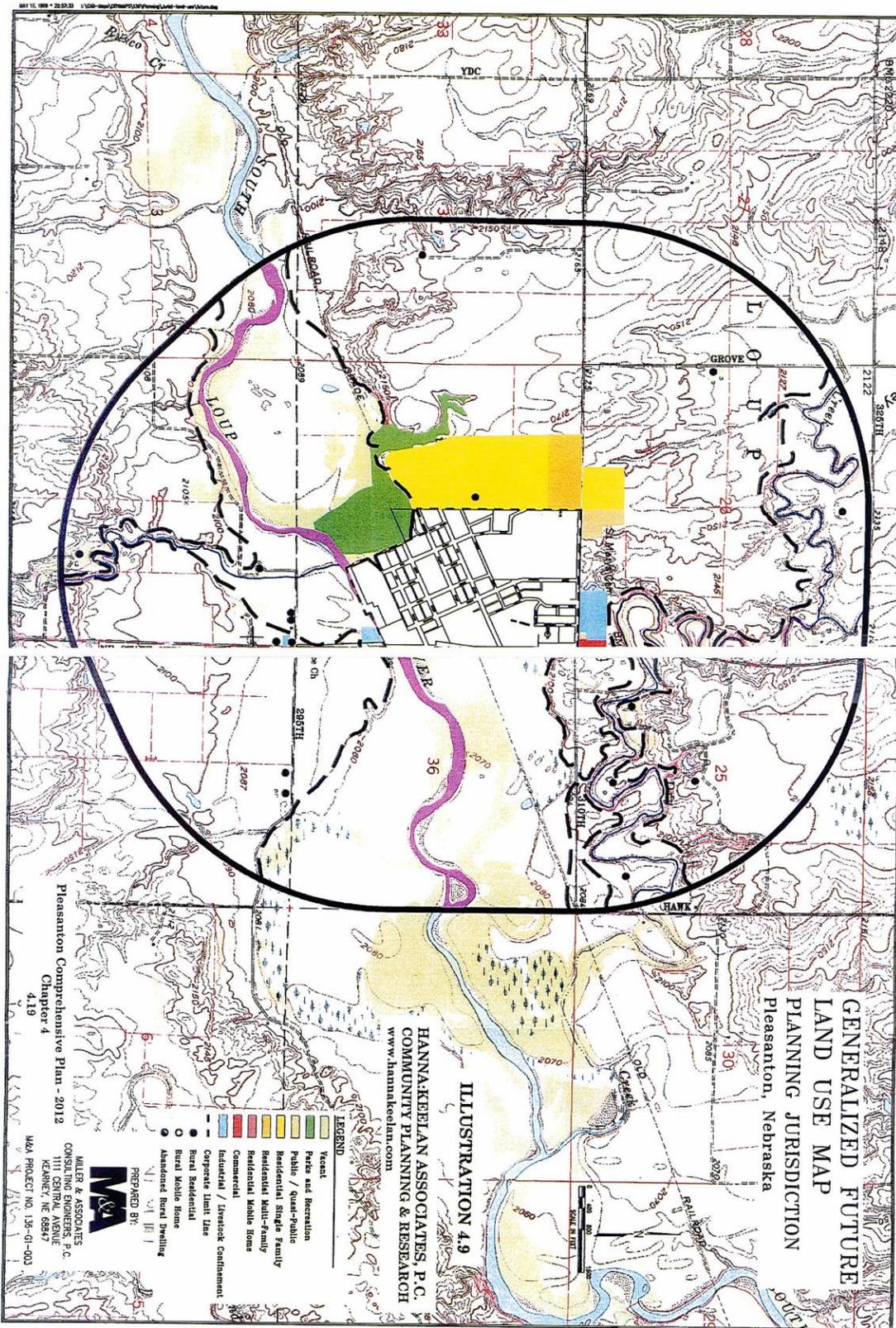
According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of three chemical storage sites that house hazardous materials in Pleasanton. None of the chemical storage sites are located in the floodplain (Figure PTN.5).

**Table PTN.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
AT&T Interstate 6040	325 Ave (location off map)	No
Farmers Co-op Assn Fertilizer	20805 Antelope Rd (location off map)	No
Trotter Fertilizer	307 E Cemetery	No

Source: Nebraska Department of Environmental Quality

Figure PTN.4: Future Land Use Map



**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Pleasanton.

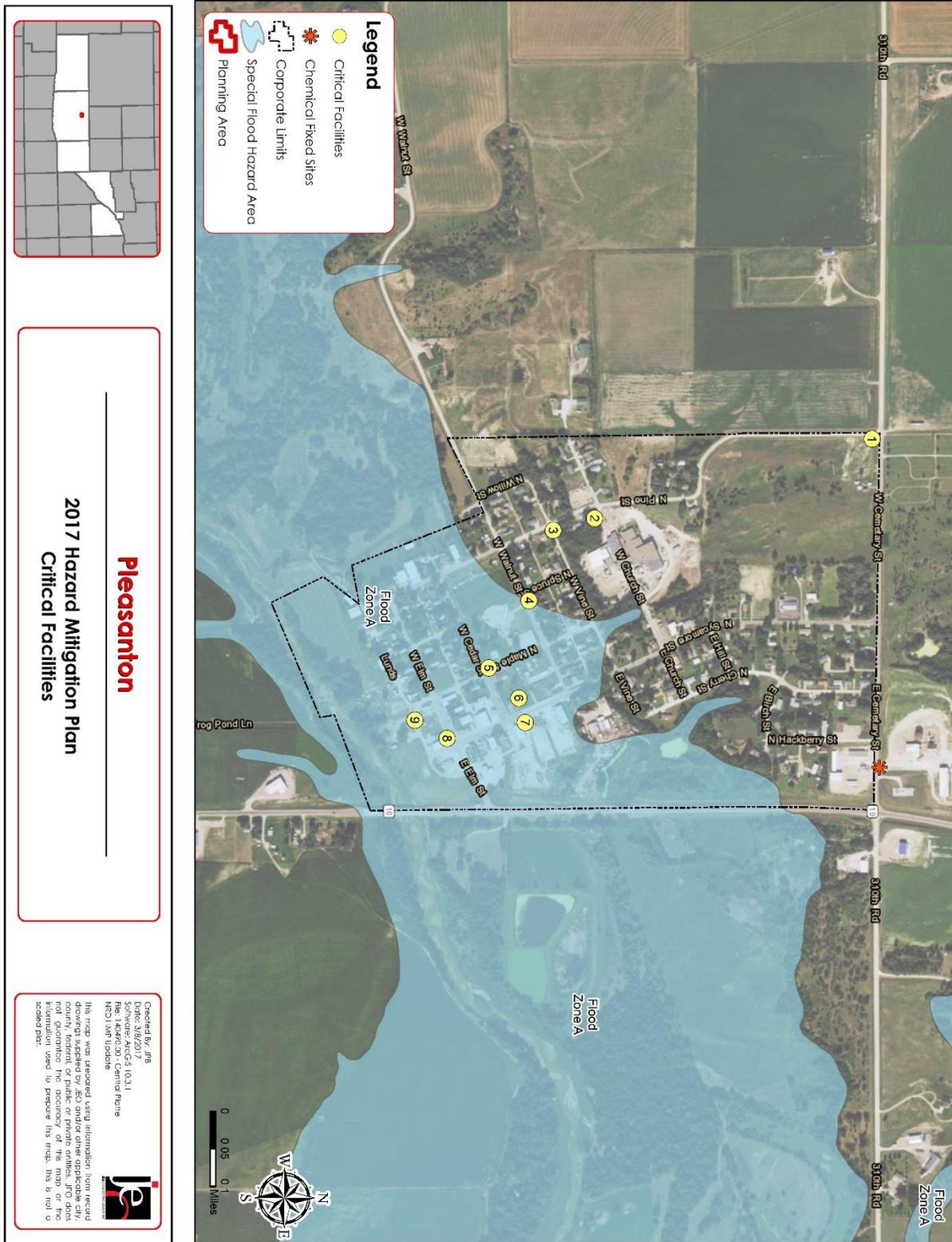
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table PTN.7: List of Critical Facilities in Pleasanton**

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Water Tower	Cemetery St and N. Pine St	N	N	N
2	Pleasanton School	303 W. Church St.	Y	N	N
3	Well – Pine and Vine	N. Pine and W. Vine St.	N	N	N
4	Trailer Park	Spruce St. and W. Walnut St.	N	N	N
5	Well – Park	Maple St. and Cedar St.	N	N	Y
6	Community Hall/Village Office	202 N. Sycamore	N	N	Y
7	Lift Station	Sycamore St. and Cedar St.	N	Portable	Y
8	Fire Hall	Sycamore St. and Elm St.	N	N	Y
9	Maintenance Shop	Maple St. and Lunds St.	N	N	Y

Figure PTN.5: Critical Facilities and Hazardous Material Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Flooding**

Flood risk areas in Pleasanton are the Platte River and Wood River. Areas of concern for the Village are largely located to the south of the Village with a smaller area of concern to the north. The south portion of the flood risk area impacts a large portion of the Village.

Pleasanton has 16 NFIP policies in-force for \$1,205,800. There are no repetitive flood loss properties in the Village of Pleasanton. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 45.5 percent of all parcel improvements in Pleasanton are located in the floodplain.

**Table PTN.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$5,268,390	95	209	45.5%

Source: GIS Workshop/Buffalo County Assessor

Between 1996 and 2015, one flood and one flash flood have affected Pleasanton, per the NCEI Storm Events Database. The most significant of these events occurred in May of 2005, when severe thunderstorms caused a flash flood leading to \$2,000,000 in property damages throughout Buffalo County. Since this flood, the Village has installed drainage ditches to mitigate flooding of the trailer court and football field. A smaller flood caused by an ice jam in January of 2011 resulted in no property losses.

**Hail**

The NCEI reported 20 hail events since 1996 with the largest hail stone reported at 2.0 inches. However, climatologically, it is possible for hail to reach 2.50 inches or greater, which could cause significant damage to homes and critical facilities. Two of these storms resulted in property damages totaling \$75,000. Damages in these instances were the combined result of hail and thunderstorms, high winds, tornadoes, and flooding. In June of 2011, Pleasanton experienced a hail storm that damaged roofing throughout the Village due to hail as large as 1.75 inches. This storm resulted in \$50,000 in property damages. All village-owned buildings are insured for hail damage, but are not hail resistant. Pleasanton does not have a local tree board, but plans to conduct a tree inventory and develop a tree maintenance program.

**Severe Thunderstorms**

NCEI reported five thunderstorm wind events since 1996 totaling \$35,000 dollars in property damages. Pleasanton does not have weather radios or a local tree board, but the community does have surge protectors and requires utility lines to be buried in new subdivisions. Pleasanton has identified the development of a tree maintenance program as a mitigation action for thunderstorms. They also hope to improve their public safe rooms and post-disaster storm shelters.

### **Severe Winter Storms**

Pleasanton does not have the physical or governmental infrastructure to respond to a severe winter storm if one was to occur. There are no designated snow routes or snow fences, and clearing streets of snow usually proves to be a time-consuming nuisance. Snow removal is performed by the Village Maintenance Department and village members. Pleasanton's snow removal equipment has been deemed acceptable by the local planning team. When a severe winter storm swept through Pleasanton in 2009, villagers were forced to bunk with family or neighbors when the snow caused a power outage. Pleasanton plans to identify and improve their post-disaster storm shelters, develop emergency snow routes, and a tree maintenance program to mitigate the risks associated with severe winter storms.

### **Tornadoes and High Winds**

From 1996-2015, the NCEI reported one tornado in Pleasanton. This tornado caused no property damage as it skipped through the Village. In the case of a significant tornadic event, municipal records are protected by a flash drive backup, and an emergency siren has been installed by the County Emergency Management Department. Pleasanton does not have any community safe rooms identified, but there are spaces in the school and community center that could be utilized for sheltering purposes if necessary. The Village plans to identify public safe rooms and post-disaster storms shelters to mitigate this hazard. The quarterly newsletter offers educational materials on tornado preparedness. There are Mutual Aid Agreements in place with Ravenna and Litchfield. Pleasanton plans to implement a tree maintenance program and identify emergency evacuation routes to further mitigate the hazards associated with tornadoes and high winds.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Pleasanton is governed by a Chairperson and a four member Village Board. Furthermore, Pleasanton has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Engineer/Street Commissioner
- Planning Commission
- Housing Authority
- Maintenance
- Volunteer Fire Department

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table PTN.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes (County)
	Floodplain Management Plan	Yes
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table PTN.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	High
Does the community staff have time to devote to hazard mitigation?	Limited

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Pleasanton’s Comprehensive Plan, last updated in 2012, does discuss natural hazards, primarily as they relate to the floodplain. The plan directs development away from the floodplain and major transportation routes, encourages elevation of structures located in the floodplain, and encourages preservation of open space in hazard-prone areas. With the plan recently updated, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The Village of Pleasanton’s Zoning Ordinance, which includes the Floodplain Regulations, was last updated in 2009. The Ordinance discourages development in the floodplain, requires at least a one-foot of elevation above Base Flood Elevation in the floodplain, prohibits development within the floodway, and limits population density in the floodplain.

Pleasanton has an annex to the Buffalo County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, identifies critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

### ***MITIGATION STRATEGY***

#### **Completed Mitigation Actions**

	<b>Drainage Ditches</b>
Description	Install drainage ditches by the trailer court and football field to reduce flooding in these areas
Hazard(s) Addressed	Flooding
Funding	Village funds
Status	Completed.
Location	Trailer Court and Football Field

**New and Ongoing Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$3,500 + depending on site requirements
Funding	Village funds
Status	Not yet started.
Timeline	2-5 years
Priority	Low
Lead Agency	Village Board, Engineer

<b>Public Education on Tornadoes</b>	
Description	Provide education to community members on preparedness actions associated with tornadoes in the quarterly newsletter
Hazard(s) Addressed	Tornadoes
Estimated Cost	\$100
Funding	Village funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Clerk

<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms
Estimated Cost	\$150/safe room for retrofit \$300/safe room for new construction
Funding	Village funds, HMGP, PDM
Status	Not started.
Timeline	5+ years
Priority	Low
Lead Agency	Engineer, Village Board

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	Village funds, HMGP
Status	Not started.
Timeline	5+ years
Priority	Low
Lead Agency	Fire Department

Section Seven: Village of Pleasanton Participant Section

	<b>Develop Emergency Snow/Evacuation Routes</b>
Description	Develop or improve snow and evacuation routes and programs to include parking, snow/ice/debris removal, etc.; obtain and install snow emergency route and evacuation signs; provide information on emergency routes to the public; construct snow fences where possible on main routes to prevent snow from disrupting transportation
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Wildfire and Grass Fire, Heavy Precipitation and Flooding
Estimated Cost	\$4,000
Funding	Village funds
Status	Not started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Street Commissioner

	<b>Reduce Tree Damage and Damage from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms and Lightning, Wildfire
Estimated Cost	\$5,000
Funding	Village funds
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	Maintenance

	<b>Reduce Water Demand/Improve Drought Education</b>
Description	Conduct water use study to evaluate/implement methods to conserve water/reduce consumption; evaluate/implement water use restriction ordinance; identify/evaluate current/additional potable water sources; develop or obtain drought education materials to conduct multi-faceted public education and awareness program
Hazard(s) Addressed	Drought
Estimated Cost	\$2,000+
Funding	Village funds
Status	Not started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Engineer

	<b>Increase Soil and Water Conservation</b>
Description	Develop and improve public awareness of soil and water conservation methods; develop or maintain materials and conduct multi-faceted public education
Hazard(s) Addressed	Drought, Flooding
Estimated Cost	\$1,000+
Funding	General funds
Status	Not started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Fire Department

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when available and conduct additional floodplain mapping
Reason for Removal	The Village will continue to participate in program, however this is no longer considered a hazard mitigation action.

<b>Evaluate and Improve Berm, Floodwall and/or Levee</b>	
Description	Evaluate and update current berm, floodwall and levee system; design and construct measures to protect and improve berm, floodwall, and levee
Reason for Removal	The Village does not have a levee and does not anticipate constructing a levee in the near future.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
CITY OF RAVENNA

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### LOCAL PLANNING TEAM

Table RVN.1 provides the list of participating members that comprised the City of Ravenna local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table RVN.1: City of Ravenna Local Planning Team**

Name	Title	Department / Organization
Russ Crowell	Ravenna EMC	City of Ravenna
Kellie Crowell	City Clerk	City of Ravenna

### LOCATION AND GEOGRAPHY

The City of Ravenna is located in the northeast corner of Buffalo County and covers an area of 1.67 square miles. Major waterways in the area include the South Loup River, the Middle Loup River, Mud Creek, and Dry Creek.

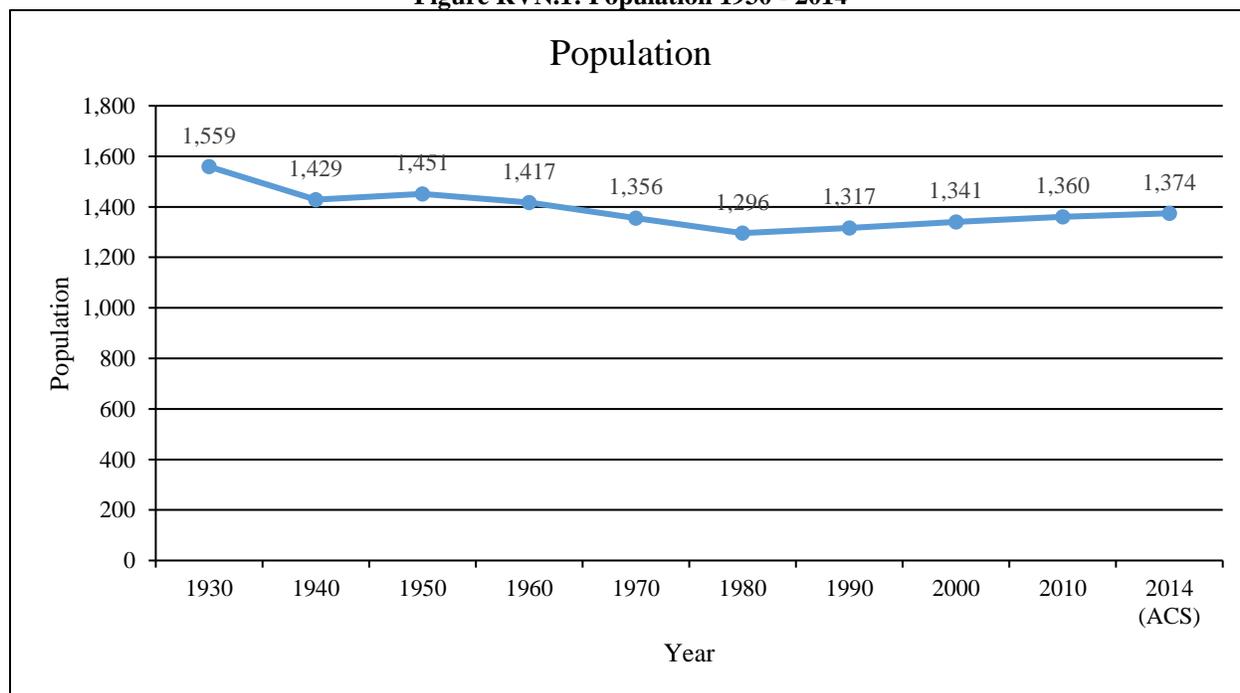
### TRANSPORTATION

Ravenna’s major transportation corridors include Nebraska Highways 2 and 68. Highway 2 is located south of the City and has an average of 3,125 vehicles per day with 440 of those being classified as heavy commercial vehicles. Highway 68 travels north through the City and has an average of 2,880 vehicles per day with 175 of those vehicles being classified as heavy commercial vehicles. Ravenna has one rail line, a Burlington Northern line that is located south of the City and runs parallel to Highway 2.

### DEMOGRAPHICS

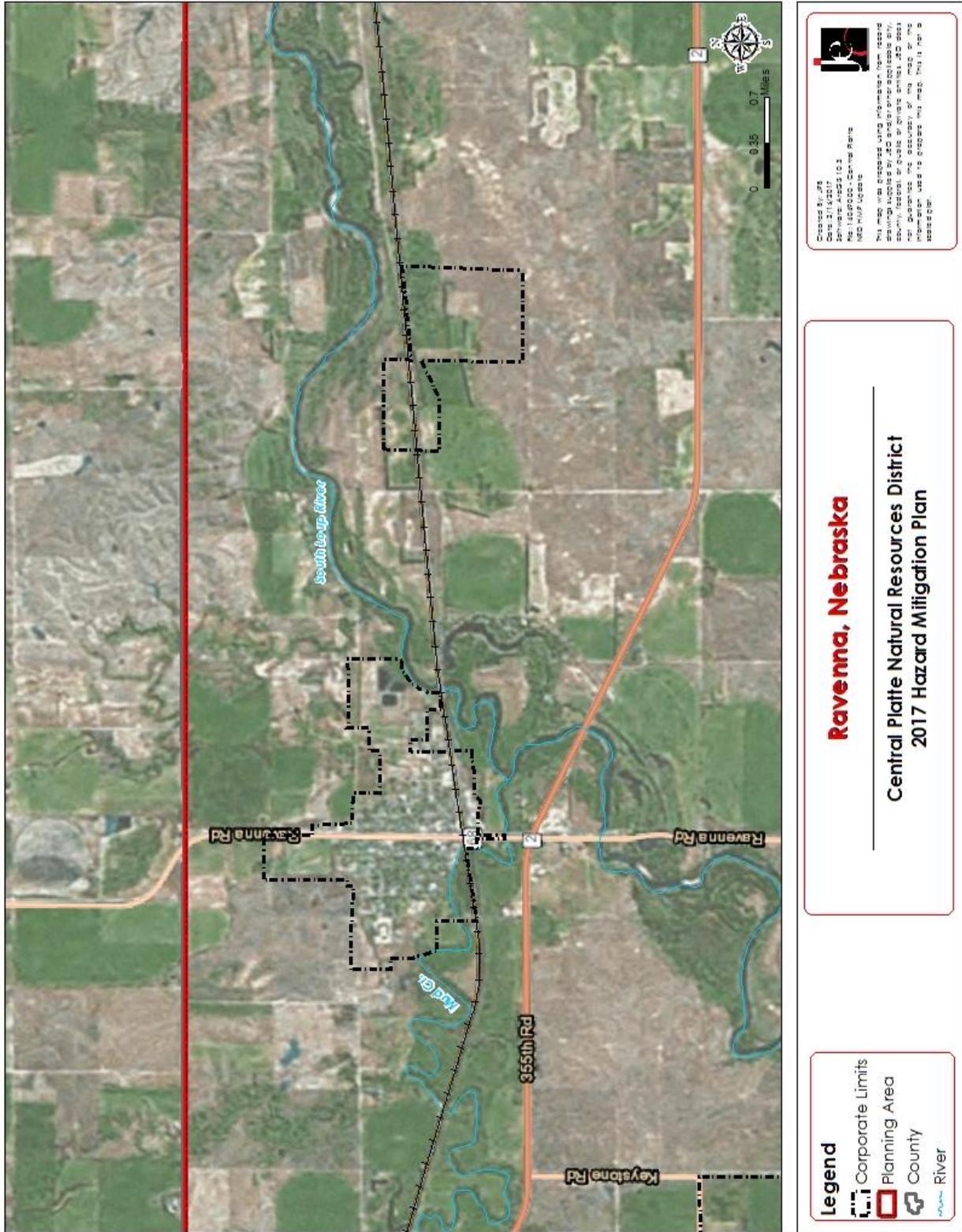
The following figure displays the historical population trend from 1930 to 2014. Ravenna’s population has been generally fluctuating over the past century with a slight increase since 1980.

**Figure RVN.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure RVN.2: Map of the City of Ravenna



The following table indicates the City has a lower percentage of the population under the age of 5 and a slightly lower percentage of population between 5 and 64 years of age than the County. However, Ravenna has a higher percentage of its population over the age of 64 and a higher median age when compared to the County.

**Table RVN.2: Population by Age**

Age	City of Ravenna	Buffalo County	State of Nebraska
<5	5.7%	7.2%	7.2%
5-64	74.8%	80.7%	79.2%
>64	19.4%	12.1%	13.6%
Median	40.9	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Ravenna’s median household income is significantly lower than the County’s, but per capita, their income is only slightly lower. Ravenna also has a much lower median home value and median rent value than Buffalo County.

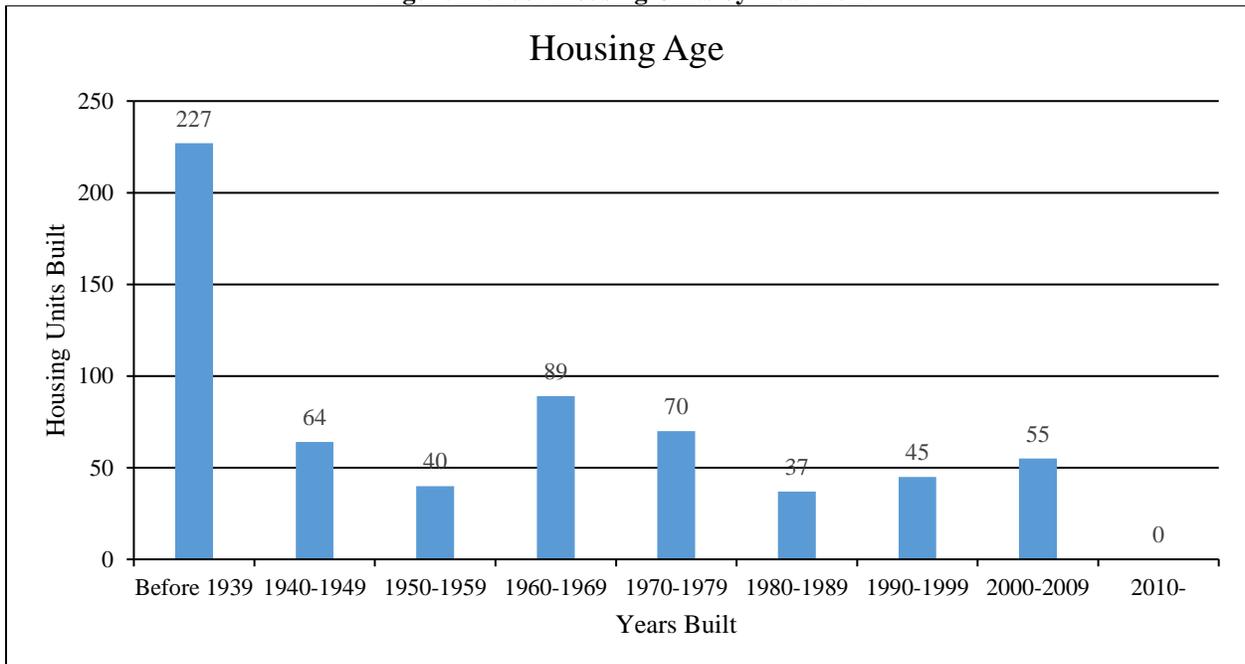
**Table RVN.3: Housing and Income**

	City of Ravenna	Buffalo County	State of Nebraska
Median Household Income	\$43,092	\$64,926	\$52,400
Per Capita Income	\$20,526	\$25,154	\$27,339
Median Home Value	\$96,000	\$142,800	\$130,100
Median Rent	\$555	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 627 housing units with 85.6 percent of those units occupied. There are approximately seven mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in September 1984.

**Figure RVN.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table RVN.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Ravenna	537	85.6%	90	14.4%	367	68.3%	170	31.7%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the community are Kaapa Ethanol Plant, Darling Ingredients, and Henningsen Foods. A large percentage of residents commute to work in Kearney and Grand Island.

**FUTURE DEVELOPMENT TRENDS**

Ravenna has been growing in the past five years. Two new subdivisions are being added to the City of Ravenna: one in the northwest part of town and another in the east part of town. Two years ago, the area south of Ravenna extending to Hwy 2 was annexed. Overall housing quality in the City has improved, with the acquisition and demolition of condemned homes in the community. Ravenna’s growth continues despite economic losses that have occurred in the past five years. BNSF no longer uses the City as a railroad crew swap station, a change which has caused an estimated loss of \$4,000 per day from the decreased traffic. Darling Foods opened four years ago where Leprino Foods had operated but decreased their employment opportunities by half. According to the local planning team, Ravenna continues to grow despite these setbacks because of their strong sense of community, excellent school system, and adjacency to Kearney that makes the City ideal for working and raising a family. Recent renovations to the historic downtown area have increases the sense of pride and camaraderie in the community.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table RVN.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
705	\$65,663,925	\$93,140	30	\$1,126,095

Source: GIS Workshop/Buffalo County Assessor

Figure RVN.4: Future Land Use Map

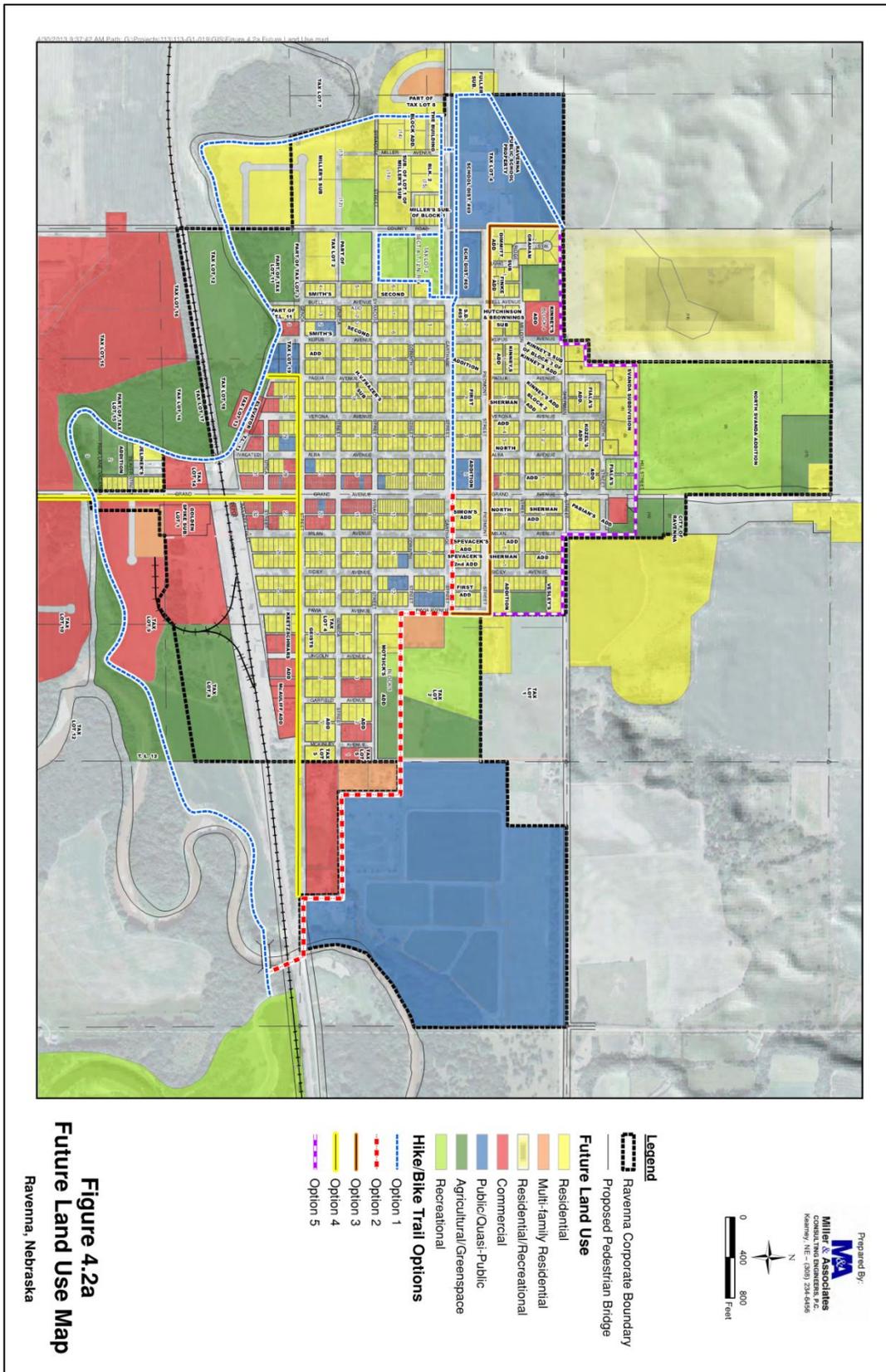
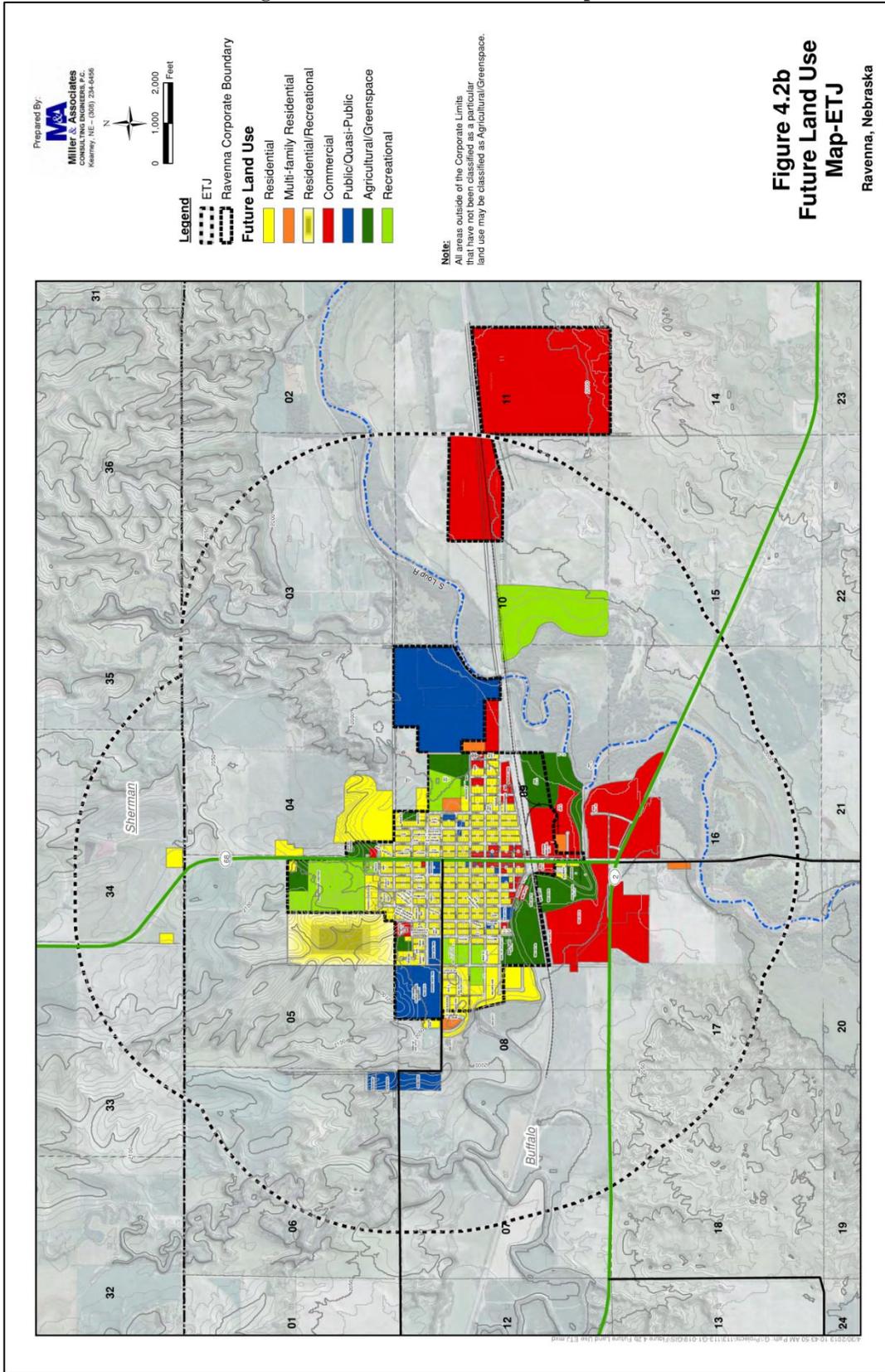


Figure RVN.5: Future Land Use Map - ETJ



***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of six chemical storage sites that house hazardous materials in Ravenna. However, none of the chemical storage sites are located in the floodplain (Figure RVN.6).

**Table RVN.6: Chemical Storage Fixed Sites**

<b>Facility</b>	<b>Address</b>	<b>In Floodplain?</b>
Abengoa Bioenergy of Nebraska	35955 Navaho Rd	No
Aurora Co-op Elevator Company	30250 Shelton Rd	No
AT&T	Jct Pine Rd & Highway 68	No
Darling Ingredients Inc	102 Lincoln Ave	No
Henningsen Foods Inc	200 E Railway St	No
Nebraska Central Telephone Co	113 W Genoa St	No

*Source: Nebraska Department of Environmental Quality*

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Ravenna.

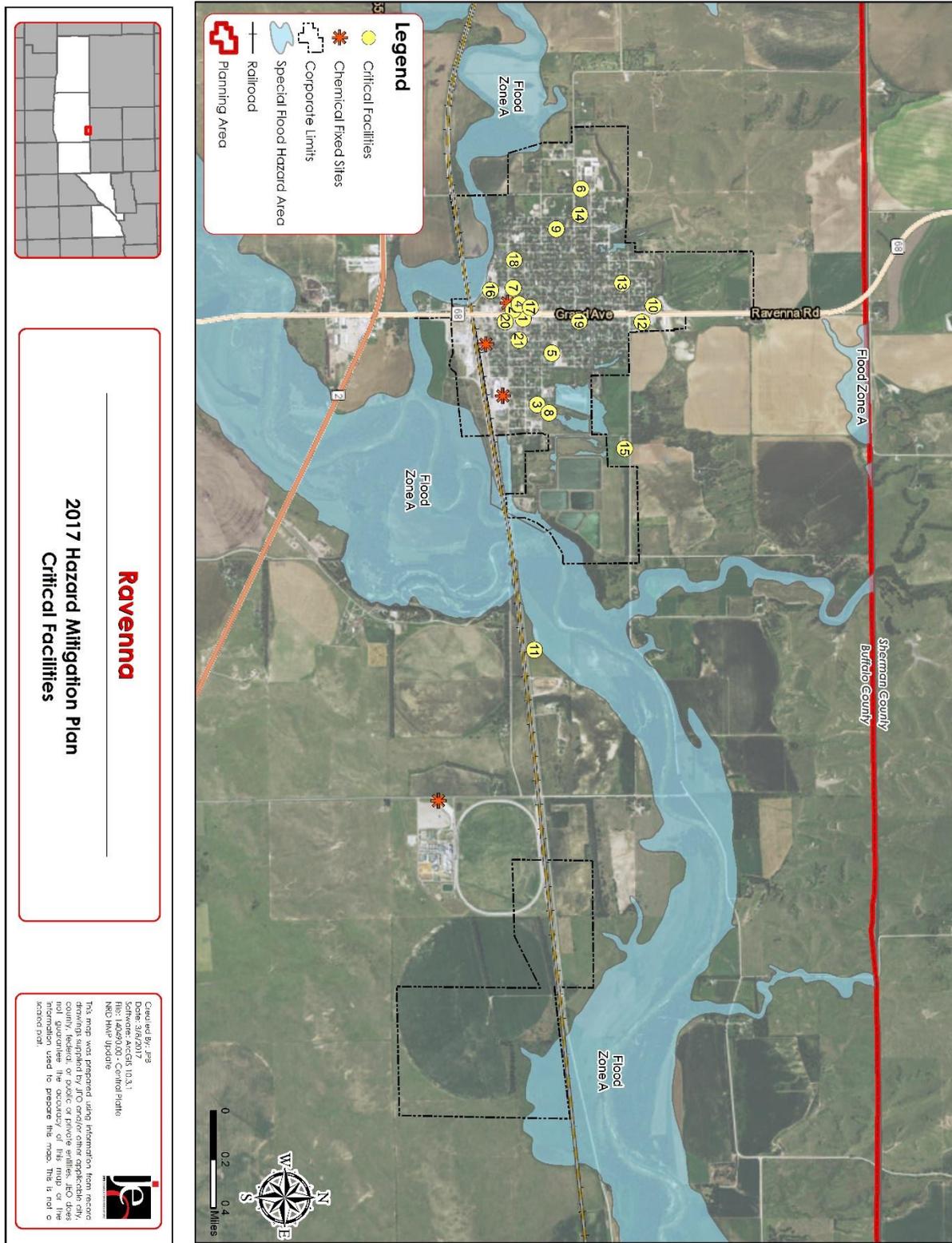
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table RVN.7: List of Critical Facilities in Ravenna**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	City Hall	416 Grand Ave	Y	Y	N
2	Ravenna Economic Development Corporation	318 Grand Ave	N	N	N
3	Public Works	610 E Syracuse St	N	N	N
4	Ravenna Public Library	121 W Seneca St	N	N	N
5	Our Lady of Lourdes Church	515 Sicily	Y	N	N
6	Ravenna Public Schools	41750 Carthage	Y	N	N
7	City Auditorium	211 W. Genoa St	N	Y	N
8	Fill Station	606 E. Syracuse St	N	N	N
9	Water Well House	624 Buell Ave	N	N	N
10	Water Tower/ Reservoir/Water Booster Station	1111 Grand Ave	N	Y	N
11	Lift Station	43540 370 <sup>th</sup> Rd	N	Y	N
12	North Pump House	1104 Grand Ave	N	N	N
13	Northwest Pump House	313 w. Sherman	N	N	N
14	West Pump House	655 W. Carthage St.	N	N	N
15	Lagoons	43050 375 <sup>th</sup> Rd	N	N	N
16	Fire Station	224 Alba Ave	N	Y	N
17	Medical Center	104 E Seneca St	N	N	N
18	Good Samaritan Center (Senior Living)	411 W. Genoa St	N	N	N
19	Seneca Sunrise Assisted Living	710 Grand Ave	N	N	Y
20	Ravenna Senior Center	315 Grand Ave	N	N	N
21	New Public Library (not yet constructed)	324 Milan Ave	N	N	N

Figure RVN.6: Critical Facilities and Hazardous Material Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported in Ravenna Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Agricultural Animal & Plant Disease**

The main concerns about agricultural animal and plant disease are the smell, bacteria, and animal remains infiltrating the water and sewer systems. The closest markets that see large concentrations of livestock are in Kearney and Loup City. The population of greatest concern is the east end of town, where around 50 cows are located. There are no local plans in place in the event of an outbreak, nor are there any educational programs available. The RMA reports \$99,705 in crop losses from plant disease since 2000. Since 2014, the Nebraska Department of Agriculture has received reports of three cases of leptospirosis in bovines, five cases of paratuberculosis in bovines, one case of anaplasmosis in bovines, one case of infectious bovine rhinotracheitis/infectious pustula in bovines, one case of porcine delta coronavirus, and one case of porcine epidemic in Buffalo County. Ravenna plans to mitigate this hazard with public education and tabletop emergency exercises.

**Chemical Spills (Transportation)**

BNSF runs through Ravenna along Highway 2. There have been no chemical spills during transport reported, but chemicals are presumed to be transported daily by highway; acids, anhydrous chemicals, fertilizers, and fuel are transported regularly. There are critical facilities along these main transportation routes. Ravenna plans to mitigate this hazard with public education and tabletop emergency exercises.

**Dam Failure**

There are four dams in Ravenna. Of these, one dam has been identified as a high hazard dam. There have been no reports of failures at any of these dams, however, if a high hazard dam was to fail it would put life and property at risk. High hazard dams are annually inspected and must have an emergency action plan.

**Table RVN.8: Dams in Ravenna**

	Number of Dams	Minimal	Low	Significant	High
City of Ravenna	4	0	3	0	1
Buffalo County	51	4	35	6	6
Planning Area	185	16	144	18	7

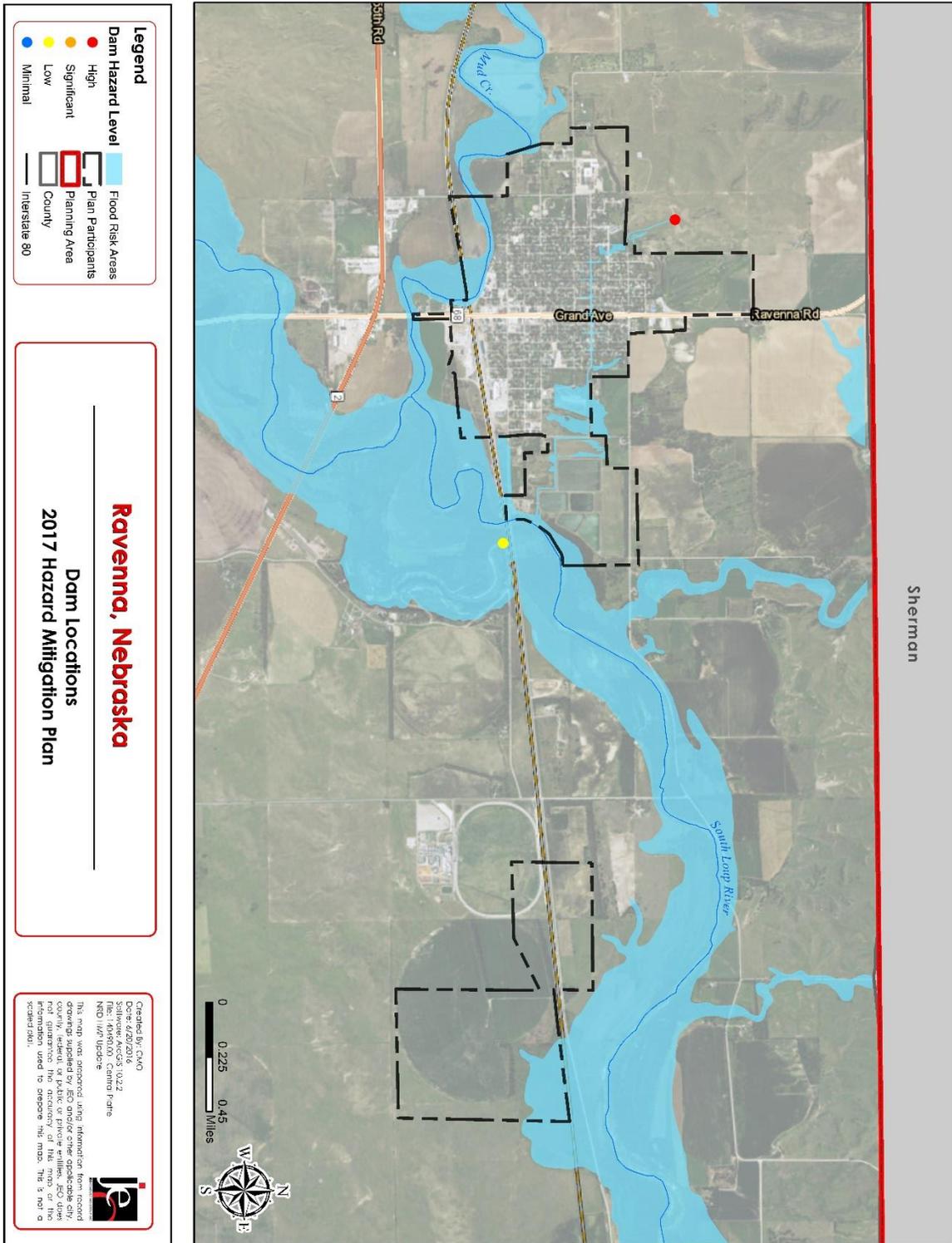
Source: NDNR

**Table RVN.9: High Hazard Dams**

NIDID	Dam Name	Owner	Location	Name of Stream	Maximum Storage (acre-feet)	Last Inspection Date
2492	Ravenna Northwest Dam	City of Ravenna	NW of city	South Loup River Tributary	295	5/21/2014

Source: NDNR

Figure RVN.7: Dam Locations



Ravenna plans to mitigate the risks associated with dam failure by providing adequate post-disaster storm shelters for the community, educating community members, and participating in tabletop emergency exercises.

**Flooding**

The flood risk areas of concern for the City of Ravenna are located south and east of the City. Ravenna has three NFIP policies in-force for \$650,000. There are no repetitive flood loss properties in the City of Ravenna.

The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 4.3 percent of all parcel improvements in Ravenna are located in the floodplain.

**Table RVN.10: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$1,126,095	30	705	4.3%

Source: GIS Workshop/Bufalo County Assessor

According to NCEI, there have been no reports of flooding or flash flooding specific to Ravenna since 1996, but a countywide event in May of 2005 caused \$2,000,000 in property damages when 4-12 inches of rain fell throughout Buffalo County. The flooding, in conjunction with severe thunderstorms, hail, and tornadoes, damaged bridges, vehicles, homes, agricultural equipment, and caused power outages throughout the area. Ravenna plans to mitigate damages in future flooding events by improving the City’s electrical services, continuing to implement their tree maintenance program, educating the public on ways to mitigate flooding, and participating in tabletop emergency exercises. They also plan to conduct a storm water drainage study and implement the findings.

**Severe Thunderstorms**

Severe thunderstorms were identified as a top concern for Ravenna. The local planning team noted that in 2013, there was a large severe thunderstorm event with high winds, golf ball to tennis ball sized hail, and widespread damage. NCEI reports that there have been 11 thunderstorm and lightning events from 1996-2015 that caused \$1,120,000 in property damage. The planning team is most concerned with getting notifications of the storm out to the public in time. The critical municipal records are not backed up and none of the power lines are buried. There are no weather radios in critical facilities, but most critical facilities have backup power generators. The City Auditorium needs a backup generator.

Ravenna plans to mitigate the risks associated with severe thunderstorms by providing adequate public safe rooms and hazard education, improving electrical service, participating in tabletop emergency exercises, and reducing tree damage with a maintenance program.

**Severe Winter Storms**

Severe winter storms are a top concern for Ravenna. The planning team referenced two specific winter storm events that were especially severe. In December of 2006, there was a large ice storm that downed power lines, broke poles, and left the community without power for four days. NCEI reports that half-inch ice accumulations resulted in \$5,000,000 in property damages throughout Buffalo County. Next, in February of 2016, Ravenna received 20” of snow. Accompanying road clearing problems shut down business and travel for several days. The issues concerning the planning team include insufficient Fire and

EMS response in wintery conditions, and the safety of elderly populations who are more vulnerable during severe winter storms.

The City of Ravenna retains a pay loader, grader, snowplow pickup, snowplow truck, skid steer, and backhoe for snow removal. Main Street is the official snow route for the community. Plans to further prepare for severe winter storms include improving electrical service, participating in tabletop emergency exercises, educating community members on the hazards associated with severe winter weather, and maintaining trees with a tree trimming program.

### **Tornadoes**

Ravenna's planning team identified tornadoes as a top concern for the community. An EF0 tornado occurred in September of 2006. Its path crossed south of Ravenna, where it destroyed an unused barn causing \$40,000 in property damages. Per the local planning team, another tornado in 2013 crossed north of Ravenna, causing house damages and destroying a garage. There are no data backup systems for municipal records, nor are there community safe rooms. There are some other options for community members seeking shelter, like the city auditorium. Furthermore, several businesses have basements, and all churches have basements available for shelter. Ravenna plans to improve their public safe rooms by retrofitting or constructing them new. The community does have warning sirens, activated by dispatch or at the Fire Hall. The planning team is unaware of areas that might not be reached by sirens. There are text alerts available for Ravenna, and once a year Emergency Management or NOAA puts on a training for Fire and EMS. Ravenna plans to further this training by participating in tabletop emergency exercises. Mutual Aid agreements are in effect with Pleasanton, Loup City, and Cairo. Further mitigation actions include improving electrical service by burying lines, public education, and reducing tree damage with a maintenance program.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City is governed by a Mayor and a three member City Council. Furthermore, Ravenna has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Public Works Department
- Streets Superintendent
- Police Department
- Planning Commission
- Housing Authority
- Economic Development Corporation
- Volunteer Fire Department

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the

participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table RVN.11: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes (County)
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes (CDBG)
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
Other (if any)		

Survey Components/Subcomponents		Yes/No
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes (Red Cross)
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table RVN.12: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	High
Does the community staff have time to devote to hazard mitigation?	Moderate

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Ravenna has an annex to the Buffalo County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

Ravenna’s Comprehensive Plan, which was last updated in 2013, integrates some of the objectives included in the HMP. The plan directs development away from dam inundation areas and major transportation routes. It also encourages infill development, elevation of structures located in the floodplain, and strengthening retrofits to historic structures. In the Energy and Natural Resources Chapter, it emphasizes the importance of mitigating run-off from new development while delineating a floodway/drainage way to lessen the impact of new developments on flooding in the community. With the plan having been updated recently, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The City’s Zoning Ordinance, also updated in 2013, identifies floodplain areas as parks of open space, requires at least one-foot of elevation above base flood elevation in the floodplain, prohibits development in the floodway, and prohibits the filling of wetlands. The Zoning Ordinance also discourages development along major transportation routes, encourages maintaining open space within the floodplain, and accounts for current population trends.

**MITIGATION STRATEGY****Ongoing and New Mitigation Actions**

<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms
Estimated Cost	\$150/safe room retrofit \$300/new safe room construction
Funding	General funds
Status	Have identified Red Cross post-disaster storm shelters. Public safe room construction is in the planning stage.
Timeline	1 year
Priority	Medium
Lead Agency	City Council, Contracted Engineer – Miller and Associates
Location	Public Library storage room

<b>Improve Electrical Service</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	Tornadoes, High Winds, Severe Winter Storms, Severe Thunderstorms, Flooding
Estimated Cost	Unknown
Funding	General funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Public Works
Location	New subdivisions

<b>Reduce Storm Water Damage</b>	
Description	Conduct storm-water drainage study to evaluate restrictions, capacity, level of protection, alternative improvements, prioritize improvements, etc.; evaluate and implement recommendations or comparable measures including open ditch and culvert improvements, underground piping, retention and detention facilities to decrease runoff, etc.; evaluate storm-water ordinance; implement improved storm-water ordinance
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000 to \$75,000 for studies \$10,000+ for ditch or pipe cleaning Unknown for large projects
Funding	Community Development Block Grant Program, General funds
Status	In progress.
Timeline	2 years
Priority	High
Lead Agency	Public Works
Location	Milan Ave and Alba Ave

<b>Reduce Tree Damage &amp; Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, Flooding, Wildfire
Estimated Cost	\$0 to \$5,000 to develop program Unknown cost to implement
Funding	General funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Public Works and contracted tree trimmers

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$3,000+
Funding	General funds
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	City government

<b>Tabletop Emergency Exercises</b>	
Description	Utilize tabletop emergency exercises to prepare for hazardous events; ensure that businesses and residents have appropriate plans in place
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	General funds
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	City government

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when available; conduct additional floodplain mapping/remapping
Reason for Removal	The City will continue to participate in the program, however this action is no longer considered a mitigation action.

<b>Reduce Damages in Floodplain</b>	
Description	Evaluate repetitive loss or potential loss structures located in floodplain; acquire and relocate or demolish flood prone property or elevate flood prone property; elevate equipment vulnerable to flooding
Reason for Removal	Have submitted Letter of Map Revision to FEMA, which moved many properties out of the floodplain. This project is not a priority for the community.

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF RIVERDALE

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table RVD.1 provides the list of participating members that comprised the Riverdale local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table RVD.1: Riverdale Local Planning Team**

Name	Title	Department / Organization
Jim Cudaback	Clerk	Village of Riverdale
Tim Pratt	Board Chairman	Village of Riverdale
David Pratt	Board Chairman	Village of Riverdale

**LOCATION AND GEOGRAPHY**

The Village of Riverdale is located in the southern portion of Buffalo County and covers an area of 0.26 square miles. The major waterway in the area is the Wood River.

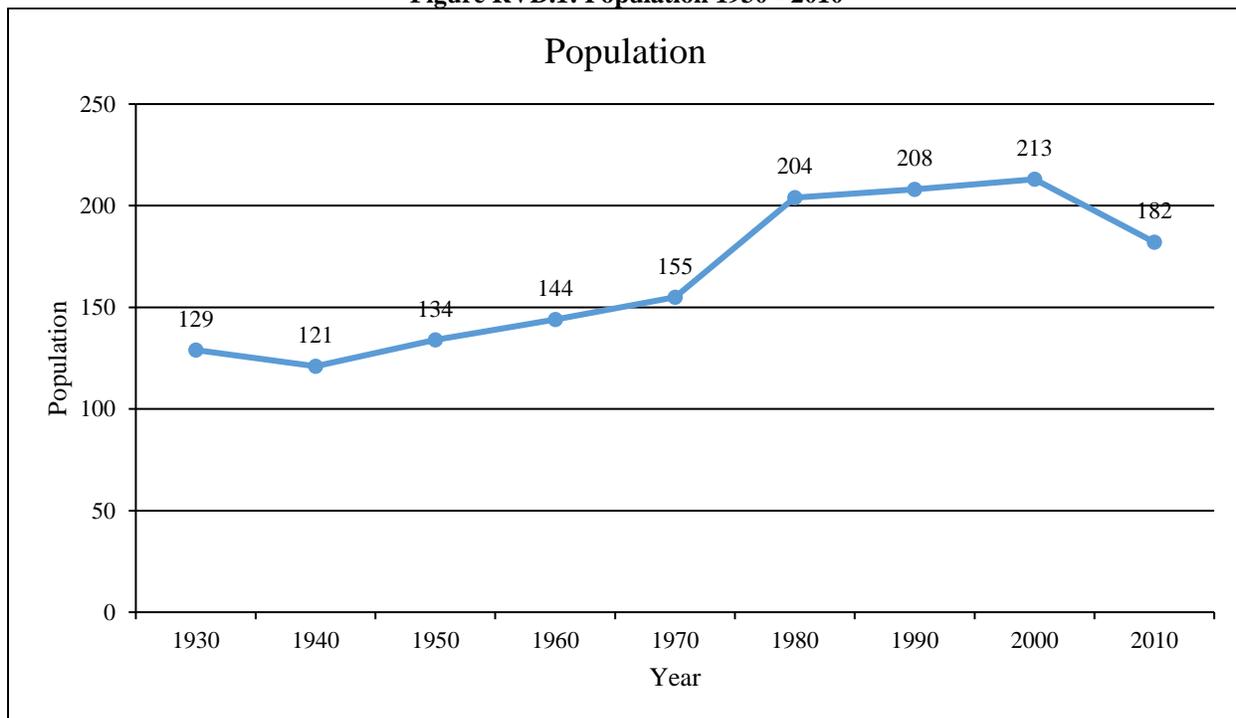
**TRANSPORTATION**

Riverdale’s primary transportation corridor is Nebraska Highway 40. Nebraska Highway 40 has on average 2,340 vehicles per day with 95 of those being heavy commercial vehicles. There are no rail lines in the Village.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Riverdale has decreased since the 2000 census.

**Figure RVD.1: Population 1930 - 2010**



Source: U.S. Census Bureau

Figure RVD.2: Map of the Village of Riverdale



  
 Created By: JRS  
 Approved: A0002103  
 No: 1469000 - Central Platte  
 NRD Hazard Mitigation  
 This map with associated data information was created  
 through a contract with the Central Platte Natural Resources  
 District. It is not intended to be used for any other  
 purpose. The accuracy of the map and the  
 information used to create the map is not  
 guaranteed.

**Riverdale, Nebraska**  
 Central Platte Natural Resources District  
 2017 Hazard Mitigation Plan

**Legend**  
 Corporate Limits  
 Planning Area  
 County  
 River

The following table indicates the Village of Riverdale has a higher percentage of residents under the age of five and over the age of 64 when compared to the rest of the County. The median age is also significantly higher than the County.

**Table RVD.2: Population by Age**

Age	Village of Riverdale	Buffalo County	State of Nebraska
<5	8.8%	7.2%	7.2%
5-64	75.8%	80.7%	79.2%
>64	15.4%	12.1%	13.6%
Median	46.6	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Riverdale’s median household income is about \$10,000 lower than that of the County’s, but the Village’s per capita income is slightly higher. Median home value is lower than the rest of the County.

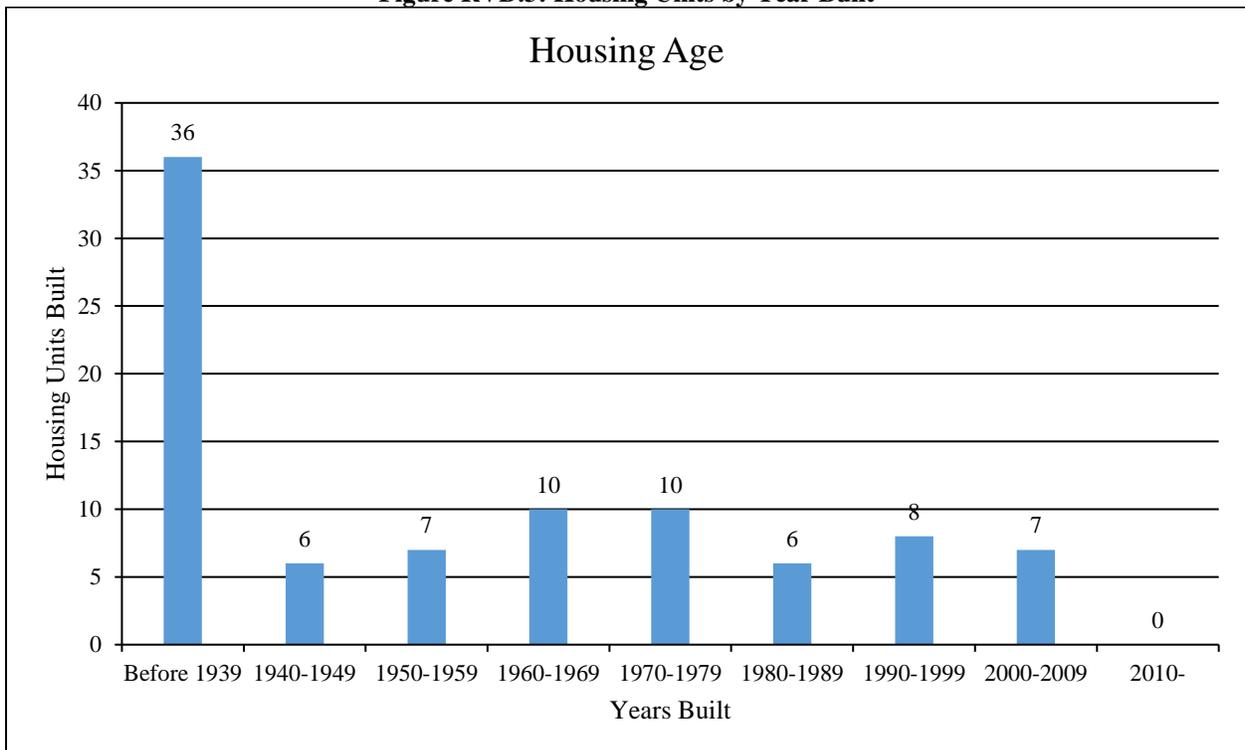
**Table RVD.3: Housing and Income**

	Village of Riverdale	Buffalo County	State of Nebraska
Median Household Income	\$54,219	\$64,926	\$52,400
Per Capita Income	\$26,896	\$25,154	\$27,339
Median Home Value	\$121,400	\$142,800	\$130,100
Median Rent	N/A	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 90 housing units with 74.4 percent of those units occupied. There are no mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in December 2010.

**Figure RVD.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table RVD.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Riverdale	67	74.4%	23	25.6%	62	92.5%	5	7.5%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers and industries for the Village of Riverdale are the Heartland Bank, the Andersons Grain Elevator, and the Bowie Fertilizer. A large percentage of residents commute to Kearney for work.

**FUTURE DEVELOPMENT TRENDS**

The planning team reports that little has changed over the past five years, and no new industry or housing developments are expected in the next five years. The planning team explained that even though the census reported the decline of Riverdale’s population, people are not moving out of the Village. They state that the postmaster failed to deliver the census form to residents, because all forms had street addresses listed instead of PO Box numbers.

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there is one chemical storage site that houses hazardous materials in Riverdale. This chemical storage site is not located in the floodplain (Figure RVD.4).

**Table RVD.5: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Bowie Fertilizer Inc	313 Railroad St	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Riverdale.

**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table RVD.6: List of Critical Facilities in Riverdale**

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Wastewater Plant	0.5-mile north of town on Riverdale Rd	N	N	N
2	Fire Station	219 3 <sup>rd</sup> Ave	N	Y	N
3	Community Center	221 3 <sup>rd</sup> Ave	N	N	N
4	Water Tower & Wellhouse	Fredrick St	N	N	N
5	Well	3 <sup>rd</sup> Ave	N	N	N
6	Village Shop	219 3 <sup>rd</sup> Ave	N	N	N

Figure RVD.4: Critical Facilities and Hazardous Material Storage Facilities with Floodplain



## ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

## ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

### **Extreme Heat**

The greatest concern around extreme heat is for the elderly and those without air conditioning. July of 2011 contained a significant extreme heat event where the heat index reached 105°F multiple times throughout an 11-day period. To mitigate this, the Riverdale community center is identified as a cooling center for community members. The Village’s public meeting and event cancellation procedure is through the media or by telephone. Riverdale plans to further mitigate the risks associated with extreme heat by improving their backup generator system and educating their residents about extreme heat events.

### **Flooding**

The flood risk areas of concern for the Village of Riverdale are located in the northern portion of the Village and impact the center of the Village. Riverdale has two NFIP policies in-force for \$279,900. There are no repetitive flood loss properties in the Village of Riverdale.

The following table is parcel improvement information as provided by GIS Workshop. It indicates an estimated 26.7 percent of all parcel improvements in the community are in the floodplain.

**Table RVD.7: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements</b>	<b>Percentage of Improvements in Floodplain</b>
\$3,683,950	31	116	26.7%

Source: GIS Workshop/Buffalo County Assessor

According to the NCEI, there have been no reports of flooding or flash flooding specific to Riverdale since 1996, but a countywide event in May of 2005 caused \$2,000,000 in property damages when 4-12 inches of rain fell throughout Buffalo County. The flooding, in conjunction with severe thunderstorms, hail, and tornadoes, damaged bridges, vehicles, homes, agricultural equipment, caused power outages throughout the area.

Mitigation plans involve further developing Riverdale’s floodplain information by mapping floodplains and revising floodplain insurance maps.

### **Hail**

The local planning team is concerned about hail damage to property, and potential loss of life. The NCEI reports 11 significant hail events since 1998, causing \$3,800,000 dollars in damage, which led to ranking hail as a top concern. The most significant hail event occurred in June of 2002, when five-inch hail stones caused \$10,000,000 in property damages to vehicles and buildings, including punctured roofing. Riverdale’s critical facilities have since been fitted with hail resistant material, however in 2015 and 2016, some of the community’s critical facilities were damaged by hail. Two-inch hail stones caused \$250,000 in property damages in April of 2015, and 1.75-inch hailstones caused \$35,000 in property damages in September of 2015. The roof of the Village Shop was damaged during the summer of 2015 from one of

these hail storms. Riverdale plans to mitigate the risks associated with hail by improving their citizen warning systems and educating residents about hazard events.

### **High Winds**

The planning team identified high winds as a top hazard for the Village, because of concerns about loss of life and property. The local planning team reports that a high wind event in 2016 saw wind speeds of 50-85 mph. The Village does not have data backup systems for municipal records. There is no history of critical facilities being damaged by high wind events. The Community Center has an area where residents can seek shelter, with plans to improve this public storm shelter. Emergency text alerts are available through the County Emergency Manager. There are plans to further improve the citizen warning systems and emergency communication systems. Riverdale has included resident hazard education and public safe room construction as future mitigation actions.

### **Severe Thunderstorms**

Per the NCEI, there have been three thunderstorm events since 2002. In total, these reported severe thunderstorms events caused \$525,000 dollars in damage. The worst of these storms was in May of 2011, when wind gusts of 80-90 mph caused damage to trees and power lines resulting in power outages and \$500,000 in property damages. In July of 2016, there was a thunderstorm wind event with wind gusts of 50-60 mph that resulted in the toppling of trees and broken branches. The local planning team is concerned about the potential for loss of life and property. Critical municipal records are protected with surge protectors, and critical facilities have weather radios. Riverdale plans to further mitigate the risks associated with severe thunderstorms by identifying and improving their public safe rooms, providing backup generators for all critical facilities, improving the citizen warning and emergency communications systems, and educating residents about thunderstorm events.

### **Severe Winter Storms**

There were six winter storms that resulted in death, injury, or more than \$100,000 in property damages in Buffalo County. The first of these storms occurred on February 10, 1999. Three inches of snow and wind gusts over 50 mph caused severe blowing and drifting snow, which resulted in two injuries from vehicular accidents and \$10,000 in property damage. A blizzard on November 28, 2005 caused a significant number of road closures, damages, and power outages across the County. These included: the closing of railways and 220 miles of Interstate-80; power outages for over 5,000 customers and \$1,000,000 in losses for the Nebraska Public Power District; 60 damaged irrigation pivots resulting in \$250,000 in damages; school closures; and lost cattle. Three months later, on March 21, 2006, another winter storm caused \$200,000 in damages. Two injuries and five deaths were sustained, along with \$20,000 in property damages when freezing drizzle in November 2006 caused numerous car accidents. On December 19, 2006, a second ice storm caused \$400,000 in property damages from broken tree limbs, power lines, power poles, and power outages. The final severe winter storm to occur in Riverdale was in December 8, 2011, when slick roads caused two fatalities in a vehicle accident.

The Village is concerned with the potential for building collapse, loss of life or injury potentials, and the hindered mobility of emergency vehicles. The Village uses tractors with blades for snow removal. This equipment is considered sufficient at this time. Riverdale does not have any snow fences or designated snow routes, but many residents have backup generators for their homes. Mitigation plans include providing backup generators for all critical facilities, improving citizen warning and emergency communication systems, and providing education to residents on severe winter storms.

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Riverdale is governed by a Chairperson and a five member Village Board. Furthermore, Riverdale has additional offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk
- Engineer
- Village Board

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table RVD.8: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		

Survey Components/Subcomponents		Yes/No
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
Other (if any)		

**Table RVD.9: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA's 2014 *Plan Integration Guide*.

Riverdale has an annex to the Buffalo County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village has a Floodplain Ordinance, which requires at least one-foot of elevation above base flood elevation in the floodplain and prohibits development in the floodway.

No other examples of plan integration were identified. There are currently no plans to further integrate planning mechanisms.

## **MITIGATION STRATEGY**

### **Completed Mitigation Actions**

	<b>Increase/Improve Drinking Water Supply</b>
Description	Study water supply deficiencies, identify alternative solutions, locate new sources; implement cost effective measures to increase/improve supply and/or fire protection
Hazard(s) Addressed	Drought
Funding	Village funds and grant Nebraska State Fund
Status	New well completed in 2016.

### **Ongoing or New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	Local funds, HMGP
Status	In progress. Examining need and developing cost estimate.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	Local funds, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

<b>Improve Emergency Communication Systems</b>	
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	Local funds
Status	Fire Department maintains emergency communication systems.
Timeline	2-5 years
Priority	Low
Lead Agency	Village Board

<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sf for retrofit, \$300/sf for new construction
Funding	Local funds, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Village Board

<b>Develop/Update Floodplain Information</b>	
Description	Conduct mapping/remapping of floodplains; revise floodplain/insurance maps
Hazard(s) Addressed	Flooding
Estimated Cost	Unknown
Funding	Local funds
Status	Not yet started.
Timeline	Ongoing
Priority	Low
Lead Agency	Floodplain Administrator

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$0-\$5,000
Funding	Local funds
Status	Siren tests are regularly performed; educational materials provided in newsletters.
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Board and Fire Department

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF SHELTON

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table SHL.1 provides the list of participating members that comprised the Shelton local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table SHL.1: Shelton Local Planning Team**

Name	Title	Department / Organization
Ryan Clark	Police Chief	Village of Shelton
Jason Wiehn	Fire Chief	Village of Shelton
Janice Emal	Village Clerk	Village of Shelton
Chuck Roe	Assistant Fire Chief	Village of Shelton

**LOCATION AND GEOGRAPHY**

The Village of Shelton is located in the southeastern portion of Buffalo County which borders Hall County and covers an area of 0.73 square miles. Major waterways in the area include the Wood River and Boxelder Creek.

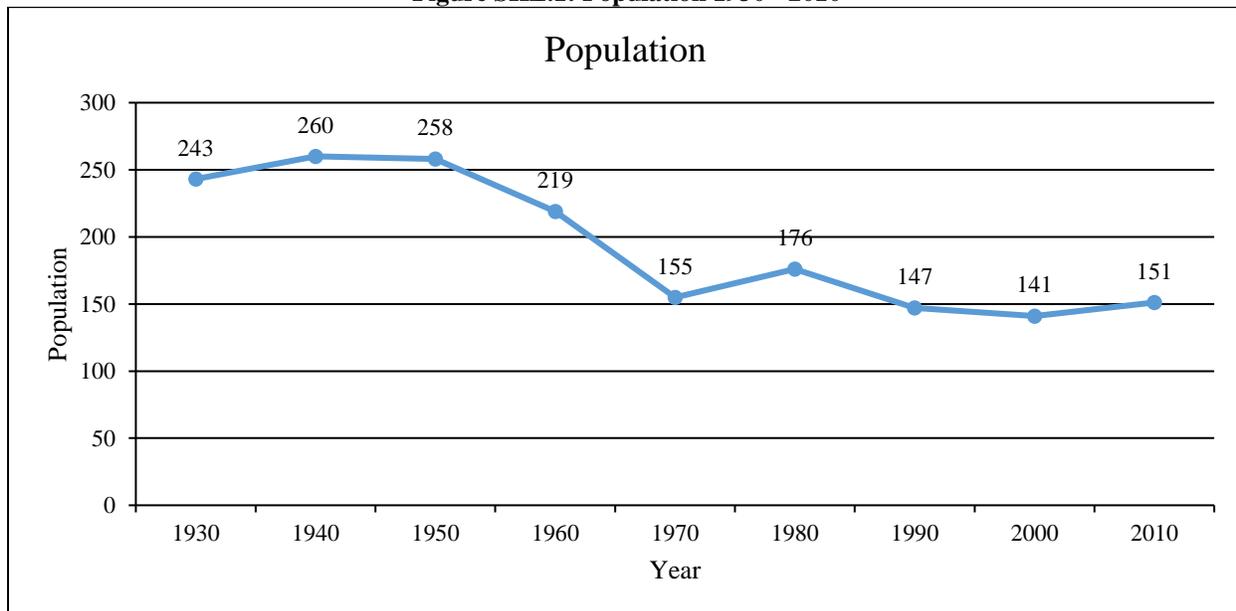
**TRANSPORTATION**

Shelton’s major transportation corridors include U.S. Highway 30 and Nebraska Highway 100. U.S. Highway 30 has on average 4,545 vehicles per day with 365 of those being heavy commercial vehicles. Nebraska Highway 100 has on average 650 vehicles per day with 70 of those being heavy commercial vehicles. The Union Pacific Railroad has rail lines that travel through the northern portion of the community along U.S. Highway 30.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Shelton decreased between 1980 and 2000, but recently increased to 151 for the 2010 census.

**Figure SHL.1: Population 1930 - 2010**



Source: U.S. Census Bureau



The following table indicates the Village of Shelton has a slightly higher percentage of residents under the age of five and a higher median age when compared to the rest of the County.

**Table SHL.2: Population by Age**

Age	Village of Shelton	Buffalo County	State of Nebraska
<5	8.2%	7.2%	7.2%
5-64	80.0%	80.7%	79.2%
>64	11.8%	12.1%	13.6%
Median	35.8	32.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Shelton’s median household income is similar to that of the County, but the Village’s per capita income is lower. The median home value and rent are significantly lower when compared to the rest of the County, making home ownership more affordable.

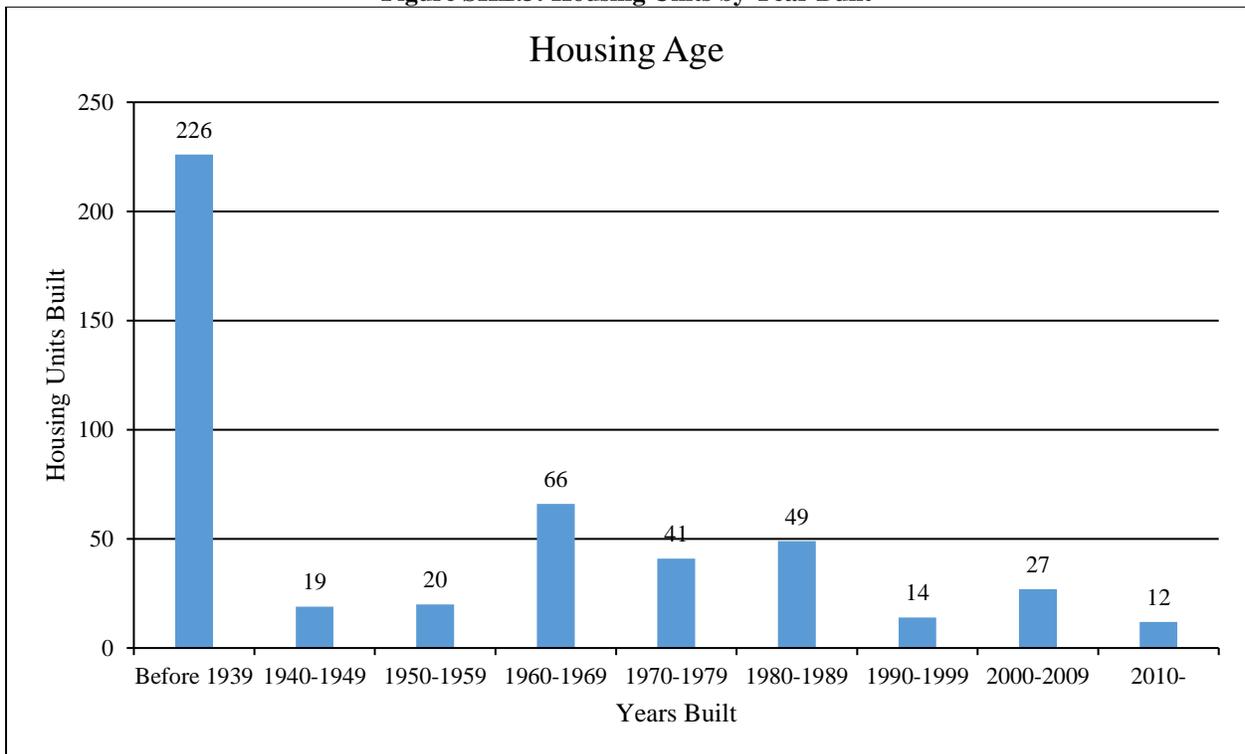
**Table SHL.3: Housing and Income**

	Village of Shelton	Buffalo County	State of Nebraska
Median Household Income	\$63,458	\$64,926	\$52,400
Per Capita Income	\$21,345	\$25,154	\$27,339
Median Home Value	\$93,100	\$142,800	\$130,100
Median Rent	\$521	\$706	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 474 housing units with 90.1 percent of those units occupied. There are approximately 28 mobile homes in the community. The mobile home parks are located on 3rd and E Street, on the southwest side of town. The initial Flood Insurance Rate Map (FIRM) was developed in September 1985.

**Figure SHL.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table SHL.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Shelton	427	90.1%	47	9.9%	333	78.0%	94	22.0%
Buffalo County	18,018	93.1%	1,329	6.9%	11,570	64.2%	6,448	35.8%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers and industry in the community are Cargill Inc. and Landmark Implement. A large percentage of residents commute to work in the Tri Cities.

**FUTURE DEVELOPMENT TRENDS**

Over the past five years, a new subdivision, Burner’s Subdivision, was built. The local planning team attributes the slight population growth to Shelton’s location, which is centered in the Tri Cities. No other new housing or businesses are planned for the next five years.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table SHL.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
482	\$36,230,345	\$75,167	13	\$306,570

Source: GIS Workshop/Buffalo County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of two chemical storage sites that house hazardous materials in Shelton. However, none of the chemical storage sites are located in the floodplain (Figure SHL.4).

**Table SHL.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Agricultural Services Inc	523 Railroad St	No
Nebraska Central Telephone Co	215 C St	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there is one historic site located in or near Shelton.

**Table SHL.7: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Meisner Bank	3/25/1999	No

Source: Nebraska State Historical Society, 2016

***CRITICAL FACILITIES***

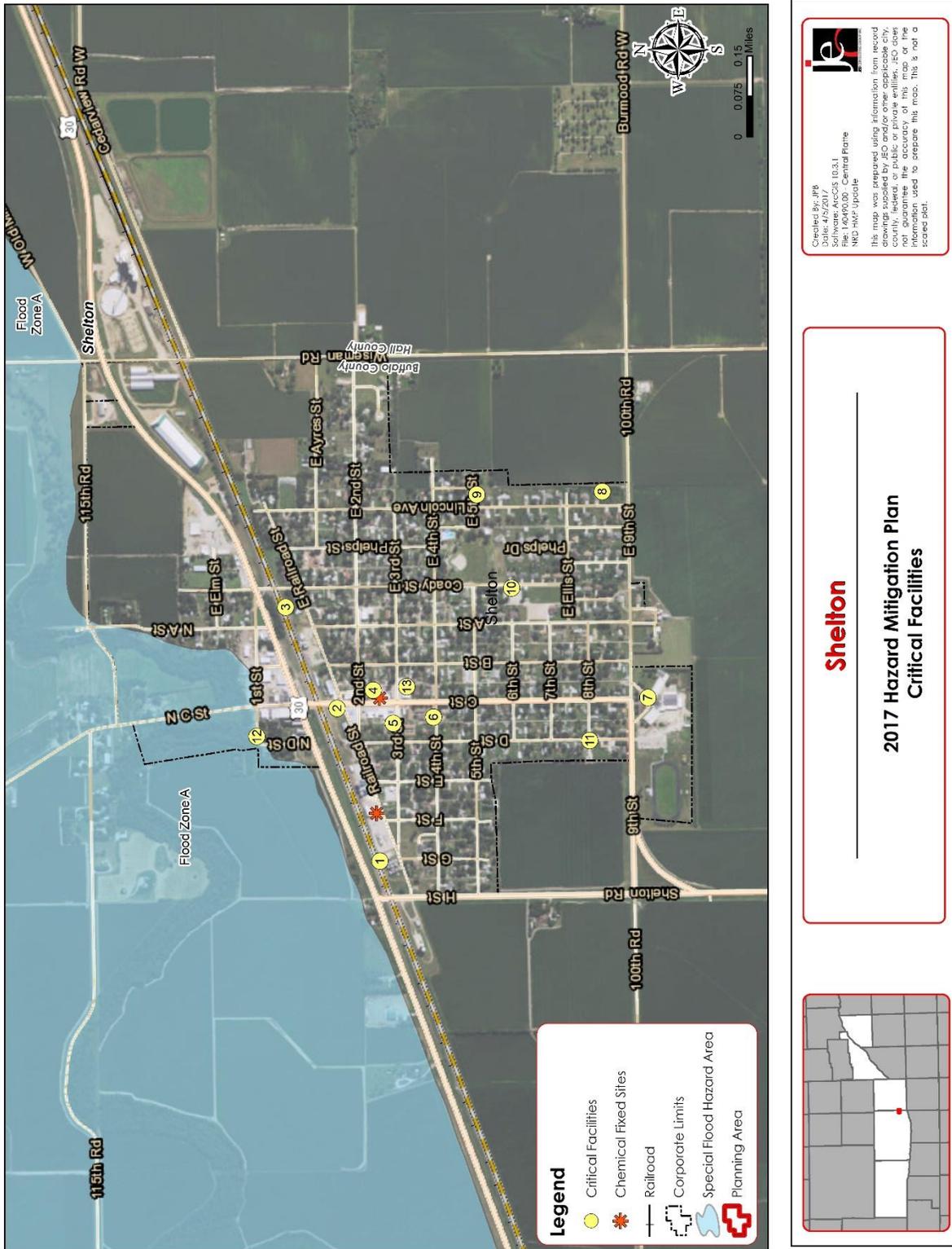
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table SHL.8: List of Critical Facilities in Shelton**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Ag Services	3 <sup>rd</sup> St and G St	N	N	N
2	NPPD Substation	E 2 <sup>nd</sup> St and N C St	N	N	N
3	Bosselman Oil	Railroad St and N A St	N	N	N
4	Village Office/Police	219 C St	N	N	N
5	Fire and Rescue Department	212 C St	N	Y	N
6	Shelton Clinic	302 C St	N	N	N
7	Shelton School	210 9 <sup>th</sup> Street	Y	N	N
8	Well 1*	E 9 <sup>th</sup> St and Lincoln Ave	N	Y	N
9	Well 2*	Ellis Street & Lincoln Ave	N	Y	N
10	Water Tower	E 5 <sup>th</sup> St and Coady St	N	Y	N
11	2012 Well	812 D Street	N	N	N
12	2002 Well	118 D Street	N	Y	N
13	Village Shop	305 C Street	N	Y	N

\*Well #1 used for fires only; well #2 for back-up purposes only

Figure SHL.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Buffalo County.

### ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported in Shelton’s Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

#### **Chemical Spills (Transportation)**

The local planning team identified chemical transportation as a top concern for the Village due to the proximity of Highway 30 and Union Pacific Railroad. Chemicals are presumed to be transported daily by highway; however, the Village is not sure which types of chemicals are being transported. There are critical facilities along main transportation routes, and they include the Grain Elevator, several local businesses, and houses. The local planning team reports that once a fill line for an anhydrous tank broke. There was no impact to the area, but it could have caused a gas cloud. To mitigate the hazards associated with chemical spills, Shelton plans to improve their citizen warning systems.

#### **Flooding**

The flood risk area of concern for Shelton is located north of the community, impacting a small northwest portion of the Village. Shelton has one NFIP policy in-force for \$93,000. There are no repetitive flood loss properties in the Village of Shelton.

The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 2.7 percent of all parcel improvements in Shelton are located in the floodplain.

**Table SHL.9: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements in Community</b>	<b>Percentage of Improvements in Floodplain</b>
\$306,570	13	485	2.7%

*Source: GIS Workshop/Buffalo County Assessor*

In June of 2010, a flash flood caused by heavy rain resulted in \$10,000 in property damage. Shelton plans to mitigate flooding hazards by improving their citizen warning systems.

#### **Hail**

The planning team ranked hail as a top concern, as the NCEI reports 13 hail events since 1997. These events have caused a total of \$2,040,000 dollars in damage. The largest hail stone was reported at 2.75 inches. This storm, in July of 2002, caused \$250,000 in property damages when the hail destroyed windows, roofs, and cars. The most property damage caused by hail was in July of 2014 when golf ball sized hail stones resulted in \$1,000,000 in damages. The planning team is most concerned with property damage. None of the community’s critical facilities are fitted with hail resistant materials, but they are insured. Shelton plans to mitigate hazards from hail by improving their citizen warning systems.

#### **Severe Thunderstorms**

NCEI reported nine thunderstorm wind events since 1997, causing \$370,000 dollars in damage. The worst of these storms was in July of 2009. Over \$250,000 in property damage was caused when thunderstorms damaged power lines and transformers, brought down large tree branches, and destroyed a pre-fabricated building and billboard. Critical municipal records are protected with surge protectors on electronic devices.

The Village Shop, Fire Hall, wells (#1, #2, and 2002 wells), and water tower have backup generators. The Village Office does not have a backup generator. Very few of the Village's power lines are buried. The Village does have warning sirens activated by Buffalo County Dispatch, however, the southeast area of town cannot hear the sirens. Shelton has Mutual Aid agreements with all adjacent communities in Buffalo County: Gibbon, Kenesaw, and Wood River. Shelton plans to improve its citizen warning systems and provide adequate public safe rooms to mitigate future thunderstorm risks.

### **Severe Winter Storms**

The planning team's top concerns are emergency response time and availability during severe winter storms. There were no reported winter storm zonal events by NCEI between 1996 and 2014, but the planning team mentioned a storm in February 2016. During this severe winter storm, Shelton received 18" of snow, with high winds and blizzard conditions. This snow event shut down businesses and roads. The designated snow route is C Street. The Village is responsible for snow removal and equipment is sufficient at this time, but could be improved. Shelton has mitigated some of the risk associated with severe winter storms by providing adequate backup generators for critical facilities, and plans to further mitigate risk by improving their citizen warning systems.

### **Tornadoes and High Winds**

The local planning team ranked tornadoes and high winds as top hazards of concern for the Village. There have been three reports of tornadoes since 2002 in Shelton. Each of these tornadoes touched down outside of Shelton and fortunately resulted in no damages. The local planning team is concerned about property and tree damage from tornadoes and high wind events. While residents of Shelton may go to the school to seek shelter, the Village plans to provide adequate public safe rooms for the community. Shelton has mitigated some of the risk associated with tornadoes and high winds by providing backup generators to critical facilities, and plans to continue mitigation by improving their citizen warning systems and providing adequate public safe rooms for the community.

## ***GOVERNANCE***

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Shelton is governed by a Chairperson and a five member Village Board. Furthermore, Shelton has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk
- Utility Superintendent
- Police Department
- Volunteer Fire Department
- Park and Recreation
- Park Board
- Tree Board
- Planning Commissioner
- Engineer

## ***CAPABILITY ASSESSMENT***

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table SHL.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No

Survey Components/Subcomponents		Yes/No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	

**Table SHL.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Shelton has an annex to the Buffalo County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes and locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village has a Floodplain Ordinance, which requires at least one-foot of elevation above base flood elevation in the floodplain and prohibits development in the floodway.

No other examples of plan integration were identified. There are currently no plans to further integrate planning mechanisms.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

Description	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Analysis	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Location	Fire Station, Village Shop, Wells
Funding	Village Funds
Status	Completed.

**Ongoing or New Mitigation Actions**

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$50/radio; \$5,000 to \$50,000 for radio/television broadcast system; \$15,000 to \$50,000 for sirens. Varies
Funding	General Funds, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

	<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	General Funds, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Village Board

**Removed Mitigation Actions**

Description	<b>Maintain Good Standing in the NFIP</b>
Analysis	Maintain good standing with the National Flood Insurance Program
Reason for Removal	Village will continue to participate in program, however this action is no longer considered a hazard mitigation action.

AUGUST 2017

**DAWSON COUNTY APPENDIX**  
CENTRAL PLATTE NRD MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN



THIS PAGE IS INTENTIONALLY BLANK

**CONTENTS**

**PLAN OVERVIEW .....1**

**DAWSON COUNTY .....3**

**CITY OF COZAD .....23**

**VILLAGE OF FARNAM .....41**

**CITY OF GOTHENBURG.....55**

**CITY OF LEXINGTON .....73**

**VILLAGE OF OVERTON .....93**

THIS PAGE IS INTENTIONALLY BLANK



## ***PLAN OVERVIEW***

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, in order to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind the update of this hazard mitigation plan is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives which helped guide the process of identifying both broad-based and community-specific mitigation strategies and projects that will, if implemented, reduce their vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (One for each of the five participating counties plus one for the Central Platte NRD and one for communities participating outside of the five participation counties)
- An appendix of procedural documentation and resolutions of adoption

This participant appendix includes all participating jurisdictions from Dawson County, which includes jurisdictional-specific information for each participant. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION  
FOR

DAWSON COUNTY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### **LOCAL PLANNING TEAM**

Table DAW.1 provides the list of participating members that comprised the Dawson County local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the County.

**Table DAW.1: Dawson County Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Jurisdiction/Department</b>
Brian Woldt	Director of Emergency Management	Dawson County

### **LOCATION AND GEOGRAPHY**

Dawson County is located in south central Nebraska and is bordered by Custer, Lincoln, Frontier, Gosper, Phelps, and Buffalo Counties. The total area of Dawson County is 1,019 square miles. Major waterways within the County include Buffalo Creek, Elm Creek, Platte River, Plum Creek, Spring Creek, West Buffalo Creek, and Wood River, as well as Midway Lake, Plum Creek Canyon, Gallagher Lake, and Johnson Lake. Most of Dawson County lies in the dissected plains, plains, bluffs and escarpments topographic region, with the vast majority of the County’s land characterized by agricultural fields.

### **CLIMATE**

For Dawson County, the normal high temperature for the month of July is 86.7°F. The normal low temperature for the month of January is 13.3°F. On average, Dawson County receives 25.23 inches of rain and 23.4 inches of snowfall per year. The following table compares these climate indicators with those of the entire state. Climate data are helpful in determining if certain events are more or less likely to occur in specific locations.

**Table DAW.2: Climate Data for Dawson County**

<b>Age</b>	<b>Dawson County</b>	<b>Planning Area</b>	<b>State of Nebraska</b>
July Normal High Temp	86.7°F	87.0°F	88.0°F
January Normal Low Temp	13.3°F	14.2°F	12.0°F
Annual Normal Precipitation	25.23 inches	26.65 inches	23.89 inches
Annual Normal Snowfall	23.4 inches	26.2 inches	25.9 inches

Source: NCEI Climate Data Online, 1981-2010 Climate Normals

\*Precipitation includes all rain and melted snow and ice.

### **TRANSPORTATION**

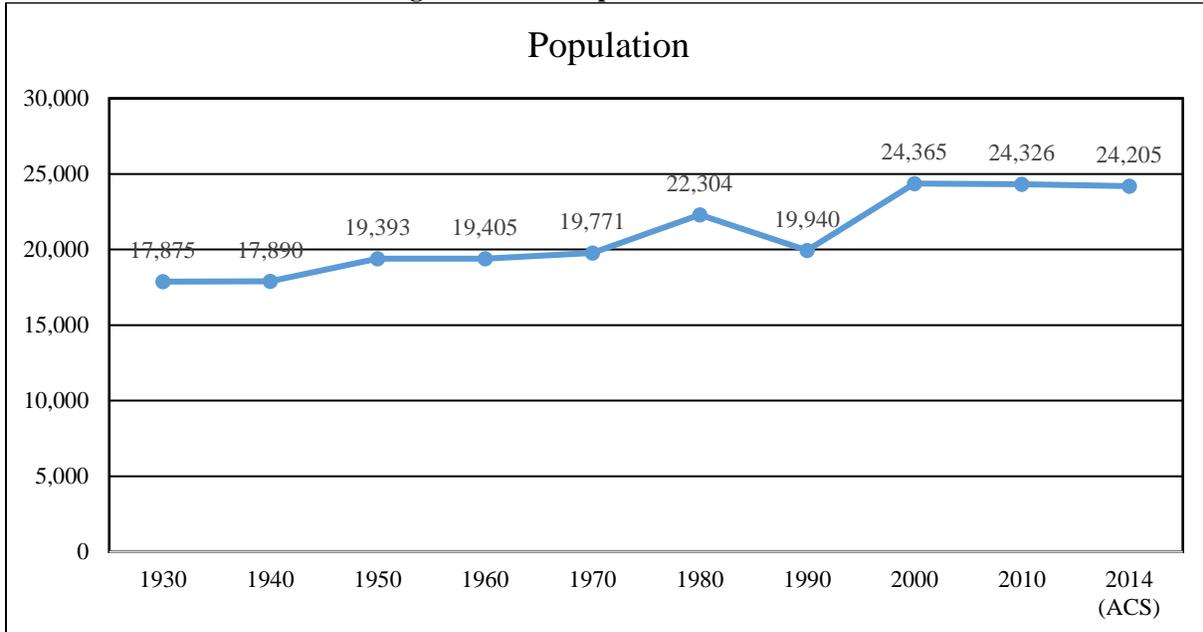
Dawson County’s major transportation corridors include Interstate 80, Highways 283, 21, 23, 40, 47, and 30. There are three airports located in the County: Jim Kelly Field, Quinn Field, and Cozad Airport.



**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Dawson County has been gradually increasing since 1930. This is notable for hazard mitigation for several important reasons. First, communities with slow population growth will be less prone to pursue residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future.

**Figure DAW.2: Population 1930 – 2014**



Source: U.S. Census Bureau

The following table indicates the State of Nebraska has a comparable percentage of people under the age of 5 to Dawson County. Dawson County has a slightly higher percentage of the population under the age of 5 and over the age of 64 as compared to the state, but a slightly lower percentage of the population between the ages of 5 and 64.

**Table DAW.3: Population by Age**

Age	Dawson County	State of Nebraska
<5	7.9%	7.2%
5-64	78.2%	79.2%
>64	13.9%	13.6%
Median	36.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Dawson County’s median household income is higher when compared to the State of Nebraska, but per capita income is lower. Median home value and rent are lower than the rest of the state. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the state as a whole.

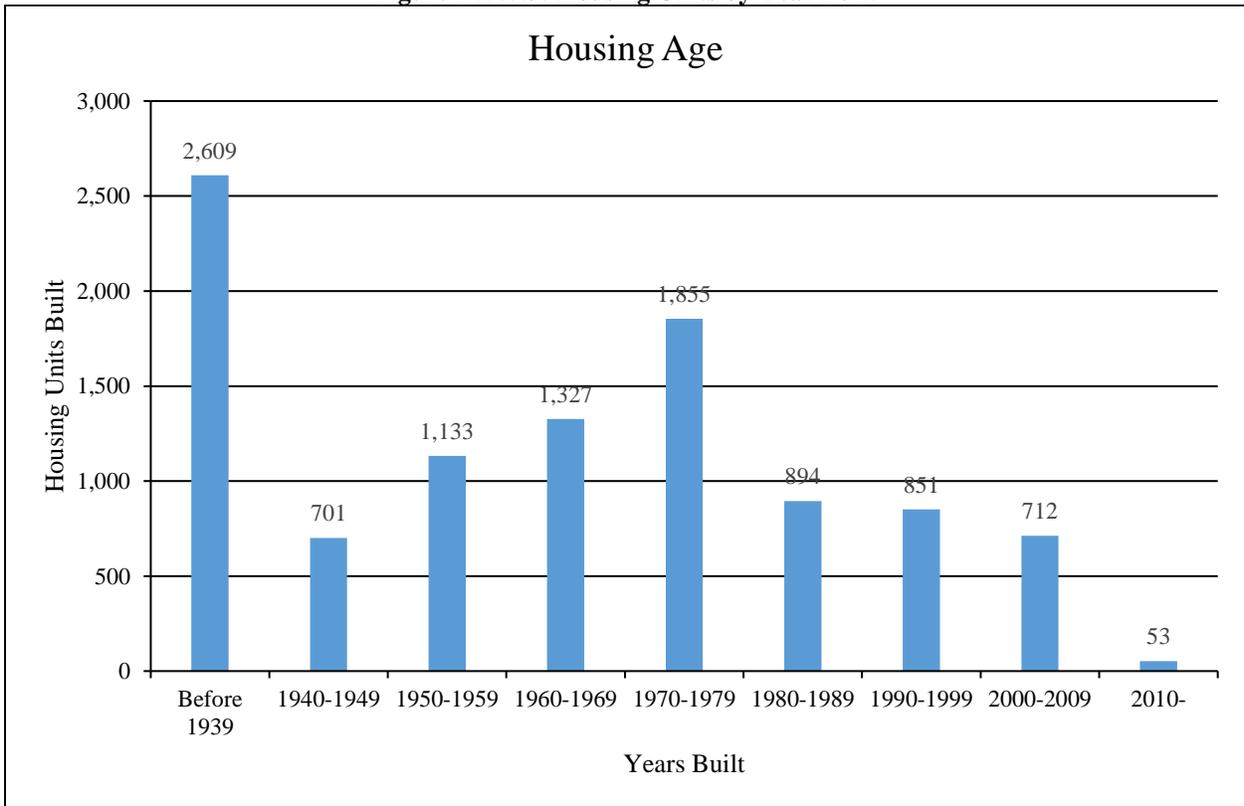
**Table DAW.4: Housing and Income**

	Dawson County	State of Nebraska
Median Household Income	\$56,361	\$52,400
Per Capita Income	\$21,046	\$27,339
Median Home Value	\$89,700	\$130,100
Median Rent	\$648	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the County has 10,135 housing units with 86.2 percent of those units occupied. There are approximately 839 mobile homes in the County. The initial Flood Insurance Rate Map (FIRM) was developed in July 1988.

**Figure DAW.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table DAW.5: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Dawson County	8,731	86%	1,404	14%	5,970	68%	2,761	32%
Nebraska	731,347	90.8%	73,909	9.2%	486,036	66.5%	245,311	33.5%

Source: Selected Housing Characteristics: 2010 - 2014 ACS 5-year estimate

**MAJOR EMPLOYERS**

Per 2014 Business Patterns Census Data, Dawson County had 688 business establishments. The following table presents the number of establishments, number of paid employees, and the annual pay role in thousands of dollars. This information is relevant to hazard mitigation insofar as it indicates the diversification of industry. Communities which have a diverse economic makeup may be more resilient following a hazardous event, especially if certain industries are more impacted than others.

**Table DAW.6: Business in Dawson County**

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
<b>Total for all Sectors</b>	688	9,175	311,020

Source: U.S Census 2014, Table CB1400A11

Agriculture is important to the economic fabric of Dawson County, and the state of Nebraska as a whole. Dawson County’s 806 farms cover 630,466 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well. Related business contributions include producing, processing and marketing farm and food products. These businesses generate income, employment and economic activity throughout the region.

**Table DAW.7: Dawson County Agricultural Inventory**

<b>Dawson County Agricultural Inventory</b>	
Number of Farms	806
Land in Farms	630,466 acres

Source: USDA 2012 Census of Agriculture

**FUTURE DEVELOPMENT TRENDS**

In the last five years, agricultural outbuildings have been added and existing industries have grown in Dawson County. There are no plans for new businesses, industry, or housing developments. According to the planning team, Dawson County’s expanding large businesses contribute to the increasing population.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table DAW.8: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
13,713	\$584,800,912	\$42,646	3,407	\$98,605,045

Source: GIS Workshop/Dawson County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES****CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of 28 chemical storage sites that house hazardous materials in Dawson County. Of these, there are five sites that are located in either the 1 or 0.2% floodplain (Figure DAW.4).

**Table DAW.9: Chemical Storage Fixed Sites**

Facility	Address	Community	In Floodplain?
Country Partners Cooperative	300 E Monroe St	Cozad	No
Country Partners Cooperative	400 Locust St	Cozad	No
Country Partners Cooperative	820 E 3rd St	Cozad	No
Country Partners Cooperative	404 Willow St	Cozad	No
AT&T	Buffalo Rd	Cozad	No
AT&T Interstate 6030	Dr 425	Cozad	No
Crop Production Services Inc	304 Avenue M	Cozad	No
Island Dehy Co Inc	303 S Meridian Ave	Cozad	No
Mid State Aviation II Inc	1304 W Highway 30	Cozad	No
Union Pacific Railroad	100 W Railroad St	Cozad	No
Doug Gengenbach Livestock	75081 Road 422	Eustis	No
CenturyLink	413 10th St	Gothenburg	Yes – 0.2%
Baldwin Filters Inc	300 W 1st St	Gothenburg	Yes – 1%
Blue Heron Campground	1102 S Lake Ave	Gothenburg	Yes – 1%
Frito-Lay Inc	311 Cottonwood Dr	Gothenburg	Yes – 1%
Country Partners Cooperative	120 8th St	Gothenburg	No
Tyson Fresh Meats Inc	1500 Plum Creek Pkwy	Lexington	No
Darling Ingredients Inc	1208 E Walnut St	Lexington	No
Country Partners Cooperative	1306 E Walnut St	Lexington	No
CenturyLink	112 E 7th St	Lexington	No
Davis Energy Inc	925 W Pacific Ave	Lexington	No
MCI	75311 Road 441	Overton	Yes – 1%
Earth Science Laboratories Inc	75190 Road 448	Overton	No
Country Partners Cooperative	Highway 40 W	Sumner	No
AT&T Interstate 6020	77050 Road 446	Sumner	No

Source: Nebraska Department of Environmental Quality, 2016

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there is one historic site located in rural Dawson County. Urban sites for Dawson County can be found in their respective Participant Sections.

**Table DAW.10: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Midway Stage Station	10/15/1969	No

Source: Nebraska State Historical Society, 2016

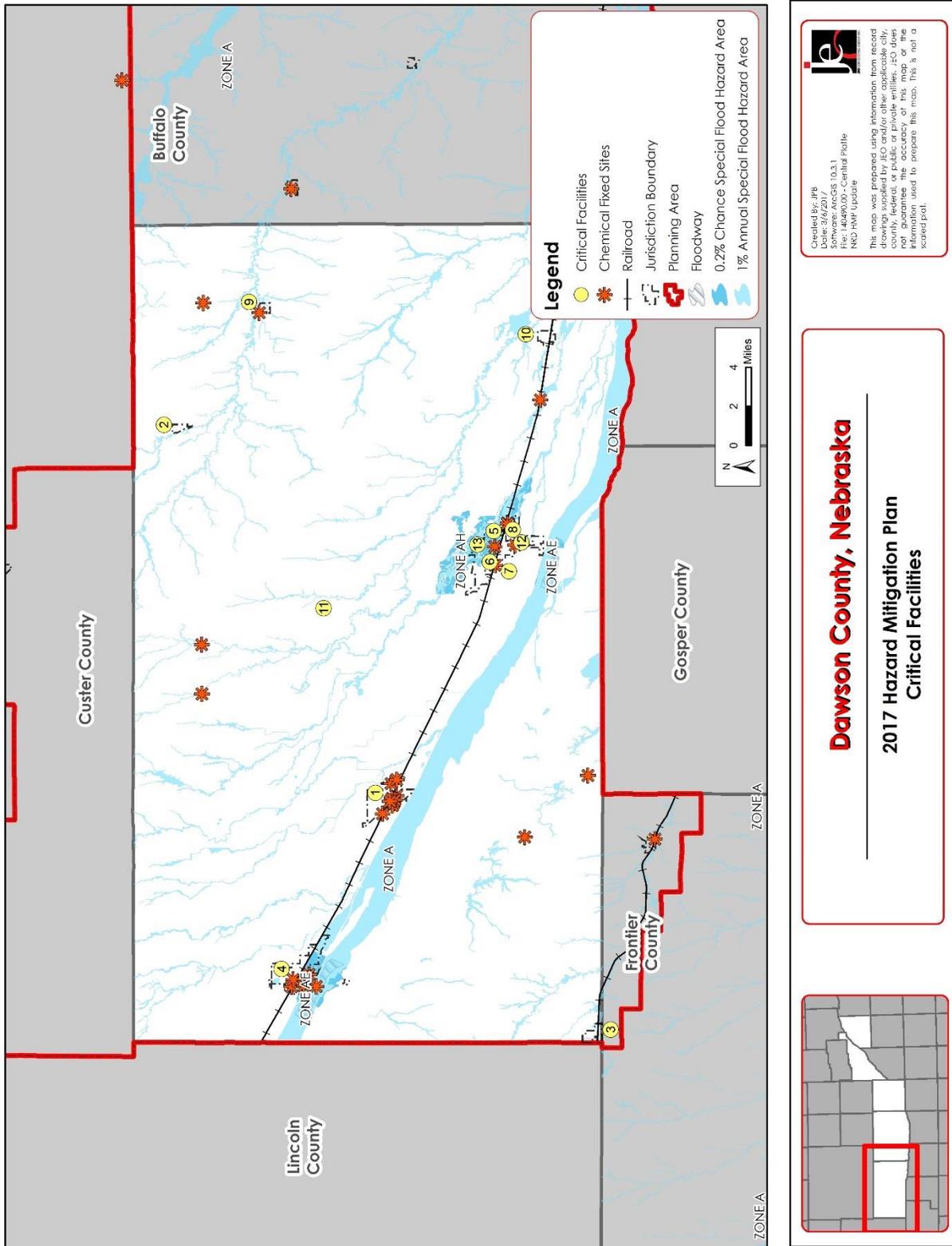
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table DAW.11: List of Critical Facilities in Dawson County**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Roads Shop - Cozad	812 E. 4 <sup>th</sup> St, Cozad	N	N	N
2	Roads Shop – Eddyville	707 1 St. Ave., Eddyville	N	N	N
3	Roads Shop – Farnam	306 Moose, Farnam	N	N	N
4	Roads Shop – Gothenburg	1120 10 <sup>th</sup> St, Gothenburg	N	N	N
5	Sheriff Office/Jail	709 N. Grant	N	Y	Y
6	Courthouse	700 N. Washington St, Lexington	N	N	N
7	Weed District	1203 W Pacific Ave, Lexington	N	N	N
8	Extension Building	1000 Plum Creek Parkway, Lexington	N	N	N
9	Roads Shop	300 E 4 <sup>th</sup> St, Sumer	N	N	N
10	Roads Shop	903 Lincoln, Overton	N	N	N
11	Roads Shop	76346 Road 430, Lexington	N	N	N
12	Handy Bus Barn	604 Van Buren, Lexington	N	N	N
13	County Office Space and Storage	200 W 7 <sup>th</sup> St, Lexington	N	N	N

Figure DAW.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

The following table provides a statistical summary for hazards that have occurred in the County. The property damages from the NCEI Storm Events Database (January 1996 – December 2015) should be considered only as broad estimates. Sources include, but are not limited to: emergency management, local law enforcement, Skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

Crop damages are from the USDA Risk Management Agency (RMA) between 2000 and 2015.

**Table DAW.12: NCEI Severe Weather Events**

HAZARD TYPE		COUNT	PROPERTY LOSS	CROP LOSS <sup>3</sup>
Agricultural Disease	Animal Disease <sup>2</sup>	22	-	-
	Plant Disease <sup>3</sup>	4	-	\$73,734
Chemical Spills-Transportation <sup>4</sup> 3 Injuries		18	\$83,820	-
Drought <sup>1</sup>		27	\$0	\$7,223,311
Extreme Heat <sup>1</sup>		2	\$500,000	\$2,249,695
Flooding <sup>1</sup>	Flash Flood	9	\$3,315,000	\$0
	Flood	5	\$158,000	
Grass/Wildfires <sup>5</sup> 1 Injury		382	26,542.1 acres	\$0
High Winds <sup>1</sup> Average: 47.6 kts Range: 35 - 61 kts		25	\$292,080	\$1,599,541
Severe Thunderstorms <sup>1</sup>	Thunderstorm Wind Average: 58.0 kts Range: kts	119	\$4,125,000	\$28,530
	Hail Average: 1.19 in. Range: 0.75 - 4.50 in.	241	\$9,243,000	\$5,951,402
	Heavy Rain	5	\$0	-
	Lightning	2	\$280,000	-
Severe Winter Storms <sup>1</sup>	Blizzard	5	\$250,000	\$40,199
	Heavy Snow	3	\$0	
	Ice Storm	6	\$23,000	
	Severe Winter Storm 2 Deaths; 6 Injuries	52	\$160,000	
Tornadoes <sup>1</sup>	Funnel Cloud	5	\$0	\$0
	Tornado Most Common Rating: EF0 Range: EF0 - EF2 9 Injuries	14	\$2,840,000	\$0
<b>Total</b>			<b>\$21,269,900</b>	<b>\$17,166,412</b>

1 Data from NCEI (1996 - 2015)

2 Data from NDA (2014-2016)

3 Data from USDA RMA (2000 – 2015)

4 Data from PHMSA (1970 - 2016)

5 Data from NFS (2000 – 2014)

in=inches; kts=knots

**COUNTY HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides county-specific information as reported by the local planning team. Only hazards identified either as a concern to the county by the local planning team, or based on the occurrence and risk of the hazard to the county are discussed in detail below.

**Dam Failure**

There are 82 dams in Dawson County (Figure DAW.5). Of these, one dam has been identified as a high hazard potential dam, and is listed in the following tables. No dam failures have occurred at any of the dams located in the County. However, if the high hazard potential dam was to fail, there is a risk of fatalities, property damage, and flooding of agricultural lands. Furthermore, Kingsley Dam, located upstream outside of the planning area in Keith County, could affect Dawson County if it was to fail with impacts likely felt all along the Platte River.

**Table DAW.13: Dams in Dawson County**

	Number of Dams	Minimal	Low	Significant	High
Dawson County	82	12	61	8	1
Planning Area	185	16	144	18	7

Source: NDNR

**Table DAW.14: High Hazard Dams**

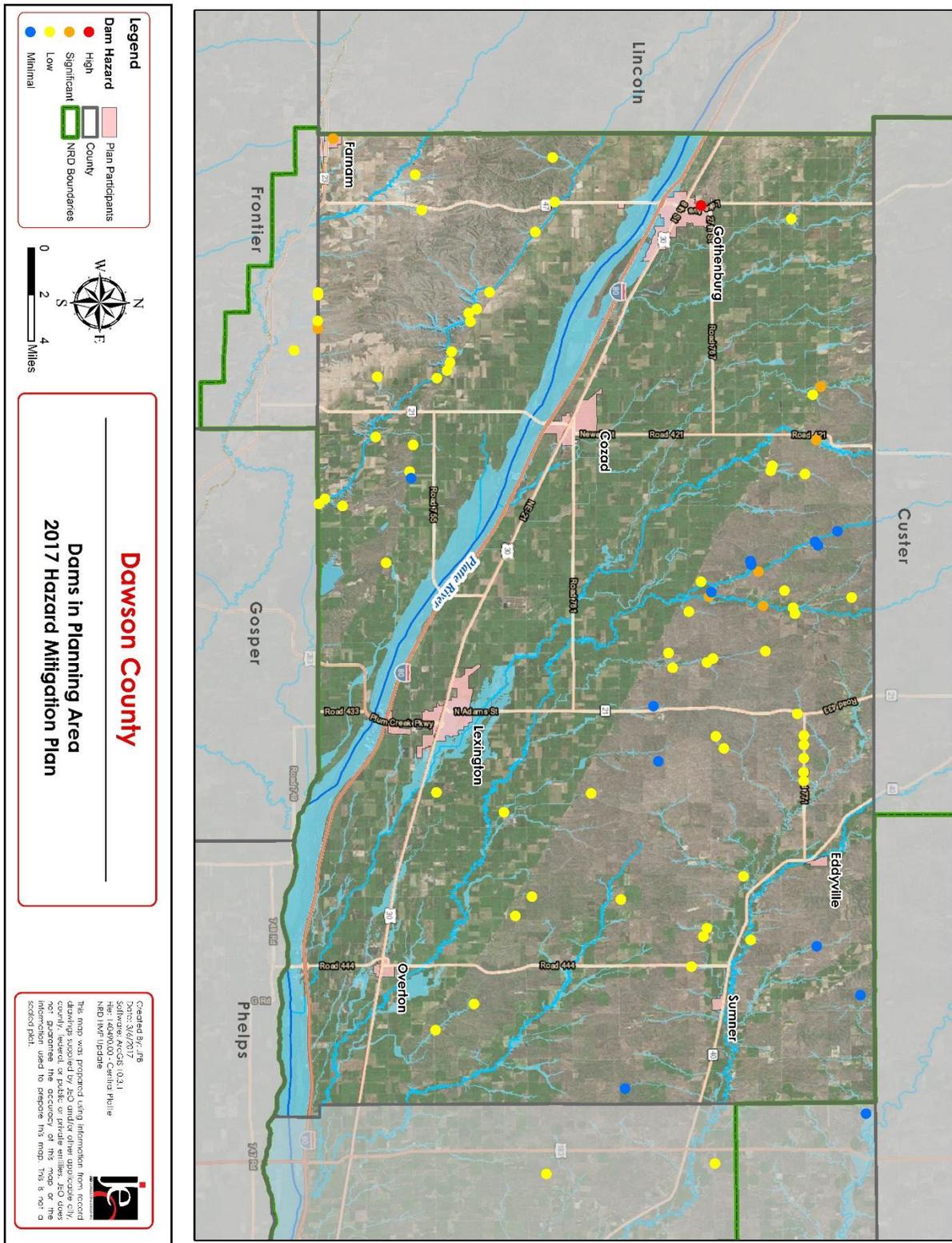
NIDID	Dam Name	Owner	Location	Name of Stream	Maximum Storage (acre-feet)	Last Inspection Date
2393	Lake Helen Dam	City of Gothenburg	Gothenburg	Gothenburg Canal	316	6/2/2015

Source: NDNR

**Drought**

Crop damage and available drinking water are the primary concerns as it relates to drought in the County. Agriculture is a significant economic driver in the County, and a prolonged drought could result in economic impacts if crops were to fail. In Dawson County, drought may be defined as an extended period of time without significant rainfall. In 2002, extreme to exceptional drought occurred during the summer and fall months and resulted in \$20 million in damages to crops across the region, according to the NCEI. Between 2012 and 2013, south central Nebraska, including Dawson County, saw 19 consecutive months where drought was categorized as at least severe. Crops were again impacted, and according to the NCEI, over \$5 million in crop damages occurred during the drought. Dawson County is planning to develop a Drought Management Plan to outline drought responses and identify water monitoring protocols.

Figure DAW.5: Map of High Hazard Dams in CPNRD



**Flooding**

The unincorporated area of Dawson County has 43 NFIP policies in-force for \$7,624,000. There are two single family repetitive flood loss properties in unincorporated areas of Dawson County. The following table is parcel improvement information as provided by GIS Workshop for the entire County area. It indicates that an estimated 24.9% of all parcel improvements in the County are located in the floodplain.

**Table DAW.15: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in County	Percentage of Improvements in Floodplain
\$98,605,045	3,407	13,713	24.9%

Source: GIS Workshop/Dawson County Assessor

Flooding in the County is primarily localized in nature and occurs from heavy rainfall or lowland flooding by the river. Flash flooding has been the primary concern and has caused the highest amount of damages. In May 2005, thunderstorms brought flash flooding when they dropped between four and twelve inches of rain across the area. A few people needed to be rescued from rising waters, and the storms also brought high winds that knocked out power to the Lexington area. In total, \$3 million in damages occurred in Dawson County. The County works with local communities to maintain and cleanout drainage ditches and culverts. The County also plans to improve drainage across the County, and evaluate and implement recommendations from a stormwater master plan.

**Severe Thunderstorms**

Tree damage, heavy rainfall, high winds, and lightning strikes to critical infrastructure are the primary impacts that concern planning team members about severe thunderstorms. The local planning team noted that Willow Island Road has hazardous trees that need to be removed to reduce the possibility of damage from high winds during severe thunderstorms. The County jail has a backup power generator, and the County has identified the need for additional backup power generators, particularly at the County Courthouse. In December 2006, an ice storm caused widespread tree damage, downed power lines and poles, closed businesses, and stranded many motorists during the holiday period. In total, \$2 million in damages were reported from this storm. The County’s snow removal resources are sufficient at this time, and the County regularly trims or maintains trees to reduce tree damage.

**Severe Winter Storms**

Severe winter storms occur on an annual basis in Dawson County and can include high winds, blowing snow, ice, and high snow accumulations. The local planning team is most concerned with road closures and power outages. A snow event in 2015 brought so much snow that snow removal resources were unable to keep up, which lead to impassable roads and road closures.

**Tornadoes**

According to the NCEI, 14 tornadoes have touched down in Dawson County since 1996. An EF-2 tornado struck near Gothenburg and injured nine people after it crossed Interstate 80, blowing cars off the road. Nearly a dozen head of cattle were killed and several outbuildings and a farmhouse were destroyed. About \$2.5 million in damages were reported from the twister. All of the communities in the County have warning sirens and Emergency Management conducts outreach and education annually throughout the County. The County is interested in installing a public safe room at the County Courthouse along with a backup power generator. Emergency Management would also like to work with stakeholders to develop a database of vulnerable populations and the organizations which support them.



**GOVERNANCE**

A community’s governance structure impacts its capability to implement mitigation actions. Dawson County is governed by a five member Board of Commissioners. The County also has the following offices and departments:

- County Assessor
- County Clerk
- Emergency Management
- Highway Superintendent
- Planning and Zoning
- Sheriff’s Office
- Weed Superintendent
- County Treasurer
- Register of Deeds
- County Commissioners
- Veteran’s Office
- Surveyor
- County Attorney

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the County, and described and quantified the vulnerability of the County to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table DAW.16: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	Yes
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	

Survey Components/Subcomponents		Yes/No
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	No
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	No
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table DAW.17: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the county have the financial resources needed to implement mitigation projects?	Limited
Does the county have the staff/expertise to implement projects?	Limited
Is there county support to implement projects?	Limited
Does the county staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Dawson County Comprehensive Plan, last updated in 2011, contains goals and objectives that are aimed at Safe Growth. The plan also directs development away from the floodplain and major transportation routes. It also encourages infill development, elevation of structures in the floodplain, and preservation of open space in hazard-prone areas.

The County Zoning Ordinance, also last updated in 2011, requires at least one-foot of elevation above base flood elevation in the floodplain. It also limits development in the Extraterritorial Jurisdiction and accounts for current population trends.

The County Emergency Operations Plan is reviewed and updated annually, however, a major rewrite occurs every five years, which was last completed in 2015. The plan is an all-hazards plan that assigns specific responsibilities to individual communities. It also identifies scenarios that would require evacuation including critical evacuation routes, and routes that are vulnerable to flooding. Shelter locations are also included for each community in the County.

