FEBRUARY 2016

DAKOTA COUNTY APPENDIX

PAPIO-MISSOURI RIVER NRD MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

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CONTENTS

PLAN OVERVIEW

This plan is an update to the Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2011. 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 and participating jurisdictions 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 the Health and Safety of the Public

Objective 1.1: *Continued compliance with National Flood Insurance Program (NFIP) for participating communities; join NFIP if not currently participating*

Objective 1.2: *Construct safe rooms in schools, public buildings, and in select locations, at public outdoor venues*

Objective 1.3*: Update or obtain additional outdoor warning sirens, as needed, in the project area*

Objective 1.4: *Develop additional emergency notification methods to alert the public of potential hazards*

Objective 1.5: *Provide educational opportunities for the public to promote preparedness in the project area*

Objective 1.6: *Reduce flooding of developed residential and commercial areas*

Goal 2: Reduce or Prevent Future Damage to Critical Facilities, Critical Infrastructure, and Maintain Their Operation after a Hazard

Objective 2.1: *Protect power lines throughout the NRD by burying them or reinforcing them*

Objective 2.2: *Obtain generators and other backup power systems required to keep critical facilities, critical infrastructure, and emergency operations running after a hazard event*

Objective 2.3: *Evaluate and identify infrastructure systems that require improvements in order to reduce or prevent damage from hazards*

Objective 2.4: *Protect all existing public infrastructure from flooding*

Goal 3: Reduce or Prevent Future Damage to Existing Properties and Natural Resources

Objective 3.1: *Enforce regulations and building codes promoting wise development and construction that reduces the potential for damage to existing or future structures and property*

Objective 3.2: *Protect existing streambanks and beds from erosion/downcutting*

Objective 3.3: *Perform studies to determine locations of concern and evaluate projects to mitigate against the damage caused by hazards*

Objective 3.4: *Develop projects to reduce or prevent damage to public structures*

Objective 3.5: *Improve local drainage and stabilize creeks where necessary*

Objective 3.6: *Improve protection procedures for structures throughout the planning area to reduce damage from hazard events*

Objective 3.7: *Implement a mitigation plan for tree trimming and tree removal*

Objective 3.8: *Improve and protect area roads and drainage structures against hazards*

Objective 3.9: *Maintain and improve surface water quality*

Goal 4: Promote Efficient Use of Public Funds

Objective 4.1: *Maximize funding opportunities through grant money and other outside sources*

Objective 4.2: *Prioritize projects based on greatest risk*

Objective 4.3: *Encourage individual property owners to develop independent measures to protect their property and not rely on public funding*

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 six participating counties plus one for the Papio-Missouri River NRD)
- An appendix of procedural documentation and resolutions of participation and adoption

This participant appendix includes all of the participating jurisdictions from Dakota 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

DAKOTA COUNTY

Papio-Missouri River NRD

Multi-Jurisdictional Hazard Mitigation Plan

February 2016

INTRODUCTION

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. 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's also provided in the Regional section, but rather is specific information for Dakota County, including the following elements:

- Participation
- Location /Geography
- Climate
- 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 DKC.1 provides the list of participating members that comprised the Dakota 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, hazard history and impacts, identifying hazards of greatest concern for the county, and prioritization of mitigation actions that address the hazards at risk to the county.

Table DKC.1: Dakota County Local Planning Team

Name	Title	Department / Jurisdiction
Deanna Beckman	Director of Emergency Management	Dakota County
Nicholas Walsh	Emergency Response Coordinator	Dakota County Health Department
Joan Spencer	County Clerk	Dakota County

PUBLIC PARTICIPATION

The local planning team made efforts 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.

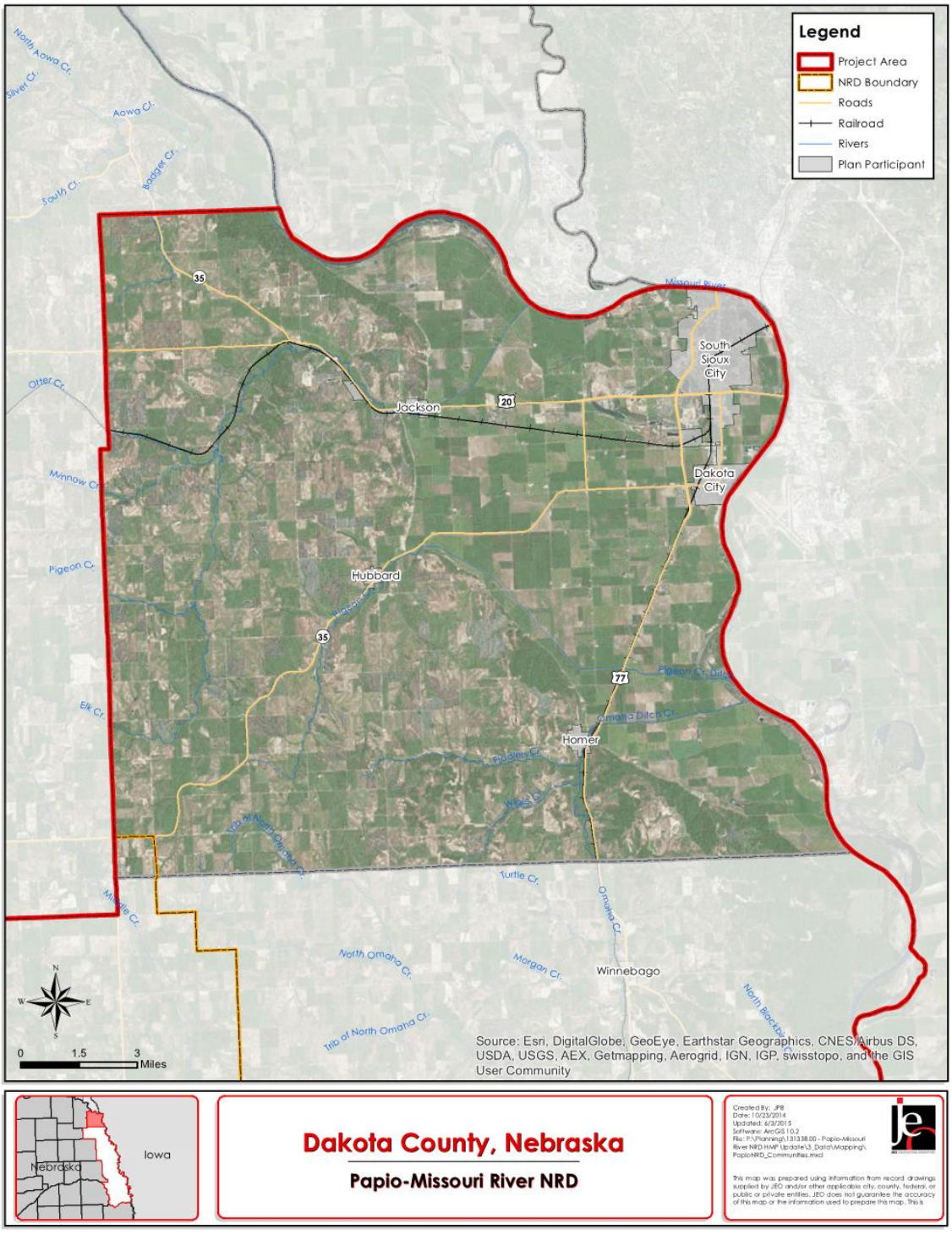
Table DKC.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
March 30, 2015	Passed Resolution of Participation	County Office
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

Dakota County is located in northeastern Nebraska and is bordered by Union County in South Dakota, Dixon and Thurston Counties in Nebraska, and Woodbury County in Iowa. The total area of Dakota County is 267 square miles. Major waterways within the county include the Missouri River, which forms the northern and eastern boundaries of the county, Elk Creek, Fiddler Creek, Jones Creek, and Pigeon Creek.

Figure DKC.1: Dakota County Map



CLIMATE

For Dakota County, the normal high temperature for the month of July is 85.5 degrees and the normal low temperature for the month of January is 10.2 degrees. On average, Dakota County gets 27.74 inches of rain and 34.8 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table DKC.3: Climate Data for Dakota County

Age	Dakota County	Planning Area	State of Nebraska
July Normal High Temp	85.5°F	85.6°F	88.0°F
January Normal Low Temp	10.2°F	11.8°F	12.0°F
Annual Normal Rainfall	27.74 inches	30.64 inches	30.3 inches
Annual Normal Snowfall	34.8 inches	31.2 inches	25.9 inches

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

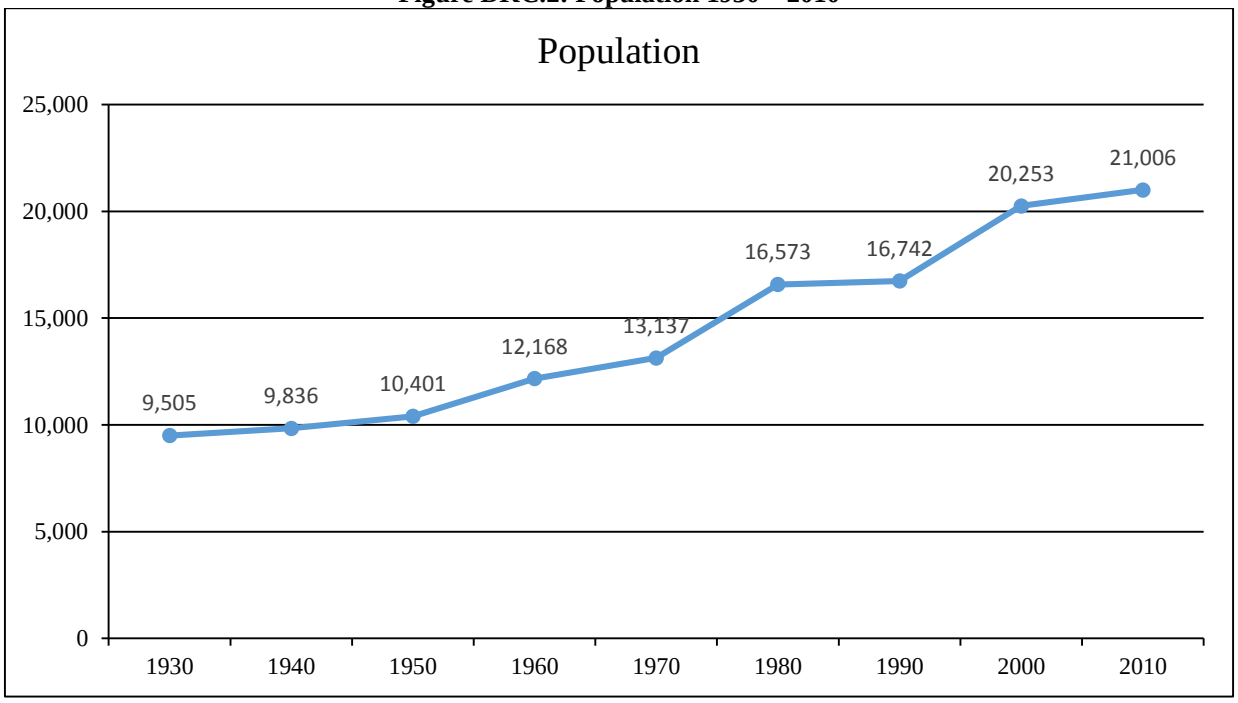
TRANSPORTATION

Dakota County's major transportation corridors include U.S. Highways 20 and 77, and Nebraska Highways 12 and 35. The Burlington North Santa Fe Railroad has rail lines which travel through the southeastern portion of the county, and the Nebraska Northeastern Railway Company also has rail lines traveling through the northern portion of the county. This information is important to hazard mitigation plans insofar as it suggests possible evacuation corridors in the county, as well as areas more at risk to transportation incidents.

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Dakota County has been increasing since 1930. 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 DKC.2: Population 1930 – 2010



Source: U.S. Census Bureau

The following table indicates Dakota County has a higher percentage of people under the age of 5. Young 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 DKC.4: Population by Age

Age	Dakota County	State of Nebraska
<5	8.9%	7.2%
5-64	79.6%	79.2%
>64	11.5%	13.6%
Median	32.6	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that the median household incomes is about $4,000 less than the State of Nebraska median values. However, median home values are also lower when compared to 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. Areas with economic indicators which are relatively low may influence a county's level of resiliency during hazardous events.

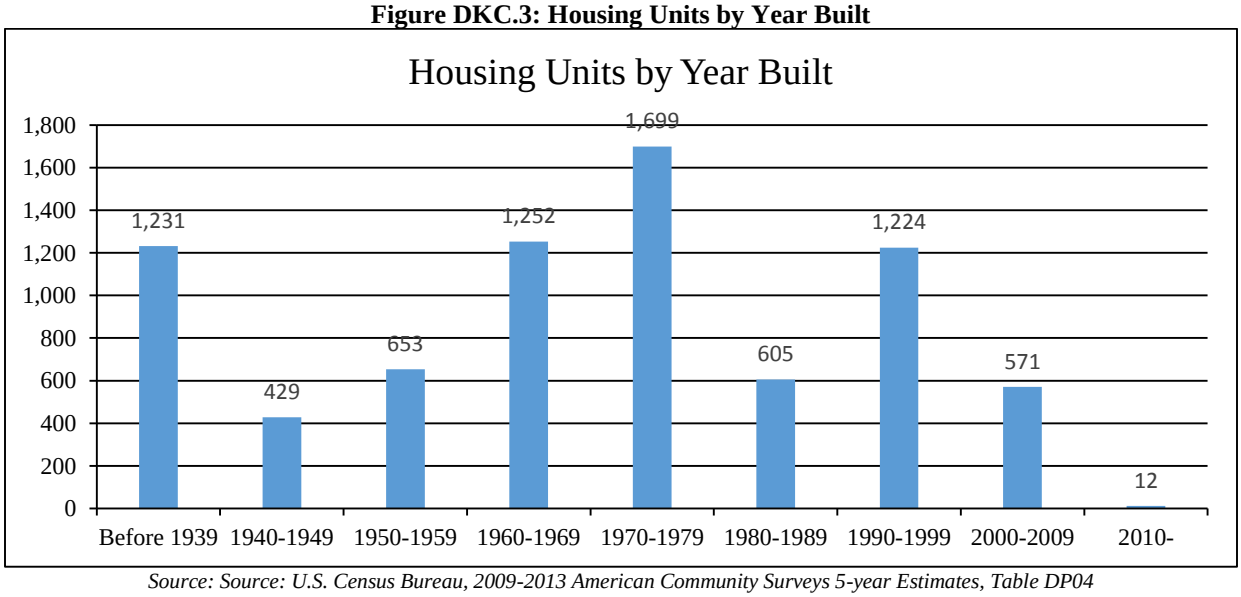
Table DKC.5: Housing and Income

	Dakota County	State of Nebraska
Median Household Income	$47,069	$51,672
Per Capita Income	$20,179	$26,899
Median Home Value	$103,300	$128,000
Median Rent	$703	$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

The following figure indicates that the majority of the housing in Dakota County (69 percent) was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the county has 7,676 housing units with 95.2 percent of those units occupied. There are approximately 779 mobile homes in the county, and there are three mobile home parks identified in unincorporated areas of Dakota County, which are Lake Village, Atokad Mobile Home Park, and Siouxland Estates. Housing age can serve as an indicator of risk as structures built prior to state building codes being developed may be at greater risk. Finally, residents that live in mobile homes may be more vulnerable to the impacts of high winds, tornados, and severe winter storms.

Figure DKC.3: Housing Units by Year Built



Source: Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

Table DKC.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Dakota County	7,309	95.2	367	4.8		4,710	64.4	2,599	35.6
Nebraska	725,787	90.7%	74,490	9.3%		486,533	67.0%	239,254	33.0%

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate

MAJOR EMPLOYERS

According to 2012 Census Data, Dakota County had 433 business establishments. The following table presents the number of establishments, number of paid employees, and the annual payroll 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 DKC.7: Business in Dakota County

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
Total for all Sectors	433	11,190	$358,972

Source: U.S Census 2012, Table CB1200A11

Agriculture is also important to the economic fabric of Dakota County, and the state of Nebraska as a whole. Dakota County's 243 farms cover 157,976 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well by producing, processing and marketing farm and food products. These businesses generate income, employment and economic activity throughout the region.

Table DKC.8: Dakota County Agricultural Inventory

Dakota County Agricultural Inventory	
Number of Farms	243
Land in Farms	157,976 acres

Source: USDA 2012 Census of Agriculture

FUTURE DEVELOPMENT TRENDS

Dakota County's population is experiencing steady growth due to the expansion of current businesses such as Tyson Foods and the ethanol plant, as well as new housing development along the river. Dakota County will likely continue to grow as these trends continue.

The Dakota County's 2014 Comprehensive Plan notes that much of the future land use (Figure DKC.6) will be similar to the existing land use plan. However, the cities of Dakota City and South Sioux City plan to rezone the area below U.S. Highway 20 between Dakota City and the Missouri River to industrial. There are also plans for a bypass from U.S. Highway 20 to connect with C Avenue. A new recreation area also just opened in the summer of 2015 called Danish Alps, just southeast of Hubbard and is owned by the P-MRNRD.

The 2014 plan also maps (Figure DKC.7) the expected road improvements and bridge replacements through 2020, and the county anticipates U.S. Highway 20 will be constructed into a four-lane highway.

Figure DKC.4: Developed Areas

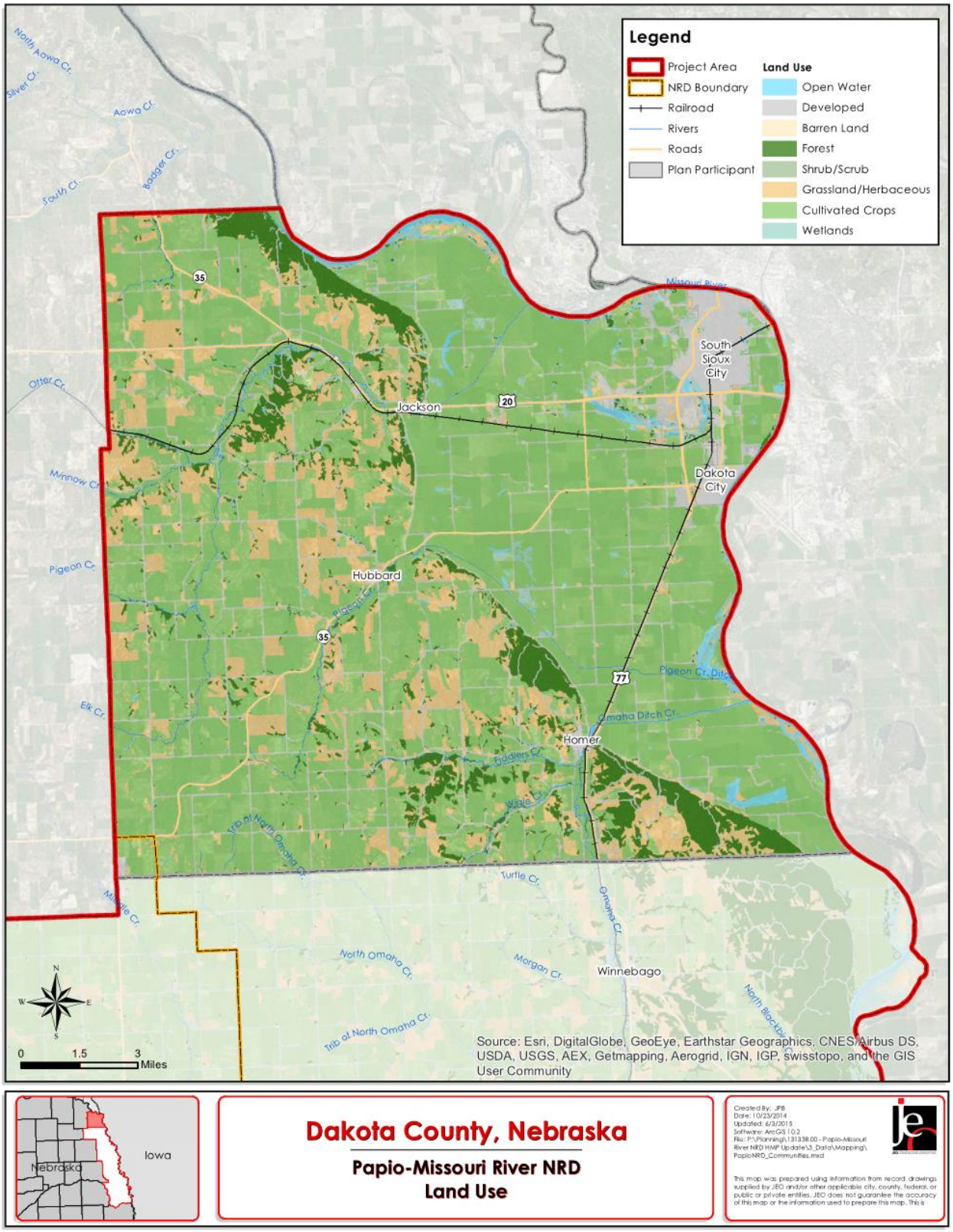


Figure DKC.5: Dakota County Zoning Map

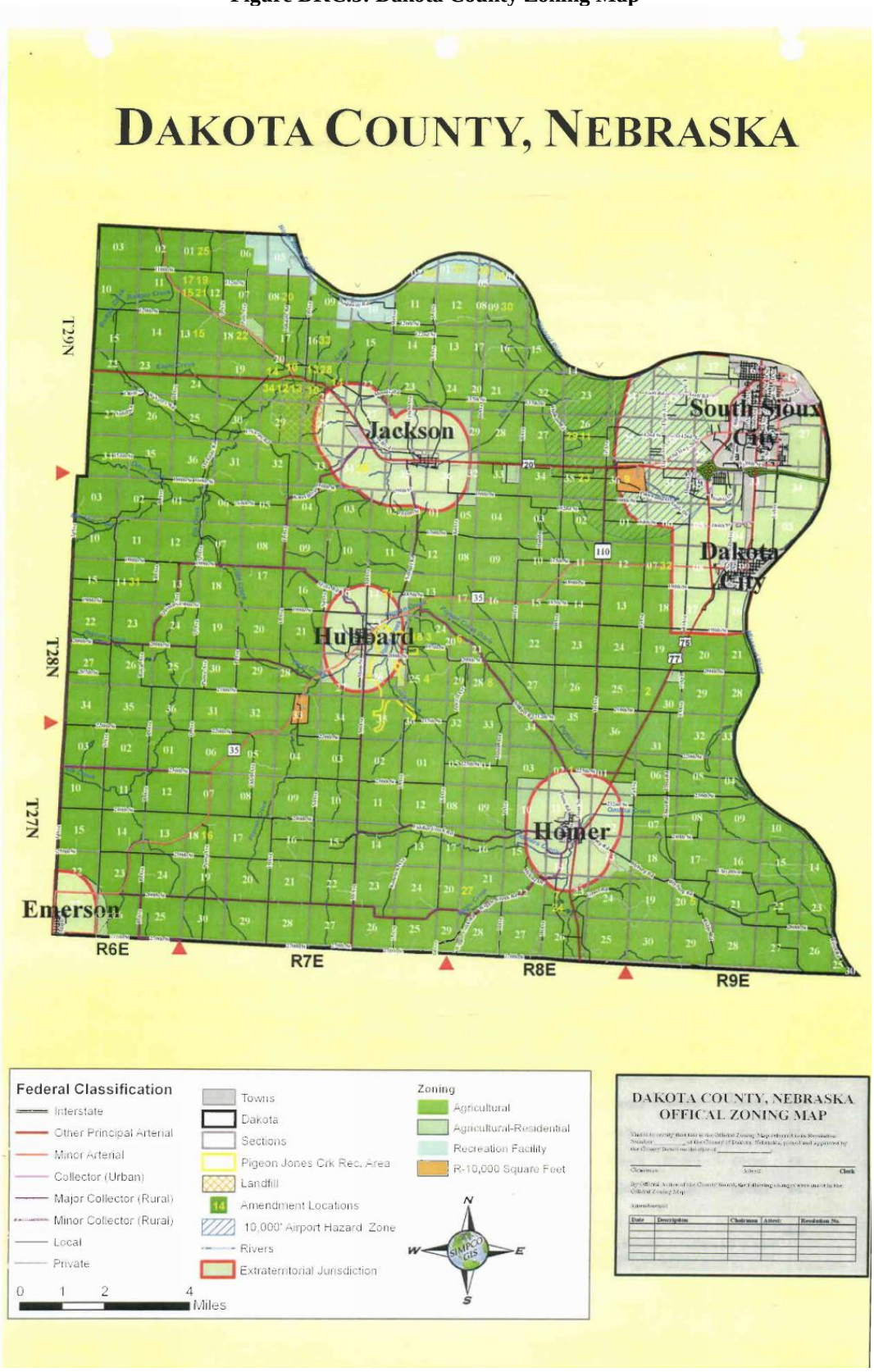


Figure DKC.6: Dakota County Future Land Use Map

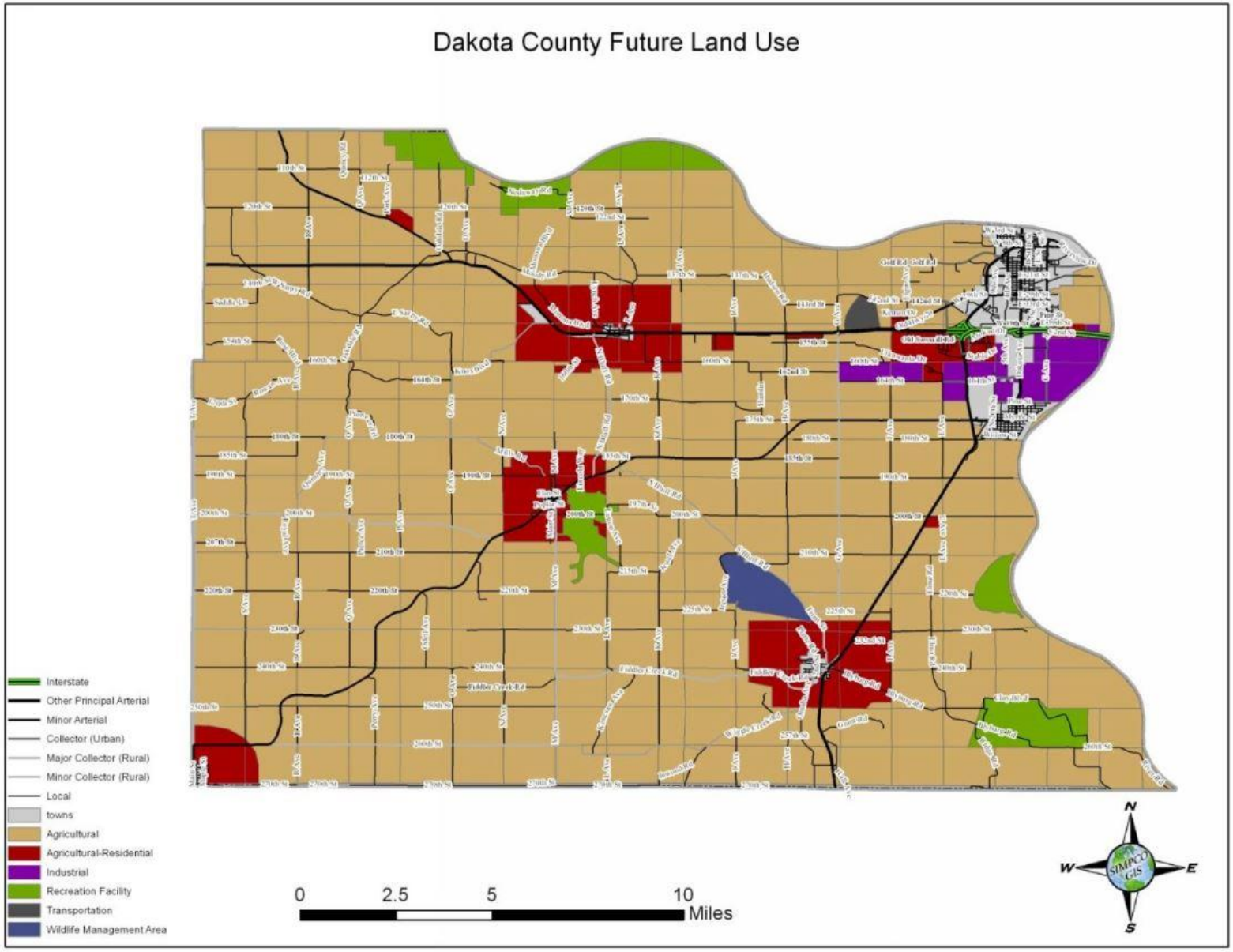
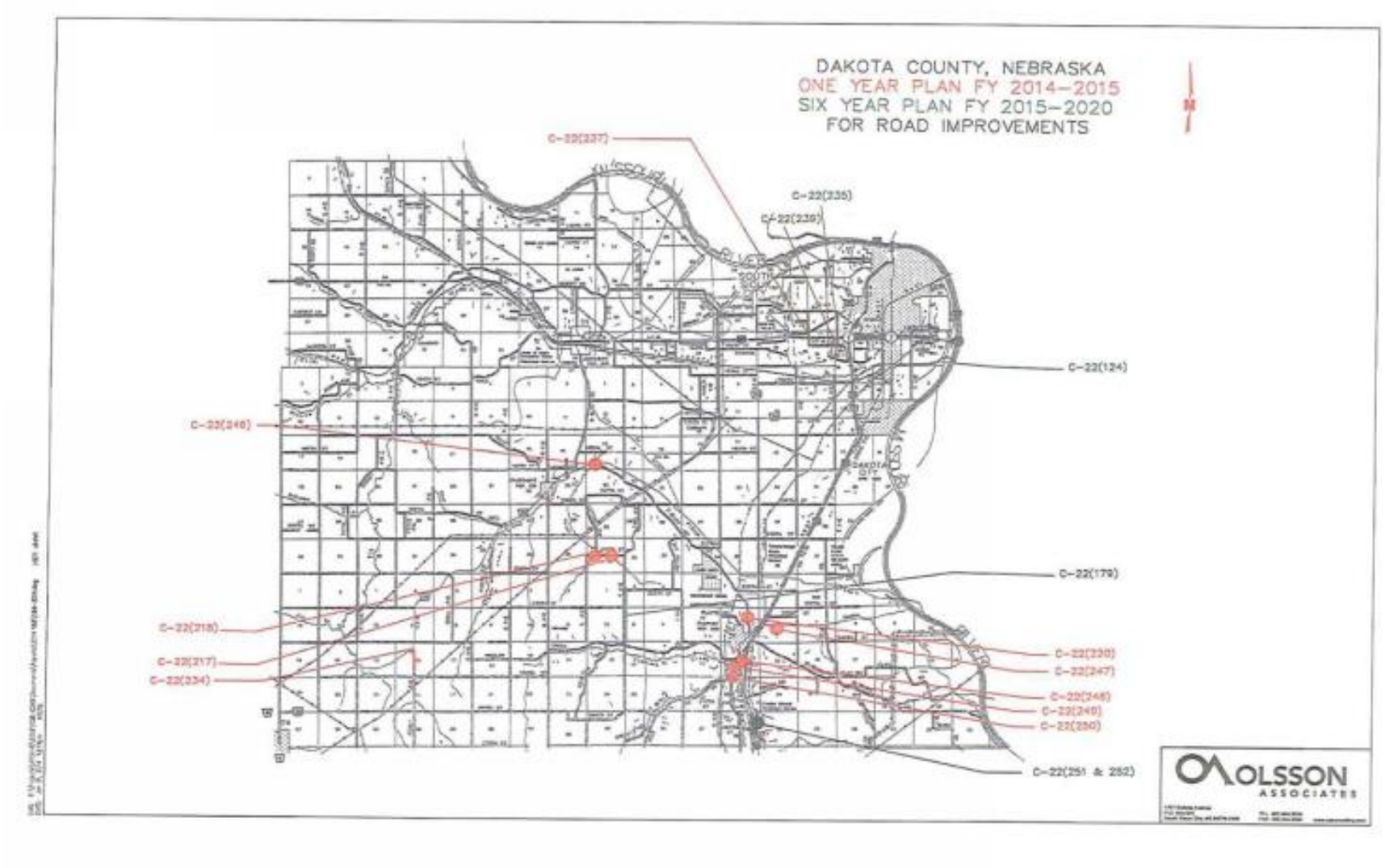


Figure DKC.7: Road Improvements Dakota County



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 DKC.9: Parcel Improvements

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
9,102	$1,493,548,550	$164,090	1,504	$414,047,560

Source: GIS Workshop/Dakota 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 known chemical storage sites in unincorporated Dakota County. However, this does not include the ethanol plant located on Highway 20.

There have not been any documented chemical spills from fixed sites in the county. Residents near chemical storage fixed sites are not educated about the threat of a spill nor the appropriate response if a spill were to occur. The local fire departments do not have the necessary hazmat protective equipment to respond to a spill. In the event of a spill, the county would rely on Sioux City hazmat equipment. Additionally, Dakota County has an inter-local agreement with communities.

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there are 3 historic sites located in rural parts of Dakota County. One site is not located in the floodplain, and the other two sites are unknown as the Historical Society information did not provide an address.

