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County Profile

Furnas County

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table FRN.1: Furnas County Local Planning Team

Name	Title	Jurisdiction
Roger Powell	Emergency Manager/Floodplain Administrator	Furnas County

Location, Geography, and Climate

Furnas County is located in south-central Nebraska and is bordered by the State of Kansas and Red Willow, Frontier, Gosper, Phelps, and Harlan Counties. The total area of Furnas County is 721 square miles. The Republican River traverses the northern portion of the county, Sappa Creek is located in the southeastern portion, and Beaver Creek is in the southern portion.

Climate

The table below compares climate indicators with those of the entire state. Climate data is helpful in determining if certain events are higher or lower than normal. For example, if the high temperatures in the month of July are running well into the 90s, high heat events may be more likely which could impact vulnerable populations.

Table FRN.2: Furnas County Climate

	Furnas County	State of Nebraska
July Normal High Temp[1]	91.5°F	87.4°F
January Normal Low Temp[1]	12.0°F	13.8°F
Annual Normal Precipitation[2]	24.3”	23.8”
Annual Normal Snowfall[2]	25.3”	25.9”

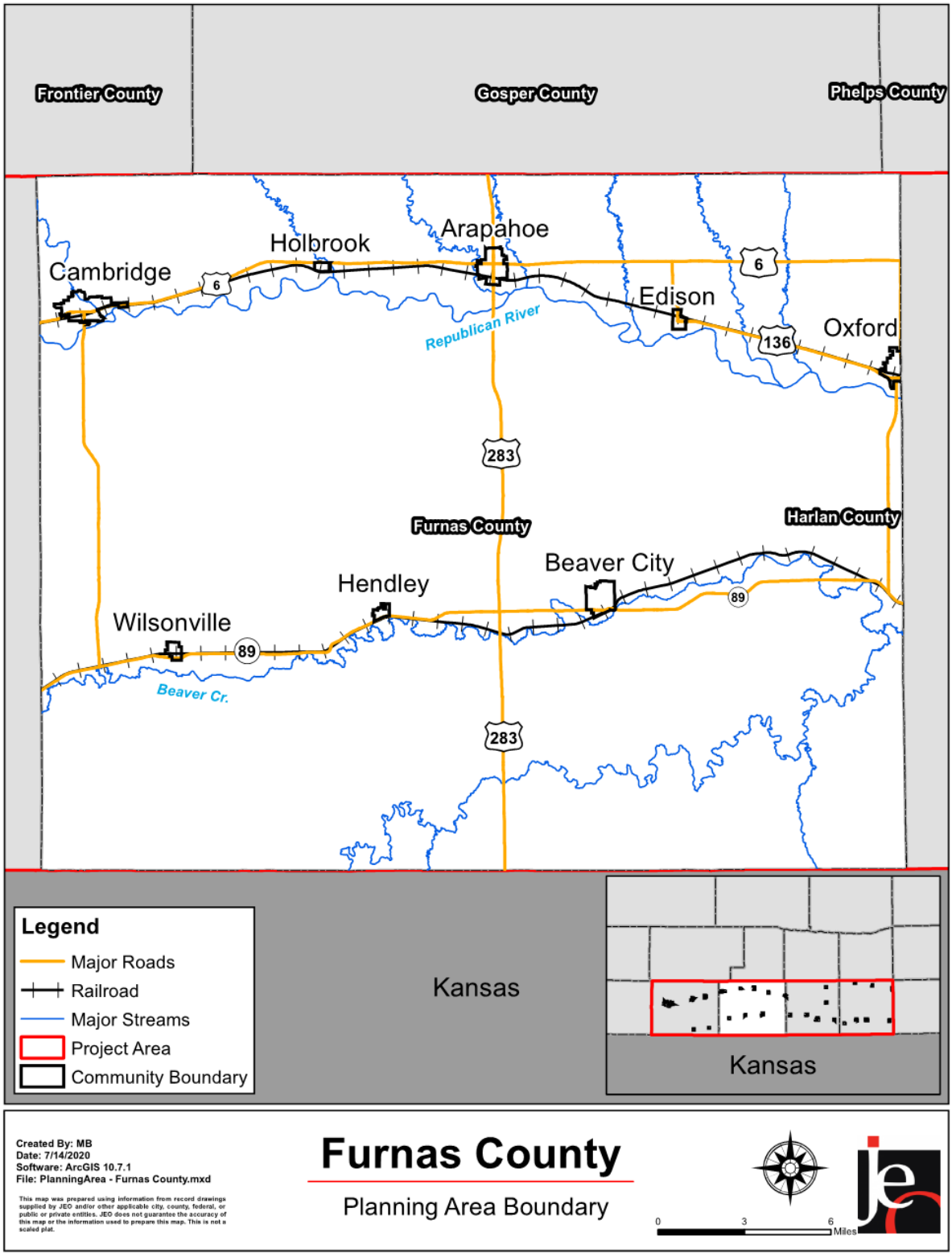
Source: NCEI 1981-2010 Climate Normals[1], High Plains Regional Climate Center, 1893-2020[2]
Precipitation includes all rain and melted snow and ice.

Transportation

Furnas County’s major transportation corridors include US Highway 6, 136, 283 and Nebraska State Highways 46, 47, and 89. Farm chemicals are primarily transported on the highways and other local routes. Chemical spills have occurred in the past but with minimal impacts. Vulnerable populations located near highways include Tri-Valley Hospital, Arapahoe Schools, Good Samaritan Nursing Home, Beaver City Nursing Home, and Southern Valley School. Burlington Northern Santa Fe Railway and Amtrak lines run east to west through the northern portion of the county and an abandoned line runs east to west through the county’s southern portion. The county also has three airports and heliports located near Arapahoe and Cambridge. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors, as well as areas more at risk of transportation incidents.

1 National Centers for Environmental Information. “1981-2010 U.S. Climate Normals.” Accessed August 2020. https://www.ncdc.noaa.gov/cdo-web/datatools.
2 High Plains Regional Climate Center. “Monthly Climate Normals 1893-2020 – Beaver City NE.” Accessed August 2020. http://climod.unl.edu/.

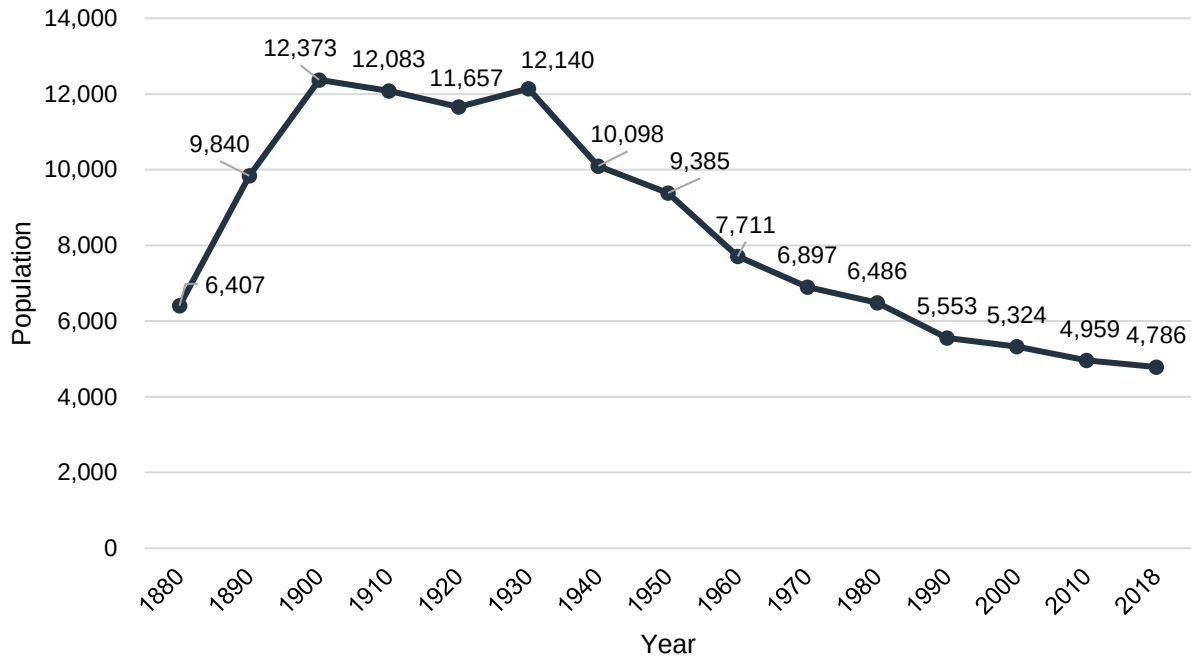
Figure FRN.1: Furnas County



Demographics, Economics, and Housing

The following figure displays the historical population trend from 1890 to 2018.[3] This figure indicates that the population of Furnas County has been decreasing since 1930. A declining population can lead to more unoccupied and unmaintained housing that is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the county, which could make implementation of mitigation projects more fiscally challenging.

Figure FRN.2: Population 1880 - 2018



Source: U.S. Census Bureau

The following table indicates Furnas County has a lower percentage of people under the age of five but a higher percentage of residents over the age of 64 compared to the state. This is relevant to hazard mitigation because the very young and elderly populations may be at greater risk from certain hazards than others. For a more elaborate discussion of this vulnerability, please see Section Four: Risk Assessment.

Table FRN.3: Population by Age

Age	Furnas County	State of Nebraska
<5	5.7%	6.9%
5-64	70.4%	78.0%
>64	23.9%	15.1%
Median	46.5	36.4

Source: U.S. Census Bureau[3]

The following table indicates that median household income and per capita income for the county are both lower than the State of Nebraska. Median home value and rent are also both lower than the rest of the state. Areas with economic indicators which are relatively low may influence a county's level of resilience during hazardous events.