There are currently no plans to further integrate hazard mitigation into existing planning mechanisms.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000 - \$75,000+ per generator
Funding	Property taxes, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Emergency Management
Location	County Courthouse

	<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	Property taxes, HMGP, PDM
Status	Early planning stages.
Timeline	5 years
Priority	Medium
Lead Agency	Emergency Management, County Board
Location	County Courthouse

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000 - \$100,000+ depending on project
Funding	Property taxes, PDM, FMA
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Surveyor, Roads Department, Emergency Management

<b>Reduce Tree Damage &amp; Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	\$10,000+ dependent on project
Funding	Property taxes
Status	Ongoing.
Timeline	Ongoing
Priority	Low
Lead Agency	Roads Department

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$0-\$5,000+
Funding	Property taxes
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management

<b>Develop a Drought Management Plan</b>	
Description	Work with relevant stakeholders to develop a drought management plan; identify water monitoring protocols; outline drought responses; identify opportunities to reduce water consumption; and establish the jurisdictional management procedures
Hazard(s) Addressed	Drought
Estimated Cost	\$25,000+
Funding	Property taxes, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Emergency Management

	<b>Database of Vulnerable Population</b>
Description	Work with stakeholders to develop a database of vulnerable populations and the organizations which support them
Hazard(s) Addressed	All Hazards
Estimated Cost	\$2,000, staff time
Funding	Property taxes
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management

	<b>Improve Drainage</b>
Description	Improve storm sewers and drainage patterns in and around the community; deepen drainage ditches and clean out culverts
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000+
Funding	Property taxes, local funds
Status	Ongoing. County works with local communities to maintain and clean out drainage ditches.
Timeline	Ongoing
Priority	Low
Lead Agency	County Roads Department, Local communities

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas. Adopt future floodplain maps when they become available. Additional floodplain mapping/remapping.
Reason for Removal	County will continue to participate in program, however, this is no longer considered a hazard mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION

FOR THE

CITY OF COZAD

Central Platte NRD

Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### ***LOCAL PLANNING TEAM***

Table CZD.1 provides the list of participating members that comprised the Cozad local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table CZD.1: Cozad Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Department / Organization</b>
Brian Woldt	Director of Emergency Management	Dawson County
Nancy Meyer	Mayor	City of Cozad
Charles Block	Council Member	City of Cozad
Deb Leahy	Council Member	City of Cozad
Brian Montgomery	Council Member	City of Cozad
Ronald Olds	Council Member	City of Cozad
Scott Trusdale	City Attorney	City of Cozad
Randy Adams	Chief of Police	Cozad Police Department
Dallas Nichols	Water/Sewer Commissioner	City of Cozad
Britt German	Electric Commissioner	City of Cozad
Susan Kloepping	City Clerk	City of Cozad

### ***LOCATION AND GEOGRAPHY***

The City of Cozad is located in the central portion of Dawson County and covers an area of 2.6 square miles. The major waterway in the area is the Platte River.

### ***TRANSPORTATION***

Cozad's major transportation corridors include Interstate 80 and Highways 21 and 30. The average number of total vehicles per day on Interstate 80 is 15,485 with an average of 7,510 vehicles being categorized as heavy commercial. The average number of vehicles per day on Highways 21 and 30 are 4,080 and 2,365 with an average of 370 and 215 vehicles being categorized as heavy commercial respectively. Cozad has one major rail line, a Union Pacific line. The rail line is south of the City and runs parallel to Highway 30.

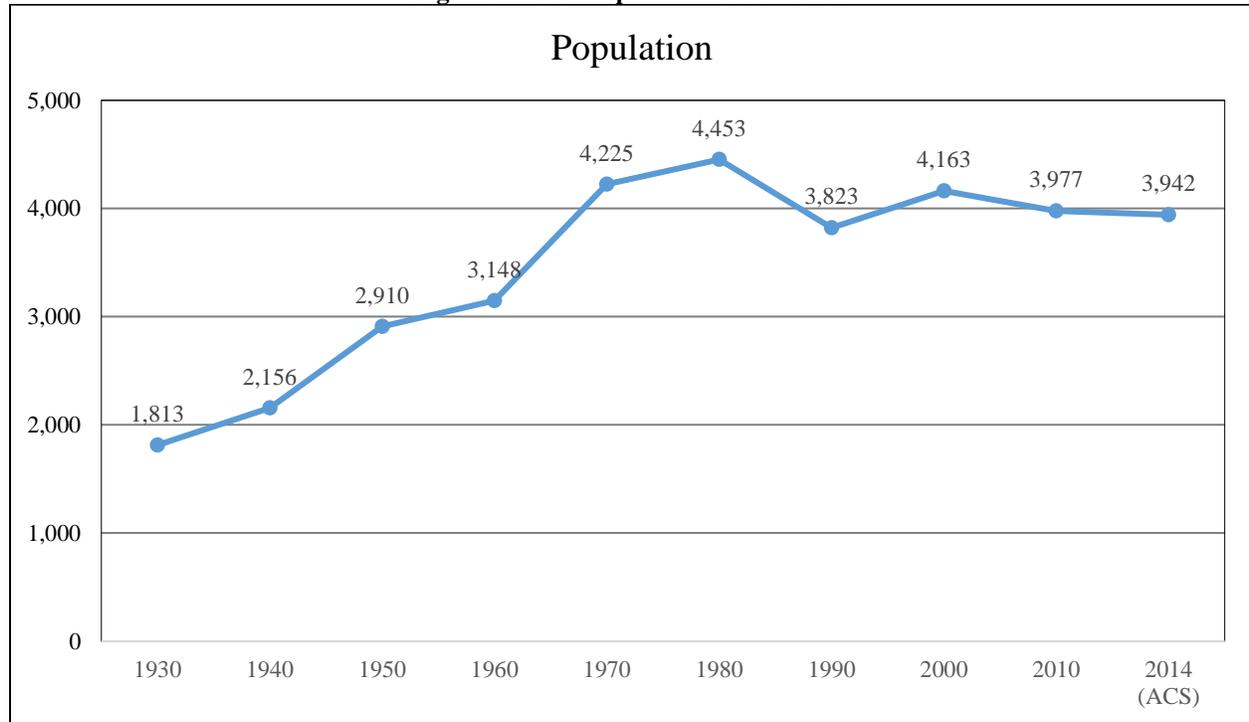
Figure CZD.1: Map of the City of Cozad



**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. Cozad’s population has been decreasing since 1980.

**Figure CZD.2: Population 1930 – 2014**



Source: U.S. Census Bureau

The following table indicates that Cozad has a slightly lower percentage of the population under the age of 5 and a slightly lower percentage of population between 5 and 64 years of age when compared to the County and the state. However, Cozad has both a higher median age, and a higher percentage of its population over the age of 64 as compared to Dawson County and the state.

**Table CZD.2: Population by Age**

Age	City of Cozad	Dawson County	State of Nebraska
<5	7.0%	7.9%	7.2%
5-64	75.2%	78.2%	79.2%
>64	17.8%	13.9%	13.6%
Median	39.5	36.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Cozad’s median household income is lower than the County’s, but they have a comparable per capita income. Cozad has both a lower median rent and a lower median home value than Dawson County’s and the state.

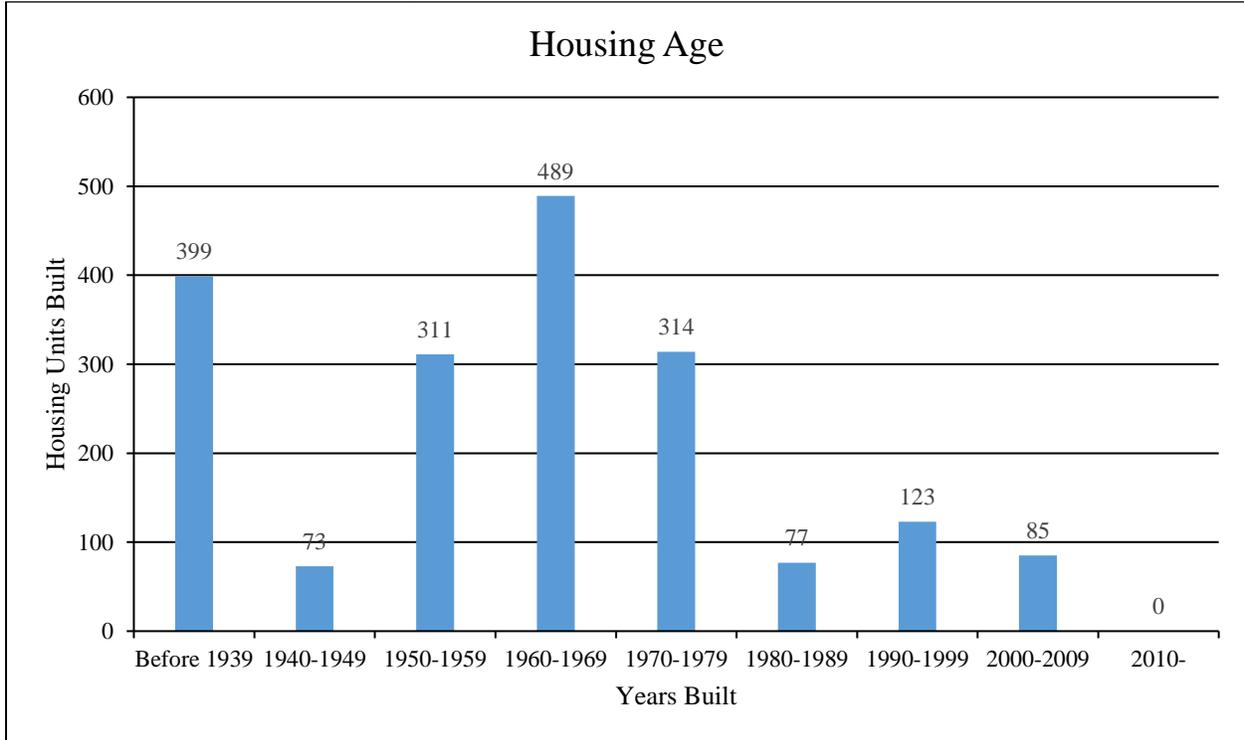
**Table CZD.3: Housing and Income**

	City of Cozad	Dawson County	State of Nebraska
Median Household Income	\$42,024	\$56,361	\$52,400
Per Capita Income	\$21,881	\$21,046	\$27,339
Median Home Value	\$81,000	\$89,700	\$130,100
Median Rent	\$583	\$648	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 1,871 housing units with 86.1 percent of those units occupied. There are approximately 107 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in May 2011. There are four mobile home parks in Cozad. Horizon Mobile Home Park is located at 204 S F St, Cover Mobile Home Park is at the intersection of 9<sup>th</sup> and Locust streets, 3 Guys, Inc. Mobile Home Park is located at the intersection of 8<sup>th</sup> and Locust streets, and Haymaker Mobile Home Park is located at the intersection of 6<sup>th</sup> and Maple streets.

**Figure CZD.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table CZD.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Cozad	1,610	86.1%	261	13.9%	1,126	69.9%	484	30.1%
Dawson County	8,731	86.1%	1,404	13.9%	5,970	68.4%	2,761	31.6%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major industries in the Village of Cozad are healthcare, manufacturing, foodservice, construction, and education. Cozad Healthcare System, Golden Living Center, Nebraska Plastics, VVS Inc., Paulsen Inc., and Cozad Community Schools are all major employers in Cozad. Approximately 15-20 percent of residents commute to Lexington and Gothenburg.

***FUTURE DEVELOPMENT TRENDS***

In the last five years, the Rialto Theater, local middle school, and Tenneco building were demolished. A Tractor Supply opened in the same space where Alco closed its doors. VVS Inc. expanded their office and Nebraska Plastics expanded their storage facility. Axxent and Drive Thru Video both moved into new buildings. A new Burger King was built. The drainage ditch on the west side of town was dug out to accommodate more water during heavy rains. Per the local planning team, Tenneco closing, an aging population, and a lack of white collar jobs contributes to the decline in population in Cozad. Cozad hopes to receive a grant to build five new homes on the land parcel that the middle school used to occupy.

***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table CZD.5: Parcel Improvements**

<b>Number of Improvements</b>	<b>Total Improvement Value</b>	<b>Mean Value of Improvements Per Parcel</b>	<b>Number of Improvements in Floodplain</b>	<b>Value of Improvements in Floodplain</b>
1,431	\$95,967,173	\$67,063	0	\$0

Source: GIS Workshop/Dawson County Assessor

Figure CZD.4: Future Land Use Map

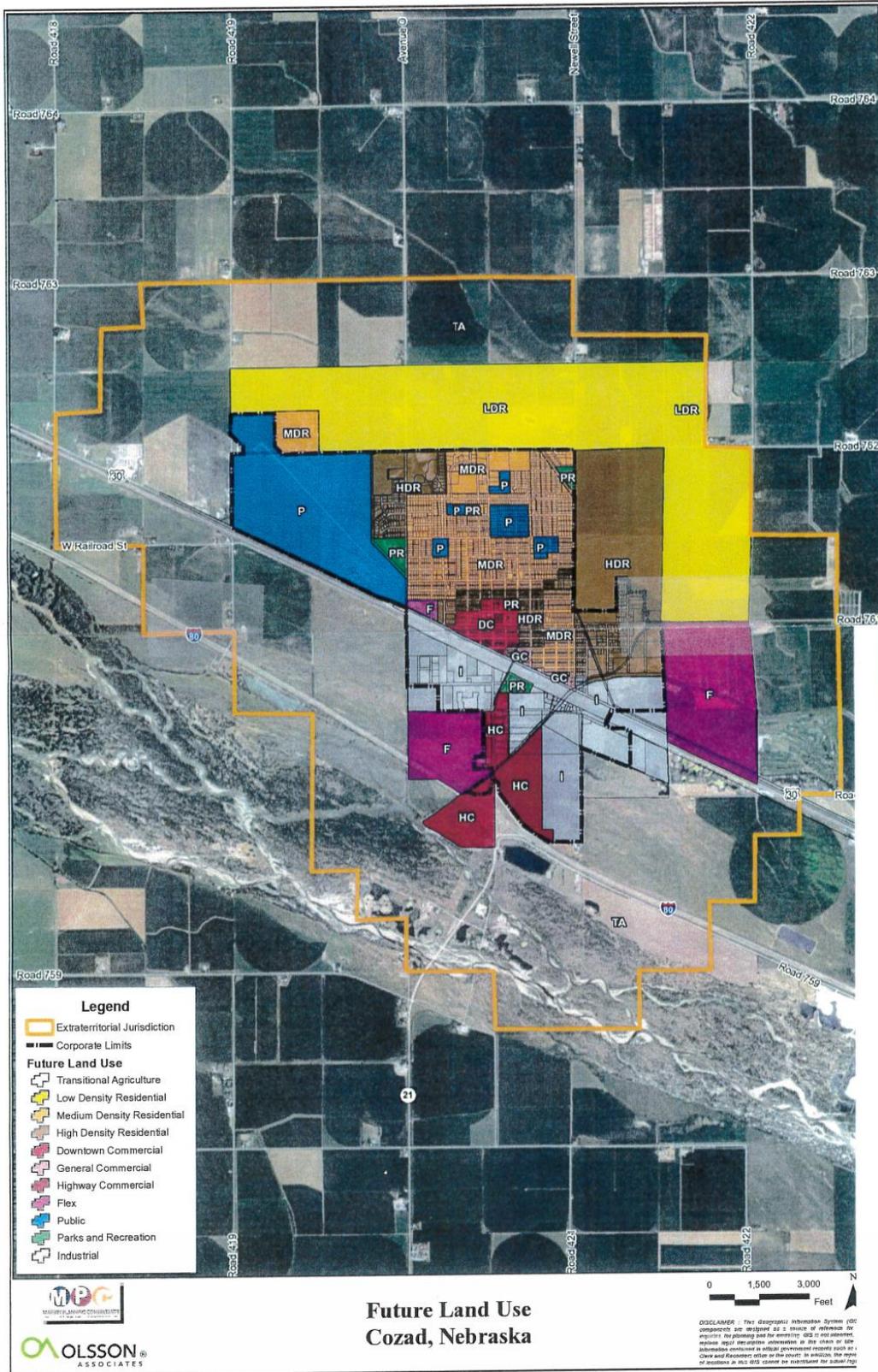


Figure 10.4: Future Land Use Map

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of 20 chemical storage sites that house hazardous materials in Cozad. However, none of the chemical storage sites are located in the floodplain (Figure CZD.5).

**Table CZD.6: Chemical Storage Fixed Sites**

<b>Facility</b>	<b>Address</b>	<b>In Floodplain?</b>
Country Partners	404 Willow St	No
Crop Production Services Inc	308 W 2nd St	No
Mid State Aviation II Inc	1304 W Highway 30	No
Island Dehy Co Inc	303 S Meridian Ave	No
Country Partners	300 E Monroe St	No
Country Partners	400 Locust St	No
AT&T	77050 Dr 425	No
Microwave Tower	Road 754	No
Country Partners	820 E 3rd St	No
AT&T	Buffalo Rd	No
Crop Production Services Inc	304 Avenue M	No
Union Pacific Railroad	100 W Railroad St	No
Country Partners Energy	1410 W Hwy 30	No
Country Partners Service	302 W Hwy 30	No
Country Partners Storage	E 8 <sup>th</sup> St	No
Country Partners	220 S Meridian St	No
AT&T	77050 Drive 428	No
Hunt Cleaners	604 W 2 <sup>nd</sup> St	No
Paulsen Inc.	1116 E Hwy 30	No
Schwans Home Service	514 W 2 <sup>nd</sup> St	No

Source: Nebraska Department of Environmental Quality

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are two historic sites located in or near Cozad.

**Table CZD.7: National Historic Registry**

<b>Site Name</b>	<b>Date Listed</b>	<b>In Floodplain?</b>
The Hendee Hotel	03/21/1979	No
Allen’s Opera House	09/28/1988	No

Source: Nebraska State Historical Society, 2016

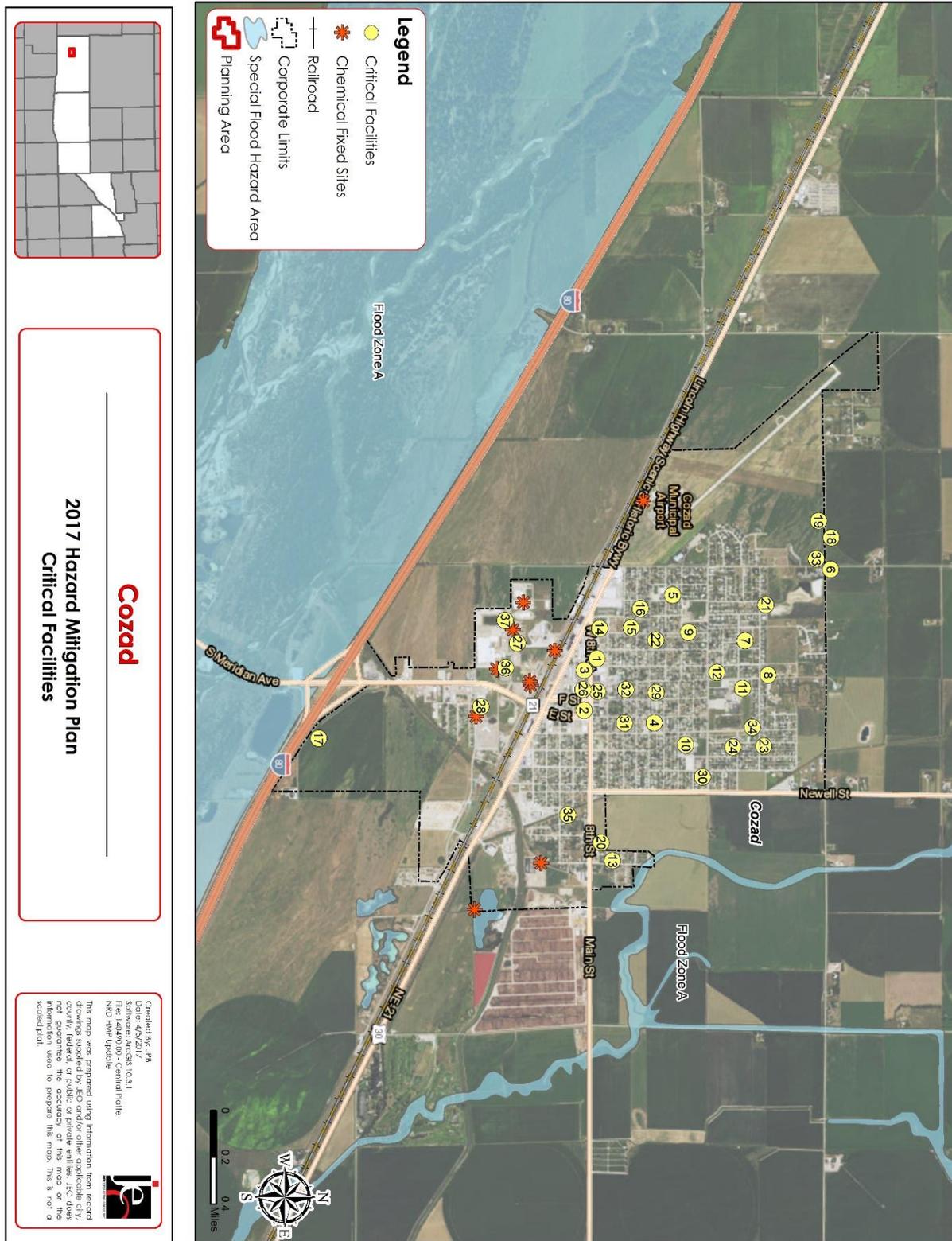
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table CZD.8: List of Critical Facilities in Cozad**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	City Office	215 W 8 <sup>th</sup> St	N	N	N
2	Police/Fire Station	229 E 8 <sup>th</sup> St	N	Y	N
3	Board of Public Works	211 W 8 <sup>th</sup> St	N	Y	N
4	Cozad Community Hospital	300 E 12 <sup>th</sup> St	N	Y	N
5	Christ the King Catholic Church	624 W 13 <sup>th</sup> St	Y	Y	N
6	Meadowlark Pointe	2300 O St	N	Y	N
7	Cozad Care and Rehabilitation	318 W 18 <sup>th</sup> St	N	Y	N
8	Cozad City Schools District Office	1910 Meridian Ave	N	N	N
9	Cozad City Schools Early Education	420 W 14 <sup>th</sup> St	N	N	N
10	Cozad City Schools Elementary	420 E 14 <sup>th</sup> St	N	N	N
11	Cozad City Schools Middle School	1810 Meridian Ave	Y	N	N
12	Cozad City School High School	1710 Meridian Ave	Y	N	N
13	Cozad Child Care	1208 E 9 <sup>th</sup> St	N	N	N
14	Cozad Haymaker Haven	421 W 9 <sup>th</sup> St	N	N	N
15	Cozad Housing	901 L St	N	N	N
16	Park Plaza	921 L St	N	N	N
17	Wastewater Treatment Plant	515 Disposal Rd	N	Y	N
18	Water Well 06-1	811 W 24 <sup>th</sup> St	N	N	N
19	Water Well 06-2	1111 W 24 <sup>th</sup> St	N	N	N
20	Water Well 94-1	1200 E 9 <sup>th</sup> St	N	N	N
21	Water Well 85-1	707 W 19 <sup>th</sup> St	N	N	N
22	Water Well 65-1	925 K St	N	N	N
23	Water Well 63-1	415 E 19 <sup>th</sup> St	N	N	N
24	Water Tower	1825 Lincoln Ave	N	N	N
25	Alco Lift Station	Monroe St and F St	N	N	N
26	Berryman Lift Station	E 22 <sup>nd</sup> and Newell	N	N	N
27	West 2 <sup>nd</sup> St Lift Station	509 E 2 <sup>nd</sup> St	N	N	N
28	Interceptor Lift Station	809 E Monroe St	N	N	N
29	American Lutheran Church	200 E 12 <sup>th</sup> St	Y	N	N
30	First United Methodist Church	1515 B St	Y	N	N
31	First Presbyterian Church	819 E St	Y	N	N
32	Cozad Christian Church	821 F St	Y	N	N
33	Cozad West Substation	1425 O St	N	N	N
34	Cozad North Substation	415 E 19 <sup>th</sup> St	N	N	N
35	East Substation	600 Willow St	N	N	N
36	South Substation	300 W 2 <sup>nd</sup> St	N	N	N
37	Black Hills Town Border Station	200 W. 2 <sup>nd</sup> St	N	N	N

Figure CZD.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Dawson County.

***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Drought**

NCEI reports a D2 severe intensity drought in Dawson County that lasted from June of 2012 through June of 2014. The RMA reports \$7,223,311 in crop losses in the County from this drought.

The local planning team is concerned about the capacity of their wells to handle a drought event. There are six wells located throughout Cozad that feed into the water tower. All residences and business are metered to track water use. Cozad does not have a drought monitoring board, drought response plan, water conservation program, or landscape ordinance. The current water supply is considered sufficient, but nitrate levels are becoming a concern. Cozad plans to mitigate this hazard by educating the public on drought.

**Flooding**

The flood risk areas of concern for the City of Cozad are located south of the city limits on the south side of Interstate 80 along the Platte River. Cozad has six NFIP policies in-force for \$1,184,900. There are no repetitive flood loss properties in the City of Cozad.

The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates no parcel improvements in Cozad are located in the floodplain.

**Table CZD.9: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$0	0	1,431	0%

Source: GIS Workshop/Cozad County Assessor

Cozad experienced \$75,000 in property damages in May of 2008 when four inches of rain over 24-hours resulted in a flash flood, flooding roads, and damaging residential properties. Following this event, in 2010 Cozad reduced waste water bottlenecks around the Horizon Trailer Court to prevent future flooding. Plans for further mitigating damage from flooding include improving drainage, conducting a storm water study, and educating the public on preparedness actions.

**Grass/Wildfires**

The Cozad Fire Department is responsible for responding to wildfire in the area. They have established Mutual Aid Agreements within the district. Since 2007, the Cozad Fire Department responded to one large wildfire. This fire burnt 320 acres of land in January of 2009 when a baler ignited a high fuel load area. The City does not have any mitigation measures in place for wildfires, including a Wildland Urban Interface Code, defensible spaces around structures, or incentives for landowners to use ignition-resistant materials during construction. Cozad plans to mitigate further damages from wildfires by implementing a tree maintenance program and providing residents with education on wildfire.

### **Severe Thunderstorms**

The major concerns associated with thunderstorms in Cozad are downed trees and power lines. There are hazardous dead trees scattered throughout town on private property. Municipal records are protected with a surge protector. All critical facilities have weather radios, but many are lacking backup power generators. Approximately ten percent of the power lines in the City are buried. In June of 2008, a heat burst caused a thunderstorm with winds upwards of 70 mph. This storm resulted in downed trees that damaged vehicles, houses, and irrigation equipment, causing \$100,000 in damage. Cozad plans to mitigate further damage from thunderstorms by providing backup generators for critical facilities, providing adequate public safe rooms, implementing a tree maintenance program, and educating the public.

### **Severe Winter Storms**

One of the biggest winter storms in Cozad occurred in January of 2011, when 10-12 inches of snow fell in and around Cozad, causing a stretch of I-80 to close after multiple vehicle accidents. Another storm had similar effects when ten inches of snow fell in one night in February of 2013. The local planning team is concerned about severe winter storms because of the possibility of downed power lines and reduced mobility of emergency responders in the community. Approximately ten percent of power lines are buried in Cozad. There are many snow routes in town, and some extend to Hwy 30. The community utilizes snow fences and the Municipal Street Department to keep roads clear. Cozad owns a snow blower, loaders, dump trucks, a road grader, a dump truck with a blade, a salt spreader, tractors with snow blowers, a sweeper, and extra blades that can be used to remove snow from snow routes. Cozad plans to mitigate further damage from winter storms by implementing a tree maintenance program, educating the public on the hazards of and responses to winter storms, and providing adequate backup generators for critical facilities.

### **Tornadoes**

The most recent tornado to cause property damage in Cozad occurred in June of 2008. During this storm, two farms outside of town suffered minor property damages that amounted to \$40,000. Municipal records are protected with a daily backup procedure onto an interchangeable data card. Community warning sirens are activated by the Dawson County Communications Center in Lexington by dispatchers, or alternatively activated by the local police department. The siren's sound reaches all parts of Cozad. The County Emergency Manager also offers text alerts through Dawson County Communications. There are no community safe rooms so community members heavily rely on safe rooms in private structures. Cozad provides community members education on tornadoes annually in the local paper, describing what the different siren signals indicate. There are Mutual Aid Agreements in place with Gothenburg, Lexington, Brady, Curtis, Elwood, Eustis, Farnam, Johnson Lake, and Overton. Cozad's tornado mitigation plans include providing adequate backup generators for critical facilities, providing adequate public safe rooms, implementing a tree maintenance program, and educating citizens on the hazards associated with tornadoes.

## **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Cozad is governed by a Mayor and a four member City Council. Furthermore, Cozad has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Fire Department
- Police Department
- Library Board
- Electric Department
- Water/Sewer Department

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table CZD.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes

Survey Components/Subcomponents		Yes/No
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes – 22 Years
Other (if any)		

**Table CZD.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Cozad’s Comprehensive Plan was recently updated in 2016 and contains goals and objectives aimed at Safe Growth. The plan directs development away from the floodplain and from chemical storage facilities. It also encourages infill development, clustering of development in sensitive areas, and elevation of structures located in the floodplain. It further encourages strengthening retrofits to historic structures, and lastly, it allows for emergency access to all areas to town. Given the recent update of the plan, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The City’s Zoning Ordinance was also updated in 2016. It requires at least one-foot of elevation above base flood elevation in the floodplain, prohibits development within the floodway, and encourages maintaining open space within the floodplain. The Ordinance also accounts for current population trends.

Cozad has an annex to the Dawson County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, identifies

critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

In 2012, the City updated its Building Codes. The Codes require mechanical systems to be elevated for structures in the floodplain, require sewer backflow valves for structures in the floodplain, outline proper sump pump installation, and encourage the use of permeable surfaces. Additionally, the Codes require the use of fire resistant building materials and requires defensible space around structures built in the extraterritorial jurisdiction.

Cozad’s Capital Improvement Plan includes regular maintenance for drainage structures, upgrading storm sewer systems, and regular maintenance for the storm sewer system. For future updates, the plan will include updating the electrical distribution system and burying power lines.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

	<b>Reduce Bottlenecks/Flow Restrictions</b>
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000
Funding	Property taxes and FEMA/NEMA
Status	Completed 2010.
Location	Horizon Trailer Court

**Ongoing and New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000 - \$75,000+ per generator
Funding	Property Taxes, Foundation Funds
Status	In progress.
Timeline	2-5 years
Priority	Medium
Lead Agency	Emergency Management

	<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, Wildfire and Grass Fire, Flooding
Estimated Cost	\$150/ft <sup>2</sup> for retrofit, \$300/ft <sup>2</sup> for new construction
Funding	Property Taxes
Status	Planning Stage.
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management and City Council

<b>Reduce Damages from Floods, Storm Water, and Heavy Participation Event</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000 - \$100,000+ depending on project
Funding	Property Tax
Status	In progress.
Timeline	2-5 years
Priority	Medium
Lead Agency	City Administration

<b>Reduce Tree Damage and Damages from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, High Winds, Thunderstorms and Lightning, Grass and Wildfire
Estimated Cost	Unknown
Funding	Property Tax
Status	In progress.
Timeline	2 -5 years
Priority	Medium
Lead Agency	Street Department and Board of Public Works

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$0 - \$5,000+
Funding	Property Tax
Status	In progress.
Timeline	2 – 5 years
Priority	Medium
Lead Agency	Emergency Management

<b>Wellhead Protection Plan</b>	
Description	
Hazard(s) Addressed	Drought
Estimated Cost	\$15,000 - \$30,000
Funding	Property Tax, NDEQ
Status	Not started
Timeline	5 years
Priority	Low
Lead Agency	Water and Sewer Department

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas, adopt future floodplain maps when they become available, and acquire flood prone property
Reason for Removal	City will continue to participate in program, however, this is no longer considered a hazard mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF FARNAM

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### ***LOCAL PLANNING TEAM***

Table FNM.1 provides the list of participating members that comprised the Farnam local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table FNM.1: Farnam Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Department / Organization</b>
Calvin Krepcik	Fireman	Farnam Fire Department
Rod Klein	Fire Chief	Farnam Fire Department
Dan Widick	Village Board	Village of Farnam

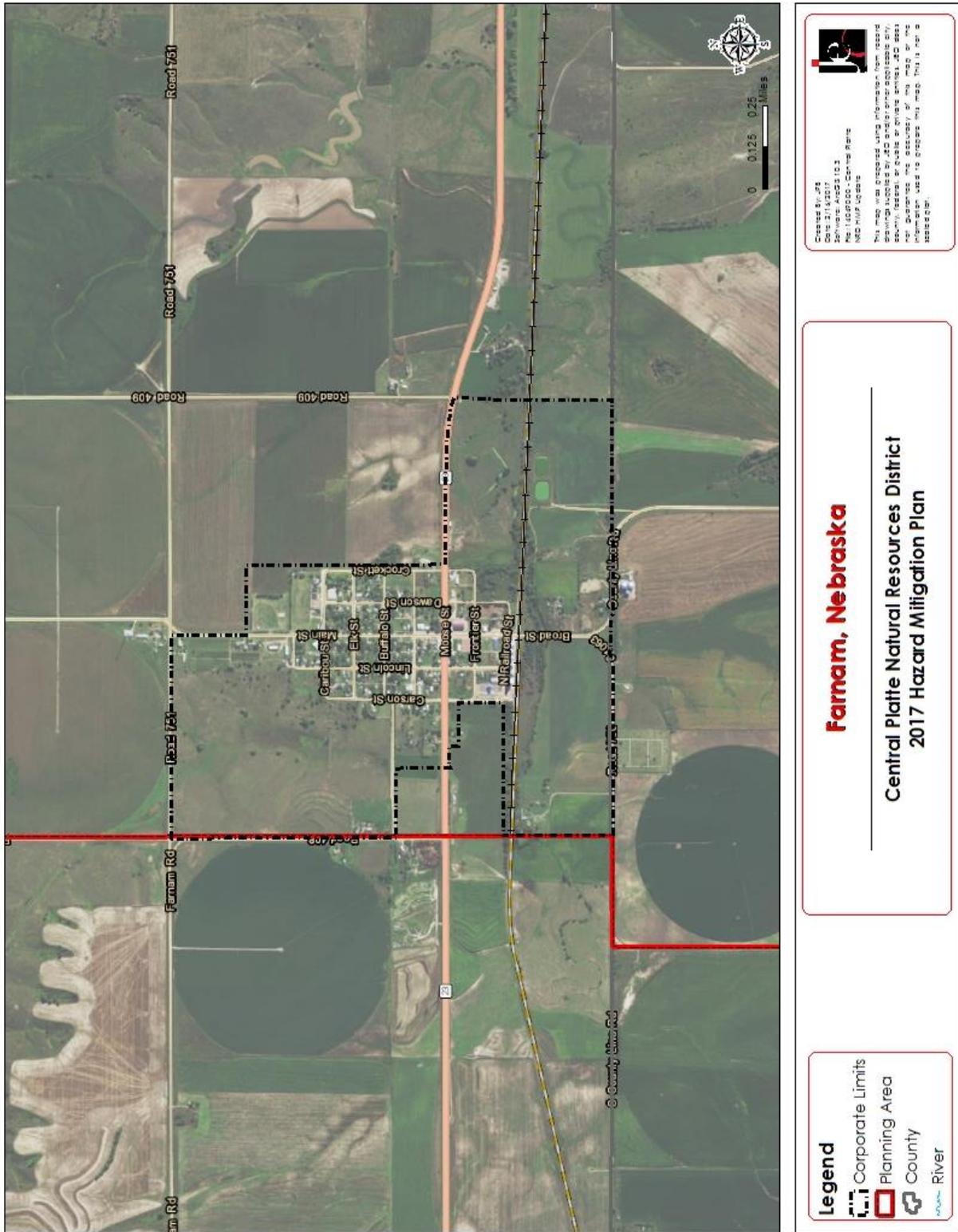
### ***LOCATION AND GEOGRAPHY***

The Village of Farnam is located in the southwestern corner of Dawson County and covers an area of 0.67 square miles. There are no major waterways in the area, but the largest body of water in the area is the Farnam Reservoir.

### ***TRANSPORTATION***

Farnam's major transportation corridor is Highway 23. Highway 23 has an average of 645 vehicles per day with 115 of those being classified as heavy commercial vehicles. Farnam has one major rail line in the area, the Nebraska-Kansas-Colorado Railway. At Farnam, the rail line runs from the east to west direction and is located south of the Village.

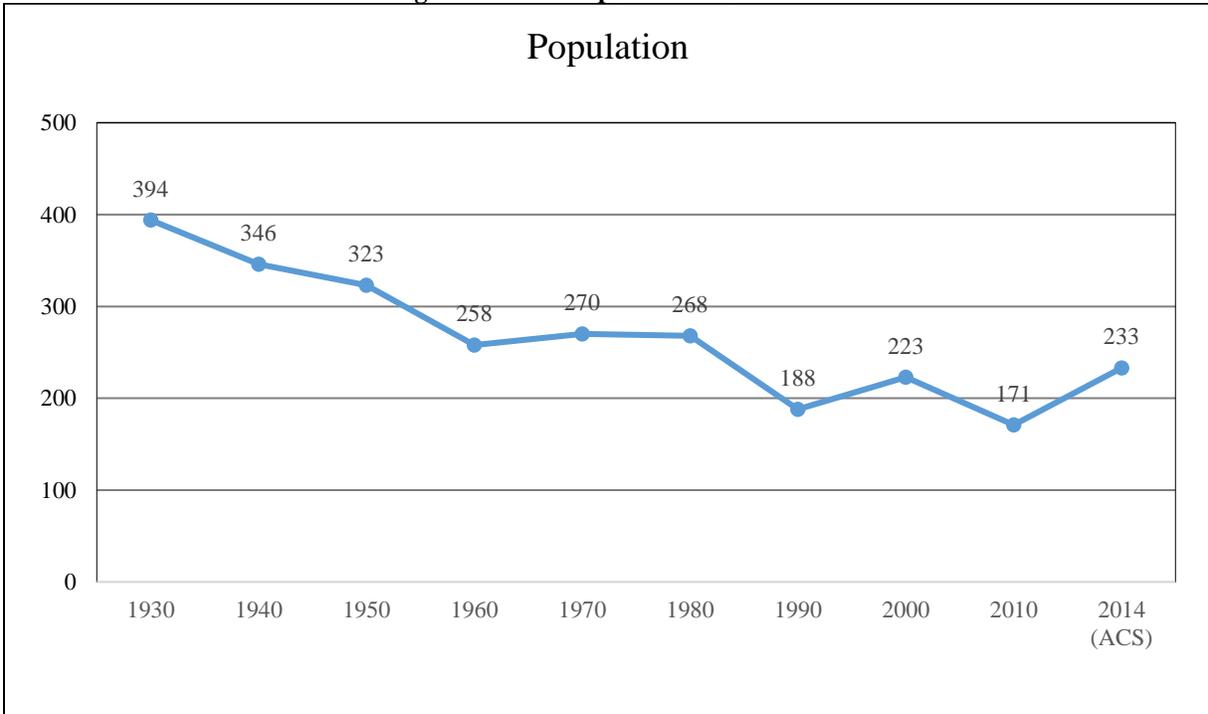
Figure FNM.1: Map of the Village of Farnam



**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Farnam has been generally decreasing since 1930.

**Figure FNM.2: Population 1930 - 2014**



Source: U.S. Census Bureau

The following table indicates the Village has a lower percentage of the population under the age of 5 and a slightly lower percentage of the population between 5 and 64 years of age when compared to the County and the state. However, Farnam has both a higher median age and a higher percentage of its population over the age of 64 as compared to both Dawson County and the state.

**Table FNM.2: Population by Age**

Age	Farnam	Dawson County	State of Nebraska
<5	4.1%	7.9%	7.2%
5-64	73.7%	78.2%	79.2%
>64	22.2%	13.9%	13.6%
Median	47.7	36.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Farnam’s median household income is lower than both the County and the state. Farnam has a comparable per capita income when compared to the County. Farnam has a significantly lower median home value and median rent when compared to both the County and the state.

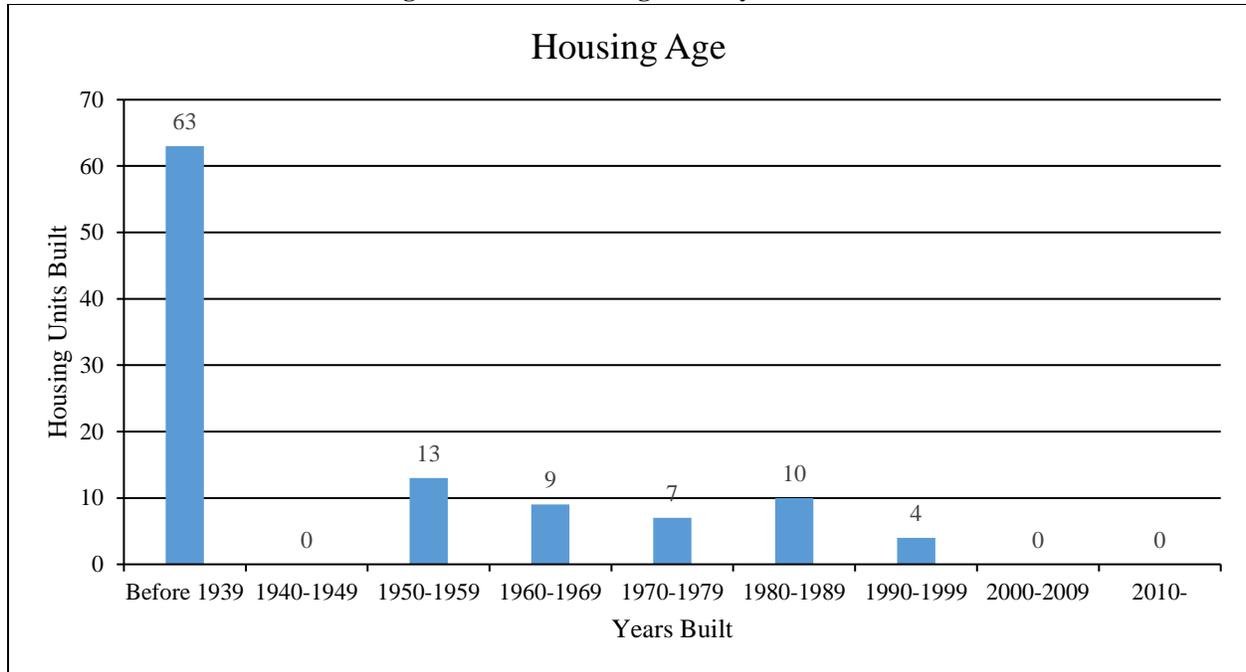
**Table FNM.3: Housing and Income**

	Farnam	Dawson County	State of Nebraska
Median Household Income	\$45,938	\$56,361	\$52,400
Per Capita Income	\$21,212	\$21,046	\$27,339
Median Home Value	\$41,500	\$89,700	\$130,100
Median Rent	\$438	\$648	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 106 housing units with 91.5 percent of those units occupied. There are approximately three mobile homes in the community.

**Figure FNM.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table FNM.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Farnam	97	91.5%	9	8.5%	75	77.3%	22	22.7%
Dawson County	8,731	86.1%	1,404	13.9%	5,970	68.4%	2,761	31.6%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major industry in the Village of Farnam is agriculture. All Points Co-Op is Farnam’s major employer. A large percentage of residents commute to Gothenburg and Lexington for work.

**FUTURE DEVELOPMENT TRENDS**

In the last five years, there has been little development in Farnam. There are plans in place for the veterinary clinic to expand in the next five years. This expansion will take place in the floodplain.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table FNM.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
203	\$3,050,061	\$15,025	21	\$11,661

Source: GIS Workshop/Farnam County Assessor

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are no chemical storage sites that house hazardous materials in Farnam.

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Farnam.

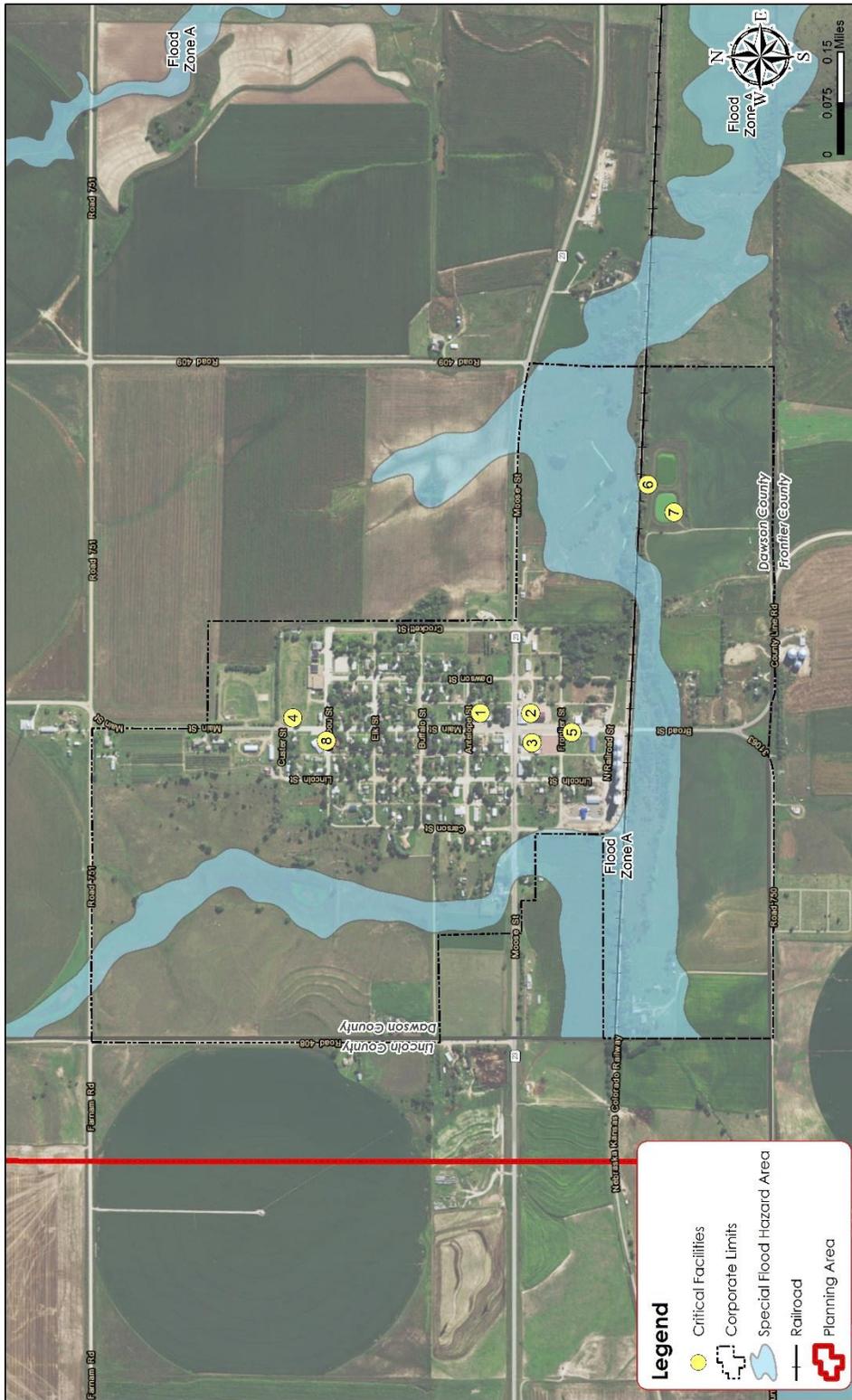
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table FNM.6: List of Critical Facilities in Farnam**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Village Office/Siren	315 Main St	N	N	N
2	Fire Hall	211 Main St	N	N	N
3	Senior Center	214 Main St	Y	Y	N
4	Well #1	Custer St and Main St	N	Y - Portable	N
5	Well #2	200 Broad St	N	Y - Portable	N
6	Pump Station	West of the Lagoon	N	Y - Portable	N
7	Lagoon	SE of the Community	N	N	N
8	Farnam United Methodist Church	303 Caribou St	Y	N	N

Figure FNM.4: Critical Facilities with Floodplain



**Farnam**

2017 Hazard Mitigation Plan  
 Critical Facilities



**Legend**

- Critical Facilities
- Corporate Limits
- Special Flood Hazard Area
- Railroad
- + Planning Area

### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Dawson County.

### ***LOCAL HAZARD IDENTIFICATION***

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

#### **Flooding**

The south side of Farnam has a history of flooding. In 1993, the main roads and health clinic flooded. Following this flood, the County cleared the ditches, but left hazardous trees. During the county-wide flooding event in 2005, a second round of damage to the health clinic was mitigated with sandbagging. The water tower and wells are on the high end of town which is not at risk to flooding. Farnam plans to mitigate future flooding by working with the NRD to clear the trees and straighten the slope of the creek on the south side of town.

Farnam currently does not participate in the NFIP. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 10.3 percent of all parcel improvements in Farnam are located in the floodplain.

**Table FNM.7: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements in Community</b>	<b>Percentage of Improvements in Floodplain</b>
\$11,661	21	203	10.3%

Source: GIS Workshop/Farnam County Assessor

#### **Grass/Wildfires**

The Farnam Fire Department, with assistance from the Gothenburg Fire Department, responded to a large wildfire that began with a lightning strike in 2003 after a hot, dry year. In four days, 22,000 square-acres of mostly crop land burned. This event precipitated a FEMA grant for a new 1,000-gallon pumper truck.

The Farnam Fire Department consists of 25 volunteer members. Completed wildfire mitigation actions include improving the Departments firefighting equipment, improving the water system, and increasing public awareness of hazards with a new library. Future mitigation plans involve reducing wildfire damage by reducing the fuel load in the area.

#### **Severe Thunderstorms**

October of 2016 brought thunderstorms and lightning that hit residences and critical facilities in Farnam, blowing the fuses at the Village wells. In 2009, \$10,000 in property damages resulted from a thunderstorm that brought 1.25-inch hail through the metal Fire Hall roof. Thunderstorms have caused this roof to be replaced twice more since 2009.

All service lines are buried in Farnam, but no power lines are buried. There are surge protectors on all critical facilities and backup generators on the Fire Hall and Senior Center. The County Emergency Manager provides weather radios and text alerts that warn the community of surge weather. The Community Development Assistance Act funds a tree maintenance program. Further mitigation plans including backing up municipal records, providing backup generators to critical facilities, and providing safe rooms for the community.

**Tornadoes and High Winds**

In June of 2000, an EF0 tornado formed three miles northwest of Farnam, causing \$25,000 in property damages and injuring two people. There have also been problems with high winds encouraging wildfire in the area. Farnam has a warning siren, but plans to put in a second siren to reach the north side of town. The Farnam Fire Department’s storm response trainings are open to the public. There are Mutual Aid Agreements in place with Brady, Lexington, Gothenburg, Elmwood, Cozad, Johnson Lake, Eustis, Curtis, and Overton. The County Emergency Managers offers text alerts and weather radios to alert residents of surge weather. Further mitigation plans involve providing emergency generators to critical facilities, establishing public storm shelters, and backing up municipal records.

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village is governed by a Chairperson and a four member Village Board. Furthermore, Farnam has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Water and Sewer Department
- Volunteer Fire Department

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table FNM.7: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No

Section Seven: Village of Farnam Participant Section

Survey Components/Subcomponents		Yes/No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	State Codes
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	No
	GIS Capabilities	County
	Chief Building Official	County
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	EMA
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table FNM.8: Overall Jurisdictional Capability**

<b>Overall Capability</b>	<b>Limited/Moderate/High</b>
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Moderate to High
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Farnam has an annex to the Dawson County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village of Farnam’s Comprehensive Plan was last updated in 2001, and their Zoning Ordinances are updated as needed. Neither of these planning mechanisms incorporate hazard mitigation goals and objectives, and there are currently no plans to integrate planning mechanisms.

No other examples of plan integration were identified, and there are currently no plans to further integrate planning mechanisms.

***MITIGATION STRATEGY***

**Completed Mitigation Actions**

	<b>Upgrade Senior Center Facilities</b>
Description	Improve the incubator building and rehabilitation housing at the senior center
Hazard(s) Addressed	All Hazards
Funding	CDGB
Status	Completed.
Location	Senior Center

	<b>Upgrade Fire Truck</b>
Description	Purchase a new fire truck for the Farnam Fire Department
Hazard(s) Addressed	Urban Fire, Grass/Wildfire
Cost	\$105,000
Funding	CDBG
Status	Completed.

	<b>Improve Firefighting Equipment</b>
Description	Purchase new firefighting equipment for the Farnam Fire Department, including personal protective equipment, tools, and instruments
Hazard(s) Addressed	Urban Fire, Grass/Wildfire
Cost	\$100,000
Funding	FEMA grant
Status	Completed.

<b>Implement Water System Improvements</b>	
Description	Update water distribution system; replace old pipes, and increase water supply and pressure
Hazard(s) Addressed	Drought, Grass/Wildfire, Urban Fire
Funding	Grant
Status	Completed.

<b>Public Awareness/Education</b>	
Description	Build a library to increase general public education; use this facility as a touchstone for public awareness of natural hazards
Hazard(s) Addressed	All Hazards
Estimated Cost	\$100,000
Funding	Community Development Assistance Act
Status	Completed.
Location	310 Main St

<b>Provide Section 8 Housing</b>	
Description	Reduce vulnerability of low socioeconomic status residents by providing Section 8 apartment housing
Hazard(s) Addressed	All Hazards
Funding	Grant
Status	Completed.

**Ongoing and New Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary sources of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	Fundraising, HMGP
Status	Ongoing – current generator is not sufficient.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board

<b>Backup Municipal Records</b>	
Description	Develop protocol for backing up critical municipal records onto a portable storage device or service; maintain routine backup of records
Hazard(s) Addressed	All Hazards
Estimated Cost	\$100
Funding	General funds
Status	Not yet started.
Timeline	1 year
Priority	Medium
Lead Agency	City clerk

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$150/safe room for retrofit; \$300/safe room for new construction
Funding	Bonds, Village funds, Fundraising, HMGP
Status	Ongoing.
Timeline	2-5 years
Priority	High
Lead Agency	Engineering

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	Tornadoes
Estimated Cost	\$15,000+
Funding	Village funds, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, County Emergency Management

<b>Hazardous Waste Remediation</b>	
Description	Clean up hazardous waste on southeast side of town
Hazard(s) Addressed	Chemical Spills
Estimated Cost	Unknown
Funding	DEQ grant, Village funds
Status	80% complete.
Timeline	1-2 years
Priority	High
Lead Agency	Village Board

<b>Reduce Wildfire Damage</b>	
Description	Identify vulnerable areas and combustion sources; evaluate fire resistant roofing; develop plan to reduce wildfire impact and reduce combustion materials; reduce combustion material by removal or other methods; enact building codes/ordinances for fire resistant roofing
Hazard(s) Addressed	Grass/Wildfire
Estimated Cost	Unknown
Funding	Fire Department Funds
Status	Ongoing – prescribed burning for Cedar Trees.
Timeline	5+ years
Priority	Medium
Lead Agency	Fire Department

<b>Reduce Bottleneck/Flow Restrictions</b>	
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000 - \$75,000+
Funding	NRD
Status	Ongoing – planning stages with NRD.
Timeline	1 year
Priority	High
Lead Agency	Village Board

<b>Reduce Water Demand/Improve Drought Education</b>	
Description	Conduct water use study to evaluate/implement methods to conserve water/reduce consumption; evaluate/implement water use restriction ordinance; identify/evaluate current/additional potable water sources; develop or obtain drought education materials to conduct multi-faceted public education and awareness program
Hazard(s) Addressed	Drought
Estimated Cost	\$5,000
Funding	Village Funds
Status	Ongoing.
Timeline	5+ years
Priority	Medium
Lead Agency	Village Board

<b>Increase Soil and Water Conservation</b>	
Description	Develop and improve public awareness of soil and water conservation methods; develop or maintain materials and conduct multi-faceted public education
Hazard(s) Addressed	Drought
Estimated Cost	\$500
Funding	Village Funds
Status	Ongoing.
Timeline	5+ years
Priority	Medium
Lead Agency	Village Board

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; acquire flood prone property
Reason for Removal	The Village no longer participates in the NFIP.

PARTICIPANT SECTION  
FOR THE  
CITY OF GOTHENBURG

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table GBG.1 provides the list of participating members that comprised the Gothenburg local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table GBG.1: Gothenburg Local Planning Team**

Name	Title	Department / Organization
Bruce Clymer	City Administrator	City of Gothenburg

**LOCATION AND GEOGRAPHY**

The City of Gothenburg is located in the northwestern corner of Dawson County and covers an area of 3.64 square miles. Major waterways in the area include the Platte River and Lake Helen.

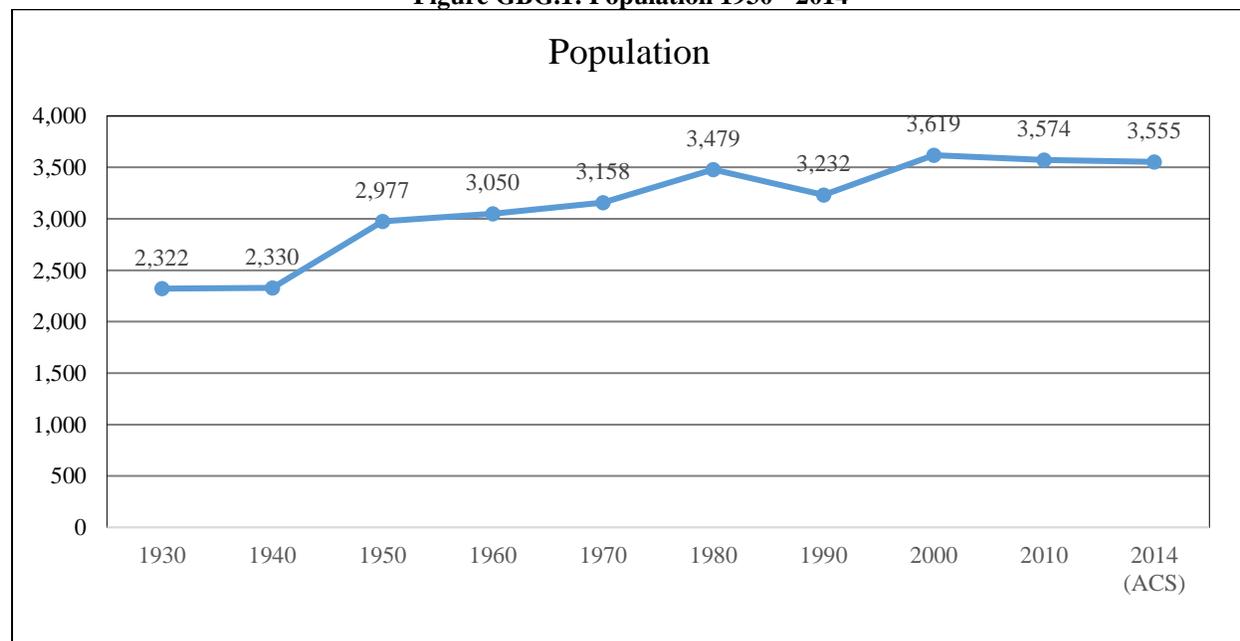
**TRANSPORTATION**

Gothenburg’s major transportation corridors include Interstate 80, U.S Highway 30 and Nebraska State Highway 47. I-80 is located south of the City and travels in a southeast to northwest direction. On average, I-80 has 15,375 vehicles per day with 7,487 of those being heavy commercial vehicles. Highway 30 travels in a southeast to northwest direction parallel to I-80 through the center of the City. On average, there are 2,070 vehicles per day with 192 of those being heavy commercial vehicles. Highway 47 is also located in the center of Gothenburg and travels north to south. On average, Highway 47 has 1,710 vehicles per day with 170 of those being heavy commercial vehicles. Gothenburg has one major rail line, a Union Pacific line. The rail line is south of the City and runs parallel to Highway 30.

**DEMOGRAPHICS**

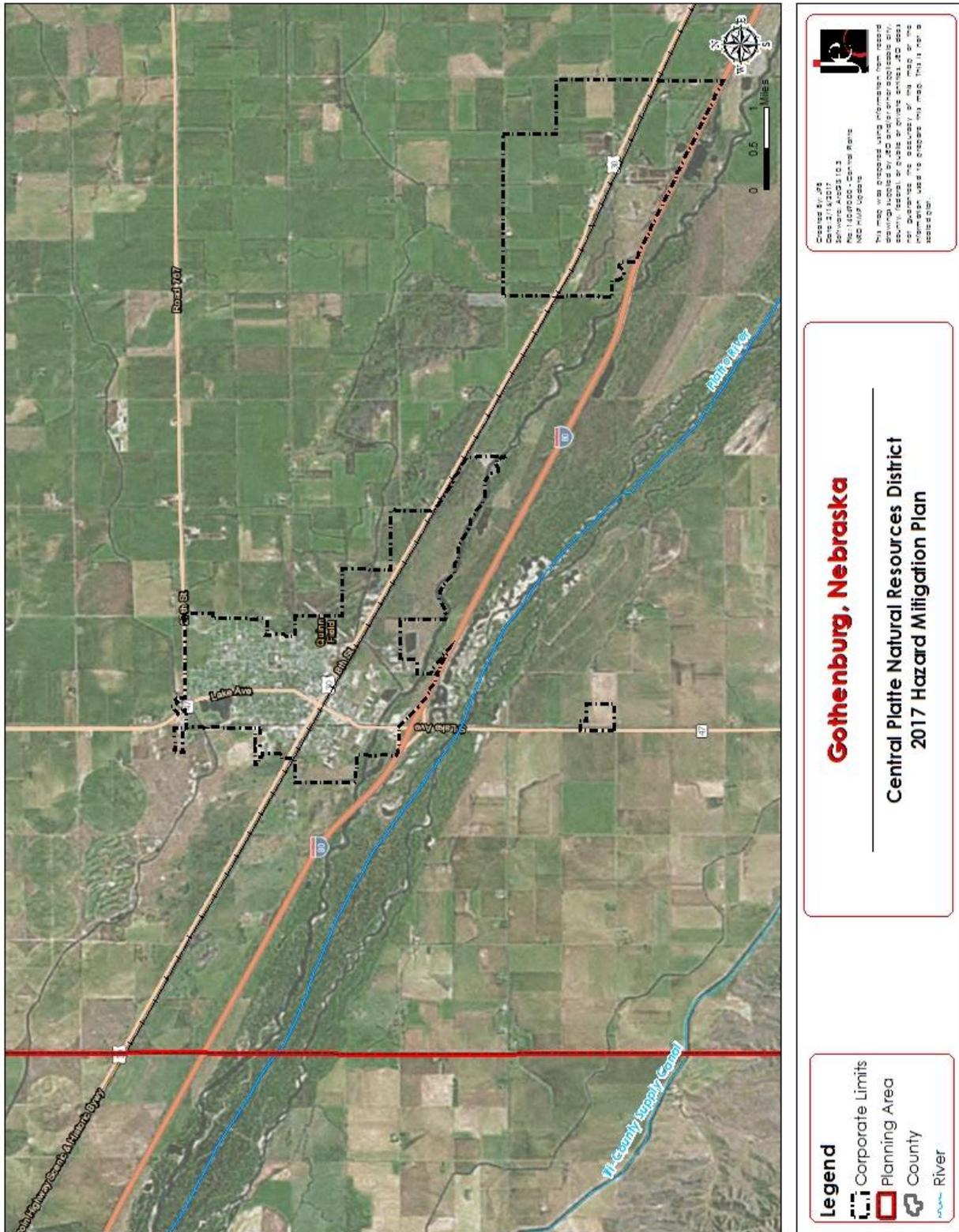
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Gothenburg has been increasing since 1940.

**Figure GBG.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure GBG.2: Map of the Village of Gothenburg



The following table indicates the City has a slightly lower percentage of the population under the age of 5 and a slightly lower percentage of population between 5 and 64 years of age when compared to the County and the state. However, Gothenburg has a higher percentage of both median age and population over the age of 64 as compared to both Dawson County and the state.

**Table GBG.2: Population by Age**

Age	Gothenburg	Dawson County	State of Nebraska
<5	7.4%	7.9%	7.2%
5-64	73.2%	78.2%	79.2%
>64	19.4%	13.9%	13.6%
Median	39.7	36.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Gothenburg’s median household income is lower than the County’s but Gothenburg has a slightly higher per capita income. Gothenburg has a slightly higher median home value than Dawson County, but a lower median rent value.

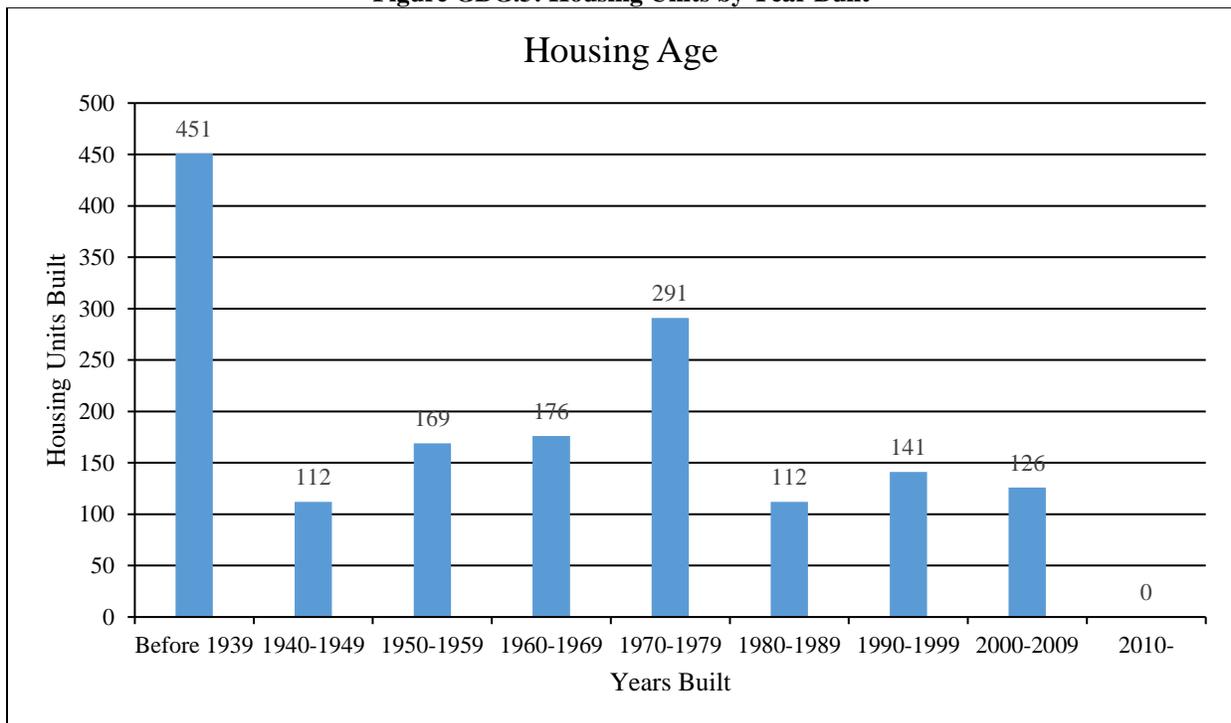
**Table GBG.3: Housing and Income**

	Gothenburg	Dawson County	State of Nebraska
Median Household Income	\$51,726	\$56,361	\$52,400
Per Capita Income	\$24,630	\$21,046	\$27,339
Median Home Value	\$90,900	\$89,700	\$130,100
Median Rent	\$656	\$648	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 1,578 housing units with 90.7 percent of those units occupied. There are approximately 126 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in January 1990.

**Figure GBG.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table GBG.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Gothenburg	1,432	90.7%	146	9.3%	1,123	78.4%	309	21.6%
Dawson County	8,731	86.1%	1,404	13.9%	5,970	68.4%	2,761	31.6%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

### **MAJOR EMPLOYERS**

The major employers in the community are Gothenburg Public Schools, the Gothenburg Hospital, Baldwin Filters, Parker Hannifin, Frito Lay, Dawson Tire, and Maschoff. Most residents work in Gothenburg, and do not commute outside of the City for work.

### **FUTURE DEVELOPMENT TRENDS**

Over the next five years, 15 new houses are planned for the northeast section of town, which is not in the floodplain. Major expansions of the hospital and Dawson Fire are planned. Also, there are plans for a new motel, restaurant, and a 156-acre industrial site, all being built out of the floodplain. According to the planning team, Gothenburg's population is growing due to an aggressive economic development group and young professionals moving back to the community.

### **PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table GBG.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
1,746	\$116,322,409	\$66,622	106	\$1,969,415

Source: GIS Workshop/Gothenburg County Assessor

### **CRITICAL INFRASTRUCTURE/KEY RESOURCES**

#### **CHEMICAL STORAGE FIXED SITES**

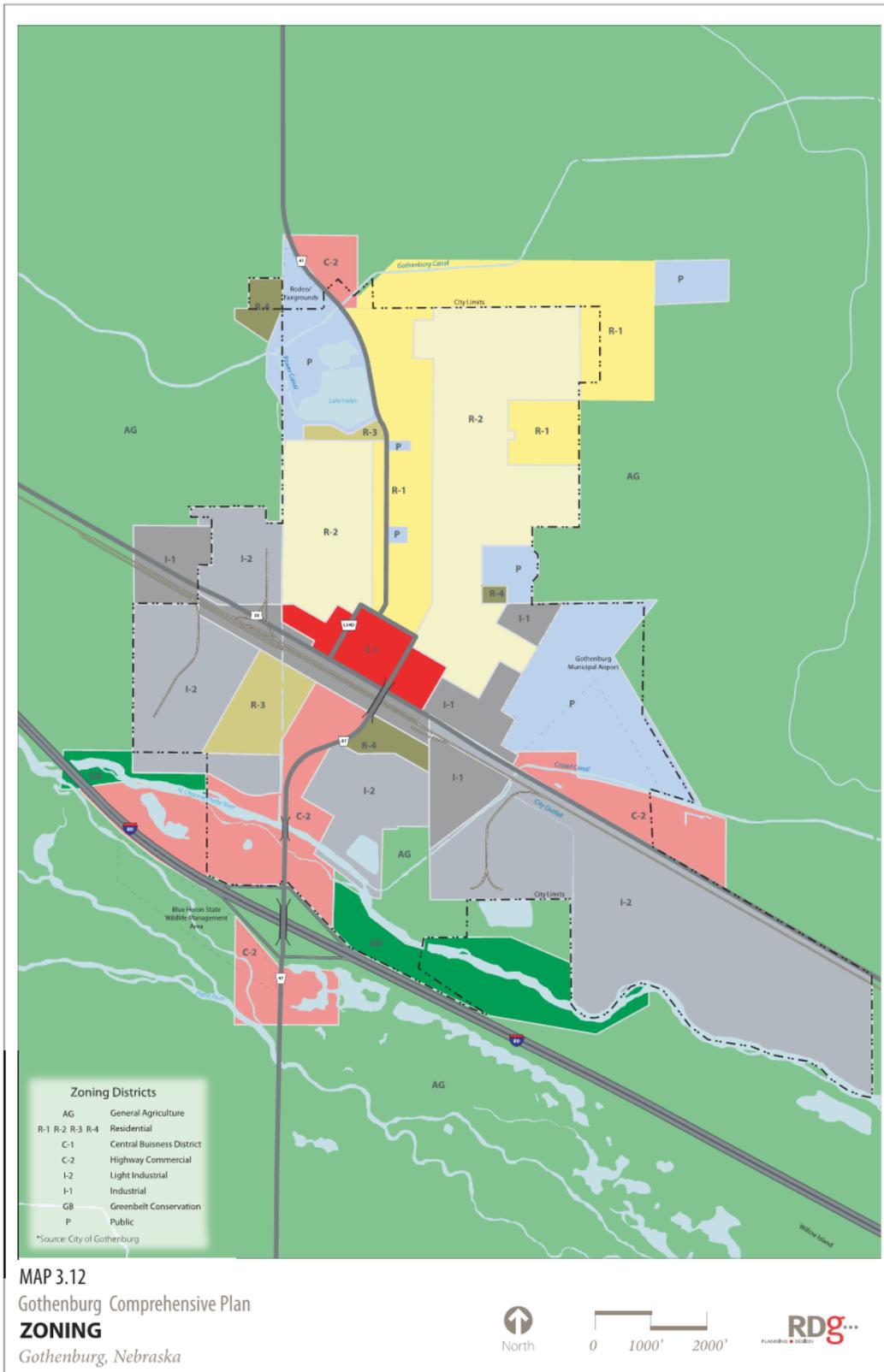
According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of five chemical storage sites that house hazardous materials in Gothenburg. A total of three chemical storage sites are located in the one percent annual chance floodplain, and one is located in the 0.2 percent floodplain (Figure GBG.5).

**Table GBG.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
CenturyLink	413 10th St	Yes – 0.2%
Baldwin Filters Inc	300 W 1st St	Yes – 1%
KOA Gothenburg Stage Stop Inn	1102 S Lake Ave	Yes – 1%
Frito-Lay Inc	311 Cottonwood Dr	Yes – 1%
All Points Co-op Fert & Bulk	120 8th St	No

Source: Nebraska Department of Environmental Quality

Figure GBG.4: Zoning Map



**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are two historic sites located in or near Gothenburg.

**Table GBG.7: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Gothenburg Carnegie Library	12/19/1986	No
Ernest A. Calling House	10/25/1979	No

Source: Nebraska State Historical Society, 2016

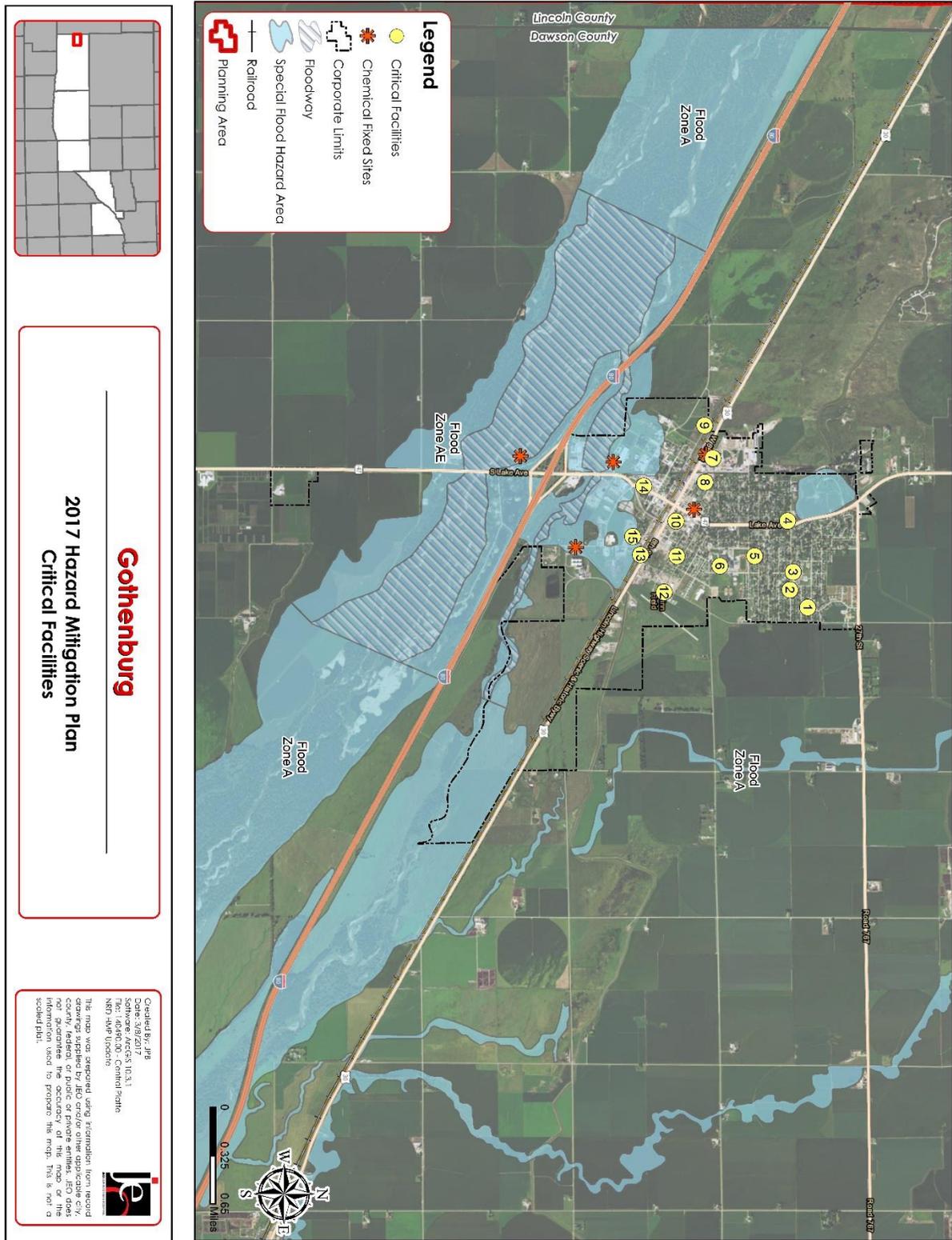
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table GBG.8: List of Critical Facilities in Gothenburg**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Water Tower and City Well GMW 90-1	1100 22 <sup>nd</sup> St	N	N	N
2	Electrical Power Station	2015 Avenue J	N	N	N
3	Gothenburg Memorial Hospital	910 20 <sup>th</sup> St	N	Y	N
4	Gothenburg Senior Center	410 20 <sup>th</sup> St	Y	Y	N
5	City Well GMW 86-1	1924 Avenue A	N	N	N
6	Gothenburg Public Schools	1322 Avenue I	Y	N	N
7	Allpoints Fertilizer Coop	120 8 <sup>th</sup> St	N	N	N
8	Electrical Power Substation	102 9 <sup>th</sup> St	N	N	N
9	High Pressure Interstate Gas Lines	Not Available	N	N	N
10	Police Department	405 9 <sup>th</sup> St	N	Y	N
11	Fire Department	602 10 <sup>th</sup> St	N	N	N
12	Electrical Power Stations	1112 Avenue L	N	N	N
13	City Well GMW 72-2	720 S Cottonwood Dr	N	Gas Backup	Y
14	Electrical Substation	309 5 <sup>th</sup> St	N	N	N
15	Wastewater Treatment Plant	105 S Cottonwood Dr	N	Y	N

Figure GBG.5: Critical Facilities and Hazard Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Dawson County.

**LOCAL HAZARD IDENTIFICATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spills (Transportation)**

The local planning team identified chemical transportation as a top hazard for Gothenburg. The planning team’s concerns with this hazard center on potential railroad derailment and truck wrecks on Interstate 80. Chemicals are presumed to be transported daily by highway; however, the City is not sure which types of chemicals are being transported. According to the Pipeline and Hazardous Materials Safety Administration, there have not been any reports of chemical spills. Gothenburg plans to mitigate the risks associated with chemical spills by improving their emergency communication systems and warning systems.

**Dam Failure**

Dam failure is a top concern for the City. The dam of most concern is the Lake Helen Reservoir, a high hazard dam owned by the City. High hazard dams are inspected annually and emergency action plans are required. There are structures downstream of the dam that could be impacted if the dam were to fail. The community has a dam failure evacuation plan adopted. However, there is no emergency housing available for displaced residents. Gothenburg plans to mitigate damages from dam failure by improving the dam failure warning system.

**Table GBG.9: Dams in Gothenburg**

	Number of Dams	Minimal	Low	Significant	High
Gothenburg	1	0	0	0	1
Dawson County	82	12	61	8	1
Planning Area	185	16	144	18	7

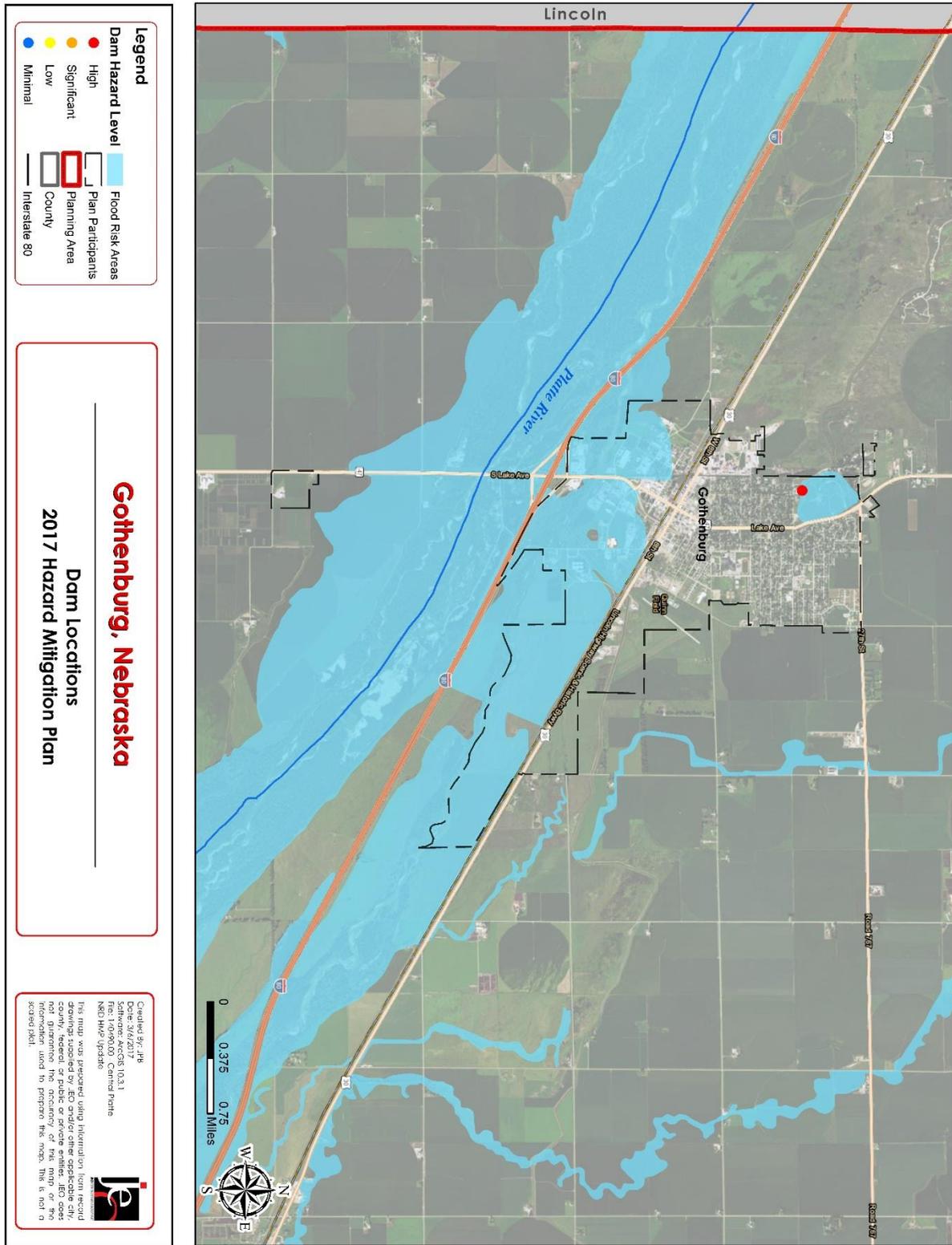
Source: NDNR

**Table GBG.10: High Hazard Dams**

NIDID	Dam Name	Owner	Location	Name of Stream	Maximum Storage (acre-feet)	Last Inspection Date
NE02393	Lake Helen Dam	City of Gothenburg	Gothenburg	Gothenburg Canal off the Platte River	316	6/2/2015

Source: NDNR

Figure GBG.6: Dam Location



**Flooding**

The flood risk areas of concern for the City of Gothenburg are located south of the railroad and close to the Platte River. The community’s stormwater drainage system could be improved. The NCEI reports three flash floods from May 2007 through June 2008, and three floods from September 2013 through June 2015. The worst of these was a pair of floods in May of 2015 that occurred due to heavy rain and snow melt. These floods together resulted in \$100,000 in property damage.

Gothenburg has 21 NFIP policies in-force for \$6,025,100. There are no repetitive flood loss properties in the City of Gothenburg.

The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 6.1 percent of all parcel improvements in Gothenburg are in the floodplain.

**Table GBG.11: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$1,969,415	106	1,746	6.1%

Source: GIS Workshop/Gothenburg County Assessor

Plans to mitigate future floods include removing or improving structures and equipment in the floodplain, improving the flood warning system, evaluating and fixing stream channels and banks, and improving stormwater drainage.

**Severe Thunderstorms**

The local planning team identified severe thunderstorms as a top concern for the City. NCEI reported 38 severe thunderstorm events since 1999. These severe thunderstorms caused \$1,337,000 dollars in damage, and wind speeds topped at 92kts. The worst of these was a massive storm in July of 2014 that caused \$500,000 in property damage throughout the area from high winds and hail. The local planning team reports that in past severe thunderstorm events, downed trees and roof damage were the primary impacts. The team’s primary concerns, however, relate to power outages, wind, and tree damage that result from the storms. Critical municipal records are protected with surge protectors on electronic devices, and critical facilities have backup generators and weather radios. Approximately twenty percent of power lines are buried. Gothenburg plans to mitigate the hazards associated with thunderstorms by providing adequate safe rooms, improving their emergency communication and warning systems, hardening electrical systems, and implementing a tree maintenance program.

**Severe Winter Storms**

Severe winter storms were selected as a top concern for Gothenburg by the local planning team. There have been four significant winter storms in the past that caused travel restrictions and power outages because of snowfall levels of 10-inches or greater. A heavy snow storm in October of 2009 caused power outages for 1,100 customers in Gothenburg when snow fell at a rate of one to two inches per hour resulting in 10 inches of snow. I-80 was closed in January of 2011 when nearly a foot of snow caused multiple car accidents. Similar events involving a foot of snow occurred in February of 2013 and March of 2014. The planning team’s main concerns with severe winter storms are the resulting delays and restrictions in transportation, delayed response times from Fire and Rescue teams, and power outages. Gothenburg uses snow fences and designated snow routes. The City is responsible for snow removal and equipment is sufficient at this time. Mitigation actions include improving electrical systems, warning systems, and emergency communication systems.-

### **Tornadoes**

The local planning team ranked tornadoes as a top hazard of concern for the City. There are two NCEI reports of tornadoes in Gothenburg from 2005 to 2007. The EF2 tornado that occurred in April of 2007 was severe, with nine injuries, 12 head cattle dead, \$1,200,000 in vehicle, outbuilding and power line damage. This tornado formed southwest of Gothenburg, then crossed I-80 heading north on a path five miles outside of the town. It tossed several vehicles from the highway.

Gothenburg has warning sirens activated by North Platte dispatch. All areas can hear the sirens, but the local planning team reports that the coverage could be improved. The only shelter in the community is City Hall, but the safe room is constructed to the standards set forth in the FEMA P-320 guidance. Mitigation plans include providing adequate public safe rooms for the community. The City has data backup systems for municipal records on separate files located offsite. No educational outreach activities are done in the community. The County Emergency Manager offers text alerts for emergencies. Gothenburg plans to further improve their warning and emergency communication systems.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City is governed by a Mayor and a three member City Council. Furthermore, Gothenburg has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Planning Commission
- Housing Authority
- Volunteer Fire Department
- City Administrator
- City Services Director
- Chief of Police
- Electrical Foreman

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table GBG.12: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes - County
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes - County
	Chief Building Official	Yes
	Civil Engineering	Yes – Contractor
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	No
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes- water use
	Natural Disaster or Safety related school programs	Unknown
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	Yes
	Other (if any)	

**Table GBG.13: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Gothenburg’s Comprehensive Plan, last updated in 2007, contains the goals and objectives aimed at Safe Growth. The plan directs development away from the floodplain, encourages infill development, clustering of development in sensitive areas, elevation of structures in the floodplain, and preservation of open space in hazard-prone areas. It also allows for emergency access to all areas of town. At this time, there are no current strategies to further integrate the HMP into the Comprehensive Plan.

The City’s Zoning Ordinance was last updated in 2015. The Ordinance requires at least one-foot of elevation above base flood elevation in the floodplain and prohibits development within the floodways. The Ordinance also limits development in the extraterrestrial jurisdiction and accounts for current population trends.

Gothenburg has an annex to the Dawson County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

Gothenburg’s Building Codes were last updated in 2015 and require mechanical systems to be elevated for structures in the floodplain. It also encourages the use of fire resistant building materials.

### ***MITIGATION STRATEGY***

#### **Completed Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Location	Senior Center
Funding	Local taxes
Status	Completed in 2014.

**Ongoing or New Mitigation Actions**

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	All Hazards
Estimated Cost	\$150/safe room for retrofit; \$300/safe room for new construction
Funding	Local taxes, HMGP, PDM
Timeline	5+ years
Priority	Low
Status	Ongoing.
Lead Agency	Administration

<b>Improve Emergency Communication Systems</b>	
Description	Develop Emergency Communication Action Plan; implement Emergency; communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	Local taxes and E911 money
Timeline	5+ years
Priority	Medium
Status	Ongoing.
Lead Agency	Police Department

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$50/radio; \$5,000 to \$50,000 for radio/television broadcast system; \$15,000 to \$50,000 for sirens
Funding	Local taxes, HMGP
Timeline	5+ years
Priority	Medium
Status	Ongoing.
Lead Agency	Administration

<b>Improve Electrical Service</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	Rate payers, PPD
Timeline	5+ years
Priority	Low
Status	Ongoing.
Lead Agency	Electrical

<b>Reduce Damages in Floodplain</b>	
Description	Evaluate repetitive loss or potential loss structures located in floodplain; acquire and relocate or demolish flood prone property or elevate flood prone property; elevate equipment vulnerable to flooding
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	Local taxes
Timeline	5+ years
Priority	Low
Status	Ongoing.
Lead Agency	Administration, Floodplain Administrator

<b>Improve Flood/Dam Failure Warning System</b>	
Description	Evaluate current flood/water level alert and dam failure warning alert system; implement improved alert measures; increase stricter inspection of dams
Hazard(s) Addressed	Flooding, Dam Failure
Estimated Cost	\$5,000 and up
Funding	Local taxes
Timeline	5+ years
Priority	Low
Status	Ongoing.
Lead Agency	Administration, Floodplain Administrator

<b>Evaluate Stream Channelization/Bank Stabilization</b>	
Description	Evaluate current stream bed and bank stabilization needs; implement stream bed and bank stabilization improvements including grade control structures, rock rip rap, vegetative cover, etc.
Hazard(s) Addressed	Flooding
Estimated Cost	\$25,000 to \$500,000+
Funding	Local taxes
Timeline	5+ years
Priority	Low
Status	Ongoing.
Lead Agency	Administration, Engineer

<b>Reduce Storm Water Damage</b>	
Description	Conduct stormwater drainage study to evaluate restrictions, capacity, level of protection, alternative improvements, prioritize improvements, etc.; evaluate and implement recommendations or comparable measures including open ditch and culvert improvements, underground piping, retention and detention facilities to decrease runoff, etc.; evaluate stormwater ordinance; implement improved stormwater ordinance
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000 to \$75,000 for studies; \$10,000 or more for ditch or pipe cleaning; unknown for large projects
Funding	Local taxes
Timeline	5+ years
Priority	Low
Status	Ongoing.
Lead Agency	Administration

	<b>Reduce Tree Damage and Damage from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	All Hazards
Estimated Cost	\$0 to \$5,000 to develop program; implementation unknown
Funding	Local taxes
Timeline	5+ years
Priority	Low
Status	Ongoing.
Lead Agency	Administration

**Removed Mitigation Actions**

	<b>Develop/Update Floodplain Information</b>
Description	Conduct mapping/remapping of floodplains; revise floodplain/insurance maps
Reason for Removal	Already are participants in NFIP, and have updated floodplain maps

	<b>Evaluate and Improve Berm, Floodwall and/or Levee</b>
Description	Evaluate and update current berm, floodwall and levee system; design and construct measures to protect and improve berm, floodwall, and levee
Reason for Removal	Working with Corps of Engineers on Flood Studies, will wait to see if this is identified as needed.

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; additional floodplain mapping/remapping
Reason for Removal	City will continue to participate in program, however, this is no longer considered a hazard mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
CITY OF LEXINGTON

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table LEX.1 provides the list of participating members that comprised the Lexington local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table LEX.1: Lexington Local Planning Team**

Name	Title	Department / Organization
Dennis Burnside	Assistant City Manager	City of Lexington
Bill Brecks	Development Services Director	City of Lexington

**LOCATION AND GEOGRAPHY**

The City of Lexington is located in the south central portion of Dawson County and covers an area of 4.51 square miles. Major waterways in the area include the Platte River, Spring Creek, and Buffalo Creek.

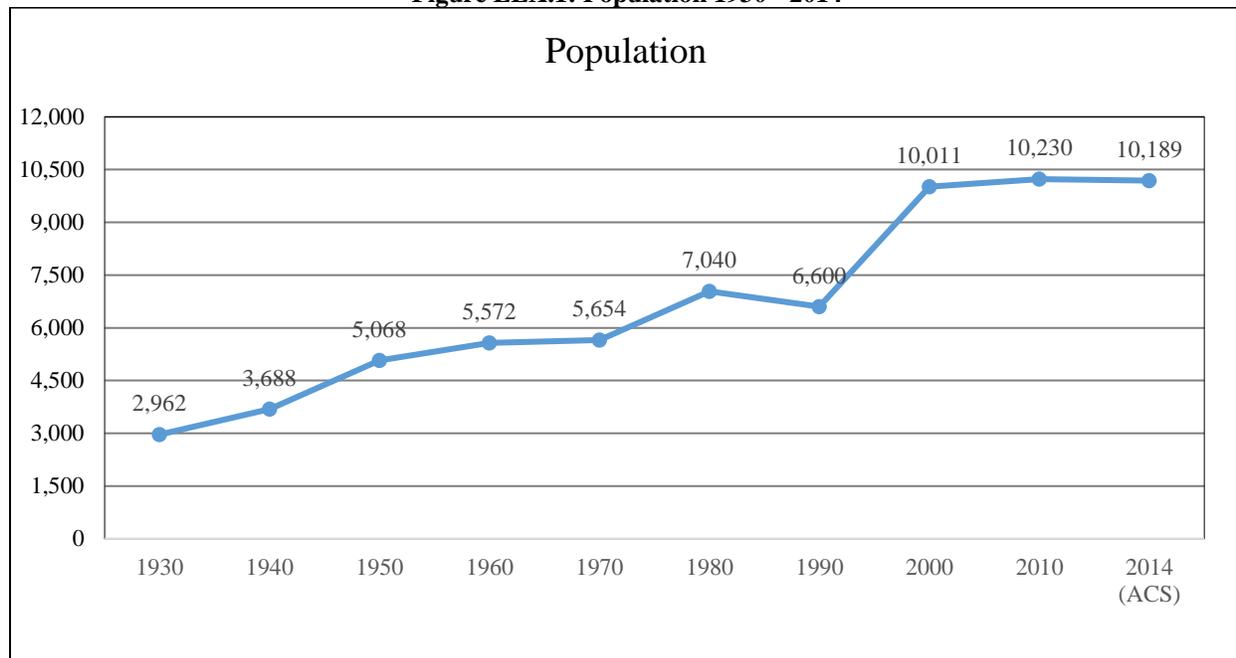
**TRANSPORTATION**

Lexington’s major transportation corridors include Interstate 80 and Highways 21, 30, and 283. The average daily vehicle load for I-80 is between 15,915 and 16,705 vehicles with 6,960 to 7,585 of those being categorized as heavy commercial vehicles. The average daily vehicle load for highways 21, 30, and 283 are 1,880, 2,970 to 3,140, and 7,810 respectively. Of those counts, 220, 245 to 260, and 475 are categorized as heavy commercial vehicles respectively. Lexington has one major rail line, the Union Pacific Railroad. At Lexington, the line runs parallel to Highway 30 and bisects the City.

**DEMOGRAPHICS**

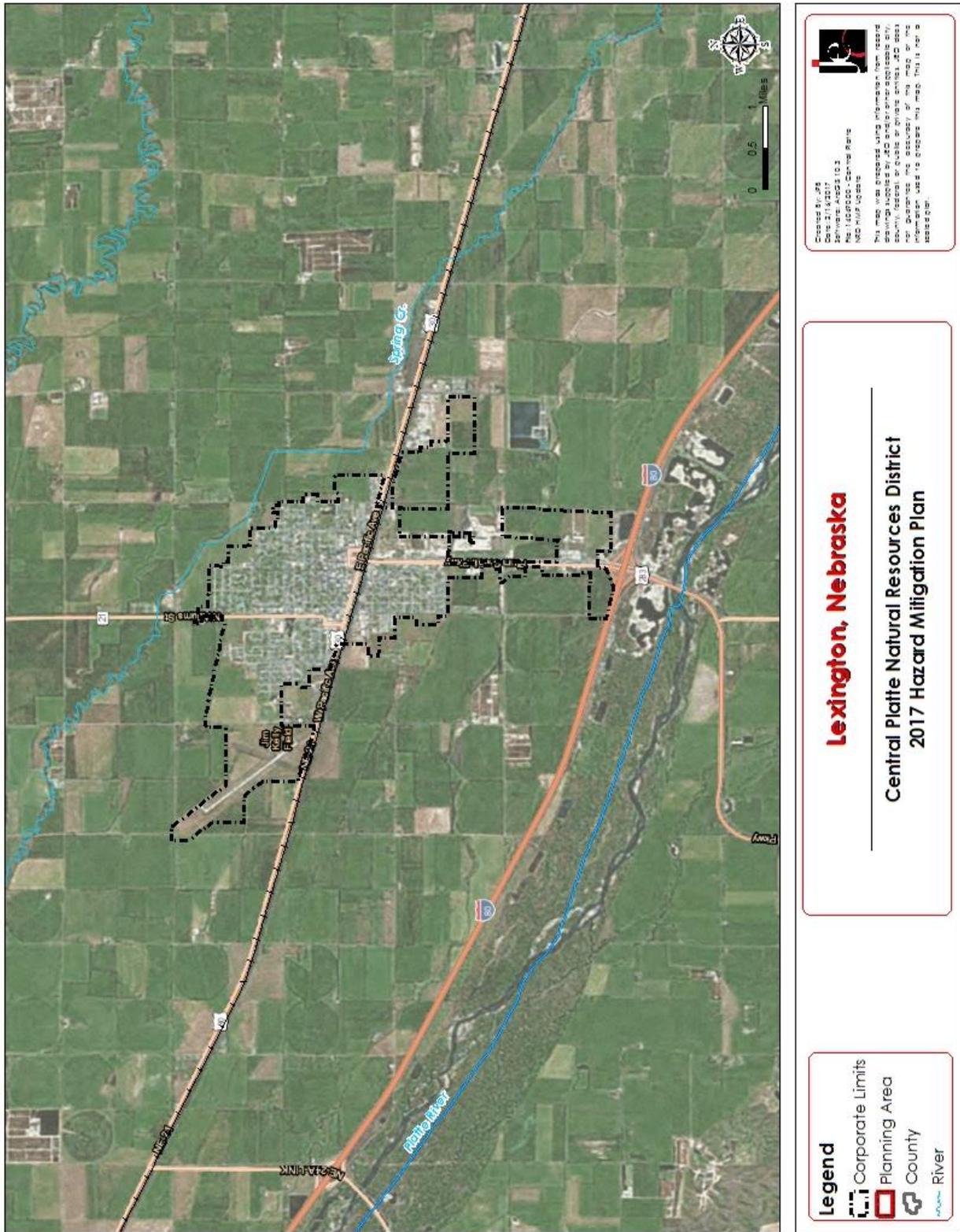
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Lexington has been increasing since 1930. The significant increase in growth between 1990 and 2000 can be attributed to an increase in the Hispanic population during this time.

**Figure LEX.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure LEX.2: Map of the City of Lexington



The following table indicates the City has a slightly higher percentage of the population under the age of 5, a slightly higher percentage of population between 5 and 64 years of age, and a higher median age when compared to the County and the state. However, Lexington has a lower percentage of its population over the age of 64 as compared to both Dawson County and the state.

**Table LEX.2: Population by Age**

Age	Lexington	Dawson County	State of Nebraska
<5	9.7%	7.9%	7.2%
5-64	81.0%	78.2%	79.2%
>64	9.3%	13.9%	13.6%
Median	29.3	36.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

An important factor in Lexington’s population is the racial composition of the overall population. The following table shows the changes in Lexington’s racial composition from 1990 to 2010.

**Table LEX.3: Racial Composition Trends, 1990-2010**

Race	1990		2000		2010		1990-2010
	Number	% of Total	Number	% of Total	Number	% of Total	% Change
White, not Hispanic	6,231	94.39%	4,635	46.30%	3,174	31.03%	-63.37%
Black	3	0.05%	32	0.32%	649	6.34%	6.30%
American Indian and Alaskan Native	27	0.41%	76	0.76%	34	0.33%	-0.08%
Other, not Hispanic	10	0.15%	103	1.03%	130	1.27%	1.12%
Two or more races	1	0.02%	5	0.05%	14	0.14%	0.12%
Hispanic or Latino Origin	329*	1.64%	5,121	51.15%	6,183	60.44%	55.46%
<b>Total Population</b>	<b>6,601</b>	<b>100%</b>	<b>10,011</b>	<b>100%</b>	<b>10,230</b>	<b>100%</b>	

Source: U.S. Census Bureau; Lexington Comprehensive Plan 2013

\*1990 Census Category White, Hispanic origin is included into the Hispanic or Latino population

The following table indicates that Lexington’s median household income and per capita income are lower than the County’s as well as the state’s. Lexington also has a lower median home value and median rent value.

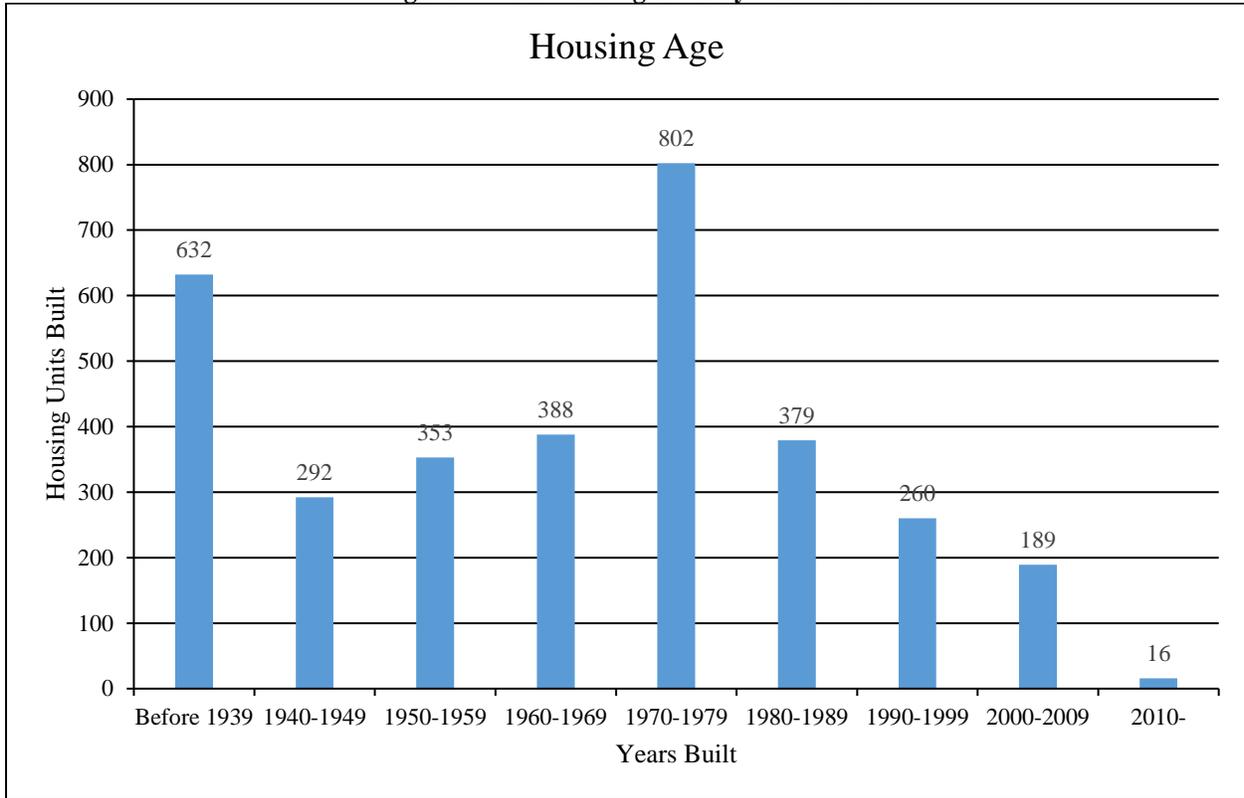
**Table LEX.4: Housing and Income**

	Lexington	Dawson County	State of Nebraska
Median Household Income	\$44,966	\$56,361	\$52,400
Per Capita Income	\$15,477	\$21,046	\$27,339
Median Home Value	\$82,000	\$89,700	\$130,100
Median Rent	\$653	\$648	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 3,311 housing units with 90.4 percent of those units occupied. There are approximately 307 mobile homes in the community, and there are two mobile home parks in the City. Both of the mobile home parks are located near Highway 30 with one at the far east side and one at the far west side. The initial Flood Insurance Rate Map (FIRM) was developed in May 1984.

**Figure LEX.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table LEX.5: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Lexington	2,994	90.4%	317	9.6%	1,767	59.0%	1,227	41.0%
Dawson County	8,731	86.1%	1,404	13.9%	68.4%	2,761	31.6%	8,731

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

Major employers in the City of Lexington include: Tyson Fresh Meats, Lexington Public Schools, Orthman Manufacturing, Walmart Super Store, and Lexington Regional Health Center. Most of the residents work in the City of Lexington, and do not commute outside the community.

**FUTURE DEVELOPMENT TRENDS**

In the last five years, development of the southeast business park has attracted Orthman Manufacturing, Volvo Trucks of Lexington, Bauer Built Tires, and six small retailers. A new car lot and True Value Hardware store have been developed farther north on Hwy 283. In 2015, a 22-unit apartment complex was built in the south end of town. New housing developments are growing in the northwest side of town. A new YMCA was built. The hospital and Tyson Fresh Meats are completing major expansions. According to the planning team, job opportunities in manufacturing and meat processing are contributing to Lexington’s growing population. In the next five years, major housing developments are planned for the northwest and southwest sides of Lexington.

Figure LEX.4: Future Land Use Map

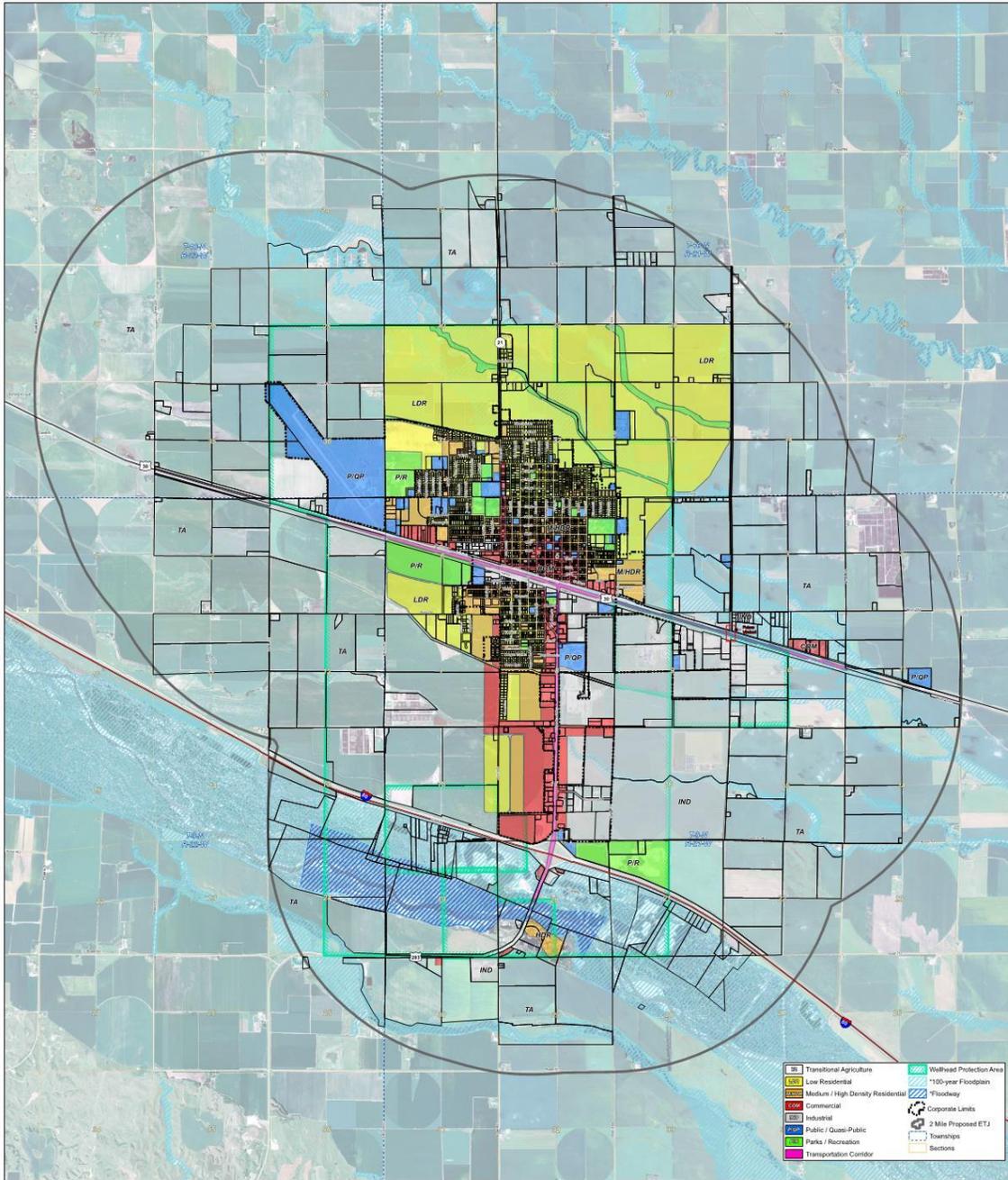
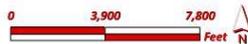


Figure 27: Future Land Use Map, Lexington

**City of Lexington**  
 Dawson County, Nebraska  
 Future Land Use Map



Created By: S&B  
 Revised By: S&B  
 Date: 6/17/2013  
 Software: ArcGIS 10  
 File: 100999

**je**  
**HDR**

\*The 100-Year Floodplain shown on this map are a generalized representation of the Floodplain boundaries shown on the following FRM panels in the 31873C series: 0559A, 0575A adopted on 04/2/05, 0601A, 0617A, 0633A, 0649A, 0665A, 0681A, 0697A, 0713A, 0729A, 0745A, 0761A, 0777A, 0793A, 0809A, 0825A, 0841A, 0857A, 0873A, 0889A, 0905A, 0921A, 0937A, 0953A, 0969A, 0985A, 1001A, 1017A, 1033A, 1049A, 1065A, 1081A, 1097A, 1113A, 1129A, 1145A, 1161A, 1177A, 1193A, 1209A, 1225A, 1241A, 1257A, 1273A, 1289A, 1305A, 1321A, 1337A, 1353A, 1369A, 1385A, 1401A, 1417A, 1433A, 1449A, 1465A, 1481A, 1497A, 1513A, 1529A, 1545A, 1561A, 1577A, 1593A, 1609A, 1625A, 1641A, 1657A, 1673A, 1689A, 1705A, 1721A, 1737A, 1753A, 1769A, 1785A, 1801A, 1817A, 1833A, 1849A, 1865A, 1881A, 1897A, 1913A, 1929A, 1945A, 1961A, 1977A, 1993A, 2009A, 2025A, 2041A, 2057A, 2073A, 2089A, 2105A, 2121A, 2137A, 2153A, 2169A, 2185A, 2201A, 2217A, 2233A, 2249A, 2265A, 2281A, 2297A, 2313A, 2329A, 2345A, 2361A, 2377A, 2393A, 2409A, 2425A, 2441A, 2457A, 2473A, 2489A, 2505A, 2521A, 2537A, 2553A, 2569A, 2585A, 2601A, 2617A, 2633A, 2649A, 2665A, 2681A, 2697A, 2713A, 2729A, 2745A, 2761A, 2777A, 2793A, 2809A, 2825A, 2841A, 2857A, 2873A, 2889A, 2905A, 2921A, 2937A, 2953A, 2969A, 2985A, 3001A, 3017A, 3033A, 3049A, 3065A, 3081A, 3097A, 3113A, 3129A, 3145A, 3161A, 3177A, 3193A, 3209A, 3225A, 3241A, 3257A, 3273A, 3289A, 3305A, 3321A, 3337A, 3353A, 3369A, 3385A, 3401A, 3417A, 3433A, 3449A, 3465A, 3481A, 3497A, 3513A, 3529A, 3545A, 3561A, 3577A, 3593A, 3609A, 3625A, 3641A, 3657A, 3673A, 3689A, 3705A, 3721A, 3737A, 3753A, 3769A, 3785A, 3801A, 3817A, 3833A, 3849A, 3865A, 3881A, 3897A, 3913A, 3929A, 3945A, 3961A, 3977A, 3993A, 4009A, 4025A, 4041A, 4057A, 4073A, 4089A, 4105A, 4121A, 4137A, 4153A, 4169A, 4185A, 4201A, 4217A, 4233A, 4249A, 4265A, 4281A, 4297A, 4313A, 4329A, 4345A, 4361A, 4377A, 4393A, 4409A, 4425A, 4441A, 4457A, 4473A, 4489A, 4505A, 4521A, 4537A, 4553A, 4569A, 4585A, 4601A, 4617A, 4633A, 4649A, 4665A, 4681A, 4697A, 4713A, 4729A, 4745A, 4761A, 4777A, 4793A, 4809A, 4825A, 4841A, 4857A, 4873A, 4889A, 4905A, 4921A, 4937A, 4953A, 4969A, 4985A, 5001A, 5017A, 5033A, 5049A, 5065A, 5081A, 5097A, 5113A, 5129A, 5145A, 5161A, 5177A, 5193A, 5209A, 5225A, 5241A, 5257A, 5273A, 5289A, 5305A, 5321A, 5337A, 5353A, 5369A, 5385A, 5401A, 5417A, 5433A, 5449A, 5465A, 5481A, 5497A, 5513A, 5529A, 5545A, 5561A, 5577A, 5593A, 5609A, 5625A, 5641A, 5657A, 5673A, 5689A, 5705A, 5721A, 5737A, 5753A, 5769A, 5785A, 5801A, 5817A, 5833A, 5849A, 5865A, 5881A, 5897A, 5913A, 5929A, 5945A, 5961A, 5977A, 5993A, 6009A, 6025A, 6041A, 6057A, 6073A, 6089A, 6105A, 6121A, 6137A, 6153A, 6169A, 6185A, 6201A, 6217A, 6233A, 6249A, 6265A, 6281A, 6297A, 6313A, 6329A, 6345A, 6361A, 6377A, 6393A, 6409A, 6425A, 6441A, 6457A, 6473A, 6489A, 6505A, 6521A, 6537A, 6553A, 6569A, 6585A, 6601A, 6617A, 6633A, 6649A, 6665A, 6681A, 6697A, 6713A, 6729A, 6745A, 6761A, 6777A, 6793A, 6809A, 6825A, 6841A, 6857A, 6873A, 6889A, 6905A, 6921A, 6937A, 6953A, 6969A, 6985A, 7001A, 7017A, 7033A, 7049A, 7065A, 7081A, 7097A, 7113A, 7129A, 7145A, 7161A, 7177A, 7193A, 7209A, 7225A, 7241A, 7257A, 7273A, 7289A, 7305A, 7321A, 7337A, 7353A, 7369A, 7385A, 7401A, 7417A, 7433A, 7449A, 7465A, 7481A, 7497A, 7513A, 7529A, 7545A, 7561A, 7577A, 7593A, 7609A, 7625A, 7641A, 7657A, 7673A, 7689A, 7705A, 7721A, 7737A, 7753A, 7769A, 7785A, 7801A, 7817A, 7833A, 7849A, 7865A, 7881A, 7897A, 7913A, 7929A, 7945A, 7961A, 7977A, 7993A, 8009A, 8025A, 8041A, 8057A, 8073A, 8089A, 8105A, 8121A, 8137A, 8153A, 8169A, 8185A, 8201A, 8217A, 8233A, 8249A, 8265A, 8281A, 8297A, 8313A, 8329A, 8345A, 8361A, 8377A, 8393A, 8409A, 8425A, 8441A, 8457A, 8473A, 8489A, 8505A, 8521A, 8537A, 8553A, 8569A, 8585A, 8601A, 8617A, 8633A, 8649A, 8665A, 8681A, 8697A, 8713A, 8729A, 8745A, 8761A, 8777A, 8793A, 8809A, 8825A, 8841A, 8857A, 8873A, 8889A, 8905A, 8921A, 8937A, 8953A, 8969A, 8985A, 9001A, 9017A, 9033A, 9049A, 9065A, 9081A, 9097A, 9113A, 9129A, 9145A, 9161A, 9177A, 9193A, 9209A, 9225A, 9241A, 9257A, 9273A, 9289A, 9305A, 9321A, 9337A, 9353A, 9369A, 9385A, 9401A, 9417A, 9433A, 9449A, 9465A, 9481A, 9497A, 9513A, 9529A, 9545A, 9561A, 9577A, 9593A, 9609A, 9625A, 9641A, 9657A, 9673A, 9689A, 9705A, 9721A, 9737A, 9753A, 9769A, 9785A, 9801A, 9817A, 9833A, 9849A, 9865A, 9881A, 9897A, 9913A, 9929A, 9945A, 9961A, 9977A, 9993A, 10009A, 10025A, 10041A, 10057A, 10073A, 10089A, 10105A, 10121A, 10137A, 10153A, 10169A, 10185A, 10201A, 10217A, 10233A, 10249A, 10265A, 10281A, 10297A, 10313A, 10329A, 10345A, 10361A, 10377A, 10393A, 10409A, 10425A, 10441A, 10457A, 10473A, 10489A, 10505A, 10521A, 10537A, 10553A, 10569A, 10585A, 10601A, 10617A, 10633A, 10649A, 10665A, 10681A, 10697A, 10713A, 10729A, 10745A, 10761A, 10777A, 10793A, 10809A, 10825A, 10841A, 10857A, 10873A, 10889A, 10905A, 10921A, 10937A, 10953A, 10969A, 10985A, 11001A, 11017A, 11033A, 11049A, 11065A, 11081A, 11097A, 11113A, 11129A, 11145A, 11161A, 11177A, 11193A, 11209A, 11225A, 11241A, 11257A, 11273A, 11289A, 11305A, 11321A, 11337A, 11353A, 11369A, 11385A, 11401A, 11417A, 11433A, 11449A, 11465A, 11481A, 11497A, 11513A, 11529A, 11545A, 11561A, 11577A, 11593A, 11609A, 11625A, 11641A, 11657A, 11673A, 11689A, 11705A, 11721A, 11737A, 11753A, 11769A, 11785A, 11801A, 11817A, 11833A, 11849A, 11865A, 11881A, 11897A, 11913A, 11929A, 11945A, 11961A, 11977A, 11993A, 12009A, 12025A, 12041A, 12057A, 12073A, 12089A, 12105A, 12121A, 12137A, 12153A, 12169A, 12185A, 12201A, 12217A, 12233A, 12249A, 12265A, 12281A, 12297A, 12313A, 12329A, 12345A, 12361A, 12377A, 12393A, 12409A, 12425A, 12441A, 12457A, 12473A, 12489A, 12505A, 12521A, 12537A, 12553A, 12569A, 12585A, 12601A, 12617A, 12633A, 12649A, 12665A, 12681A, 12697A, 12713A, 12729A, 12745A, 12761A, 12777A, 12793A, 12809A, 12825A, 12841A, 12857A, 12873A, 12889A, 12905A, 12921A, 12937A, 12953A, 12969A, 12985A, 13001A, 13017A, 13033A, 13049A, 13065A, 13081A, 13097A, 13113A, 13129A, 13145A, 13161A, 13177A, 13193A, 13209A, 13225A, 13241A, 13257A, 13273A, 13289A, 13305A, 13321A, 13337A, 13353A, 13369A, 13385A, 13401A, 13417A, 13433A, 13449A, 13465A, 13481A, 13497A, 13513A, 13529A, 13545A, 13561A, 13577A, 13593A, 13609A, 13625A, 13641A, 13657A, 13673A, 13689A, 13705A, 13721A, 13737A, 13753A, 13769A, 13785A, 13801A, 13817A, 13833A, 13849A, 13865A, 13881A, 13897A, 13913A, 13929A, 13945A, 13961A, 13977A, 13993A, 14009A, 14025A, 14041A, 14057A, 14073A, 14089A, 14105A, 14121A, 14137A, 14153A, 14169A, 14185A, 14201A, 14217A, 14233A, 14249A, 14265A, 14281A, 14297A, 14313A, 14329A, 14345A, 14361A, 14377A, 14393A, 14409A, 14425A, 14441A, 14457A, 14473A, 14489A, 14505A, 14521A, 14537A, 14553A, 14569A, 14585A, 14601A, 14617A, 14633A, 14649A, 14665A, 14681A, 14697A, 14713A, 14729A, 14745A, 14761A, 14777A, 14793A, 14809A, 14825A, 14841A, 14857A, 14873A, 14889A, 14905A, 14921A, 14937A, 14953A, 14969A, 14985A, 15001A, 15017A, 15033A, 15049A, 15065A, 15081A, 15097A, 15113A, 15129A, 15145A, 15161A, 15177A, 15193A, 15209A, 15225A, 15241A, 15257A, 15273A, 15289A, 15305A, 15321A, 15337A, 15353A, 15369A, 15385A, 15401A, 15417A, 15433A, 15449A, 15465A, 15481A, 15497A, 15513A, 15529A, 15545A, 15561A, 15577A, 15593A, 15609A, 15625A, 15641A, 15657A, 15673A, 15689A, 15705A, 15721A, 15737A, 15753A, 15769A, 15785A, 15801A, 15817A, 15833A, 15849A, 15865A, 15881A, 15897A, 15913A, 15929A, 15945A, 15961A, 15977A, 15993A, 16009A, 16025A, 16041A, 16057A, 16073A, 16089A, 16105A, 16121A, 16137A, 16153A, 16169A, 16185A, 16201A, 16217A, 16233A, 16249A, 16265A, 16281A, 16297A, 16313A, 16329A, 16345A, 16361A, 16377A, 16393A, 16409A, 16425A, 16441A, 16457A, 16473A, 16489A, 16505A, 16521A, 16537A, 16553A, 16569A, 16585A, 16601A, 16617A, 16633A, 16649A, 16665A, 16681A, 16697A, 16713A, 16729A, 16745A, 16761A, 16777A, 16793A, 16809A, 16825A, 16841A, 16857A, 16873A, 16889A, 16905A, 16921A, 16937A, 16953A, 16969A, 16985A, 17001A, 17017A, 17033A, 17049A, 17065A, 17081A, 17097A, 17113A, 17129A, 17145A, 17161A, 17177A, 17193A, 17209A, 17225A, 17241A, 17257A, 17273A, 17289A, 17305A, 17321A, 17337A, 17353A, 17369A, 17385A, 17401A, 17417A, 17433A, 17449A, 17465A, 17481A, 17497A, 17513A, 17529A, 17545A, 17561A, 17577A, 17593A, 17609A, 17625A, 17641A, 17657A, 17673A, 17689A, 17705A, 17721A, 17737A, 17753A, 17769A, 17785A, 17801A, 17817A, 17833A, 17849A, 17865A, 17881A, 17897A, 17913A, 17929A, 17945A, 17961A, 17977A, 17993A, 18009A, 18025A, 18041A, 18057A, 18073A, 18089A, 18105A, 18121A, 18137A, 18153A, 18169A, 18185A, 18201A, 18217A, 18233A, 18249A, 18265A, 18281A, 18297A, 18313A, 18329A, 18345A, 18361A, 18377A, 18393A, 18409A, 18425A, 18441A, 18457A, 18473A, 18489A, 18505A, 18521A, 18537A, 18553A, 18569A, 18585A, 18601A, 18617A, 18633A, 18649A, 18665A, 18681A, 18697A, 18713A, 18729A, 18745A, 18761A, 18777A, 18793A, 18809A, 18825A, 18841A, 18857A, 18873A, 18889A, 18905A, 18921A, 18937A, 18953A, 18969A, 18985A, 19001A, 19017A, 19033A, 19049A, 19065A, 19081A, 19097A, 19113A, 19129A, 19145A, 19161A, 19177A, 19193A, 19209A, 19225A, 19241A, 19257A, 19273A, 19289A, 19305A, 19321A, 19337A, 19353A, 19369A, 19385A, 19401A, 19417A, 19433A, 19449A, 19465A, 19481A, 19497A, 19513A, 19529A, 19545A, 19561A, 19577A, 19593A, 19609A, 19625A, 19641A, 19657A, 19673A, 19689A, 19705A, 19721A, 19737A, 19753A, 19769A, 19785A, 19801A, 19817A, 19833A, 19849A, 19865A, 19881A, 19897A, 19913A, 19929A, 19945A, 19961A, 19977A, 19993A, 20009A, 20025A, 20041A, 20057A, 20073A, 20089A, 20105A, 20121A, 20137A, 20153A, 20169A, 20185A, 20201A, 20217A, 20233A, 20249A, 20265A, 20281A, 20297A, 20313A, 20329A, 20345A, 20361A, 20377A, 20393A, 20409A, 20425A, 20441A, 20457A, 20473A, 20489A, 20505A, 20521A, 20537A, 20553A, 20569A, 20585A, 20601A, 20617A, 20633A, 20649A, 20665A, 20681A, 20697A, 20713A, 20729A, 20745A, 20761A, 20777A, 20793A, 20809A, 20825A, 20841A, 20857A, 20873A, 20889A, 20905A, 20921A, 20937A, 20953A, 20969A, 20985A, 21001A, 21017A, 21033A, 21049A, 21065A, 21081A, 21097A, 21113A, 21129A, 21145A, 21161A, 21177A, 21193A, 21209A, 21225A, 21241A, 21257A, 21273A, 21289A, 21305A, 21321A, 21337A, 21353A, 21369A, 21385A, 21401A, 21417A, 21433A, 21449A, 21465A, 21481A, 21497A, 21513A, 21529A, 21545A, 21561A, 21577A, 21593A, 21609A, 21625A, 21641A, 21657A, 21673A, 21689A, 21705A, 21721A, 21737A, 21753A, 21769A, 21785A, 21801A, 21817A, 21833A, 21849A, 21865A, 21881A, 21897A, 21913A, 21929A, 21945A, 21961A, 21977A, 21993A, 22009A, 22025A, 22041A, 22057A, 22073A, 22089A, 22105A, 22121A, 22137A, 22153A, 22169A, 22185A, 22201A, 22217A, 22233A, 22249A, 22265A, 22281A, 22297A, 22313A, 22329A, 22345A, 22361A, 22377A, 22393A, 22409A, 22425A, 22441A, 22457A, 22473A, 22489A, 22505A, 22521A, 22537A, 22553A, 22569A, 22585A, 22601A, 22617A, 22633A, 22649A, 22665A, 22681A, 22697A, 22713A, 22729A, 22745A, 22761A, 22777A, 22793A, 22809A, 22825A, 22841A, 22857A, 22873A, 22889A, 22905A, 22921A, 22937A, 22953A, 22969A, 22985A, 23001A, 23017A, 23033A, 23049A, 23065A, 23081A, 23097A, 23113A, 23129A, 23145A, 23161A, 23177A, 23193A, 23209A, 23225A, 23241A, 23257A, 23273A, 23289A, 23305A, 23321A, 23337A, 23353A, 23369A, 23385A, 23401A, 23417A, 23433A, 23449A, 23465A, 23481A, 23497A, 23513A, 23529A, 23545A, 23561A, 23577A, 23593A, 23609A, 23625A, 23641A, 23657A, 23673A, 23689A, 23705A, 23721A, 23737A, 23753A, 23769A, 23785A, 23801A, 23817A, 23833A, 23849A, 23865A, 23881A, 23897A, 23913A, 23929A, 23945A, 23961A, 23977A, 23993A, 24009A, 24025A, 24041A, 24057A, 24073A, 24089A, 24105A, 24121A, 24137A, 24153A, 24169A, 24185A, 24201A, 24217A, 24233A, 24249A, 24265A, 24281A, 24297A, 24313A, 24329A, 24345A, 24361A, 24377A, 24393A, 24409A, 24425A, 24441A, 24457A, 24473A, 24489A, 24505A, 24521A, 24537A, 24553A, 24569A, 24585A, 24601A, 24617A, 24633A, 24649A, 24665A, 24681A, 24697A, 24713A, 24729A, 24745A, 24761A, 24777A, 24793A, 24809A, 24825A, 24841A, 24857A, 24873A, 24889A, 24905A, 24921A, 24937A, 24953A, 24969A, 24985A, 25001A, 25017A, 25033A, 25049A, 25065A, 25081A, 25097A,

***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table LEX.6: Parcel Improvements**

<b>Number of Improvements</b>	<b>Total Improvement Value</b>	<b>Mean Value of Improvements Per Parcel</b>	<b>Number of Improvements in Floodplain</b>	<b>Value of Improvements in Floodplain</b>
2,957	\$163,302,461	\$105,720	598	\$34,099,336

Source: GIS Workshop/Lexington County Assessor

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of five chemical storage sites that house hazardous materials in Lexington. However, none of the chemical storage sites are located in the floodplain (Figure LEX.5).