Table DKC. 10: National Historic Registry

Site Name	Date Listed	In Floodplain?
Homer Site	8/14/1973	Yes
Cornelius O'Connor House	11/23/1977	No
Ben Bonderson Farm	11/8/2006	No

Source: Nebraska State Historical Society

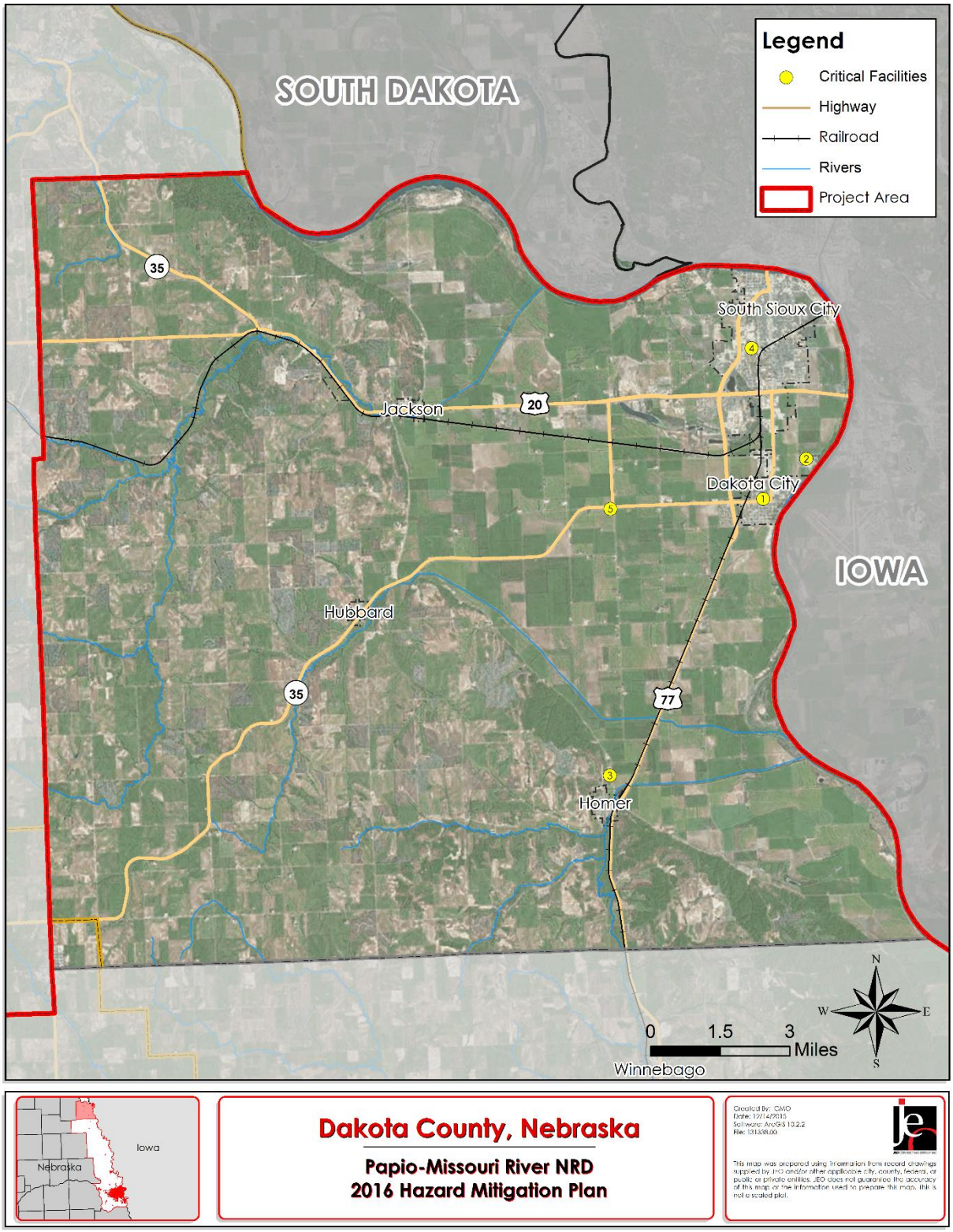
CRITICAL FACILITIES

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. Critical facilities for Dakota County are located primarily in the county's incorporated communities.

Table DKC.11: List of Critical Facilities in Dakota

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	County Building	Dakota County Courthouse and County Health Department	1601 Broadway St, Dakota City	N	Y	N
2	Water Facility	Rural Water Facility	Northeast of Dakota City on C Avenue	N	Unknown	N
3	Power Substation	Substation	North of Homer on Front Street	N	N	N
4	County Building	Law Enforcement Center	701 W. 29th St, South Sioux City	N	Y	N
5	Church	Salem Lutheran Church	1753 G Avenue, Dakota City	Y	N	N

Figure DKC.8: Critical Facilities



HISTORICAL OCCURRENCES

The events recorded by NCDC are broken down to two types: county-based and zone-based events. The county-based records are events that affect the jurisdictions within the county while the zone-based records are those affecting the zone that include the county as part of the affected zone. Please refer to specific villages or cities within the county for the previous county-based severe weather events retrieved from NCDC. For zone-based events, there are 94 recorded events from January 1996 through July 2015, but due to the large number of records, only those that resulted in property or crop damages or fatalities or injuries are demonstrated in the following table.

The property damages from the NCDC Storm Events Database should be considered as broad estimates only. 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 DKC.12: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
2/10/1996	High Wind	52 kts.	0	0	$10,000
3/24/1996	Blizzard	3-6 inches	0	0	$10,000
10/29/1996	High Wind	55 kts.	0	0	$80,000
11/14/1996	Ice Storm		0	0	$10,000
11/2/1997	High Wind	50 kts.	0	0	$3,000
11/10/1998	Blizzard	3-6 inches	0	0	$25,000
7/28/1999	Heat	H.I. = 120F	1	0	$0
4/5/2000	High Wind	54 kts. EG	0	0	$10,000
4/7/2001	High Wind	55 kts. EG	0	0	$20,000
3/10/2005	High Wind	53 kts. EG	0	0	$10,000
4/14/2012	High Wind	52 kts. EG	0	0	$5,000
		Total	**1**	**0**	**$183,000**

Source: January 1996-July 2015 NCDC
in. = inches; kts = knots; EG = Estimated Gust; H.I. =Heat Index

The USDA Risk Management Agency provides data for crop insurance claims due to hazardous events. The following table provides claim information due to hazards from January 2000 through December 2014.

Table DKC.13: USDA RMA Severe Weather Events

Hazard	Number of Claims	Total Crop Damage	Average Annual Damage	Average Damage Per Event
Plant Crop Disease	28	$125,750.19	$8,383.35	$4,491.08
Drought	47	$30,483,264.64	$2,032,217.64	$648,580.10
Extreme Heat	21	$2,123,104.55	$141,540.30	$101,100.22
Flood	20	$2,839,497.74	$189,299.85	$141,974.89
Hail	37	$3,887,452.23	$259,163.48	$105,066.28
High winds	13	$340,776.20	$22,718.41	$26,213.55
Severe Thunderstorms	59	$3,823,331.60	$254,888.77	$64,802.23

Hazard	Number of Claims	Total Crop Damage	Average Annual Damage	Average Damage Per Event
Severe Winter Storms	3	$40,846.00	$2,723.07	$13,615.33
Tornado	2	$181,909.30	$12,127.29	$90,954.65
Totals	**230**	**$43,845,932.45**	**$2,923,062.16**	**$190,634.49**

Source: 2000-2014 USDA RMA

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Dakota County. Refer to the beginning of *Section Seven: Participant Sections* for a detailed 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 DKC.14: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease*	Yes	-	Economic impacts; avian influenza
Agricultural Plant Disease	Yes	$125,750.19	Economic impacts
Chemical Spills (Fixed Site)	No	-	Ethanol plant on Highway 20
Chemical Spills (Transportation)*	Yes	-	Train derailment; critical facilities along transportation routes
Civil Disorder	No	-	None
Dam Failure	No	-	Gavins Point Dam failure; 2 high hazard dams
Drought	Yes	$30,483,264.64	None
Earthquakes	No	-	None
Extreme Heat	Yes	$2,123,104.55	Vulnerable populations
Flooding*	Yes	$2,839,497.74	Public safety; building and infrastructure damage; economic impacts
Grass/Wildfires	Yes	-	Property damages
Hail*	Yes	$3,887,452.23	Property damage; tree damage
High Winds*	Yes	$478,776.20	Power outages; property damages
Landslides	Yes	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$3,823,331.60	Power outages; property damages
Severe Winter Storms*	Yes	$85,846.00	Road closures; economic impacts; power outages
Terrorism	No	-	None
Tornados*	Yes	$181,909.30	Loss of life and injury; critical facilities damaged; power outages
Urban Fire	Yes	-	Property damages; public safety

**Identified by the local 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 county specific information as reported in Dakota County 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 Disease
Due to recent outbreaks of avian influenza in neighboring counties, agricultural animal disease has become a concern for Dakota County. If an event of animal disease were to occur, there would likely be a large economic impact on Dakota County, and residents would be notified by Code Red, media sources, and social media. Some educational materials are available through the USDA, University of Nebraska-Lincoln Extension, and NEMA.

Implemented mitigation projects:

- Educational materials are available from the University of Nebraska-Lincoln Extension Office and NEMA
- County uses Code Red, social media, and traditional media to notify residents

Identified mitigation projects:

- Livestock management equipment such as portable corrals and chutes
- Protective gear for handling of potentially infected animals
- Traffic barricades for securing a quarantine zone

Chemical Spills (Transportation)
The local planning team identified chemical transportation as a top hazard of concern for the county. A train derailed in March 2011 near an ethanol plant west of Jackson resulting in a small ethanol spill from the tanker cars. The spill resulted in Highway 20 being closed but no injuries or fire occurred during the accident. The local planning team also noted that a major plane crash, United Airlines Flight 232, occurred in Sioux City, Iowa on July 19, 1989 at Sioux Gateway Airport, which resulted in 111 deaths.

Several critical facilities were identified by the planning team as being located along major transportation routes, including: the Law Enforcement Center, Post Office, South Sioux City-City Hall, County Courthouse, Dakota City Elementary, and the Siouxland Ethanol Plant on Highway 20.

Implemented mitigation projects:

- Hazmat Team is located in Sioux City, Iowa
- County Emergency Operations Plan has a protocol in the event of a spill

Identified mitigation projects:

- Conduct an emergency exercise on hazardous spills
- Provide residents along transportation routes with educational materials

Dam Failure
Although not identified as one of the top concerns for Dakota County, there are two high hazard dams located within the county and one high hazard upstream dam on the Missouri River, Gavins Point Dam. South Sioux City, Dakota City, and Hubbard along with agricultural lands would be inundated with flood waters if either of these high hazard dams were to fail.

Table DKC.15: Dams in Dakota County

	Number of Dams	Low	Significant	High
Dakota County	11	8	1	2
Planning Area	150	102	13	35

Source: NDNR

Table DKC.16: High Hazard Dams

NIDID	Dam Name	Location	Name of Stream	Owner	Maximum Storage (acre-feet	Last Inspection Date
NE02700	Hubbard Dam	Hubbard	Pigeon Creek	P-MRNRD	86	6/25/2015
NE03270	Pigeon/Jones Creek Dam Site 15	None	Jones Creek	P-MRNRD	7,430	6/25/2015

Source: NDNR

According to the LEOP, if Gavins Point Dam was to fail, four percent of the population in Dakota County could be affected. The area impacted would be slightly greater than the 1 percent floodplain. Hubbard would also be inundated at near 100 percent if the Hubbard Dam was to fail. The LEOP has a flood/dam failure evacuation section outlining the actions required to evacuate the population and protect facilities threatened by flood or dam failure.

Implemented mitigation projects:

- Dams are regularly inspected and maintained

Identified mitigation projects:

- Conduct a dam failure exercise

Flooding

The local planning team identified flooding as a top concern for the county due to the Missouri River on its borders and also heavy rains. One flooding event in particular occurred in 2011 when high releases from the Gavins Point Dam produced moderate to major flooding along the Missouri River. The summer of 2011 experienced flooding along areas closest to the river. Severe thunderstorms also bring heavy rain in a short period of time which can create flooding in low lying areas and briefly close roads across the county. Dakota County is a member of the NFIP and currently has 11 NFIP policies in-force for $2,073,500. There are no repetitive flood loss properties in unincorporated areas of Dakota County.

Table DKC.17: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in County	Percentage of Affected Improvements
$414,047,560	1,504	9,102	16.5%

Source: GIS Workshop/Dakota County Assessor

Implemented mitigation projects:

- Member of the NFIP

Identified mitigation projects:

- Enforce floodplain regulations
- Complete stream bank stabilization on Pigeon Creek
- Ditch clearing as needed to reduce flooding risk

Figure DKC.9: Dam Locations in Dakota County

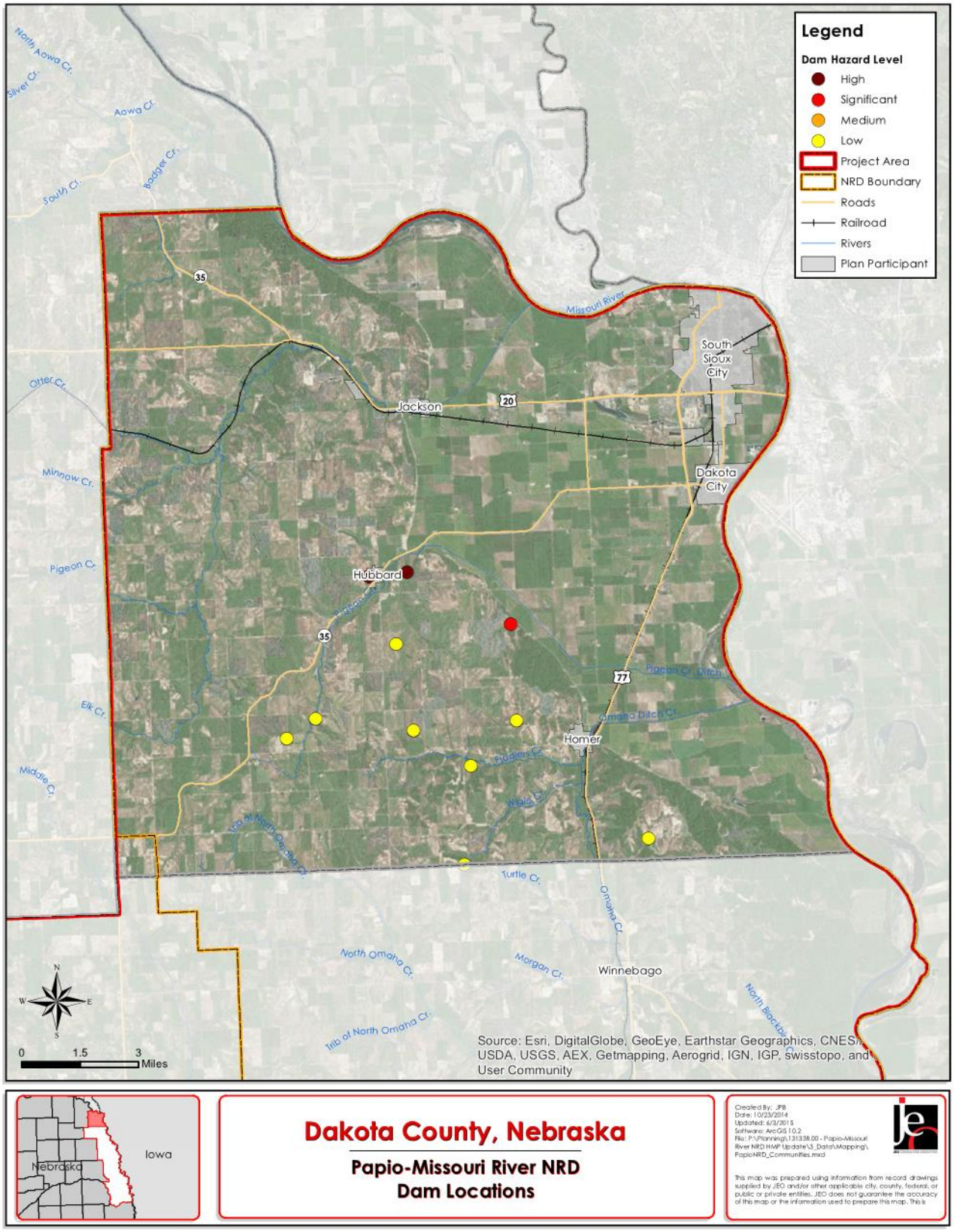
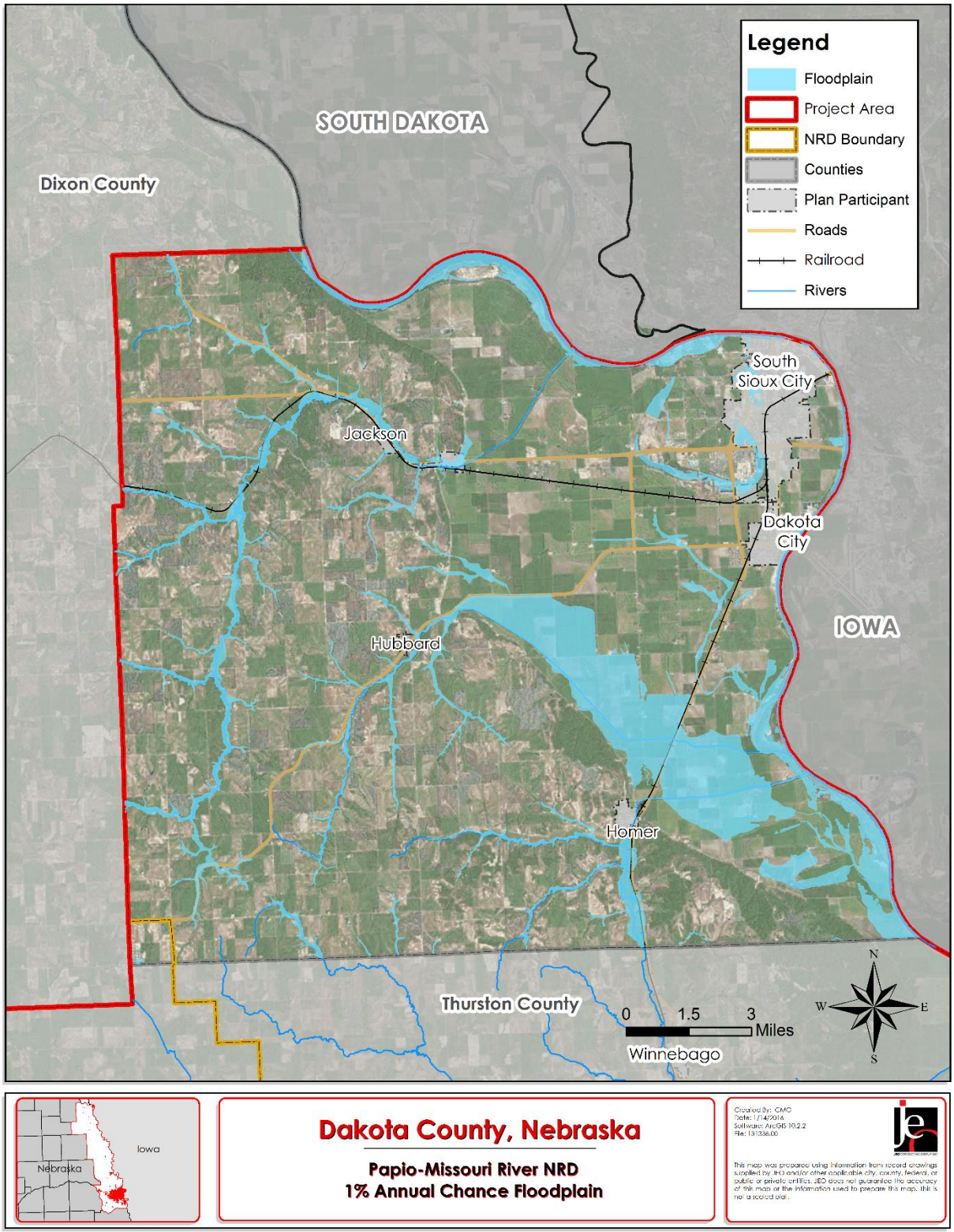


Figure DKC.10: Dakota County 1% Annual Chance Floodplain



Hail
Hail was ranked as a hazard of top concern for the county. A total of 42 hail events are reported by NCDC from across the county since 1996 with the largest hail stone reaching 3.00 inches. Hail of this magnitude can cause significant damage to property and crops. The hail storm that produced this size hail occurred in and near Hubbard on August 18, 2011 and caused $100,000 in property damages. It also caused widespread damages to area crops. The county encourages farmers to purchase crop insurance.

Implemented mitigation projects:
- County facilities are insured for hail
- Weather radios are available in critical facilities
- Severe weather awareness outreach opportunities

Identified mitigation projects:
- Continue public awareness and educational opportunities
- Install hail-resistant roofing on critical facilities

Severe Thunderstorms
The local planning team identified severe thunderstorms as a top concern for the county. NCDC reported 31 thunderstorm wind events between 1996 through 2015. Property and tree damage has been sustained in the past from severe thunderstorms as well as downed power lines.

Implemented mitigation projects:
- Surge protectors are utilities on electronic devices
- Weather radios are available in critical facilities
- Back-up power generator available at critical facilities
- Severe weather awareness outreach opportunities

Identified mitigation projects:
- Continue public awareness and educational opportunities
- Complete stream bank stabilization on Pigeon Creek
- Ditch clearing as needed to reduce flooding risk

Severe Winter Storms
Severe winter storms were identified by the local planning team as a top concern for the county. There were 58 reported winter storm zonal events by NCDC between 1996 and 2015. However, these events caused no reported damaged by the local planning team. However several winter storms, including a blizzard, occurred in December 2009 through January 2010 causing significant impacts to the region. These impacts included road closures, stranded motorists, low visibilities from blowing snow, and power outages.

Implemented mitigation projects:
- Snow equipment is sufficient
- Weather radios are available in critical facilities
- Severe weather awareness outreach opportunities

Identified mitigation projects:
- Continue to provide public awareness and educational opportunities
- Establish snow routes

Tornados and High Winds
The local planning team ranked tornados and high winds as a top hazard of concern for the county. According to the NCDC data, there were five tornados reported between 1996 and 2015. A tornado near Jackson destroyed farm buildings in 1996 and was rated an F-0. A second tornado near Jackson in 2001, rated an F-2, completely destroyed 10 houses and heavily damaged several other homes. A school, church, and telephone company building were also heavily damaged from the tornado. In addition, power lines, water service, and trees were destroyed in several areas. Three people were injured and total damages topped $3 million. The other three tornados were all rated F-0s and did not do any reported damage.

NCDC storm events database reports 17 high wind events occurred during the same time period. One event in 2012 had wind gusts reaching 60 mph across the county. Several trees were damaged and the siding to a home was also damaged five miles southwest of Jackson.

Implemented mitigation projects:

- Surge protectors are utilities on electronic devices
- Weather radios are available in critical facilities
- Back-up power generator available at critical facilities
- Severe weather awareness outreach opportunities

Identified mitigation projects:

- Continue public awareness and educational opportunities
- Upgrade, replace, and/or add tornado sirens

GOVERNANCE

A community's governance structure impacts its capability to implement mitigation actions. Dakota County is governed by a 5 member board of commissioners. The county also has the following offices and departments:

- County Assessor
- Emergency Management
- County Clerk
- Health Department
- Highway Superintendent
- Planning and Zoning
- Sheriff's Office
- Extension Office
- Weed Superintendent

According to the 2012 Census of Governments, there are 15 total general or special purpose governments located in Dakota County. The following table presents the number of governments by type. These are all potential mitigation partners and may be involved in implementing mitigation actions.

Table DKC.18: Governments in Dakota County

Level	Number
County	1
Municipal	5
Town or Township	0
Special District	7

Level	Number
Independent School District	5*

*Source: U.S Census, 2012 Table: ORG014, *Data provided by the local planning team*

CAPABILITY ASSESSMENT

The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey is used to gather information regarding the jurisdiction's planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability.

Table DKC.19: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (2014)
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Yes
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	Yes
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes
	GIS Coordinator	Contractor
	Chief Building Official	No
	Civil Engineering	No
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Contractor
	Other (if any)	Health Department
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	No
	Authority to Levy Taxes for Specific Purposes	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 and Outreach	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No

Survey Components/Subcomponents		Existing (Yes/No)
Capability	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
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

PLANS, DOCUMENTS, AND INFORMATION USED

Throughout the planning process, a number of studies, reports, and technical information has 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 Dakota County's participant section.

Table DKC.20: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2010
Comprehensive Plan	2014
Zoning Ordinances	2006

PLAN INTEGRATION

Building safe and stronger 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 resiliency. 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 paragraphs present a summary of the findings of this analysis.

The LEOP, which was last updated in 2010, is an all-hazards plan that does not address specific natural and man-made disasters. The plan provides clear assignment of responsibility in case of an emergency. It includes, as annexes, LEOPs for City of Dakota City, South Sioux City, Village of Emerson, Village of Homer, Village of Hubbard, and the Village of Jackson.

The county's Comprehensive Plan, which was updated in 2014, encourages that regulations should include flood control and storm water management into consideration while planning for development. The plan also states that the county plans to protect other natural resources including protecting the community from flooding and implementing wastewater management planning. Furthermore, the plan includes an objective to plan for both natural and man-made hazardous events, and utilize the Hazard Mitigation Plan to prioritize necessary improvements. The plan also includes utility planning that recommends the use of rain gardens and reducing and conserving water.

The zoning ordinances were updated in 2006 and includes an ordinance for the Special Flood Hazard District. The Zoning Ordinance contains flood fringe and floodway overlay districts that set conditions, as described in the floodplain ordinance, for land use within these districts. The ordinance requires all new construction or substantial improvements of residential structures have the lowest floor elevated to or above one foot above the base flood elevation. Development of residential structures in the floodway are prohibited.

MITIGATION STRATEGY

Completed Mitigation Actions

Description	**Remap Dakota County Floodplains**
Analysis	Update 100 year and 500 year floodplain maps
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flood
Location	Dakota County Zoning
Funding	FEMA
Year Completed	January 2012

Ongoing and New Mitigation Actions

Description	**Tree Management Plan**
Analysis	Develop a tree management plan and hire tree service firm to provide service
Goal/Objective	Goal 3/Objective 3.7
Hazard(s) Addressed	All
Estimated Cost	$40,000/year
Funding	County funds, Arbor Day Foundation, private donations
Timeline	2-5 years
Priority	Medium
Lead Agency	Roads Department
Status	Trees are removed as needed

Description	**Establish Snow Routes**
Analysis	Identify and mark designated snow routes
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$2,000
Funding	County funds, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Roads Department
Status	Not yet started

Description	**Stream Bank Stabilization for Pigeon Creek**
Analysis	Stabilize stream banks to reduce erosion in Pigeon Creek
Goal/Objective	Goal 3/Objective 3.2
Hazard(s) Addressed	Flood
Estimated Cost	$550,000
Funding	County funds, FMA, PDM
Timeline	1-3 years
Priority	High
Lead Agency	Planning and Zoning
Status	Not yet started

Description	**Ditch Clearing**
Analysis	Clear ditches to ensure proper drainage
Goal/Objective	Goal 3/Objective 3.5
Hazard(s) Addressed	Flood
Estimated Cost	Existing Staff
Funding	County Budget
Timeline	Ongoing
Priority	High
Lead Agency	Roads Department
Status	Ongoing project for the county

Description	**Alert/Warning Sirens**
Analysis	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking and remote activation.
Goal/Objective	Goal 1/ Objective 1.3
Hazard(s) Addressed	All hazards
Estimated Cost	$25,000+/siren
Funding	County funds, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Emergency Management
Status	Sirens are replaced or upgraded as needed.

Description	**Maintain Good Standing with NFIP**
Analysis	Maintain good standing with National Flood Insurance Program (NFIP) including floodplain management practices/ requirements and regulation enforcements and updates.
Goal/Objective	Goal 1/ Objective 1.1
Hazard(s) Addressed	Flooding
Estimated Cost	Existing Staff
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	Ongoing

Description	**Floodplain Regulation Enforcement/Updates**
Analysis	Continue to enforce local floodplain regulations for structures located in the 1 percent floodplain. Enforcement of the type of development and elevations of structures should be considered through issuance of building permits. Continue education of building inspectors or Certified Floodplain Managers
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding
Estimated Cost	$4,000+
Funding	HMGP, CDBG, P-MRNRD
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator and Zoning
Status	Ongoing

Description	Emergency Operations Center
Analysis	Identify and establish an Emergency Operations Center
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	County funds, HMGP, PDM
Timeline	5 years
Priority	Medium
Lead Agency	Emergency Management
Status	Not yet started.

Description	Dam Failure Exercise
Analysis	Conduct table top exercises to determine the response scenarios in the vent of dam failure
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	Dam failure
Estimated Cost	$10,000
Funding	County funds, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Emergency Management
Status	Not yet started.

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

CITY OF DAKOTA CITY

Papio-Missouri River NRD

Multi-Jurisdictional Hazard Mitigation Plan

February 2016

INTRODUCTION

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. 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's also provided in the Regional Section, but rather is specific information for Dakota City, including the following elements:

- Participation
- Location /Geography
- Climate
- 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 DAK.1 provides the list of participating members that comprised the Dakota 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 for the community, and prioritization of mitigation actions that address the hazards that pose a risk to the community.

Table DAK.1: Dakota City Local Planning Team

Name	Title	Department / Jurisdiction
Alyssa Silhacek	City Administrator	Dakota City
Stacey Janssen	Water/Wastewater Supervisor	Water and Wastewater Departments
Kurt Peterson	Maintenance Supervisor	Street, Parks, and Cemetery Department

PUBLIC PARTICIPATION

The local planning team made efforts 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.

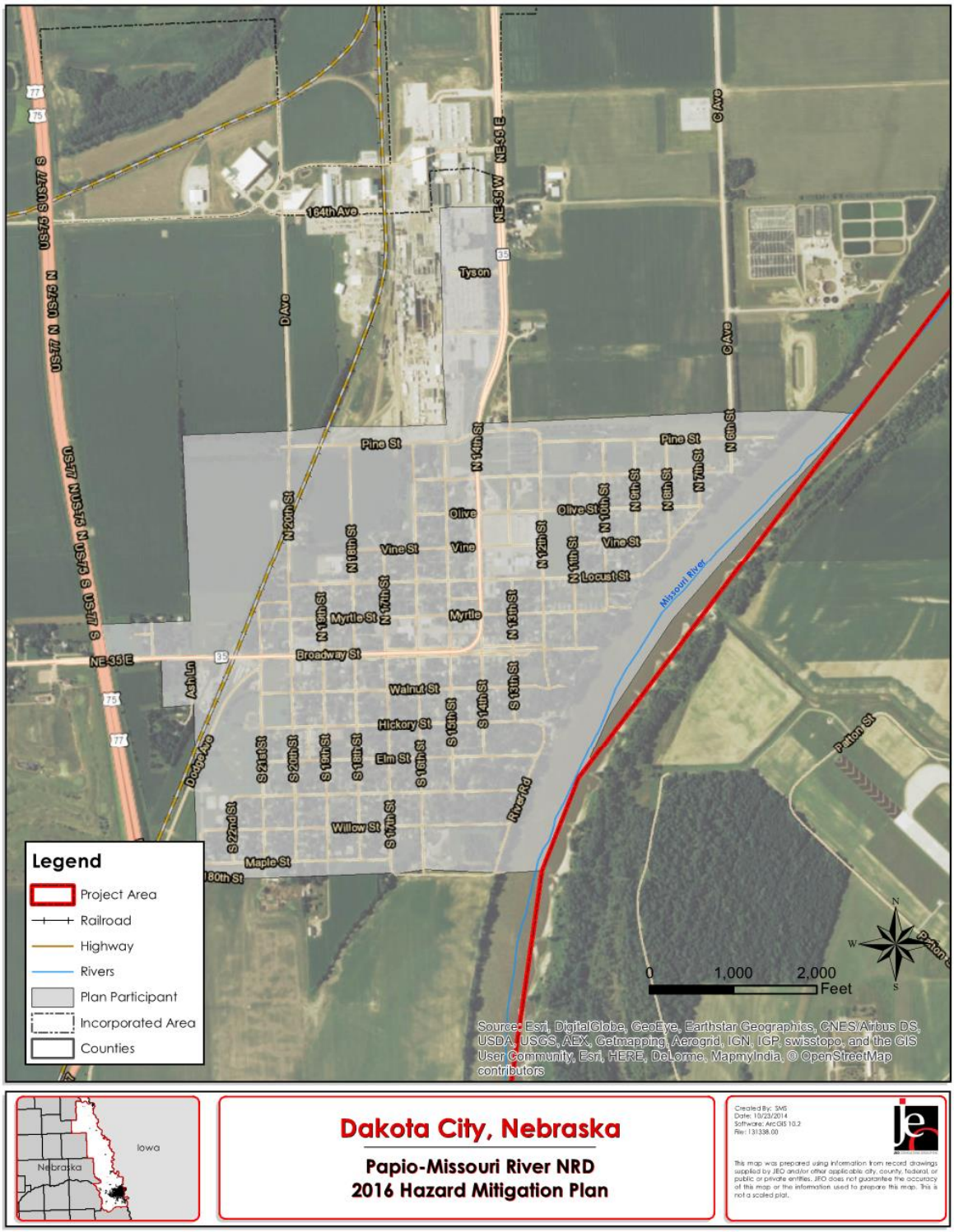
Table DAK.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
April 2, 2015	Passed Resolution of Participation	City Hall
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

Dakota City is located in the eastern portion of Dakota County and covers an area of 1.20 square miles. The major waterway in the community is the Missouri River, which forms the eastern boundary of the city.