3 United States Census Bureau. 2018. "S0101: Age and Sex." [database file]. https://data.census.gov/cedsci/.

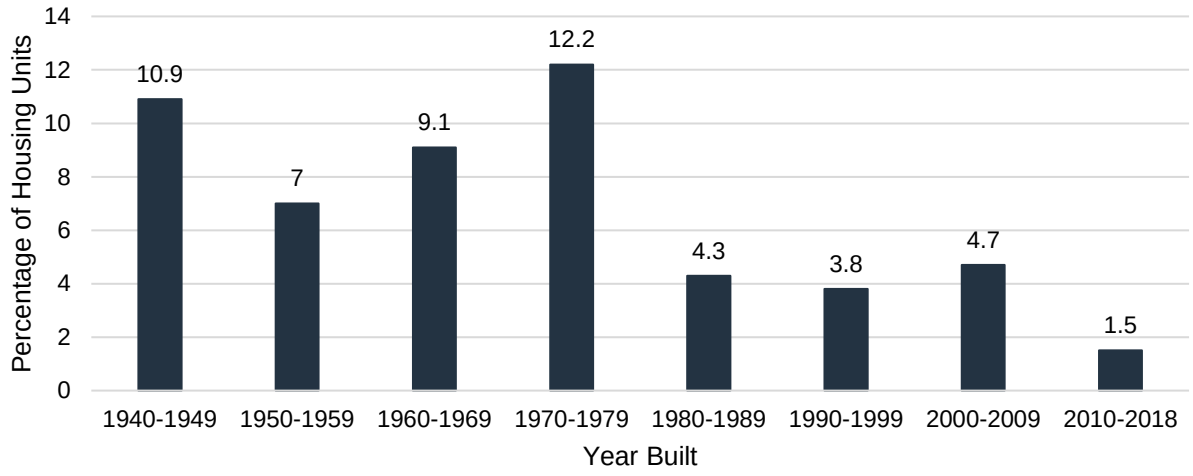
Table FRN.4: Housing and Income

	Furnas County	State of Nebraska
Median Household Income	$47,989	$59,116
Per Capita Income	$27,031	$31,101
Median Home Value	$68,800	$147,800
Median Rent	$612	$805

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

The following figure indicates that the majority of housing in Furnas County was built between 1970 and 1979 (12.2%). According to 2018 ACS 5-year estimates, the county has 2,713 housing units with 79% of those units occupied. There are approximately 46 mobile homes in the county. Most are located in incorporated communities. Housing age can serve as an indicator of risk, as structures built prior to the development of state building codes may be at greater risk. Finally, residents that live in mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if not anchored correctly.

Figure FRN.3: Housing Units by Year Built



Source: U.S Census Bureau[4]

Table FRN.5: Housing Units

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Furnas County	2,142	79.0%	571	21.0%	1,540	71.9%	602	28.1%
Nebraska	754,063	90.8%	76,686	9.2%	498,567	66.1%	255,496	33.9%

Source: U.S. Census Bureau[4]

Major Employers

According to 2016 Business Patterns Census Data, Furnas County had 164 business establishments. The following table presents the number of establishments, number of paid employees, and the annual payroll in thousands of dollars.

4 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.
5 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.

Table FRN.6: Business in Furnas County

	Total Businesses	Number of Paid Employees	Annual Payroll (In Thousands)
Total for All Sectors	164	1,347	$47,042

Source: U.S Census Bureau[6]

Agriculture is important to the economic fabric of the State of Nebraska. Furnas County's 377 farms cover 450,289 acres of land, about 97.6% of the county's total area. 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 FRN.7: Agricultural Inventory

	Agricultural Inventory
Number of Farms with Harvested Cropland	377
Acres of Harvested Cropland	450,289

Source: USDA Census of Agriculture, 2017[7]

Future Development Trends

Over the past five years, several new homes have been built in unincorporated areas. None of these structures were developed in the floodplain or other known hazardous areas. According to 2018 American Community Survey estimates, Furnas County's population is declining. The local planning team attributed the decline to an aging population. In the next five years, no housing developments or new industries 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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table FRN.8: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
3,055	$197,093,540	477	$48,801,685	15.6%

Source: County Assessor, 2018

Table FRN.9: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
3,055	$197,093,540	12	$510,910	0.4%

Source: County Assessor, 2018

6 United States Census Bureau. "2016 County Business Patterns and 2016 Nonemployer Statistics" [database file]. https://factfinder.census.gov.

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

Community Lifelines

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 24 chemical storage sites throughout Furnas County. The following table lists the names, locations, and floodplain status. No critical facilities or vulnerable populations are located near fixed chemical sites.

Table FRN.10: Chemical Storage Fixed Sites

Facility Name	Location	In Floodplain (Y/N)
Ag Valley Co-op Non-Stock	40827 Highway 6/34, Cambridge, NE	N
Ag Valley Co-op Non-Stock	72133 US Highway 136, Edison, NE	Y
NDOT Arapahoe Yard	703 11th Street, Arapahoe, NE	N
Ag Valley Co-op Non-Stock	419 Center Ave, Holbrook, NE	N
CenturyLink	108 E Bright St, Oxford, NE	N
Paulsen Inc	801 Oak St, Arapahoe, NE	N
Ag Valley Arapahoe Station	705 West St, Arapahoe, NE	N
Nicholson Lease	Road 411, Wilsonville, NE	N
Nicholson B Lease	Road 410, Wilsonville, NE	N
Orvis Lease	Road 704, Wilsonville, NE	N
Ten Bensel Lease	Road 411, Wilsonville, NE	N
Chambers 1 Lease	Road 409, Wilsonville, NE	N
Wilsonville Unit	Road 703, Wilsonville, NE	N
Cambridge Telephone Co	622 Paxton St, Cambridge, NE	N
Nutrien Ag Solutions	42136 Highway 6/34, Arapahoe, NE	N
Nebraska Corn Processing LLC	107 Potter St, Cambridge, NE	N
CenturyLink	72294 Road 429, Arapahoe, NE	N
NDOT Salt Brine Storage Yard	Jct N Railway & Penn Sts, Cambridge, NE	N
NDOT Salt Brine Storage Yard	Jct Raymond St & Highway 89, Wilsonville, NE	N
State of Nebraska 16-13	Road 705, Wilsonville, NE	N
Hosea 29-5	Road 409, Wilsonville, NE	N
Fuller 9-13	Highway 47, Wilsonville, NE	N
Anew Fuel Services LLC	41501 Harvest Dr, Cambridge, NE	N
Cramer 1-8 & A 1-7	Road 409, Wilsonville, NE	N

Source: Nebraska Department of Environment and Energy, 2020[8]

8 Nebraska Department of Environment and Energy. “Search Tier II Data.” Accessed August 2020. https://deq-iis.ne.gov/tier2/tier2Download.html.

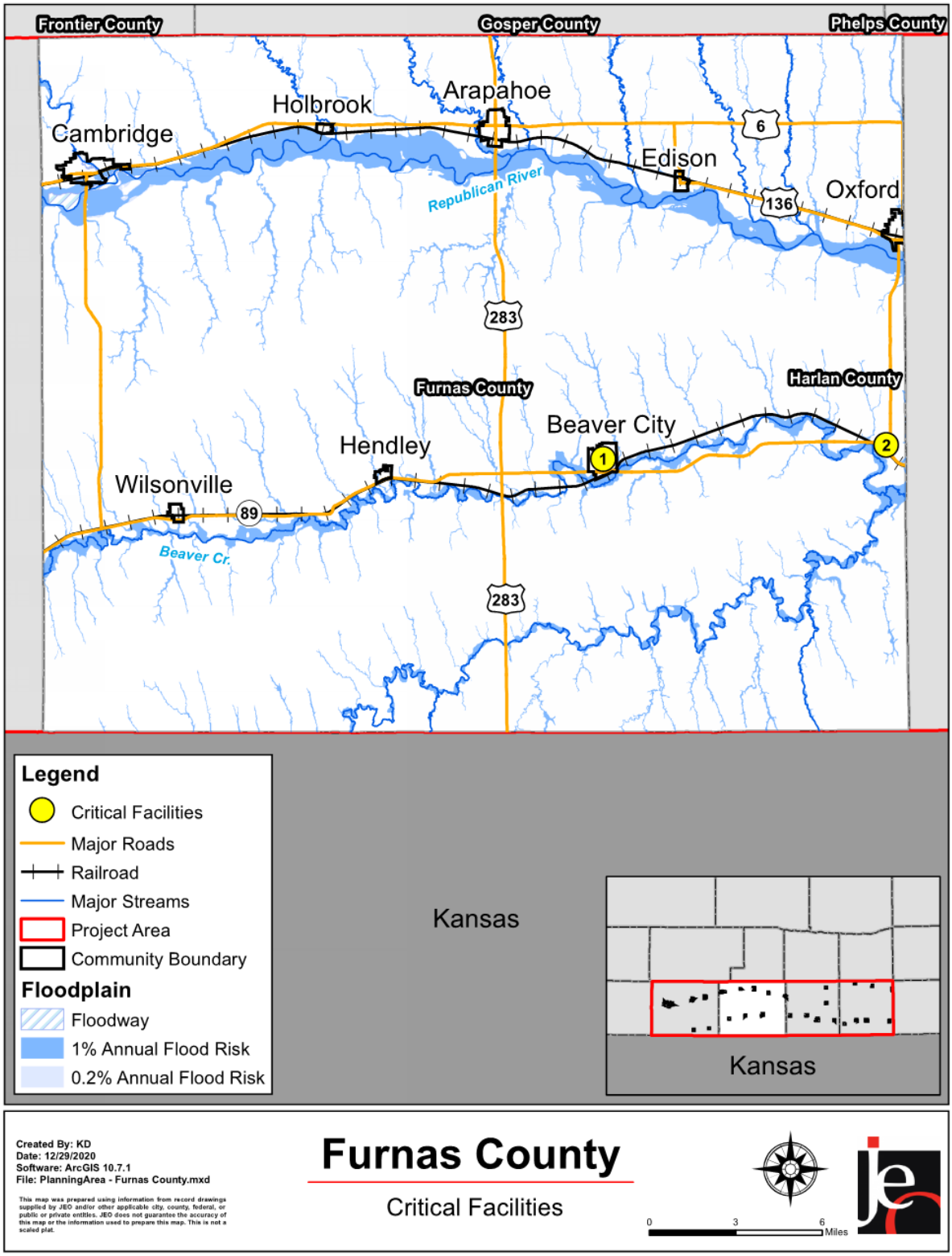
Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table FRN.11: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Furnas County Courthouse	N	Y	N
2	Southern Valley Schools	Y	Y	N

Figure FRN.4: Critical Facilities



Historical Occurrences

The following table provides a statistical summary for hazards that have occurred in the county. The property damages from the NCEI Storm Events Database (January 1996 – December 2019) should be considered only as broad estimates. Crop damages reports come from the USDA Risk Management Agency for Furnas County between 2000 and 2019.