**Table LEX.7: Chemical Storage Fixed Sites**

<b>Facility</b>	<b>Address</b>	<b>In Floodplain?</b>
Tyson Fresh Meats Inc	1500 Plum Creek Pkwy	No
Darling Ingredients Inc	1208 E Walnut St	No
All Points Cooperative	1306 E Walnut St	No
CenturyLink	112 E 7th St	No
Davis Energy Inc	925 W Pacific Ave	No

Source: Nebraska Department of Environmental Quality

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are two historic sites located in or near Lexington.

**Table LEX.8: National Historic Registry**

<b>Site Name</b>	<b>Date Listed</b>	<b>In Floodplain?</b>
Ira Webster Olive House	11/27/1989	No
Dawson County Courthouse	1/10/1990	No

Source: Nebraska State Historical Society, 2016

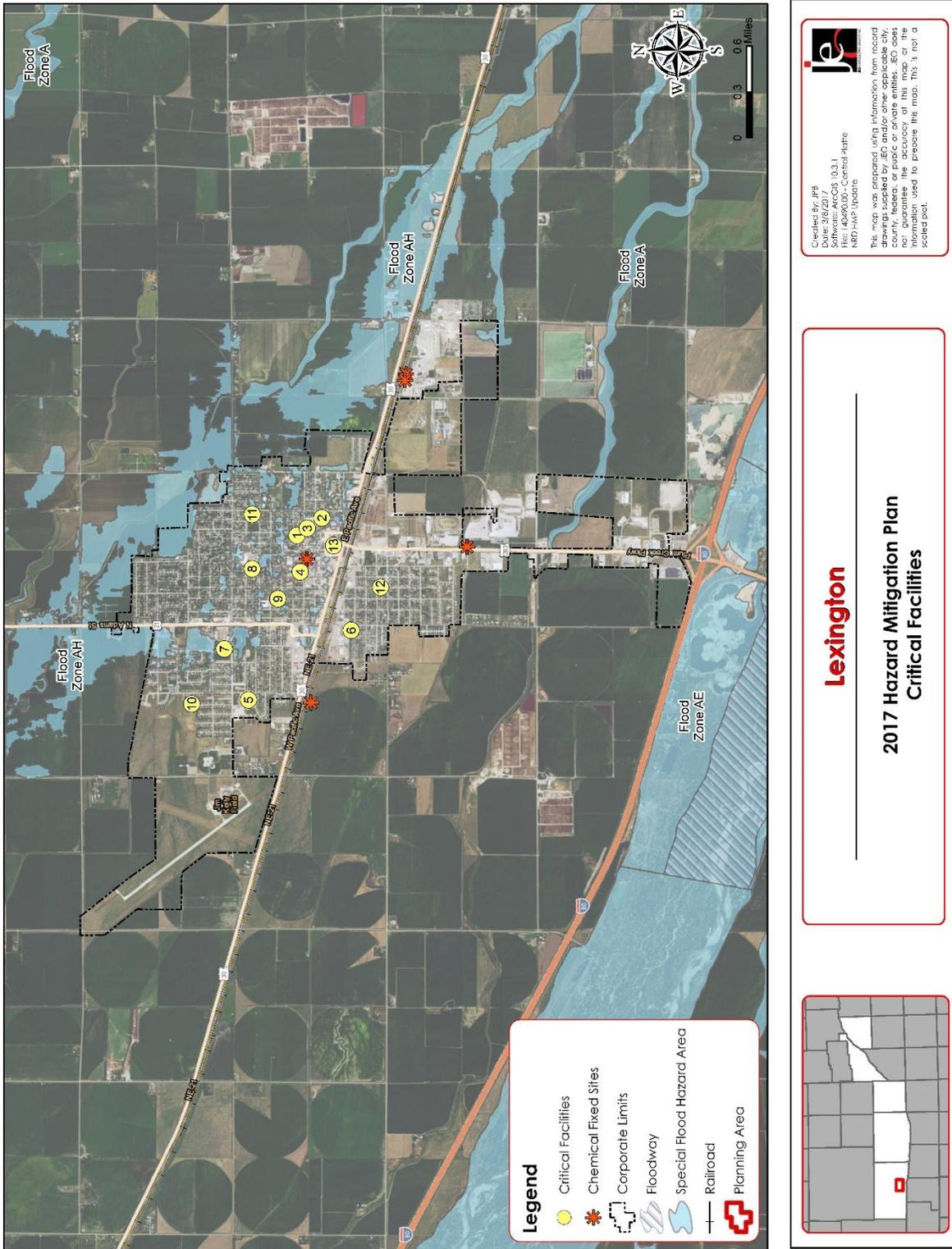
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table LEX.9: List of Critical Facilities in Lexington**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	City Hall/Police	406 E. 7 <sup>th</sup> Street	N	Y	N
2	Fire Hall	600 N. Tyler Street	N	Y	N
3	Grand Generation Center	407 E. 6 <sup>th</sup> Street	Y	N	N
4	County Building/Sheriff	700 N. Washington Street	N	Y	N
5	Lexington Regional Health Center	1201 N. Erie Street	N	Y	N
6	City Service Building	801 W. Vine Street	N	Y	N
7	Lexington High School	705 W. 13 <sup>th</sup> Street	Y	N	N
8	Lexington Middle School	1100 N. Washington Street	Y	Y	Y
9	Bryan Elementary School	1003 N. Harrison Street	Y	N	N
10	Sandoz Elementary School	1711 N. Erie Street	Y	N	N
11	Pershing Elementary School	1104 N. Tyler Street	Y	N	N
12	Morton Elementary School	505 S. Lincoln Street	Y	N	N
13	Wastewater Treatment Plan	1110 E. Industrial Road	N	Y	N

Figure LEX.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Dawson County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Extreme Heat**

The local planning team identified extreme heat as a top hazard for Lexington. The community is concerned about the health and safety of at risk populations, the potential strain on the power grid, the safety of livestock, the increased chance for fire and drought, and the earth generally warming. Lexington has most recently experienced extreme heat in the summer of 2016. The community does not have official cooling centers, but Lexington has parks with shelters and shade, and the City is adding a few splash pads. Event cancelation proceeds through various social and traditional media outlets.

The City is concerned with power outages caused by extreme heat. Lexington is working to continually improve their power system. Current hazard mitigation plans include creating a redundant electrical system, and providing backup generators for critical facilities. Currently some faith-based organizations might attempt to aid vulnerable populations, but nothing is in effect yet. Lexington also plans to educate its residents on mitigation and response procedures for extreme heat.

**Flooding**

The City of Lexington is flanked by floodplain on its north and east sides, and down Highway 30 mostly east of the City’s corporate limits. The planning team identified flash flooding as a top hazard for the City. One of the most significant flood events occurred in May of 2008 as a result of heavy spring rains. This flood event caused water to enter homes, inundate streets, and impacted an electrical substation resulting in a reported \$100,000 in property damages. Lexington was also affected by the massive flooding event in May of 2005 that caused \$3,000,000 in property damages throughout central Nebraska. Flooding during this event left nearly 60 percent of Lexington without power. Stormwater drainage effectiveness varies within the community. Spring Creek is a body of water of concern to the planning team, but a culvert has been renovated to improve its flow past the City. To further mitigate flood damages, Lexington has conducted a floodplain study and FIRM mapping, and adopted floodplain development regulations. Future mitigation plans include raising building codes, updating the City’s Comprehensive Plan, and improving existing physical features by stabilizing banks, deepening drainage ditches, and improving overall drainage.

Lexington has 165 NFIP policies in-force for \$30,867,800. There are no repetitive flood loss properties in the City of Lexington.

The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 20.2 percent of all parcel improvements in Lexington are in the floodplain.

**Table LEX.10: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$34,099,336	598	2,957	20.2%

Source: GIS Workshop/Lexington County Assessor

### **High Winds**

The local planning team ranked high winds as a top hazard of concern. Lexington is concerned with the potential damage to trees, property, and power lines. NCEI reported 11 high wind events nearing wind speeds of 60 mph since 1996. A high wind event in April of 2010 brought down tree branches that caused power outages throughout the City. The planning team reports that Lexington experiences high winds perennially that down tree limbs. The City's municipal records are backed up, text alerts are available, and the community has safe rooms in the senior center and in the local hospital. To mitigate the hazards associated with high winds, Lexington has maintained membership with Tree City USA for 20 years, and plans to continue tree maintenance with hazardous tree removal, a tree assistance program, a tree care ordinance, and a tree planting program. They also plan to create a redundant electrical system, and educate the public on hazard events.

### **Severe Thunderstorms**

The local planning team selected severe thunderstorms as a top hazard. The NCEI reports 29 severe thunderstorms and one lightning event since 1998, causing \$2,105,000 dollars in damage. Of these, the most damage was caused in July of 2014 when severe thunderstorms, accompanied by hail and strong winds, caused \$1,000,000 in property damage. The community experiences thunderstorms often in the summer, and Lexington is concerned with potential power outages, lightning strikes, and the potential loss of life or property. In September of 2009, lightning struck a dry cleaning business in Lexington, igniting a fire that burned the business to the ground. Critical municipal records are backed up, and most critical facilities have backup generators and weather radios. To mitigate damage caused by severe thunderstorms, Lexington plans to update and improve their tree maintenance programs by maintaining their Tree City USA membership, remove hazardous trees, assist vulnerable populations in their tree maintenance, adopt a tree care ordinance, and plant trees. Lexington also plans to provide backup generators for critical facilities without them and create a redundant electrical system.

### **Severe Winter Storms**

Severe winter storms were selected as a top concern for the City by the local planning team. Half an inch of ice from a storm in December of 2007 was heavy enough to down power lines and trees, precipitating concerns about future losses of power and disabling heating. The community is also concerned with the potential harm to industry, depending on the severity of the storm and conditions of roads. Finally, the planning team feels concern about the delay in emergency response time due to road conditions. The City publishes emergency snow routes online and on local media outlets. There are a few snow fences along main transportation routes. Only about five percent of power lines are buried. The City owns several sander/plows, pickup trucks with blades, front end loaders, and a new snow blower to use for snow removal. Lexington plans to create a redundant electrical system, provide backup generators for all critical facilities, designate snow routes, and improve their snow removal program to further mitigate the hazards associated with severe winter storms.

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The city is governed by a five-member City Council led by a President (mayor). Furthermore, Lexington has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Department
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- City Manager
- Development Services Department
- Community Development Agency

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table LEX.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	Yes
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		

Survey Components/Subcomponents		Yes/No
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	Yes
	Civil Engineering	Yes - Contractor
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
Other (if any)		

**Table LEX.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Moderate

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA's 2014 *Plan Integration Guide*.

The City of Lexington’s Comprehensive Plan was last updated in 2013, and the goals and objectives in the plan are consistent with those in the Hazard Mitigation Plan. Flooding, water quality, and continuity of electric service are hazards discussed in the Comprehensive Plan. The plan directs developments away from the floodplain, and in future updates, will direct development away from chemical storage facilities. The plan also encourages infill development, clustering of development in sensitive areas, elevation of structures located in the floodplain, and preservation of open space in hazard-prone areas. The City anticipates updating the Comprehensive Plan every five to ten years, and will integrate additional hazard mitigation actions and goals into future updates.

Lexington’s Zoning Ordinance was last updated in 2014. The Ordinance discourages development in the floodplain, identifies floodplain areas as parks of open space, and requires at least one-foot of elevation above base flood elevation in the floodplain. Furthermore, it prohibits development within the floodways, prohibits filling of wetlands, and discourages development near chemical storage sites. It also encourages maintaining open space within the floodplain, limits development in the extraterritorial jurisdiction, and accounts for current population trends.

Lexington has an annex to the Dawson County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The City’s Building Codes were recently updated in 2016, and they mention several hazards including fire, flood, chemical, electrical, and environmental. The Codes require mechanical systems to be elevated for structures in the floodplain, requires sewer backflow valves for structures in the floodplain, and outlines proper sump pump installation. They also allow for raingardens in residential areas, encourage the use of permeable surfaces, encourage the use of hail resistant building materials, and require hurricane clips during construction.

The Capital Improvement Program (CIP) was also recently updated in 2016 and is annually updated. The CIP includes several projects such as stormwater projects, regular maintenance for drainage structures, upgrading and regular maintenance of the storm sewer system, and improving transportation routes for drainage. Furthermore, the CIP includes bridge improvements, installing new municipal wells, installation of water meters for residential structures, looping electrical distribution to critical facilities, improving the existing police headquarters, and improving the existing public works facility.

***MITIGATION STRATEGY***

**Completed Mitigation Actions**

	<b>Detailed Floodplain Study</b>
Description	The City Manager will draft a letter for the Mayor to sign to be sent to the Head of the Floodplain and Dam Safety Division of NDNR, asking to be considered for this detailed study
Hazard(s) Addressed	Flooding
Funding	General funds
Status	Completed 2011.
Location	Lexington, Dawson County

<b>Tree City USA</b>	
Description	Works to become a Tree City USA through the National Arbor Day Foundation to receive direction, technical assistance, and public education on how to establish a hazardous tree identification and removal program to limit potential tree damage and damages caused by trees in a community when a storm event occurs
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, High Winds, Tornadoes
Cost	Tree care program funded at \$2/capita
Funding	General funds
Status	Member for 20 consecutive years.

<b>Backup Municipal Records</b>	
Description	Develop protocol for backing up critical municipal records onto a portable storage device or service; maintain routine backup of records
Hazard(s) Addressed	All Hazards
Cost	\$100 for external hard drive
Funding	General funds
Status	Complete.

<b>FIRM Mapping</b>	
Description	Update FIRM maps to reflect accurate flood inundation areas within the jurisdiction
Hazard(s) Addressed	Flooding
Funding	General funds
Status	Complete.

<b>Floodplain Regulation</b>	
Description	Develop and pass more restrictive floodplain regulations; enhancements may include: limiting types of development within the floodplain, redefining substation loss for impacted homes, and increasing the free-board requirement to more than one-foot above base flood elevation
Hazard(s) Addressed	Flooding
Funding	General funds
Status	Complete.

<b>Improve Spring Creek Flow</b>	
Description	Renovate the culvert near Spring Creek to improve its flow
Hazard(s) Addressed	Flooding
Funding	General funds
Status	Completed 2008.
Location	Spring Creek

**Ongoing and New Mitigation Actions**

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	General funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	City Administration

<b>Improve Electrical Service</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, High Winds, Tornadoes
Estimated Cost	\$50,000+
Funding	Enterprise funds
Status	In progress.
Timeline	2-5 years
Priority	High
Lead Agency	City Administration, Electric, and Utility Departments

<b>Hail Resistant Roofing</b>	
Description	Use roofing materials that are resistant to hail impacts for new buildings; retrofit existing buildings with hail resistant roofing; encourage the use of hail resistant roofing for any new constructions
Hazard(s) Addressed	Hailstorms, Severe Thunderstorms
Estimated Cost	\$2/square foot
Funding	General funds
Status	In progress.
Timeline	Ongoing
Priority	Low
Lead Agency	Building Department

<b>Reduce Tree Damage and Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, High Winds, Tornadoes
Estimated Cost	\$50/tree
Funding	General funds
Status	In progress.
Timeline	Ongoing
Priority	Low
Lead Agency	Streets and Parks Departments

	<b>Tree Planting/Assistance</b>
Description	Educate public on appropriate tree planting and establish an annual tree trimming program to assist low income and elderly residents; develop tree planting and maintenance guidelines
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, High Winds, Tornadoes
Estimated Cost	\$3,000, Staff Time
Funding	As funding is identified, Streets and Park Department Funds
Status	In progress – continue education efforts.
Timeline	Ongoing
Priority	Medium
Lead Agency	City Administration and Parks Department, Tree Board

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$15,000+
Funding	General funds
Status	In progress.
Timeline	Ongoing; continue to evaluate as city grows
Priority	Medium
Lead Agency	City Administration, Streets Department

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$3,500+ depending on site requirements
Funding	General funds, HMGP, PDM
Status	In progress. Some wells still need to be addressed.
Timeline	2-5 years
Priority	Medium
Lead Agency	City Administration, Water Department

	<b>Improve Construction Standards and Building Survivability</b>
Description	Evaluate building standards/codes/requirements; implement new or improved building standards/codes/requirements; educate construction companies on building standards; promote use of higher codes and standards, such as fortified for Safer Living Standard, to provide greater protection for any new construction or building retrofits
Hazard(s) Addressed	All Hazards
Estimated Cost	\$0
Funding	General funds
Status	Evaluation needed.
Timeline	5+ years
Priority	Medium
Lead Agency	Building Department

<b>Update Comprehensive Plan</b>	
Description	Update Comprehensive Plan; integrate plan with Hazard Mitigation Plan components
Hazard(s) Addressed	All Hazards
Estimated Cost	\$100,000+
Funding	General funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	City Administration

<b>Evaluate Stream Channelization/Bank Stabilization</b>	
Description	Evaluate current stream bed and bank stabilization needs; implement stream bed and bank stabilization improvements including grade control structures, rock rip rap, vegetative cover, etc.
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000+ Varies by scope
Funding	General funds, PDM, FMA
Status	In progress. One City lake done.
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works Department

<b>Improve Drainage</b>	
Description	Improve storm sewers and drainage patterns in and around the community; deepen drainage ditches and clean out culverts
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	As funding is identified
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	City Administration, Streets and Water Departments

<b>Tree Care Ordinance</b>	
Description	Pass and enforce a tree care ordinance to improve tree health and to remove dangerous trees and limbs
Hazard(s) Addressed	High Winds, Severe Winter Storms, Severe Thunderstorms, Tornadoes
Estimated Cost	\$0
Funding	General funds
Status	Some ordinances are in place but need to be evaluated.
Timeline	Ongoing
Priority	Low
Lead Agency	Streets and Parks Departments, Tree Board

<b>Develop Emergency Snow/Evacuation Routes</b>	
Description	Develop or improve snow and evacuation routes and programs to include parking, snow/ice/debris removal, etc.; obtain and install snow emergency route and evacuation signs; provide information on emergency routes to the public; construct snow fences where possible on main routes to prevent snow from disrupting transportation
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	\$1,000, staff time
Funding	General funds
Status	In progress.
Timeline	2-5 years
Priority	Medium
Lead Agency	City Administration, Utilities Department

<b>Improve and Revise Snow/Ice Removal Program</b>	
Description	Revise and improve snow and ice removal program for streets; address situations such as plowing snow, ice removal, parking during snow and ice removal, and removal of associated storm debris; improve capabilities to rescue those stranded in blizzards and increase the capacity to which snow can be removed from roadways after an event
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	Varies
Funding	General funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	City Administration, Streets Department

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; complete any necessary additional floodplain mapping/remapping
Reason for Removal	City will continue to participate in program, however, this is no longer considered a mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF OVERTON

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table OVR.1 provides the list of participating members that comprised the Overton local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table OVR.1: Overton Local Planning Team**

Name	Title	Department / Organization
Aaron Brown	Utility Superintendent	Village of Overton

**LOCATION AND GEOGRAPHY**

The Village of Overton is located in the southeastern portion of Dawson County and covers an area of 0.54 square miles. The only major waterway in the area is Buffalo Creek.

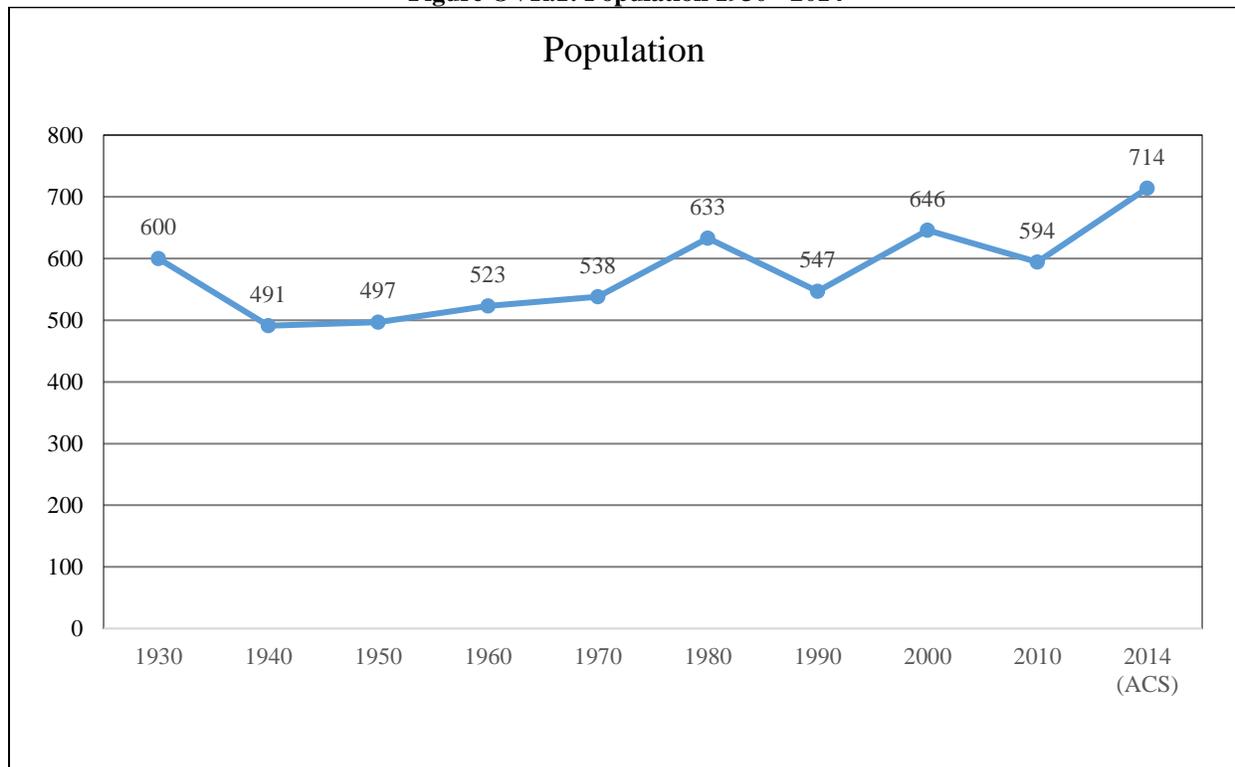
**TRANSPORTATION**

Overton’s major transportation corridor is Highway 30 which runs in an east to west direction and is located south of the Village. The average daily vehicle load is 2,850 with 220 of those vehicles being categorized as heavy commercial vehicles. Overton has one rail line that runs parallel to Highway 30, the Union Pacific line.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Overton has been generally increasing since 1950.

**Figure OVR.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure OVR.2: Map of the Village of Overton



  
 Created by JPS  
 Date: 11/14/2017  
 No. 11807000 - Central Platte  
 NRD Hazard Mitigation  
 This map was prepared using information from several sources including GIS, aerial photography, and other data. It is not intended to be used as a substitute for a professional survey. The accuracy of this map is not guaranteed.

**Overton, Nebraska**  
 Central Platte Natural Resources District  
 2017 Hazard Mitigation Plan

**Legend**  
 Corporate Limits  
 Planning Area  
 County  
 Central Platte River

The following table indicates the Village has a slightly higher percentage of the population under the age of 5 and a slightly higher percentage of population between 5 and 64 years of age when compared to the County and the state. However, Overton has a lower percentage of its population over the age of 64 as compared to both Dawson County and the state, but Overton has a lower median age.

**Table OVR.2: Population by Age**

Age	Overton	Dawson County	State of Nebraska
<5	8.1%	7.9%	7.2%
5-64	80.0%	78.2%	79.2%
>64	12.0%	13.9%	13.6%
Median	35.4	36.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Overton’s median household income is slightly less than that of the County’s. Overton has a lower median home value as compared to the County, but has a higher median rent value.

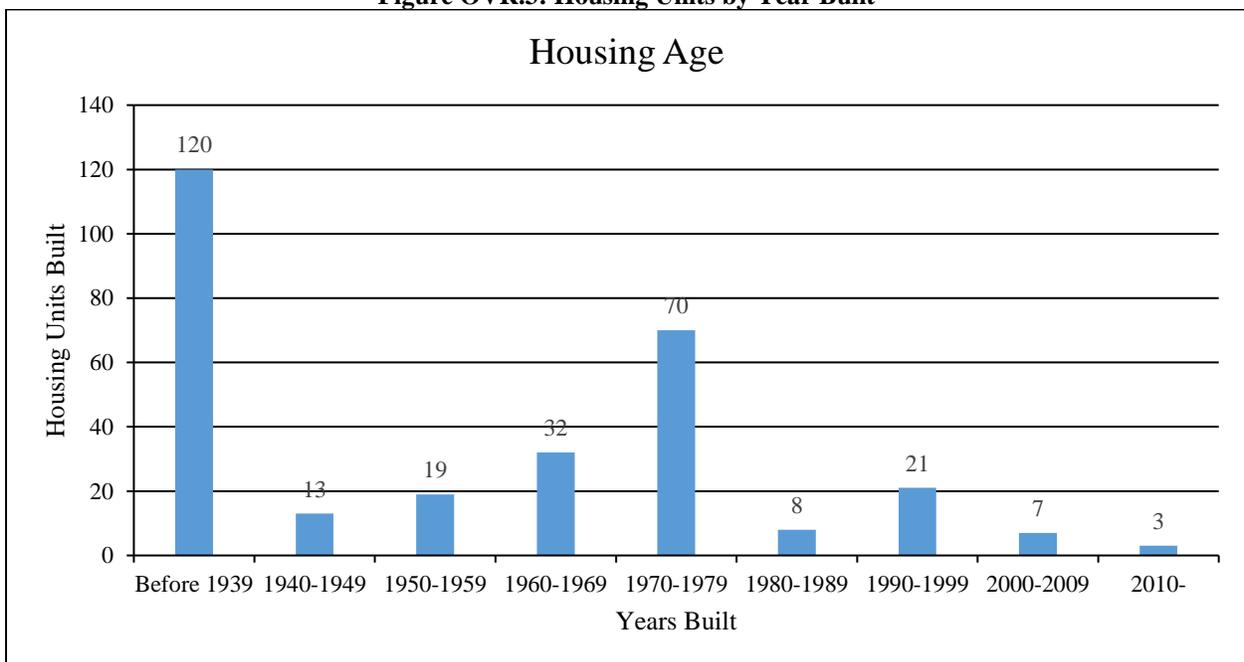
**Table OVR.3: Housing and Income**

	Overton	Dawson County	State of Nebraska
Median Household Income	\$48,043	\$56,361	\$52,400
Per Capita Income	\$20,447	\$21,046	\$27,339
Median Home Value	\$71,300	\$89,700	\$130,100
Median Rent	\$656	\$648	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 290 housing units with 91.0 percent of those units occupied. There are approximately 29 mobile homes in the community with most these mobile homes located on the north side of the Village. The northwest corner of B Street and 2<sup>nd</sup> Street also has two mobile homes, and the area is zoned for mobile homes. The initial Flood Insurance Rate Map (FIRM) was developed in September 1985.

**Figure OVR.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table OVR.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Overton	264	91.0%	26	9.0%	194	73.5%	70	26.5%
Dawson County	8,731	86.1%	1,404	13.9%	5,970	68.4%	2,761	31.6%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employer in the community is the Overton Public School District. The Village is primarily a bedroom community with most of the residents commuting for work to nearby cities including Lexington and Kearney.

**FUTURE DEVELOPMENT TRENDS**

In the last five years, three new homes have been built in the Meerhead subdivision. According to the local planning team, Overton’s location near Kearney and Lexington contributes to its growing population because of a need for housing. No new businesses are planned for the next five years, but several parcels of land have been surveyed for housing development. The Village plans to buy land to add to what it purchased in 2015. This land will be used for a new fire hall, with the potential for housing development.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table OVR.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
320	\$12,565,448	\$39,267	18	\$316,740

Source: GIS Workshop/Overton County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of two chemical storage sites that house hazardous materials in Overton. One chemical storage site, MCI, is located in the floodplain (Figure OVR.4).

**Table OVR.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
MCI	75311 Road 441	Yes – 1%
Earth Science Laboratories Inc	75190 Road 448	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Overton.

***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table OVR.7: List of Critical Facilities in Overton**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	City Well - North	North side of Trailer Park	N	N	N
2	Overton Public School	401 7 <sup>th</sup> Street	Y	N	N
3	Phone Building	C St & 6 <sup>th</sup> St	N	Y	N
4	Fire Hall	D St & 5 <sup>th</sup> St	N	N	N
5	Senior Housing: Homestay Village	B St & 6 <sup>th</sup> St	N	N	N
6	South Well and Water Tower	F St & 1 <sup>st</sup> St	N	Y	N
7	Wastewater Lagoons/Lift Station	S F St	N	Y	Y
8	Village Office	503 C St	N	N	N
9	Village Shop	D St & 8 <sup>th</sup> St (North of School)	N	N	N
10	Community Center and Library	405 & 407 Hwy 30 (corner of C St)	N	N	N
11	Family Center	1 <sup>st</sup> Ave W. & Plectron St	N	N	N

Figure OVR.4: Critical Facilities and Hazardous Materials Storage with Floodplain



Created by: JES  
 Date: 10/10/2017  
 Software: ArcGIS 10.3.1  
 File: 170490.00 - Central Platte  
 NRD HMP Update

This map was prepared using information from record drawings supplied by JEO and/or other applicable city, county, federal, or public or private entities. JEO does not guarantee the accuracy of this map or the information used to prepare this map. This is not a scaled plan.

**Overton**

**2017 Hazard Mitigation Plan**

**Critical Facilities**



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Dawson County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Flooding**

The flood risk areas of concern for Overton are located south and west of the Village. Flash flooding of the Platte River, (only three miles away from town,) is a threat. There have been no issues with the Platte yet, but the surrounding creeks often become clogged and spill water. NCEI reports two significant flooding events in Overton since 1996. The first of these was in May of 2008 when five inches of rain fell in a single night causing \$100,000 in property damages throughout the area. The second was in September of 2013, and \$50,000 in damages were incurred when snowmelt caused the Platte River and surrounding creeks to swell.

Overton has five NFIP policies in-force for \$908,000. There are no repetitive flood loss properties in the Village of Overton.

The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 5.6 percent of all parcel improvements in Overton are in the floodplain.

**Table OVR.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$316,740	18	320	5.6%

Source: GIS Workshop/Overton County Assessor

Many homes in Overton have sump pumps because of the Village’s tendency to flood quickly. The school parking lot, and 9<sup>th</sup> and D Street have drainage issues. Overton plans to mitigate further damage from flood by conducting a stormwater and drainage study and implementing the findings.

**Hail**

The top concern about hail in Overton is residential damage. Overton Public School had its roof replaced with steel in 2011 when 1.75-inch hail fell in Overton. All critical facilities are insured for hail damage, but none except the school are fitted with hail resistant building materials. The Village encourages the use of hail resistant materials in new construction and building renovations. To further mitigate the hazards associated with hail, Overton plans to establish a Tree Board and implement a tree maintenance program.

**Severe Thunderstorms**

The local planning team has concerns about severe thunderstorms causing tree damage that in turn causes disruption in electric services and damages buildings. Municipal records are protected with surge protectors. Some, but not all, critical facilities have emergency generators. Only about one percent of the power lines in Overton are buried. The Public Power District trims trees throughout the Village every three years, but there are many hazardous trees that need to be removed completely. The Fire Hall and Village Shop have weather radios, but the Village Office still needs one. Overton plans to mitigate the hazards associated with severe thunderstorms by implementing a tree maintenance program and improving their electrical services during storm events.

The most significant thunderstorm event to occur in Overton happened in August of 2013. Wind speeds of 70 mph pushed over train cars and semi-trucks, causing \$75,000 in property damages throughout the area.

### **Severe Winter Storms**

The most significant severe winter storm to occur in Overton happened in 2007. An ice storm caused \$20,000 in property damage and a day-long power outage when one-half inch of ice accumulated one December morning. The local planning team sites concerns about equipment accessibility and reliability as concerns related to winter storms. Currently the Village only has pickup trucks with blades, a payloader, and a maintainer to clear the snow from transportation routes, resulting in slow snow clearing. There are also concerns that the Fire Hall's aging roof will not be able to handle many heavy snows. Approximately one percent of power lines are buried in Overton. There are no designated snow routes, and snow fences are not used. Overton plans to address concerns about severe winter storms by improving their electrical system's reliability.

### **Tornadoes and High Winds**

A high wind event in October of 2010, with wind gusts up to 60 mph, caused several downed tree branches. A second high wind event in January of 2014 damaged the Village's communication antenna. 2016 saw a reoccurrence of these events, with many downed tree limbs caused by high wind events ultimately resulting in one night with interrupted electric service. There have been no tornadic events in Overton, but nearby Elm Creek sustained damage in October of 1998 when a tornado threw a mobile home 200 feet. The local planning team's concerns over high winds and tornadoes center around fallen trees causing power outages and protecting the large elderly population. Overton has sufficient warning siren coverage, and Dawson County Emergency Manager offers text alerts. Some, but not all, of the municipal records are backed up. The church basements in Overton have safe rooms, but none of these are FEMA-certified to protect residents from tornadoes. There are Mutual Aid Agreements in place with Lexington and Elm Creek. Overton plans to mitigate the hazards associated with tornadoes by improving citizen warning systems and implementing a tree maintenance program.

## ***GOVERNANCE***

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village is governed by a Chairperson and a 4 member Village Board. Furthermore, Overton has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Utilities Superintendent
- Planning Commission
- Housing Authority
- Volunteer Fire Department
- Interlocal Offices

## ***CAPABILITY ASSESSMENT***

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table OVR.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Contractor
	Chief Building Official	Yes
	Civil Engineering	Contractor
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	Contractor
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No

Survey Components/Subcomponents		Yes/No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table OVR.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Overton has an annex to the Dawson County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village has a Flood Hazard District Ordinance, which requires at least one-foot of elevation above base flood elevation in the floodplain, prohibits development in the floodway, and mandates that any construction must provide adequate drainage to reduce vulnerability to flooding.

No other examples of plan integration were identified, and there are currently no plans to further integrate planning mechanisms.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+/generator
Funding	General funds, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Utilities Superintendent, Village Board

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$50/radio \$5,000-\$50,000 for radio/television broadcast system \$15,000-\$50,000 for sirens
Funding	General funds and Fire Department funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Fire Department and Utilities Superintendent

	<b>Improve Electrical Service</b>
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	Public Power District funds, General funds
Status	In progress.
Timeline	Ongoing
Priority	Low
Lead Agency	Utilities Superintendent, Public Power District

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Events</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-\$100,000+ depending on project
Funding	General funds
Status	Planning stages. Currently taking bids.
Timeline	1 year
Priority	High
Lead Agency	Utility Superintendent, Contractor
Location	Village Board, Overton Public School

<b>Reduce Tree Damage and Damages from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	Unknown
Funding	General funds
Status	In progress.
Timeline	Ongoing
Priority	Medium-Low
Lead Agency	Utilities Superintendent, Public Power District

<b>Establish a Tree Board</b>	
Description	Establish a tree board to oversee maintenance of the Village's trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	\$500
Funding	General funds
Status	Not yet started.
Timeline	2-5 years
Priority	Low
Lead Agency	Village Board

<b>Improve Construction Standards and Building Survivability</b>	
Description	Evaluate building standards/codes/requirements; implement new or improved building standards/codes/requirements; educate construction companies on building standards; promote use of higher codes and standards, such as fortified for Safer Living Standard, to provide greater protection for any new construction or building retrofits
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	General funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Utilities Superintendent

	<b>Improve Drainage</b>
Description	Improve storm sewers and drainage patterns in and around the community; deepen drainage ditches and clean out culverts
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000+
Funding	General funds, County funds
Status	Ongoing. Village works with County to maintain and clean out drainage ditches.
Timeline	Ongoing
Priority	Low
Lead Agency	Utilities Superintendent, County Roads Department

**Removed Mitigation Actions**

	<b>Improve Emergency Communication Systems</b>
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Reason for Removal	The fire departments radios, cell phones, and pagers have been deemed sufficient at this time.

	<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Reason for Removal	Community members have options other than public safe rooms available.

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; acquire flood prone property
Reason for Removal	Village will continue to participate in program, however, this is no longer considered a mitigation action.

	<b>Community Education and Awareness</b>
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Reason for Removal	This action is performed by the county Emergency Manager.

AUGUST 2017

HALL COUNTY APPENDIX  
CENTRAL PLATTE NRD MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN





**CONTENTS**

<b>PLAN OVERVIEW .....</b>	<b>1</b>
<b>HALL COUNTY .....</b>	<b>3</b>
<b>VILLAGE OF ALDA .....</b>	<b>23</b>
<b>VILLAGE OF CAIRO .....</b>	<b>37</b>
<b>VILLAGE OF DONIPHAN.....</b>	<b>51</b>
<b>DONIPHAN-TRUMBULL PUBLIC SCHOOL DISTRICT .....</b>	<b>65</b>
<b>CITY OF GRAND ISLAND.....</b>	<b>75</b>
<b>GRAND ISLAND PUBLIC SCHOOL DISTRICT.....</b>	<b>95</b>
<b>CITY OF WOOD RIVER.....</b>	<b>107</b>





## **PLAN OVERVIEW**

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind the update of this hazard mitigation plan is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives which helped guide the process of identifying both broad-based and community-specific mitigation strategies and projects that will, if implemented, reduce their vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (One for each of the five participating counties plus one for the Central Platte NRD and one for communities participating outside of the five participating counties)
- An appendix of procedural documentation and resolutions of adoption

This participant appendix includes all participating jurisdictions from Hall County, which includes jurisdictional-specific information for each participant. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION  
FOR

HALL COUNTY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### **LOCAL PLANNING TEAM**

Table HAL.1 provides the list of participating members that comprised the Hall County local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the County.

**Table HAL.1: Hall County Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Jurisdiction/Department</b>
Jon Rosenlund	Director of Emergency Management	Hall County
Chad Nabity	Planning Director/Floodplain Administrator	Hall County
Steve Riehle	Engineer	Hall County Highway Department

### **LOCATION AND GEOGRAPHY**

Hall County is located in southcentral Nebraska and is bordered by Buffalo, Howard, Merrick, Hamilton, and Adams counties. The total area of Hall County is 552 square miles. The major waterways within the County are the Platte River, Wood River, Prairie Creek, Silver Creek, Moores Creek and Beaver Creek. Most of Hall County lies in the valleys and plains topographic region, with the vast majority of the County’s land characterized by agricultural fields.

### **CLIMATE**

For Hall County, the normal high temperature for the month of July is 87.7°F. The normal low temperature for the month of January is 14.0°F. On average, Hall County receives 26.7 inches of rain and 29.0 inches of snowfall per year. The following table compares these climate indicators with those of the entire state. Climate data are helpful in determining if certain events are more or less likely to occur in specific geographic locations.

**Table HAL.2: Climate Data for Hall County**

<b>Age</b>	<b>Hall County</b>	<b>Planning Area</b>	<b>State of Nebraska</b>
July Normal High Temp	87.7°F	87.0°F	88.0°F
January Normal Low Temp	14.0°F	14.2°F	12.0°F
Annual Normal Precipitation	26.7 inches	26.65 inches	23.89 inches
Annual Normal Snowfall	29.0 inches	26.2 inches	25.9 inches

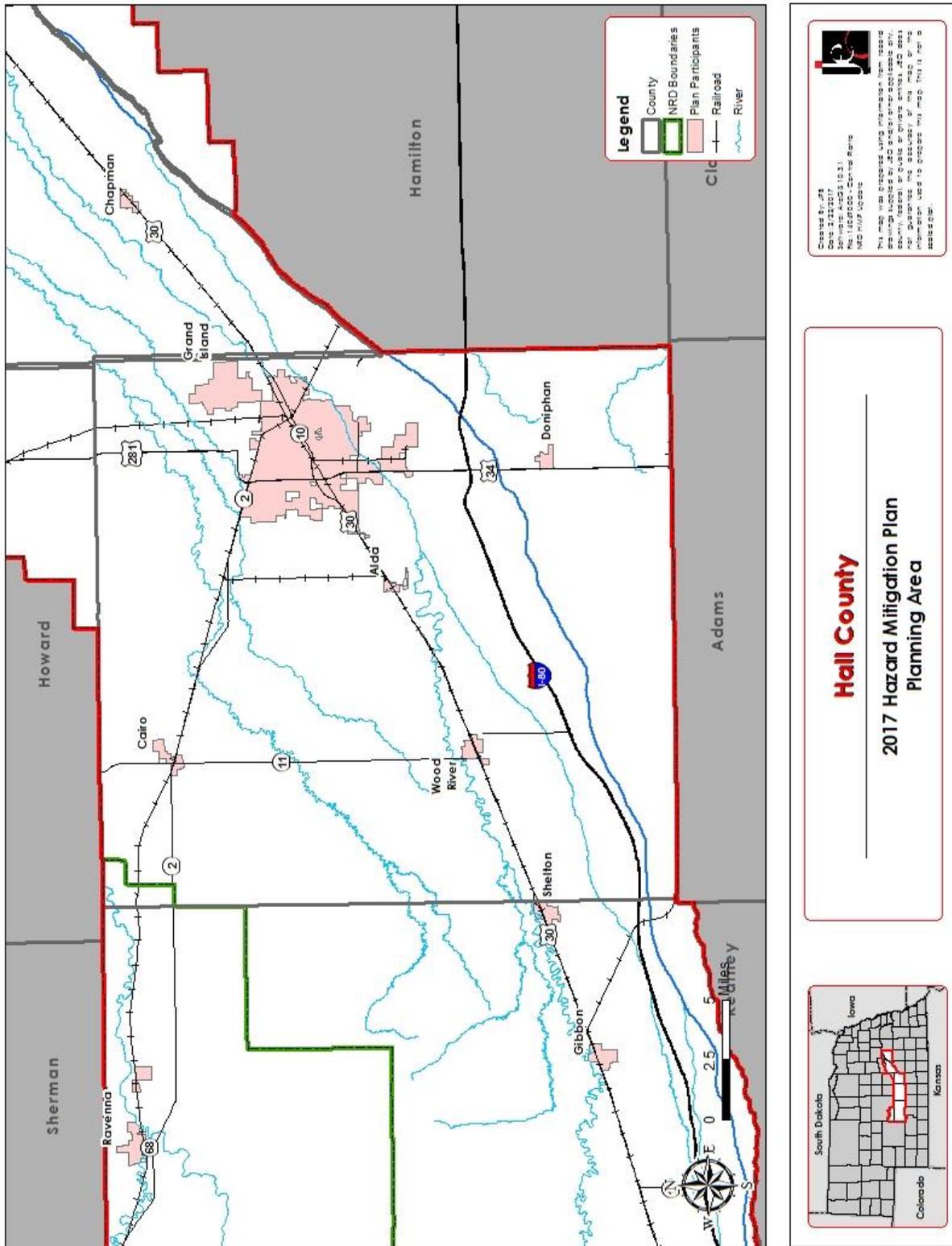
Source: NCEI Climate Data Online, 1981-2010 Climate Normals

\*Precipitation includes all rain and melted snow and ice.

### **TRANSPORTATION**

Hall County’s major transportation corridors include Interstate 80, Highways 2, 11, 30, and 281 with railways including Union Pacific, Burlington Northern–Santa Fe, and Nebraska Central Railroad Company. There is an airport, the Central Nebraska Regional Airport, located northeast of Grand Island.

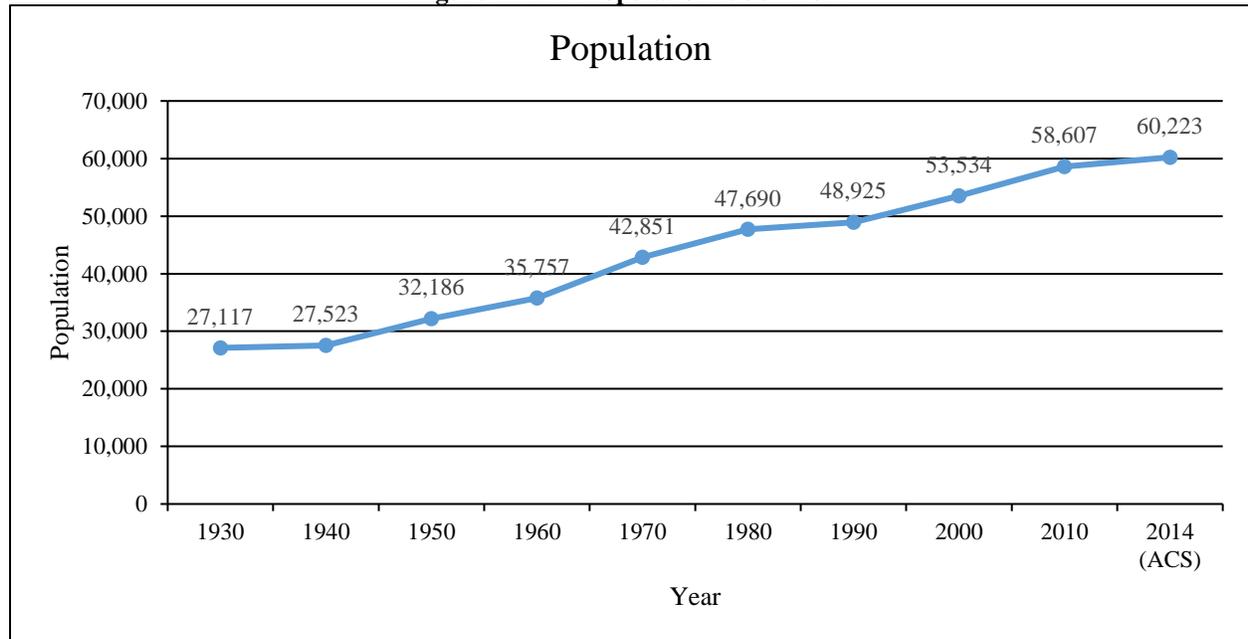
Figure HAL.1: Hall County Map



**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Hall County has been increasing since 1930. This is notable for hazard mitigation for several important reasons. When population is increasing, areas of the County may experience housing developments. Increasing populations can also represent increasing tax revenue for the County, which could make implementation of mitigation actions possible.

**Figure HAL.2: Population 1930 – 2014**



Source: U.S. Census Bureau

The following table indicates that Hall County has a higher percentage of people under the age of 5 than the state. However, Hall County has slightly lower percentages of the population between the ages of 5 and 64 and older than 64 years of age when compared to the state. Finally, the County has a lower median age than that of the state.

**Table HAL.3: Population by Age**

Age	Hall County	State of Nebraska
<5	8.1%	7.2%
5-64	78.5%	79.2%
>64	13.4%	13.6%
Median	35.9	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that the County’s median household income is higher when compared to the State of Nebraska, however the County’s per capita income is lower than that of the state. The median home value and rent are also lower than the rest of the state. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the state as a whole.

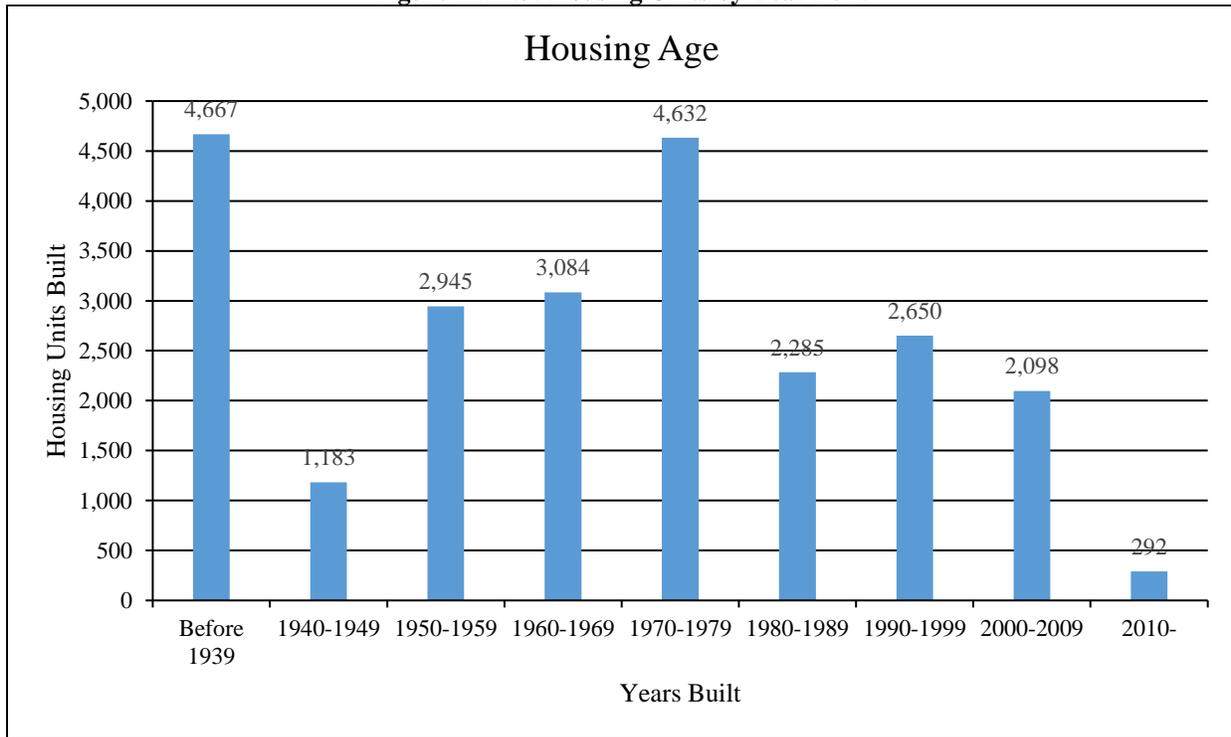
**Table HAL.4: Housing and Income**

	Hall County	State of Nebraska
Median Household Income	\$61,677	\$52,400
Per Capita Income	\$24,075	\$27,339
Median Home Value	\$118,300	\$130,100
Median Rent	\$656	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the County has 23,836 housing units with 94.1 percent of those units occupied. There are approximately 962 mobile homes in the County. The initial Flood Insurance Rate Map (FIRM) was developed in August 1990.

**Figure HAL.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table HAL.5: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Hall County	22,418	94.1%	1,418	5.9%	14,326	63.9%	8,092	36.1%
Nebraska	731,347	90.8%	73,909	9.2%	486,036	66.5%	245,311	33.5%

Source: Selected Housing Characteristics: 2010 - 2014 ACS 5-year estimate

**MAJOR EMPLOYERS**

According to 2014 Business Patterns Census Data, Hall County had 1,822 business establishments. The following table presents the number of establishments, number of paid employees, and the annual pay role in thousands of dollars. This information is relevant to hazard mitigation insofar as it indicates the diversification of industry. Communities which have a diverse economic makeup may be more resilient following a hazardous event, especially if certain industries are more impacted than others.

**Table HAL.6: Business in Hall County**

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
<b>Total for all Sectors</b>	1,822	30,308	\$1,068,434

Source: U.S Census 2014, Table CBI400A11

Agriculture is important to the economic fabric of Hall County, and the state of Nebraska as a whole. Hall County’s 593 farms cover 329,668 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well. Related business contributions include producing, processing and marketing farm and food products. These businesses generate income, employment, and economic activity throughout the region.

**Table HAL.7: Hall County Agricultural Inventory**

Hall County Agricultural Inventory	
Number of Farms	593
Land in Farms	329,668 acres

Source: USDA 2012 Census of Agriculture

### ***FUTURE DEVELOPMENT TRENDS***

In the last five years, agricultural outbuildings have been added, but no additional new housing or industrial developments have been added. There are no plans for new businesses, industry, or housing developments at this time.

### ***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table HAL.8: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
26,175	\$3,142,032,878	\$120,039	4,337	\$485,242,269

Source: Hall County Assessor

### ***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

#### ***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are 37 chemical storage site that house hazardous materials in Hall County. Six of these sites are located in either the 1 or 0.2 percent floodplain (Figure HAL.5).

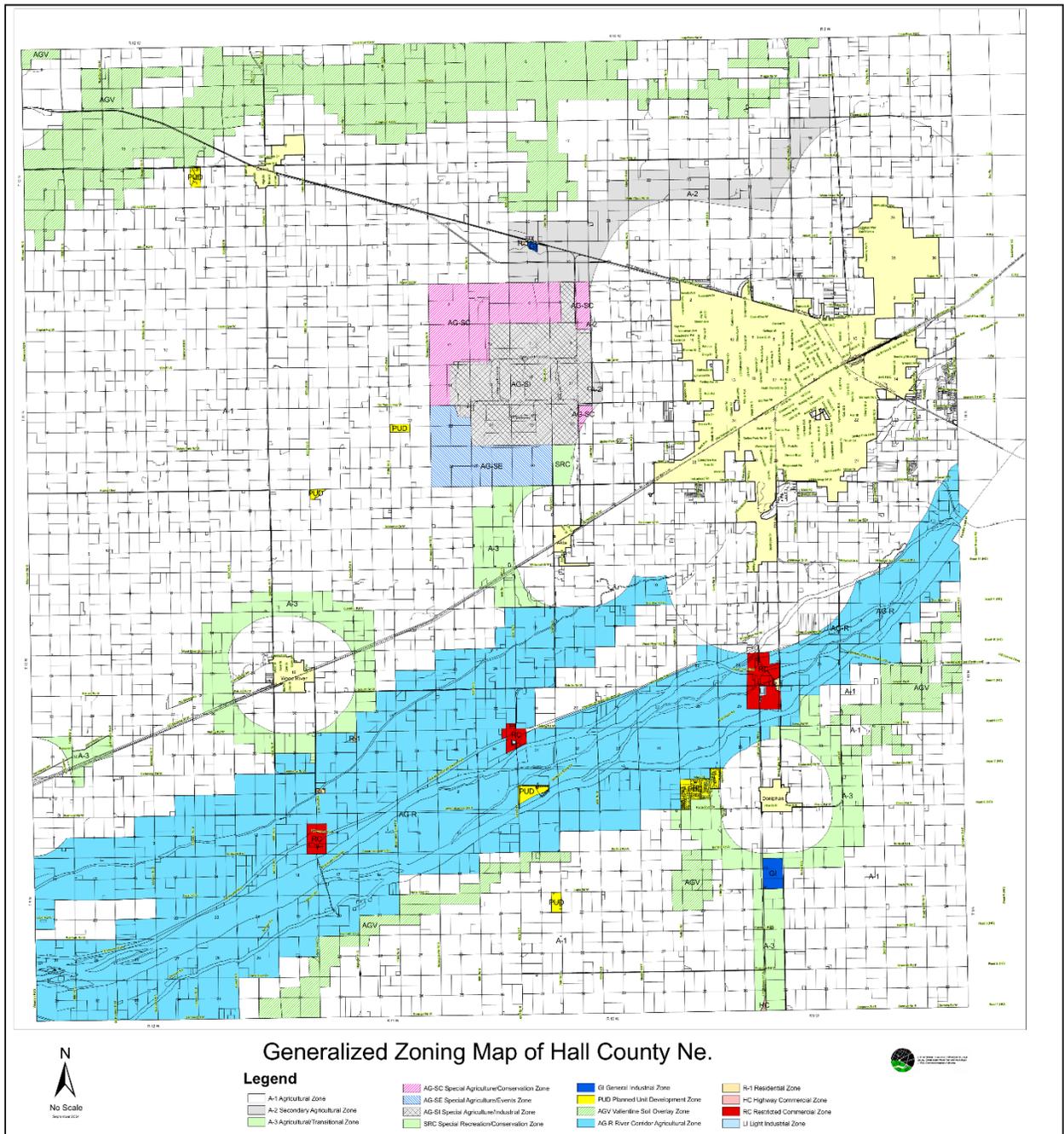
**Table HAL.9: Chemical Storage Fixed Sites**

Facility	Address	City	In Floodplain?
Agricultural Services Inc	150 Railroad St	Alda	No
Agricultural Services Inc	6068 N Highway 11	Cairo	Yes – 1%
Aurora Co-op Elevator Company	10501 W One-R Rd	Cairo	Yes – 1%
AT&T 0610	190th Rd	Cairo	No
CenturyLink	103 E Nile St	Cairo	No
Agricultural Services Inc	101 E Pine St	Doniphan	No
Nebraska Machinery Co	10501 S US Highway 281	Doniphan	No
Aurora Co-op Doniphan Plant	101 E Plum St	Doniphan	No
Pioneer Hi-Bred Intl Inc	12937 S US Highway 281	Doniphan	No

Facility	Address	City	In Floodplain?
NPPD Doniphan Sys Control Ctr	2060 W Platte River Dr	Doniphan	No
Doniphan Remote	106 W Plum St	Doniphan	No
Agricultural Services Inc	2777 N Broadwell Ave	Grand Island	No
Alter Nebraska Corporation	1119 E 4th St	Grand Island	No
AmeriCold Logistics LLC	204 E Roberts St	Grand Island	No
AT&T Communications 0900	144 W Roberts St	Grand Island	No
Aurora Co-op Elevator Company	4155 E US Highway 30	Grand Island	Yes – 1%
Aurora Co-op Elevator Company	920 N Shady Bend Rd	Grand Island	No
C W Burdick Generating Station	800 Bischeld St	Grand Island	No
CenturyLink	105 N Wheeler Ave	Grand Island	No
Charter Communications	2533 W Old Lincoln Hwy	Grand Island	No
Charter Communications	205 N Webb Rd	Grand Island	No
Chief Industries Inc	1119 S Adams St	Grand Island	No
Christensen Concrete Products	235 W Roberts St	Grand Island	No
Christensen Concrete Products	3990 W US Highway 30	Grand Island	No
CNH America LLC - Miller Bldg	1011 Claude Rd	Grand Island	No
CNH Industrial America LLC	3445 W Stolley Park Rd	Grand Island	No
Coca-Cola Refreshments	1617 Holland Dr	Grand Island	No
Darling Ingredients Inc	5251 W Guenther Rd	Grand Island	Yes – 1%
Diamond Truck Wash	6499 S US Highway 281	Grand Island	No
Gerhold Concrete Co	1431 S Webb Rd	Grand Island	No
GIUD Burdick Reservoir	S Stuhr Rd	Grand Island	No
GIUD Rogers Reservoir	3990 W Old Potash Hwy	Grand Island	No
Grand Island Potable Water	2700 Wellfield Rd	Grand Island	No
Grand Island Water Department	364 N Pine St	Grand Island	No
Lineage Logistics LLC	205 E Roberts St	Grand Island	No
McCain Foods USA Inc	2629 N Broadwell Ave	Grand Island	No
Optimas OE Solutions	3319 Island Cir	Grand Island	No
Overhead Door Co	2514 E US Highway 30	Grand Island	No
Platte Generating Station	1035 W Wildwood Dr	Grand Island	No
Platte Valley Energetics LLC	8318 W Old Potash Hwy	Grand Island	No
Sprint Grand Island POP	333 N Pine St	Grand Island	No
Standard Iron Inc	4160 Gold Core Rd	Grand Island	No
Swift Beef Company	555 S Stuhr Rd	Grand Island	No
The Home Depot Store 3208	911 Allen Dr	Grand Island	No
VA Nebraska - Western Iowa HCS	2201 N Broadwell Ave	Grand Island	No
Verizon Wireless MTSO	3650 W 13th St	Grand Island	No
Verizon Wireless Newfair	1203 S Stuhr Rd	Grand Island	Yes – 1%
Windstream Communications	3650 W 13th St	Grand Island	No
Wilbur-Ellis Company	11544 W Rosedale Rd	Prosser	No
Aurora Co-op Elevator Company	6236 S Schauppsville Rd	Wood River	Yes – 0.2%
Agricultural Services Inc	106 W Railroad St	Wood River	No
Cooperative Producers Inc	15123 W Wood River Rd	Wood River	No
Green Plains Wood River LLC	7874 S 140th Rd	Wood River	No

Source: Nebraska Department of Environmental Quality, 2016

Figure HAL.4: Zoning Map



**HISTORIC SITES**

Per the National Register of Historic Places for Nebraska, there are five historic sites located in rural Hall County. Urban sites for Hall County can be found in their respective participant sections.

**Table HAL.10: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Lincoln Highway-Grand Island Seeding Mile	4/24/2013	No
William Stolley Homestead and Site of Fort Independence	4/21/1976	No
Shady Bend Gas Station, Grocery & Diner	7/2/2008	No
Nine Bridges Bridge	6/29/1992	Yes
Townsley-Murdock Immigrant Trail Site	3/5/1998	No

Source: Nebraska State Historical Society, 2016

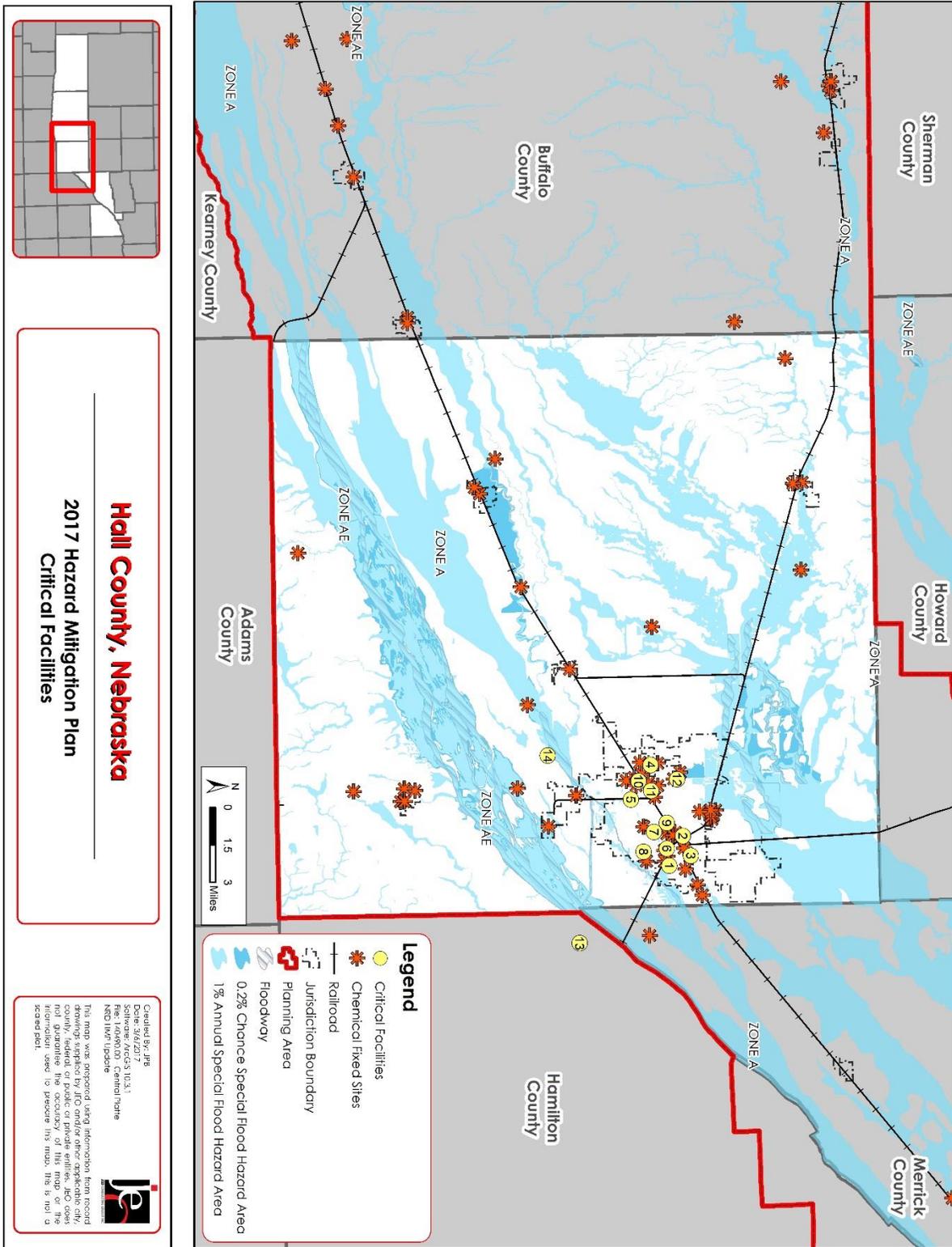
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provides a summary of the critical facilities for the jurisdiction.

**Table HAL.11: List of Critical Facilities in Hall**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Hall County Jail	112 Public Safety Drive, Grand Island, NE 68801	N	Y	N
2	Hall County Courthouse	111 W. 1 <sup>st</sup> Street, Grand Island, NE 68801	N	Y	N
3	Law Enforcement Center	111 Public Safety Drive, Grand Island, Nebraska 68801	N	N	N
4	Nebraska State Patrol	3431 W Old Potash Hwy, Grand Island, NE 68801	N	Y	N
5	Hall County PW	2900 W. 2nd Street, Grand Island, NE 68803	N	Y	N
6	FBI Office	203 W 2nd Street, Grand Island, NE 68801	N	N	N
7	Nebraska Health & Human Services	116 S. Pine St., Grand Island, NE 68801	N	N	N
8	Central District Health Dept.	1137 S. Locust Grand Island, NE 68801	N	Y	N
9	Hall County Admin	121 South Pine Street, Grand Island, NE 68801	N	N	N
10	NDOR Maintenance Yard	3305 W. Old Potash Hwy, Grand Island NE 68803	N	Y	N
11	NDOR District Office	211 N. Tilden St. Grand Island, NE	N	Y	N
12	KRGI Station	3205 W. North Front St., Grand Island, NE 68803	N	Y	N
13	KRGI Transmitter	Lat N 40-52-26 Long W 98-16-24	N	Y	N
14	KRGI Transmitter	Lat N 40-51-53 Long W 98-23-47	N	Y	Y

Figure HAL.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



***HISTORICAL OCCURRENCES***

The following table provides a statistical summary for hazards that have occurred in the County. The property damages from the NCEI Storm Events Database (January 1996 – December 2015) should be considered only as broad estimates. Sources include, but are not limited to: emergency management, local law enforcement, Skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

Crop damages are from the USDA Risk Management Agency (RMA) between 2000 and 2015.

**Table HAL.12: NCEI Severe Weather Events**

HAZARD TYPE		COUNT	PROPERTY LOSS	CROP LOSS <sup>3</sup>
Agricultural Disease	Animal Disease <sup>2</sup>	2	-	-
	Plant Disease <sup>3</sup>	19	-	\$292,424
Chemical Spills-Transportation <sup>4</sup> 8 Injuries		157	\$339,450	-
Drought <sup>1</sup>		17	\$0	\$9,215,609
Extreme Heat <sup>1</sup>		2	\$200,000	\$4,129,854
Flooding <sup>1</sup>	Flash Flood	11	\$10,471,000	\$1,501,373
	Flood	11	\$115,000	
Grass/Wildfires <sup>5</sup>		51	5,247.8 acres	\$0
High Winds <sup>1</sup> Average: 51 kts Range: 35 - 70 kts		33	\$209,080	\$4,994,094
Severe Thunderstorms <sup>1</sup>	Thunderstorm Wind Average: 56 kts Range: 50 - 80 kts	102	\$3,273,000	\$6,152,756
	Hail Average: 1.18 in. Range: 0.75 - 3.00 in.	173	\$10,362,000	\$20,920,536
	Heavy Rain	11	\$0	-
Severe Winter Storms <sup>1</sup>	Blizzard	5	\$30,000	\$355,905
	Heavy Snow	2	\$0	
	Ice Storm	6	\$230,000	
	Severe Winter Storm 2 Deaths; 4 Injuries	41	\$435,000	
Tornadoes <sup>1</sup>	Funnel Cloud	8	\$0	\$0
	Tornado Most Common Rating: F0 Range: EF0 - F1	10	\$1,005,000	\$0
<b>Total</b>			<b>\$26,669,530</b>	<b>\$47,562,551</b>

1 Data from NCEI (1996 - 2015)

2 Data from NDA (2014-2016)

3 Data from USDA RMA (2000 – 2015)

4 Data from PHMSA (1970 - 2016)

5 Data from NFS (2000 – 2014)

in. = inches; kts = knots

**COUNTY HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides county-specific information as reported by the local planning team. Only hazards identified either as a concern to the County by the local planning team, or based on the occurrence and risk of the hazard to the County are discussed in detail below.

**Flooding**

Waterways in the County include the Platte River, Wood River, Prairie Creek, Moores Creek, Silver Creek, and Dry Creek. The Platte River is the controlling drainage for most of the County, which means that the waterways listed previously either run parallel or drain into the Platte River. Riverine and ice jam flooding are the primary concerns for Hall County.

The unincorporated area of Hall County has 106 NFIP policies in-force for \$ 8,344,800. There is one single family repetitive flood loss property in an unincorporated area of Hall County. The following table is parcel improvement information as provided by the County Assessor for the entire County area. It indicates that an estimated 16.6 percent of all parcel improvements in the County are located in the floodplain.

**Table HAL.14: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in County	Percentage of Improvements in Floodplain
\$485,242,269	4,337	26,175	16.6%

Source: Hall County Assessor

According to the County Emergency Manager, there have been several floods along the Platte River just in the past few years. The following list provides a brief description of each of these events:

- Platte River Ice Jam, January 2015: Minor ice jam flooding in Hall County near Hwy 34 and Platte River.
- Platte River Flood, May-June 2015: Minor flooding near I-80 Exit 312 and surrounding fields. Hotels and restaurant surrounded but not damaged.
- Platte River Ice Jam, January 2015: Ice Jam flooding from Alda to the end of Hall County. Damaged roads leading to Grand Island Utilities water wellfields east of South Locust north of the Interstate near Exit 314. County Road damage to Shoemaker Island Road on Shoemaker Island between branches of the Platte. Homes along Shoemaker Island Road surrounded but not damaged.
- Plate River Flood, November 2014: Ice Jam flooding near I-80 Exit 312 and surrounding fields. Homes south of Mormon Island impacted. Nine Bridge Road bridge impacted by debris and ice.
- Platte River Ice Jam, Feb – March 2014: Ice Jam flooding near I-80 Exit 312 and surrounding fields. Hotels & restaurant surrounded, but not damaged.
- Platte River Flood, September 2013: Minor flooding near I-80 Exit 312 and surrounding fields.

It has been noted that floods following heavy rains appear to be decreasing in occurrence over the past four to five years along the Silver and Prairie Creeks. This is most likely due to the progress made on the detention cells for the Prairie Silver Moore’s flood control project near Grand Island.

Mitigation projects for flooding include stormwater drainage studies, implementing recommendations from the studies, and improving electrical service.

### **Hail**

Hail storms can cause serious damage to buildings throughout Hall County, as well as damage crops, which can have a large economic impact across the County. Per the NCEI database, 173 hail events have been reported since 1996 causing over \$10.3 million in damages and nearly \$21 million in crop damages as reported by the RMA. The County Emergency Management regularly provides public education on hazards. The County has also identified reducing damage from trees during hail and thunderstorms events as a mitigation action.

### **Severe Thunderstorms**

Severe thunderstorms are a common occurrence in the region and have caused damage to property and crops. The local planning team is concerned with possible damage to government property as well as private and residential property. Heavy rains associated with severe thunderstorms can also cause flash flooding in poor drainage areas. There have been no reports of damages to critical facilities from severe thunderstorms in the past. Backup power generators are available at several critical facilities including the 911 Center, Fire Stations, Courthouse, Sheriff's Office, and County Public Works. Hall County completed the StormReady certification in 2016.

Mitigation actions to reduce the impacts of severe thunderstorms include improving electrical service, reducing damages from trees, and providing backup power generators to critical facilities in need.

### **Severe Winter Storms**

Heavy snow, blowing and drifting snow, and ice accumulation can cause road closures, the need for rescuing stranded motorists, power outages, and property damage. On December 30, 2006, a significant ice storm lead to ice accumulation on power lines, trees, and roads. This lead to widespread tree damage, along with power outages, and damage to power lines and poles. Many residents were without power for several days. Total property damages across the region were estimated at \$10 million. The Christmas Blizzard of 2009 dumped approximately 12 inches of snow across the County. The combination of heavy snow and high winds lead to white-out conditions, which lead to numerous roadway closures. This included the closing of Interstate 80. More recently, on February 1, 2016, 18 inches of snow fell along with high winds caused blowing and drifting snow making travel impossible.

Currently, County snow removal resources, which includes motor graders and front end loaders, are sufficient. City resources, though, need to be improved. Mitigation actions include improving electrical service and obtaining backup generators for critical facilities in need.

### **Tornadoes and High Winds**

Tornadoes and high winds have a long and devastating history in Hall County. On June 3<sup>rd</sup>, 1980, several tornadoes hit Grand Island, devastating entire sections of the community, especially the City's northwest and north central residential areas, and the southern business district. The tornadoes killed five people and injured more than 400. When it was over, the tornadoes had caused \$300 million in damages. This event is most famously referred to as *Night of the Twisters* after a book and television movie were made based on these events. In 1994, a smaller tornado in northwest Grand Island struck a train, overturning several boxcars. High winds are a constant risk to all structures in Hall County. Since 1996, over \$200,000 in property damages have been reported to the NCEI database. Radio antennas were damaged in 2006-2007 during an ice storm with high winds.

The County offers text alerts through AlertSense, for which residents can register at no cost. County Emergency Management also conducts regular public presentations, storm spotter training, and general information through various communications channels. Mitigation actions include constructing public safe rooms and obtaining backup power generators for critical facilities in need.



**GOVERNANCE**

A community’s governance structure impacts its capability to implement mitigation actions. Hall County is governed by a seven member Board of Supervisors. The County also has the following offices and departments:

- County Clerk
- County Treasurer
- County Assessor
- Building and Grounds Department
- Emergency Management
- Highway Superintendent
- IT Department
- Public Works Department
- Parks and Recreation
- Planning and Zoning
- Floodplain Administrator
- Sheriff’s Department
- Surveyor

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the County, and described and quantified the vulnerability of the County to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table HAL.15: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		

Survey Components/Subcomponents		Yes/No
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	Yes
	Firewise Communities Certification	No
	Tree City USA	No
Other (if any)		

**Table DAW.16: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the county have the financial resources needed to implement mitigation projects?	Limited
Does the county have the staff/expertise to implement projects?	Moderate
Is there county support to implement projects?	Moderate
Does the county staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Hall County Comprehensive Plan, last updated in 2004, contains some of the goals and objectives consistent with hazard mitigation. The plan directs development away from the flood and chemical storage facilities. It also limits density in areas adjacent to known hazardous areas, encourages infill development, clustering of development in sensitive areas, and elevation of structures located in the floodplain. Furthermore, it encourages the preservation of open space in hazard-prone areas and allows for emergency access to all areas of the County. At this time, there are no current plans to further incorporate the HMP into the Comprehensive Plan.

The County Zoning Ordinance was also last updated in 2004, but there have been occasional changes since then. The Ordinance discourages development in the floodplain, requires at least one-foot of elevation above base flood elevation in the floodplain, and prohibits development within the floodways. Additionally, it discourages residential development near chemical storage sites and along major transportation routes. The Ordinance also encourages maintaining open space within the floodplain and accounts for current population trends.

The County Emergency Operations Plan is reviewed and updated annually, with the last major updated completed in 2015. The Plan is an all hazards plan that assigns specific responsibilities to individual communities. It also identifies scenarios that would require evacuation including critical evacuation routes, and routes that are vulnerable to flooding. Shelter locations are also included for each community in the County.

The Building Codes for Hall County were recently updated in 2016 and are based on the 2012 International Building Codes. The Codes outline proper sump pump installation, allow for raingardens in residential areas, and require the use of fire resistant building materials.

The County also has a 1 & 6-Year Road Plan and is updated annually. The Plan includes many hazard mitigation projects such as stormwater projects, upsizing culverts and drainage structures, and regular maintenance of drainage structures. It also includes upgrading storm sewer system, the installation of street aprons to facilitate drainage, and improving transportation routes for drainage. Lastly, the plan includes bridge improvements and constructing a new public works facility.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

	Improve Warning Systems
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Location	Hall County Incorporated Areas
Funding	General Funds and HMGP
Status	Completed 2011.

*Section Seven: Hall County Participant Section*

	Improve Emergency Communication Systems
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Location	Hall County
Funding	General Funds and EMPG
Status	Completed 2015.

	Community Education and Awareness
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Location	Hall County
Funding	General Funds
Status	Completed 2008.

	Water Supply Augmentation/Conservation
Description	Apply for a new and separate water supply; contract with Grand Island to construct a water line
Hazard(s) Addressed	Drought
Location	18 inch Water Main from Grand Island to Alda
Funding	Enterprise Funds
Status	Completed 2014.

**Ongoing and New Mitigation Actions**

	Improve/Provide Adequate Backup and Emergency Generators
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000 - \$75,000+ per generator
Funding	General Funds, HMGP
Timeline	5+ years
Priority	Medium
Lead Agency	Individual Departments
Status	Several facilities have purchased and installed generators, but a few remaining facilities need generators.

	Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000 - \$100,000+ depending on project
Funding	General Funds
Timeline	5+ years
Priority	Medium
Lead Agency	Public Works
Status	Public Works regularly evaluates flooding and drainage issues.

	Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	General Fund, Bonds, HMPG
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management, Local Agencies
Status	Head start building beginning its construction. Stuhr Museum in planning stage. Grand Island Public Schools incorporating safe rooms in construction of new school buildings.

	Improve Electrical Service
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by Project
Funding	Enterprise Funds, PPD
Timeline	5+ years
Priority	Medium
Lead Agency	Public Works
Status	New electrical services are buried.

	Reduce Tree Damage & Damages from Trees
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	Unknown
Funding	General Funds
Timeline	2 – 5 years
Priority	Medium
Lead Agency	Parks and Recreation
Status	Tree inventory planned for 2017.

	Develop an Emergency Preparedness Plan
Description	Develop an Emergency Preparedness Plan (EPP) for the Grand Island Levee System in coordination with Hall County Emergency Management and the CPNRD; the plan should include stakeholder roles and responsibilities, a risk communication plan, emergency activation levels, activation process, evacuation plan, and training and exercise plan
Hazard(s) Addressed	Levee Failure
Estimated Cost	\$10,000
Funding	General Funds
Timeline	1 year
Priority	High
Lead Agency	Planning Commission, Emergency Management, CPNRD
Status	Early planning stages. Planning workshop conducted April 2017.

**Removed Mitigation Actions**

	Maintain NFIP Participation
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	County will continue to participate in program, however, this is no longer considered a hazard mitigation action.

	Prevent Injury or Loss of Life in Manufactured Homes
Description	Ensure that all manufactured homes are secured with tie-downs or are properly anchored to prevent rolling during high winds; educate owners of these properties on the availability of techniques to make the dwelling safer
Reason for Removal	Low community and county support for the project at this time.

PARTICIPANT SECTION

FOR THE

VILLAGE OF ALDA

Central Platte NRD

Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### LOCAL PLANNING TEAM

Table ALD.1 provides the list of participating members that comprised the Village of Alda local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table ALD.1: Village of Alda Local Planning Team**

Name	Title	Department / Organization
Ramona Schafer	Clerk and Treasurer	Village of Alda
Jerry Bond	Chairperson	Village Board
Ron Miles	Board Member	Village Board
Jerry Shears	Board Member	Village Board
Linda Thompson	Board Member	Village Board
Verna Rae Clampitt	Board Member	Village Board

### LOCATION AND GEOGRAPHY

The Village of Alda is located in the center of Hall County and covers an area of 0.35 square miles. The major waterway in the area is the Wood River.

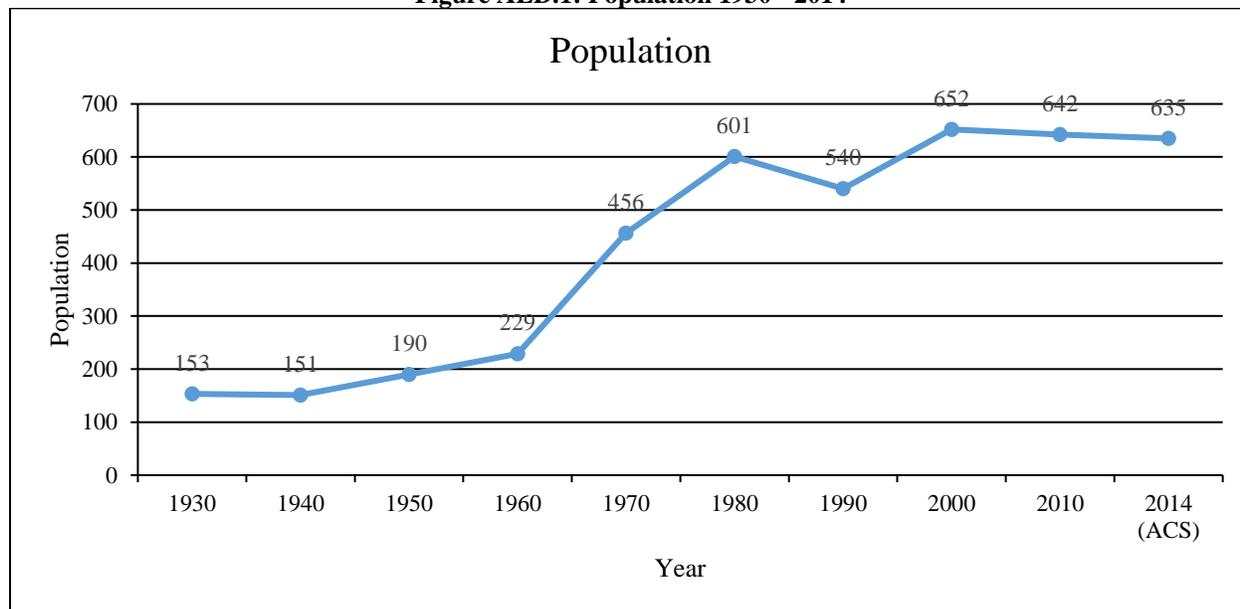
### TRANSPORTATION

Alda’s major transportation corridor is Highway 30 which has an average of 4,640 vehicles per day with 405 of those categorized as heavy commercial vehicles. Alda has one rail line, a Union Pacific line. At Alda, the line runs in a northeast to southwest direction and is located south of Highway 30.

### DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Alda has been increasing since 1960 with a slight decline period from 1980 to 1990. Population again increased from 1990 to 2000, but then a slight decline since 2000.

**Figure ALD.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure ALD.2: Map of the Village of Alda



The following table indicates the Village has a higher percentage of the population under the age of 5 and a slightly higher percentage of population between 5 and 64 years of age when compared to the County and the state. However, Alda has a slightly lower percentage of its population over the age of 64 as compared to the County, but has a comparable median age.

**Table ALD.2: Population by Age**

Age	Alda	Hall County	State of Nebraska
<5	10.1%	8.1%	7.2%
5-64	79.4%	78.5%	79.2%
>64	10.4%	13.4%	13.6%
Median	35.9	35.9	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Alda’s median household income, per capita income, and median home value are all lower than the County’s. However, Alda has a significantly higher median rent value than the County.

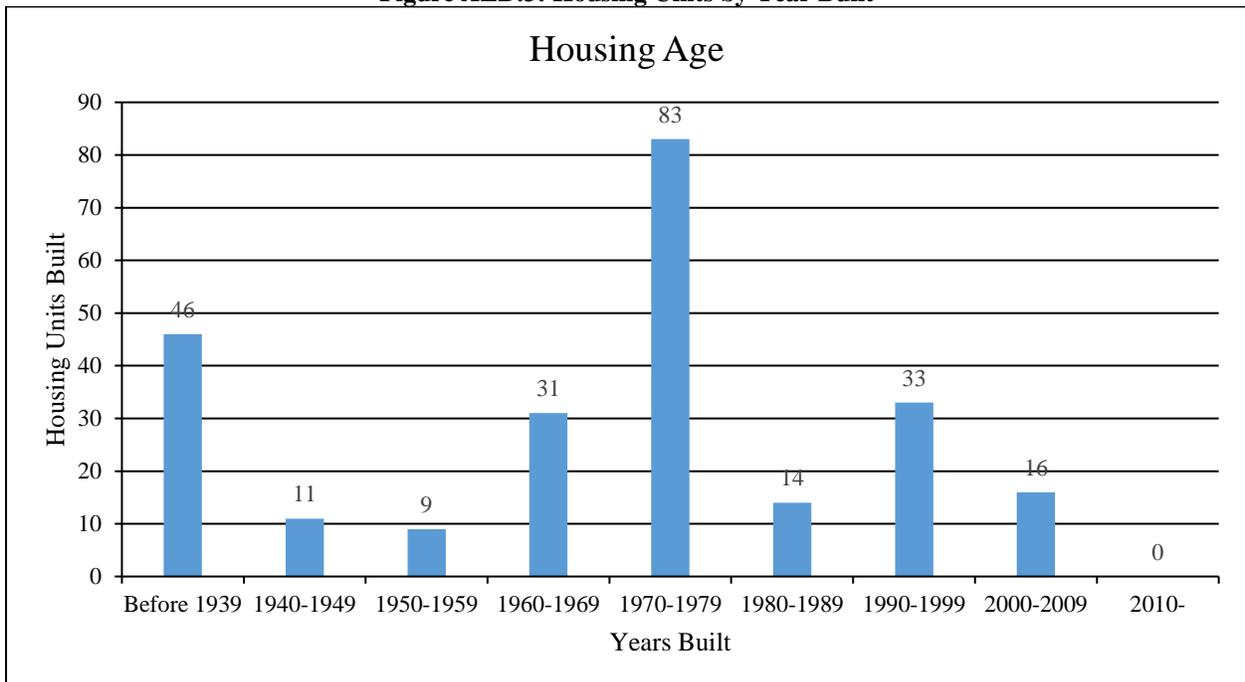
**Table ALD.3: Housing and Income**

	Alda	Hall County	State of Nebraska
Median Household Income	\$45,781	\$61,677	\$52,400
Per Capita Income	\$17,753	\$24,075	\$27,339
Median Home Value	\$74,000	\$118,300	\$130,100
Median Rent	\$803	\$656	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 243 housing units with 97.1 percent of those units occupied. There are approximately 69 mobile homes in the community. A mobile home park is located along Highway 30 on the west side of town. The initial Flood Insurance Rate Map (FIRM) was developed in September 2008.

**Figure ALD.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table ALD.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alda	236	97.1%	7	2.9%	183	77.5%	53	22.5%
Hall County	22,418	94.1%	1,418	5.9%	14,326	63.9%	8,092	36.1%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the community are Hornady, PMI, Traid, Futek, Bullet Weights, and Merrick Machines. Many of the residents in Alda commute to neighboring communities such as Grand Island, Kearney, and Wood River for work.

***FUTURE DEVELOPMENT TRENDS***

Over the past five years, two new businesses have opened in Alda: PMI and Hornady Manufacturing. A new road was resurfaced and extended water and sewer lines on Wildwood Drive. Also, Apollo and Saturn Roads were also resurfaced. In the next five years, the local planning team indicated that a new housing development is planned for the Argo 6<sup>th</sup> subdivision. There are no new businesses expected in the next five years.

Alda’s population is growing. This is due, reports the local planning team, to low property taxes and available lots to new residents.

***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table ALD.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
331	\$20,166,997	\$60,927	0	\$0

Source: Hall County Assessor

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there is one chemical storage site that houses hazardous materials in Alda. There are no chemical storage sites located in the floodplain (Figure ALD.4).

**Table ALD.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Agricultural Services Inc.	150 Railroad St	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Alda.

***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table ALD.7: List of Critical Facilities in Alda**

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Village Hall/Community Center	6410 W US HWY 30	Y	Y	N
2	Fire Hall	100 Apollo Ave	N	Y – portable	N
3	Water Tower and Well	100 Apollo Ave	N	N	N
4	Well	3820 S 60 <sup>th</sup> Rd	N	Y	N
5	Wastewater Lagoon	5159 S Alda Rd	N	N	N

Figure ALD.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Hall County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spills (Transportation)**

The Village of Alda is concerned about chemical spills on the Union Pacific railway and Hwy 30. Gasoline, oil, anhydrous ammonia, and other unknown chemicals are regularly transported on these routes. There are no significant chemical spills reported by PHMSA. Critical facilities vulnerable to a chemical spill during transportation include the Village Office and Community Center, the water tower, Fire Hall, water booster station, and wastewater lagoons. Mitigation plans include identifying an emergency shelter for vulnerable populations, participating in hazardous spill emergency exercises, providing public education on the hazards associated with chemical spills, and improving available first responder equipment.

**Flooding**

Although flooding was not identified as a hazard of top concern for the community, the Village does have a history of flooding. In 2005, torrential rainfall of 5-11 inches on May 11 and 12 led to widespread flash flooding throughout the County. Alda was part of an area that was declared a federal disaster area. Wood River near Alda, which had been dry for three years, tied a record with a crest of 12.2 feet early on the 12<sup>th</sup>. Records also indicate that Wood River flooded in 1967, 1968, and 1969, although no damage estimates are available. Flood crest data indicates that the June 1968 flood was 11.7 feet and the March 1969 event was 12 feet. The National Centers for Environmental Information reported a flood event for Alda on February 20, 2007.

The Village of Alda has flood risk areas to the south and east of the Village. Alda is a member of the NFIP however there are no NFIP policies in-force. There are no repetitive flood loss properties in the Village of Alda. The following table is parcel improvement information as provide by the County Assessor. It indicates there are no parcel improvements located in the floodplain.

**Table ALD.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$0	0	331	0%

Source: Hall County Assessor

Alda plans to mitigate further damages from flooding with public education.

**Hail**

The local planning team’s concerns regarding hail center on property damage. The most significant event in recent history occurred in June of 1997. During this event, one-inch hail combined with 60 mph winds and caused tree and property damages totaling \$150,000. A second storm in August of 2014 caused \$150,000 in property damages due to one-inch hail combined with 60 mph wind. Alda’s critical facilities are not fitted with hail resistant building materials, but they are insured against hail damage. Future mitigation plans include implementing a tree planting and maintenance program and providing education to the public on the hazards associated with hail.

### **Severe Thunderstorms**

Alda experiences severe summer thunderstorms annually. The worst of these was in August of 2014, when thunderstorm winds topping 60 mph coupled with one-inch hail that caused \$150,000 in property damages. Community concerns about severe thunderstorms include property damage, power outages, and fire caused by lightning. Critical municipal records are protected by surge protectors. Most of the critical facilities in Alda have backup power generators. Approximately 25 percent of the power lines in the Village are buried. The community has a weather radio in the Village Office. There are several hazardous trees on personal property that need to be removed. This hazard will be mitigated with the proposed tree planting and maintenance program. Further mitigation actions include the provision of adequate public safe rooms and emergency shelters, the installation of surge protectors on critical facilities, a public education program, and improvement of available first responder equipment.

### **Severe Winter Storms**

The most severe winter storm to occur in Alda in recent memory was in December of 2006. Half-inch ice deposits cause widespread tree damage and power outages, resulting in \$10,000,000 in property damages throughout central Nebraska. The local planning team is concerned that future severe winter storms will lead to more power outages and a loss of mobility for residents of the Village. Approximately 25 percent of phone and power lines are buried in Alda. There are no snow routes in the Village, but there is one snow fence in use on the north side of Schimmer Drive. The Village Maintenance Department has sufficient equipment to remove snow including a truck, bobcat, and loader with a snow blade. Mitigation plans include public education and improvement of available first responder equipment.

### **Tornadoes**

In 1974, a tornado passed through Alda, damaging homes and businesses. The Village is covered by two warning sirens, one on the south and one on the north sides of town. The County Emergency Manager offers text alerts. There is one public safe room at the Community Center, but it is not FEMA-certified. Education outreach occurs through the schools during October Safe Month and at the annual community festival, Alda Days. In the event of a future disaster, Mutual Aid Agreements are in place with Rural Hall County, Wood River, Doniphan, Grand Island, Phillips, Chapman, Shelton, St. Libory, Cairo, and Aurora. Completed mitigation actions for tornadic events in 2016 included updating home standards to ensure that they are well anchored. Future mitigation plans include providing adequate public safe rooms, developing a tree planting and maintenance program, providing emergency shelters for vulnerable populations, identifying existing storm shelters, and improving the available first responder equipment.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Alda is governed by a Chairperson and a four member Village Board. Furthermore, Alda has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- Village Board of Trustees

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table ALD.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes

Survey Components/Subcomponents		Yes/No
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table ALD.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Village of Alda Comprehensive Plan, last updated in 2003, contains some goals and objectives consistent with hazard mitigation. The plan directs development away from the floodplain, chemical facilities, and major transportation routes. Furthermore, it encourages infill development, clustering of development in sensitive areas, and elevation of structures located in the floodplain. The plan also encourages preservation of open space in hazard-prone areas, and allows for emergency access to all areas of town. There is not currently a timeline for updating the Comprehensive Plan, nor do they anticipate to further integrate the HMP into the Comprehensive Plan.

The Village’s Zoning Ordinance was last updated in 2004. It discourages development in the floodplain, requires at least one-foot of elevation above base flood elevation in the floodplain, and prohibits development in within the floodway. It also discourages development near chemical storage sites and along major transportation routes in residential areas. The Ordinance encourages maintaining open space within the floodplain, limits development in the extraterrestrial jurisdiction, and accounts for current population trends.

Alda has an annex to the Hall County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Building Codes for Alda were recently updated in 2016 and are based on the 2012 International Building Codes. The Codes allow for raingardens in residential areas and require the use of fire resistant building materials.

Alda has a 1 & 6 Year Street Plan and Transportation Improvement Plan that is reviewed and updated annually. The plan includes many hazard mitigation projects such as stormwater projects, upsizing of culverts and drainage structures, and upgrading and regular maintenance of the storm sewer system. It also includes installing street aprons to facilitate drainage, improvements to transportation routes for drainage, bridge improvements, updating electrical distribution system, and installing emergency generators in critical facilities.

### **MITIGATION STRATEGY**

#### **Completed Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+
Funding	Village Funds
Status	Completed in 2006.
Location	Village Community Center

	<b>Prevent Injury or Loss of Life in Manufactured Homes</b>
Description	Ensure that all manufactured homes are secured with tie-downs or are properly anchored to prevent rolling during high winds; educate owners of these properties on the availability of techniques to make the dwelling safer
Hazard(s) Addressed	High Winds, Tornadoes, Severe Thunderstorms
Estimated Cost	Unknown
Funding	N/A
Status	Completed 2016 – Updated Village Ordinance.

	<b>Reduce the Need for Snow Clearing in Village Boundary Streets</b>
Description	Purchase and install a snow fence; acquire easement on which to build a snow fence or to plant a ‘living fence’ of pine trees or other shelterbelt-type of tree
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	Unknown
Funding	Village Funds
Status	Completed in 2000.
Location	North of Schimmer Drive

**Ongoing and New Mitigation Actions**

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$150/sf for retrofit, \$300/sf for new construction
Funding	General Fund, HMGP, PDM, CDBG
Status	Ongoing - Planning stage.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board

<b>Tree Planting Assistance</b>	
Description	Educate public on appropriate tree planning and establish an annual tree trimming program to assist low income and elderly residents; develop tree planting and maintenance guidelines
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$500, Staff Time
Funding	General Fund, NRD cost share
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board

<b>Storm Shelter Identification</b>	
Description	Identify any existing private or public storm shelters
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	Staff Time
Funding	Staff Time
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board, Emergency Management

<b>Surge Protectors</b>	
Description	Purchase and install surge protectors on sensitive equipment in critical facilities
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms
Estimated Cost	\$25 per unit
Funding	General Fund
Status	Not yet started.
Timeline	1 year
Priority	High
Lead Agency	Maintenance

<b>Emergency Exercise: Hazardous Spill</b>	
Description	Utilize exercise to prepare for potential explosions or hazardous spills; ensure that nearby businesses and residents have appropriate plans in place
Hazard(s) Addressed	Chemical Transportation
Estimated Cost	\$5,000+
Funding	General Fund, HMGP, PDM, EMPG
Status	Not yet started.
Timeline	1 year
Priority	High
Lead Agency	Village Board, Emergency Management

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$3,000+
Funding	General Fund, NPD
Status	Not yet started.
Timeline	1 year
Priority	High
Lead Agency	Village Board, Emergency Management

<b>Civil Service Improvements</b>	
Description	Improve emergency rescue and response equipment and facilities by providing additional, or updating existing emergency response equipment (includes developing backup system for emergency vehicles and identifying and training additional personnel for emergency response)
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by need
Funding	General Fund, Fire Department Funds
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Fire Department, Village Board

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	Village will continue to participate in program, however, this is no longer considered a hazard mitigation action.

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Reason for Removal	The project is not a priority at this time.

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF CAIRO

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table CRO.1 provides the list of participating members that comprised the Village of Cairo local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table CRO.1: Village of Cairo Local Planning Team**

Name	Title	Department / Organization
Jaime Rathman	Clerk	Village of Cairo

**LOCATION AND GEOGRAPHY**

The Village of Cairo is located in the northwestern portion of Hall County and covers an area of 0.77 square miles. The major waterway in the area is the Middle Loup River.

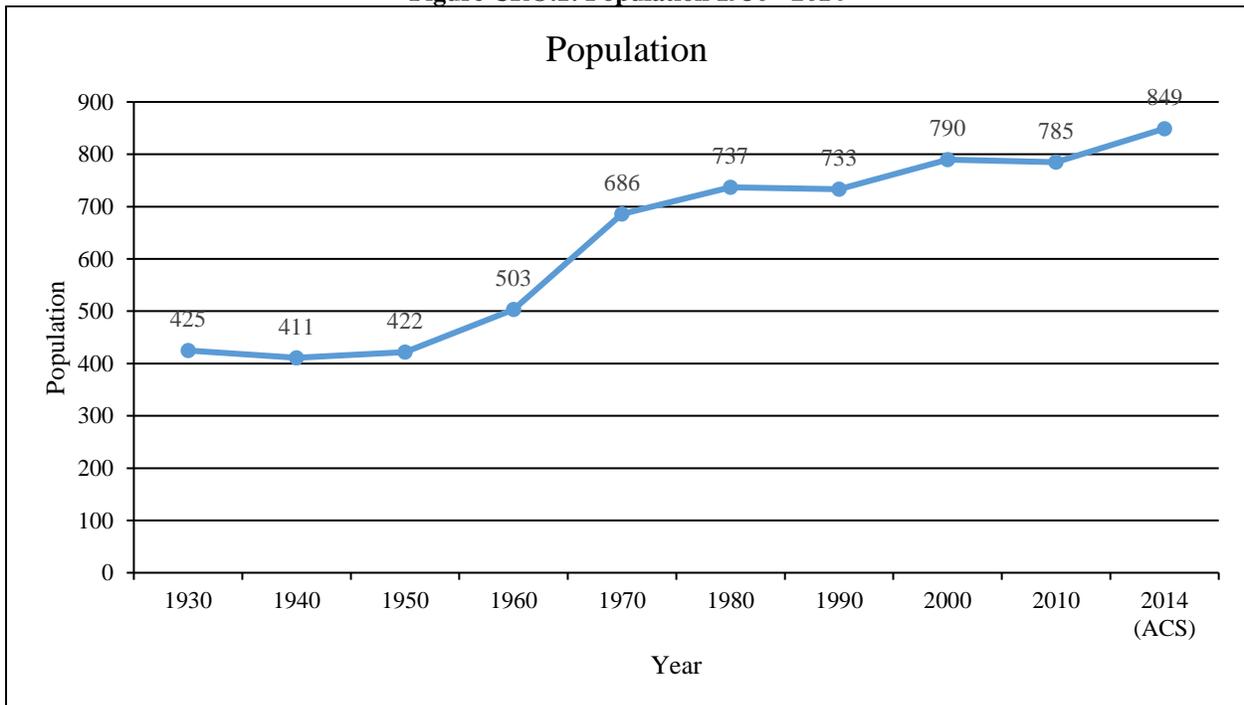
**TRANSPORTATION**

Cairo’s major transportation corridors include Highways 2 and 11. The average daily vehicle load for Highway 2 is 3,065 with 370 of those considered heavy commercial vehicles. The average daily vehicle load for Highway 11 is 2440 with 220 of those considered heavy commercial vehicles. Cairo has one rail line, a Burlington Northern line. The railway travels in an east to west direction and is located in the northern part of the Village.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Cairo has been increasing since 1950.

**Figure CRO.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure CRO.2: Map of the Village of Cairo



The following table indicates the Village has a higher percentage of the population under the age of 5 and a slightly lower percentage of population between 5 and 64 years of age when compared to the County and the state. However, Cairo has a slightly higher percentage of its population over the age of 64 as compared to the County, as well as a higher median age.

**Table CRO.2: Population by Age**

Age	Cairo	Hall County	State of Nebraska
<5	9.4%	8.1%	7.2%
5-64	76.1%	78.5%	79.2%
>64	14.5%	13.4%	13.6%
Median	36.5	35.9	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Cairo’s median household income, median home value, and per capita income are all lower than the County’s. However, Cairo has a higher median rent value than the County.

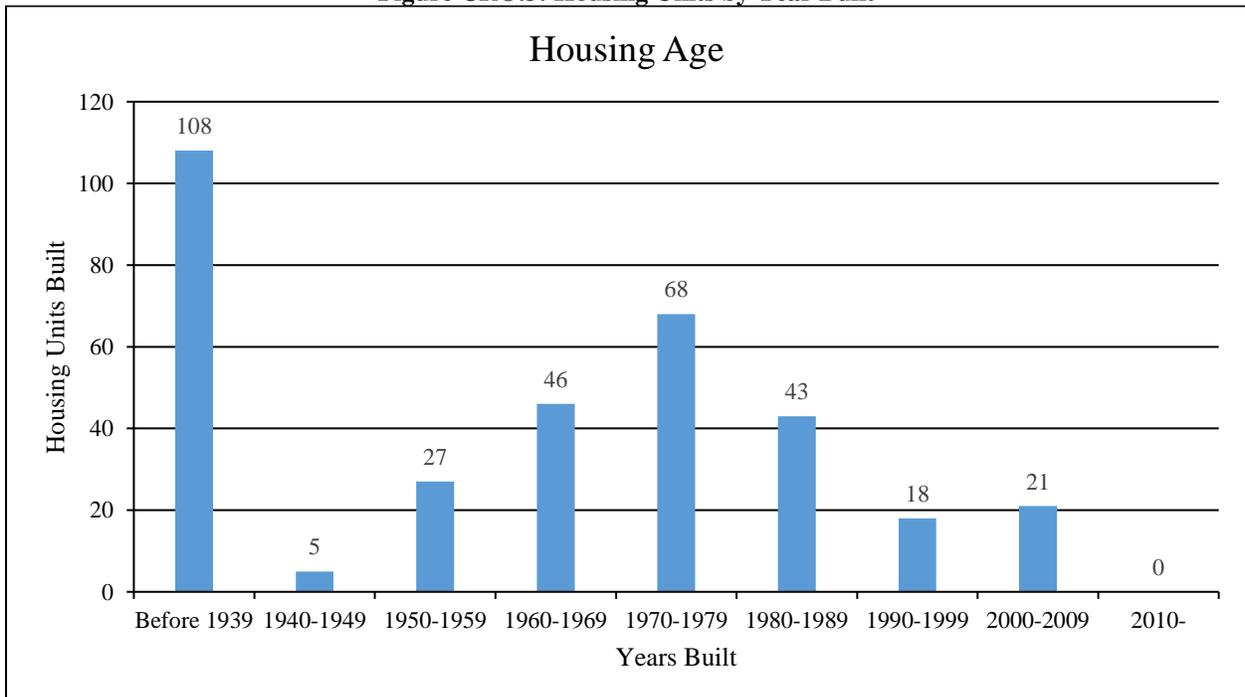
**Table CRO.3: Housing and Income**

	Cairo	Hall County	State of Nebraska
Median Household Income	\$59,167	\$61,677	\$52,400
Per Capita Income	\$23,979	\$24,075	\$27,339
Median Home Value	\$106,900	\$118,300	\$130,100
Median Rent	\$680	\$656	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 336 housing units with 88.1 percent of those units occupied. There are approximately 24 mobile homes in the community. Many of the mobile homes are located in a mobile home park on the south side of the community. The initial Flood Insurance Rate Map (FIRM) was developed in June 1978.

**Figure CRO.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table CRO.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Cairo	296	88.1%	40	11.9%	216	73.0%	80	27.0%
Hall County	22,418	94.1%	1,418	5.9%	14,326	63.9%	8,092	36.1%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the community are Baasch, Pump and Pantry, ABC Daycare, and Centura. Many of the residents commute to neighboring communities such as Grand Island for work.

**FUTURE DEVELOPMENT TRENDS**

Over the past five years, a few new businesses have opened in the Industrial Park, which continues to grow. It should be noted that the Industrial Park is located in the floodplain, but follows the Village’s floodplain ordinances. In the next five years, the community will add a housing development for residents over the age of 55. Also, the Industrial Park is expected to see additional businesses added, such as farmer shops, self-storage units, and an ATV shop.

Cairo’s population is growing. This is due, reports the local planning team, to the community’s available parks, pool, and schools.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table CRO.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
476	\$36,708,914	\$77,120	54	\$3,069,878

Source: Hall County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of four chemical storage sites that house hazardous materials in Cairo. A total of two chemical storage sites are located in the floodplain (Figure CRO.4).

**Table CRO.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Agricultural Services Inc	6068 N Highway 11	Yes – 1%
Aurora Co-op Elevator Company	10501 W One-R Rd	Yes – 1%
AT&T 0610	190th Rd	No
CenturyLink	103 E Nile St	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Cairo.

**CRITICAL FACILITIES**

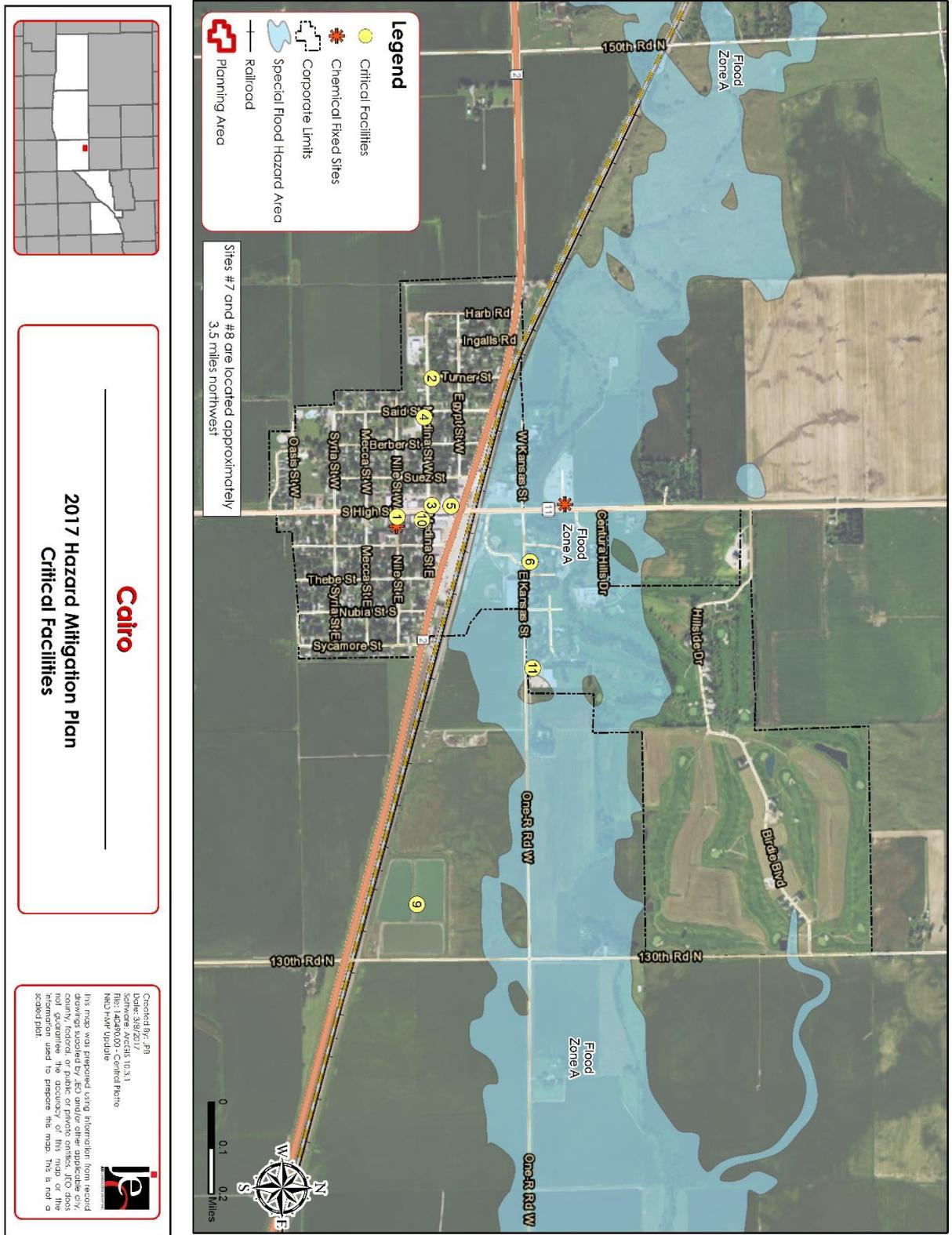
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table CRO.7: List of Critical Facilities in Cairo**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Fire & Rescue/Village Hall Building	402 S. High St.	N	Y	N
2	Christ Lutheran Church	501 W. Medina	Y	N	N
3	First Baptist Church	107 Nile	Y	N	N
4	Cairo Community Center	305 Said St	Y	N	N
5	Centura Public School	201 N Hwy 11	Y	N	N
6	Water Tower	205 E. Kansas	N	N	Y
7*	Water Well	8750 N. Nebraska Hwy 11	N	N	N
8*	Water Well	14400 W. Loup River Rd	N	N	Y
9	Wastewater Lagoon	East to 130 <sup>th</sup> Rd, north across tracks, left side	N	N	N
10	Senior Center	314 S High	N	N	N
11	Methodist Church	506 E Kansas St	N	N	Y

\*Not included on Figure CRO.4 due to distance from the municipality

Figure CRO.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Hall County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported in Cairo’s Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Flooding**

Cairo’s flood risk area of concern passes through the center of the community parallel to Highway 2, along its northern edge. The creek in this area is at risk of flash flooding.

Cairo has six NFIP policies in-force for \$781,900. There are no repetitive flood loss properties in the Village of Cairo. The following table is parcel improvement information as provided by the County Assessor. It indicates that an estimated 11.3 percent of all parcel improvements in Cairo are located in the floodplain.

**Table CRO.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$3,069,878	54	476	11.3%

Source: Hall County Assessor

Previously, the northern part of town was at greatest risk of flooding during heavy rain events, and poor stormwater drainage in that area was an issue. However, many of the risks associated with flooding have been mitigated in part by previous actions. The community conducted a stormwater drainage study, and implemented the subsequent findings.

**Severe Thunderstorms**

In May of 2002, a particularly strong thunderstorm passed through central Nebraska. In Cairo, 80mph winds blew windows out of cars and roofs off businesses. Property damages totaled \$150,000 in the area. The primary concern in the community regarding severe thunderstorms is power outages. Approximately ten percent of the power lines in Cairo are buried. There are weather radios in the Fire Hall and Centura. Critical municipal records are protected with surge protectors and most critical facilities have backup power generators. Future thunderstorm hazard mitigation plans include providing backup generators to the critical facilities without backup sources of power and identifying storm shelters.

**Severe Winter Storms**

Cairo has experienced many significant severe winter storms. The NCEI and the local planning team report three storms that were particularly fierce. In January of 1999, several deaths were caused in vehicle accidents on Highway 30 when ice and snow caused the Highway to become treacherous. Sub-zero temperatures during this storm caused the death of a 55-year old man in Cairo due to exposure. The December 2009 blizzard brought almost a foot of snow in three days and subsequent power outages across central Nebraska. The blizzard of February 2016 had such significant snow falls that snow removal and associated public works costs totaled \$438,000. The main concern about winter storms is power outages. Approximately ten percent of power lines in the community are buried. Village Maintenance is in charge of snow removal for the Village, especially along the snow route. Their tractor, bobcat, and payloader are considered adequate for Cairo’s snow removal needs. Severe winter storm hazard mitigation plans involve providing backup generators for those critical facilities without them.

### **Tornadoes and High Winds**

The last tornado to touch down near Cairo occurred in June of 1997. This F1 tornado destroyed a barn and resulted in \$450,000 in property damage. A thunderstorm with 80 mph winds in May of 2002 caused \$150,000 in property damage to car windows and residential roofing. The local planning team is concerned about power outages related to tornadoes and high winds. Critical municipal records are backed up with software and thumb drives. There is a FEMA-certified safe room in the Community Center for public use, and alternate safe rooms in the bank and Fire Hall. Community education outreach centers mostly on tornadoes. The school conducts tornado drills, and the Fire Department sponsors weather alert meetings. Severe weather notification is limited to the warning siren located by the Fire Department. It effectively covers all of Cairo. In the case of a disaster event, Mutual Aid Agreements are in place with Doniphan, Wood River, Alda, Grand Island, and Rural Hall County. Hazard mitigation plans include providing backup generators and identifying storm shelters in the community.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Cairo is governed by a Chairperson and a four member Village Board. Furthermore, Cairo has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Volunteer Fire Department
- Cairo QRT
- Street/Water Commissioner
- Park and Recreation

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table CRO.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	County
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	No
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	No
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table CRO.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Village of Cairo Comprehensive Plan, last updated in 2003, contains some of the goals and objectives that are consistent with the hazard mitigation plan. It directs development away from the floodplain, chemical storage facilities, and major transportation routes. It also limits density in areas adjacent to known hazards areas, encourages infill development, and encourages elevation of structures located in the floodplain. The plan also encourages preservation of open space in hazard-prone areas and allows for emergency access to all areas of town. At this time, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The Zoning Ordinance was last updated in 2004. The Ordinance discourages development in the floodplain, prohibits development in the floodway, discourages residential development near chemical storage sites and major transportation routes, and contains natural hazard layers. It also encourages maintaining open space within the floodplain, limits development in the extraterrestrial jurisdiction, and accounts for current population trends.