Figure DAK.1: Map of Dakota City



CLIMATE

For Dakota City, the normal high temperature for the month of July is 85.5 degrees and the normal low temperature for the month of January is 10.2 degrees. On average, Dakota City gets 27.74 inches of rain and 34.8 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table DAK.3: Climate Data for Dakota City

Age	Dakota City	Planning Area	State of Nebraska
July High Temp	85.5°F	85.6°F	88.0°F
January Low Temp	10.2°F	11.8°F	12.0°F
Annual Rainfall	27.74 inches	30.64 inches	30.3 inches
Annual Snowfall	34.8 inches	31.2 inches	25.9 inches

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

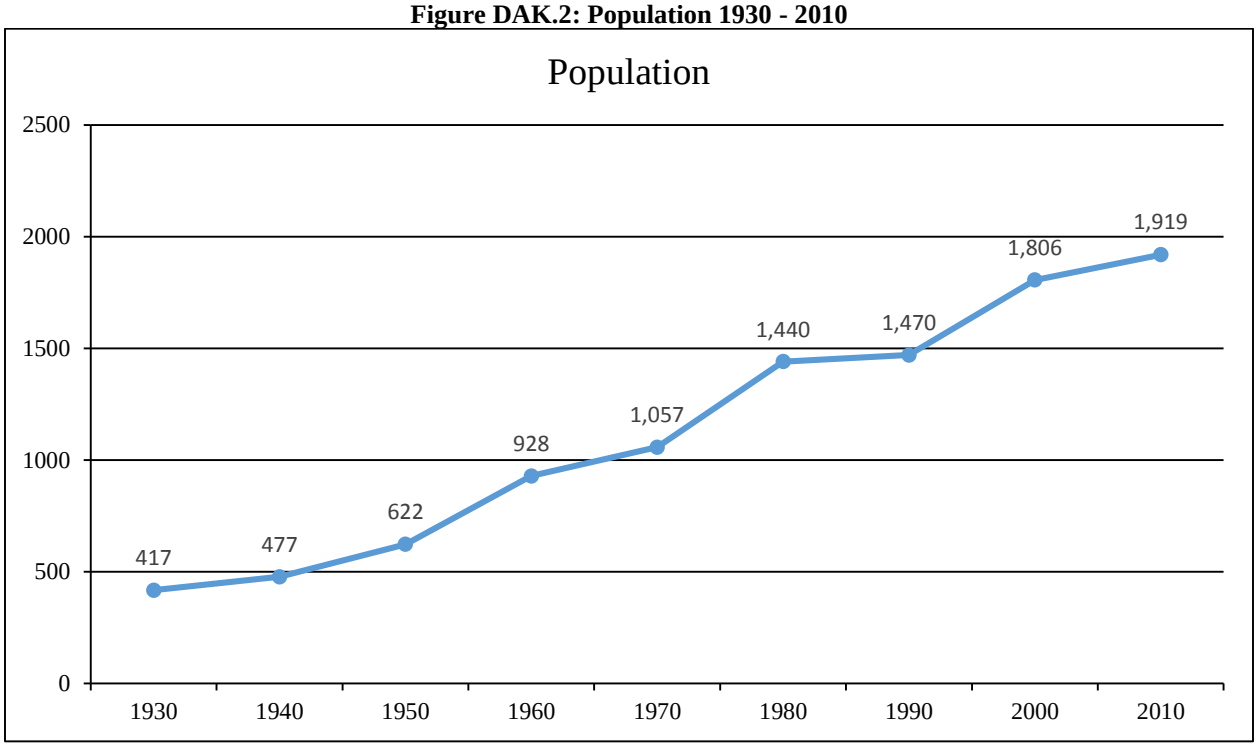
TRANSPORTATION

Dakota City's major transportation corridors include U.S. Highway 77, on the west side of town, and Nebraska Highway 35 (i.e. Broadway Street), which terminates at Dakota City. Both of these highways were identified by the local planning team as transportation routes of concern for the community. U.S. Highway 77 has 9,385 vehicles on average per day near the city with 1,325 of those being heavy commercial vehicles. Nebraska Highway 35 has 3,730 vehicles per day with 420 heavy commercial vehicles. The Burlington North Santa Fe Railroad has a rail line on the west side of the City. Also, the Nebraska Northeastern Railway Company has a rail line just north and west of the city. Unknown chemicals are regularly transported along local transportation routes. Critical facilities including the courthouse and Dakota City Elementary School are located along main transportation routes. 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 2010. This figure indicates that the population of Dakota City has been increasing since 1930. When population is increasing, areas of the city may experience housing developments or a lack of properties available for rent or to own. Increasing populations can also represent increasing tax revenue for the community, which could make implementation of mitigation actions possible.

Figure DAK.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates that Dakota City has a higher percentage of residents between the ages of 5 and 64 when compared to the county. Young 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 DAK.4: Population by Age

Age	Dakota City	Dakota County	State of Nebraska
<5	8.0%	8.9%	7.2%
5-64	82.5%	79.6%	79.2%
>64	9.6%	11.5%	13.6%
Median	36.4	32.6	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Dakota City's median household income is higher than the median income for the county. The median home value and rent are also lower than the county median. 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 resiliency to hazardous events.

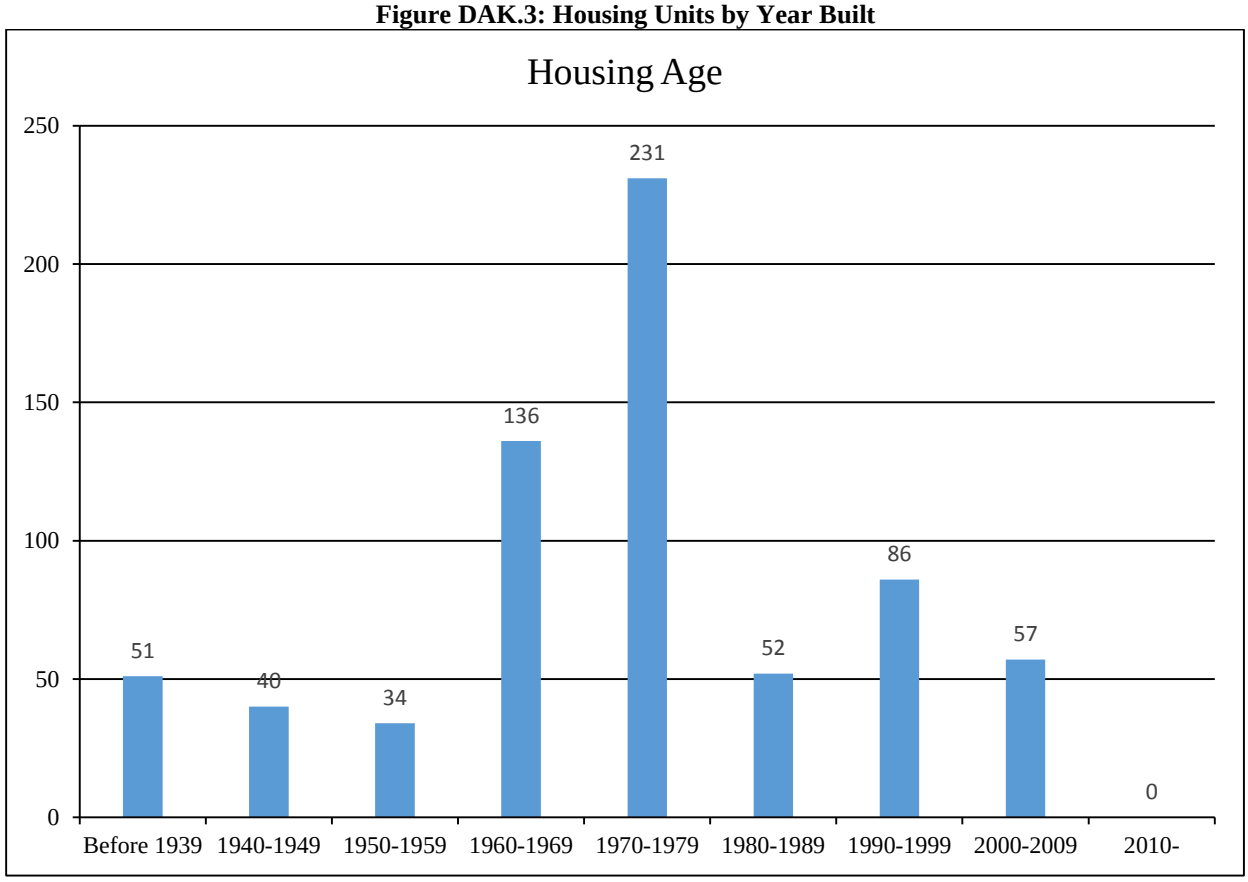
Table DAK.5: Housing and Income

	Dakota City	Dakota County	State of Nebraska
Median Household Income	$55,694	$47,069	$51,672
Per Capita Income	$21,210	$20,179	$26,899
Median Home Value	$98,000	$103,300	$128,000
Median Rent	$556	$703	$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2009-2013 ACS 5-year estimates, the community has 687 housing units with 95.9 percent of those units occupied. There are approximately 40 mobile homes, primarily located in the southwestern portion of community, and 74.7 percent of the community's housing was built before 1980. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. 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, tornados, and severe winter storms.

Figure DAK.3: Housing Units by Year Built



Source: Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

Table DAK.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Dakota City	659	95.9%	28	4.1%		518	78.6%	141	21.4%
Dakota County	7,309	95.2	367	4.8		4,710	64.4	2,599	35.6

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate

MAJOR EMPLOYERS

A major employer within the community is Tyson Foods, and the manufacturer is located on the north side of the community. A number of residents also commute to other communities for work. If a hazard event were to impact major employers, there would be significant economic impacts due to loss of income from lack of production.

FUTURE DEVELOPMENT TRENDS

According to the census data, Dakota City's population is steadily growing. The local planning team attributes this growth with the expansion of current businesses and the attraction of new businesses. Businesses that are attracting people to the area include: CF Industries, Tyson Foods, and Big Ox. Dakota Crossings is an established commercial/industrial park that will continue the growth of Dakota City. Furthermore, the Dakota County 2014 Comprehensive Plan notes that Dakota City plans to add industrial development to the west of F Avenue between 160th Street and 164th Street that will be along U.S. Highway 110. This provides access to the rail line. Although there is no new housing developments currently planned for the next five years, additional housing units are expected to be built to satisfy the needs of the growing population.

According to Dakota City's 2005 Comprehensive Plan, one of the future land use goals aims to conserve open space and environmentally sensitive lands; have easy access to employment, recreational and education facilities; and enable public services to be provided in an efficient manger. Furthermore, the objectives state that the city should continue to enforce building and housing codes, and target declining neighborhoods for revitalization through partnerships. The city's comprehensive plan also recommends the design of walking and bicycling paths to reduce the increasing reliance on automobiles.

PARCEL IMPROVEMENTS AND VALUATION

The planning team requested GIS parcel data from GIS Workshop, which the county hires to manage the County Assessor data. This data allowed the planning team to analyze 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 DAK.7: Parcel Improvements

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
625	$98,387,515	$157,420	17	$2,695,630

Source: GIS Workshop/Dakota County Assessor

Figure DAK.4: Developed Areas

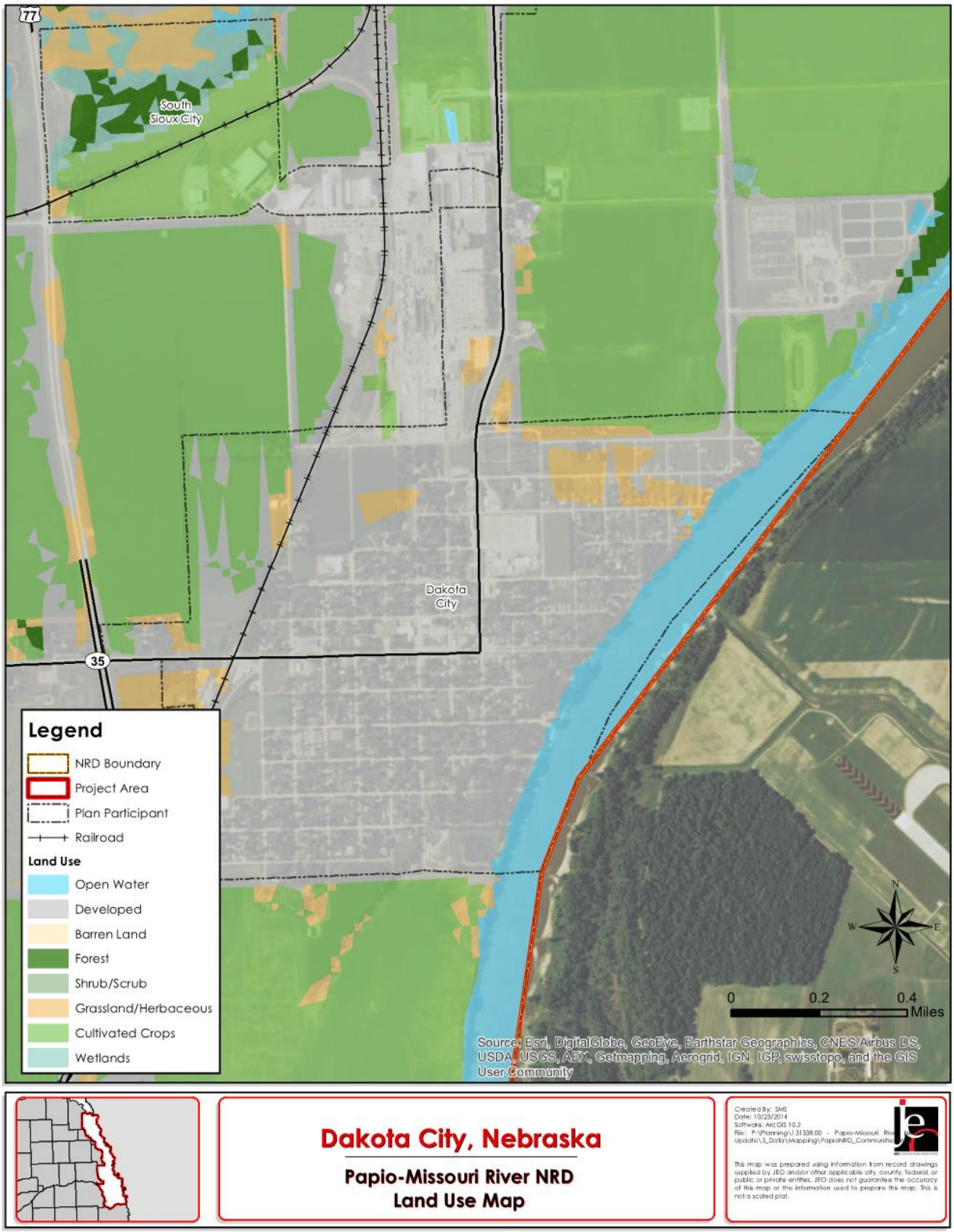
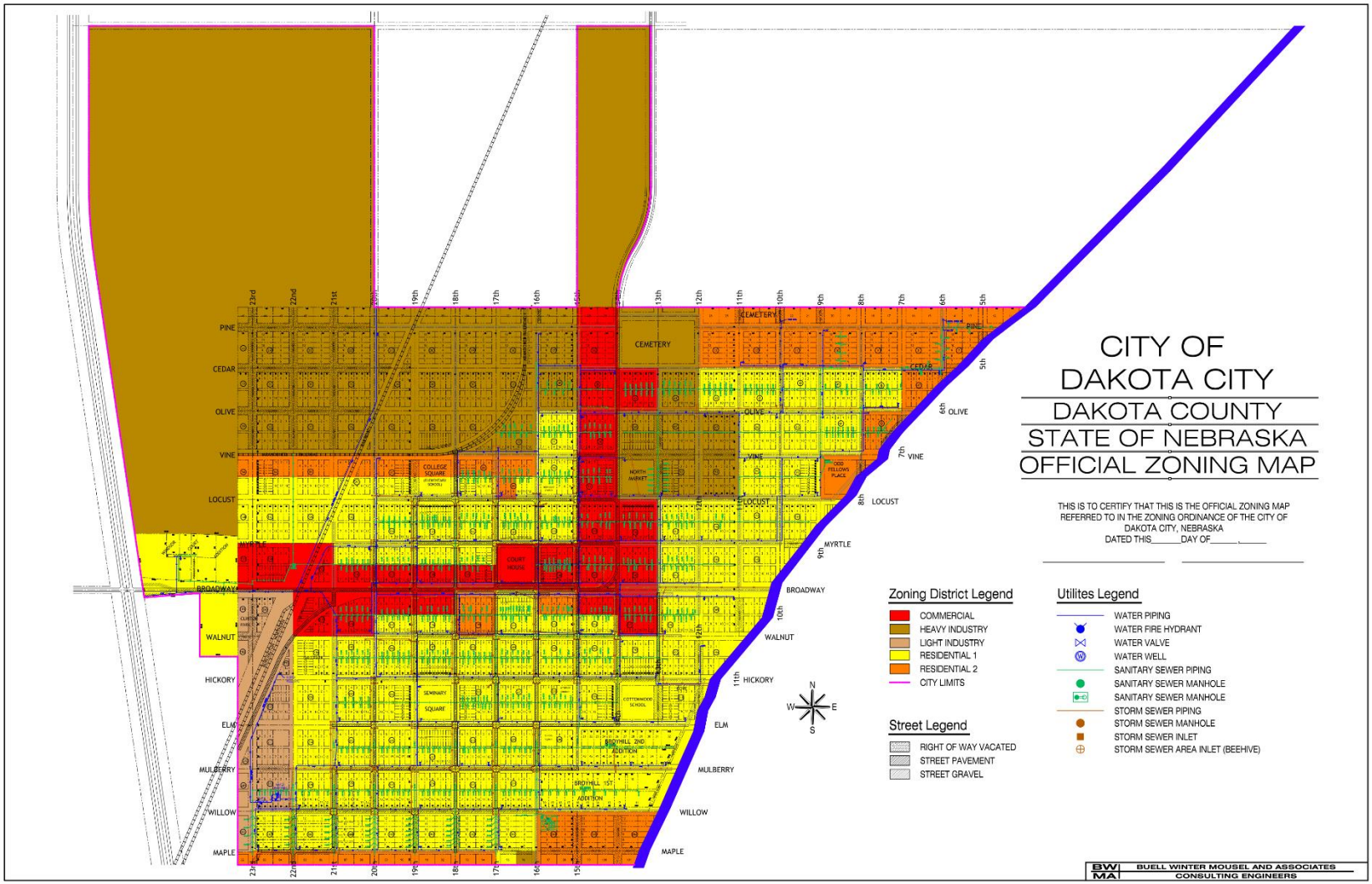


Figure DAK.5: Dakota City Zoning Map



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 4 chemical storage sites in Dakota City, and 3 of these house materials that are categorized as hazardous. The following table lists facilities that house hazardous materials only.

Table DAK. 8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
CCATT Dakota City IASC	1836 G Ave, Dakota City	Lead-acid Batteries
Elementis LTP LP	511 N. 20th St, Dakota City	Sulfuric Acid
Tyson Fresh Meats Inc	5200 IBP Ave, Dakota City	Microtox Solution, AF-8518 coagulant, Sulfuric Acid, Anhydrous Ammonia, Liquid Chlorine, Acid Brite

Source: Nebraska Department of Environmental Quality

Although no chemical spills have occurred locally, the hazard is a concern for the community. Critical facilities such as the courthouse are located near chemical fixed sites. Vulnerable populations such as the children of Dakota City Elementary are near fixed sites as well. Residents near fixed sites are not educated about the threat of chemical spills nor the appropriate response. The local fire department does not have the necessary hazmat protective gear to respond to a chemical spill.

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there is one historic site located in Dakota City, and it is not located in the floodplain.

Table DAK. 9: National Historic Registry

Site Name	Date Listed	In Floodplain?
Emmanuel Lutheran Church	10/15/1969	No

Source: Nebraska State Historical Society

CRITICAL FACILITIES

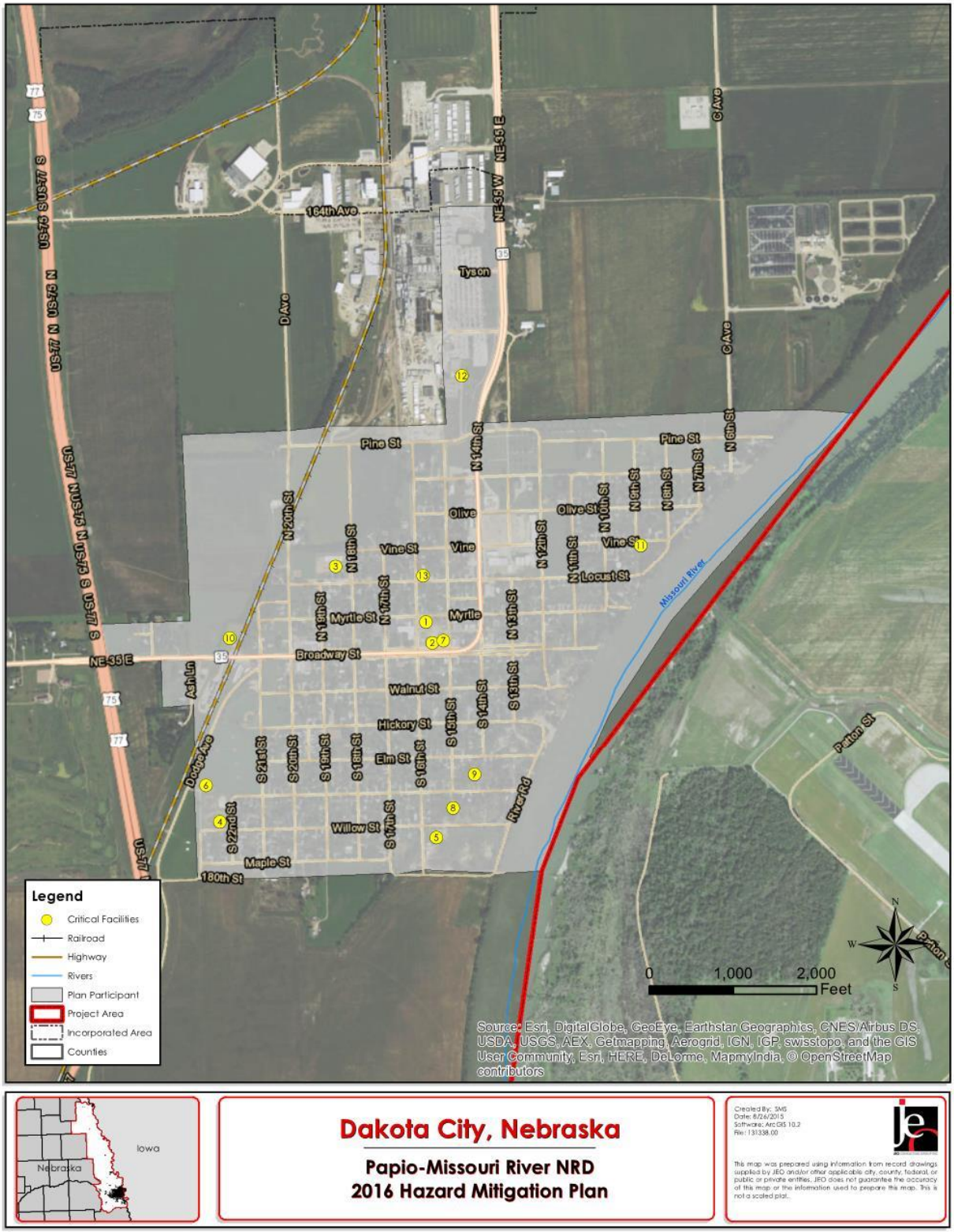
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated 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 DAK.10: List of Critical Facilities in Dakota City

CF Number	Type	Name	Address	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Fire Station	Dakota City Fire Station	1516 Myrtle St, Dakota City	N	N	N
2	Municipal Building	City Hall	1511 Broadway St, Dakota City	N	N	N
3	School	Dakota City Elementary School	1801 Locust St, Dakota City	Y	N	N
4	Water Facility	Dakota City Water Treatment Plant	22nd St. and Willow St, Dakota City	N	Y	N

CF Number	Type	Name	Address	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
5	Wastewater Facility	Dakota City Wastewater Treatment Plant	S. 16th St. and Willow St., Dakota City	N	Y	N
6	City Shop	Maintenance Shop	SW Dakota City (42.411192, -96.428334)	N	N	N
7	Water Facility	Rural Water Station	C Avenue, Dakota City	N	Unknown	N
8	Wastewater Facility	Broyhill N. Lift Station	S. 14th St., and Elm St, Dakota City	N	Unknown	N
9	Wastewater Facility	Broyhill S. Lift Station	S. 15th St., and Mulberry St, Dakota City	N	Unknown	N
10	Wastewater Facility	Broadway Lift Station	Broadway St (west of rail line), Dakota City	N	Unknown	N
11	Wastewater Facility	Odd Fellows Lift Station	N. 9th St. and Vine St., Dakota City	N	Unknown	N
12	Children Services	Siouxland Family Center	1401 Pine St, Dakota City	N	Unknown	N
13	School	Dakota City Methodist Church and Preschool	1523 Locust St, Dakota City	N	N	N

Figure DAK.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 17 severe weather events from January 1996 through July 2015. Refer to the table below for detailed information of each severe weather event including date, magnitude, and property damage.

The property damages from the NCDC Storm Events Database should be considered as broad estimates only. 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 Dakota County's participant section.

Table DAK.11: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
7/27/1996	Hail	1.00 in.	0	0	$5,000
7/27/1996	Thunderstorm Wind	50 kts.	0	0	$5,000
5/28/1998	Hail	0.75 in.	0	0	$0
6/23/1998	Hail	1.00 in.	0	0	$0
7/2/1999	Flash Flood	3.00 in.	0	0	Unknown
4/30/2001	Hail	0.75 in.	0	0	$0
4/7/2001	Thunderstorm Wind	61 kts. EG	0	0	$0
6/13/2001	Hail	1.75 in.	0	0	$0
6/13/2001	Hail	1.00 in.	0	0	$0
6/13/2001	Hail	1.75 in.	0	0	$0
8/17/2001	Hail	0.75 in.	0	0	$0
5/24/2004	Hail	0.75 in.	0	0	$0
3/30/2006	Thunderstorm Wind	52 kts. EG	0	0	$0
7/21/2008	Thunderstorm Wind	61 kts. EG	0	0	$0
6/7/2009	Hail	1.00 in.	0	0	$0
6/11/2010	Thunderstorm Wind	61 kts. EG	0	0	$10,000
8/31/2014	Thunderstorm Wind	61 kts. EG	0	0	$349,123*
		Total	**0**	**0**	**$369,123**

Source: January 1996-July 2015 NCDC
in. = inches; kts = knots; EG = Estimated Gust
**Damages for city-owned property and were provided by the local planning team*

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Dakota City. Refer to the beginning of *Section Seven: Participant Sections* for a detailed 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 DAK.12: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	No	-	Significant economic impacts
Agricultural Plant Disease	Yes	-	None
Chemical Spills (Fixed Site)	No	-	None
Chemical Spills (Transportation)	No	-	None
Civil Disorder	No	-	None
Dam Failure	No	-	Gavins Point Dam failure: 100% inundation
Drought	Yes	-	None
Earthquakes	No	-	None
Extreme Heat	Yes	-	None
Flooding*	Yes	Unknown	Residents living in flood-prone areas; damage to facilities
Grass/Wildfires	Yes	-	None
Hail*	Yes	$5,000	Damage to critical facilities
High Winds*	Yes	-	Damage to facilities; power outages
Landslides	No	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms	Yes	$15,000	None
Severe Winter Storms*	Yes	-	Damage to facilities; power outages; roadway closures
Terrorism	No	-	None
Tornados*	No	-	Damage to facilities; power outages; roadway closures
Urban Fire	No	-	None

**Identified by the local 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 Dakota City'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.

Agricultural Plant/Animal Disease

Although agricultural plant/animal disease is not one of the top five hazards for Dakota City, it is of concern particularly in the event of animal disease. If an outbreak of agricultural animal disease were to occur, there is the potential for significant economic impacts due to Tyson Foods production potentially going offline during an outbreak.

Implemented mitigation projects:

- Educational materials are available from the University of Nebraska-Lincoln Extension Office and NEMA
- The city has several notification methods available: Code Red, traditional media, and social media

Identified mitigation projects:

- Livestock management equipment such as portable corrals and chutes
- Protective gear for handling of potentially infected animals
- Traffic barricades for securing a quarantine zone

Dam Failure

Although not identified as one of the top concerns for Dakota City, the city could be impacted in the event of dam failure. If Gavins Point Dam located near Yankton, SD were to fail, Dakota City would approach 100 percent inundation as stated in the Dakota County Local Emergency Operations Plan. Gavins Point Dam is operated and regularly maintained by the U.S. Army Corps of Engineers.

Implemented mitigation projects:

- The local emergency operations plan is in place
- The city has several notification methods available: Code Red, traditional media, and social media
- The U.S. Army Corps of Engineers identified and repaired damages to the dam between 2012 and 2015, including: repairing gates, tailrace erosion protection, relief wells and horizontal outfalls, and spillway slab
- Bank stabilization repairs to the Missouri River were identified and repaired by the U.S. Army Corps of Engineers between 2012 and 2015

Identified mitigation projects:

- Conduct a dam failure exercise
- Provide education materials to residents

Flooding

Flooding was identified as a significant concern for the city due to the proximity to the Missouri River and the potential for property damages from flash flooding events. The NCDC Storm Events Database reported one flash flood event from July 1999. This particular event was caused by a heavy rain where 3 inches fell in about a half hour, flooding streets and some basements. The cost of damage done to homes and infrastructure was not available. Dakota City is a member of the NFIP, however there are no NFIP policies currently in-force. According to the NDNR, there are no repetitive flood loss properties in Dakota City.

Table DAK.13: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$2,695,630	16	625	2.56%

Source: GIS Workshop/Burt County Assessor

Implemented mitigation projects:

- Floodplain Management Ordinance which requires a one foot freeboard for all new construction or substantial improvements
- Member of the NFIP

- Bank stabilization repairs to the Missouri River were identified and repaired by the U.S. Army Corps of Engineers between 2012 and 2015
- The city will continue to work with the U.S. Army Corps of Engineers where river improvements are needed

Identified mitigation projects:

- Upgrade generators for lift stations
- Conduct a drainage study

Hail

Hail events can cause significant, widespread damages to critical facilities, business, and personal property. The NCDC reports 10 hail events in Dakota City with one of them causing $5,000 in property damages from broken windows. The largest hailstone size reported was 1.75 inches, however climatologically it is possible for hail to reach 2.50 inches or greater. Although, Dakota City does not have a local tree board, the city does have an informal group for identifying hazardous trees.

Implemented mitigation projects:

- Education on severe weather is offered by the community
- Code Red text alerts are offered through the County Emergency Management
- Informal group for identifying hazardous trees

Identified mitigation projects:

- Form a hazardous tree removal program
- Install hail resistant roofing
- Install protective barriers for HVAC at critical facilities

Severe Winter Storms

Severe Winter Storms are a regular part of the climate in Dakota City. The winter of 2009-2010 included several severe winter storms that greatly impacted the region, including Dakota City. The Christmas Winter Storm of 2009, which began on December 23rd and ended on the 26th, brought up to 20 inches of snow along with gusting winds over 40 mph. These winds in combination with the heavy snow produced widespread visibilities below a quarter mile during the event, making travel dangerous to impossible. Many of the roads became blocked and travel was brought to a standstill during a normally heavy travel period for the holidays. The city is responsible for snow removal but works with Dakota County to help clear and maintain roadways during and following a severe winter storm.