Table FRN.12: County Hazard Loss History

Hazard Type		Count	Property Damage	Crop Damage[2]
Animal and Plant Disease	Animal Disease[1]	22	30 animals	N/A
	Plant Disease[2]	13	N/A	$106,365
Chemical Spills	Fixed Site[3]	3	$0	N/A
	Transportation[4]	0	$0	
Dam Failure[5]		4	$0	N/A
Drought[6]		483 months out of 1,501	$0	$86,102,139
Earthquake[12]		1	N/A	N/A
Extreme Heat[9]		Avg. 18 days/year	N/A	$7,516,197
Flooding[8]	Flash Flood	7	$263,000	$133,865
	Flood	6	$180,000	
Grass/Wildfires[9]		100	341 acres	$7,650
Levee Failure[11]		0	$0	N/A
Severe Thunderstorms[8]	Thunderstorm Wind Average:67 mph Range: 58-104 mph	123	$5,204,000	$17,204,650
	Hail Average: 1.19 in Range: 0.75-2.75 in	221	$5,007,000	
	Heavy Rain	11	$0	
	Lightning	3	$218,000	
Severe Winter Storms[8]	Blizzard	10	$325,000	$7,679,403
	Extreme Cold/Wind chill	2	$0	
	Heavy Snow	6	$0	
	Ice Storm	4	$1,020,000	
	Winter Storm	36	$180,000	
	Winter Weather	35	$5,000	
Terrorism[10]		1	$0	N/A
Tornadoes and High Winds[8]	High Winds Average: 56 mph Range: 58-104 mph	27	$2,032,080	$797,788
	Tornadoes Average: EF0 Range: EF0-EF1 *1 Fatality*	8	$383,000	$2,607
Total		**643**	**$14,817,080**	**$119,550,663**

N/A: Data not available
1 - NDA, 2014 – 2019
2 - USDA RMA, 2000 – 2019
3 - NRC, 1990 - February 2019
4 - PHSMA, 1971 - July 2020
5 – DNR Dam Inventory December 2020
6 - NOAA, 1893 - July 2020
7 - NOAA Regional Climate Center, 1893 - July 2020

8 - NCEI, 1996 - December 2019
9 - NFS, 2000 - 2018
10 – University of Maryland, 1970 - 2018
11 – USACE NLN, 1900 – July 2020
12 – USGS, 1900 – July 2020

The following table provides a summary of hazards that have affected or have the potential to affect each participating jurisdiction in Furnas County. Each jurisdiction was evaluated for previous hazard occurrence and the probability of future hazard events on each of the 13 hazards profiled in this plan. The evaluation process was based on data collected and summarized in Table FRN.11; previous impacts or the potential for impacts to infrastructure, critical facilities, people, and the economy; and the proximity to certain hazards such as dams and levees.

Table FRN.13: Furnas County and Community Hazard Matrix

Hazard	Furnas County	City of Arapahoe	City of Beaver City	City of Cambridge	Village of Edison	Village of Hendley	Village of Holbrook	Village of Oxford	Arapahoe-Holbrook Public Schools
Animal and Plant Disease	X	X	X	X	X	X	X	X	X
Chemical Spills	X	X	X	X	X	X	X	X	X
Dam Failure	X	X	X	X	X	X	X	X	X
Drought	X	X	X	X	X	X	X	X	X
Earthquake	X	X	X	X	X	X	X	X	X
Extreme Heat	X	X	X	X	X	X	X	X	X
Flooding	X	X	X	X	X	X	X	X	X
Grass/Wildfires	X	X	X	X	X	X	X	X	X
Levee Failure	X			X					
Severe Thunderstorms	X	X	X	X	X	X	X	X	X
Severe Winter Storms	X	X	X	X	X	X	X	X	X
Terrorism	X	X	X	X	X	X	X	X	X
Tornadoes and High Winds	X	X	X	X	X	X	X	X	X

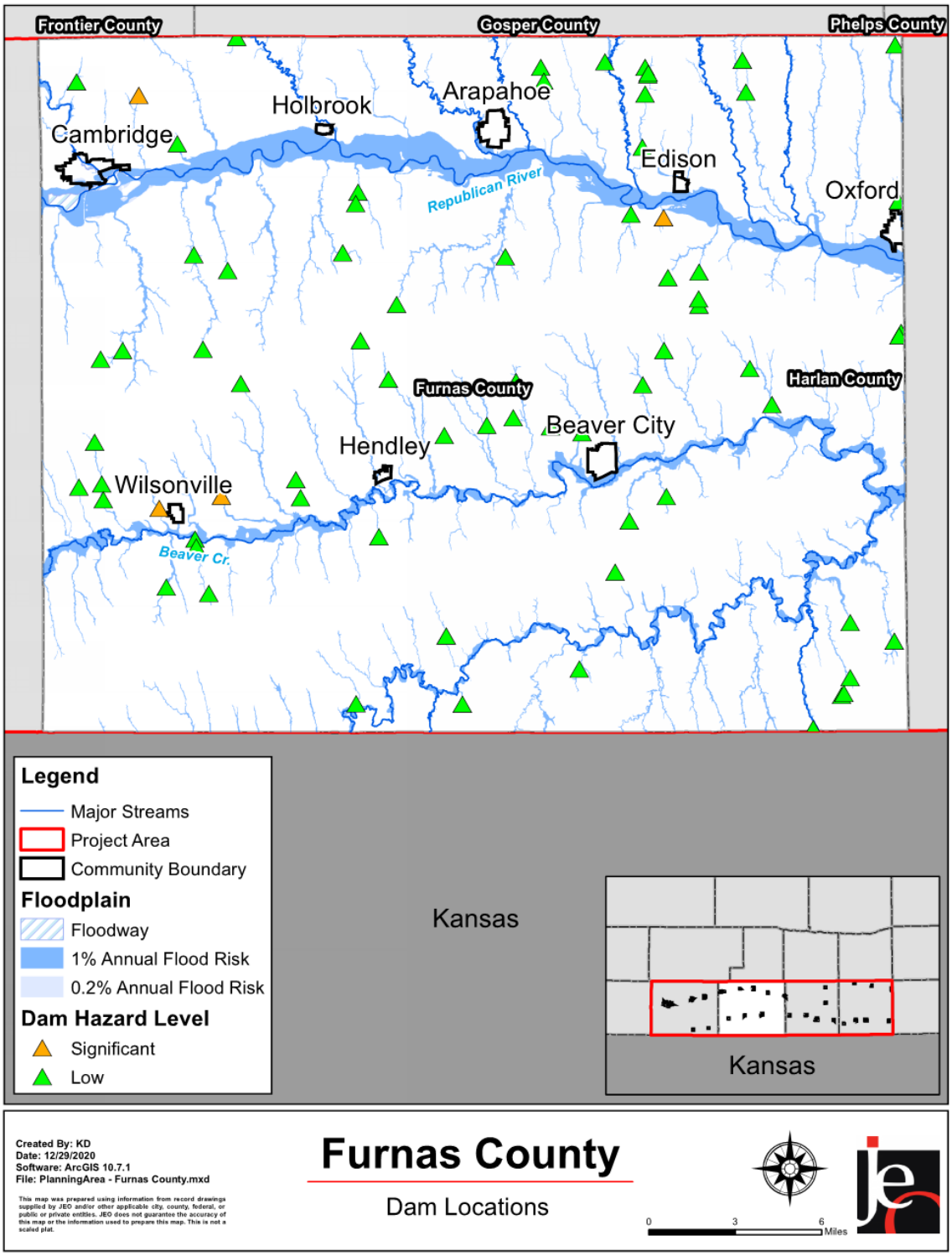
County Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the county. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the county's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Dam Failure

Although not identified as a top hazard of concern by the local planning team, significant hazard dams are located in the county. Of the 73 dams in the county, four are classified as significant hazard. Four dam failures were reported by NeDNR but no damages were reported. Due to security concerns, dam inundation maps are not shown in the HMP but can be found in the Furnas County Local Emergency Operations Plan (LEOP). The Furnas County LEOP estimates that 40% of the population could be affected by dam failure. In addition to dams within the county, Medicine Creek Dam, Red Willow Dam, Enders Dam, and Trenton Dam are located upstream could also affect the county. Figure FRN.5 shows the location of dams within the county.

Figure FRN.5: Dam Locations



Flooding

Thirteen flooding events have been reported for Furnas County. Of those 13 events, seven were flash floods and the other six were riverine floods. Riverine flooding caused $180,000 in property damage while the flash floods caused $263,000 in property damage. County roads took the brunt of most of the damages. RMA reported a total loss of $133,865 from all types of flooding. The county has no critical facilities in the 1% annual floodplain and no repetitive loss properties are in the county. The initial FIRM for Furnas County was developed in March of 2009. Parts of the county most prone to flooding are along the Republican River, Beaver Creek, and Sappa Creek. Furnas County does participate in the NFIP. Drainage improvements and debris removal in the rivers and creeks are needed in the county.

Levee Failure

Although not identified as a top hazard of concern by the local planning team, there is a levee in the county. The Medicine Creek Levee is 0.55 mile in length and protects 144 people and 63 structures valued at $13.3 million. The levee is owned by the City of Cambridge and does not provide 1% annual flood protection. Figure FRN.6 shows the location of the levee within Cambridge.

Severe Thunderstorms

The NCEI reported 137 severe thunderstorms and 221 hail events between January 1996 and December 2019 that resulted in $10,429,000 in property damage. RMA reported $17,204,650 in crop damages, primarily from hail. The county courthouse has been damaged in the past from severe thunderstorms. Text alerts for severe weather are offered by the county emergency management.