Cairo has an annex to the Hall County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village’s Building Codes were recently updated in 2016 and are based on the 2012 International Building Codes. The Codes allow for raingardens in residential areas and require the use of fire resistant building materials. In a future update, the Codes will require a safe room in multiple dwelling units such as apartments.

Cairo has a 1 & 6-year Plan that is reviewed and updated annually. The plan includes stormwater projects, upsizing of culverts and drainage structures, regular maintenance of structures, and upgrading and maintenance of the storm sewer system. It also includes the installation of street aprons to facilitate drainage, improving transportation routes for drainage, bridge improvements and installing emergency generators in critical facilities.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

<b>Ensure Adequate Severe Weather Notifications to Critical Facilities</b>	
Description	For Village-owned critical facilities, the Village should consider purchasing a weather radio to be use in each facility for the rapid dissemination of a severe weather warning; in areas of the Village with noisy manufacturing facilities which may not hear tornado sirens, the Village could inform the owners of these facilities of the option of purchasing a weather radio
Hazard(s) Addressed	All Hazards
Location	Swimming Pool, Village Office, Schools
Funding	General Funds
Status	Completed in 2014.

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Events</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Location	Industrial Park
Funding	General Funds
Status	Completed in 2016.

**Ongoing and New Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All hazards
Estimated Cost	\$20,000 – \$75,000+ per generator
Funding	Village funds, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

<b>Storm Shelter Identification</b>	
Description	Identify any existing private or public storm shelters
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	Staff Time
Funding	Staff Time
Status	Ongoing. Emergency Management annually inspects new businesses for the location of storm shelters.
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Board, Emergency Management

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	Village will continue to participate in program, however, this is no longer considered a hazard mitigation action.

<b>Reduce Tree Damage and Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Reason for Removal	The planning team determined this project not to be a priority.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF DONIPHAN

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table DPH.1 provides the list of participating members that comprised the Doniphan local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table DPH.1: Doniphan Local Planning Team**

Name	Title	Department / Organization
Francis Hannon	Maintenance Supervisor	Village of Doniphan

**LOCATION AND GEOGRAPHY**

The Village of Doniphan is located in the southeastern corner of Hall County and covers an area of 0.51 square miles. The major waterway in the area is the Platte River.

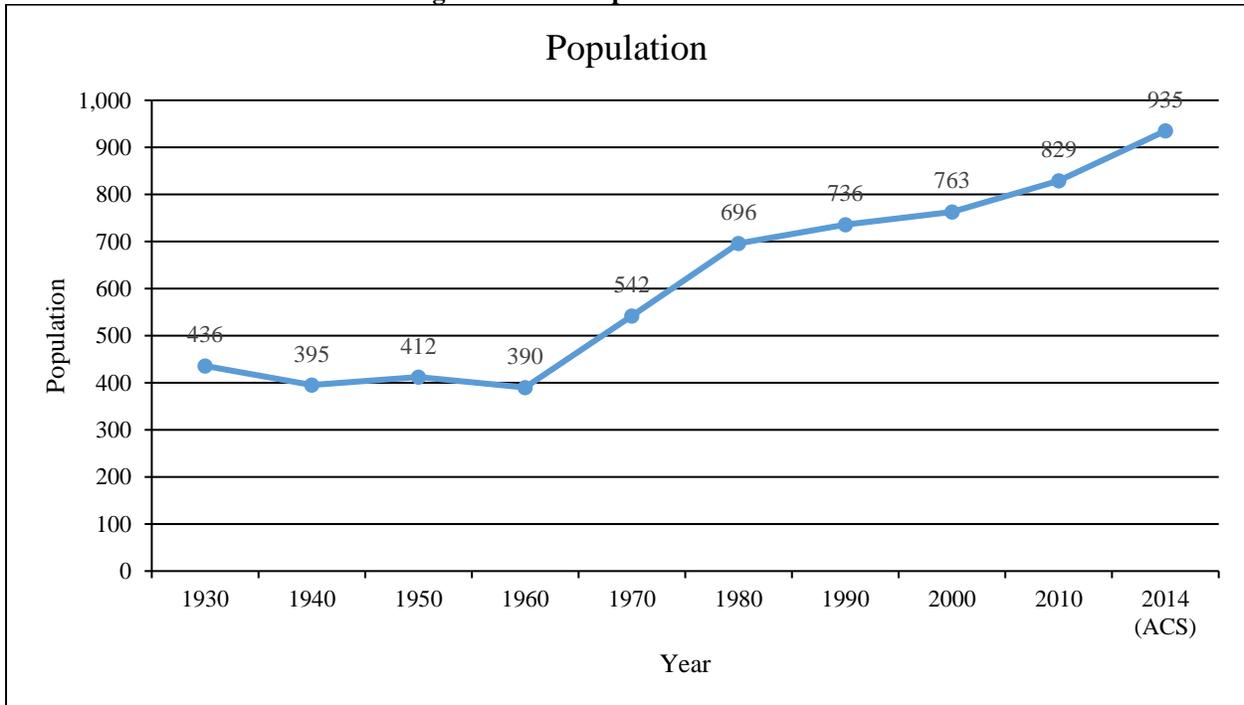
**TRANSPORTATION**

Doniphan’s major transportation corridor is Highway 34 which has an average of 11,000 vehicles per day with 1,085 of those categorized as heavy commercial vehicles. There are no rail lines that pass through Doniphan.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Doniphan has been increasing since 1960.

**Figure DPH.1: Population 1930 – 2014**



Source: U.S. Census Bureau

Figure DPH.2: Map of the Village of Doniphan



The following table indicates the Village has a lower percentage of the population under the age of 5 but a slightly higher percentage of population between 5 and 64 years of age when compared to the County and the state. Additionally, Doniphan has a slightly lower percentage of its population over the age of 64 as compared to the County, as well as a lower median age.

**Table DPH.2: Population by Age**

Age	Doniphan	Hall County	State of Nebraska
<5	7.0%	8.1%	7.2%
5-64	80.8%	78.5%	79.2%
>64	12.2%	13.4%	13.6%
Median	31.8	35.9	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Doniphan’s median household income and per capita income are lower than the County’s. However, Doniphan has a higher median home and median rent value than the County.

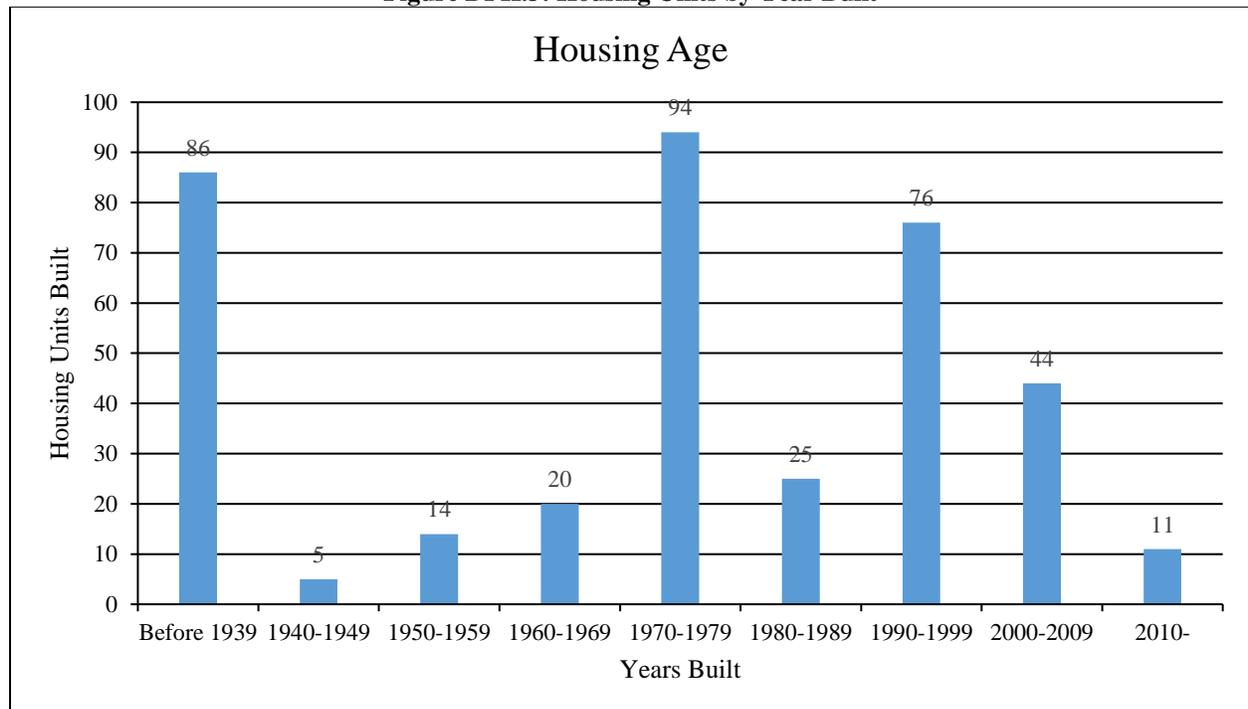
**Table DPH.3: Housing and Income**

	Doniphan	Hall County	State of Nebraska
Median Household Income	\$47,969	\$61,677	\$52,400
Per Capita Income	\$20,909	\$24,075	\$27,339
Median Home Value	\$120,800	\$118,300	\$130,100
Median Rent	\$675	\$656	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 375 housing units with 93.6 percent of those units occupied. There are approximately 38 mobile homes in the community and are concentrated at 318 N. 1<sup>st</sup> Street. The initial Flood Insurance Rate Map (FIRM) was developed in August 1978.

**Figure DPH.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table DPH.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Doniphan	351	93.6%	24	6.4%	264	75.2%	87	24.8%
Hall County	22,418	94.1%	1,418	5.9%	14,326	63.9%	8,092	36.1%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the community are the Doniphan-Trumbull School District, Frito Lay Distribution Center, H & H Concrete and Construction, and Nebraska Machinery. A large percentage of residents commute to work in Grand Island and Kearney.

***FUTURE DEVELOPMENT TRENDS***

In the past five years, a new event center was constructed. This event center was not developed in the floodplain. The local planning team attributes the community’s growth to their proximity to Grand Island, Kearney, and Hastings and the quality of the school district. A new housing development is planned in the next five years on Platte River Drive. There are no new businesses or industries planned for the next five years.

***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table DPH.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
432	\$41,386,751	95,803	17	\$3,540,989

Source: Hall County Assessor

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of six chemical storage sites that house hazardous materials in Doniphan. None of the chemical storage sites are in the floodplain (Figure DPH.4).

**Table DPH.6: Chemical Storage Fixed Sites**

#	Facility	Address	In Floodplain?
1	Agricultural Services Inc	101 E Pine St	No
2	Aurora Co-op Doniphan Plant	101 E Plum St	No
3	Doniphan Remote	106 W Plum St	No
4	Nebraska Machinery Co	10501 S US Highway 281	No
5	NPPD Doniphan Sys Control Ctr	2060 W Platte River Dr	No
6	Pioneer Hi-Bred Intl Inc	12937 S US Highway 281	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Doniphan.

**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table DPH.7: List of Critical Facilities in Doniphan**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Fire & Rescue	106 E Plum St	N	Y	N
2	Village Hall	103 W Pine St	N	Y - Portable	N
3	Village Maintenance Shop	102 W Cedar St	N	N	N
4	Doniphan-Trumbull Public School	302 W Plum St	Y	N	N
5	United Methodist Church	304 N 4 <sup>th</sup> St	Y	N	N
6	Prairie Winds Assisted Living Center	603 W 6 <sup>th</sup> St	N	Y	N
7	Water Tower	590 W Pine St	N	N	N
8	Well	304 ½ N 2 <sup>nd</sup> St	N	N	N
9	Well	302 W Walt Ave	N	N	N
10	Well	102 W Cedar St	N	N	N
11	Wastewater Lagoon	401 N First St	N	N	N



### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Hall County.

### ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

#### **Flooding**

The Village of Doniphan has a flood risk area that goes through the western side of the community.

Doniphan has two NFIP policies in-force for \$1,500,000. There are no repetitive flood loss properties in the Village of Doniphan. The following table is parcel improvement information as provided by the County Assessor. It indicates that an estimated 3.9 percent of all parcel improvements in Doniphan are located in the floodplain.

**Table DPH.8: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements in Community</b>	<b>Percentage of Improvements in Floodplain</b>
\$3,540,989	17	432	3.9%

*Source: Hall County Assessor*

Two major flooding events in Doniphan are reported by NCEI. In December of 2010, ice jams caused the Platte to flood, necessitating home evacuations for areas just west of Doniphan. A second flood in June of 2015 was caused by heavy rains. Water accumulated on the southbound lane of Highway 281 near Rosedale Road, causing a few traffic accidents. Flooding hazard mitigation actions include providing backup generators and weather radios to critical facilities.

#### **Hail**

Hail is a top concern for the local planning team because of the potential for property damage. The most significant hail event in Doniphan caused \$1,000,000 in property damage in May of 2002 when 2.75-inch hail destroyed roofs, windows, and vehicles. The community's critical facilities are not fitted with hail resistant building materials but are insured for hail damage. Residents do not receive information on hail resistant building materials with building permits. The local tree board manages hazardous trees in the area. Hail mitigation actions include initiating a power line burying project, requiring new construction to bury utility lines, and requesting a tree inventory from the Nebraska Forestry Service.

#### **Severe Thunderstorms**

Of the severe thunderstorms reported by NCEI, the storm that occurred in August of 1999 was the most severe, with property damages totaling \$250,000. Thunderstorm winds combined with hail and heavy rain and damaged five homes west of Doniphan, and many trees within the Village. The local planning team is most concerned with flash flooding associated with severe thunderstorms. Doniphan protects its critical municipal records with surge protectors and a cloud-based backup system. Approximately ten percent of power lines are buried. Thunderstorm hazard mitigation actions include providing weather radios and backup power generators to critical facilities, providing adequate storm shelters for the community, initiating a power line burying project, requiring new construction to bury utility lines, and requesting a tree inventory from the Nebraska Forestry Service.

### **Severe Winter Storms**

One of the most severe winter storms in recent memory is an ice storm that occurred in December of 2006. Property damages of \$100,000 were incurred when freezing rain broke tree limbs and downed power lines and power poles. Several days of power outages were reported in the area. A blizzard in February 2016 had such significant snow falls that snow removal and associated public works costs totaled \$438,000. The local planning team is concerned about power outages and emergency personnel mobility during severe winter storms. Approximately ten percent of power lines are buried in the community. There are no designated snow routes or snow fences in place. The Maintenance Department utilizes a truck with a plow and a loader with a plow for snow removal. Severe winter storm hazard mitigation actions include providing weather radios and backup power generators to critical facilities, initiating a power line burying project, requiring new construction to bury utility lines, and requesting a tree inventory from the Nebraska Forestry Service.

### **Tornadoes and High Winds**

In June of 1997, several EF0 tornadoes passed near Doniphan, causing no property damage. In October of 2000, a funnel cloud was spotted near the Village, also causing no property damage. Critical municipal records are backed up with cloud-based software. The warning siren in Doniphan is maintained by Hall County Emergency Management, and reaches all areas of the community. They also offer text alerts. Doniphan has Mutual Aid Agreements with surrounding communities and participates in NEWARN, a mutual aid network that provides essential utilities after a disaster event. As there are no safe rooms in Doniphan, hazard mitigation actions include providing safe rooms to shelter the community. The Event Center and bank are available for shelter if necessary. Further mitigation actions include: providing generators to critical facilities; initiating a power line burying project; requiring new construction to bury utility lines; requesting a tree inventory from the Nebraska Forestry Service; and improving warning systems by providing critical facilities with weather radios.

## **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Doniphan is governed by a Chairperson and a four member Village Board. Furthermore, Doniphan has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Utility Superintendent
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department

## **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table DPH.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No

Survey Components/Subcomponents		Yes/No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	

**Table DPH.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Village of Doniphan Comprehensive Plan, last updated in 2003, contains some of the goals and objectives that are consistent with the hazard mitigation plan. It directs development away from the floodplain, chemical storage facilities, and major transportation routes. It also limits density in areas adjacent to known hazards areas, encourages infill development, and encourages elevation of structures located in the floodplain. The plan also encourages preservation of open space in hazard-prone areas and allows for emergency access to all areas of town. At this time, there is no strategy regarding further plan integration. Local officials may consider including a list of critical facilities, examination of chemical storage, and documenting the hazard prioritization in future Comprehensive Plan updates.

The Zoning Ordinance was last updated in 2004. The Ordinance discourages development in the floodplain, prohibits development in the floodway, and discourages residential development near chemical storage sites and major transportation routes. It also encourages maintaining open space within the floodplain, limits development in the extraterrestrial jurisdiction, and accounts for current population trends.

Doniphan has an annex to the Hall County Local Emergency Operations Plan, last updated in 2015. The Plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village’s Building Codes were recently updated in 2016 and are based on the 2012 International Building Codes. The Codes allow for raingardens in residential areas and require the use of fire resistant building materials. In a future update, the Codes will require a safe room in multiple dwelling units such as apartments.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

	<b>Provide Adequate Safe Rooms and Post-Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms
Estimated Cost	\$150/safe room for retrofit; \$300/safe room for new construction
Funding	Local Budget, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Village Board

	<b>Improve Electrical Service</b>
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	Dependent on project
Funding	Local Budget, NFS
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Utilities Department

	<b>Reduce Tree Damage and Damage from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	\$500
Funding	Local Budget, NFS
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Utilities Department

	<b>Ensure Adequate Severe Weather Notifications to Critical Facilities</b>
Description	Purchase weather radios for all critical facilities; inform areas with high noise pollution to consider purchasing a weather radio
Hazard(s) Addressed	All Hazards
Estimated Cost	\$30/weather radio
Funding	Local Budget, HMGP
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Fire Department

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$3,500+ depending on site requirements
Funding	Local Budget, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Utilities Department

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; perform additional floodplain mapping/remapping as necessary
Reason for Removal	Village will continue to participate in program, however, this is no longer considered a hazard mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
DONIPHAN-TRUMBULL PUBLIC  
SCHOOL DISTRICT

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table DTS.1 provides the list of participating community members that comprised the Doniphan-Trumbull Public School District local planning team. Members of the planning team attended Round 1 and Round 2 meetings and provided important information including but not limited to: confirming demographic information, critical facilities, structural inventory, future development trends, hazard history and impacts, identifying hazards of greatest concern for the community, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table DTS.1: Doniphan-Trumbull Public Schools Local Planning Team**

Name	Title	Department / Organization
Kirk Russell	Superintendent	Doniphan-Trumbull Schools

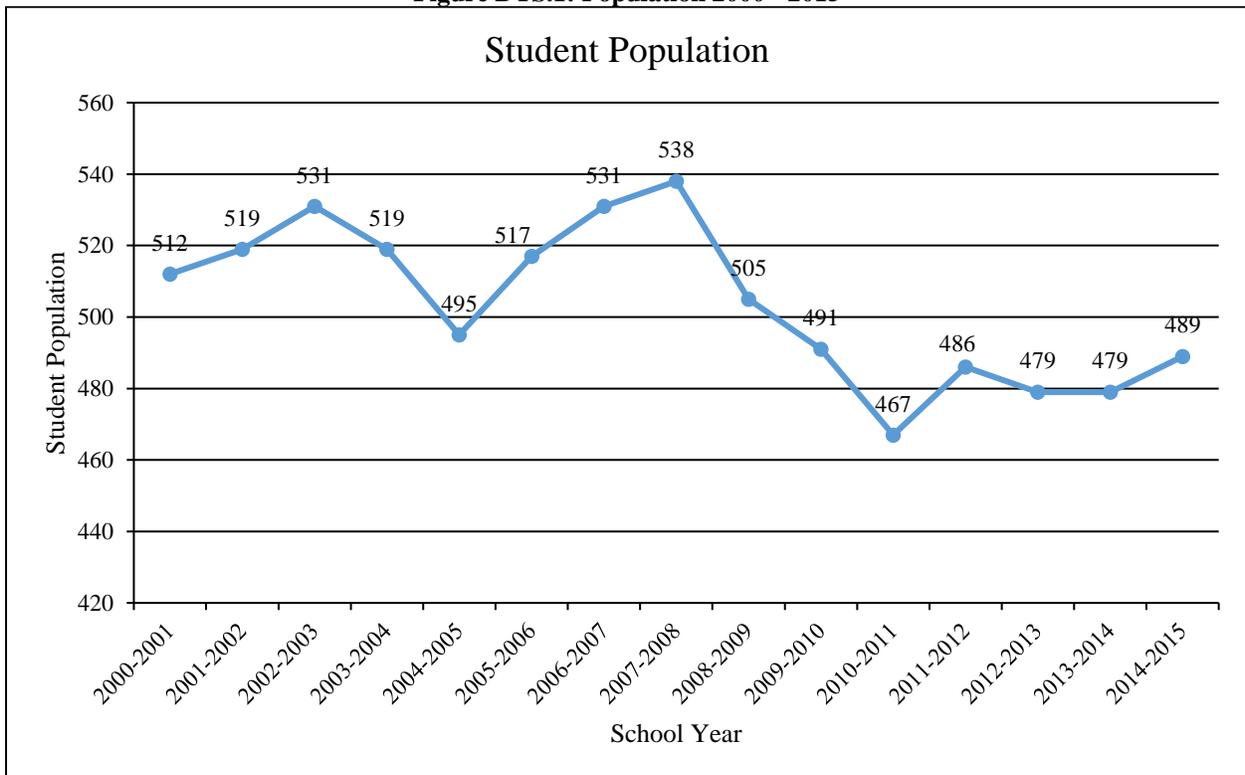
**DISTRICT PROFILE**

The Doniphan-Trumbull Public Schools District is located in the southern portion of Hall County. The District has an enrollment of 485 students. Figure DTS.2 shows the location of the School District’s boundaries.

**DEMOGRAPHICS**

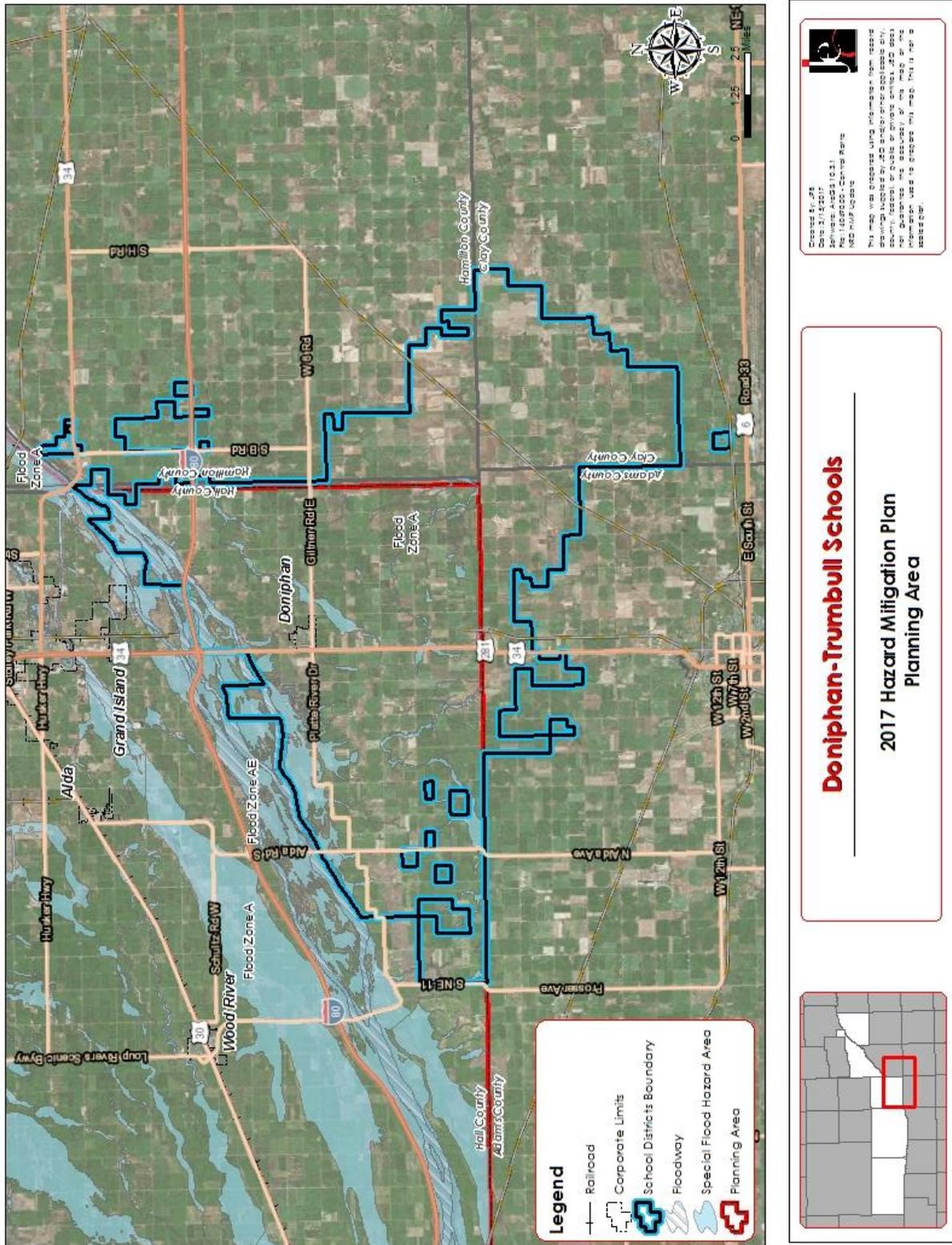
The following figure displays the historical population trend starting with the 2000-2001 school year and ending with the 2014-2015 year. This figure indicates that the student population of Doniphan-Trumbull Schools has been fluctuating since 2000, but has steadied since 2011 with 489 students enrolled in 2014.

**Figure DTS.1: Population 2000 - 2015**

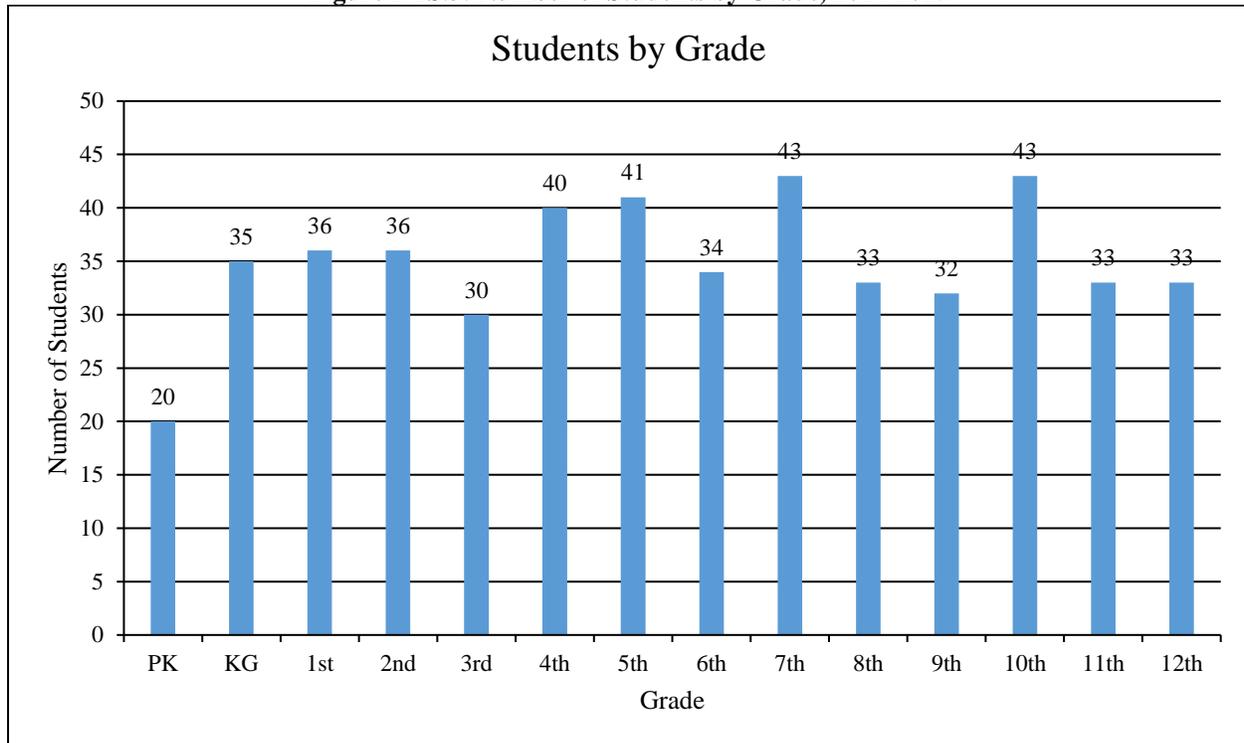


Source: Nebraska Department of Education

Figure DTS.2: Map of Doniphan-Trumbull Public Schools District



**Figure DTS.3: Number of Students by Grade, 2014-2015**



Source: Nebraska Department of Education

The figure above indicates that the largest number of students are in the 4<sup>th</sup>, 5<sup>th</sup>, 7<sup>th</sup>, and 10<sup>th</sup> grades. The lowest population of students are pre-kindergarten, 3<sup>rd</sup>, and 9<sup>th</sup> grades. According to the Nebraska Department of Education, 30 percent of students receive either free or reduced priced meals at school. This is significantly lower than the state average at 44 percent. Additionally, over 15 percent of students are in the Special Education Program. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

**Table DTS.2: School District Statistics, 2014 - 2015**

	School District	State of Nebraska
Free/Reduced Priced Meals	30.06%	44.17%
School Mobility Rate	7.04%	12.25%
English Language Learners	-	6.20%
Special Education Students	15.57%	14.71%

Source: Nebraska Department of Education

### **STRUCTURAL INVENTORY AND VALUATION**

The School District has six buildings, one grand stand, and one 8-lane track for a total value of \$20,732,525.

### **FUTURE DEVELOPMENT TRENDS**

There have been no new construction or renovations in the last few years nor are there currently plans for additions.

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of six chemical storage sites that house hazardous materials in Doniphan. None of these facilities are located near the school.

**Table DPH.3: Chemical Storage Fixed Sites**

#	Facility	Address	In Floodplain?
1	Agricultural Services Inc	101 E Pine St	No
2	Aurora Co-op Doniphan Plant	101 E Plum St	No
3	Doniphan Remote	106 W Plum St	No
4	Nebraska Machinery Co	10501 S US Highway 281	No
5	NPPD Doniphan Sys Control Ctr	2060 W Platte River Dr	No
6	Pioneer Hi-Bred Intl Inc	12937 S US Highway 281	No

Source: Nebraska Department of Environmental Quality

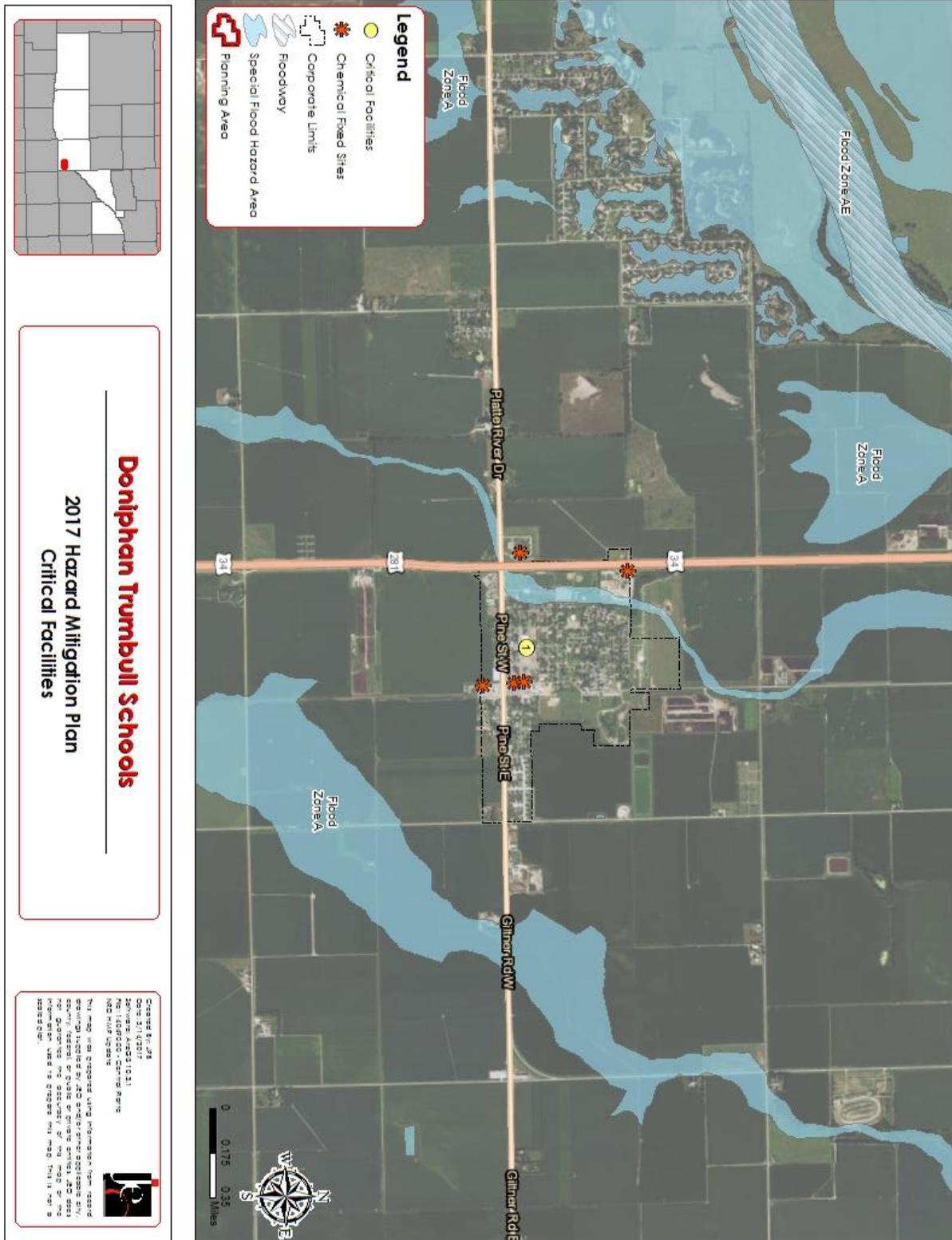
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table DTS.4: List of Critical Facilities for Doniphan-Trumbull Schools**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Weather Radio (Y/N)	Safe Room (Y/N)	Located in 1% Floodplain (Y/N)
1	Doniphan-Trumbull Elementary and Secondary School	302 W. Plum	Y	N	Y	N	N

Figure DTS.4: Critical Facilities and Hazardous Materials Storage with Floodplain



### ***SCHOOL DRILLS AND STAFF TRAINING***

The School District is required by law to conduct a number of drills throughout the year. Students and staff participate in monthly fire drills and a tornado drill every spring. In coordination with the County Sheriff's Office in 2015, the School conducted a mock active shooter situation with students and staff participating. Two to three days a year are dedicated to staff training on potential emergency scenarios. The District has a Safety and Security Team comprised of staff, parents, Sheriff Deputy, local civil defense, emergency management, local EMTs, and the Superintendent. The School District also meets with the County Sheriff's Office twice a year and the local fire department comes to the school during Fire Prevention Week. Parents and students are educated on emergency procedures through the website, local newspaper, and the student handbook.

### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Hall County.

### ***SCHOOL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides specific information, reported by the local planning team. Only hazards either identified as a concern to the District by the local planning team, or based on the occurrence and risk of the hazard to the District are discussed in detail below.

#### **Flooding**

The District is concerned with heavy rains that have caused flash flooding concerns around the school campus due to poor stormwater drainage on Plum Street. Street flooding has backed up onto school property and has gone as far as seeping under a door, causing damage to the floor. The District has spoken with the Village and the Village Engineer to determine the best method of fixing the drainage issue. A drainage study may be conducted to identify drainage improvement projects to implement.

#### **Hail**

Hail storms are a regular part of the climate for Doniphan. The School District has not experienced damaging hail storms in the last ten years. The most significant event happened in May 2002 when a \$1 million in damages accrued across the community when 2.75-inch hail fell and damaged roofs, windows, vehicles, and trees. The District annually hires a contractor to trim trees of any dead or hazardous limbs. Mitigation actions include promoting first aid training and installing weather radios in the school.

#### **Severe Thunderstorms**

The local planning team is most concerned with high winds and lightning from severe thunderstorms. Ten years ago, lightning struck the school's digital sign causing \$3,500 in damages. Brief power outages at the school have occurred following high winds from thunderstorms. The school has not had any known damages from high winds in the last ten years. Weather radios are installed at the school.

#### **Severe Winter Storms**

Heavy snow and ice are of concern to the school due to the possibility of power outages, school closures, and the safety of students during transportation. One of the most severe winter storms was an ice storm that occurred in December of 2006. Heavy tree damage occurred from the freezing rain and power lines and power poles. Several days of power outages were reported in the area, including at the school. The local planning team noted that the National Weather Service contacts all area schools within 48 hours when an approaching severe winter storm may greatly impact operations. The information provided by the NWS gives the superintendent insight into the winter storm situation. The School District is responsible for snow removal, and if the snow is particularly deep, the Village will offer its help as well. Snow removal resources are sufficient at this time. A backup power generator is a mitigation action included in the plan.

**Tornadoes**

Although the school has not been directly impacted by a tornado, the District is concerned for the vulnerability of students and staff and the potential for damages to the school. Per the NCEI, an EF0 tornado passed near the Village in June 1997 and a funnel cloud was spotted in the community in October of 2000. Staff and students use the school’s weight room, which is located underground, as a storm shelter during tornado warnings. School data is regularly backed up using the cloud and via external hard drive. Mitigation actions include installing a backup power generator and improving emergency communications.

**ADMINISTRATION/CAPABILITY ASSESSMENT**

The School District has a superintendent, two principals, two assistant principals, and several supportive staff. The School Board is made up of a six-member panel.

Doniphan-Trumbull Schools would likely fund hazard mitigation projects through a combination of available grants, school building fund, and the general fund.

**Table DTS.5: Overall Jurisdictional Capability**

<b>Overall Capability</b>	<b>Limited/Moderate/High</b>
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	High
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

Doniphan-Trumbull Public School District maintains, updates, and annually reviews the Safety and Security Manual with the Safety and Security Team. The manual outlines roles, responsibilities, and procedures for response to hazards.

No other examples of plan integration were identified, and there are currently no plans to further integrate planning mechanisms.

**MITIGATION STRATEGY**

**New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$3,500+ depending on site requirements
Funding	General Funds
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Superintendent

	<b>Reduce Tree Damage and Damage from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	High Winds, Severe Thunderstorms, Tornadoes, Severe Winter Storms, Grass/Wildfire
Estimated Cost	\$3,600/year
Funding	General Funds
Status	Ongoing. Contractor hired every year to trim trees.
Timeline	Ongoing
Priority	Medium
Lead Agency	Superintendent

	<b>Improve Emergency Communication</b>
Description	Develop/Improve Emergency Communication Action plan; implement Emergency Communication Action Plan; establish inner-operable communications; obtain/upgrade emergency communication facilities/equipment; obtain/upgrade/distribute weather warning radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$1,000+ Staff Time
Funding	General Funds
Status	Ongoing.
Timeline	Ongoing
Priority	High
Lead Agency	Administration Team

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems; improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$1,000+ Staff Time
Funding	General Funds
Status	Ongoing. Currently the school has a radio but may need to replace it in the future.
Timeline	Ongoing
Priority	Low
Lead Agency	Administration Team

	<b>First Aid Training</b>
Description	Promote first aid training for all residents
Hazard(s) Addressed	All Hazards
Estimated Cost	\$100 per person
Funding	General Funds
Status	Ongoing
Timeline	Ongoing
Priority	High
Lead Agency	Superintendent and Secretary

	<b>Drainage Study/Stormwater Master Plan</b>
Description	Identify and prioritize design improvements with preliminary drainage studies and assessments; address site specific localized flooding/drainage issues; identify stormwater problem areas and potential drainage improvements with Stormwater Master Plans
Hazard(s) Addressed	Flooding
Estimated Cost	\$15,000+
Funding	General Funds
Status	In early conversations with Village on drainage issue around school.
Timeline	2-5 years
Priority	High
Lead Agency	Board of Education

PARTICIPANT SECTION  
FOR THE  
CITY OF GRAND ISLAND

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### ***LOCAL PLANNING TEAM***

Table GID.1 provides the list of participating members that comprised the City of Grand Island local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table GID.1: City of Grand Island Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Department / Organization</b>
Chad Nabity	Planning Director/Floodplain Administrator	City of Grand Island
Jon Rosenlund	Emergency Manager	City of Grand Island

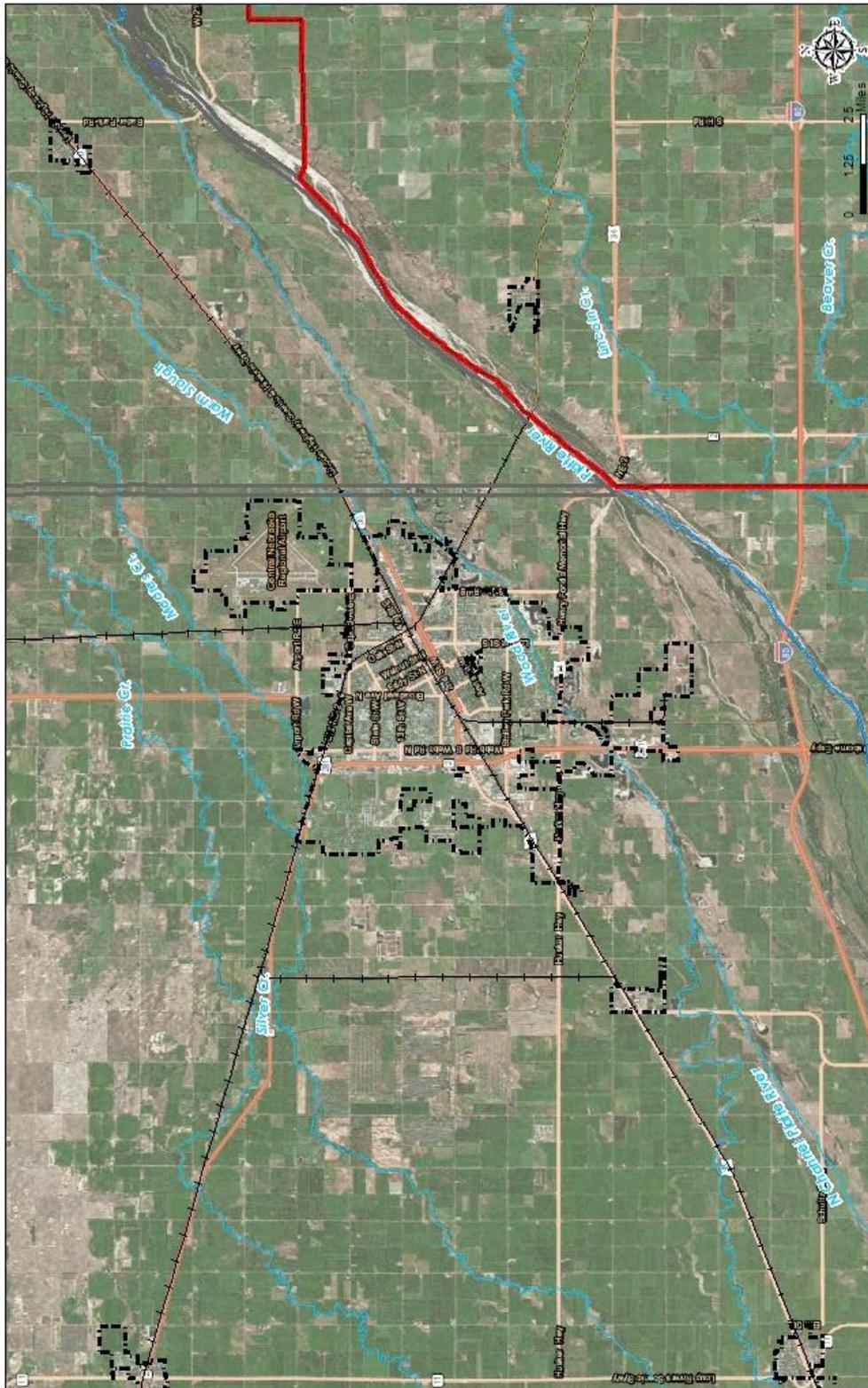
### ***LOCATION AND GEOGRAPHY***

The City of Grand Island is located in the northeastern portion of Hall County and covers an area of 28.6 square miles. The major waterway in the area is the Platte River, located south of the City and running from the southwest to the northeast.

### ***TRANSPORTATION***

Grand Island's major transportation corridors include Highways 2, 30, 34, and 281. Highway 2 is located along the northwestern edge of the City and has an average of 4,260 vehicles per day with 315 of those categorized as heavy commercial vehicles. Highway 30 travels through the center of the City in a southwest to northeast direction and has an average of 6,265 vehicles per day with 1,080 of those categorized as heavy commercial vehicles. Highway 34 travels in an east to west direction and is located in the southeast corner of the City and has an average of 5,040 vehicles per day with 550 of those categorized as heavy commercial vehicles. Finally, Highway 281 travels in a north to south direction through the center of the City and have an average of 11,000 vehicles per day with 1,085 of those categorized as heavy commercial vehicles. Grand Island has three active rail lines in or near the City limits, these include a Union Pacific, a Burlington Northern, and a Nebraska Central line. There is also one non-operating rail line that is owned by the United States Government and located to the west of the City.

Figure GID.1: Map of the City of Grand Island



**kb**

Created by: JRS  
 Date: 10/2017  
 Software: ArcGIS 10.3  
 File: 11060000 - Central Platte  
 NRD MAP Update

This map was prepared using information from several sources including aerial photography, GIS data, and other available city, county, federal or public domain sources. ACD does not guarantee the accuracy of the map or the information used to produce this map. This is not a warranty.

**Grand Island, Nebraska**

Central Platte Natural Resources District  
 2017 Hazard Mitigation Plan

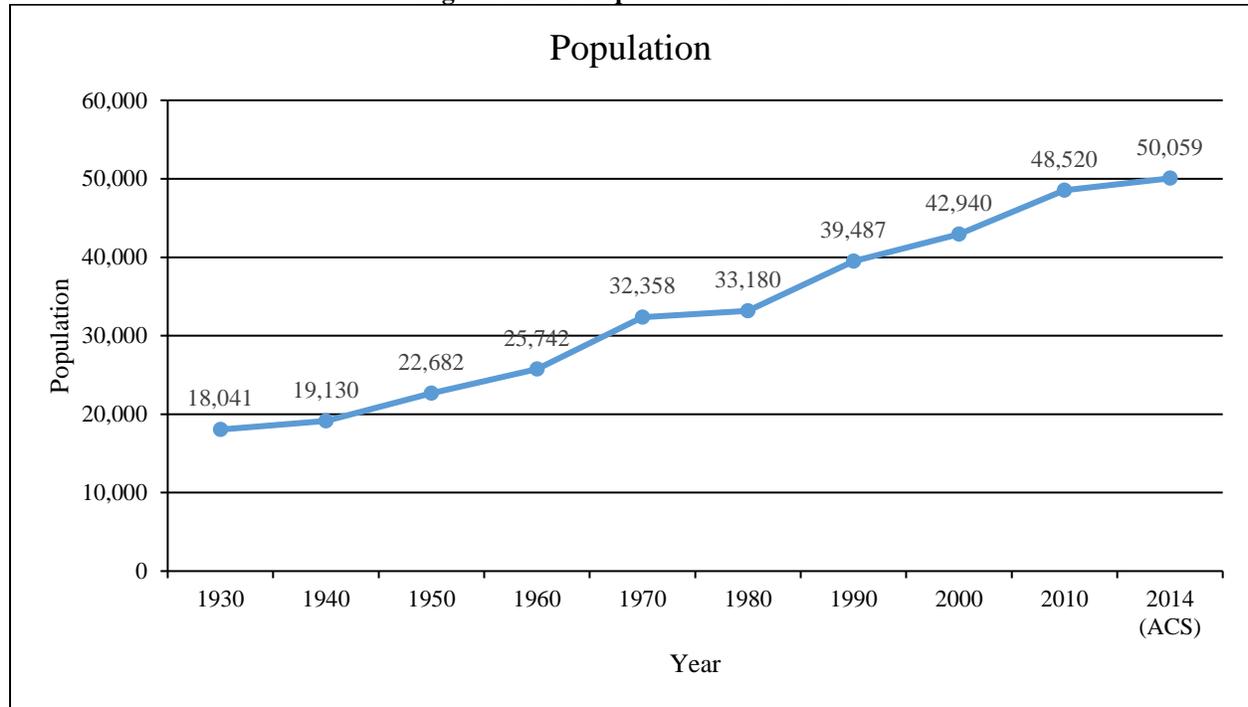
**Legend**

- Corporate Limits
- Planning Area
- County
- River

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Grand Island has been increasing since 1930.

**Figure GID.2: Population 1930 - 2014**



Source: U.S. Census Bureau

The following table indicates the City has a higher percentage of the population that is under the age of 5 when compared to Hall County. However, Grand Island has a comparable percentage of the population between the ages of 5 and 64 and over the age of 64 as the County. The median age is also very similar to the County's.

**Table GID.2: Population by Age**

Age	Grand Island	Hall County	State of Nebraska
<5	8.4%	8.1%	7.2%
5-64	78.7%	78.5%	79.2%
>64	13.0%	13.4%	13.6%
Median	35	35.9	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Grand Island's median household income is significantly lower than the County. The per capita income, the median home value, and median rent value are also lower than that of the County.

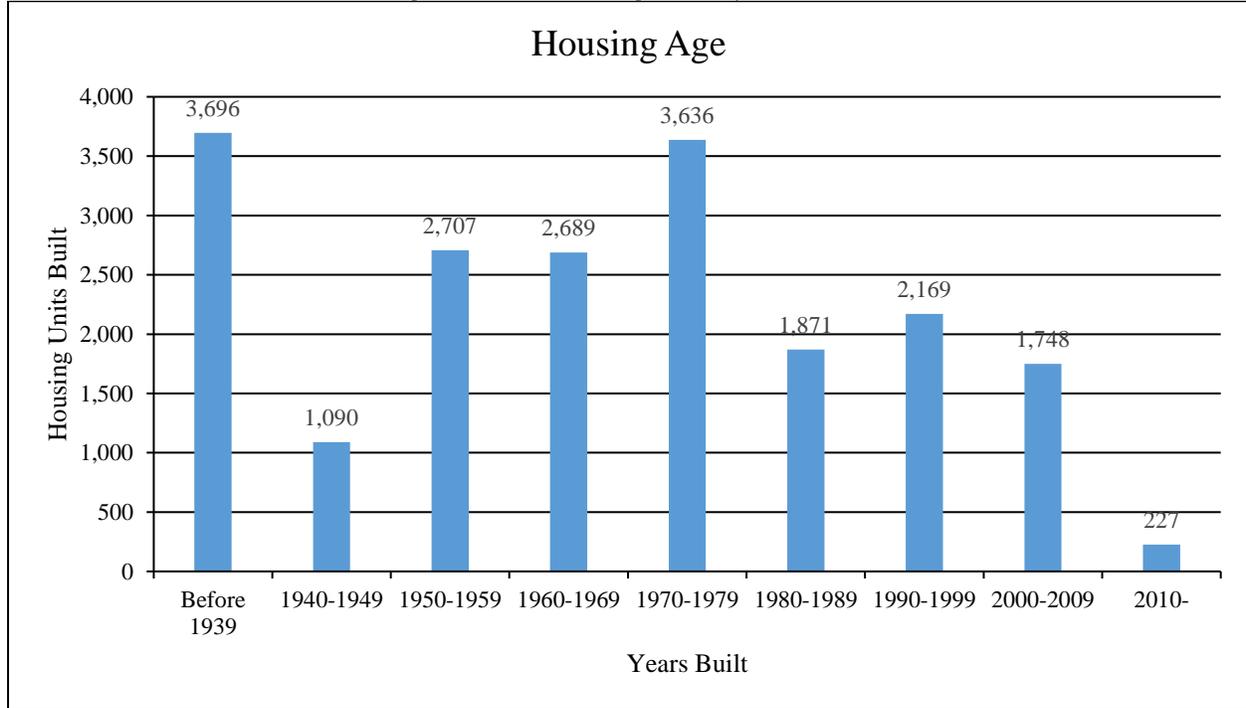
**Table GID.3: Housing and Income**

	Grand Island	Hall County	State of Nebraska
Median Household Income	\$46,527	\$61,677	\$52,400
Per Capita Income	\$23,221	\$24,075	\$27,339
Median Home Value	\$113,500	\$118,300	\$130,100
Median Rent	\$653	\$656	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 19,833 housing units with 94.3 percent of those units occupied. There are approximately 599 mobile homes in the community. Mobile home parks are in almost every zoning district in Grand Island. The initial Flood Insurance Rate Map (FIRM) was developed in March 1983.

**Figure GID.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table GID.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Grand Island	18,702	94.3%	1,131	5.7%	11,379	60.8%	7,323	39.2%
Hall County	22,418	94.1%	1,418	5.9%	14,326	63.9%	8,092	36.1%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

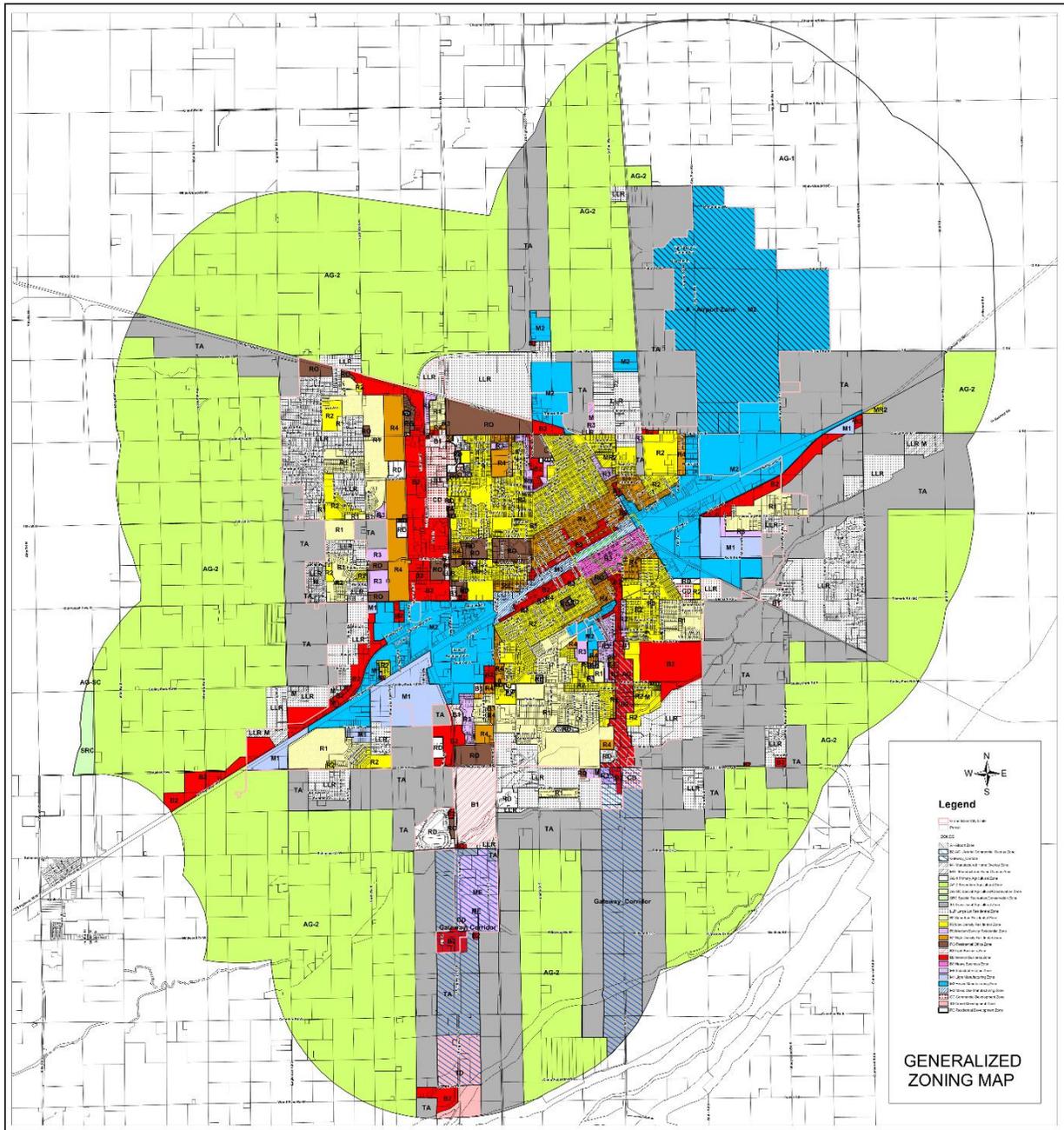
**MAJOR EMPLOYERS**

The major employers in the community are the St. Francis Hospital, JBS Swift, Principal Financial, Chief Industries, Grand Island Public Schools, and Global Industries. Most community members stay in Grand Island for work.

**FUTURE DEVELOPMENT TRENDS**

Over the past five years, Grand Island has seen many new buildings, redevelopments, and new roads. Some new houses were built in the floodplain, but all are compliant with floodplain regulations. Overall, Grand Island’s population is growing. The local planning team reports that Grand Island is a regional hub with varied employers, retailers, and medical facilities. There are new housing developments planned for the next five years, mostly in the northwest part of the City. Furthermore, a few apartment complexes are planned for the southeast section of Grand Island in the next five years. A new hospital and a retail center are planned to be built as well.

Figure GID.4: Zoning Map



**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table GID.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
18,386	\$2,492,047,641	\$135,541	988	229,290,374

Source: Hall County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of 37 chemical storage sites that house hazardous materials in Grand Island. A total of three chemical storage sites are located in the floodplain (Figure GID.5).

**Table GID.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Agricultural Services Inc	2777 N Broadwell Ave	No
Alter Nebraska Corporation	1119 E 4th St	No
AmeriCold Logistics LLC	204 E Roberts St	No
AT&T Communications 0900	144 W Roberts St	No
Aurora Co-op Elevator Company	4155 E US Highway 30	Yes – 1%
Aurora Co-op Elevator Company	920 N Shady Bend Rd	No
C W Burdick Generating Station	800 Bischeld St	No
CenturyLink	105 N Wheeler Ave	No
Charter Communications	2533 W Old Lincoln Hwy	No
Charter Communications	205 N Webb Rd	No
Chief Industries Inc	1119 S Adams St	No
Christensen Concrete Products	235 W Roberts St	No
Christensen Concrete Products	3990 W US Highway 30	No
CNH America LLC - Miller Bldg	1011 Claude Rd	No
CNH Industrial America LLC	3445 W Stolley Park Rd	No
Coca-Cola Refreshments	1617 Holland Dr	No
Darling Ingredients Inc	5251 W Guenther Rd	Yes – 1%
Diamond Truck Wash	6499 S US Highway 281	No
Gerhold Concrete Co	1431 S Webb Rd	No
GIUD Burdick Reservoir	S Stuhr Rd	No
GIUD Rogers Reservoir	3990 W Old Potash Hwy	No
Grand Island Potable Water	2700 Wellfield Rd	No
Grand Island Water Department	364 N Pine St	No
Lineage Logistics LLC	205 E Roberts St	No
McCain Foods USA Inc	2629 N Broadwell Ave	No
Optimas OE Solutions	3319 Island Cir	No
Overhead Door Co	2514 E US Highway 30	No
Platte Generating Station	1035 W Wildwood Dr	No
Platte Valley Energetics LLC	8318 W Old Potash Hwy	No
Sprint Grand Island POP	333 N Pine St	No
Standard Iron Inc	4160 Gold Core Rd	No

Facility	Address	In Floodplain?
Swift Beef Company	555 S Stuhr Rd	No
The Home Depot Store 3208	911 Allen Dr	No
VA Nebraska - Western Iowa HCS	2201 N Broadwell Ave	No
Verizon Wireless MTSO	3650 W 13th St	No
Verizon Wireless Newfair	1203 S Stuhr Rd	Yes – 1%
Windstream Communications	3650 W 13th St	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are 16 historic sites located in or near Grand Island.

**Table GID.7: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Burlington Railroad Depot, Grand Island	12/2/2014	No
Hall County Courthouse	9/15/1977	No
Grand Island Carnegie Library	5/2/1975	No
Cathedral of the Nativity of the Blessed Virgin Mary	7/15/1982	No
Liederkrantz	11/30/1978	No
Evangelische Lutherische Dreinenigkeit Kirche	12/4/1986	No
Hotel Yancey	12/13/1984	No
Grand Island United States Post Office and Courthouse	2/14/2006	No
Hamilton-Donald House	3/13/1986	No
Mrs. H. J. Bartenbach House	12/8/1986	No
Roeser-Gartner House	6/25/1982	No
Glade-Donald House	9/12/1985	No
Andrew M. Hargis House	6/9/1978	No
Grand Island Senior High School	11/22/1999	No
Lee Huff Apartment Complex	7/1/1994	No
Heinrich Giese House	7/26/2006	No

Source: Nebraska State Historical Society, 2016

**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table GID.8: List of Critical Facilities in Grand Island**

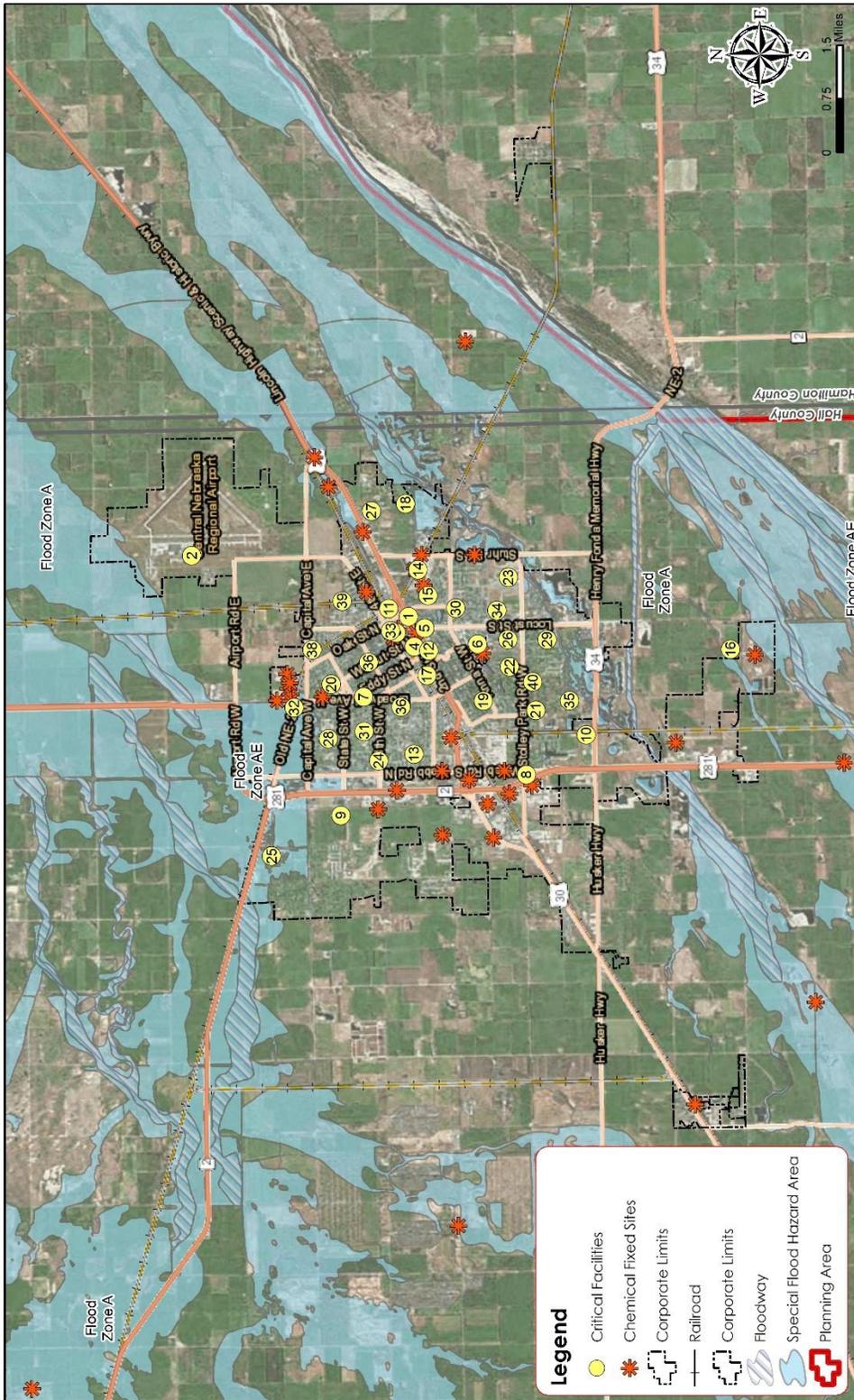
CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Grand Island City Hall	100 E First Street	N	Y	N
2	Central NE Regional Airport	3557 Sky Park Rd	N	N	N
3	GI Fleet Services	1111 W North Front St.	N	N	N
4	Grand Island Transfer Station	5050 W Potash Highway	N	N	N
5	Qwest (GI)	105 N Wheeler	N	N	N
6	GI Fire #1	Fonner Park Rd	N	Y	N
7	GI Fire #2	1710 N Broadwell Ave.	N	Y	N
8	GI Fire #3	2310 S Webb Rd	N	Y - Portable	N
9	GI Fire #4	3690 W State St.	N	Y	N
10	GI Rural Fire	3009 W. Hwy 34	N	Y	N
11	American Red Cross	404 E 3rd St.	N	N	N
12	Salvation Army	818 W. 3 <sup>rd</sup> St.	N	N	N
13	St. Francis Medical Center	2620 West Faidley Ave.	N	Y	N
14	Burdick Power Station	800 E. Bischeld St.	N	N	N
15	Phelps Control Center	700 E Bischeld St.	N	N	N
16	Platte Generation Station	1035 Wildwood Dr.	N	N	N
17	Elec Division Facility	1116 W North Front St.	N	N	N
18	GI Wastewater Treatment Plant	3013 E Swift Rd.	N	Y	Y
19	First Presbyterian Church	2103 W Anna St.	Y	N	N
20	Blessed Sacrament Church	518 W State St.	Y	N	N
21	St. Leos Church	2410 S Blaine St	Y	N	N
22	St. Paul’s Lutheran Church	1515 S. Harrison St	Y	N	N
23	Fonner Park Race Track	700 E. Stolley Park Rd.	Y	N	N
24	Newell Elementary School	2700 W 13 <sup>th</sup> St.	Y	N	N
25	Northwest High School	2710 N. North Rd.	Y	N	Y
26	Barr Jr. High School	602 W. Stolley Park Rd	Y	N	N
27	Seedling Mile Elementary	3208 E. Seedling Mile Rd.	Y	N	N
28	G.I. Senior High School	2124 N. Lafayette Ave.	Y	N	N
29	Starr Elementary School	315 Wyandotte St.	Y	N	N
30	Dodge School	641 S Oak St.	Y	N	N
31	Walnut Jr. High School	1600 N. Custer Ave.	Y	N	N
32	United Veterans Club, Inc.	1914 W. Capital	Y	N	Y
33	Y.M.C.A.	221 E South Front St	Y	N	N
34	Y.W.C.A.	211 E Fonner Park Rd	Y	N	N

*Section Seven: City of Grand Island Participant Section*

---

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
35	E Free Church	2609 S Blaine	Y	N	N
36	Howard Elementary School	502 W 9 <sup>th</sup>	Y	N	N
37	Jefferson Elementary School	1314 W 7 <sup>th</sup>	Y	N	N
38	Knickrehm Elementary School	2013 N Oak	Y	N	N
39	Lincoln Elementary School	805 N Beal St	Y	N	N
40	Stolley Park Elementary School	1700 W Stolley Pk.	Y	N	N

Figure GID.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain




  
 Created by: JEB
   
 Date: 10/19/2017
   
 Software: ArcGIS 10.3.1
   
 File: 14049000 - Critical Facilities
   
 NRD HMP Update
   
 This map was prepared using information from record drawings supplied by JFO and/or other applicable city, county, federal, or public or private entities. JFO does not warrant the accuracy of the information used to prepare this map. This is not a scaled plot.

**Grand Island**  
 2017 Hazard Mitigation Plan  
 Critical Facilities



### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Hall County.

### ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

#### **Chemical Spills (Transportation)**

Both UP and BNSF have main lines through Grand Island. Highways 30, 2, and 281 all run through the City. Many manufacturing facilities have reportable quantities of transported hazardous material. There have been some fuel spills and occasional releases. Chemicals are presumed to be transported daily by highway; however, the local planning team is not sure which types of chemicals are being transported. According to the Pipeline and Hazardous Materials Safety Administration, there have been 149 reports of chemical spills. City Hall, the County Administration Building, Fire Stations 3 and 4, the Police and Sheriff Buildings are critical facilities along the main transportations. Chemical spill hazard mitigation actions include improving the citizen warning systems and educating the public on hazard events.

#### **Flooding**

Grand Island's flood risk areas of concern surround the City on the north, east, and south sides. The closest bodies of water of concern are Wood River, Prairie Creek, Silver Creek, and Moores Creek. The local planning team listed several dates of Grand Island flooding events, 1968, 1976, 1993-94, 2005, and 2008. However, the City has completed and is finishing flood control projects to mitigate flooding in the community. First, the Wood River floodplain has largely been mitigated due to the construction of a levee system, completed in 2004. Then in partnership with the CPNRD, the Upper Prairie Silver Moores Flood Control Project will impact the northern floodplain. It is a three-phase flood control project that includes stormwater detention cells, a diversion channel, and a series of upland detention dams. This project is slated to be completed in 2017. For more information on this project, please see the CPNRD's participant section.

The planning team noted that the areas in the community most prone to flooding are northwest Grand Island, north of Capitol Avenue, west of 281. Compounding this, the planning team mentioned that when the City receives brief intense rain events (at least 2+ inches of water per hour), stormwater drainage systems lose efficiency.

Grand Island has 154 NFIP policies in-force for \$28,496,500. There are two single family repetitive flood loss properties in the City of Grand Island. The following table is parcel improvement information as provided by the County Assessor. It indicates that an estimated 5.4 percent of all parcel improvements in Grand Island are located in the floodplain.

**Table GID.9: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements in Community</b>	<b>Percentage of Improvements in Floodplain</b>
\$229,290,374	988	18,386	5.4%

Source: Hall County Assessor

Further mitigation actions for flooding include mitigating repetitive flood loss properties and providing citizens with additional information about hazard events.

**Hail**

The NCEI reports 89 hail events since 1996, causing \$7,852,000 dollars in damages. These costs incurred led the community to rank hail as a top concern. The largest hail stone was reported at 3 inches. The planning team is concerned due to the potential for property damage. Most of the critical facilities are fitted with hail resistant building materials, and are insured. Building code limits to community members to one layer of shingles which encourages hail resistant building materials. Future hail hazard mitigation actions include improving citizen warning systems and educating the public on the hazards associated with hail.

**Levee Failure**

Levee failure may cause loss of life and injuries as well as damages to property, the environment, and the economy. There have been no reports of levee failure in Grand Island. The following table identifies the levee system that is located in the City. An Emergency Preparedness Plan (EPP) for the levee is being developed in coordination with the CPNRD and County Emergency Management. The EPP will include stakeholder roles and responsibilities, a risk awareness communication plan, evacuation plan, and activation process.

**Table GID.10: Hall Levees**

Name	Sponsor	City	River	Length (miles)	Type of Protection	Protected Area (sq miles)	Approximate Level of Protection
Wood River FPP	Central Platte NRD	Grand Island	Wood River	12.3	Urban	25 – 49	50 - 99 Year Flood

Source: Nebraska State Mitigation Plan

The following map provides the location of leveed areas in Grand Island. Shaded areas indicate land areas that are protected by the levee and are therefore vulnerable if the levee were to fail. An estimated 9,480 people and 3,964 buildings reside within the leveed areas.

**Severe Thunderstorms**

The NCEI reported 33 thunderstorm wind events since 1996. Official reports of property damage topped \$929,000 dollars for Grand Island. The City has severe thunderstorms every year, reported by the planning team, with localized flooding and wind damage. The planning team is concerned with the potential impact on utilities and transportation routes. There are weather radios in critical facilities, but not all have backup generators. Grand Island has an active tree management program that seeks to reduce the damage from falling trees and branches. Mitigation actions include improving the tree management program with a tree inventory and maintenance program. Other hazard mitigation actions are to provide adequate public safe rooms for the community, improve severe weather warning systems, hardening and looping the electrical system, and educating residents on thunderstorms.

**Tornadoes**

There are two reports of tornadoes since 1996 in the City of Grand Island. However, on June 3<sup>rd</sup>, 1980 there were seven tornadoes that touched down in or near the community over the span of nearly three hours. This outbreak devastated entire sections of Grand Island killing five people and injuring 200. Now, municipal servers are backed up to multiple locations; the City has warning sirens and some safe rooms, which are FEMA-certified. The County Emergency Management offers text alerts, and the community does educational outreach through Grand Island TV, and the Weatherwise program. Tornado hazard mitigation plans include providing adequate public safe rooms, improving public severe weather warning systems, hardening and looping the electrical system, reducing tree damage with a tree inventory and maintenance program, and educating the public on tornado hazards.



**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Grand Island is governed by a Mayor and a nine member City Council. Furthermore, Grand Island has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- Tree Board

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table GID.11: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative &	Planning Commission	Yes

Survey Components/Subcomponents		Yes/No
Technical Capability	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	

**Table GID.12: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Moderate

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Grand Island Comprehensive Plan, last updated in 2004, contains some goals and objectives consistent with hazard mitigation. The plan directs development away from the floodplain, chemical facilities, and major transportation routes. It also limits density in areas adjacent to known hazardous areas. Furthermore, it encourages infill development, clustering of development in sensitive areas, and elevation of structures located in the floodplain. The plan encourages preservation of open space in hazard-prone areas, and allows for emergency access to all areas of town. At this time, there are no current plans to incorporate the HMP into the Comprehensive Plan.

The City’s Zoning Ordinance was last updated in 2004. It discourages development in the floodplain, requires at least one-foot of elevation above base flood elevation in the floodplain, and prohibits development in within the floodway. It also discourages development near chemical storage sites and along major transportation routes in residential areas. The Ordinance encourages maintaining open space within the floodplain, limits development in the extraterrestrial jurisdiction, and accounts for current population trends.

Grand Island has an annex to the Hall County Local Emergency Operations Plan, last updated in 2015. The Plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Building Codes for Grand Island were recently updated in 2016 and are based on the 2012 International Building Codes. The Codes outline proper sump pump installation, allow for raingardens in residential areas, and require the use of fire resistant building materials.

Grand Island has a 1 & 6 Year Street Plan and Transportation Improvement Plan that are reviewed and updated annually. The plans include many hazard mitigation projects such as stormwater projects, upsizing of culverts and drainage structures, and upgrading and regular maintenance of the storm sewer system. They also include stalling street aprons to facilitate drainage, improving to transportation routes for drainage, bridge improvements, updating electrical distribution system, and installing emergency generators in critical facilities. Furthermore, they include installing water meters for residential structures, burying power lines, and improving the existing Fire Hall. There are also plans to build a new Emergency Operations Center and 911 facilities in Grand Island, serving all of Hall County.

***MITIGATION STRATEGY***

**Ongoing and New Mitigation Actions**

	<b>Reduce Damages in Floodplain</b>
Description	Evaluate repetitive loss or potential loss structures located in floodplain; acquire and relocate or demolish flood prone property or elevate flood prone property; elevate equipment vulnerable to flooding
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	FMA, PDM, General Funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Floodplain Administrator

	<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Events</b>
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	General Funds, FMA, PDM, CDBG
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Water and Sewer Department

	<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$200 - \$250 per sq ft
Funding	General Funds, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Planning Commission, Emergency Management

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$25,000 - \$50,000
Funding	City Emergency Management Budget, HMGP
Status	In progress.
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management

	<b>Reduce Tree Damage and Damage from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	\$5,000+
Funding	General Funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Tree Board

<b>Improve Electrical Service</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	General Funds, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	City Engineer

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	Staff Time
Status	In progress.
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management

<b>Develop an Emergency Preparedness Plan</b>	
Description	Develop an Emergency Preparedness Plan (EPP) for the Grand Island Levee System in coordination with Hall County Emergency Management and the CPNRD (the plan should include stakeholder roles and responsibilities, a risk communication plan, emergency activation levels, activation process, evacuation plan, and training and exercise plan)
Hazard(s) Addressed	Levee Failure
Estimated Cost	\$10,000
Funding	General Funds
Status	Early planning stages.
Timeline	1 year
Priority	High
Lead Agency	Planning Commission, Emergency Management, CPNRD

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	City will continue to participate in program, however, this is no longer considered a hazard mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE

GRAND ISLAND PUBLIC SCHOOL  
DISTRICT

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table GIP.1 provides the list of participating community members that comprised the Grand Island Public School District local planning team. Members of the planning team attended Round 1 and Round 2 meetings and provided important information including but not limited to: confirming demographic information, critical facilities, structural inventory, future development trends, hazard history and impacts, identifying hazards of greatest concern for the community, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table GIP.1: Grand Island Public Schools Local Planning Team**

Name	Title	Department / Organization
Robin Dexter	Associate Superintendent	GIPS
Dan O. Petsch	Director of Buildings & Grounds	GIPS
Rick Ressel	School Safety Coordinator	GIPS
Jon Rosenlund	Emergency Manager	Grand Island/Hall County

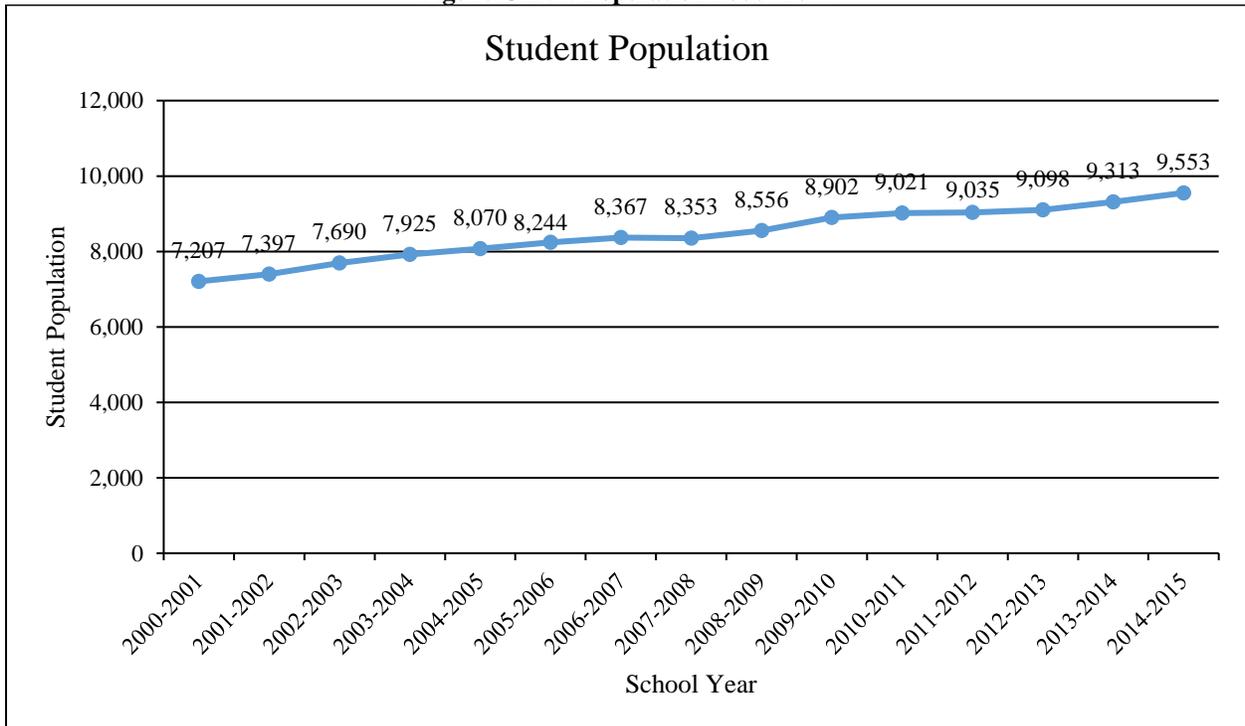
**LOCATION AND SERVICES**

Grand Island Public School District operates 21 schools with 14 elementary schools, three middle schools, and one high school, as well as an Early Learning Center, the Career Pathways Institute, and the Success Academy. The District provides services to students in the City of Grand Island and part of east central Hall County. Figure GIP.2 shows the location of the School District’s boundaries.

**DEMOGRAPHICS**

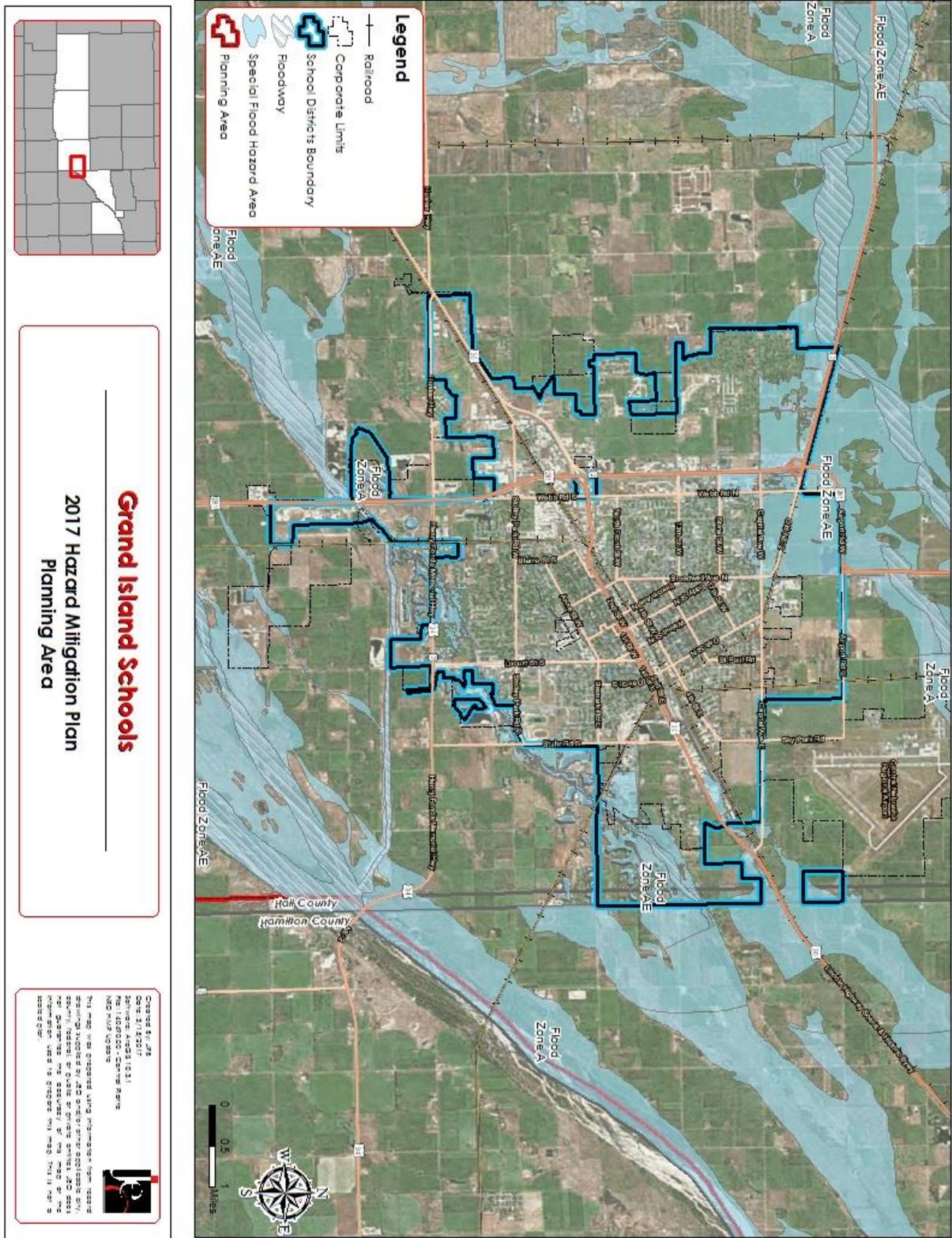
The following figure displays the historical population trend starting with the 2000-2001 school year and ending with the 2014-2015 year. It indicates that the student population has been increasing steadily since 2000 with a total enrollment of 9,553 in 2014. The district anticipates that student enrollment will continue to increase in the coming years.

**Figure GIP.1: Population 2000- 2015**

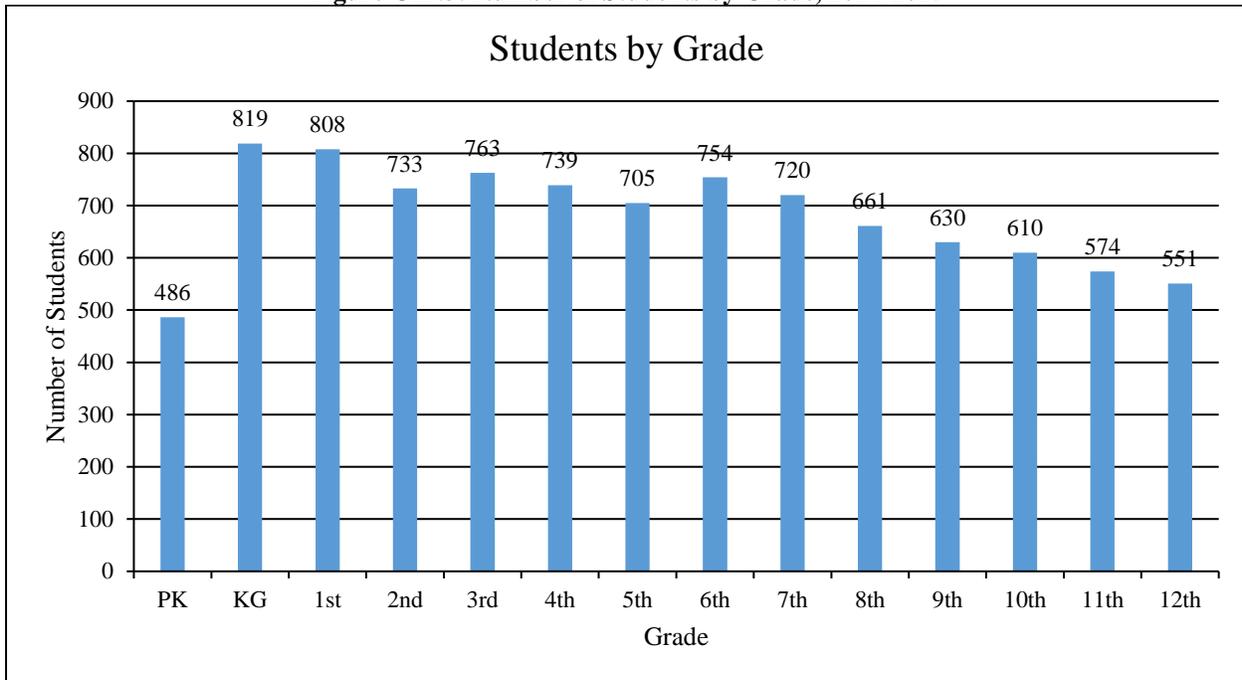


Source: Nebraska Department of Education

Figure GIP.2: Grand Island Public School District



**Figure GIP.3: Number of Students by Grade, 2014-2015**



Source: Nebraska Department of Education

The figure above indicates that the largest number of students are in kindergarten, 1<sup>st</sup>, and 3<sup>rd</sup> grades. The lowest population of students are pre-kindergarten, 11<sup>th</sup>, and 12<sup>th</sup> grades. According to the Nebraska Department of Education, nearly 66 percent of students receive either free or reduced priced meals at school. This is significantly higher than the state average at 44 percent. Additionally, there is nearly 16 percent of students in the English Language Learners Program and nearly 14 percent of students are in the Special Education Program. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

**Table GIP.2: School District Statistics, 2014 - 2015**

	School District	State of Nebraska
Free/Reduced Priced Meals	65.53%	44.17%
School Mobility Rate	16.86%	12.25%
English Language Learners	15.97%	6.20%
Special Education Students	13.57%	14.71%

Source: Nebraska Department of Education

### ***FUTURE DEVELOPMENT TRENDS***

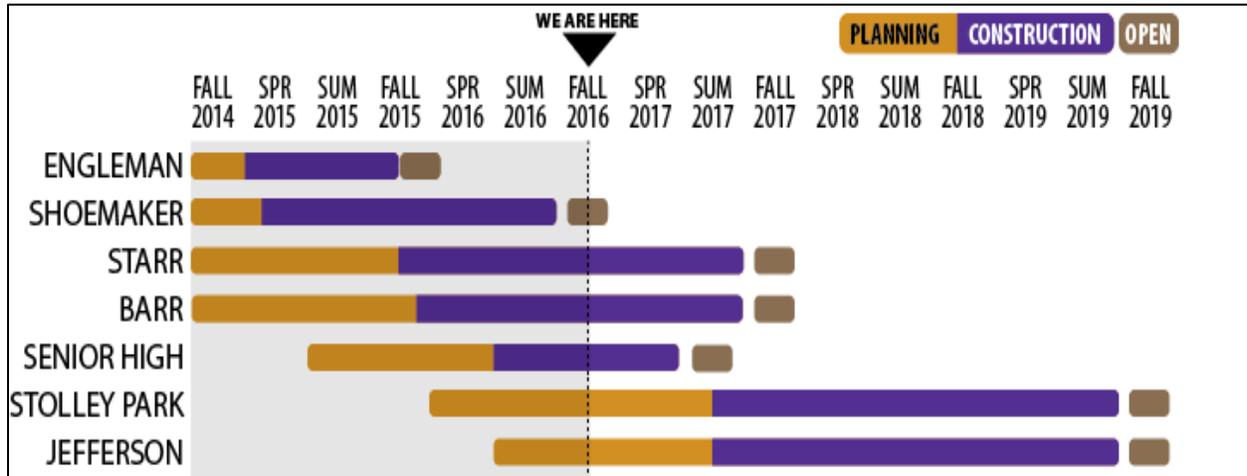
In September 2014, the City of Grand Island voted to approve a \$69.9 million bond issue to complete seven Grand Island Public Schools building projects, all of which are slated to be completed by fall 2019. They include:

- Engleman Elementary expansion
- Shoemaker Elementary expansion and renovation
- Starr Elementary new building at new location
- Jefferson Elementary new building at current location
- Stolley Park Elementary new building at current location
- Barr Middle School expansion and renovation
- Grand Island Senior High renovation of the 100-wing

As of the fall of 2016, the expansion and renovations of Engleman Elementary and Shoemaker Elementary have been completed. Grand Island Senior High, Starr Elementary, and Barr Middle School projects are slated to be completed by the end of 2017. Jefferson Elementary and Stolley Park Elementary will complete construction in the fall of 2019, and both new facilities will include storm shelters large enough to house all students and staff.

Additional renovations at the schools will address security and life safety hazards such as sprinklers, fire alarm upgrades, and ADA compliance.

**Figure GIP.4: School District Construction Timeline**



Source: Grand Island Public Schools Website

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of 37 chemical storage sites that house hazardous materials in Grand Island. Some of these facilities are located near schools.

**Table GID.3: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Agricultural Services Inc	2777 N Broadwell Ave	No
Alter Nebraska Corporation	1119 E 4th St	No
AmeriCold Logistics LLC	204 E Roberts St	No
AT&T Communications 0900	144 W Roberts St	No
Aurora Co-op Elevator Company	4155 E US Highway 30	Yes – 1%
Aurora Co-op Elevator Company	920 N Shady Bend Rd	No
C W Burdick Generating Station	800 Bischeld St	No
CenturyLink	105 N Wheeler Ave	No
Charter Communications	2533 W Old Lincoln Hwy	No
Charter Communications	205 N Webb Rd	No
Chief Industries Inc	1119 S Adams St	No
Christensen Concrete Products	235 W Roberts St	No
Christensen Concrete Products	3990 W US Highway 30	No
CNH America LLC - Miller Bldg	1011 Claude Rd	No
CNH Industrial America LLC	3445 W Stolley Park Rd	No
Coca-Cola Refreshments	1617 Holland Dr	No
Darling Ingredients Inc	5251 W Guenther Rd	Yes – 1%

Facility	Address	In Floodplain?
Diamond Truck Wash	6499 S US Highway 281	No
Gerhold Concrete Co	1431 S Webb Rd	No
GIUD Burdick Reservoir	S Stuhr Rd	No
GIUD Rogers Reservoir	3990 W Old Potash Hwy	No
Grand Island Potable Water	2700 Wellfield Rd	No
Grand Island Water Department	364 N Pine St	No
Lineage Logistics LLC	205 E Roberts St	No
McCain Foods USA Inc	2629 N Broadwell Ave	No
Optimas OE Solutions	3319 Island Cir	No
Overhead Door Co	2514 E US Highway 30	No
Platte Generating Station	1035 W Wildwood Dr	No
Platte Valley Energetics LLC	8318 W Old Potash Hwy	No
Sprint Grand Island POP	333 N Pine St	No
Standard Iron Inc	4160 Gold Core Rd	No
Swift Beef Company	555 S Stuhr Rd	No
The Home Depot Store 3208	911 Allen Dr	No
VA Nebraska - Western Iowa HCS	2201 N Broadwell Ave	No
Verizon Wireless MTSO	3650 W 13th St	No
Verizon Wireless Newfair	1203 S Stuhr Rd	Yes – 1%
Windstream Communications	3650 W 13th St	No

Source: Nebraska Department of Environmental Quality

**CRITICAL FACILITIES**

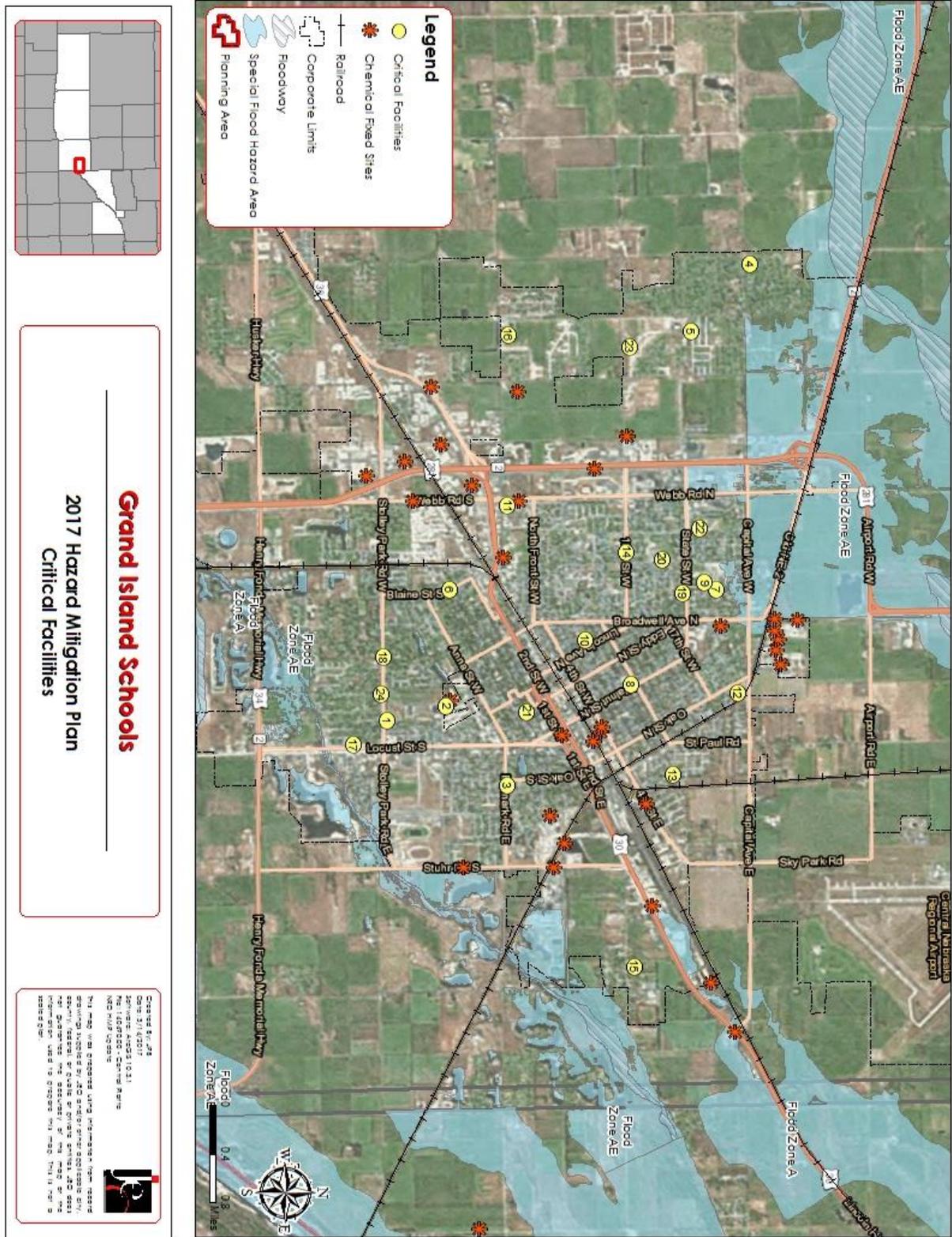
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Jefferson and Stolley Park Elementary Schools will be building new facilities to include storm shelters. These facilities are slated to be completed in 2019.

**Table GIP.4: List of Critical Facilities**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Storm Shelter Rooms (Y/N)	Located in 1% Floodplain (Y/N)
1	Barr Middle School	602 W. Stolley Park Rd	Y	N	Y	N
2	Career Pathways Institute	1215 Adams St	N	N	N	N
3	Dodge Elementary School	641 S. Oak St	Y	N	N	N
4	Early Learning Center	4360 W. Capital Ave	N	N	N	N
5	Engelman Elementary School	1812 Mansfield Rd	N	N	Y	N
6	Gates Elementary School	2700 W. Louise St	Y	Y	N	N
7	Grand Island Senior High School	2124 N. Lafayette Ave	Y	N	N	N
8	Howard Elementary School	502 W. 9th St	Y	N	N	N
9	Indra House	2131 N. Lafayette St	N	N	N	N
10	Jefferson Elementary School	1314 W. 7th St	Y	N	N/Y (2019)	N
11	Kneale Administration Buidling	123 S. Webb Rd	Y	Y	N	N
12	Knickrehm Elementary School	2013 N. Oak St	Y	N	N	N
13	Lincoln Elementary School	805 Beal St	Y	N	N	N
14	Newell Elementary School	2700 W. 13th st	Y	Y	N	N
15	Seedling Mile Elementary School	3208 E. Seedling Mile Rd	Y	Y	N	N
16	Shoemaker Elementary School	4160 W. Old Potash Hwy	Y	N	Y	N
17	Starr Elementary School	315 Wyandotte St	Y	Y	N	N
18	Stolley Park Elementary School	1700 W. Stolley Park Rd	Y	N	N/Y (2019)	N
19	Success Academy	1912 N. Lafayette Ave	N	N	N	N
20	Walnut Middle School	1600 N. Custer Ave	Y	Y	N	N
21	Wasmer Elementary School	318 S. Clark St	Y	N	N	N
22	West Lawn Elementary School	3022 College St	Y	N	N	N
23	Westridge Middle School	4111 W. 13th St	Y	N	N	N
24	New Starr Elementary (Under Construction)	Adams & Stolley Streets	Unknown	Y	Y	N

Figure GIP.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



### ***SCHOOL DRILLS AND STAFF TRAINING***

The School District is required by law to conduct a number of drills throughout the year. Students and staff participate in monthly fire drills, tornado drills twice per year, lockdown drills at least twice per year, and lockout drill annually. The school's Crisis Team meets as needed following a crisis situation and reviews and updates the Emergency Response Manual. Each school building has a dedicated Emergency Response Team, and they meet twice per year. Principals for each school identify staff to receive First Aid and CPR training. Furthermore, staff are trained annually through safety videos.

Parents and students are made aware of the District's procedures through letters, handouts, and in the student handbook. The District can also quickly notify parents of a situation by utilizing an automated calling system. Texts and emails are also sent out, and social media is utilized as well.

### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Hall County.

### ***SCHOOL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides specific information, reported by the local planning team. Only hazards either identified as a concern to the District by the local planning team, or based on the occurrence and risk of the hazard to the District are discussed in detail below.

#### **Chemical Spills (Transportation)**

Union Pacific Railroad, BNSF Railroad, and U.S. Highways 30 and 281 travel through the community and occasionally hazardous chemicals are transported along these routes. There have been no reports of spills impacting the schools, however, and the School District is prepared in the event of a hazardous chemical spill. Written protocols indicate that schools are to shelter-in-place in the event of a spill. Each classroom has a red backpack that contains a folder with instructions for various situations and includes supplies that may be needed such as duct tape to seal windows and doors in the event of a spill. Mitigation actions include improving warning systems and promoting first aid.

#### **Severe Thunderstorms**

The NCEI reported 33 thunderstorm wind events since 1996 in the Grand Island area. The School District reports that in 2014, a severe thunderstorm with large hail heavily damaged school roofs and skylights, which cost \$3 million to repair at nine schools. On May 30, 2011, high winds from a severe thunderstorm were measured at 80 mph, which damaged a storage shed and caused heavy tree damage at most of the school campuses. Lightning has also damaged their fire alarm, communication, and camera systems. The local planning team reports that high winds associated with severe thunderstorms will cause brief power outages about two to three times a year. The northern part of the District is more susceptible to power outages. The School District does trim trees on an annual basis, and weather radios are available in every building. Mitigation projects include using hail resistant roofing materials and installing backup power generators.

#### **Severe Winter Storms**

Severe winter storms with heavy snow, ice, and high winds are a regular part of the climate and have led to school closures in the past. In 2006, an ice storm over the Christmas break caused widespread tree and power line damage. Then in 2009, again over the Christmas break, a significant snow storm dumped a foot of snow of the area, and power was lost at some of the schools. Coupled with high winds, the storm produced white-out conditions and forced the closures of roads across the region. The School District has some staff and equipment available to clear snow, but much of the snow removal resources are contracted

out. Tree trimming and removal of trees is also contracted out. To address power outages, the District has included backup power generators as a mitigation project.

**Terrorism**

Grand Island Public Schools has had to deal with students making general threats on social media, which force schools into a lockdown. In May 2016, a potential shooting threat was made on a social media app, and parents notified police of the threat. The Grand Island Police Department posted extra officers at Barr Middle School. In cooperation with the developers of the app, a student was charged with disturbing the peace. Graffiti and vandalism hit its peak around 2005, however, the District has noticed a decrease in this crime once School Resource Officers were added to the schools. The District works closely with the City’s Police Department in communicating potential threats, and additional precautions have also included the use of security systems, annual lockdown drills, and staff trainings.

**Tornadoes**

Grand Island has a long history of tornadoes impacting the community. The most infamous tornado outbreak occurred on June 3, 1980, when seven tornadoes touched down in or near the community over the span of nearly three hours. In the end, five people were killed and 200 were injured. Starr Elementary School sustained major damage and was rebuilt. The tornadoes also damaged some mechanical equipment at some of the schools and lifted off a section of the High School’s roof. The District has identified several projects to help mitigate the effects of tornadoes, including: installing backup power generators; constructing safe rooms; improving warning systems; promoting first aid; and developing a school continuity plan.

**ADMINISTRATION/CAPABILITY ASSESSMENT**

The school district has a superintendent, an associate superintendent, and 18 principals. The School Board is made up of a nine-member panel. The district also has additional departments and staff that may be available to implement hazard mitigation initiatives. They include:

- Chief Academic Officer
- Chief Leadership and Development Officer
- Chief of Innovation and Engagement
- Chief Financial Officer
- Executive Director of Information Technology
- Safety & Crisis Management
- Director of Buildings and Grounds
- Director of Special Education
- Director of Federal Programs

**Table GIP.5: Overall Jurisdictional Capability**

<b>Overall Capability</b>	<b>Limited/Moderate/High</b>
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	High
Is there community support to implement projects?	High
Does the community staff have time to devote to hazard mitigation?	High

**PLAN INTEGRATION**

Grand Island Public Schools maintain, update, and review annually their Emergency Response Manual. The manual is a plan that outlines the resources, roles, responsibilities, and procedures for response to hazards and emergencies with the goal to protect lives and property. The plan is broken down by seven sections and a sample of the sections include:

- Building Emergency Preparedness
- Emergency Preparedness for Special Needs Children
- Natural and Accidental Disasters
- Imminent Danger Preparedness: Bomb Threats/Shelter-In-Place/Evacuate
- External Threat/Lockout; Imminent Danger in the Building/Lockdown
- Hazardous Material Incidents

No other examples of plan integration were identified, and there are currently no plans to further integrate planning mechanisms.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All hazards
Estimated Cost	\$3,500+ depending on site requirements
Funding	General Funds
Status	New.
Timeline	2-5 years
Priority	Medium
Lead Agency	Buildings and Grounds

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	All Hazards
Estimated Cost	\$200-\$250/sf
Funding	General Funds or Bond
Status	New.
Timeline	2-5 years
Priority	Medium
Lead Agency	Buildings and Grounds

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$50 per unit
Funding	General Funds
Status	New.
Timeline	5+ years
Priority	Medium
Lead Agency	Buildings and Grounds

<b>School Continuity Plan</b>	
Description	Develop continuity plans for critical services to increase resilience after a hazardous event
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+ staff time
Funding	General Funds
Status	New.
Timeline	2-5 years
Priority	Medium
Lead Agency	Buildings and Grounds

<b>Hail Resistant Roofing</b>	
Description	Use roofing materials that are resistant to hail impacts for new buildings; retrofit existing buildings with hail resistant roofing; encourage the use of hail resistant roofing for any new constructions
Hazard(s) Addressed	Hail, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	\$2.50 per square foot
Funding	General Funds
Status	New.
Timeline	2-5 years
Priority	Medium
Lead Agency	Buildings and Grounds

<b>Promote First Aid</b>	
Description	Promote first aid training for all residents or staff
Hazard(s) Addressed	All Hazards
Estimated Cost	\$100 per person
Funding	General Funds
Status	New.
Timeline	5+ years
Priority	High
Lead Agency	All Departments

PARTICIPANT SECTION  
FOR THE  
CITY OF WOOD RIVER

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

March 2017

**LOCAL PLANNING TEAM**

Table WDR.1 provides the list of participating members that comprised the City of Wood River local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table WDR.1: City of Wood River Local Planning Team**

Name	Title	Department / Organization
Greg Cramer	Mayor	City of Wood River
Vince Boudreau	City Council Member	City of Wood River

**LOCATION AND GEOGRAPHY**

The City of Wood River is located in the western portion of Hall County and covers an area of 0.79 square miles. The major waterway in the area is the Wood River.

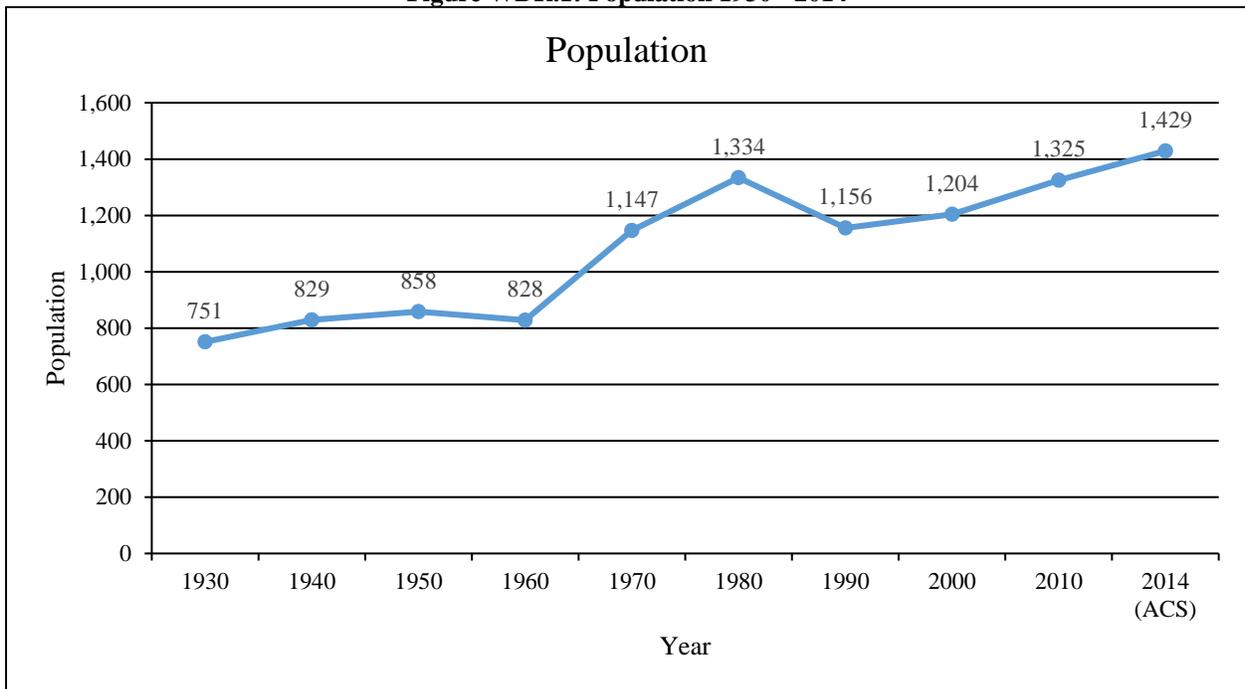
**TRANSPORTATION**

Wood River’s major transportation corridors include Highways 11 and 30. Highway 11 travels north through the center of the City and experiences an average of 1,415 vehicles per day with 130 of those categorized at heavy commercial vehicles. Highway 30 travels northeast to southwest through the City and has an average of 4,640 vehicles per day with 405 of those categorized as heavy commercial vehicles. Wood River has one Union Pacific rail line that travels south of the City from the southwest to northeast along Highway 30.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Wood River has been increasing since 1990.

**Figure WDR.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure WDR.2: Map of the City of Wood River



**kb**  
 Created By: JF  
 Date: 11/1/2016  
 Software: ArcGIS 10.3  
 File: 1404000 - Coring Plans  
 Mxd File Update  
 This map was prepared using information from public drawings located by AEC and/or other accessible city, county, federal or state or private entities. AEC does not guarantee the accuracy of the map or the information used to create this map. This is not a warranty.

**Wood River, Nebraska**  
 Central Platte Natural Resources District  
 2017 Hazard Mitigation Plan

**Legend**  
 Corporate Limits  
 Planning Area  
 County  
 River

The following table indicates the City has a slightly higher percentage of the population under the age of 5 but a lower percentage of the population between 5 and 64 years of age when compared to the County and the state. Additionally, the City has a higher percentage of its population over the age of 64 but a lower median age when compared to the County and the state.

**Table WDR.2: Population by Age**

Age	Wood River	Hall County	State of Nebraska
<5	8.2%	8.1%	7.2%
5-64	73.1%	78.5%	79.2%
>64	18.6%	13.4%	13.6%
Median	34.9	35.9	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Wood River’s median household income, median home value, median rent value and per capita income are lower than the County’s.

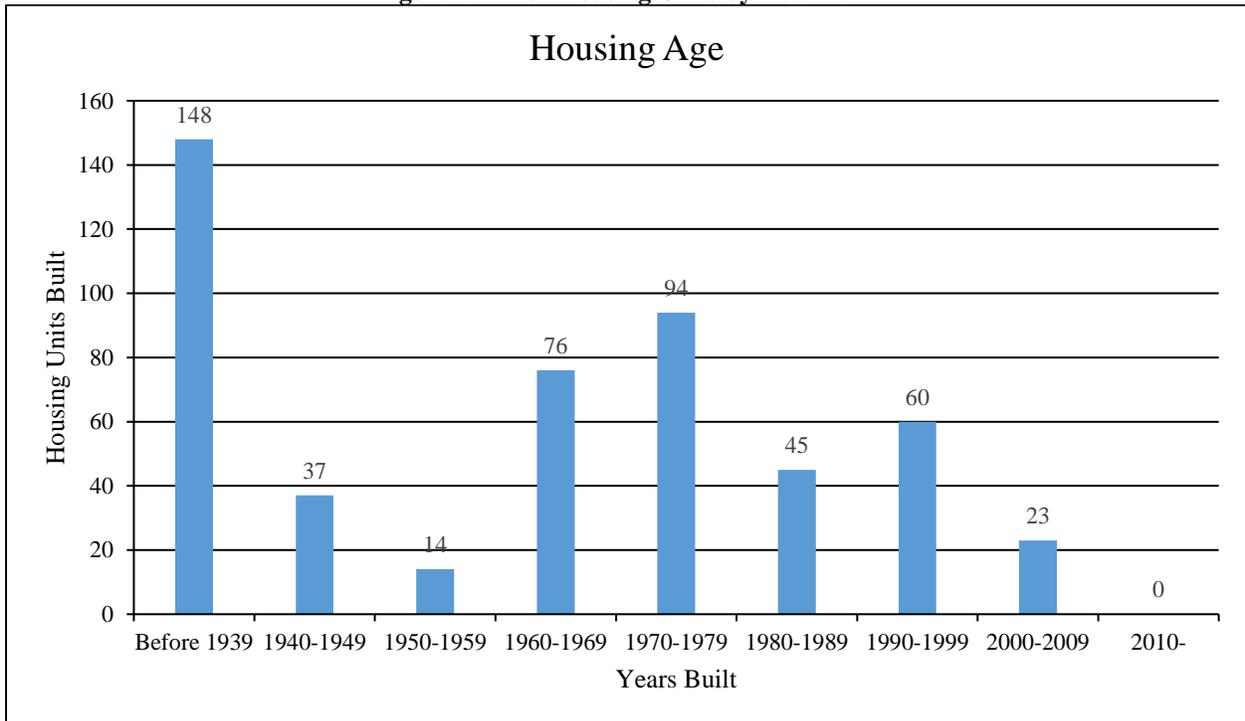
**Table WDR.3: Housing and Income**

	Wood River	Hall County	State of Nebraska
Median Household Income	\$54,338	\$61,677	\$52,400
Per Capita Income	\$20,673	\$24,075	\$27,339
Median Home Value	\$96,000	\$118,300	\$130,100
Median Rent	\$599	\$656	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 369 housing units with 93.2 percent of those units occupied. There are approximately 77 mobile homes in the community, and many of them are located in two of the community’s mobile home parks. The initial Flood Insurance Rate Map (FIRM) was developed in December 1978.

**Figure WDR.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table WDR.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Wood River	463	93.2%	34	6.8%	362	78.2%	101	21.8%
Hall County	22,418	94.1%	1,418	5.9%	14,326	63.9%	8,092	36.1%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

A major employer for the community is public school system. Many of the community’s residents commute to neighboring cities including Grand Island, Kearney, and Hastings.

**FUTURE DEVELOPMENT TRENDS**

Over the next five years, a new housing development is anticipated on the north side of the City. Additionally, the City is working to extend water service lines southeast side of the community and there are plans to resurface Pine Street. A new community pool will also be built. Two new businesses are expected to open in the coming years, and they include Dollar General Store, opening in fall of 2016, and Subway Sandwiches.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table WDR.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
657	\$75,409,641	\$114,779	0	\$0

Source: Hall County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

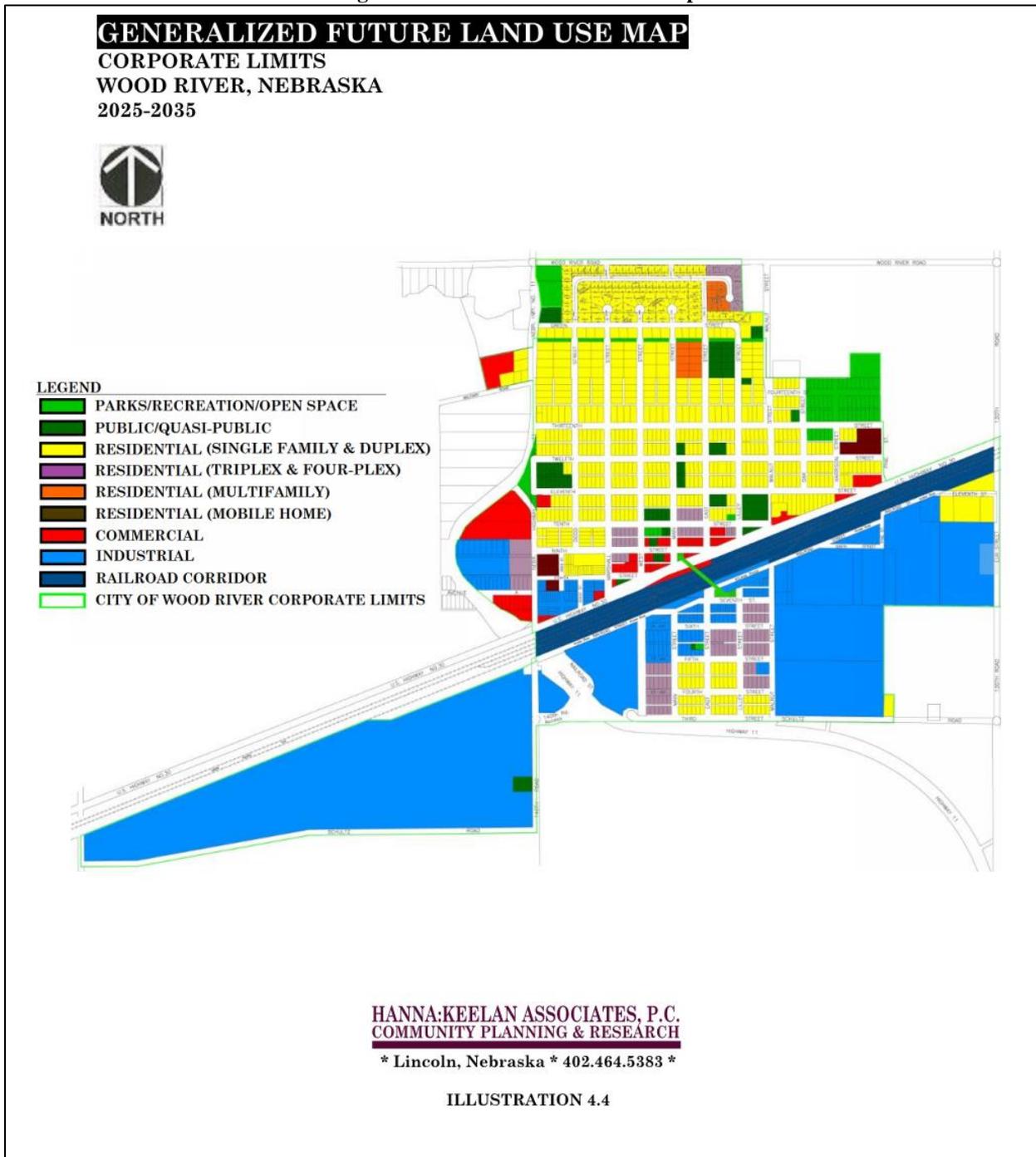
According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of four chemical storage sites that house hazardous materials in Wood River. One of the chemical storage sites is located in the 0.2 percent floodplain (Figure WDR.5).