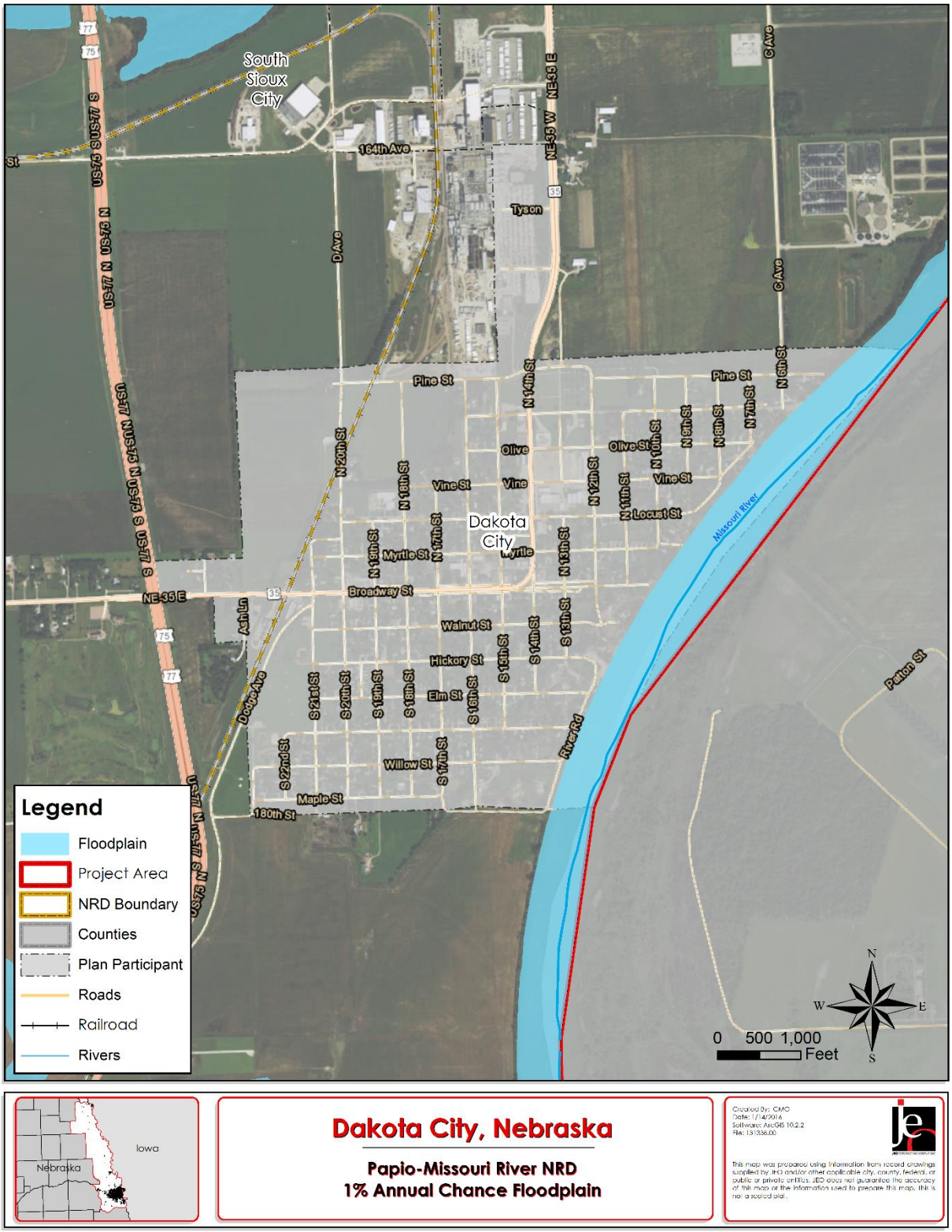
Implemented mitigation projects:

- Works with Nebraska Public Power District to bury power lines
- Back-up power generators at the water and wastewater treatment plants
- Two functioning, portable back-up power generators
- Education on severe weather is offered by the community

Identified mitigation projects:

- Obtain a permanent back-up power generator for City Hall and additional portable generators
- Become a Tree City USA community

Figure DAK.6: Dakota City 1% Annual Chance Floodplain



Tornados and High Winds
Tornados and high winds have the potential for significant damages and loss of life. Although there have been no reported tornados or funnel clouds at Dakota City since 1996, an F-1 tornado did impact the community in 1965 with unknown damages and is the only reported tornado since records began in 1950. High winds from severe thunderstorms have also occurred in Dakota City causing significant damages, from snapping tree branches or fallen trees. The local planning team identified the August 2014 thunderstorm wind event as causing heavy damage to buildings, trees, and gas lines. Some residents had to be evacuated from their homes due to possible gas leaks. City-owned property sustained $349,123 in property damages from this severe thunderstorm high wind event. One of the primary concerns for Dakota City regarding tornados and high winds is the lack of adequate shelter if an event were to occur. Additionally, the current tornado sirens are in need of replacement.

Implemented mitigation projects to address this hazard:
- Back-up power generators at the water and wastewater treatment plants
- Two functioning, portable back-up power generators
- Municipal records have a backup system
- Community has three tornado sirens
- Code Red text alerts are offered through the County Emergency Management
- Mutual aid agreements with neighboring communities
- Works with Nebraska Public Power District to bury power lines

Identified mitigation projects to address this hazard:
- Install a safe room or storm shelter in vulnerable areas
- Obtain a permanent back-up power generator for City Hall and portable generators for use around the community
- Upgrade, replace, and/or add tornado sirens
- Organize a local tree board

GOVERNANCE
A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Dakota City is governed by a mayor and a four member city council. Dakota City has a number of offices or departments that may be involved in implementing hazard mitigation initiatives, which includes but not limited to:

- City Administrator/Clerk/Treasurer
- Dakota City Fire and Rescue Department
- Parks & Recreation Board
- Board of Adjustment
- Planning and Zoning Board
- Water Department
- Wastewater Department
- Streets/Parks/Cemetery Department
- Economic Development

CAPABILITY ASSESSMENT
The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey

is used to gather information regarding the jurisdiction's planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability.

Table DAK.14: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Yes
	Economic Development Plan	No
	Emergency Operational Plan	Yes (County)
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes (County)
	GIS Coordinator	Yes (County)
	Chief Building Official	Yes
	Civil Engineering	Yes
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	No
	Authority to Levy Taxes for Specific Purposes	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 and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, 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
	Public-private partnership initiatives addressing disaster-related issues	No

Survey Components/Subcomponents		Existing (Yes/No)
	Other (if any)	

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 Dakota City's participant section.

Table DAK.15: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2010
Comprehensive Plan	2005
Zoning Ordinances	2012
Strategic Plan	2013

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 resiliency. 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 paragraphs present a summary of the findings of this analysis.

Dakota City participated in the 2011 Papio-Missouri River NRD Hazard Mitigation Plan, which was an update to the original 2006 plan. The 2011 HMP was referred to throughout the development of the 2016 HMP update.

The Local Emergency Operations Plan (LEOP) for Dakota City, which was last updated in 2010, is an annex of Dakota County's LEOP. It is an all hazards plan that does not address specific natural and man-made disasters. It provides a clear assignment of responsibility in case of an emergency.

The city's Comprehensive Plan was updated in 2005. It does include a floodplain map for the community, and it notes that the community does not have 1 percent or 0.2 percent annual floodplain with the developed areas of the city. The plan lists the dams constructed on the Missouri River providing relief from flooding. One of the objectives included in the plan is to develop a storm sewer system for a one percent annual chance flood event.

The zoning ordinances were updated in 2012 and includes an ordinance of the Zoning Overlay District Floodplain Management Ordinance. The ordinance contains flood fridge and floodway overlay districts that set conditions, as described in the floodplain ordinance, for land use within these districts. The ordinance requires all new construction or substantial improvements of residential structures have the lowest floor elevated to or above one foot above the base flood elevation. Development of residential structures in the floodway are prohibited.

MITIGATION STRATEGY
Ongoing or New Mitigation Actions

Description	Backup Generators
Analysis	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters. City Hall is in need of a stationary back-up generator and at least one portable generator is in need of replacement.
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$70,000+
Funding	Municipal budget, HMGP, PDM
Timeline	2-5 years
Priority	High
Lead Agency	City Administrator and Department Heads
Status	Not started

Description	Bury Power Lines
Analysis	Dakota City will work with the Nebraska Public Power District to identify vulnerable transmission and distribution lines across the community and plan to bury lines underground to be less vulnerable to storm events.
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Addressed	Tornados, High Winds, Severe Winter Storms, Severe Thunderstorms, Flooding
Estimated Cost	$50,000+
Funding	NPPD
Timeline	2-5 years
Priority	Low
Lead Agency	City Administrator
Status	Ongoing

Description	Siren Replacement
Analysis	Dakota City's three warning sirens are in need of updates or replacement and will continue to evaluate needs including the need for additional sirens.
Goal/Objective	Goal 1/Objective 1.3
Hazard(s) Addressed	All hazards
Estimated Cost	$28,000/siren
Funding	Municipal Budget
Timeline	2-5 years
Priority	Medium
Lead Agency	City Administrator, Dakota City Fire and Rescue Department
Status	Not started

Description	Community Safe Room
Analysis	Design and construct safe rooms to provide shelter during hazard events. Dakota City intends to include a safe room either at the new fire station when it is constructed or at the current fire station.
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados, High Winds, Severe Thunderstorms
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Municipal budget and county-wide sales tax established for fire and rescue improvements; HMGP, PDM
Timeline	2-5 years
Priority	High

Description	Community Safe Room
Lead Agency	Fire Department and City Administrator
Status	Not started

Description	Maintain Good Standing with the National Flood Insurance Program
Analysis	Maintain good standing with National Flood Insurance Program (NFIP) including floodplain management practices/ requirements and regulation enforcements and updates.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding
Funding	N/A
Timeline	Updated annually
Priority	High
Lead Agency	Floodplain Administrator/City Administrator
Status	Ongoing

Removed Mitigation Actions

Description	Stream Bank Stabilization
Analysis	Stabilization improvements including rock rip rap, vegetative cover, j-hooks, boulder vanes, etc. can be implemented to reestablish the channel banks, especially along the Missouri River. Channel stabilization can protect structures, increase conveyance and provide flooding benefits.
Reason for Removal	Such improvements are addressed as needed. The city will continue to work with the U.S. Army Corps of Engineers to see what and when improvements are needed.

PARTICIPANT SECTION
FOR THE

VILLAGE OF HOMER

Papio-Missouri River NRD

Multi-Jurisdictional Hazard Mitigation Plan

February 2016

INTRODUCTION

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. 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's also provided in the Regional section, but rather is specific information for the Village of Homer, including the following elements:

- Participation
- Location /Geography
- Climate
- 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 HMR.1 provides the list of participating members that comprised the Village of Homer 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 for the community, and prioritization of mitigation actions that address the hazards that pose a risk to the community.

Table HMR.1: Village of Homer Local Planning Team

Name	Title	Department / Jurisdiction
Elvin Vavra	Maintenance	Village of Homer

PUBLIC PARTICIPATION

The local planning team made efforts 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.

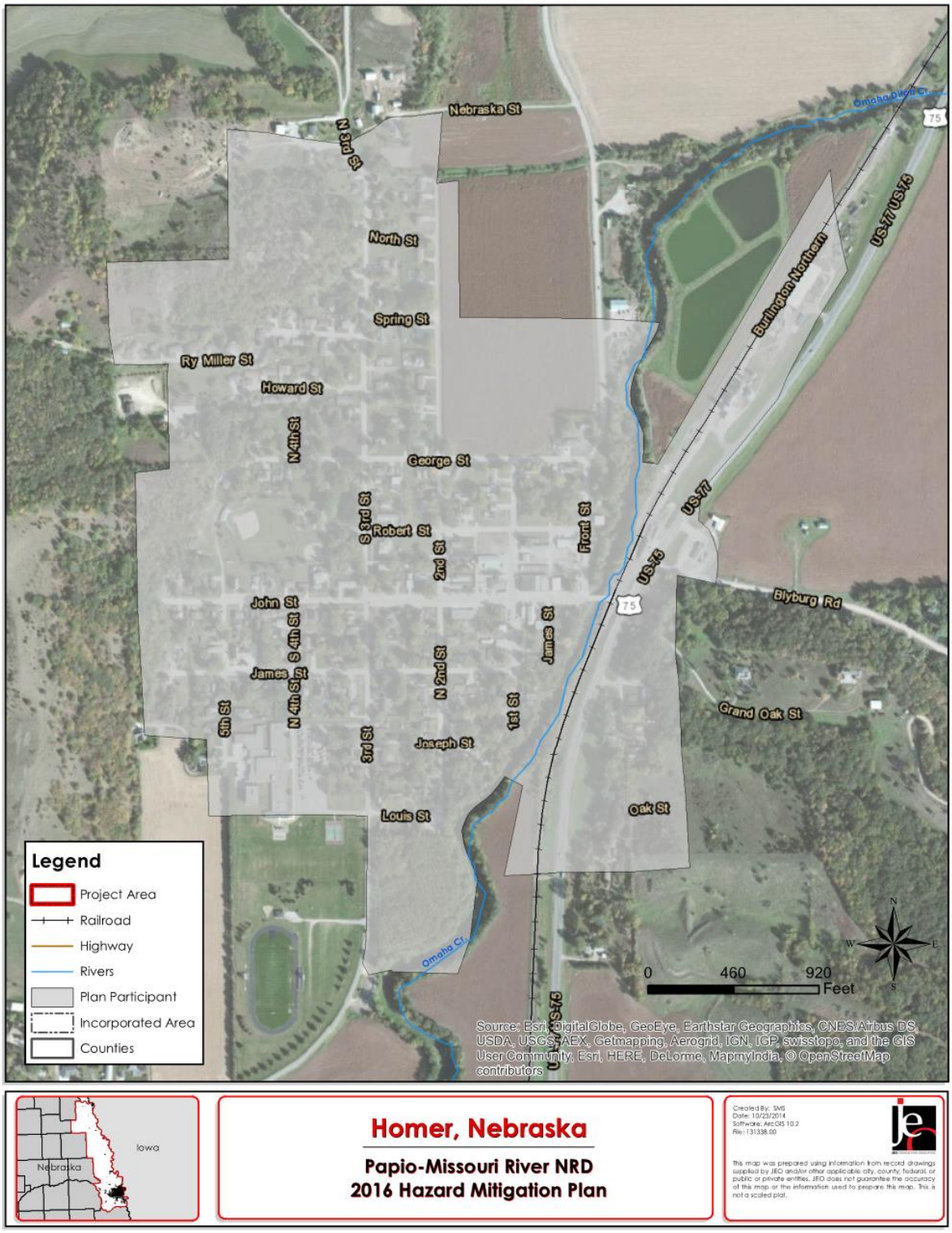
Table HMR.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
June 11, 2015	Passed Resolution of Participation	Village Board Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The Village of Homer is located in the southeastern portion of Dakota County and covers an area of 0.37 square miles. Major waterways in the area include the Omaha Creek and Fiddlers Creek.

Figure HMR.1: Map of the Village of Homer



CLIMATE

For the Village of Homer, the normal high temperature for the month of July is 85.5 degrees and the normal low temperature for the month of January is 10.2 degrees. On average, Homer gets 27.74 inches of rain and 34.8 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table HMR.3: Climate Data for the Village of Homer

Age	Homer	Planning Area	State of Nebraska
July High Temp	85.5°F	85.6°F	88.0°F
January Low Temp	10.2°F	11.8°F	12.0°F
Annual Rainfall	27.74 inches	30.64 inches	30.3 inches
Annual Snowfall	34.8 inches	31.2 inches	25.9 inches

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

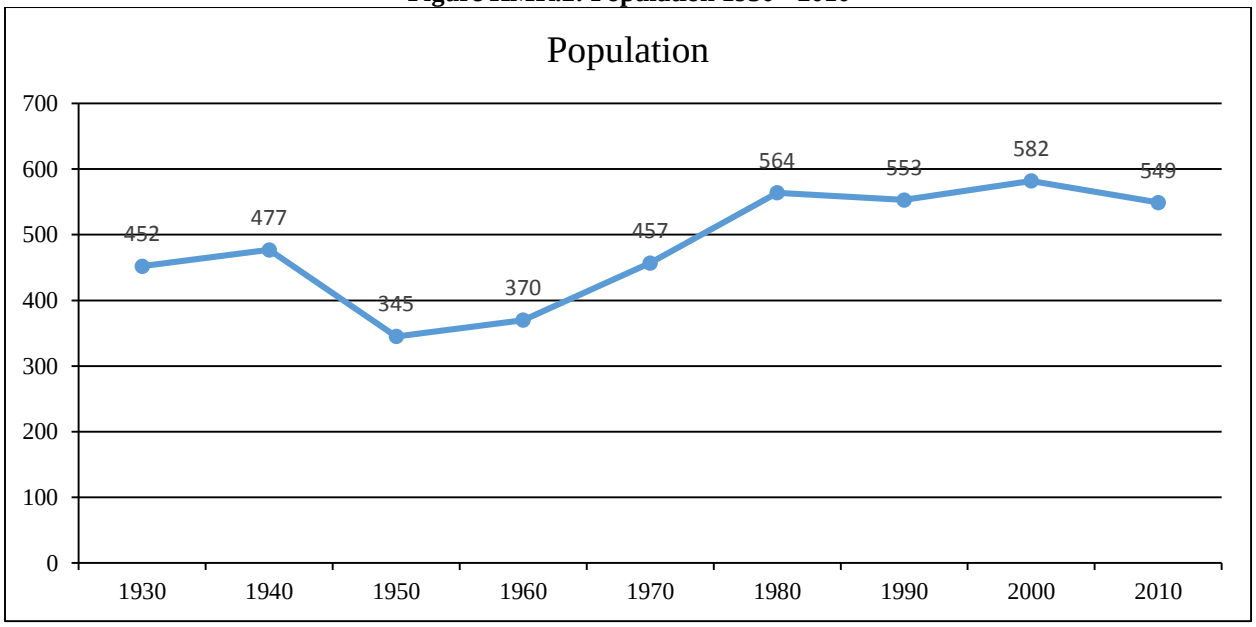
TRANSPORTATION

Homer's major transportation corridors include U.S. Highway 77 on the east side of town. This highway has 7,335 vehicles on average per day with 885 of those being heavy commercial vehicles. The Burlington Northern Santa Fe Railroad has a rail line which travels on the east side of the village. The Village of Homer noted that chemicals such as fuels and fertilizers are regularly transported via road and rail through the community. 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 2010. This figure indicates that the population of Homer has recently decreased by six percent between 2000 and 2010. This is notable for hazard mitigation because communities with declining population may have a higher level of unoccupied housing that is not being kept up. Furthermore, 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. Decreasing populations can also represent decreasing tax revenue for the county which could make implementation of mitigation actions more fiscally challenging.

Figure HMR.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates the Village of Homer has a significantly higher percentage of residents over the age of 64 when compared to the rest of the county. Young 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 HMR.4: Population by Age

Age	Homer	Dakota County	State of Nebraska
<5	8.8%	8.9%	7.2%
5-64	75.9%	79.6%	79.2%
>64	15.3%	11.5%	13.6%
Median	37.7	32.6	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Homer's median household income is higher when compared to the rest of the county. And the median home values are lower than the rest of the county. 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 resiliency to hazardous events.

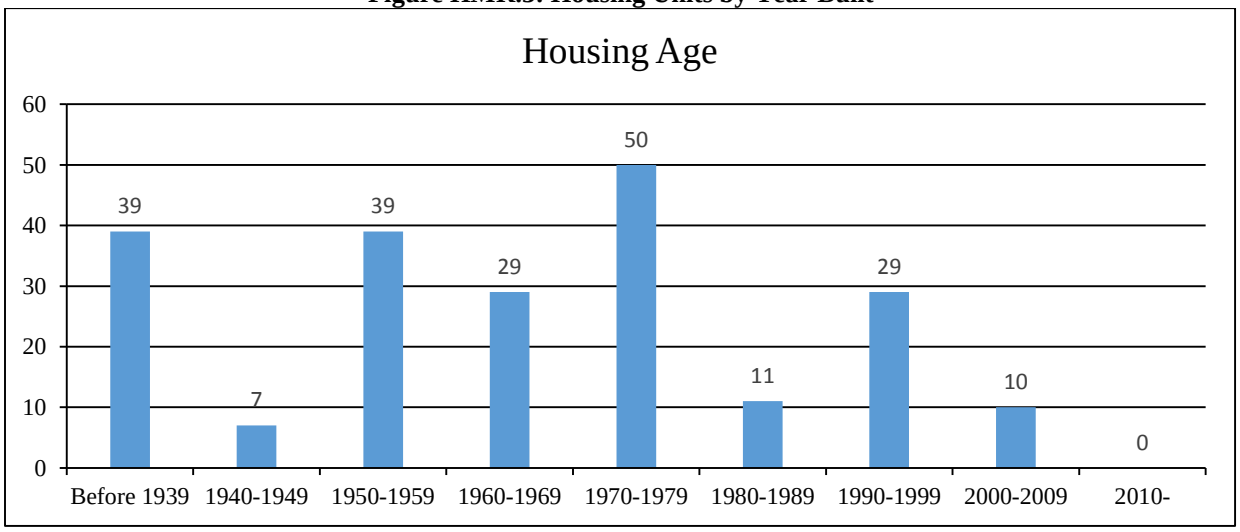
Table HMR.5: Housing and Income

	Homer	Dakota County	State of Nebraska
Median Household Income	$52,857	$47,069	$51,672
Per Capita Income	$22,123	$20,179	$26,899
Median Home Value	$92,700	$103,300	$128,000
Median Rent	$710	$703	$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

According to 2009-2013 ACS 5-year estimates, the community has 229 housing units with 96.6 percent of those units occupied. There are approximately 13 mobile homes in the community and 53.3 percent of the community's housing was built before 1970. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. 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, tornados, and severe winter storms.

Figure HMR.3: Housing Units by Year Built



Source: Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

Table HMR.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Homer	229*	96.6%	8	3.4%		220*	96.1%	9	3.9%
Dakota County	7,309	95.2	367	4.8		4,710	64.4	2,599	35.6

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate
**Data provided by the Village*

MAJOR EMPLOYERS

The major employer within the community is Homer Community School District which has a K-12 school located in the Village of Homer. A number of residents also commute to other communities for work, including South Sioux City, NE and Sioux City, IA. If a hazard event were to impact the school or transportation routes to surrounding communities impacted, there could be economic impacts due to the loss of income.

FUTURE DEVELOPMENT TRENDS

While there has been a decrease in population since 2000, the Village of Homer is seeing expansion of local business. The local planning team attributes the decrease of population to aging and relocation of younger population for school and work. The population decline is also associated with lack of affordable housing. The Dakota County Comprehensive plan recognizes the need for additional affordable housing in its communities, and private land development is identified as one of the goals for future development.

PARCEL IMPROVEMENTS AND VALUATION

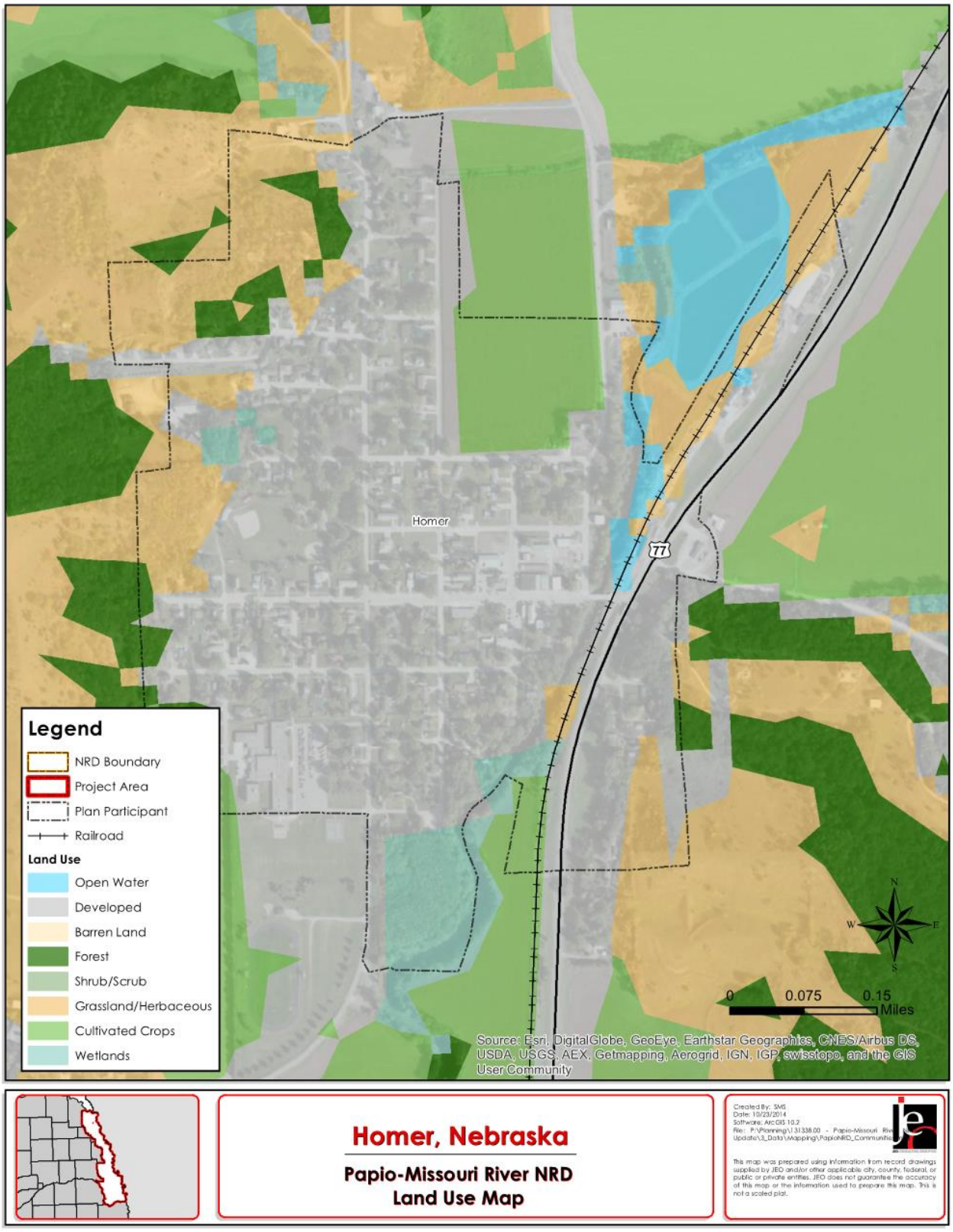
The planning team requested GIS parcel data from GIS Workshop, which the county hires to manage the County Assessor data. This data allowed the planning team to analyze the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

Table HMR.7: Parcel Improvements

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
218	$16,441,235	$75,419	4	$297,950

Source: GIS Workshop/Dakota County Assessor

Figure HMR.4: Developed Areas



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 in Homer. The village does not have any specific concerns related to chemical storage since there are none within the community. The Homer Fire and Rescue Department would be the first responders in the event of a chemical spill, but the fire department has limited gear available in the event of a spill.

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there are no historic sites located in Homer.

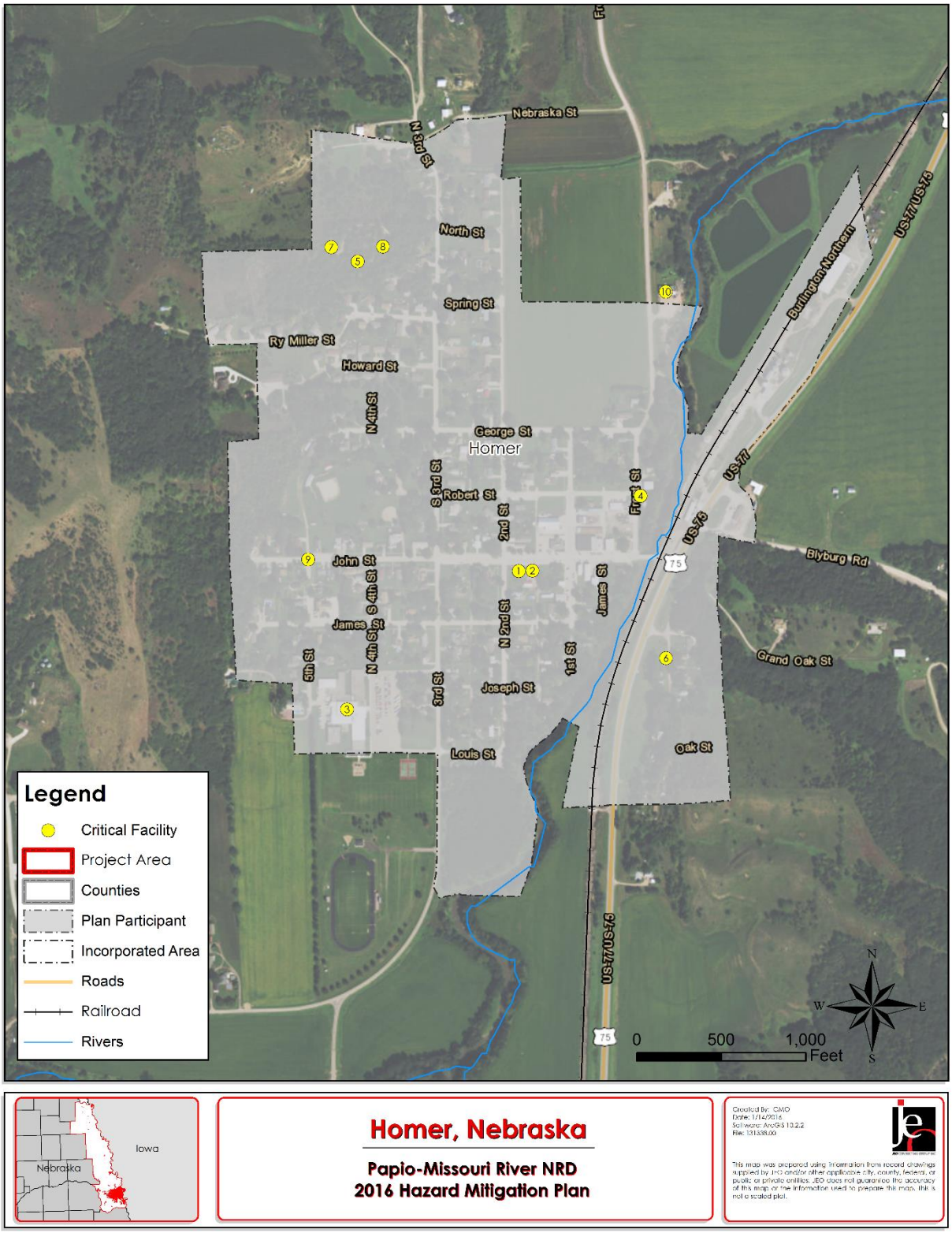
CRITICAL FACILITIES

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. Since Homer did not participate during the 2011 HMP, critical facilities were identified during the planning process by the local planning team. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table HMR.8: List of Critical Facilities in Homer

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Fire Station	Homer Fire and Rescue Department	112 John St., Homer	N	N	N
2	Municipal Building	Homer Village Office	110 John St, Homer	N	N	N
3	School	Homer Elementary and High School	212 S. 3rd, Homer	Y	N	N
4	Lift Station	Lift Station I	110 Front St, Homer	N	Y	N
5	Water Facility	Water Well 791	East 1st St, Homer	N	N	N
6	Lift Station	Lift Station II	East 1st St, Homer	N	N	N
7	Water Facility	Water Storage Tank	100 Front St, Homer	N	N	N
8	Water Facility	Water Well 671	100 Front St, Homer	N	Y	N
9	Water Facility	Water Well 951	5th & John Street, Homer	N	N	N
10	Municipal Building	Maintenance Shop	2346 S Bluff Rd, Homer	N	N	N
11	Wastewater Facility	Lagoons	Northeast of Village	N	N	N

Figure HMR.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 17 severe weather events from January 1996 through July 2015. Refer to the table below for detailed information of each severe weather event including date, magnitude, property damage, and crop damage.

The property damages from the NCDC Storm Events Database should be considered as broad estimates only. 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 Dakota County's participant section.

Table HMR.9: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
6/20/1996	Hail	1.75 in.	0	0	$0
6/29/1998	Thunderstorm Wind	52 kts.	0	0	$0
4/30/2001	Hail	1.00 kts.	0	0	$0
4/30/2001	Hail	1.75 in.	0	0	$0
4/30/2001	Hail	1.00 in.	0	0	$0
6/13/2001	Thunderstorm Wind	52 kts. EG	0	0	$0
7/25/2002	Thunderstorm Wind	61 kts. EG	0	0	$20,000
8/18/2003	Thunderstorm Wind	61 kts. EG	0	0	$10,000
5/21/2004	Thunderstorm Wind	61 kts. EG	0	0	$0
5/21/2004	Hail	1.75 in.	0	0	$0
6/24/2006	Hail	0.88 in.	0	0	$0
3/31/2007	Hail	1.00 in	0	0	$0
8/22/2007	Hail	1.00 in.	0	0	$0
8/22/2007	Flash Flood	Heavy Rain	0	0	$0
3/31/2007	Hail	1.00 in.	0	0	$0
7/21/2008	Thunderstorm Wind	61 kts. EG	0	0	$0
6/30/2014	Thunderstorm Wind	56 kts. EG	0	0	$0
		Total	**0**	**0**	**$30,000**

Source: January 1996-July 2015 NCDC
in. = inches; kts = knots; EG = Estimated Gust

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Homer. Refer to the beginning of *Section Seven: Participant Sections* for a detailed 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 HMR.10: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	No	-	None
Agricultural Plant Disease	Yes	-	None
Chemical Spills (Fixed Site)	No	-	None
Chemical Spills (Transportation)*	Yes	-	Chemicals transported along highways and by rail
Civil Disorder	No	-	None
Dam Failure	N/A	-	Not applicable
Drought*	Yes	-	Low producing wells; additional water supply needed
Earthquakes	No	-	None
Extreme Heat	Yes	-	None
Flooding	Yes	-	Proximity to creeks; previous flash flood event
Grass/Wildfires	Yes	-	Low water supply; aging pumper truck
Hail*	Yes	-	Property damage
High Winds	Yes	-	Damage to infrastructure
Landslides	No	-	None
Levee Failure	N/A	-	Not applicable
Radiological Incident (Fixed Site)	N/A	-	Not applicable
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$30,000	Power outage; property damage
Severe Winter Storms*	Yes	-	Emergency road access; damage to power lines
Terrorism	No	-	None
Tornados*	No	-	Lack of community storm shelter; damage to critical facilities
Urban Fire	Yes	-	Low water supply; aging pumper truck

**Identified by the local 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 Homer'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 Spills (Transportation) as one of the concerns for the Village of Homer based on the previous occurrence. According to the Pipeline and Hazardous Materials Safety Administration, ammonia vapor emission incident was recorded in the Village of Homer in 1994 that resulted from an auxiliary valve partial opening and leakage around the packing gland. No damage or injury was reported. The village is also aware that various types of fuels and fertilizers are regularly transported through the community along Highway 77 as well as the railroad.

