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County Profile

Richardson County

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

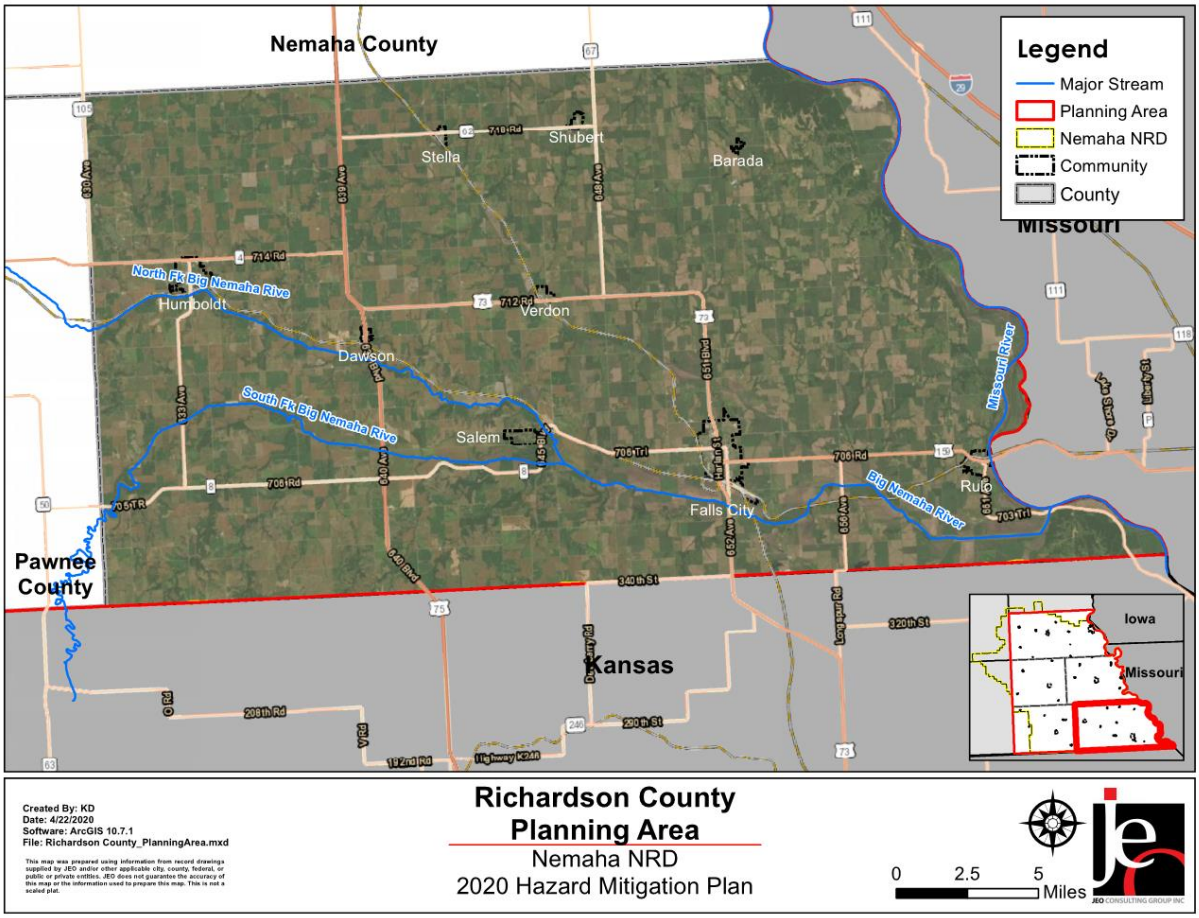
Table RCO.1: Richardson County Local Planning Team

Name	Title	Jurisdiction
Brain Kirkendall	Emergency Manager and Floodplain Administrator	Richardson County
Steve Darveau, Jr	Highway Superintendent	Richardson County
Terry Frank	County Commissioner	Richardson County
Mark Junker	Tribal Response Coordinator	Sac & Fox Nation

Location and Geography

Richardson County is located in southeastern Nebraska and is bordered by Pawnee and Nemaha Counties. It also borders the States of Missouri to the east and Kansas to the south. The total area of Richardson County is 555 square miles. The Missouri River forms its eastern boundary and the Big Nemaha River run east to west through the county. Most of the county's land is used for agricultural production.

Figure RCO.1: Richardson County



Transportation

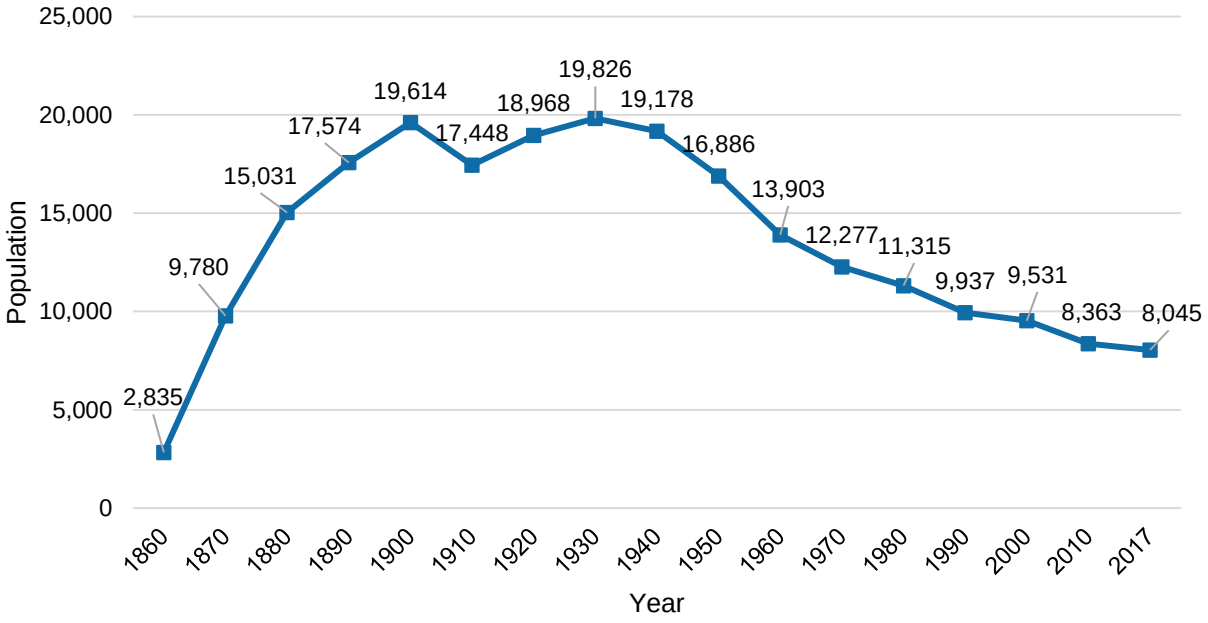
Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. Richardson County's

major transportation corridors include US Highways 73, 75, and 159 and Nebraska State Highways 4, 8, 62, 67, and 105. A Burlington Northern Santa Fe Railway rail line runs east to west through the county and a Union Pacific Railroad line runs north to south. The county also has two air landing strips located in Falls City and Shubert. Transportation routes of most concern are Highways 36, 75, and 159. Anhydrous ammonia, gas, propane, oil, and ethanol are regularly transported on the railroads, Highway 73, and Highway 75. During past heavy rain events, Highway 7 and Highway 159 have routinely closed due to flooding.

Demographics, Employment, and Economics

The following figure displays the historical population trend from 1860 to 2017. This figure indicates that the population of Richardson County has been decreasing since 1930 and was at 8,045 people in 2017.

Figure RCO.2: Population



Source: U.S. Census Bureau, 1860 - 2017[1]

The young, elderly, minority populations, and low-income populations may be more vulnerable to certain hazards than other groups. The following table indicates that the county is older than the state, has less diverse population, and has a higher poverty rate. The per capita income in Richardson County is lower than the State of Nebraska. A more detailed discussion of the vulnerabilities associated with age, ethnicity, and poverty can be found in *Section Four: Risk Assessment*.

Table RCO.2: Demographics

	Richardson County	State of Nebraska
Median age	47.6 years old	36.3 years old
Hispanic	1.9%	10.5%
Below the federal poverty line	16.3%	12.0%
Per capita income	$28,109	$29,866

Source: U.S. Census Bureau[2]

1 United States Census Bureau. "American Fact Finder: S0101: Age and Sex." [database file]. https://factfinder.census.gov.

Major Employers

Major employers in the county include healthcare related industries, city and county governments, and self-employed agriculture. A large percentage of residents commute to Tecumseh, Auburn, Nebraska City, and Pawnee City for employment.

Table RCO.3: Business in Richardson County

	Total Businesses	Number of Paid Employees	Annual Payroll (In Thousands)
Total for all sectors	268	1,877	54,218

Source: U.S Census Bureau[2]

Agriculture is important to the economic fabric of the State of Nebraska. Richardson County's 511 farms cover 251,097 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute to agriculture by producing, processing and marketing farm products. These businesses generate income, employment and economic activity throughout the region.

Table RCO.4: Agricultural Inventory

	Agricultural Inventory
Number of farms with harvested cropland	511
Acres of harvested cropland	251,097

Source: USDA Census of Agriculture, 2019[3]

Housing

Housing age can serve as an indicator of vulnerability, as structures that are poorly maintained or that were built prior to state building codes are at greater risk to damage from hazards. The following table indicates that most of the housing in Richardson County was built prior to 1970 (71.6%). The original Flood Insurance Rate Map (FIRM) was developed in May 1990. Housing built in the floodplain after the FIRM was adopted is built to a standard of 1 foot above the base flood elevation, as required by the floodplain ordinance; housing built prior to 1990 will be vulnerable to flood damage.

In the county, about 2.7% of housing units are mobile homes. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Richardson County has less renter-occupied but more vacant housing than the state. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards.

2 United States Census Bureau. "American Fact Finder: Geography Area Series County Business Patterns 2016 Business Patterns." [database file]. https://factfinder.census.gov.

3 U.S. Department of Agriculture. 2019. "2017 Census of Agriculture." https://www.nass.usda.gov/Publications/AgCensus/2017/.

Table RCO.5: Housing

	Richardson County	State of Nebraska
Housing built before 1970	71.6%	47.2%
Mobile and manufactured	2.7%	3.4%
Renter-occupied	22.6%	34.0%
Vacant	13.7%	9.2%

Source: U.S. Census Bureau[4,5]

Future Development Trends

Over the past five years, Southeast Community College, and CBG all built new buildings. The Wilderness Falls housing development was also built. According to the latest American Community Survey estimates, Richardson County's population is declining. The local planning team attributes the decline to a lack of job opportunities and smaller farms. Municipal funds are limited to maintaining current facilities and systems, with a large portion already budgeted to road and bridge work. Additionally, funds have decreased over recent years with larger portions going to schools and low-income housing. In the next five years, additional houses in Wilderness Falls are anticipated. Hemp production industries are also planned.

Parcel improvements and Valuation

GIS parcel data was acquired from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. Property improvements include any built structures such as roads, buildings, and paved lots. 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 RCO.6: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements of Floodplain	Value of Improvements in Floodplain
5,770	$265,672,860	892	15.45%	$40,928,198

Source: GIS Workshop/Richardson County Assessor, 2019[6]

4 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov.

5 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov.

6 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of 14 chemical storage sites in the unincorporated areas of Richardson County. The table below lists the name and location of the sites and whether they are in the floodplain.

Table RCO.7: Chemical Storage Fixed Sites

Facility Name	Address	In Floodplain (Y/N)
Magellan Pipeline Company LP	65156 710 Rd, Falls City	N
Dawson Ag Center	63834 710 Rd, Dawson	N
Falls City Potable Water	70434 661 Ave, Rulo	N
AT&T Interstate 1160	NE-8, Dawson	N
Nebraska Fertilizer Co Inc	65915 706 Rd, Rulo	N
Stateline Ag Enterprises Inc	64016 705 Rd, Dawson	N
Halverson Lease	US-75, Dawson	Y
Flat Water Wind Farm LLC	68345, Nebraska	Y
OPPD Substation No 1398	63450 706 Rd, Humboldt	N
Brandt 27-1	651 Ave, Falls City	N
Brandt Unit 27-2	710 Rd & 651 Ave, Falls City	N
Georges Unit 27-1	651 Ave, Falls City	N
Fiedler 35-1	714 Rd & 646 Ave, Verdon	N
Merz-Debell	714 Rd, Verdon	Y

Source: Nebraska Department of Environment and Energy, 2019[7]

Critical Facilities

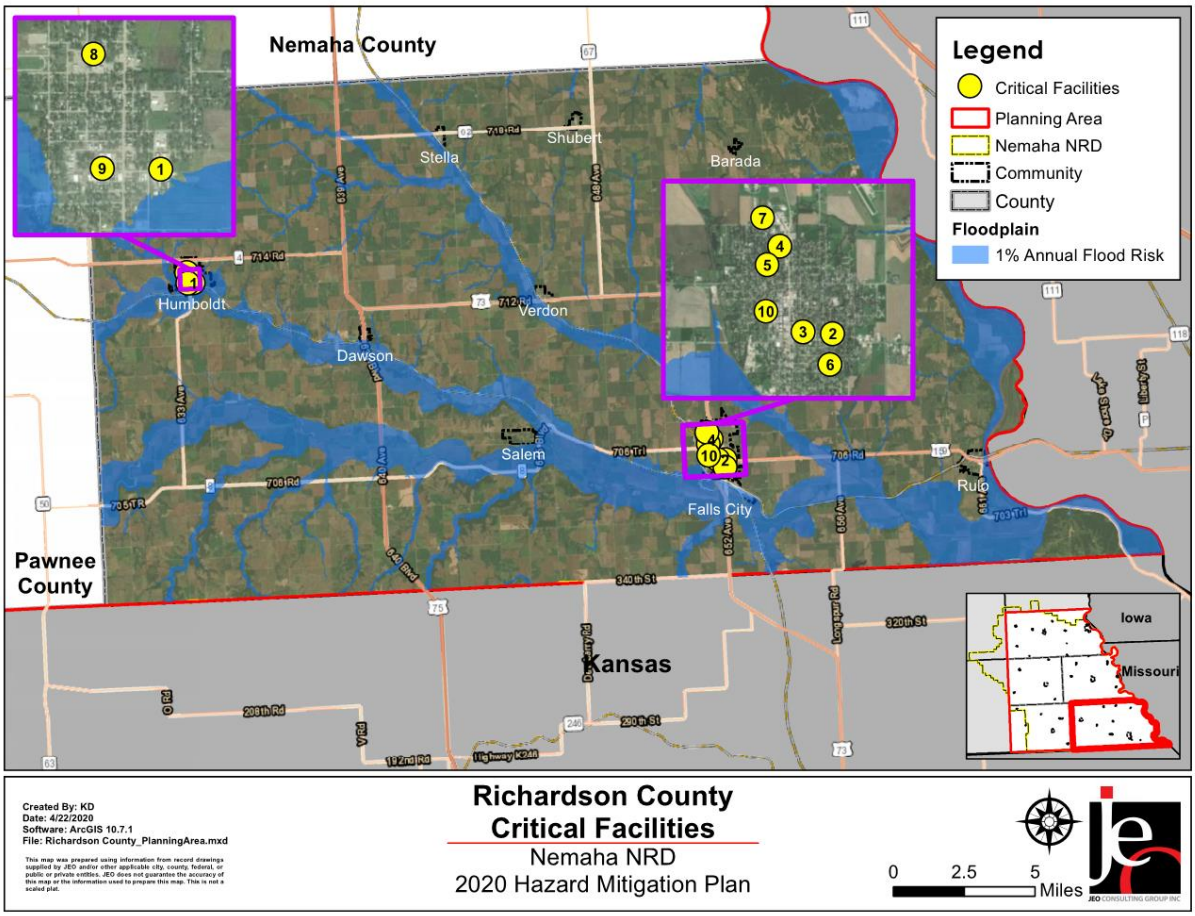
The planning team identified critical facilities necessary for Richardson County's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the county.

Table RCO.8: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	Ag Society Building	Y	N	N
2	Falls City Public High School	Y	N	N
3	Falls City Public Middle School	Y	N	N
4	Falls City Public North School	Y	N	N
5	Falls City Services (Electricity/Gas)	N	Y	N
6	Falls City South School	Y	N	N
7	Healthcare Home	N	Y	N
8	HTRS Public Schools	Y	N	N
9	Humboldt Auditorium	Y	N	N
10	Prichard Auditorium	Y	N	N

7 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

Figure RCO.3: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

The following table provides a statistical summary for hazards that have occurred in the county. These are county-specific broad estimates.

Table RCO.9: County Hazard Loss History

Hazard Type		Count	Property Damage	Crop Damage[2]
Agricultural Disease	Animal Disease[1]	24	1,469 animals	N/A
	Plant Disease[2]	15	N/A	$146,067
Chemical & Radiological Spills (Fixed Site)[3]		3	$0	N/A
Chemical & Radiological Spills (Transportation)[4]		6	$572	N/A
Dam Failure[5]		0	N/A	N/A
Drought and Extreme Heat	Drought[6]	432/1,496 months	N/A	$28,435,118
	Extreme Heat[7]	Avg. 6 days/year		
Earthquake[13]		0	$0	N/A
Flooding[8]	Flash Flood	10	$12,000	$5,017,271

Hazard Type		Count	Property Damage	Crop Damage[2]
	Flood	56	$2,106,000	
Levee Failure[10, 11]		1	N/A	N/A
Severe Thunderstorms[8]	Thunderstorm Wind Range: 50-70 kts Average: 53 kts	62	$29,000	$14,010,272
	Hail Range: 0.7-2.5 in Average: 1 in	95	$30,000	
	Heavy Rain	12	$0	
	Lightning	2	$135,000	
Severe Winter Storms[8]	Blizzard	4	$0	$482,903
	Extreme Cold/Wind chill	4	$0	
	Heavy Snow	7	$0	
	Ice Storm	3	$2,000,000	
	Winter Storm	30	$0	
	Winter Weather	4	$0	
Terrorism[12]		0	$0	N/A
Tornadoes and High Winds[8]	High Winds Range: 41-62 kts Average: 48 kts	12	$100,000	$276,581
	Tornadoes Range: EF0-EF2 Average: EF0	11	$35,000	
Wildfire[9] *1 Fatality, 2 Injuries*		240	6,973 acres	$570
Total		**601**	**$4,447,572**	**$48,368,782**

N/A: Data not available
1 - NDA, 2014 – October 2019
2 - USDA RMA, 2000 – October 2019
3 - NRC, 1990 - November 2019
4 - PHSMA, 1971 - November 2019
5 - Stanford NPDP, 1911 - 2018
6 - NOAA, 1895 - August 2019
7 - NOAA Regional Climate Center, 1897 - September 2019
8 - NCEI, 1996 - September 2019
9 - NFS, 2010 - 2018
10 - USACE NLD, 1900 - 2019
11 - USACE, 2019
12 – Global Terrorism Database, 1970-2018
13 – USGS, 1900- November 2019

The following table provides a summary of hazards that have or have the potential to affect each participating jurisdiction in Richardson County. Each jurisdiction was evaluated for previous hazard occurrence and the probability of future hazard events on each of the 12 hazards profiled in this plan. The evaluation process was based on data collected and summarized in Table RCO.9; previous impacts or the potential for impacts to infrastructure, critical facilities, people, and the economy; and the proximity to certain hazards such as dams.

Table RCO.10: Richardson County and Community Hazard Matrix

Hazard	Ag. Disease	Chemical – Fixed Site	Chemical - Transportation	Dam Failure	Drought and Extreme Heat	Earthquakes	Flooding	Levee Failure	Severe Thunderstorms	Severe Winter Storms	Terrorism	Tornadoes and High Winds	Wildfires
Richardson County	X	X	X	X	X		X	X	X	X	X	X	X
Village of Dawson	X	X	X		X		X		X	X	X	X	X
City of Falls City	X	X	X		X		X		X	X	X	X	X
City of Humboldt	X	X	X	X	X		X		X	X	X	X	X
Village of Rulo	X	X	X		X		X	X	X	X	X	X	X
Village of Salem	X		X		X		X		X	X	X	X	X
Village of Shubert	X		X		X		X		X	X	X	X	X
Village of Stella	X	X	X		X		X		X	X	X	X	X
Village of Verdon	X	X	X		X		X		X	X	X	X	X
Dawson Rural Fire Department		X	X		X		X		X	X	X	X	X

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County Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the county. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the county's capabilities.

Mark Junker from the Sac & Fox Nation provided input as a stakeholder in the county. His identified top hazards are Chemical and Radiological Spills (Transportation), Drought and Extreme Heat, Flooding, Severe Winter Storms, and Tornadoes and High Winds. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Agricultural Animal and Plant Disease

Past impacts from animal and plant disease include soybean rust and blight and insect infestation. The county is primarily concerned with animal disease impacting the cattle population. Livestock is not heavy concentrated in one area but spread out between private owners and one sale barn. The Richardson County Local Emergency Operations Plan covers actions to take during an animal or plant disease outbreak. Farm assistance programs are also in place should an individual or business be impacted. Education about agricultural disease is offered by state and federal programs.

Chemical and Radiological Spills (Transportation)

The county has several plans in place to mitigate a chemical or radiological spill. The biggest concern is a potential large railroad spill near a populated area as it is not known what chemicals are being transported. Other transportation routes of most concern include Highway 73 and Highway 75. Chemicals transported on the highways include anhydrous ammonia, gasoline, propane, oil, and ethanol. There have been six reported spills, but they have all been small releases. The power plant for Falls City is located near the railroad tracks and if a spill occurred nearby, an evacuation of the plant may be needed. The county has plans in place to switch over to OPPD in case of an emergency.

Dam Failure

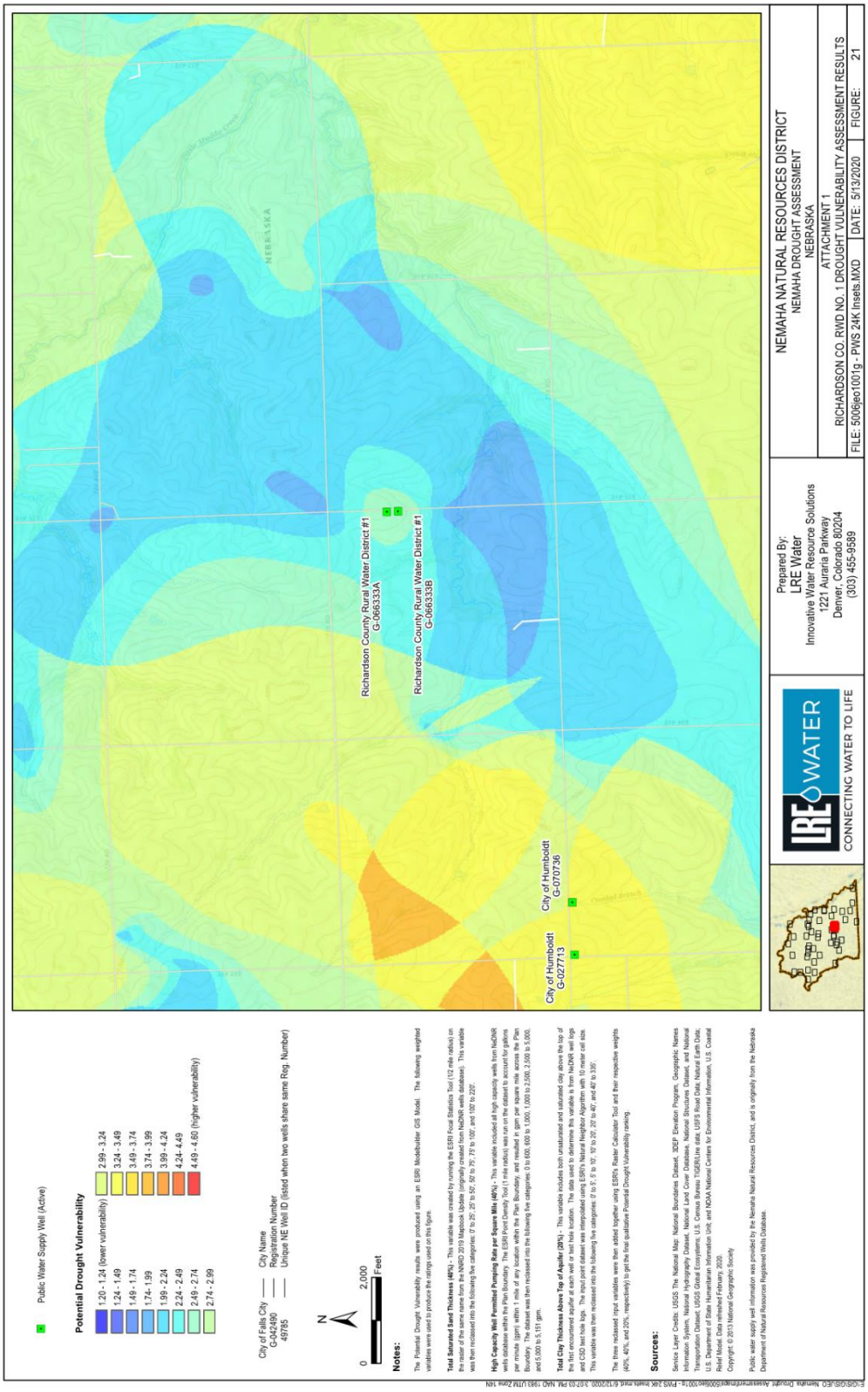
Although not identified as a hazard of top concern by the local planning team, there is one high hazard dam in the county. The figure below shows the locations and hazard levels of all the dams in the county. Dam inundation maps are not shown due to security concerns. There has been no historical record of dam failure.

Drought and Extreme Heat

The primary concern related to drought and extreme heat is damage to crops which has occurred during past drought events. Water supply, even during drought events, has been sufficient with very few recorded issues. Most communities have multiple wells that can be used during periods of drought. Several communities also have drought ordinances or response plans in place. The county monitors drought conditions in order to keep the public aware. In the event of extreme heat, there are several cooling centers in jurisdictions across the county.

As part of the HMP process, a qualitative analysis of the public water supply's vulnerability to drought was conducted. The map below shows the location of the county's rural water supply wells relative to potential drought vulnerability. Further analysis would need to be done to determine if additional wells are needed and where to best locate them. Additional information regarding the qualitative analysis can be found in the Drought Profile within *Section 4: Risk Assessment*.

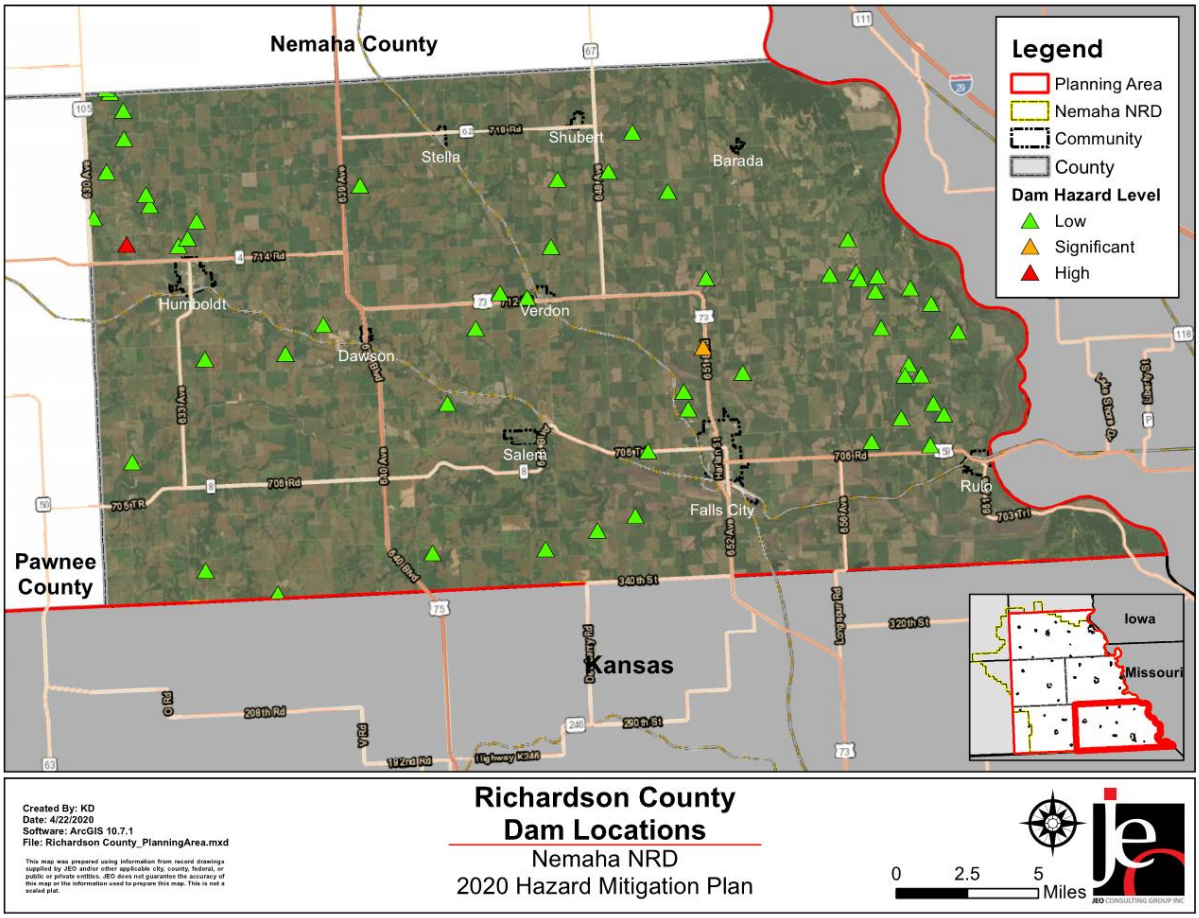
RCO.4: Public Water Supply Drought Vulnerability



Flooding

The county was most recently impacted by the March 2019 flood event. Farmers had to delay crop planting or were unable to plant at all, which had major effects on the local economy. Roads and bridges were also heavily damaged which impacted all areas of the county. Property damage during the event was fairly minimal and consisted mainly of residential homes. Riverine flooding from the Missouri River, Nemaha River, and Muddy River is the greatest concern. Critical facilities have not been damaged during past events.

Figure RCO.5: Dam Locations



Levee Failure

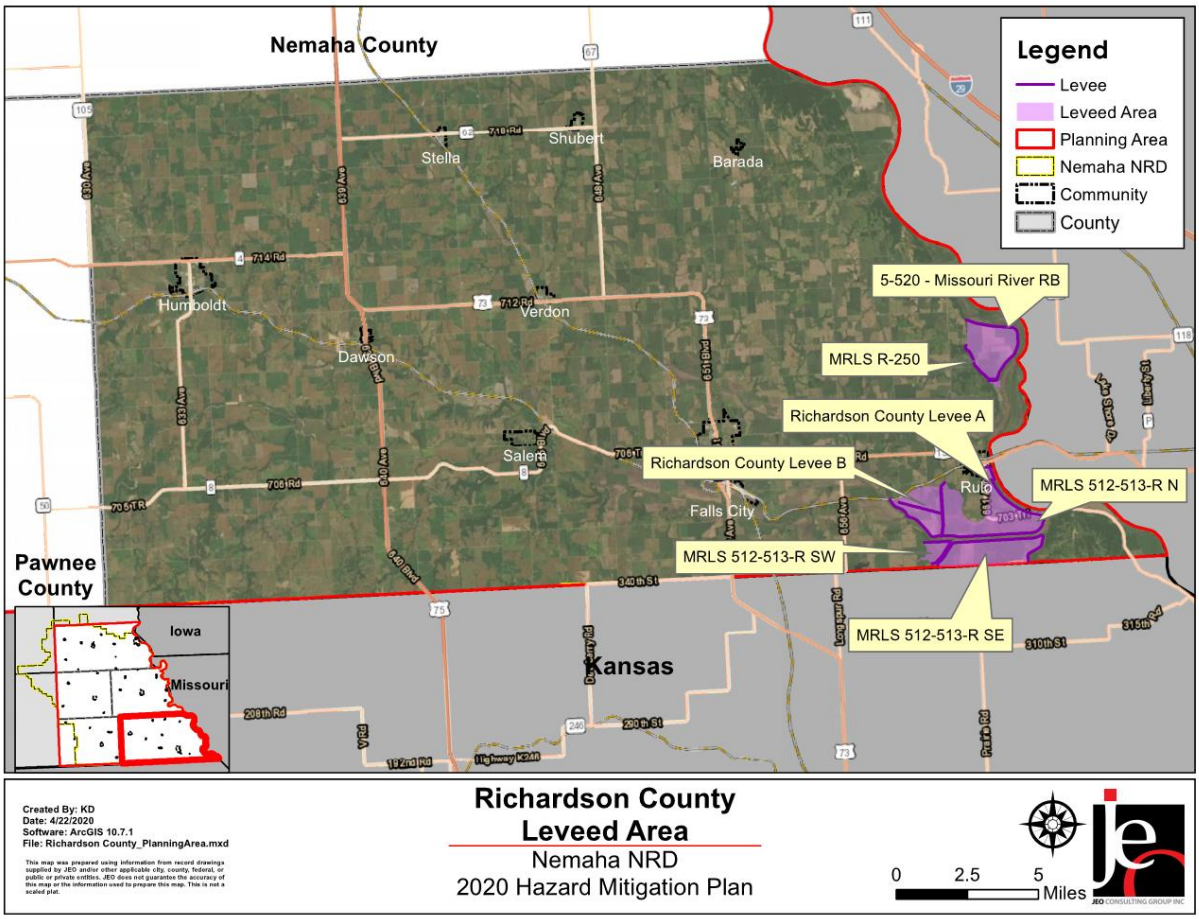
Although not identified as a hazard of top concern by the local planning team, there are seven levees located in the county. The Village of Rulo is the only incorporated community that falls within a leveed area. One recorded event of levee incident occurred in 2011. The event was limited to sand boils and did not cause damage.