**Table WDR.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Aurora Co-op Elevator Company	6236 S Schauppsville Rd	Yes – 0.2%
Agricultural Services Inc	106 W Railroad St	No
Cooperative Producers Inc	15123 W Wood River Rd	No
Green Plains Wood River LLC	7874 S 140th Rd	No

Source: Nebraska Department of Environmental Quality

Figure WDR.4: Future Land Use Map



**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, Wood River has one historic site.

**Table WDR.7: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Gloe Brothers Service Station	7/5/2000	No

Source: Nebraska State Historical Society, 2016

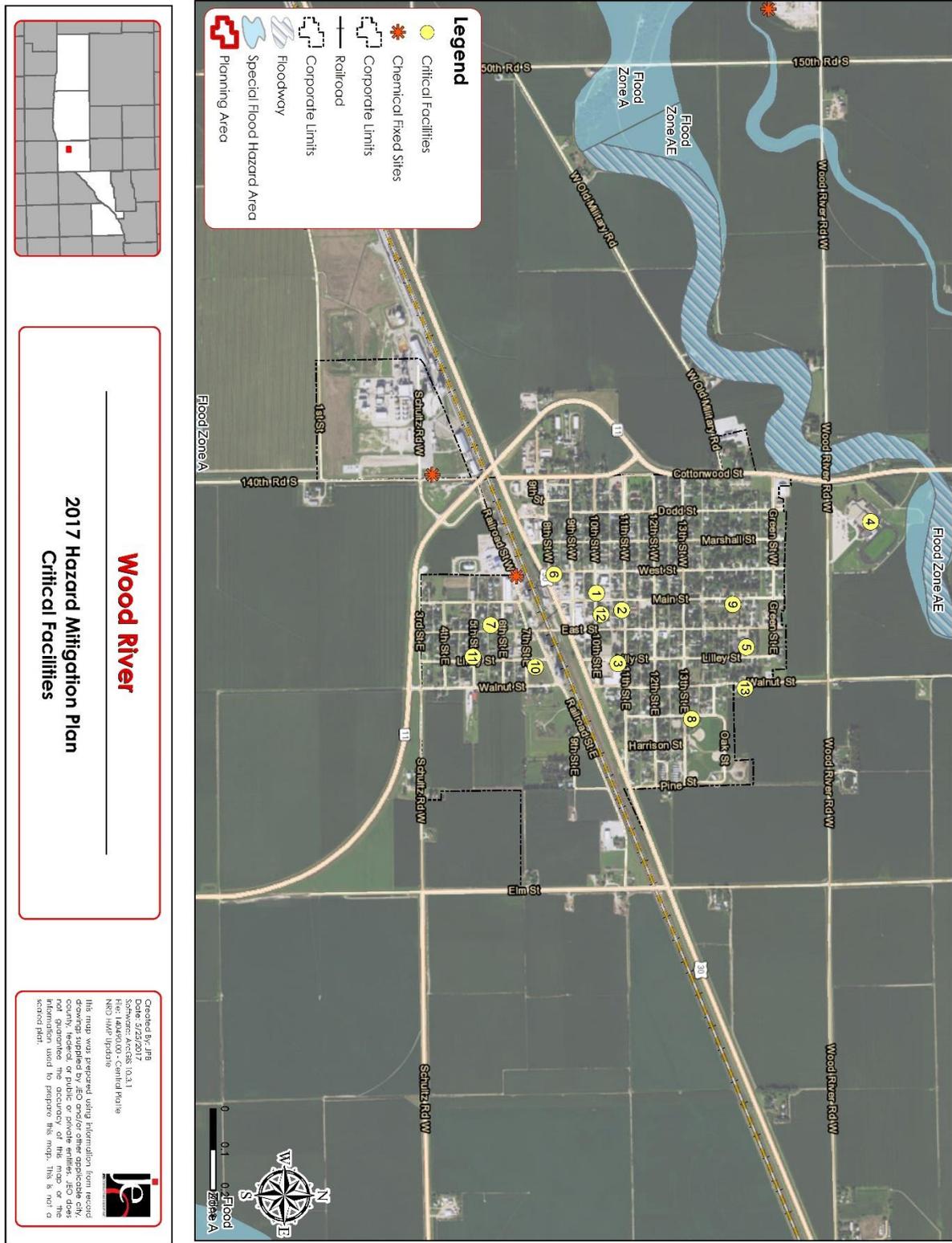
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table WDR.8: List of Critical Facilities in Wood River**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	City Hall/Fire Hall	1002 Main St.	N	Y	N
2	Police Department	111 Wood River Ave	N	Y	N
3	Wood River Elementary School	1003 Lilly St.	Y	N	N
4	Wood River Rural High School	13800 W. Wood River Ave	Y	N	N
5	Good Samaritan Center	1401 East St	N	Y	N
6	Water Tower (old)	712 West St	N	N	N
7	Water Tower (new)	5 <sup>th</sup> & East Street	N	N	N
8	Well	13 <sup>th</sup> & Oak	N	N	N
9	Well	1400 East St	N	N	N
10	Well	Lilley St.	N	Y	N
11	Wood River Public Works So. Quancet	5 <sup>th</sup> & East St	N	Y	N
12	Wood River Blue 4H Bldg.	14 <sup>th</sup> & Pine St	N	Y	N
13	Wastewater Treatment Plant		N	Y	N

Figure WDR.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Hall County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spills (Transportation)**

There are two chemical spills along transportation routes near Wood River recorded by PHMSA. The first was a hydrogen peroxide leak in a defective transport container in 1984. The second spill occurred in January of 2003, when blizzard conditions cause a tanker carrying liquid helium to crash. Neither of these was a significant release event. Ethanol, ammonia and other unknown chemicals are frequently transported by Hwy 30 and the railroad. These transportation corridors are within a half-mile of the Community Center, City Hall, Fire Hall, and elementary school. The community has an adequate warning system. Chemical spill mitigation projects involve participating in a hazardous chemical spill emergency exercise and educating the public on chemical spill hazards and response.

**Flooding**

The flood risk areas of concern for the City of Wood River are located north of Highway 30 and impacts almost all the northern portion of the City.

Wood River has two NFIP policies in-force for \$383,000. There are no repetitive flood loss properties in the City of Wood River. The following table is parcel improvement information as provided by the County Assessor. It indicates none of the parcel improvements in Wood River are located in the 1 percent floodplain.

**Table WDR.9: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$0	0	657	0%

Source: Hall County Assessor

The most significant flooding event in recent history in Wood River occurred in May of 2005. Over 11-inches of rain fell in four hours. Wood River flooded to 9-feet in town, filling the streets with water up to 5-feet deep. Almost every structure in Wood River sustained some damage, including the school and Community Center. Twelve homes sustained severe damage. The Fire Hall was one of the only structures to stay dry. During this event, there were widespread power outages in the area. Hall County was declared a Federal Disaster Area. An overpass was built after this event that has staved off much of the possible flooding since. Wood River has Mutual Aid Agreements with the Hall County Rural Fire Department, Grand Island, Carol, and Doniphan. Future flooding mitigation actions include educating the public on flood hazards and mitigation actions.

**Hail**

Wood River’s local planning team is concerned about property damage, phone service, power outages, injuries, and crop damage related to hail. The most severe hailstorm recorded by the NCEI occurred in June of 2006 when 1.75-inch hail damage property, trees, and crops throughout the area. Property damage from this event totaled \$200,000. Wood River has recently improved the severe weather notification systems in

their critical facilities to mitigate some of the risk associated with hail. They also plan to educate the public on the hazards and response to hailstorms.

### **Tornadoes and High Winds**

Concerns around tornadoes and high winds in Wood River are property damage, communication tower damage, power loss, injuries, and an interruption in natural gas distribution. A high wind event in May of 2012 caused \$350,000 in property damage from fallen trees and power poles. This storm tripped the main breakers at the substation, causing power to be lost until noon the next day. The Fire Hall also suffered some damage during this event. An EF0 tornado hit the south side of Wood River in May of 2005. This tornado caused damage to a house, trees, and overturned an empty rail car. City Hall, the Fire Hall, residential home, and wells all have backup generators. Critical municipal records are backed up on an external hard drive. The Fire Hall and City Hall have weather radios. Wood River plans to mitigate the hazards associated with tornadoes and high winds by providing adequate safe rooms to the community, educating the public on tornado and high wind hazards, and implementing a tree inventory and maintenance program.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Wood River is governed by a Mayor and a five member City Council. Furthermore, Wood River has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Volunteer Fire Department
- Police Department
- Parks & Recreation
- Housing Authority
- Economic Development

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table WDR.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table WDR.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Wood River Comprehensive Plan, last updated in 2015, contains some goals and objectives consistent with hazard mitigation. The plan directs development away from the floodplain and from major transportation routes. It also encourages infill development, preservation of open space in hazard-prone areas, and allows for emergency access to all areas of town. With the plan having been updated recently, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The City’s Zoning Ordinance were also recently updated in 2015. The Ordinance discourages development in the floodplain, identifies floodplain areas as parks of open space, and requires at least more than one-foot of elevation above base flood elevation in the floodplain. It also prohibits development within the floodways, encourages maintaining open space within the floodplain, and accounts for current population trends.

Wood River has an annex to the Hall County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

### ***MITIGATION STRATEGY***

#### **Completed Mitigation Actions**

<b>Ensure Adequate Severe Weather Notifications to Critical Facilities</b>	
Description	For public critical facilities, the City should consider purchasing a weather radio to be used in each facility for the rapid dissemination of a severe weather warning: if the City has noisy manufacturing facilities which may not hear tornado sirens, the City could inform the owners of these facilities of the option that they could purchase a weather radio
Hazard(s) Addressed	All Hazards
Cost	\$30 per radio
Location	Good Samaritan, Fire Hall, Churches
Funding	Local funds
Status	Completed.

**Ongoing and New Mitigation Actions**

<b>Ensure Adequate Water Supply for Health and Safety</b>	
Description	Work with the Nebraska Department of Health and Human Services to secure revolving loan funding for supplementing Wood River’s water supply with an additional source; determine a method to have citizens from Wood River voluntarily reduce demand for water during times of drought: this may involve instituting a moratorium on unnecessary water usage and implementing a fine/penalty system for those found in violation
Hazard(s) Addressed	Drought
Estimated Cost	Unknown
Funding	Taxes, Service Fees, State Hwy Enterprise Funds
Status	In progress.
Timeline	5+ years
Priority	Medium
Lead Agency	Utilities

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$150/sf for retrofit, \$300/sf for new construction
Funding	Property tax fund and service fees
Status	Early planning stage.
Timeline	2-5 years
Priority	High
Lead Agency	Fire Department and City Council

<b>Reduce Tree Damage and Damage from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	Unknown
Funding	Cost-share program with Homeowners
Status	In progress.
Timeline	5+ years
Priority	Medium
Lead Agency	Parks and Utilities

<b>Emergency Exercise: Hazardous Spill</b>	
Description	Utilize exercise to prepare for potential explosions or hazardous spills; ensure that nearby businesses and residents have appropriate plans in place
Hazard(s) Addressed	Chemical Transportation
Estimated Cost	\$5,000+
Funding	General Fund, EMPG
Status	Not yet started.
Timeline	1 year
Priority	High
Lead Agency	Village Board, Emergency Management

	<b>Community Education and Awareness</b>
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	Staff Time
Funding	Staff Time
Status	In progress.
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; additional floodplain mapping/remapping
Reason for Removal	City will continue to participate in program, however, this is no longer considered a hazard mitigation action.

AUGUST 2017

**MERRICK COUNTY APPENDIX**  
CENTRAL PLATTE NRD MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN



THIS PAGE IS INTENTIONALLY BLANK

**CONTENTS**

**PLAN OVERVIEW .....1**  
**MERRICK COUNTY .....3**  
**CITY OF CENTRAL CITY .....21**  
**VILLAGE OF CHAPMAN.....37**  
**VILLAGE OF CLARKS.....53**  
**VILLAGE OF PALMER .....65**  
**VILLAGE OF SILVER CREEK.....81**

THIS PAGE IS INTENTIONALLY BLANK



## ***PLAN OVERVIEW***

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, in order to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind the update of this hazard mitigation plan is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives which helped guide the process of identifying both broad-based and community-specific mitigation strategies and projects that will, if implemented, reduce their vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (One for each of the five participating counties plus one for the Central Platte NRD and one for communities participating outside of the five participating counties)
- An appendix of procedural documentation and resolutions of adoption

This participant appendix includes all participating jurisdictions from Merrick County, which includes jurisdictional specific information for each participant. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION  
FOR  
MERRICK COUNTY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### **LOCAL PLANNING TEAM**

Table MRK.1 provides the list of participating members that comprised the Merrick County local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the County.

**Table MRK.1: Merrick County Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Jurisdiction/Department</b>
Tom Smith	Region 44 Emergency Manager Merrick County	Merrick County
Russell Kreachbaum	County Supervisor	Merrick County
Mike Meyer	Highway Superintendent/Surveyor	Merrick County
Jen Myers	Zoning Administrator	Merrick County

### **LOCATION AND GEOGRAPHY**

Merrick County is located in east central Nebraska and is bordered by Nance, Polk, Platte, Hamilton, Hall, and Howard counties. The total area of Merrick County is 494 square miles. Major waterways within the County include the Platte River, Prairie Creek, Silver Creek, Moores Creek, and Warm Slough. Most of Merrick County lies in the valleys and plains topographic region with some Sandhill topographic features. The vast majority of the County’s land is characterized by agricultural fields.

### **CLIMATE**

For Merrick County, the normal high temperature for the month of July is 87.1°F. The normal low temperature for the month of January is 16.2°F. On average, Merrick County receives 28.8 inches of rain and 27.3 inches of snowfall per year. The following table compares these climate indicators with those of the entire state. Climate data are helpful in determining if certain events are more or less likely to occur in specific geographic locations.

**Table MRK.2: Climate Data for Merrick County**

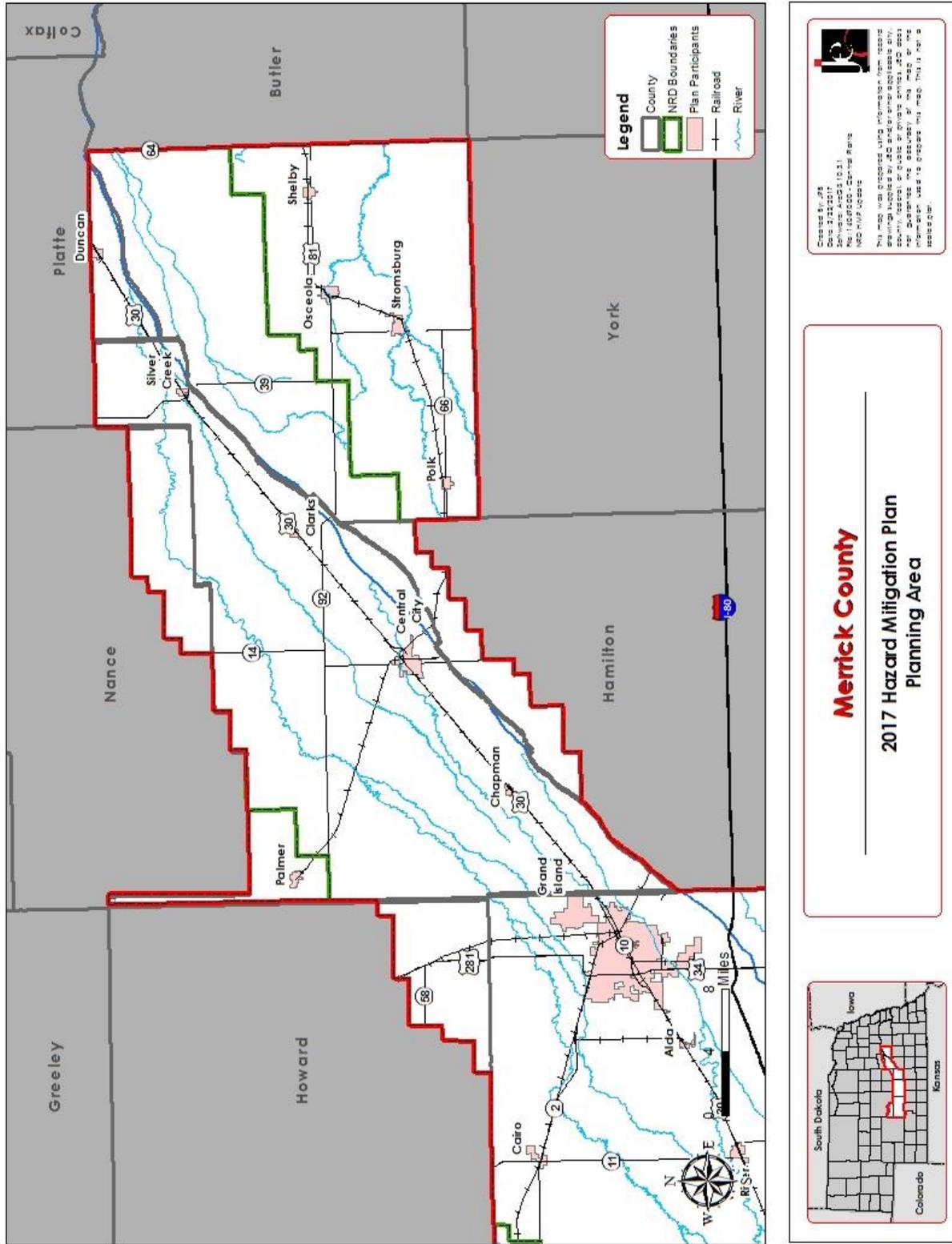
<b>Age</b>	<b>Merrick County</b>	<b>Planning Area</b>	<b>State of Nebraska</b>
July Normal High Temp	87.1°F	87.0°F	88.0°F
January Normal Low Temp	16.2°F	14.2°F	12.0°F
Annual Normal Precipitation	28.8 inches	26.65 inches	23.89 inches
Annual Normal Snowfall	27.3 inches	26.2 inches	25.9 inches

Source: NCEI Climate Data Online, 1981-2010 Climate Normals  
 \*Precipitation includes all rain and melted snow and ice.

### **TRANSPORTATION**

Merrick County’s major transportation corridors include U.S. Highway 30 and Nebraska Highways 14, 39, and 92. There are three rail lines that cross through the County, a Nebraska Central Railway Company, a Union Pacific, and a Burlington Northern line. There is one airport in the County located near Central City, the Central City Municipal Airport.

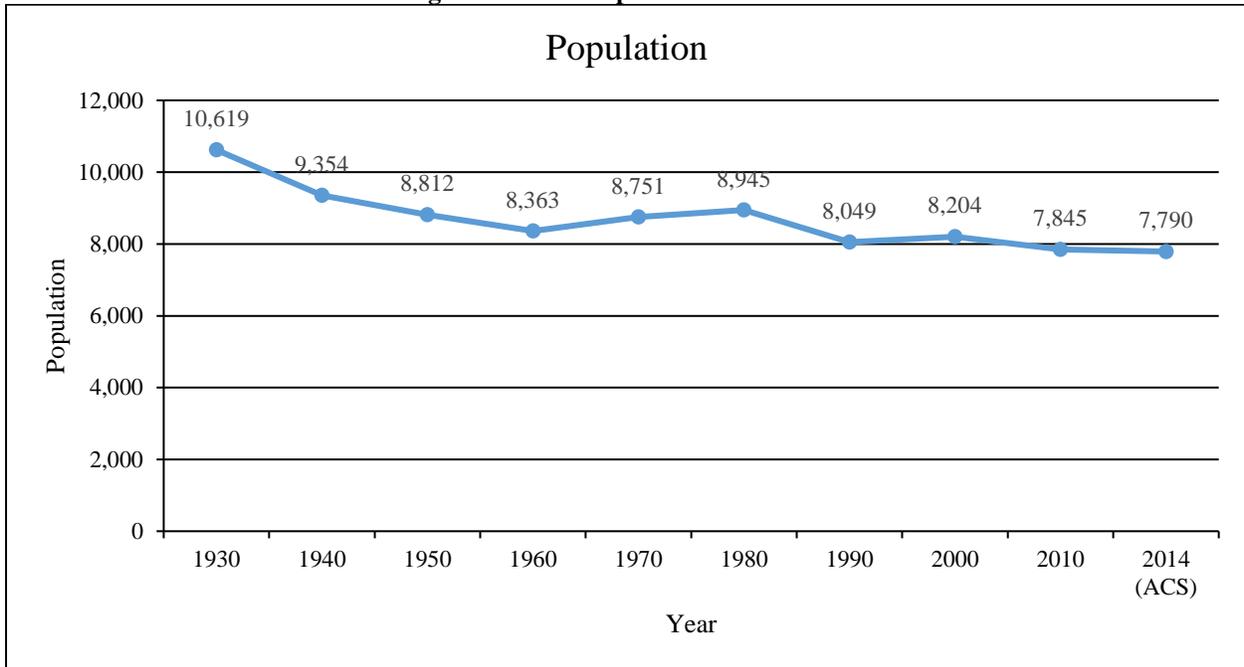
Figure MRK.1: Merrick County Map



**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Merrick County has been decreasing since 1930.

**Figure MRK.2: Population 1930 – 2014**



Source: U.S. Census Bureau

The following table indicates the State of Nebraska has a higher percentage of people under the age of 5 and a lower percentage of people between 5 and 64 than Merrick County. Merrick County has a higher percentage of people over the age of 64 than the County, as well as a higher median population than the County.

**Table MRK.3: Population by Age**

Age	Merrick County	State of Nebraska
<5	6.0%	7.2%
5-64	75.9%	79.2%
>64	18.0%	13.6%
Median	43.1	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that median household income is higher in Merrick County than the state. Per capita income, median home value, and rent costs are lower as compared to the state. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the state as a whole.

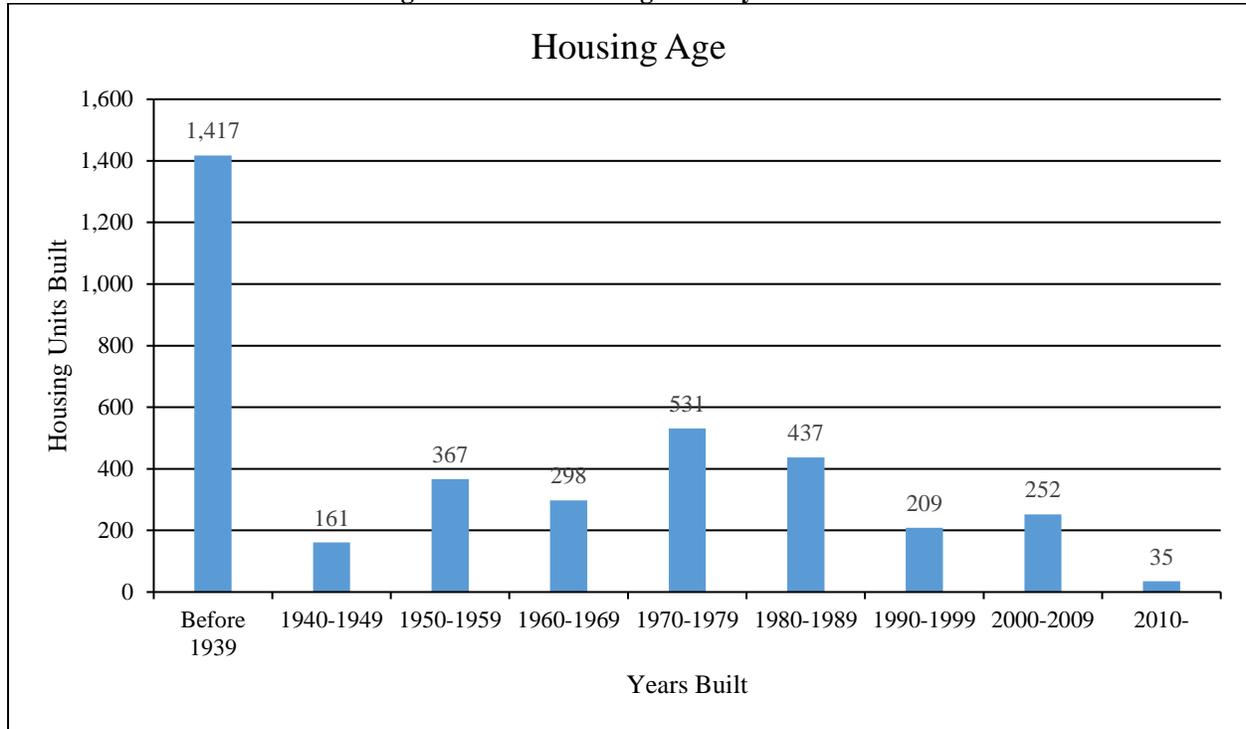
**Table MRK.4: Housing and Income**

	Merrick County	State of Nebraska
Median Household Income	\$62,610	\$52,400
Per Capita Income	\$25,403	\$27,339
Median Home Value	\$83,900	\$130,100
Median Rent	\$550	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the County has 3,707 housing units with 89.9 percent of those units occupied. There are approximately 369 mobile homes in the County. The initial Flood Insurance Rate Map (FIRM) was developed in December 1992.

Figure MRK.3: Housing Units by Year Built



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

Table MRK.5: Housing Units

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Merrick County	3,331	89.9%	376	10.1%	2,424	72.8%	907	27.2%
Nebraska	731,347	90.8%	73,909	9.2%	486,036	66.5%	245,311	33.5%

Source: Selected Housing Characteristics: 2010 - 2014 ACS 5-year estimate

**MAJOR EMPLOYERS**

According to 2014 Business Patterns Census Data, Merrick County had 240 business establishments. The following table presents the number of establishments, number of paid employees, and the annual pay role in thousands of dollars. This information is relevant to hazard mitigation insofar as it indicates the diversification of industry. Communities which have a diverse economic makeup may be more resilient following a hazardous event, especially if certain industries are more impacted than others.

Table MRK.6: Business in Merrick County

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
<b>Total for all Sectors</b>	240	1,630	\$63,243

Source: U.S. Census 2014, Table CB1400A11

Agriculture is also important to the economic fabric of Merrick County, and the state of Nebraska as a whole. Merrick County’s 492 farms cover 235,072 acres of land. Crop and livestock production are the

visible parts of the agricultural economy, but many related businesses contribute as well. Related business contributions include producing, processing and marketing farm and food products. These businesses generate income, employment and economic activity throughout the region.

**Table MRK.7: Merrick County Agricultural Inventory**

Merrick County Agricultural Inventory	
Number of Farms	492
Land in Farms	235,072 acres

Source: USDA 2012 Census of Agriculture

***FUTURE DEVELOPMENT TRENDS***

In the past five years, subdivisions were built along the Platte River and small lakes near the Platte River. About 10-15 homes are built each year. These homes were built in the floodplain. Additionally, road projects in 2014 included a widening of the road near Gavilon Grain Clarks and a bridge with a box culvert at 26<sup>th</sup> Road and North of X Road.

For the next five years, there are no additional housing developments planned, but three new poultry facilities are anticipated near Archer, NE in rural Merrick County.

***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table MRK.8: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
6,415	\$262,749,262	\$40,959	2,975	\$116,478,648

Source: GIS Workshop/Merrick County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are 13 chemical storage sites in Merrick County that house hazardous materials. Of these, six of them are located in either the 1 or 0.2 percent floodplain (Figure MRK.4).

**Table MRK.9: Chemical Storage Fixed Sites**

Facility	Address	City	In Floodplain?
Agricultural Services Inc	2132 Archer Rd	Archer	Yes – 1%
Aurora Co-op Elevator Company	1313 13th Ave	Central City	Yes – 0.2%
Aurora Co-op Elevator Company	1561 13th Rd	Central City	Yes – 1%
CenturyLink	1707 16th Ave	Central City	Yes – 0.2%
Green Plains Central City LLC	214 20th St	Central City	Yes – 0.2%
Aurora Co-op Elevator Company	2341 23rd Rd	Clarks	No
Central Valley Ag	2947 26th Rd	Clarks	No
Dinsdale Brothers	901 Zurich St	Palmer	No
Frontier Co-op Company	3221 35th Rd	Silver Creek	Yes – 1%
Frontier Co-op Company	308 Highway 30	Silver Creek	No
CenturyLink	306 Vine St	Silver Creek	No
Frontier Co-op Company	810 Highway 30	Silver Creek	No
WAPA	379 2 <sup>nd</sup> Rd	Grand Island (rural)	No

Source: Nebraska Department of Environmental Quality, 2016

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are two historic sites located in rural Merrick County. Urban sites for Merrick County can be found in their respective participant sections.

**Table MRK.10: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Nelson Farm	8/26/2009	Yes – 0.2%
Riverside Park Dance Pavilion	12/31/1998	Yes – 1%

Source: Nebraska State Historical Society, 2016

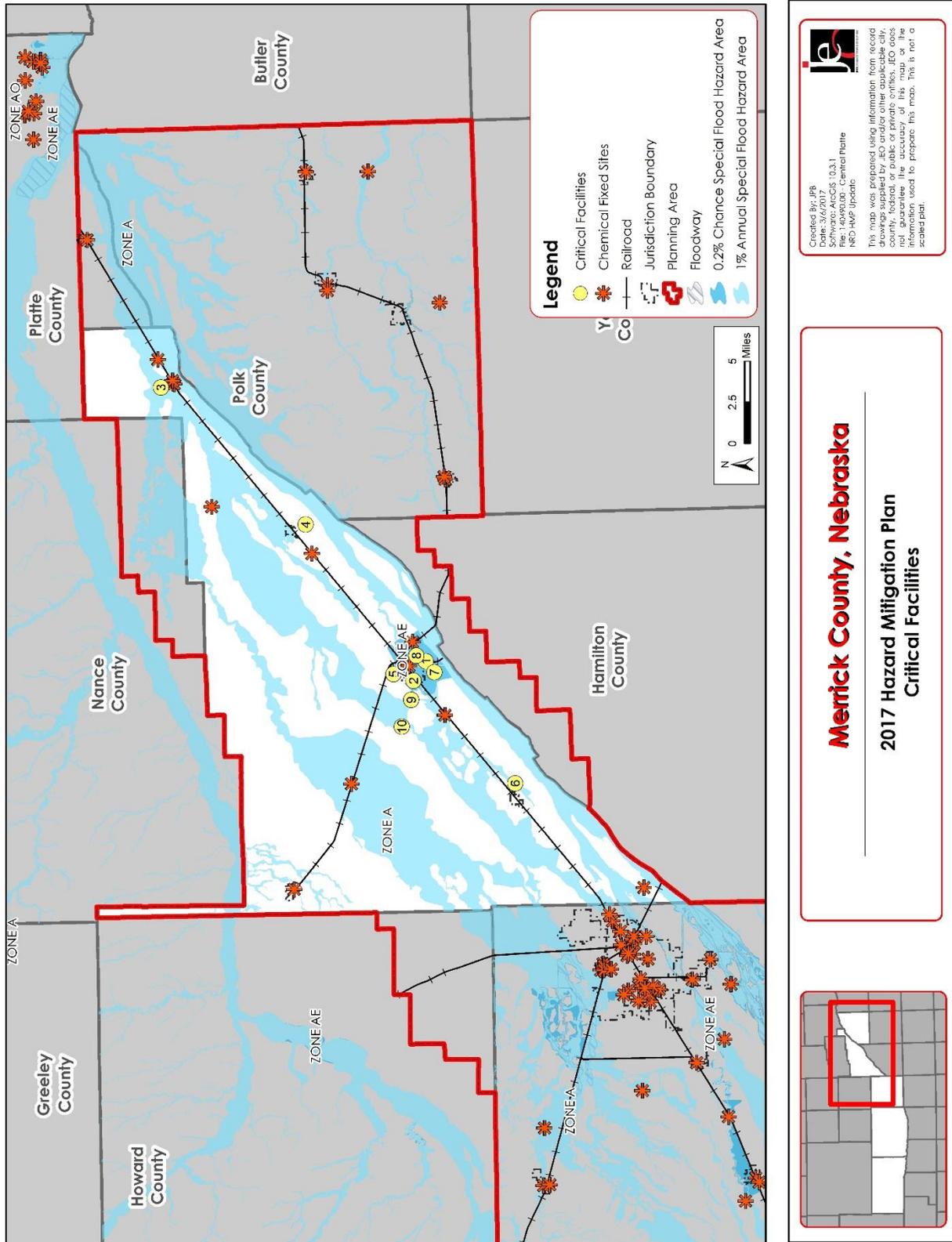
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table MRK.11: List of Critical Facilities in Merrick County**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Merrick County Courthouse	1510 18th St #1, Central City	N	N	N
2	Merrick County Sheriff's Office	1821 16th Ave, Central City	N	Y	N
3	NRIN Site-SC WT	41.312312, -97.665160	N	Y	N
4	NRIN Site-Clarks WT	41.216838, -97.836657	N	N	Y
5	NRIN Site-Central City	41.114202, -98.005706	N	N	N
6	NRIN Site-Chapman WT	41.020854, -98.157311	N	N	N
7	United Methodist	2601 18th Ave, Central City	Y	N	N
8	St. Michael's Catholic	2402 20th Ave, Central City	Y	N	N
9	County Fair Grounds	41.116254, -98.022509	N	N	N
10	Central City Airport	1346 Ormsby Rd, Central City, NE 68826	N	N	N
11	Tall grass Natural Gas Line Valves	Omitted	N	N	Y

Figure MRK.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

The following table provides a statistical summary for hazards that have occurred in the County. The property damages from the NCEI Storm Events Database (January 1996 – December 2015) should be considered only as broad estimates. Sources include, but are not limited to: emergency management, local law enforcement, Skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

Crop damages are from the USDA Risk Management Agency (RMA) between 2000 and 2015.

**Table MRK.12: NCEI Severe Weather Events**

HAZARD TYPE		COUNT	PROPERTY LOSS	CROP LOSS <sup>3</sup>
Agricultural Disease	Animal Disease <sup>2</sup>	1,044	-	-
	Plant Disease <sup>3</sup>	33	-	\$121,209
Chemical Spills-Transportation <sup>4</sup>		0	\$0	-
Drought <sup>1</sup>		15	\$0	\$4,750,715
Extreme Heat <sup>1</sup>		1	\$0	\$3,885,546
Flooding <sup>1</sup>	Flash Flood	7	\$3,360,000	\$887,001
	Flood	7	\$35,000	
Grass/Wildfires <sup>5</sup>		146	819.7 acres	\$188
High Winds <sup>1</sup> Average: 48 kts Range: 35 - 62 kts		15	\$314,080	\$3,886,186
Severe Thunderstorms <sup>1</sup>	Thunderstorm Wind Average: 57 kts Range: 51 - 77 kts	36	\$2,607,000	\$8,975,381
	Hail Average: in. Range: 0.75 - in.	111	\$2,525,000	\$7,749,596
	Heavy Rain	4	\$0	-
	Lightning	2	\$112,000	-
Severe Winter Storms <sup>1</sup>	Blizzard	5	\$25,000	\$165,195
	Heavy Snow	3	\$0	
	Ice Storm	6	\$4,070,000	
	Severe Winter Storm	39	\$120,000	
Tornadoes <sup>1</sup>	Funnel Cloud	1	\$0	\$0
	Tornado Most Common Rating: F0 Range: EF0 - F2	8	\$355,000	\$640
<b>Total</b>			<b>\$13,523,080</b>	<b>\$30,421,657</b>

<sup>1</sup> Data from NCEI (1996 - 2015)

<sup>2</sup> Data from NDA (2014-2016)

<sup>3</sup> Data from USDA RMA (2000 – 2015)

<sup>4</sup> Data from PHMSA (1970 - 2016)

<sup>5</sup> Data from NFS (2000 – 2014)

in. = inches; kts = knots

**COUNTY HAZARD PRIORITIZATION**

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides county-specific information as reported by the local planning team. Only hazards identified either as a concern to the County by the local planning team, or based on the occurrence and risk of the hazard to the County are discussed in detail below.

**Chemical Spills (Transportation)**

Chemical spills that occur during transportation are a concern to the County because Merrick County along with its communities do not have their own hazardous materials response capability. Highway 30 is a major highway that transects the entire County and regularly has chemicals transported along this route. Additionally, Union Pacific Railroad transports hazardous materials directly through multiple communities in the County. Furthermore, there are over a hundred miles of pipeline in the County, and a waste transfer location is located near Central City. There have been no events that have occurred according to PHMSA and County Emergency Management. Local fire departments are regularly trained on how to respond to a chemical spill, and as a mitigation action, the County will provide information to citizens about potential hazards in their community.

**Drought**

Agriculture is a primary economic driver in the County and long lasting droughts would greatly impact this industry. Reduced water availability is also a concern during drought. The most recent drought occurred during the second half of 2012 through 2013. The Drought Monitor marked the County in exceptional drought from August 2012 through early April 2013 when it dropped down to extreme drought. By mid-summer, the drought had improved some and was labeled as a moderate drought. Crop yields were greatly diminished during this time period and water wells were lower than normal. The County works with the CPNRD on monitoring wells and addressing the high nitrates in the drinking supply.

**Flooding**

Flooding poses a threat to Merrick County, as the County has various streams and rivers, including the Platte River, meandering through it. The unincorporated area of Merrick County has 70 NFIP policies in-force for \$10,240,800. There are no repetitive flood loss properties in unincorporated areas of Merrick County. The following table is parcel improvement information as provided by GIS Workshop for the entire County area. It indicates that an estimated 46.4 percent of all parcel improvements in the County are located in the floodplain.

**Table MRK.13: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in County	Percentage of Improvements in Floodplain
\$116,478,648	2,975	6,415	46.4%

Source: GIS Workshop/Merrick County Assessor

Flood events, including river flooding and flash flooding, in the County have the potential to damage structures, down power lines, damage roads or bridges, crop damages, and potential loss of life. Ice jams can and have occurred along the Platte River. On January 11, 2016, flooding began to occur near the Highway 92 bridge south of Clarks due to an ice jam. A County disaster declaration was made on January 12 to request state support. Flood waters crossed private roads in the Summerwood Estates causing some damages, so a temporary earthen berm was constructed to keep flood waters out of residential areas.

Areas in the County as identified as having poor stormwater drainage include the Platte River on Prairie Island Road and Lone Tree Road.

Several mitigation projects have been identified to help reduce the damages from flood waters in the County, and they include improving flood/dam failure warning systems, conducting stormwater drainage studies, and reducing road and bridge damage during floods.

**Figure MRK.5: Ice Jam near Clarks January 2016**



*Source: Region 44 Emergency Management*

**Figure MRK.6: Temporary Berm during Ice Jam January 2016**



*Source: Region 44 Emergency Management*



## **Hail**

The local planning team's concerns with hail regard residential property and agricultural damages. There have been no reports of hail damage to critical facilities, according to the County Emergency Manager. According to the NCEI storm events database, there have been 111 reported hail events since 1996 throughout the County, which caused \$2,525,000 in property damages. Mitigation actions to reduce damage from hail include educating the public and improving warning systems to warn citizens of hail producing storms.

## **Severe Thunderstorms**

Severe thunderstorms are a common occurrence in the region and have caused damage to property and crops. Power failure, potential wildfire from lightning strikes, and damages to property, agriculture, and communication systems are identified concerns as it relates to severe thunderstorms in the County. Thirty-six thunderstorm wind events, per the NCEI database, caused over \$2.6 million in damages, and according to the RMA, nearly \$9 million in crop damages. The Courthouse and the NRIN dishes at Clarks and Central City are identified as needing backup power generators. Weather radios are available in the Courthouse and Sheriff's Office.

## **GOVERNANCE**

A community's governance structure impacts its capability to implement mitigation actions. Merrick County is governed by a seven member Board of Supervisors. The County also has the following offices and departments:

- County Assessor
- County Attorney
- County Clerk/Registry of Deeds
- County Treasurer
- Emergency Management
- Highway Superintendent
- County Surveyor
- Planning and Zoning
- Floodplain Administrator
- Sheriff's Department
- Local Emergency Planning Committee
- County Extension Offices
- Central District Public Health

## **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the County, and described and quantified the vulnerability of the County to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table MRK.14: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	Yes
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table MRK.15: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the county have the financial resources needed to implement mitigation projects?	Limited
Does the county have the staff/expertise to implement projects?	Moderate
Is there county support to implement projects?	Moderate
Does the county staff have time to devote to hazard mitigation?	Limited

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Merrick County Comprehensive Plan, recently updated in 2016, directs development away from the floodplain, and encourages elevation of structures located in the floodplain. It also allows for emergency access to all areas of the County and its communities. With the plan having been updated recently, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

Merrick County’s Zoning Ordinance was also recently updated in 2016. It requires at least one-foot of elevation above base flood elevation in the floodplain, and prohibits development within the floodway. It also accounts for current population trends.

The County Emergency Operations Plan was last updated in 2015 and is updated annually. The plan is an all-hazards plan that assigns specific responsibilities to individual communities. It also identifies scenarios that would require evacuation. Shelter locations are also included for each community in the County.

### ***MITIGATION STRATEGY***

#### **Ongoing and New Mitigation Actions**

Description	Improve Flood/Dam Failure Warning Systems
Analysis	Evaluate current flood/water level alert and dam failure warning alert system, implement improved alert measures; increase stricter inspection of dams
Goal/Objective	Goal 1/ Objective 1.10
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000+
Funding	County Funds, Emergency Management Program Grant (EMPG)
Timeline	2-5 years
Priority	Medium
Lead Agency	Emergency Management, Dam Owners, NRD
Status	Working with NWS to operate a rudimentary water level measurement system.

Description	Reduce Damage from Floods, Stormwater, and Heavy Precipitation Event
Analysis	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Goal/Objective	Goal 2/ Objective 2.6
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-\$100,000+ depending on project
Funding	County Funds
Timeline	2-5 years
Priority	Medium
Lead Agency	County Engineer
Status	Not yet started.

Description	Reduce Flood/Water Damage to Roads and Property
Analysis	Evaluate current control grade structures; implement measures to add/improve grade control structures including bridges, approaches and culverts
Goal/Objective	Goal 2/ Objective 2.9
Hazard(s) Addressed	Flooding, Heavy Precipitation
Estimated Cost	Unknown
Funding	County Funds, FMA
Timeline	Ongoing
Priority	Medium
Lead Agency	Highway Department
Status	Ongoing.

Description	Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters
Analysis	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$150/sf for retrofit, \$300/sf for new construction
Funding	County Funds, Local Community Funds, HMGP, PDM
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management in coordination with stakeholders
Status	Not yet started.

Description	Improve/Provide Adequate Backup and Emergency Generators
Analysis	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	County Funds, HMGP
Timeline	5+ years
Priority	Medium
Lead Agency	County Safety/Security Board, Emergency Management
Status	Generators currently installed at Sheriff's Office and at NRIN site.

Description	Improve Warning Systems
Analysis	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	County Funds, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Emergency Management
Status	Ongoing.

Description	Community Education and Awareness
Analysis	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	All Hazards
Estimated Cost	\$1,000+
Funding	County Funds
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management
Status	Ongoing.

**Removed Mitigation Actions**

Description	Maintain NFIP Participation
Analysis	Continue to regulate development in floodplain areas; Adopt future floodplain maps when they become available; Additional floodplain mapping/remapping
Reason for Removal	County will continue to participate in program, however, this is no longer considered a hazard mitigation action.

PARTICIPANT SECTION  
FOR THE  
CITY OF CENTRAL CITY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table CEC.1 provides the list of participating members that comprised the Central City local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table CEC.1: Central City Local Planning Team**

Name	Title	Department / Organization
Tom Cordsen	Zoning Administrator	Central City
Chris Anderson	City Administrator	Central City

**LOCATION AND GEOGRAPHY**

The City of Central City is located in the south-central portion of Merrick County and covers an area of 2.32 square miles. Major waterways in the area include Silver Creek and Warm Slough.

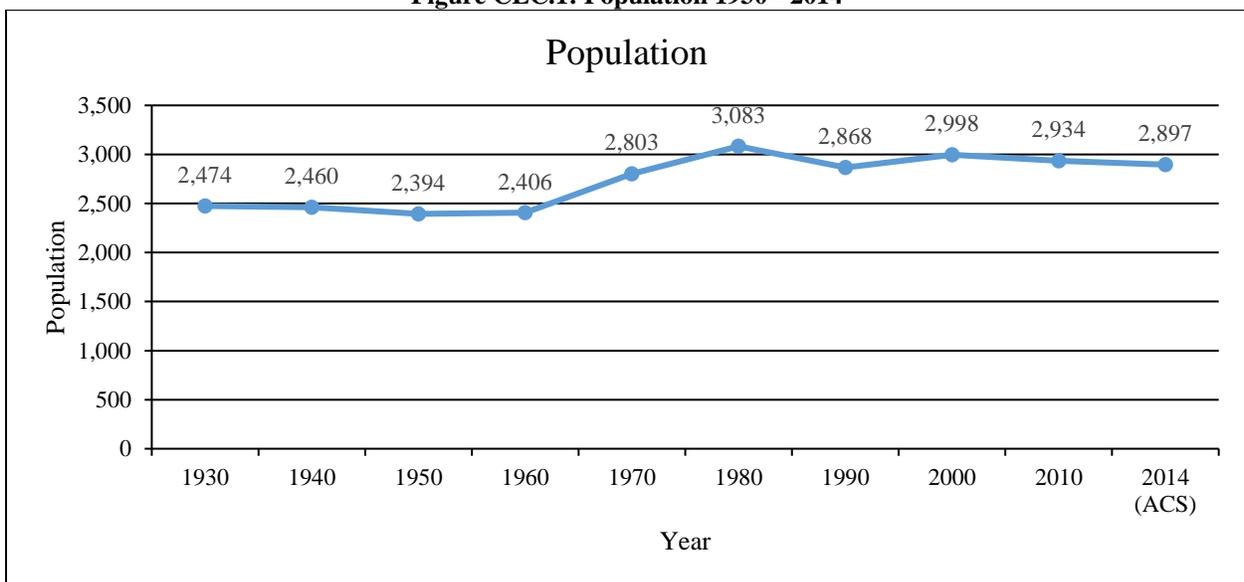
**TRANSPORTATION**

Central City’s major transportation corridors include Nebraska State Highway 14 and U.S. Highway 30. State Highway 14 travels north to south through the City and has an average of 2,550 vehicles per day with 400 of those being considered heavy commercial vehicles. U.S. Highway 30 travels in the northeast to southwest direction through the center of the City and has an average of 5,157 vehicles per day with about 1,075 of those being considered heavy commercial vehicles. Central City has two rail lines, a Union Pacific line and a Nebraska Central Rail Company line. At Central City, the Union Pacific line travels northeast to southwest and is located north of the City. The Nebraska Central Rail Company line travels northwest to southeast and is located northeast of the City.

**DEMOGRAPHICS**

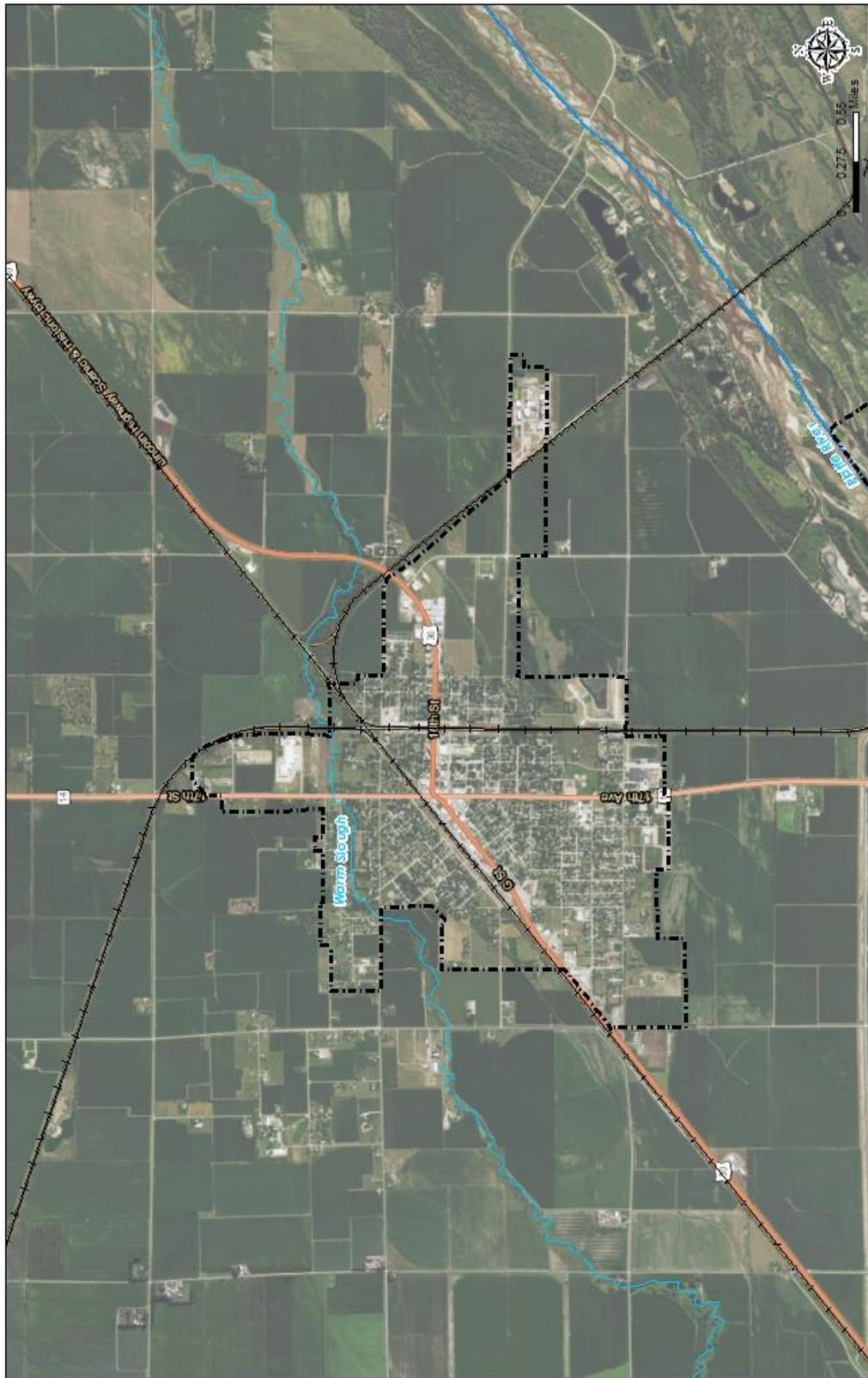
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Central City has fluctuated over the past three decades, but most recently the population has decreased.

**Figure CEC.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure CEC.2: Map of the City of Central City




  
 Created by: JAC  
 Date: 2/15/2017  
 Software: ArcGIS 10.3  
 File: 11050000 - Central Platte  
 NRD HMP Update  
  
 This map was prepared using information from several  
 drawings supplied by JAC and other entities. JAC does  
 not warrant the accuracy of the map or the  
 information contained therein. Use at your own  
 discretion.

**Central City, Nebraska**  
  
 Central Platte Natural Resources District  
 2017 Hazard Mitigation Plan

**Legend**  
 Corporate Limits  
 Planning Area  
 County  
 River

The following table indicates the City has a slightly higher percentage of the population under the age of 5 compared to the County, but lower than the state of Nebraska. It has a lower percentage of the population between 5 and 64 years of age when compared to the County as well as the state. However, it has a higher percentage of the population over the age of 64 and a higher median age than both the County and the state.

**Table CEC.2: Population by Age**

Age	Central City	Merrick County	State of Nebraska
<5	6.6%	6.0%	7.2%
5-64	72.6%	75.9%	79.2%
>64	20.8%	18.0%	13.6%
Median	43.7	43.1	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Central City’s median household income, per capita income, median home value, and median rent are all lower than both the County and the state.

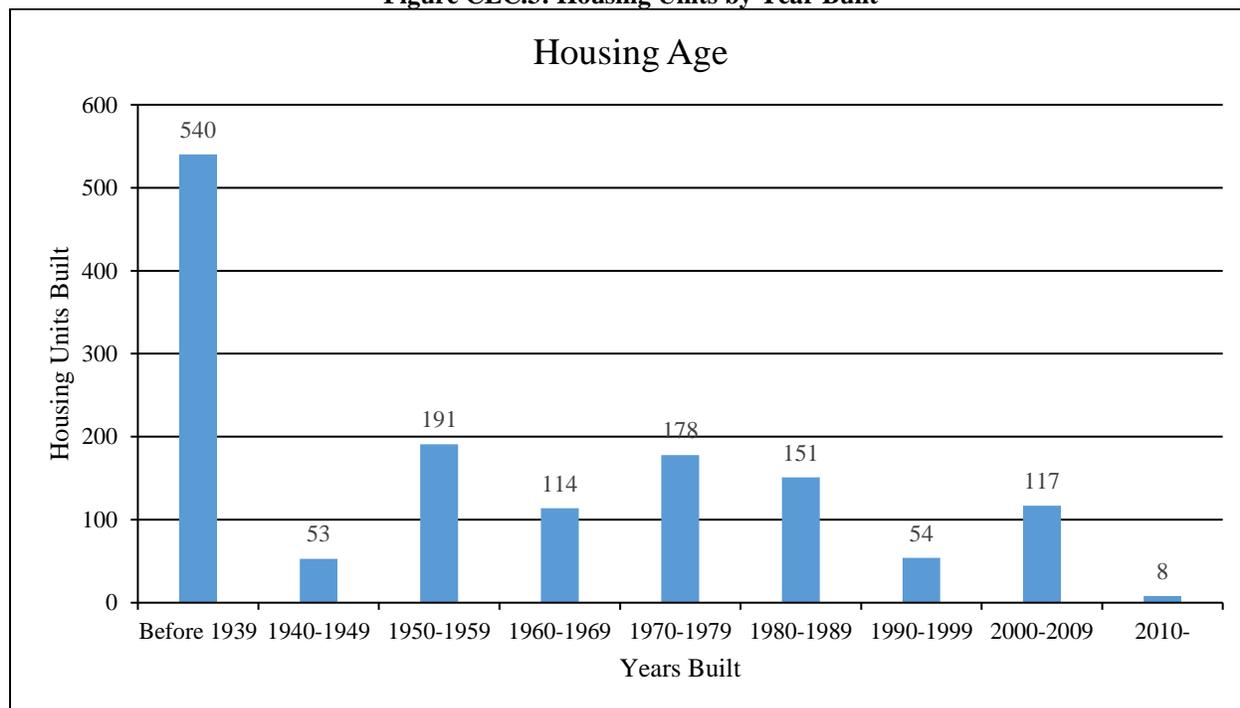
**Table CEC.3: Housing and Income**

	Central City	Merrick County	State of Nebraska
Median Household Income	\$37,872	\$62,610	\$52,400
Per Capita Income	\$23,725	\$25,403	\$27,339
Median Home Value	\$77,900	\$83,900	\$130,100
Median Rent	\$529	\$550	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 1,406 housing units with 94.6 percent of those units occupied. There are approximately 126 mobile homes in the community. The mobile home parks in the community are located at 18<sup>th</sup> street and 11<sup>th</sup> avenue, 15<sup>th</sup> street and 15<sup>th</sup> avenue, and 20<sup>th</sup> street and 12<sup>th</sup> avenue. The initial Flood Insurance Rate Map (FIRM) was developed in August 1979.

**Figure CEC.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table CEC.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Central City	1,330	94.6%	76	5.4%	848	63.8%	482	36.2%
Merrick County	3,331	89.9%	376	10.1%	2,424	72.8%	907	27.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

### **MAJOR EMPLOYERS**

The major employers in Central City are the Litzenberg Hospital, the Central City Mall, Herks Welding, and Bills Volume. A large percentage of residents commute to Grand Island for work.

### **FUTURE DEVELOPMENT TRENDS**

In the past five years, a few new subdivisions have been built: a 48 Lot Housing Subdivision and Byers Subdivision. None of these structures were built in the floodplain. In the next five years, an extension of Byers Subdivision will be constructed. According to the census data, Central City's population is declining. The local planning team reports that this decline is due to lack of good employment in the community. There are no plans for new businesses nor industries planned in Central City for the next five years.

### **PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table CEC.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
1,487	\$75,647,169	\$50,872	80	\$2,801,150

Source: GIS Workshop/Merrick County Assessor

### **CRITICAL INFRASTRUCTURE/KEY RESOURCES**

#### **CHEMICAL STORAGE FIXED SITES**

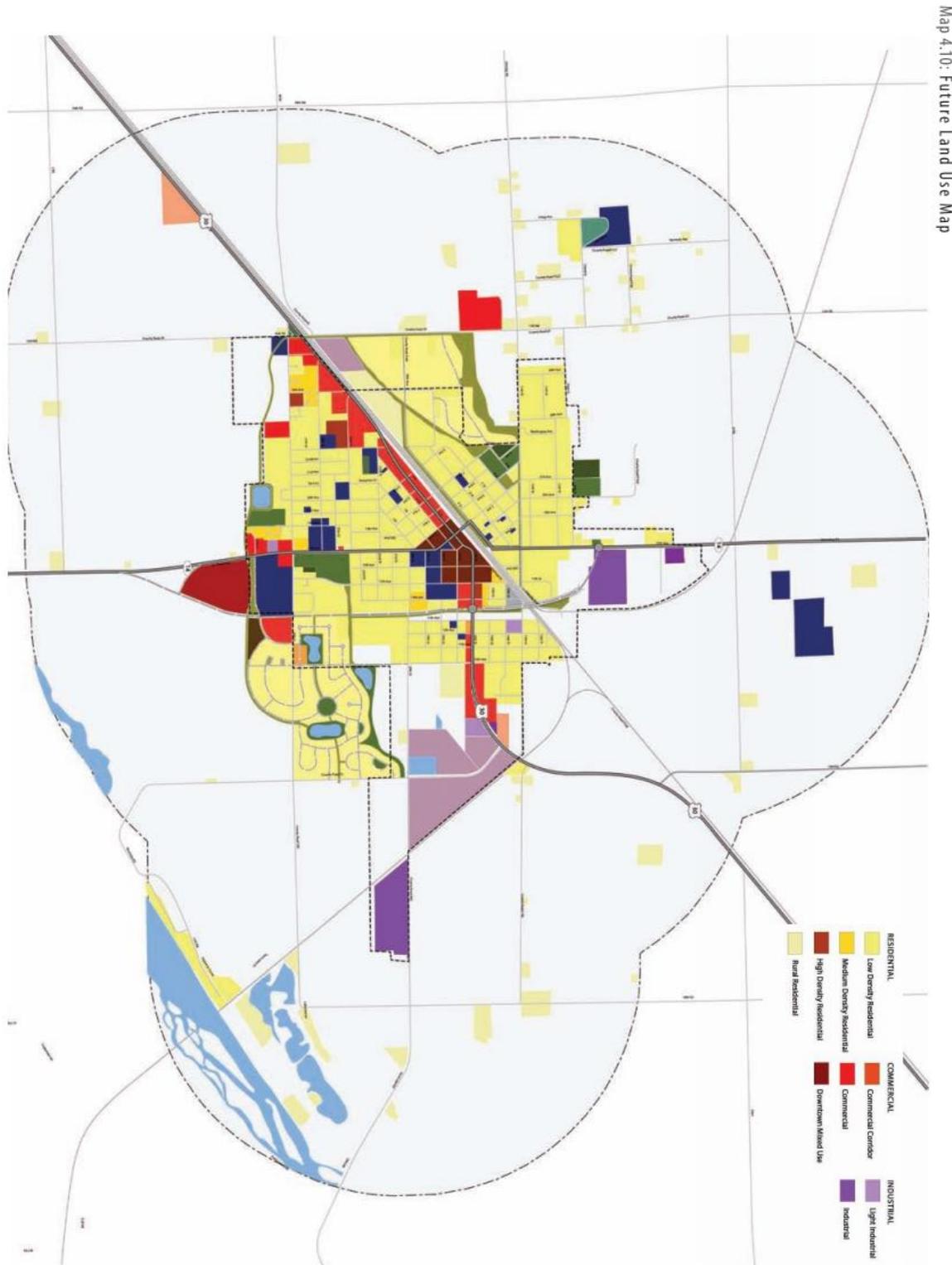
According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of four chemical storage sites that house hazardous materials in Central City. All of them are located in either 1 or 0.2 percent floodplain (Figure CEC.5).

**Table CEC.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Aurora Co-op Elevator Company	1313 13th Ave	Yes – 0.2%
Aurora Co-op Elevator Company	1561 13th Rd	Yes – 1%
CenturyLink	1707 16th Ave	Yes – 0.2%
Green Plains Central City LLC	214 20th St	Yes – 0.2%

Source: Nebraska Department of Environmental Quality

Figure CEC.4: Future Land Use Map



**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are four historic sites located in or near Central City.

**Table CEC.7: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Heber Hord House	12/7/1987	Yes – 0.2%
Martha Ellen Auditorium (706 C Avenue)	9/28/1988	Yes – 0.2%
Merrick County Courthouse	1/10/1990	Yes – 0.2%
Patterson Law Office	3/9/1979	Yes – 0.2%

Source: Nebraska State Historical Society, 2016

**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table CEC.8: List of Critical Facilities in Central City**

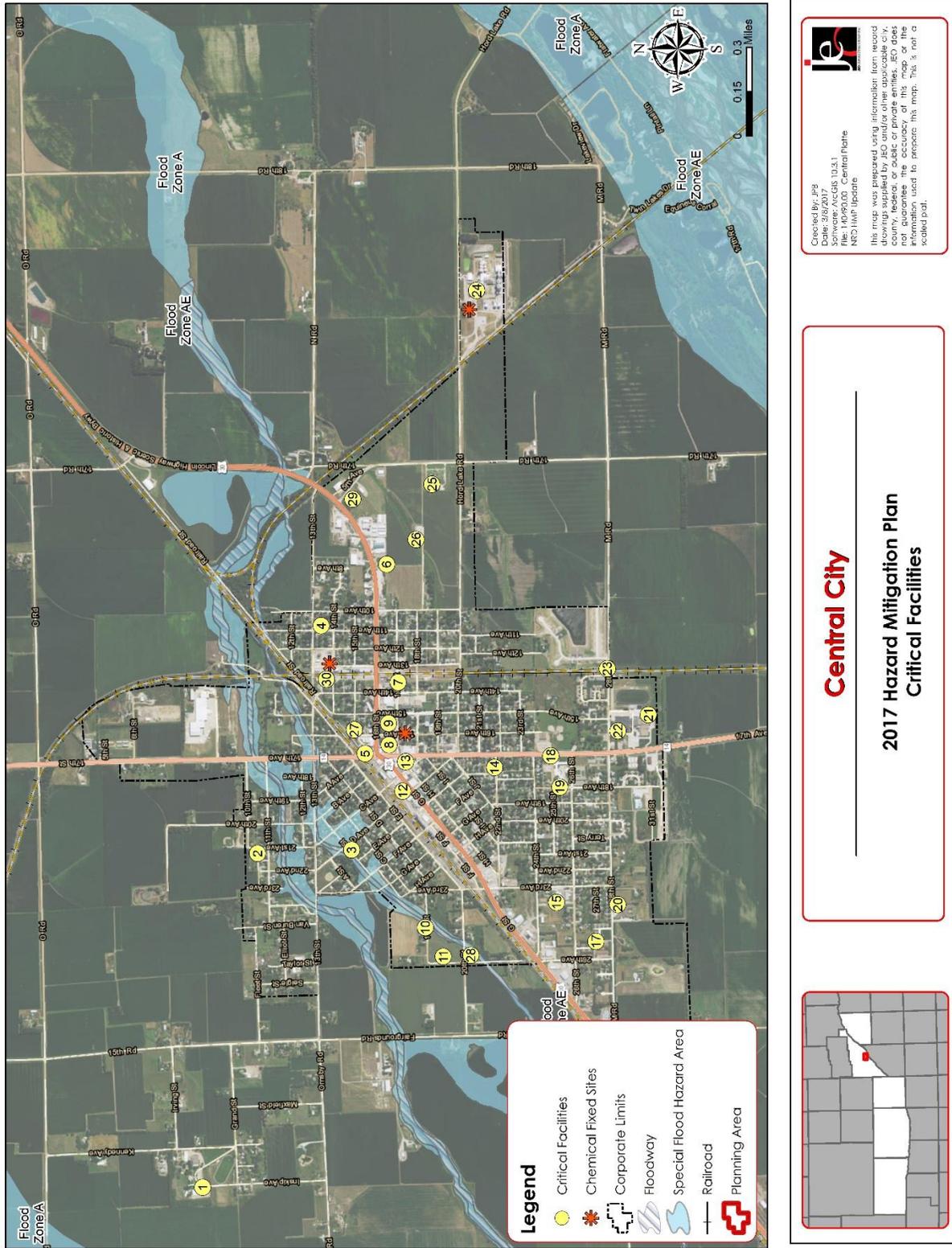
CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Nebraska Christian School	1847 Inskip Ave	N	N	N
2	Well #1	2205 19 <sup>th</sup> Ave	N	N	N
3	Well #2	2312 24 <sup>th</sup> St	N	N	N
4	Well#3	1201 12 <sup>th</sup> St	N	N	N
5	Southern Power District	1616 Hwy 14	N	N	N
6	New Fire Barn	716 16 <sup>th</sup> St	N	Y	N
7	Central City Elementary School	1711 15 <sup>th</sup> Ave	Y	N	N
8	Police Department	1616 16 <sup>th</sup> Ave	N	N	N
9	City Hall	1702 31 <sup>st</sup> St	N	N	N
10	Well #4	1411 16 <sup>th</sup> St	N	N	N
11	Well #5	601 B St	N	N	N
12	Substation Central	808 F St	N	N	N
13	Ambulance Station	414 H St	N	N	N
14	Well #6	2303 18 <sup>th</sup> St	N	N	N
15	Well #7	1002 19 <sup>th</sup> Ave	N	N	N
16	Natural Gas Town Border Station	2614 26 <sup>th</sup> St	N	N	N
17	Bader Villa	2525 28 <sup>th</sup> St	N	N	N
18	Litzenburg Long Term Care	1715 26 <sup>th</sup> St	N	Y	N
19	Litzenburg Hospital	1715 26 <sup>th</sup> St	N	Y	N
20	Cottonwood Estates	2316 28 <sup>th</sup> St	N	N	N
21	Central City Middle School	2815 17 <sup>th</sup> St	Y	N	N
22	Central City High School	1510 28 <sup>th</sup> St	Y	N	N

*Section Seven: City of Central City Participant Section*

---

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
23	Substation South	1302 28 <sup>th</sup> St	N	N	N
24	Ethanol Plant	214 20 <sup>th</sup> St	N	N	N
25	Wastewater Treatment Plant	1902 5 <sup>th</sup> Ave	N	Y	N
26	Cell Tower	1802 5 <sup>th</sup> Ave	N	Y	N
27	Auditorium	1813 15 <sup>th</sup> St	Y	N	N
28	Well #8	511 26 <sup>th</sup> Ave	N	N	N
29	Well #9	1606 5 <sup>th</sup> Ave	N	N	N
30	Substation North	1303 14 <sup>th</sup> Ave	N	N	N

Figure CEC.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Merrick County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Flooding**

Central City is located near the Platte River, and the majority of the City is impacted by the 0.2 percent flood risk areas, but the 1 percent flood risk area is confined to the northern parts of the community. Central City has 19 NFIP policies in-force for \$1,271,400. There are no repetitive flood loss properties in the City. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 5.4 percent of all parcel improvements in Central City are located in the floodplain.

**Table CEC.9: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$2,801,150	80	1,487	5.4%

Source: GIS Workshop/Merrick County Assessor

According to the NCEI, there have been three flash flood events, one of which was reported as being county-wide. The worst of the three events occurred with severe thunderstorms on the night of May 11, 2005. Thunderstorms ravaged a large part of south-central Nebraska, including Central City, with hail, high winds, and catastrophic flooding. During the evening and early morning hours, 4 to 12 inches of rain fell across the County. Five miles of roads and ten bridges were damaged in Merrick County from the flash flooding.

The City has identified a need for conducting a stormwater drainage study and implementing the study recommendations to reduce damages from floods in the community. An additional mitigation action would improve flood and stormwater detention or retention capacity.

**Severe Thunderstorms**

Damages from severe thunderstorms are a concern to the community whether from heavy rains, high winds, or large hail. On August 12, 2011, a severe thunderstorm with winds estimated at 70 mph resulted in tree damage across the City, which lead to an estimated \$100,000 in damages. Another event in June 2015 again caused tree damage and also damaged power lines and poles. The community regularly trims trees and has identified a need for a backup power generator at the police station.

**Severe Winter Storms**

Every winter, Central City is vulnerable to the effects of winter storms. During periods of heavy snowfall, transportation can be treacherous and power outages can occur. One of the more devastating winter storms caused significant ice accumulation on power lines, trees, and roadways during late December of 2006. Ice accumulated was between half an inch to an inch, which caused widespread tree damage, downed power lines, and closed roadways. Many were without power for days during particularly cold weather. More recently on February 1, 2015, five to eight inches of snow fell causing most schools to close and some highways to become impassable.

### **Tornadoes and High Winds**

The City is vulnerable to property damages, power outages, and potential loss of life from tornadoes and high winds. Since 1996, two tornadoes came close to impacting the community. The first tornado occurred in May 2001 and was rated an F0 with no damage reported. Later that year in October, the second tornado touched down north of the community and was rated an F2. It caused damaged to a farmstead and several vehicles.

High winds are a regular part of the climate in this region and can occasionally cause power outages and property damage. One of the worst reported events was in July 2003 when winds up to 70 mph were reported across the County. These high winds caused widespread damage from downed trees and power lines. Damages were estimated at \$200,000 across several counties.

To reduce the risk of power outages at critical facilities, the local planning team identified backup power generators as a mitigation action. Public safe rooms or storm shelters were also identified for the community to save lives from destructive tornadoes.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City is governed by a Mayor and a five member City Council. Furthermore, Central City has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- City Administrator
- Building and Zoning
- Economic Development
- Streets Department
- Parks and Recreation Department
- Housing Authority
- Water and Sewer Department
- Police Department
- Volunteer Fire Department

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table CEC.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	Yes
	Other (if any)	

**Table CEC.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Central City Comprehensive Plan was last updated in 2013. The plan limits density in areas adjacent to known hazardous areas, encourages clustering of development in sensitive areas, and encourages preservation of open space in hazard-prone areas. At this time, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

Central City’s Zoning Ordinance was also last updated in 2013. The Ordinance discourages development in the floodplain, requires at least one-foot of elevation above base flood elevation in the floodplain, and discourages development near chemical storage sites.

The City has an annex to the Merrick County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

Improve Electrical Service	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	General
Funding	Public Power District
Status	Constructed a new substation in 2014/2015.

**Ongoing or New Mitigation Actions**

<b>Improve/ Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	General
Estimated Cost	\$20,000-75,000+
Funding	Local Budget, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Police Department
Location	Police Station

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sq ft safe room for retrofit; \$300/sq ft safe room for new construction
Funding	Local Budget, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Building and Zoning, Emergency Management

<b>Conduct Water Supply Study</b>	
Description	Evaluate the need to expand water storage capacity through new means (new water tower, stand pipe, etc.) or locate new water resources to provide a safe water supply for the community and nearby rural areas during periods of drought
Hazard(s) Addressed	Drought
Estimated Cost	\$50,000+
Funding	Local Budget, FMA, PDM, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Water and Sewer Department

<b>Reduce Damages from Floods, Storm Water, and Heavy Precipitation Events</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-100,000+ depending on project
Funding	Local Budget, FMA, PDM, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Water and Sewer Department

<b>Improve Flood and Stormwater Detention/Retention Capacity</b>	
Description	Evaluate current stormwater and flood water capacity; implement measures to improve flood water and stormwater capacity
Hazard(s) Addressed	Flooding
Estimated Cost	Dependent on project
Funding	Local Budget, FMA, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Water and Sewer Department

<b>Develop/Update Floodplain Information</b>	
Description	Conduct mapping/remapping of floodplains; revise floodplain/insurance maps
Hazard(s) Addressed	Flooding
Estimated Cost	\$75,000
Funding	Local Budget, FEMA, NDNR
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	General
Estimated Cost	\$15,000+
Funding	Local Budget, HMGP
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Fire Department, Emergency Management

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps as they become available; additional floodplain mapping/remapping
Reason for Removal	City will continue to participate in program, however, this is no longer considered a hazard mitigation action.

<b>Reduce Damages in Floodplain</b>	
Description	Evaluate repetitive loss or potential loss structures located in floodplain; acquire and relocate or demolish flood prone property or elevate flood prone property; elevate equipment vulnerable to flooding
Reason for Removal	There are no repetitive flood loss properties identified in Central City.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF CHAPMAN

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table CPM.1 provides the list of participating members that comprised the Village of Chapman local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table CPM.1: Village of Chapman Local Planning Team**

Name	Title	Department / Organization
Francis McCulla	Fire Chief	Chapman Volunteer Fire and Rescue
Chris Killin	Village Chairman	Village of Chapman
Thea Edmunds	Assistant Rescue Captain	Chapman Volunteer Fire and Rescue

**LOCATION AND GEOGRAPHY**

The Village of Chapman is located in the southwestern portion of Merrick County and covers an area of 0.45 square miles. The major waterways in the area include the Platte River and Warm Slough.

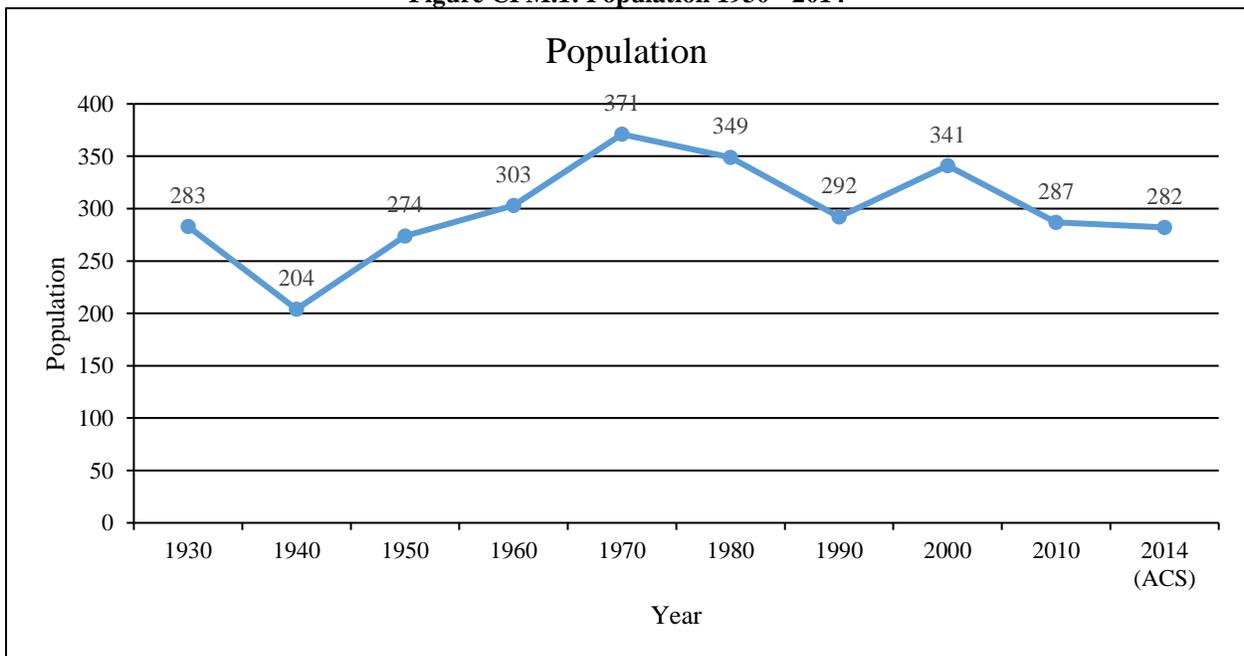
**TRANSPORTATION**

Chapman’s major transportation corridor is Highway 30. Highway 30 experiences an average of 6,265 vehicles per day with 1,080 of those vehicles being categorized as heavy commercial. Chapman has one rail line, a Union Pacific line, that runs parallel to Highway 30 in the southwest to northeast direction.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Chapman has been decreasing since 1970.

**Figure CPM.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure CPM.2: Map of the Village of Chapman



The following table indicates the Village has a lower percentage of the population under the age of 5 when compared to the County and the state. The Village has a higher percentage of those between 5 to 64 years of age than the County, but a lower percentage than the state. There is a higher percentage of people over the age of 64 in the Village than in the state, but fewer than the County. Chapman’s median age is higher than both the County and the state.

**Table CPM.2: Population by Age**

Age	Chapman	Merrick County	State of Nebraska
<5	5.6%	6.0%	7.2%
5-64	78.7%	75.9%	79.2%
>64	15.7%	18.0%	13.6%
Median	44.5	43.1	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Chapman’s median household income, per capita income, and median home value are less than the County and the state. Chapman’s median rent, however, is higher than the County’s, but lower than the state’s.

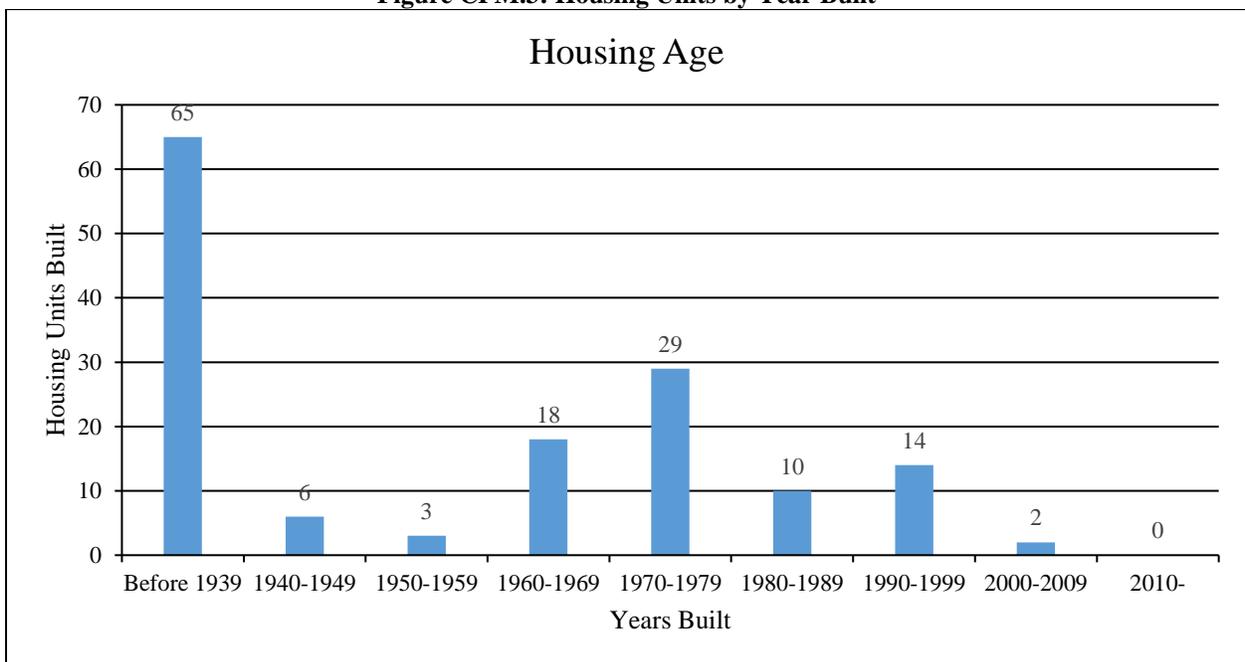
**Table CPM.3: Housing and Income**

	Chapman	Merrick County	State of Nebraska
Median Household Income	\$41,250	\$62,610	\$52,400
Per Capita Income	\$17,818	\$25,403	\$27,339
Median Home Value	\$62,500	\$83,900	\$130,100
Median Rent	\$594	\$550	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 147 housing units with 87.8 percent of those units occupied. There are approximately 41 mobile homes in the community. The mobile parks are located at Highway 30 and 9<sup>th</sup> street, and at Cora street. The initial Flood Insurance Rate Map (FIRM) was developed in February 2002.

**Figure CPM.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table CPM.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Chapman	129	87.8%	18	12.2%	95	73.6%	34	26.4%
Merrick County	3,331	89.9%	376	10.1%	2,424	72.8%	907	27.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year estimate

**MAJOR EMPLOYERS**

The major employers in the community are the Aurora Co-op, Preferred Popcorn, the local Chapman school, and Pump & Pantry. A large percentage of residents commute to Grand Island, Aurora, and Central City.

**FUTURE DEVELOPMENT TRENDS**

The local planning team reports little development in the past five years, and nothing is planned to be built in the next five years. Nothing new was developed in town, but two houses were built in the extraterritorial jurisdiction of Chapman. These houses were not built in the floodplain. According to census data, Chapman’s population is declining. The local planning team reports that this is due to the lack of available housing and rental housing in the community.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table CPM.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
153	\$4,772,595	\$31,193	0	\$0

Source: GIS Workshop/Merrick County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are no chemical storage sites that house hazardous materials in Chapman.

**HISTORIC SITES**

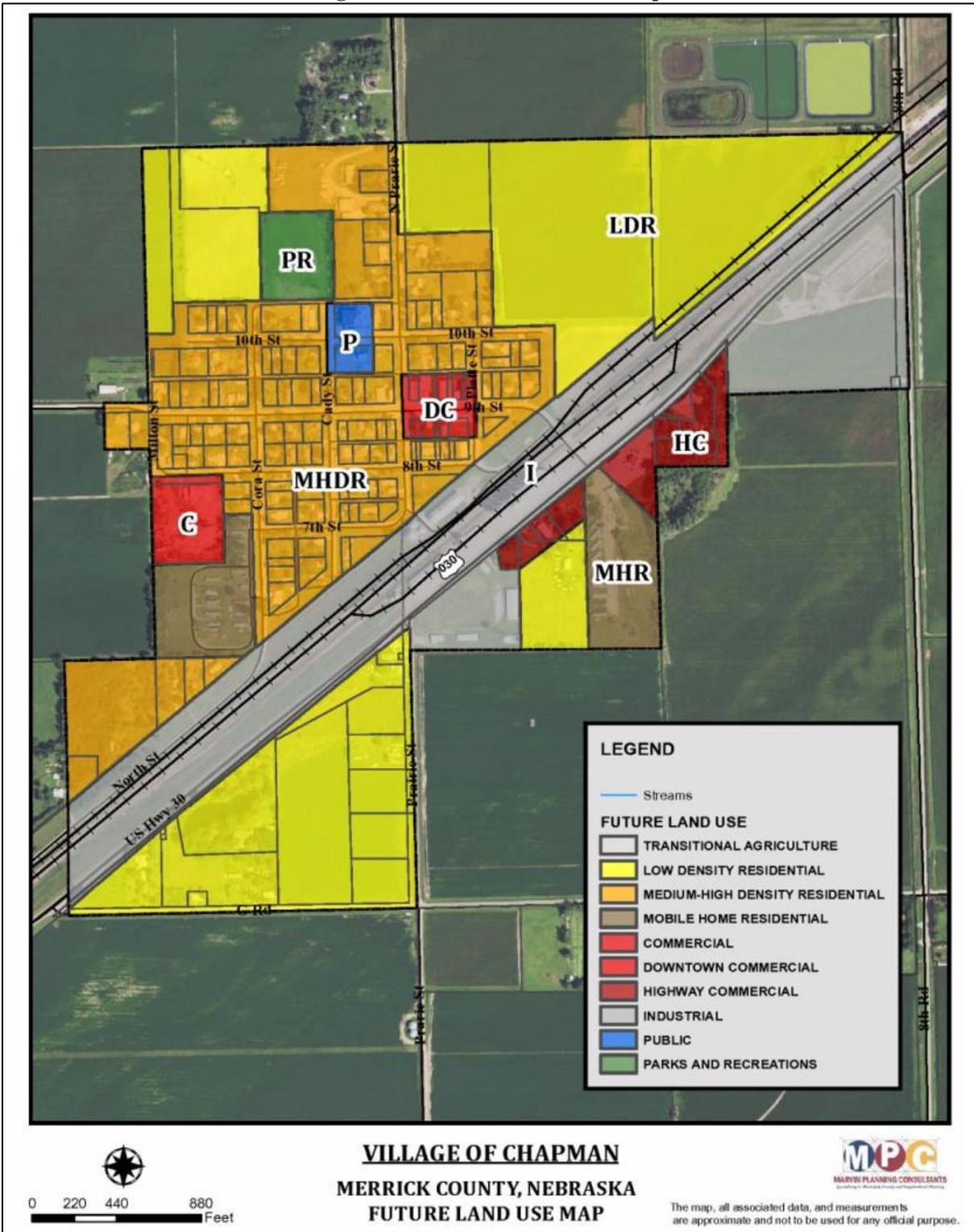
According to the National Register of Historic Places for Nebraska, there is one historic site located in Chapman.

**Table CPM.6: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Cahow Barbershop	1/12/1984	No

Source: Nebraska State Historical Society, 2016

Figure CPM.4: Future Land Use Map



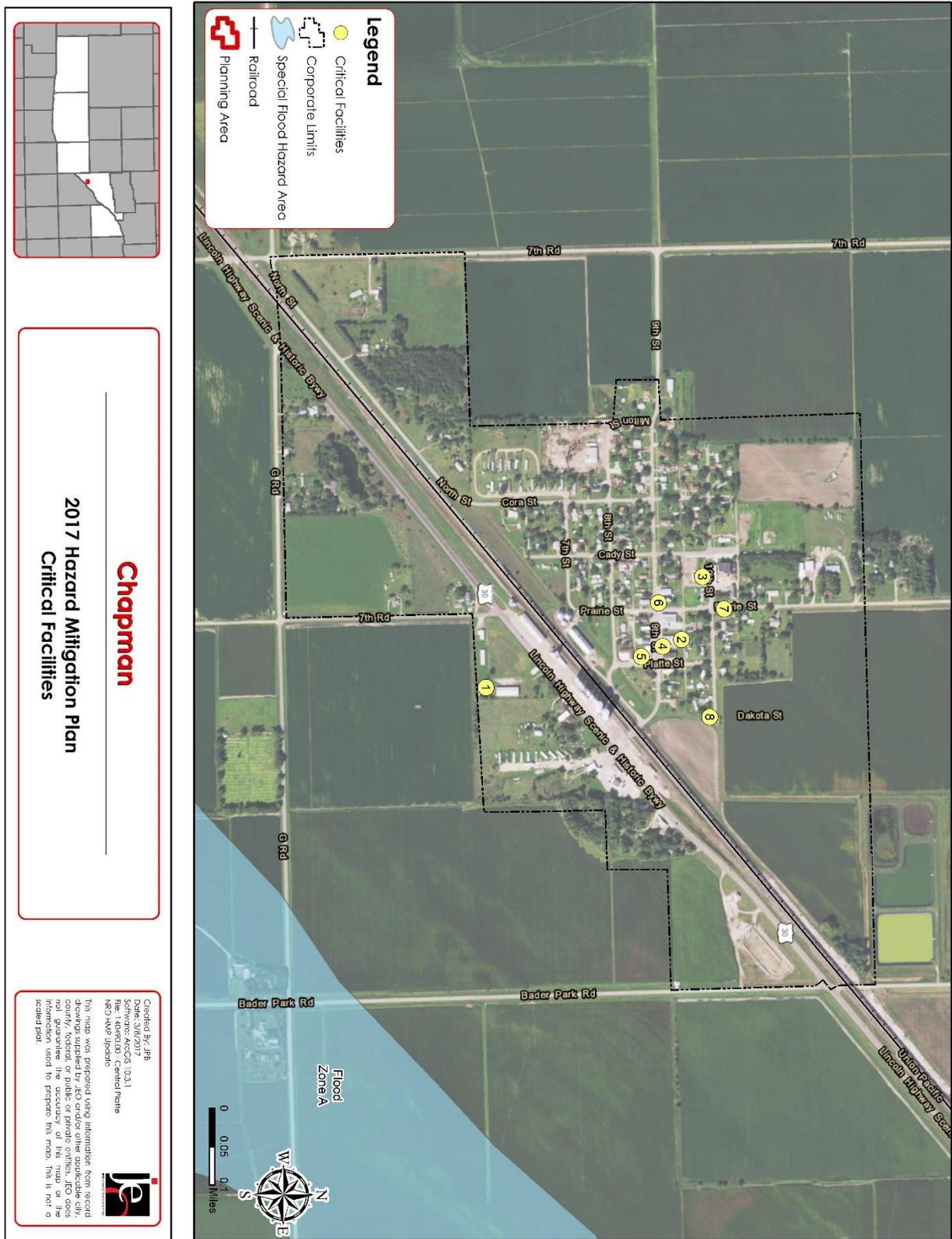
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table CPM.7: List of Critical Facilities in Chapman**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Water Tower	Hwy 30	N	N	N
2	Fire Station and Well #1	2079 9 <sup>th</sup> St	N	N	N
3	Chapman Public School	1003 Cady St	Y	N	N
4	Village Hall	203 9 <sup>th</sup> St	N	N	N
5	Community Center	204 9 <sup>th</sup> St	N	N	N
6	Methodist Church	303 9 <sup>th</sup> St	N	N	N
7	Baptist Church	1073 N Prairie St	N	N	N
8	Well #2	East End of 10 <sup>th</sup> St	N	N	N

Figure CPM.5: Critical Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical occurrences, please see the Participant Section for Merrick County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Flooding**

The flood risk areas of concern for the Village of Chapman are located south, north, and west of the Village, which have poor stormwater damage, and also along the Platte River. According to the NCEI, there were two flood events and one flash flood event since 1996 in the Village of Chapman. The flash flood event occurred in June of 2008 and caused \$100,000 in property damage. The local planning team reported a flood in 2010 out of Prairie Creek and Moore’s Creek. Houses suffered water damage, and a mobile home park on Cora street was under water. In rural areas, some farmers’ driveways were underwater, and the local Fire Department rescued those residents. The local planning team reports that the Village’s main concerns about flooding are flash flooding and ditches flooding into farm fields. The team also noted that the areas in Chapman most prone to flooding are west of the Village, north of the Village, and along the Platte River lower area. The Platte River and Wood River are the closest bodies of water of concern for Chapman. Flooding mitigation actions include conducting and implementing findings of a stormwater drainage study and deepening drainage ditches.

Chapman does not have any NFIP policies in-force. There are no repetitive flood loss properties in the Village of Chapman. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that no parcel improvements in Chapman are located in the floodplain.

**Table CPM.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$0	0	153	0%

Source: GIS Workshop/Merrick County Assessor

**Hail**

The planning team indicated that hail is a top concern for Chapman. The NCEI reports 32 hail events since 1996 with the largest hail stone reported at 2.75 inches. These 32 hail events caused \$560,000 dollars in property damage. The local planning team is concerned with the potential damage to roads, the school, and broken windows to homes and businesses. In 2013, the team reported a large hail event that damaged roofs and sidings, and caused tree damage. Chapman’s critical facilities are not fitted with hail resistant materials, but are insured. Hail hazard mitigation actions include improving electrical services during and after hail events and providing backup generators for critical facilities.

**Severe Thunderstorms**

The local planning team identified severe thunderstorms as a top concern for the Village. NCEI reported nine severe thunderstorm events since 1996, causing \$50,000 dollars in damages. The local planning team reported several severe thunderstorms in 2015 and 2016 which downed trees and power lines, and broke one light pole. The Village reports many hazardous trees in the community. The team noted concern for the potential of hail damage, power outages, and the safety of vulnerable populations like children in school during an event. Critical facilities have been impacted from severe thunderstorms in the past. Mitigation

actions include providing emergency generators for all critical facilities, providing public safe rooms for the community, and improving electrical services during and after severe thunderstorm events.

### **Severe Winter Storms**

Severe winter storms were selected as a top concern for the Village by the local planning team. The team noted that a severe winter storm occurred during the winter of 2015 into the spring of 2016 which shut down the town completely for two days. The Village is concerned with keeping the roads clear for emergency vehicles. There are no snow routes, and the community does not use snow fences. The County Roads Department does the first pass of snow removal, after which the Village clears any leftover snow. The Village utilizes a pickup truck with a blade for snow removal, which is insufficient for snowfalls greater than 4-inches. Chapman plans to mitigate these hazards by providing snow routes for the community and purchasing a snowplow and payloader for snow removal.

### **Tornadoes**

The local planning team ranked tornadoes as a top hazard of concern for the Village. The NCEI reported one tornado in 2001, which caused \$25,000 dollars in damages. The local planning team is concerned for the safety of residents since there are no safe rooms or shelters in the community. Only one warning siren is in Chapman, but text alerts are offered. The community has Mutual Aid agreements with Grand Island, Polk County, Nance County, Hall County, and Merrick County. Mitigation plans are in place to provide adequate public safe rooms to the community, improve citizen warning systems, and upgrade the emergency response communication system.

## ***GOVERNANCE***

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Chapman is governed by a Chairperson and a four member Village Board. Furthermore, Chapman has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Water and Sewer Department
- Volunteer Fire Department

## ***CAPABILITY ASSESSMENT***

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table CPM.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table CPM.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Limited – Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Village of Chapman Comprehensive Plan was recently updated in 2016. The plan directs development away from the floodplain and residential development away from major transportation routes. Additionally, it encourages infill development and clustering of development in sensitive areas. It also allows for emergency access to all areas of the community. Given the recent update of the plan, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The Village’s Zoning Ordinance was also recently updated in 2016. It discourages development in the floodplain, requires at least one-foot of elevation above base flood elevation in the floodplain, and prohibits development within the floodway. The Ordinance contains natural hazard layers and accounts for current population trends.

Chapman has an annex to the Merrick County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

	<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High winds
Estimated Cost	\$200 - \$250 per sq ft
Funding	Fire Department Funds, HMGP, PDEM
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Fire Department
Location	If a new fire hall is built, the fire department would like to add a safe room

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	General Funds, Fire Department Funds, HMGP
Status	One portable generator is available to the community. All critical facilities could use stationary backup generators.
Timeline	2-5 years
Priority	High
Lead Agency	Fire Department, Village Board

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	General Funds, Fire Department Funds, HMGP
Status	Ongoing. The south side of the community is in need of a warning siren.
Timeline	Ongoing
Priority	High
Lead Agency	Fire Department

	<b>Improve Electrical Service</b>
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	General Funds, Southern Power District (SPD)
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	SPD, Village Board

<b>Develop Emergency Snow/Evacuation Routes</b>	
Description	Develop or improve snow and evacuation routes and programs to include parking, snow/ice/debris removal, etc.; obtain and install snow emergency route and evacuation signs; provide information on emergency routes to the public; construct snow fences where possible on main routes to prevent snow from disrupting transportation
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	\$1,000+
Funding	General Funds
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000 - \$100,000+ depending on project
Funding	General Funds, HMGP, FMA
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Village Engineer

<b>Improve Drainage</b>	
Description	Improve storm sewers and drainage patterns in and around the community; deepen drainage ditches and clean out culverts
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000+
Funding	General Funds, HMGP, FMA
Status	In progress.
Timeline	Ongoing
Priority	High
Lead Agency	Village Board

<b>Purchase Snow Removal Equipment</b>	
Description	Increase ability to remove snow/ice from community streets by augmenting equipment or supplies; including purchasing equipment such as snowplows, payloaders, trucks, or plow blades
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	\$150,000+
Funding	General Funds
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board

	<b>Upgrade Emergency Responders Radio System</b>
Description	Upgrade Fire Department’s communication radio system to be compatible to the statewide radio system (the new system will allow for multiple agencies to communicate across the state, including fire departments, local police departments, Nebraska State Patrol, Nebraska Game & Parks, Fire Marshall, etc.)
Hazard(s) Addressed	All Hazards
Estimated Cost	\$2 - \$3 million for entire County upgrade
Funding	Fire Department Funds, NEMA/FEMA Funds, Private Foundation Funds (e.g. Peter Kiewit Foundation)
Status	Early planning stages.
Timeline	2-5 years
Priority	Medium
Lead Agency	Fire Department

**Removed Mitigation Actions**

	<b>Reduce Bottlenecks/Flow Restrictions</b>
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Reason for Removal	This is outside the Village’s jurisdiction and is the responsibility of the County.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF CLARKS

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table CLR.1 provides the list of participating members that comprised the Clarks local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table CLR.1: Clarks Local Planning Team**

Name	Title	Department / Organization
Jeff Gress	Maintenance Superintendent	Village of Clarks

**LOCATION AND GEOGRAPHY**

The Village of Clarks is located in the eastern portion of Merrick County and covers an area of 0.31 square miles. The closest major waterway in the area is the Platte River.

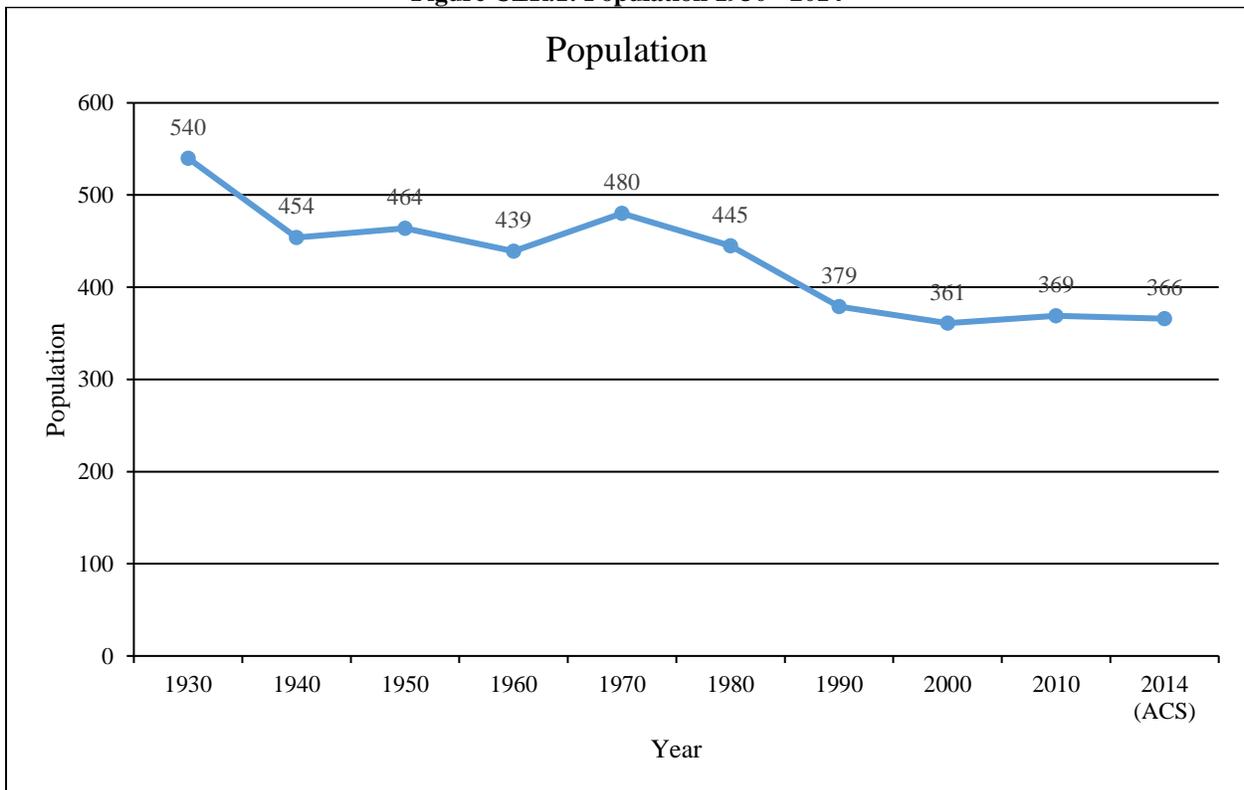
**TRANSPORTATION**

Clarks’ major transportation corridor is Nebraska State Highway 30 which travels northeast to southwest through the center of the Village. On average, there are 3,297 vehicles per day with about 970 of those vehicles being heavy commercial vehicles. Clarks has one rail line, a Union Pacific line that travels northeast to southwest through the Village.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Clarks has been decreasing since 1970.

**Figure CLR.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure CLR.2: Map of the Village of Clarks



The following table indicates the Village has a higher percentage of the population between 5 to 64 than the County, but a lower percentage when compared to the state. The Village has a higher percentage of the population under 5 than both the County and the state. There is a higher percentage of the population over 64 when compared to the state, but a lower percentage than the County. The Village has a higher median age than the County and the state.

**Table CLR.2: Population by Age**

Age	Clarks	Merrick County	State of Nebraska
<5	7.3%	6.0%	7.2%
5-64	77.0%	75.9%	79.2%
>64	15.7%	18.0%	13.6%
Median	43.5	43.1	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Clarks’ median household income, per capita income, median home value, and median rent are all lower than both the County and the state.

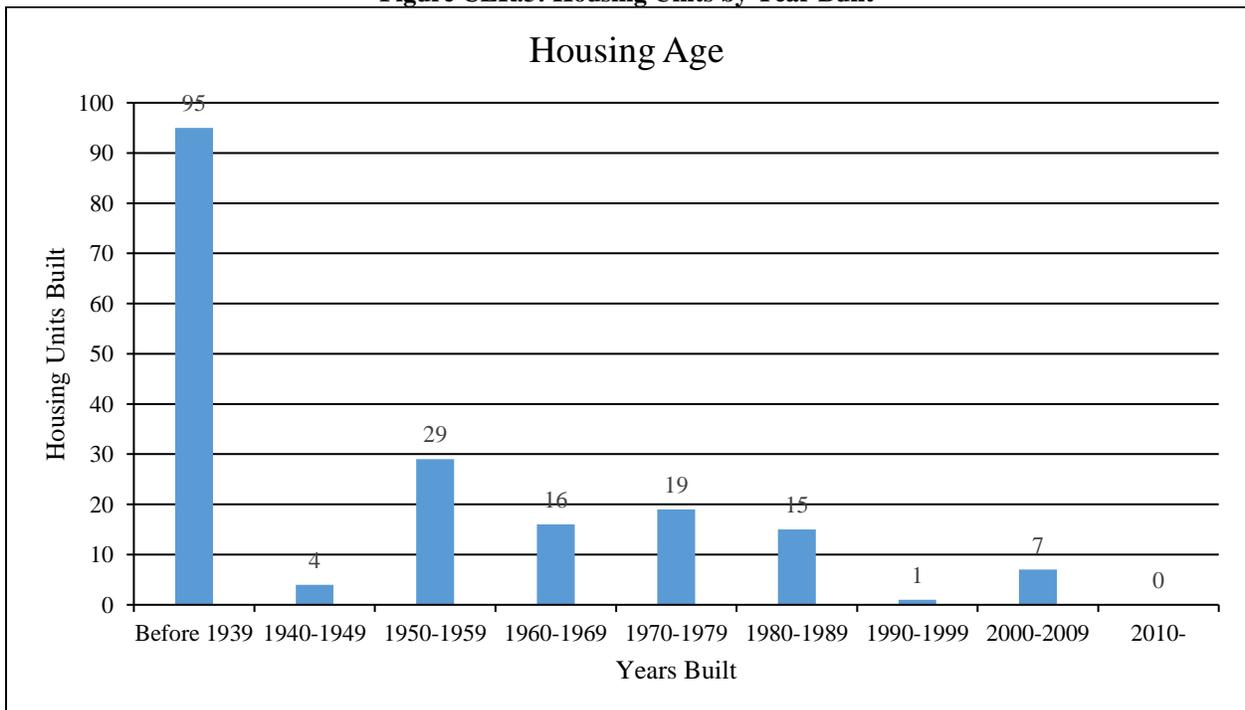
**Table CLR.3: Housing and Income**

	Clarks	Merrick County	State of Nebraska
Median Household Income	\$44,250	\$62,610	\$52,400
Per Capita Income	\$22,107	\$25,403	\$27,339
Median Home Value	\$54,700	\$83,900	\$130,100
Median Rent	\$523	\$550	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 186 housing units with 80.6 percent of those units occupied. There are approximately 15 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in August 1987.

**Figure CLR.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table CLR.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Clarks	150	80.6%	36	19.4%	111	74.0%	39	26.0%
Merrick County	3,331	89.9%	376	10.1%	2,424	72.8%	907	27.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in Clarks are the High Plains Community Schools and Strobel Energy. A large percentage of residents commute to Grand Island, Columbus, and York for work.

**FUTURE DEVELOPMENT TRENDS**

In the past five years, the Village Board has undertaken a nuisance abatement program, which led to demolishing one residence. A \$1 million water treatment plant was built and put into operation, and a new lumber yard opened. There are no planned developments for housing or businesses anticipated over the next five years in Clarks.

According to the census data, Clarks’ population is declining. The local planning team reports that this decline is due to a lack of good employment opportunities along with a lack of services available, such as a grocery store.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table CLR.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
246	\$6,023,585	\$24,486	0	\$0

Source: GIS Workshop/Merrick County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of two chemical storage sites that house hazardous materials in Clarks. None of the chemical storage sites are located in the floodplain (Figure CLR.4).

**Table CLR.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Aurora Co-op Elevator Company	2341 23rd Rd	No
Central Valley Ag	2947 26th Rd	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Clarks.

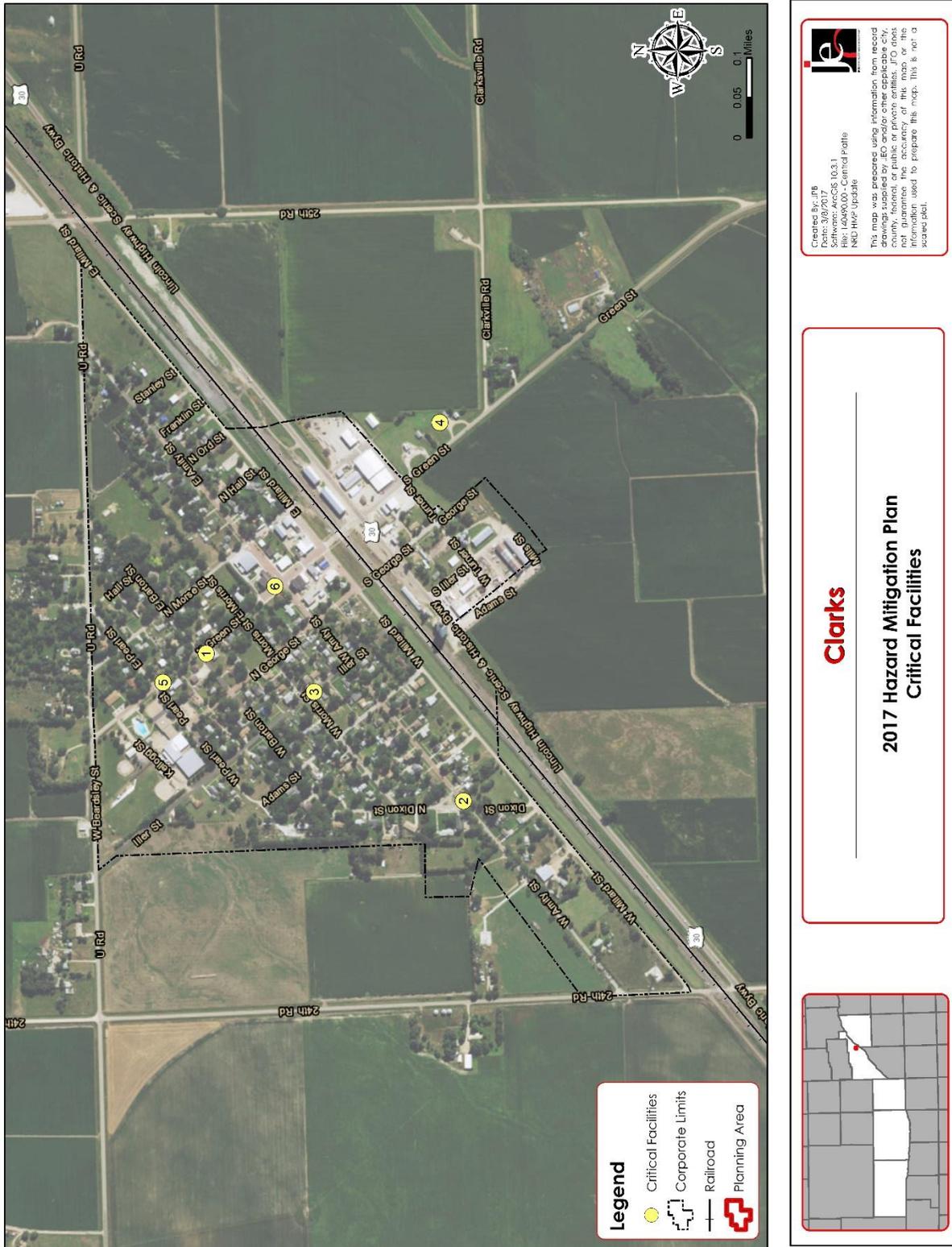
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table CLR.7: List of Critical Facilities in Clarks**

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Clarks United Methodist Church	Corner of N. Green and Burton St	Y	N	N
2	St. Peter’s Church	Corner of W. Amity and Dixon St	Y	N	N
3	First Congregational Church	Corner of W. Morris and N. Iller St	Y	N	N
4	Town Hall	205 N. Green St	Y	Y	N
5	Alneta Hejtimanck Daycare	Corner of Pearl and Green Streets	N	N	N
6	High Plains Community School	205 W. Pearl St	Y	N	N

Figure CLR.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



## ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Merrick County.

## ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

### **Chemical Spills (Transportation)**

Due to the Village's proximity to a major highway and railroad, chemical transportation spills are a concern to the community. Highway 30 and the railroad are of greatest concern. Chemicals are presumed to be transported daily by highway; however, the Village is not sure which types of chemicals are being transported. According to PHMSA, there have not been any reports of chemical spills. However, the planning team reported a train derailment occurred a few miles west of Clarks. To test the response and preparedness of the community to a hazardous spill, the community will conduct an emergency or tabletop exercise in coordination with Merrick County Emergency Management.

### **Drought**

Drought is a concern to the community because of water availability and potential economic impacts. Since farming is one of the main trades in the region, economic losses would be felt throughout the area. The two community wells, which are located northeast of the Village, are considered to be sufficient at this time. However, these wells have reported low water levels in the past. If a drought occurred and persisted many months or years, there is concern that the wells would not provide enough water to the community. The region has experienced droughts in the past with the most recent occurring during 2012-2013 with extreme drought conditions and resulted in lower crop yields.

Water is metered at the wells and at the homes of the residents. Clarks has neither a drought monitoring board nor a drought response plan. However, the Village is considering establishing specific drought monitoring protocols.

### **Severe Thunderstorms**

NCEI reported one thunderstorm wind event since 1996 that caused \$1,000,000 in damages. The local planning team reported past severe thunderstorm events that caused hail damages to vehicles, crops, and houses. Critical municipal records are backed up, but critical facilities do not have backup generators. The school and assisted living building need backup generators.

### **Severe Winter Storms**

According to the local planning team, historically, severe winter storms with heavy snow and high winds have reduced visibility and closed roads in the Village. A very small percentage of power lines are buried. The Village does use snow fences, located on the west end of the town. The Village is responsible for snow removal, and the community needs an additional snowplow.

### **Tornadoes**

There are two reports of tornadoes since 1996 in the Village of Clarks, causing \$230,000 in damages. The Village does have sirens, however, on the north side of town where the school is located, the sirens are hard to hear. Thus, the community would like to add an additional siren on the north side of town. The sirens are controlled by the Merrick County Sheriff's Department. The planning team noted that there are no storm shelters available in Clarks. Mutual Aid agreements are in place with Central City, Polk, and Silver Creek.

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Clarks is governed by a Chairperson and a four member Village Board. Furthermore, Clarks has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Maintenance Superintendent
- Planning Commissioner
- Utility Superintendent
- Water Superintendent
- Volunteer Fire Department
- Volunteer Ambulance Service

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table CLR.8: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	State Codes
National Flood Insurance Program	No	

Survey Components/Subcomponents		Yes/No
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table CLR.9: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Moderate

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Village of Clarks has a Comprehensive Plan, but it is not known when it was written. The plan does not include HMP principles, and there is currently no timeline for updating the Comprehensive Plan.

Clarks has an annex to the Merrick County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village has a 1 & 6 Year Road Plan, which is updated annually. The Village Board has been discussing the need for a new Fire Hall. Since the current Fire Hall is a designated public storm shelter, the Village would like to include a safe room or reinforced section of the facility for use by the public. The Village also anticipates fixing the streets and sidewalks in downtown, and burying the power lines leading to the street lights. These improvements are all dependent on future available funding opportunities.

No other examples of plan integration were identified. There are currently no plans to further integrate planning mechanisms.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$15,000+
Funding	Local Budget, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Maintenance Superintendent, Fire Department
Location	The existing siren at the Fire Station is in need of replacement and an additional siren needs to be installed on the north end of town to extend coverage

	<b>Purchase Snow Removal Equipment</b>
Description	Increase ability to remove snow/ice from community streets by augmenting equipment or supplies, including purchasing equipment such as snowplows, payloaders, trucks, or plow blades
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	\$100,000+
Funding	Local Budget
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

<b>Emergency Exercise: Hazardous Spill</b>	
Description	Utilize exercise to prepare for potential explosions or hazardous spills; ensure that nearby businesses and residents have appropriate plans in place
Hazard(s) Addressed	Chemical Transportation
Estimated Cost	\$5,000+
Funding	Local Budget
Status	Not yet started.
Timeline	5 years
Priority	Low
Lead Agency	Fire Department, Emergency Management

<b>Monitor Drought Conditions</b>	
Description	Establish specific drought monitoring protocols to serve as triggers for implementing drought response actions
Hazard(s) Addressed	Drought
Estimated Cost	\$1,000+
Funding	Local Budget
Status	Not yet started.
Timeline	5 years
Priority	Low
Lead Agency	Water Superintendent

**Removed Mitigation Actions**

<b>Maintain NFIP Participation</b>	
Description	
Analysis	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; additional floodplain mapping/remapping
Reason for Removal	This is no longer considered a hazard mitigation action.

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF PALMER

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table PMR.1 provides the list of participating members that comprised the Palmer local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and contributed important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table PMR.1: Village of Palmer Local Planning Team**

Name	Title	Department/Organization
Sarah Davis	Clerk and Treasurer	Village of Palmer

**LOCATION AND GEOGRAPHY**

The Village of Palmer is located in the northwestern portion of Merrick County and covers an area of 0.53 square miles. The major waterway in the area is the Loup River.

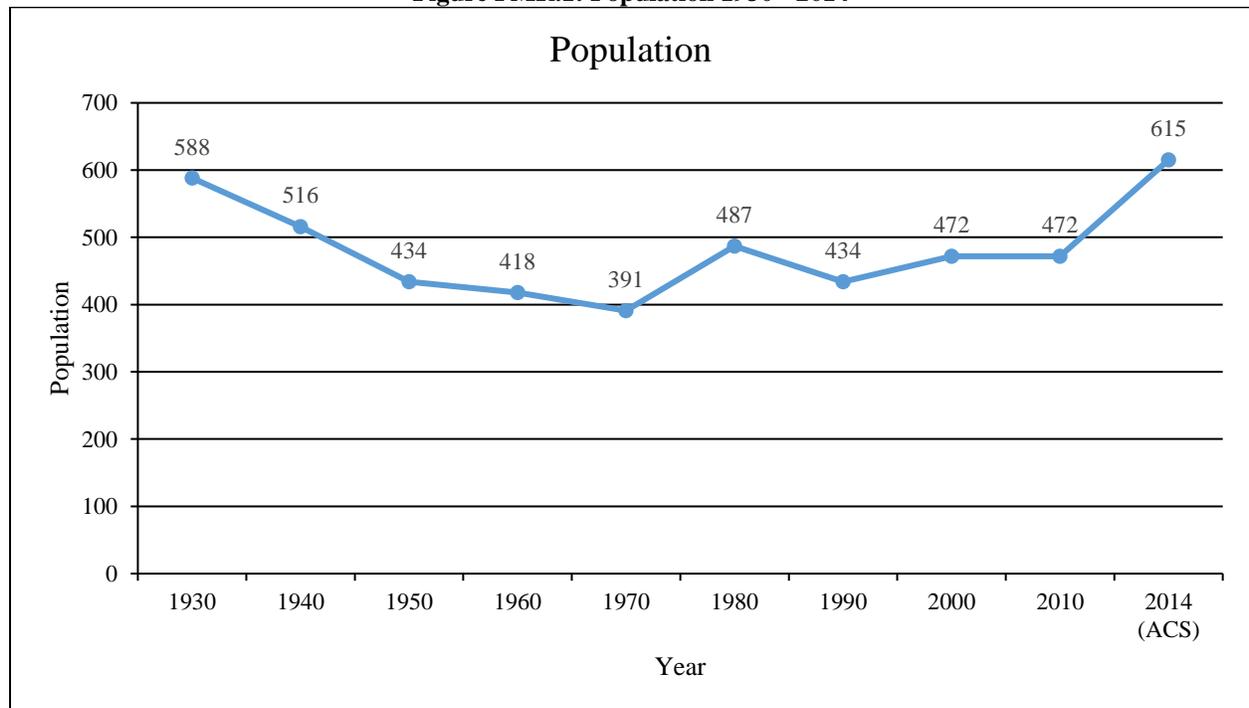
**TRANSPORTATION**

Palmer’s major transportation corridor is County Road 61A which is located east of the Village and travels north to south. On average, there about 850 vehicles per day on Road 61A with 110 of those being heavy commercial vehicles. Palmer has one rail line, a Nebraska Central Railway Company line which cuts through the center of the Village and travels northwest to southeast.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Palmer has been increasing since 1990.

**Figure PMR.1: Population 1930 - 2014**



Source: U.S. Census Bureau



The following table indicates the Village has a lower percentage of the population under the age of 5 than the County and the state, but has a higher percentage of the population between 5 to 64 than both the County and the state. Palmer has an equal percentage of the population over the age of 64 as the state, but the County has a higher percentage. Palmer’s median age is higher than the state’s, but lower than the County.

**Table PMR.2: Population by Age**

Age	Village of Palmer	Merrick County	State of Nebraska
<5	5.3%	6.0%	7.2%
5-64	81.2%	75.9%	79.2%
>64	13.6%	18.0%	13.6%
Median	40.5	43.1	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Palmer’s median household income, per capita income, and median home value are all lower than both the County and the state. However, Palmer’s median rent is higher than the County, but lower than the state.

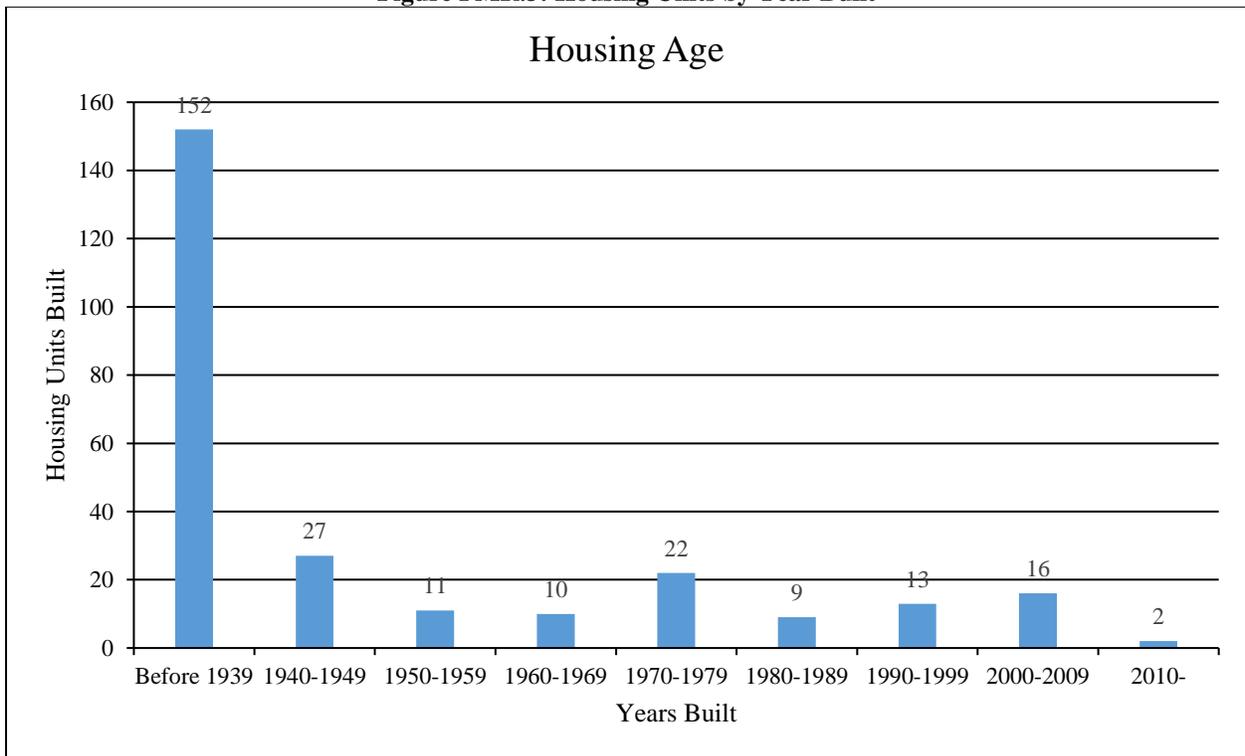
**Table PMR.3: Housing and Income**

	Village of Palmer	Merrick County	State of Nebraska
Median Household Income	\$42,083	\$62,610	\$52,400
Per Capita Income	\$20,619	\$25,403	\$27,339
Median Home Value	\$57,600	\$83,900	\$130,100
Median Rent	\$709	\$550	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 262 housing units with 95.0 percent of those units occupied. There are approximately 21 mobile homes in the community.

**Figure PMR.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table PMR.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Palmer	249	95%	13	5%	188	75.50%	61	24.50%
Merrick County	3,331	89.9%	376	10.1%	2,424	72.8%	907	27.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the community are Dinsdale Express, Palmer Cattle Company, and the Palmer Public School. A large percentage of the residents commute to nearby Grand Island for work.

***FUTURE DEVELOPMENT TRENDS***

In the last five years, there have been new businesses and some housing demolition, and Commercial Street was re-done. According to the local planning team, Palmer’s affordable living, school system, new job opportunities, and close commute to Grand Island have all contributed to the growth of the community. In the next five years, the local planning team mentioned the possibility of the entire community being blighted in order to receive tax increment financing for new residential apartments or housing. The new developments would likely be in the Omega Street and Yolande Street area.