Implemented mitigation projects:

- County uses Code Red text alert system

Identified mitigation projects:

- Conduct an emergency exercise drill on hazardous spills
- Civil service improvements
- Shelter in place training

Drought

Drought was identified as a significant concern for the Village of Homer due to its impact on wells and ground water levels as well as fire suppression. The most recent drought occurred during the summer of 2012 and extended into the winter. This drought was categorized as an extreme drought. The local planning team did not report any significant impacts which resulted during this event. While the village does not have a drought monitoring board, there are water rationing ordinances currently in place. The Village of Homer is in need of alternative water resources to support the existing two water wells that are low producing.

Implemented mitigation projects:

- Water rationing ordinance

Identified mitigation projects:

- Implement water system improvements

Extreme Heat

Extreme Heat was identified as a concern to the community due to the previous occurrences and the effect high temperatures can have on vulnerable populations. Community organizations such churches are available to assist vulnerable populations in the event of extreme heat weather. The local planning team shared continuing concern with power supply in the village during these events.

Implemented mitigation projects:

- A cooling shelter can be opened if needed

Identified mitigation projects:

- Obtain backup power generators based on identification and evaluation

Flooding

Flooding was identified as a concern for the Village of Homer based on the previous occurrences and the proximity of two creeks: Wigle Creek and Omaha Creek. Previous flooding occurrences include extensive rainfall over a large area causing extensive damage. The NCDC reported one flash flood event in 2007 that was caused by heavy rainfall. Heavy rain produced flooding of roads in and near the village blocking access to some businesses in town. Homer has 3 NFIP policies in-force for $1,060,000. There are no repetitive flood loss properties in the Village of Homer.

Table HMR.11: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$297,950	4	218	1.8%

Source: GIS Workshop/County Assessor

Implemented mitigation projects:

- Member of the NFIP
- County uses Code Red text alert system

Identified mitigation projects:

- Improve emergency communications
- Enforce floodplain regulations

Hail

Hail events can cause significant, widespread damages to critical facilities, business, and personal property. The NCDC reports 8 hail events in the Village of Homer with hailstone size ranging from 0.88 inches to 1.75 inches. It is possible, according to climatology, for hailstone size to reach 2.50 inches or greater. Although municipal critical facilities are insured, the local planning team expressed concern regarding a potential for property damage during hail events.

Implemented mitigation projects:

- Municipal facilities are insured for property damages

Identified mitigation projects:

- Provide weather radios, especially at critical facilities
- Civil service improvements

Severe Thunderstorms

Severe Thunderstorms are identified as a significant concern to the community due to the previous occurrences and reported property damage. Severe thunderstorms are part of regular climate in the region, including the Village of Homer. Severe thunderstorms recorded in 2002 and 2003 resulted in $30,000 of property damage. Severe thunderstorms combined with heavy rain can produce flash flood and power outages along with groundwater in basements. The local planning team reported that less than 1% of all power lines in the village of Homer are above ground. Although critical municipal records are protected with surge protectors on electronic devices, municipal office and fire station are in need of emergency back-up power generators.

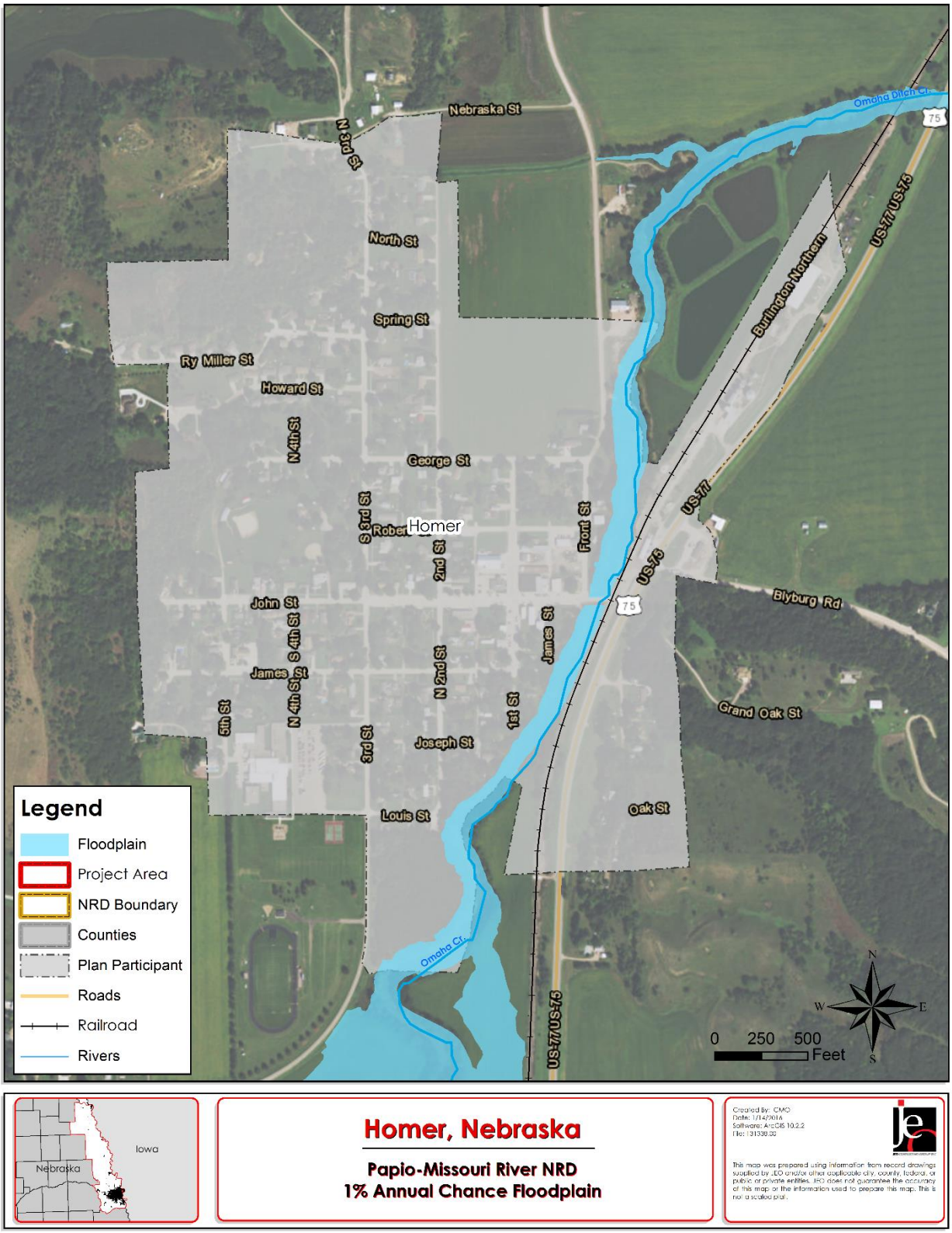
Implemented mitigation projects:

- Municipal records have backup systems and use surge protectors
- County uses Code Red text alert system

Identified mitigation projects:

- Obtain backup power generators based on identification and evaluation
- Construct a storm shelter/safe room

Figure HMR.7: Homer 1% Annual Chance Floodplain



Severe Winter Storms
Severe Winter Storms are part of the climate in the Village of Homer that causes disruption to transportation and power lines. The winter blizzards of 2009 and 2010 caused damage to communications services between well and water storage facility. During these storms, the local planning team expressed concern regarding transportation of medical patients and damage to electrical lines. The village is responsible for snow removal during and following a severe winter storm. Designated snow routes include Highway 77 and John Street, North and South 3rd Street to RyMiller.

Implemented mitigation projects:
- Snow routes identified

Identified mitigation projects:
- Obtain backup power generators based on identification and evaluation
- Improve emergency communications

Tornados
Tornados have the potential for significant damages and loss of life. Although there have been no reported tornados or funnel clouds in Homer since 1996, one of the concerns of the local planning team is the lack of adequate shelter if an event were to occur. Although no municipal facilities have been damaged by tornados winds in the past, the village of Homer has necessary data back-up systems for municipal records if an event were to occur. In the event of a tornado, the residents of the Village of Homer rely on basements as shelter. The Village of Homer relies on County Emergency Text Alerts and National Weather Services to notify the public about extreme weather events and weather conditions. In addition, the Village of Homer has a Mutual Aid Agreement with Nebraska Warn should a disaster occur.

Implemented mitigation projects:
- County provides Code Red text alerts
- Mutual Aid Agreement with Nebraska Warn
- County Emergency Operations Plan covers the Village of Homer

Identified mitigation projects:
- Identify location for and install a community safe room/storm shelter
- Obtain backup power generators based on identification and evaluation
- Improve emergency communications
- Improve warning systems to increase awareness of impending tornados

Urban Fire
The local planning team expressed concern with lower flow in elevated areas and lack of sprinkler systems in critical facilities in case of an urban fire event. Although there have been no reported Urban Fires since 1996 in Homer, there was a loss of a home in an elevated area. The Homer Volunteer Fire and Rescue Department reported to receive 13 fire calls in 2014 and has Mutual Aid Agreements with Emerson/Hubbard, Dakota City, Winnebago, South Sioux City, Bancroft/Rosalie, Ponca, Martinsburg, Laurel, Allen, Walthill, Wakefield, and Wayne Fire Departments. Although the Homer Fire Department has sufficient resources/equipment, the department is working to replace an aging pumper truck.

Implemented mitigation projects:
- Mutual Aid Agreements with neighboring fire departments
- Identified need for new pumper truck

Identified mitigation projects:

- Civil service improvements
- Implement water system improvements

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 Homer is governed by a four member village board and a chairperson. Homer has limited staff and departments that may be involved in implementing hazard mitigation initiatives, which include but is not limited to:

- Clerk/Treasurer
- Fire Department
- Sewage Plant Operator
- Water Operator

CAPABILITY ASSESSMENT

The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey is used to gather information regarding the jurisdiction's planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability.

Table HMR.12: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Under Development
	Economic Development Plan	No
	Emergency Operational Plan	Yes-County
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes-County
	GIS Coordinator	No
	Chief Building Official	Yes-County
	Civil Engineering	No
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes-County
	Grant Manager	No

Survey Components/Subcomponents		Existing (Yes/No)
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	No
	Authority to Levy Taxes for Specific Purposes	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	Yes
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, 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
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

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 Homer's participant section.

Table HMR.13: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Local Emergency Operations Plan (LEOP)	2010

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 resiliency. 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 paragraph presents a summary of the findings of this analysis.

The Local Emergency Operations Plan (LEOP) for Homer, which was last updated in 2010, is an annex of Dakota County's LEOP. It is an all hazards plan that does not address specific natural and man-made disasters. It provides a clear assignment of responsibility in case of an emergency.

MITIGATION STRATEGY
New Mitigation Actions

Description	Alert/Warning Sirens
Analysis	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking and remote activation.
Goal/Objective	Goal 1/ Objective 1.3
Hazard(s) Addressed	All hazards
Estimated Cost	$23,000
Funding	Local taxes, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board
Status	Not started

Description	Weather Radios
Analysis	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	Flood, Thunderstorm, High Wind, Hail, Tornado, Severe Winter Storm
Estimated Cost	$50/radio
Funding	Local taxes, HMPG
Timeline	Ongoing
Priority	Low
Lead Agency	Village Board
Status	Ongoing

Description	Civil Service Improvements
Analysis	Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This includes ATV's, fire trucks, water tanks/trunks, snow removal equipment, etc.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	Varies
Funding	Local taxes, Fire Department, HMGP
Timeline	2-5 years
Priority	High
Lead Agency	Village Board, Fire Department
Status	Not started

Description	Back-up Power Generator
Analysis	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters.
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	Local taxes, HMGP, PDM
Timeline	2-5 years
Priority	High
Lead Agency	Village Board, Fire Department
Status	Fire Department is in need of a generator.

Description	Emergency Communication
Analysis	Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. Establish inner-operable communications
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$10,000
Funding	Local taxes, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board
Status	Not started

Description	Emergency Fuel Supply Plan
Analysis	Plan to ensure adequate fuel supply is available during an emergency. Actions might include: prioritization and rationing plan for gasoline and diesel uses in extended loss of fuel supply or electric power supply; a plan to purchase local fuel supply, etc.
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$5,000
Funding	Local taxes, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Board
Status	Not started

Description	Update Comprehensive Plan
Analysis	Update comprehensive plan. Integrate plan with Hazard Mitigation Plan components.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	All hazards
Estimated Cost	Staff Time
Funding	N/A
Timeline	1-2 years
Priority	High
Lead Agency	Village Board
Status	Not started

Description	Intergovernmental Support
Analysis	Support other local governmental entities, such as fire departments, schools, and townships in the identification and pursuit of mitigation actions.
Goal/Objective	Goal 4/ Objective 4.2
Hazard(s) Addressed	All hazards
Estimated Cost	Staff Time
Funding	N/A
Timeline	2-5 years
Priority	High
Lead Agency	Village Board
Status	Not started

Description	Emergency Exercise: Hazardous Spill
Analysis	Utilize exercise to prepare for potential explosions or hazardous spills. Ensure that nearby businesses and residents have appropriate plans in place.
Goal/Objective	Goal 1/ Objective 1.5

Description	**Emergency Exercise: Hazardous Spill**
Hazard(s) Addressed	Chemical spills
Estimated Cost	$5,000+
Funding	Local taxes
Timeline	2-5 years
Priority	High
Lead Agency	Village Board
Status	Not started

Description	**Shelter in Place**
Analysis	Provide shelter in place training to facilities housing vulnerable populations (nursing homes, childcare facilities, schools, etc.)
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	Chemical spills
Estimated Cost	Staff Time
Funding	N/A
Timeline	2-5 years
Priority	High
Lead Agency	Village Board
Status	Not started

Description	**Land Use Regulations**
Analysis	Develop land use ordinances and regulations to prevent storage of chemicals near residential developments.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Chemical spills
Estimated Cost	Staff Time
Funding	N/A
Timeline	2-5 years
Priority	High
Lead Agency	Village Board
Status	Not started

Description	**Implement Water System Improvements**
Analysis	Jurisdictions can update/improve water distribution system. This may include but is not limited to: identifying and replacing leaky pipes, assisting homeowners in identifying inefficiencies, and transitioning to smart irrigation systems.
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	Drought
Estimated Cost	Varies
Funding	Local taxes
Timeline	1-3 years
Priority	High
Lead Agency	Village Board
Status	Not started

Description	**Tornado Shelters/Safe Rooms**
Analysis	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, schools, and other areas
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornado
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Local taxes, HMGP, PDM

Description	**Tornado Shelters/Safe Rooms**
Timeline	5+ years
Priority	Medium
Lead Agency	Village Board
Status	Not started

Description	**Floodplain Regulation Enforcement/Updates**
Analysis	Continue to enforce local floodplain regulations for structures located in the 1 percent floodplain. Enforcement of the type of development and elevations of structures should be considered through issuance of building permits. Continue education of building inspectors or Certified Floodplain Managers
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding
Estimated Cost	$4,000+
Funding	HMGP, CDBG, P-MRNRD
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator and Zoning
Status	Ongoing

PARTICIPANT SECTION
FOR THE

VILLAGE OF JACKSON

Papio-Missouri River NRD

Multi-Jurisdictional Hazard Mitigation Plan

February 2016

INTRODUCTION

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. 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's also provided in the Regional section, but rather is specific information for the Village of Jackson, including the following elements:

- Participation
- Location /Geography
- Climate
- 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 JKN.1 provides the list of participating members that comprised the Village of Jackson 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 for the community, and prioritization of mitigation actions that address the hazards that pose a risk to the community.

Table JKN.1: Village of Jackson Local Planning Team

Name	Title	Department / Jurisdiction
Donna Hirsch	Village Clerk	Village of Jackson

PUBLIC PARTICIPATION

The local planning team made efforts 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 JKN.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
August 25, 2015	Post Project Flyer	Village Hall; Post Office
October 5, 2015	Passed Resolution of Participation	Board Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The Village of Jackson is located in the north-central portion of Dakota County and covers an area of 0.45 square miles. The major waterway in the village is Elk Creek, which flows through the southern portions of the village.

Figure JKN.1: Map of the Village of Jackson

CLIMATE

For Jackson, the normal high temperature for the month of July is 85.5 degrees and the normal low temperature for the month of January is 10.2 degrees. On average, Jackson gets 27.74 inches of rain and 34.8 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table JKN.3: Climate Data for the Village of Jackson

Age	Jackson	Planning Area	State of Nebraska
July High Temp	85.5°F	85.6°F	88.0°F
January Low Temp	10.2°F	11.8°F	12.0°F
Annual Rainfall	27.74 inches	30.64 inches	30.3 inches
Annual Snowfall	34.8 inches	31.2 inches	25.9 inches

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

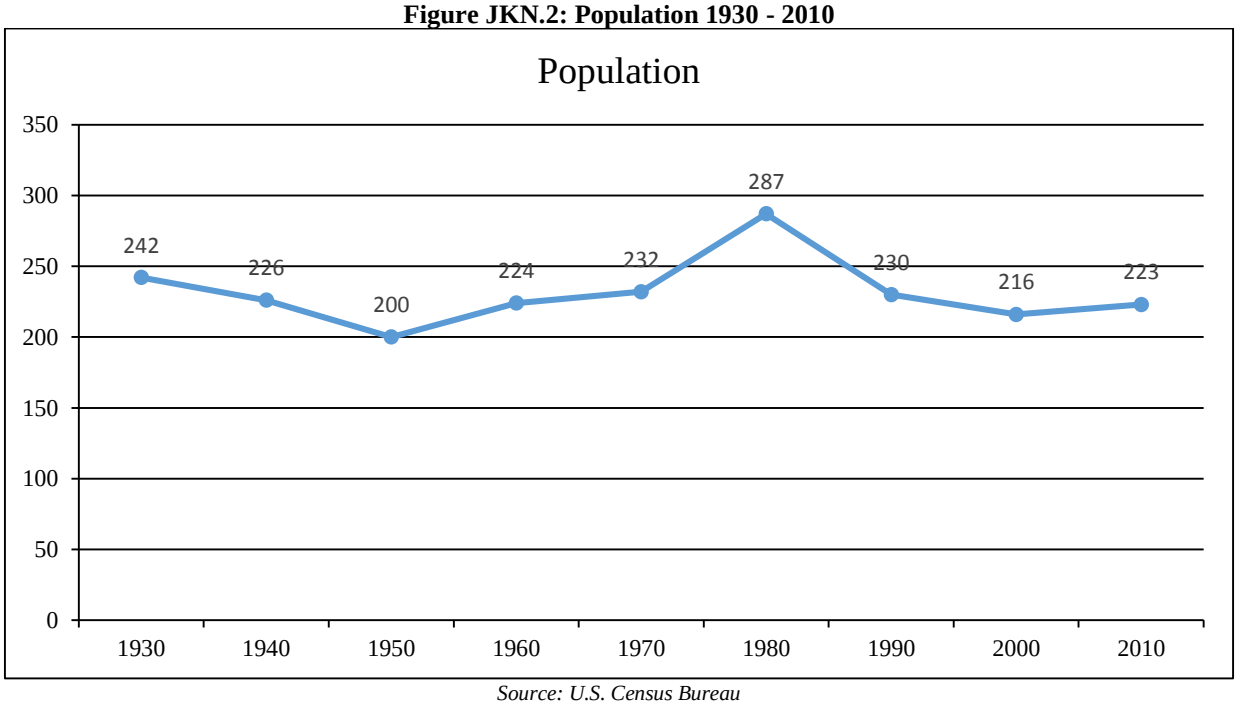
TRANSPORTATION

Jackson's major transportation corridors include U.S. Highway 20. The average number of vehicles on this highway per day is 6,410 with 1,345 of those being heavy commercial vehicles. The Nebraska Northeastern Railway Company has a rail line which travels 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. The village is concerned with ethanol transported from the Siouxland Ethanol Plant by rail on the west side of the village and also fuel tankers transported on Highway 20. Critical facilities that located near these transported routes include the school, which is located two blocks north off of Highway 20, and the Fire Hall, which is located one block south of Highway 20.

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Jackson has recently increased slightly between 2000 and 2010. When population is increasing, areas of the city may experience housing developments or a lack of properties available for rent or to own.

Figure JKN.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates that the Village of Jackson has a significantly higher percentage of residents over the age of 64 when compared to the rest of the county. 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 JKN.4: Population by Age

Age	Jackson	Dakota County	State of Nebraska
<5	1.6%	8.9%	7.2%
5-64	76.5%	79.6%	79.2%
>64	21.9%	11.5%	13.6%
Median	46.4	32.6	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Jackson's median household income is almost $6,000 less than the county's median income. The median home value and rent are also lower when compared to the rest of the county. 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 resiliency to hazardous events.

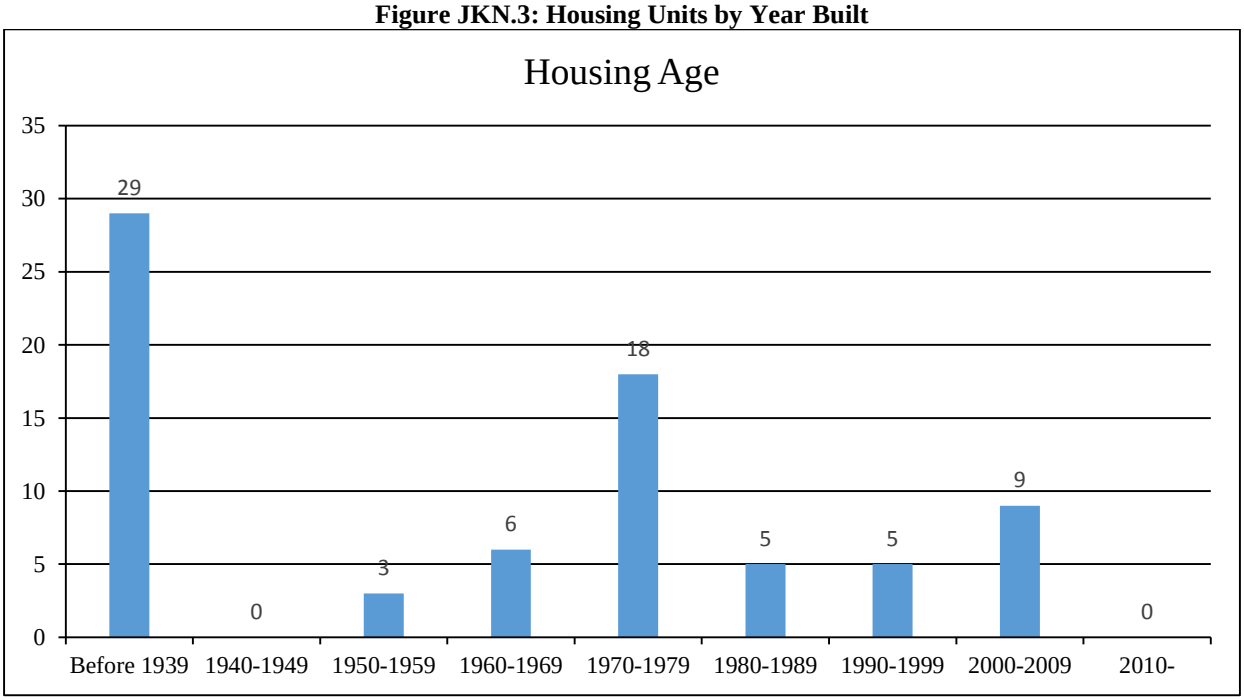
Table JKN.5: Housing and Income

	Jackson	Dakota County	State of Nebraska
Median Household Income	$41,250	$47,069	$51,672
Per Capita Income	$19,727	$20,179	$26,899
Median Home Value	$94,000	$103,300	$128,000
Median Rent	$592	$703	$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

The following figure indicates that the majority of the housing in Jackson was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 75 housing units with 100 percent of those units occupied. There are approximately 4 mobile homes in the community on the southwest side of the village, and 50.7 percent of the community's housing was built before 1970. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur.

Figure JKN.3: Housing Units by Year Built



Source: Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

Table JKN.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Jackson	75	100%	0	0%		62	82.7%	13	17.3%
Dakota County	7,309	95.2	367	4.8		4,710	64.4	2,599	35.6

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate

MAJOR EMPLOYERS

Major employers for residents in the Village of Jackson are: Siouxland Ethanol, Jackson Express, Ponca Public School District, Gill Construction, Northeast Nebraska Telephone Company, and Bank of Dixon County. A large percentage of residents also community to South Sioux City and Sioux City, Iowa for work.

FUTURE DEVELOPMENT TRENDS

According to census, the Village of Jackson experienced a slight growth in population from 2000 to 2010. The local planning team attributes the steady population or slight growth to CF Industries and the general growth that the area has been experiencing. Since most of the housing stock in Jackson was built prior to 1939 and has 100% occupancy, minimal housing development can be expected in the future. The local planning team did note the housing shortage, but the village does not anticipate any future housing developments or new businesses in the next five years. There was an expansion of the Siouxland Ethanol Plant and a new business, Jackson Express, started in the village over the last five years.

Figure JKN.4: Developed Areas

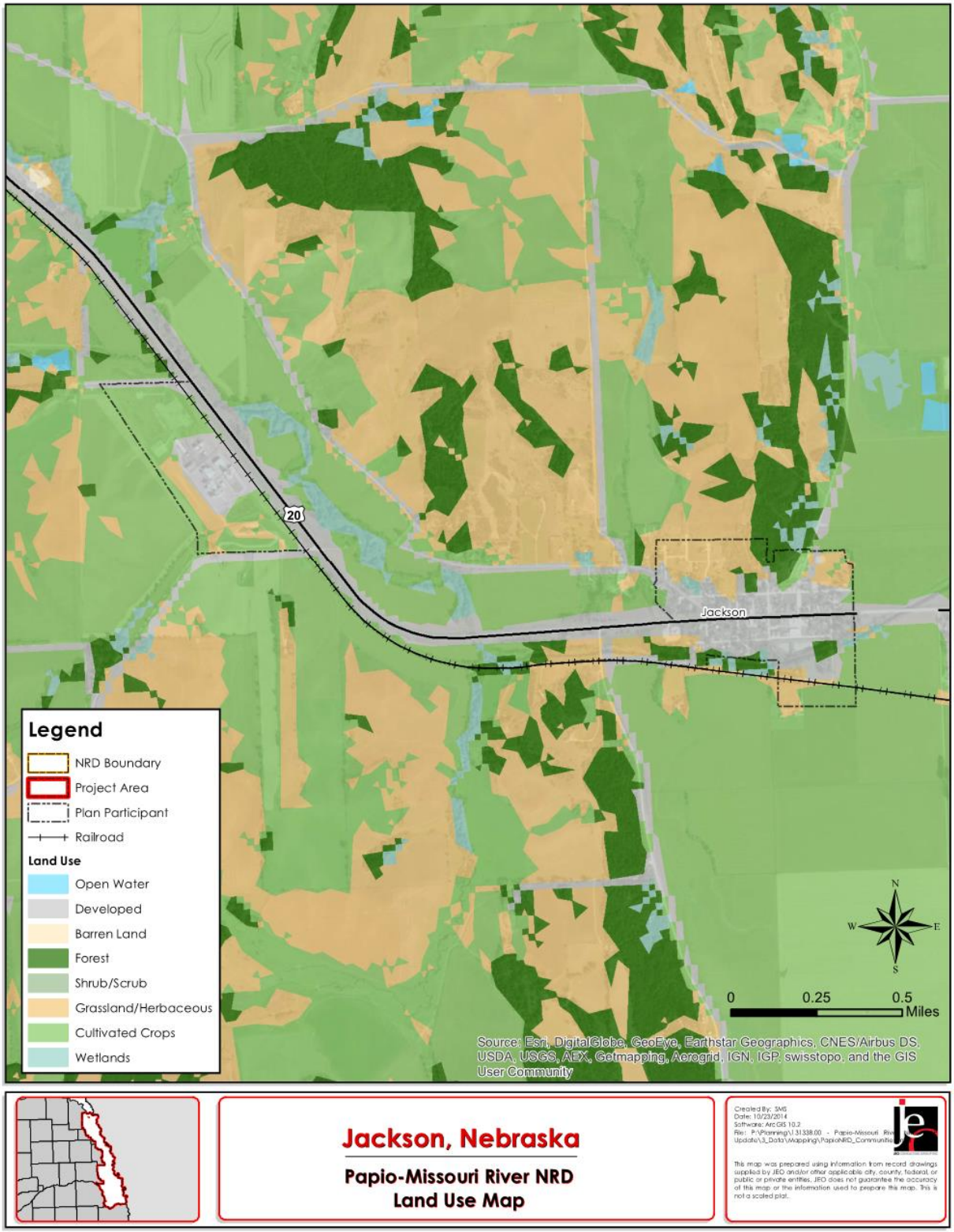
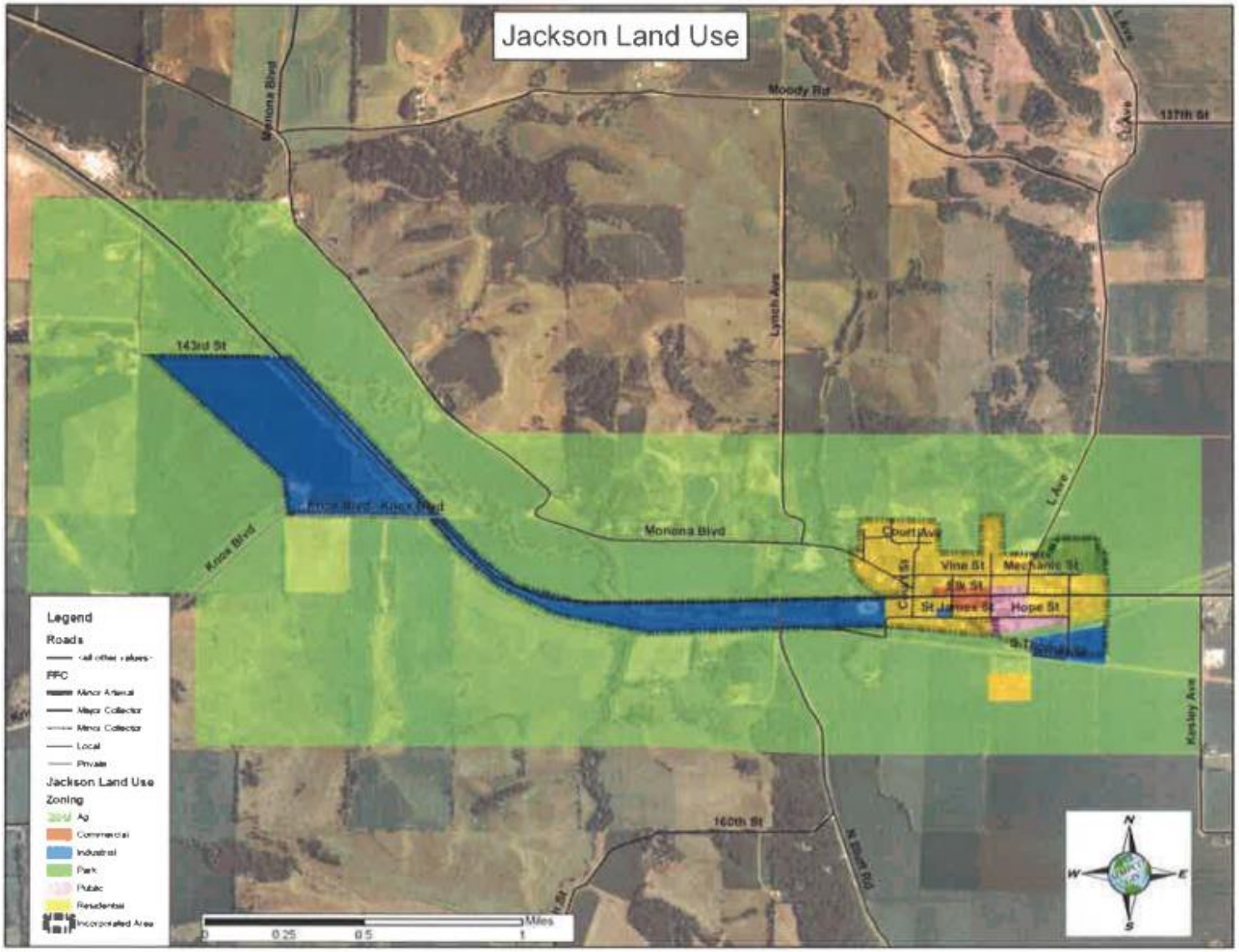


Figure JKN.5: Future Land Use Map



PARCEL IMPROVEMENTS AND VALUATION

The planning team requested GIS parcel data from GIS Workshop, which the county hires to manage the County Assessor data. This data allowed the planning team to analyze 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 JKN.7: Parcel Improvements

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
101	$39,222,155	$388,338	63	$35,865,665

Source: GIS Workshop/Dakota 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 sites in Jackson. The following table lists facilities that house hazardous materials only.

Table JKN.8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
Siouxland Ethanol LLC	1501 Knox Blvd, Jackson	Sulfuric Acid, Anhydrous Ammonia

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 Jackson.