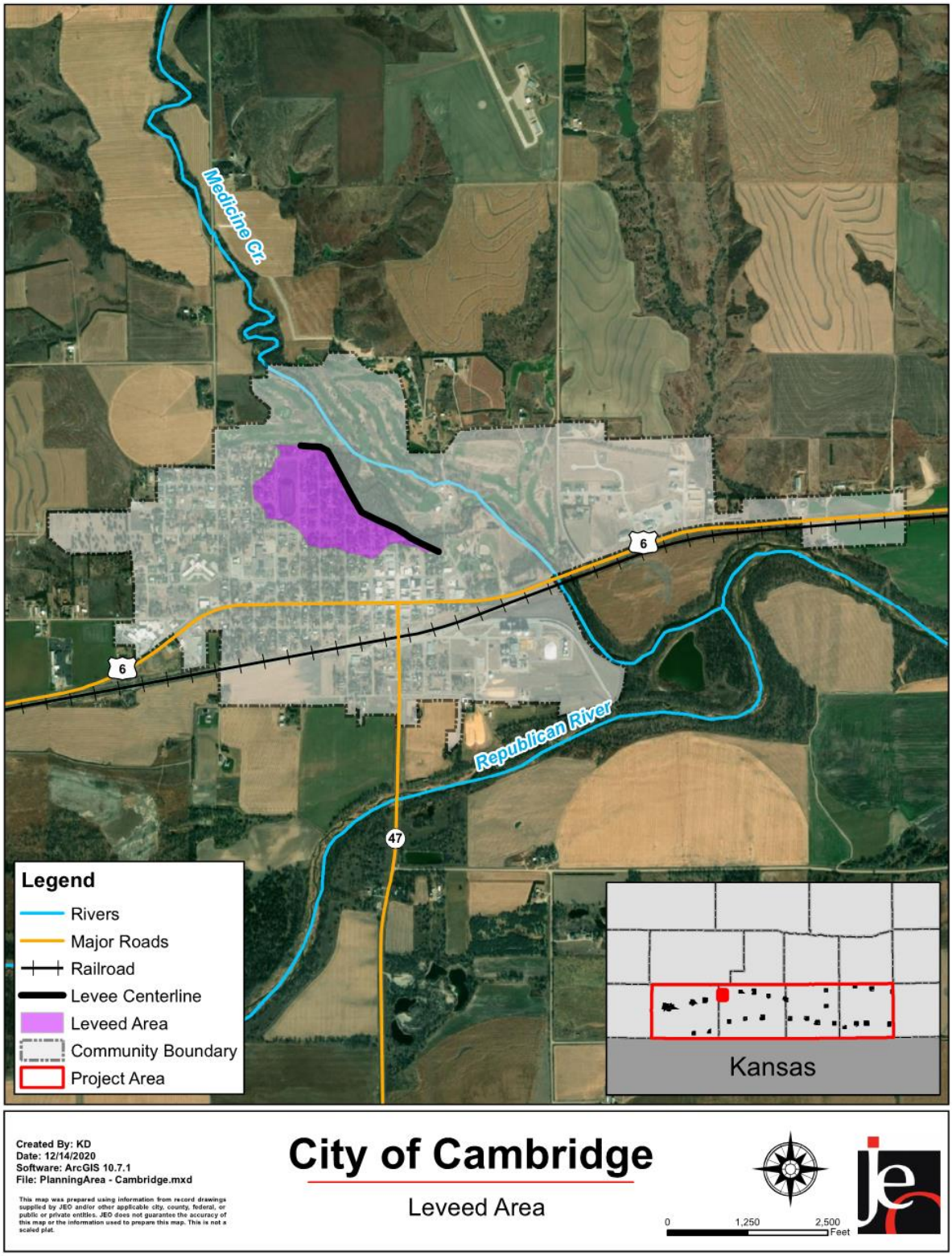
Severe Winter Storms

NCEI reported 93 severe winter storms for Furnas County that resulted in $1,530,000 in property damage. The most damaging event occurred in December 2009, when an ice storm caused $1,000,000 in damages to trees, powerlines, and power poles. Other events have affected travel, caused prolonged power outages, and killed livestock. RMA reported $7,679,403 in crop damage. The county removes snow from county roads using road grades. Snow removal has been sufficient in the past; however, some of the equipment is aging and needs to be replaced.

Tornadoes and High Winds

NCEI reported eight tornadoes that resulted in $383,000 in property damage and 27 high wind events that resulted in $2,032,080 in property damage. The events' damages mostly impacted grain bins and farm outbuildings. Six of the eight tornadoes were rated F/EF0s and two tornadoes were rated F/EF1s. Not all the communities in the county have alert sirens: The Village of Hendley does not and there are other communities that need to update or add additional sirens. No safe rooms are located in the county.

Figure FRN.6: Leveed Area



Governance

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

- County Clerk
- County Assessor
- County Treasurer
- County Attorney
- Clerk of the District Court
- Clerk Magistrate
- Emergency Manager
- Highway Superintendent
- Extension
- Planning & Zoning
- Sheriff
- Weed Superintendent
- County Roads

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 county's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

Table FRN.14: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	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	Yes
	Chief Building Official	No
	Civil Engineering	No

Survey Components/Subcomponents		Yes/No
	Local Staff Who Can Assess County's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Capital Improvement Plan/ 1- & 6-Year Plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to levy taxes for specific purposes such as mitigation projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	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	Yes
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

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

Plan Integration

Furnas County has several planning documents that discuss or relate to hazard mitigation. Each plan is listed below along with a short description of how it is integrated with the hazard mitigation plan. No other planning documents were identified during this process. The county will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Comprehensive Plan (2016)

The comprehensive plan is designed to guide the future actions of the county. It contains goals aimed at safe growth, encourages elevation of structures located in the floodplain, directs development away from the floodplain, encourages infill, directs development away from chemical storage facilities, encourages clustering of development, and encourages the preservation of open space.

Floodplain Ordinance (2009), Zoning Ordinance (2016), and Subdivision Regulations (2016)

The county's floodplain ordinance, zoning ordinance, and subdivision regulations outline where and how development should occur in the future. These documents contain floodplain maps, identifies floodplain areas as parks or open space, considers the wildland urban interface, and includes well setback requirements.

Furnas County Local Emergency Operations Plan (2019)

The local emergency operations plan establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years.

South Central West Community Wildfire Protection Plan (2021)

The purpose of the South Central West Community Wildfire Protection Plan (CWPP) is to help effectively manage wildfires and increase collaboration and communication among organizations who manage fire. The CWPP discusses county specific historical wildfire occurrences and impacts, identifies areas most at risk from wildfires, discusses protection capabilities, and identifies wildfire mitigation strategies. This document is updated every five years and has been integrated with the current hazard mitigation plan.

Mitigation Strategy

County funds are limited to maintaining current facilities and systems and have stayed the same over recent years. Although a large portion of funds are not already dedicated to a specific project, the county will likely need assistance from grants to help pay for many of the projects listed below. The county has experience applying for grants and has been awarded a homeland security grant in the past.

Continued Mitigation Actions

Mitigation Action	Agricultural Disease Outbreak Emergency Exercise
Description	Conduct an outbreak exercise with producers, emergency managers, veterinarians, extension agents, etc. to identify areas for improvement and become familiar with procedures.
Hazard(s) Addressed	Animal and Plant Disease
Estimated Cost	$3,000+
Funding	General Fund, USDA Grant
Timeline	2-5 Years
Priority	Low
Lead Agency	County Emergency Manager
Status	Not Started.

Mitigation Action	Alert/Warning Sirens
Description	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or the placement of new sirens. Install new sirens and remote activation where lacking.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$15,000+
Funding	General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	County Emergency Manager, Local Jurisdictions
Status	Not Started.

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.
Hazard(s) Addressed	All Hazards
Estimated Cost	$3,500+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Emergency Manager
Status	In Progress. The county courthouse and communications tower have a backup generator. Additional generators are needed at other locations.

Mitigation Action	Develop a Drought Management Plan
Description	Work with relevant stakeholders to develop a drought management plan. The drought management plan identifies water monitoring protocols, outlines drought responses, identifies opportunities to reduce water consumption, and establishes the jurisdictional management procedures.
Hazard(s) Addressed	Drought
Estimated Cost	$10,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Emergency Manager
Status	Not Started.

Mitigation Action	Develop an Agricultural Disease Response Action Plan
Description	Coordinate with farmers, USDA, UNL, and other local actors to develop a plan of action to contain or respond to disease outbreaks.
Hazard(s) Addressed	Animal and Plant Disease
Estimated Cost	$10,000+
Funding	General Fund, USDA Grant
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Emergency Manager
Status	Not Started.

Mitigation Action	Emergency Exercise: Hazardous Spills
Description	Utilize exercise to prepare for potential explosions or hazardous spills. Ensure that nearby businesses and residents have appropriate plans in place.
Hazard(s) Addressed	Chemical Spills
Estimated Cost	$1,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Emergency Manager
Status	Not Started.

Mitigation Action	Emergency Operations
Description	Identify and establish an Emergency Operations Center.
Hazard(s) Addressed	All Hazards
Estimated Cost	Unknown
Funding	General Fund
Timeline	2-5 Years
Priority	High
Lead Agency	County Emergency Manager, Sheriff
Status	Not Started.

Mitigation Action	Facility Monitoring
Description	Install security cameras in/around critical facilities and key infrastructure.
Hazard(s) Addressed	Terrorism
Estimated Cost	$1,000+
Funding	General Fund
Timeline	2-5 Years
Priority	High
Lead Agency	County Emergency Manager, Sherriff
Status	Not Started.

Mitigation Action	Fire Prevention Program: Planning and Training
Description	Participate in the Nebraska Forest Service Wildland Fire Protection Program which provides services in wildfire suppression training, equipment, pre-suppression planning, wildfire preventions, and aerial fire suppression.
Hazard(s) Addressed	Grass/Wildfires
Estimated Cost	$500+
Funding	General Fund
Timeline	2-5 Years
Priority	Low
Lead Agency	County Emergency Manager
Status	Not Started.

Mitigation Action	Floodplain Management
Description	Improve floodplain management practices such as adoption and enforcement of floodplain management requirements (Regulation of construction in SFHAs), floodplain identification and mapping (local request for map updates), description of community assistance and monitoring activities.
Hazard(s) Addressed	Flooding
Estimated Cost	Staff Time
Funding	Staff Time, General Fund
Timeline	5+ Years
Priority	Low
Lead Agency	Floodplain Administrator
Status	Not Started.

Mitigation Action	Infrastructure Assessment Study
Description	Conduct an assessment of bridges in the county and assess other potential areas of concern.
Hazard(s) Addressed	All Hazards
Estimated Cost	$2,500+ per bridge estimate
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Roads Department
Status	Not Started.

Mitigation Action	Mortality Management Plan
Description	Develop a routine and plan for emergency disposal of diseased animals which prevents the spread of disease.
Hazard(s) Addressed	Animal and Plant Disease
Estimated Cost	$3,000+
Funding	General Fund, USDA Grant
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Emergency Manager
Status	Not Started.

Mitigation Action	Public 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	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Commissioners, County Emergency Manager
Status	Public education is done on an annual basis.

Mitigation Action	Remove Flow Restrictions
Description	Conduct a preliminary drainage assessment and/or design bridge improvements to reduce and/or alleviate flooding. Bridges typically serve as flow restrictions along streams and rivers. Cleanout and reshaping channel segments at bridge crossings can increase conveyance, reducing the potential for flooding. Replacing modifying bridges and other flow restrictions may be necessary to eliminate flooding threats and damages.
Hazard(s) Addressed	Flooding
Estimated Cost	$5,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Roads Department
Status	Not Started.

Mitigation Action	Shelter In Place
Description	Provide shelter in place training to facilities housing vulnerable populations (nursing homes, childcare facilities, schools, etc.).
Hazard(s) Addressed	All Hazards
Estimated Cost	$1,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Emergency Manager
Status	Not Started.

Mitigation Action	Storm Shelters/Safe Rooms
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas. A storm shelter or safe room is needed at the county fairgrounds.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$200,000
Funding	General Fund, County Fair Board Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	County Commissioners, County Emergency Management, County Fair Board
Status	Not Started.

Mitigation Action	Stormwater System and Drainage Improvements
Description	Larger communities generally utilize underground stormwater systems comprising of pipes and inlets to convey runoff. 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	$10,000 - $100,000+
Funding	General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	County Commissioners
Status	Not Started.

Mitigation Action	Stream Bank Stabilization/Grade Control Structure/Channel Improvement
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	$10,000 - $100,000+
Funding	General Fund, Cost Share with Middle Republican NRD
Timeline	5+ Years
Priority	Medium
Lead Agency	County Commissioners
Status	Not Started.

Mitigation Action	Weather Radios
Description	Conduct an inventory of weather radios at schools and other critical facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50 per radio
Funding	General Fund
Timeline	2-5 Years
Priority	High
Lead Agency	County Emergency Manager
Status	Not Started.