Tornadoes and High Winds

The most recent tornado occurred May 21, 2019, but no major impacts were reported. The most recent high wind event occurred May 27, 2019, near Stella and caused rural building damage. NCEI data shows that there have been 23 tornado/high wind events which have caused $135,000 in property damages. Critical facilities have not experienced any damages. All incorporated communities have tornado sirens, which have remote activation in the Richardson County

Emergency Management office. There are no tornado sirens in rural areas. Additional warning is done through storm spotters and text alerts. Safe rooms are located throughout the county and public shelters are in place. Important county records are backed up the icloud system. In the event of a disaster, mutual aid agreements are in place with several communities and nearby counties.

Figure RCO.6: Leveed Area



Governance

The county's governmental structure impacts its capability to implement mitigation actions. Richardson County is governed by a seven-member board of supervisors. The county also has the following offices and departments:

- County Clerk
- County Assessor
- County Treasurer
- County Attorney
- District Health Department
- Emergency Manager
- Highway Superintendent
- Planning & Zoning

- Sheriff
- Surveyor

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarizes the county's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table RCO.11: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	No
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	-
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess County's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No

Survey Components/Subcomponents		Yes/No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	StormReady Certification	No
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	High
Support to implement projects	Moderate
Time to devote to hazard mitigation	High

Plan Integration

Richardson County has several plans which relate to or directly discuss hazards and hazard mitigation. The Richardson County Comprehensive Plan was lasted updated in 2020 and is updated every five years. It contains goals aimed at safe growth, directs development away from the floodplain, directs development away from chemical storage facilities, identifies areas that need emergency shelters, encourages the preservation of open space, and encourages elevation of structures located in the floodplain. When next updating the comprehensive plan, the local planning team indicated that the hazard mitigation plan will be incorporated where possible. The county also has floodplain regulations which outline requirements of new development in the floodplain. Richardson County's Local Emergency Operations Plan was updated in 2020. It provides information to the county and communities regarding direction and control, communications and warning, damage assessment, emergency public information, evacuation, fire services, health and human services, law enforcement, mass care, protective shelters, and resource management. Copies of the plan are distributed to county and community officials. The capital improvement plan for the county is updated annually. It outlines projects related to drainage improvements, bridge improvements, water system improvements, updating the electrical distribution system, installing emergency generators, and improving community owned buildings. Finally, the county has well head protection plans located throughout the county boundaries. No other examples of plan integration were identified. The county will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates. Specifically, the county plans to update the capital improvements plan annually and the goals, objectives, and mitigation actions of the HMP should be integrated in the updates.

Mitigation Strategy

Completed Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Hazard(s) Addressed	All Hazards
Status	A backup generator was installed at 1700 Stone Street in Falls City in 2020.

Continued and New Mitigation Actions

Mitigation Action	Bank Stabilization
Description	Bank degradation is occurring along many rivers and creeks. Stabilization improvements including rock rip rap, vegetative cover, j-hooks, boulder vanes, etc. can be implemented to reestablish the channel banks.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	In-kind Labor, CDBG
Timeline	2-5 Years
Priority	Medium
Lead Agency	Roads Department, Village of Rulo
Status	Planning Stage. The county and village are looking for funding.

Mitigation Action	Community Education and Awareness
Description	Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. Also, educate citizens on water conservation methods, evacuation plans, etc. In addition, purchase equipment such as overhead projectors and laptops.
Hazard(s) Addressed	All Hazards
Estimated Cost	$500+
Funding	Staff Time
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management
Status	Continued. The county uses various trainings, classes, and publications.

Mitigation Action	Comprehensive Disaster / Emergency Response Plan / Rescue Plan
Description	Update comprehensive city/village disaster and emergency response/rescue plan.
Hazard(s) Addressed	All Hazards
Estimated Cost	$10,000
Funding	General Fund
Timeline	Ongoing
Priority	Low
Lead Agency	Emergency Management
Status	Ongoing. The Local Emergency Operations Plan is updated regularly.

Mitigation Action	Drought Monitoring Plan and Procedures
Description	Develop a plan and procedures to monitor drought onset and impacts. Coordination between the county and Sac and Fox Nation will be needed when developing any type of drought monitoring plan.
Hazard(s) Addressed	Drought
Estimated Cost	$20,000
Funding	General Fund
Timeline	3-4 Years
Priority	Medium
Lead Agency	Emergency Management, Individual Communities, Sac and Fox Nation
Status	Not Started.

Mitigation Action	Safe Rooms and Storm Shelters
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools and other areas. Coordination between the county and Sac and Fox Nation will be needed for any shelters that are located on tribal lands.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$350 per square foot
Funding	General Fund
Timeline	1 Year
Priority	High
Lead Agency	Emergency Management, Sac and Fox Nation
Status	Not Started.

Mitigation Action	Stormwater System and Drainage Improvements
Description	Undersized systems can contribute to localized flooding. 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.
Hazard(s) Addressed	Flooding
Estimated Cost	$100,000+
Funding	General Fund
Timeline	Ongoing
Priority	High
Lead Agency	Roads Department
Status	Ongoing. The county is constantly repairing and replacing culverts.

Mitigation Action	Warning System
Description	Improve county cable TV interrupt warning system and implement telephone interrupt system such as Reverse 911, emergency text messaging warning system, etc. Would like to set-up reverse 911.
Hazard(s) Addressed	All Hazards
Estimated Cost	$5,000+
Funding	General Fund
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management
Status	Ongoing. The county updates as needed.

Mitigation Action	Weather Radios
Description	Conduct an inventory of weather radios at schools, and other critical facilities and provide new radios as needed.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50 per radio
Funding	General Fund
Timeline	Ongoing
Priority	Low
Lead Agency	Emergency Management, Sac and Fox Nation
Status	Ongoing. The county continuously updates radios.

Removed Mitigation Actions

Mitigation Action	Flood-Prone Property Acquisition
Hazard(s) Addressed	Flooding
Reason for Removal	The county would like to focus efforts on other mitigation actions.

Mitigation Action	Maintain Good Standing in the NFIP
Hazard(s) Addressed	Flooding
Reason for Removal	While the county will continue to participate and maintain compliance in the NFIP, this project can be removed as it is considered an ongoing effort.

Mitigation Action	Evacuation Plan
Hazard(s) Addressed	All Hazards
Reason for Removal	This action is part of the “Comprehensive City Disaster / Emergency Response / Rescue Plan” mitigation action.

Community Profile

Village of Dawson

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table DAW.1: Village of Dawson Local Planning Team

Name	Title	Jurisdiction
Jan Richardson	Village Clerk	Village of Dawson

Location and Geography

The Village of Dawson is in west central Richardson County and covers an area of .22 square miles. Dawson is located directly north of the Big Nemaha River.

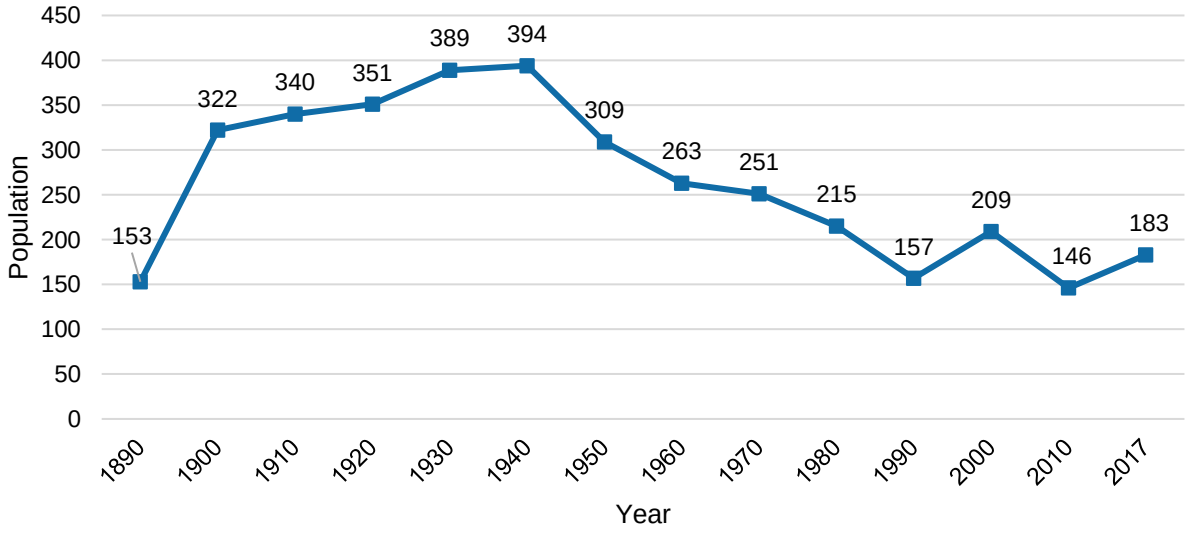
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Dawson's major transportation corridor, and route of most concern, is US Highway 75. It is traveled by an average of 2,920 vehicles daily, 905 of which are trucks.[8] The village has one Burlington Northern Santa Fe Railway line traveling east to west on the village's southern edge. Areas on the east side of Highway 75 would have difficulty evacuating if necessary.

Demographics

The Village of Dawson's population has increased since 2010 to about 183 people in 2017. A growing population means an increasing tax base, which can make implementing mitigation projects easier. Dawson's population accounted for 2.3% of Richardson County's population in 2017.[9]

Figure DAW.1: Population

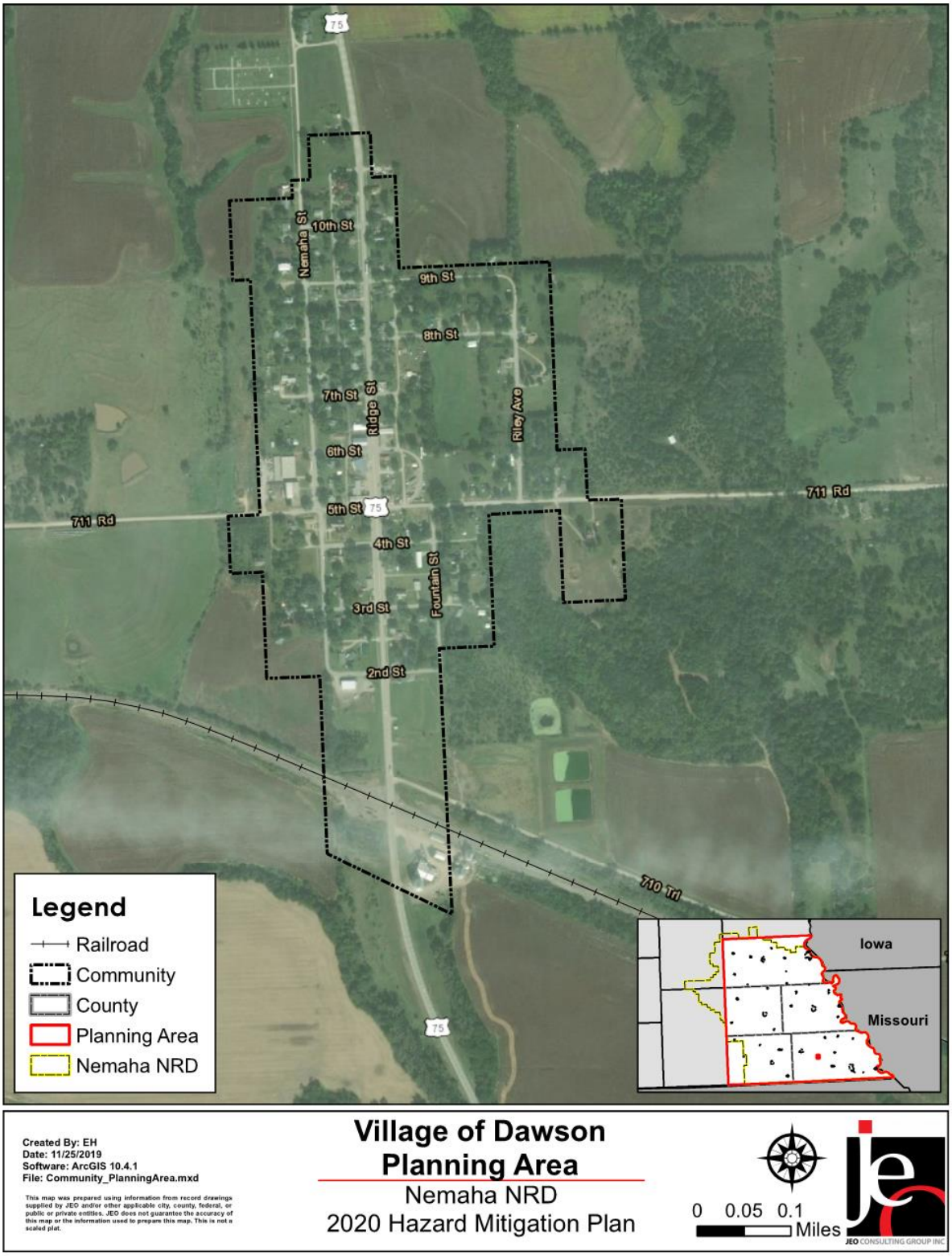


Source: U.S. Census Bureau, 1890 – 2017

8 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

9 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure DAW.2: Village of Dawson



The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Dawson's population was:

- **Younger.** The median age of Dawson was 42.9 years old in 2017, compared with Richardson County's median of 47.6 years. Dawson's population grew younger since 2010, when the median age was 46.5 years old.[9]
- **Less ethnically diverse**. Since 2010, Dawson grew less ethnically diverse. In 2010, 3.3% of Dawson's population was Hispanic or Latino. By 2017, about 0% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[9]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Dawson (22.2% of people living below the federal poverty line) was higher than the county's poverty rate (16.3%) in 2017.[10]

Employment and Economics

The Village of Dawson's economic base is a mixture of industries. In comparison to Richardson County, Dawson's economy had:

- **Different mix of industries.** Dawson's major employment sectors, accounting for 10% or more of employment each, were: construction, transportation, education, arts, public administration, and other services.[10]
- **Lower per capita income.** Dawson's per capita income in 2017 ($25,097) was about $3,000 lower than the county ($28,109).[10]
- **More long-distance commuters.** About 27.2% of workers in Dawson commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 30.1% of workers in Dawson commuted 30 minutes or more to work, compared to about 24.9% of county workers.[11]

Major Employers

Major employers in the community include Koch Auto and Salem Grain. A large percentage of residents commute to Auburn and Falls City for employment.

Housing

In comparison to Richardson County, the Village of Dawson's housing stock was:[12]

- **Older.** Dawson had a larger share of housing built prior to 1970 than the county (80% compared to 71.6%).
- **More mobile and manufactured housing.** The Village of Dawson had a larger share of mobile and manufactured housing (7%) compared to the county (2.7%).
- **Similarly renter-occupied**. About 22.2% of occupied housing units in Dawson were renter-occupied compared with 22.6% of occupied housing in Richardson County.
- **Less occupied.** Approximately 21.7% of Dawson's housing units were vacant compared to 13.7% of units in Richardson County.

10 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
11 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
12 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Mobile homes in the community are located along Riley Street. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

In the last five years, no new housing or businesses were developed within the village. According to the latest American Community Survey estimates, Dawson's population is increasing. Municipal funds are limited to maintaining current facilities and systems, and have stayed steady over recent years. In the next five years, no housing developments or businesses are anticipated.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table DAW.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
97	$2,212,464	16	16.5%	$459,513

Source: GIS Workshop/Richardson County Assessor, 2019[13]

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there is one chemical storage site in Dawson. The table below lists the name and location of the site and whether it is in the floodplain.

Table DAW.3: Chemical Storage Fixed Sites

Facility Name	Address	In Floodplain (Y/N)
Stateline Ag	63834 710 Road	N

Source: Nebraska Department of Environment and Energy[14]

13 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

14 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

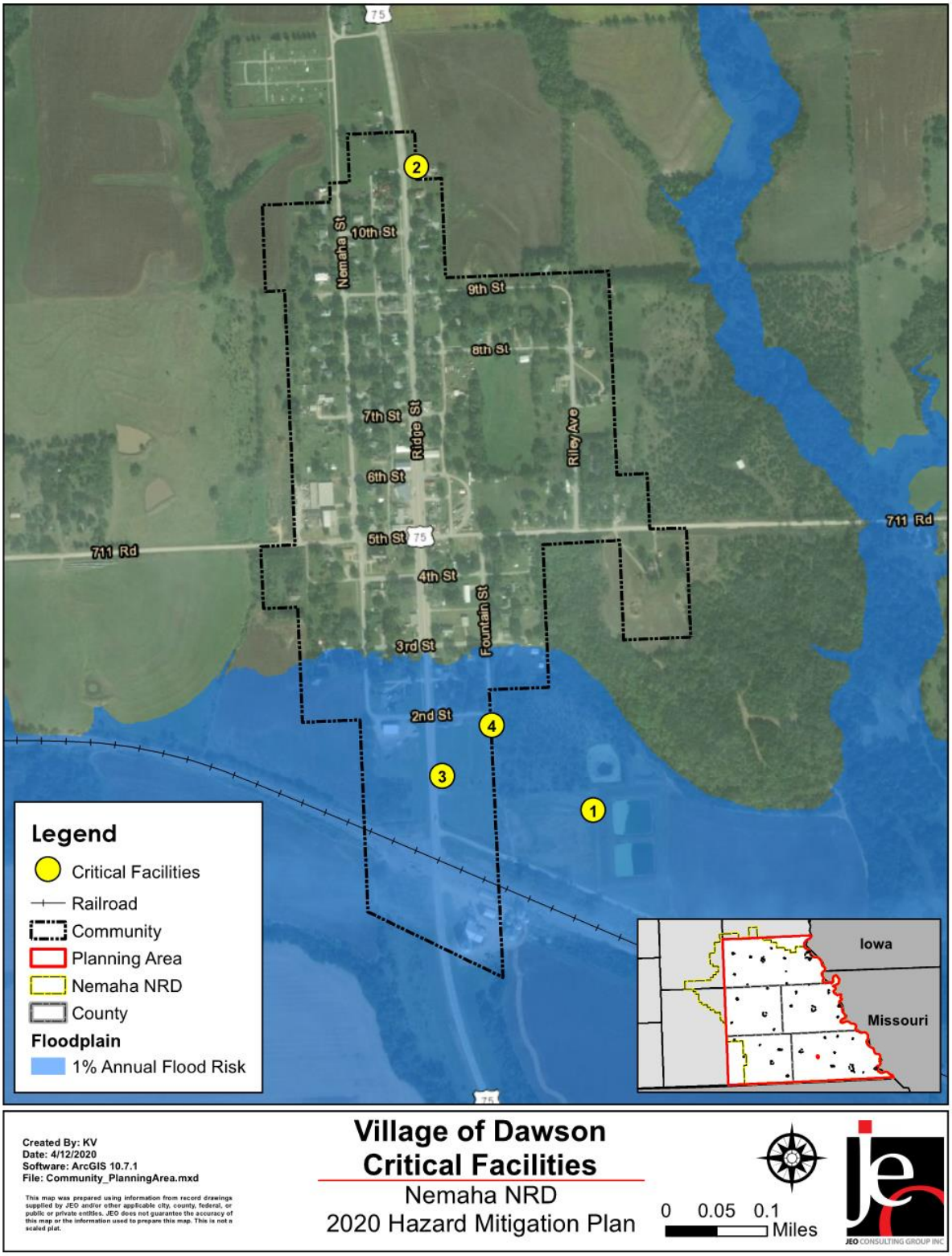
Critical Facilities

Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the Village of Dawson's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

Table DAW.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Lift Station	N	N	Y
2	Water Tower	N	N	N
3	Well 1	N	N	Y
4	Well 2	N	N	Y

Figure DAW.3: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Chemical and Radiological Spills (Transportation)

The primary concern regarding transportation chemical spills is a spill along Highway 75 in the village limits. If a spill were to occur there, it would likely affect traffic and evacuations might be necessary depending on the type of chemical and wind direction. The village hall, fire department, and park are all located next to the highway. Various chemicals are transported along Highway 75. The fire department would be the first to respond to a spill, however they have limited equipment and training to deal with a large hazardous material spill.

Severe Winter Storms

The last major winter storm occurred in March 2019, which preceded the March 2019 flood event. Snow, ice, and rain caused damaged to streets, storm drains, and ditches. The event resulted in a FEMA disaster declaration for the county. The local planning team indicated that no powerlines are buried, which leaves the community at high risk for power loss due to high winds, downed power poles, and tree limbs. Snow removal on village streets is done by the village using a tractor and blade. The state NDOT removes snow along Highway 75. These resources are sufficient for most snowstorms that occur.

Tornadoes and High Winds

NCEI data shows that four tornadoes have occurred near Dawson, but none have touched down in the village. The only damage from the four tornadoes was to trees, a grain bin, and a barn. Critical facilities have not been damaged by high wind or tornadoes, and the village backs up all important records. The village has a warning siren which reaches all areas of the community and can be activated remotely. There are no safe rooms in the community, so individuals seeking shelter must use private basements or interior rooms.

Governance

The Village of Dawson is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Attorney
- Fire Department
- Utility Superintendent
- Sewer/Water Commissioner
- Street Commissioner

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table DAW.5: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	Yes
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	-
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	Yes
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No

Survey Components/Subcomponents		Yes/No
	Ex. CERT Teams, Red Cross, etc.	
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Moderate
Time to devote to hazard mitigation	Limited

Plan Integration

Dawson does not have a comprehensive plan or zoning ordinance. It does have building codes, which were last updated in 2017. A stormwater management plan will also be completed by the end of 2020. The village is an annex to the 2016 Richardson County Local Emergency Operations Plan. It contains information regarding incident command, warning, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, public health, and damage assessment. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates. Specifically, the goals, objectives, and mitigation actions of the HMP should be integrated with the planned stormwater management plan.

Mitigation Strategy

Continued and New Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Provide a portable or stationary source of backup power for the lift station and two municipal wells.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms
Estimated Cost	$15,000 - $30,000 per generator
Funding	General Budget
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Drainage Study/Stormwater Master Plan
Description	Drainage studies can be conducted to identify and prioritize improvements to address site specific localized flooding/drainage problems. Stormwater master plans can be conducted to perform a community wide evaluation.
Hazard(s) Addressed	Flooding
Estimated Cost	$10,000 - $100,000+
Funding	General Budget, CDBG
Timeline	1 Year
Priority	Low
Lead Agency	Village Board
Status	In progress, to be completed by the end of 2020.

Mitigation Action	Enroll in the National Flood Insurance Program (NFIP)
Description	Participate in the NFIP.
Hazard(s) Addressed	Flooding
Estimated Cost	Staff Time
Funding	Staff Time
Timeline	5+ Years
Priority	Low
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Evacuation Plan
Description	Establish a plan to effectively evacuate residents during storm events and in the event of a chemical spill. Project is focused on Highway 75 chemical spills.
Hazard(s) Addressed	Chemical and Radiological Spills (Transportation)
Estimated Cost	$2,000+
Funding	General Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, County Emergency Management
Status	Not Started.

Mitigation Action	Hazardous Tree Removal
Description	Identify and remove hazardous limbs and/or trees.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms
Estimated Cost	$10,000+
Funding	General Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Maintenance
Status	Not Started.

Mitigation Action	Irrigation/Groundwater Management Plan
Description	Establish a plan to reduce total consumption of groundwater resources by irrigators of agricultural land.
Hazard(s) Addressed	Drought
Estimated Cost	Staff Time
Funding	Staff Time
Timeline	5+ Years
Priority	Low
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Safe Rooms and Storm Shelters
Description	Design and construct fully supplied storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$200 - $300/sf stand alone; $150 - $200/sf addition/retrofit
Funding	General Budget
Timeline	5+ Years
Priority	Low
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Stormwater System and Drainage Improvements
Description	Undersized systems can contribute to localized flooding. Stormwater system improvements, such as pipe upsizing and additional inlets, installation of retention and detention facilities can be implemented to decrease runoff rates while also decrease the need for other stormwater system improvements.
Hazard(s) Addressed	Flooding
Estimated Cost	$100,000+
Funding	General Budget
Timeline	5+ Years
Priority	Low
Lead Agency	Village Maintenance
Status	In progress, will be completed by the end of 2020.

Mitigation Action	Weather Radios
Description	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms
Estimated Cost	$50 per radio
Funding	General Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board, Fire Department
Status	Not Started.

Removed Mitigation Actions

Mitigation Action	Floodplain Regulation Enforcements
Hazard(s) Addressed	Flooding
Reason for Removal	The village currently has no plans to update their floodplain regulations. The village regularly reviews their regulations and ordinances and updates them as needed. They will continue to enforce all local regulations.

Mitigation Action	Public Awareness/Education
Hazard(s) Addressed	All Hazards
Reason for Removal	The community would like to prioritize other mitigation projects.

Mitigation Action	River/Stream Bank Stabilization
Hazard(s) Addressed	Flooding
Reason for Removal	The community would like to prioritize other mitigation projects.

Mitigation Action	Tree City USA – Tree Maintenance Programs
Hazard(s) Addressed	Severe Thunderstorms, Tornadoes and High Winds, Severe Winter Storms
Reason for Removal	The community would like to prioritize other mitigation projects.

Community Profile

City of Falls City

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table FAC.1: City of Falls City Local Planning Team

Name	Title	Jurisdiction
Gary Jorn	City Administrator	City of Falls City
Jon McQueen	Public Information Officer	Falls City Volunteer Fire Department

Location and Geography

The City of Falls City is in southeastern Richardson County and covers an area of 3.34 square miles. The Big Nemaha River is located to the south of the community.

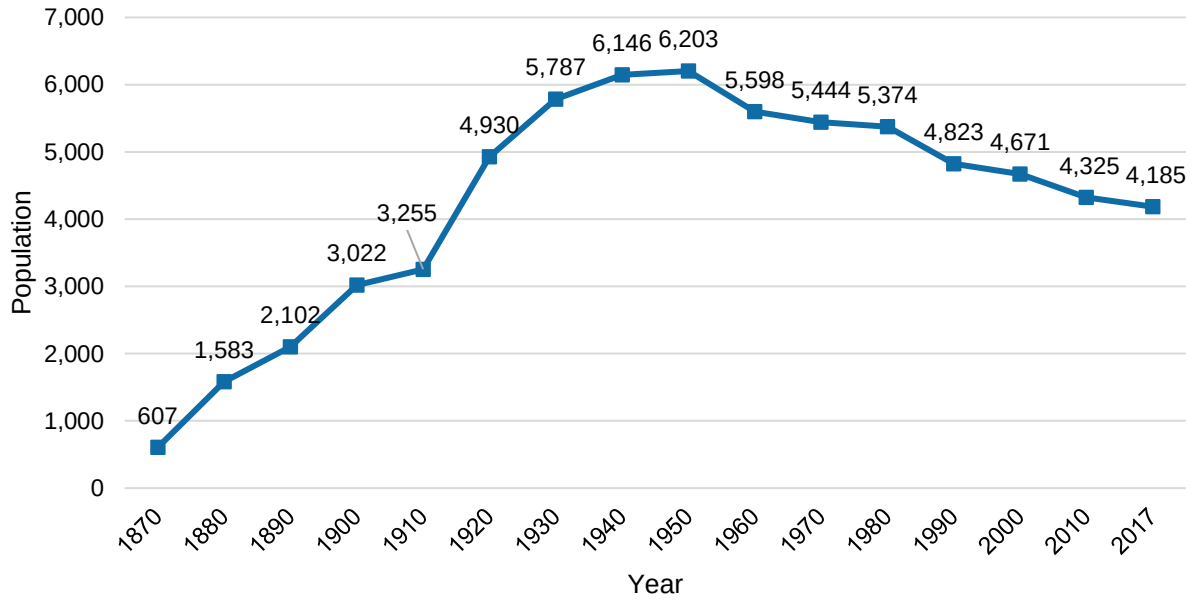
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Falls City's major transportation corridors are State Highway 8, US Highway 73, and US Highway 159. Highway 8 averages 2,900 vehicles a day, Highway 73 averages 7,805 vehicles a day, and Highway 159 averages 4,240 vehicles a day.[15] Anhydrous ammonia, fertilizers, and other farm chemicals are regularly transported along Highway 73.

Demographics

The City of Falls City's population has been decreasing since 1950 and was at about 4,185 people in 2017. A decreasing population may mean a decreasing tax base which may make funding mitigation projects more difficult. Falls City's population accounted for 52% of Richardson County's population in 2017.[16]

Figure FAC.1: Population

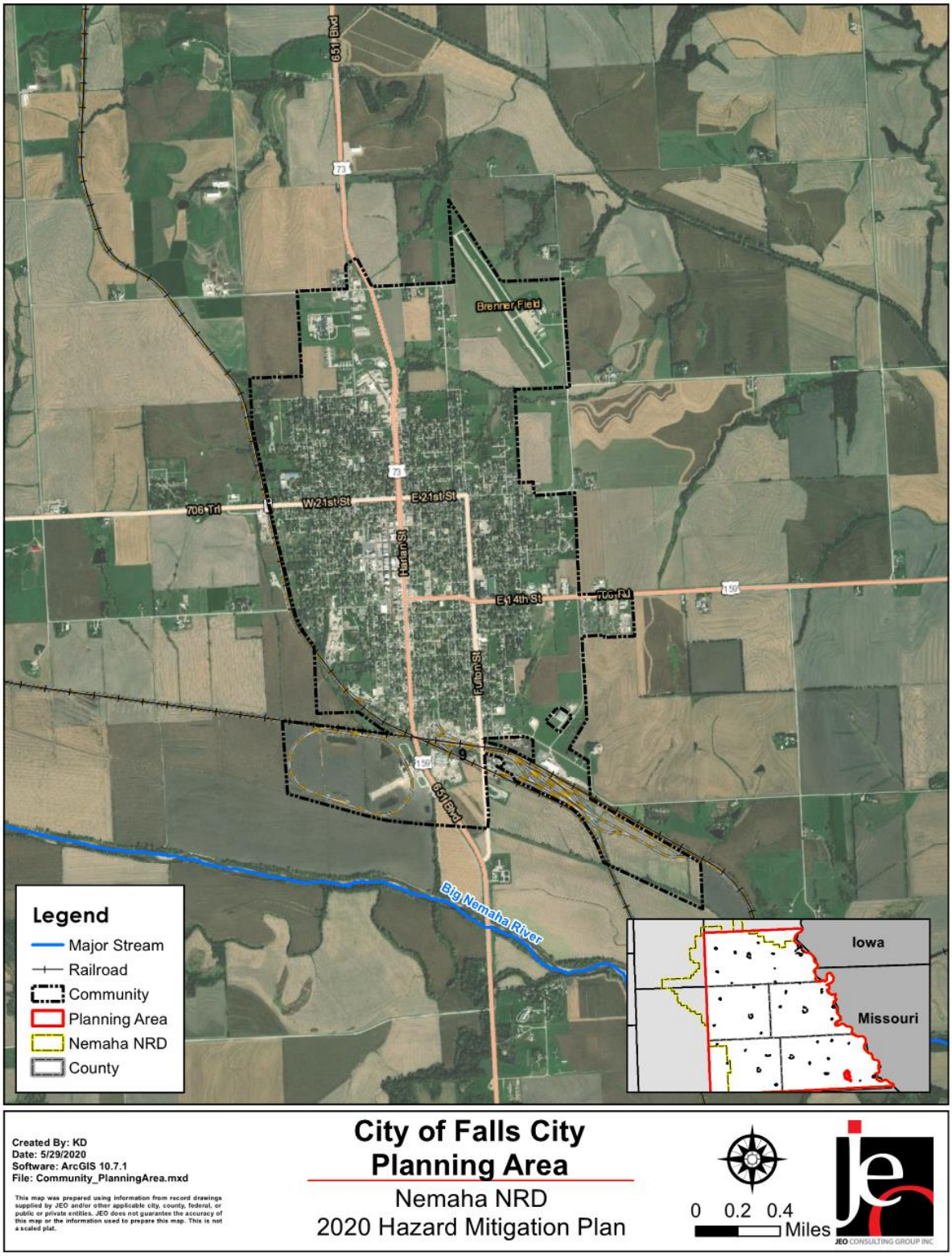


Source: U.S. Census Bureau, 1870 – 2017

15 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

16 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure FAC.2: City of Falls City



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Falls City's population was:

- **Younger.** The median age of Falls City was 41 years old in 2017, compared with Richardson County's median of 47.6 years. Falls City's population grew younger since 2010, when the median age was 45.2 years old.[16]
- **More ethnically diverse**. Since 2010, Falls City grew more ethnically diverse. In 2010, 1.6% of Falls City's population was Hispanic or Latino. By 2017, about 2.9% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[16]
- **More likely to be below the federal poverty line.** The poverty rate in the City of Falls City (22.4% of people living below the federal poverty line) was higher than the county's poverty rate (16.3%) in 2017.[17]

Employment and Economics

The City of Falls City's economic base is a mixture of industries. In comparison to Richardson County, Falls City's economy had:

- **Similar mix of industries.** Falls City's major employment sectors, accounting for 10% or more of employment each, were: construction, manufacturing, and education.[17]
- **Lower per capita income.** Falls City's per capita income in 2017 ($23,335) was about $4,700 lower than the county ($28,109).[17]
- **Fewer long-distance commuters.** About 64.3% of workers in Falls City commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 21.9% of workers in Falls City commuted 30 minutes or more to work, compared to about 24.9% of county workers.[18]

Major Employers

Major employers in the community include the Community Medical Center, Fast Global Solutions, Falls City Public Schools, Avilanco, and the City of Falls City. A large number of people commute to Tecumseh, Brownville, and Nebraska City for employment.