CRITICAL FACILITIES

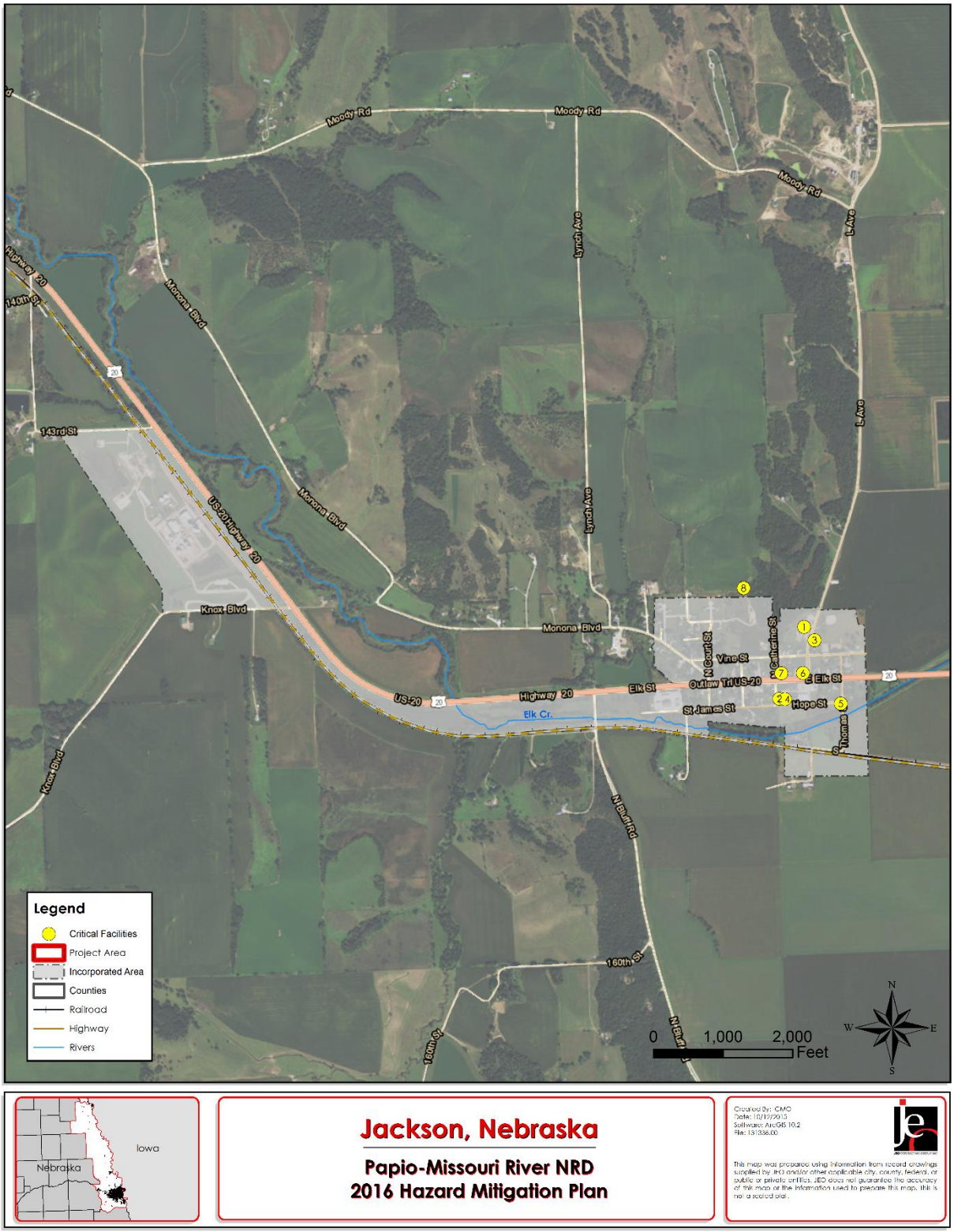
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original 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 JKN.9: List of Critical Facilities in Jackson

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	School	Jackson Elementary	223 N. John St, Jackson	Y	N	N
2	Municipal Building	Jackson Village Hall	116 South Catherine, Jackson	Y	N	Y
3	Water Facility	Well and Water Treatment Plant	221 N. John St, Jackson	N	Y	Y
4	Fire Station	Dakota-Covington Fire Department	232 Hope St, Jackson	Y	N	Y

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
5	Lift Station	Lift Station	S. Thomas and Hope St	N	N	Y
6	Church	St. Patrick's Church	115 W. Elk	Y	N	Y
7	Community Facility	American Legion	103 W. Elk	Y	N	Y
8	Water Facility	Back-up Well	Frontage road off of Gill Ave	N/A		N

Figure JKN.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 24 severe weather events from January 1996 to July 2015. Refer to the table below for detailed information of each severe weather event including date, magnitude, property damage, and crop damage.

The property damages from the NCDC Storm Events Database should be considered as broad estimates only. 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 Dakota County's participant section.

Table JKN.10: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
7/16/1996	Flash Flood	6-10 in.	0	0	$1,000,000
7/16/1996	Tornado	F0	0	0	$50,000
6/29/1998	Thunderstorm Wind	52 kts.	0	0	$0
6/5/1999	Hail	1.75 in.	0	0	$0
7/2/1999	Hail	1.00 in.	0	0	$0
6/3/2000	Thunderstorm Wind	52 kts. EG	0	0	$10,000
6/25/2000	Hail	0.75 in.	0	0	$0
7/7/2001	Thunderstorm Wind	52 kts. EG	0	0	$0
8/17/2001	Tornado	F2	0	3	$3,000,000
7/25/2002	Thunderstorm Wind	69 kts. EG	0	0	$0
7/24/2002	Thunderstorm Wind	61 kts. EG	0	0	$0
7/25/2002	Thunderstorm Wind	69 kts. EG	0	0	$500,000
7/25/2002	Hail	1.75 in.	0	0	$100,000
7/25/2002	Hail	0.75 in.	0	0	$0
6/23/2003	Thunderstorm Wind	61 kts. EG	0	0	$20,000
6/9/2003	Hail	1.75 in.	0	0	$50,000
5/28/2004	Hail	0.75 in.	0	0	$0
4/19/2005	Hail	0.75 in.	0	0	$0
6/4/2007	Hail	0.75 in.	0	0	$0
8/27/2008	Hail	0.88 in.	0	0	$0
3/23/2009	Thunderstorm Wind	61 kts. EG	0	0	$0
8/24/2009	Thunderstorm Wind	61 kts. EG	0	0	$5,000
6/11/2010	Thunderstorm Wind	65 kts. EG	0	0	$10,000
6/16/2014	Hail	1.00 in.	0	0	$0
		Total	**0**	**3**	**$4,745,000**

Source: January 1996-July 2015 NCDC
in. = inches; kts = knots; EG = Estimated Gust

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Jackson. Refer to the beginning of *Section Seven: Participant Sections* for a detailed 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 JKN.11: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	-	None
Agricultural Plant Disease	Yes	-	None
Chemical Spills (Fixed Site)*	No	-	Public safety; lack of resources; economic impacts
Chemical Spills (Transportation)*	Yes	-	Public safety; lack of resources
Civil Disorder	No	-	None
Dam Failure	No	-	None
Drought	Yes	-	None
Earthquakes	No	-	None
Extreme Heat	Yes	-	None
Flooding*	Yes	$1,000,000	Property damages; public safety; economic impacts
Grass/Wildfires	No	-	None
Hail	Yes	$150,000	Property damages
High Winds*	Yes	-	Property damages; power outages
Landslides	No	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$545,000	Property damages; sufficient warning; public safety
Severe Winter Storms	Yes	-	Public safety; power outages
Terrorism	No	-	None
Tornados*	Yes	$3,050,000	Public safety; power outages; economic impacts; property damages
Urban Fire	No	-	Insufficient staff – volunteer department

**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 Jackson'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 (Fixed Sites and Transportation)
Chemical spills was identified as a top concern for the community; the local planning team expressed concern regarding the ethanol plant and its proximity to the community as well as the transportation of ethanol from the plant. A gas station, Jackson Express, is also located within the community that could pose a danger to residents. The community is concerned with the chance of fire and spills as it pertains to these chemical fixed site locations and transportation. The local response resources are limited as the local fire department is a volunteer service located in a rural area. Residents are most likely not educated about how to respond in the event of a spill. In the event of a hazardous event that would lead to the closure of the ethanol plant, it could have considerable economic impacts on the community as it does employ many members of the community.

No known spills have occurred from the two fixed locations. However, one spill occurred when a train derailed, and two train cars tipped over near the ethanol plant on March 17, 2011. The tankers were carrying ethanol and about 50 LGA was spilled. Highway 20 was closed and rerouted for a short time to reduce the chance of a spark igniting the ethanol. There were no injuries, no evacuations, and no damages were reported.

Table JKN.12: Chemical Transportation Spills

Date	Chemical	Quantity	Deaths	Injuries	Damage Amount
3/17/2011	Alcohol N.O.S.	50 LGA	0	0	$0

Source: PHMSA 1980-2015

Implemented mitigation projects:

- County Emergency Operations Plan is in place

Identified mitigation projects:

- Educational outreach opportunities

Flooding
Flooding was identified as a concern to the village due to the potential for property damages from flash flooding events and a large portion of the village being located in the Elk Creek floodplain. NCDC recorded a flash flood event in Jackson in 1996 caused by heavy rain of 6 to 10 inches. The flash flood event impacted not only creeks and lowlands, but also roads and cropland, resulting in $1,000,000 in local losses. From Main Street to Highway 20, it has been identified as having poor stormwater drainage. The Village of Jackson petitioned the State of Nebraska Department of Transportation to fix the drainage issues along Highway 20 as the state is responsible for maintaining this road. The state has agreed to fix the inlets on the highway and to resurface in 2017. The village is not sure if these two fixes will correct the poor stormwater problems.

The village has also worked with PMR NRD to remove dead, fallen trees in and along Elk Creek. The NRD had funding in August 2015 to remove a large dead tree that had fallen across the creek bank. Although one tree was removed, the village is concerned with the large number of dead trees that still need to be removed. There is a large number of dead trees along the creek due to the flooding in 2011. According to the local planning team, critical facilities have not been damaged by flooding. The Village of Jackson has 22 NFIP policies in-force for $4,476,700 and there are no repetitive flood loss properties.

Table JKN.13: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$35,865,665	63	101	62.4%

Source: GIS Workshop/County Assessor

Implemented mitigation projects:

- Member of the NFIP
- Monitoring system installed at water treatment plant
- Worked with P-MRNRD to remove dead tree in Elk Creek

Identified mitigation projects:

- Drainage study and improvement
- Provide educational materials on flood risk
- Highway 20 improved inlets and resurfacing

Severe Thunderstorms

Severe Thunderstorms are identified as a significant concern to the community due to the previous occurrences and reported property damage. Severe thunderstorms are part of regular climate in the region, including the Village of Jackson, and can include high winds, hail, heavy rain, and lightning. Severe thunderstorms combined with heavy rain can produce flash flooding and power outages along with groundwater in basements. NCDC reports 10 severe thunderstorms that caused significant property damage. The reported events resulted in $545,000 of combined property damages. There are no reports of damage to critical facilities from severe thunderstorms.

Implemented mitigation projects:

- Back-up power generator installed at water treatment plant

Identified mitigation projects:

- Weather radios in critical facilities
- Obtain backup power generators for critical facilities
- Identify and remove hazardous trees

Tornados and High Winds

The Village of Jackson has experienced tornados that impacted the community in the past and has been identified as a top concern along with high winds. The NCDC reports two tornados that occurred in Jackson damaging the village's property and causing injuries to 3 people. The F0 tornado recorded in 1996 reported $50,000 in property damages to farm buildings. An F2 tornado in 2001 caused significant damage destroying at least 10 houses, the elementary school, a church, and telephone company. Moreover, three injuries were reported during the F2 tornado and property damage was estimated at $3 million. There is concern with the ability to warn citizens if the power is cut to the warning siren during a tornado or high wind event. Following the 2001 tornado, the school was rebuilt and a tornado shelter was included for staff and students.

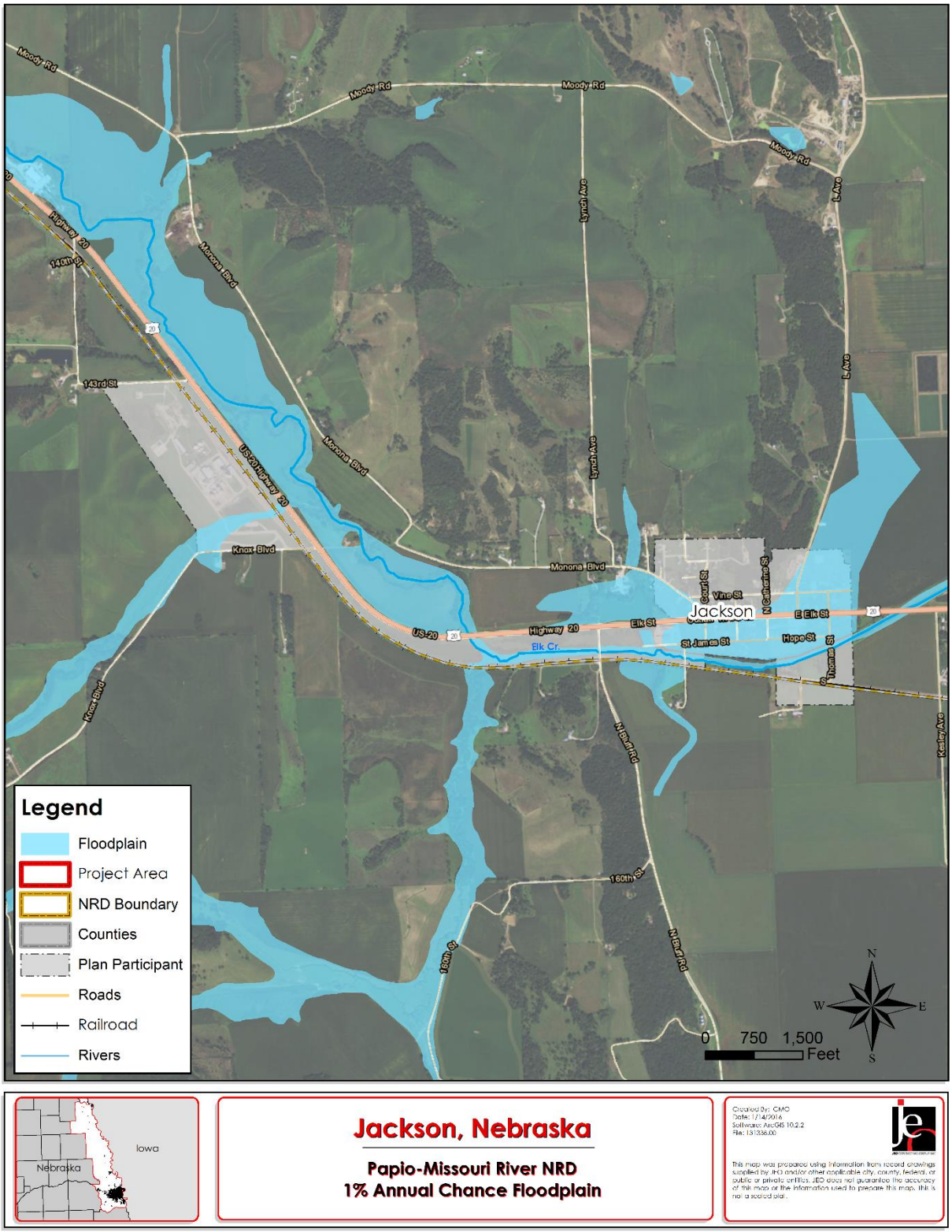
Implemented mitigation projects:

- Back-up power generator installed at water treatment plant
- Jackson Elementary School has a safe room

Identified mitigation projects:

- Install a redundant power source and/or upgrade/replace the warning siren
- Identify location for and install a community safe room/storm shelter
- Obtain backup power generators for critical facilities
- Weather radios in critical facilities

Figure JKN.7: Jackson 1% Annual Chance Floodplain



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 5 member board, including the Chairperson. Jackson has a limited number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Village Clerk
- Dakota-Covington Fire Department
- Jackson Community Club

CAPABILITY ASSESSMENT

The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey is used to gather information regarding the jurisdiction's planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability.

Table JKN.14: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes (County)
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	Yes
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes (County)
	GIS Coordinator	No
	Chief Building Official	Yes (South Sioux City)
	Civil Engineering	Yes
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	No
	Community Development Block Grant	No
	Authority to Levy Taxes for Specific Purposes	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No

Survey Components/Subcomponents		Existing (Yes/No)
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, 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
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

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 Jackson's participant section.

Table JKN.15: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2010
Comprehensive Plan	2011
Zoning Ordinances	2007

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 resiliency. 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 paragraphs presents a summary of the findings of this analysis.

Jackson participated in the 2011 Papio-Missouri River NRD Hazard Mitigation Plan, which was an update to the original 2006 plan. The 2011 HMP was referred to throughout the development of the 2016 HMP update.

The Local Emergency Operations Plan (LEOP) for Jackson, which was last updated in 2010, is an annex of Dakota County's LEOP. It is an all hazards plan that does not address specific natural and man-made disasters. It provides a clear assignment of responsibility in case of an emergency.

Jackson's Comprehensive Plan was last updated in 2011. The future land use section does not discourage development away or out of the floodplain. It is recommended in future updates that the one percent annual chance floodplain be considered when assessing future land use for the community.

The zoning ordinances were updated in 2007. The floodplain ordinance requires all new construction or substantial improvements of residential structures have the lowest floor elevated to or above one foot above the base flood elevation. Development of residential structures in the floodway are prohibited.

MITIGATION STRATEGY

Completed Mitigation Actions

Description	**Security System for Water Plant**
Analysis	Install a security system for the water plant to alert operations team when water levels are low or of issues at the plant.
Goal/Objective	Goal 2/Objective 2.4
Hazard(s) Addressed	All
Location	Jackson Water Treatment Plant
Funded By	Village General Funds
Year Completed	2011

Ongoing and New Mitigation Actions

Description	**Emergency Power Generation for Critical Facilities**
Analysis	Obtain emergency power generation for critical facilities
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	All
Estimated Cost	$50,000+/generator
Funding	Village Funds, HMGP, PDM
Timeline	5+ years
Priority	Low
Lead Agency	Village Board
Status	Generator and propane tank installed at water treatment plant in 2012. Generators still needed for lift station, fire station, and village office.

Description	**Maintain Good Standing in the NFIP**
Analysis	Maintain good standing with National Flood Insurance Program (NFIP) including floodplain management practices/ requirements and regulation enforcements and updates.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding
Estimated Cost	Staff time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	Current member and ongoing

Description	**Alert/Warning Sirens**
Analysis	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking and remote activation.
Goal/Objective	Goal 1/ Objective 1.3
Hazard(s) Addressed	All hazards

Description	Alert/Warning Sirens
Estimated Cost	$23,000
Funding	General funds, HMGP
Timeline	1 year
Priority	High
Lead Agency	Village Board, Clerk
Status	Not yet started

Description	Public Awareness and Education
Analysis	Activities include outreach projects, distribution of maps, evacuation plans, environmental education outreach, etc. These increase public awareness of natural hazards to both public and private property owners. Equipment may need to be purchased such as overhead projectors and laptops.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	$1,000+
Funding	General funds
Timeline	2-5 years
Priority	Medium
Lead Agency	Village Clerk
Status	Not yet started

Description	Hazardous Tree Removal
Analysis	Identify and remove hazardous limbs and/or trees.
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados
Estimated Cost	$5,000
Funding	General funds, Arbor Day Foundation
Timeline	Ongoing
Priority	High
Lead Agency	Village Board
Status	Areas along Elk Creek are a concern.

Description	Tree City USA
Analysis	Work to become a Tree City USA through the National Arbor Day Foundation in order to receive direction, technical assistance, and public education on how to establish a hazardous tree identification and removal program in order to limit potential tree damage and damages caused by trees in a community when a storm event occurs.
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados
Estimated Cost	Staff Time
Funding	N/A
Timeline	1-2 years
Priority	High
Lead Agency	Village Board
Status	Not yet started.

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

CITY OF SOUTH SIOUX CITY

Papio-Missouri River NRD

Multi-Jurisdictional Hazard Mitigation Plan

February 2016

INTRODUCTION

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. 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's also provided in the Regional section, but rather is specific information for the City of South Sioux City, including the following elements:

- Participation
- Location /Geography
- Climate
- 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 SSC.1 provides the list of participating members that comprised the South Sioux 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 for the community, and prioritization of mitigation actions that address the hazards that pose a risk to the community.

Table SSC.1: South Sioux City Local Planning Team

Name	Title	Department / Jurisdiction
Tami Bailey	Grant Administrator	City of South Sioux City
Scot Ford	Chief of Police	Police Department
Lance Hedquist	City Administrator	City of South Sioux City
Mario Andrade	Firefighter and Paramedic	Fire and Rescue Department
Matthew Rector	Firefighter and Paramedic	Fire and Rescue Department
Bill Baucher	Firefighter	Fire and Rescue Department
Greg Kanza	Patrolman	Police Department
Brian VanBerkum	Firefighter	Fire and Rescue Department
Kent Zimmerman	Code Official	City of South Sioux City
Joel Hubert	Maintenance Director	Regency Square Senior Living

PUBLIC PARTICIPATION

The local planning team made efforts 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.

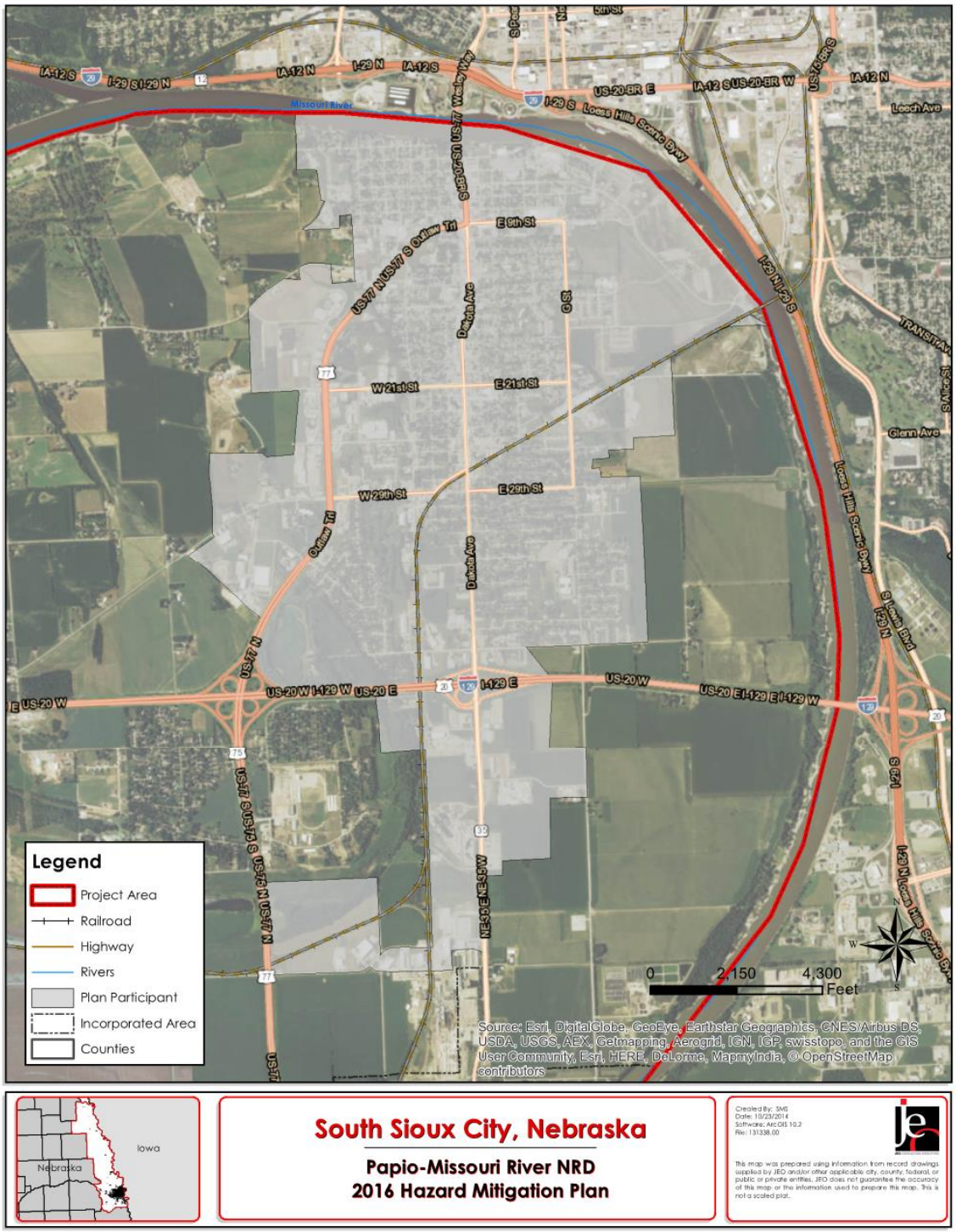
Table SSC.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
March 23, 2015	Passed Resolution of Participation	City Council Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The City of South Sioux City is located in far northeastern portion of Dakota County and covers an area of 5.96 square miles. The major waterway in South Sioux City is the Missouri River, which forms the northern boundary of the city.

Figure SSC.1: Map of the City of South Sioux City



CLIMATE

For South Sioux City, the normal high temperature for the month of July is 85.5 degrees and the normal low temperature for the month of January is 10.2 degrees. On average, South Sioux City gets 27.74 inches of rain and 34.8 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table SSC.3: Climate Data for South Sioux City

Age	South Sioux City	Planning Area	State of Nebraska
July High Temp	85.5°F	85.6°F	88.0°F
January Low Temp	10.2°F	11.8°F	12.0°F
Annual Rainfall	27.74 inches	30.64 inches	30.3 inches
Annual Snowfall	34.8 inches	31.2 inches	25.9 inches

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

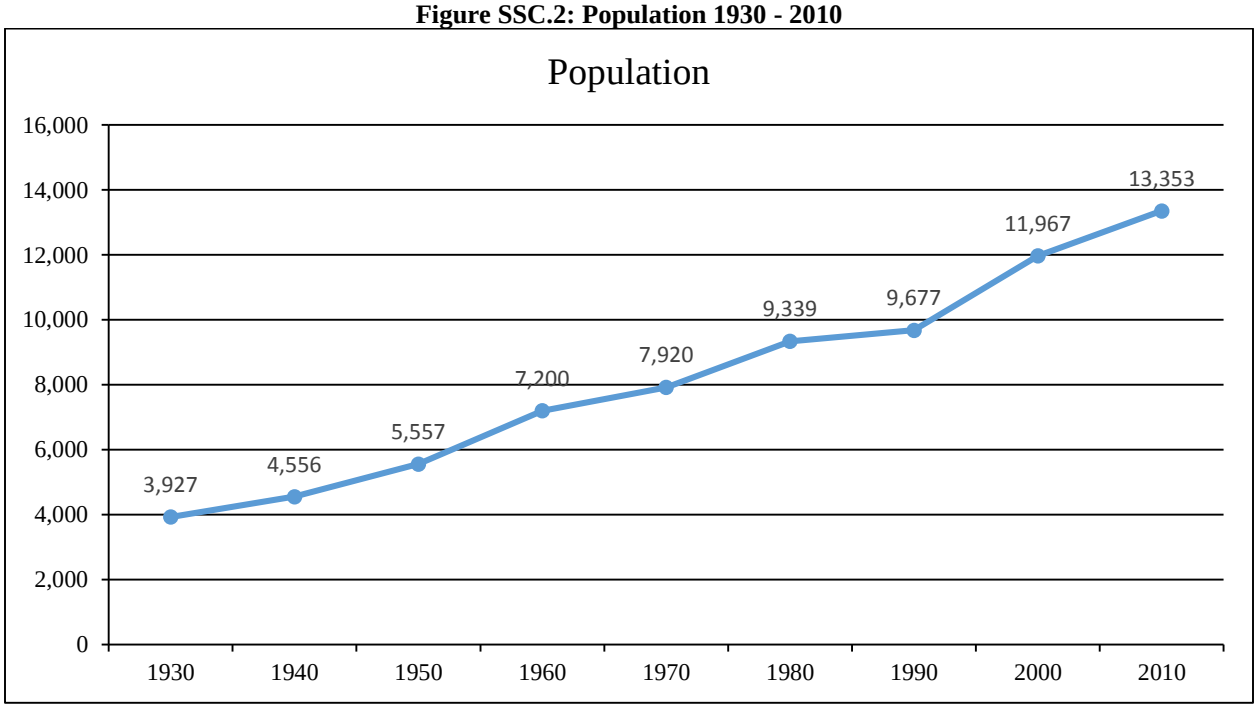
TRANSPORTATION

South Sioux City's major transportation corridors include U.S. Highways 77 and 20 and Interstate 129. U.S. Highway 77 has 26,925 vehicles per day on average with 525 of those being heavy commercial vehicles. Interstate 129 has 15,555 vehicles on average and 2,000 of those are heavy commercial vehicles. Martin Airfield is located west of the city and the Sioux Gateway Airport is southeast of the city across the river. 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 2010. This figure indicates that the population of South Sioux City has been increasing since 1930. When population is increasing, areas of the city may experience housing developments or a lack of properties available for rent or to own. Increasing populations can also represent increasing tax revenue for the community, which could make implementation of mitigation actions possible.

Figure SSC.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates that South Sioux City has a slightly higher percentage of residents under the age of 5 when compared to the rest of the county. Young 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 SSC.4: Population by Age

Age	South Sioux City	Dakota County	State of Nebraska
<5	9.6%	8.9%	7.2%
5-64	79.7%	79.6%	79.2%
>64	10.7%	11.5%	13.6%
Median	30.4	32.6	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that South Sioux City's median household income is almost $5,000 lower than the county's median; however, the median home values are also lower making it more feasible to purchase a home in South Sioux City. 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 resiliency to hazardous events.

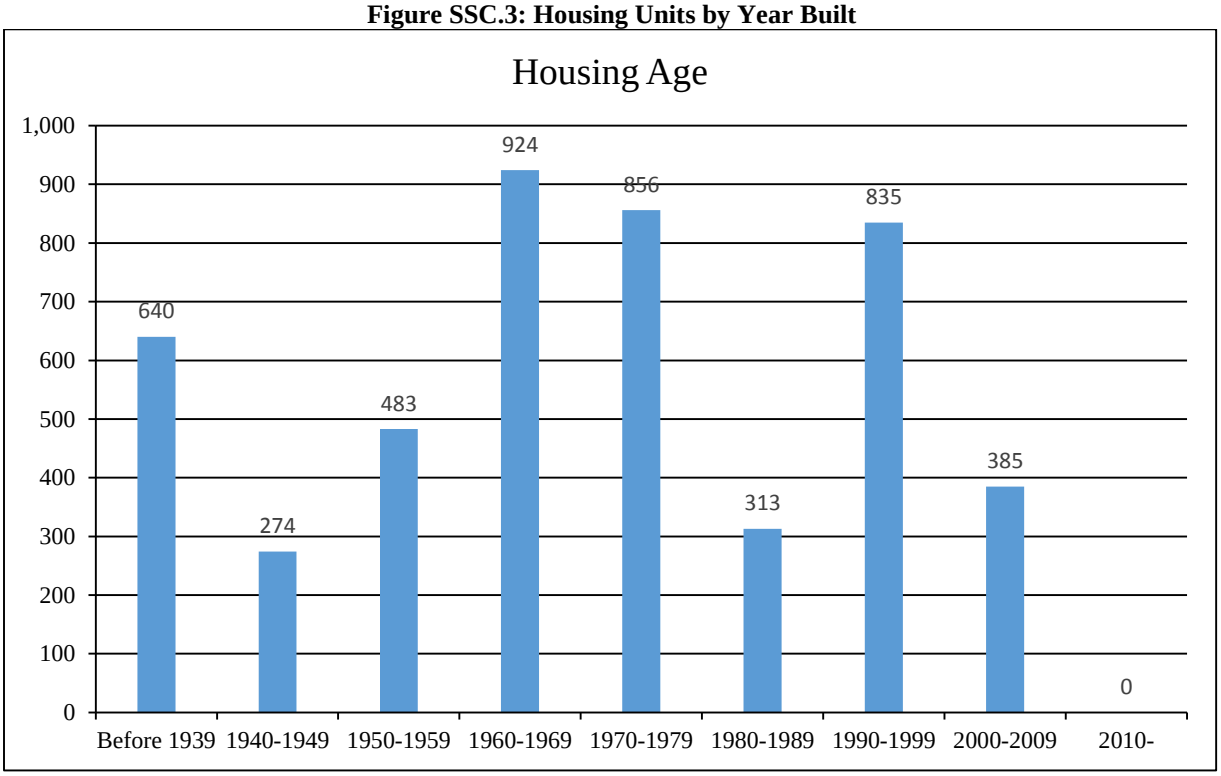
Table SSC.5: Housing and Income

	South Sioux City	Dakota County	State of Nebraska
Median Household Income	$43,865	$47,069	$51,672
Per Capita Income	$17,574	$20,179	$26,899
Median Home Value	$98,800	$103,300	$128,000
Median Rent	$709	$703	$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

The following figure indicates that the majority of the housing (67 percent) in South Sioux City was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 4,710 housing units with 96.4 percent of those units occupied. There are approximately 283 mobile homes in the community, which are primarily located in three mobile home parks: Shady Elm, Parkview, and Lakeview. The local planning team also noted that blighted properties are an issue and are scattered throughout the community. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. 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, tornados, and severe winter storms.

Figure SSC.3: Housing Units by Year Built



Source: Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

Table SSC.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
South Sioux City	4,542	96.4%	168	3.6%		2,573	56.7%	1,969	4.3%
Dakota County	7,309	95.2	367	4.8		4,710	64.4	2,599	35.6

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate

MAJOR EMPLOYERS

The major employers within the community include: Tyson Foods, BPI, Inc (beef processing), Great West Casualty Company (insurance), South Sioux City Schools, K&B Trucking, Flat Water Metal, and Walmart. If a hazard event were to impact major employers, there would be significant economic impacts due to loss of income. Many residents also travel to surrounding communities and states for work.