Removed Mitigation Actions

Mitigation Action	Develop and Distribute Educational Materials
Hazard(s) Addressed	All Hazards
Reason for Removal	This action will be combined with the Public Awareness/Education action.

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 is considered an ongoing effort.

Community Profile

City of Arapahoe

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table ARP.1: Arapahoe Local Planning Team

Name	Title	Jurisdiction
Greg Schievelbein	City Superintendent	City of Arapahoe
Donna Tannahill	City Clerk/Treasurer	City of Arapahoe

Location and Geography

The City of Arapahoe is in north-central Furnas County and covers an area of 635 acres. The city has two creeks that pass nearby. Muddy Creek passes to the west of the city and Elk Creek passes to the east of the city.

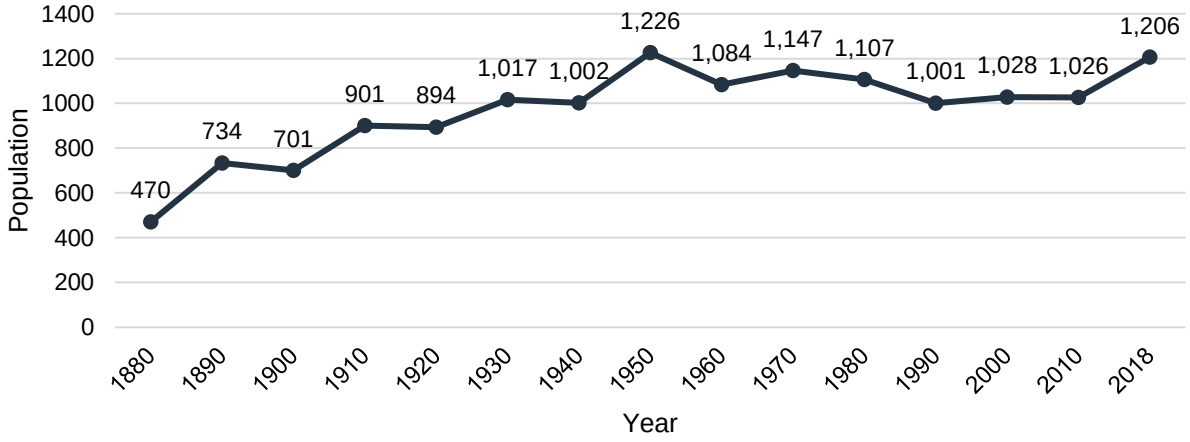
Transportation

Arapahoe's major transportation corridors include US Highway 6 and 283. The most traveled route is Highway 6 with an average of 3,435 vehicles daily, 375 of which are trucks.[9] The city has one Burlington Northern Santa Fe Railway and Amtrak line traveling east to west on the southern edge of the community. One airport is located two miles north of the city. Highway 6 is the transportation route of most concern due to the high amounts of vehicle and truck traffic. No large chemical spills or accidents have occurred locally. However, there are height limits throughout the city and occasionally a truck that surpasses those height limits will knock down power lines. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The City of Arapahoe's population has been increasing since 2010 and in 2018 sat around 1,2016 people, accounting for 25.2% of Furnas County's population.[10] Growing populations are associated with increased hazard mitigation and emergency planning requirements for development. Increasing populations also contribute to tax revenue, allowing communities to pursue additional mitigation projects. Arapahoe's population

Figure ARP.1: Population 1880 - 2018

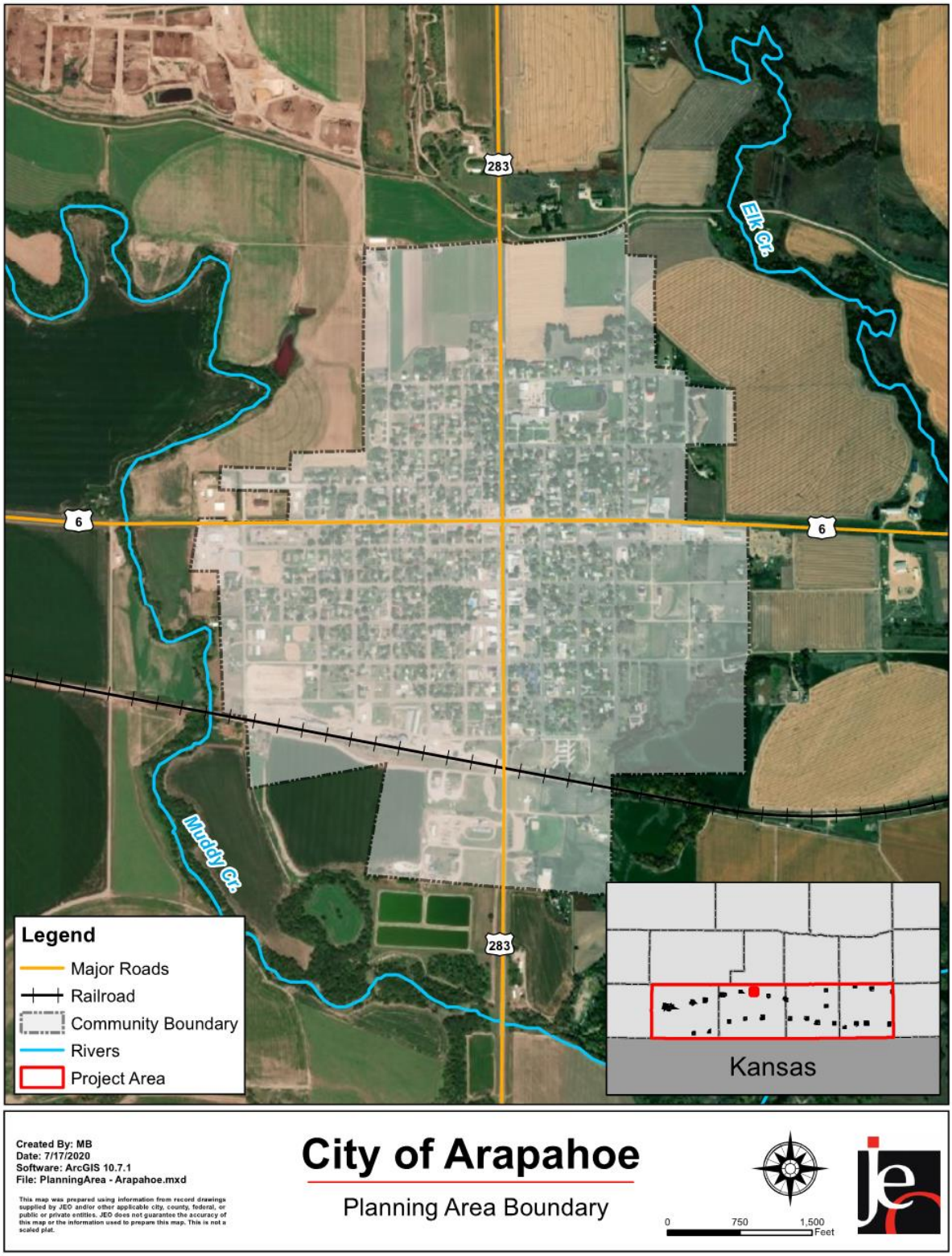


Source: U.S. Census Bureau

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

10 United States Census Bureau. 2018. "DP05: Demographic and Housing Estimates [database file]. https://data.census.gov/cedsci/.

Figure ARP.2: City of Arapahoe



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

- **Younger.** The median age of Arapahoe was 37.7 years old in 2018, compared with Furnas County's median of 47.4 years. Arapahoe's population grew younger since 2010, when the median age was 46.3 years old.[10]
- **More ethnically diverse**. Since 2010, Arapahoe has become less ethnically diverse. In 2010, 4.8% of Arapahoe's population was non-white. By 2018, about 4.1% was non-white. During that time, the non-white population in the county grew from 3.1% in 2010 to 3.5% in 2018.[10]
- **Less likely to be below the federal poverty line.** The poverty rate in the City of Arapahoe (9.0% of people living below the federal poverty line) was lower than the county's poverty rate (10.9%) in 2018.[11]

Employment and Economics

In comparison to Furnas County, Arapahoe's economy had:

- **Similar mix of industries.** Arapahoe's major employment sectors, accounting for 10% or more of employment each, were retail trade and education.[11]
- **Similar median household income.** Arapahoe's median household income in 2018 ($49,083) was about $1,100 higher than the county ($47,989).[11]
- **More long-distance commuters.** About 57.7% of workers in Arapahoe commuted for fewer than 15 minutes, compared with about 60.3% of workers in Furnas County. About 21.2% of workers in Arapahoe commuted 30 minutes or more to work, compared to about 18.0% of county workers.[12]

Major Employers

Major employers in the community include CHI Good Samaritan, Arapahoe Public Schools, Paulsen Inc., Landmark, and Maschoff. The local planning team estimates 35% of residents commute to other communities for work. In addition, many residents from other communities commute to Arapahoe for employment.

Housing

In comparison to Furnas County, Arapahoe's housing stock was:

- **Older.** Arapahoe had a larger share of housing built prior to 1970 than the county (78.5% compared to 73.4%).[13]
- **Similar mobile and manufactured housing.** The City of Arapahoe had a similar share of mobile and manufactured housing (2.0%) compared to the county (1.7%).[13]
- **More renter-occupied**. About 32.5% of occupied housing units in Arapahoe were renter-occupied compared with 28.1% of occupied housing in Furnas County.[13]
- **More occupied.** Approximately 15.1% of Arapahoe's housing units were vacant compared to 21.0% of units in Furnas County.[13]

11 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.
12 United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://data.census.gov/cedsci/.
13 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Unoccupied housing may also suggest that future development may be less likely to occur. 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. The city has one small mobile home park and a few individual mobile homes 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 flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

A new housing development has constructed three homes and three more are under construction as of the plan development. In addition, a new home was constructed in an older part of the community. Arapahoe began a Vacant Property Registry and continued nuisance abatement to keep up properties and maintain utilities. There are new businesses, however, they replaced other businesses that moved or closed. The city is currently re-modeling the library to bring it up to code. In the past five years, the grade school moved to a new building and the old building was refurbished for use by the high school. None of the newly constructed homes and buildings were built in the floodplain. According to the 2018 American Community Survey estimates, Arapahoe's population is growing. The local planning team attributed the growth to retirees moving in and Landmark increasing the number of people they employ. In the next five years the city will continue to fill the new housing development and recruit new businesses.