Housing

In comparison to Richardson County, the City of Falls City's housing stock was:[19]

- **Older.** Falls City had a larger share of housing built prior to 1970 than the county (74% compared to 71.6%).
- **Less mobile and manufactured housing.** The City of Falls City had a smaller share of mobile and manufactured housing (0%) compared to the county (2.7%). However, the local planning team indicated this number is likely higher with a trailer park in the city.
- **Similarly renter-occupied**. About 22.4% of occupied housing units in Falls City were renter-occupied compared with 22.6% of occupied housing in Richardson County.
- **More occupied.** Approximately 10.1% of Falls City's housing units were vacant compared to 13.7% of units in Richardson County.

17 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
18 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
19 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. A majority of mobile homes are located in the southeast section of the community. Mobile homes are prohibited in other residential areas since a 2014 zoning ordinance update. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

Future Development Trends

Over the past five years, a new housing development, Wildness Falls II, was built which allows additional houses and rental properties. Falls City Foods was also built during this time. According to the latest American Community Survey estimates, Falls City's population is declining. The local planning team attributes this due to a lack of professional jobs. Municipal funds are sufficient to supplement financing new projects. Funds in 2019-2020 have reduced due to potential shutdown of businesses during COVID-19. In 2021, a new housing development, Champion's Crossing, on the northwest side of the city which will increase the number of buildable lots. No new businesses or industries are anticipated.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table FAC.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
2171	$128,234,366	4	0.18%	$2,111,082

Source: GIS Workshop/Richardson County Assessor, 2019[20]

20 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

Figure FAC.3: Future Land Use Map

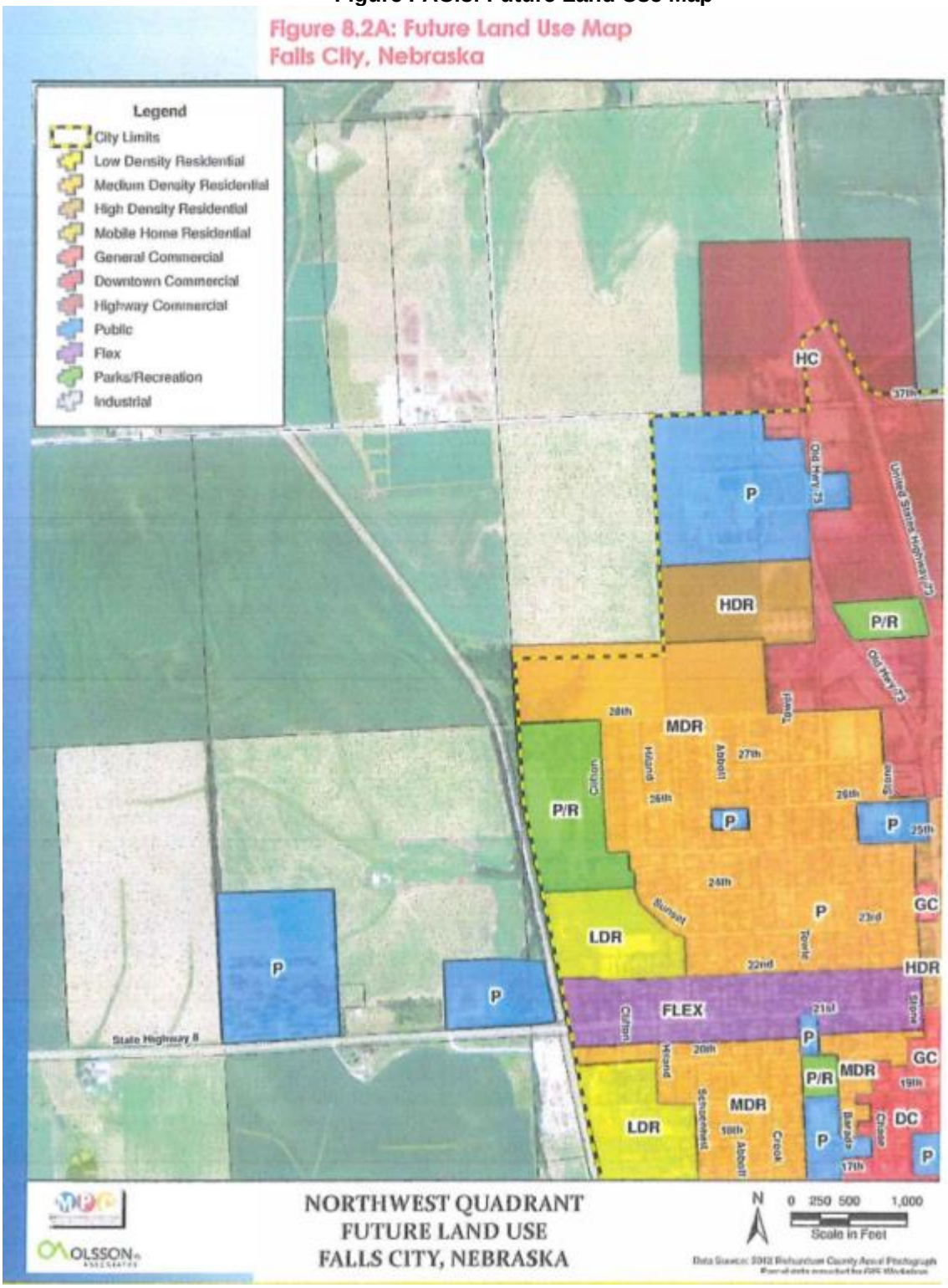


Figure 8.2B: Future Land Use Map
Falls City, Nebraska

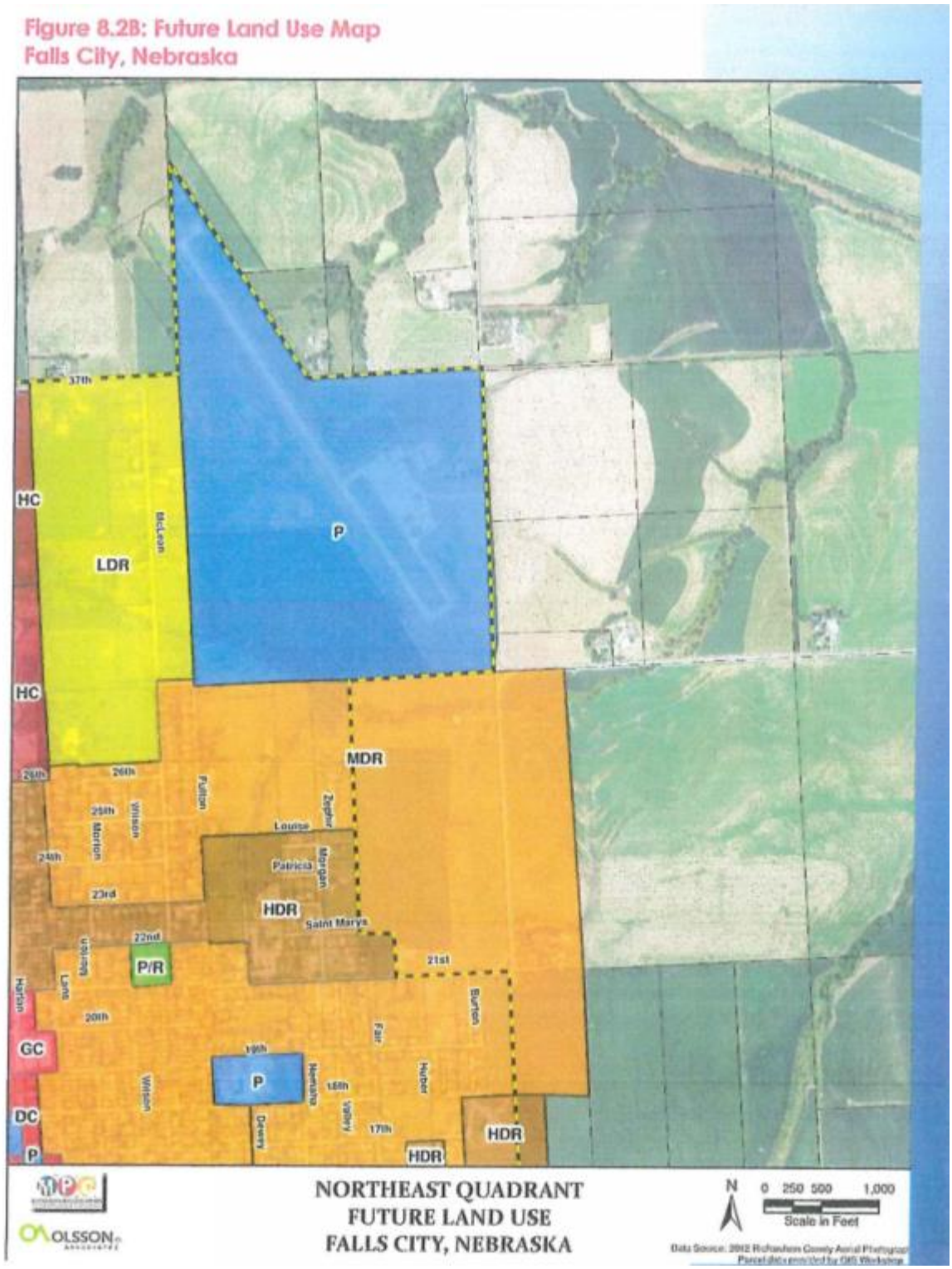


Figure 8.2D: Future Land Use Map
Falls City, Nebraska

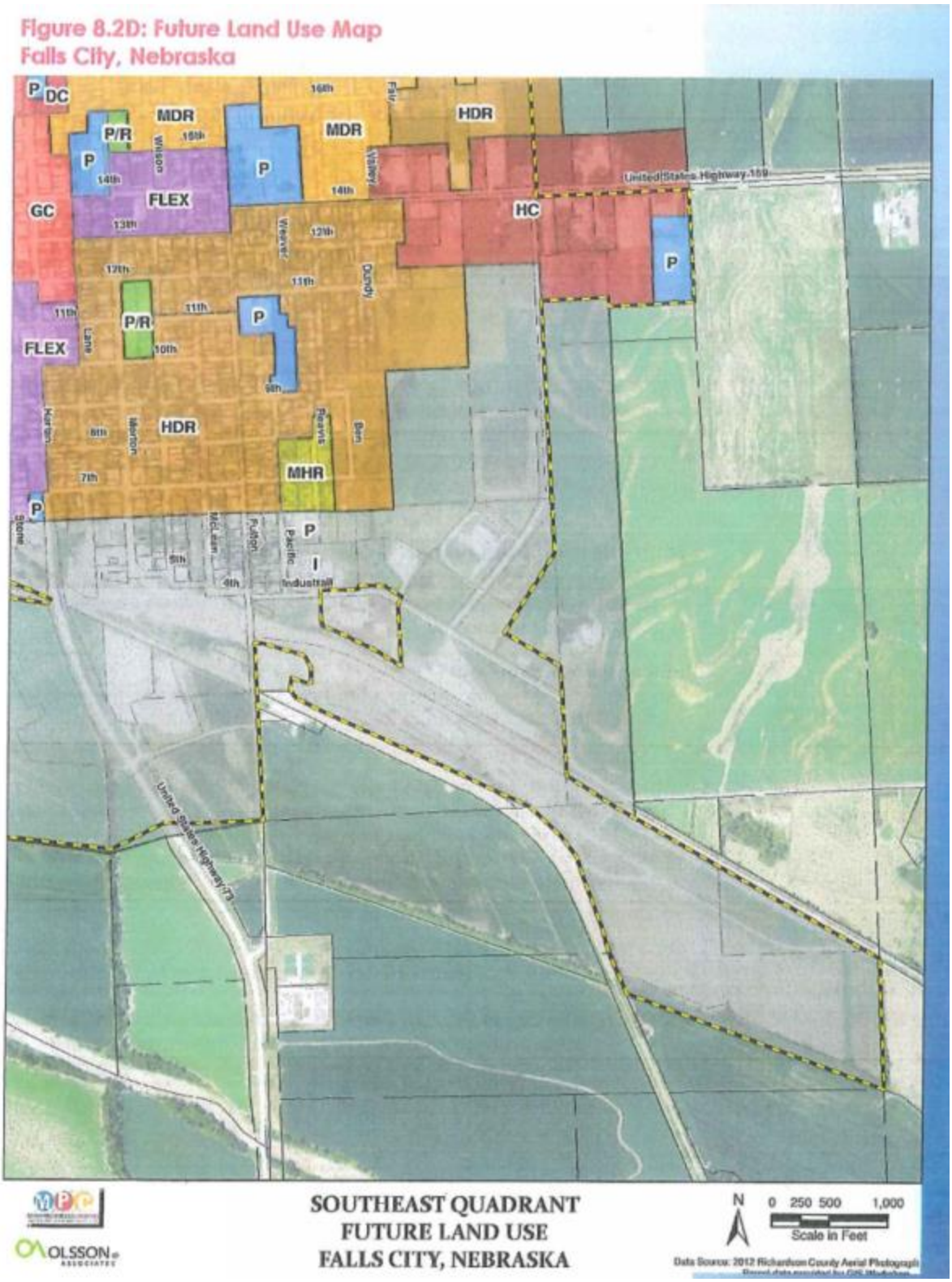
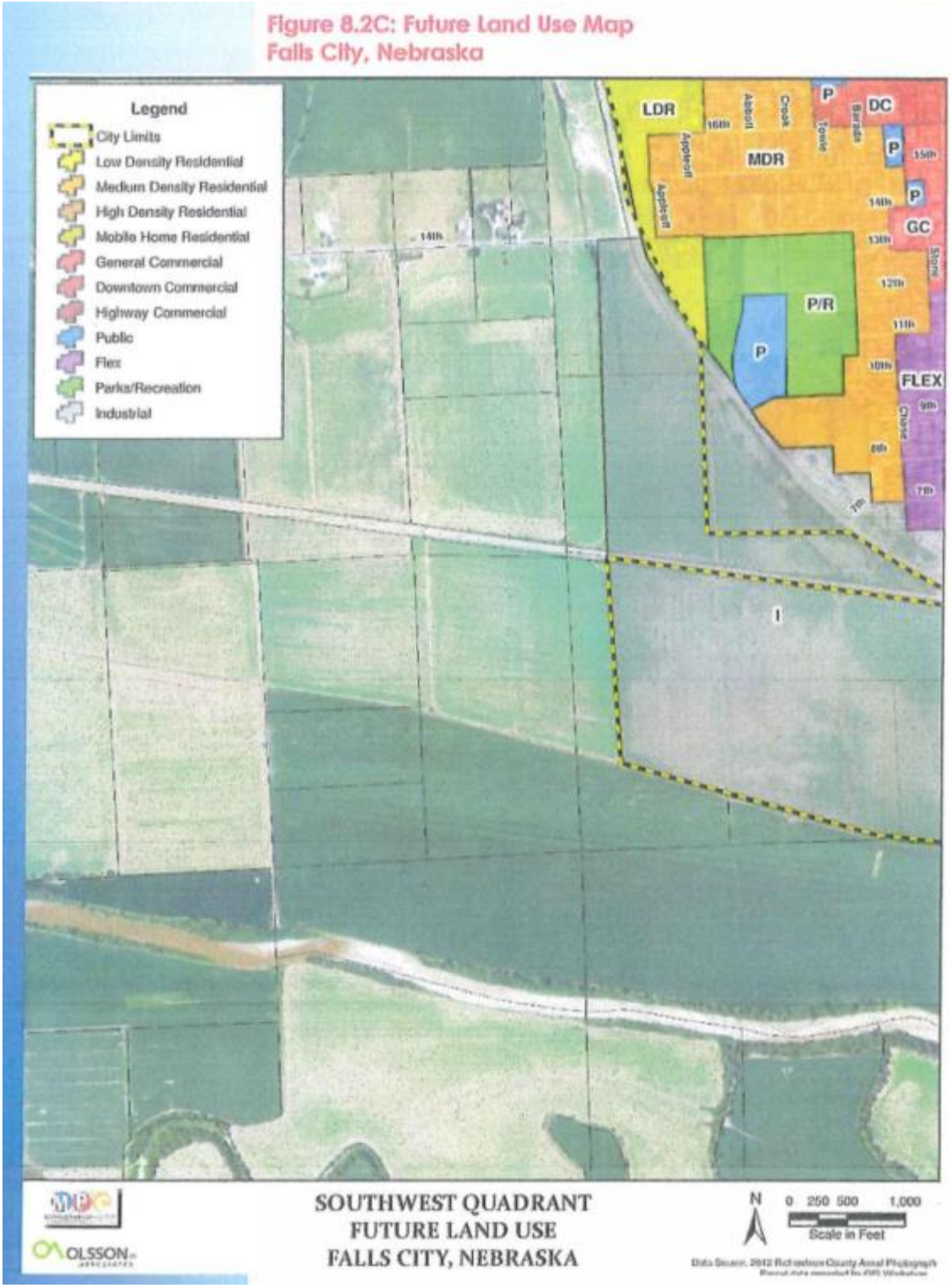


Figure 8.2C: Future Land Use Map
Falls City, Nebraska



Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of eight chemical storage sites in Falls City. The table below lists the name and location of the sites and whether they are in the floodplain.

Table FAC.3: Chemical Storage Fixed Sites

Facility Name	Address	In Floodplain (Y/N)
Ames True Temper	314 Highway 73	N
Southeast Ready Mixed	1225 Crook Street	N
Helena Agri-Enterprises LLC	423 Wilson Street	N
NDOT Falls City Yard	1525 E 14th Street	N
Fast Global Solutions	4th Street	N
Pinnacle Propane Falls City	603 Harlan Street	Y
OPPD Substation No. 993	Crook Street	N
Herzog Railroad Services	300 Fulton Street	N

Source: Nebraska Department of Environment and Energy[21]

Critical Facilities

Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the City of Falls City's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

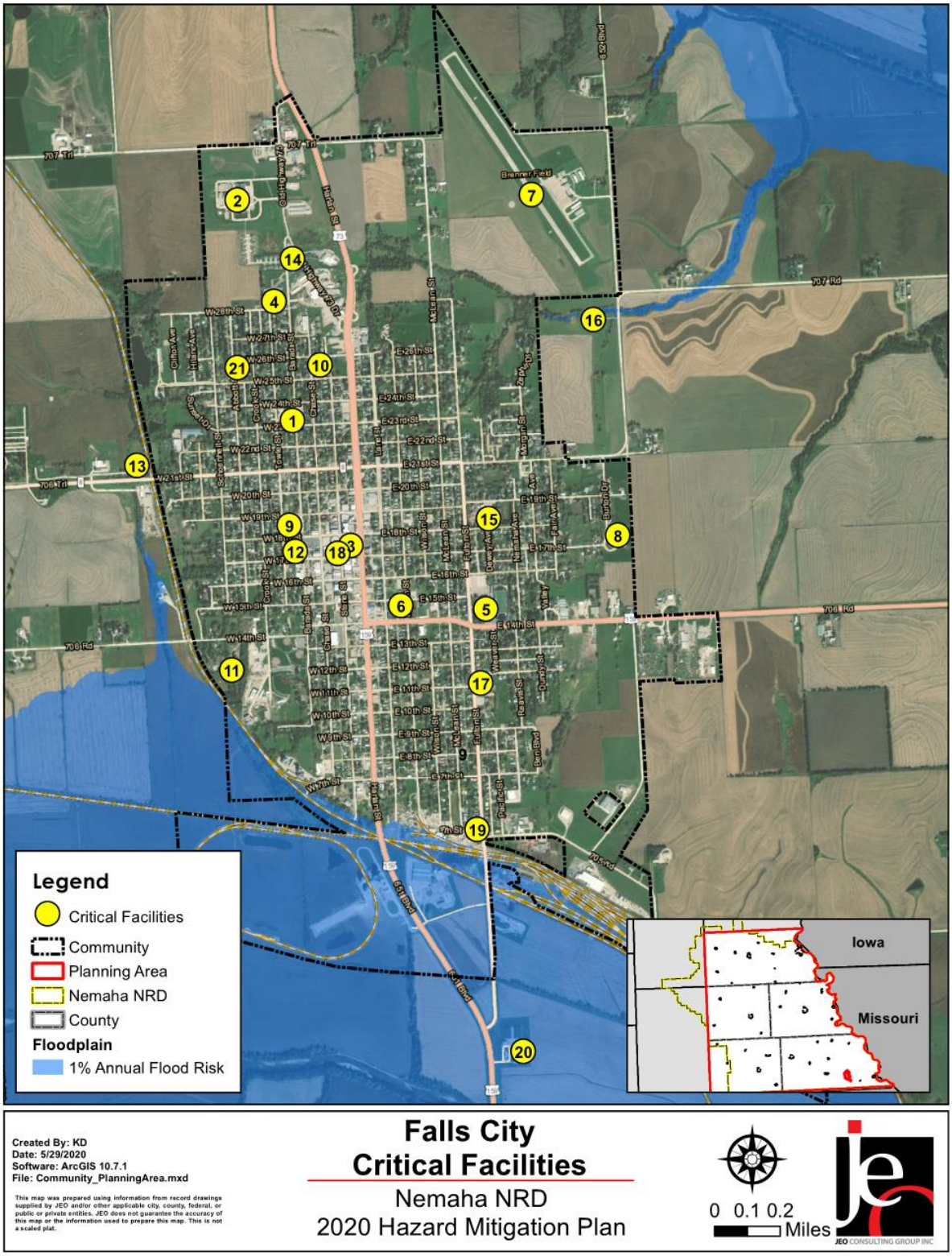
Table FAC.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	City Hall / Police Station	N	Y	N
2	Community Medical Center	N	Y	N
3	County Court House	N	N	N
4	Falls City Healthcare Community	N	Y	N
5	Falls City High School	Y	N	N
6	Falls City Middle School	Y	N	N
7	Falls City Municipal Airport	N	N	N
8	Falls City Nursing and Rehab	N	Y	N
9	Fire Department	N	Y	N
10	Falls City North School	Y	N	N
11	Power Plant	N	Y	N
12	Prichard Auditorium	Y	N	N
13	Radio Tower - KTNC	N	N	N
14	Rural Fire	N	N	N
15	Sacred Heart School	N	N	N
16	Sewer Lift Station	N	Y	Y
17	Falls City South School	Y	N	N
18	Southeast NE Communications	N	Y	N
19	Town Border Station – Gas	N	N	N
20	Wastewater Treatment Facility	N	Y	Y
21	Water Tower	N	N	N
22*	Water Treatment Plant	N	Y	N
23*	Water Well Field	N	Y	Y

*Not mapped, located south of Rulo

21 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

Figure FAC.4: Critical Facilities



Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Chemical and Radiological Spills (Transportation)

The city and fire department both identified chemical and radiological transportation spills as a top hazard for the community. Both are concerned with unknown chemicals being transported along the highways and rail line. In April 2019, there was an anhydrous ammonia tank that tipped over during transport. There were no leaks, but the general area was evacuated until the tank could be removed. There are several critical facilities located near rail lines including the border station for gas, power plant, and wastewater treatment plant. If a spill were to occur the fire department would likely be the first to respond. The fire department has two Class A pumper trucks and one 65-foot aerial ladder truck.

Flooding

Potential flooding impacts vary on the amount and speed of the rainfall. Past impacts have included street flooding, private property flooding, and sewer treatment plant damages. The water bodies most likely to flood include the Nemaha River and the Muddy Creek. The Missouri River also has the ability to impact Rulo, where Falls City's water wells are located. Poor stormwater drainage is also an issue throughout the community. Currently the city cleans out stormwater drainage ditches to allow a better flow of rainwater.

Severe Thunderstorms

The city and fire department both identified severe thunderstorms as a top hazard for the community. Primary concerns include damage to critical facilities, damage to overhead conductors, power loss, limited road access, and limited shelter options for residents. In 2009 the city experienced a hailstorm that damaged roofs and city-owned properties. City buildings are insured against hail damage through a private insurance company. The local planning team estimates that 100 blocks of power lines are buried with an equal amount of secondary power lines. Hazardous trees are located mostly on private property. In 2019 the city trimmed and removed hazardous trees throughout the right of way and parks. Surge protectors are used on electronic devices and a backup generator is in place at the city hall/police station. Data is backed up using three different systems.

Severe Winter Storms

Both the city and fire department identified severe winter storms as a top hazard for the community. Past significant winter storm events occurred in 2007 and 2009, when ice on overhead lines caused power outages and thousands of dollars to fix and rebuild. Road damage also occurred due to freezing and thawing. Other potential impacts include difficult road travel and ice jams causing flooding. Snow removal is handled by the street department and volunteers from other city departments. Equipment includes trucks with snow blades, a snowplow, road grader, tractor with a blade, and two skid steers. The city also pre-treats brick streets, emergency routes,

and priority routes to improve the effectiveness of the salt and sand. The local planning team indicated that snow removal resources are sufficient for most winter storms.

Tornadoes and High Winds

Both the city and fire department identified tornadoes and high winds as top hazards for the community. The local planning team indicated that a tornado occurred in April 1985. The city has tornado sirens which are tested on a monthly basis and can be activated by Richardson County Emergency Management. The county also offers text alerts through Page My Cell or Code Red. Falls City does not have any designated safe rooms, but the schools and Prichard Auditorium are designated shelter locations. In the event of a tornado, the fire department has a mutual aid agreement with Richardson County and Falls City Rural Fire District. The city has shortened the distance between electrical poles to the Rulo water plant circuit, in order to reduce the potential impacts during a high wind or severe thunderstorm event.

Governance

The City of Falls City is governed by an eight-member City Council; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- City Administrator
- Clerk/Treasurer
- Attorney
- Public Works
- Police Department
- Fire Department
- Utility Supervisor
- Parks and Recreation
- Planning Commission
- Purchasing Officer
- Building Inspector

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table FAC.5: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	Yes
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	Yes
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes

Survey Components/Subcomponents		Yes/No
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	-
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	Yes
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	Moderate
Community support to implement projects	High
Time to devote to hazard mitigation	Moderate

Plan Integration

Falls City has several plans that relate or discuss hazards and hazard mitigation. The most relevant plans are discussed below.

Comprehensive Plan

Falls City's comprehensive plan was last updated in 2014. It contains goals aimed at safe growth, directs development away from the floodplain, directs development away from chemical storage facilities, limits density in known hazardous areas, and directs development away from major transportation routes. The plan is currently integrated with the hazard mitigation plan as it has a section specific to hazard mitigation and references information from this plan. The plan is reviewed every five years and updated every 10.

Emergency Operations Plan

The city is an annex to the 2016 Richardson County Local Emergency Response Plan. It contains information regarding basic disaster operations, incident command, field operations, first responders, and the emergency operations center. The plan is updated on a regular basis by Richardson County Emergency Management.

Zoning Ordinance/Floodplain Regulations/Subdivision Regulations

The city's zoning ordinance and subdivision regulations were last updated in 2014. The floodplain regulations were last updated in 2012. These documents prohibit the filling of wetlands and discourage development in the floodplain.

Building Code

Falls City's building code was last updated in 2019. It requires elevation of structures in the floodplain, requires mechanical systems to be elevated for structures in the floodplain, and requires the use of fire-resistant building materials. The code book also mentions high winds and heavy snow load.

Capital Improvement Plan

The capital improvement plan is updated on an annual basis during budget preparations. Projects outlined in the plan include regular maintenance of drainage structures, installing water meters, updating the electrical distribution system, burying power lines, improving the existing water treatment facility, and replacing the lift station.

Other plans mentioned by the local planning team include a gas improvement plan and a wellhead protection plan. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates. Specifically, the community plans to update the comprehensive plan in 2024 and the goals, objectives, and mitigation actions of the HMP should be integrated in the update.

Mitigation Strategy

Completed Mitigation Actions

Mitigation Action	Alert Sirens
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Status	Completed in 2019 on the northwest area of the city.

Mitigation Action	Hazardous Tree Removal Program
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
Status	Completed in 2019 with utility funds.

Mitigation Action	New Municipal Well
Hazard(s) Addressed	Drought
Status	A new well was put in near Rulo using water fund revenues.

Mitigation Action	Weather Radios
Hazard(s) Addressed	All Hazards
Status	Completed in 2016. A weather radio was added to city hall.

Continued and New Mitigation Actions

Mitigation Action	Bury Power and Service Lines
Description	Work with local Public Power District or Electricity Department to identify vulnerable transmission and distribution lines and bury lines underground or retrofit existing structures/infrastructure to be less vulnerable to storm events.
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
Estimated Cost	$70,000 per mile
Funding	Electric Department Revenue Funds
Timeline	Continued
Priority	Medium
Lead Agency	Electric Department
Status	Continued. The electric department has buried several blocks of overhead lines.

Mitigation Action	Civil Service Improvements
Description	Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This can include fire trucks, ATVs, water tanks/trucks, snow removal equipment, etc. This would also include developing backup systems for emergency vehicles and identifying and training additional personnel for emergency response.
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	General Fund, CDBG
Timeline	5+ Years
Priority	Medium
Lead Agency	Fire Department, City Administration
Status	Not Started.

Mitigation Action	Drainage Study/Stormwater Master Plan
Description	Drainage studies can be conducted to identify and prioritize improvements to address site specific localized flooding/drainage problems. Stormwater master plans can be conducted to perform a community-wide evaluation.
Hazard(s) Addressed	Flooding
Estimated Cost	$10,000 - $100,000+
Funding	General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	City Administration
Status	Not Started.

Mitigation Action	Drought Monitoring Plan and Procedures
Description	Develop a plan and procedures to monitor drought onset and impacts.
Hazard(s) Addressed	Drought
Estimated Cost	$10,000+
Funding	General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	City Administration, Utility Department
Status	Not Started.

Mitigation Action	Irrigation/Groundwater Management Plan
Description	Zone well field and establish wellhead protection.
Hazard(s) Addressed	Drought
Estimated Cost	Staff Time
Funding	Water Utility Funds
Timeline	5+ Years
Priority	Medium
Lead Agency	Utility Department
Status	Not Started. County would have to allow zoning of this area.

Mitigation Action	Stormwater System and Drainage Improvements
Description	Undersized systems can contribute to localized flooding. 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.
Hazard(s) Addressed	Flooding
Estimated Cost	$100,000+
Funding	General Fund
Timeline	5+ Years
Priority	Low
Lead Agency	City Administration
Status	Not Started.

Removed Mitigation Actions

Mitigation Action	Maintain Good Standing in NFIP
Hazard(s) Addressed	Flooding
Reason for Removal	While the city will continue to participate and maintain compliance in the NFIP, this project can be removed as it is considered an ongoing effort.

Community Profile

City of Humboldt

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table HBT.1: City of Humboldt Local Planning Team

Name	Title	Jurisdiction
Larry Stauffer	Board Member	City of Humboldt
Dustin White	Board Member	City of Humboldt

Location and Geography

The City of Humboldt is in northwestern Richardson County and covers an area of 1.34 square miles near the Kirkmans Cove Recreation Area. The Big Nemaha River runs along the city's south side.

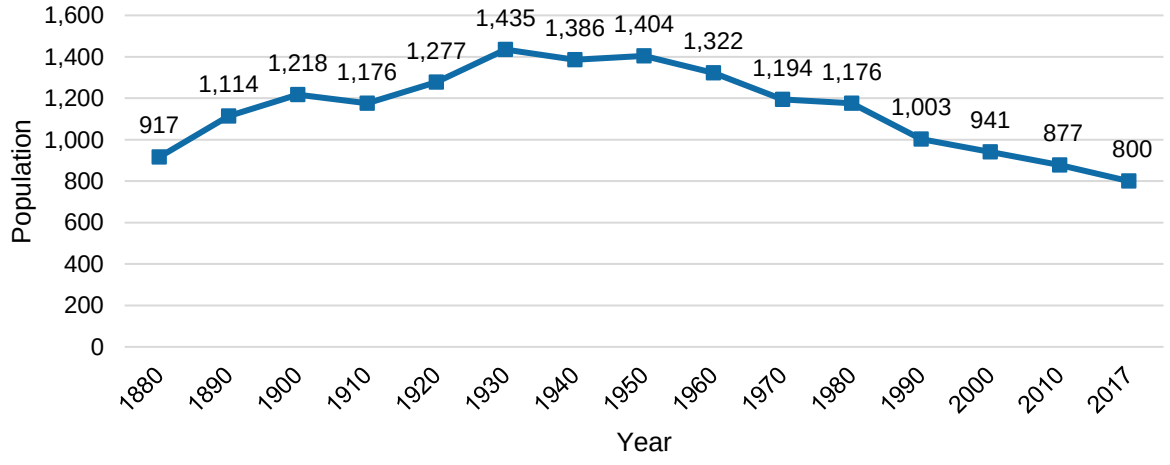
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Humboldt's major transportation corridors are State Highways 4 and 105. State Highway 4 averages 1,445 vehicles a day and State Highway 105 averages 1,495 vehicles a day.[22] The city has one Burlington Northern Santa Fe Railway line traveling on the southern edge of the city. Transportation routes of most concern are Highways 4, 75, and 105 and the railroad due to traffic and the high amounts of transported chemicals. No local routes are regularly closed due to flooding; however, when Iowa's I-29 was closed, the city saw a major increase in traffic. In the event of an evacuation, the nursing home and apartments would have difficulty evacuating due to an elderly population.