***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table PMR.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
295	\$9,083,890	\$59,400	13	\$376,375

Source: GIS Workshop/Merrick County Assessor

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there is one chemical storage site that houses hazardous materials in Palmer. It is not located in the floodplain (Figure PMR.5).

**Table PMR.6: Chemical Storage Fixed Sites**

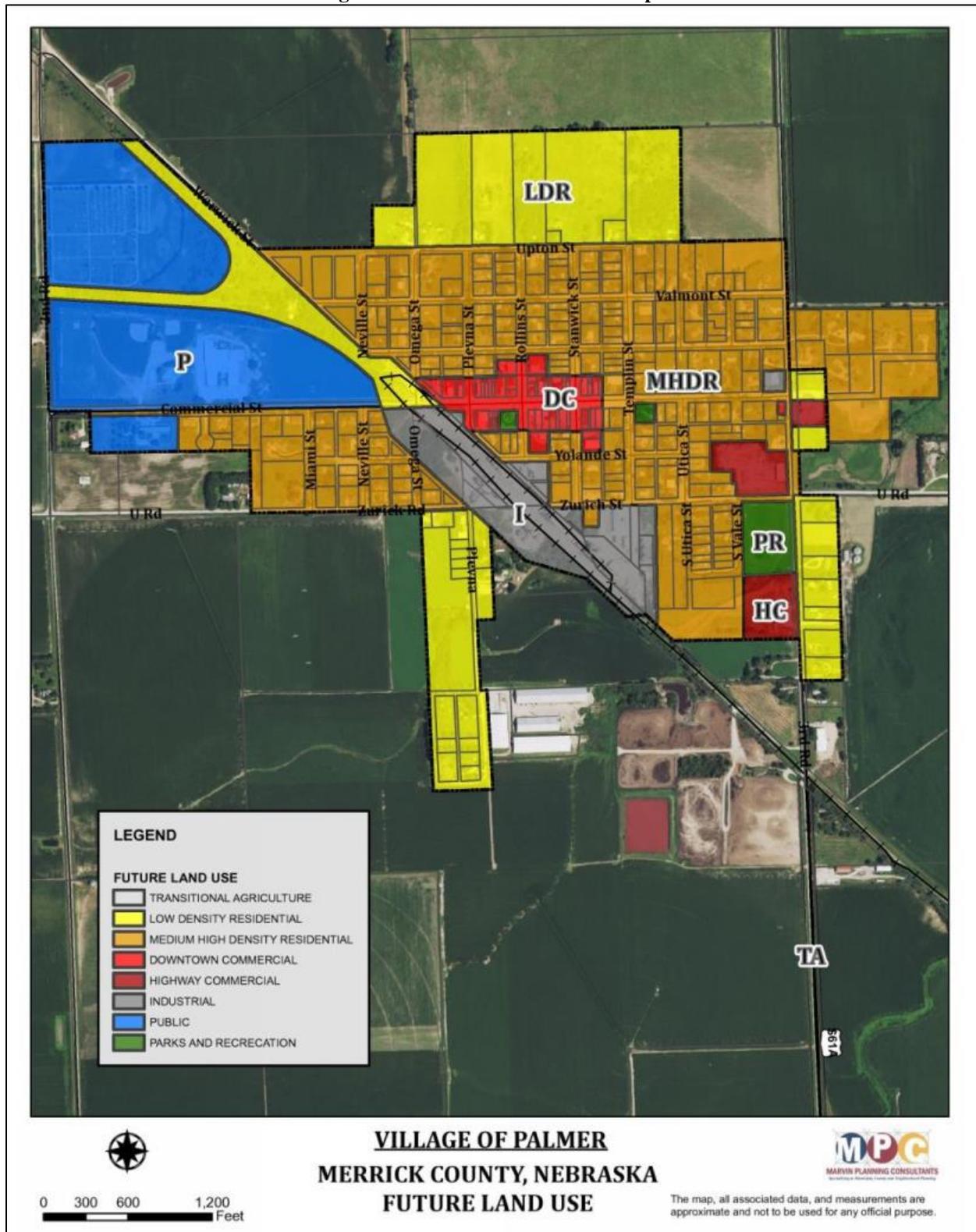
Facility	Address	In Floodplain?
Dinsdale Brothers	901 Zurich St	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Palmer.

Figure PMR.4: Future Land Use Map



**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table PMR.7: List of Critical Facilities in Palmer**

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Palmer Public School	202 Commercial St	Y	Y	N
2	Village Office/Shop	802 Commercial St	N	Portable	N
3	Fire Department	502 Stanwick St	N	N	N
4	Maplewood Corners	1101 Valmont St	N	N	N
5	Coolidge Center/Life Quest	201 Commercial St	N	N	N
6	Village Market	911 Commercial St	N	N	N
7	Well #1	Omega St and South of Warwick St	N	N	N
8	Well #2	Warwick St and Stanwick St.	N	N	N
9	Well #3	Warwick St and Vale St.	N	N	N
10	Well #4	Zurich St and S. Vale St	N	N	N



**HISTORICAL OCCURRENCES**

For a table of historical occurrences, please see the Participant Section for Merrick County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Flooding**

According to the NCEI, one flash flood event since 1996 occurred in the community on May 29, 2008. A significant severe weather event caused severe thunderstorms to produce heavy rains across the County, which dumped several inches of rain in a short period of time. This caused roads and small creeks to quickly flood. Property damages were estimated at \$200,000.

The local planning team stated that flash flooding and riverine flooding are concerns for the community. The Loup River is located about three miles north of the Village, and there is a creek that flows through the southern portion of the town. Areas that are more prone to flooding due to lower elevation and poor stormwater drainage are the intersections of Utica and Yolande Streets and also Zurich and 3<sup>rd</sup> Road. The local planning team is unaware of any local buildings having been damaged by flooding in the past.

There are no repetitive flood loss properties in the community. The Village of Palmer is not a member of the NFIP. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 4.4 percent of all parcel improvements in Palmer are located in the floodplain.

**Table PMR.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$376,375	13	295	4.4%

Source: GIS Workshop/Merrick County Assessor

Flooding mitigation plans for Palmer include a public education campaign, a flood proofing project for the Village wells, and paving the Village roads.

**Grass/Wildfires**

According to the Nebraska Forest Service, there were 12 wildfires reported by the Palmer Fire Department between 2000 and 2014 as indicated in the following table. All fires occurred during 2005 and 2006 with the largest fire occurring on February 15, 2006 when 17 acres were burned. The local planning team is concerned with the level of staffing at the all-volunteer Palmer Fire Department and with the response time from neighboring departments. Mitigation actions for wildfires will center on a public awareness campaign.

**Table PMR.9: Reported Wildfires for Palmer Fire Department**

Date	Cause	Total Acres Burned	Number of Firefighters	Number of Pumpers	Number of Tankers
4/7/2005	Equipment - Welding or Cut Torch	3	12	1	1
7/8/2005	Equipment - Car or Truck	5	8	1	1
7/29/2005	Miscellaneous - Unknown	2	11	1	1
2/15/2006	Miscellaneous - Unknown	17	21	2	12
3/6/2006	Debris Burning - Prescribed Fire	0.1	11	1	1
6/5/2006	Miscellaneous - Unknown	1	11	1	0
6/11/2006	Miscellaneous - Power Lines	1	12	1	1
6/27/2006	Equipment - Miscellaneous	1	12	1	1
7/3/2006	Equipment - Car or Truck	0.01	11	1	1
7/12/2006	Equipment - Baler	2	15	1	1
7/14/2006	Miscellaneous - Other	1	15	1	1
8/8/2006	Debris Burning - Agricultural Burning	0.01	10	1	0

Source: Nebraska Forest Service, 2000-2014

### Hail

According to the NCEI, there have been 13 hail events in the Village since 1996 with the average hail size around 1.31 inches causing a total of \$445,000 in property damages. On May 23, 1998, hail was as large as 2.75 inches, which caused \$80,000 in property damages. Much of the damage was done to windshields and knocked out windows. It was reported that there were drifts of hail still visible in lawns 24 hours after the thunderstorms passed. On May 25, 2012, another hailstorm with 2.75-inch hail hit the Village of Palmer causing \$75,000 in damages. The local planning team noted that the main concern is the cost of repairs for fixing hail damage. Hail hazard mitigation plans include providing backup generators and weather radios for all critical facilities.

### Severe Winter Storms

The local planning team stated that a significant winter storm hit during early February 2016 with heavy snow and high winds, which caused whiteout conditions and drifting snow. Snow storm totals were between 10-16 inches. Due to the large amount of snow and high drifts, the Village was closed for two days with snow removal being slow. There has been damage to critical facilities, primarily to roofs where heavy snow caused leaks and damage from the weight of the snow. The community does not have identified snow routes, however Commercial Street and streets accessing critical locations are prioritized. The local planning team was concerned with the lack of available help during snow events and the need for areas to store snow following large snow events. Currently, the Village has two employees that work to remove snow during and following winter storms. Palmer plans to mitigate this hazard by exploring the option of hiring a third-party snow removal company for heavy snow events.

### Tornadoes

An F2 tornado touched down on the eastern side of town on May 10, 1982. It caused wind damage and trees felled causing about \$250,000 in property damages. There were no injuries or fatalities, and none of the critical facilities were damaged. The community does not have a public safe room available at this time, but plans to provide adequate public safe rooms as part of their hazard mitigation actions. The Village backs up municipal records regularly on zip drives that are stored in a safety deposit box at the local bank. Hazard mitigation plans include developing a standardized protocol for backing up these records. The tornado siren is activated by the local fire department and siren coverage is currently adequate. Further mitigation actions will include providing weather radios to all critical facilities.

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Palmer is governed by a Chairperson and a four member Village Board. Furthermore, Palmer has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table PMR.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	No
	Building Codes	Local Codes
	National Flood Insurance Program	No
	Community Rating System	No
Other (if any)		
Administrative &	Planning Commission	Yes

Survey Components/Subcomponents		Yes/No
Technical Capability	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	No
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table PMR.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Moderate
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	High
Does the community staff have time to devote to hazard mitigation?	Moderate

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA's 2014 *Plan Integration Guide*.

The Village's Comprehensive Plan was last updated in 2016. The plan encourages infill development, clustering of development in sensitive areas, and the preservation of open space in hazard-prone areas.

Furthermore, it identifies areas that may need emergency shelters in the future such as mobile home park areas. The plan also states that flooding hazards should be considered in future development. With the plan having been updated recently, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The Zoning Ordinances were last updated in 2016. They do not include a Floodplain Ordinance, however, it does state the junk yards shall not be located within a designated 100-year floodplain area. A minimum of 2,640 feet is required for storing and distributing of anhydrous ammonia, fuel, fertilizer, and other chemicals from residential, commercial, industrial, or public use.

The Subdivision Ordinance was last updated in 2016. Areas of land prone to flooding are discouraged from being developed.

Palmer has an annex to the Merrick County Local Emergency Operations Plan; last updated in 2015. The plan addresses the Village’s hazards of greatest concern and provides a clear assignment of responsibility during an emergency.

***MITIGATION STRATEGY***

**Ongoing and New Mitigation Actions**

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All Hazards
Estimated Cost	\$1,000+
Funding	Village Funds, HMGP
Status	Planning stage. The Village will be launching a new website and a page with education on hazards will be included.
Timeline	1 year
Priority	High
Lead Agency	Village Clerk and IT Innovations (contractor)

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$50/radio
Funding	Village Funds, HMGP
Status	Not yet started.
Timeline	1 year
Priority	Medium
Lead Agency	Village Clerk and Emergency Management

*Section Seven: Village of Palmer Participant Section*

<b>Improve/provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000+/generator
Funding	Village Funds, HMGP, PDM
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board, Utilities Supervisor

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds
Estimated Cost	\$200-\$300/sf stand alone; \$150-200/sf addition/retrofit
Funding	Village Funds, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	Village Board

<b>Flood Proof Village Wells</b>	
Description	Flood proof Village wells from flood waters to secure safe drinking water for residents
Hazard(s) Addressed	Flooding
Estimated Cost	\$16,000+
Funding	Village Funds, PDM, FMA
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Utilities Supervisor

<b>Improve Snow Removal Resources</b>	
Description	Explore the feasibility of hiring a third-party snow removal company
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	Staff Time
Funding	Village Funds
Status	Not yet started.
Timeline	2-5 years
Priority	Low
Lead Agency	Village Board and Utilities Supervisor

<b>Pave Village Roads</b>	
Description	Pave Village roads to remove the risk of washed out roads during heavy rain events
Hazard(s) Addressed	Flooding, Severe Thunderstorms
Estimated Cost	Unknown
Funding	Village Funds
Status	Not yet started.
Timeline	5+ years
Priority	Medium
Lead Agency	Village Board and Village Engineer

<b>Backup Municipal Records</b>	
Description	Develop protocol for backing up critical municipal records onto a portable storage device or service; maintain routine backup of records
Hazard(s) Addressed	All Hazards
Estimated Cost	\$100
Funding	Village Funds, Staff Time
Status	Copies of municipal records to be made quarterly and stored in safety deposit box at local bank.
Timeline	Ongoing
Priority	High
Lead Agency	Village Clerk

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF SILVER CREEK

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table SVC.1 provides the list of participating members that comprised the Village of Silver Creek local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table SVC.1: Silver Creek Local Planning Team**

Name	Title	Department / Organization
Pat Robinson	Utilities Superintendent	Village of Silver Creek

**LOCATION AND GEOGRAPHY**

The Village of Silver Creek is located in the northeastern portion of Merrick County and covers an area of 0.28 square miles. Major waterways in the area include the Platte River and Silver Creek.

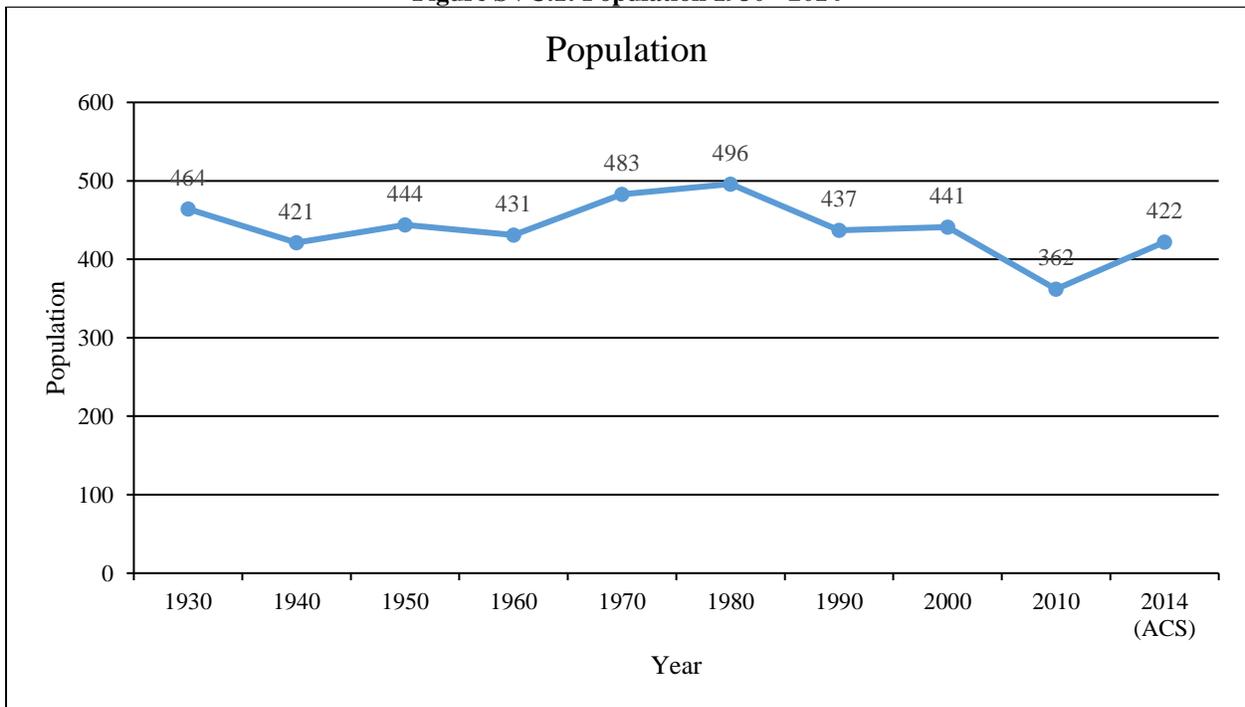
**TRANSPORTATION**

Silver Creek’s major transportation corridor is U.S. Highway 30 which travels northeast to southwest through the center of the Village. On average, there are 3,545 vehicles per day on Highway 30 with 1,045 of those being heavy commercial vehicles. Silver Creek has one rail line that runs parallel to Highway 30, a Union Pacific line.

**DEMOGRAPHICS**

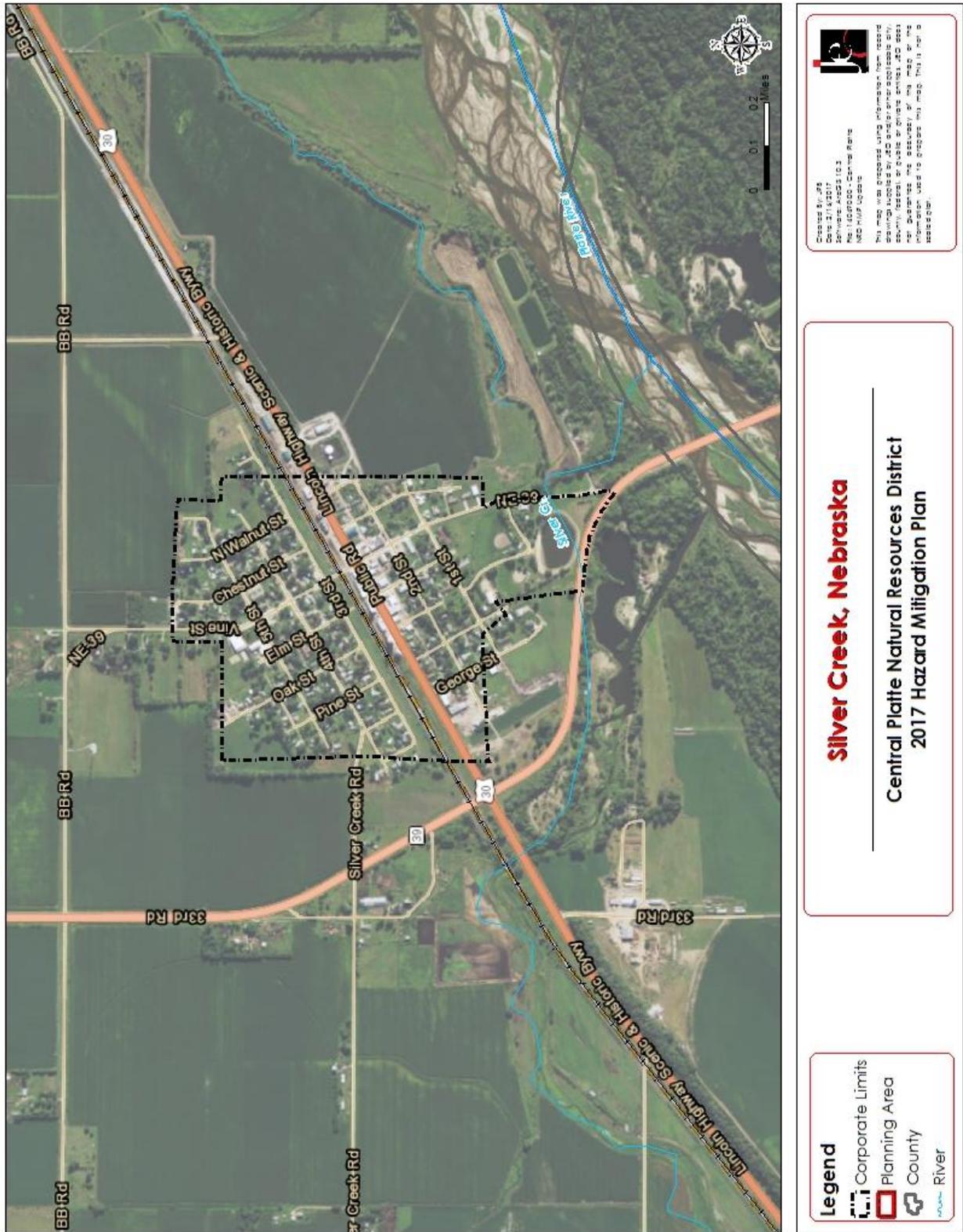
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Silver Creek has been fluctuating since 1980 but most recently the population has increased.

**Figure SVC.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure SVC.2: Map of the Village of Silver Creek



The following table indicates the Village has a lower percentage of the population under 5, and between 5 and 64 than both the County and the state. However, Silver Creek’s percentage of the population over 64 is higher than both the County and the state. Silver Creek’s median age is lower than the County, but higher than the state.

**Table SVC.2: Population by Age**

Age	Silver Creek	Merrick County	State of Nebraska
<5	5.0%	6.0%	7.2%
5-64	69.6%	75.9%	79.2%
>64	25.4%	18.0%	13.6%
Median	37.8	43.1	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Silver Creek’s median household income, per capita income, and median home rent are all lower than both the County and the state. Silver Creek has a median rent higher than both the County and the state.

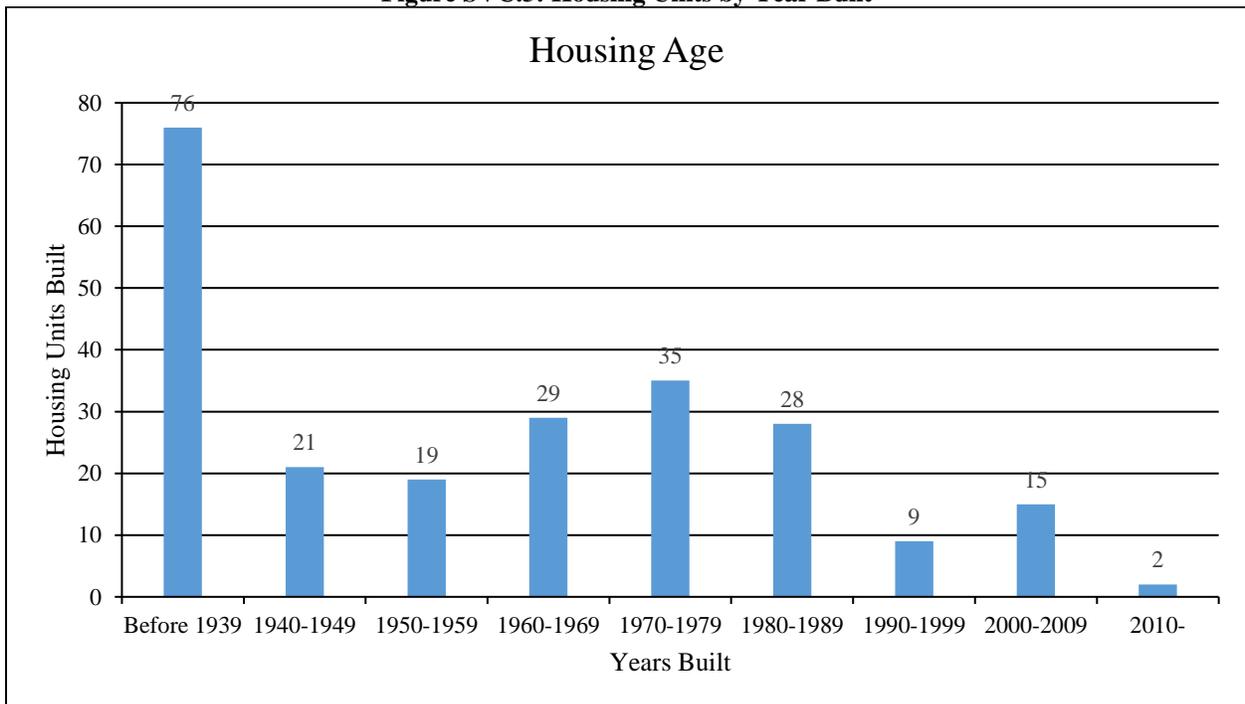
**Table SVC.3: Housing and Income**

	Silver Creek	Merrick County	State of Nebraska
Median Household Income	\$41,111	\$62,610	\$52,400
Per Capita Income	\$21,216	\$25,403	\$27,339
Median Home Value	\$61,800	\$83,900	\$130,100
Median Rent	\$781	\$550	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 234 housing units with 88.0 percent of those units occupied. There are approximately 20 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in January 2010.

**Figure SVC.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table SVC.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Silver Creek	206	88.0%	28	12.0%	168	81.6%	38	18.4%
Merrick County	3,331	89.9%	376	10.1%	2,424	72.8%	907	27.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The community has a few locally-owned businesses that employ a few residents. The largest employer is the Twin Rivers Public Schools. Much of the community’s workforce commute to nearby Columbus and Grand Island for work.

**FUTURE DEVELOPMENT TRENDS**

There are currently no plans for new housing, business, or industrial developments in Silver Creek. However, the Comprehensive Plan has identified three primary areas eligible for annexation if the community opts to in the future. The first is along the southwest corner of the community; the second is on the northern edge of the community; the final area is along the east edge.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table SVC.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
244	\$7,851,495	\$32,178	154	\$5,997,080

Source: GIS Workshop/Merrick County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of four chemical storage sites that house hazardous materials in Silver Creek. One of the chemical storage sites is located in the floodplain (Figure SVC.5).

**Table SVC.6: Chemical Storage Fixed Sites**

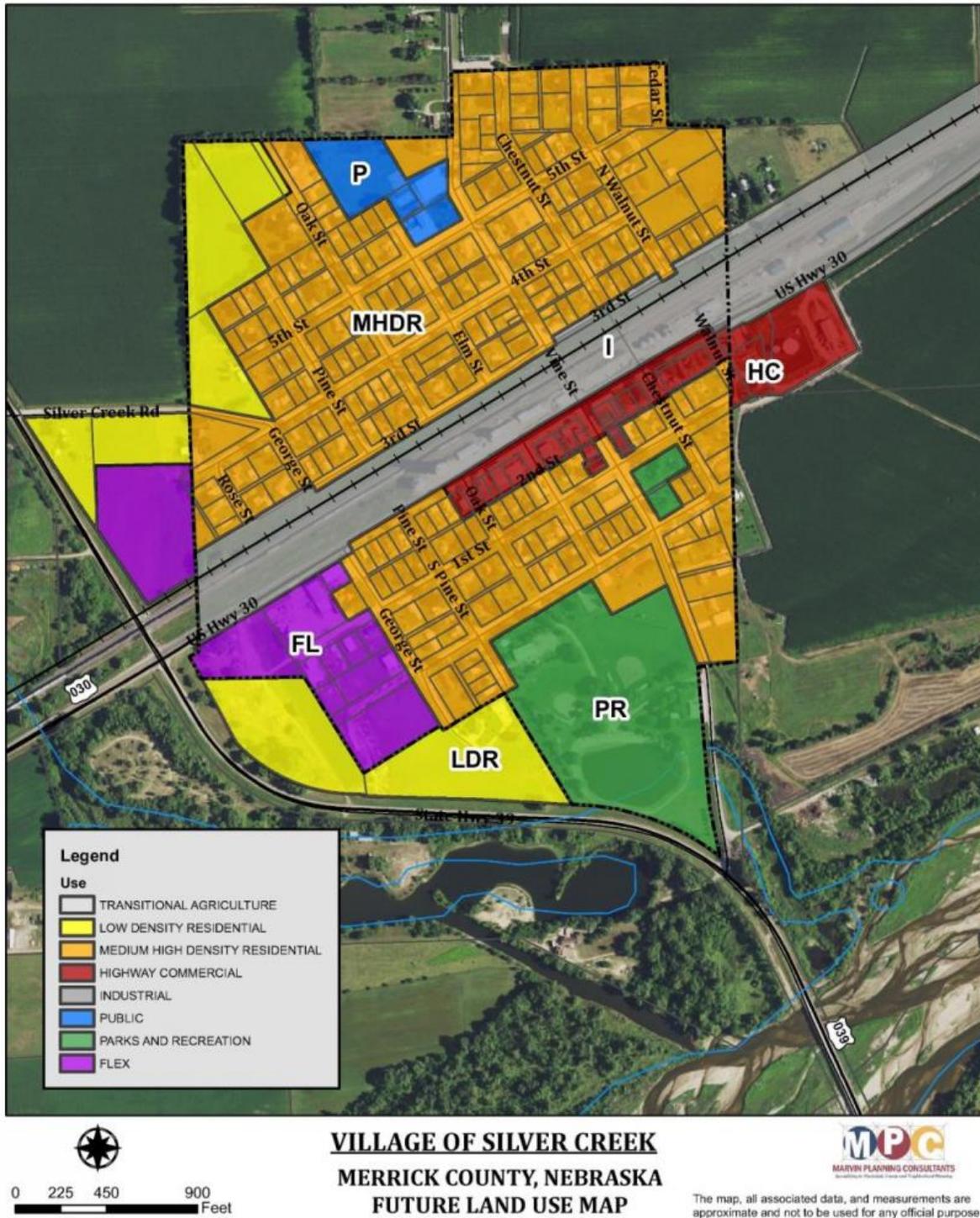
Facility	Address	In Floodplain?
CenturyLink	306 Vine St	No
Frontier Co-op Company	3221 35th Rd	Yes – 1%
Frontier Co-op Company	308 Highway 30	No
Frontier Co-op Company	810 Highway 30	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Silver Creek.

Figure SVC.4: Future Land Use Map



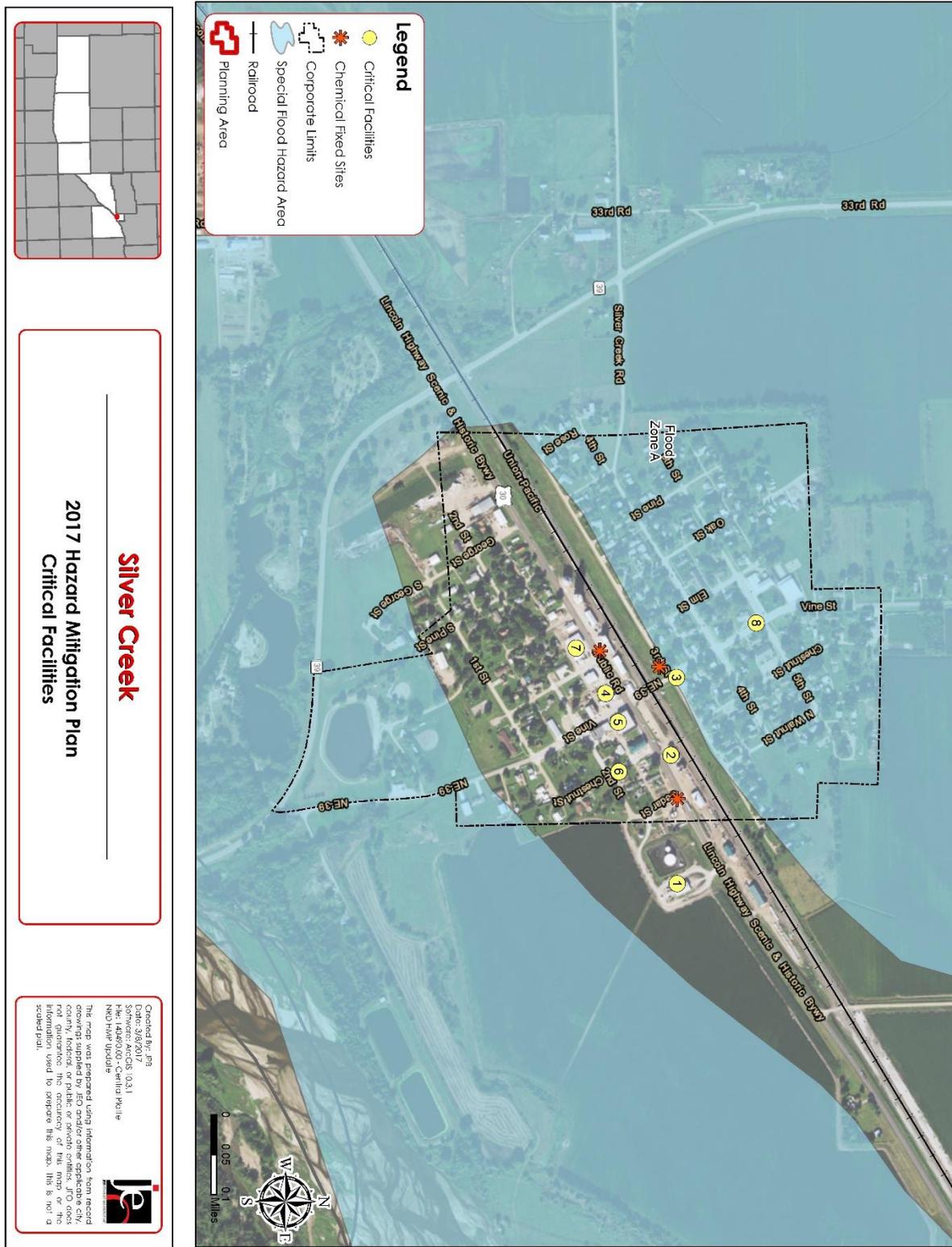
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table SVC.7: List of Critical Facilities in Silver Creek**

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Agro Services	Lincoln Hwy	N	N	N
2	Husker Coop	Lincoln Hwy and Walnut St.	N	In Process	N
3	Police Department	Vine St and 3 <sup>rd</sup> St	N	N	Y
4	Tonto's 66	210 Vine St	N	N	N
5	Post Office	215 Vine St	N	N	N
6	Hometown Market	2 <sup>nd</sup> St	N	N	N
7	Village Hall/Fire Station	Lincoln Hwy and Elm St	N	Y – Portable	N
8	Twin River Public School	609 5 <sup>th</sup> St	Y	N	Y

Figure SVC.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical occurrences, please see the Participant Section for Merrick County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported in the Silver Creek Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spills (Transportation)**

The local planning team identified chemical transportation as a top concern for the Village because of the isolated location and complicated routes of Silver Creek. The Loup and Platter Rivers make transportation confusing to unfamiliar visitors because there are limited river crossings in many locations. Highway 30 and the Union Pacific Railroad are of greatest concern. Unknown chemicals are frequently transported along these routes. Mitigation plans involve reducing Silver Creek’s vulnerability to chemical spills with public education on response plans.

**Drought**

Drought was identified as one of the top concerns for the Village because of the associated risk of wildfire, crop and livestock loss, and reduced water supply. Silver Creek defines drought as decreased well levels and extreme fire potentials. The planning team reports that the Village’s water quality is excellent, but they have only one, shallow 50-foot well. The Village’s water supply is metered. They have a drought emergency response plan with DHHS but no drought ordinance to control water expenditures. Silver Creek’s water supply is sufficient at this time, but mitigation plans include increasing the water supply with a second well.

**Flooding**

The flood risk areas of concern for Silver Creek surround the Village. A large portion of the Village is impacted by the floodplain. The Platte River, Silver Creek, and Prairie Creek are the bodies of water of greatest concern. The planning team reported past significant floods that occurred in 1967, the early 80s, and in 2007 when heavy rainfall and snow melt caused the surrounding waters to flood almost up to the town. Because of Silver Creek’s flat landscape, the resulting water from sudden heavy rains cannot get away fast enough. Rain in Grand Island can overflow Prairie Creek, and cause flooding near Silver Creek. There is public housing near the Platte River prone to flooding. Flooding mitigation will be done by reducing creek flow restrictions to improve drainage.

Silver Creek has nine NFIP policies in-force for \$1,027,100. There are no repetitive flood loss properties in the Village of Silver Creek. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 63.1 percent of all parcel improvements in Silver Creek are located in the floodplain.

**Table SVC.8: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$5,997,080	154	244	63.1%

Source: GIS Workshop/Merrick County Assessor

### **Tornadoes**

The local planning team ranked tornadoes as a top hazard of concern for the Village. NCEI reports a tornadic event composed of multiple tornadoes reaching up to EF3 status in October of 2001 that resulted in \$100,000 dollars in damages to the post office, thirteen residences, out buildings, trees, and power lines in the area. The community does not have private or public safe rooms in which to seek shelter. Due to the high ground water, most places do not have below ground structures. There is one siren in the community, operated by the County Sheriff, but it is not always heard throughout the town. Text alerts are not available for Silver Creek. Municipal records are not backed up. Mutual Aid agreements are in place with the Central Nebraska Mutual Aid Association. Tornado hazard mitigation plans include providing backup generators for all critical facilities and providing public education on tornado response plans.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Silver Creek is governed by a Chairperson and a four member Village Board. Furthermore, Silver Creek has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table SVC.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table SVC.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Village of Silver Creek Comprehensive Plan was recently updated in 2015. The plan directs development away from chemical storage facilities and from major transportation routes. It also limits density in areas adjacent to known hazardous areas, and encourages preservation of open space in hazard-prone areas. With the plan having been updated recently, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The Village’s Zoning Ordinance was also recently updated in 2015. It identifies floodplain areas as parks of open space and requires at least one-foot of elevation above base flood elevation in the floodplain. The Ordinance also discourages development near chemical storage sites and along major transportation routes.

Silver Creek’s Building Codes require elevation of structures in the floodplain and outlines proper sump pump installation.

The Village has an annex to the Merrick County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

***MITIGATION STRATEGY***

**Completed Mitigation Actions**

Description	Develop/Update Floodplain Information
Analysis	Conduct mapping/remapping of floodplains; revise floodplain/insurance maps
Hazard(s) Addressed	Flooding
Funding	Local Budget
Status	Completed with NRCS.
Location	Community wide

**Ongoing or New Mitigation Actions**

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All hazards
Estimated Cost	\$1,000+
Funding	Village Funds, HMGP
Status	Planning stage. The Village will be launching a new website and a page with education on hazards will be included.
Timeline	1 year
Priority	High
Lead Agency	Village Clerk and IT Innovations (contractor)

<b>Reduce Bottlenecks/Flow Restrictions</b>	
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Analysis	
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000
Funding	Village funds, HMGP, FMA
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Village Engineer

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Analysis	
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000 - \$75,000+ per generator
Funding	Village Funds, HMGP
Status	Husker Coop is in the process of obtaining a generator. The school needs a generator and the Village Office/Fire Station may want to install a permanent generator in the future.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Twin Rivers Public Schools

	<b>Conduct Water Supply Study</b>
Description	Evaluate the need to expand water storage capacity through new means (new water tower, stand pipe, etc.) or locate new water resources to provide a safe water supply for the community and nearby rural areas during periods of drought
Hazard(s) Addressed	Drought
Estimated Cost	\$50,000
Funding	Village funds
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board, Village Engineer

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; additional floodplain mapping/remapping
Reason for Removal	Village will continue to participate in program, however, this is no longer considered a hazard mitigation action.

AUGUST 2017

**POLK COUNTY APPENDIX**  
**CENTRAL PLATTE NRD MULTI-JURISDICTIONAL**  
**HAZARD MITIGATION PLAN**



THIS PAGE IS INTENTIONALLY BLANK

**CONTENTS**

<b>PLAN OVERVIEW .....</b>	<b>1</b>
<b>POLK COUNTY .....</b>	<b>3</b>
<b>CITY OF OSCEOLA .....</b>	<b>23</b>
<b>VILLAGE OF POLK .....</b>	<b>39</b>
<b>VILLAGE OF SHELBY .....</b>	<b>53</b>
<b>CITY OF STROMSBURG .....</b>	<b>67</b>

THIS PAGE IS INTENTIONALLY BLANK



## ***PLAN OVERVIEW***

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind the update of this hazard mitigation plan is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives which helped guide the process of identifying both broad-based and community-specific mitigation strategies and projects that will, if implemented, reduce their vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (One for each of the five participating counties plus one for the Central Platte NRD and one for communities participating outside of the five participating counties)
- An appendix of procedural documentation and resolutions of adoption

This participant appendix includes all of the participating jurisdictions from Polk County, which includes jurisdiction-specific information for each participant. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION  
FOR

POLK COUNTY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

### **LOCAL PLANNING TEAM**

Table PKC.1 provides the list of participating members that comprised the Polk County local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the County.

**Table PKC.1: Polk County Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Jurisdiction/Department</b>
Bob Carey	Emergency Manager	Polk County
Dwaine Ladwig	Sheriff	Polk County Sheriff's Department
Deborah Girard	County Clerk	Polk County
Chris Hayes	County Surveyor/Floodplain Administrator	Polk County

### **LOCATION AND GEOGRAPHY**

Polk County is located in east central Nebraska and is bordered by Butler, York, Hamilton, Merrick, and Platte counties. The total area of Polk County is 441 square miles. Major waterways within the County include the Platte River, the Big Blue River, Clear Creek, Davis Creek, and Prairie Creek. Most of Polk County lies in the plains and valleys topographic region, with the vast majority of the County's land characterized by agricultural fields.

### **CLIMATE**

For Polk County, the normal high temperature for the month of July is 85.7°F. The normal low temperature for the month of January is 12.3°F. On average, Polk County receives 28.89 inches of rain and 29.1 inches of snowfall per year. The following table compares these climate indicators with those of the entire state. Climate data are helpful in determining if certain events are more or less likely to occur in specific geographic locations.

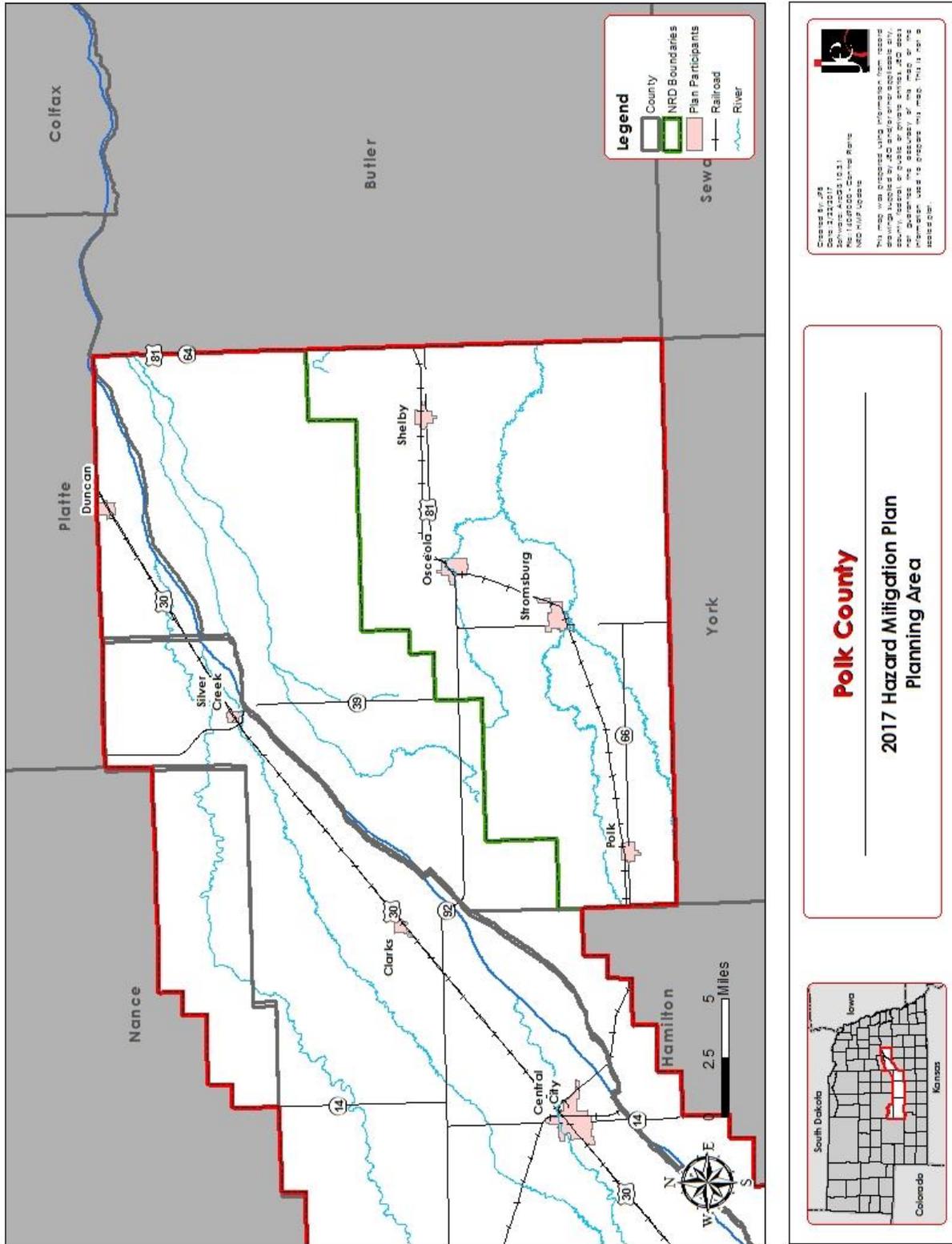
**Table PKC.2: Climate Data for Polk County**

<b>Age</b>	<b>Polk County</b>	<b>Planning Area</b>	<b>State of Nebraska</b>
July Normal High Temp	85.7°F	87.0°F	88.0°F
January Normal Low Temp	12.3°F	14.2°F	12.0°F
Annual Normal Precipitation	28.89 inches	26.65 inches	23.89 inches
Annual Normal Snowfall	29.1 inches	26.2 inches	25.9 inches

Source: NCEI Climate Data Online, 1981-2010 Climate Normals

\*Precipitation includes all rain and melted snow and ice.

Figure PKC.1: Polk County Map



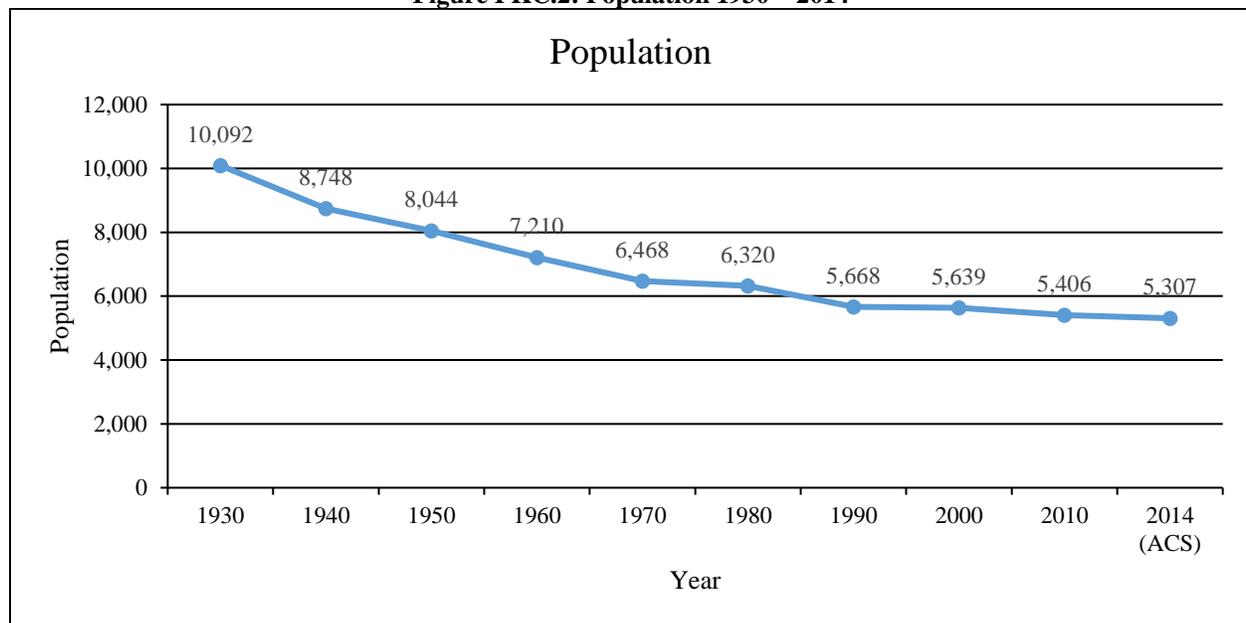
**TRANSPORTATION**

Polk County’s major transportation corridors include Nebraska Highways 39, 66, 69, 92 and U.S. Highway 81. Nebraska Highway 39 is located in the northwestern portion of the County and travels in a north-south direction. The average vehicles per day on Nebraska Highway 39 is between 895 and 1,055 with about 125 of those categorized as heavy commercial vehicles. Nebraska Highway 66 runs in the east-west direction and is located in the southwest corner of the County. On average, there are between 800 and 1,175 vehicles per day with 100 to 185 of those vehicles being heavy commercial vehicles. Nebraska Highway 69 is located in the southeast corner of the County and travels in a north-south direction. The average number of vehicles per day are between 840 and 980, with 75 to 85 of those being heavy commercial vehicles. Nebraska Highway 92 runs east to west through the middle of the County and has an average of 1,175 vehicles per day with 210 of those being heavy commercial vehicles. U.S. Highway 81 also runs in the east to west direction and runs through the middle of the County. U.S. Highway 81 has an average of 3,655 to 4,345 vehicles per day with 570 to 625 of those being heavy commercial vehicles. There is one privately-owned helipad in the County located near Shelby.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Polk County has been declining since 1930.

**Figure PKC.2: Population 1930 – 2014**



Source: U.S. Census Bureau

The following table indicates the State of Nebraska has a higher percentage of people under the age of 5 and between the ages of 5 and 64 than Polk County. However, the County has a higher percentage of people over the age of 64. Additionally, the median age for Polk County is ten years old than that of the state.

**Table PKC.3: Population by Age**

Age	Polk County	State of Nebraska
<5	6.0%	7.2%
5-64	74.3%	79.2%
>64	19.8%	13.6%
Median	46.50	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that median household income and per capita income are higher for the County when compared to the State of Nebraska. However, the median home value and rent are lower than the rest of the state. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the state as a whole.

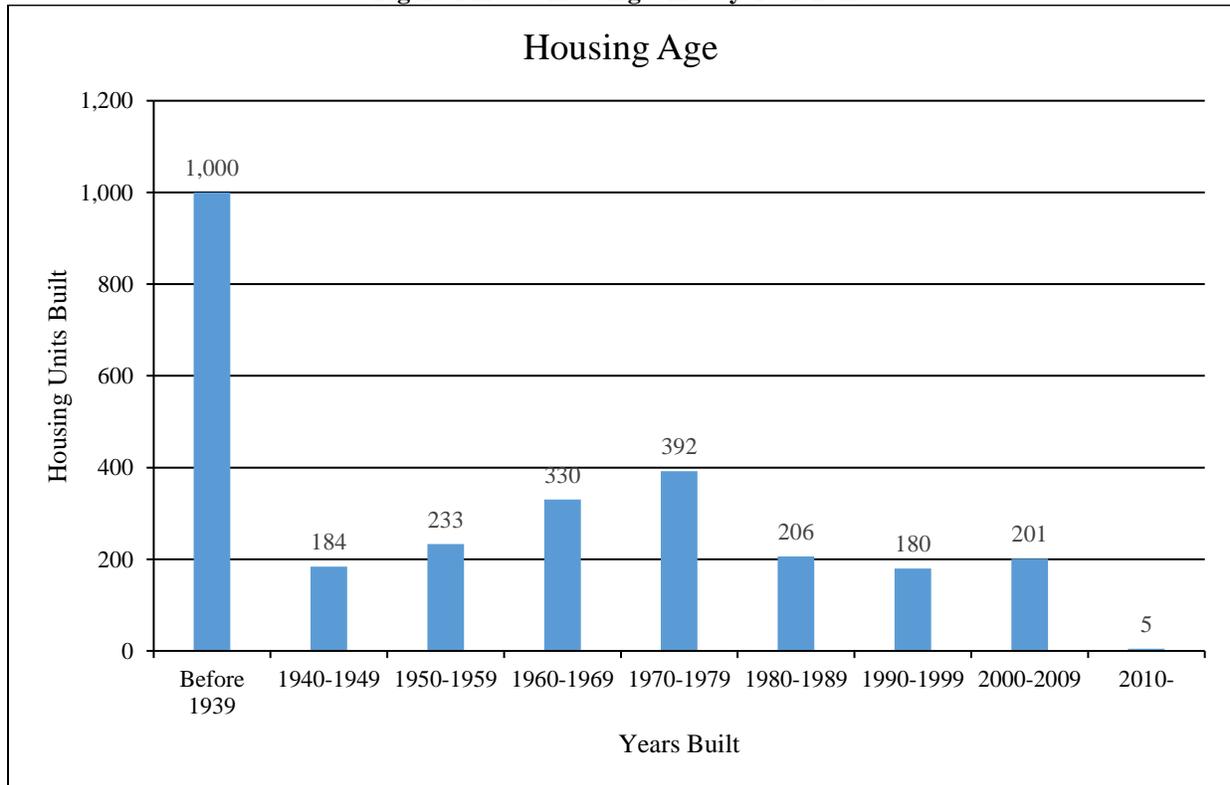
**Table PKC.4: Housing and Income**

	Polk County	State of Nebraska
Median Household Income	\$69,263	\$52,400
Per Capita Income	\$29,567	\$27,339
Median Home Value	\$97,600	\$130,100
Median Rent	\$607	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the County has 2,731 housing units with 81.9 percent of those units occupied. There are approximately 160 mobile homes in the County. The initial Flood Insurance Rate Map (FIRM) was developed in August 2008.

**Figure PKC.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table PKC.5: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Polk County	2,238	81.9%	493	18.1%	1,675	74.8%	563	25.2%
Nebraska	731,347	90.8%	73,909	9.2%	486,036	66.5%	245,311	33.5%

Source: Selected Housing Characteristics: 2010 - 2014 ACS 5-year estimate

***MAJOR EMPLOYERS***

According to 2014 Business Patterns Census Data, Polk County had 149 business establishments. The following table presents the number of establishments, number of paid employees, and the annual pay role in thousands of dollars. This information is relevant to hazard mitigation insofar as it indicates the diversification of industry. Communities which have a diverse economic makeup may be more resilient following a hazardous event, especially if certain industries are more impacted than others.

**Table PKC.6: Business in Polk County**

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
<b>Total for all Sectors</b>	149	940	\$26,253

Source: U.S Census 2014, Table CB1400A11

Agriculture is important to the economic fabric of Polk County, and the state of Nebraska as a whole. Polk County’s 466 farms cover 245,268 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well. Related business contributions include producing, processing and marketing farm and food products. These businesses generate income, employment and economic activity throughout the region.

**Table PKC.7: Polk County Agricultural Inventory**

Polk County Agricultural Inventory	
Number of Farms	466
Land in Farms	245,268 acres

Source: USDA 2012 Census of Agriculture

***FUTURE DEVELOPMENT TRENDS***

In the last five years, there has been a new road and three new grain bins built in Polk County. New houses have been built in the floodplain along the Platte River and next to various lakes between Merrick and Polk Counties. There are more housing developments planned in these areas. According to the planning team, Polk County’s population is declining because there is more opportunity elsewhere.

***PARCEL IMPROVEMENTS AND VALUATION***

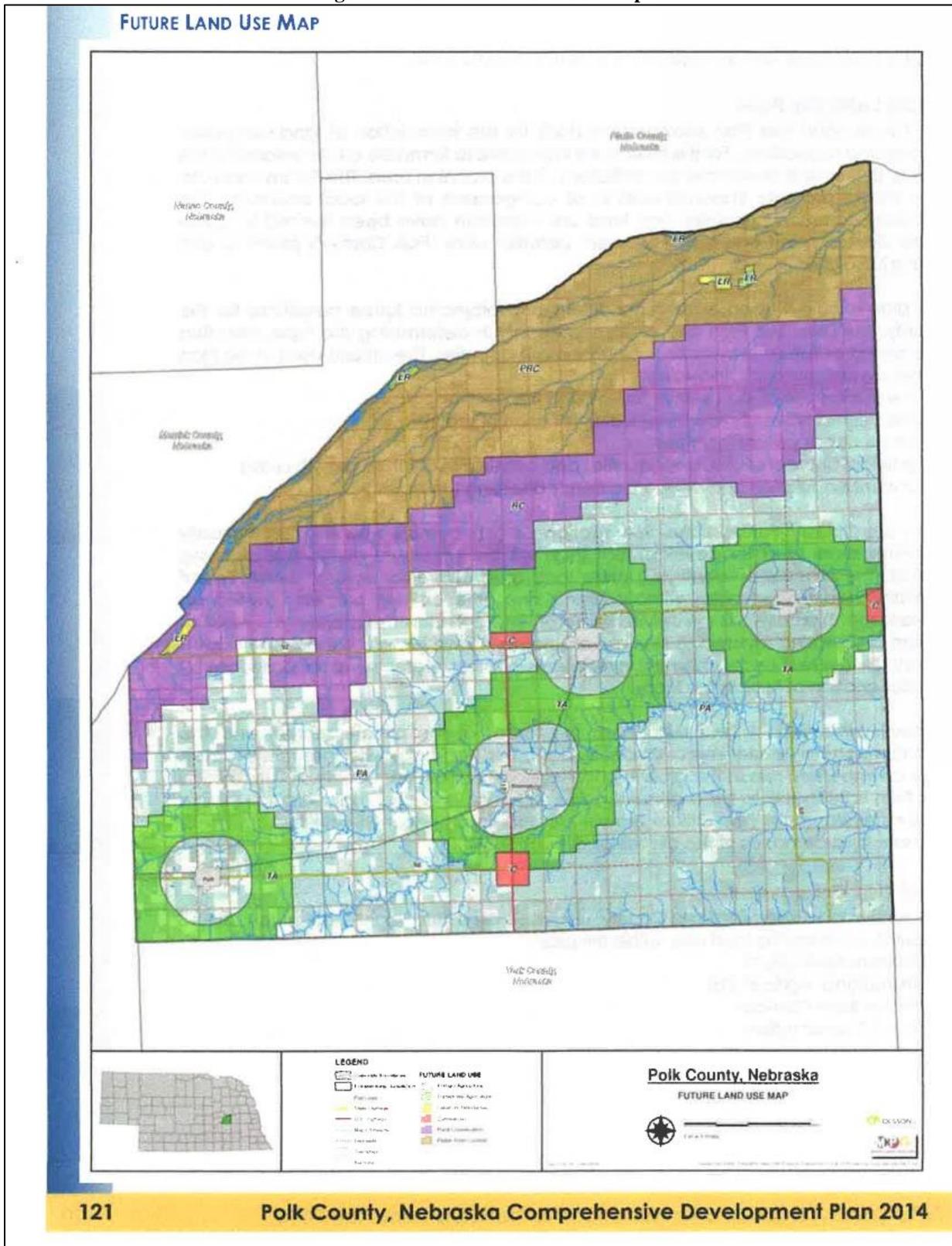
GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table PKC.8: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
5,415	\$193,111,380	\$35,662	1,921	\$47,601,385

Source: GIS Workshop/Polk County Assessor

Figure PKC.4: Future Land Use Map



***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of seven chemical storage sites that house hazardous materials in Polk County. None of these chemical storage sites are located in the floodplain (Figure PKC.5).

**Table PKC.9: Chemical Storage Fixed Sites**

<b>Facility</b>	<b>Address</b>	<b>City</b>	<b>In Floodplain?</b>
Plains Equipment Group	13006 N Rd	Osceola	No
Frontier Co-op Company Bins	1030 Central	Osceola	No
Harless Oil Company	320 Polk Ave	Polk	No
Central Valley Ag	450 Polk Ave	Polk	No
Central Valley Ag	340 E Oak St	Shelby	No
Creston Fertilizer Co Inc	12731 U Rd	Shelby	No
Central Valley Ag	M Rd	Stromsburg	No

Source: Nebraska Department of Environmental Quality, 2016

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are three historic sites located in rural Polk County. Urban sites for Polk County can be found in their respective participant sections.

**Table PKC.10: National Historic Registry**

<b>Site Name</b>	<b>Date Listed</b>	<b>In Floodplain?</b>
Clarks Site	8/14/1973	Unknown
Charles H. Morrill Homestead	6/4/1973	No
Strickland Archeological Site	7/3/1996	Unknown

Source: Nebraska State Historical Society, 2016

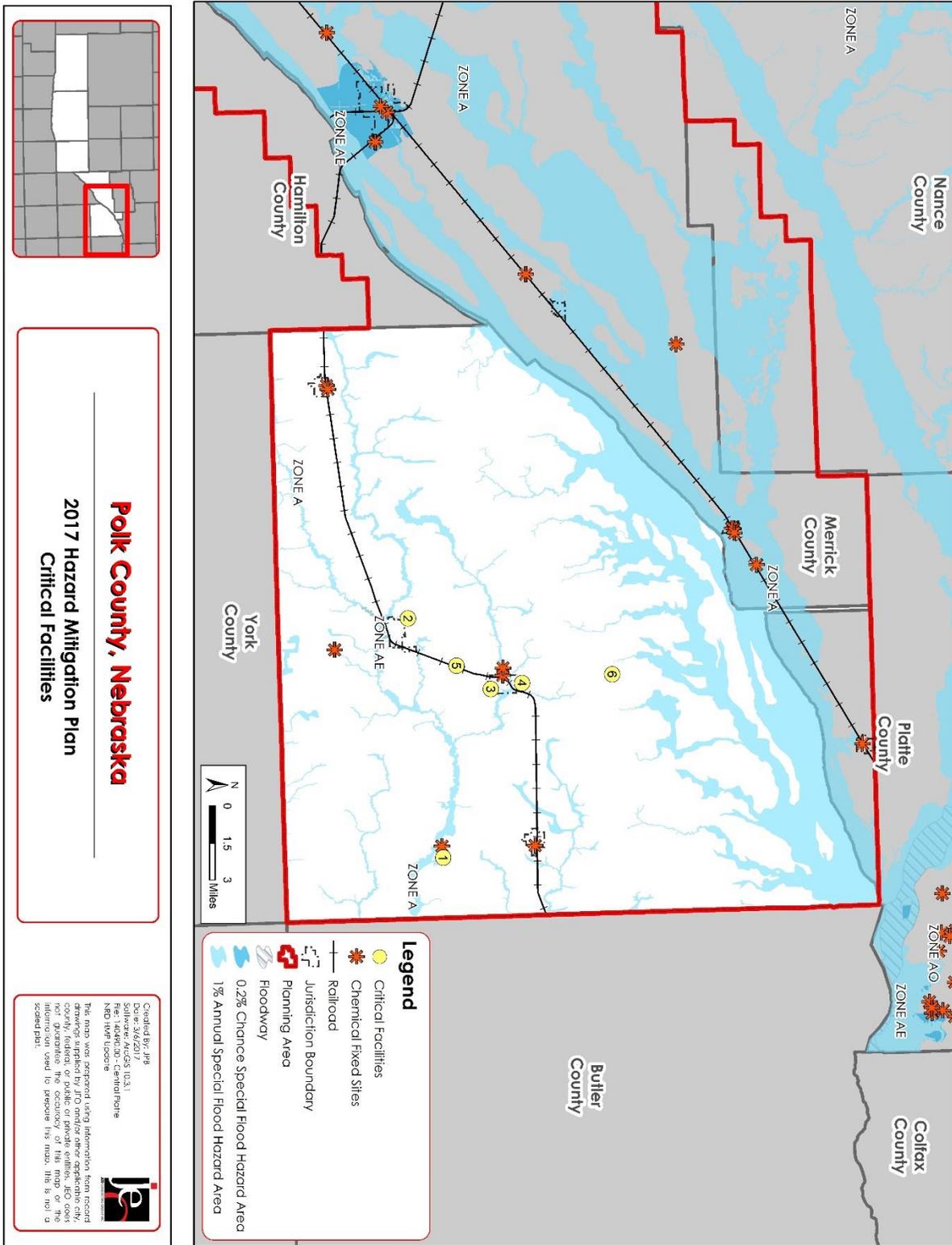
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table PKC.11: List of Critical Facilities in Polk**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Dairy Farm South of Shelby	Southeast of Shelby off Hwy 69	N	N	N
2	Polk County Rural Electric Association (R.E.A.)	115 W 3 <sup>rd</sup> St, Osceola	N	Y	N
3	Polk County Courthouse	400 Hawkeye St, Osceola	N	N	N
4	Polk County Sheriff's Communication Tower and Office	251 N. main St., Osceola	N	Y	N
5	Gas Storage and Pipeline	1.5 miles east of Osceola on Hwy 81	N	N	N
6	State Communication Tower	3 miles north of Osceola	N	Y	N

Figure PKC.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

The following table provides a statistical summary for hazards that have occurred in the County. The property damages from the NCEI Storm Events Database (January 1996 – December 2015) should be considered only as broad estimates. Sources include, but are not limited to: emergency management, local law enforcement, Skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

Crop damages are from the USDA Risk Management Agency (RMA) between 2000 and 2015.

**Table PKC.12: Hazard History and Prioritization**

HAZARD TYPE		COUNT	PROPERTY LOSS	CROP LOSS <sup>3</sup>
Agricultural Disease	Animal Disease <sup>2</sup>	7	-	-
	Plant Disease <sup>3</sup>	20	-	\$45,035
Chemical Spills-Transportation <sup>4</sup>		4	\$0	-
Drought <sup>1</sup>		15	\$0	\$20,651,463
Extreme Heat <sup>1</sup>		2	\$1,500,000	\$2,843,093
Flooding <sup>1</sup>	Flash Flood	10	\$250,000	\$205,639
	Flood	5	\$40,000	
Grass/Wildfires <sup>5</sup>		84	532.9 acres	\$2,254
High Winds <sup>1</sup> Average: 48 kts Range: 35 - 62 kts		15	\$214,080	\$899,381
Severe Thunderstorms <sup>1</sup>	Thunderstorm Wind Average: 56 kts Range: 50 - 70 kts 1 Injury	39	\$2,093,000	\$3,329,962
	Hail Average: 1.20 in. Range: 0.75 - 2.75 in.	85	\$1,462,000	\$6,087,249
	Heavy Rain	16	\$0	-
	Lightning	0	-	-
Severe Winter Storms <sup>1</sup>	Blizzard	6	\$25,000	\$145,223
	Heavy Snow	3	\$0	
	Ice Storm	5	\$520,000	
	Severe Winter Storm	53	\$180,000	
Tornadoes <sup>1</sup>	Funnel Cloud	2	\$0	\$0
	Tornado Most Common Rating: F0 Range: EF0 - F3	9	\$5,900,000	\$14,760
<b>Total</b>			<b>\$12,184,080</b>	<b>\$34,224,059</b>

1 Data from NCEI (1996 - 2015)

2 Data from NDA (2014-2016)

3 Data from USDA RMA (2000 – 2015)

4 Data from PHMSA (1970 - 2016)

5 Data from NFS (2000 – 2014)

in. = inches; kts = knots

### **COUNTY HAZARD PRIORITIZATION**

For an in-depth discussion regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides county-specific information as by the local planning team. Only hazards identified either as a concern to the County by the local planning team, or based on the occurrence and risk of the hazard to the County are discussed in detail below.

#### **Agricultural Animal Disease**

Agriculture, including livestock, is a significant economic driver in the County, therefore, a large agricultural animal disease outbreak would have economic impacts across the region. Hogs, poultry, and dairy farms are the primary animal populations of concern. It is unknown where destroyed animals would be placed in the event of a large-scale cull. There have not been any large scale agricultural disease outbreaks in the County. The Nebraska Department of Agriculture has educational material for farmers and the public.

#### **Flooding**

Flooding poses a threat to Polk County as the County has various streams and rivers meandering through it. Waterways in the County include the Platte River, which forms the northern boundary of the County, Davis Creek, Clear Creek, and the Big Blue River. The unincorporated area of Polk County has 55 NFIP policies in-force for \$3,704,400. There are no repetitive flood loss properties in unincorporated areas of Polk County. The following table is parcel improvement information as provided by GIS Workshop for the entire County area. It indicates that an estimated 35.5 percent of all parcel improvements in the County are located in the floodplain.

**Table PKC.13: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements in County</b>	<b>Percentage of Improvements in Floodplain</b>
\$47,601,385	1,921	5,415	35.5%

Source: GIS Workshop/Polk County Assessor

County flood events, including riverine and flash flooding, have the potential to damage structures, down power lines, damage roads or bridges, damage crops, and end life. On September 9, 2014, waves of rain and thunderstorms crossed the County, which lead to flooding of Davis Creek. A portion of Highway 81-92 near Osceola was covered in a few inches of water. Traffic was hindered and only one vehicle was allowed to pass at a time through this section. Then on August 19, 2015 a heavy rain event dumped six to ten inches of rain across the County. This lead to a reported 25-30 roads that were under water or closed with a few completely washed out. Also, at least one paved road had water running over it a few miles west of the Highway 81 and 64 junction. Minor flooding also occurred along Clear Creek within the northeast portions of the County.

Flood mitigation actions include reducing bottlenecks/flow restrictions on streams, improving flood and stormwater detention/retention capacity, and evaluating stream channelization or bank stabilization.



### **Severe Thunderstorms**

Severe thunderstorms are a common occurrence in the region and have caused damage to property and crops due to the combination of hail, high winds, and heavy rainfall. In 2013, a severe thunderstorm with high winds caused roof damage to many homes near Osceola. There is concern that high winds could damage the communication towers in the County, but the communication towers do have backup power generators. Weather radios have also been distributed to critical facilities.

Mitigation actions for severe thunderstorms include improving warning systems, improving communication systems, and providing backup power generators to critical facilities in need.

### **Severe Winter Storms**

Heavy snow, blowing and drifting snow, and ice accumulation can cause road closures, the need for rescuing stranded motorists, power outages, and property damages. The Christmas Blizzard of 2009 dumped approximately 12 inches of snow across the County. The combination of heavy snow and high winds lead to white-out conditions, causing numerous roadway closures. It took nearly two weeks for the County to completely recover from this winter storm. In total, \$725,000 in property damages have occurred from severe winter storms since 1996.

Mitigation actions include obtaining backup power generators for critical facilities, improving warning systems, and improving emergency communication systems.

### **Tornadoes**

Nine tornadoes have been reported in Polk County since 1996 resulting in \$5.9 million in property damages. The most destructive tornado occurred on June 20, 2011 in rural Polk County between the Villages of Polk and Stromsburg. The EF3 tornado damaged several homes, which suffered from roof and window damage. A semi-truck was knocked over onto its side on Highway 66, and an irrigation pivot was also overturned. Additional tree damage occurred, and outbuildings and power poles were destroyed.

Mitigation actions include constructing public safe rooms, improving warning systems and emergency communication systems, and obtaining backup power generators for critical facilities.

## ***GOVERNANCE***

A community's governance structure impacts its capability to implement mitigation actions. Polk County is governed by a three member Board of Supervisors. The County also has the following offices and departments:

- County Clerk
- County Treasurer
- Emergency Management
- Highway Superintendent
- Roads Department
- Planning and Zoning
- Floodplain Administrator
- Sheriff's Department
- Surveyor

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the County, and described and quantified the vulnerability of the County to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table PKC.14: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	No

Survey Components/Subcomponents		Yes/No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table PKC.15: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the county have the financial resources needed to implement mitigation projects?	Moderate
Does the county have the staff/expertise to implement projects?	Moderate
Is there county support to implement projects?	Moderate
Does the county staff have time to devote to hazard mitigation?	Moderate

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The Polk County Comprehensive Plan was last updated in 2014. The plan directs development away from the floodplain and encourages clustering of development in sensitive areas. It also encourages the preservation of wetlands, wood areas, and waterways and that land use impacts should be minimized within the floodplains. At this time, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

Polk County’s Zoning Ordinance was updated in 2000, and it discourages development in the floodplain. It also requires at least one-foot of elevation above base flood elevation in the floodplain, discourages development near chemical storage sites, and limits population density in the floodplain.

The County Emergency Operations Plan was last updated in 2015 and is reviewed annually. The Plan is an all-hazards plan that assigns specific responsibilities to individual communities. It also identifies scenarios that would require evacuation including critical evacuation routes, and routes that are vulnerable to flooding. Shelter locations are also included for each community in the County.

**MITIGATION STRATEGY**

**Ongoing and New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	General Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	County Funding, HMGP, Inheritance Fund
Status	REA and Sheriff's Office have generators. However, the Sheriff's Office generator may need to be replaced. There is also a need for one at the Courthouse.
Timeline	2-5 years
Priority	Medium
Lead Agency	Sheriff's Office, Board of Supervisors

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$50/radio; \$5,000 - \$50,000 for radio/television broadcast system; \$15,000 - \$50,000 for sirens
Funding	County Funds, HMGP
Status	Weather radios have been distributed. Cable television interrupt system also complete.
Timeline	2-5 years
Priority	Medium
Lead Agency	Emergency Manager

	<b>Improve Emergency Communication Systems</b>
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	County Funds, EMPG
Status	Ongoing. Emergency communication equipment obtained.
Timeline	2-5 years
Priority	High
Lead Agency	Sheriff's Office

	<b>Improve Flood and Stormwater Detention/Retention Capacity</b>
Description	Evaluate current stormwater and flood water capacity; implement measures to improve flood water and stormwater capacity
Hazard(s) Addressed	Flooding
Estimated Cost	Dependent on project
Funding	County Funds
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	County Roads Department

	<b>Provide Adequate Public Safe Rooms and Post-Disaster Storms Shelters</b>
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	County Funds, Local Community Funds, HMGP, PDM
Status	Not yet started.
Timeline	5+ years
Priority	Low
Lead Agency	County Engineer
Location	County Fairgrounds

	<b>Reduce Water Demand/Improve Drought Education</b>
Description	Conduct water use study to evaluate/implement methods to conserve water/reduce consumption; evaluate/implement water use restriction ordinance; identify/evaluate current/additional potable water sources; develop or obtain drought education materials to conduct multi-faceted public education and awareness program
Hazard(s) Addressed	Drought
Estimated Cost	\$5,000+; education \$1,000+
Funding	County Funds
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Board of Supervisors; Planning and Zoning

	<b>Reduce Bottlenecks/Flow Restrictions</b>
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000
Funding	County Funds
Status	Ongoing.
Timeline	Ongoing
Priority	High
Lead Agency	County Engineers

	<b>Evaluate Stream Channelization/Bank Stabilization</b>
Description	Evaluate current stream bed and bank stabilization needs; implement stream bed and bank stabilization improvements including grade control structures, rock rip rap, vegetative cover, etc.
Hazard(s) Addressed	Flooding
Estimated Cost	\$25,000 - \$500,000+
Funding	County Funds, FMA
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	County Roads Department

	<b>Wind Breaks Studies</b>
Description	Conduct a study to identify areas in need of "shelter belts" or wind breaks; maintain windbreak areas
Hazard(s) Addressed	Drought
Estimated Cost	Unknown
Funding	County Funds
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Planning and Zoning

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; additional floodplain mapping/remapping
Reason for Removal	County will continue to participate in program, however, this is no longer considered a hazard mitigation action.

	<b>Conduct Water Supply Study</b>
Description	Evaluate the need to expand water storage capacity through new means (new water tower, stand pipe, etc.) or locate new water resources to provide a safe water supply for the community and nearby rural areas during periods of drought
Reason for Removal	Responsibility of the action relies with individual communities.

	<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Events</b>
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Reason for Removal	Not a priority at this time.

	<b>Reduce Tree Damage and Damages from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Reason for Removal	Most of tree inventory lies within community jurisdictions and is not the responsibility of the County.

	<b>Increase Soil and Water Conservation</b>
Description	Develop and improve public awareness of soil and water conservation methods; develop or maintain materials and conduct multi-faceted public education
Reason for Removal	Not a priority at this time.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
CITY OF OSCEOLA

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table OSC.1 provides the list of participating members that comprised the Osceola local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table OSC.1: The City of Osceola Local Planning Team**

Name	Title	Department / Organization
John Jarmin	Utility Superintendent	City of Osceola

**LOCATION AND GEOGRAPHY**

The City of Osceola is located in the central portion of Polk County and covers an area of 0.92 square miles. The major waterway in the area is Davis Creek.

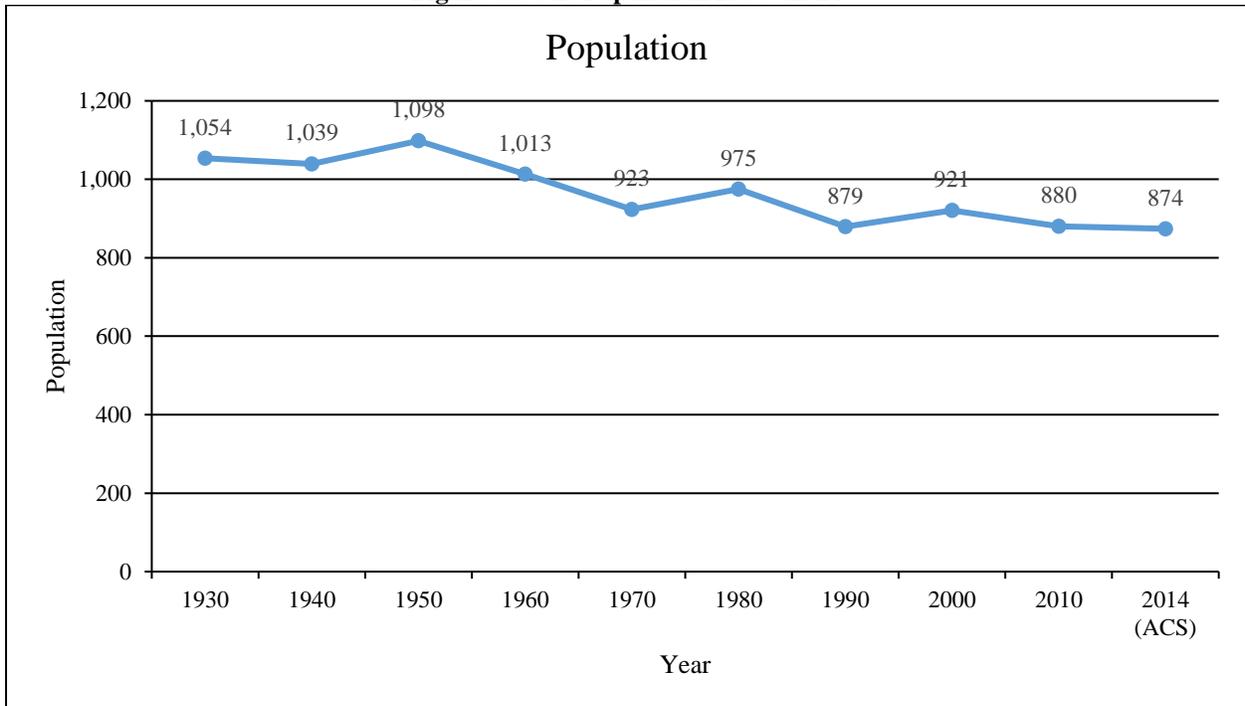
**TRANSPORTATION**

Osceola’s major transportation corridor U.S. Highway 81 which is located north of the City and travels east to west. On average, there are 3,655 vehicles per day on Highway 81 with about 570 of those being heavy commercial vehicles. Osceola has one rail line that travels north to south and is located to west of the City, a Nebraska Central Rail Company line.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Osceola has been decreasing since 1950.

**Figure OSC.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure OSC.2: Map of the City of Osceola



The following table indicates the City has a higher percentage of the population under the age of 5 than Polk County, but a lower percentage than the state. The City’s percentage of the population between 5 and 64 is lower than both the County and the state. However, the City has a higher percentage of the population over the age of 64 than both the County and the state. The City’s median age is the same as the County, but higher than the state.

**Table OSC.2: Population by Age**

Age	City of Osceola	Polk County	State of Nebraska
<5	6.6%	6.0%	7.2%
5-64	72.4%	74.3%	79.2%
>64	21.0%	19.8%	13.6%
Median	46.5	46.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Osceola’s median household income is higher than the state, but less than the County. Osceola has a per capita income that is lower than the County, but higher than the state. Osceola’s median home value and median rent are lower than both the County and the state.

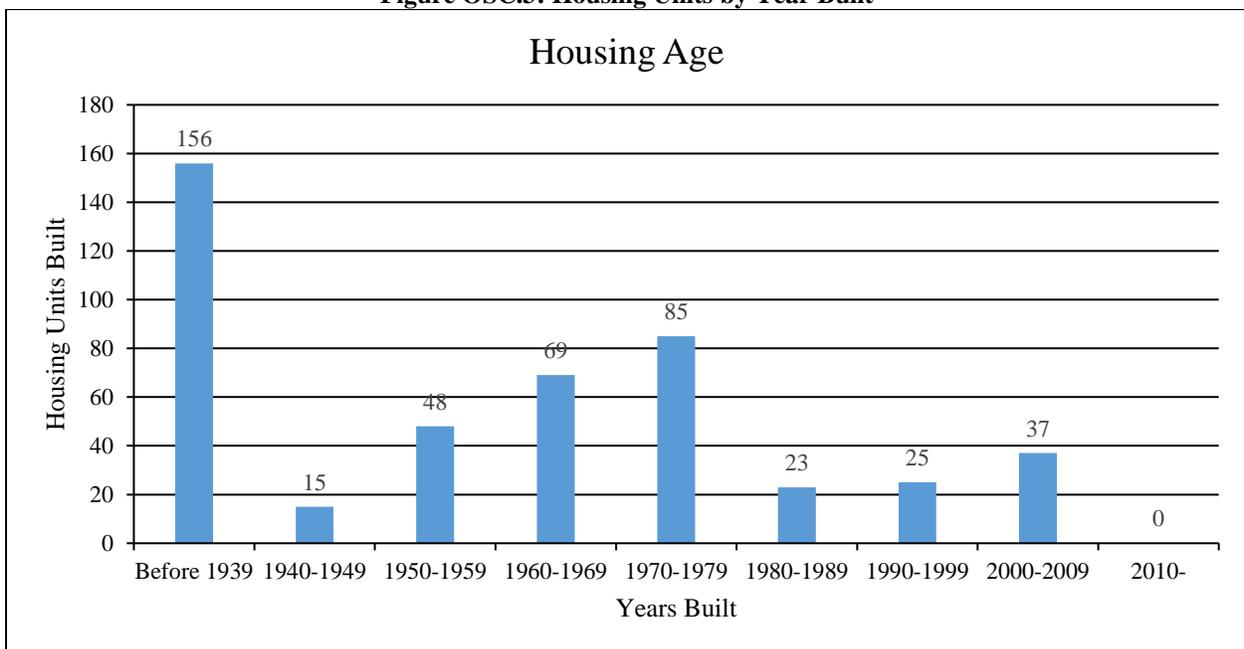
**Table OSC.3: Housing and Income**

	City of Osceola	Polk County	State of Nebraska
Median Household Income	\$57,237	\$69,263	\$52,400
Per Capita Income	\$27,865	\$29,567	\$27,339
Median Home Value	\$79,300	\$97,600	\$130,100
Median Rent	\$566	\$607	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 458 housing units with 83.0 percent of those units occupied. There are approximately 15 mobile homes in the community, and the mobile home park is located at Central and Valley streets. The initial Flood Insurance Rate Map (FIRM) was developed in July 1987.

**Figure OSC.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table OSC.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Osceola	380	83.0%	78	17.0%	265	69.7%	115	30.3%
Polk County	2,238	81.9%	493	18.1%	1,675	74.8%	563	25.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in Osceola are John Deere, Frontier Co-op, Osceola Implement, Polk County Department of Roads, and Nebraska Department of Roads. A large percentage of residents commute to York or Columbus for work. Over the past five years, new grain bins were built, as well as the Frontier Co-op. The new grain bins were built in the floodplain, but construction elevated the ground to alleviate the flooding risk.

**FUTURE DEVELOPMENT TRENDS**

Census data reports that Osceola’s population is declining. The planning team attributes this to the older residents passing away, and other residents get better paying jobs outside of the community. There are neither new housing developments nor businesses planned for the next five years.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table OSC.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
539	\$25,704,515	\$49,689	116	\$41,420

Source: GIS Workshop/Polk County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

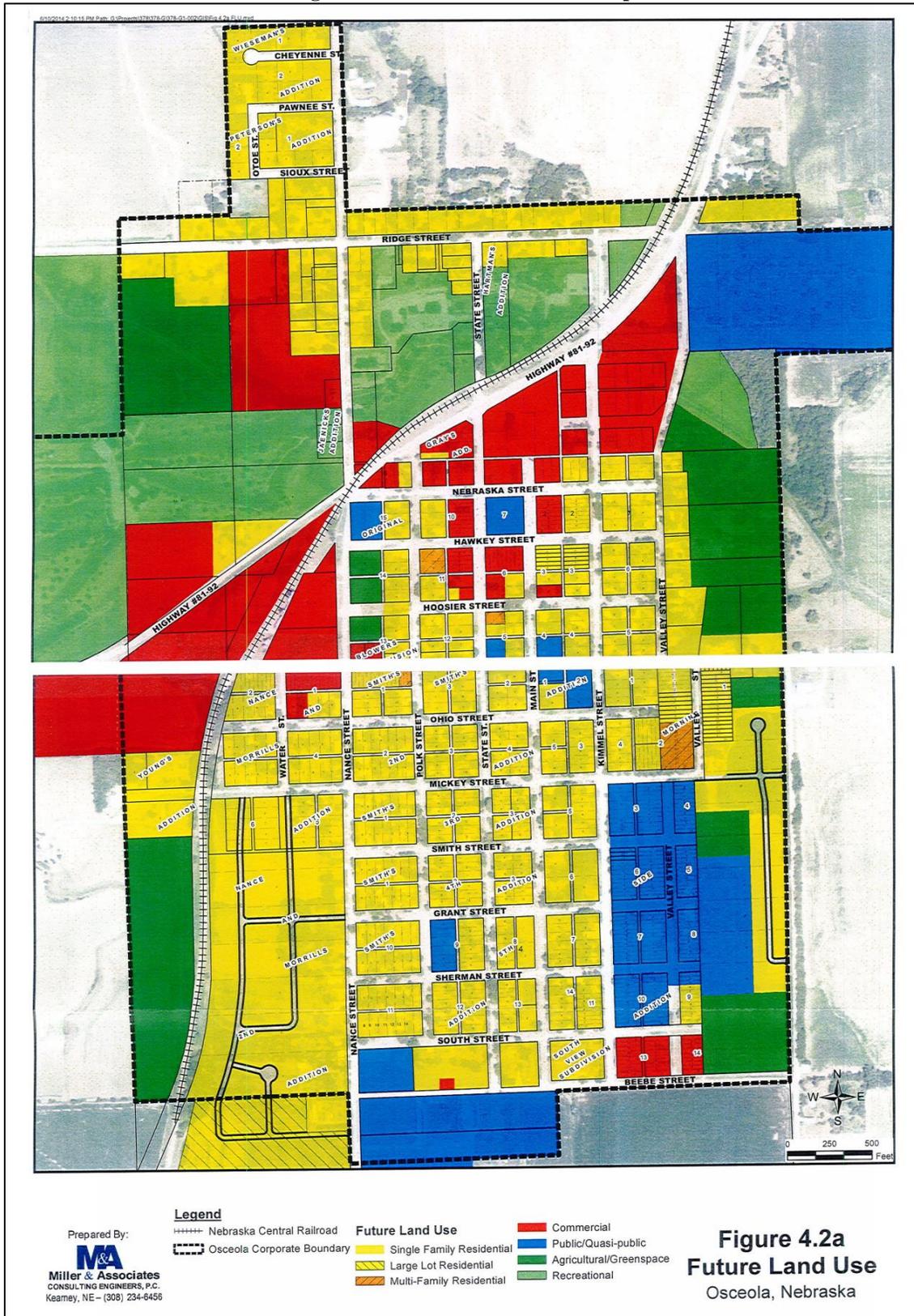
According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of two chemical storage sites that house hazardous materials in Osceola. Neither of the chemical storage sites are located in the floodplain (Figure OSC.5).

**Table OSC.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Frontier Co-op Company	1030 Central	No
Plains Equipment Group	13006 N Rd	No

Source: Nebraska Department of Environmental Quality

Figure OSC.4: Future Land Use Map



**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are two historic sites located in or near Osceola.

**Table OSC.7: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Governor John Hopwood Mickey House	5/27/1977	No
Polk County Courthouse	1/10/1990	No

Source: Nebraska State Historical Society, 2016

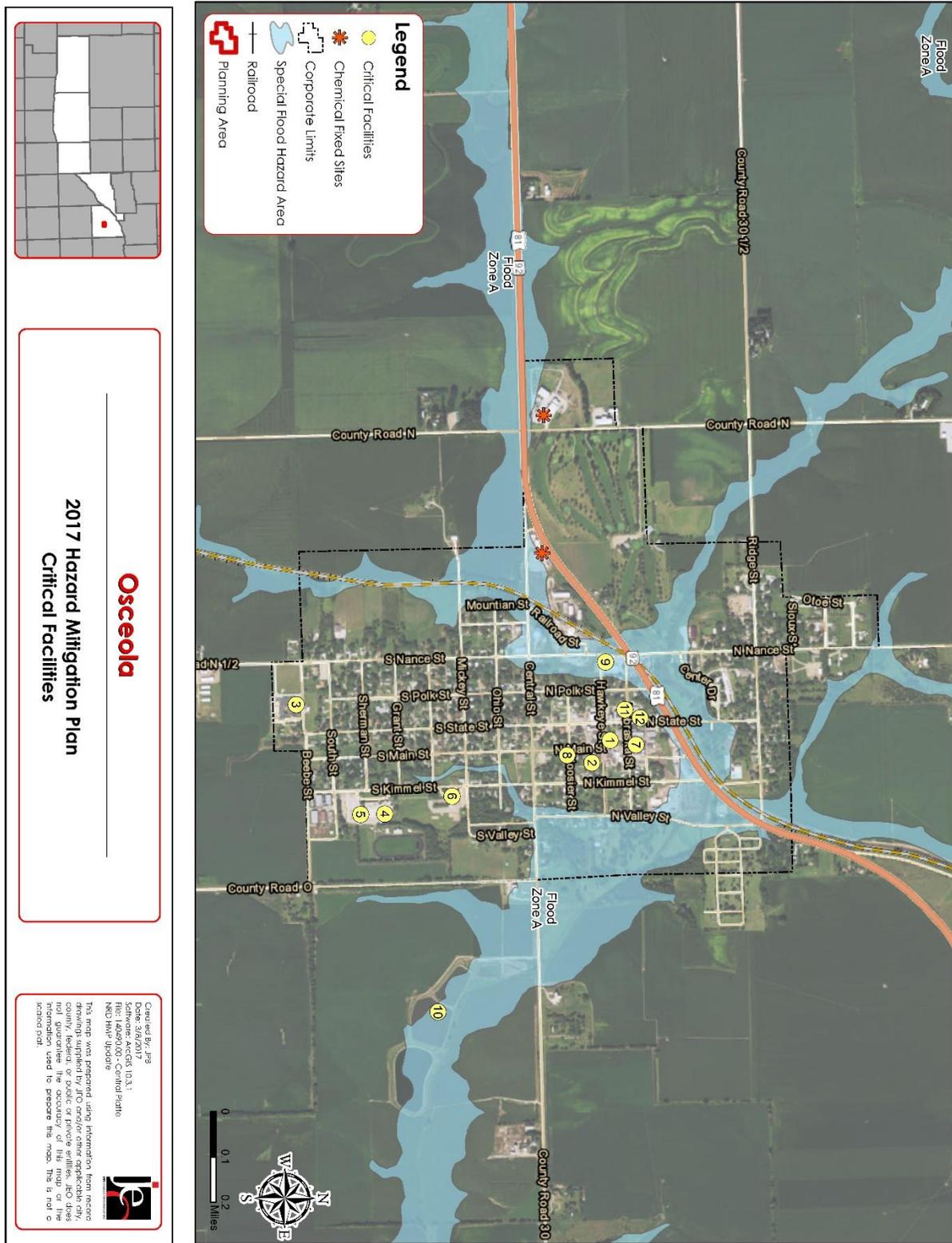
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table OSC.8: List of Critical Facilities in Osceola**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Polk County Courthouse	Main St	N	N	N
2	Polk County Sheriff's Office	251 W. Main St	N	Y	N
3	Anne Jeffrey's Hospital	Beebe St	N	Y	N
4	High School	565 S Kimmel St	Y	N	N
5	High School Auditorium	Main St	Y	N	N
6	Grade School	341 S. Kimmel St	Y	N	N
7	Well 2011	Nebraska St and Main St	N	Y	N
8	Village Shop and Well 721	451 N. Main St	N	N	N
9	Fire Station	Nebraska St and N Nance St	N	Y	Y
10	Lift station and Wastewater Treatment Center	Country Road 30	N	Y	Y
11	Senior Center	State St and Nebraska St	N	N	N
12	Village Office	State St and Nebraska St	N	N	N

Figure OSC.5: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



## ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Polk County.

## ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

### **Chemical Spills (Transportation)**

The local planning team identified chemical transportation as a top concern for the City. Highway 81 is of greatest concern to Osceola, as it runs through the City. Agricultural chemicals, particularly from Glutten Fertilizer Company, and other unknown chemicals are regularly transported along this route. The local planning team reports that a Glutten fertilizer truck has previously spilled on the Highway. PHMSA reports that a 63-liquid gallon gasoline spill on the Highway in 1993 occurred while loading a tank. A critical facility, the Kansas Nebraska Gas Terminal, is vulnerable to the effects of a chemical spill because it is located east of town on a main transportation route. Osceola plans to mitigate the hazards associated with chemical spills on transportation routes by participating in hazardous spill emergency exercises.

### **Drought**

Drought was identified as one of the top concerns for the City. The planning team is concerned about the potential for over irrigation to drop well water levels. All commercial and residential buildings have been metered, and well meters were added in 2011. Well levels are monitored daily by City Maintenance. The community does not have a drought monitoring board or a drought response plan. The City water supply is sufficient with no current nitrate problems. The water supply has never reached critical levels, but the levels have been threatened previously by drought. Since agricultural farming is one of the main trades in the region, economic losses would be felt throughout the area. The category D3 extreme drought of 2012-2013 was one such occasion where crop irrigation made Osceola's municipal water supply vulnerable to shortages and produced economic strains on residents reliant on crop output. Drought mitigation plans include adopting a drought ordinance and improving public awareness of the implications and responses to water supply shortages.

### **Flooding**

The flood risk areas of concern for the City of Osceola are located in the north, west, and eastern portions of the City. A large portion of the City is impacted by these flood risk areas, particularly Valley St and other areas along the creek. David Creek is the closest body of water concerning Osceola. Major flooding in 2008 from heavy rains covered the highway in all four directions with a few inches of water. In 2010, a flood compromised asphalt in the community, and flooded a lift station. The flooding of David Creek has become more frequent in recent years, with three floods occurring in the summer of 2011, and another flood in 2014 caused by heavy rain. Country roads and portions of the Highway have been covered in water during these events.

Osceola has three NFIP policies in-force for \$463,900. There are no repetitive flood loss properties in the City of Osceola. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 21.5 percent of all parcel improvements in Osceola are located in the floodplain.

**Table OSC.9: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$41,420	116	539	21.5%

Source: GIS Workshop/Polk County Assessor

The floodplain in Osceola has recently been remapped as part of other planning processes. Future mitigation plans involve reducing flow restrictions on Davis Creek to prevent flooding.

### Severe Winter Storms

Severe winter storms were selected as a top concern for the City by the local planning team. The blizzard of February, 2016 lead to an accumulating of 12-inches of snow. The community is concerned with the impacts on Fire and Rescue response during large snow events. The main streets in town are designated snow routes, but the community does not use snow fences. The utility superintendent is responsible for snow removal. A new payloader was purchased in 2015, making snow removal equipment capacity sufficient. Severe winter storm mitigation actions include providing backup generators for the City Office and Senior Center.

### Tornadoes

The local planning team ranked tornadoes as a top hazard of concern for the City. There is one report of tornadoes since 1996 in the City of Osceola that caused \$100,000 dollars in damages. This tornado hit a house on Ridge Street, and tore the porch off the house. Critical facilities have not been damaged by tornadoes, and municipal records are backed up on a computer. The community does have a siren, but there are no storm shelters available. The only options for citizens seeking shelter are in the courthouse and in the jail basement. Osceola has a Mutual Aid Agreement with Stromsburg. The City plans to mitigate the hazards associated with tornadoes by providing backup generators to the City Office and Senior Center.

## GOVERNANCE

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Osceola is governed by a Mayor and a three member City Council. Furthermore, Osceola has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- Utility Superintendent
- Library Board
- Park Board
- Board of Health
- Cemetery Board
- Drought Monitoring Board

## CAPABILITY ASSESSMENT

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table OSC.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	Yes
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	Yes

Survey Components/Subcomponents		Yes/No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table OSC.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Osceola Comprehensive Plan was updated in 2014. The plan directs development away from the floodplain and from major transportation routes. It also limits density in areas adjacent to known hazardous areas and encourages infill development. The plan also identifies specific areas with drainage issues, located along the Highway 81 corridor as well as South Nance and Railroad Streets on the west side of the community. It notes it will be important to mitigate run-off from new development while delineating a floodway/drainage way to lessen the impact of new developments. At this time, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

The City’s Zoning Ordinance was also last updated in 2014. The Ordinance discourages development in the floodplain, requires at least one-foot of elevation above base flood elevation in the floodplain, and prohibits development in the floodway. It also limits development in the ETJ and accounts for current population trends.

Osceola has an annex to the Polk County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, identifies critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Funding	Grant and City pays for upkeep
Status	Completed July 2012. New sirens.
Location	Ridge St, Nebraska St, Beebe St

<b>Develop/Update Floodplain Information</b>	
Description	Conduct mapping/remapping of floodplains; revise floodplain/insurance maps
Hazard(s) Addressed	Flooding
Funding	Unknown
Status	Completed.

<b>Purchase Snow Removal Equipment</b>	
Description	Increase ability to remove snow/ice from community streets by augmenting equipment or supplies; purchase equipment such as snowplows, payloaders, trucks, or plow blades
Hazard(s) Addressed	Severe Winter Storms
Cost	\$50,000
Funding	General funds
Status	Completed 2015.

**Ongoing or New Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ /generator
Funding	General funds, HMGP
Status	Well and Wastewater Treatment Plant have generators. Other critical facilities such as the Village Office and Senior Center need generators.
Timeline	2-5 years
Priority	Medium
Lead Agency	Fire Department, Utility Superintendent

Section Seven: City of Osceola Participant Section

	<b>Reduce Bottlenecks/Flow Restrictions</b>
Description	Evaluate current bottlenecks/flow restrictions; implement measures to reduce bottlenecks/flow restrictions including silt removal
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000
Funding	General funds
Status	In progress. Davis Creek is being cleaned out and replacing the bridge.
Timeline	Ongoing.
Priority	Medium
Lead Agency	Utility Superintendent

	<b>Emergency Exercise: Hazardous Spill</b>
Description	Utilize exercise to prepare for potential explosions or hazardous spills; ensure that nearby businesses and residents have appropriate plans in place
Hazard(s) Addressed	Chemical Transportation
Estimated Cost	\$5,000+
Funding	Local Budget, EMPG
Status	Not yet started.
Timeline	5 years
Priority	Low
Lead Agency	Fire Department, Emergency Management

	<b>Community Education and Awareness</b>
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All hazards
Estimated Cost	\$1,000+
Funding	Village Funds, HMGP
Status	Planning stage. The Village will be launching a new website and a page with education on hazards will be included.
Timeline	1 year
Priority	High
Lead Agency	Clerk and IT Innovations (contractor)

	<b>Develop a Drought Management Plan</b>
Description	Work with relevant stakeholders to develop a drought management plan; identify water monitoring protocols; outline drought responses; identify opportunities to reduce water consumption; establish the jurisdictional management procedures
Hazard(s) Addressed	Drought
Estimated Cost	\$2,500+
Funding	Village Funds, Water Sustainability Fund, WaterSmart
Status	In progress.
Timeline	2-5 years
Priority	Medium
Lead Agency	Utility Superintendent; City Council

**Removed Mitigation Actions**

<b>Improve Emergency Communication Systems</b>	
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Reason for Removal	No longer needed for the community.

<b>Maintain NFIP Participation</b>	
Description	Continue to regulate development in floodplain areas; adopt future floodplain maps when they become available; additional floodplain mapping/remapping
Reason for Removal	City will continue to participate in program, however, this is no longer considered a hazard mitigation action.

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF POLK

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table PLV.1 provides the list of participating members that comprised the Polk local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table PLV.1: Village of Polk Local Planning Team**

Name	Title	Department / Organization
Matt Redman	Utilities Superintendent	Village of Polk

**LOCATION AND GEOGRAPHY**

The Village of Polk is located in the northwestern portion of Polk County and covers an area of 0.49 square miles. There are no major waterways in the area.

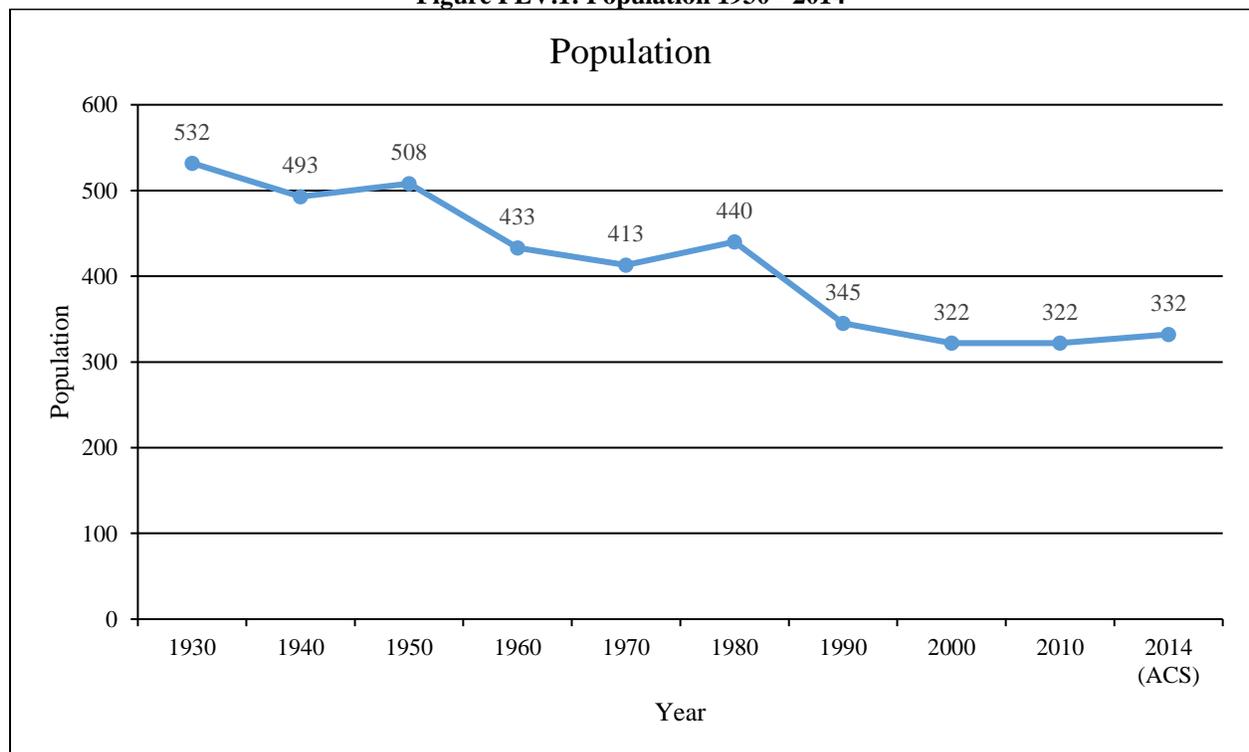
**TRANSPORTATION**

Polk’s major transportation corridor is Nebraska State Highway 66 which travels east to west through the Village. On average, there are 1,260 vehicles per day on Highway 66 with 145 of those being heavy commercial vehicles. Polk has one rail line located north of the Village, a Nebraska Central Rail Company line.

**DEMOGRAPHICS**

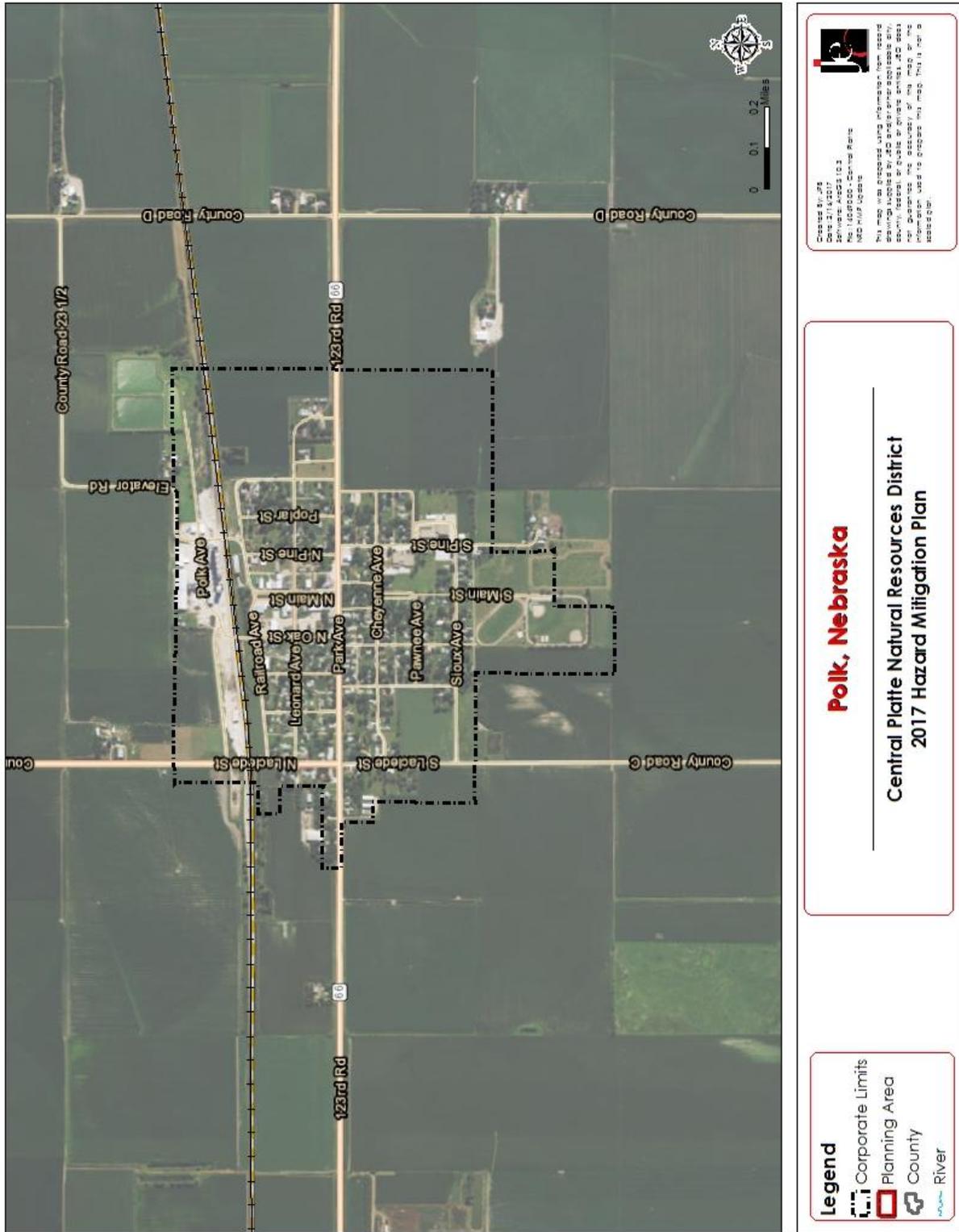
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Polk has been decreasing since 1930.

**Figure PLV.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure PLV.2: Map of the Village of Polk



The following table indicates the Village has a lower percentage of the population under the age of 5, and between the ages of 5 to 64 than both the County and the state. The Village has a higher median age and percentage of the population over the age of 64 than both the County and the state.

**Table PLV.2: Population by Age**

Age	Village of Polk	Polk County	State of Nebraska
<5	3.7%	6.0%	7.2%
5-64	73.9%	74.3%	79.2%
>64	22.4%	19.8%	13.6%
Median	50.2	46.50	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Polk’s median household income, per capita income, median home value, and median rent are all lower than the County and the state.

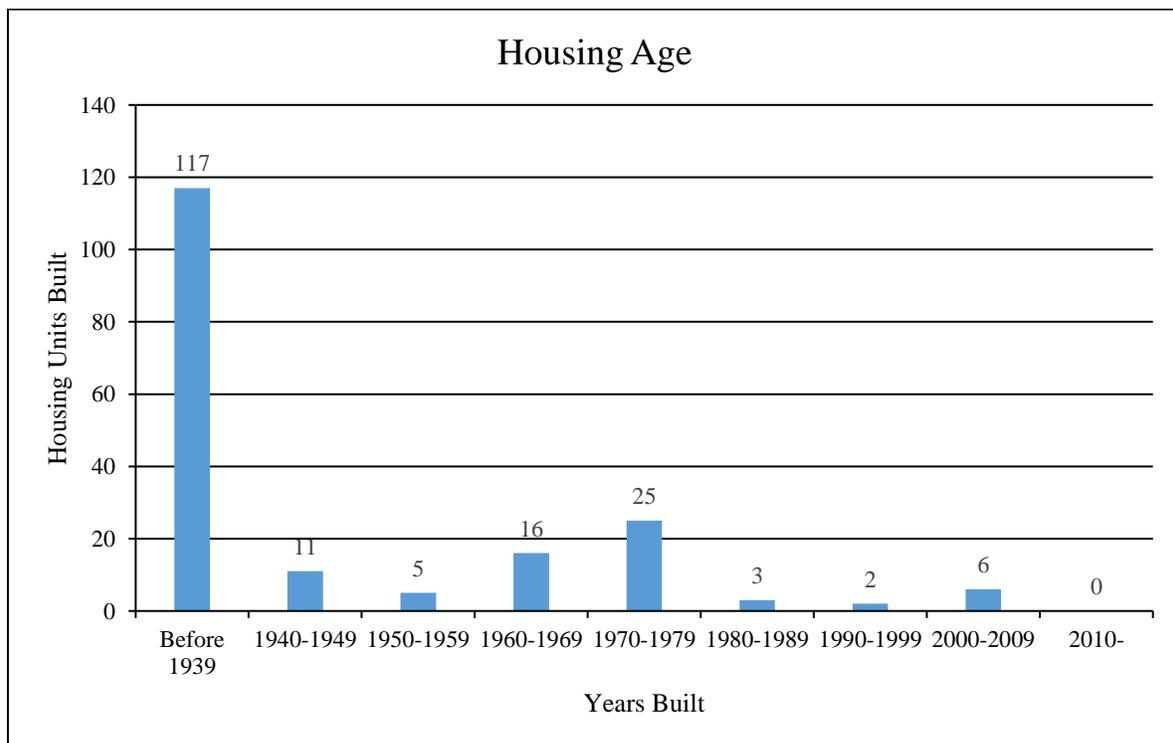
**Table PLV.3: Housing and Income**

	Village of Polk	Polk County	State of Nebraska
Median Household Income	\$47,000	\$69,263	\$52,400
Per Capita Income	\$24,885	\$29,567	\$27,339
Median Home Value	\$51,900	\$97,600	\$130,100
Median Rent	\$600	\$607	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 185 housing units with 85.4 percent of those units occupied. There are approximately two mobile homes in the community. There are no reported mobile home parks in the Village.

**Figure PLV.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table PLV.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Polk	158	85.4%	27	14.6%	128	81.0%	30	19.0%
Polk County	2,238	81.9%	493	18.1%	1,675	74.8%	563	25.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employer in the community is the High Plains School. A large percentage of residents commute to Grand Island, York, and Aurora for work.

**FUTURE DEVELOPMENT TRENDS**

During the past five years, one new business and one new home were built. The new business, Pioneer Business, was constructed in a moderate flood risk area. According to the census data, the Village of Polk’s population is declining. The local planning team reports that this is due to a lack of available jobs, housing, groceries, and services in the Village.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table PLV.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
247	\$7,273,545	\$29,448	0	\$0

Source: GIS Workshop/Polk County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of two chemical storage sites that house hazardous materials in Polk. There are no chemical storage sites located in the floodplain (Figure PLV.4).

**Table PLV.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Central Valley Ag	450 Polk Ave	No
Harless Oil Company	320 Polk Ave	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Polk.

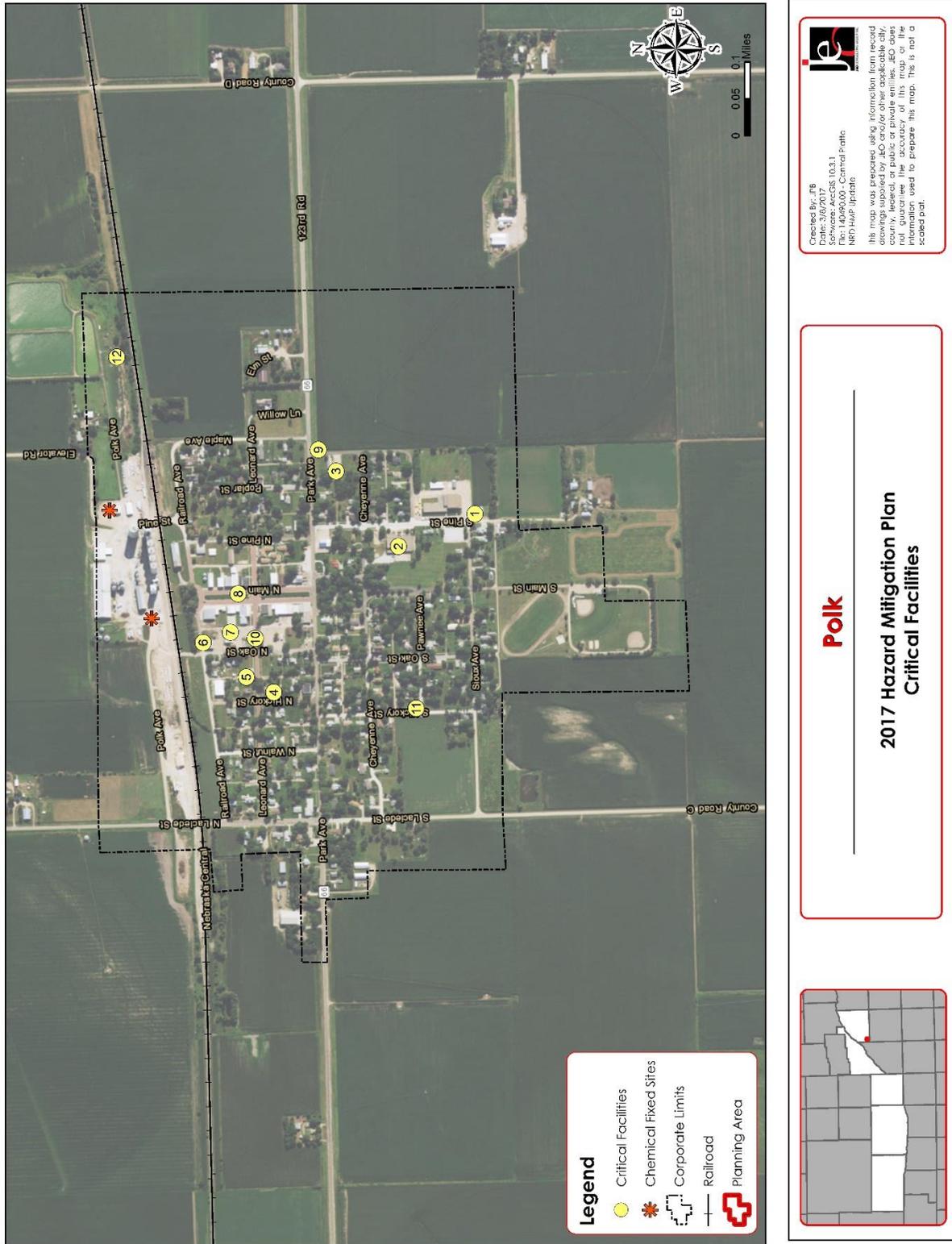
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table PLV.7: List of Critical Facilities in Polk**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Polk-Hordville High School	345 S Pine St	Y	N	N
2	Polk Elementary School	260 S Pine St	Y	N	N
3	First Baptist Church	115 N Hickory St	Y	N	N
4	Village Hall	565 Leonard Ave	N	Y-portable	N
5	Fire Station	290 N Main St	N	Y-portable	N
6	Senior Center	230 N Main St	Y	N	N
7	Trinity Lutheran Church	120 S Poplar St	Y	N	N
8	Well 1	515 S Oak St	N	N	N
9	Well 2	460 Sioux Ave	N	N	N
10	Well 3	565 Leonard Ave	N	Y	N
11	Lift Station 1	Hickory and Pawnee Sts	N	N-portable pump	N
12	Lift Station 2	At lagoon	N	N-portable pump, can be bypassed by gravity	N

Figure PLV.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Polk County.

### ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

#### **Flooding**

Polk has concerns about flooding because the basin south of town allows water to flow into their sanitary system. This basin also makes the south and southwest sides of town prone to flooding. There were four flooding events in 2011, beginning with ice jams in the winter and continuing through the summer because of heavy rain. These floods covered many roads in the area with water. Road flooding occurs about once every three years in the northeast portion of Polk because of poor drainage. Plans are in place to mitigate flooding with a stormwater drainage study. Community-wide floodplain mapping has been completed.

The Village of Polk does not participate in the NFIP. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that none of the parcel improvements in Polk are located in the floodplain.

**Table PLV.8: Structures in the 1% Annual Flood Risk Area**

<b>Value of Improvements in Floodplain</b>	<b>Number of Improvements in Floodplain</b>	<b>Total Number of Improvements in Community</b>	<b>Percentage of Improvements in Floodplain</b>
\$0	0	247	0.0

Source: GIS Workshop/Polk County Assessor

#### **Severe Thunderstorms**

Community concerns about thunderstorms include damage to property, trees, and power lines. Severe thunderstorms occur yearly in Polk, and are often accompanied by power outages and structural damage from hail. Critical municipal records are backed up. Only approximately one percent of power lines are buried, but an ongoing project aims to increase this number. There are many trees in the Village that need maintenance. Some Village funds are being used to implement a tree maintenance program to address this. All critical facilities have weather radios, and mitigation plans involve further improving the citizen warning system. There are also plans in place to provide adequate storm shelters for the community.

#### **Severe Winter Storms**

Several winter storms of note have occurred in Polk. In February of 2001 an ice storm made untreated roads impassable and caused sporadic power outages. Ice storms in December of 2006 and 2007 caused \$500,000 and \$50,000 respectively in property damage throughout the area when half-inch of ice deposits caused tree and power line damage. A blizzard in December of 2012 brought 8-inches of snow accumulation, causing difficult travel conditions and many vehicular accidents. Polk is in the planning stages of a project to increase the number of buried power lines in the community above the current one percent. There are no official snow routes in the Village, but routes with heavy traffic are prioritized during snow clearing efforts. There are no snow fences in use. The Maintenance Department is responsible for snow removal with a dump truck and two tractors and a pickup truck with blades. Plans to further mitigate the hazards associated with severe winter storms include developing a tree inventory and tree maintenance program.

### **Tornadoes and High Winds**

Damage to trees, power lines, and property are Polk's top concerns related to tornadoes and high winds. The most significant high wind event to occur in Polk was in 1999 when 50mph winds caused residential structure damages from downed tree limbs and destroyed the concessions stand and power poles on the Polk baseball field. An EF3 tornado just missed Polk in 2001. Critical municipal systems are backed up. There are no community safe rooms, so residents must utilize private basements for storm shelter. The community has adequate warning sirens activated by the Fire Department. They hope to further improve their citizen warning systems as part of the hazard mitigation process. The schools and County do some community education, mostly drills and response training. There are Mutual Aid Agreements in place with Stromsburg, Osceola, Chapman, Palmer, and Shelby, and there is an energy mutual aid agreement with North Platte County. Polk has plans to provide public storm shelters, bury power lines, and implement a tree maintenance program to reduce its vulnerability to the hazards associated with tornadoes and high winds.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Polk is governed by a Chairperson and a four member Village Board. Furthermore, Polk has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- Electrical Department
- Zoning Department

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the communities and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, shall be assessing what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability", and to what extent they are able to implement the goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. There are four major local capabilities considered by this assessment and they are planning & regulatory capabilities, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table PLV.9: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	No
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	Local Codes
	National Flood Insurance Program	No
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	No
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No

Survey Components/Subcomponents		Yes/No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table PLV.10: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	High
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Polk has an annex to the Polk County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, identifies critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

Polk has a Comprehensive Plan, but it is not known when it was written. The plan does not include HMP principles, and there is currently no timeline for updating the Comprehensive Plan.

The Village has a Floodplain Ordinance, which requires at least one-foot of elevation above base flood elevation in the floodplain and prohibits development in the floodway.

No other examples of plan integration were identified, and there are currently no plans to further integrate planning mechanisms.