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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table ARP.2: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
540	$31,130,380	2	$115,220	0.4%

Source: County Assessor, 2018

Table ARP.3: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
540	$31,130,380	0	$0	0.0%

Source: County Assessor, 2018

Community Lifelines

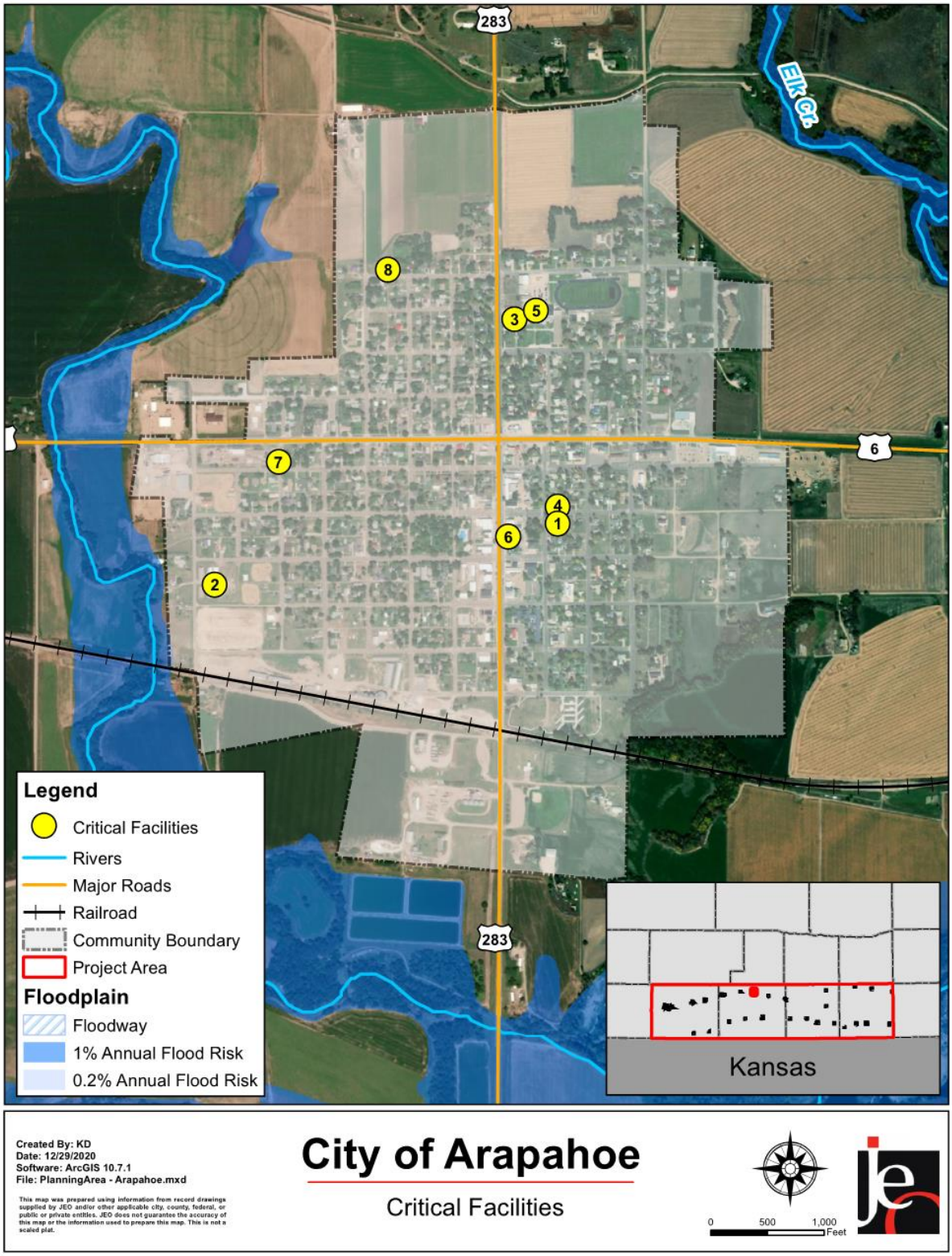
Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster, per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction. All facilities except the schools are located off one of the main highways.

Table ARP.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	City Hall	N	N	N
2	City Shop	N	N	N
3	Elementary School	Y	N	N
4	Fire Hall	N	N	N
5	High School	Y	N	N
6	Legion Hall	N	N	N
7	State Road Department	N	N	N
8	Water Tower	N	Y	N

Figure ARP.3: Critical Facilities



Historical Occurrences

See the Furnas 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the community. The local planning team prioritized the selected hazards 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

During times of drought, there are always concerns with maintaining enough water for the community. The city has three wells and regularly monitors the water table levels. There are no problems with high nitrates or other contaminants in the drinking water supply. Water usage is reported to a variety of agencies and they keep the city up to date on the levels of the aquifer. Water is also metered within the city. The city does not have a drought response plan and does not have the ability to implement water restrictions.

Grass/Wildfire

According to the Nebraska Forest Service, there have been 44 wildfires near Arapahoe from 2000 to 2018. These wildfires have burned a total of 64 acres. The local planning team reported numerous wildfires near the city in 2020 due to dry conditions. The community works in conjunction with the rural fire department and surrounding fire departments to help ensure quick control of any fires. The local firefighting resources and water supply were determined to be sufficient to handle local events.

Severe Thunderstorms

Severe thunderstorms occur several times a year in Arapahoe and the rest of the planning area. The NCEI recorded 54 severe thunderstorms between January 1996 and December 2019. These storms resulted in $2,154,000 in property damages. Buildings and roofs in the city are commonly damaged due to hail. Less than one percent of power lines in the community are buried, however, power poles are replaced annually to help prevent pole breakage. In addition, hazardous trees are trimmed and removed annually to reduce the risk of power outages from fallen limbs.

Sever Winter Storms

Severe winter weather occurs in Arapahoe and the planning area annually. NCEI reports severe winter storms at the county level. According to the NCEI, Furnas County had 93 severe winter storms between January 1996 and December 2019. Past impacts have caused hazardous road conditions and power loss due to broken poles. City workers remove snow for the community using a loader, skid loader with brush, and a dump truck. The city has also hired a company in the past to haul off snow if there is more than the city can handle. Snow removal resources were determined to be sufficient at this time.

Tornadoes and High Winds

NCEI only reports one tornado (an F0) occurring in Arapahoe from 1996 to 2019. The tornado touched down just west of town and caused $15,000 in property damages. Past high wind events have caused power loss from broken poles, guide wires, and transformers. The city does not have a FEMA certified safe room, but the Methodist Church has a basement and is always open for shelter. In the event of a disaster, mutual aid agreements are in place.

Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Arapahoe is governed by a city council; other governmental offices and departments are listed below.

- Utilities
- Attorney
- Clerk
- Fire and Rescue
- Planning Commission

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. Municipal funds are sufficient to pursue small future capital projects and have stayed the same over recent years. The city has experience applying for grants and has been awarded several grants in the past.

Table ARP.5: Capability Assessment

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

Survey Components/Subcomponents		Yes/No
	Other (if any)	-
Fiscal Capability	Capital Improvement Plan/ 1- & 6-Year Plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	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 to implement mitigation projects	Limited
Staff/expertise to implement projects	Moderate
Public support to implement projects	Limited
Time to devote to hazard mitigation	Limited

Plan Integration

The City of Arapahoe has several planning documents that discuss or relate to hazard mitigation. Each plan is listed below along with a short description of how it is integrated with the hazard mitigation plan. The city also has 2016 subdivision regulations and 2015 zoning regulations that have not been integrated with the hazard mitigation plan. No other planning documents were identified during this process. The city will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Comprehensive Plan (2015)
The comprehensive plan is designed to guide the future actions of the city. It contains goals aimed at safe growth and encourages infill development. There are plans to update the document in 2021 during the Downtown Revitalization Study.

Furnas County Local Emergency Operations Plan (2019)
The City of Arapahoe is an annex in the Furnas County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years.

Water System Emergency Response Plan (2021)
A water system emergency response plan serves as a guideline for water operators and city administration to minimize the disruption of normal services to consumers and to provide public health protection during an emergency event. The document identifies several natural and manmade events and discusses the water system's response during those events.

Wellhead Protection Plan (2007)
The purpose of wellhead protection plans is to protect the public drinking water supply wells from contamination. It includes identifying potential sources of groundwater contamination in the area and managing the potential contaminant sources.

Mitigation Strategy
Arapahoe has the administrative staff and technical and fiscal capabilities to implement some mitigation projects without assistance. Larger projects such as drainage improvements may require the city to partner with Furnas County, LRNRD, and other regional and state agencies.

Continued Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Provide a portable or stationary source of backup power to critical facilities. The fire hall was identified as needing a backup generator.
Hazard(s) Addressed	All Hazards
Estimated Cost	$20,000 - $50,000 per generator
Funding	General Budget
Timeline	2-5 Years
Priority	High
Lead Agency	City Council
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	$4,500+
Funding	General Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	City Council
Status	Not Started.

Mitigation Action	Weather Radios
Description	Conduct an inventory of weather radios at schools and other critical facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50 per radio
Funding	General Budget
Timeline	1 Year
Priority	Medium
Lead Agency	City Council, Fire Department, Emergency Manager
Status	In Progress. Replacement and expansion of radios is done as the need arises.

Removed Mitigation Actions

Mitigation Action	Participate in the NFIP
Description	Participate in the NFIP. Enable property owners to purchase insurance protection against flood losses.
Hazard(s) Addressed	Flooding
Reason for Removal	The community is not in a flood risk hazard area and there is not enough support to implement the project. The community will reevaluate the project if support changes.

Community Profile

City of Beaver City

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

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Local Planning Team

Table BVR.1: Beaver City Local Planning Team

Name	Title	Jurisdiction
Teresa Youngquist	City Clerk/Treasurer	City of Beaver City
Roger Powell	Council Member	City of Beaver City

Location and Geography

The City of Beaver City is in central Furnas County and covers 633 acres. Beaver Creek is located directly south of the community. The city is the county seat of Furnas County.