Demographics

The City of Humboldt's population has decreased since 1950 to 800 people in 2017. A decreasing population means a declining tax base, which may make funding mitigation projects less likely. Humboldt's population accounted for 9.7% of Richardson County's population in 2017.[23]

Figure HBT.1: Population

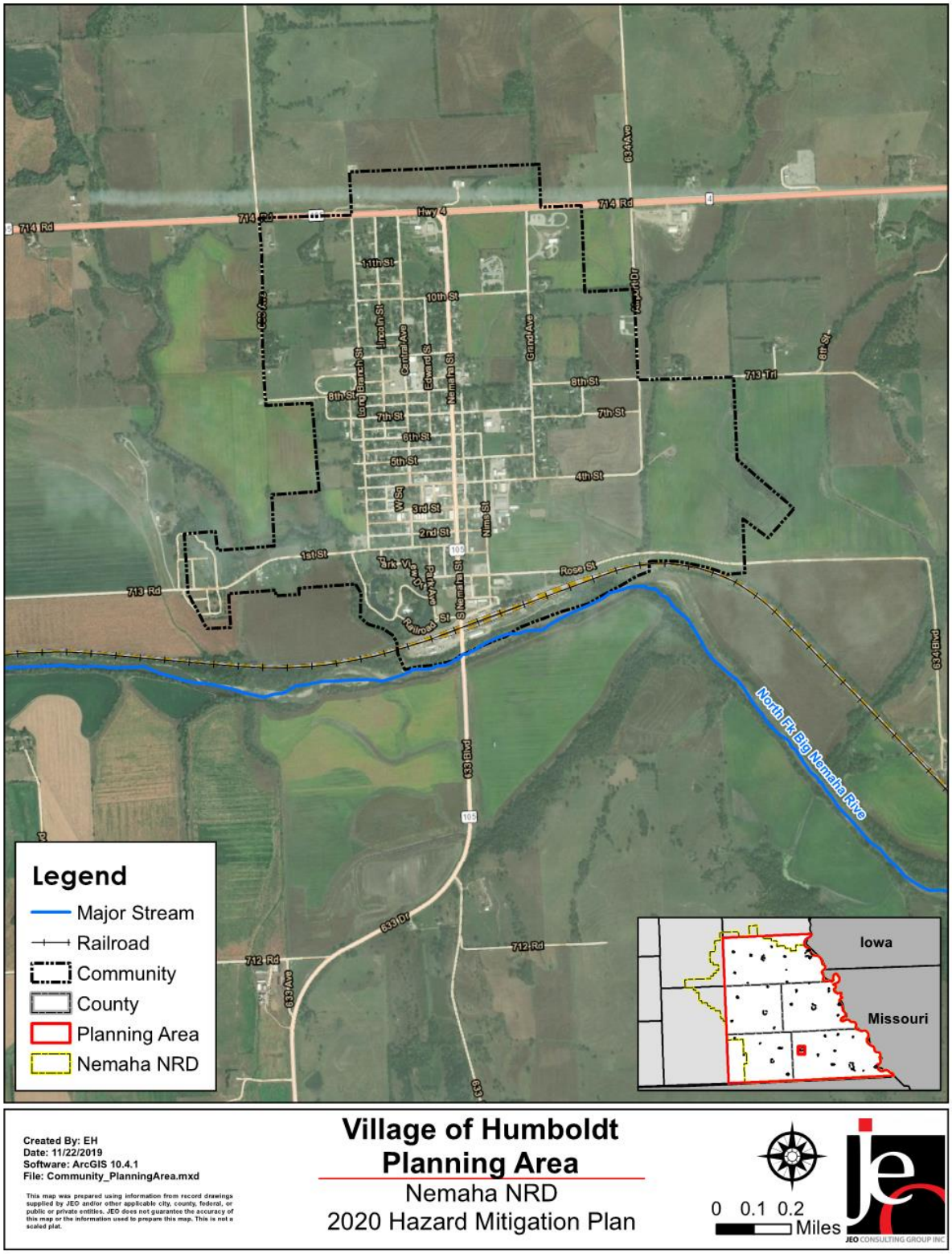


Source: U.S. Census Bureau, 1880 – 2010, Local Planning Team, 2017

22 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

23 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure HBT.2: City of Humboldt



The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Humboldt's population was:

- **Older.** The median age of Humboldt was 54.8 years old in 2017, compared with Richardson County's median of 47.6 years. Humboldt's population grew older since 2010, when the median age was 47.6 years old.[23]
- **Less ethnically diverse**. Since 2010, Humboldt grew less ethnically diverse. In 2010, 2.2% of Humboldt's population was Hispanic or Latino. By 2017, about 0.8% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[23]
- **As likely to be below the federal poverty line.** The poverty rate in the City of Humboldt (15.9% of people living below the federal poverty line) was slightly lower than the county's poverty rate (16.3%) in 2017.[24]

Employment and Economics

The City of Humboldt's economic base is a mixture of industries. In comparison to Richardson County, Humboldt's economy had:

- **Similar mix of industries.** Humboldt's major employment sectors, accounting for 10% or more of employment each, were: construction, manufacturing, and education.[24]
- **Lower per capita income.** Humboldt's per capita income in 2017 ($22,679) was about $5,430 lower than the county ($28,109).[24]
- **More long-distance commuters.** About 44% of workers in Humboldt commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 30.6% of workers in Humboldt commuted 30 minutes or more to work, compared to about 24.9% of county workers.[25]

Major Employers

Major employers in the city include the school and the nursing home. The local planning team indicated that a large percentage of residents commute to Pawnee City, Beatrice, Falls City, and Burn, Kansas, for employment.

Housing

In comparison to Richardson County, the City of Humboldt's housing stock was:[26]

- **Older.** Humboldt had a larger share of housing built prior to 1970 than the county (79.4% compared to 71.6%).
- **Similar amounts of mobile and manufactured housing.** The City of Humboldt had a slightly larger share of mobile and manufactured housing (3.5%) compared to the county (2.7%).
- **More renter-occupied**. About 29.8% of occupied housing units in Humboldt were renter-occupied compared with 22.6% of occupied housing in Richardson County.
- **Less occupied.** Approximately 23.4% of Humboldt's housing units were vacant compared to 13.7% of units in Richardson County.

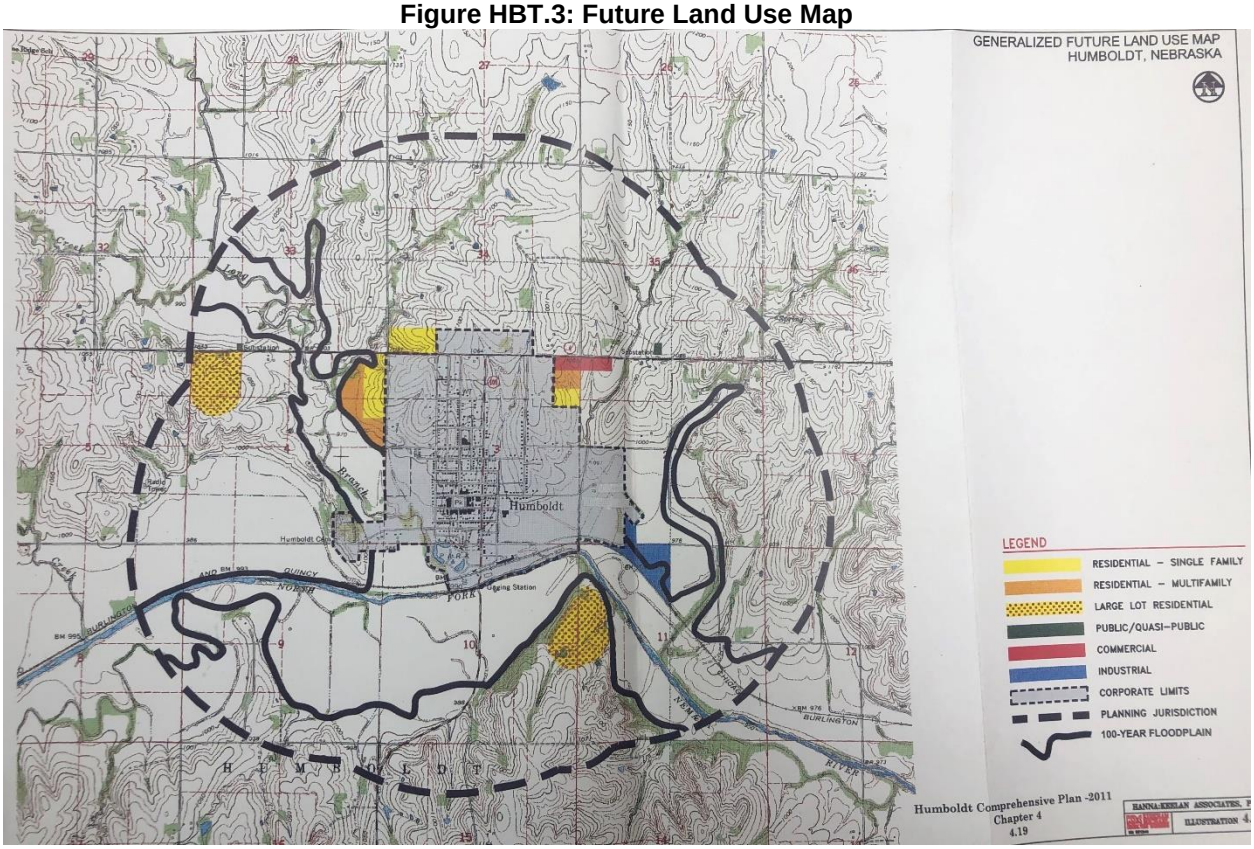
24 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
25 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
26 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Mobile homes are scattered throughout the community. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

Future Development Trends

In the last five years, the city has demolished between two and four houses a year. No new housing has been built, but a new daycare was built next to the school. According to the most recent American Community Survey, Humboldt's population is generally decreasing. The local planning team attributes the decline to the younger population leaving and the city's aging population. Municipal funds are limited to maintaining current facilities and systems, with a large portion already dedicated to paying off the new well and street repairs. Funds have decreased over recent years. In the next five years, the city would like to demolish an additional 26 more houses. No new housing or commercial developments are anticipated.

Figure HBT.3: Future Land Use Map



Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table HBT.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
493	$15,718,116	32	6.5%	812,426

Source: GIS Workshop/Richardson County Assessor, 2019[27]

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of three chemical storage sites in Humboldt. The table below lists the name and location of the sites and whether they are in the floodplain.

Table HBT.3: Chemical Storage Fixed Sites

Facility Name	Address	In Floodplain (Y/N)
Ag Partners Cooperative Inc.	Railroad Street	Y
OPPD Substation No. 975	Highway 4	N
Sapp Bros Petroleum Inc.	1142 Grand Avenue	N

Source: Nebraska Department of Environment and Energy[28]

27 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].
28 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

Critical Facilities

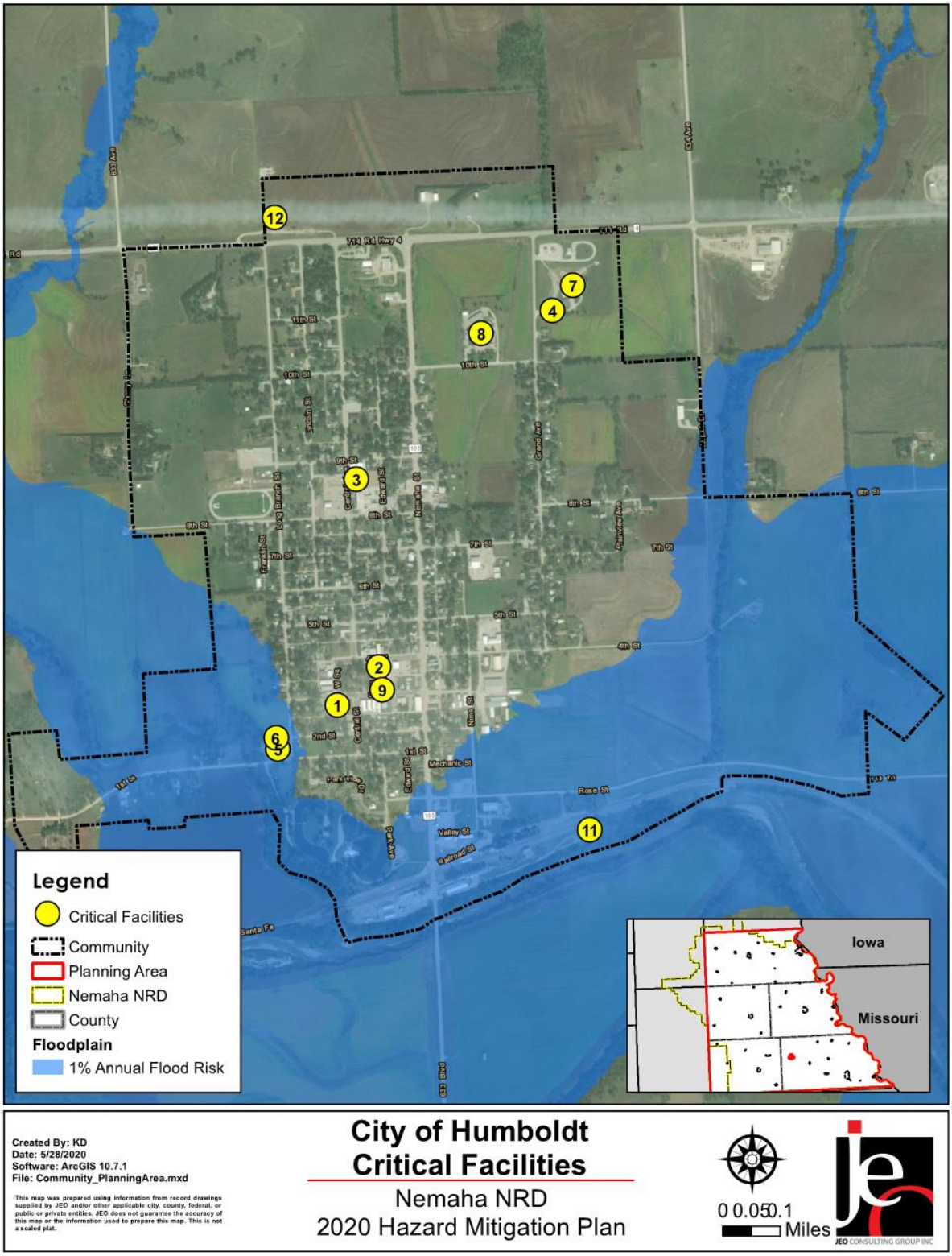
Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the City of Humboldt's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

Table HBT.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	Auditorium	Y	N	N
2	City Hall	N	N	N
3	HTRS Schools (H.S., Elementary, & Early Childhood Education)	Y	N	N
4	Humboldt Family Medical Clinic	N	N	N
5	Lift Station	N	N	Y
6	Maintenance Building	N	N	Y
7	New Fire Hall		N	N
8	Nursing Home	N	Y	N
9	Old Fire Hall	N	N	N
10*	Pawnee County Well	N	Y	N
11	Wastewater Treatment Plant	N	Y	Y
12	Water Tower	N	N	N
13**	Well House	N	Y	N
14**	Well/Blending Station/Water Tank	N	Y	N

*Located approximately seven miles northwest of the city.
**Located approximately four miles north of the city.

Figure HBT.4: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Chemical and Radiological Spills (Fixed Site)

The primary concern for fixed site chemical and radiological spills comes from the Cooper Nuclear Power Station. The city located very close to the plume exposure pathway zone and would likely be heavily impacted if a spill or leak were to occur. Anhydrous ammonia and other chemicals are stored within the community. The nursing home is located near the Sapp Bros storage tanks and the co-op is located near the south road out of town. No historical spills have occurred; however, the fire department is not HazMat trained and would have to call the emergency manager and other mutual aid for support if a spill were to occur.

Chemical and Radiological Spills (Transportation)

The railroad, Highway 75, and Highway 105 all carry chemicals on a regular basis. Highway 75 is a larger concern as it has more truck traffic and Highway 105 is mostly local traffic. No major historical spills have occurred, but the same issue exists with response as fixed site spills. There are no critical facilities located along major transportation routes.

Dam Failure

Although not identified as a top hazard of concern by the local planning team, the city is located near a high hazard dam. The figure below shows the location of the Long Branch 21 dam. If the dam were to fail, it would likely flood portions of the community. Dam inundation maps are not shown due to security concerns. There have been no historical dam failures that impacted the city.

Drought and Extreme Heat

The community's water quantity is sufficient. Their main struggle is with water quality, which can degrade during drought events. High nitrates in the groundwater is the primary issue. In 2012, Humboldt added a new well and brought in water from a well in Pawnee County to blend the water to bring down the nitrate levels. During that time, the city also added an additional water storage tank. There have been no past drought impacts and no water restriction have had to be implemented. There are cooling centers available at the Auditorium and Ag Buildings, but they have not been needed.

As part of the HMP process, a qualitative analysis of the public water supply's vulnerability to drought was conducted. The maps below show the location of the city's public water supply wells relative to potential drought vulnerability. Further analysis would be needed to determine if additional wells are needed and where to best locate them. Additional information regarding the qualitative analysis can be found in the Drought Profile within *Section 4: Risk Assessment*.

Figure HBT.5: Dam Location

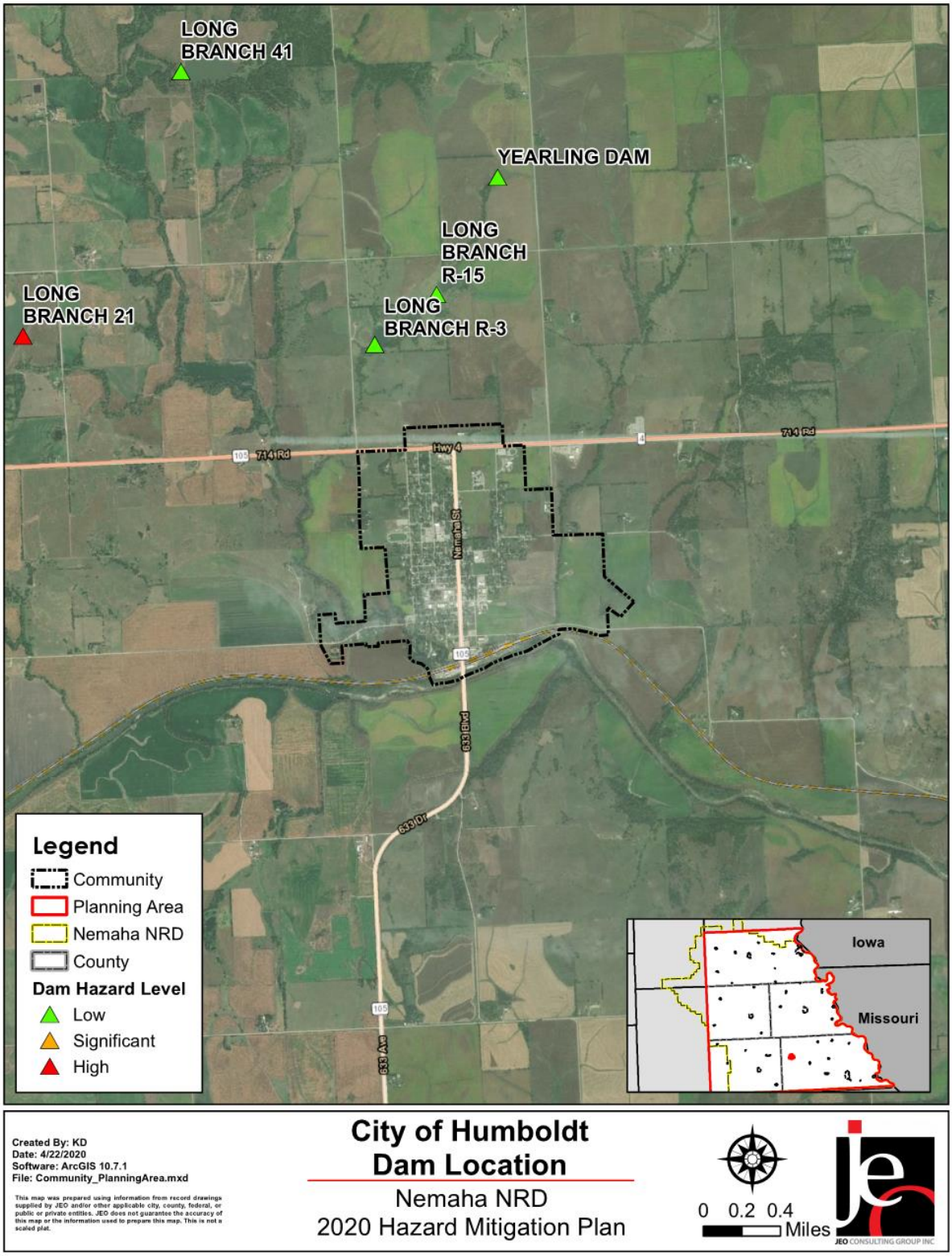
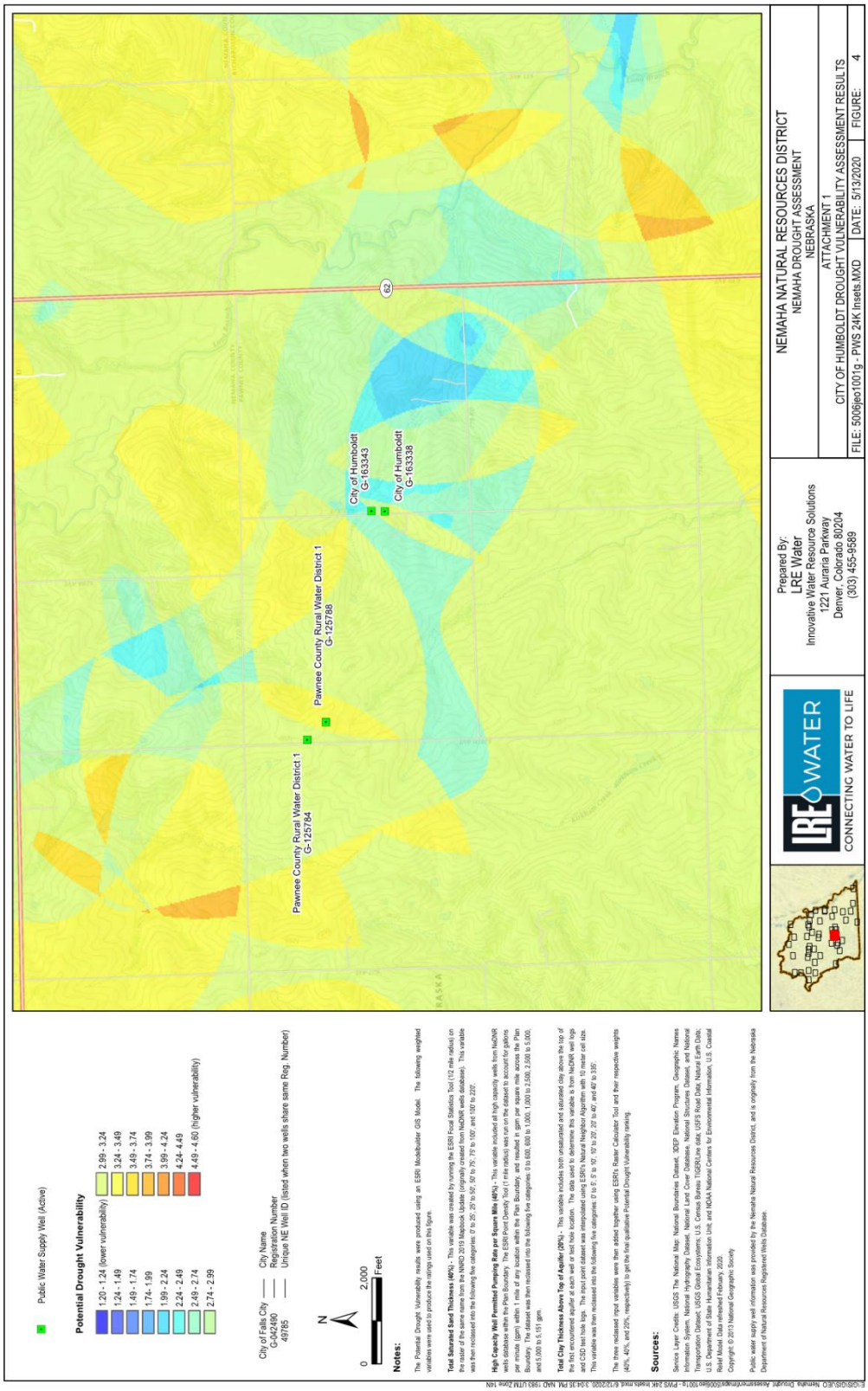
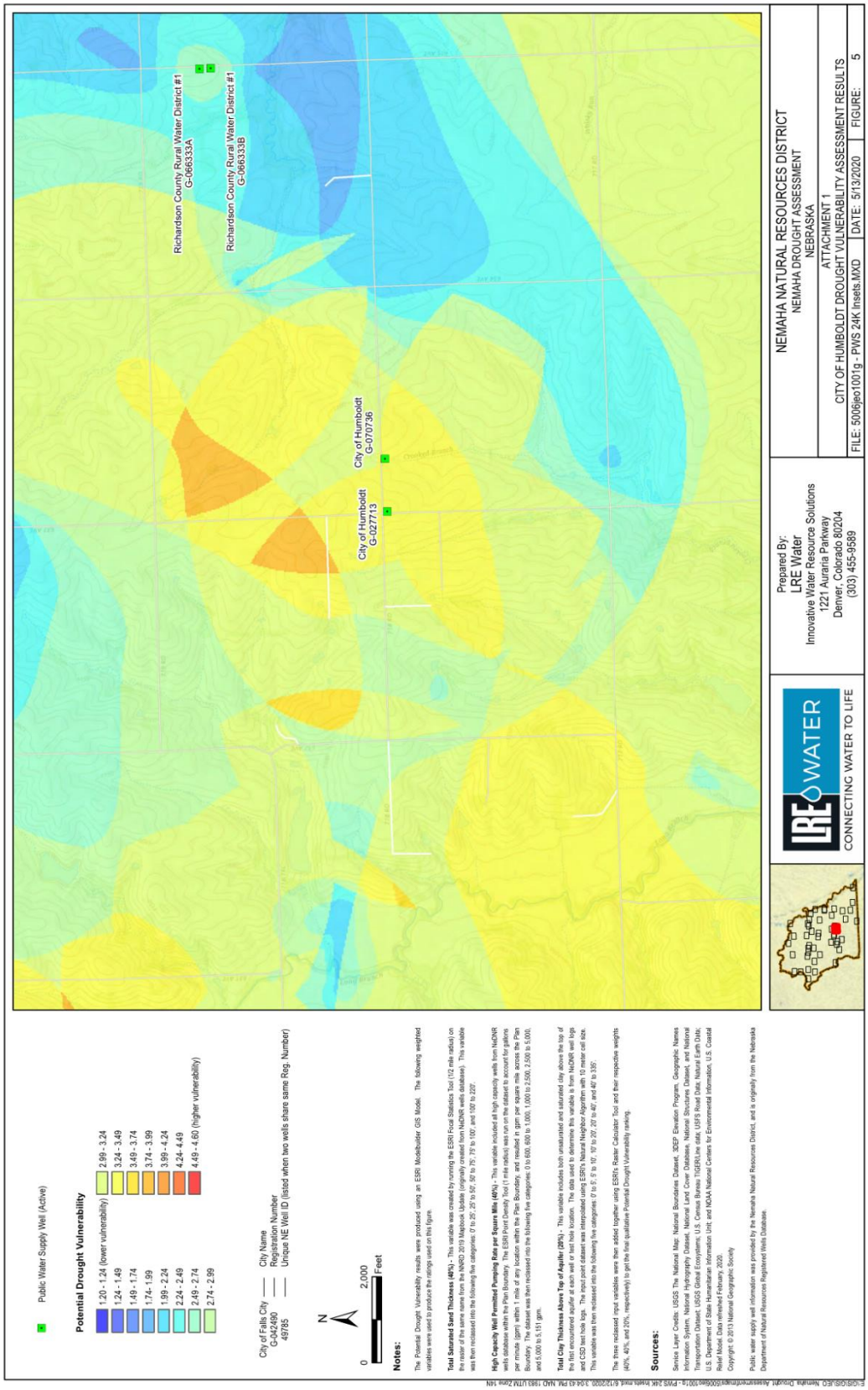


Figure HBT.6: Public Water Supply Drought Vulnerability




Richardson County Rural Water District #1
G-066333A
Richardson County Rural Water District #1
G-066333B
City of Humboldt
G-070736
City of Humboldt
G-027713
Public Water Supply Well (Active)
Potential Drought Vulnerability
1.20 - 1.24 (lower vulnerability)
1.24 - 1.49
1.49 - 1.74
1.74 - 1.99
1.99 - 2.24
2.24 - 2.49
2.49 - 2.74
2.74 - 2.99
2.99 - 3.24
3.24 - 3.49
3.49 - 3.74
3.74 - 3.99
3.99 - 4.24
4.24 - 4.49
4.49 - 4.60 (higher vulnerability)
City of Falls City
G-042490
49785
City Name
Registration Number
Unique NE Well ID (listed when two wells share same Reg. Number)
N
0
2,000
Feet
Notes:
The Potential Drought Vulnerability results were produced using an ESRI ModelBuilder GIS Model. The following weighted variables were used to produce the ratings used on this figure.
Total Saturated Sand Thickness (40%) - This variable was created by running the ESRI Focal Statistics Tool (1/2 mile radius) on the raster of the same name from the NNRD 2019 Mapbook Update (originally created from NeDNR wells database). This variable was then reclassed into the following five categories: 0' to 25', 25' to 50', 50' to 75', 75' to 100', and 100' to 220'.
High Capacity Well Permitted Pumping Rate per Square Mile (40%) - This variable included all high capacity wells from NeDNR wells database within the Plan Boundary. The ESRI Point Density Tool (1 mile radius) was run on the dataset to account for gallons per minute (gpm) within 1 mile of any location within the Plan Boundary, and resulted in gpm per square mile across the Plan Boundary. The dataset was then reclassed into the following five categories: 0 to 600, 600 to 1,000, 1,000 to 2,500, 2,500 to 5,000, and 5,000 to 5,151 gpm.
Total Clay Thickness Above Top of Aquifer (20%) - This variable includes both unsaturated and saturated clay above the top of the first encountered aquifer at each well bore location. The data used to determine this variable is from NeDNR well logs and CSD bore hole logs. The input point dataset was interpolated using ESRI's Natural Neighbor Algorithm with 10 meter cell size. This variable was then reclassed into the following five categories: 0' to 5', 5' to 10', 10' to 20', 20' to 40', and 40' to 335'.
The three reclassed input variables were then added together using ESRI's Raster Calculator Tool and their respective weights (40%, 40%, and 20%, respectively) to get the final qualitative Potential Drought Vulnerability ranking.
Sources:
Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Gobal Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed February, 2020.
Copyright © 2013 National Geographic Society
Public water supply well information was provided by the Nemaha Natural Resources District, and is originally from the Nebraska Department of Natural Resources Registered Wells Database.
Prepared By:
LRE Water
Innovative Water Resource Solutions
1221 Auraria Parkway
Denver, Colorado 80204
(303) 455-9589
LRE WATER
CONNECTING WATER TO LIFE
NEMAHA NATURAL RESOURCES DISTRICT
NEMAHA DROUGHT ASSESSMENT
NEBRASKA
ATTACHMENT 1
CITY OF HUMBOLDT DROUGHT VULNERABILITY ASSESSMENT RESULTS
FILE: 5006jeo1001g - PWS 24K insets.MXD
DATE: 5/13/2020
FIGURE: 5
S:\GIS\GIS_ECO Nemaha Drought Assessment\mxd\5006jeo1001g - PWS 24K Insets.mxd 6/12/2020 3:04:43 PM NAD 1983 UTM Zone 14N

Severe Thunderstorms

Hail is the city's largest concern in regard to severe thunderstorms. Past impacts from hail events include damage to residential roofs, windows, and trees. No community-owned buildings have been damaged, but they are insured. Battery backups and surge protectors are in place in case of lightning strikes. Trees in the community are regularly trimmed and very few would be considered hazardous. Recently the city has trained storm spotters to go out and provide additional coverage during severe thunderstorm events.

Severe Winter Storms

Ice storms are the greatest concern for the community because they cause the most damage. Ice storms also cause issues with road conditions. Humboldt can pre-treat roadways; however, its efforts are limited due to a small budget. The city handles snow removal with help from citizen volunteers. Currently, they are looking at updating or replacing snow removal equipment. No power lines are buried in the community, so power loss has occurred in the past. Typically, this is short lived and power is restored in a few hours.

Tornadoes and High Winds

No tornadoes have impacted the community, however the potential for a large damaging event still exists. High wind events have occurred in 1994 and 2015. Damage from those events included toppled grain bins, downed trees, and downed power lines. Power loss from storms is typically very short with no long-term power outages recorded. In the event of a prolonged power outage, financial records for the city are cloud based. All other records are hard copies. There are three sirens located throughout the community and can be turned on by the county emergency manager or by city staff. There are no safe rooms in the community, but the city auditorium can be used for shelter. Additionally, most houses have basements. The school conducts tornado drills and the county emergency manager offers storm spotter training. If a disaster were to occur, mutual aid agreements are in place through the fire department with surrounding communities.