FUTURE DEVELOPMENT TRENDS

According to the census data, South Sioux City's population is steadily growing. The local planning team attributes this growth with the new Roth Industrial Park development and expansion on the south side of the city (Figure SSC.4). Big Ox Energy began construction on a 27-acre site in 2015, located in the new Roth Industrial Park. This development has also lead to several new apartment housing in the city like Cherry Ridge Apartments and Liberty Place Townhomes. The local planning team anticipates that new single family homes and apartment housing developments will continue.

South Sioux City's 2009 Comprehensive Plan expects residential expansion to continue from East 39th Street north and east toward the Missouri River. This specific area is ideal for utilizing the existing infrastructure and public schools in the vicinity. Furthermore, the comprehensive plan notes that areas along Highway 77 and west and north of West 21st Street to Golf Road has developed as a large-scale commercial retail area and will provide the ideal exposure and access to a proposed new college campus.

The city's comprehensive plan also recommends locations for future street development as the city continues to grow and expand. The areas identified for this new street development is just northwest and also southwest of the city (Figure SSC.5).

PARCEL IMPROVEMENTS AND VALUATION

The planning team requested GIS parcel data from GIS Workshop, which the county hires to manage the County Assessor data. This data allowed the planning team to analyze 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 SSC.7: Parcel Improvements

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
3,584	$450,697,105	$125,753	10	$39,502,855

Source: GIS Workshop/Dakota County Assessor

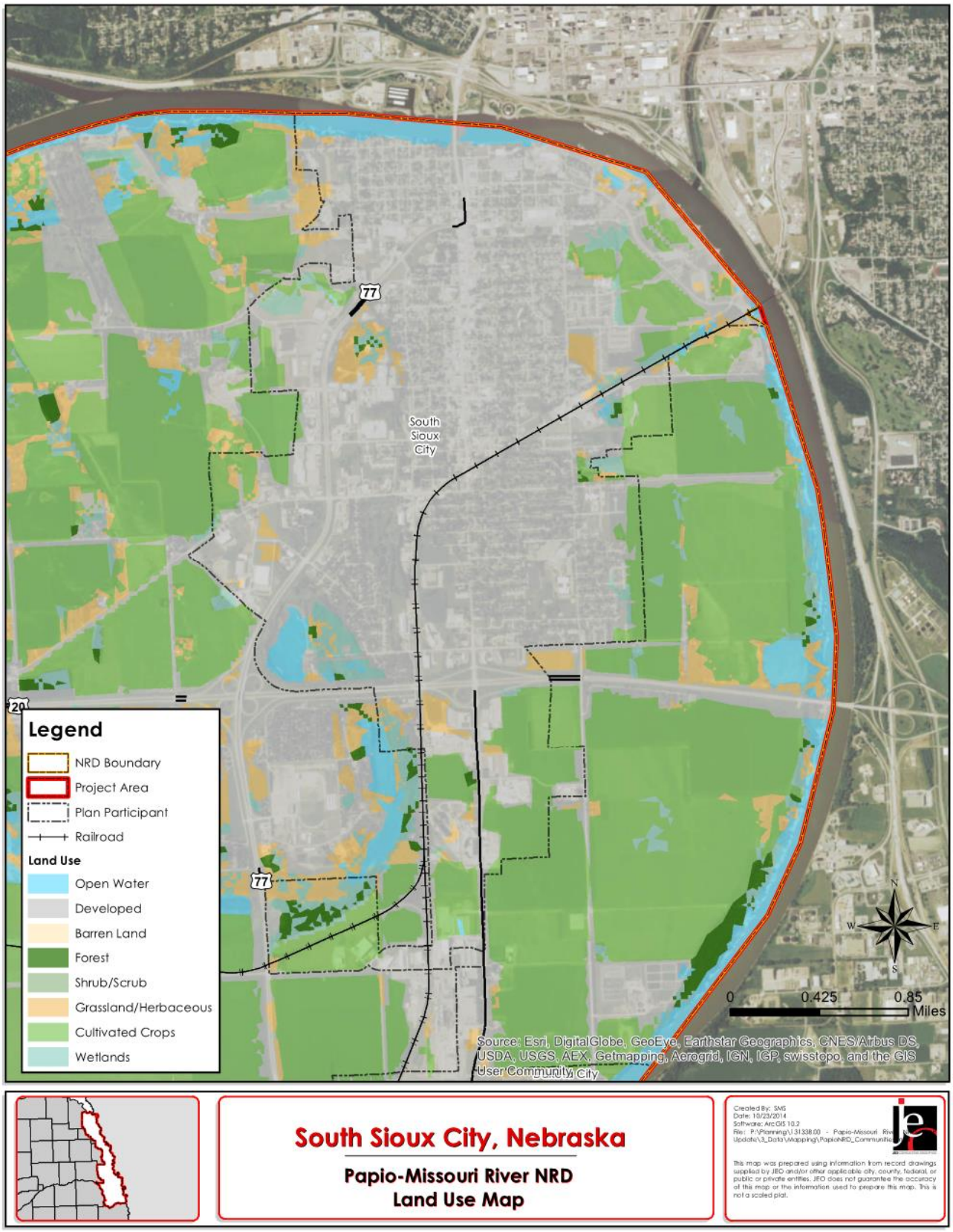
Figure SSC.4: Future Land Use Map for Roth Industrial Site

Source: South Sioux City's Needs Assessment

Figure SSC.5: South Sioux City Future Streets Map

Source: South Sioux City's Comprehensive Plan, 2009

Figure SSC.6: Developed Areas



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 13 chemical storage sites in South Sioux City, and 5 of these house materials that are categorized as hazardous. The following table lists facilities that house hazardous materials only.

Table SSC.8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
Beef Products Inc.	360 164th St, South Sioux City	Nitric Acid, Sulfuric Acid, Anhydrous Ammonia, Peroxyacetic Acid
Bimbo Bakeries USA Inc.	3723 Dakota Ave, South Sioux City	Sulfuric Acid
CenturyLink	125 E. 39th St, South Sioux City	Sulfuric Acid
Scenic Park	1300 Riverview Dr, South Sioux City	Chlorine
Sioux City Foundry Co	2400 G St, South Sioux City	Sulfuric Acid

Source: Nebraska Department of Environmental Quality

The local planning team noted several additional facilities that the city is concerned with. They include Tyson Foods, Big Ox Energy, grain elevator, and they also noted that ammonia tanks are stored at the Feed Store and Hardware Store. A substation and several lift stations are located new chemical fixed sites but did not note any vulnerable populations nearby. Residents are not educated about chemical storage facilities within their community or how to respond in the event of a spill. The Hazmat Team out of Sioux City, Iowa would be the first responders to a chemical spill or leak.

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there is 1 historic site located in South Sioux City.

Table SSC.9: National Historic Registry

Site Name	Date Listed	In Floodplain?
Meisch House	3/13/1986	No

Source: Nebraska State Historical Society

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.

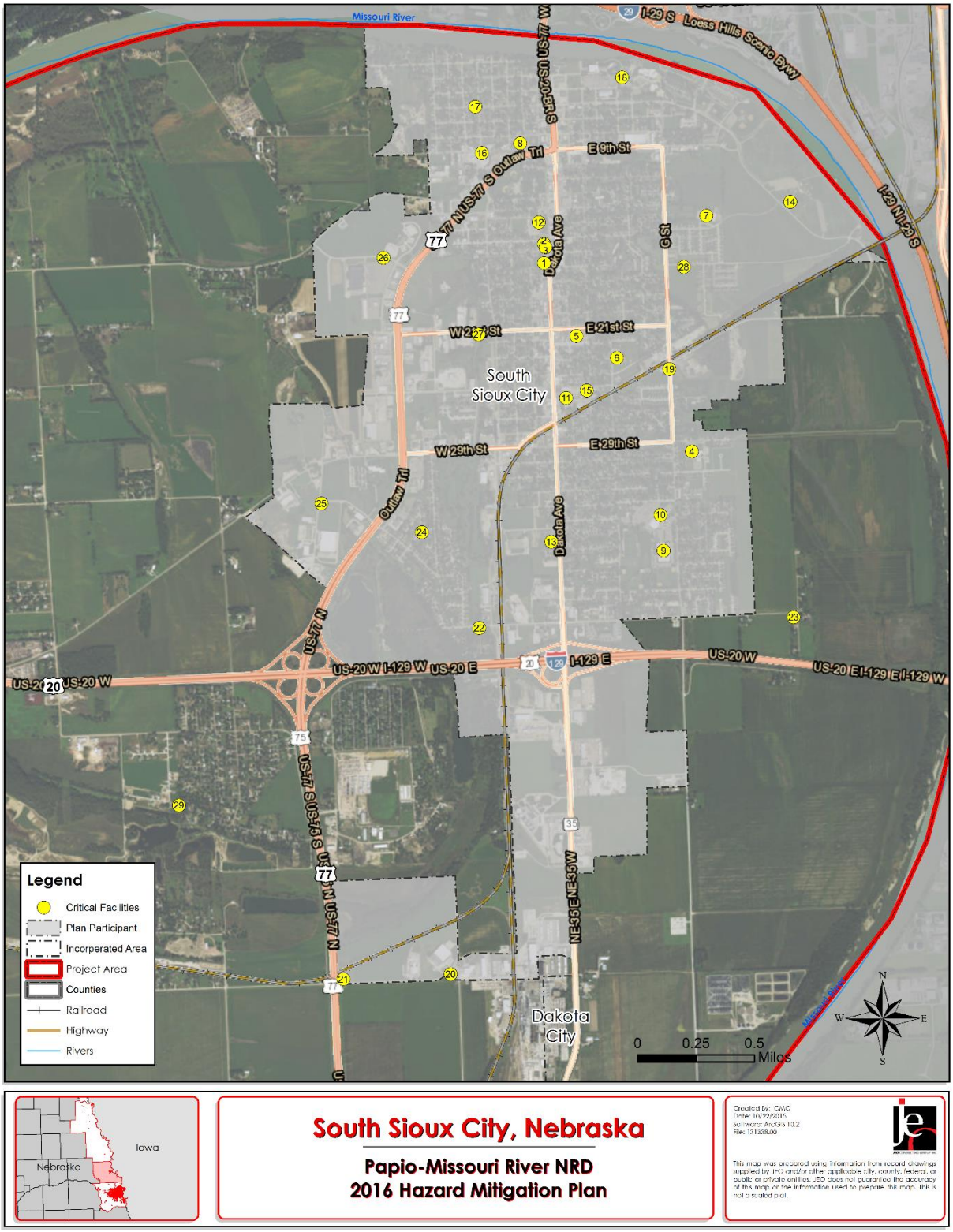
Table SSC.10: List of Critical Facilities in South Sioux City

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Municipal Building	South Sioux City, City Hall	1615 1st Ave, South Sioux City	N	Unknown	N
2	Fire Station	South Sioux City Volunteer	1501 1st Ave, South Sioux City	N	Unknown	N

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
		Fire Department				
3	Water Facility	Water Tower	W. 16th St and 1st Ave, South Sioux City	N/A	Unknown	N
4	School	Cardinal Elementary School	820 E. 29th St, South Sioux City	Y	Unknown	N
5	School	Covington Elementary School	2116 A St, South Sioux City	Y	Unknown	N
6	School	E N Swett Elementary School	2300 C St, South Sioux City	Y	Unknown	N
7	School	Harney Elementary School	1001 Arbor Dr, South Sioux City	N	Unknown	N
8	School	Lewis & Clark Elementary School	801 2nd Ave, South Sioux City	Y	Unknown	N
9	School	South Sioux City Middle School	3625 G St, South Sioux City	N	Unknown	N
10	School	South Sioux Senior High School	3301 G St, South Sioux City	Y	Unknown	N
11	Municipal	South Sioux City Public Works	125 E 26th St, South Sioux City	N	Unknown	N
12	School	St. Michael's Catholic School	1315 1st Ave, South Sioux City	Y	Unknown	N
13	Church	First Lutheran Church	3601 Dakota Ave, South Sioux City	Y	Unknown	N
14	Water Facility	Water Treatment Plant	1300 Riverview Dr, South Sioux City	N/A	Y	N
15	Water Facility	Water Treatment Plant	2513 B St (Plant 2), South Sioux City	N/A	Y	N
16	Lift Station	W. 9th Lift Station	512 W. 9th St.	N/A	N	N
17	Lift Station	W. 6th Lift Station	621 W. 6th St., South Sioux City	N/A	N	N
18	Lift Station	Riverlift Lift Station	515 E. 4th St., South Sioux City	N/A	Y	N
19	Lift Station	Foundry Lift Station	2410 G St, South Sioux City	N/A	Y	N
20	Lift Station	BPI Lift Station	308 164th St., South Sioux City	N/A	Y	N
21	Lift Station	Roth Lift Station	Hwy 77 & 164th St., South Sioux City	N/A	Y	N
22	Lift Station	Timberline Lift Station	900 W. 39th St., South Sioux City	N/A	N	N

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
23	Lift Station	Bennett Lift Station	1458 Bennett Ave., South Sioux City	N/A	Y	N
24	Lift Station	Tamarack Lift Station	107 Tamarack, South Sioux City	N/A	N	N
25	Lift Station	Daniels Lane Lift Station	1529 Futures Dr., South Sioux City	N/A	Y	N
26	Lift Station	Walmart Lift Station	1580 College Way, South Sioux City	N/A	N	Y
27	Lift Station	W 21st Lift Station	625 W. 21st, South Sioux City	N/A	Y	Y
28	Lift Station	Arbor Acres Lift Station	E. 17th St, South Sioux City	N/A	Y	N
29	Lift Station	North Shore Lift Station	Rotunda Way & North Shore Dr, South Sioux City	N/A	N	N

Figure SSC.7: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 30 severe weather events from January 1996 through July 2015. Refer to the table below for detailed information of each severe weather event including date, magnitude, and property damage.

Property damages from the NCDC Storm Events Database should be considered as broad estimates only. 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 Dakota County's participant section.

Table SSC.11: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
7/16/1996	Thunderstorm Wind	70 kts.	0	0	$3,000,000
7/16/1996	Hail	1.75 in.	0	0	$500,000
7/16/1996	Lightning		0	0	$5,000
5/28/1998	Thunderstorm Wind	52 kts.	0	0	$0
5/22/1999	Thunderstorm Wind	52 kts.	0	0	$0
7/2/1999	Hail	1.75 in.	0	0	$200,000
7/8/1999	Hail	0.75 in.	0	0	$0
6/13/2000	Thunderstorm Wind	52 kts. EG	0	0	$0
6/10/2001	Hail	0.75 in.	0	0	$0
6/13/2001	Hail	1.75 in.	0	0	$0
6/13/2001	Thunderstorm Wind	57 kts. EG	0	0	$50,000
6/7/2002	Hail	1.75 in.	0	0	$0
7/21/2002	Hail	1.75 in.	0	0	$0
7/25/2002	Hail	0.75 in.	0	0	$0
6/9/2003	Hail	1.00 in.	0	0	$0
6/9/2003	Flash Flood	Heavy Rain	0	0	$0
6/27/2003	Thunderstorm Wind	61 kts. EG	0	0	$0
5/24/2004	Hail	1.75 in.	0	0	$0
5/28/2004	Hail	0.75 in.	0	0	$0
6/16/2004	Flash Flood	Heavy Rain	0	0	$0
4/20/2005	Flash Flood	Heavy Rain	0	0	$0
6/16/2006	Flash Flood	Heavy Rain	0	0	$0
6/16/2007	Flash Flood	Heavy Rain	0	0	$0
7/20/2008	Thunderstorm Wind	61 kts. EG	0	0	$0
7/20/2008	Thunderstorm Wind	61 kts. EG	0	0	$50,000
6/11/2010	Thunderstorm Wind	56 kts. EG	0	0	$0
8/8/2010	Thunderstorm Wind	56 kts. EG	0	0	$0
5/11/2011	Thunderstorm Wind	52 kts. EG	0	0	$5,000
6/1/2011	Flood	-	0	0	$0
7/17/2015	Thunderstorm Wind	56 kts. EG	0	0	$0

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
		Total	**0**	**0**	**$3,810,000**

Source: January 1996-July 2015 NCDC
in. = inches; kts = knots; EG = Estimated Gust

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for South Sioux City. Refer to the beginning of *Section Seven: Participant Sections* for a detailed 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 SSC.12: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	No	-	Avian Flu; poultry, cattle, pigs affected
Agricultural Plant Disease	Yes	-	Oat and bean crops; economic impacts
Chemical Spills (Fixed Site)	No	-	Lack of educational awareness
Chemical Spills (Transportation)*	Yes	-	Rail and highway transportation; lack of educational awareness
Civil Disorder	No	-	None
Dam Failure	No	-	Gavins Point Dam failure
Drought	Yes	-	None
Earthquakes	No	-	None
Extreme Heat	Yes	-	None
Flooding*	Yes	-	Street and river flooding; needed drainage improvements
Grass/Wildfires	No	-	None
Hail	Yes	$700,000	Crop and property damage; economic impacts
High Winds	Yes	-	Downed trees; power outages
Landslides	No	-	None
Levee Failure	N/A	N/A	N/A
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$3,110,000	Power outages; blocked roads; localized flooding
Severe Winter Storms*	Yes	-	Road closures; stranded motorists; power outages
Terrorism	Yes	-	None
Tornados*	No	-	Siren coverage; tree and property damage; loss of life; economic impacts
Urban Fire	Yes	-	None

**Identified by the local 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 South Sioux City'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 hazard of concern for the city. Dakota Avenue, G Street, the I-129 Bridge, Veteran's Bridge, which is Highway 77 that crosses the Missouri River, and rail traffic were all identified as transportation routes of greatest concern. Chemicals are presumed to be regularly transported on a daily basis; however, the city is not sure on the types and amounts of chemicals that are being transported. According to the Pipeline and Hazardous Materials Safety Administration, there have been seven incidents of chemical spills during transport since 1980.

Table SSC.13: Chemical Transportation Spills

Date	Chemical	Quantity	Deaths	Injuries	Damage Amount
9/1/1982	Carbon Dioxide Refrigerated Liquid	47 SLB	0	0	$0
7/10/1984	Sulfuric Acid	0.37 LGA	0	0	$0
10/9/1990	Fuel Oil	200 LGA	0	0	$5,000
10/29/1991	Methane Compressed	6,000 GCF	0	2	$150,000
3/26/2010	Corrosive Liquid Basic Inorganic N.O.S.	5 LGA	0	0	$0
6/13/2010	Corrosive Liquid Basic Inorganic N.O.S.	250 LGA	0	0	$0
10/10/2012	Diesel Fuel	0 LGA	0	0	$16,000
		Totals	**0**	**2**	**$171,000**

Source: PHMSA 1980-2015

Implemented mitigation projects:

- Hazmat Team is located in Sioux City, Iowa
- Mutual aid agreements between fire departments

Identified mitigation projects:

- Conduct an emergency exercise on hazardous spills
- Install vehicle barriers
- Provide residents, especially along transportation routes, with educational materials

Dam Failure

Although dam failure was a not a top concern for the city, there is some risk and vulnerability from an upstream dam on the Missouri River. Gavin's Point Dam, located near Yankton, SD, would have impacts on the city if it were to fail. According to the LEOP, South Sioux City would approach 100 percent inundation. The LEOP has a flood/dam failure evacuation section outlining the actions required to evacuate the population and protect facilities threatened by flood or dam failure. Emergency housing would be made available to displaced residents in the event of dam failure.

Implemented mitigation projects:

- Emergency Preparedness Plans are in place and developed by the U.S. Army Corps of Engineers

- The U.S. Army Corps of Engineers identified and repaired damages to the dam between 2012 and 2015, including: repairing gates, tailrace erosion protection, relief wells and horizontal outfalls, and spillway slab
- Bank stabilization repairs to the Missouri River were identified and repaired by the U.S. Army Corps of Engineers between 2012 and 2015

Identified mitigation projects:

- Conduct a dam failure exercise
- Provide educational materials to residents living near high hazard dam inundation areas

Flooding

The local planning team identified flooding as a top hazard of concern. According to the NCDC database, there have been five flash flood events since 1996 but none of them resulted in any reported damages. These flash floods resulted from heavy rain over the area. The storm event description says that impacts included flooded roads and low lying areas and several vehicles stranded.

The local planning team also noted the 2011 flood from the record release at Gavins Point Dam caused localized flooding along the Missouri River. The summer of 2014 the city also experienced localized, minor flooding from thunderstorms that brought heavy rain. Almost 80 percent of the community stormwater system needs improvements or upgrades, which was indicated by the local planning as a concern. Lift stations have also been impacted by floods in the past.

The city's Comprehensive Plan notes that Crystal Cove Park underwent a dredging and improvement project that kept this facility available for residents to use.

South Sioux City is a member of the NFIP and has 55 NFIP policies in-force for $18,052,400. There are no repetitive flood loss properties in South Sioux City.

Table SSC.14: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$39,502,855	10	3,584	0.28%

Source: GIS Workshop/Dakota County Assessor

Implemented mitigation projects:

- Member of the NFIP
- Floodplain Management Ordinance which requires a one foot freeboard for all new construction or substantial improvements

Identified mitigation projects:

- Enforce floodplain regulations

Severe Thunderstorms

The local planning team identified severe thunderstorms as a top hazard of concern for South Sioux City. Heavy rain, high winds, and hail are possible hazards that are associated with severe thunderstorms and can impact the city with downed power lines, localized flooding, property damage, and blocked evacuation or emergency routes. According the local planning team, severe thunderstorms have damaged roofs and blocked transportation routes. The city has buried about a quarter of its power lines, which reduces the risk of power outages during weather events.

Implemented mitigation projects:

- Tree City USA member for 23 years
- Removes hazardous trees where possible
- Works with local public power district to bury power lines

Identified mitigation projects:

- Obtain back-up power generators for critical facilities, especially City Hall
- Continue to identify and remove hazardous trees
- Install hail resistant roofing and other building materials

Severe Winter Storms

Severe winter storms was selected as a top concern for the city by the local planning team. There were 49 reported winter storm zonal events by NCDC between 1996 and 2014. The winter of 2009-2010 included several severe winter storms that greatly impacted the region, including South Sioux City. The Christmas Winter Storm of 2009, which began on December 23rd and ended on the 26th, brought up to 20 inches of snow along with gusting winds over 40 mph. These winds in combination with the heavy snow produced widespread visibilities below a quarter mile during the event, making travel dangerous to impossible. Many of the roads became blocked and travel was brought to a standstill during a normally heavy travel period for the holidays.

The city is responsible for snow removal, and the local planning team does not think that there is enough equipment for maintaining snow removal during events. Furthermore, there has been some damage done to the city's maintenance sheds in the past from severe winter storms. The local planning team's greatest concerns in regards to winter storms is if emergency routes are blocked, prolonged power outages, stranded motorists, and downed communication systems.

Implemented mitigation projects:

- The city has designated snow routes
- Fire department and schools conduct regular educational programs on weather events

Identified mitigation projects:

- Assess and purchase new snow removal equipment
- Upgrade or replace communication devices and systems

Tornados

The local planning team identified tornados as a top hazard of concern for South Sioux City. Concerns for the city in regards to tornado impacts includes warning siren coverage may not be adequate, death and injuries, property damage, economic impacts, tree damage, and blocked transportation routes. Tornados have occurred in the county in past but have not impacted South Sioux City. The local planning team noted that an upgrade to the 911 system would be ideal for emergency warnings and text alerts as well as needing community safe rooms.

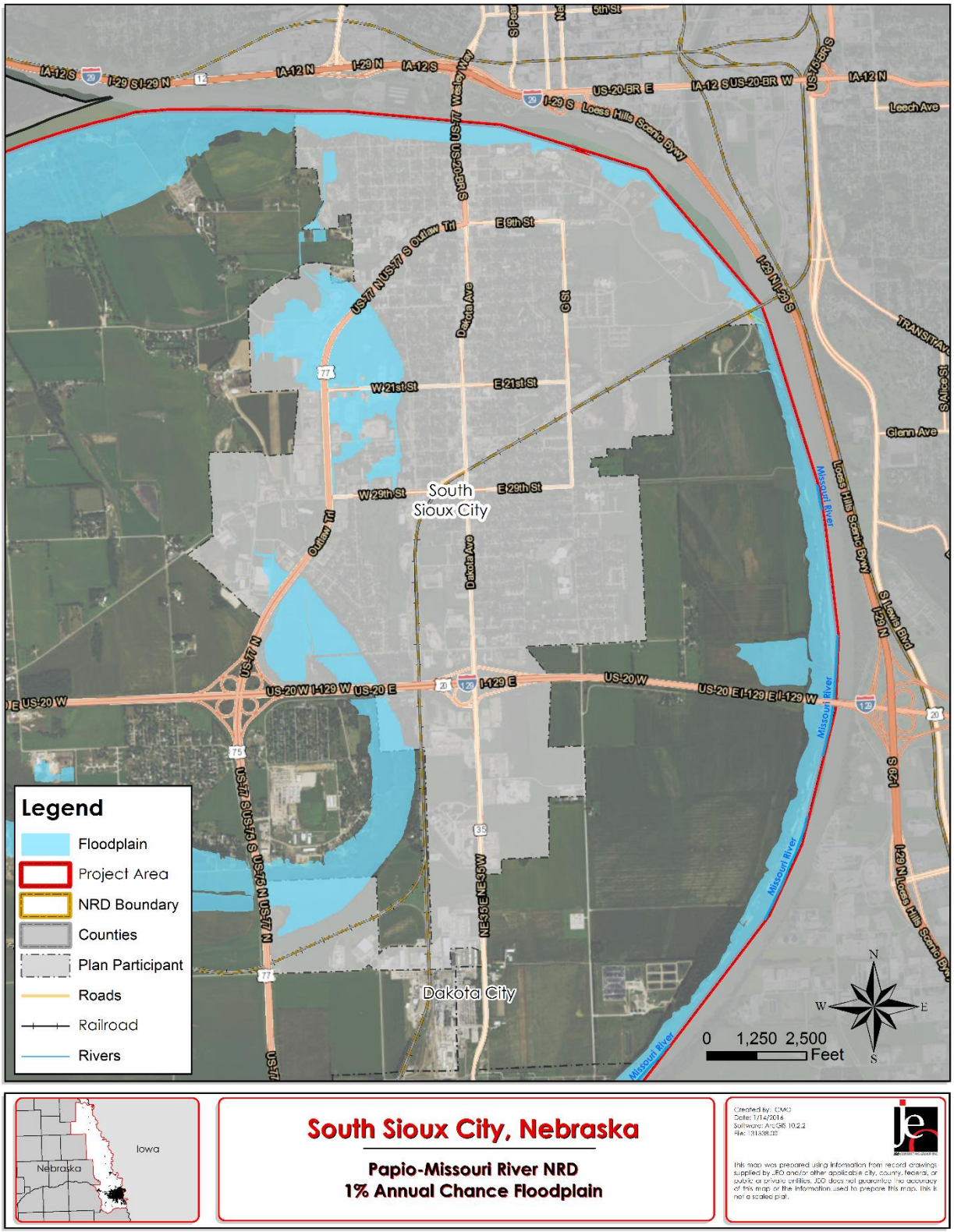
Implemented mitigation projects:

- Mutual aid agreements with neighboring communities and fire departments
- Municipal records are routinely backed up and on surge protectors
- Tree City USA member for 23 years

Identified mitigation projects:

- Upgrade, replace, and/or add tornado sirens
- Purchase or upgrade emergency communication equipment
- Upgrades or improvements to 911 system
- Obtain back-up power generators for critical facilities, especially City Hall

Figure SSC.8: South Sioux City 1% Annual Chance Floodplain



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 an eight member city council. South Sioux City has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk
- Treasurer
- City Administrator
- Economic Development
- Fire Department
- Inspection and Zoning Services
- Library
- Parks and Recreation
- Law Enforcement Center/Police Department
- Public Works Department
- IT

CAPABILITY ASSESSMENT

The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey is used to gather information regarding the jurisdiction's planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability.

Table SSC.15: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Under Development
	Capital Improvements Plan	Yes
	Hazard Mitigation Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes (County)
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	Yes
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes
	GIS Coordinator	Yes
	Chief Building Official	Yes

Survey Components/Subcomponents		Existing (Yes/No)
	Civil Engineering	Contractor
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	Yes
	Authority to Levy Taxes for Specific Purposes	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 and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, 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
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

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 South Sioux City's participant section.

Table SSC.16: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2010
Comprehensive Plan	2009
Zoning Ordinances	1999

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 resiliency. 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 paragraphs present a summary of the findings of this analysis.

South Sioux City participated in the 2011 Papio-Missouri River NRD Hazard Mitigation Plan, which was an update to the original 2006 plan. The 2011 HMP was referred to throughout the development of the 2016 HMP update.

The Local Emergency Operations Plan (LEOP) for the city, which was last updated in 2010, is an annex of Dakota County's LEOP. It is an all hazards plan that does not address specific natural and man-made disasters. It provides a clear assignment of responsibility in case of an emergency.

South Sioux City's Comprehensive Plan was updated in 2009. The future land use section identifies areas where development is most likely to occur. However, it does not discourage the development in flood hazard areas. It is encouraged that future updates include the hazards of greatest concern from the Hazard Mitigation Plan as well as the mitigation actions that the community intends to implement in the future.

The Zoning Ordinance was updated in 1999 and includes the Floodplain Ordinance. It contains flood fridge and floodway overlay districts that set conditions, as described in the floodplain ordinance, for land use within these districts. The ordinance requires all new construction or substantial improvements of residential structures have the lowest floor elevated to or above one foot above the base flood elevation. Development of residential structures in the floodway are prohibited.

MITIGATION STRATEGY

Completed Mitigation Actions

Description	**Update Floodplain Map**
Analysis	Update 100 year and 500 year floodplain maps
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flood
Location	South Sioux City Zoning
Funding	FEMA
Year Completed	January 2012

Ongoing or New Mitigation Actions

Description	**Storm Shelters for Scenic Park, Soccer Fields, and Veterans Park**
Analysis	Construct a storm shelter to protect area residents, spectators, and athletes during severe weather, especially for the locations of Scenic Park, the soccer fields, and Veterans Park
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados, High Winds, Hail, Severe Thunderstorms
Estimated Cost	$250,000
Funding	HMGP, local property and sales tax
Timeline	2-5 years
Priority	Medium
Lead Agency	Recreation Department
Status	Storm shelter locations have been identified

Description	**Assess Warning System**
Analysis	Assess current severe weather warning system and provide adequate warning for severe weather as needed including adequate warning siren coverage and upgrades. Use City Fiber network to notify citizens of warnings.
Goal/Objective	Goal 1/Objective 1.3
Hazard(s) Addressed	All

Description	Assess Warning System
Estimated Cost	$150,000
Funding	HMGP, local property and sales tax
Timeline	2-5 years
Priority	High
Lead Agency	Police Department
Status	Not started. Sirens are tested every month.

Description	Identify the Location of Tornado Shelters
Analysis	Identify, designate, and publicize the locations of tornado shelters and storm shelters
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Tornados
Estimated Cost	$20,000
Funding	HMGP, local property and sales tax, bonds, CDBG
Timeline	2-5 years
Priority	Medium
Lead Agency	City Administration
Status	Not started

Description	Emergency Power Generation for Critical Facilities
Analysis	Obtain emergency power generation for critical facilities
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	All
Estimated Cost	$300,000
Funding	HMGP, Utilities and property tax
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Many critical facilities have obtained back-up power, but additional or updated equipment is needed.

Description	Maintain Good Standing in the NFIP
Analysis	Maintain good standing with National Flood Insurance Program (NFIP) including floodplain management practices/ requirements and regulation enforcements and updates.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding
Estimated Cost	Staff time
Funding	Property and sales tax
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	Current member and ongoing

Description	Floodplain Regulation Enforcement/Updates
Analysis	Continue to enforce local floodplain regulations for structures located in the 1 percent floodplain. Enforcement of the type of development and elevations of structures should be considered through issuance of building permits. Continue education of building inspectors or Certified Floodplain Managers
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding
Estimated Cost	$4,000+
Funding	HMGP, CDBG, P-MRNRD

Description	**Floodplain Regulation Enforcement/Updates**
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator and Zoning
Status	Ongoing

Description	**Tree Management Plan**
Analysis	Develop an urban tree management plan and hire tree service firm to provide service
Goal/Objective	Goal 3/Objective 3.7
Hazard(s) Addressed	All
Estimated Cost	$80,000
Funding	Arbor Day Foundation, private donations, property taxes
Timeline	5+ years
Priority	Medium
Lead Agency	Recreation Department
Status	Member of Tree City USA.