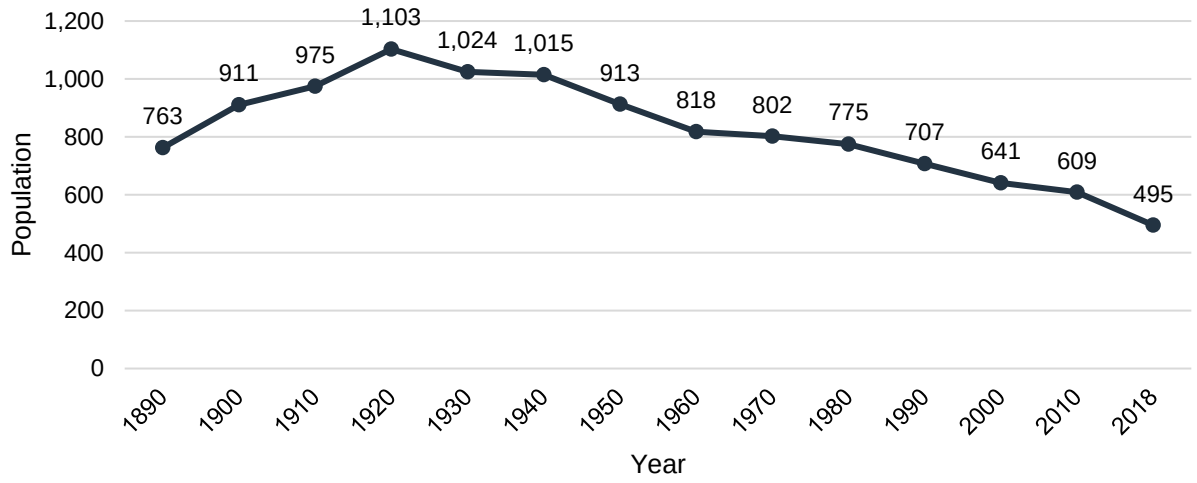
Transportation

Beaver City's major transportation corridors includes State Highway 89. It is traveled by an average of 635 vehicles daily, 55 of which are trucks.[14] Southern Valley Schools and Beaver City Manor and Assisted Living are both located along Highway 89. The city has one Nebraska Kansas Colorado Railway line traveling east to west on the city's southern edge. Highway 89 is the transportation route of most concern due to traffic and regularly transported farm chemicals. Chemical spills have occurred but without major impacts. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The City of Beaver City's population has been decreasing since 1920 and sat at about 495 people in 2018. A declining population can lead to unoccupied housing that is not being maintained and is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which could make implementation of mitigation projects more fiscally challenging. Beaver City's population accounted for 10.3% of Furnas County's population in 2018.[15]

Figure BVR.1: Population 1890 - 2018

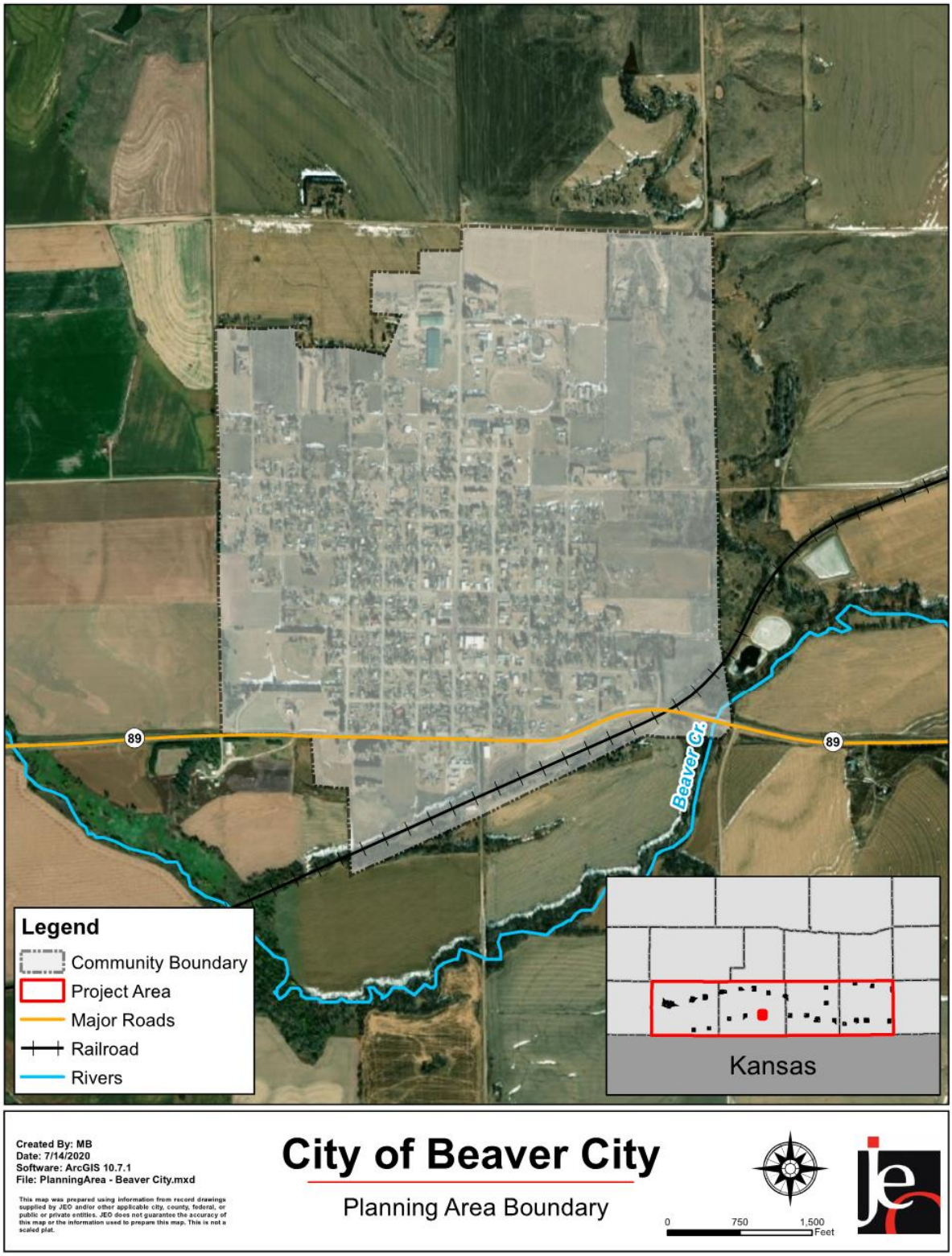


Source: U.S. Census Bureau

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

15 United States Census Bureau. 2018. "DP05: Demographic and Housing Estimates [database file]. https://data.census.gov/cedsci/.

Figure BVR.2: City of Beaver City



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

- **Similarly aged.** The median age of Beaver City was 46.8 years old in 2018, compared with Furnas County's median of 46.5 years. Beaver City's population grew older since 2010, when the median age was 47.1 years old.[15]
- **More ethnically diverse**. Since 2010, Beaver City grew more ethnically diverse. In 2010, 3.9% of Beaver City's population was non-white. By 2018, about 6.7% was non-white. During that time, the non-white population in the county grew from 3.1% in 2010 to 3.5% in 2018.[15]
- **More likely to be below the federal poverty line.** The poverty rate in the City of Beaver City (16.0% of people living below the federal poverty line) was higher than the county's poverty rate (10.9%) in 2018.[16]

Employment and Economics

In comparison to Furnas County, Beaver City's economy had:

- **Different mix of industries.** Beaver City's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, retail trade, education, and public administration.[16]
- **Lower median household income.** Beaver City's median household income in 2018 ($39,375) was about $8,614 lower than the county ($47,989).[16]
- **Similar long-distance commuters.** About 61.4% of workers in Beaver City commuted for fewer than 15 minutes, compared with about 60.3% of workers in Furnas County. About 18.7% of workers in Beaver City commuted 30 minutes or more to work, compared to about 18.0% of county workers.[17]

Major Employers

Major employers in Beaver City include Kaufman Trailers, Beaver City Manor and Assisted Living, and Furnas County. The local planning team estimates that 30% of residents commute to other communities for employment.

Housing

In comparison to Furnas County, Beaver City's housing stock was:

- **Slightly older.** Beaver City had a slightly larger share of housing built prior to 1970 than the county (75.6% compared to 73.4%).[18]
- **More mobile and manufactured housing.** The City of Beaver City had a larger share of mobile and manufactured housing (6.6%) compared to the county (1.7%).[18]
- **Less renter-occupied**. About 19.8% of occupied housing units in Beaver City were renter-occupied compared with 28.1% of occupied housing in Furnas County.[18]
- **Less occupied.** Approximately 31.7% of Beaver City's housing units were vacant compared to 21.0% of units in Furnas County.[18]

16 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.
17 United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://data.census.gov/cedsci/.
18 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Unoccupied housing may also suggest that future development may be less likely to occur. 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 flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

Over the past five years, the city has demolished nuisance properties. No housing or businesses were added over that time. According to 2018 American Community Survey estimates, Beaver City's population is declining. The local planning team attributed this to a lack of employment opportunities, a lack of housing, and an aging population. In the next five years, the city will continue to demolish unlivable dwellings. No housing developments or new businesses are planned at this time.

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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table BVR.2: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
366	$12,584,700	2	$20,970	0.5%

Source: County Assessor, 2018

Table BVR.3: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
366	$12,584,700	0	$0	0%

Source: County Assessor, 2018

Community Lifelines

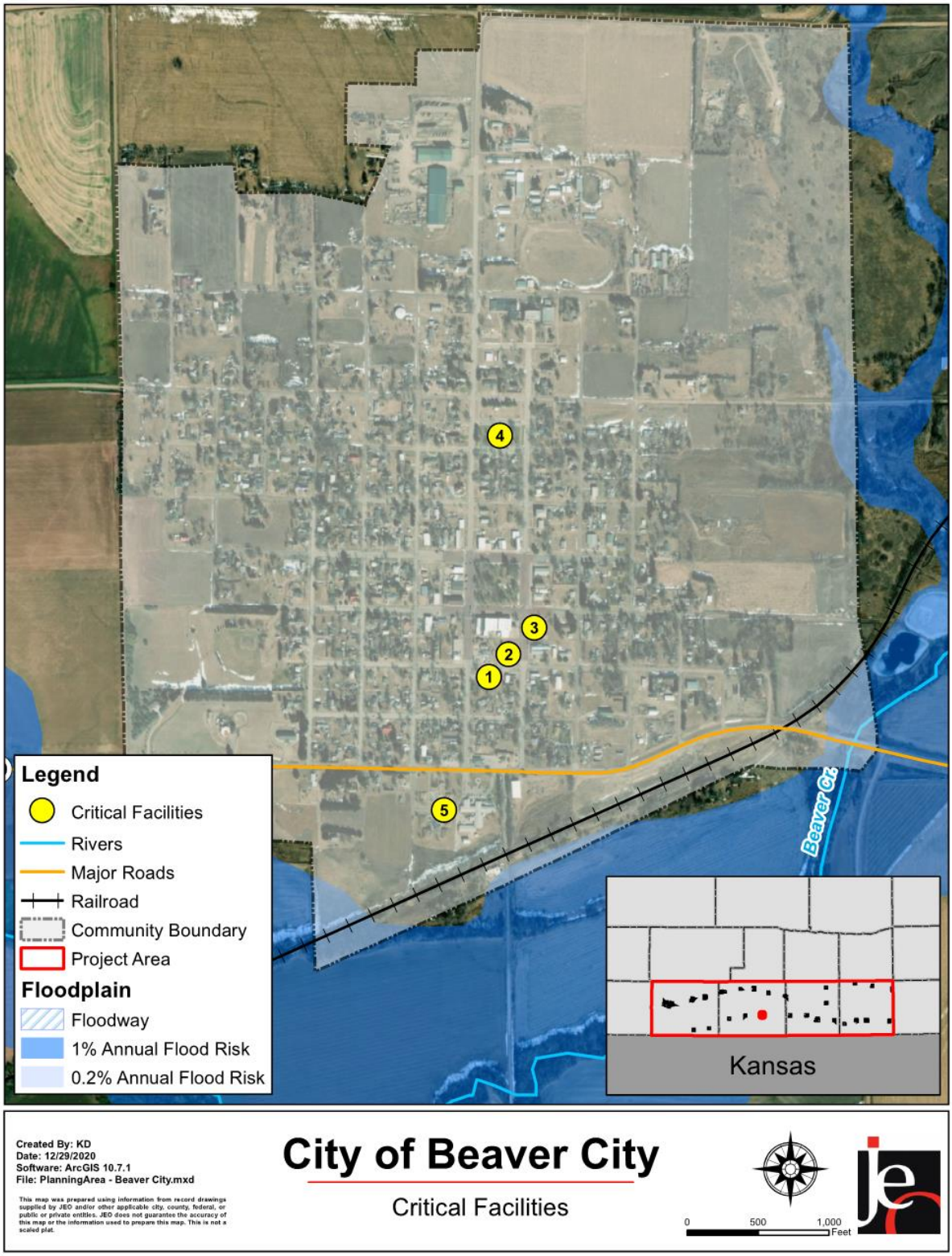
Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table BVR.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Ambulance Building	N	N	N
2	City Office/Fire Department	N	N	N
3	Community Building	N	N	N
4	Courthouse	N	Y	N
5	Light Plant	N	Y	N