Wildfire

The fire department issues burn permits and when those are followed there are no wildfire issues. Wildfires start to become an issue with individuals burn during high wind or dry periods and are unable to contain the fire. Most historical wildfires were small and controlled quickly. However, the community is surrounded by agricultural lands, so it is very possible for a large wildfire to threaten the city. Fire department response vehicles include three attack trucks and three support tankers. The fire department has 15 volunteer staff that are regularly trained. Humboldt does not have a Wildland Urban Interface code.

Governance

The City of Humboldt is governed by a five-member City Council; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Mayor
- Fire Department
- Water Operator

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table HBT.5: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	No
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	-
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No

Survey Components/Subcomponents		Yes/No
	Ex. CERT Teams, Red Cross, etc.	
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	Moderate
Community support to implement projects	Moderate
Time to devote to hazard mitigation	Limited

Plan Integration

Humboldt's comprehensive plan was last updated in 2019. The plan does not discuss natural hazards but does contain goals aimed at safe growth and directs development for the city. The zoning ordinance, floodplain ordinance, and subdivision regulations require new development to be one foot above base flood elevation and discourage development in the floodplain. Currently, the city does not have building codes but is working on adopting international building codes. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

Mitigation Strategy

Completed Mitigation Actions

Mitigation Action	New Municipal Well
Hazard(s) Addressed	Drought and Extreme Heat
Status	This project was completed in 2013.

Continued and New Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters. Generators are needed at the fire department and city auditorium.
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
Estimated Cost	$15,000 - $30,000+ per generator
Funding	General Fund, Fundraiser
Timeline	5+ Years
Priority	Medium
Lead Agency	Fire Department, Auditorium Committee
Status	Not Started.

Mitigation Action	Community Education and Awareness
Description	Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types.
Hazard(s) Addressed	All Hazards
Estimated Cost	$500+
Funding	General Fund
Timeline	Ongoing
Priority	Medium
Lead Agency	Fire Department, City Council
Status	Ongoing. The fire department regularly does public education and meets with students at the school.

Mitigation Action	Improve and Revise Snow/Ice Removal Program
Description	As needed, continue to revise and improve the snow and ice removal program for streets. Revisions should address situations such as plowing snow, ice removal, parking during snow and ice removal, removal of associated storm debris, and rescuing those stranded during winter weather events.
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	Varies
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	City Council
Status	New Action. Not Started.

Mitigation Action	Storm Shelter Identification
Description	Identify any existing private or public storm shelters.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	Staff Time
Funding	Staff Time
Timeline	1 Year
Priority	High
Lead Agency	Clerk
Status	New Action. Not Started.

Removed Mitigation Actions

Mitigation Action	Floodplain Regulation Enforcement/Updates
Hazard(s) Addressed	Flooding
Reason for Removal	The city currently has no plans to update their floodplain regulations. The city regularly reviews their regulations and ordinances and updates them as needed. They will continue to enforce all local regulations.

Mitigation Action	Maintain Good Standing in the National Flood Insurance Program (NFIP)
Hazard(s) Addressed	Flooding
Reason for Removal	While the community will continue to participate and maintain compliance in the NFIP, this project can be removed as it is considered an ongoing effort.

Community Profile

Village of Rulo

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table RLO.1: Village of Rulo Local Planning Team

Name	Title	Jurisdiction
Shay Homeyer	Clerk	Village of Rulo

Location and Geography

The Village of Rulo is in southeastern Richardson County and covers an area of 0.6 square miles. The Missouri River is located on the eastern border of the village. Both Missouri and Kansas are located less than a mile from the community. This has caused issues in the past, as projects usually involve all three entities, and each have different rules and requirements.

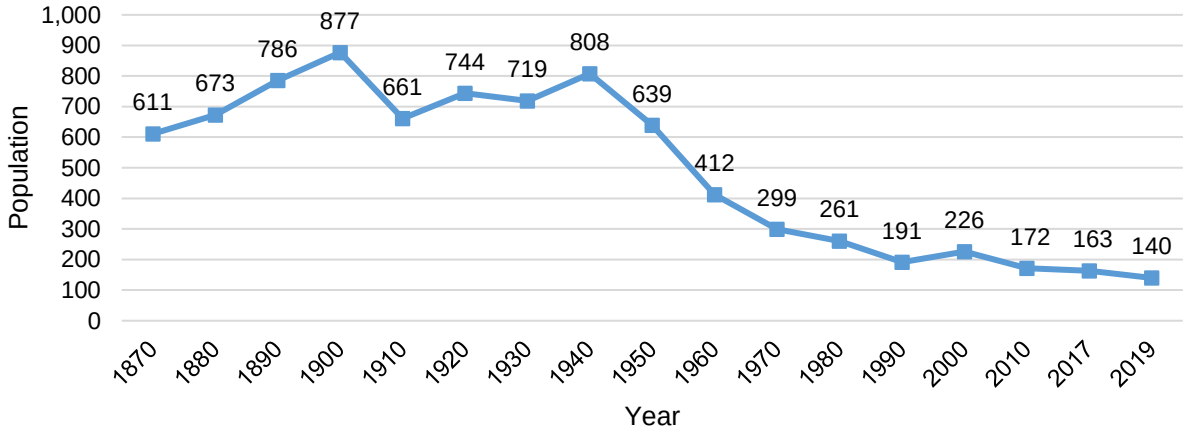
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Rulo's major transportation corridor is US Highway 159. It is traveled by an average of 1,005 vehicles daily, 150 of which are trucks.[29] The village has one Burlington Northern Santa Fe Railway line traveling east to west through the center of the village. Transportation routes of most concern are Highway 159 and 661 Avenue due to the high amounts of traffic. Several transportation routes surrounding the village have been closed in the past due to flooding. This can leave the village like an island with no reliable way in or out of the community. If the village did need to be evacuated, Ash Street would be difficult due to flooding concerns. Agricultural chemicals are transported along local routes, but the amount is minimal.

Demographics

The Village of Rulo's population has been declining since 2000 and was at 140 people in 2019. A declining population could lead to a decreasing tax base, which may make funding mitigation projects more difficult. Rulo's population accounted for 2.0% of Richardson County's population in 2017.[30]

Figure RLO.1: Population

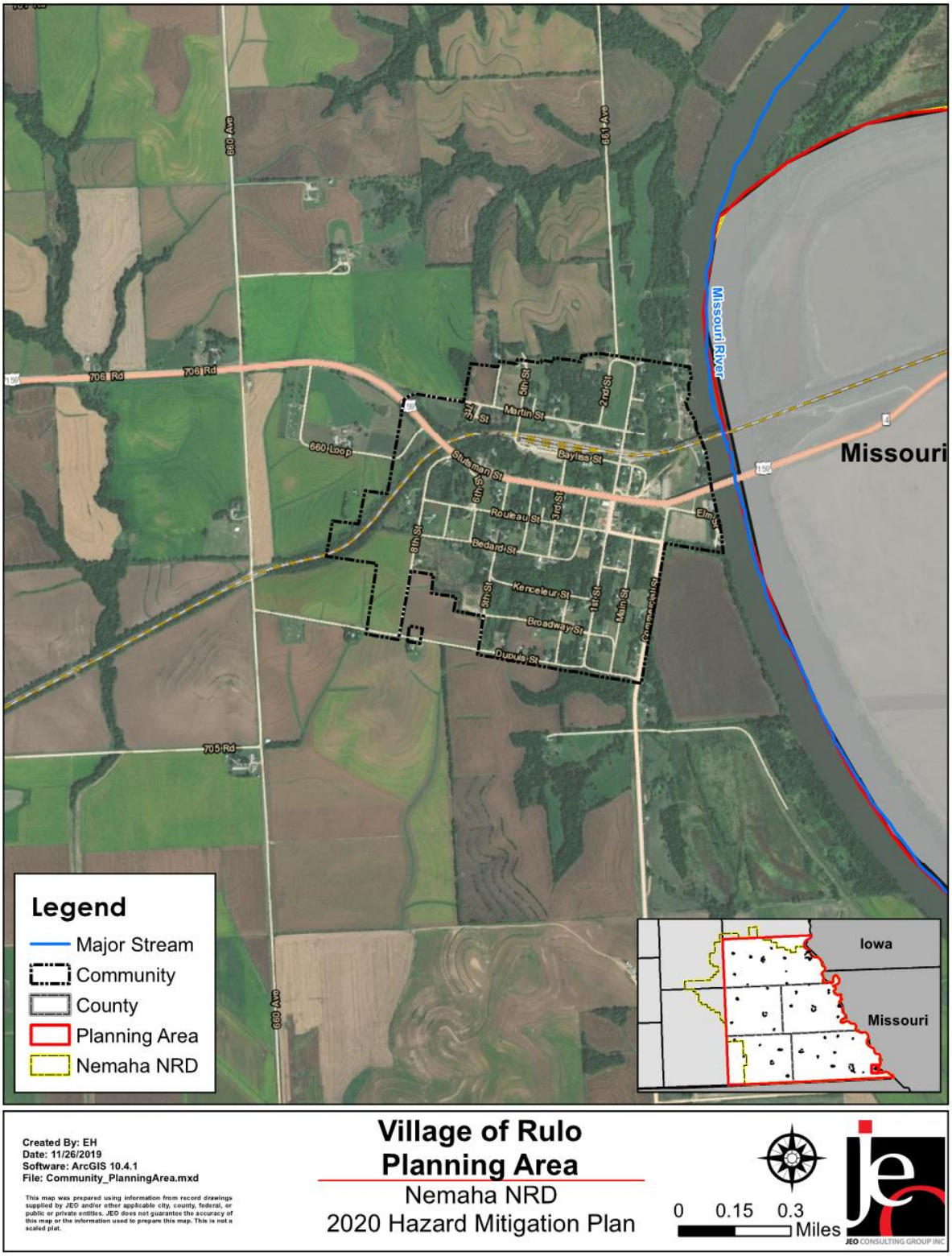


Source: U.S. Census Bureau, 1870 – 2017; Local Planning Team, 2019

29 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

30 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure RLO.2: Village of Rulo



The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Rulo's population was:

- **Older.** The median age of Rulo was 43.8 years old in 2017, compared with Richardson County's median of 47.6 years. Rulo's population grew older since 2010, when the median age was 42.6 years old.[30]
- **Less ethnically diverse**. Since 2010, Rulo became less ethnically diverse. In 2010, 5.8% of Rulo's population was Hispanic or Latino. By 2017, about 0% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[30] The local planning team estimated that approximately 50% of residents are of Native American descent.
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Rulo (4.9% of people living below the federal poverty line) was lower than the county's poverty rate (16.3%) in 2017.[31]

Employment and Economics

The Village of Rulo's economic base is a mixture of industries. In comparison to Richardson County, Rulo's economy had:

- **Different mix of industries.** Rulo's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, retail trade, transportation, education, and arts.[31]
- **Higher per capita income.** Rulo's per capita income in 2017 ($29,660) was about $1,600 higher than the county ($28,109).[31]
- **More long-distance commuters.** About 32.5% of workers in Rulo commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 40.5% of workers in Rulo commuted 30 minutes or more to work, compared to about 24.9% of county workers.[32]

Major Employers

Major employers in the village include Ag Partners, the Village of Rulo, Wild Bills Saloon, and the Swinging Door Saloon. A large percentage of residents commute to Missouri and Kansas for employment. Very few stay in Nebraska.

Housing

In comparison to Richardson County, the Village of Rulo's housing stock was:[33]

- **Newer.** Rulo had a smaller share of housing built prior to 1970 than the county (46.1% compared to 71.6%).
- **More mobile and manufactured housing.** The Village of Rulo had a larger share of mobile and manufactured housing (10.2%) compared to the county (2.7%).
- **Less renter-occupied**. About 5.1% of occupied housing units in Rulo were renter-occupied compared with 22.6% of occupied housing in Richardson County.

31 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
32 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
33 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

- **Less occupied.** Approximately 22.7% of Rulo's housing units were vacant compared to 13.7% of units in Richardson County.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Mobile homes are spread out across the community, as no building codes are in place. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

Future Development Trends

Over the past five years a new business, Pro Outfitters, moved into the old Camp Rulo building and converted it into a hunting lodge. Additionally, four prebuilt homes were also moved in during the last two years. According to the most recent American Community Survey estimates, Rulo's population is generally declining. The local planning team attributed the decline to the 2019 flood and an aging population. Municipal funds are very limited, and the village struggles to maintain current facilities and systems. Funds have decreased over recent years due to the population loss. In the next five years no new housing or business developments are planned but the village is open to any. Because of the flooding and Covid-19 outbreak some businesses are expected to close. The village discourages building in the floodplain but is not able to enforce it.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table RLO.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
120	$2,229,079	10	8.3%	$90,010

Source: GIS Workshop/Richardson County Assessor, 2019[34]

34 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of three chemical storage sites in Rulo. The table below lists the name and location of the sites and whether they are in the floodplain.

Table RLO.3: Chemical Storage Fixed Sites

Facility Name	Address	In Floodplain (Y/N)
Ag Partners Cooperative Inc	Bayliss Street	N
Falls City Potable Water	70434 661 Avenue	N
Nebraska Fertilizer Co Inc	65915 706 Road	N

Source: Nebraska Department of Environment and Energy[35]

Critical Facilities

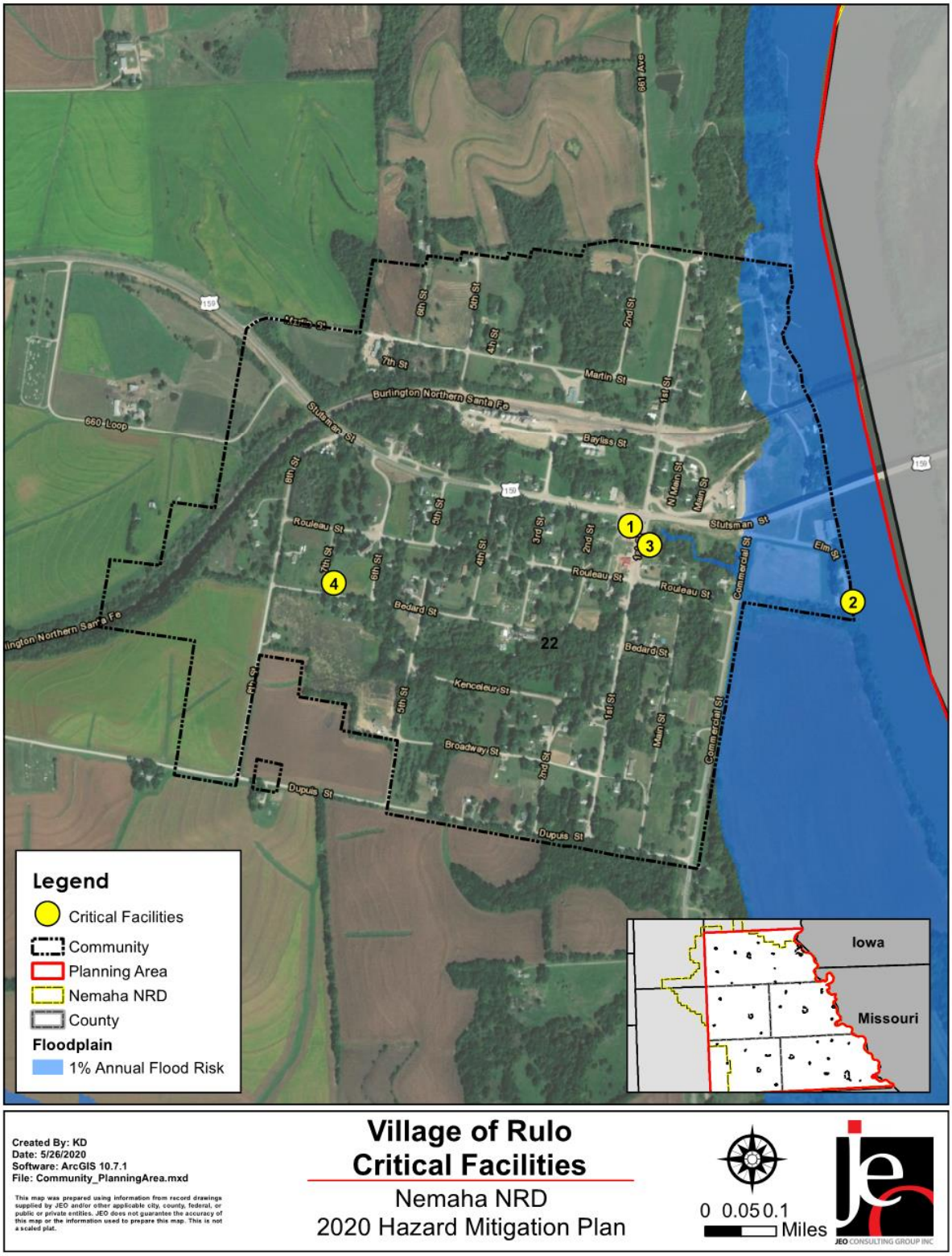
The planning team identified critical facilities necessary for the Village of Rulo's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

Table RLO.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	Auditorium	N	N	N
2	Boat Ramp	N	N	Y
3	Library	N	N	N
4	Water Tower	N	Y	N

35 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

Figure RLO.3: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Dam Failure

Rulo is located directly adjacent to the Missouri River. If any of the upstream dams along the river or its tributaries were to fail, flooding along the Missouri River would likely occur. Potential impacts would be similar to the impacts seen during the March 2019 floods. The local planning team indicated that Gavin's Point is the largest nearby dam that could impact the community. If a dam failure were to occur, the village would follow the information given in the Richardson County Local Emergency Operations Plan. To help mitigate the impacts of dam failure, the village discourages development in the floodplain, but enforcement is very difficult.

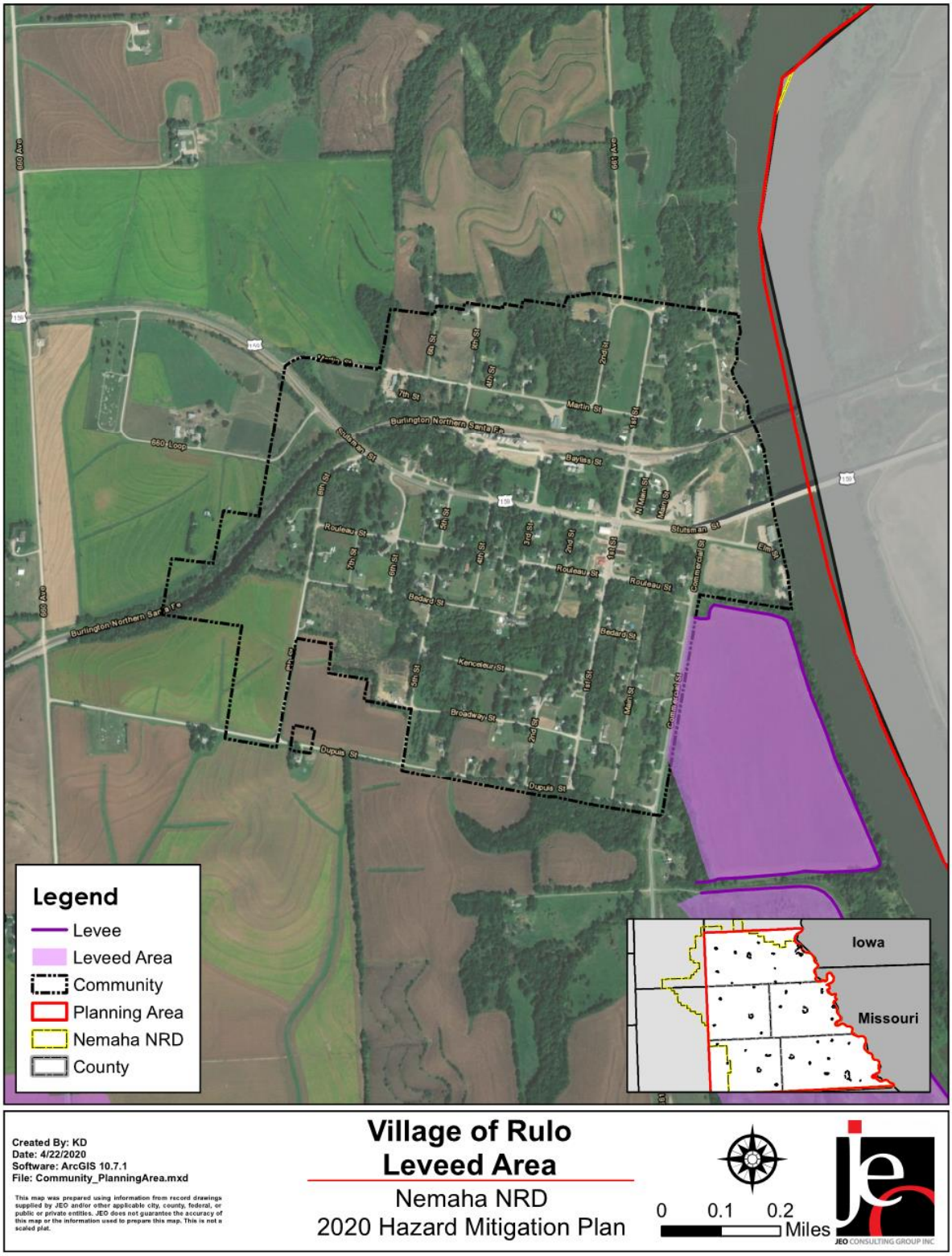
Flooding

Flooding has impacted the village in 1952, 1984, 1994, 2007, 2009, 2011, 2018, and 2019. The March 2019 flood was the largest and most damaging event. Floodwaters went up to Commercial Street with many areas experiencing several feet of standing water for 272 days. Approximately 25 houses in and around the community were completely damaged and had to be torn down and rebuilt. Water meters in 35 units were completely destroyed due to being underwater. Twenty people left the village after the floods and have not returned. For several days the community was essentially an island with roads and bridges washed out on all sides. The boat ramp acted as the main access point in and out of the village. Most businesses were not directly damaged from the flooding but did experience economic loss. Many agricultural fields surrounding the community were flooded and covered by several feet of sand. This will likely impact the local economy for several years until crops can be plowed and planted again. Rulo is still in the process of recovering with many bridges and roads surrounding the village under construction. The flood risk for the community comes from the Missouri River. Stormwater drainage is not an issue in most places. To help mitigate the impacts of flooding, the village discourages development in the floodplain, but has difficulty with enforcement.

Levee Failure

There are two levees located near the village. The Richardson County Levee A is a non-accredited levee that provides protection up to Commercial street. The MRLS 512-513-R N is a non-accredited levee that protects rural areas directly south of the village. In total, the two levees protect 18 structures with a property value of $2,890,000. If either levee were to fail access roads in and out of the village would be impacted. Figure RLO.4 shows the location of the levees.

Figure RLO.4: Leveed Area



Tornadoes and High Winds

The village has experienced several high wind events in 2020 and a tornado impacted the community in June 2019. The tornado touched down on the other side of the river, but the winds downed trees, damaged roofs, and damaged siding. The recent high wind events have caused sand from the flooding to be blown in the air. The village is worried that over time the wind-blown sand will start to damage the water tower and other structures. Most of the village's records were destroyed in a water break in 2018. Since that time hard copies and electronic copies of all records are being kept. There is one tornado siren in the village which can be activated by Richardson County Emergency Management and the fire department. It can be heard throughout the village but not in nearby rural areas. There is no safe room or storm shelter in the village. Residents must use their own homes or neighbors' for shelter. The local planning team estimated that only 25% of homes in the village have basements. No educational outreach is done by the village. In the event of a disaster, the fire department has mutual aid agreements in place with the Richardson County Mutual Finance Organization.

Governance

The Village of Rulo is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Fire Department
- Engineer

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table RLO.5: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operations Plan	No
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	No
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	-
	Planning Commission	No

Survey Components/Subcomponents		Yes/No
Administrative & Technical Capability	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited

Plan Integration

Rulo has a floodplain ordinance which outlines new construction standards in the floodplain, however, those are difficult to enforce. The village is also an annex to the 2016 Richardson County Local Emergency Operations Plan. It contains information regarding warning, incident command, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, resources, damage assessment, health and human services, public health, and financial accountability. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

Mitigation Strategy

New Mitigation Actions

Mitigation Action	Bank Stabilization
Description	Stabilize banks along streams and rivers. This may include, but is not limited to reducing bank slope, addition of riprap, installation of erosion control materials/fabrics.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	General Fund
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board, Clerk
Status	New Action. Not Started.

Mitigation Action	New Community Building
Description	A new all-in-one community building is needed for meetings, events, storage, and sheltering area. The current facilities are dilapidated and would cost too much to repair.
Hazard(s) Addressed	All Hazards
Estimated Cost	$150,000+
Funding	General Fund, Donations
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, Clerk
Status	New Action. Not Started.

Mitigation Action	Remote Read Water Meter System
Description	Install a remote read water meter system that can give real time readings of water usage. This will help the village detect any leaks, breaks, or breaches in the water system.
Hazard(s) Addressed	All Hazards
Estimated Cost	$400,000+
Funding	General Fund, Donations
Timeline	1 Year
Priority	High
Lead Agency	Clerk
Status	New Action. Not Started.

Mitigation Action	Safe Rooms and Storm Shelters
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas. The village would like a safe room or storm shelter installed in the planned community building.
Hazard(s) Addressed	Tornados and High Winds, Severe Thunderstorms
Estimated Cost	$350+ per square foot
Funding	General Fund, Donations
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, Clerk
Status	New Action. Not Started.

Mitigation Action	Stormwater System and Drainage Improvements
Description	Stormwater systems comprising of ditches, culverts, or drainage ponds can be used to convey runoff. Undersized systems can contribute to localized flooding. Drainage improvements may include ditch upsizing, ditch cleanout and culvert improvements. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. Bridges typically serve as flow restrictions along streams and rivers. Cleanout and reshaping of channel segments at bridge crossings can increase conveyance, reducing the potential for flooding.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, Clerk
Status	New Action. Not Started.

Mitigation Action	Update Village Code Book
Description	Update the village code book. The old book has not been updated since 1928 and much of it does not apply anymore.
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies, Staff Time
Funding	General Fund, Donations
Timeline	2-5 Years
Priority	Medium
Lead Agency	Clerk
Status	New Action. Not Started.

Community Profile

Village of Salem

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table SLM.1: Village of Salem Local Planning Team

Name	Title	Jurisdiction
Kenneth Strauch	Board Chairperson	Village of Salem
Lindie Catlin	Village Board Member	Village of Salem
Jon Kean	Village Board Member	Village of Salem
Carolyn Glathar	Clerk/Treasurer	Village of Salem

Location and Geography

The Village of Salem is in central Richardson County and covers an area of 0.6 square miles. The Big Nemaha River is located to the north, south, and east of the village.

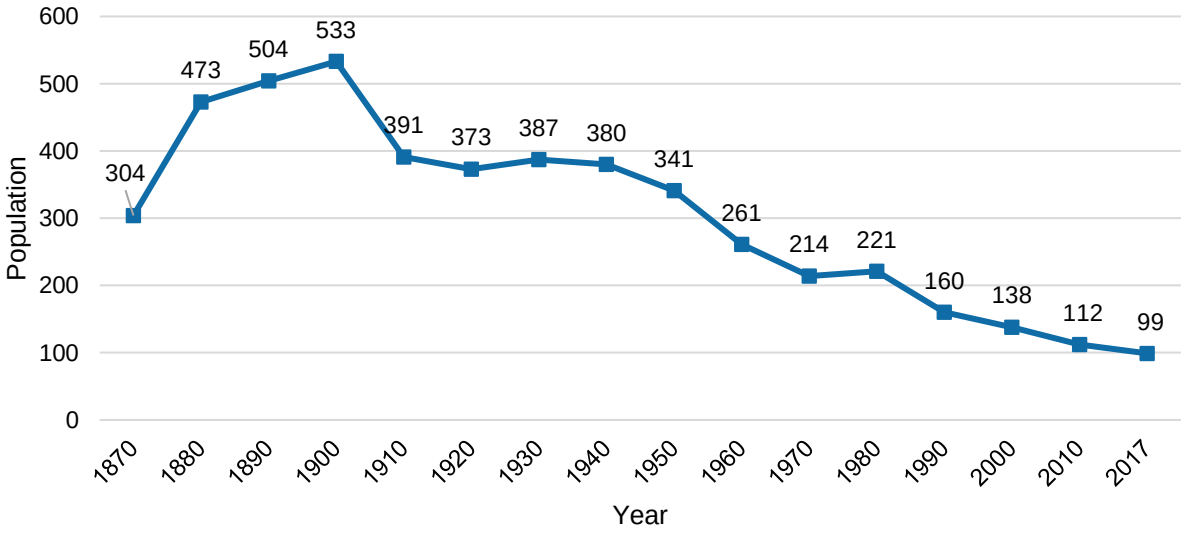
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Salem's major transportation corridor is State Highway 8. It is traveled by an average of 800 vehicles daily, 65 of which are trucks.[36] The village has one Burlington Northern Santa Fe Railway line traveling to the north. The transportation routes of most concern are Highway 8 and the railroad as farm chemicals and chlorine are regularly transported along them.

Demographics

The Village of Salem's population has been declining since 1980 and was at 99 people in 2017. A declining population could mean a decreasing tax base, which may make funding mitigation projects more difficult. Salem's population accounted for 1.2% of Richardson County's population in 2017.[37]

Figure SLM.1: Population

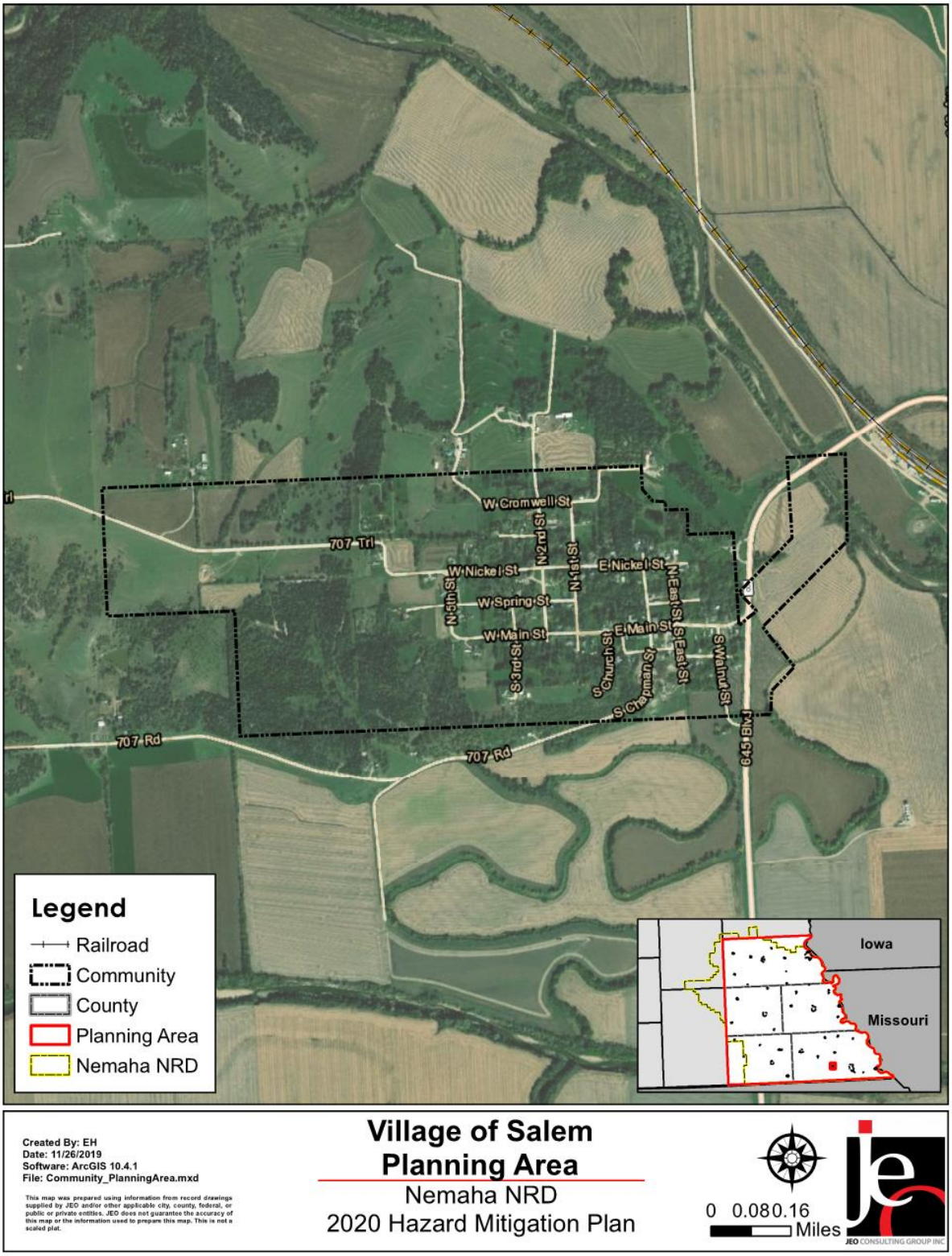


Source: U.S. Census Bureau, 1870 – 2017

36 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

37 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure SLM.2 Village of Salem



The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Salem's population was:

- **Older.** The median age of Salem was 59.3 years old in 2017, compared with Richardson County's median of 47.6 years. Salem's population grew older since 2010, when the median age was 50 years old.[37]
- **Less ethnically diverse**. Since 2010, Salem became less ethnically diverse. In 2010, 2.5% of Salem's population was Hispanic or Latino. By 2017, about 0% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[37]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Salem (43.4% of people living below the federal poverty line) was higher than the county's poverty rate (16.3%) in 2017.[38]

Employment and Economics

The Village of Salem's economic base is a mixture of industries. In comparison to Richardson County, Salem's economy had:

- **Similar mix of industries.** Salem's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, retail trade, and education.[38]
- **Lower per capita income.** Salem's per capita income in 2017 ($15,289) was about $12,800 lower than the county ($28,109).[38]
- **More long-distance commuters.** About 26.7% of workers in Salem commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 50.1% of workers in Salem commuted 30 minutes or more to work, compared to about 24.9% of county workers.[39]

Major Employers

The local bar is the largest employer in the community. Most residents commute to Sabetha, Humboldt, and Falls City for employment.