***MITIGATION STRATEGY***

**Completed Mitigation Actions**

	<b>Develop/Update Floodplain Information</b>
Description	Conduct mapping/remapping of floodplains; revise floodplain/insurance maps
Hazard(s) Addressed	Flooding
Estimated Cost	Unknown
Funding	Unknown
Status	Completed.
Location	Community-wide

**Ongoing or New Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	Bonds
Status	Planning stage.
Timeline	1 year
Priority	Medium
Lead Agency	Water Department

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	\$50/radio; \$5,000 to \$50,000 for radio/television for broadcast system; \$15,000 to \$50,000 for sirens
Funding	HMGP, PDM
Status	Planning Stage.
Timeline	1 year
Priority	Medium
Lead Agency	Fire Department

<b>Improve Emergency Communication Systems</b>	
Description	Develop emergency communication action plan; implement emergency communication action plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	Village Funds
Status	Planning Stage.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Departments

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelter; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	Bonds, HMGP, PDM
Status	Planning Stage.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-\$100,000
Funding	Village Funds
Status	Planning Stage.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

<b>Improve Construction Standards and Building Survivability</b>	
Description	Evaluate building standards/codes/requirements; implement new or improved building standards/codes/requirements; educate construction companies on building standards; promote use of higher codes and standards, such as fortified for Safer Living Standard, to provide greater protection for any new construction or building retrofits
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000 and up
Funding	Village Funds, CDBG
Status	Planning Stage.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board

<b>Reduce Tree Damage &amp; Damages from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	Varies
Funding	Village Funds
Status	In progress.
Timeline	5+ years
Priority	High
Lead Agency	Village Street Department and Electrical Department

<b>Improve Electrical Service</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	Severe Thunderstorms, Tornadoes, High Winds, Severe Winter Storms
Estimated Cost	\$2,000,000/mile
Funding	Village funds
Status	In progress.
Timeline	5+ years
Priority	Medium
Lead Agency	Public Power District, Village Street and Electrical Departments

**Removed Mitigation Actions**

<b>Reduce Damages in Floodplain</b>	
Description	Evaluate repetitive loss or potential loss structures located in floodplain; acquire and relocate or demolish flood prone property or elevate flood prone property; elevate equipment vulnerable to flooding
Reason for Removal	There are no properties located in a floodplain.

<b>Facility Flood Proofing</b>	
Description	Explore possibility of flood proofing facilities which fall within HAZUS 1% flood inundation areas; conduct flood proofing feasibility study for structures and implement identified measures
Reason for Removal	There are no critical facilities that require flood proofing.

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF SHELBY

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table SBY.1 provides the list of participating members that comprised the Shelby local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table SBY.1: Village of Shelby Local Planning Team**

Name	Title	Department / Organization
Deanna Perry	Clerk and Treasurer	Village of Shelby

**LOCATION AND GEOGRAPHY**

The Village of Shelby is located in the far eastern portion of Polk County and covers an area of 0.56 square miles. The major waterway in the area is the Big Blue River.

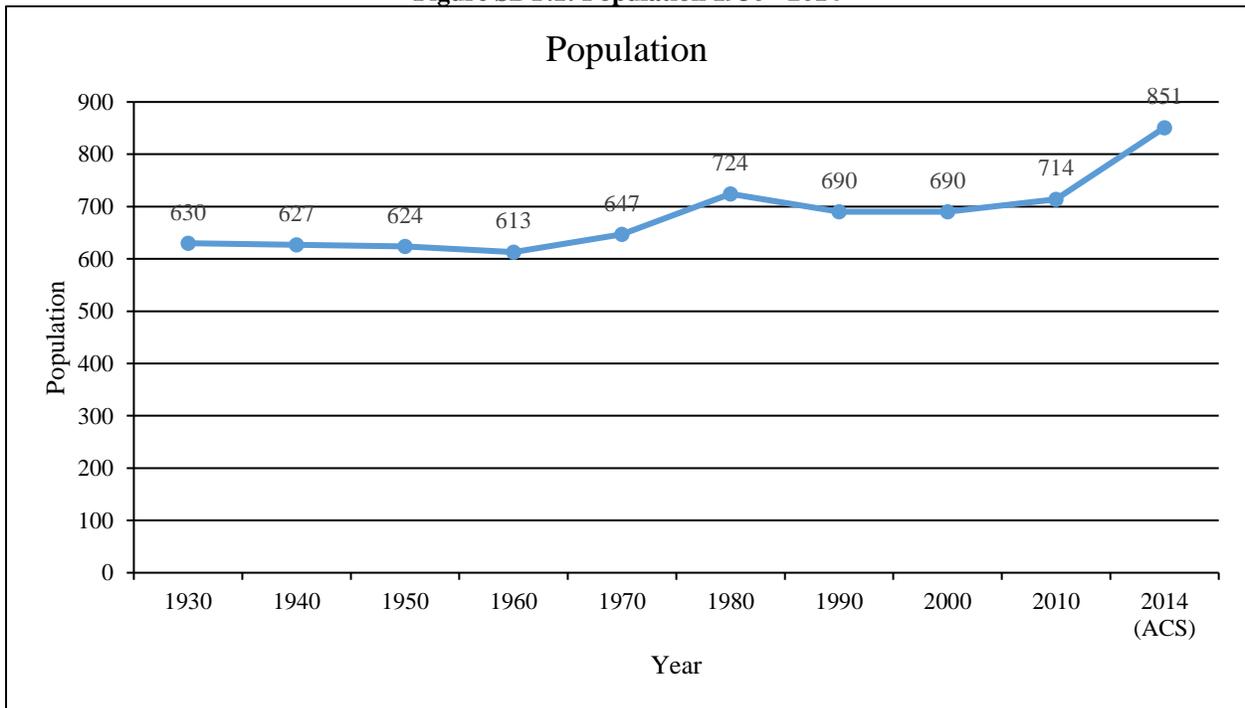
**TRANSPORTATION**

Shelby’s major transportation corridors include Nebraska Highway 69 and U.S. Highway 81. Nebraska Highway 69 runs north to south and is located south of the Village. On average, there are 980 vehicles per day on Highway 69 with 85 of those vehicles being heavy commercial vehicles. U.S. Highway 81 runs east to west through the middle of the Village. The average daily vehicle load for U.S. Highway 81 through Shelby is 4,345 with 625 of those being heavy commercial vehicles. Shelby has one rail line that runs east to west through the northern portion of the city, a Nebraska Central Railway Company line.

**DEMOGRAPHICS**

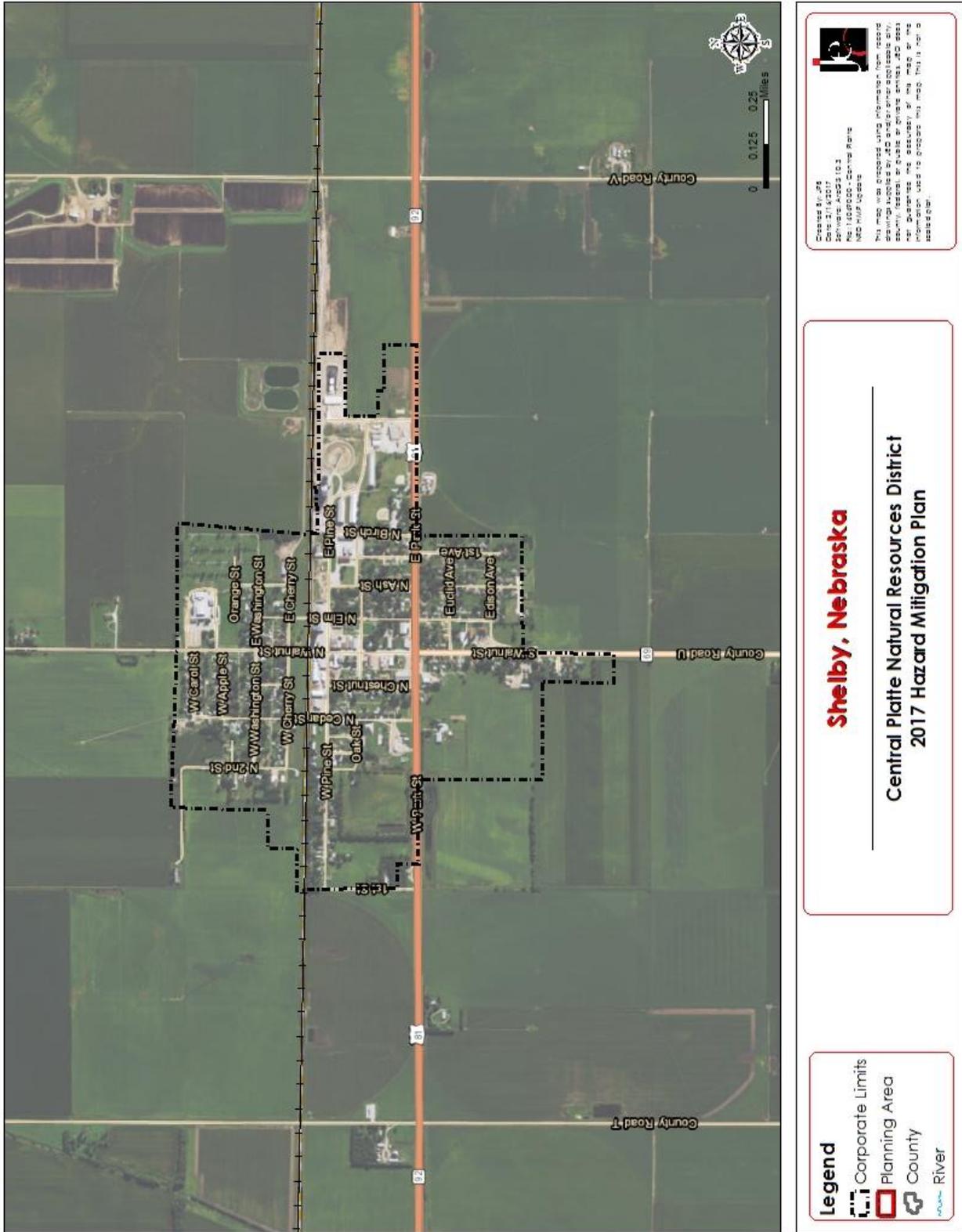
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Shelby has been increasing since 1960.

**Figure SBY.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure SBY.2: Map of the Village of Shelby



The following table indicates the Village has a higher percentage of the population under the age of 5 than both the County and the state. Shelby has a lower percentage of the population between the ages of 5 and 64 than the County and the state. The percentage of the population over the age of 64 and the median age are lower than the County, but higher than the state.

**Table SBY.2: Population by Age**

Age	Village of Shelby	Polk County	State of Nebraska
<5	8.0%	6.0%	7.2%
5-64	74.1%	74.3%	79.2%
>64	17.9%	19.8%	13.6%
Median	42.4	46.50	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Shelby’s median household income and per capita income are lower than the County, but higher than the state. Shelby has a lower median home value than both the County and the state. The median rent is higher than the County, but less than the state.

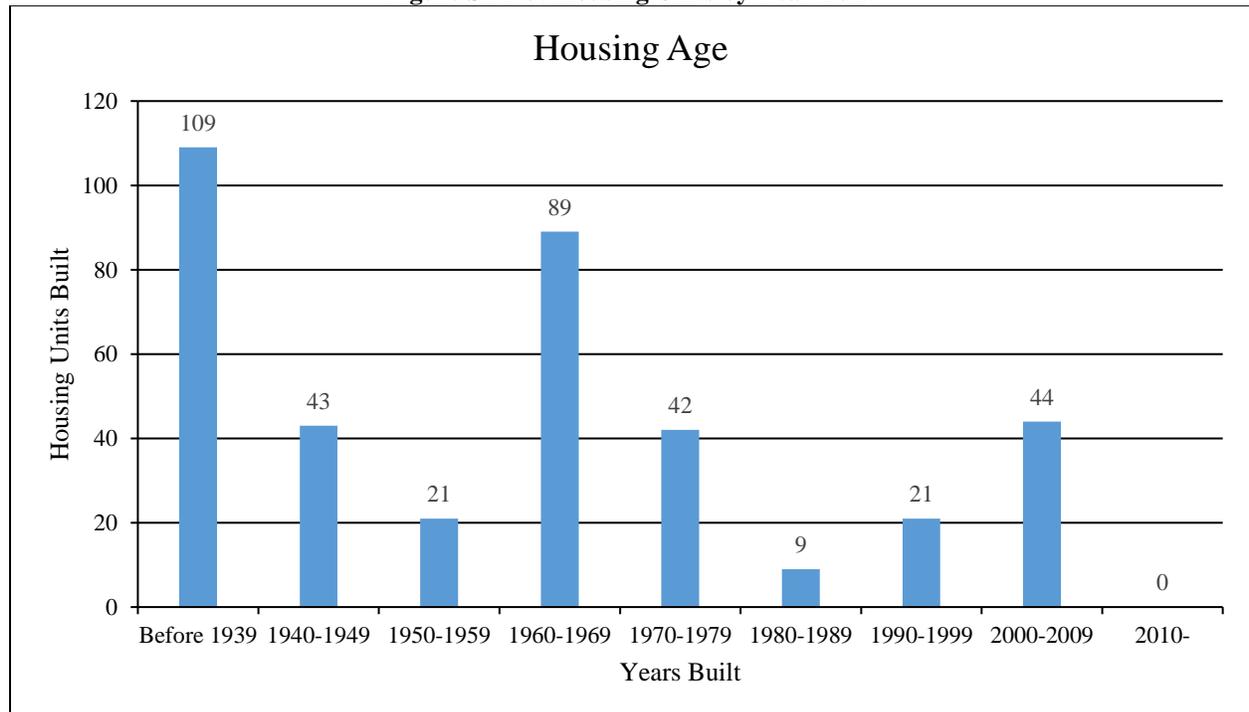
**Table SBY.3: Housing and Income**

	Village of Shelby	Polk County	State of Nebraska
Median Household Income	\$52,986	\$69,263	\$52,400
Per Capita Income	\$29,216	\$29,567	\$27,339
Median Home Value	\$90,800	\$97,600	\$130,100
Median Rent	\$631	\$607	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 378 housing units with 93.4 percent of those units occupied. There are approximately 11 mobile homes in the community, and the majority of them are located on the west side of town on Pine Street.

**Figure SBY.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table SBY.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Shelby	353	93.4%	25	6.6%	234	66.3%	119	33.7%
Polk County	2,238	81.9%	493	18.1%	1,675	74.8%	563	25.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in the community are Shelby Lumber Yard, Central Valley Coop, and Shelby Public Schools. A large percentage of residents commute to Columbus for work.

**FUTURE DEVELOPMENT TRENDS**

The planning team reports that in the past five years a grocery store on Main Street closed and moved to combine with the Gas/Convenient Store located on the highway. There are currently no plans for new housing developments nor are there any new businesses or industry planned for the next five years.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table SBY.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
406	\$31,186,010	\$76,813	0	\$0

Source: GIS Workshop/Polk County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of two chemical storage sites that house hazardous materials in Shelby. There are no chemical storage sites located in the floodplain (Figure SBY.4).

**Table SBY.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Central Valley Ag	340 E Oak St	No
Harless Oil Company	12731 U Rd	No

Source: Nebraska Department of Environmental Quality

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Shelby.

***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table SBY.7: List of Critical Facilities in Shelby**

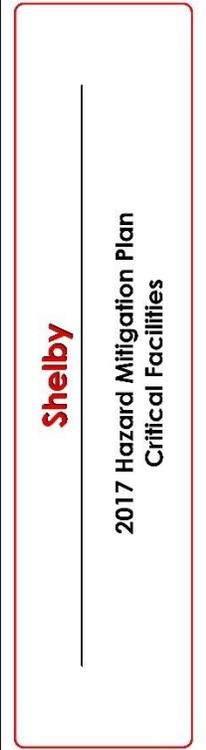
<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Shelby Public Schools	650 N Walnut	Y	N	N
2	Well	W Cherry St and 2 <sup>nd</sup> St	N	N	N
3	Treatment Plant/Water Tower	W Cherry St and Cedar St	N	N	N
4	Lift Station	Pine St and Birch St	N	N	N
5	Village Shop	Pine St and Chestnut St	N	N	N
6	Fire Hall	100 E Oak St	N	N	N
7	Substation	Highway 81	N	N	N
8	Well 91-1	Walnut St and Edison Ave	N	N	N
9	Lift Station	2 <sup>nd</sup> Ave and Edison Ave	N	N	N
10	Village Office/Shelby Senior Center	230 Walnut	Y	N	N

Figure SBY.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**Shelby**

2017 Hazard Mitigation Plan  
 Critical Facilities



### ***HISTORICAL OCCURRENCES***

For a table of historical hazard occurrences, please see the Participant Section for Polk County.

### ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

#### **Drought**

Drought was identified as one of the top concerns for the Village. The local planning team is most concerned about water shortages and public property degradation during a drought. When water supply gets low, the Village has alerts in place to warn the community.

The village water supply was described as being sufficient at this time by the local planning team. However, this could change dramatically during an extreme drought that extends many months or years. Since agricultural farming is one of the main trades in the region, economic losses would be felt throughout the area. Shelby plans to mitigate the hazards associated with drought with a public education campaign on possible mitigation actions.

#### **Hail**

The planning team listed hail as a top concern for Shelby. The NCEI reports 26 hail events since 1996 with the largest hail stone reported at 2.75 inches. \$520,000 dollars in damages were accrued due to these events. The local planning team is concerned with the potential for window, tree, and roof damage during a hail event. The community's critical facilities are insured, but are not fitted with hail resistant building materials. Plans to mitigate hail damage include providing continuous electrical services, even during storm events, by hardening and looping existing electrical systems.

#### **Severe Thunderstorms**

The local planning team identified severe thunderstorms as a top concern for the Village. NCEI reported 16 thunderstorm wind events since 1996, causing \$1,738,000 dollars in damages. Shelby's main concern regarding severe thunderstorms is alerting residents of the hazard during late evening. The community does back up critical municipal records. Only ten percent of Shelby's power lines are buried. Most critical facilities have backup power generators, but the Water and Sewer critical facilities need a backup power generator. No critical facilities have weather radios. Shelby plans to provide adequate public safe rooms, improve emergency communication systems, provide backup generators to all critical facilities, harden and loop the electrical system, and reduce tree damage with a tree maintenance program to mitigation thunderstorm hazards.

#### **Severe Winter Storms**

Severe winter storms were selected as a top concern for the Village by the local planning team. There are no reports of severe winter storms since 1996 in Shelby. The local planning team is concerned about delivering warnings of impending storms to residents in time. Additional concerns revolve around certainty of message delivery to residents. The Village does not have designated snow routes, and does not use snow fences. The Utility Superintendent, Village Board members, and the local Coop are responsible for removing snow for Shelby. Current removal resources are sufficient, but the planning team noted that the dump trucks could be newer. Severe winter storm mitigation actions include providing backup generators to all critical facilities, hardening and looping the electrical system, and reducing tree damage with a tree maintenance program.

## **Tornadoes**

The local planning team ranked tornadoes as a top hazard of concern for the Village. There are no reports of tornadoes since 1996 in the Village of Shelby. The planning team reported that the community has municipal records backed up, and has copies taken out of the Village office each night. The community has sirens, sounded by the Fire Department, but they cannot be heard in rural areas. The only storm shelter available to residents is the Fire Hall. Mitigation plans include providing more public safe rooms and improving the emergency communication system to accommodate the Village. Shelby has Mutual Aid agreements in place with Osceola, Stromsburg, and Rising City.

## **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Shelby is governed by a Chairperson and a four member Village Board. Furthermore, Shelby has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- Chamber of Commerce
- Betterment Corporation

## **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table SBY.8: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes - County
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	State Codes
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	No
	GIS Capabilities	Yes - County
	Chief Building Official	No
	Civil Engineering	Yes – Contractor
	Local Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	Yes – Contractor
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table SBY.9: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Moderate
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Moderate

***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Shelby has an annex to the Polk County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation, identifies critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village has a Comprehensive Plan (date unknown) and Zoning Ordinance, last updated in 1981, however there no examples of plan integration identified. And there are currently no plans to further integrate planning mechanisms

***MITIGATION STRATEGY***

**Ongoing Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	General funds, HMGP
Status	Not started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Village Engineer

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	General funds, HMGP
Status	Some improvements have been completed with tornado sirens.
Timeline	2-5 years
Priority	Low
Lead Agency	Fire Department

<b>Improve Emergency Communication Systems</b>	
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	General funds, E911 funds
Status	Not started.
Timeline	5+ years
Priority	Low
Lead Agency	Fire Department, Village Board

<b>Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds
Estimated Cost	\$150/sf for retrofit; \$300/sf for new construction
Funding	General funds, HMGP, PDM
Status	Not started.
Timeline	5+ years
Priority	Low
Lead Agency	Village Board, Engineer

<b>Improve Electrical Services</b>	
Description	Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures; provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails; implement measures to improve electrical service; bury power lines for future construction
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies by project
Funding	PPD
Status	Ongoing.
Timeline	5+ years
Priority	Low
Lead Agency	Public Power District, Village Board

<b>Reduce Tree Damage &amp; Damages from Trees</b>	
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	Unknown
Funding	General funds
Status	Ongoing.
Timeline	Ongoing
Priority	Medium
Lead Agency	Streets/Parks Commissioner

<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>	
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-\$100,000+
Funding	General funds
Status	Not started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board, Engineer

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All hazards
Estimated Cost	\$1,000+
Funding	Village Funds, HMGP
Status	Not yet started.
Timeline	1 year
Priority	Medium
Lead Agency	Village Board

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
FOR THE  
CITY OF STROMSBURG

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table SMB.1 provides the list of participating members that comprised the Stromsburg local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table SMB.1: The City of Stromsburg Local Planning Team**

Name	Title	Department / Organization
Nancy Bryan	City Clerk and Treasurer	City of Stromsburg

**LOCATION AND GEOGRAPHY**

The City of Stromsburg is located in the southern portion of Polk County and covers an area of 1.01 square miles. Major waterways in the area include the Big Blue River and Prairie Creek.

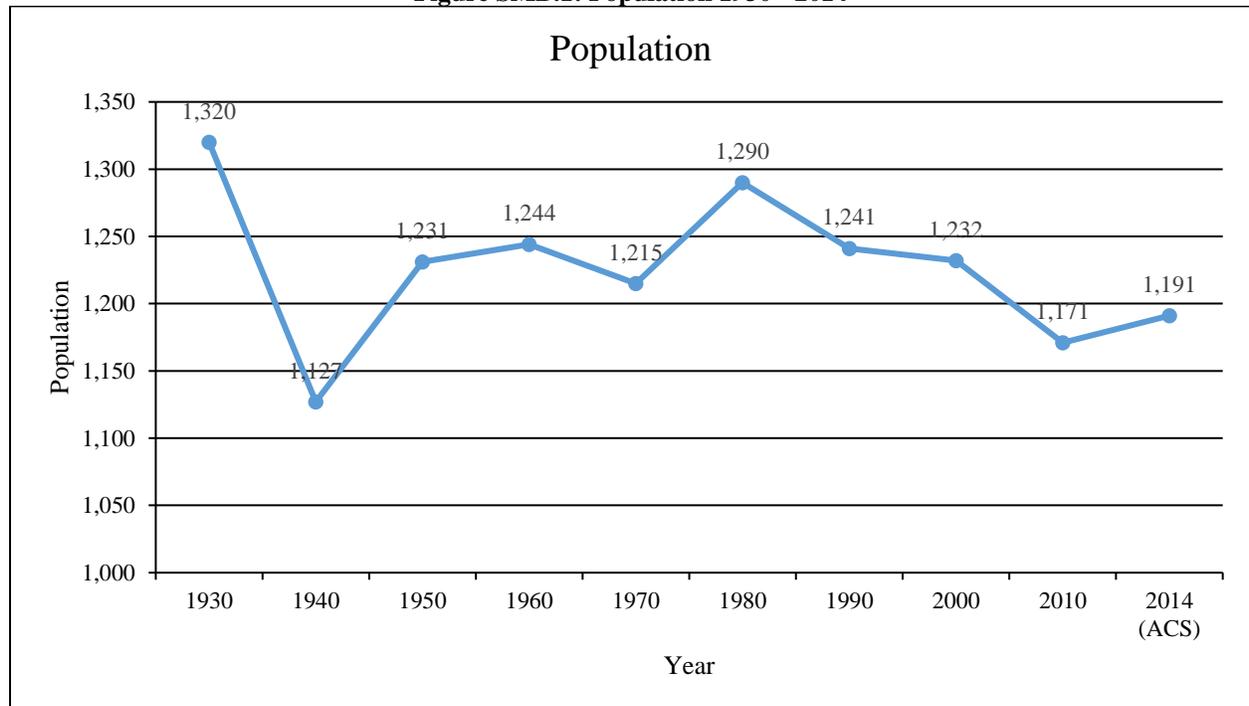
**TRANSPORTATION**

Stromsburg’s major transportation corridor is U.S. Highway 81 which runs north to south through the center of the City. There are an average of 4,120 vehicles per day on Highway 81 with 480 of those being heavy commercial vehicles. Stromsburg has one rail line that runs through the southeastern corner of the City, a Nebraska Central Railroad Company line.

**DEMOGRAPHICS**

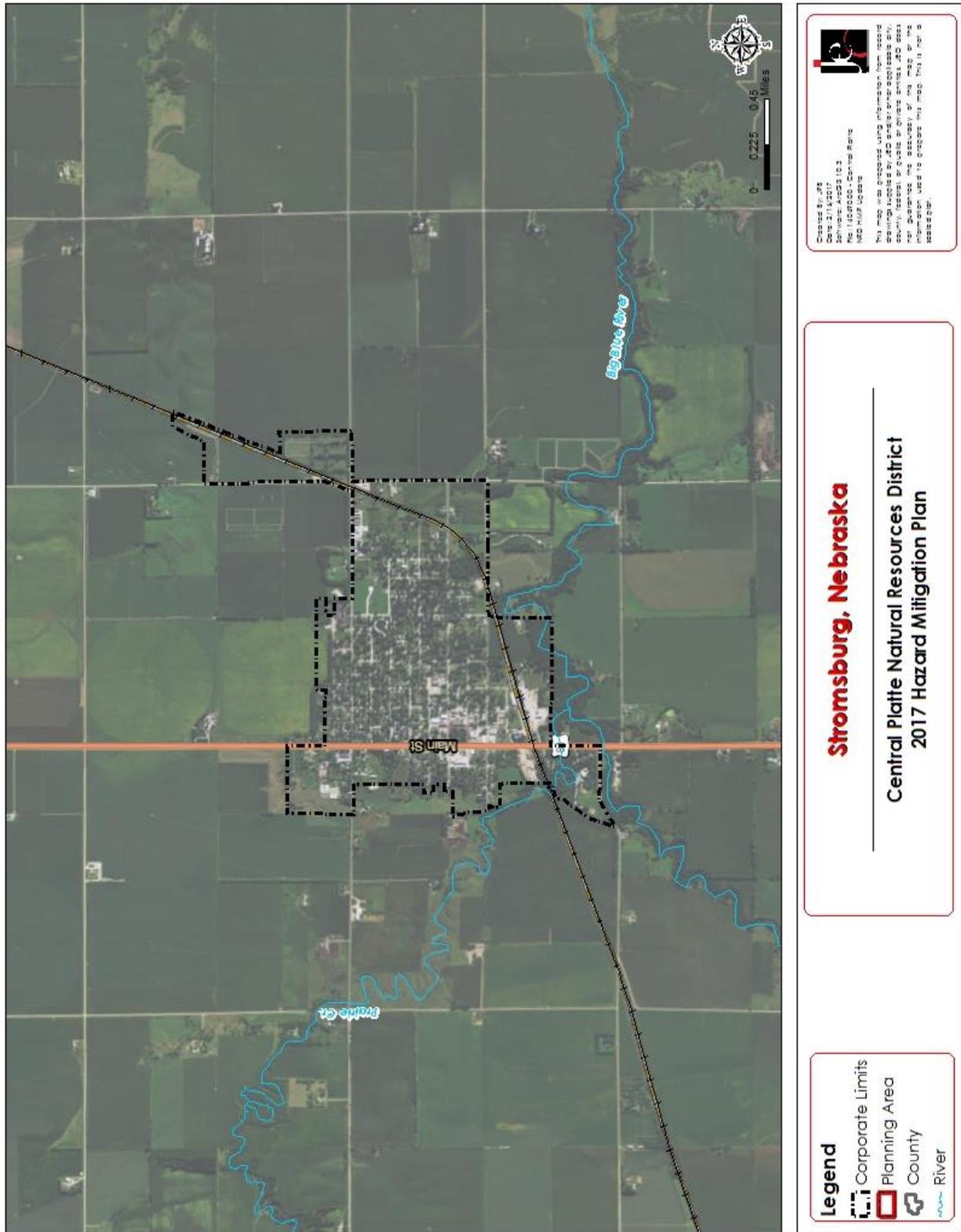
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Stromsburg has fluctuated over the years, but has been declining since 1980.

**Figure SMB.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure SMB.2: Map of the City of Stromsburg



The following table indicates the City has a higher percentage of the population under the age of 5 than the County, but a lower percentage than the state. The City has a lower percentage of the population between 5 and 64 than both the County and the state. The City has a higher percentage of the population over the age of 64 than both the County and the state. Their median age is higher than the state, but lower than the County.

**Table SMB.2: Population by Age**

Age	City of Stromsburg	Polk County	State of Nebraska
<5	6.3%	6.0%	7.2%
5-64	65.8%	74.3%	79.2%
>64	27.9%	19.8%	13.6%
Median	40	46.50	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Stromsburg’s median household income, per capita income, median home value, and median rent are all lower than the County and the state.

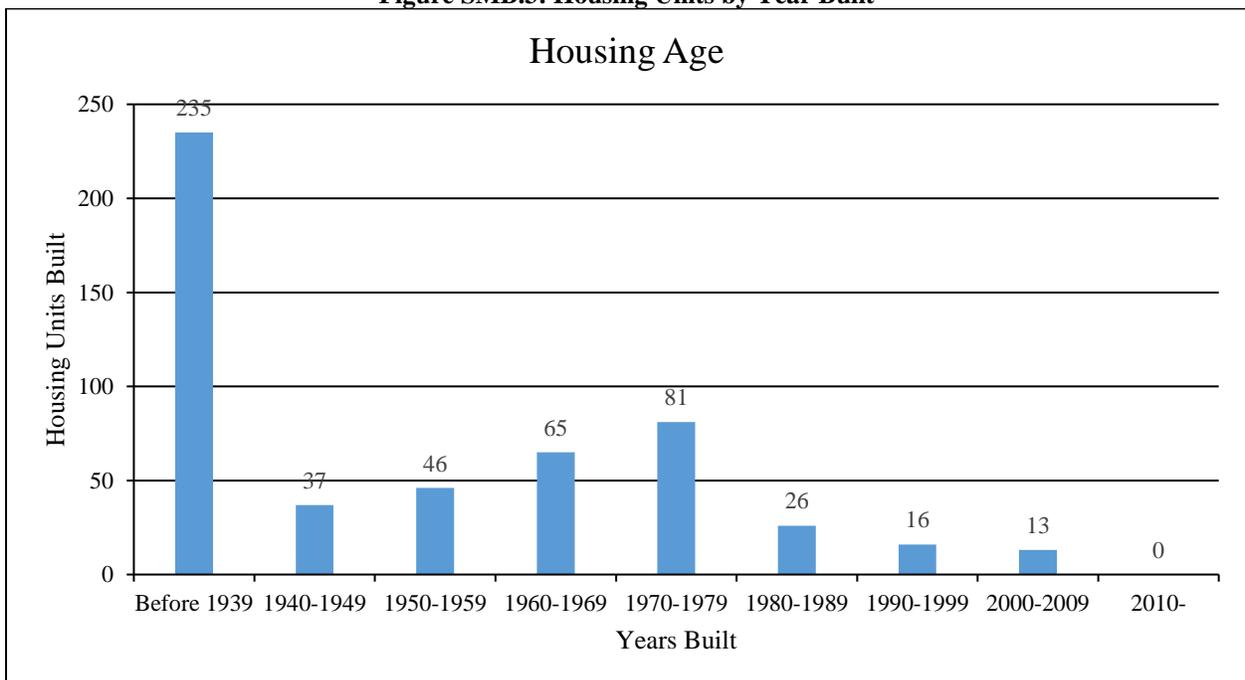
**Table SMB.3: Housing and Income**

	City of Stromsburg	Polk County	State of Nebraska
Median Household Income	\$47,227	\$69,263	\$52,400
Per Capita Income	\$20,043	\$29,567	\$27,339
Median Home Value	\$77,600	\$97,600	\$130,100
Median Rent	\$577	\$607	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 519 housing units with 86.1 percent of those units occupied. There are four mobile homes in the community with two located in the northwest corner of the City and the other two located in other residential areas of the City. The initial Flood Insurance Rate Map (FIRM) was developed in June 1986.

**Figure SMB.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table SMB.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Stromsburg	447	86.1%	72	13.9%	286	64.0%	161	36.0%
Polk County	2,238	81.9%	493	18.1%	1,675	74.8%	563	25.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

The major employers in Stromsburg are the Midwest Covenant Home, the Polk County Rural Public Power District, Grain Products, and the Cross County School. A large percentage of residents commute to York and Columbus for work.

**FUTURE DEVELOPMENT TRENDS**

In the past five years, a new housing subdivision was built, completing five houses, with one still under construction. A pool was constructed, as well as a new Subway restaurant building, the Fire Hall was moved to a new building, the Cornerstone Bank moved to a new building, and the airport closed. The previous airport lot is developing into commercial lots. According to the local planning team, none of these structures were built in the floodplain.

Per census data, Stromsburg’s population is declining. The planning team reports that this decline is due to a lack of jobs and housing. The only expected housing growth in the next five years is in the existing subdivision. The City is preparing to develop businesses or industry at the previous airport property, on the northeast side of Stromsburg.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table SMB.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
676	\$3,316,930	\$49,056	0	\$0

Source: GIS Workshop/Polk County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

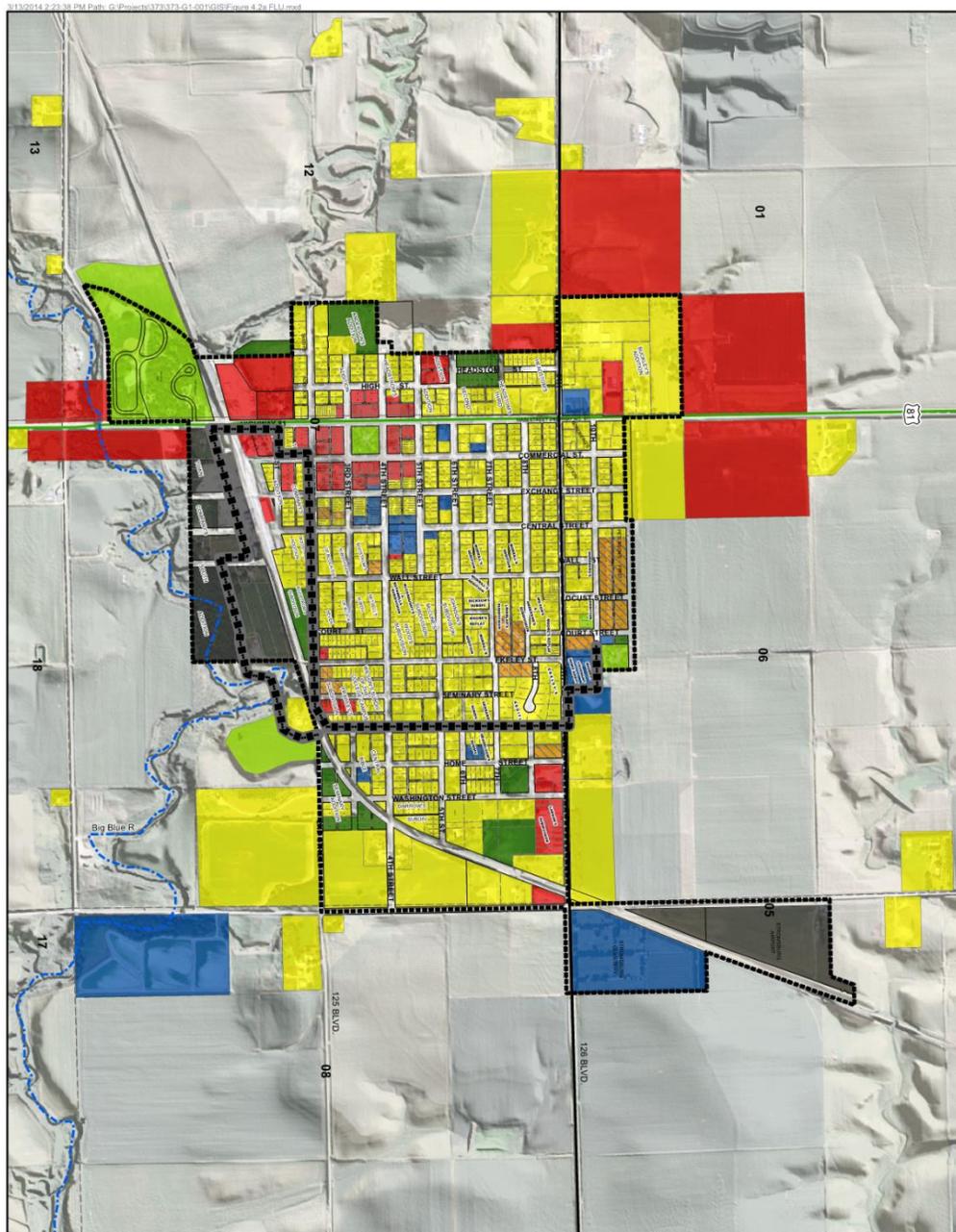
According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there is one chemical storage site that houses hazardous materials in Stromsburg, and it is not located in the floodplain (Figure SMB.6).

**Table SMB.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Central Valley Ag	M Rd	No

Source: Nebraska Department of Environmental Quality

Figure SMB.4: Future Land Use Map A



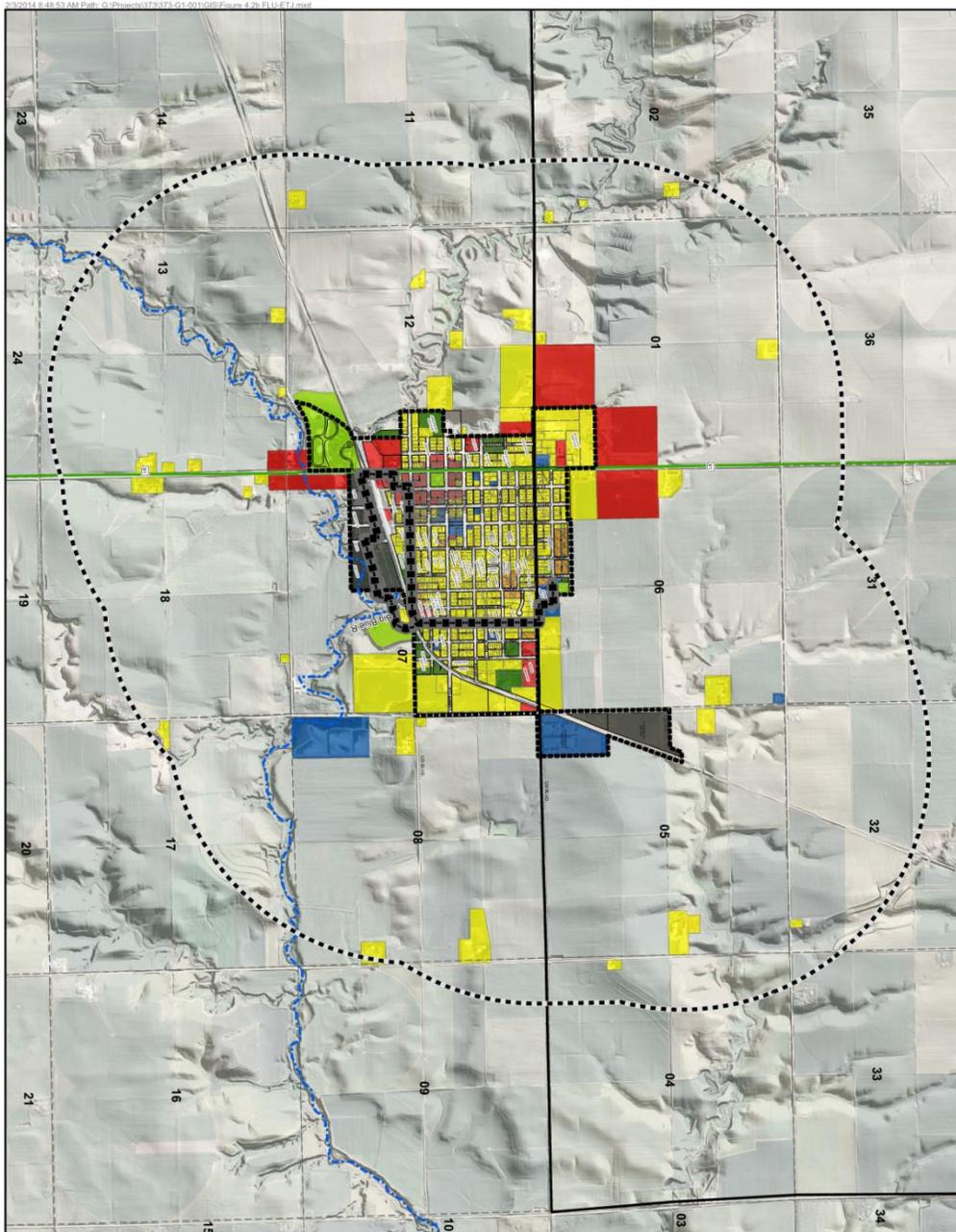
- Legend**
- Corporate Boundary
  - Hike/Bike Trail
- Future Land Use**
- Single-Family Residential
  - Multi-Family Residential
  - Commercial
  - Industrial
  - Public/Quasi-Public
  - Recreational
  - Agricultural/Greenspace

Prepared By:  
  
**Miller & Associates**  
 CONSULTING ENGINEERS, P.C.  
 Kearney, NE • (402) 234-9459

0 500 1,000 Feet

**Figure 4.2a**  
**Future Land Use**  
 Stromsburg, Nebraska

Figure SMB.5: Future Land Use Map B



Prepared By:  
**Miller & Associates**  
 CONSULTING ENGINEERS, P.C.  
 Kearney, NE - (402) 234-9459

- Legend**
- ETJ
  - Corporate Boundary
  - Hiker/Bike Trail
- Future Land Use**
- Single-Family Residential
  - Multi-Family Residential
  - Commercial
  - Industrial
  - Public/Quasi-Public
  - Recreational
  - Agricultural/Greenspace

**Figure 4.2b**  
**Future Land Use**  
 Stromsburg, Nebraska

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there is one historic sites located in or near Stromsburg.

**Table SMB.7: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Victor E. Wilson House	7/7/1988	No

Source: Nebraska State Historical Society, 2016

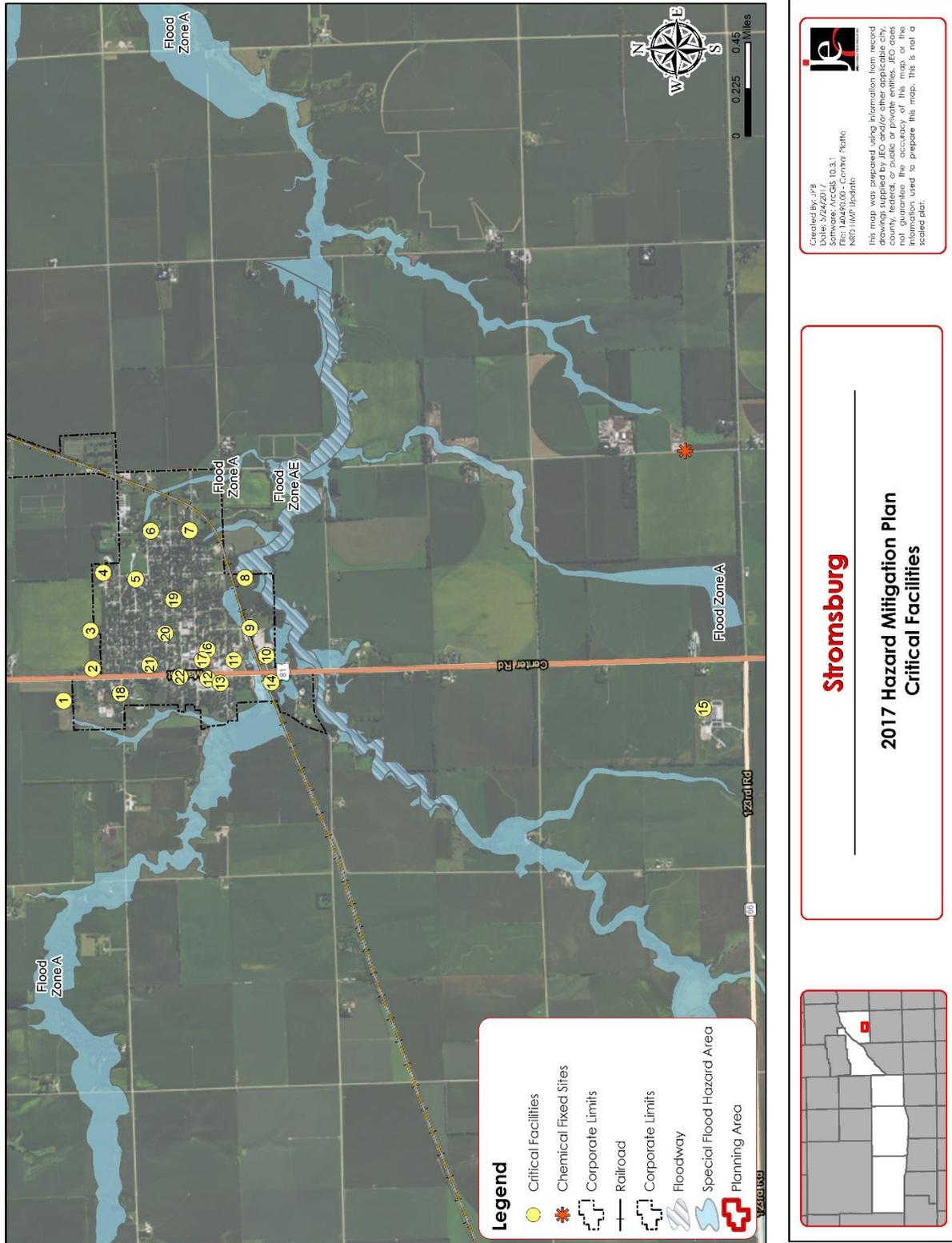
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table SMB.8: List of Critical Facilities in Stromsburg**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Lift Station	319 W 9 <sup>th</sup> St	N	N	N
2	Natural Gas Station	1012 Commercial Street	N	N	N
3	Gas Distribution Station	315 East 10th Street	N	N	N
4	Midwest Convent Home	615 East 9th Street	N	N	N
5	Swede Haven	517 East 7th Street	N	N	N
6	Water Tower and Electric Substation	610 Home Street	N	N	N
7	City Well	405 Home Street	N	N	N
8	Sewer Plant	903 East 6th Street	N	N	N
10	Gas Distribution Service	Railroad Avenue & Commercial Street	N	N	N
11	City Well	Center St and E 1 <sup>st</sup> St	N	N	N
12	Electrical Substation	110 Exchange Street	N	N	N
13	Sewer Lift Station	Buckley Park: Main St and W 3 <sup>rd</sup> St	N	N	N
14	Lift Station	Main St and Railroad St	N	N	N
15	Cross Country School	1270 123 Rd	Y	N	N
16	Senior Service Center	118 E 3 <sup>rd</sup> St	Y	N	N
17	Legion Club	203 E 3 <sup>rd</sup> St	Y	N	N
18	Evangelical Free Church	902 Main St	Y	N	N
19	United Methodist Church	401 E 5 <sup>th</sup> St	Y	N	N
20	Baptist Church	515 Exchange St	Y	N	N
21	Salem Lutheran Church	610 Commercial St	Y	N	N
22	Evangelical Convent Church	520 Commercial St	Y	N	N

Figure SMB.6: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



**HISTORICAL OCCURRENCES**

For a table of historical hazard occurrences, please see the Participant Section for Polk County.

**LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Flooding**

There was one flash flood event in 2007 in the City of Stromsburg. The Platte River, Davis Creek, Prairie Creek, and Little Blue were reported by the local planning team as the bodies of water of top concern. The flood risk areas of concern for the City of Stromsburg are located on the south and west outskirts of the City. Stromsburg plans to mitigate flooding in the City by performing and implementing finds of a stormwater drainage study.

Stromsburg has one NFIP policies in-force for \$95,000. There are no repetitive flood loss properties in the City of Stromsburg. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that none of the parcel improvements in Stromsburg are located in the floodplain.

**Table SMB.9: Structures in the 1% Annual Flood Risk**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
0	\$0	676	0%

Source: GIS Workshop/Polk County Assessor

**Hail**

The planning team ranked hail as a top concern due to the degree of property damages that can occur. The NCEI reports 13 hail events since 1996 with the largest hail stone reported at 2.75 inches. Together, these hail events caused \$365,000 dollars in damages to Stromsburg and surrounding areas. The worst of these for Stromsburg was in June of 2002. A thunderstorm accompanied by 1.5-inch hail damaged cars, roofs, and windows. The planning team indicated that their main concerns are crop and building damage. Stromsburg does have a tree board but does not provide residents with information on hail resistant building materials with building permits. Hail mitigation actions include providing backup generators to critical facilities and improving emergency communication systems.

**Severe Thunderstorms**

The NCEI reported eight thunderstorm wind events since 1996, causing \$190,000 dollars in damages. The worst of these was in July of 2014. Wind speeds of 60mph accompanied with quarter-sized hail caused \$100,000 in property damage throughout the area. The planning team reports concern about the potential for flooding, downed power lines, tree damage, and hail damage. Most critical facilities have backup power generators, but City Hall does not. There are no weather radios in critical facilities. The planning team indicated that there are hazardous trees in the community that need to be inspected and removed. Plans to mitigate thunderstorm hazards include reducing tree damage with a tree maintenance program and providing backup generators to all critical facilities.

### **Severe Winter Storms**

The Christmas blizzard of 2009 came with a foot of snow and 60mph winds. In Stromsburg, this caused a loss of livestock, power outages, and impassable roads. Stromsburg's main concerns with severe winter storms are the inability for Fire and Rescue teams to respond to emergencies because of weather conditions, and City staff being unable to report to work. The community uses snow fences, as some residential areas are more prone to snow drifting. The City is responsible for snow removal and equipment is sufficient at this time. Stromsburg plans to mitigate the hazards associated with severe winter storms by providing backup generators for all critical facilities and implementing a tree maintenance program to limit tree damage.

### **Tornadoes and High Winds**

There are two reports of tornadoes since 1996 in the City of Stromsburg. Both of these tornadoes were EF0s and caused no damage. The local planning team noted their main concerns with these hazards are downed power lines, and damage to crops, buildings, and trees. The City backs up electronic municipal records and stores them off site overnight, but their paper records are not backed up. Sirens in the community are new and activated by the Fire Department and Sheriff's Department. The Fire Hall is a community safe room, but the planning team is unsure if it is FEMA-certified. Apart from the Fire Hall, residents can seek shelter with neighbors who have basements. Text alerts are not offered, but educational outreach activities are done by the Sheriff, and presented to the school and senior center. The City has Mutual Aid agreements with Fire and Rescue, electricity, gas, and water/sewer services. Hazard mitigation plans for tornadoes and high winds include reducing tree damage with a tree maintenance program, improving emergency communication systems, and providing backup generators to all critical facilities.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Stromsburg is governed by a Mayor and a four member City Council. Furthermore, Stromsburg has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- Public Works
- Tree Board

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are

planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table SMB.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan-LB 840	Yes
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	State Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	Yes
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
Other (if any)		

Survey Components/Subcomponents		Yes/No
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	

**Table SMB.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Moderate
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

The City of Stromsburg Comprehensive Plan was updated in 2014. The plan directs development away from the floodplain and encourages infill development. At this time, there is currently no plan to further integrate the HMP into the Comprehensive Plan.

Stromsburg’s Zoning Ordinance was last updated in 2000. The Ordinance requires at least one-foot of elevation above base flood elevation in the floodplain and prohibits development within the floodway. It also limits development in the ETJ.

Stromsburg has an annex to the Polk County Local Emergency Operations Plan, last updated in 2015. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

	<b>Improve Warning Systems</b>
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Location	Stromsburg
Funding	Grant
Status	Completed 2013/2014.

**Ongoing or New Mitigation Actions**

	<b>Improve/Provide Adequate Backup and Emergency Generators</b>
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+
Funding	City funds, HMGP, PDM
Status	Not yet started. City would like to replace the natural gas generator located at the well on 4 <sup>th</sup> and Home Streets.
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works

	<b>Improve Emergency Communication Systems</b>
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Estimated Cost	\$5,000+
Funding	City funds, EMPG
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Planning Commission

	<b>Reduce Tree Damage &amp; Damages from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Grass/Wildfire
Estimated Cost	Unknown
Funding	City funds
Status	In progress.
Timeline	Ongoing
Priority	High
Lead Agency	Tree Board, Public Works

	<b>Reduce Damages from Floods, Stormwater, and Heavy Precipitation Event</b>
Description	Conduct stormwater drainage study; evaluate and implement recommendations or comparable measures to improve drainage; evaluate and improve stormwater system
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-\$100,000+
Funding	City funds, HMGP, PDM, FMA
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works

**Removed Mitigation Actions**

	<b>Maintain NFIP Participation</b>
Description	Maintain good standing with the National Flood Insurance Program
Reason for Removal	City will continue to participate in program, however, this is no longer considered a hazard mitigation action.

AUGUST 2017

**OTHER COMMUNITIES APPENDIX**  
CENTRAL PLATTE NRD MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN



THIS PAGE IS INTENTIONALLY BLANK

**CONTENTS**

**PLAN OVERVIEW .....1**  
**VILLAGE OF EUSTIS.....3**  
**VILLAGE OF OCONTO.....17**

THIS PAGE IS INTENTIONALLY BLANK



## **PLAN OVERVIEW**

This plan is an update to the Central Platte Natural Resources District (CPNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2012. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind the update of this hazard mitigation plan is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team reviewed, updated, and approved goals and objectives which helped guide the process of identifying both broad-based and community-specific mitigation strategies and projects that will, if implemented, reduce their vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect Public Health and Safety from Natural Hazard Events**

**Objective 1.1:** Provide Adequate Public Safe Rooms and Post-Disaster Storm Shelters

**Objective 1.2:** Improve/Provide Adequate Backup and Emergency Generators

**Objective 1.3:** Improve Warning Systems

**Objective 1.4:** Improve Emergency Communication Systems

**Objective 1.5:** Improve Electrical Service

**Objective 1.6:** Develop Emergency Snow/Evacuation Routes

**Objective 1.7:** Study/Improve Drinking Water Supply

**Objective 1.8:** Reduce Water Demand/Improve Drought Education

**Objective 1.9:** Improve Response to Hazardous Materials (Hazmat) Incidents

**Objective 1.10:** Improve Flood/Dam Failure Warning System

### **Goal 2: Protect Existing and New Properties from Natural Hazard Events**

**Objective 2.1:** Reduce Bottleneck/Flow Restrictions

**Objective 2.2:** Reduce Wildfire Damage

**Objective 2.3:** Reduce Stormwater Damage

**Objective 2.4:** Develop/Update Floodplain Information

**Objective 2.5:** Reduce Damages in Floodplain

**Objective 2.6:** Facility Flood Proofing

**Objective 2.7:** Reduce Tree Damage & Damage from Trees

**Objective 2.8:** Evaluate Stream Channelization/Bank Stabilization

**Objective 2.9:** Improve Construction Standards and Building Survivability

**Objective 2.10:** Evaluate and Improve Berm, Floodwall and/or Levee

**Goal 3: Increase Public Awareness and Education about Natural Hazard Events**

**Objective 3.1:** Community Education and Awareness

**Objective 3.2:** Increase Soil and Water Conservation

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (One for each of the five participating counties plus one for the Central Platte NRD and one for communities participating outside of the five participating counties)
- An appendix of procedural documentation and resolutions of adoption

This participant appendix includes all of the participating jurisdictions participating outside of their counties, which includes jurisdictional-specific information for each participant. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF EUSTIS

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table EUS.1 provides the list of participating members that comprised the Eustis local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table EUS.1: Eustis Local Planning Team**

Name	Title	Department / Organization
Susan Strong	Clerk and Floodplain Administrator	Village of Eustis
Mike Koch	Utilities Superintendent	Village of Eustis

**LOCATION AND GEOGRAPHY**

The Village of Eustis is located in the northeastern portion of Frontier County and covers an area of 0.42 square miles. The closest major waterway in the area is the Plum Creek.

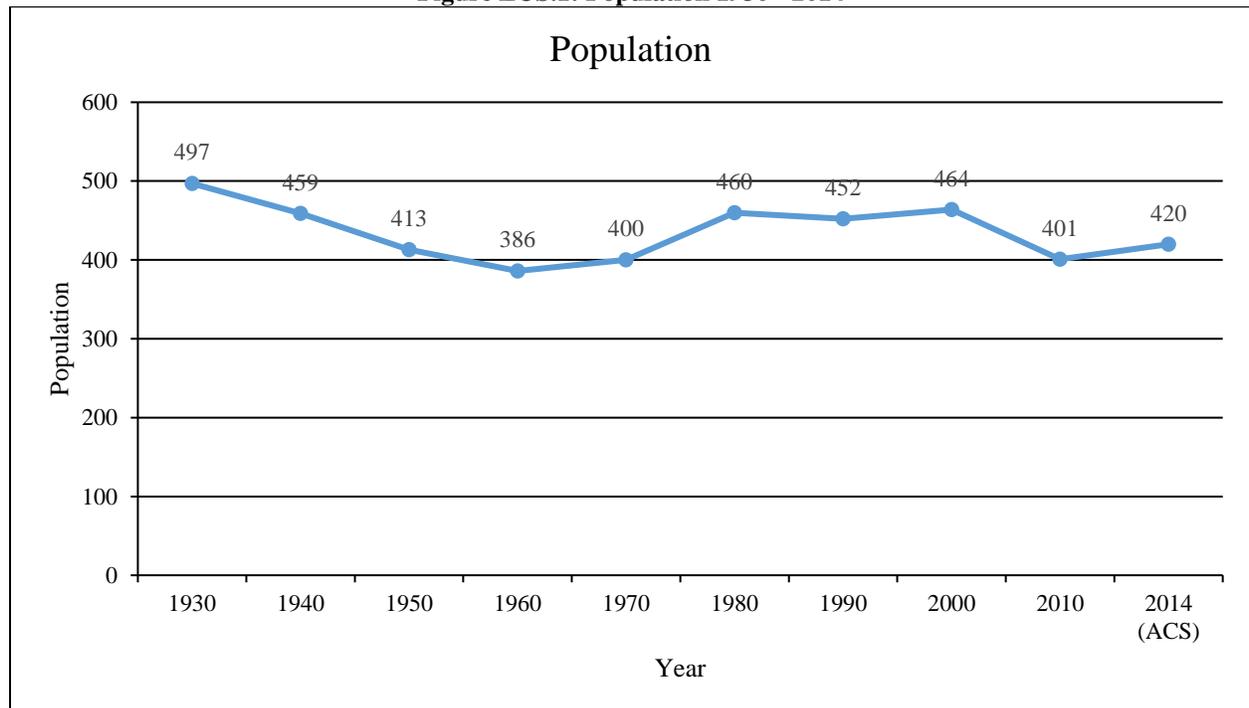
**TRANSPORTATION**

Eustis’s major transportation corridor is Nebraska State Highway 23 which is located north of the Village and runs east to west. The average daily vehicle load for State Highway 23 is 947 with 115 of those being categorized as heavy commercial vehicles. Eustis has one rail line that runs through the Village, a Nebraska-Kansas-Colorado Railway line. The line is located in the southern portion of the Village and travels east to west.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Eustis decreased during the first half of the century but has been generally declining.

**Figure EUS.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure EUS.2: Map of the Village of Eustis



  
 Created by: JH  
 Date: 2/1/2017  
 Software: ArcGIS 10.3  
 File: 1406000 - Corral Plains  
 Map Help: 0.000  
 This map was created using information from recent drawings supplied by JH and is not intended to be used for liability or other purposes. JH does not warrant the accuracy of the map or the information contained therein. Use at your own risk.

**Eustis, Nebraska**  
 Central Platte Natural Resources District  
 2017 Hazard Mitigation Plan

**Legend**  
 Corporate Limits  
 Planning Area  
 County  
 North Platte River

The following table indicates the Village has an almost identical percentage of the population under 5 as Frontier County, but the state has a higher percentage. Eustis has a lower percentage of the population between 5 and 64 than both the County and the state. The Village, however, has a higher percentage of the population over the age of 64 than the County and the state, as well as a higher median age.

**Table EUS.2: Population by Age**

Age	Village of Eustis	Frontier County	State of Nebraska
<5	5.5%	5.4%	7.2%
5-64	73.6%	75.7%	79.2%
>64	20.9%	19.0%	13.6%
Median	49.5	44.5	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Eustis’ median household income is lower than the County’s, but higher than the state’s. Eustis’ median rent and per capita income are higher than the County, but lower than the state. Eustis has a median home value that is lower than both the County and the state.

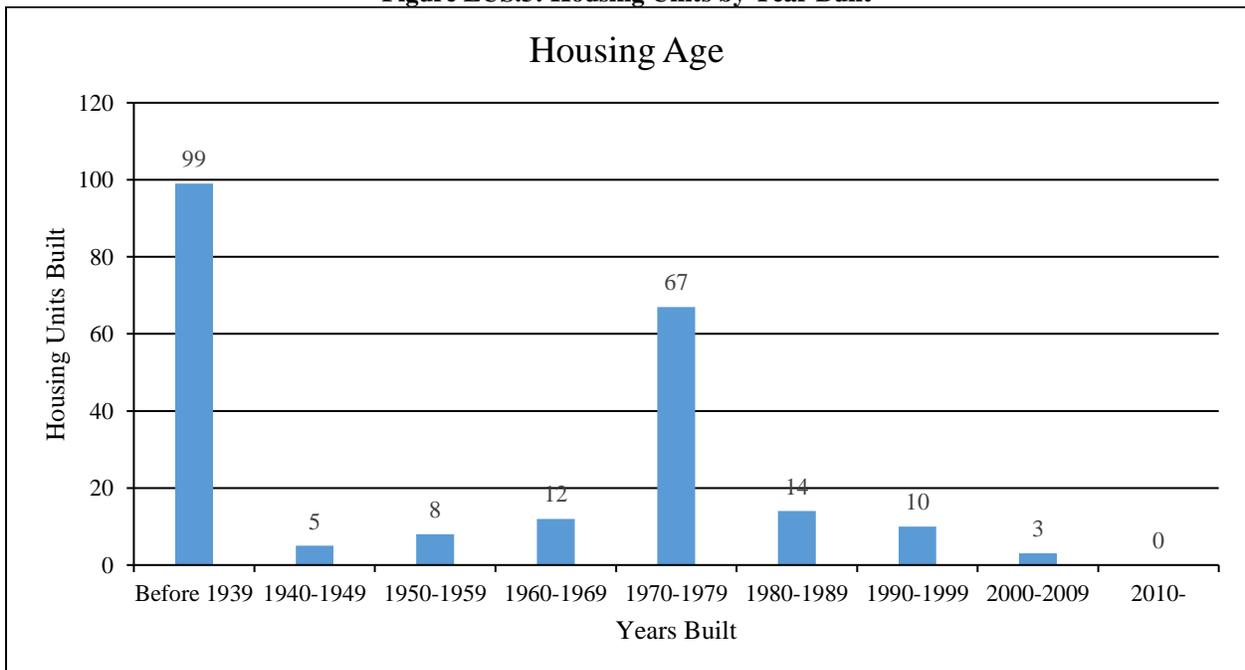
**Table EUS.3: Housing and Income**

	Village of Eustis	Frontier County	State of Nebraska
Median Household Income	\$54,861	\$60,550	\$52,400
Per Capita Income	\$26,427	\$25,361	\$27,339
Median Home Value	\$70,800	\$84,000	\$130,100
Median Rent	\$625	\$601	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 218 housing units with 88.5 percent of those units occupied. There are approximately 14 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in March 1990.

**Figure EUS.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table EUS.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Eustis	193	88.5%	25	11.5%	166	86.0%	27	14.0%
Frontier County	1,079	69.6%	472	30.4%	814	75.4%	265	24.6%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

### **MAJOR EMPLOYERS**

The major employers in the community are Eustis-Farnam School, Village PieMaker, Eustis Pool Hall, and Eustis Body Shop. A large percentage of residents commute to work in Cozad, Lexington, and Gothenburg.

### **FUTURE DEVELOPMENT TRENDS**

In the past five years, Lone Wolf Wurst Meats began producing in a new structure on Wright and Railroad Sts. According to the local planning team, Eustis' population is declining because of the aging population, lack of new housing, and the younger population moving away. There are no new businesses, industries, or housing developments planned for the next five years.

### **PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table EUS.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
298	\$16,106,016	\$54,047	28	\$940,882

Source: GIS Workshop/Frontier County Assessor

### **CRITICAL INFRASTRUCTURE/KEY RESOURCES**

#### **CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there is one chemical storage site that houses hazardous materials in Eustis, and it is not located in the floodplain (Figure EUS.4).

**Table EUS.6: Chemical Storage Fixed Sites**

Facility	Address	In Floodplain?
Doug Gengenbach Livestock	75081 Road 422	No

Source: Nebraska Department of Environmental Quality

#### **HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Eustis.

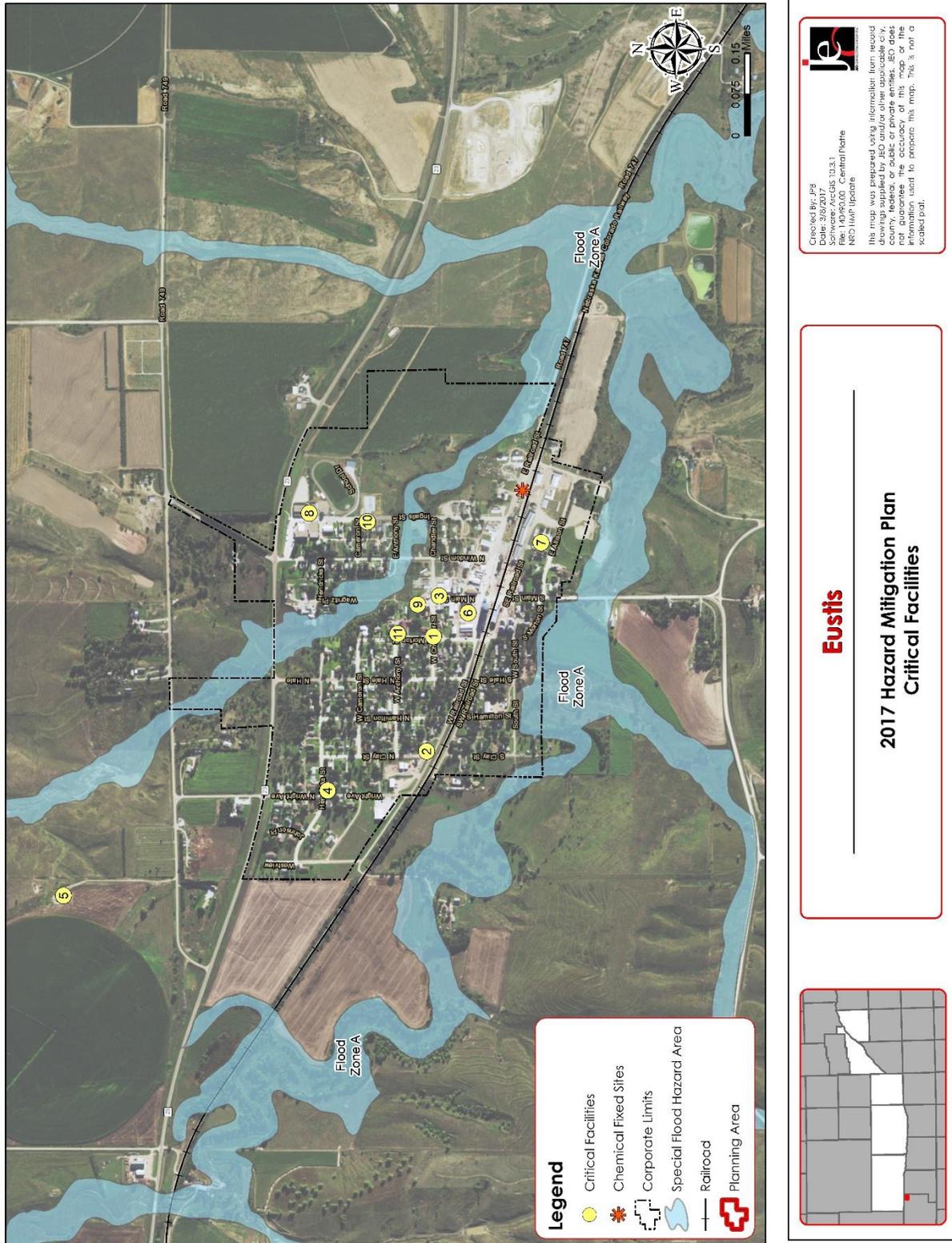
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table EUS.7: List of Critical Facilities in Eustis**

<b>CF #</b>	<b>Name</b>	<b>Address</b>	<b>Red Cross Shelter (Y/N)</b>	<b>Generator (Y/N)</b>	<b>Located in 1% Floodplain (Y/N)</b>
1	Village Office	108 N. Morton St	N	N	N
2	Village Shop	N. Clay St and W. Railroad St	N	N	N
3	Fire and Rescue Station	Chandler and N. Main St	N	Y	N
4	Well 1	Wright and Hendricks Sts	N	Tractor Hookup	N
5	Well 2	Northwest of Cemetery	N	Y	N
6	Legion Hall	107 Main St	N	N	N
7	Fair Building	Allison St	N	N	N
8	Eustis-Farnam School	504 Ingalls St	N	N	N
9	Water Tower	Chandler and Main St	N	N	N
10	Substation	Ingalls and Cameron St	N	N	N
11	Methodist Church	208 N. Morton St	Y	N	N

Figure EUS.4: Critical Facilities and Hazardous Materials Storage Facilities with Floodplain



### ***HISTORICAL OCCURRENCES***

The following table provides a statistical summary for hazards that have occurred in the community or Frontier County. The property damages from the NCEI Storm Events Database (January 1996 – December 2015) should be considered only as broad estimates. The National Weather Service makes a best guess on these amounts at the time of the publication from a variety of sources. Sources include, but are not limited to: emergency management, local law enforcement, SKYWARN spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

**Table EUS.8: NCEI Severe Weather Events for Eustis**

HAZARD TYPE		COUNT	PROPERTY LOSS
Agricultural Disease <sup>5</sup>	Animal Disease <sup>1</sup>	0	0
	Plant Disease <sup>2</sup>	25	\$156,971 (crop loss)
Chemical Spills-Transportation <sup>3</sup>		0	\$0
Drought <sup>5</sup>		25	\$1,000,000
Extreme Heat <sup>5</sup>		1	\$0
Flooding	Flash Flood	3	\$155,000
	Flood	0	\$0
Grass/Wildfires <sup>4</sup>		14	199.2 acres
High Winds <sup>5</sup> Average: 43.4 kts Range: 35 - 55 kts		20	\$6,000
Severe Thunderstorms	Thunderstorm Wind Average: 55 kts Range: 52 - 61 kts	10	\$8,000
	Hail Average: 1.24 in. Range: 0.75 - 4.50 in.	52	\$666,000
	Heavy Rain	0	\$0
	Lightning	0	\$0
Severe Winter Storms <sup>5</sup>	Blizzard	3	\$32,000
	Heavy Snow	6	\$0
	Ice Storm	1	\$0
	Severe Winter Storm	24	\$60,000
Tornadoes	Funnel Cloud	1	\$0
	Tornado Most Common Rating: F1 Range: F1	2	\$350,000
<b>Total</b>			<b>\$2,277,000</b>

*in. = inches; kts = knots*

*Unless otherwise noted, data from NCEI (1996 – 2015)*

*1 Data from NDA (2014-2016)*

*2 Data from USDA RMA (2000 – 2015)*

*3 Data from PHMSA (1970 - 2016)*

*4 Data from NFS (2000 – 2014)*

*5 Data is only available at county level*

### ***LOCAL HAZARD PRIORITIZATION***

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spill (Transportation)**

A variety of unknown chemicals are transported on Hwy 23 and 21, including those that go to and from the Fertilizer Coop. The Eustis-Farnam school is located along these routes, and therefore vulnerable to a chemical spill. The North Platte HazMat Response Team was called five to ten years ago when an overturned truck spilled fertilizer. Eustis plans to mitigate further chemical spills and their associated hazards with public education.

**Flooding**

The flood risk areas of concern for the Village of Eustis are located mostly to the south of the Village with smaller areas to the north and east. The area to the south of town includes the bridge on Main St that has flooded twice. The intersection of Windom and Anthony Sts in the center of the Village is directly impacted by a flood risk area. The creek next to Railroad St has also flooded during a heavy rain event. A heavy rain event in May of 2008 resulted in \$150,000 in property damages and multiple road closures.

Eustis has no NFIP policies in-force currently. There are no repetitive flood loss properties in the Village of Eustis. The following table is parcel improvement information as provided by GIS Workshop for the community. It indicates that an estimated 9.4 percent of all parcel improvements in Eustis are located in the floodplain.

**Table EUS.9: Structures in the 1% Annual Flood Risk Area**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in Community	Percentage of Improvements in Floodplain
\$940,882	28	298	9.4%

Source: GIS Workshop/Frontier County Assessor

Eustis plans to mitigate future flooding with a street improvement project that would include widening roads and improving road drainage.

**Grass/Wildfire**

The local planning team’s concerns about grass and wildfires center around the high fuel load in the area. They report an average of two to three wildfires every year. In August of 2003, the Eustis Fire Department responded to an incident where 100 acres of grass land burned. This is the largest grass fire that has occurred in the area since 2000. Eustis does not have a Wildland Urban Interface Code, and does not encourage property owners to have a Defensible Space around structures or use ignition-resistant building materials. The Eustis Fire Department is aided by equipment shared with the Forestry Service, including two 6x6 trucks with 750-gallon water capacity and a tanker with 2000-gallon water capacity. Eustis plans to mitigate future wildfires with public outreach and education.

**Hail**

Eustis has suffered extensive damage from hail storms in the past. A large storm in August of 2007 was accompanied with 1.75-inch hail. The screen doors of the Village Office needed to be replaced, the Fire Hall roof was damaged, and a new area was dug in the landfill just to accommodate roof singles and broken windows from this storm. The NCEI reports \$55,000 in property damage from this storm. Another storm in August of 2010 saw hail reach 2.75-inches in size. The community’s critical facilities are not fitted with hail resistant building materials, but they are insured against hail damage. There is no Tree Board to manage the trees in Eustis. Mitigation plans include educating residents of Eustis on natural hazards, including using hail resistant building materials in new construction.

### **Severe Thunderstorms**

In October of 2000, a severe thunderstorm was accompanied with tornado activity and high winds just south of Eustis. This resulted in \$250,000 in tree damage and property damage from high winds in town, while several farms outside of town were damaged from two resulting EF1 tornadoes. Several other severe thunderstorms have caused tree damage in Eustis, including a storm in August of 1999 that resulted in \$3,000 in damage fallen tree limbs. The local planning team reports past power outages caused by fallen trees that have lasted several hours. Concerns about thunderstorms center on continuing this trend of property damage and power outages. Critical municipal records are protected with surge protectors on electronic devices, and some critical facilities have backup power generators. Future mitigation actions revolve around obtaining backup power generators for the critical facilities that are not already equipped. Approximately ten percent of the power lines in Eustis are buried, most of these on the west side of town. The community does not have a Tree Board, but most of the trees are taken care of by residents. The local government has sent notices in the past to residents who need to address hazardous trees on their property. The Public Power District performs tree maintenance around power lines. The community does not have weather radios in their critical facilities.

### **Severe Winter Storms**

The most significant winter storm in recent memory occurred in December of 2009, when a foot of snow fell over three days. This storm resulted in many road closures and power outages throughout central Nebraska. Concerns about winter storms in Eustis center around losing power. This hazard has been largely mitigated with the construction of a new transmission line five years ago from Eustis to Elwood that has the capability to reroute power around damaged lines. The Village has adequate snow removal equipment, including a payloader, small tractor, four-wheeler with a blade, sand/salt truck, dump truck, and grader that allow streets to be cleared within 24-hours. To date there have been no damages to critical facilities caused by winter storms. Approximately ten percent of the power lines in Eustis are buried, most of these on the west side of town. The snow routes in town prioritize the downtown area and include three highway exits. There are five snow fences in town: a 150-foot fence on the west end of town, a 100-foot fence near the well on Hendricks St, a 160-foot fence near the water tower that reduces snow accumulation on Main St, a 60-foot fence by the school on Wyndom St, and a 200-foot fence that extends from Hendricks St down Main St. Mitigation plans include acquiring backup power generators for all critical facilities, and educating the public on the hazards associated with severe winter storms.

### **Tornadoes**

Two particularly significant tornadoes have occurred in the Village of Eustis. The first was in October of 2000, when two EF1 tornadoes touched down south of Eustis. This tornado blew out the windows of the house and garage, damaged fencing, machinery, a corral, and destroyed a machine shed and grain bin on one farm. A second farm sustained damage to irrigation pipes and trees, and a third had several outbuildings damaged. This property damage was in addition to more minor damages sustained in Eustis from an accompanying severe thunderstorm. The second tornadic event occurred in June of 2014, when an annual celebration was disrupted by a funnel cloud in the late afternoon. Critical municipal records are protected with surge protectors on electronic devices. Eustis has two emergency sirens that effectively cover the community. There are Mutual Aid Agreements in place with Lexington, Cozad, Gothenburg, Farnam, Cambridge, Elwood, Overton, and Brady. Mitigation plans include providing backup generators for all critical facilities and educating the public on the hazards associated with tornadoes.

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Eustis is governed by a Chairperson and a four member Village Board. Furthermore, Eustis has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department

**CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability,” and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants’ representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table EUS.10: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Local Codes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative & Technical	Planning Commission	Yes
	Floodplain Administration	Yes

Survey Components/Subcomponents		Yes/No
Capability	GIS Capabilities	Contractor
	Chief Building Official	No
	Civil Engineering	Contractor
	Local Staff Who Can Assess Community's Vulnerability to Hazards	No
	Grant Manager	Contractor
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
Other (if any)		
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

**Table EUS.11: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	Limited to Moderate
Does the community have the staff/expertise to implement projects?	Limited
Is there community support to implement projects?	Limited
Does the community staff have time to devote to hazard mitigation?	Limited

**PLAN INTEGRATION**

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA's 2014 *Plan Integration Guide*.

Eustis has an annex to the Frontier County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and

critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

The Village has a Floodplain Ordinance, which requires at least one-foot of elevation above base flood elevation in the floodplain and prohibits development in the floodway.

The community also has a Water Emergency Response Plan that identifies a chain of command during a water emergency. It also identifies scenarios that would require action to ensure water quality and quantity are maintained, and some of the scenarios included are well contamination, breach of security, flood, and explosion.

No other examples of plan integration were identified, and there are currently no plans to further integrate planning mechanisms.

**MITIGATION STRATEGY**

**Ongoing or New Mitigation Actions**

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All hazards
Estimated Cost	\$20,000 - \$75,000+ per generator
Funding	Village funds, HMGP
Status	Not yet started.
Timeline	2-5 years
Priority	High
Lead Agency	Village Board, Maintenance
Location	Wells, Village Office

<b>Improve Roads and Improve Drainage</b>	
Description	Widen streets and raise grading to prevent flooding, including Windom Street and improvements to Anthony Street; water mains and sewer work may also be included
Hazard(s) Addressed	Flooding
Estimated Cost	Unknown
Funding	Village funds
Status	Early planning stage.
Timeline	2-5 years
Priority	High
Lead Agency	Village Engineer

<b>Community Education and Awareness</b>	
Description	Obtain or develop hazard education materials; conduct multi-faceted public education; distribute fact sheets or maps at community events, public schools, other venues and to public and private communication systems; conduct scheduled siren/warning system tests; prepare educational materials listing safe rooms and shelters and evacuation plans; distribute educational materials listing safe rooms and shelters; purchase equipment such as overhead projectors and laptops to facilitate presentation of information
Hazard(s) Addressed	All hazards
Estimated Cost	\$1,000+
Funding	Village funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Board

PARTICIPANT SECTION  
FOR THE  
VILLAGE OF OCONTO

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

August 2017

**LOCAL PLANNING TEAM**

Table OCO.1 provides the list of participating members that comprised the Oconto local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and the prioritization of mitigation actions that address the hazards at risk to the community.

**Table OCO.1: Oconto Local Planning Team**

Name	Title	Department / Organization
Penny Jeffrey	Village Clerk	Village of Oconto
Jim Rempe	Village Board Chairman	Village of Oconto
Daniel Eggleston	Village Board Member	Village of Oconto
Karen Dockweiler	Village Board Member	Village of Oconto

**LOCATION AND GEOGRAPHY**

The Village of Oconto is located in the southcentral portion of Custer County and covers an area of 0.20 square miles. The major waterway in the area is the Wood River.

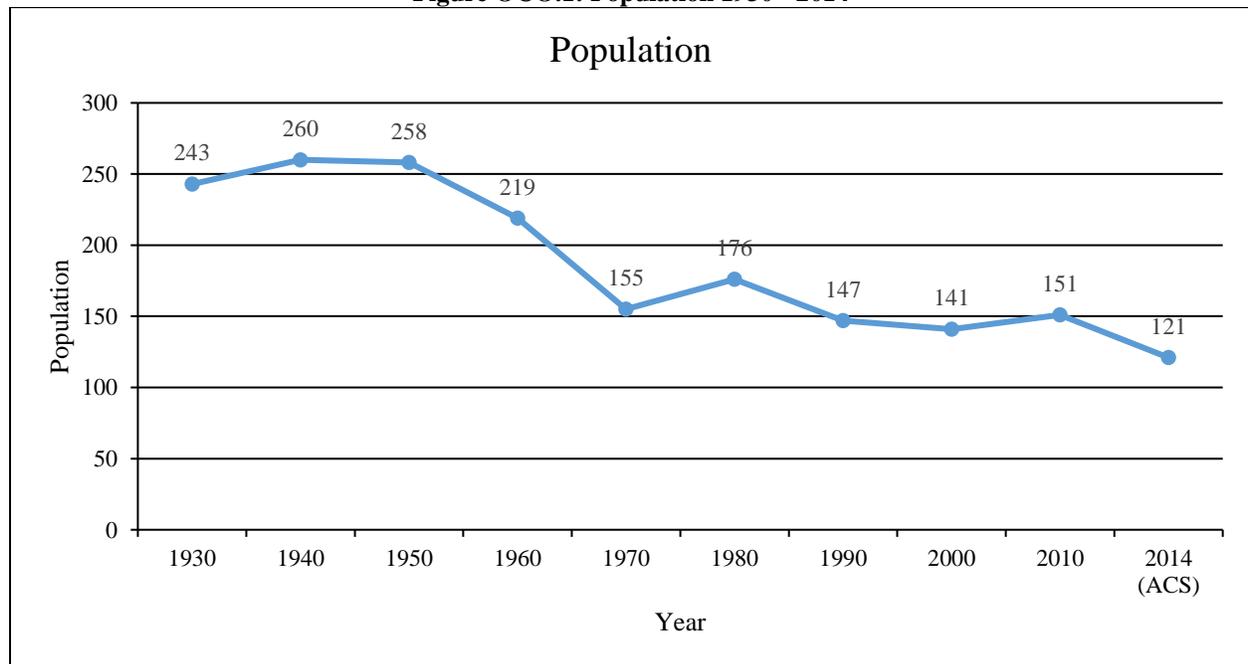
**TRANSPORTATION**

Oconto’s major transportation corridors include Nebraska State Highways 21 and 40. Highway 21 travels north to south through the center of the Village. On average, there are 850 vehicles per day on Highway 21 with 210 vehicles being considered heavy commercial vehicles. Highway 40 travels in a northwest to southeast direction and is located south of the Village. On average, Highway 40 have 360 vehicles per day with 32 of those being heavy commercial vehicles. There are no rail lines in or near Oconto.

**DEMOGRAPHICS**

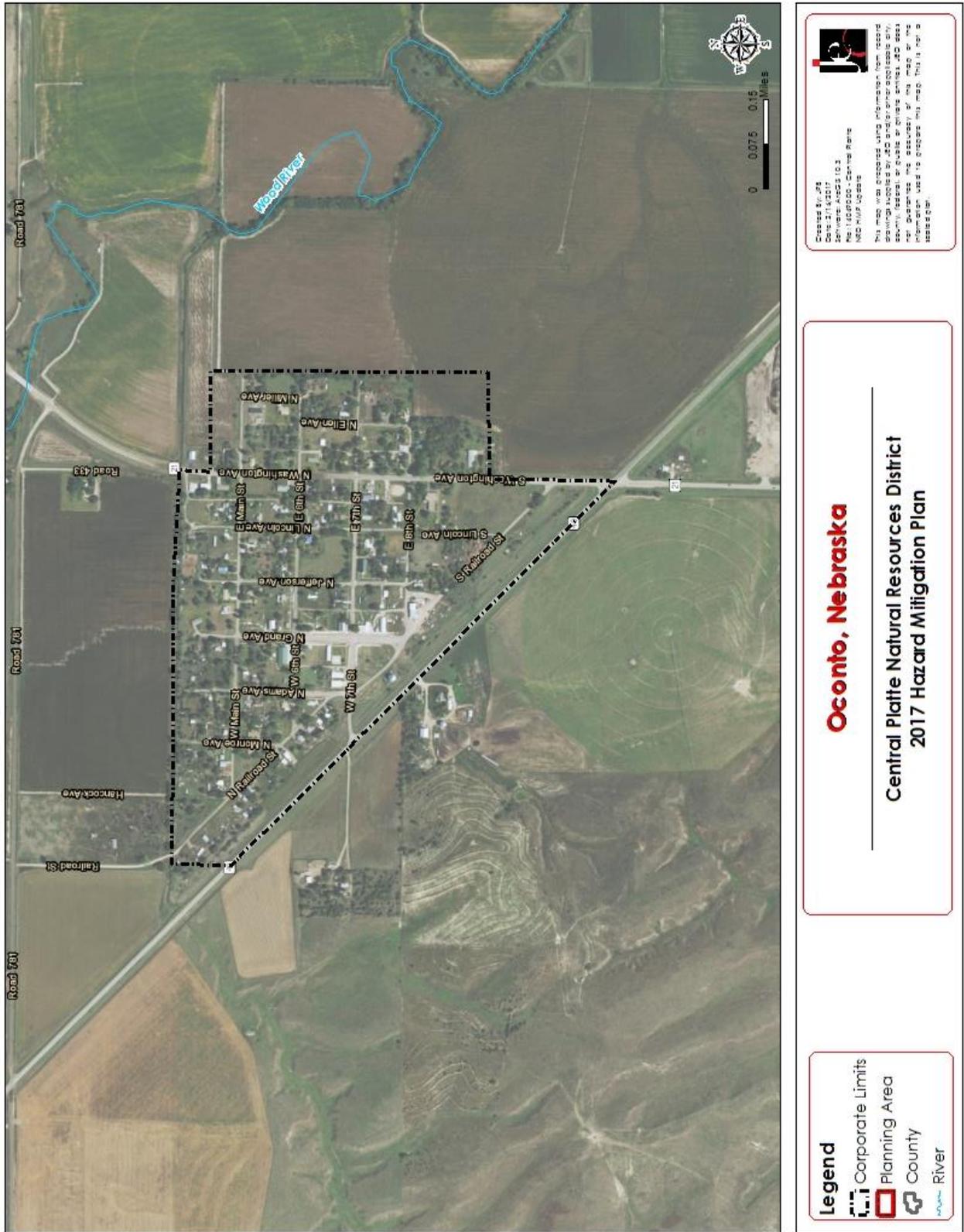
The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Oconto has been decreasing since 1940.

**Figure OCO.1: Population 1930 - 2014**



Source: U.S. Census Bureau

Figure OCO.2: Map of the Village of Oconto



The following table indicates the Village has a lower percentage of the population under the age of 5 than the County and the state. The percentage of the population between 5 to 64 is higher in the Village than in the County but is lower than the state. The percentage of the population over the age of 64 in the Village is lower than the County, but higher than the state. Oconto’s median age is higher than both the County and the state.

**Table OCO.2: Population by Age**

Age	Village of Oconto	Custer County	State of Nebraska
<5	4.0%	6.2%	7.2%
5-64	75.5%	72.9%	79.2%
>64	20.5%	20.9%	13.6%
Median	46.5	44.2	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Oconto’s median household income, per capita income, and median home value are all lower than both the County and the state.

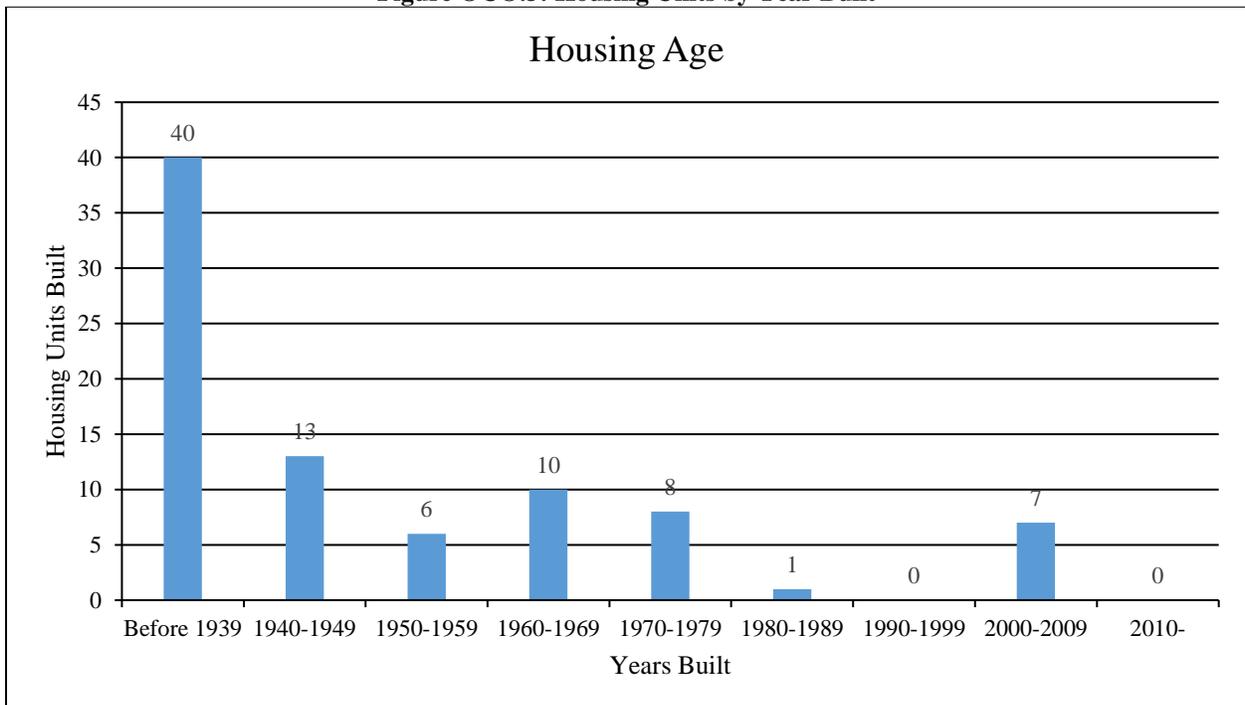
**Table OCO.3: Housing and Income**

	Village of Oconto	Custer County	State of Nebraska
Median Household Income	\$34,500	\$59,647	\$52,400
Per Capita Income	\$22,378	\$26,105	\$27,339
Median Home Value	\$32,500	\$83,700	\$130,100
Median Rent	-	\$578	\$721

Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2010-2014 ACS 5-year estimates, the community has 84 housing units with 76.2 percent of those units occupied. There is one mobile home in the community, which is secured by cables.

**Figure OCO.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP04

**Table OCO.4: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Oconto	64	76.2%	20	23.8%	63	98.4%	1	1.6%
Custer County	4,746	85.5%	802	14.5%	3,481	73.3%	1,265	26.7%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year Estimates

**MAJOR EMPLOYERS**

Oconto is a bedroom community with most of its residents commuting to neighboring communities such as Kearney and Lexington for work.

**FUTURE DEVELOPMENT TRENDS**

Over the last ten years, three new homes have been built along the east side of Highway 21. Otherwise, there has not been any further development or new businesses in the Village of Oconto, and the community does not anticipate new development over the next five years.

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table OCO.5: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
145	\$2,440,025	\$16,827	0	\$0

Source: GIS Workshop/Custer County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are no storage sites that house hazardous materials in Oconto.

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Oconto.

**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table OCO.6: List of Critical Facilities in Oconto**

CF #	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in 1% Floodplain (Y/N)
1	Oconto Community Center and Library	6 <sup>th</sup> Street and Grand Avenue	Y	Y	N
2	Township Building/Road Equipment	Main Street and Grand Avenue	N	N	N
3	Water Tower	6 <sup>th</sup> Street and Grand Avenue	N	N	N
4	Well & Well House	6 <sup>th</sup> Street and Adams Avenue	N	Y	N
5	Fire Station/Warning Siren	7 <sup>th</sup> Street and Adams Avenue	N	N	N
6	Liquid Fuel Bulk Storage Plant	8 <sup>th</sup> Street and Railroad Street	N	N	N
7	Well & Well House #2	6 <sup>th</sup> Street and Ellen Street	N	N	N
8	Wastewater Pump & Pump House	East of Oconto	N	Y	N

Figure OCO.4: Critical Facilities with HAZUS Floodplain

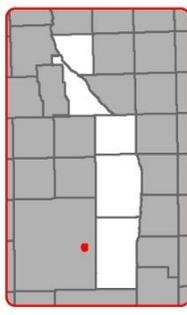




**Oconto, Nebraska**

**2017 Hazard Mitigation Plan**

**Critical Facilities**



**HISTORICAL OCCURRENCES**

The following table provides a statistical summary for hazards that have occurred in the community or Custer County. The property damages from the NCEI Storm Events Database (January 1996 – December 2015) should be considered only as broad estimates. The National Weather Service makes a best guess on these amounts at the time of the publication from a variety of sources. Sources include, but are not limited to: emergency management, local law enforcement, SKYWARN spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

**Table OCO.7: Historical Hazard Occurrences for Oconto**

HAZARD TYPE		COUNT	PROPERTY LOSS
<b>Agricultural Disease<sup>5</sup></b>	<b>Animal Disease<sup>1</sup></b>	2,418	-
	<b>Plant Disease<sup>2</sup></b>	52	\$311,791 (Crop Loss)
<b>Chemical Spills-Transportation<sup>3</sup></b>		0	\$0
<b>Drought*<sup>5</sup></b>		22	\$30,000,000
<b>Extreme Heat<sup>5</sup></b>		1	\$0
<b>Flooding</b>	<b>Flash Flood</b>	1	\$0
	<b>Flood</b>	0	\$0
<b>Grass/Wildfires<sup>4</sup></b> 1 injury, 1 death		30	2,639.1 acres
<b>High Winds<sup>5</sup></b> Average: 48 kts Range: 35 - 61 kts		17	\$21,000
<b>Severe Thunderstorms</b>	<b>Thunderstorm Wind</b> Average: 57 kts Range: 52 - 70 kts	10	\$50,500
	<b>Hail</b> Average: 1.19 in. Range: 0.75 - 2.75 in.	77	\$394,000
	<b>Heavy Rain</b>	1	\$0
	<b>Lightning</b>	0	\$0
<b>Severe Winter Storms<sup>5</sup></b>	<b>Blizzard</b>	5	\$1,835,000
	<b>Heavy Snow</b>	8	\$0
	<b>Ice Storm</b> 1 injury	3	\$11,000
	<b>Severe Winter Storm</b> 1 death, 1 injury	32	\$263,000
<b>Tornadoes</b>	<b>Funnel Cloud</b>	1	\$0
	<b>Tornado</b> Most Common Rating: EF0 Range: EF0 - F2	7	\$2,215,000
<b>Total</b>			<b>\$34,789,500</b>

*in. = inches; kts = knots*

*Unless otherwise noted, data from NCEI (1996 – 2015)*

*1 Data from NDA (2014-2016)*

*2 Data from USDA RMA (2000 – 2015)*

*3 Data from PHMSA (1970 - 2016)*

*4 Data from NFS (2000 – 2014)*

*5 Data is only available at county level*

## **LOCAL HAZARD PRIORITIZATION**

For an in-depth discussion regarding area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community-specific information as reported by the local planning team. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

### **Drought**

The local planning team identified drought as a hazard of top concern for the community. The main concerns were related to the increased risk of grass and wildfires during drought periods and water shortages. The summer of 2012 was exceptionally difficult for farmers, ranchers, and the local water supply. A surge of wildfires associated with the dry conditions were common. The Village is in the process of completing a large water project for the community, which includes constructing a new water main distribution, water meters, and new well, upgrading the water tower, and replacing all 14 fire hydrants. The \$1.2 million project is being funded through a combination of USDA and CDBG grants and a long term loan from the USDA. The addition of the new well has helped with water loads and supply.

### **Grass/Wildfire**

Grass and wildfire was identified by the local planning team as a hazard of top concern for the Village. Water supply was noted as the primary concern related to wildfire. An increase in eastern red cedar trees to the region has increased the wildfire risk as well. In 2012, there were 31 fire calls between May 1<sup>st</sup> and October 31<sup>st</sup> due to the extreme drought conditions that year. Seven of these together burn 2,520 acres. One particular fire occurred on Highway 40 and threatened two residences. The availability of the Mutual Aid Agreements helped tremendously to control the wildfires that year. The local all-volunteer fire department (Oconto Fire District) is comprised of 34 members. The District secured a post-9/11 grant that helped purchase a new pumper truck. The Fire Department also has a tanker truck and two grass units available for firefighting. Many local residents do their own fuel management by cutting down cedar trees, and there is an annual burn throughout the town to reduce the fuel load. The water supply projects will help the water availability during fire-fighting events.

### **Severe Thunderstorms**

Severe thunderstorms were identified as a hazard of top concern for the community. The primary concerns with severe thunderstorms relate to tree damage and roof damage from high winds and hail. The library sustained hail damaged in 2004 (and received a new roof) when hail the size of baseballs fell across the community. Per the NCEI storm report, hail from this severe thunderstorm completely shredded wheat fields and newly planted corn northwest of Oconto. Roofs and siding on nearly every home and business were severely damaged. Furthermore, vehicles sustained severe body damage along with broken windows. Property damages from this storm were estimated at \$150,000. Oconto plans to improve their citizen warning system and provide a tree maintenance program to mitigate the hazards associated with severe thunderstorms.

### **Severe Winter Storms**

The local planning team identified severe winter storms as a hazard of top concern. Power outages and property damage are the primary concerns. Oconto has backup power generators at the well, community center, and waste water plant. In 2007, a severe winter storm caused a power outage in the community that lasted for 14 days when nine inches of snow fell in a night. It was noted that nearly every winter there is at least one power outage, however most of them are short in duration. The library sustained some damages in 2016 when snow accumulations of 15 inches caused the roof to leak. Custer Public Power District is consistent in trimming trees around power lines every year, but there is a specific large cottonwood in town that concerns the local planning team. Snow removal is completed by a set of volunteers, who have access

to skid loaders, bull dozers, and a truck with a blade for snow equipment. Mitigation plans are in place to provide backup generators to the appropriate critical facilities and provide a tree maintenance program.

### **Tornadoes and High Winds**

Tornadoes and high winds were identified as hazards of concern for the Village by the local planning team. An F-2 tornado on Halloween night in 2000 hit Oconto directly down Main Street, producing extensive damage. Every building along Main Street was either damaged or destroyed, including the water tower, library, and Fire Hall. The community center was destroyed while 19 children and four adults were in the basement. Over half of the homes in the Village suffered minor to major damage. The community was declared a disaster by the governor with an estimated \$2 million in damages. A combination of CDBG and USGA funds helped rebuild the community. Residents receive alerts and warnings via cell phones and outdoor sirens. A calling tree was created after this event to help notify those without access to cell phone alerts. Oconto plans to install another siren on the east side of town for better coverage. The local Methodist Church basement can be used as a community storm shelter, and many residents open up their homes to neighbors without basements for shelter.

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Oconto is governed by a Chairperson and a four member Village Board. Furthermore, Oconto has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Utility Superintendent
- Street Superintendent
- Volunteer Fire Department

### **CAPABILITY ASSESSMENT**

Thus far, the planning process has identified the major hazards for the community, and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, assesses what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality's "net vulnerability," and to what extent they are able to implement the identified goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. Four major local capabilities were examined in this assessment, and they are planning & regulatory capability, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Table OCO.8: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	Yes
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	State Codes
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	No
	GIS Capabilities	Yes
	Chief Building Official	No
	Civil Engineering	Yes - Contractor
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

**Table OCO.9: Overall Jurisdictional Capability**

Overall Capability	Limited/Moderate/High
Does the community have the financial resources needed to implement mitigation projects?	High
Does the community have the staff/expertise to implement projects?	High
Is there community support to implement projects?	High
Does the community staff have time to devote to hazard mitigation?	High

### ***PLAN INTEGRATION***

The following paragraphs provide a summary of the community plans that were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*.

Oconto has an annex to the Custer County Local Emergency Operations Plan, last updated in 2014. The plan addresses the hazards of greatest concern, identifies scenarios that would require evacuation and subsequent critical evacuation routes, locations to be used for mass sheltering, and provides a clear assignment of responsibility during an emergency.

Oconto’s Zoning Ordinances have not been updated in over ten years. They do not integrate the goals and objectives from the hazard mitigation plan.

No other examples of plan integration were identified, and there are currently no plans to further integrate planning mechanisms.

### ***MITIGATION STRATEGY***

#### **Completed Mitigation Actions**

<b>Improve Emergency Communication Systems</b>	
Description	Develop Emergency Communication Action Plan; implement Emergency Communication Action Plan; obtain/upgrade emergency communication equipment
Hazard(s) Addressed	All Hazards
Funding	General funds
Status	Completed.
Location	Fire Hall

<b>Purchase Snow Removal Equipment</b>	
Description	Increase ability to remove snow/ice from community streets by augmenting equipment or supplies, including purchasing equipment such as snowplows, payloaders, trucks, or plow blades
Hazard(s) Addressed	Severe Winter Storms
Funding	General funds
Status	Completed 2014.

	<b>Improve Firefighting Equipment</b>
Description	Purchase a new fire pumper truck
Hazard(s) Addressed	Wildfire
Estimated Cost	\$220,000
Funding	9/11 Federal grant, General funds
Status	Completed.

	<b>Improve Well Infrastructure</b>
Description	Install new lift, pump, and generator
Hazard(s) Addressed	All
Funding	General funds
Status	Completed 2016.
Location	City Well

**Ongoing and New Mitigation Actions**

	<b>Improve Drainage</b>
Description	Improve storm sewers and drainage patterns in and around the community; deepen drainage ditches and clean out culverts
Hazard(s) Addressed	Flooding
Estimated Cost	\$30,000
Funding	Local funds
Status	Not yet started.
Timeline	2-5 years
Priority	Medium
Lead Agency	Street Superintendent

	<b>Reduce Impact of Drought</b>
Description	Install new water meters, water main distribution, curb stop valves, and well; renovate water tower; replace 14 fire hydrants
Hazard(s) Addressed	Drought, Wildfire
Estimated Cost	\$1,200,000
Funding	USDA long term loan, CDBG
Status	In progress.
Timeline	1 year
Priority	High
Lead Agency	Village Board

	<b>Reduce Tree Damage and Damage from Trees</b>
Description	Conduct tree inventory; develop tree maintenance/trimming program; implement tree maintenance/trimming program; remove hazardous limbs and/or trees
Hazard(s) Addressed	Tornadoes, Severe Winter Storms, Severe Thunderstorms, High Winds, Wildfire
Estimated Cost	\$5,000+
Funding	Local funds, Custer Public Power District funds
Status	In progress.
Timeline	Ongoing
Priority	Medium
Lead Agency	Custer Public Power District, Village Board

<b>Improve/Provide Adequate Backup and Emergency Generators</b>	
Description	Identify and evaluate current backup and emergency generators; obtain additional generators based on identification and evaluation; provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
Hazard(s) Addressed	All Hazards
Estimated Cost	\$20,000-\$75,000+ per generator
Funding	Local funds, HMGP, CDBG, local grants
Status	Ongoing. Wells and Community Center have generators. Fire Station and Police Station are in need of generators.
Timeline	2-5 years
Priority	High
Lead Agency	Clerk, Village Board, Contractor

<b>Improve Warning Systems</b>	
Description	Evaluate current warning systems (defined as alert sirens, weather radios, and television, telephone, and radio warning systems, etc.); improve warning systems/develop new warning system; obtain/upgrade warning system equipment and methods; conduct evaluation of existing alert sirens for replacement or placement of new sirens; identify location of weather warning radios; improve weather radio system; obtain/upgrade weather radios
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	Local funds, HMGP
Status	A second siren is needed for the east side of town. The community also uses radios, pagers for fire department, a calling tree for community members, and Code Red Alerts.
Timeline	5 years
Priority	Low
Lead Agency	Maintenance

**Removed Mitigation Actions**

<b>Provide Adequate Public Safe Rooms and Post Disaster Storm Shelters</b>	
Description	Identify and evaluate existing safe rooms and/or storm shelters; improve and/or construct safe rooms and/or storm shelters; design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
Reason for Removal	Most community members use their basements for tornado shelters or open their homes to those that do not have a basement. The Methodist and Catholic churches are available to shelter the public.

## **APPENDIX A: DOCUMENTS OF PUBLIC INVOLVEMENT**

### Contents:

1. Adoption Resolution Template
2. Letters
3. Postcards
4. Flyers
5. Sign-in Sheets
6. Project Website
7. Webpage Updates

THIS PAGE IS INTENTIONALLY BLANK

**ADOPTION RESOLUTION TEMPLATE**

THIS PAGE IS INTENTIONALLY BLANK

RESOLUTION NUMBER \_\_\_\_\_

**WHEREAS**, the Federal Disaster Mitigation Act of 2000 was signed in to law on October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

**WHEREAS**, a Multi-Jurisdictional Hazard Mitigation Plan was prepared by the Central Platte Natural Resources District, with assistance from JEO Consulting Group, Inc. of Lincoln, NE, which includes City of Grand Island.

**WHEREAS**, the purpose of the mitigation plan was to lessen the effects of disasters by increasing the disaster resistance of the Natural Resources District and participating jurisdictions located within the planning boundary by identifying the hazards that affect City of Grand Island and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

**WHEREAS**, FEMA regulations require documentation that the plan has been formally adopted by the governing body of City of Grand Island in the form of a resolution and further requesting approval of the plan at the Federal Level; and

**NOW, THEREFORE**, the governing body of City of Grand Island does herewith adopt the Central Platte Natural Resources District Multi-Jurisdictional Hazard Mitigation Plan Update in its entirety; and

PASSED AND APPROVED this \_\_\_ day of \_\_\_\_\_, 2017.

\_\_\_\_\_  
President of Council

ATTEST:

\_\_\_\_\_  
Clerk

THIS PAGE IS INTENTIONALLY BLANK

**LETTERS**

THIS PAGE IS INTENTIONALLY BLANK



5 May 2016

ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

RE: Central Platte Natural Resources District  
Hazard Mitigation Plan(HMP) Workshop

To Whom It May Concern:

The Central Platte Natural Resources District is beginning the process of updating the regional hazard mitigation plan (HMP). **You are receiving this letter because your jurisdiction is eligible and encouraged to participate in this planning effort, which would benefit your community in multiple ways.**

HMPs identify vulnerabilities and possible impacts and losses within participating jurisdictions to various natural and man-made hazards (e.g., flood, drought, dam failures, wildfire, winter storm, thunderstorms, terrorism, etc.). The HMP also identifies projects and strategies aimed at enhancing community resilience and preparedness. Through this planning process, communities will review past hazard impacts, review their vulnerabilities, and establish a prioritized list of potential mitigation projects to be implemented in the post-plan period.

To aid in the understanding and facilitation of the upcoming planning process, we are offering a **Hazard Mitigation Planning Workshop**. This workshop will further explain what a HMP is, how it will benefit your community, how your community can participate, and identify the types of information we'll need from you at the meetings.

**Please join us on Tuesday, June 14, 2016 from 10:00 AM to 2:00 PM CT at Central Platte NRD Office located 215 Kaufman Avenue in Grand Island, NE 68803. Lunch will be provided.**

To RSVP for the workshop, please go to [www.jeo.com/cohmp/](http://www.jeo.com/cohmp/) or please contact Caitlin Olson, Assistant Project Coordinator, at (402)474-8741 or by email at [colson@jeo.com](mailto:colson@jeo.com).

Sincerely,

Jesse Mintken  
Central Platte Natural Resources District  
Projects Manager

CC: Jeff Henson, JEO Consulting Group, Inc.

**JEO CONSULTING GROUP INC ■ JEO ARCHITECTURE INC**  
2700 Fletcher Avenue | Lincoln, Nebraska 68504 | p: 402.435.3080 | f: 402.435.4110  
[www.jeo.com](http://www.jeo.com)



ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

May 20, 2016

RE: Central Platte Natural Resources District Hazard Mitigation Plan (HMP) Update  
Planning Team Meeting

Dear Planning Team Participant:

The Central Platte Natural Resources District Hazard Mitigation Plan is a community-guided document which identifies vulnerability to natural and man-made disasters and ways to reduce or eliminate this exposure. The Central Platte NRD has secured grant funding from FEMA and is in the process of updating this plan with assistance from JEO Consulting Group, Inc.

This planning effort will be guided by a 'Planning Team', and you have been identified as someone that should serve on the Planning Team. As a Planning Team Participant, your role will be to offer guidance, provide input, and assist with decisions to solidify the planning process. It is anticipated that your involvement on the planning team will consist of at least two additional meetings throughout the 12 month process.

Your hard work and commitment in the fulfillment of this important role will in turn reduce the vulnerability to natural and man-made hazards for participating jurisdictions.

The first Planning Team meeting has been scheduled for:

Tuesday June 14, 2016 at 2:30 PM (following the Hazard Mitigation Plan  
Workshop)  
Central Platte NRD Office  
215 Kaufman Avenue  
Grand Island, NE 68803

The agenda for this meeting will cover the following:

- 1) Intent and purpose of hazard mitigation planning
- 2) Roles and responsibilities
- 3) General project schedule
- 4) Schedule for the first public meetings
- 5) Question and answer

If you have any questions, please contact me at (402)474-8741 or by email at [colson@jeo.com](mailto:colson@jeo.com) or Jesse Mintken, Central Platte NRD Projects Manager, at (308)385-6282 or [mintken@cpnrd.org](mailto:mintken@cpnrd.org). For information on the project, please visit [www.jeo.com/cphmp/](http://www.jeo.com/cphmp/).

Sincerely,

Caitlin Olson  
Assistant Project Coordinator  
JEO Consulting Group, Inc.

CC: Jesse Mintken, Central Platte Natural Resources District

**JEO CONSULTING GROUP INC ■ JEO ARCHITECTURE INC**  
2700 Fletcher Avenue | Lincoln, Nebraska 68504 | p: 402.435.3080 | f: 402.435.4110  
[www.jeo.com](http://www.jeo.com)



ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

June 6, 2016

RE: Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan (HMP) Update  
Round 1 Meeting - Eligible Jurisdictions Invitation

Dear Hazard Mitigation Planning Participant:

The Central Platte NRD has secured grant funding from the Federal Emergency Management Agency (FEMA) and is in the process of updating the district-wide HMP. **You are receiving this letter because your jurisdiction is eligible and encouraged to participate in this planning effort.**

HMPs identify vulnerabilities and possible impacts and losses within participating jurisdiction to various natural and man-made hazards (e.g., flood, drought, wildfire, winter storm, terrorism, urban fire, transportation incidents, etc.). The HMP also identifies projects and strategies aimed at enhancing community resilience and preparedness to specific hazards.

Your community participated in the development of the 2012 Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan. As required by the Disaster Mitigation Act of 2000, HMPs must be updated and approved by FEMA every five (5) years. Generally, the update and approval process requires a 12-month to 18-month period.

If possible, please bring or email a copy of your community's Comprehensive Plan, Local Emergency Operational Plan, Floodplain Ordinance, Storm Water Management Plan, Zoning Ordinance, Capital Improvements Program, and any other studies or plans for your community that may be applicable for this process. Also, please bring or email a list of critical facilities with addresses.

FEMA requires at least one 'designated representative' from your jurisdiction to be recognized as a participating jurisdiction. Please attend one of the upcoming meetings hosted in your county:

- Merrick County: Tuesday, 12 July 2016 from 6:00PM to 8:00PM at the Central City Community Room, 1515 17th Street, Central City, NE
- Buffalo County: Thursday, 14 July 2016 from 6:00PM to 8:00PM at the Elm Creek Village Hall, 535 W. Boyd Avenue, Elm Creek, NE
- Hall County: Wednesday, 20 July 2016 from 1:00PM to 3:00PM at the Central Platte NRD Board Room, 215 Kaufman Avenue, Grand Island, NE

To RSVP for the meeting or for more information, please contact Caitlin Olson, Assistant Project Coordinator, at (402)474-8741 or [colson@jeo.com](mailto:colson@jeo.com); or Jesse Mintken at (308)385-6282 or by email at [mintken@cpnrd.org](mailto:mintken@cpnrd.org). For updates and information on this planning effort, please visit: <http://jeo.com/cobmp/>. **We are looking forward to seeing you at the meeting!**

Sincerely,

Caitlin Olson  
JEO Consulting Group, Inc.  
Assistant Project Coordinator

CC: Jeff Henson, JEO Consulting Group, Inc.

**JEO CONSULTING GROUP INC ■ JEO ARCHITECTURE INC**  
2700 Fletcher Avenue | Lincoln, Nebraska 68504 | p: 402.435.3080 | f: 402.435.4110  
[www.jeo.com](http://www.jeo.com)



ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

June 6, 2016

RE: Central Platte Natural Resources District  
Multi-jurisdictional Hazard Mitigation Plan (HMP) Update  
Round 1 Meeting - Stakeholder Invitation

To Whom It May Concern:

The Central Platte NRD has secured grant funding from the Federal Emergency Management Agency (FEMA) and is in the process of updating its district-wide multi-jurisdictional HMP with assistance from JEO Consulting Group, Inc. Federal legislation requires HMPs be updated every five years. FEMA requires hazard mitigation plans to involve the public throughout each step in the process. **You are receiving this letter because you can provide information or data which can benefit your community's hazard mitigation planning effort.**

A hazard mitigation plan identifies the vulnerability of a jurisdiction to various natural hazards (flood, drought, wildfire, winter storm, etc.) and assesses the potential losses associated with each hazard. In addition, the plan identifies mitigation alternatives to decrease the threat from identified hazards and establishes a prioritized list of potential mitigation projects. Stakeholder groups like yours are encouraged to be involved in the process to present data and information that might be helpful as well as working with participating jurisdictions to ensure the needs and concerns of your groups and the citizens you work with are represented in this process. We have found that community groups and stakeholder groups are a good way to engage the public who may otherwise not opt not to be involved in the planning process.

The following Round 1 public meetings have been scheduled for this plan to begin obtaining information for the update. The meetings will be held at the following locations:

We highly encourage you to participate in this project.

- **Merrick County: Tuesday, 12 July 2016 from 6:00PM to 8:00PM at the Central City Community Room, 1515 17th Street, Central City, NE**
- **Buffalo County: Thursday, 14 July 2016 from 6:00PM to 8:00PM at the Elm Creek Village Hall, 535 W. Boyd Avenue, Elm Creek, NE**
- **Hall County: Wednesday, 20 July 2016 from 6:00PM to 8:00PM at the Elm Creek Village Hall, 535 W. Boyd Avenue, Elm Creek, NE**

To RSVP for the meeting or for more information, please contact Caitlin Olson, Assistant Project Coordinator, at (402)474-8741 or [colson@jeo.com](mailto:colson@jeo.com); or Jesse Mintken at (308)385-6282 or by email at [mintken@conrd.org](mailto:mintken@conrd.org). For updates and information on this planning effort, please visit: <http://jeo.com/cphmp/>.

Sincerely,

Caitlin Olson  
JEO Consulting Group, Inc.  
Assistant Project Coordinator

CC: Jeff Henson, JEO Consulting Group, Inc.

**JEO CONSULTING GROUP INC ■ JEO ARCHITECTURE INC**  
2700 Fletcher Avenue | Lincoln, Nebraska 68504 | p: 402.435.3080 | f: 402.435.4110  
[www.jeo.com](http://www.jeo.com)



ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

June 6, 2016

RE: Central Platte Natural Resources District  
Multi-jurisdictional Hazard Mitigation Plan (HMP) Update  
Round 1 Meeting - Neighboring Jurisdiction Invitation

To Whom It May Concern:

This letter is being sent to inform your jurisdiction of a planning effort underway by the Central Platte NRD to update the regional Multi-Jurisdictional Hazard Mitigation Plan (HMP) with assistance from JEO Consulting group, Inc. FEMA requires that neighboring communities be notified of this planning effort and are encouraged to attend the public informational meetings.

A HMP is a community-guided document that identifies both vulnerability to natural hazards and mitigation measures to reduce or eliminate this vulnerability. Communities that participate in the development of the HMP become eligible to apply for FEMA hazard mitigation grants.

The following Round 1 public meetings have been scheduled for this plan to begin obtaining information for the update. The meetings will be held at the following locations:

- **Merrick County: Tuesday, 12 July 2016 from 6:00PM to 8:00PM at the Central City Community Room, 1515 17th Street, Central City, NE**
- **Buffalo County: Thursday, 14 July 2016 from 6:00PM to 8:00PM at the Elm Creek Village Hall, 535 W. Boyd Avenue, Elm Creek, NE**
- **Hall County: Wednesday, 20 July 2016 from 6:00PM to 8:00PM at the Elm Creek Village Hall, 535 W. Boyd Avenue, Elm Creek, NE**

Neighboring Jurisdictions are encouraged to attend these meetings to ensure identified mitigation efforts are regionally appropriate and consistent with those identified within other communities in the region.

If you would like more information about this planning effort or to RSVP for a meeting, please contact Caitlin Olson, Assistant Project Coordinator, at (402)474-8741 or [colson@jeo.com](mailto:colson@jeo.com); or Jesse Mintken at (308)385-6282 or by email at [mintken@cpnrd.org](mailto:mintken@cpnrd.org). For updates and information on this planning effort, please visit: <http://jeo.com/cphmp/>.

Sincerely,

Caitlin Olson  
JEO Consulting Group, Inc.  
Assistant Project Coordinator

CC: Jeff Henson, JEO Consulting Group, Inc.

**JEO CONSULTING GROUP INC ■ JEO ARCHITECTURE INC**  
2700 Fletcher Avenue | Lincoln, Nebraska 68504 | p: 402.435.3080 | f: 402.435.4110  
[www.jeo.com](http://www.jeo.com)



ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

September 13, 2016

RE: Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan (HMP) Update  
Round 2 Meeting Invitation

Dear Hazard Mitigation Planning Participant:

The Central Platte NRD is moving forward with the second phase of updating the Multi-Jurisdictional Hazard Mitigation Plan by holding the final round of public meetings. The intent of these meetings is to gather and review vital information from individual plan participants including:

- 1) Identify and prioritize specific projects to reduce the impacts of hazards
- 2) Review your updated participant section
- 3) Complete the review of 'critical facilities' for your community

The meeting should last between one and two hours, and communities are encouraged to invite their local planning team to participate in this meeting. **FEMA requires at least one representative from your jurisdiction to participate in the planning process in order for you to be recognized as a participating jurisdiction and be eligible for FEMA grant opportunities. Please attend one of the following meetings:**

- Merrick/Polk Counties: Tuesday October 11<sup>th</sup> at 6:30PM at the Merrick County Foundation Venture Center, 1532 17th Avenue, Central City, NE
- Dawson/Buffalo Counties: Thursday October 13<sup>th</sup> at 6:30PM at the Elm Creek Village Hall, 535 W. Boyd Avenue, Elm Creek, NE
- Hall County: Tuesday October 18<sup>th</sup> at 1:00PM at the Central Platte NRD Board Room, 215 Kaufman Avenue, Grand Island, NE

Communities again have the opportunity to schedule one-on-one meetings with JEO staff. If you have a one-on-one meeting with JEO staff, you are not required to attend one of the public meetings.

To RSVP for a meeting, schedule a one-on-one meeting, or for more information, please contact me at (402)392-9915 or [rebeccaappleford@jeo.com](mailto:rebeccaappleford@jeo.com). You may also contact Jesse Mintken with the Central Platte NRD at (308)385-6282 or [mintken@cnprd.org](mailto:mintken@cnprd.org). For updates and information on this planning effort, please visit: <http://jeo.com/cphmp/>. We are looking forward to seeing you at one of the meetings!

Sincerely,

A handwritten signature in blue ink that reads "Rebecca Appleford".

Rebecca Appleford  
Project Coordinator  
JEO Consulting Group, Inc.