Description	**Scenic Park Camper Wall**
Analysis	Construct a concrete barrier at Scenic Park between the Missouri River and campers to protect area campground from river flooding
Goal/Objective	Goal 1/Objective 1.6
Hazard(s) Addressed	Flood
Estimated Cost	$150,000
Funding	City Budget, PDM, FMA
Timeline	2-5 years
Priority	Medium
Lead Agency	Public works
Status	New project. Not started

Description	**Railroad Plan**
Analysis	Establish a response and prevention plan for railroad derailments and identify and purchase necessary equipment needed for response teams
Goal/Objective	Goal 3/Objective 3.6
Hazard(s) Addressed	Chemical Spills (Transportation)
Estimated Cost	$250,000
Funding	City Budget
Timeline	2-5 years
Priority	Medium
Lead Agency	Planning Commission
Status	New project. Not started

Description	**Westside Storm Plan**
Analysis	Establish an emergency by-pass system/Westside Storm Plan
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Flood
Estimated Cost	$150,000
Funding	City Budget
Timeline	2-3 years
Priority	Medium
Lead Agency	City Administrator
Status	New project. Not started

Description	Public Awareness and Education
Analysis	Activities include outreach projects, distribution of maps, evacuation plans, environmental education outreach, etc. These increase public awareness of natural hazards to both public and private property owners. Equipment may need to be purchased such as overhead projectors and laptops.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	$10,000
Funding	General fund, HMGP, PDM
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management, Fire Department
Status	Ongoing

Description	First Aid Training
Analysis	Promote first aid training for all residents
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	$1,000
Funding	General fund, Red Cross, YMCA
Timeline	Not yet started
Priority	High
Lead Agency	City Administration, Fire Department
Status	Not yet started

Description	Weather Radios
Analysis	Purchase weather radios
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	Flood, Thunderstorm, High Wind, Hail, Tornado, Severe Winter Storm
Estimated Cost	$50/radio
Funding	General fund, Salvation Army, HMGP
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management
Status	Ongoing

Description	Civil Service Improvements
Analysis	Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This includes ATV's, fire trucks, water tanks/trunks, snow removal equipment, etc.
Goal/Objective	Goal 3/ Objective 3.4
Hazard(s) Addressed	All hazards
Estimated Cost	$1,000,000
Funding	Fire Department, HMGP, PDM
Timeline	2-5 years
Priority	High
Lead Agency	Fire Department
Status	Not yet started

Description	Emergency Communication
Analysis	Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. Establish inner-operable communications.

Description	**Emergency Communication**
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$100,000
Funding	Sales tax
Timeline	2-5 years
Priority	Medium
Lead Agency	Law Enforcement Center, Emergency Management
Status	Not yet started

Description	**Emergency Operations Center**
Analysis	Identify and establish an Emergency Operations Center
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	General funds, HMGP, PDM
Timeline	1-3 years
Priority	High
Lead Agency	Law Enforcement Center, Emergency Management
Status	Not yet started.

Description	**Infrastructure Assessment Study**
Analysis	Conduct an assessment of bridges in the city and assess other potential areas of concern.
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	General funds
Timeline	1-3 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

Description	**Higher Building Codes and Standards**
Analysis	Promote the use of higher codes and standards, such as the Fortified for Safer Living Standard, in order to provide greater protection for any new construction or building retrofits.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	All hazards
Estimated Cost	$1,000
Funding	General funds
Timeline	1-3 years
Priority	Medium
Lead Agency	Planning and Zoning
Status	Not yet started

Description	**Update Comprehensive Plan**
Analysis	Update comprehensive plan. Integrate plan with Hazard Mitigation Plan components.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	All hazards
Estimated Cost	$75,000
Funding	General fund
Timeline	1 year
Priority	Medium

Description	Update Comprehensive Plan
Lead Agency	Planning and Zoning
Status	Plan under development

Description	Intergovernmental Support
Analysis	Support other local governmental entities, such as fire departments, schools, and townships in the identification and pursuit of mitigation actions.
Goal/Objective	Goal 4/ Objective 4.2
Hazard(s) Addressed	All hazards
Estimated Cost	Staff Time
Funding	N/A
Timeline	1-3 years
Priority	High
Lead Agency	Fire Department
Status	Ongoing

Description	Infrastructure Hardening
Analysis	Harden critical facilities to withstand high winds, hail, heavy snow, etc. by hardening roofs, hail resistant barriers to HVAC systems, shatter-proofing windows, building tie-downs and anchors, and other architectural designs that reduce damage.
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados, Severe Winter Storms, Hail
Estimated Cost	$200,000
Funding	Renewal fund, sales tax
Timeline	5 years
Priority	Low
Lead Agency	City Administration, Public Works
Status	Not yet started

Description	Land Use Regulations
Analysis	Develop land use ordinances and regulations to prevent storage of chemicals near residential developments.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Chemical spills
Estimated Cost	$1,000
Funding	General fund
Timeline	2-5 years
Priority	Medium
Lead Agency	Planning and Zoning
Status	Not yet started

Description	Community Rating System
Analysis	Participation in the CRS, part of the NFIP, can provide a movement for the community to undertake a number of projects and activities designed to increase the flooding mitigation efforts.
Goal/Objective	Goal 1/ Objective 1.1
Hazard(s) Addressed	Flooding
Estimated Cost	Staff Time
Funding	N/A
Timeline	1-3 years
Priority	High
Lead Agency	Planning and Zoning
Status	Not yet started

Description	Drainage Ditches
Analysis	Deepen drainage ditches and clean out culverts.
Goal/Objective	Goal 3/ Objective 3.5
Hazard(s) Addressed	Flooding
Estimated Cost	$200,000
Funding	General fund, FMA, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Not yet started

Description	Stormwater System and Drainage Improvements
Analysis	Stormwater system improvements may include pipe upsizing and additional inlets. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements.
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	Flooding
Estimated Cost	$300,000
Funding	General fund, FMA, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Not yet started

Description	Transportation Drainage Improvements
Analysis	Make improvements to roadways and drainage ways to prevent damage to key transportation routes.
Goal/Objective	Goal 2/ Objective 2.4
Hazard(s) Addressed	Flooding
Estimated Cost	$100,000
Funding	Sales tax, FMA
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Not yet started

Description	Stormwater Management Committee
Analysis	Establish a stormwater development committee to oversee improvements to the stormwater system and to respond to community concerns.
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	Flooding
Estimated Cost	Staff Time
Funding	N/A
Timeline	1-2 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

Description	Development Restrictions
Analysis	Enhance floodplain regulations to restrict types of development allowed in the floodplain.
Goal/Objective	Goal 3/ Objective 3.1

Description	Development Restrictions
Hazard(s) Addressed	Flooding
Estimated Cost	Staff Time
Funding	N/A
Timeline	1-2 years
Priority	High
Lead Agency	Planning and Zoning
Status	Not yet started

Description	Bury Power and Service Lines
Analysis	Work with local Public Power Districts to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures to be less vulnerable to storm events.
Goal/Objective	Goal 2/ Objective 2.1
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados, Severe Winter Storms
Estimated Cost	$50,000-$70,000 (per mile for electrical)
Funding	Public Power Districts, HMGP, PDM
Timeline	5+ years
Priority	Medium
Lead Agency	Public Works
Status	New developments have most of the power lines buried.

Description	Hazardous Tree Removal
Analysis	Identify and remove hazardous limbs and/or trees.
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados, Severe Winter Storms
Estimated Cost	$200,000
Funding	Sales tax, Arbor Day Foundation
Timeline	2-5 years
Priority	High
Lead Agency	Public Works
Status	Trees removed as needed.

Description	Surge Protectors
Analysis	Purchase and install surge protectors on sensitive equipment in critical facilities
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	Severe Thunderstorms
Estimated Cost	$50,000
Funding	Sales tax
Timeline	2-5 years
Priority	High
Lead Agency	Technology
Status	Ongoing

Description	Tree Assistance
Analysis	Educate public on appropriate tree planting and establish an annual tree trimming program to assist low income and elderly
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados
Estimated Cost	$20,000
Funding	Sales tax, Arbor Day Foundation
Timeline	2-5 years
Priority	High

Description	Tree Assistance
Lead Agency	Sales tax, Arbor Day Foundation
Status	Not yet started

Description	Tree City USA
Analysis	Maintain certification with Tree City USA
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Tree Board
Status	Ongoing

Description	Tree Planting
Analysis	Develop city tree planting and maintenance guidelines.
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Tree Board
Status	Ongoing

Description	Education Program on Mitigation Actions
Analysis	Establish a community education program to increase awareness related to household level mitigation actions
Goal/Objective	Goal 4/ Objective 4.3
Hazard(s) Addressed	All hazards
Estimated Cost	Staff Time
Funding	N/A
Timeline	2-5 years
Priority	Medium
Lead Agency	City Administration
Status	Not yet started

Description	Designated Snow Routes
Analysis	During winter events, the community will have designated snow routes for the community to use.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$1,000
Funding	General fund
Timeline	1-2 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

Description	Snow Fences
Analysis	Construct snow fences to protect main transportation routes and critical facilities from excessive snow drifting and road closure.

Description	Snow Fences
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$2,000
Funding	General fund
Timeline	1-2 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

Description	Snow Plow
Analysis	Purchase additional snow plow.
Goal/Objective	Goal 3/ Objective 3.8
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$200,000
Funding	General fund
Timeline	2-5 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

Removed Mitigation Actions

Description	Anti-hail Cannon
Analysis	Purchase and use an anti-hail device/cannon to protect community from hail storms
Reason for Removal	Too costly for the benefit at this time

PARTICIPANT SECTION
FOR THE

HOMER COMMUNITY SCHOOL DISTRICT

Papio-Missouri River NRD

Multi-Jurisdictional Hazard Mitigation Plan

February 2016

INTRODUCTION

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. This HMP includes two primary sections: the Regional Hazard Mitigation Plan and the Community (i.e. County, Municipal, and School District) Profiles. Community Profiles include similar information that's also provided in the Regional section, but rather is specific information for the Homer Community School District, including the following elements:

- Participation
- Location / Services
- Demographics
- Future Development
- Critical Facilities
- School Drills and Staff Trainings
- Risk Assessment
- Administration / Capability Assessment
- Plan Integration
- Mitigation Strategy

PARTICIPATION

LOCAL PLANNING TEAM

Table HCS.1 provides the list of participating members that comprised the Homer Community 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, hazard history and impacts, identifying hazards of greatest concern for the district, and prioritization of mitigation actions that address the hazards at risk to the district.

Table HCS.1: Homer Community Schools Local Planning Team

Name	Title	Department / Jurisdiction
Cheryll Malcom	Superintendent	Homer Community School District
Randy Pirner	High School Principal	Homer Community School District
Jeff Horner	Guidance Counselor/Safety& Crisis Team Chair	Homer Community School District

PUBLIC PARTICIPATION

The local planning team made efforts 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 HCS.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
September 8, 2015	Post Project Flyer	http://www.homerknights.org/district-information/
August 25, 2015	Passed Resolution of Participation	School Board Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

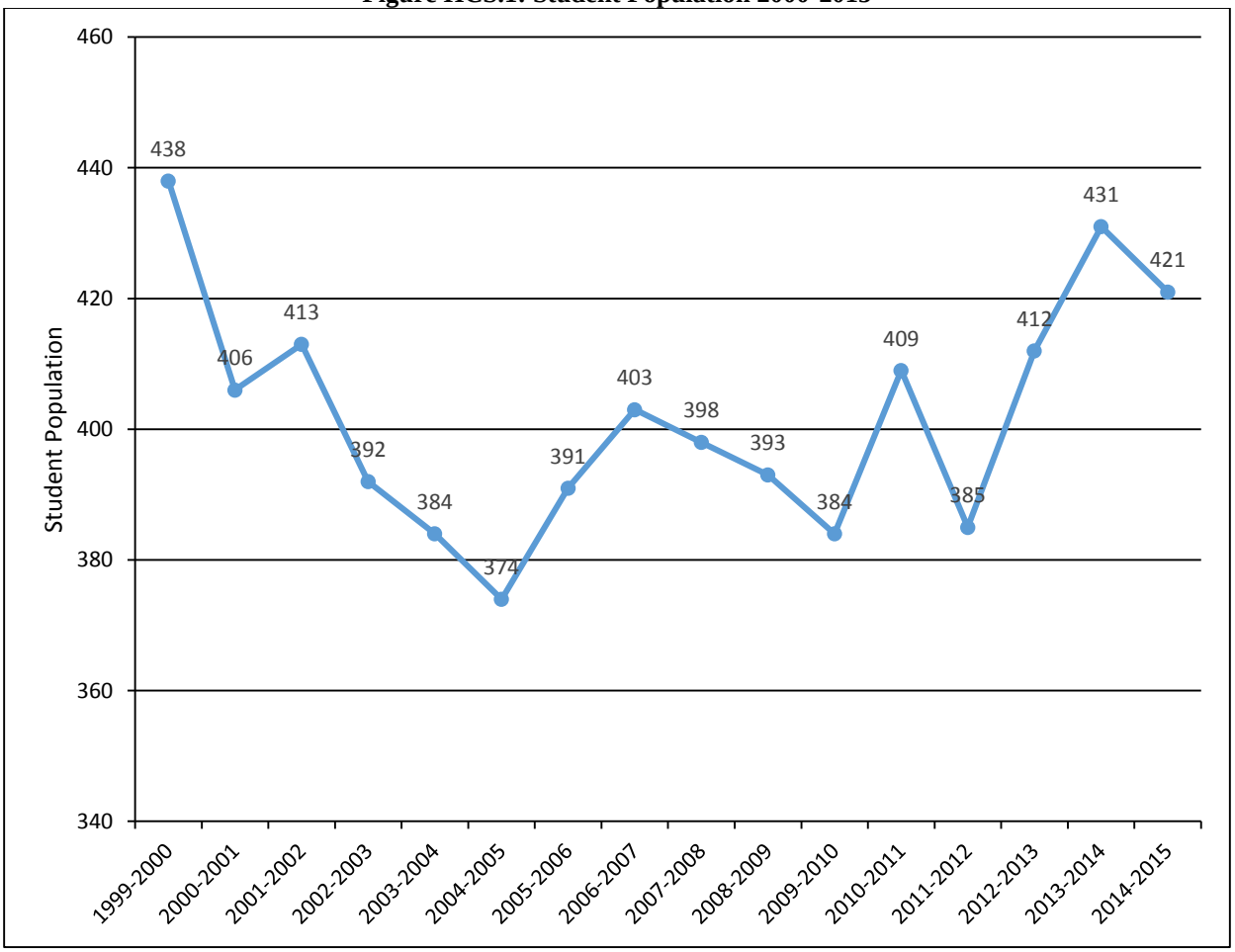
LOCATION AND SERVICES

The Homer Community School District is a PK-12 district that operates two schools, which includes one elementary school and one high school. The district serves students residing in the communities of Homer and Jackson as well as portions of rural Dakota County. The school serves the community after normal business hours by providing a location for youth athletic teams to practice, patrons to engage in fitness activities, and for local organizations to meet.

DEMOGRAPHICS

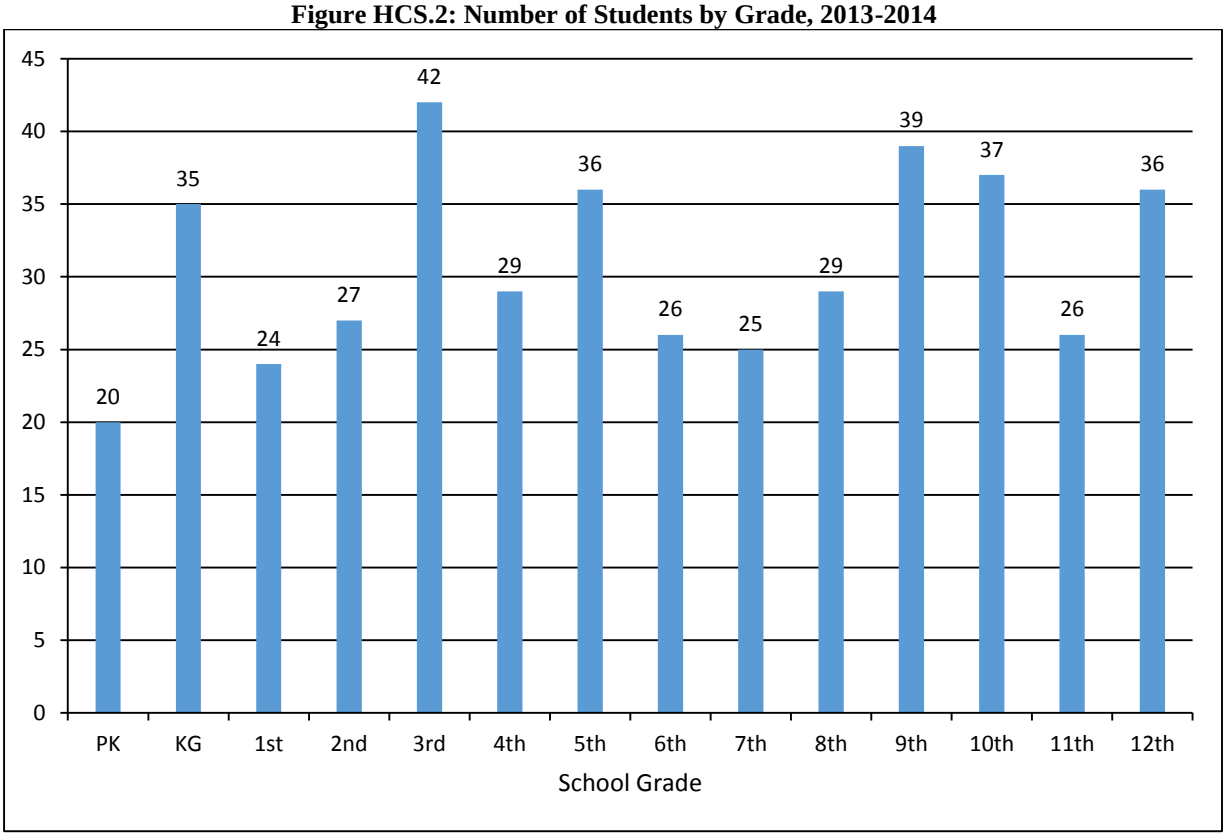
The following figure displays the historical student population trend starting with the 1999-2010 school year and ending with the 2014-2015 year. It indicates that the student population has fluctuated between 380 and 440 students over the years. The most recent enrollment was 421 for the 2014-2015 academic year. The school district anticipates that enrollment will remain between 400 and 430 students over the next five years. The district employs 62 faculty and staff members, 17 non-certified staff members, and two contracted professionals. In addition, the food service management company employs 4 staff members on site.

Figure HCS.1: Student Population 2000-2015



Source: Nebraska Department of Education

Figure HCS.2: Number of Students by Grade, 2013-2014



Source: Nebraska Department of Education

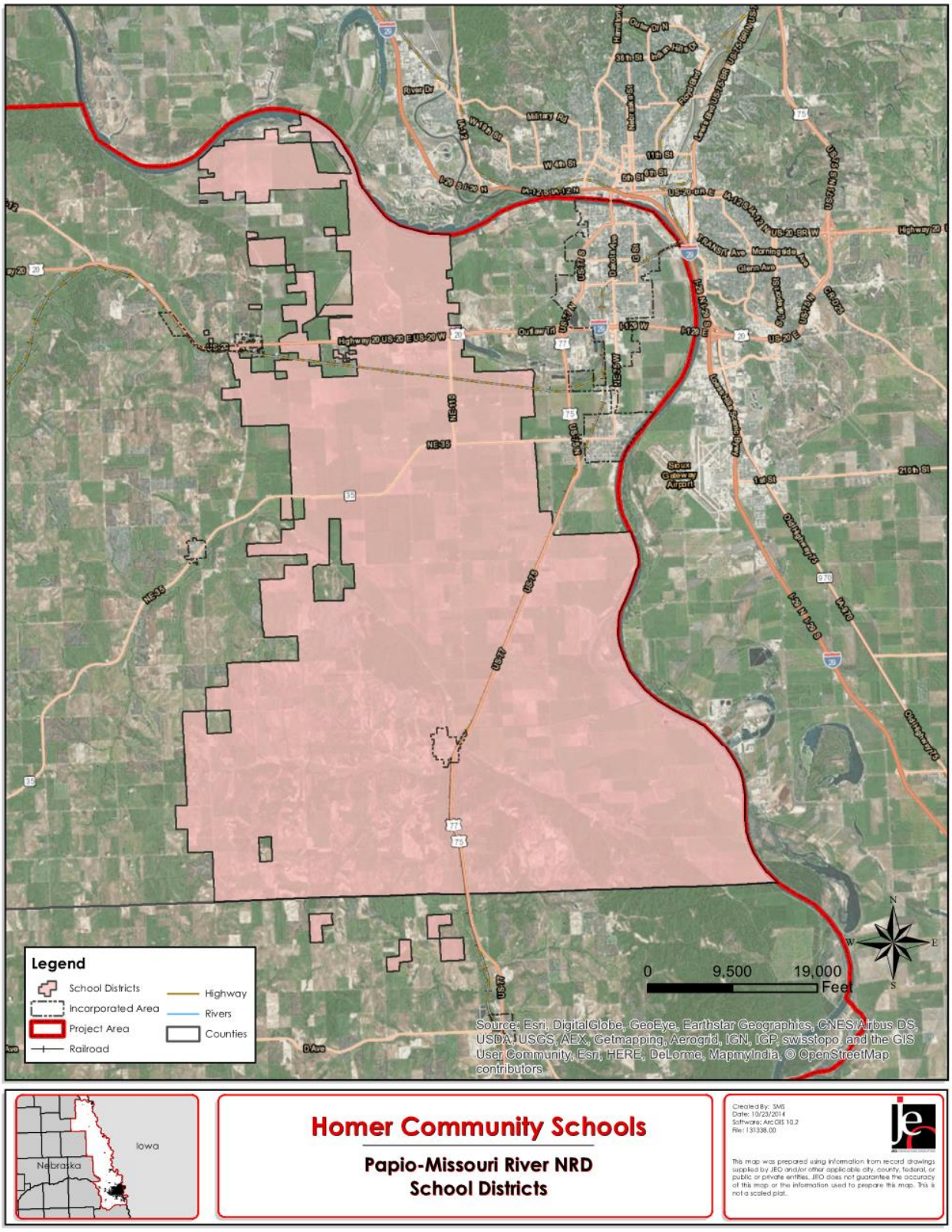
The figure above indicates that the largest number of students are in the 3rd grade with 42 students. The lowest population of students are in pre-kindergarten with 20 students. According to the Nebraska Department of Education, nearly 42 percent of students receive either free or reduced priced meals at school. This is similar to the state average of 45 percent. Additionally, there are over 17 percent of students enrolled in the Special Education Program which is slightly higher than the state average. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

Table HCS.3: Student Statistics, 2013-2014

	School District	State of Nebraska
Free/Reduced Priced Meals	41.53	44.93%
School Mobility Rate	6.33	12.10%
English Language Learners	*	6.04%
Special Education Students	17.27	15.74%

Source: Nebraska Department of Education

Figure HCS.3: School District Map



FUTURE DEVELOPMENT TRENDS

The Homer Community School District is conducting a study for the possibility of adding classrooms and a storage area to the school building and grounds. However, there have been no official decisions on new construction or the time-frame for this to begin.

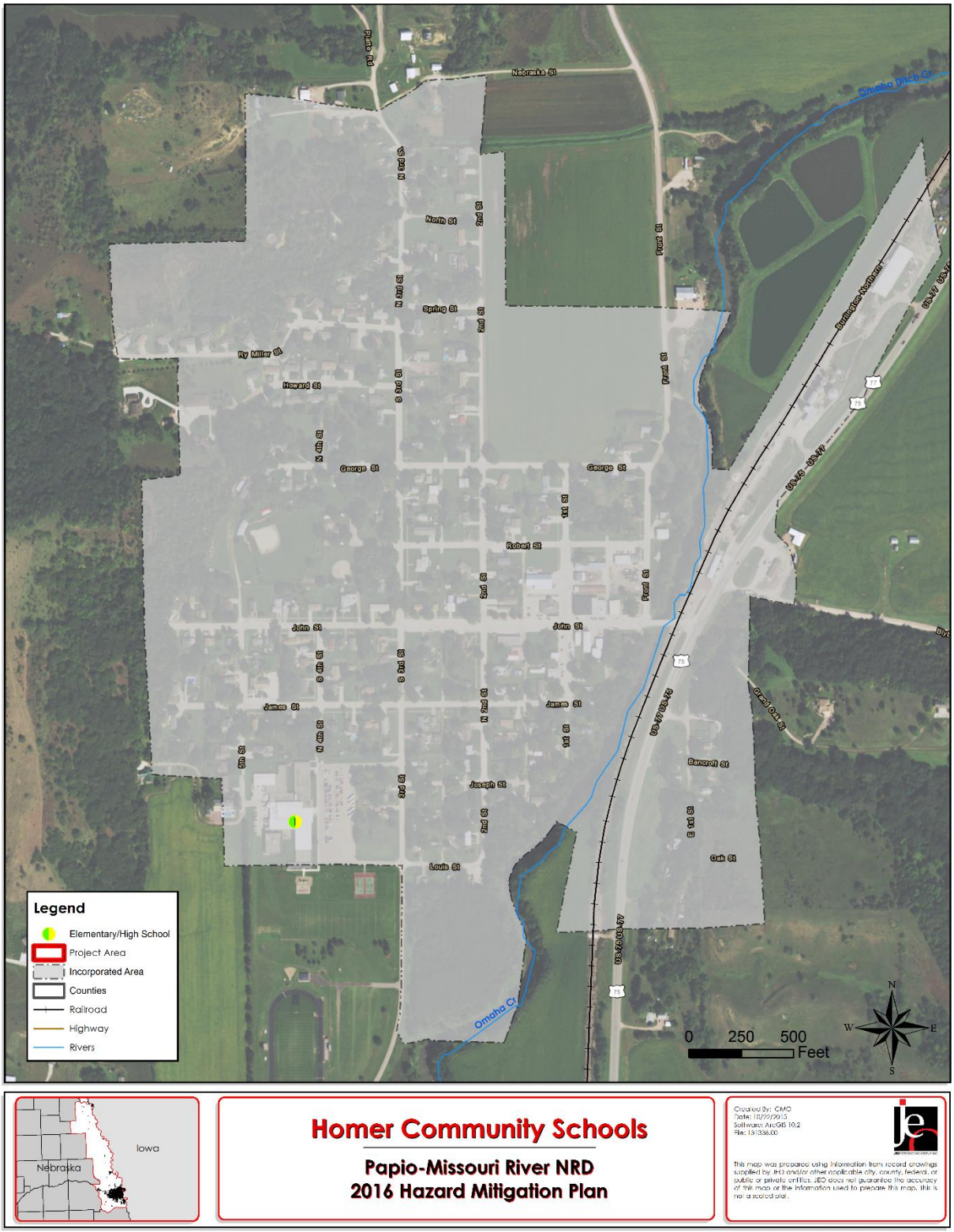
CRITICAL FACILITIES

The school district operates one joint facility. This facility is listed below, along with information indicating the school's address, number of students and staff, if the facility is used as a Red Cross Shelter, and the presence of a tornado safe room. A weather radio is located in the school's main office.

Table HCS.4: Critical Facilities

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	Safe Room (Y/N)	Backup Power Generator (Y/N)	Located in Floodplain (Y/N)
1	Homer Elementary School and High School	212 S. 3rd, Homer	230, 191	62	Y	N	N	N

Figure HCS.4: Critical Facilities



SCHOOL DRILLS AND STAFF TRAINING

The school district by law is required to conduct a number of drills throughout the year. Students participate in monthly fire drills, tornado drills twice per year, bus evacuations twice per year, and also an active shooter drill and school evacuation every other year.

The school has a Safety and Crisis Team comprised of school staff. Members of the district's Safety and Crisis Team have attended trainings focusing on appropriate responses to emergencies. Many employees have taken part in district sponsored First Aid and CPR training, and the Dakota County Sheriff's Department has provided ALICE training for all of the district's staff members.

HISTORICAL OCCURRENCES

For a table of historical weather hazard occurrences according to the National Climatic Data Center, please see the Participant Section for the Village of Homer.

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for the district. Refer to the beginning of *Section Seven: Participant Sections* for a detailed 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 HCS.5: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	No	None
Agricultural Plant Disease	Yes	None
Chemical Spills (Fixed Site)	No	None
Chemical Spills (Transportation)*	Yes	School proximity to rail line
Civil Disorder	No	None
Dam Failure	N/A	Not applicable
Drought	Yes	None
Earthquakes	No	None
Extreme Heat	Yes	None
Flooding	Yes	None
Grass/Wildfires	Yes	None
Hail*	Yes	Damages to school and vehicles
High Winds*	Yes	Damages to school; power outages
Landslides	No	None
Levee Failure	N/A	Not applicable
Radiological Incident (Fixed Site)	N/A	Not applicable
Radiological Incident (Transportation)	No	None
Severe Thunderstorms*	Yes	Power outages; property damages
Severe Winter Storms	Yes	None

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Terrorism	No	None
Tornados*	No	Student and staff safety; power outages; property damage
Urban Fire	Yes	None

**Identified by the local planning team as a top concern for the district*

For more information regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides specific information for the school district that is relevant to each hazard. Only hazards identified either 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)
The local planning team identified Chemical Spills (Transportation) as one of the top concerns for the school district. The school is located close to a rail line, so a derailment or severe damage to a train car carrying chemicals could cause an evacuation or shelter in place at the school depending on the chemical spill incident. The district is also concerned that in the event of an evacuation, the busses have limited access to the highway to safely and quickly evacuate the students and school personnel.

Implemented mitigation projects:
- The local emergency operations plan is in place for chemical spills

Identified mitigation projects:
- Provide educational materials to residents on hazardous chemical spills

Flooding
Although flooding was not identified as a top concern for the school district, the Village of Homer does have a 100 year floodplain on the east side of the village. The school building is not located within the floodplain, and the district did report any damage from flooding in the past. Please refer to the Village of Homer's Participant Section for additional information regarding this hazard in the community.

Hail
The school district identified hail as a hazard of top concern. The school has had damages to the school building and its equipment including the air conditioning units, vehicles, and screens from past hail events in the last five years. The NCDC reports 8 hail events in the Village of Homer with hailstone size ranging from 0.88 inches to 1.75 inches. It is possible, according to climatology, for hailstone size to reach 2.50 inches or greater. The school's roof is being replaced with a Duro Last roof, which is resistant to fire, chemicals, grease, high winds, and punctures.

Implemented mitigation projects:
- School facilities are insured for hail damage
- New roof is being installed

Identified mitigation projects:
- Install hail resistant roofing and protection to HVAC systems

Severe Thunderstorms
Severe Thunderstorms are identified as a significant concern to the school district. Severe thunderstorms are part of regular climate in the region and often bring high winds, hail, lightning, and heavy rain. Thunderstorms can also cause power outages and flash flooding. The school has not had any direct impacts from severe thunderstorms in the past except for hail damage as noted previously. The school has experienced power outages about two to three times in the last five years. The district does use surge protectors on computers. Additionally, the district provides information on hazards to families in a monthly newsletter, and it's also available in the student handbook.

Implemented mitigation projects:
- A weather radio is located in the school
- Educational material is provided to families in monthly newsletter and student handbook
- Surge protectors are used

Identified mitigation projects:
- Obtain backup power generator for the school
- Identify and remove hazardous trees

Tornados and High Winds
Tornados and high winds were identified as top hazards of concern for the school district. The impacts from these hazards could include damages or complete destruction to the building, property, and equipment as well as a great concern for injuries to students and staff. No tornados have been reported in the village, but it's a concern to the district that there is not a safe room available in the school for seeking shelter in during a possible tornado. The school district has a Safety and Crisis Team, has a Safety and Crisis Plan, and conducts drills regularly.

Implemented mitigation projects:
- Regular tornado drills are performed twice per year
- A weather radio is located in the school
- Educational material is provided to families in monthly newsletter and student handbook

Identified mitigation projects:
- Obtain backup power generator for the school
- Identify and remove hazardous trees

ADMINISTRATION/CAPABILITY ASSESSMENT
The school district has a superintendent, two principals, and additional administrative support staff. The school board is made up of a six member panel. The district also has a limited number of additional departments and staff that may be available to implement hazard mitigation initiatives. They include:

- Food Services
- Maintenance
- School Nurse
- Technology Coordinator
- School Counselor
- School Psychologist
- School Administration
- Safety and Crisis Team

Members of the School Administration, the Safety and Crisis Team, and School Maintenance may be involved in implementing hazard mitigation projects. Furthermore, the school district does have the authority to levy taxes for specific purposes.

PLAN INTEGRATION

The emergency operations plan for the school district is called the Safety and Crisis Plan, and it was revised in August of 2015. The district's Safety and Crisis Plan is reviewed with all staff members annually. As noted earlier, each year a number of mock drills are conducted with staff and students. Furthermore, a chemical hazard assessment was completed by EMC Insurance in the spring of 2015. The Nebraska Department of Education requires a safety audit annually. These are completed in the spring of each year.

MITIGATION STRATEGY

New Mitigation Actions

Description	**Back-up Power Generator**
Analysis	Provide a portable or stationary source of backup power.
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$30,000+
Funding	District funds, HMGP
Timeline	2-5 years
Priority	High
Lead Agency	Maintenance
Status	Not yet started.

Description	**Emergency Communication Devices**
Analysis	Purchase, replace, or upgrade emergency communication devices and antennas such as portable radios and cell boosters for use during and after a hazardous event.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	Varies
Funding	District funds, HMGP
Timeline	1 year
Priority	High
Lead Agency	IT, Administration
Status	The school gets poor cell service. A new cell booster would help improve communications during an event.

Description	**Hail Resistant Roofing**
Analysis	Encourage the use of hail resistant roofing for new construction and roof replacements.
Goal/Objective	Goal 3/ Objective 3.4
Hazard(s) Addressed	Hail, High Winds, Tornados, Severe Thunderstorms
Estimated Cost	Varies
Funding	District funds, HMGP
Timeline	1 year
Priority	High
Lead Agency	Administration, Maintenance
Status	A new Duro Last roof is being installed currently.