Housing

In comparison to Richardson County, the Village of Salem's housing stock was:[40]

- **Older.** Salem had a larger share of housing built prior to 1970 than the county (86.8% compared to 71.6%).
- **More mobile and manufactured housing.** The Village of Salem had a larger share of mobile and manufactured housing (11%) compared to the county (2.7%).
- **Similarly renter-occupied**. About 23.2% of occupied housing units in Salem were renter-occupied compared with 22.6% of occupied housing in Richardson County.
- **Less occupied.** Approximately 38.5% of Salem's housing units were vacant compared to 13.7% of units in Richardson County.

38 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
39 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
40 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Mobile homes are located throughout the community. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

Future Development Trends

In the last five years, three to five buildings have been demolished and one new house was built. No new businesses have opened. According the latest American Community Survey estimates, Salem's population is declining. The local planning team attributed this decline to an aging population. Municipal funds are limited to maintain current facilities with the largest portion going to the water system but have stayed steady over recent years. No new housing or commercial developments are anticipated in the next five years.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table SLM.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
93	$1,044,865	5	5.37%	$25,313

Source: GIS Workshop/Richardson County Assessor, 2019[41]

41 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are no chemical storage sites in Salem.

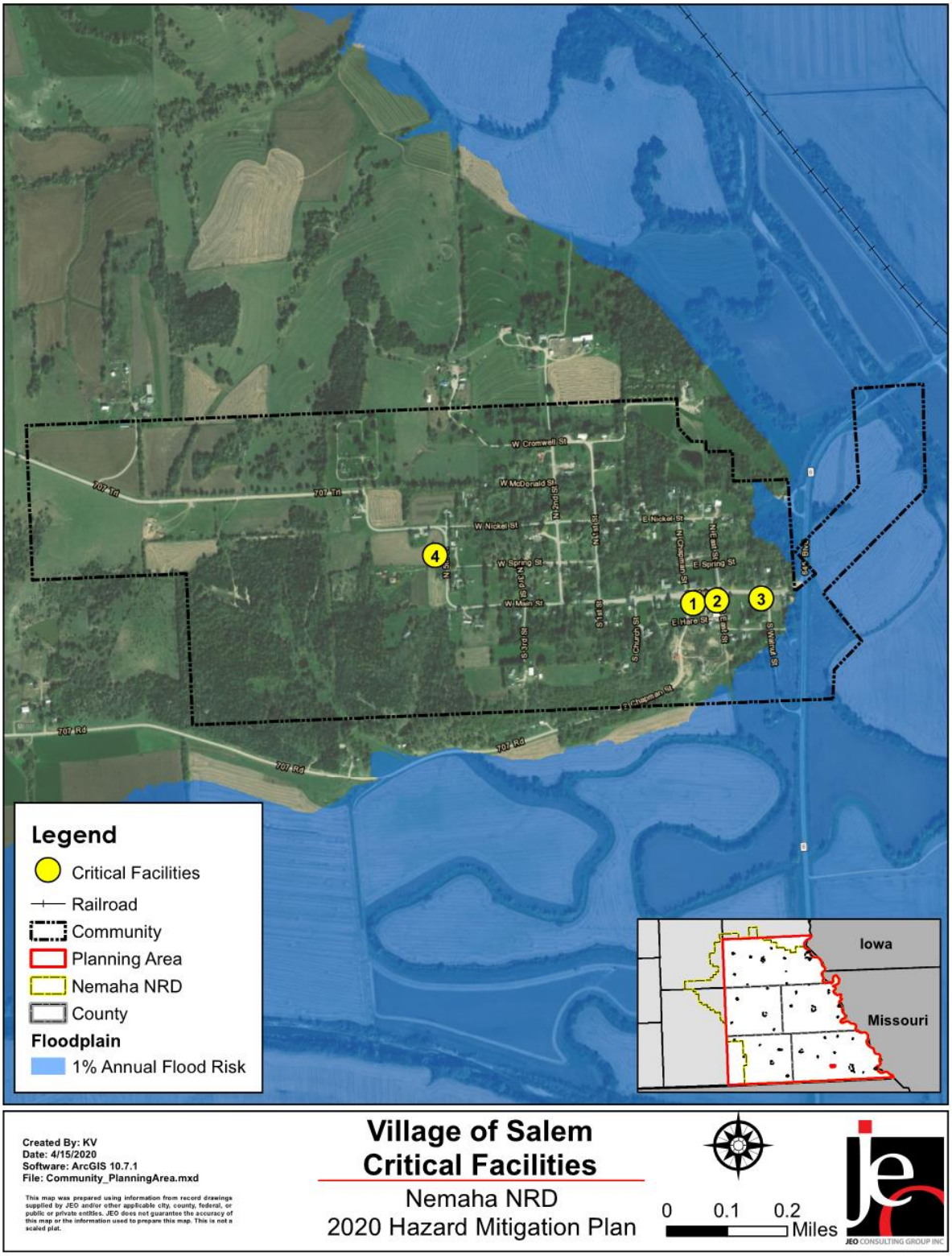
Critical Facilities

Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the Village of Salem's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

Table SLM.3: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	Community Hall	N	N	N
2	Fire Hall	N	N	N
3	Tractor Shed	N	N	N
4	Water Tower	N	N	N

Figure SLM.3: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Chemical and Radiological Spills (Transportation)

The transportation routes of most concern are Highway 8 and the railroad. Chlorine gas is carried on the railroad and various farm chemicals are carried on the highway. Around 2018, a train derailed near the village. County Emergency Management responded, and no damages or evacuations occurred. Critical facilities are located at least a few blocks from both routes and are at higher elevations. If a hazardous materials spill were to occur the local fire department is not HazMat trained and would have to use mutual aid for assistance.

Drought and Extreme Heat

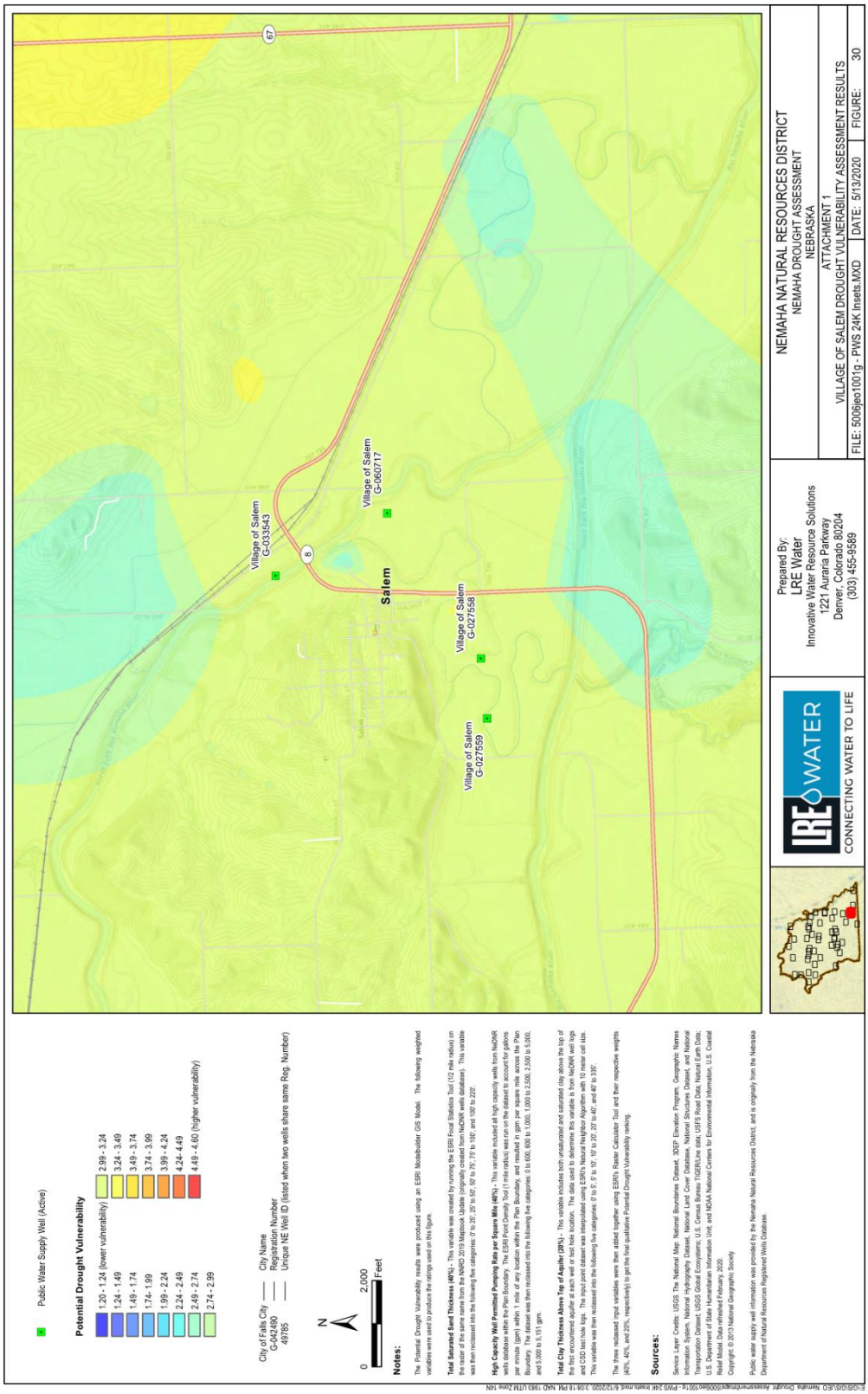
The village's primary concern related to drought and extreme heat is having enough water for residents. The community is on Richardson County Rural Water #2, which monitors the water's quality and quantity. Although not drought related, during a flood in 2011 the water line into Salem was broken. Water had to be hauled in and put in the water tower for six days until the line was fixed. In 2019, the village experienced street buckling due to lack of moisture in the ground. Within the village's ordinance, there is a section on water restrictions during drought events. Only voluntary restrictions have been used in the past during a drought in 1999. There are no formal triggers for implementing the restrictions; the decision would be left to the board. In 2003 a grant was received to put in all new water mains and in 1999 a grant was received for new water meters.

As part of the HMP process, a qualitative analysis of the public water supply's vulnerability to drought was conducted. The map below shows the location of the village's public water supply wells relative to potential drought vulnerability. Further analysis would need to be conducted to determine if additional wells are needed and where to best locate them. Additional information regarding the qualitative analysis can be found in the Drought Profile within *Section 4: Risk Assessment*.

Severe Winter Storms

Large ice storms occurred in 1997 and 2007. Both storms downed trees resulting in power loss for five days. No power lines are buried, and critical facilities do not have backup power. This increases the likelihood of power loss impacting the community. Snow removal is contracted out and the contractors use their own equipment. Road closures are not usually an issue as snow and ice are removed quickly.

Figure SLM.4: Public Water Supply Drought Vulnerability



Tornadoes and High Winds

In 1998 a tornado touched down by the village's cemetery. Trees were damaged but no structures were affected. Then, a windstorm in 2015 occurred by Verdon Lake knocking down power lines. Although the village is not near the lake, they are on the same power grid, so power was lost in Salem for two days. There is one tornado siren which is managed and activated by the County Emergency Management. It cannot be activated by anyone in the village. Additionally, there are no safe rooms in the community and residents must use basements or interior rooms. Most houses in the community have basements for sheltering. The County Emergency Management offers emergency text alerts and storm spotter training is available county wide. In the event of a disaster, the local fire department has mutual aid agreements with surrounding jurisdictions.

Wildfire

The village's primary concerns are the potential for wildfire to impact the community and controlled burns getting out of control. The village is surround by agricultural land and a majority of houses are wood built. This leads to an increased risk for wildfire impacting and damaging the village. Historically wildfires have gotten close to the community but have been put out before impacting structures. The fire department is made up of 10 to 12 volunteers. Many volunteers work other jobs during the day so response to a fire could be slightly delayed. The village does not have a wildland urban interface code.

Governance

The Village of Salem is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Attorney
- Fire Department
- Water Operator

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table SLM.4: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes

Survey Components/Subcomponents		Yes/No
	Building Codes	No
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	-
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited

Plan Integration

Salem has a floodplain ordinance which requires new construction be at least one foot above base flood elevation. The village is also an annex to the 2016 Richard County Local Emergency Operations Plan. This plan contains information regarding, warning, incident command and field response, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, resources, damage assessment, health and human services, public health, and financial accountability. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

Mitigation Strategy

Completed Mitigation Actions

Mitigation Action	Civil Service Improvements
Hazard(s) Addressed	All Hazards
Status	Completed. A fire truck was purchased using a USDA grant and fundraising.

Continued and New Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Provide a portable or stationary source of backup power for the fire hall and the community hall.
Hazard(s) Addressed	All Hazards
Estimated Cost	$15,000 - $30,000 Per Generator
Funding	General Fund, Fundraiser
Timeline	2-5 Years
Priority	Medium
Lead Agency	Fire Department, Village Board
Status	Not Started.

Mitigation Action	Community Awareness/Education
Description	Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types.
Hazard(s) Addressed	All Hazards
Estimated Cost	$500+
Funding	Staff Time
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Board
Status	Ongoing. The village holds drug awareness meetings with the state patrol.

Mitigation Action	Hazardous Tree Removal Program
Description	Identify and remove hazardous limbs and/or trees.
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
Estimated Cost	$200 Per Tree
Funding	General Fund
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Board
Status	Ongoing. Trees in the cemetery were cleaned up or removed.

Removed Mitigation Actions

Mitigation Action	Comprehensive Disaster/Emergency Response and Rescue Plan
Hazard(s) Addressed	All Hazards
Reason for Removal	The county emergency response plan, which the village is a part of, is sufficient at this time.

Mitigation Action	Drought Monitoring Plan
Hazard(s) Addressed	Drought and Extreme Heat
Reason for Removal	The Rural Water District and emergency manager will monitor for drought.

Mitigation Action	Floodplain Regulation Enforcements
Hazard(s) Addressed	Flooding
Reason for Removal	The village currently has no plans to update their floodplain regulations. The village regularly reviews their regulations and ordinances and updates them as needed. They will continue to enforce all local regulations.

Mitigation Action	Maintain Good Standing In The National Flood Insurance Program
Hazard(s) Addressed	Flooding
Reason for Removal	While the village will continue to participate and maintain compliance in the NFIP, this project can be removed as it is considered an ongoing effort.

Mitigation Action	Weather Radios
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds, Flooding
Reason for Removal	There are other means in place for notification.

Community Profile

Village of Shubert

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table SBT.1: Village of Shubert Local Planning Team

Name	Title	Jurisdiction
Jennifer Buchner	Clerk	Village of Shubert
Kim Dunn	Board Member	Village of Shubert

Location and Geography

The Village of Shubert is in northern Richardson County and covers an area of 0.2 square miles. The V=village is located near the Cooper Nuclear Station and is within the plume emergency planning zone (EPZ). If a release were to occur, the village would be evacuated to Falls City. Shubert is located near Indian Cave State Park and seven miles from the Missouri River.

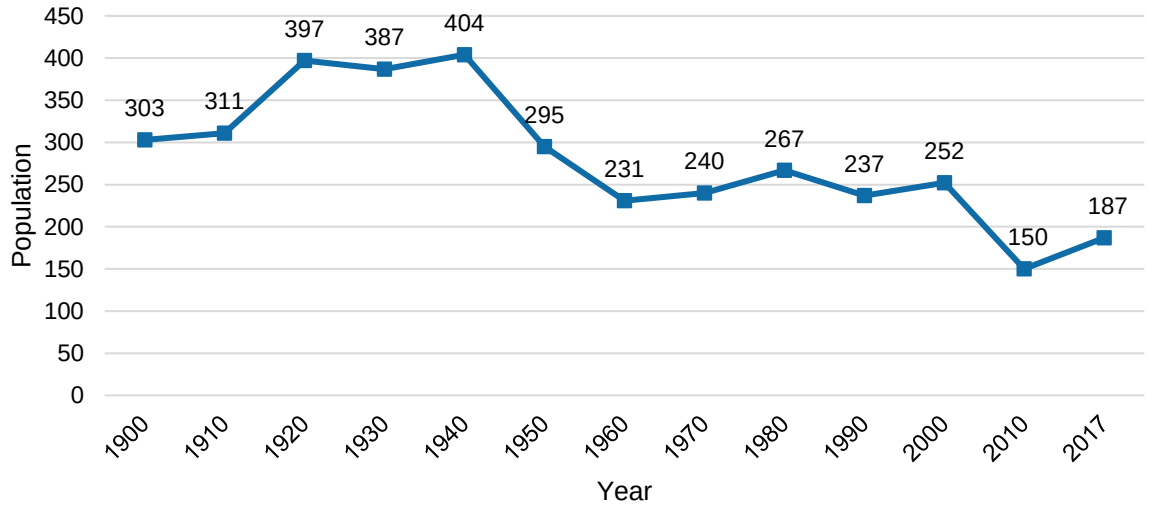
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Shubert's major transportation corridor is State Highway 62. It is traveled by an average of 640 vehicles daily, 65 of which are trucks.[42] There are no railway lines running through the community. Highways 62, 67, and 75 are the transportation routes of most concern. All three regularly transport farm chemicals. If Highway 75 is ever closed, then traffic often gets rerouted to the village. Highway 67 has flooded and been closed during past high rain events.

Demographics

The Village of Shubert's population has increased since 2010 and was at 187 people in 2017. An increasing population means a growing tax base, which may make funding mitigation projects easier. Shubert's population accounted for 2.3% of Richardson County's population in 2017.[43]

Figure SBT.1: Population

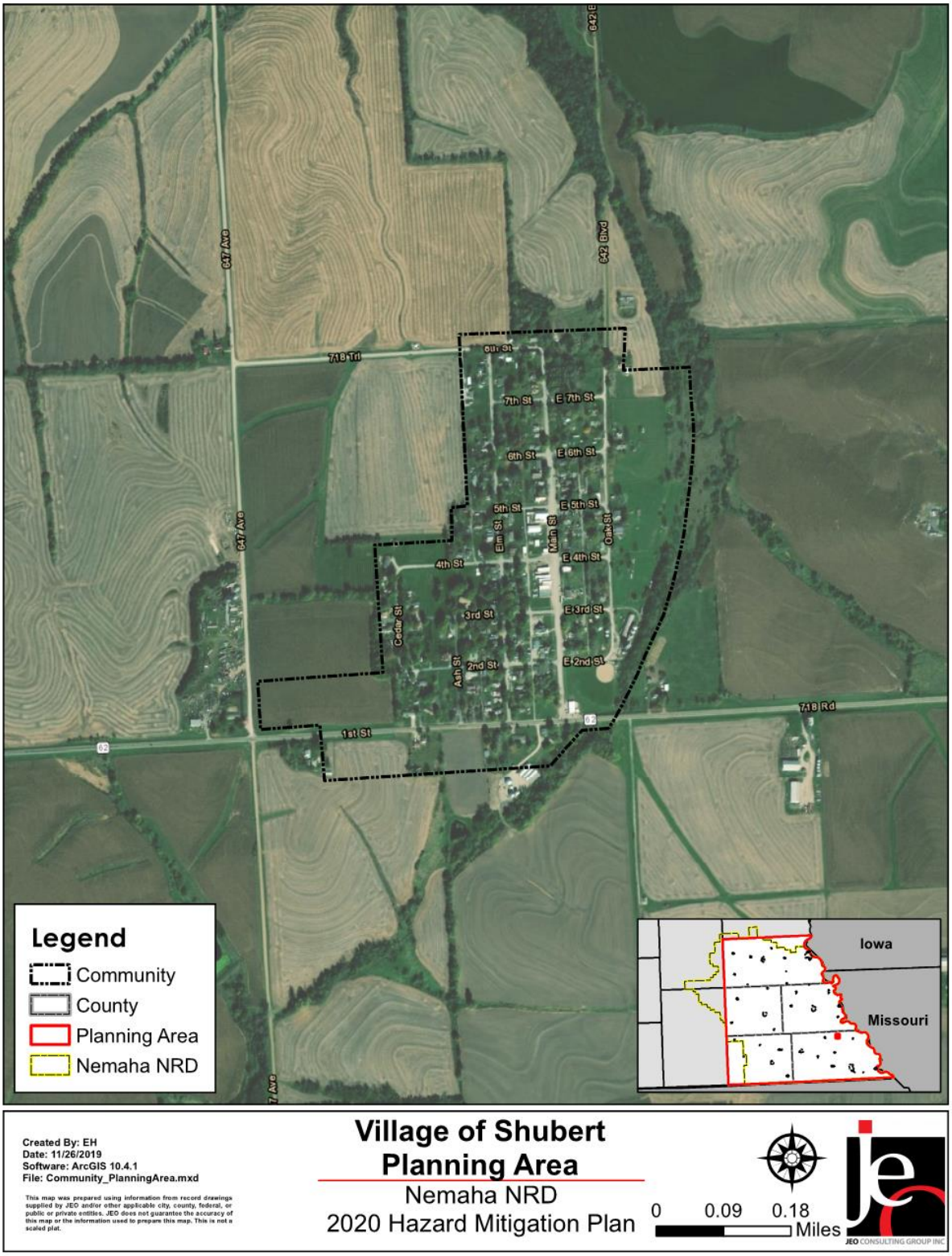


Source: U.S. Census Bureau, 1900 – 2017

42 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

43 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure SBT.2: Village of Shubert



The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Shubert's population was:

- **Younger.** The median age of Shubert was 41.8 years old in 2017, compared with Richardson County's median of 47.6 years. Shubert's population grew younger since 2010, when the median age was 48.9 years old.[43]
- **More ethnically diverse**. Since 2010, Shubert grew more ethnically diverse. In 2010, 0% of Shubert's population was Hispanic or Latino. By 2017, about 6.4% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[43]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Shubert (11.8% of people living below the federal poverty line) was lower than the county's poverty rate (16.3%) in 2017.[44]

Employment and Economics

The Village of Shubert's economic base is a mixture of industries. In comparison to Richardson County, Shubert's economy had:

- **Different mix of industries.** Shubert's major employment sectors, accounting for 10% or more of employment each, were: agriculture, manufacturing, transportation, and education.[44]
- **Lower per capita income.** Shubert's per capita income in 2017 ($25,036) was about $3,000 lower than the county ($28,109).[44]
- **More long-distance commuters.** About 25.9% of workers in Shubert commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 28% of workers in Shubert commuted 30 minutes or more to work, compared to about 24.9% of county workers.[45]

Major Employers

There are no major employers in the community with only three businesses. A large percentage of residents commute to the Cooper Nuclear Station, Falls City, and Auburn.

Housing

In comparison to Richardson County, the Village of Shubert's housing stock was:[46]

- **Older.** Shubert had a larger share of housing built prior to 1970 than the county (74.6% compared to 71.6%).
- **More mobile and manufactured housing.** The Village of Shubert had a larger share of mobile and manufactured housing (5.4%) compared to the county (2.7%).
- **Less renter-occupied**. About 9.7% of occupied housing units in Shubert were renter-occupied compared with 22.6% of occupied housing in Richardson County.
- **Less occupied.** Approximately 28.5% of Shubert's housing units were vacant compared to 13.7% of units in Richardson County.

44 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
45 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
46 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Mobile homes are spread out throughout the community. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

Future Development Trends

Over the last five years, several houses have been built and a heating and air conditioning business moved in. According to the most recent American Community Survey, Shubert's population is generally increasing. The local planning team attributes this growth to younger families with children moving in. While municipal funds have slightly increased over recent years, they are generally limited to maintaining current facilities and systems. A large portion of funds had been going to the new well pump which was completed in 2019. In the next five years, no new housing or commercial developments are anticipated.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table SBT.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
131	$2,924,190	0	0%	$0

Source: GIS Workshop/Richardson County Assessor, 2019[47]

47 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are no chemical storage sites in Shubert.

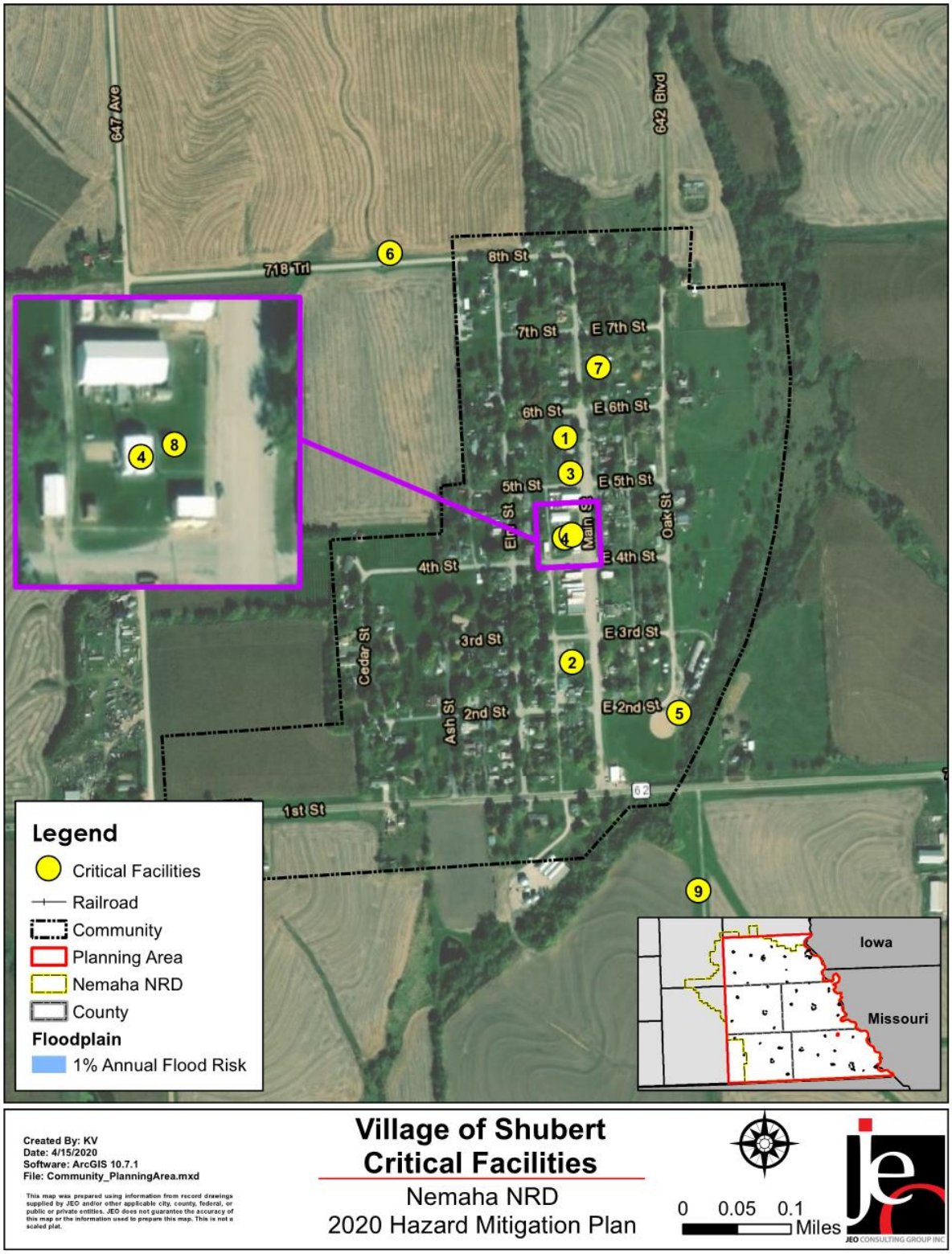
Critical Facilities

The planning team identified critical facilities necessary for the Village of Shubert's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

Table SBT.3: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	Catholic Church	Y	Y	N
2	Christian Church	Y	N	N
3	Community Center	Y	N	N
4	Fire Hall	N	Y	N
5	Sewer Lift Station	N	N	N
6	Sewer Treatment Plant	N	Y	N
7	Water Tower	N	N	N
8	Well #2 / Wellhouse	N	Y	N
9	Well #3	N	Y	N

Figure SBT.3: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Drought and Extreme Heat

In 2015 through 2016 the village well was impacted by nearby farm irrigation during a drought period. The well was damaged due to low water levels and had to be repaired and have the pump lowered. Since then, the village has worked with the irrigator to make an agreement on water usage during drought periods. If necessary, the village has an ordinance to implement water restrictions. This has never been required but voluntary restrictions have been used a few times in the past. Extreme heat impacting the elderly or individuals with health issues is also a concern for Shubert. Currently there are no identified cooling centers, but the local planning team indicated that something could be put together if needed.

As part of the HMP process, a qualitative analysis of the public water supply's vulnerability to drought was conducted. The map below shows the location of the village's public water supply wells relative to potential drought vulnerability. Further analysis would need to be done to determine if additional wells are needed and where to best locate them. Additional information regarding the qualitative analysis can be found in the Drought Profile within *Section 4: Risk Assessment*.

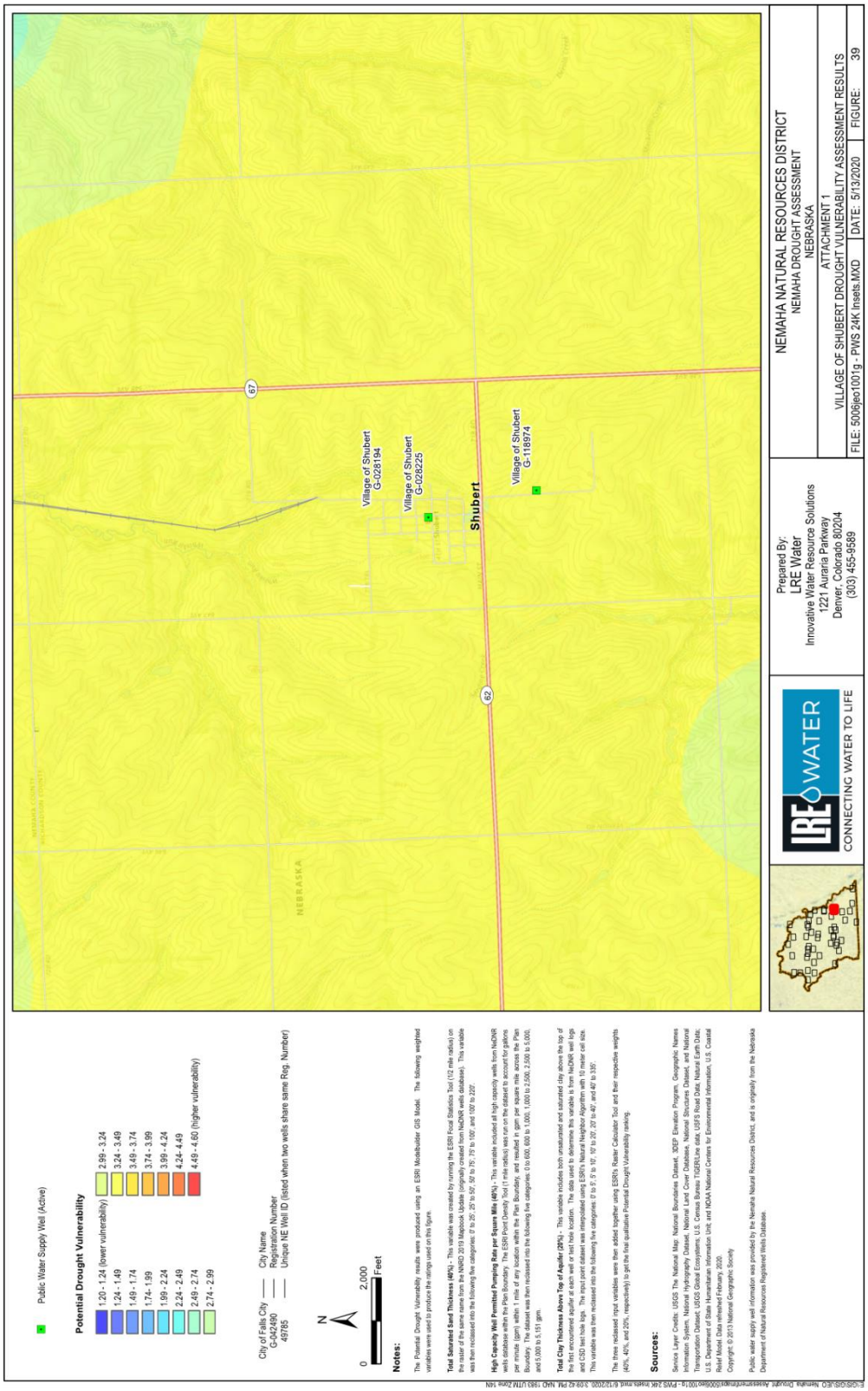
Severe Thunderstorms

Severe thunderstorms are an annual occurrence in the community. There are lots of hazardous trees, many in the village right-of-way, that could cause power loss if limbs fell. The local planning team indicated that Elm Street has a high number of hazardous trees. Whenever a thunderstorm occurs, limbs and trees are knocked down, blocking roads and causing power loss. There are no buried power lines making Shubert more susceptible to downed poles and lines. Power loss is typically short lived as the power district reliably restores power. Important records are kept on a laptop and hard copies are kept as well. Hail has impacted private property, but no village property has been damaged. In the event of hail damage, all village-owned buildings have insurance.