CC: Jesse Mintken, Central Platte NRD

**JEO CONSULTING GROUP INC ■ JEO ARCHITECTURE INC**  
2700 Fletcher Avenue | Lincoln, Nebraska 68504 | p: 402.435.3080 | f: 402.435.4110  
[www.jeo.com](http://www.jeo.com)



ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

March 10, 2017

Dear Hazard Mitigation Planning Participant,

Enclosed is the updated draft of your jurisdiction's Participant Section, as part of the 2017 update of the Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan. This draft includes the latest revisions that were undertaken following the second round of meetings.

The draft will now be made available for a 30-day public comment period, which lasts from **March 15 to April 17, 2017**. At the end of this period, the complete multi-jurisdictional plan will be submitted to the Federal Emergency Management Agency (FEMA) and the Nebraska Emergency Management Agency (NEMA) for final approval.

**This is the last opportunity to review your jurisdiction's section draft and submit to JEO any requested changes or corrections, prior to its submission to FEMA and NEMA.**

Please carefully review this section and verify that the information therein is accurate to the best of your knowledge. Then please inform JEO as soon as possible should you desire any changes. To request changes, you can markup the section, scan it, and email it to me at [rappleford@jeo.com](mailto:rappleford@jeo.com); fax it to the number provided below; or mail your revisions to our Omaha office.

**If we do not receive changes from you by April 17, 2017, we will assume that your jurisdiction has reviewed this section and approves of it as written.** Please especially pay attention to the mitigation action tables at the end of your Participant Section. Please advise us if you would like to add, amend, or delete projects.

Thank you for helping us to provide your constituents with an accurate and comprehensive hazard mitigation plan. Should you have any questions, please contact me at 402.392.9915 or via email at [rappleford@jeo.com](mailto:rappleford@jeo.com). Copies of your jurisdiction's Participant Section are also available for download at [www.jeo.com/cphmp/](http://www.jeo.com/cphmp/).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Rebecca Appleford'.

**REBECCA APPLEFORD, CFM** | Planner | Hazard Mitigation and Emergency Planning  
**JEO CONSULTING GROUP INC**  
11717 Burt Street | Suite 210 | Omaha, Nebraska 68154-1510  
d: 402.392.9915 | m: 217.741.0117 | o: 402.934.3680 | f: 402.934.3681

**JEO CONSULTING GROUP INC ■ JEO ARCHITECTURE INC**  
11717 Burt Street | Suite 210 | Omaha, Nebraska 68154-1510 | p: 402.934.3680 | f: 402.934.3681  
[www.jeo.com](http://www.jeo.com)

THIS PAGE IS INTENTIONALLY BLANK

**POSTCARDS**

THIS PAGE IS INTENTIONALLY BLANK

## Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update

To aid in the understanding and facilitation of the upcoming planning process, the Central Platte NRD invites you to attend a **Hazard Mitigation Planning Workshop**.

Please RSVP to Caitlin Olson  
(402-474-8741 or [colson@jeo.com](mailto:colson@jeo.com))

**Lunch will be provided!**



## MARK YOUR CALENDAR!

June 14, 2016  
10:00am to 2:00pm

Central Platte NRD Office  
215 Kaufman Avenue  
Grand Island, Nebraska



For more information, visit  
<http://jeo.com/cphmp/>

## Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update

The Central Platte NRD invites you to attend a **Round 1 Plan Update Meeting**. Three public meetings are scheduled for July. If you are unable to attend a scheduled meeting, a one-on-one meeting can be arranged.

**In order to be eligible for FEMA funds, meeting attendance is required from a representative of your jurisdiction.**

**Please RSVP to Caitlin Olson**  
(402-474-8741 or [colson@jeo.com](mailto:colson@jeo.com))

**Refreshments will be provided!**



## MARK YOUR CALENDAR!

July 12, 2016

6:00p-8:00p

Central City - Community Room  
1515 17th Street  
Central City, NE 68826

July 14, 2016

6:00p-8:00p

Elm Creek Village Hall  
535 W. Boyd Avenue  
Elm Creek, NE 68836



July 20, 2016

1:00p-3:00p

Central Platte NRD Office  
215 Kaufman Avenue  
Grand Island, NE 68803

For more information, visit  
<http://jeo.com/cphmp/>

## Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update

### Documents Reminder!

During July, a representative from your community attended a meeting for the Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update.



**Please return all completed  
documents to  
Caitlin Olson**

**USPS Mail:** 2700 Fletcher Avenue  
Lincoln, NE 68504

**Scan & email:** [colson@jeo.com](mailto:colson@jeo.com)

**Fax:** 402-435-4110



## RETURN DATE:

**Wednesday  
August 10th, 2016**



We're working hard to incorporate all data and information collected from those meetings into the community profiles!

Questions?

Caitlin (JEO): 402-474-8741  
Jesse (CPNRD): 308-385-6282

**For more information, visit  
<http://jeo.com/cphmp/>**

## Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update

The Central Platte NRD invites you to attend a **Round 2 Plan Update Meeting**. Three public meetings are scheduled for October. If you are unable to attend a scheduled meeting, a one-on-one meeting can be arranged.

**Meeting attendance is required from a representative of your jurisdiction for continued participation.**

**Please RSVP to Becky Appleford**  
(402-392-9915 or [rappleford@jeo.com](mailto:rappleford@jeo.com))

**Refreshments will be provided!**



## MARK YOUR CALENDAR!

**October 11, 2016**

**6:30p-8:30p**

Merrick County Venture Center  
1532 17th Avenue  
Central City, NE 68826

**October 13, 2016**

**6:30p-8:30p**

Elm Creek Village Hall  
535 W. Boyd Avenue  
Elm Creek, NE 68836



**October 18, 2016**

**1:00p-3:00p**

Central Platte NRD Office  
215 Kaufman Avenue  
Grand Island, NE 68803

**For more information, visit**  
<http://jeo.com/cphmp/>

**FLYERS**

THIS PAGE IS INTENTIONALLY BLANK

# Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update

The Central Platte Natural Resources District is leading the planning effort to update the 2012 Multi-Jurisdictional Hazard Mitigation Plan. Communities from Dawson, Buffalo, Hall, Merrick, and Polk Counties are eligible and encouraged to participate.

## WHAT IS A HAZARD MITIGATION PLAN?

{ Hazard Mitigation Plan = HMP }



## WHY SHOULD YOUR COMMUNITY PARTICIPATE IN THE PLAN?



Gain eligibility for FEMA mitigation grant programs.



Identifies strategies to reduce your community's risk to hazards and disasters such as: tornadoes, severe winter storms, flooding, dam and levee failure, agricultural diseases, wildfire, and thunderstorms.



Build relationships within the community that foster resilience across a larger geographic area.

## WHAT TYPES OF MITIGATION PROJECTS ARE IN A HMP?

The types of projects are dependent on the needs of the individual community.

Some of the common mitigation projects included in HMPs:

- Backup power generators
- Storm shelters
- Stormwater projects
- Elevation or acquisition of flood-prone structures
- Weather radios
- Public awareness programs

## PROJECT CONTACTS

**Central Platte NRD**  
Jesse Mintken  
Projects Management  
mintken@cpnrd.org  
(308) 358-6282

**JEO Consulting Group**  
Becky Appleford  
Project Coordinator  
rappleford@jeo.com  
(402) 392-9915

Go to <http://jeo.com/cphmp> to find out how YOU can be involved!



THIS PAGE IS INTENTIONALLY BLANK

**SIGN-IN SHEETS**

THIS PAGE IS INTENTIONALLY BLANK



Central Platte NRD Hazard Mitigation Plan Workshop Tuesday, 14 June 2015 CP NRD Office, Grand Island, NE						
Name	Title	Jurisdiction	Work Address <small>(# Street Name, City, Zip)</small>	Work or Cell Phone	Email Address	
1 Caitlin Olson	Assistant Project Coordinator	JEO Consulting Group	2700 Fletcher Ave, Lincoln, NE 68504	402-474-8741	<a href="mailto:colson@gmail.com">colson@gmail.com</a>	
2 Tom Carden	Zoning Admin	City of Central City	P.O. Box 418	308-944-3804	<a href="mailto:city.carden@gmail.com">city.carden@gmail.com</a>	
3 Jeff Henson	<del>DEPT</del> Dept Mgr	JEO	2700 Fletcher Ave	402.474.8764	<a href="mailto:jhenson@jco.com">jhenson@jco.com</a>	
4 Jesse Mintken	Projects Manager	CPNRD	215 Kaufman	308.385.6282	<a href="mailto:mintken@cpnrdr.org">mintken@cpnrdr.org</a>	
5 Josh Ayscough	Region 44 EM		709 Esther St	308-536-4447	<a href="mailto:region44em@gmail.com">region44em@gmail.com</a>	
6 Jon Rosenlund	Director EM (911)	GI-Hall	100 E 1st St Grand Is NE	308-385-5362	<a href="mailto:jonr@grand-island.com">jonr@grand-island.com</a>	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Central Platte NRD Hazard Mitigation Plan Workshop Tuesday, 14 June 2015 CP NRD Office, Grand Island, NE					
Name	Title	Jurisdiction	Work Address (# Street Name, City, Zip)	Work or Cell Phone	Email Address
1 Caitlin Olson	Assistant Project Coordinator	JEO Consulting Group	2700 Fletcher Ave, Lincoln, NE 68504	402-474-8741	colson@gmail.com
2 Bob Carey	cm of Dep. 11	Polk County	251 1162111 Main Osceola, Mo 68861	402-747-2231	b.carey@polkmo.gov
3 Brian Woldt	Director	Dawson County	700 N Washington Lexington NE	308-324-2070	brian.woldt@dawsoncountync.org
4 David Lewis	Director	Buffalo Co	2025 Ave A Kearney, NE 68847	308-233-3225	DLewis@BuffaloCountyNE.gov
5 Phil Krussell	Superintendent	Hall Co	302 West Plum Doniphan	702-945-2282	Krussell@esu9.org
6 Jaime Rathman	clerk	Hall Co	Po Box 450 Cum NE 68824	485 4400	clerkofcawo@gmail.com
7 MARK STREET	SUPERVISOR	DAWSON	700 N. WASHINGTON CEX.	308-324-3544	MARK.STREET@dawsoncountync.org
8 Jan Smith	R 44 Em	Memel (R 44 Em)	POB. # 644 307 C Street Pittsburg, NE 68438	308.536.443	region 44 em.hanilton.net
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Date: 7.12.2016  
 Location: Central City

Central Platte NRD Hazard Mitigation Plan Round 1 Meeting					
Name	Title	Jurisdiction	Work Address (# Street Name, City, Zip)	Work or Cell Phone	Email Address
1 Caitlin Olson	Assistant Project Coordinator	JEO Consulting Group	2700 Fletcher Ave, Lincoln, NE 68504	402-474-8741	colson@gmail.com
2 Jesse Mintke	Assistant Manager	CRND	620 So 215 Kufra Ave G.E	308-345-6282	mintke@gmail.com
3 Nancy Bryan	city clerk/treasurer	Stromsburg	PO Box 407 Stromsburg 68666	402-764-2541	cityofstromsburg@windstream.net
4 SARAH DAVIS	clerk/treasurer	PALMER	P.O. BOX 8 PALMER, NE 68881	308-894-8405	PALMER@HAMILTON.NET
5 BOB CAREY	Polk Co. E.M.	Osceola	P.O. Box 568 Osceola Ne 68651	402-741-0194	bcarey@peshoff.com
6 Mike Simonsen	Polk Co. Comm.	Polk Co.	PO Box 283 Osceola Ne 68651	402-366-2877	Simonsenmike@bathair.com
7 Matt Redman	Utilities Supv.	Polk Co.	PO Box 6 Polk, Ne 68651	402-316-1217	Pine street matt@bathair.com
8 Val Snyder	Tallgrass Energy	Kennett Picher	3808 28th Ave Kenn	308-390-7075	val.snyder@tallonenergy.com
9 Rob Bomberger	Tallgrass Energy	Pipolonia	3855 N Gurney RD GT	306-999-9846	rob.bomberger@tallonenergy.com
10 Tom Smith	Region 4 EM memick	Memick Corby	PO Box 66 309 Estmar St Elkhorn, NE 68020	308-530-4143	region4em@hamilton.net
11 John Janssen	Utility Superintendent		451 North Main Osceola	402-747-3411	
12 Tom Cordson	Zoning Admin.	Central City	P.O. Box 418	308-946-3806	city.cordson@gmail.com
13 FRANCIS McCulla	FIRE Chief	CHAPMAN	P.O. Box 88	308-986-2224	Chapmanfire@gpcom.net
14 Jeff Ball	Lead Eng. Tech.	USB NRD	319 E. 25th St, York	402-362-6601	jball@upperbigblues.org
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Date: 7/14/16  
 Location: Kearney

Central Platte NRD Hazard Mitigation Plan Round 1 Meeting					
Name	Title	Jurisdiction	Work Address (# Street Name, City, Zip)	Work or Cell Phone	Email Address
1 Caitlin Olson	Assistant Project Coordinator	JEO Consulting Group	2700 Fletcher Ave, Lincoln, NE 68504	402-474-8741	colson@gmail.com
2 Anne Johnson	Hazard Mitigation Intern	JEO	2700 Fletcher Ave. Lincoln NE 68504	402-474-8741	ajohnson@jco.com
3 Terry Eirich	Kearney Fire Inspector	City Kearney	2211 AVE. A Kearney, NE 68847	308-233-3226	teirich@Kearneygov.org
4 Mrs. Rasmussen	Planning Officer City of Kearney	City of Kearney	18 E 22nd Street Kearney NE 68847	308-233-3236	mrasmussen@Kearneygov.org
5 Paul Briveno	Asst City Manager	City of Kearney	185 22nd St Kearney 68847	308-233-1587	pbriveno@Kearneygov.org
6 Derrin Lewis	Emergency Management Planner	Buffalo Co.	2025 Ave. A, Kearney 68847	308-233-3225	dl@Buffalocounty.ne.gov
7 Cori Emsler	Planner	City of Kearney	18 E. 22nd Street, Kearney	308-233-3254	coriemsler@Kearneygov.org
8 Andy Harter	Assistant Public Works Director	City of Kearney	1919 15th Ave, Kearney, 68845	308-233-3246	aharter@Kearneygov.org
9 Eric Hellriegel	Asst Parks and Recreation Director	City of Kearney	2015 Ave <sup>1st Ave</sup> Kearney NE 68848	308-233-3230	ehellriegel@Kearneygov.org
11 Ron Wieserspan	PUBLIC WORKS DIRECTOR	CITY OF KEARNEY	1919 15th Ave Kearney, NE 68845	308-233-3211	rwieserspan@Kearneygov.org
12 Shauna Eirsen	Director of Administrative Svcs	City of Kearney	18 E. 22nd St. Kearney, NE 68847	(308) 233-3212	seirsen@Kearneygov.org
13 Shelley Dennis	Risk Management Coordinator	City of Kearney	18 E. 22nd St. Kearney, NE 68847	(308) 233-5386	sdennis@Kearneygov.org
14 Daniel Lynch	Kearney Police	City of Kearney	2025 A Avenue, Kearney, NE. 68847	(308) 233-5265	dlynch@Kearneygov.org
15 Phil Lubbert	Planner	JEO	2700 Fletcher Ave, Lincoln, NE	(402)-492-4154	plubbert@jco.com
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Date: 7/14/16  
 Location: Elm Creek

Central Platte NRD Hazard Mitigation Plan Round 1 Meeting					
Name	Title	Jurisdiction	Work Address (# Street Name, City, Zip)	Work or Cell Phone	Email Address
1 Caitlin Olson	Assistant Project Coordinator	JEO Consulting Group	2700 Fletcher Ave, Lincoln, NE 68504	402-474-8741	colson@gmail.com
2 Brian Woldt	Director	Dawson Co EM	700 N Washington Lexington NE 68900	308-324-2070	brian.woldt@dawsoncountyne.org
3 Jesse Mitter	Assistant Manager	CPNKD	215 Keutman Ave G. I. NE		
4 Coleen Brown	Amherst FD chief		11005 175 <sup>th</sup> Road Amherst NE	308-293-0430	cbsglen@eastfishbodyshop.com
5 LeAnn Klein	Zoning & Floodplain Adm	Buffalo Co	PO Box 1270 Kearney NE 68848	308-233-5640	lklein@buffalocounty.ne.gov
6 Russ Crowell	RAVENNA EMC	Buffalo Co	219 S. C. L. Y. AVE RAVENNA 68869	308-392-4741	Russ98xRacey@VtHar.com
7 Jim Calhoun	Resident Clerk			308-893-3171	
8 Tim Pratt	Riverview Chairman Band			308-627-7071	tcpratt@hotmail.com
9 Scott Fisher	Maintenance	Buffalo Co	121 N main st Amherst NE 68812	308-440-6280	Scott-fisher40@yahoo.com
10 Darrin D. Lowce	Director EMA	Buffalo Co	2025 Ave. A, Kearney 68847	308-233-3225	EMA@Buffalocounty.ne.gov
11 Jim Gunderson	Chairman of Board of Elm Creek	Elm Creek	3806 28 <sup>th</sup> Ave Suite A Kearney	308-390-5255	kgunderson@fmne.com
12 Clint Carr	Utility Supt	Elm Creek	P.O. Box 130 Elm Creek 68836	308-293-5899	Clintc@atejet.net
13 Wendy Clabaugh	Village Clerk/Treasurer	"	"	308-856-41624	voec@atejet.net
14 Martin Schroeder	Shelton chief	Shelton Fire	PO Box 273 Shelton NE 68876	308-647-6655	Schroedermachine@gmail.com
15 Jason Wahn	Shelton Fire Asst Chief	"	PO Box 2 " " "	308-627-5396	jason.wahn@carroll.com
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Date: \_\_\_\_\_  
 Location: \_\_\_\_\_

Central Platte NRD Hazard Mitigation Plan Round 1 Meeting					
Name	Title	Jurisdiction	Work Address <small>(# Street Name, City, Zip)</small>	Work or Cell Phone	Email Address
1 Caitlin Olson	Assistant Project Coordinator	JEO Consulting Group	2700 Fletcher Ave, Lincoln, NE 68504	402-474-8741	colson@gmail.com
2 <i>Howell Kuyapp</i>	<i>Assistant Rescue Chief</i>	<i>ECFDR</i>	<i>12075 24th RR</i>	<i>402-293-5967</i>	<i>5rmaines@tke@gmail.com</i>
3 <i>Lisa Hoffmann</i>	<i>Club/Treasurer</i>		<i>262 Sycamore St Pleasanton</i>	<i>308-355-2241</i>	<i>pleasantonbillags@yahoo.com</i>
4 Carol Jorgensen	Rescue Chief	Elm Creek Fire & Rescue	P.O. Box 121 Elm Creek, NE 68836	308-440-3133	emsjorgensen@yahoo.com
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Date: July 20<sup>th</sup>, 2016  
 Location: Grand Island

Central Platte NRD Hazard Mitigation Plan Round 1 Meeting					
Name	Title	Jurisdiction	Work Address (# Street Name, City, Zip)	Work or Cell Phone	Email Address
1 Caitlin Olson	Assistant Project Coordinator	JEO Consulting Group	2700 Fletcher Ave, Lincoln, NE 68504	402-474-8741	colson@gmail.com
2 Calvin Koppik	Fireman	Farnam	P.O. Box 95	308-725-1100	
3 Warren Purry	Clerk/Treasurer	Shelby	P.O. Box 247	402-527-5198	cc74550@workstream.net
4 Brian Woldt	Emergency Manager	Cozad	700 North Washington	308-304-2020	brian.woldt@dawsoncountynep.org
5 Jeff Gries	water operator, Asst. Fire Chief	clarks	P.O. Box 134	308-548-9152	mainuper@clarks.net
6 Jeff Henson	Project Manager	JEO	2700 Fletcher Ave Lincoln 68504	402-474-8764	jhenson@jro.com
7 Aaron Brown	Superintendent	JEO	PO Box 236	308-335-3025	
8 Jesse Mintha	Assistant Manager	CPMP			
9 Chris Becker	City Administrator	Gibbs	PO Box 130 Gib - NE	308-408-6618	cityadmin@nct.net
10 Paul Russell	superintendent	Doniphan Schools	302 West Plum St Doniphan	402-845-2282	krussell@esu2.org
11 Bruce Clymer	City Administrator	Guthrieburg	409 9th Street 69158	308-557-3177	bclymer@cityofguthrie.org
12 Dennis Burnside	Asst. City Manager	Lexington	406 E 7th St. 68850	308-324-2341	dburnside@cityoflex.com
13 Ramona Stroger	Clerk/Treasurer	Alda	P.O. Box 100, Alda Ne 68810	308-385-5575	vgofalda@gmail.com
14 Cheryl Nabity	Planning Director	GI	PO Box 1968 GE NE 68802	708-385-5202	cnabity@grand-island.org
15 Pat Johnson	Superintendent	Silver Creek	POB 135 Silvercreek 68663	402-649-4548	pjohn62@gmail.com
16					
17					
18					
19					
20					
21					
22					
23					
24					

Date: October 11, 2016

Location: Central City

**Central Platte NRD Hazard Mitigation Plan Update  
Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	Jeff Henson	Project Manager	JEO Consulting Group	2700 Fletcher Avenue, Lincoln, NE 68504	402-474-8764	jhenson@jeo.com
3	Nancy Bryan	City Clerk/Treasurer	City of Stromsburg	P.O. Box 407 Stromsburg, NE 68069	402-764-2561	cityofstromsburg@windstream.net
4	Tom Smith	Region 44 Emergency Mgr	Merrick County	309 Estmo St. Fillerton, NE 68638	308-536-4443	region44em@hamilton.net
5	Russell Knechtbaum	Merrick County Supervisor	Merrick County	2077 P. Road Central City, Ne 68326	308-940-1408	r.knecht@live.com
6	Tom Cordson	City of Central Zoning Admin.		P.O. Box 418 CC NE 68324	308-946-3806	city.Cordson@gmail.com
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						

Date: 10/13/16  
 Location: Elm Creek

**Central Platte NRD Hazard Mitigation Plan Update  
 Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	John Brennan	Planner	JEO Consulting Group	2700 Fletcher Avenue, Lincoln, NE 68504	402-474-8787	jbrennan@jeo.com
3	Brian Waddt	Emergency Management	Dawson	700 N Washington <sup>68500</sup> Lexington NE	308-334-2070	brian.waddt@dawsoncountyne.org
4	Bruce Plymer	City Administrator	Gothaburg	409 9 <sup>th</sup> Street, Gothaburg, NE	308-537-5677	bplymer@gotha-burg.org
5	Leora Hofmann	Clerk/Treasurer	Pleasanton	202 W. Spawmore Pleasanton, NE	308-388-2341	pleasantonvillage@yahoo.com
6	Dennis Lewis	Director EMS	Ruffalo co	2025 Ave A Kearney NE	308-233-3225	EM@RuffaloCommunity.org
7	Carol Jorgensen	Rescue Chief	Elm Creek	401 N. Baccroft St. Elm Creek, NE	308-440-4743/333	emsjorgensen@yahoo.com
8	Dennis Burnside	Asst city mgr.	Lexington	406 E 7th st, Lexington 68500	308-321-2364	dburnside@cityoflex.com
9	Ron Krapp	Assistant Rescue Chief	Elm Creek	12075 24th Rd Elm Creek, NE	308 293 9917	brunswickscott@gmail.com
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Date: October 13, 2016

Location: Farnam, NE

**Central Platte NRD Hazard Mitigation Plan Update  
Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	<i>Calvin Johnson</i>	<i>Furner</i>		<i>P.O. Box 95 Farnam, NE 68029</i>	<i>308-325-1100</i>	
3	<i>Red Mein</i>	<i>Fire Area Chief</i>			<i>308-569-2367</i>	
4	<i>Larry Dick</i>	<i>Village Board</i>		<i>1002 Main Street</i>	<i>308-569-2333</i>	<i>ldick@stejet.net</i>
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Date: 10-18-16  
 Location: Grand Island Public School

**Central Platte NRD Hazard Mitigation Plan Update  
 Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	Brooke Welsh	Planner Intern	JEO Consulting Group	2700 Fletcher Avenue, Lincoln, NE 68504	402-474-8741 59912	bwelsh@jeo.com
3	Robin Dexter	Assoc. Supt		123 S. Webb Road	308-385-8200	rdexter@gips.org
4	Dan O. Patsch	Dir. Buildings & Grounds	GIPS	" " "	308/390-7661	dpatsch@gips.org
5	Jon Rosenlund	GI Hall EM/911	Hall Co	100 E 1 <sup>st</sup> St GI NE 68801	308-395-9360	jonr@grand-island.com
6	Vick Kessel	School Safety Coordinator	GIPS	123 S. Webb Rd.	308-390-0157	vkessel@gips.org
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Date: November 3, 2016  
 Location: Chapman

**Central Platte NRD Hazard Mitigation Plan Update  
 Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	<u>Thomas McCulla</u>	<u>Fire Chief</u>		<u>407-9117 Street Chapman NE 68827</u>	<u>308-986-2224</u>	<u>chapmanfire@gpc.com.net</u>
3	<u>Ther Edmunds</u>	<u>Assistant Police Capt</u>		<u>604 9th St Chapman NE 68827</u>	<u>413-742-747-5522</u> <del>308-986-2224</del>	<u>Camcap24@yahoo.com</u>
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Date: November 3, 2016

Location: Folk County

**Central Platte NRD Hazard Mitigation Plan Update  
Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	Bob CAREY	Emergency Manager	Folk County	251 North Main, Osceola, Ne 68651	402-747-2231	bcarey@psheriff.com
3	Dwaine W. Ladwig	P.C. SHERIFF	PLK Co SHERIFF	251 No Main St, Osceola, NE 68651	402-747-2231	dladwig@pcsheriff.com
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Date: 11/3/16  
 Location: Osceola, NE (CPNRD)

**Central Platte NRD Hazard Mitigation Plan Update  
 Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	John Jarmir	water user covam	City of Osceola	451 North Main	402-747-3411	
3	Ellana Heckenstad	Intern	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-730-0993	eheckenstad@jeo.com
4	Kim	Clerk	City of Osceola	451 North Main	402-747-3411	
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Date: November 7, 2016  
 Location: Riverdale, NE

**Central Platte NRD Hazard Mitigation Plan Update  
 Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	rappleford@jeo.com
2	David Pratt	Board Member	Riverdale NE	PO Box 34 Riverdale NE 68872	308-893-2595	dpratt55@yahoo.com
3	Timothy Pratt	" "	" "	PO Box 104 Riverdale NE 68872	308-627-7071	tcpratt1@hotmail.com
4	Jim Medaback	Board Secretary	" "	PO Box 22 " "	308-893-3171	-
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Date: 12/5/16  
 Location: Oconto, NE

**Central Platte NRD Hazard Mitigation Plan Update  
 Round 2 Meeting**

	Name	Title	Jurisdiction	Address (# Street Name, City, Zip)	Phone	Email Address
1	Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St. Suite 210, Omaha, NE 68154	402-392-9915	<a href="mailto:rappleford@jeo.com">rappleford@jeo.com</a>
2	Mark D. Rempel	Emergency Manager	Custer County	431 S 10 <sup>th</sup> Ave Broken Bow NE 68722	308-872-3349	<a href="mailto:custerem6040@gmail.com">custerem6040@gmail.com</a>
3	Stacy Kubert	Village board	Oconto, NE	PO Box 128 Oconto, NE 68860	(308) 325-3035	<a href="mailto:stacskubert@cox.net">stacskubert@cox.net</a>
4	Karen Dackweiler	Village Board	Oconto, NE	PO Box 36, Oconto, NE 68860	(308) 870-3458	<a href="mailto:rkdackk@qps.com">rkdackk@qps.com</a>
5	Tim P. Lasier	Village Board	Oconto, NE	P.O. Box 26, Oconto, NE 68860	(308) 870-5572	<a href="mailto:Tim.P.Lasier@gmail.com">Tim.P.Lasier@gmail.com</a>
6	Penny Jeffrey	Village clerk	Oconto NE	Po Box 120, Oconto NE 68860	308-870-3549	<a href="mailto:villageofoconto@gmail.com">villageofoconto@gmail.com</a>
7	Daniel Eggleston	Village chairman	Oconto Ne	PO Box 44 Oconto Ne 68860	308-325-1153	<a href="mailto:EgglestonD@qpsnet.com">EgglestonD@qpsnet.com</a>
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Central Platte -- Hazard Mitigation Plan Update  
 Funding Workshop  
 April 20, 2017  
 PLEASE PRINT CLEARLY- THANK YOU!



NAME	TITLE	JURISDICTION Represented	ADDRESS Street, City, Zip	WORK or CELL PHONE	EMAIL
Becky Appleford	Project Coordinator	JEO Consulting Group	11717 Burt St, Omaha, NE	402-392-9915	rappleford@jeo.com
John R. Danforth	Env. Assst. Coord.	NDEQ	1200 N SE. Atrium, Lincoln, NE	402-471-3373	john.r.danforth@nebraska.gov
Tara Sampson	Env Program Specialist	NDEQ	1200 N St Atrium Lincoln NE	402 471 4266	tara.sampson@nebraska.gov
Lori Ferguson	Comm. Consultant	SREDD	401 East Ave 2nd Fl Holdrege	308.455.4770	lorif@sredd.us
Kathie Carlstrom	Village Clerk	Village of Polk	PO Box 6 Polk NE 68654	402-765-6471	KCarlstrom@windstream.net
Dennis Burnside	Asst City Manager	City of Lexington	PO Box 20, Lexington, NE 68850	308-327-2341	dburnside@cityoflex.com
Red Klein	Village of Farnam	City of Farnam	P.O. Box 7 Farnam NE 68029	308-530-7800	
Scott Fisher	Village of Ashurst	Village of Ashurst	P.O. Box 94 Ashurst NE 68812	308-440-6280	Scott_Fisher40@yahoo.com
Bert Mues	CI Specialist	USNRD	4007 6 <sup>th</sup> Ave Ste1, Kearney	68845 308-405-8844	bert.mues@usnr.gov
Jon Roselund	EW Director	GI-Hall	61-Hall E91911	308-385-5368	jonr@grand-island.com
Cheryl Wilkey	Planning Director	GI-Hall County Plann	" "	385-5240	Cheryl@grand-island.com
Barb Church	Clerk	Village of Clarks	PO Box 132 Clarks	308-548-2412	clerk@clarks.net

Please Sign In!



THIS PAGE IS INTENTIONALLY BLANK

**PROJECT WEBSITE**

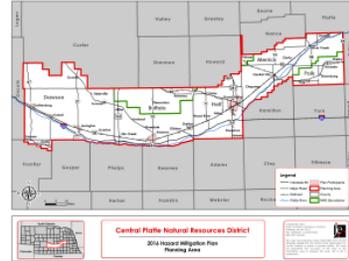
THIS PAGE IS INTENTIONALLY BLANK



## Central Platte NRD Hazard Mitigation Plan Update

### Project Purpose

Central Nebraska is at risk to a wide-range of natural, man-made, and technological hazards like tornadoes, floods, winter storms, dam failure, chemical releases, agricultural disease, and more. In response to these risks, the Central Platte Natural Resources District (CPNRD), in collaboration with JEO Consulting Group, Inc. is seeking to better understand how these hazardous events impact central Nebraskans in order to increase community resilience to disasters. To that end, CPNRD will be updating their multi-jurisdictional Hazard Mitigation Plan (HMP) over the next year with the goal of reducing risk to hazards before they happen to communities in the CPNRD.



A hazard mitigation plan is a *community-guided* document that identifies vulnerability to hazards and mitigation projects to reduce or eliminate this vulnerability. Having an approved and updated plan enables your community to be stronger and more resilient by:

1. Reducing your community's risk and impacts from disasters,
2. Gaining eligibility for pre- and post-disaster mitigation grants, and
3. Building partnerships within your community and across the CPNRD.

Residents, communities, schools, fire departments, hospitals, and more from CPNRD are invited to participate in this process by attending meetings and providing information for the plan.

### Upcoming Public Meetings

#### Funding Workshop

A Funding Workshop will be held **Thursday, April 20, 2017 at 10AM** for all jurisdictions participating in the Central Platte NRD Hazard Mitigation Plan Update. This workshop will provide information on the available grant opportunities for funding and implementing mitigation actions identified in the plan. It will also be a prime time to speak with officials about the application process. The meeting will last approximately three hours with lunch provided. We ask that attendees **RSVP to Becky Appleford by April 10th**. The location of the meeting is:

Central Platte NRD Office  
215 Kaufman Avenue  
Grand Island, NE 68803

## Hazard Mitigation Plan Public Review

The public review period is **March 15 – April 17, 2017**. During this time, we ask jurisdictions to review their participant sections and provide any comments or changes. Once the public review period has concluded, the complete multi-jurisdictional plan will be submitted to the Nebraska Emergency Management Agency (NEMA) and FEMA for final approval. The plan sections are available for download below. Changes can be provided via phone, email, mail, and fax. Thank you!

### Hazard Mitigation Plan Sections 1-7

Buffalo County	Dawson County	Hall County	Merrick County	Polk County	Other Jurisdictions
Buffalo County	Dawson County	Hall County	Merrick County	Polk County	Central Platte NRD
Amherst	Cozad	Alda	Central City	Osceola	Eustis
Elm Creek	Farnam	Cairo	Chapman	Polk	Oconto
Gibbon	Gothenburg	Doniphan	Clarks	Shelby	Doniphan-Trumbull Public Schools
Kearney	Lexington	Grand Island	Palmer	Stromsburg	Grand Island Public Schools
Pleasanton	Overton	Wood River	Silver Creek		
Ravenna					
Riverdale					
Shelton					

Please return any changes or comments to Becky Appleford by:

**Mail:**

11717 Burt Street Suite 210  
Omaha, NE 68154-1510

**Email:**

rappleford@jeo.com

**Phone:**

402-392-9915

**Fax:**

402-934-3681

## Previous Meetings

### Hazard Mitigation Workshop

A four-hour Hazard Mitigation Workshop is being held at the beginning of the planning process for the Central Platte NRD HMP and all residents from the area are invited! This workshop will aid in a better understanding of the hazard mitigation planning process. It will cover: an explanation of hazard mitigation, how this planning process will benefit your community, requirements for getting an approved HMP, and identify the types of information you'll need to provide at the upcoming meetings.

**Held:** Tuesday June 14, 2016

Central Platte NRD Offices

### Round 1 Meetings

As part of the Central Platte NRD Hazard Mitigation Plan, three Round 1 Public Meetings will be held in Central City, Elm Creek, and Grand Island. Communities, school districts, and other special districts that want to participate in this plan must attend one of these meetings. Dates and locations of these meetings are below. At this meeting, a review of data for your plan and worksheets asking for additional information will be discussed. This includes a risk assessment, review of critical facilities, review of mitigation projects, and a capabilities survey.

#### **Central City**

**Held:** Tuesday July 12, 2016

#### **Elm Creek**

**Held:** Thursday July 14, 2016

#### **Grand Island**

**Held:** Wednesday July 20, 2016

### Round 2 Meetings

Round 2 Public Meetings were held across the Central Platte NRD in October. The meeting goals were to identify specific projects to reduce the impacts of hazards, review the updated draft participant section, review community plans for the plan integration review, and collect any other missing information.

#### **Central City**

**Held:** Tuesday October 11, 2016

#### **Elm Creek**

**Held:** Thursday October 13, 2016

#### **Grand Island**

**Held:** Tuesday October 18, 2016

## Opportunities for Input

As a community member from the CPNRD, you play a very important role in this planning process. In order for this plan to better serve your community needs and to identify ways to reduce vulnerability, we need your input! If you have any questions, comments, or suggestions, please fill out the following form or contact Becky Appleford.

[INPUT FORM](#)

## Additional Resources

### General Resources

- Central Platte NRD website
- Drought Monitor
- National Weather Service
- High Plains Regional Climate Center
- FEMA VII: Mitigation
- Nebraska Silver Jackets

### Emergency Management:

- Buffalo County
- Dawson County
- Hall County
- Merrick County
- Nebraska Emergency Management Agency

### Downloads:

- Project Flyer
- 2012 Hazard Mitigation Plan
- Round 1 Meeting Slides
- Round 2 Meeting Slides

## Contact Information



**Rebecca Appleford, CFM**  
Project Coordinator  
402-392-9915  
rappleford@jeo.com



**Jeff Henson, CFM**  
Project Manager  
402-474-8764  
jhenson@jeo.com

**WEBPAGE UPDATES**

THIS PAGE IS INTENTIONALLY BLANK

## Village of Elm Creek Webpage

[Central Platte NRD Hazard Mitigation Plan Update](#)

Project Website: <http://jeo.com/cphmp/>

Critical Facilities Web Map: <http://jeo-gis.maps.arcgis.com/apps/webappviewer/index.html?id=420d9bff04cf41f7ad00c2a703e77ecf>

To view the Central Platte NRD Project Flyer, [Click Here](#)

## City of Kearney Webpage

The screenshot shows the City of Kearney website. At the top right, there is a logo for "Kearney Nebraska" with a swan. Below the logo is a navigation bar with links for "GOVERNMENT", "DEPARTMENTS", "CITY SERVICES", and "PUBLIC SAFETY". A breadcrumb trail reads: "You are here: Home > Departments > Police Department > Emergency Management > CPNRD Hazard Mitigation Plan".

On the left side, there is a search bar and a list of links: HOME | EMAIL PAGE, PRINT | CONTACT US, Be Ready Nebraska, CPNRD Hazard Mitigation Plan, Emergency Food & Water Supply, Facebook Page, Family Disaster Plan, Pets & Animals In A Disaster, Severe Weather, Shelter In Place, Tomadoes, ACCESS KEARNEY, NOTIFY ME, STAFF DIRECTORY, and EMPLOYMENT.

### CPNRD Hazard Mitigation Plan

#### Current Central Platte NRD Hazard Mitigation Plan – City of Kearney Chapter

The following is the City of Kearney's and Kearney Public Schools' chapter of current Hazard Mitigation Plan adopted by the City Council. A Hazard Mitigation Plan is a community-driven, living document that assesses vulnerability to natural and man-made hazards and identifies mitigation measures to reduce the vulnerability. The Plan is referenced in the Kearney Comprehensive Plan and for the ease of review is located on the City's website. To see the full current CPNRD Hazard Mitigation Plan please click on the following link:

[Multi-Jurisdiction Hazard Mitigation Plan](#)

The Central Platte NRD is leading the planning effort to update the current CPNRD Hazard Mitigation Plan. Communities and residents of the Buffalo County are encouraged to get involved. To participate in updating the 2012 Central Platte NRD Hazard Mitigation Plan please click on the following link:

#### Get Involved

- [2012 CPNRD Hazard Mitigation Plan - City of Kearney Chapter](#)
- [Hazard Mitigation Plan Update Participation Flyer](#)

CPNRD Newsletter Caption

## Seeking Representatives for Hazard Mitigation Plan

Central Platte NRD is in the beginning stages of updating the Hazard Mitigation Plan that was first approved in 2012. In 2008, CPNRD was awarded a grant by the Federal Emergency Management Agency (FEMA) to establish the Plan; which identifies vulnerabilities to natural or manmade hazards within the District. Some common mitigation projects include: backup power generators, storm shelters, stormwater projects, elevation or acquisition of flood-prone structures, and weather radios.

In order to be eligible for emergency funds through FEMA, representatives from communities, schools, fire and police departments, hospitals, and special districts must actively participate in the updating process. To find out if your community is participating in the CPNRD Hazard Mitigation Plan go to: <http://jeo.com/cphmp> or contact **Caitlin Olson**, JEO Consulting Group, at [colson@jeo.com](mailto:colson@jeo.com) or (402) 474-8741.

**CPNRD** Central Platte Natural Resources District

Latest News Voting Districts Contact Us Links

### CPNRD Hazard Mitigation Plan

Are your community and schools participating?

Provides:

- \* Backup power generators
- \* Storm shelters
- \* Stormwater projects
- \* Elevation/acquisition of flood-prone structures

During Natural & Manmade Hazards

Click here to participate.

Central Platte Natural Resources District  
2014 Hazard Mitigation Plan  
Planning Area

Legend

- Counties in
- State
- Planning Area
- 2014 Hazard Mitigation Plan Planning Area
- 2014 Hazard Mitigation Plan Planning Area
- 2014 Hazard Mitigation Plan Planning Area

Buffalo County Emergency Management Facebook

**Management Buffalo County/City of Kearney**  
Government Organization  
Email: em@buffalogov.org  
Website

Sign Up Like Message

Home About Photos Reviews More

Government Organization - Kearney, Nebraska  
4.5 ★★★★★

Search for posts on this Page

1,595 people like this  
2 people have been here  
Invite friends to like this Page  
4.5 of 5 stars - 16 reviews  
View Reviews

ABOUT

1512 Central Ave  
Kearney, NE  
(308) 233-3225  
Ask for Emergency Management Buffalo County/City of Kearney's hours

**Emergency Management Buffalo County/City of Kearney** added 2 new photos.  
2 hrs · 🌐

Buffalo County and the Central Platte NRD are in the process of rewriting the Community based Hazard Mitigation plans please see flyers for meeting dates and times, you are welcome to attend. Community participation and involvement are encouraged in the development of these plans.

**Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update**  
JEO Consulting Group, Inc.  
2700 Fletcher Avenue  
Lincoln, NE 68505  
CC-Central Platte NRD

Central Platte Natural Resources District is leading the planning effort to update jurisdictional Hazard Mitigation Plan. Communities from Dawson, Buffalo, Hall, Polk Counties are eligible and encouraged to participate.

**WHAT IS A HAZARD MITIGATION PLAN?**  
A Hazard Mitigation Plan is a community-driven document that assesses vulnerability to natural made hazards and identifies mitigation measures to reduce the vulnerability.

**WHAT TYPES OF MITIGATION PROJECTS ARE IN A PLAN?**  
The types of projects are dependent on the needs of the individual community. Some of the common mitigation projects included in HMPs:  
- Backup power generators  
- Storm shelters  
- Stormwater projects  
- Elevation or acquisition of structures  
- Weather radios

**WHY SHOULD YOUR COMMUNITY PARTICIPATE IN THE PLAN?**  
Gain eligibility for FEMA mitigation grant programs.  
Identify strategies to reduce your community's risk to hazards and disasters such as: tornadoes, severe winter storms, flooding, dam and levee failures, agricultural diseases, wildfires, and

**We want your input!**  
The Central Platte NRD is updating Hazard Mitigation Plan. Through a series of public meetings, participating community will have the opportunity to help identify vulnerabilities to hazards, prioritize projects that will help make communities safer, potentially ease impacts from disasters.

**Central Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update**  
Central Platte NRD invites you to attend and 1 Plan Update Meeting. Public meetings are scheduled for communities that are unable to attend a scheduled meeting, a one-on-one meeting can be arranged.

**MARK YOUR CALENDAR**  
July 12, 2016  
6:00p-8:00p  
Central City - Community Room  
1515 17th Street  
Central City, NE 68526  
July 14, 2016

## **APPENDIX B: PUBLIC MEETING MATERIALS AND WORKSHEETS**

### Contents:

1. Example of Hazard Identification Worksheet
2. Example of Capability Assessment Worksheet
3. Example of Participant Section with Questions
4. Example of Mitigation Action Status Update Worksheet
5. Example of Hazard ID Questionnaire
6. Example of Plan Integration Worksheet

THIS PAGE IS INTENTIONALLY BLANK

**HAZARD IDENTIFICATION WORKSHEET**

THIS PAGE IS INTENTIONALLY BLANK



**Central Platte NRD – Hazard Mitigation Plan Update**

**Hazard Identification**

Name: \_\_\_\_\_ Community Represented: City of Kearney

Information regarding severe weather events was collected from the NCDC Storm Events Database, which reported 131 events for the Village of Amherst from January 1996 to December 2015. Refer to the table below for detailed information of each severe weather event including date, magnitude, and property damage.

**Table 1: NCDC Severe Weather Events**

Date	Hazard	Quantity	Deaths	Injuries	Property Damage
4/24/2007 – 8/8/2014	<b>Flash Flood</b>	3	0	0	\$140,000
5/9/1996	<b>Flood</b>	1	0	0	\$0
6/20/2004	<b>Funnel Cloud</b>	1	0	0	\$0
7/6/1996 – 11/16/2015	<b>Hail</b> Average Size: 1.14 in. Largest: 5.0 in. Smallest: 0.75 in.	59	0	15	\$52,295,000
5/21/1998 – 8/8/2014	<b>Heavy Rain</b>	14	0	0	\$500,000
8/23/2001 – 6/23/2003	<b>Lightning</b>	3	0	0	\$95,000
6/20/1997 – 8/20/2014	<b>Severe Thunderstorm</b> Average: 60 kts Largest: 71 kts Smallest: 50 kts	45	0	1	\$5,071,000
5/7/2005 – 5/29/2008	<b>Tornado</b> Most Common Rating: EF0 Largest: EF2 Smallest: EF0	5	0	0	\$11,226,000
	<b>Total</b>	<b>131</b>	<b>0</b>	<b>16</b>	<b>\$69,101,000</b>

Source: 1996-2015 National Climatic Data Center  
in. = inches; kts = knots; EG= Estimated Gust

Continued on next page →



## Central Platte NRD – Hazard Mitigation Plan Update

### Hazard Identification

For this Risk Assessment Exercise, please think about the following questions in conjunction with the information provided in the table: What types of impacts did your community experience from natural and man-made hazards? Have there been any known deaths or injuries from hazards? How prepared was your community for these events? Have critical facilities been damaged? Are there resources or projects needed to be better prepared in the future for particular hazards? Are certain weather events becoming more or less frequent?

**Please circle the top five (5) hazards of greatest concern for your community:**

- Agricultural Animal Disease
- Agricultural Plant Disease
- Chemical Spills (Transportation)
- Dam Failure
- Drought
- Earthquake
- Extreme Heat
- Flooding
- Grass/Wildfires
- Hail
- High Winds
- Levee Failure
- Severe Thunderstorms
- Severe Winter Storms
- Terrorism
- Tornadoes

**CAPABILITY ASSESSMENT WORKSHEET**

THIS PAGE IS INTENTIONALLY BLANK

### Capability Assessment

Thus far the planning process has identified the major hazards for the communities and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdiction, and other sources. The following step shall be assessing what loss prevention or preparedness mechanisms are already in place, which is referred to as a capability assessment. Combining the risk assessment with the local capability assessment results in a stronger mechanism in understanding locality's "net vulnerability" and to what extent they are able to implement the goals, objectives, and actions.

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. There are four major local capabilities considered by this assessment and they are planning & regulatory capabilities, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and the programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	
	Capital Improvements Plan	
	Economic Development Plan	
	Emergency Operational Plan	
	Floodplain Management Plan	
	Storm Water Management Plan	
	Zoning Ordinance	
	Subdivision Regulation/Ordinance	
	Floodplain Ordinance	
	Building Codes	
	National Flood Insurance Program	
	Community Rating System	
	Other (if any)	
Administrative & Technical Capability	Planning Commission	
	Floodplain Administration	
	GIS Capabilities	
	Chief Building Official	
	Civil Engineering	
	Local Staff Who Can Assess Community's Vulnerability to Hazards	
	Grant Manager	
	Mutual Aid Agreement	
Other (if any)		
Fiscal Capability	Capital Improvement Plan/ 1 & 6 Year plan	



**PARTICIPANT SECTION WITH QUESTIONS**

THIS PAGE IS INTENTIONALLY BLANK

PARTICIPANT SECTION  
WORKSHEET  
FOR THE  
VILLAGE OF CLARKS

Central Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan

July 2016

Name(s): \_\_\_\_\_ Date: \_\_\_\_\_

*As you read through this Worksheet you will find several questions in red italics. Please answer these questions to the best of your ability. Your responses will be utilized to finalize this Participant Section. If you are unsure of any questions, please think about who could be contacted and included on the local planning team to provide the information, and where possible, please provide their name and position in the community. Additionally, please feel free to make any other comments or revisions to this document.*

*Section Seven: Village of Clarks Participant Section*

**INTRODUCTION**

The 2017 Central Platte Natural Resources District (CPNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the CPNRD in July 2012. This HMP includes two primary sections: the Regional Hazard Mitigation Plan and the Participant (i.e. County, Municipal, and School District) Sections. Participant Sections include similar information that is also provided in the Regional Section, but rather is specific information for the Clarks, including the following elements:

- Participation
- Location/Geography
- Transportation
- Demographics
- Future Development Trends
- Parcel Improvements and Valuations
- Critical Infrastructure and Key Resources
- Historical Hazard Events
- Hazard Identification and Risk Assessment
- Governance
- Capability Assessment
- Plan Integration
- Mitigation Actions

**PARTICIPATION**

**LOCAL PLANNING TEAM**

Table XX.1 provides the list of participating members that comprised the Clarks local planning team. Members of the planning team attended Round 1 and Round 2 meetings, and provided important information including, but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern, and prioritization of mitigation actions that address the hazards at risk to the community.

**Table XX.1: Clarks Local Planning Team**

Name	Title	Department / Organization

**PUBLIC PARTICIPATION**

The local planning team made several attempts to notify the public of this planning effort and how they could participate in the development of the plan update. The following table identifies the dates and types of public outreach notifications.

**Table XX.2: Public Notification Efforts**

Date	Notification	Location
March 29, 2016	Project Website	<a href="http://ieo.com/cphmp/">http://ieo.com/cphmp/</a>
<i>Date?</i>	Post Project Flyer	
<i>Date?</i>	Passed Resolution of Participation	
<i>Date?</i>	Link to Project Website	
TBD	Participant Section available for public comment and review	<a href="http://ieo.com/cphmp/">http://ieo.com/cphmp/</a>

Section Seven: Village of Clarks Participant Section

**LOCATION AND GEOGRAPHY**

The Village of Clarks is located in the eastern portion of Merrick County and covers an area of 0.31 square miles. The closest major waterway in the area is the Platte River.

Figure XX.1: Map of the Village of Clarks



Section Seven: Village of Clarks Participant Section

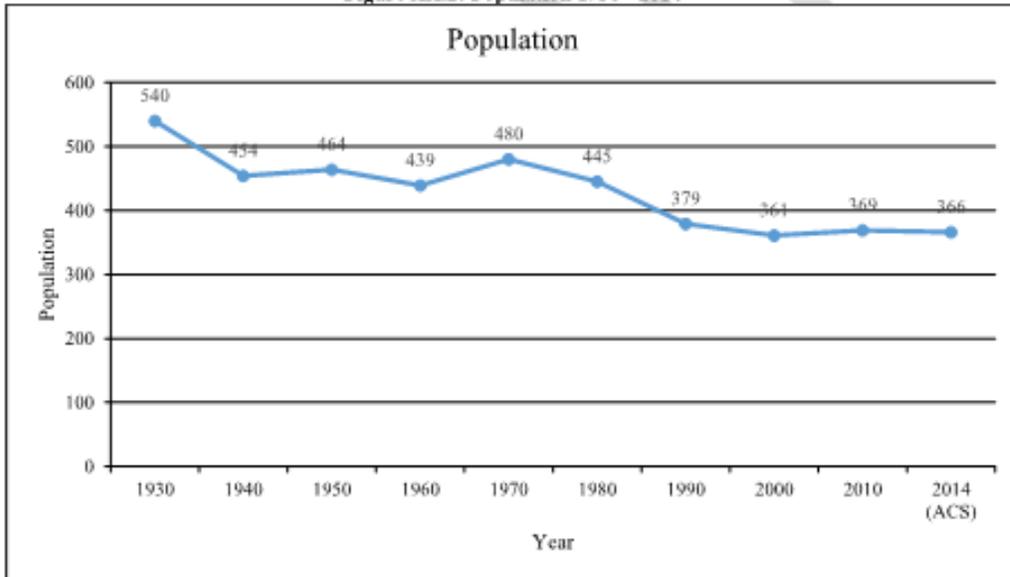
**TRANSPORTATION**

Clarks' major transportation corridor is Nebraska State Highway 14 which travels northeast to southwest through the center of the village. On average there are 3,297 vehicles per day with about 970 of those vehicles being heavy commercial vehicles. Clarks has one rail line, a Union Pacific line that travels northeast to southwest through the village. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2014. This figure indicates that the population of Clarks has been decreasing since 1970. This is notable for hazard mitigation for several important reasons. First, communities with declining population may have a higher level of unoccupied housing that is not being maintained. Secondly, areas with declining population will be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Finally, decreasing populations can also represent decreasing tax revenue for the County, which could make implementation of mitigation actions more fiscally challenging.

Figure XX.2: Population 1930 - 2014



Source: U.S. Census Bureau

Section Seven: Village of Clarks Participant Section

The following table indicates the Village has a higher percentage of the population between 5 to 64 than the County, but a lower percentage when compared to the state. The Village has a higher percentage of the population under 5 than both the County and the state. There is a higher percentage of the population over 64 when compared to the state, but a lower percentage than the County. The Village has a higher median age than the County and the state. Young and elderly populations may be more vulnerable to certain hazards than other population groups. For a more elaborate discussion of this vulnerability, please see *Section Four: Risk Assessment*.

**Table XX.3: Population by Age**

Age	Clarks	Merrick County	State of Nebraska
<5	7.3%	6.0%	7.2%
5-64	77.0%	75.9%	79.2%
>64	15.7%	18.0%	13.6%
Median	43.5	43.1	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Clarks' median household income, per capita income, median home value, and median rent are lower than both the County and the state. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the County and state as a whole. Economic indicators may also influence a community's resilience to hazardous events.

**Table XX.4: Housing and Income**

	Clarks	Merrick County	State of Nebraska
Median Household Income	\$44,250	\$62,610	\$52,400
Per Capita Income	\$22,107	\$25,403	\$27,339
Median Home Value	\$54,700	\$83,900	\$130,100
Median Rent	\$523	\$550	\$721

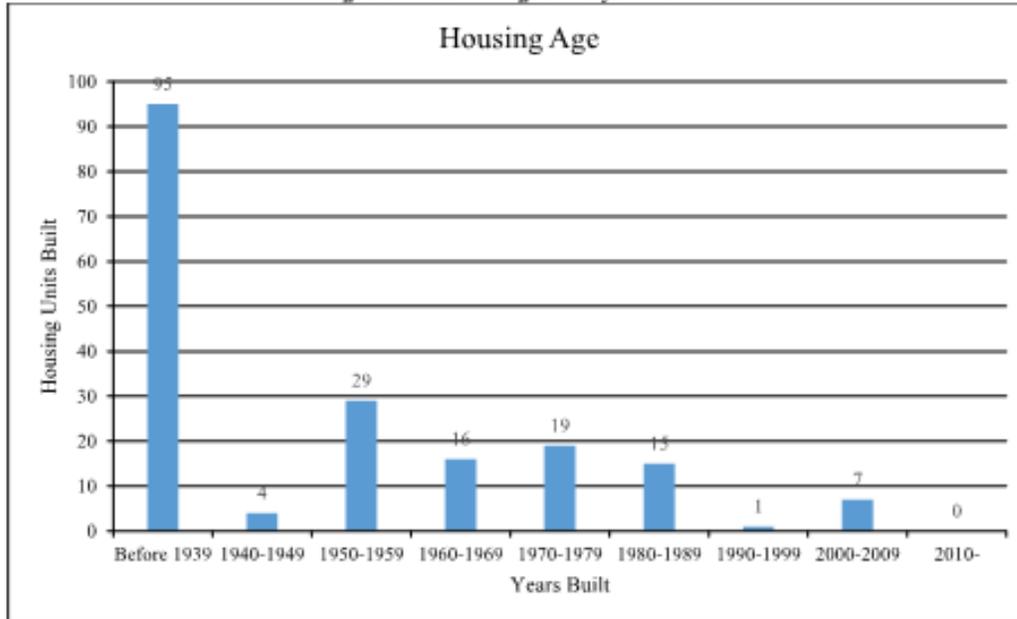
Source: U.S. Census Bureau, 2010-2014 American Community Surveys 5-year Estimates, Table DP03 and DP04

The following figure indicates that the majority of the housing in Clarks was built prior to 1980 (88 percent). According to 2010-2014 ACS 5-year estimates, the community has 186 housing units with 80.6 percent of those units occupied. There are approximately 15 mobile homes in the community. The initial Flood Insurance Rate Map (FIRM) was developed in August 1987. Housing built prior to 1987 may not be constructed to include the base-flood elevation requirements and may be at risk to flooding. Housing age can serve as an indicator of risk as structures built prior to state building codes being developed may be at greater risk. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

- *Are mobile home parks located in the community and if so, where?*

Section Seven: Village of Clarks Participant Section

Figure XX.3: Housing Units by Year Built



Source: Source: U.S. Census Bureau, 2010-2014 American Community Survey's 5-year Estimates, Table DP04

Table XX.5: Housing Units

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Clarks	150	80.6%	36	19.4%	111	74.0%	39	26.0%
Merrick County	3,331	89.9%	376	10.1%	2,424	72.8%	907	27.2%

Source: Selected Housing Characteristics, 2010 - 2014 ACS 5-year estimate

**MAJOR EMPLOYERS**

- Who are the major employers in the community?
- Do a large percentage of residents commute to other communities? If so, to where?

Section Seven: Village of Clarks Participant Section

---

***FUTURE DEVELOPMENT TRENDS***

- *What has changed over the past five years? (For example: new housing or businesses? Demolished buildings? New roads or areas of improvements?)*
  
- *Were any new structures developed in the floodplain or other hazardous areas? If so, what types of structures were these and what type of hazardous areas were they developed in?*
  
- *According to the census data, Clarks's population is declining. What factors are contributing to the decline? Why are residents moving out of the community?*
  
- *Are there any new housing developments planned for the next five years? Where?*
  
- *Any new businesses or industry planned for the next five years? Where?*

Section Seven: Village of Clarks Participant Section

Figure XX.4: Land Cover



Section Seven: Village of Clarks Participant Section

Figure XX.5: Future Land Use Map  
 [Map to be added later]

**PARCEL IMPROVEMENTS AND VALUATION**

GIS parcel data was requested from GIS Workshop, which the County hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

Table XX.6: Parcel Improvements

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
	\$	\$		\$

Source: GIS Workshop/ Merrick County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of two chemical storage sites that house hazardous materials in Clarks. None of the chemical storage sites are located in the floodplain (Figure XX.6).

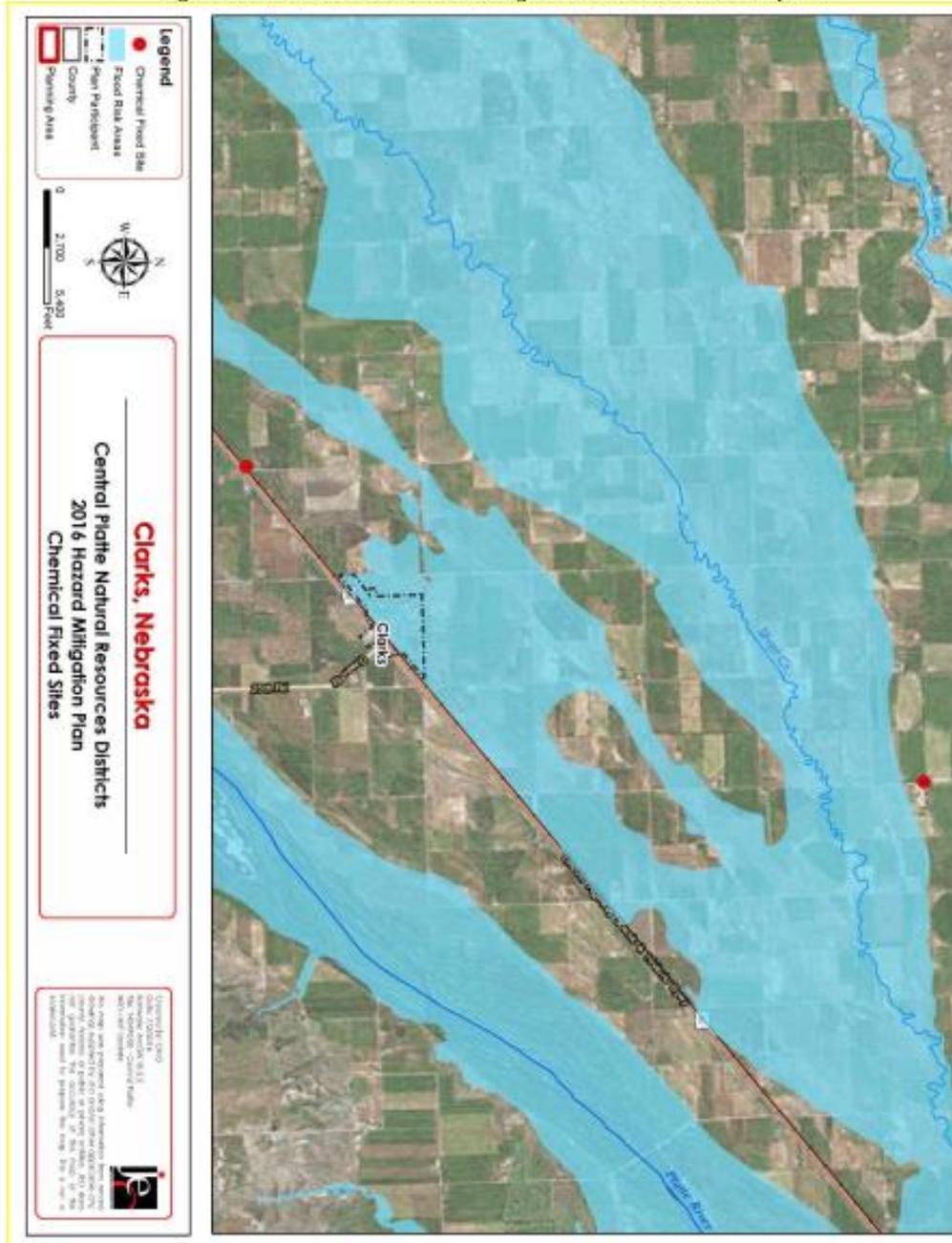
Table XX.7: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material	In Floodplain?
Aurora Co-op Elevator Company	2341 23rd Rd		No
Central Valley Ag	2947 26th Rd		No

Source: Nebraska Department of Environmental Quality

Section Seven: Village of Clarks Participant Section

Figure XX.6: Hazardous Material Storage Facilities Located in Floodplain



Section Seven: Village of Clarks Participant Section

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Clarks.

**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

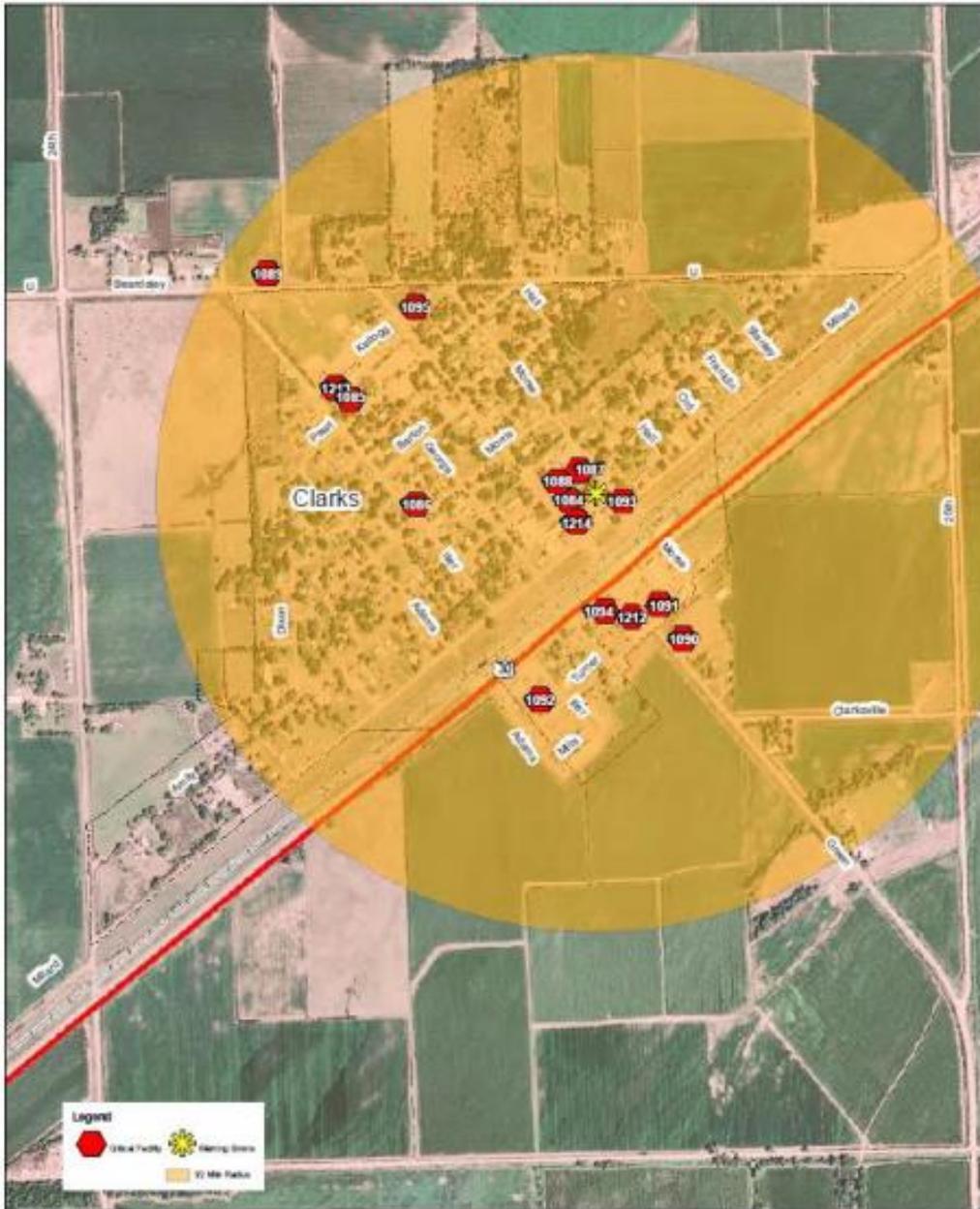
*A mapping exercise to identify critical facilities will be explained and completed during the Round 1 Meetings. Please note that critical facilities can include: Schools, Municipal Buildings, Pumping Stations, Water Towers, Power/Water/Wastewater Plants, Police/Fire/Rescue Departments, Daycares, Hospitals, Nursing Homes, Long/Short Term Care, etc.*

Table XX.9: List of Critical Facilities in Clarks

CF Number	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Section Seven: Village of Clarks Participant Section

Figure XX.7: Critical Facilities from Current Plan  
[This map will be updated for Round 2 meetings.]



Section Seven: Village of Clarks Participant Section

Table XX: Map Labels from Current Plan

380	Fire Barn		Merrick	Clarks
381	School		Merrick	Clarks
382	ID Critical Care		Merrick	Clarks
383	Police Station		Merrick	Clarks
384	Backup Generator		Merrick	Clarks
385	Sapp Bros Fuel Storage - North		Merrick	Clarks
386	Sapp Bros Fuel Storage - South		Merrick	Clarks
387	Strobel Manufacturing		Merrick	Clarks
388	Strobel Construction		Merrick	Clarks
389	Gas Station		Merrick	Clarks
390	Gas Station		Merrick	Clarks
391	Senior Citizen Facility		Merrick	Clarks
392	Library		Merrick	Clarks
395	Grocery Store		Merrick	Clarks
554	Strobel Construction		Merrick	Clarks
555	ID Critical Care		Merrick	Clarks
558	ID Critical Care		Merrick	Clarks
684	Warning Siren	Warning Siren	Merrick	Clarks

**HISTORICAL OCCURRENCES**

The events recorded by NCDC are broken down by two types: county-based and zone-based events. The county-based records are events that affect the jurisdictions within the county. The zone-based records are those affecting the zone (or a large area) that include the county as part of the affected zone. Please refer to the County Participant Section for the previous zone-based weather events retrieved from NCDC. For county-based events, there are 20 recorded events from January 1996 through December 2015. The following table provides a statistical summary of the severe weather events that have occurred.

The property damages from the NCDC Storm Events Database should be considered only as broad estimates. The National Weather Service makes a best guess on these amounts at the time of the publication from a variety of sources. Sources include, but are not limited to: emergency management, local law enforcement, skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public. The USDA Risk Management Agency provides crop damage by hazard, but at the county level only. For this information, please refer to Merrick County’s Participant Section.

Table XX.10: NCDC Severe Weather Events for Clarks

Date	Hazard	Quantity	Deaths	Injuries	Property Damage
2/27/2011 – 3/4/2011	Flood	2	0	0	\$ -
5/9/2001	Funnel Cloud	1	0	0	\$ -
6/10/2002 – 5/2/2015	Hail Average: 1.24ins Largest: 1.75ins Smallest: .75ins	14	0	0	\$375,000
6/19/2011	Severe Thunderstorm Magnitude: 70kts	1	0	0	\$1,000,000

Section Seven: Village of Clarks Participant Section

Date	Hazard	Quantity	Deaths	Injuries	Property Damage
4/8/1999 – 10/29/2000	<b>Tornado</b> Average: F1 Largest: F1 Smallest: F0	2	0	0	\$230,000
	<b>Total</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>\$1,605,000</b>

Source: NCDC, 1996-2015

in. = inches; kts = knots; EG = Estimated Gust; MG = Measure Gust

**RISK ASSESSMENT**

**HAZARD IDENTIFICATION**

The following table is a localized risk assessment of hazards identified specifically for Clarks. Refer to the beginning of *Section Seven: Participant Sections* for an explanation as to what this methodology is, and why certain hazards did not pose a significant enough threat and were eliminated from detailed discussion.

Table XX.11: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease			
Agricultural Plant Disease			
Chemical Spills (Transportation)			
Dam Failure			
Drought			
Earthquakes			
Extreme Heat			
Flooding			
Grass/Wildfires			
Hail			
High Winds			
Levee Failure			
Severe Thunderstorms			
Severe Winter Storms			
Terrorism			
Tornados			

\*Identified by the planning team as a top concern for the jurisdiction

For more information regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community specific information as reported in Clarks Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

Section Seven: Village of Clarks Participant Section

*Additional information and analysis will be included in this section after we analyze the Hazard Identification Questionnaires.*

**Flooding**

The majority of the Village of Clarks is impacted by the surrounding flood risk areas. The floodplain is located north of Highway 30 and the railroad.

Clarks has 13 NFIP policies in-force for \$1,908,100. There are **XX** repetitive flood loss properties in the Village of Clarks.

The following table is parcel improvement information as provided by GIS Workshop for the entire county area. It indicates **XX%** of all parcel improvements in the county are located in the floodplain.

**Table XX.14: Structures in the Floodplain**

Value of Improvements in Floodplain	Number of Improvements in Floodplain	Total Number of Improvements in County	Percentage of Improvements in Floodplain
			%

*Source: GIS Workshop/ Merrick County Assessor*

**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Clarks is governed by a Chairperson and a four member Village Board. Furthermore, Clarks has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

**Please check the following and provide any additional offices, departments, or committees:**

- Clerk/Treasurer
- Streets/Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department
- Volunteer Fire Department
- **Other:** \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**CAPABILITY ASSESSMENT**

Thus far the planning process has identified the major hazards for the communities and described and quantified the vulnerability of the community to these risks by acquiring updated information from FEMA, local jurisdictions, and other sources. The following step, referred to as a capability assessment, shall be assessing what loss prevention or preparedness mechanisms are already in place. Combining the risk assessment with the local capability assessment results in a stronger mechanism for understanding a locality’s “net vulnerability”, and to what extent they are able to implement the goals, objectives, and actions.

Section Seven: Village of Clarks Participant Section

A two-step approach was applied to conduct this assessment for each participant. First, an inventory of common mitigation activities was developed through the Capability Assessment Survey completed by the participants' representatives. There are four major local capabilities considered by this assessment and they are planning & regulatory capabilities, administrative & technical capability, fiscal capability, and education & outreach capability.

The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken, if deemed appropriate. Second, local existing policies, regulation, plans, and programs were reviewed and evaluated to determine their contributions to reducing hazard-related losses.

**Please complete the right column in the following table for your community:**

**Table XX.15: Capability Assessment**

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	
	Capital Improvements Plan	
	Economic Development Plan	
	Emergency Operational Plan	
	Floodplain Management Plan	
	Storm Water Management Plan	
	Zoning Ordinance	
	Subdivision Regulation/Ordinance	
	Floodplain Ordinance	Yes
	Building Codes	<i>State or Local Codes (Circle one)</i>
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	
	Floodplain Administration	Yes
	GIS Capabilities	
	Chief Building Official	
	Civil Engineering	
	Local Staff Who Can Assess Community's Vulnerability to Hazards	
	Grant Manager	
	Mutual Aid Agreement	
Other (if any)		
Fiscal Capability	Capital Improvement Plan/1 & 6 Year plan	
	Applied for grants in the past	
	Awarded a grant in the past	
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	
	Gas/Electric Service Fees	
	Storm Water Service Fees	



*Section Seven: Village of Clarks Participant Section*

---

**PLANS, DOCUMENTS, AND INFORMATION USED**

Throughout the planning process, a number of studies, reports, and technical information have been used to develop the plan. A listing of general sources of information used for all sections of the plan is listed in *Section 2: Planning Process*. Below is a list of specific sources used to establish Clarks' Participant Section.

**Table XX.16: Sources, Plans, Reports, and Regulations**

Source/Report/Regulation	Date Completed
Local Emergency Operations Plan (LEOP)	

**PLAN INTEGRATION**

Building safe and smart communities can be accomplished through effective Plan Integration. Integrating hazard mitigation principles into other local planning mechanisms, such as plans addressing land use, transportation, climate change, sustainability, natural and cultural resource protection, watershed management, economic development and others can greatly increase an area's level of resilience. While this HMP planning process involved interdepartmental coordination at the local level, this planning process also sought to analyze how existing planning mechanisms were presently integrated and make suggestions for further integration. The plans listed in the preceding table were analyzed using guidance from FEMA's 2014 *Plan Integration Guide*. The following is a summary of the findings of this analysis.

*Summary will be completed at a later date.*

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

**Ongoing and New Mitigation Actions**

**Removed Mitigation Actions**

**MITIGATION ACTION STATUS UPDATE WORKSHEET**

THIS PAGE IS INTENTIONALLY BLANK

Mitigation Actions Status Update Worksheet

Central Platte NRD

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Below are the projects that your community identified in the 2012 Hazard Mitigation Plan.

#	Obj #	Objective	Hazard(s) Addressed	Estimated Cost (\$)
1	2.1	Reduce Bottlenecks/Flow Restrictions	Flooding	\$5,000
2	2.4	Improve Flood and Stormwater Detention/Retention Capacity	Flooding	\$25,000- \$100,000+
3	2.10	Evaluate Stream Channelization/Bank Stabilization	Flooding	N/A
4	3.3	Reduce Water Demand and Increase Soil and Water Conservation	Drought, Flooding	Varies

FEMA requires each community to review these actions during the plan update.

Please complete the following pages in detail.

Objective 2.1	Reduce Bottlenecks/Flow Restrictions
Actions	1. Evaluate current bottlenecks/flow restrictions 2. Implement measures to reduce bottlenecks/flowrestrictions and improve water drainage
Hazard(s) Addressed	Flooding
Estimated Cost	\$5,000

Was the project completed?

- Yes (Skip ahead to complete Table 2A)  No (Answer the following question)

Is this project still needed for your community?

- Yes (Only complete Table 3)  No (Only complete Table 2B)

Table 2A

When was the project completed?	
Where was the project located?	
How was the project funded?	

No: Please explain why this action is no longer needed in Table 2B.

Table 2B

Explanation for Removal

Table 3

What stage is this project in? (Provide a detailed description)			
What types of <u>local</u> funding will support this project (e.g. bonds or CDBG funds)?			
How long will it take to complete this project?	1 year	2– 5 years	5+ years
Is this a high, medium, or low priority?	High	Medium	Low
What specific department or office will lead this project?			
Where will this project be located?			
Other important information?			

Project #1

Objective 2.4	Improve Flood and Stormwater Detention/Retention Capacity
Actions	1. Evaluate/analyze current stormwater and flood water capacity 2. Implement measures to improve flood water and stormwater capacity
Hazard(s) Addressed	Flooding
Estimated Cost	\$25,000 - \$100,000+

Was the project completed?

- Yes (Skip ahead to complete Table 2A)  No (Answer the following question)

Is this project still needed for your community?

- Yes (Only complete Table 3)  No (Only complete Table 2B)

Table 2A

When was the project completed?	
Where was the project located?	
How was the project funded?	

No: Please explain why this action is no longer needed in Table 2B.

Table 2B

Explanation for Removal

Table 3

What stage is this project in? (Provide a detailed description)			
What types of <u>local</u> funding will support this project (e.g. bonds or CDBG funds)?			
How long will it take to complete this project?	1 year	2-5 years	5+ years
Is this a high, medium, or low priority?	High	Medium	Low
What specific department or office will lead this project?			
Where will this project be located?			
Other important information?			

Project #2

Objective 2.10	Evaluate Stream Channelization/Bank Stabilization
Actions	1. Evaluate current stream channelization and bank stabilization 2. Implement stream channelization and bank stabilization improvements
Hazard(s) Addressed	Flooding
Estimated Cost	N/A

Was the project completed?

- Yes (Skip ahead to complete Table 2A)  No (Answer the following question)

Is this project still needed for your community?

- Yes (Only complete Table 3)  No (Only complete Table 2B)

Table 2A

When was the project completed?	
Where was the project located?	
How was the project funded?	

No: Please explain why this action is no longer needed in Table 2B.

Table 2B

Explanation for Removal

Table 3

What stage is this project in? (Provide a detailed description)			
What types of <b>local</b> funding will support this project (e.g. bonds or CDBG funds)?			
How long will it take to complete this project?	1 year	2-5 years	5+ years
Is this a high, medium, or low priority?	High	Medium	Low
What specific department or office will lead this project?			
Where will this project be located?			
Other important information?			

**Project #3**

Objective 3.3	Reduce Water Demand and Increase Soil and Water Conservation
Actions	1. Increase/improve public awareness 2. Obtain materials and conduct multifaceted public education
Hazard(s) Addressed	Drought, Flooding
Estimated Cost	Varies

Was the project completed?

- Yes (Skip ahead to complete Table 2A)  No (Answer the following question)

Is this project still needed for your community?

- Yes (Only complete Table 3)  No (Only complete Table 2B)

Table 2A

When was the project completed?	
Where was the project located?	
How was the project funded?	

No: Please explain why this action is no longer needed in Table 2B.

Table 2B

Explanation for Removal

Table 3

What stage is this project in? (Provide a detailed description)			
What types of <u>local</u> funding will support this project (e.g. bonds or CDBG funds)?			
How long will it take to complete this project?	1 year	2 – 5 years	5+ years
Is this a high, medium, or low priority?	High	Medium	Low
What specific department or office will lead this project?			
Where will this project be located?			
Other important information?			

Project #4

THIS PAGE IS INTENTIONALLY BLANK

**HAZARD ID QUESTIONNAIRE**

THIS PAGE IS INTENTIONALLY BLANK





**PLAN INTEGRATION WORKSHEET**

THIS PAGE IS INTENTIONALLY BLANK

# Central Platte NRD

## Hazard Mitigation Plan Integration Worksheet



## **Introduction**

Thank you for participating in the Central Platte NRD Hazard Mitigation Plan.

The hazard mitigation planning process allows communities to engage in a discussion of risk and to analyze the ways it can reduce risk. Participating in this plan ensures that your community will be eligible for certain disaster related grants.

FEMA encourages communities to integrate their hazard mitigation plan with other planning mechanisms, such as their building codes, comprehensive plans, zoning ordinances, etc.

**This worksheet will help to identify the ways in which other planning processes in your community are, or could be, aligned with hazard mitigation principles.**

Please take the time to complete these worksheets and return them to JEO Consulting Group, Inc., by **November 7<sup>th</sup>, 2016**. We will take the information in this packet to develop your section of the mitigation plan.

Return Address:

HMEP  
JEO Consulting Group  
11717 Burt Street Suite 210  
Omaha, NE 68154

Or by email:

[rappleford@jeo.com](mailto:rappleford@jeo.com)



**Step 1**

Please complete the following checklist.

Which of the following plans/ordinances does your community have?

Plan/Ordinances	Yes / No	Year of most recent update
Comprehensive Plan		
Emergency Operations Plan		
Zoning Ordinance		
Building Code		
Capital Improvements Program		
Floodplain Regulations / Ordinance		
Stormwater Management Plan / Regulations		
Wellhead Protection Plan		
Subdivision Regulations		
Other _____		

*\*This may be available through your county or through an Economic Development District*

**Step 2**

For the plans/ordinances which your community has, please complete the relevant pages in this worksheet.

**You do not have to complete the worksheets for plans/ordinances which your community does not have.**

## Comprehensive Plan

---

Are the goals/objectives in your comprehensive plan consistent with those in the hazard mitigation plan? Please explain:

Does the comprehensive plan discuss natural hazards?

Yes       No

If yes, which hazards are discussed?

Does the comprehensive plan contain current and future land use maps?       Yes    No

Please respond to the following questions about the comprehensive plan and future land use plan:

### Does your comprehensive plan:

- |  |  |
|--|--|
| Contain goals/objectives aimed at Safe Growth:               | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Direct development away from the floodplain:                 | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Direct development away from chemical storage facilities:    | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Direct development away from major transportation routes:    | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Direct development away from dam inundation areas:           | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Limit density in areas adjacent to known hazardous areas:    | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Encourage infill development:                                | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Encourage "clustering of development" in sensitive areas:    | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Encourage elevation of structures located in the floodplain: | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Identify areas that need emergency shelters:                 | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Encourage preservation of open space in hazard-prone areas:  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Encourage the use of drought tolerant plant materials:       | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Encourage strengthening retrofits to historic structures:    | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Allow for emergency access to all areas of town:             | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
- If no, please identify areas of concern:

Is there a plan or timeline to update your comprehensive plan?

Yes       No

If yes, please explain.

In the next update of your comprehensive plan how will you incorporate the information from the hazard mitigation plan into that document? Please consider the items above and any other enhancements that you would like to include in future comprehensive plan updates.

**Please provide a copy of the Future Land Use Map for review and inclusion in the hazard mitigation plan.**

### Emergency Operations Plan

---

Does your community have its own Emergency Operations Plan, or is it an annex to the county's plan?

What year was this plan last updated?

Is there a plan to update the plan, if yes when?

**Does your emergency operations plan:**

Address the hazards of greatest concern for your community?  Yes  No  In future update

Assign specific responsibilities to individual communities?  Yes  No  In future update

Identify scenarios that would require evacuation?  Yes  No  In future update

Identify critical evacuation routes?  Yes  No  In future update

Identify routes vulnerable to flooding?  Yes  No  In future update

Identify sheltering locations?  Yes  No  In future update

Are identified shelter sufficient to meet the local need?  Yes  No  In future update

Identify opportunities for mitigation following a disaster?  Yes  No  In future update

Does the plan provide clear assignment of responsibility during an emergency?

Does the plan identify any gaps related to any particular hazard?

Which offices and departments in your community are familiar with the emergency operations plan?

---

### Zoning Ordinance

---

When was the zoning ordinance last updated?

Are there currently plans to update the current zoning ordinance, if yes when will the update be completed and how will they be revised?

**Do the zoning ordinance:**

- |   |  |
|---|--|
| Discourage development in the floodplain?   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Identify floodplain areas as parks or open space?                                     | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Require more than one-foot of elevation above Base Flood Elevation in the floodplain? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Prohibit development within the floodways, or floodplains?                            | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Prohibit filling of wetlands?   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Discourage development near chemical storage sites?                                   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Discourage development along major transportation routes?                             | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Contain natural hazard layers?  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Encourage maintaining open space within the floodplain?                               | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Limit development in the ETJ?   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Consider wildfire and the wildland urban interface?                                   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Account for current population trends?  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |
| Limit population density in the floodplain?   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> In future update |

**Please provide a copy of your local zoning map(s) for review and inclusion in the hazard mitigation plan.**

### Building Code

---

When was your community's building code last updated?

If the building codes are based on the International Building Codes, what year/version is in effect? (If you are unsure who would be able to provide this information?)

#### Do the building codes:

- Require elevation of structures in the floodplain?  Yes  No  In future update
- Require mechanical systems to be elevated for structures in the floodplain?  Yes  No  In future update
- Require sewer backflow valves for structures in the floodplain?  Yes  No  In future update
- Outline proper sump pump installation?  Yes  No  In future update
- Require onsite storm water detention for commercial structures?  Yes  No  In future update
- Allow for raingardens in residential areas?  Yes  No  In future update
- Encourage the use of permeable surfaces?  Yes  No  In future update
- Encourage the use of hail resistant building materials?  Yes  No  In future update
- Require hurricane clips during construction?  Yes  No  In future update
- Require a safe room in multiple dwelling units (duplexes, apartments, etc.)?  Yes  No  In future update
- Encourage the use of fire resistant building materials?  Yes  No  In future update
- Require the use of fire resistant building materials?  Yes  No  In future update
- Require defensible space around structures built in the ETJ?  Yes  No  In future update
- Encourage the use of native/drought resistant plantings?  Yes  No  In future update

Are there hazards specifically mentioned in the building codes? If so, which hazards?

Are there other ways the community plans to incorporate the principals of hazard mitigation into the local building codes?

---

## Capital Improvement Program

---

When was the Capital Improvement Program last updated?

When will the Capital Improvement Plan next be updated?

### Does the Capital Improvement Plan include:

- |  |                              |                             |   |
|--|------------------------------|-----------------------------|---|
| Include storm water projects?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Include upsizing of culverts and drainage structures?                            | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Regular maintenance for drainage structures?                                     | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Upgrading storm sewer systems?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Regular maintenance for the storm sewer system?                                  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Installing street aprons to facilitate drainage?                                 | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Improving transportation routes for drainage?                                    | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Included widening roadways that would improve evacuations if they were required? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Bridge improvements?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Installing new municipal wells?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Upsizing water distribution pipes?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Installing water meters for residential structures?                              | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Updating electrical distribution system?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Burying powerlines?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Looping electrical distribution to critical facilities?                          | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Installing emergency generators in critical facilities?                          | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Constructing a new fire hall?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Improving the existing fire hall?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Constructing a new police headquarters?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Improving the existing police headquarters?                                      | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Constructing a new public works facility?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Improving the existing public works facility?                                    | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Constructing a new community center?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |
| Improving the existing community center?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> In future update |

- Constructing a community storm shelter?  Yes  No  In future update
- Constructing a new water treatment facility?  Yes  No  In future update
- Improving the existing water treatment facility?  Yes  No  In future update
- Constructing other community owned structure(s)?  Yes  No  In future update
- Improving other existing community owned structure(s)?  Yes  No  In future update

Are there other types of projects are presently included in the capital improvement plan?

Are the projects included in the hazard mitigation plan consistent with the priorities established in the capital improvement plan? If no, please explain.

### Annual Municipal Budget

---

Are municipal funds sufficient to pursue new capital projects or limited to maintaining current facilities and municipal systems?

Are a large portion of municipal funds already dedicated to a specific project? If yes, please explain. (i.e. installing a new municipal well or improving transportation routes).

Has the amount of municipal funds increased or decreased over recent years?

Does the municipal budget include any projects identified in the hazard mitigation plan? If yes, please explain.

Does the plan include public outreach and education activities?

Does the plan include policies that regulate development in upland areas in order to reduce stormwater run-off?

### Wellhead Protection Plan

---

When was your Wellhead Protection Plan developed? If it is currently being developed when is it expected to be completed?

Does the plan identify specific areas with ground water contamination? If yes, where.

#### Does the Capital Improvement Plan include:

Are there signs in place to alert community members of wellhead protection area?  Yes  No  In future update

Do zoning ordinances currently include a wellhead protection district?  Yes  No  In future update

Do current ordinances include well setback requirements?  Yes  No  In future update

Are there decommissioned/abandoned wells that should be sealed?  Yes  No  In future update

Is the community a member of NEWARN?  Yes  No  In future update

Is there a water conservation plan in place?  Yes  No  In future update

Are there outreach programs in place to inform/encourage agricultural best management practices?  Yes  No  In future update

**Please provide a map of the wellhead protection area for your municipal water supply.**

### Subdivision Regulations

---

When were the subdivision regulations last updated?

Are there regulations that provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?

Are there regulations that allow density transfers in hazard areas?

Do the subdivision regulations restrict subdivision of land within or adjacent to the floodplain?

Do the subdivision regulations allow for density transfers to avoid building in natural hazard areas?

**Other Plans**

---

Please list the titles of other plans which your community currently has:

1) Title of Plan \_\_\_\_\_

Date of Plan \_\_\_\_\_

2) Title of Plan \_\_\_\_\_

Date of Plan \_\_\_\_\_

3) Title of Plan \_\_\_\_\_

Date of Plan \_\_\_\_\_

4) Title of Plan \_\_\_\_\_

Date of Plan \_\_\_\_\_

5) Title of Plan \_\_\_\_\_

Date of Plan \_\_\_\_\_

6) Title of Plan \_\_\_\_\_

Date of Plan \_\_\_\_\_

## **APPENDIX C: WORKSHEETS TO ASSIST COMMUNITY IN REVIEW AND UPDATES**

### Contents:

1. Worksheet #1: Progress Report
2. Worksheet #2: Evaluating Your Planning Team
3. Worksheet #3: Evaluate Your Project Results
4. Worksheet #4: Revisit Your Risk Assessment
5. Worksheet #5: Revise the Plan

THIS PAGE IS INTENTIONALLY BLANK

**WORKSHEET #1 PROGRESS REPORT**

THIS PAGE IS INTENTIONALLY BLANK

**Worksheet # 1: Progress Report**

Progress Report Period: \_\_\_\_\_ to \_\_\_\_\_  
(Date) (Date)

Project Title: \_\_\_\_\_ Project ID#: \_\_\_\_\_

Responsible Agency: \_\_\_\_\_

Address: \_\_\_\_\_

City/County: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_

Phone #(s): \_\_\_\_\_ e-mail address: \_\_\_\_\_

List Supporting Agencies and Contacts: \_\_\_\_\_

Total Project Cost: \$ \_\_\_\_\_ Anticipated Cost Overrun/Under run: \_\_\_\_\_

Date of Project Approval: \_\_\_\_\_ Start date of the project: \_\_\_\_\_

Anticipated completion date: \_\_\_\_\_

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Milestones	Complete	Projected Date of Completion

\_\_\_\_\_

\_\_\_\_\_

**Plan Goal(s)/Objective(s) Addressed:**

Goal: \_\_\_\_\_

Objective: \_\_\_\_\_

**Indicator of Success** (e.g., losses avoided as a result of the acquisition program):

*In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Status** (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

Project Status

(1)  Project on schedule

(2)  Project completed

(3)  Project delayed\*

\*explain: \_\_\_\_\_

(4)  Project canceled

Project Cost Status

(1)  Cost unchanged

(2)  Cost overrun\*

\*explain: \_\_\_\_\_

(3)  Cost under run\*

\*explain: \_\_\_\_\_

**Summary of progress on project for this report:**

A. What was accomplished during this reporting period?

B. What obstacles, problems, or delays did you encounter, if any?

C. How was each problem resolved?

---

---

**Next Steps:** What is/are the next step(s) to be accomplished over the next reporting period?

**Other comments:**

THIS PAGE IS INTENTIONALLY BLANK

**WORKSHEET #2 EVALUATING YOUR PLANNING TEAM**

THIS PAGE IS INTENTIONALLY BLANK

Worksheet #2: Evaluating Your Planning Team

*When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:*

	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team? Comments/Proposed Action:	<input type="checkbox"/>	<input type="checkbox"/>
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team? Comments/Proposed Action:	<input type="checkbox"/>	<input type="checkbox"/>
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team? Comments/Proposed Action:	<input type="checkbox"/>	<input type="checkbox"/>
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently? Comments/Proposed Action:	<input type="checkbox"/>	<input type="checkbox"/>
Are there ways to gain more diverse and widespread cooperation? Comments/Proposed Action:	<input type="checkbox"/>	<input type="checkbox"/>
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning? Comments/Proposed Action:	<input type="checkbox"/>	<input type="checkbox"/>

If the planning team determines the answer to any of these questions is "yes," some changes may be necessary.

THIS PAGE IS INTENTIONALLY BLANK

**WORKSHEET #3 EVALUATE YOUR PROJECT RESULTS**

THIS PAGE IS INTENTIONALLY BLANK

**Worksheet #3: Evaluate Your Project Results**

Project Name and Number: Project Budget: Project Description:  Associated Goal and Objective (s):  Indicator of Success (e.g., losses avoided):	Insert location map  include before and after photos if appropriate
---	---

Was the action implemented?

IF YES  
↓

What were the results of the implemented action?

IF NO  
↓

Why not?

<b>Was there political support for the action?</b>	YES	NO
<b>Were enough funds available?</b>	YES	NO
<b>Were workloads equitably or realistically distributed?</b>	YES	NO
<b>Was new information discovered about the risks or community that made implementation difficult or no longer sensible?</b>	YES	NO
<b>Was the estimated time of implementation reasonable?</b>	YES	NO
<b>Were sufficient resources (for example staff and technical assistance) available?</b>	YES	NO

Were the outcomes as expected?      YES    NO    Additional comments or other outcomes:  
 If No, please explain:

Did the results achieve the goal and objective (s)?      YES    NO  
 Explain how:



---

Was the action cost-effective?                      YES    NO  
Explain how or how not:

What were the losses avoided after having completed the project?

If it was a structural project, how did it change the hazard profile?

Date \_\_\_\_\_

Prepared by: \_\_\_\_\_

**WORKSHEET #4 REVISIT YOUR RISK ASSESSMENT**

THIS PAGE IS INTENTIONALLY BLANK

**Worksheet #4: Revisit Your Risk Assessment**

<b>Risk Assessment Steps</b>	<b>Questions</b>	<b>YES</b>	<b>NO</b>	<b>COMMENTS</b>
<b>Identify hazards</b>	Are there new hazards that can affect your community?			
<b>Profile hazard events</b>	Are new historical records available?			
	Are additional maps or new hazard studies available?			
	Have chances of future events (along with their magnitude, extent, etc.) changed?			
	Have recent and future development in the community been checked for their effect on hazard areas?			
<b>Inventory assets</b>	Have inventories of existing structures in hazard areas been updated?			
	Are future developments foreseen and accounted for in the inventories?			
	Are there any new special high-risk populations?			
<b>Estimate losses</b>	Have loss estimates been updated to account for recent changes?			

If you answered "Yes" to any of the above questions, review your data and update your risk assessment information accordingly

THIS PAGE IS INTENTIONALLY BLANK

**WORKSHEET \$5 REVISE THE PLAN**

THIS PAGE IS INTENTIONALLY BLANK

---

---

**Worksheet #5: Revise the Plan**

Prepare to update the plan.

When preparing to update the plan:

Check the box when addressed ✓

1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc.  
Comments:

2. Reconvene the planning team, making changes to the team composition as necessary (see results from Worksheet #2).  
Comments:

Consider the results of the evaluation and new strategies for the future.

When examining the community consider:

Check the box when addressed ✓

1. The results of the planning and outreach efforts.  
Comments:

2. The results of the mitigation efforts.  
Comments:

3. Shifts in development trends.  
Comments:

4. Areas affected by recent disasters.  
Comments:

5. The recent magnitude, location, and type of the most recent hazard or disaster.  
Comments:

6. New studies or technologies.  
Comments:

7. Changes in local, state, or federal laws, policies, plans, priorities, or funding.  
Comments:

---



---

8. Changes in the socioeconomic fabric of the community.

Comments:

9. Other changing conditions.

Comments:

---



---



---

**Incorporate your findings into the plan.**

<b>When examining the plan:</b>	<b>Check the box when addressed ✓</b>
1. Revisit the risk assessment. Comments:	<input type="checkbox"/>
2. Update your goals and strategies. Comments:	<input type="checkbox"/>
3. Recalculate benefit-cost analyses of projects to prioritize action items. Comments:	<input type="checkbox"/>

**Use the following criteria to evaluate the plan:**

Criteria	YES	NO	Solution
Are the goals still applicable?			
Have any changes in the state or community made the goals obsolete or irrelevant?			
Do existing actions need to be reprioritized for implementation?			
Do the plan's priorities correspond with state priorities?			
Can actions be implemented with available resources?			

Comments:

**APPENDIX D: HAZARD MITIGATION PROJECT FUNDING GUIDEBOOK**

Contents:

**Section One: Overview**

**Section Two: Hazard Mitigation Project Funding Opportunities**

- 2.1 General
- 2.2 Federal Resources
- 2.3 State of Nebraska Resources and Priorities
- 2.4 Alternative Funding Sources

**Section Three: References**

- 3.1 Hazard Mitigation Project Funding Opportunities

THIS PAGE IS INTENTIONALLY BLANK

## **SECTION ONE: OVERVIEW**

This *Hazard Mitigation Project Funding Guidebook* is provided by JEO Consulting Group, Inc.

The intent of the Guidebook is to provide initial guidance on:

- Hazard mitigation project funding opportunities
- Where to find more information

The information in this Guidebook is consistent with established processes for hazard mitigation planning. However, it is important to note the following in terms of the context for this Guidebook relative to the overall planning process:

- Project identification includes identifying all possible options (or alternatives) to address planning objectives; i.e., at this stage, there are no “bad” options. At times, the best option may be to work with other actors in the community to design solutions that are responsive to community values while reducing risk (i.e. a bike path or ball field that can double as a retention area, or the preservation of an animal habitat that also serves as a natural buffer). These types of solutions can often be funded in very innovative ways, including solutions which increase local industry and revenue (i.e. tapping into the entrepreneurial community).
- Project identification is followed by a comprehensive evaluation of possible project options to identify viable, preferred option(s) for development of specific implementation strategies. Preferred options may change as different stakeholders come to the table and additional ideas are proposed or funding sources identified. Incremental mitigation projects, in which risk is slowly bought down through a comprehensive range of actions, can be a much more realistic strategy than identifying the one best (and often costliest) solution.
- Project evaluation criteria include the need for and the availability of funding for specific project options along with technical feasibility, environmental consequences, cost effectiveness, etc.

Even though funding availability is “technically” part of project evaluation, this Guidebook offers information regarding availability of funding in addition to information about identifying projects. The purpose is to reflect the importance of linking project options with potential funding and implementation mechanisms as early as possible to eliminate options with little or no prospects for funding but more importantly, to recognize that successful implementation of the resulting hazard mitigation plan (HMP) will require creative approaches to project funding and the documentation of successful projects. Knowledge of a broader range of funding opportunities and mechanisms beyond federal hazard mitigation grant programs will enable the planning team to keep as many implementation options open as possible, as well as to ensure that some minimal projects can be completed in between plan updates.

## **SECTION TWO: HAZARD MITIGATION PROJECT FUNDING OPPORTUNITIES**

### **2.1 GENERAL**

When the current FEMA hazard mitigation planning program was formulated in the late 1990s as part of the Disaster Mitigation Act of 2000 (DMA 2000), there was an assumption that federal funding would be provided on a substantial, on-going basis for implementing hazard mitigation projects. While hundreds of millions of dollars have been provided by the federal government over the last decade, primarily through FEMA hazard mitigation grant programs, the level of funding has varied from year to year and future prospects are unclear. Additionally, some communities have not been successful in their pursuit of these grants and have not seen the value of their investment in mitigation planning. As a result, while it is still important to have a grasp of how these legacy federal programs can be used to fund hazard mitigation projects, it is increasingly important to look for other opportunities.

Opportunities for funding and technical assistance exist in other federal agencies or possibly state or local agencies. In addition, alternative funding opportunities can be developed at the regional or local level with private sector businesses, private foundations, and other non-governmental organizations (NGOs). In order to fully map out the range of local and state options it is necessary to undertake a detailed stakeholder analysis – something which has not been done at this time. The following contains a brief overview of federal, state, and local government programs that may include opportunities for hazard mitigation project funding as well as alternatives within the private sector and NGOs.

### **2.2 FEDERAL RESOURCES**

Information about federal hazard mitigation project funding opportunities is organized per the following categories:

- FEMA Unified Hazard Mitigation Assistance Grant Programs
- Other FEMA Hazard Mitigation Programs
- Other Federal Agency Programs

#### **2.2.1 FEMA UNIFIED HAZARD MITIGATION ASSISTANCE GRANT PROGRAMS**

There are three (3) grant programs administered at the federal level by FEMA that are grouped under the umbrella heading of the “Unified Hazard Mitigation Assistance Grant Programs” (HMA) including:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)

These programs also have a counterpart agency at the State level. For Nebraska, HMGP and PDM are administered at the state level by the Nebraska Emergency Management Agency (NEMA). The FMA program is managed by the Nebraska Department of Natural Resources (NDNR). Periodically, FEMA issues guidance covering the administrative elements for all three (3) programs, titled the *Hazard Mitigation Assistance Unified Guidance*. The most recent guidance was released in 2013.

There are a number of similarities and differences between these programs but it is important to note three distinctions between HMGP and the other four HMA programs:

- HMGP is only available when authorized under a Presidential major disaster declaration, i.e., post-disaster. The other four HMA programs, when funding is appropriated by Congress, are available pre-disaster.
- Project eligibility under HMGP can be limited by the State as part of the HMGP Administrative Plan developed post-disaster. For example, funding may only be made available for projects that are related to the type of disaster; i.e., HMGP related to a significant flood disaster declaration may only be designated for flood mitigation projects like acquisitions of repetitively flooded properties.
- Eligible projects can include project types that are not typically funded by FEMA hazard mitigation programs if FEMA authorizes what is referred to as the “5 percent initiative”. Generally reserved for very large disasters, authorizing the 5 percent initiative can make funding available for new, unproven mitigation techniques and technologies where benefits are not proven or not clearly measurable such as back-up generators, disaster warning equipment and systems, hazard identification or mapping efforts, and studies or plans to reduce disaster losses. The current State of Nebraska Administrative Plan for HMGP associated with FEMA 4014-DR-NE identifies the potential use of the 5 percent initiative for that particular disaster event.

*Note: Section Three includes individual website URLs for more detailed information on these three HMA programs and the Hazard Mitigation Assistance Unified Guidance.*

### **2.2.2 OTHER FEMA HAZARD MITIGATION PROGRAMS**

Two (2) other FEMA programs include the potential for funding hazard mitigation projects that may be identified:

- Fire Management Assistance Grant Program (FMAGP) - FMAGP may be applicable to some areas of Nebraska; the NESHMP identifies Wildfires as the third highest ranked hazard on a state-wide basis. FEMA provides the following overview of the FMAGP program:

*[FMAGP] is available to States, local and tribal governments, for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster.*

- Public Assistance (PA) Section 406 Hazard Mitigation Funding – Generally, PA funds are provided post-disaster for the restoration of public infrastructure that has sustained damaged due to a presidentially-declared disaster. The legislation authorizing PA also includes a “*provision for the consideration of funding additional measures that will enhance a facility’s ability to resist similar damage in future events.*” It is important to note that Section 406 funding can only be used on parts of a facility that were actually damaged by the disaster; although in some cases the damages are sufficient that the entire facility must be replaced.

Therefore, it is often difficult to include the type of specific predictions in a HMP that would lead to identifying Section 406 as a prime option for funding but it should be noted in the HMP and referenced wherever it is potentially applicable. Areas of vulnerability for particular buildings, or building types, identified through the HMP can be a resource for the identification of PA mitigation projects. Additionally, local and state staff should receive training in the successful use of PA.

Additional FEMA programs include: Community Assistance Program which assists states with the NFIP; various post-disaster funds and programs; and Assistance to Firefighter Grants which can assist with the enhancement of response capabilities.

*Note: Section Three includes individual website URLs for more detailed information on these two FEMA programs that are also the sources of the quoted passages.*

### **2.2.3 OTHER FEDERAL AGENCY PROGRAMS**

Although FEMA programs are typically thought of as the primary sources of federal agency hazard mitigation project funding, there are a significant number of agencies with programs relevant to local HMPs and hazard mitigation project implementation. The following indicates some of the federal programs which may be of assistance in funding certain types of hazard mitigation projects – or portions of those projects.

**Table 1: Federal Programs**

<b>Source</b>	<b>Description</b>	<b>Additional Notes</b>	<b>Website</b>
Advisory Council on Historic Preservation	The Preserve America matching-grant program provides planning funding to designated Preserve America Communities to support preservation efforts through heritage tourism, education, and historic preservation planning.	This funding source may be considered as part of efforts to ensure that historic structures are protected from natural hazards. The City of Lincoln is a Preserve America Community.	<a href="http://www.preserveamerica.gov/">http://www.preserveamerica.gov/</a>
National Endowment for the Humanities	The National Endowment for the Humanities manages multiple grant programs which may be relevant.	Programs support educational initiatives and cultural institutions.	<a href="http://www.neh.gov/grants">http://www.neh.gov/grants</a>
U.S. Department of Agriculture (USDA)	USDA administers several programs that are potentially relevant including the National Institute of Food and Agriculture (NIFA), Natural Resource Conservation Service (NRCS), Rural Development, and the Farm Service Agency (FSA).	There are many different NRCS programs which can provide technical assistance and construction of improvements to relieve imminent hazards to life and property from floods and erosion. There are also various rural development programs which can support essential services such as sewer services and assist with fire and police stations. USDA programs also support renewable energy efforts. However, other USDA programs should be examined relative to identified projects to find potential matches with funding and assistance provisions.	<a href="http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS_LOANS">http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS_LOANS</a>

Source	Description	Additional Notes	Website
U.S. Department of Commerce	Economic Development Administration (EDA) – EDA primarily provides a variety of grants, loans, and technical assistance to support long-term economic recovery but also has supported grants for upgrades to critical public infrastructure and essential facilities.	There are various programs and resources available through EDA. The National Weather Service and National Oceanic and Atmospheric Administration have also had programs in the past, but are restricted by funding at the moment.	<a href="http://www.eda.gov/ffo.htm">http://www.eda.gov/ffo.htm</a>
U.S. Army Corps of Engineers (USACE)	USACE can provide a broad range of assistance under legislative authority related to flood control for floodplain management planning, stream bank and shoreline protection, and aquatic ecosystem restoration.	USACE projects generally involve watershed level activities and long project development and implementation timelines but may be applicable to regional considerations.	<a href="http://www.nwo.usace.army.mil/">http://www.nwo.usace.army.mil/</a>
U.S. Dept of Education	Grants support LEAs in the development of communitywide approaches to creating safe and drug-free schools and promoting healthy childhood development. Programs are intended to prevent violence and the illegal use of drugs and to promote safety and discipline. Coordination with other community-based organizations (CBOs) is required. This program is jointly funded and administered by the departments of Education, Justice, and Health and Human Services. The appropriation amounts listed above do not include funds appropriated for the departments of	This program can be used to work towards safer schools, taking various potential risks into account.	<a href="http://www2.ed.gov/programs/dvpsafeschools/index.html">http://www2.ed.gov/programs/dvpsafeschools/index.html</a>

Source	Description	Additional Notes	Website
	Justice and Health and Human Services.		
U.S Department of Energy (DOE)	<p>DOE undertakes a range of missions related to electricity and energy including improving <i>“the ability of energy sector stakeholders to prevent, prepare for, and respond to threats, hazards, natural disasters, and other supply disruptions”</i>. DOE works closely with State and local governments on energy assurance issues and develops products and tools to inform and educate State and local officials to support their energy emergency response activities. DOE also partners with State and local organizations to further assist in these efforts including the National Association of State Energy Officials, National Association of Regulatory Utility Commissioners, National Governors Association, National Conference of State Legislatures, and at the local level, Public Technology Institute. Recently, DOE created the Local Energy Assurance Program (LEAP) which included more than \$8 million in LEAP grants to 43 cities and towns across the country to develop or expand local energy assurance plans to improve electricity reliability and energy security in these communities</p>	DOE programs fund weatherization efforts, support renewable energy efforts which can be a portion of an energy assurance effort, and can provide technical assistance through the Nuclear Safety and Environment Program.	<a href="http://energy.gov/public-services/funding-opportunities">http://energy.gov/public-services/funding-opportunities</a>

Source	Description	Additional Notes	Website
US Dept of Health and Human Services	The US Dept of Health and Human Services and its various agencies provide a wide range of grants and technical assistance programs.	Grant programs include technical: assistance and training related to ensuring safe water and wastewater treatment for rural areas; program to provide AEDs; and programs to ensure that rural areas have access to health services.	<a href="http://www.hhs.gov/grants/index.html">http://www.hhs.gov/grants/index.html</a>
U.S. Department of Housing and Urban Development (HUD)	HUD administers the Community Development Block Grants (CDBG). CDBG funds have been used in conjunction with other hazard mitigation funding sources, e.g., HMGP, to implement projects including acquisitions and elevation of flood prone properties. However, HUD funding for hazard mitigation projects usually comes via special Congressional appropriations related to specific disaster events.	CDBG funds can play a key role in hazard mitigation.	<a href="http://portal.hud.gov/hudportal/HUD?src=/topics/grants">http://portal.hud.gov/hudportal/HUD?src=/topics/grants</a>
US Dept of Justice	The Office of Community Oriented Policing services offers funding to assist with community policing capacity.	This program may be relevant to communities which identify crime, acts of violence and/or terrorism as a hazard.	<a href="http://www.justice.gov/business/">http://www.justice.gov/business/</a>
US Dept of Labor	National Emergency Grants (NEGs) temporarily expand the service capacity of Workforce Investment Act Dislocated Worker training and employment programs at the state and local levels by providing funding assistance in response to large, unexpected economic events which cause significant job losses. NEGs generally provide resources to states and local workforce investment boards to quickly	Training and temporary jobs can focus on weatherization or possibly mitigation related activities.	<a href="http://www.doleta.gov/neg/">http://www.doleta.gov/neg/</a>

Source	Description	Additional Notes	Website
	reemploy laid-off workers by offering training to increase occupational skills.		
US Dept of the Interior	The National Parks Service has multiple grants allowing for the purchase of land for recreational facilities, the rehabilitation of recreation facilities, and protecting cultural treasures.	These programs could assist with the securing of land which can serve a dual purpose of mitigation and recreation, as well as for protecting some historic sites.	<a href="http://www.nps.gov">www.nps.gov</a>
US Dept of Transportation	Funds support recreational trails, bridge replacement, safe routes to schools, road projects in rural areas, and other programs.	These funds can be incorporated into multi-objective projects aimed at hazard mitigation.	<a href="http://www.dot.gov/grants">http://www.dot.gov/grants</a>
U.S. Environmental Protection Agency (EPA)	In May, 2010, EPA signed a memorandum of agreement with FEMA to “ <i>formalize efforts to explore opportunities to incorporate sustainability and smart growth practices into communities’ hazard mitigation planning and long term disaster recovery efforts, and to incorporate hazard resilience into smart growth assistance for communities.</i> ” The intent is to coordinate parallel activities within these agencies for an array of policy initiatives that include climate change considerations. For projects that are intended to improve land use planning practices, this joint effort could provide valuable technical assistance.	EPA programs support efforts to clean up brownfields, support water quality, provide safe drinking water, promote green communities, and watershed protection.	<a href="http://www2.epa.gov/home/grants-and-other-funding-opportunities">http://www2.epa.gov/home/grants-and-other-funding-opportunities</a>

Source	Description	Additional Notes	Website
Small Business Administration (SBA)	SBA Disaster Loan Program (DLP) is a significant source of assistance for homeowners, renters, businesses, and nonprofit organizations in the aftermath of disasters. Although this is a post-disaster funding mechanism, it is important to note that loans can be increased up to 20 percent for mitigation to protect property from future disasters of the same kind that caused the current damage.	Small businesses can use SBA loans for many purposes, before and after a disaster.	

These are by no means the only non-FEMA, federal agency programs that could have the potential to support hazard mitigation project implementation. Additionally many of these programs are dependent on yearly funding allocations. However, at this point, it is more important to be aware of the potential for other federal agencies to support a broad array of project types. As needs and potential hazard mitigation project options are identified, more information can begin to be gathered on the range of programs which might be utilized. It will be more efficient to start with project options and then follow-up with the identification of potential matches, working with the full range of available programs and agencies as part of a comprehensive project evaluation process.

### **2.3 STATE OF NEBRASKA RESOURCES AND PRIORITIES**

The 2011 NESHMP identifies a number of agencies and programs with potential applicability to supporting funding and implementation of mitigation projects in addition to the federal hazard mitigation grant programs administered at the state level by NEMA and NDNR already mentioned above. These agencies will also likely be important in earlier stages of the hazard mitigation planning process by providing current hazard and risk assessment data, including:

- NDNR – Public outreach and education programs should be incorporated and cross-referenced as part of any corresponding programs recommended as part of HMPs
- Climate Assessment and Response Committee (CARC) – CARC is a committee comprised of other state agencies and other stakeholders including the University of Nebraska and private livestock and crop producers. A primary concern of the CARC appears to be drought mitigation and at a minimum, the CARC should be a good source of technical support for related mitigation actions at the region or local levels.
- Nebraska Forest Service (NFS) – Per the NESHMP, the NFS “administers state and federal grant monies for fuel treatment on private property...for thinning forested tracts and for applying firewise principles to properties.”

One existing mechanism for agency collaboration, particularly in the area of flooding, is the Nebraska Silver Jackets Program (<http://silverjackets.dnr.ne.gov/>). Silver Jackets teams are active in many states and consist of various state and federal agencies working together in support of flood risk reduction.

Some state agencies which provide technical assistance and other resources include:

- Nebraska Department of Environmental Quality
- Nebraska Department of Economic Development
- Nebraska Department of Roads
- Nebraska Game and Parks Commission
- Nebraska State Historic Preservation Office

In addition to these programs, it is important to always have a sense of the priorities that are identified by other agencies in influential positions regarding future grant funding. For example, the 2012 State of Nebraska Administrative Plan for HMGP, consistent in many ways with aspects of the NESHMP, identifies eligible project types such as:

- Structural hazard control or protection projects
- Retrofitting of facilities
- Property acquisition or relocation
- Development or improvement of warning systems
- Dead-end storm structures
- Replacement of conductors to T-2 Conductors, e.g., for increased wind resistance for electrical transmission lines

## **2.4 ALTERNATIVE FUNDING SOURCES**

In recent years, states and communities across the country have sought and developed innovative funding sources as alternatives to traditional government grant programs. This will be important for current and future hazard mitigation planning efforts for several reasons including:

- Decreases in funding for pre-disaster mitigation grant and assistance programs at the federal level and for state agencies - While technical assistance and other related support functions are still actively supported across federal and state agencies, and in some cases are increasing, allocations for “bricks and mortar” pre-disaster hazard mitigation projects will be competing with a broad range of government funding needs. These funds may not completely disappear but the need will continue to outstrip the supply for the foreseeable future.
- Opportunities to fund projects that might not qualify or align with traditional grant and assistance programs. Funding programs seek solutions that reduce risk for a particular threshold (i.e. 1-percent flood) and meet absolute cost-benefit criteria that the agencies themselves must adhere to. Therefore, these programs, by their basic nature, are not able to support efforts that may help most of the time but don’t meet these thresholds, e.g., a homeowner installed flood wall in a repetitive loss area that prevents annual floods, but not larger magnitude events that come along every few years. There is a related concept that can be referred to as “cumulative risk reduction”. For example, a homeowner with limited resources (and no real access to grant funds) might be willing to spend a little time and money each year getting just a little bit safer.

The following identifies general kinds of alternative funding sources and techniques that have been employed in other communities:

- Local Funding Options
- Public-Private Partnerships
- Private Foundations

### **2.4.1 LOCAL FUNDING OPTIONS**

Local funding options are just what they sounds like, using local funds for local mitigation projects. Local funds are also needed as the non-federal share or “matching funds” for federal grant programs but can also be used independently to fund a range of project types. Local funding options include the following:

- Capital Improvement Programs – On-going civic improvements can include prioritized hazard mitigation projects or mitigation can be included as one aspect of a larger project. For example, improving the hydraulic capacity of a culvert or bridge to prevent upstream flooding while undertaking periodic replacements for end of service considerations is one example. Replacing windows in a school with shatter resistant glass as part of a overall renovation is another example. Capital improvement programs are generally funded with local tax revenues and municipal bonds.

- Permits, Fees, and Developer Contributions- Communities can establish fees, earmark a portion of existing permit and fee structures, and/or establish requirements for developer contributions for new developments in hazard prone areas that can then be used to fund local mitigation projects. The proceeds can be accumulated in what is often referred to as a “Mitigation Trust Fund” and the uses are typically tied to specific project types and/or relationships with projects already identified in specific plans or documents such as an HMP. These types of funds can also be used to create vouchers or other incentives to individual action.
- Force Account / In-Kind Services – Although there is a “cost” associated with activities of public employees, there are a wide range of activities that can be undertaken by local government staff and officials as well as interested parties on their behalf that would yield significant benefits. Some of the obvious examples are public outreach and education for individual property owners, business and institutions to reduce their risk through correspondingly inexpensive or essentially activities. This would include tapping into available educations resources<sup>1</sup>, promoting individual action, etc.
- Property Owners – For a project that directly benefits one or more specific properties, the property owner can be asked to contribute. Through the HIRA process, property owners can become better aware of their risks and options. Owners that recognize they have a real flood problem may be willing to pay a portion of the cost. In recent years, property owners have voluntarily agreed to pay the non-federal share (up to 25 percent of the total project cost) for FEMA HMA grants in some states. In some cases, the owners have paid even higher percentages of the cost. In addition, after a flood, owners may have cash from insurance claims or disaster assistance that they will be using to repair their homes and properties. By including the right floodproofing and mitigation project components into the repairs, the resilience of the property to future flooding may be improved.

Having property owners contribute to the project can help stretch available local funds and also gives the property owner an enhanced stake in the outcome of the project and incentive to make sure the property is properly maintained.

- Individual Participation – Although mitigation is ultimately intended to benefit individuals, HMPs often neglect to integrate participation of potential beneficiaries into the process. The participation by individuals, including small business owners, is important for making sure the resulting HMP reflects community needs and priorities but it also allows for the planning team to identify measures and options that individuals can take to reduce their own risk at a cost they can afford.

#### **2.4.2 PUBLIC-PRIVATE PARTNERSHIPS**

Developing a “public-private partnership” is a phrase used frequently in a wide range of government programs and for good reason, especially in the content of hazard mitigation. Similar to the point made in the preceding subsection regarding individual participation, participation of private sector organizations in solving their own hazard risk situations can be a low-cost and

---

<sup>1</sup> Several states and agencies have created resources for homeowners, some of which could be readily adapted for use in Nebraska.

effective method. The phrase also encompasses finding opportunities for public and private sector partners to share costs equitably for larger projects that require substantial funds to implement. Private sector businesses and organizations have their own cost-benefit calculations to perform but joint efforts may make the balance sheets work for both sides.

### **2.4.3 PRIVATE FOUNDATIONS**

Cultivating relationships with local, regional, or even national foundations with interests or missions consistent with hazard mitigation, community sustainability, climate change adaptation, and other related topics can yield successful results in terms of funding and other means of support.

There are many local foundations around the State of Nebraska, many of which fund programs that can be utilized for components of hazard mitigation projects. Many of these foundations only support non-profit organizations, so the applicability of these funds to projects depends upon the partners involved.

*This approach is not as easy to develop as simply listing grants and funding mechanisms as it involves engaging a broad spectrum of stakeholders and employing combinations of funding sources in solving what are increasingly sticky issues related to funding for any public endeavor. However, as noted throughout this guidebook, the reality is that significant federal or state grant allocations for pre-disaster mitigation efforts are not apparent on the immediate horizon and communities will need to be creative, cooperative and proactive to realize risk reduction on a meaningful level.*

## **SECTION THREE: REFERENCES**

### **3.1 HAZARD MITIGATION PROJECT FUNDING**

The following includes current websites with more detailed information about several of the programs and documents mentioned in this Guidebook.

- *Hazard Mitigation Assistance Unified Guidance*. The current version of this guidance document was developed in 2013 and can be found at: <http://www.fema.gov/library/viewRecord.do?id=3649>.

In addition, the individual grant programs each have specific websites per the following:

- Hazard Mitigation Grant Program (HMGP)  
<http://www.fema.gov/hazard-mitigation-grant-program>
- Pre-Disaster Mitigation (PDM)  
<http://www.fema.gov/pre-disaster-mitigation-grant-program>
- Flood Mitigation Assistance (FMA)  
<http://www.fema.gov/flood-mitigation-assistance-program>
- Fire Management Assistance Grant Program (FMAGP) -  
<http://www.fema.gov/fire-management-assistance-grant-program>
- Public Assistance (PA) Section 406 Hazard Mitigation Funding  
<http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit/hazard-mitigation-funding-under-section-406-0>

*Note: These websites and reference materials are as current as possible. However, one important aspect of grant programs that is not just applicable to hazard mitigation or to government agencies, is that the status, priorities, and administration of funding sources and programs is dynamic, i.e., subject to frequent changes in direction and emphasis. Therefore, it is useful to be familiar with the current information but it is equally, if not more important, to engage candidate federal and state agencies in a dialog as soon as possible. The intent is to determine the most current information about grant project status and priorities for inclusion in the evaluation of hazard mitigation projects and the development of implementation strategies.*

*On a related note, it is also recommended to include specific reference in plan maintenance procedures to the monitoring and updating of information regarding grant programs and the agencies or foundations that administer these grants.*

There are also a number of documents that include a broad range of project types and how these have been implemented in communities across the country including:

Mitigation Best Practices Portfolio

<http://www.fema.gov/mitigation-best-practices-portfolio>