Severe Winter Storms

In 2019, the insulation on the water tower blew off causing the tower to freeze. Volunteers had to manually turn the pumps on and off for a week until it thawed in order to keep the equipment from being damaged. During that time only one water well was operational. The insulation has since been repaired so the issue does not happen again. In 1997, Shubert experienced a large snowstorm which damaged trees and blocked roads for several days. The village hires a local resident to clear snow with a village-owned tractor and blade. There are no sand, gravel, or other de-icing capabilities at this time.

Figure SBT.4: Public Water Supply Drought Vulnerability



Tornadoes and High Winds

The village's primary concerns related to tornadoes and high winds is damage to trees, power loss, and the potential for major damage to structures. High winds have impacted the community, but no tornadoes have occurred. There is one tornado siren which can only be turned on by the County Emergency Manager in Falls City or by the Cooper Nuclear Station. The siren was replaced around 2018 and reaches the entire village. There is no safe room in the village and residents must use their own house or a neighbor's for shelter. In the event of a disaster mutual aid agreements are in place through the fire department.

Wildfire

With the village completely surrounded by agricultural fields, a wildfire impacting the community is a possibility, especially during periods of little rain and high winds. No wildfires have impacted Shubert, but there are many wooden structures making the potential damages high. If a wildfire were to occur the village would call 911, who would notify the fire department. Mutual aid would automatically be dispatched. The fire department has one fire truck for response to events.

Governance

The Village of Shubert is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Water/Wastewater Operator
- Fire Department
- Engineer (Contracted)

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table SBT.4: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	No
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	-

Survey Components/Subcomponents		Yes/No
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	High
Staff/expertise to implement projects	High
Community support to implement projects	Moderate
Time to devote to hazard mitigation	High

Plan Integration

Shubert has a wellhead protection plan that assists the village in preventing contamination of the water supply. There are signs in place to alert community members of the wellhead protection areas and decommissioned wells have been sealed. The village is also an annex in the 2016 Richardson County Emergency Operations Plan. It covers information regarding warning, incident command, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, resources, damage assessment, health and human services, public health, and financial accountability. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

Mitigation Strategy

Completed Mitigation Actions

Mitigation Action	New Well Pump
Hazard(s) Addressed	Drought and Extreme Heat
Status	A new pump was installed in 2019.

New Mitigation Actions

Mitigation Action	Above Ground Stormwater System and Drainage Improvements
Description	Stormwater systems comprising of ditches, culverts, or drainage ponds can be used to convey runoff. Undersized systems can contribute to localized flooding. Drainage improvements may include ditch upsizing, ditch cleanout and culvert improvements. Within the village some tubes are no longer function. The village will need to perform an assessment of tubes and ditches to create a priority level for different locations.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	General Fund, Streets Budget
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Board
Status	Ongoing. Once an assessment is complete, work will start with the highest priority areas.

Community Profile

Village of Stella

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table STL.1: Village of Stella Local Planning Team

Name	Title	Jurisdiction
Jerry Joy	Board Chairperson	Village of Stella
Chasity Davis	Board Member	Village of Stella

Location and Geography

The Village of Stella is in northern Richardson County and covers an area of 0.2 square miles directly northeast of Muddy Creek.

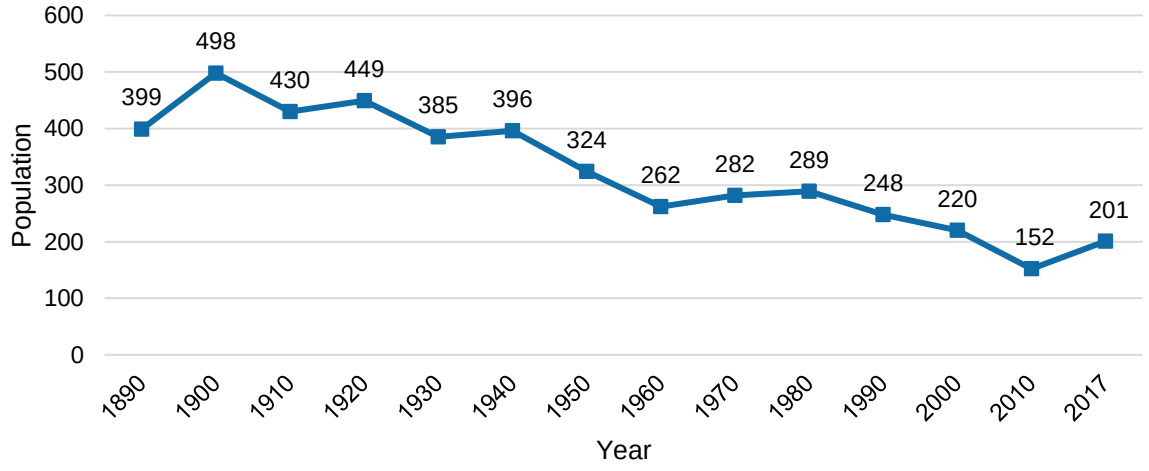
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Stella's major transportation corridor is State Highway 62. It is traveled by an average of 500 vehicles daily, 55 of which are trucks.[48] The village has one Union Pacific Railroad line traveling along the southwestern edge of the community. Transportation routes of most concern are Highway 62, the railroad crossing, bridges, Road 643 out of the village to the north and south, and routes used by agricultural vehicles to and from Bartlett and Sur-Gro. Agricultural chemicals from Sur-Gro and propane/fuel from Berwick Oil are transported along many of those routes. Additionally, concerning are gravel and minimum maintenance roads outside of the community that are routinely closed due to flooding. Evacuation would be difficult because much of the population is elderly and might need assistance.

Demographics

The Village of Stella's population has increased since 2010 and was at 201 people in 2017. An increasing population means a growing tax base, which could make funding mitigation projects easier. Stella's population accounted for 2.5% of Richardson County's population in 2017.[49]

Figure STL.1: Population

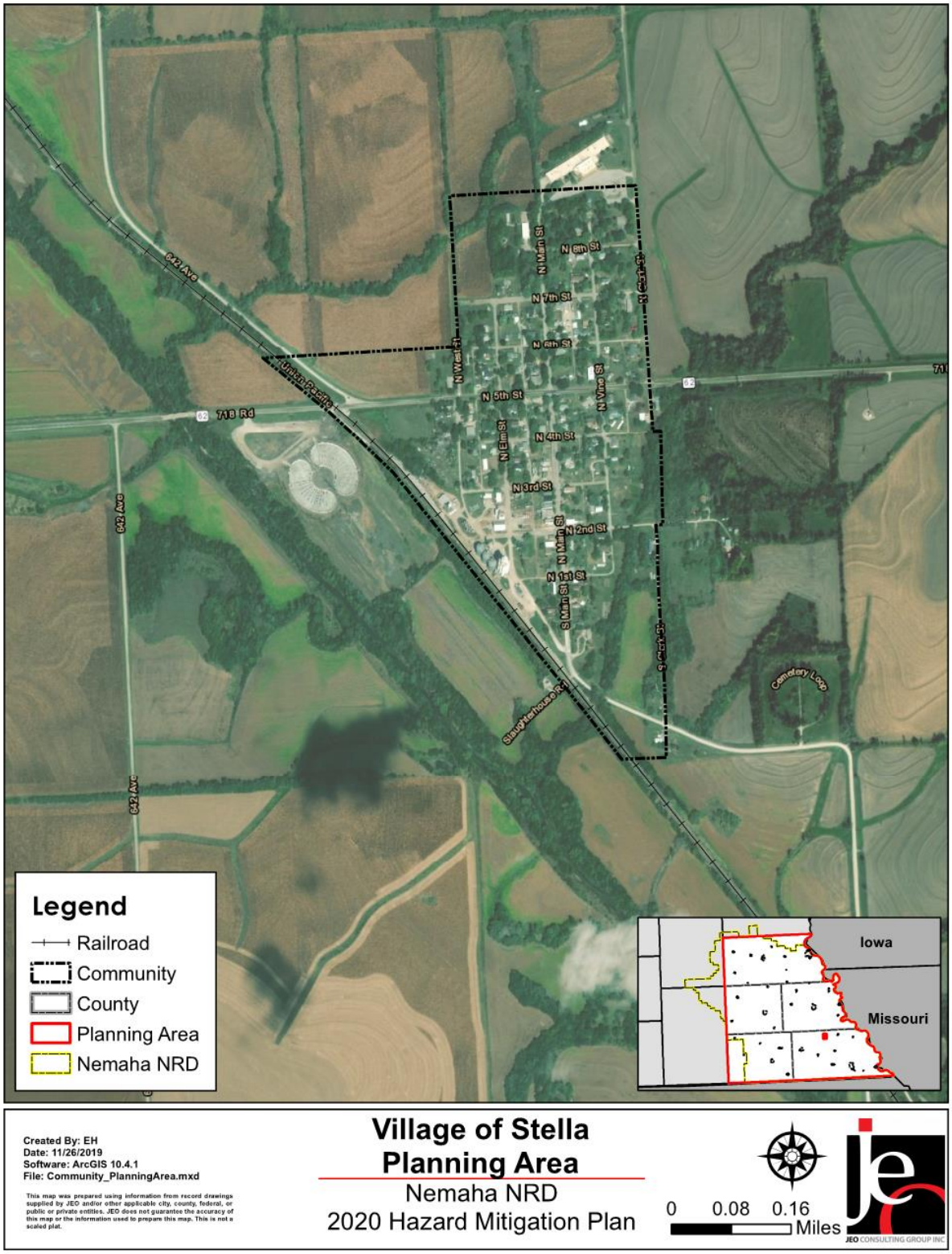


Source: U.S. Census Bureau, 1890 – 2017

48 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

49 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure STL.2: Village of Stella



The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Stella's population was:

- **Older.** The median age of Stella was 58.6 years old in 2017, compared with Richardson County's median of 47.6 years. Stella's population grew older since 2010, when the median age was 57.4 years old.[49]
- **Equally ethnically diverse**. Since 2010, Stella grew more ethnically diverse. In 2010, 0% of Stella's population was Hispanic or Latino. By 2017, about 1.5% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[49]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Stella (7.5% of people living below the federal poverty line) was less than the county's poverty rate (16.3%) in 2017.[50]

Employment and Economics

The Village of Stella's economic base is a mixture of industries. In comparison to Richardson County, Stella's economy had:

- **Similar mix of industries.** Stella's major employment sectors, accounting for 10% or more of employment each, were: construction, manufacturing, transportation, education, and other services.[50]
- **Similar per capita income.** Stella's per capita income in 2017 ($28,590) was about $500 higher than the county ($28,109).[50]
- **More long-distance commuters.** About 27.5% of workers in Stella commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 27.5% of workers in Stella commuted 30 minutes or more to work, compared to about 24.9% of county workers.[51]

Major Employers

Major employers in the community include Sur-Gro, Bartlett, Berwick, Anderson One Stop, Mary's Hitch N Post, Stella's Head to Tails, David PHE, and Frontier Bank. A large percentage of residents commute to Humboldt, Auburn, Falls City, Tecumseh, Brownville, and Peru for employment.

Housing

In comparison to Richardson County, the Village of Stella's housing stock was:[52]

- **Older.** Stella had a larger share of housing built prior to 1970 than the county (75.3% compared to 71.6%).
- **More mobile and manufactured housing.** The Village of Stella had a larger share of mobile and manufactured housing (15.6%) compared to the county (2.7%). Mobile homes are primarily located on the south end of the community on Main/Vine Street and on the east edge of the village.

50 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
51 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
52 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

- **Less renter-occupied**. About 11.8% of occupied housing units in Stella were renter-occupied compared with 22.6% of occupied housing in Richardson County.
- **Less occupied.** Approximately 16.4% of Stella's housing units were vacant compared to 13.7% of units in Richardson County.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

Development Trends

Over the past five years, there have been many changes in Stella. The former mortuary on Main Street and several homes were demolished. There are additional houses that need to be demolished but there is no good way to dispose of the materials at this point. The fire department does not allow for burning, leaving residential owners with significant effort and cost to find an appropriate disposal site. While a building on Main Street was partially demolished, many buildings on Main Street have also declined to unusable conditions. This is a significant area of concern as multiple businesses are structurally attached to one another. The Southeast Consolidated School closed in 2009 and has been used as a training and event center since then. The building was recent purchased with plans to convert to an agricultural repair business. The local gas station previously known as Vice Oil closed but has been recently purchased with plans to update the fuel pumps. According to the recent American Community Survey estimates, Stella's population is general increasing. The local planning team attributes the growth to nearby employment opportunities and being a safe and friendly community. With the loss of the school, retaining businesses has been a priority for the village to grow the population back to what it once was. In the next five years, no housing developments are planned. Renovation of businesses as discussed above are planned.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table STL.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
121	$3,016,997	3	2.47%	$66,689

Source: GIS Workshop/Richardson County Assessor, 2019[53]

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of 2 chemical storage sites in Stella. The table below lists the name and location of the sites and whether they are in the floodplain.

Table STL.3: Chemical Storage Fixed Sites

Facility Name	Address	In Floodplain (Y/N)
Bartlett Grain Company LP	101 N Elm Street	N
The Berwick Cooperative Oil Co	207 N Elm Street	N

Source: Nebraska Department of Environment and Energy[54]

Critical Facilities

Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the Village of Stella's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

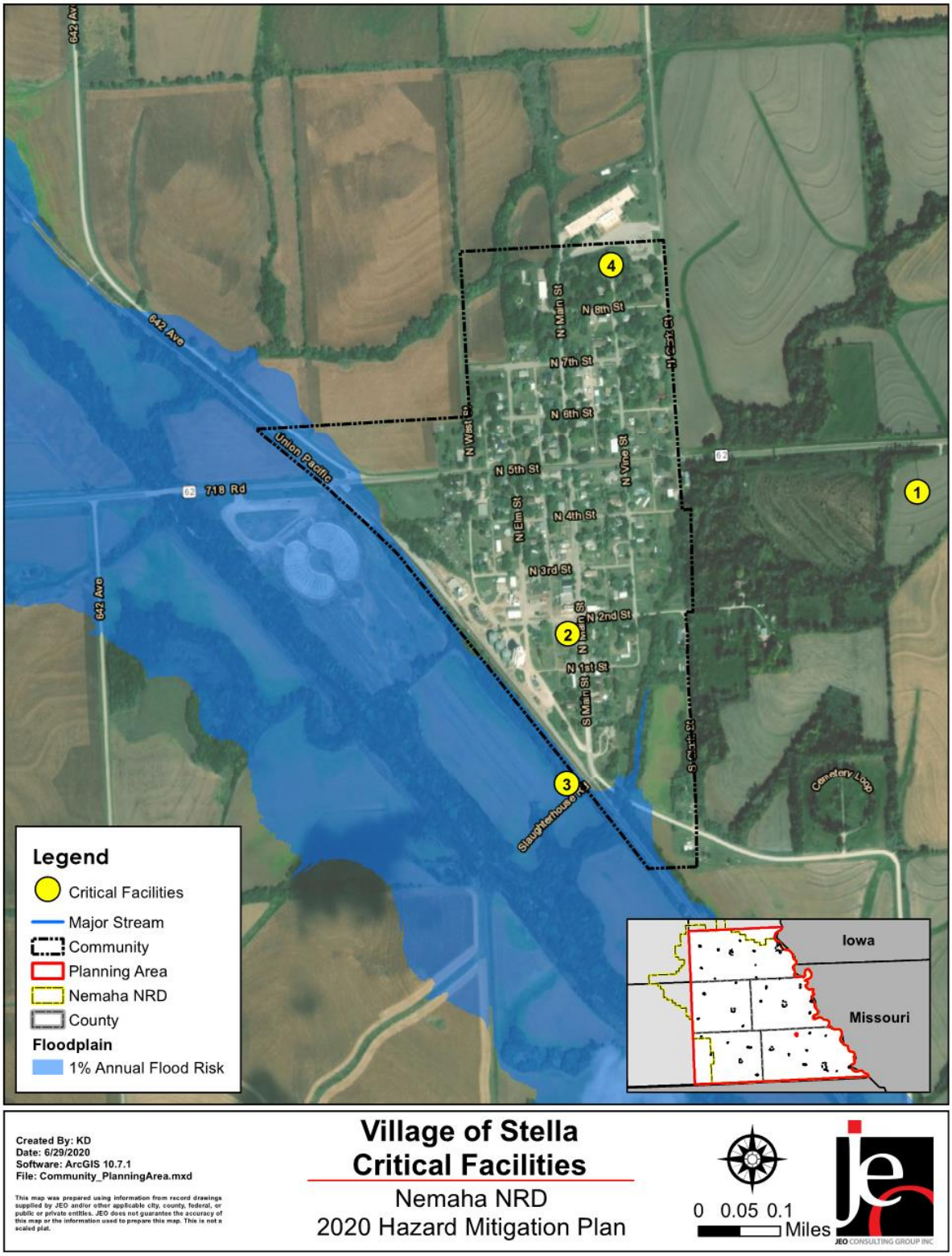
Table STL.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	Cell Phone Tower	N	N	N
2	Fire Department	N	N	N
3	Wastewater Treatment Plant	N	Y	Y
4	Water Tower	N	N	N

53 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

54 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

Figure STL.3: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Drought and Extreme Heat

The primary concern related to drought and extreme heat is the potential impact on the village's wells and water supply. A few years ago, the nearby Village of Shubert lost a well due to water levels being too low during periods of irrigation. Stella is also surrounded by agricultural areas with multiple irrigation permits that have the potential to impact the village's wells. The village has a drought response plan that identifies when voluntary and mandatory water use restrictions would be triggered. There are no cooling centers available in the community, however, the Southeast Nebraska Community Action Agency and Richardson County Transit are available to assist vulnerable populations during drought and extreme heat events.

As part of the HMP process, a qualitative analysis of the public water supply's vulnerability to drought was conducted. The map below shows the location of the village's public water supply wells relative to potential drought vulnerability. Further analysis would need to be done to determine if additional wells are needed and where to best locate them. Additional information regarding the qualitative analysis can be found in the Drought Profile within *Section 4: Risk Assessment*.

Severe Thunderstorms

Last year Stella's water tower was struck by lightning and caused damages that have since been repaired. In June 2020, lightning struck the wastewater plant and caused electrical damages. It also damaged the wastewater plant generator, which needs to be replaced. Beyond these recent events, downed tree limbs occur annually from thunderstorms resulting in both property damage and road blockages. The figure below shows the tree damage from a thunderstorm event in 2020. Heavy rain during thunderstorms has also led to gravel road washouts, creek flooding, clogged tubes, and street damage. There are numerous hazardous trees located on both village-owned and private property. To partially mitigate this, trees near the wastewater plant were trimmed in 2019. Volunteers and the village tractor are used to clear debris from roadways when needed. Stella also maintains a dumpsite for residents to take fallen/trimmed tree limbs. Critical facilities are not protected by hail-resistant building materials and it is unknown at this time what insurance covers. The village board is planning on an in-depth review with an insurance agent. Surge protectors are needed on electronic devices. Municipal records are kept on paper as a backup.

Figure STL.4: Public Water Supply Drought Vulnerability

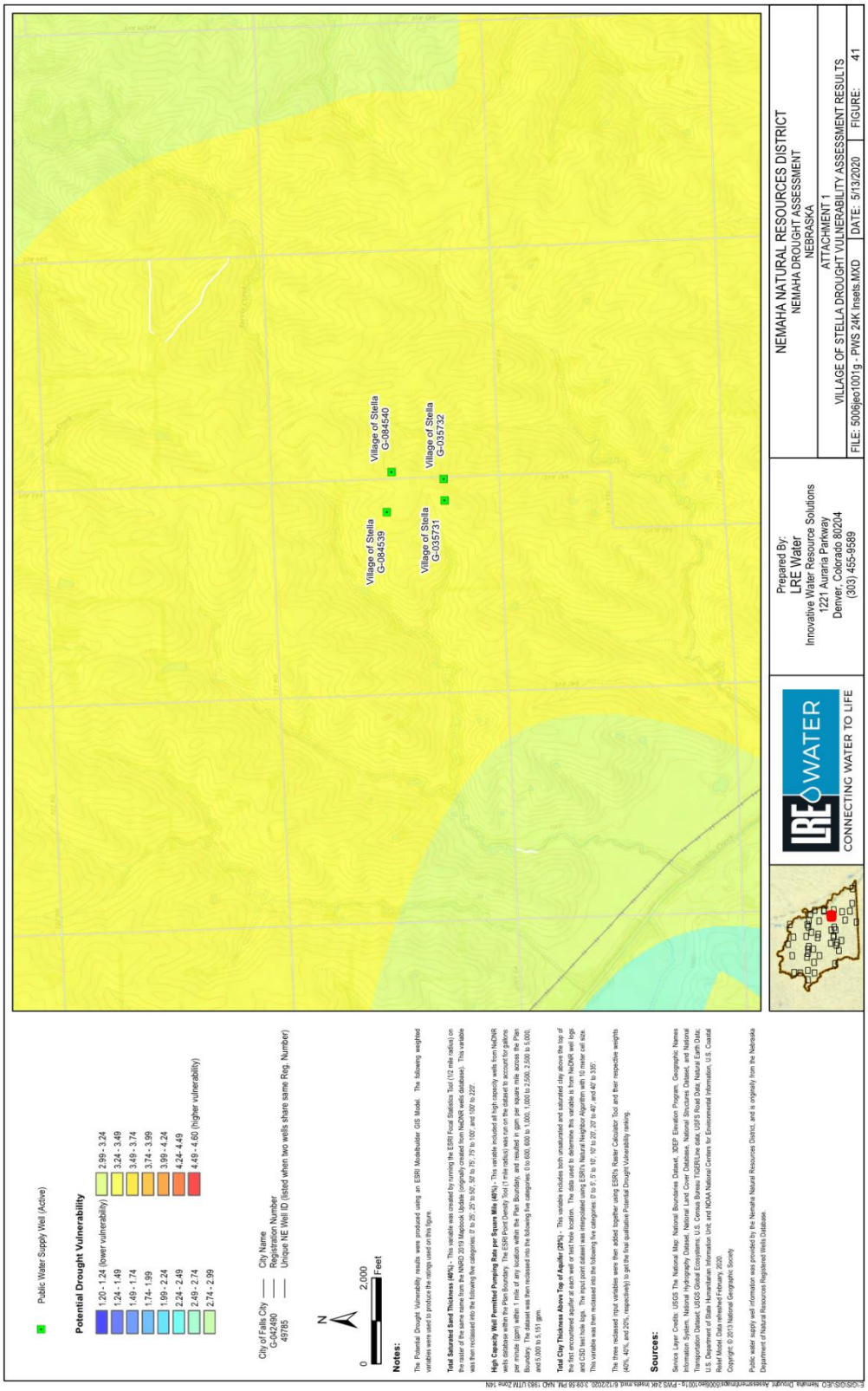


Figure STL.5: Tree Damage from Severe Thunderstorm

Tornadoes and High Winds

On May 27, 2019, a straight-lined wind event caused damage in parts of the community. Damage included downed tree limbs, sheds blown onto other properties, and roof damage (Figure STL.6). No tornadoes have been recorded in Stella. A new warning siren was installed by Richardson County Emergency Management in 2017. The siren is tested regularly by Richardson County and is heard by the entire community. Other notification includes a fire department emergency text system to notify volunteer firefighters. There are no safe rooms in the community. At this time, individuals seeking safe shelter must use private basements or interior rooms. In the event of a disaster, the fire department has mutual aid agreements in place with other nearby fire departments. Educational information is mailed out to residents annually before the Stella Cleanup Day. The village regularly has volunteers to help cleanup damage as needed, especially for elderly individuals.

Figure STL.6: Roof Damage from High Winds

Governance

The Village of Stella is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Fire Department
- Sewage Plant/Water Operator
- Engineer
- Maintenance
- Streets Committee
- Street Lights Committee
- Park Committee
- Water & Sewer Committee
- Library Committee
- Planning Committee
- Health Committee
- Tree Board
- Community Building

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table STL.5: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	No
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	Drought Response Plan
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No

Survey Components/Subcomponents		Yes/No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Moderate
Staff/expertise to implement projects	Moderate
Community support to implement projects	High
Time to devote to hazard mitigation	Moderate

Plan Integration

Stella is an annex in the 2016 Richardson County Local Emergency Operations Plan. It contains information regarding warning, incident command, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, public health, and damage assessment. The village also has plans related to managing stormwater and water use restrictions in the community. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

Mitigation Strategy

Completed Mitigation Actions

Mitigation Action	Alert/Warning Sirens
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Status	Completed in 2017 with a new emergency alert siren installed at 4th and Main.

Continued and New Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Provide a portable or stationary source of backup power to the fire department and other critical facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	$15,000 - $30,000 per generator
Funding	Village Budget
Timeline	5+ Years
Priority	High
Lead Agency	Village Board, Fire Department
Status	In Progress. The village is currently obtaining bids for a new generator at the sewer plant that was recently irreparably struck by lightning. The fire department has wiring setup that could be connected to a generator when funds are available for purchase.

Mitigation Action	Bank Stabilization
Description	Bank degradation is occurring along many rivers and creeks. Stabilization improvements including rock rip rap, vegetative cover, j-hooks, boulder vanes, etc. can be implemented to reestablish the channel banks. Land where the creek runs through east of 1st and Vine has flooded when upstream debris blocked the eight-inch tube under the roadway.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	Village Budget, Railroad Funding
Timeline	Ongoing
Priority	Medium
Lead Agency	Streets Committee
Status	Ongoing. Debris has been cleared and rock rip rap has been utilized to stabilize bank. The railroad completed a project in 2019 that included replacing the bridge on the south edge of the village and did bank stabilization where it crosses the waterway. Additional projects to be identified in response to any future areas flooding or eroding.

Mitigation Action	Community Awareness/Education
Description	Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types.
Hazard(s) Addressed	All Hazards
Estimated Cost	$500+
Funding	Village Budget
Timeline	Ongoing
Priority	Medium
Lead Agency	Multiple Village Committees
Status	Ongoing. The village hosts an annual spring cleanup day and offers recycling opportunities for the community to safely dispose of certain hazardous materials. Additional environmental education is included annually with a mailer advertising the annual cleanup event.

Mitigation Action	Comprehensive Disaster/Emergency Response and Rescue Plan
Description	Establish a comprehensive village disaster and emergency response/rescue plan.
Hazard(s) Addressed	All Hazards
Estimated Cost	$6,000+
Funding	Village Budget
Timeline	5+ Years
Priority	Low
Lead Agency	Safety Committee
Status	Not Started. A review is needed of existing plans to identify updates and areas of concern not identified in other plans/ordinances.

Mitigation Action	Drought Monitoring Plan and Procedures
Description	Develop and implement a plan or program to monitor the effects of drought.
Hazard(s) Addressed	Drought
Estimated Cost	Staff Time
Funding	Staff Time
Timeline	5+ Years
Priority	Low
Lead Agency	Water and Sewer Committee
Status	In Progress. Monitoring of wells continues, and the committee is planning for necessary use reductions if needed.

Mitigation Action	Hail Insurance
Description	Ensure critical facilities have insurance for hail damage. Review existing village insurance policy to ensure all critical facilities are adequately covered for a severe thunderstorm event.
Hazard(s) Addressed	Severe Thunderstorms
Estimated Cost	Varies
Funding	Village Budget
Timeline	1 Year
Priority	High
Lead Agency	Village Board
Status	New Action. Not Started.

Mitigation Action	Hazardous Tree Removal
Description	Conduct tree inventory. Develop and implement tree maintenance and trimming program to remove hazardous limbs and trees.
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
Estimated Cost	$200 per tree
Funding	Village Budget
Timeline	Ongoing
Priority	High
Lead Agency	Tree Committee
Status	New Action and Ongoing. Tree trimming is necessary as the village is a member of Tree City USA.

Mitigation Action	Monitor Water Supply
Description	Establish a system/process for monitoring water supplies (establishing timeframes for measuring well depths, increasing stream flow, etc.).
Hazard(s) Addressed	Drought
Estimated Cost	$1,000+
Funding	Village Budget
Timeline	5+ Years
Priority	High
Lead Agency	Village Board
Status	New Action and Ongoing. The village works to ensure adequate water availability within village wells.

Mitigation Action	Safe Rooms and Storm Shelters
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$350+ per square foot
Funding	Village Budget
Timeline	5+ Years
Priority	Low
Lead Agency	Safety Committee
Status	Not Started.

Mitigation Action	Stormwater System and Drainage Improvements
Description	Undersized systems can contribute to localized flooding. Stormwater system improvements, such as pipe upsizing and additional inlets, installation of retention and detention facilities can be implemented to decrease runoff rates while also decrease the need for other stormwater system improvements.
Hazard(s) Addressed	Flooding
Estimated Cost	$100,000+
Funding	Village Budget
Timeline	Ongoing
Priority	High
Lead Agency	Streets Committee
Status	Ongoing. Stormwater system improvements have been completed at three identified priority areas in the village. Ongoing improvements will be made as needs are identified and budget is available.

Mitigation Action	Surge Protectors/Computer Battery Backup
Description	Purchase and install surge protectors on sensitive equipment in critical facilities.
Hazard(s) Addressed	Severe Thunderstorms
Estimated Cost	$25 per unit
Funding	Village Budget
Timeline	2-5 Years
Priority	High
Lead Agency	Water and Sewer Committee
Status	New Action. Not Started.

Mitigation Action	Tree Assistance
Description	Establish an annual tree trimming program to assist low income and elderly.
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
Estimated Cost	$3,000
Funding	Village Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board
Status	New Action. Not Started.

Mitigation Action	Warning Systems
Description	Improve village cable TV interrupt warning system and implement telephone interrupt system such as Reverse 911, emergency text messaging, etc.
Hazard(s) Addressed	All Hazards
Estimated Cost	$5,000+
Funding	Village Budget
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Board, Fire Department
Status	Ongoing. The fire department has implemented a system that sends emergency texts to all volunteer firefighters.

Mitigation Action	Water System Improvements
Description	Make water system improvements to include additional fire hydrants/increase supply and pressure to effectively fight fires and meet increasing demands. Update/improve water distribution system (identifying and replacing leaky pipes, assisting residents in identifying inefficiencies, transitioning to smart irrigation systems, etc.). Upgrade water district infrastructure to decrease likelihood of damages and improve water system for emergency use. The village needs to test existing fire hydrants and identify priority for replacement needs.
Hazard(s) Addressed	Drought
Estimated Cost	Varies
Funding	Village Budget, Fire Department Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	Fire Department, Village Board
Status	New Action. Not Started.

Removed Mitigation Actions

Mitigation Action	Participate in the National Flood Insurance Program (NFIP)
Hazard(s) Addressed	Flooding
Reason for Removal	Flooding has not impacted residential or commercial structures.

Mitigation Action	Evacuation Plan
Hazard(s) Addressed	All Hazards
Reason for Removal	Due to school closure, high elderly population, no ambulance, and no other department available, evacuation planning is no longer feasible.

Mitigation Action	Weather Radios
Hazard(s) Addressed	All Hazards
Reason for Removal	Fire department capability to send emergency texts and existing technology negates the need for this project.

Community Profile

Village of Verdon

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table VRD.1: Village of Verdon Local Planning Team

Name	Title	Jurisdiction
James Cockerham	Village Board Member	Village of Verdon
Brenda Daniels	Clerk	Village of Verdon
Tammie Bents	General Maintenance Operator	Village of Verdon

Location and Geography

The Village of Verdon is in central Richardson County and covers an area of 0.2 square miles. Verdon is located next to the Verdon Lake State Recreation Area and Verdon Lake. The Big Muddy River is directly west and south of the village. Sardine Creek runs along the northwestern corner of the community.

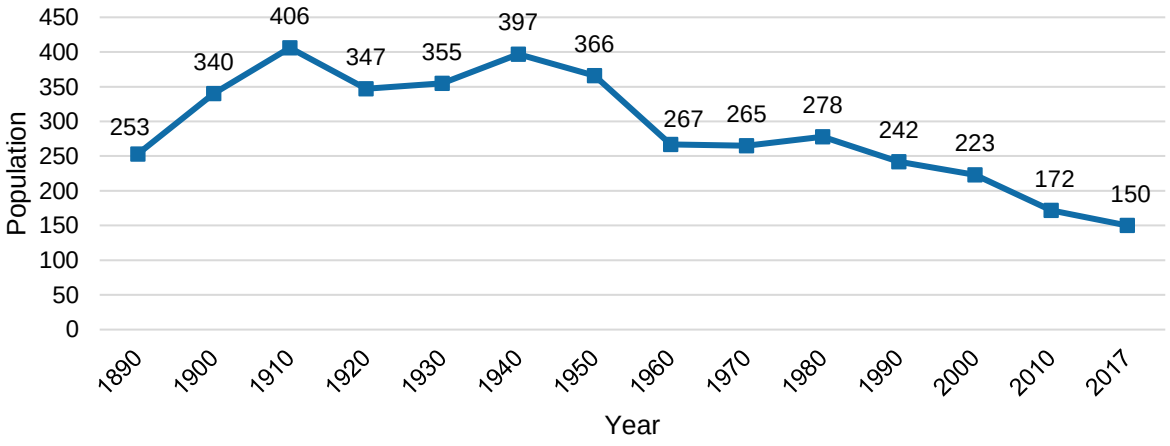
Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Verdon's major transportation corridor is US Highway 73. It is traveled by an average of 1,075 vehicles daily, 150 of which are trucks.[55] The village has one Union Pacific Railroad line traveling on the community's western edge. The local planning team indicated that Highway 73 and State Road 712 are the transportation routes of most concern and are routinely closed due to flooding. Farm chemicals and anhydrous ammonia are regularly transported along Highway 73.

Demographics

The Village of Verdon's population has been declining since 1980 and was at 150 people in 2017. A declining population could mean a decreasing tax base, which may make funding mitigation projects more difficult. Verdon's population accounted for 1.9% of Richardson County's population in 2017.[56]

Figure VRD.1: Population

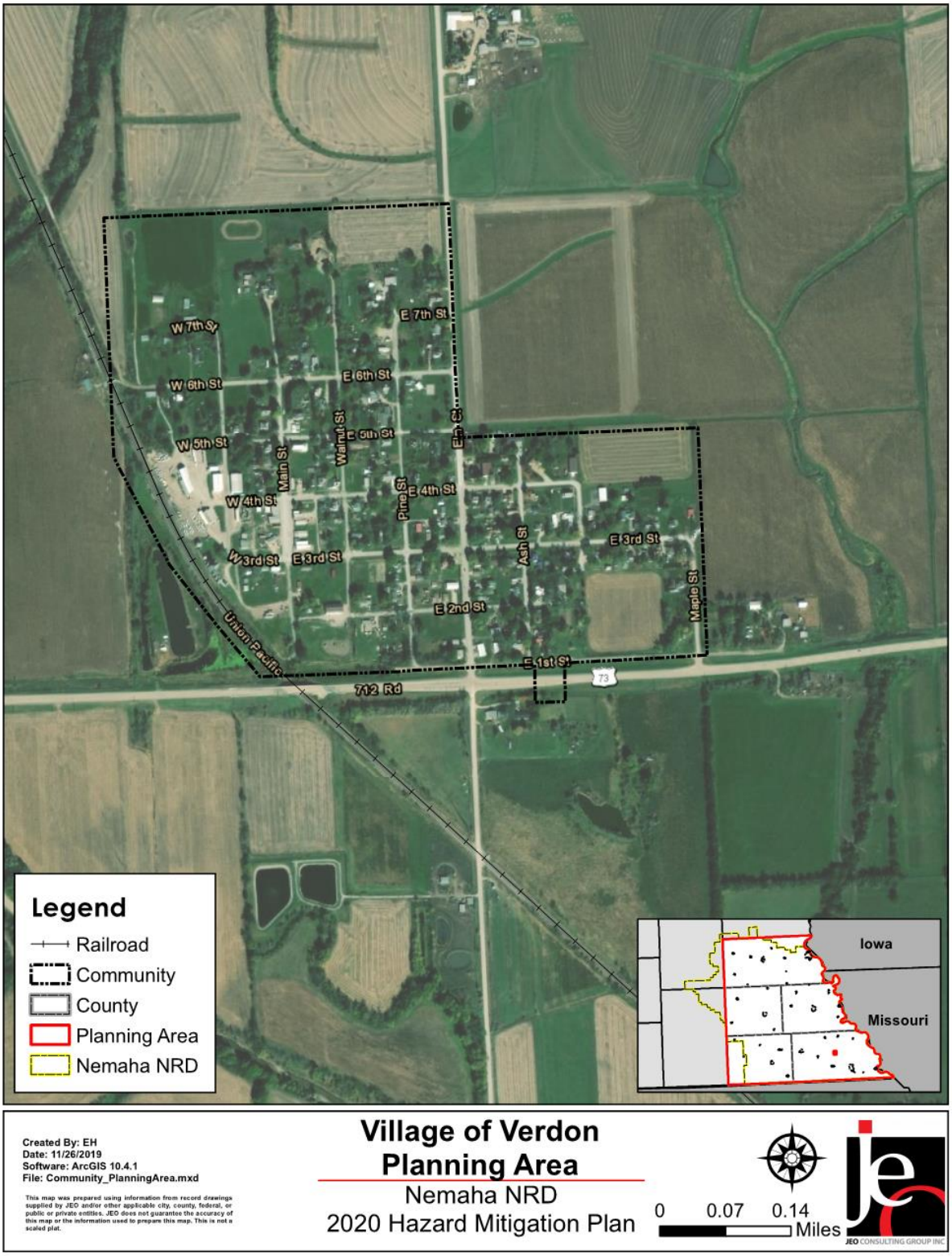


Source: U.S. Census Bureau, 1890 – 2017

55 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

56 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

Figure VRD.2: Village of Verdon



The young, elderly, minority, and low-income populations may be more vulnerable to certain hazards than other groups. In comparison to the county, Verdon's population was:

- **Older.** The median age of Verdon was 52.3 years old in 2017, compared with Richardson County's median of 47.6 years. Verdon's population grew older since 2010, when the median age was 51 years old.[56]
- **Less ethnically diverse**. Since 2010, Verdon stayed as ethnically diverse. In 2010 and 2017, 0% of Verdon's population was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.5% in 2010 to 1.9% in 2017.[56]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Verdon (8.7% of people living below the federal poverty line) was lower than the county's poverty rate (16.3%) in 2017.[57]

Employment and Economics

The Village of Verdon's economic base is a mixture of industries. In comparison to Richardson County, Verdon's economy had:

- **Different mix of industries.** Verdon's major employment sectors, accounting for 10% or more of employment each, were: retail trade, education, and other services.[57]
- **Lower per capita income.** Verdon's per capita income in 2017 ($25,809) was about $2,300 lower than the county ($28,109).[57]
- **More long-distance commuters.** About 25.7% of workers in Verdon commuted for fewer than 15 minutes, compared with about 52% of workers in Richardson County. About 37.9% of workers in Verdon commuted 30 minutes or more to work, compared to about 24.9% of county workers.[58]

Major Employers

Major employers in the village include Lotter Fertilizer and J-T Farm Supply. A large percentage of residents commute to Falls City for employment.

Housing

In comparison to Richardson County, the Village of Verdon's housing stock was:[59]

- **Older.** Verdon had a slightly larger share of housing built prior to 1970 than the county (74.7% compared to 71.6%).
- **More mobile and manufactured housing.** The Village of Verdon had a larger share of mobile and manufactured housing (14.3%) compared to the county (2.7%).
- **Less renter-occupied**. About 5.1% of occupied housing units in Verdon were renter-occupied compared with 22.6% of occupied housing in Richardson County.
- **Similarly occupied.** Approximately 13.2% of Verdon's housing units were vacant compared to 13.7% of units in Richardson County.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's

57 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
58 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
59 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Mobile homes in Verdon are located along 712 Road, 2nd and 4th Street, 3rd and Maple Street, and 1st and 6th Street. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

In the last five years, one house burned down and no businesses were added. According to the latest American Community Survey estimates, Verdon's population is declining. A declining population may mean a decreasing tax base, which can make implementing mitigation actions more difficult. The local planning team attributes the decline to younger individuals moving to larger communities. In the next five years, no new housing or businesses are anticipated.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

Table VRD.2: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percentage of Improvements in Floodplain	Value of Improvements in Floodplain
120	$3,065,416	5	4.16%	$120,067

Source: GIS Workshop/Richardson County Assessor, 2019[60]

60 GIS Workshop/Richardson County Assessor. 2019. [Personal correspondence].

Critical Infrastructure

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of two chemical storage sites in Verdon. The table below lists the name and location of the sites and whether they are in the floodplain.

Table VRD.3: Chemical Storage Fixed Sites

Facility Name	Address	In Floodplain (Y/N)
OPPD Substation No. 964	US-73	N
JT Farm Service	208 W 4th Street	N

Source: Nebraska Department of Environment and Energy[61]

Critical Facilities

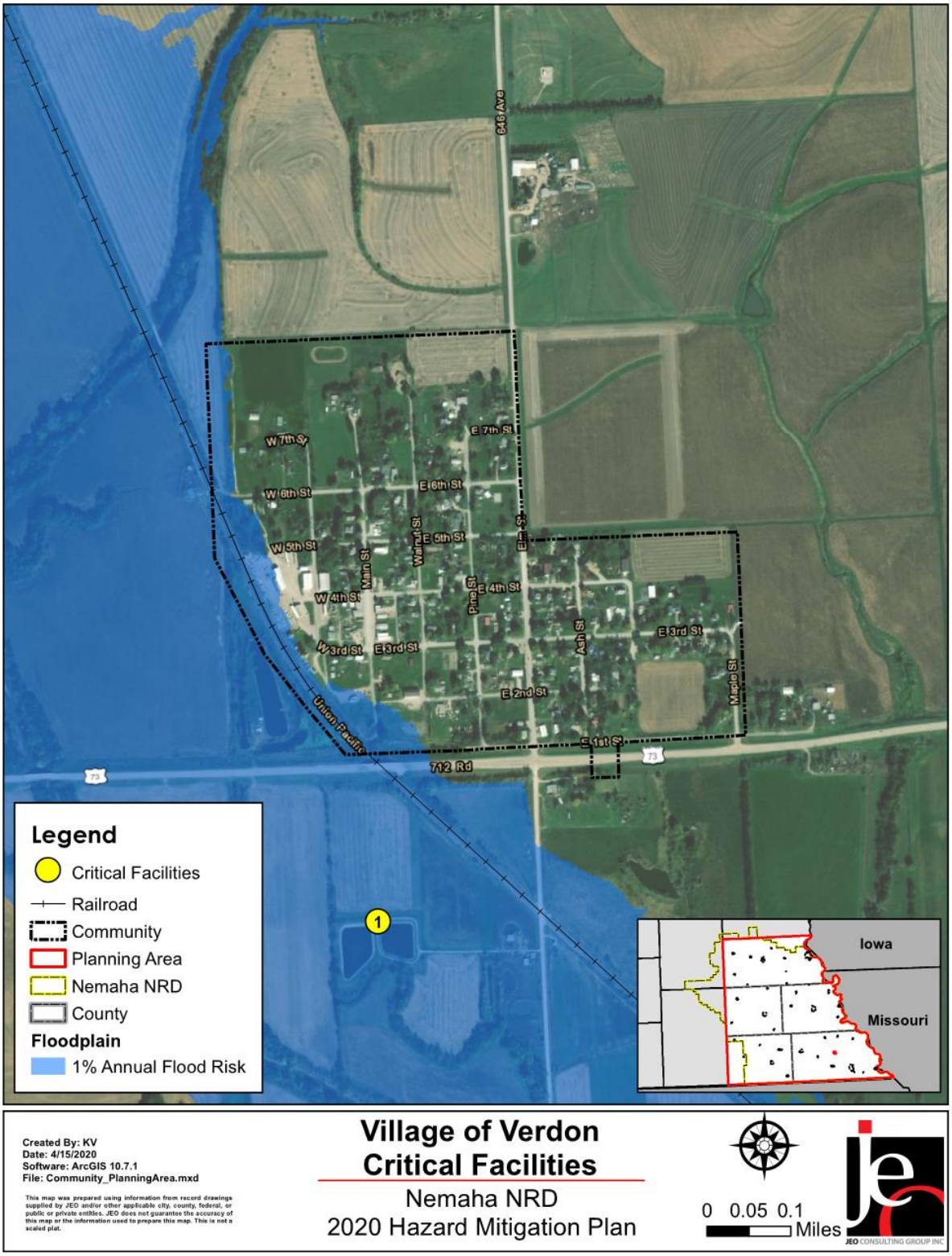
The planning team identified critical facilities necessary for the Village of Verdon's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

Table VRD.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Pumping Station	N	Y (Portable)	Y

61 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

Figure VRD.3: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the community. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see Section Four: Risk Assessment.

Drought and Extreme Heat

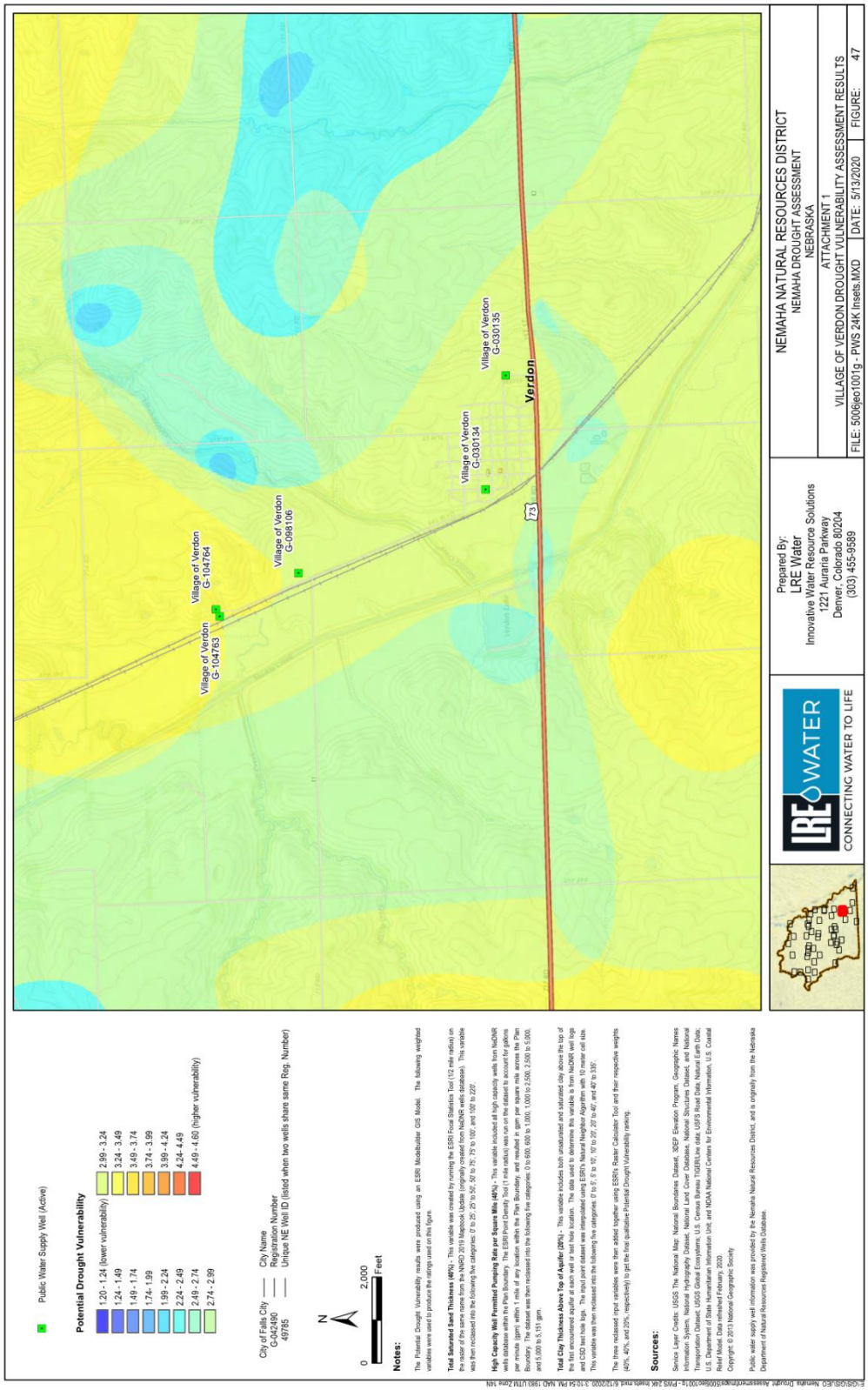
For the Village of Verdon, drought poses a large risk to water supplies for residential, commercial, and agricultural areas. The local planning team indicated that the village has limited resources to provide adequate water and cooling for the community. The village's two wells are the major concern for the local planning team. The village alternates between the two wells and also purchases water from East Richardson Rural Water District #2, with water usage tracked through a meter in the treatment plant. Drought and extreme heat have caused lower than usual water levels in the community wells, which has resulted in the village board ordering water conservation measures. Local agriculture irrigation has exacerbated low well levels in the village during times of drought. Water quality is monitored daily, with monthly sampling in place for more in-depth quality testing. The local planning team identified nitrates as the only water quality issue for the community. Currently, the village has drought ordinances and drought response plans in place. To further prepare for drought, the community routinely conducts drawdown and static level tests of their wells. In cases of extreme heat, the village has a community building available to residents for a local cooling center.

As part of the HMP process, a qualitative analysis of the public water supply's vulnerability to drought was conducted. The map below shows the location of the village's public water supply wells relative to potential drought vulnerability. Further analysis would need to be done to determine if additional wells are needed and where to best locate them. Additional information regarding the qualitative analysis can be found in the Drought Profile within *Section 4: Risk Assessment*.

Severe Thunderstorms

Lightning from severe thunderstorms is a major concern for the Village of Verdon. In the past, lightning struck the lift station pump for the community's lagoons and knocked out the power. This event caused approximately $6,000 worth of damage and the pump had to be replaced. Severe thunderstorms have caused downed power lines and both tree and home damage in past years. The community has no buried power lines, and numerous hazardous trees, which put them at a high risk for a power outage during a severe thunderstorm event. To protect municipal records during power surges and outages, the village utilizes surge protectors and backs up important files.

Figure VRD.4: Public Water Supply Drought Vulnerability



Severe Winter Storms

In recent years the Village of Verdon has experienced significant winter storms. The local planning team identified a major ice storm in 2009 that downed trees and knocked down power lines and poles. Power outages and surges are a top concern for the community. The community water tower has also frozen on two occasions, once around 1999 and again in 2019. Both instances cost the community between $5,000 and $10,000 in damages. The village utility superintendent is responsible for snow removal in the community. The superintendent utilizes a tractor with a snow blade and bucket for snow removal. To mitigate the impacts of severe winter storms, the community prepares fuel and maintenance equipment.

Tornadoes and High Winds

The Village of Verdon experienced an F1 tornado in April 1999 that destroyed an empty mobile home and barn. Several buildings also suffered roof damage during the event. The community relies of the Richardson County Emergency Management to control and activate warning sirens in the event of a tornado. The village has no safe rooms, so residents must rely on their own homes for shelter during a tornadic event. To protect municipal records, the community has important files backed up on discs and flash drives in addition to paper copies.

Governance

The Village of Verdon is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Attorney
- Fire Department
- Sewage Plant Operator
- Water Commissioner
- Street Commissioner

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table VRD.5: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No

Survey Components/Subcomponents		Yes/No
	Building Codes	Yes
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	-
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	No
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited

Plan Integration

Verdon does not a comprehensive plan, zoning ordinance, floodplain regulations, or subdivision regulations. The village does have buildings codes adopted from the State of Nebraska Building Codes. Verdon is also an annex to the 2106 Richardson County Local Emergency Operations Plan. It contains information regarding warning, incident command and field response, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, resources, damage assessment, health and human services, public health, and financial accountability. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

Mitigation Strategy

New Mitigation Actions

Mitigation Action	Above Ground Stormwater System and Drainage Improvements
Description	Stormwater systems comprising of ditches, culverts, or drainage ponds can be used to convey runoff. Undersized systems can contribute to localized flooding. Drainage improvements may include ditch upsizing, ditch cleanout and culvert improvements. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. Bridges typically serve as flow restrictions along streams and rivers. Cleanout and reshaping of channel segments at bridge crossings can increase conveyance, reducing the potential for flooding. Locations of concern include 5th and Elm and 5th and Pine Street.
Hazard(s) Addressed	Flooding
Estimated Cost	$10,000+
Funding	Street Fund, Sewer Fund
Timeline	5+ Years
Priority	High
Lead Agency	Street Department, Sewer Department
Status	New Action. Not Started.

Mitigation Action	Lagoon Improvements
Description	The village had a wastewater study done a few years ago and it determined that the lagoon needed sludge removal.
Hazard(s) Addressed	All Hazards
Estimated Cost	$30,000+
Funding	Sewer Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board
Status	New Action. Not Started.

Mitigation Action	Transportation Drainage Improvements
Description	Make improvements to roadways and drainage ways to prevent damage to key transportation routes. Utilize geosynthetic products for repair and mitigation of damages. Consider covering of road washouts, culvert sizing headwalls, steep banks, slides, in-road springs, roadway edge armoring, low water crossings, pothole grading, weak foundations, gravel road maintenance, ditch linings, on steep grades, erosion protection, etc.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	Streets Fund
Timeline	5+ Years
Priority	Low
Lead Agency	Street Department
Status	New Action. Not Started.

District Profile

Dawson Rural Fire Department

Nemaha Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table DRF.1: Dawson Rural Fire Department Local Planning Team

Name	Title	Jurisdiction
Jan Richardson	Clerk	Dawson Rural Fire Department
William Koch	Fire Chief	Dawson Rural Fire Department

Location and Geography

The Dawson Rural Fire Department covers 65,800 acres in the south-central portion of Richardson County, including the Village of Dawson. The fire district mainly addresses grass and wildfire in the region's rural area.

Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. US Highways 73, 75 and Nebraska Highways 4 and 8 all travel through the Dawson Rural Fire District. US Highway 73 is traveled by a total annual average of 1,075 vehicles daily, 150 of which are trucks. US Highway 75 is traveled by a total annual average of 2,920 vehicles daily, 905 of which are trucks. Nebraska Highway 4 is traveled by a total annual average of 1,490 vehicles daily, 135 of which are trucks. Nebraska Highway 8 is traveled by a total annual average of 685 vehicles daily, 75 of which are trucks.[62] A Burlington Northern Santa Fe rail line runs through the middle of the district. Highway 75 is the transportation route of most concern due to the unknown amounts of chemicals transported along it.

Demographics

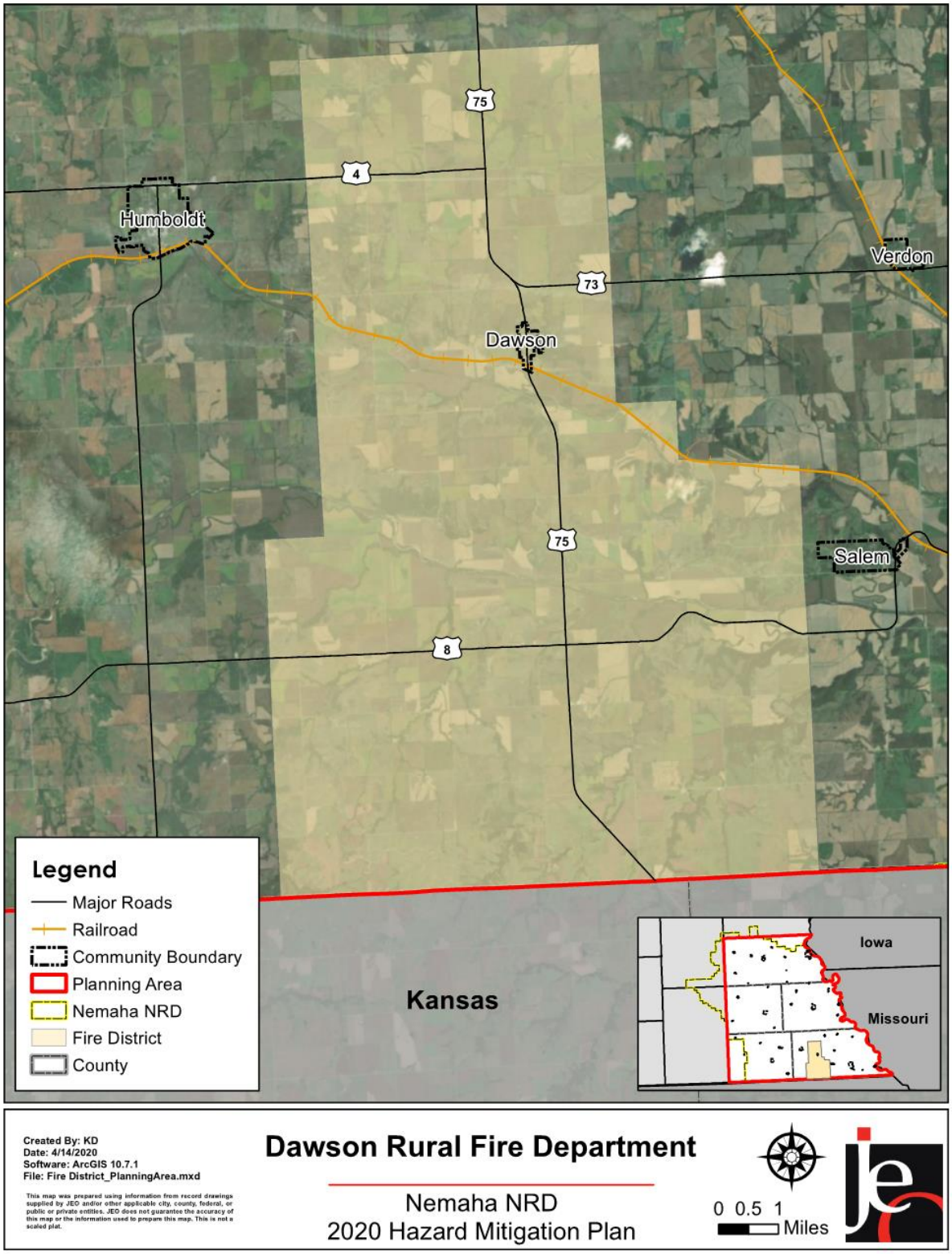
See the Village of Dawson and the Richardson County profiles for regional demographic information. The district serves approximately 150 people.

Future Development Trends

Over the last five years, there have been no changes within the district. In the next five years, the local planning team does not anticipate any changes or new developments.

62 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

Figure DRF.1: Dawson Rural Fire Department



Critical Infrastructure

Chemical Storage Fixed Sites

Information on chemical storage sites can be found in the Village of Dawson and Richardson County profiles.

Critical Facilities

The planning team identified critical facilities necessary for the fire district's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the Dawson Rural Fire Department.

Table DRF.2: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	In Floodplain (Y/N)
1	Fire Hall	N	N	N

Historical Occurrences

See the Richardson County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the regional hazard list as the relevant hazards for the district. The selected hazards were prioritized by the local planning team based on historical hazard occurrences, potential impacts, and the district's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

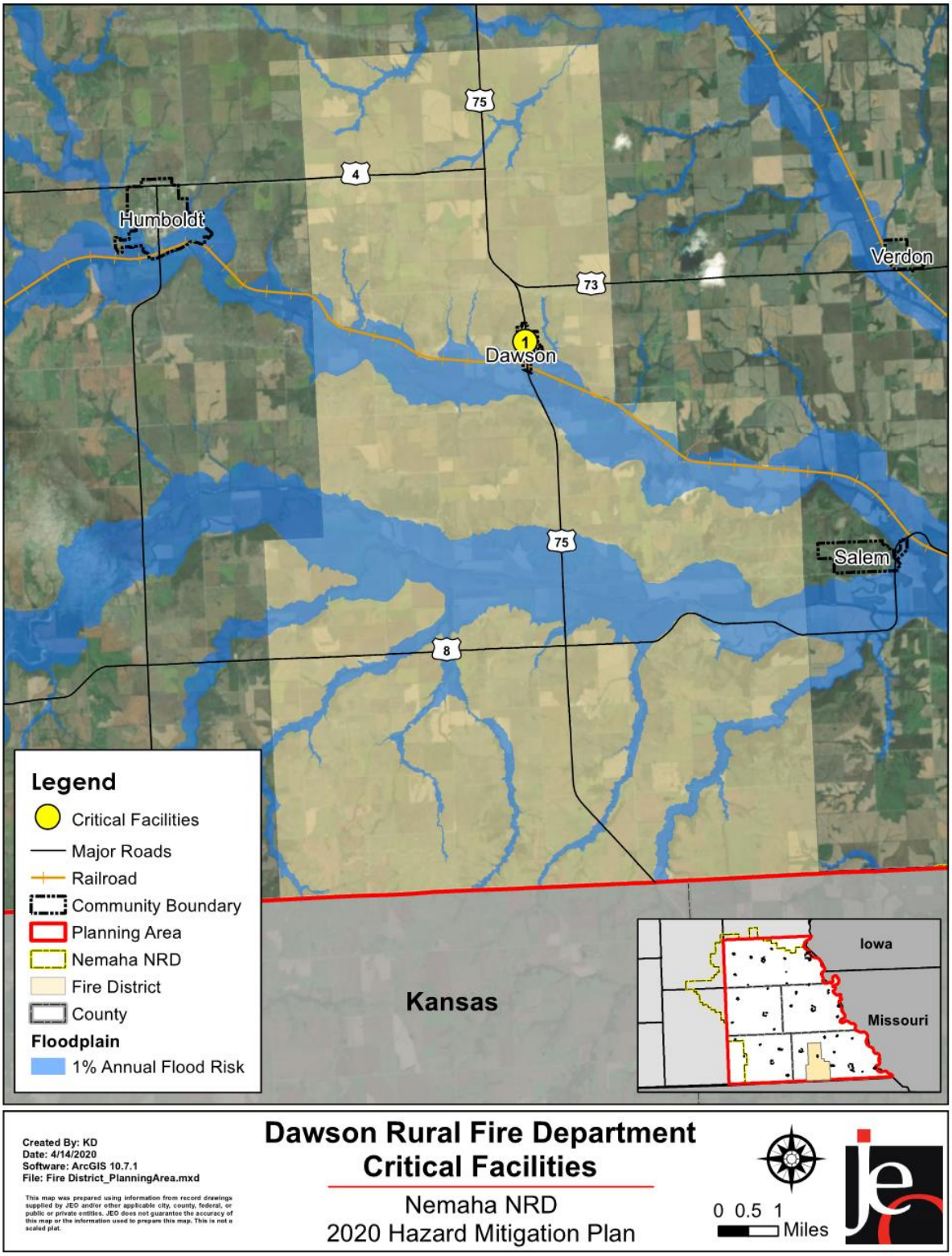
Chemical and Radiological Transportation

The largest concern regarding chemical and radiological transportation is a potential spill on Highway 75 within the Village of Dawson. If a spill were to occur there, it would impact transportation and may cause evacuations depending on the chemical and wind direction. The fire hall, park, and village hall are all directly located next to the highway. Various chemicals are routinely transported along Highway 75 and other local routes. Response equipment includes one pumper, five brush trucks, and spill containment equipment. However, equipment and training are limited to smaller non-hazardous spills.

Drought and Extreme Heat

The primary concern related to drought and extreme heat is dry conditions leading to additional fires. Water for the fighting fires comes the Village of Dawson's two wells. There has been sufficient water for both the public and fire department during past drought events. There are no cooling centers in the district but both Blue Valley and Southeast Nebraska Development District (SENDD) have resources available to assist vulnerable populations during a drought or extreme heat event.

Figure DRF.2: Critical Facilities



**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

Severe Winter Storms

The last major severe winter storm occurred in March 2019 and directly preceded the March 2019 flood event. Snow, ice, and rain caused hazardous roadway conditions and flooding throughout the district. None of the powerlines in the village or rural areas are buried and the fire department does not have a backup generator. This leaves the fire hall vulnerable to power outages from high winds, downed poles, and tree limbs. Snow removal is handled by three different entities. The village handles roads in Dawson, the State clears roads on the highways, and Richardson County does the county roads. Typically, removal resources are sufficient but hazardous roads have impacted response times in the past.

Tornadoes and High Winds

No significant tornado or high wind events have impacted the district in the past. If one were to occur, the fire department would assist in both response and recovery efforts. The Village of Dawson has a warning siren that is activated remotely. However, the rural areas of the district do not have a siren and are unable to hear the village siren. There are no safe rooms in the district, and individuals seeking shelter must use private basements or interior rooms. Important data is backed up and surge protectors are used on electronic devices.

Staffing

The Dawson Rural Fire Department is supervised by a fire chief and a five-member rural board who will oversee the implementation of hazard mitigation projects. Other offices are listed below.

- Assistant Fire Chief
- Treasurer
- Secretary

Capability Assessment

Due to the unique structure of fire districts, the typical capability assessment table was not used. The following table summarizes the district's overall capabilities. The Dawson Rural Fire Department will continue to utilize existing relationships with local, county, state, and federal agencies in the implementation of mitigation projects. The district has applied for and been awarded grants in the past.

Table DRF.3: Overall Capability Assessment

Overall Capability	Limited/Moderate/High
Financial resources needed to implement mitigation projects	Limited
Staff/expertise to implement projects	Moderate
District support to implement projects	Moderate
Time to devote to hazard mitigation	Limited

Plan Integration

The Dawson Rural Fire Department does not have any formal planning documents, however, it does have Standard Operating Guidelines (SOGs). These SOGs outline the department's response to a variety of calls that could be received. No other examples of plan integration were identified. The district will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

Mitigation Strategy

New Mitigation Actions

Mitigation Action	Civil Service Improvements
Description	Improve emergency rescue and response equipment and facilities by providing additional or updating existing equipment. For example: backup systems for emergency vehicles, training additional personnel, upgrading radio systems, etc.
Hazard(s) Addressed	All Hazards
Estimated Cost	Varies
Funding	General Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	Fire Chief
Status	New Action. Not Started.

Mitigation Action	Fire Station Expansion
Description	Make an addition to the existing fire hall.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50,000+
Funding	General Budget, Donations
Timeline	5+ Years
Priority	High
Lead Agency	Fire Chief, Rural Fire Board
Status	New Action. Not Started.