Figure BVR.3: Critical Facilities



Historical Occurrences

See the Furnas 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the community. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Animal and Plant Disease

As a rural community, a large animal or plant disease outbreak near the city would cause economic impacts and affect employment. Past impacts include poor crop production and sick animals. Animals of most concern include cows and pigs as there are large concentrations of those animals northwest of the city. The extension office offers educational materials on agricultural disease and the county local emergency operations plan covers response in the event of an outbreak.

Drought

Drought is a regular occurrence for the city and the planning area. NCEI data indicates the region experienced drought 483 out 1,501 months between 1895 and 2019. The city has not reported any losses or water restrictions due to drought. Drought was named a top concern by the local planning team because this hazard can cause negative economic impacts to the local economy. The city does not have a drought monitoring board or drought plan. The city does not require native plantings or irrigation limits on residents. The city has sufficient water supply and is not looking for additional sources.

Extreme Heat

Extreme heat occurs several times a year in Beaver City. During extreme heat events, electricity needs can strain the electrical infrastructure resulting in power outages. Power outages during these extreme heat events can led to injuries and be potentially lethal to vulnerable populations. Extreme heat can also impact crops which could cause negative economic impacts to the local economy.

Grass/Wildfires

Grass and wildfires are a concern for the city during drought conditions. In 2017 a large grassfire took down the substation for the city. Beaver City's fire department has 23 volunteer firefighters. In order to reduce the occurrence of grass/wildfires, the city implements burning bans during periods of high winds, low precipitation, and drought.

Severe Thunderstorms

NCEI reported 18 severe thunderstorm (wind, lighting and rain) events and 31 hail events between January 1996 and December 2019 that resulted in $1,748,000 in property damage. The most damaging event occurred in 2000 when a thunderstorm wind event caused $1,000,000 in damages to homes and businesses. Other past impacts include tree damage, power line damage, and power outages. Most of the power lines in the city are above ground but the city works to keep trees trimmed around power lines. Power poles are also regularly updated to prevent breakage.

Severe Winter Storms

NCEI reported 93 severe winter storm events for Furnas County, including Beaver City. These storms resulted in $1,530,000 in property losses. Past heavy snow events have caused travel impacts and power outages. Snow removal is handled by the city using a road grader, plow truck, pay loader, skid steer, snow blower, and shovels. Equipment is sufficient for most events but is aging and needs to be replaced.

Tornadoes and High Wind

The NCEI reported three tornadoes near the city between January 1996 and December 2019. An F1 tornado in May 2004 caused $300,000 in property damage to farmstead outbuildings, a tractor, and row planters. Tornado sirens are set off remotely from the dispatch center at the courthouse in case of a tornado warning. There are no safe rooms or storm shelters in the community and citizens must find their own shelter. However, the community would a like a community storm shelter in the future. In the event of a disaster, mutual aid agreements are in place with neighboring communities.

Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Beaver City is governed by a city council; other governmental offices and departments are listed below.

- Utilities Department
- Clerk
- Mayor
- Volunteer Fire Department
- Volunteer EMS

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. Beaver City's municipal funds are limited to maintaining current facilities and systems and have stayed the same over recent years. The city has experience applying for grants and has been awarded grants from FEMA, Nebraska Game and Parks, Nebraska Investment Finance Authority, and USDA.

Table BVR.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	No

Survey Components/Subcomponents		Yes/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	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	Capital Improvement Plan/ 1- & 6-Year Plan	No
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural disaster or safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

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

Plan Integration

The City of Beaver City has several planning documents that discuss or relate to hazard mitigation. Each plan is listed below along with a short description of how it is integrated with the hazard mitigation plan. No other planning documents were identified during this process. The city will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Comprehensive Plan (2020)

The comprehensive plan is designed to guide the future actions of the city. It directs development away from the floodplain, encourages infill, directs development away from chemical storage sites, encourages clustering of development, directs housing away from major transportation routes, encourages the elevation of structures in the floodplain, and encourages preservation of open space. As it was recently completed, there are currently no plans to update the document.

Floodplain Regulations and Zoning Ordinance (2020)

The city's floodplain regulations and zoning ordinance outline where and how development should occur in the future. These documents contain floodplain maps, discourage development in the floodplain, limit density in the floodplain, identify floodplain areas as parks or open space, require more than one foot elevation above Base Flood Elevation, discourage development near chemical storage sites, discourage development along major transportation routes, include well setback requirements, and include the ability to implement water restrictions.

Furnas County Local Emergency Operations Plan (2019)

Beaver City is an annex in the Furnas County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years.

Water System Emergency Response Plan (2019)

A water system emergency response plan serves as a guideline for water operators and city administration to minimize the disruption of normal services to consumers and to provide public health protection during an emergency event. The document identifies several natural and manmade events and discusses the water system's response during those events.

Mitigation Strategy

The City of Beaver City has the administrative staff and technical and fiscal capabilities to implement some mitigation projects without assistance. Larger projects such as safe rooms or drainage improvements may require the city to partner with the county emergency management, Furnas County, LRNRD, and other regional and state agencies.

Continued Mitigation Actions

Mitigation Action	Public 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	General Budget
Timeline	2-5 Years
Priority	Low
Lead Agency	City Council, Fire Department, Emergency Manager
Status	Not Started.

Mitigation Action	Storm Shelters/Safe Rooms
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as schools, and critical facilities.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$4,500+
Funding	General Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	Utility Superintendent
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	$4,500+
Funding	General Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	Utility Superintendent
Status	Not Started.

Mitigation Action	Tree City USA
Description	Work to become a Tree City USA through the National Arbor Day Foundation in order to receive direction, technical assistance, and public education on how to establish a hazardous tree identification and removal program to limit potential tree damage and damages caused by trees in a community when a storm event occurs. The four main requirements include: 1) establishing a tree board; 2) enacting a tree care ordinance; 3) establishing a forestry care program; 4) enacting an Arbor Day observance and proclamation.
Hazard(s) Addressed	Severe Winter Storms, Severe Thunderstorms, Tornadoes and High Winds
Estimated Cost	$2,000
Funding	General Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	Clerk, City Council
Status	Not Started.

Removed Mitigation Actions

Mitigation Action	NFIP Continuation and Enforcement
Hazard(s) Addressed	Flooding
Reason for Removal	While the community will continue to participate and maintain compliance in the NFIP, this project is considered an ongoing action.

Community Profile

City of Cambridge

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table CMG.1: Cambridge Local Planning Team

Name	Title	Jurisdiction
David Gunderson	Mayor	City of Cambridge
Kandra Kinne	City Clerk/Treasurer	City of Cambridge
David Houghtelling	Utility Supervisor	City of Cambridge

Location and Geography

The City of Cambridge is in northwestern Furnas County and covers 1.3 square miles. Cambridge is the largest community in Furnas County. Two waterways are near the city. Medicine Creek flows through the north portion of the city and joins the Republican River south of the eastern city limits. The Republican River flows south of the city.

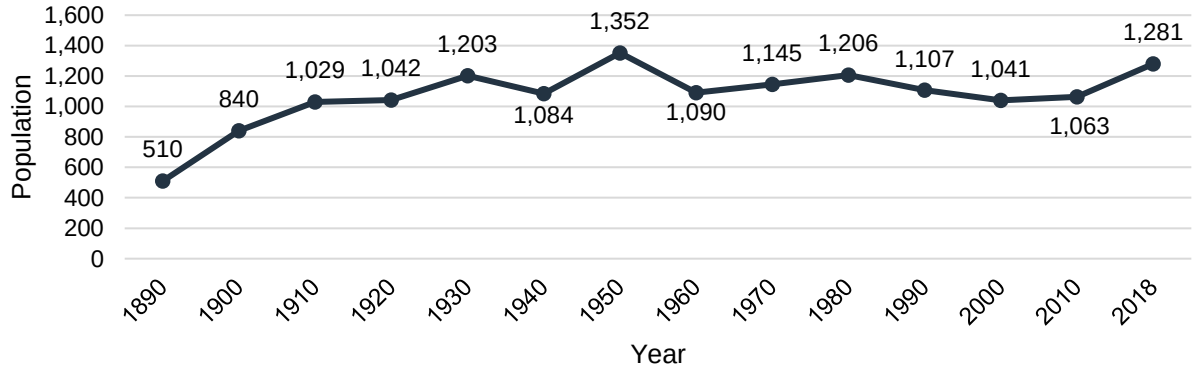
Transportation

Cambridge's major transportation corridors include State Highway 47 and US Highway 6. The most traveled route is Highway 6 with an average of 4,840 vehicles daily, 425 of which are trucks.[19] Fertilizer and other farm chemicals are transported along the highways and other local routes. The city has one Burlington Northern Santa Fe Railway and Amtrak line traveling east to west on the southern edge of the community. There is one heliport in the city and one airport located two miles northeast of the city. The transportation routes of most concern include both highways due chemical transportation and vehicle volume. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The City of Cambridge's population has been increasing since 2000 with around 1,281 people in 2018. Increasing populations are associated with increased hazard mitigation and emergency planning requirements for development. Growing populations also contribute to tax revenue, allowing communities to pursue additional mitigation projects. Cambridge's population accounted for 26.8% of Furnas County's population in 2018.[20]

Figure CMG.1: Population 1890 - 2018

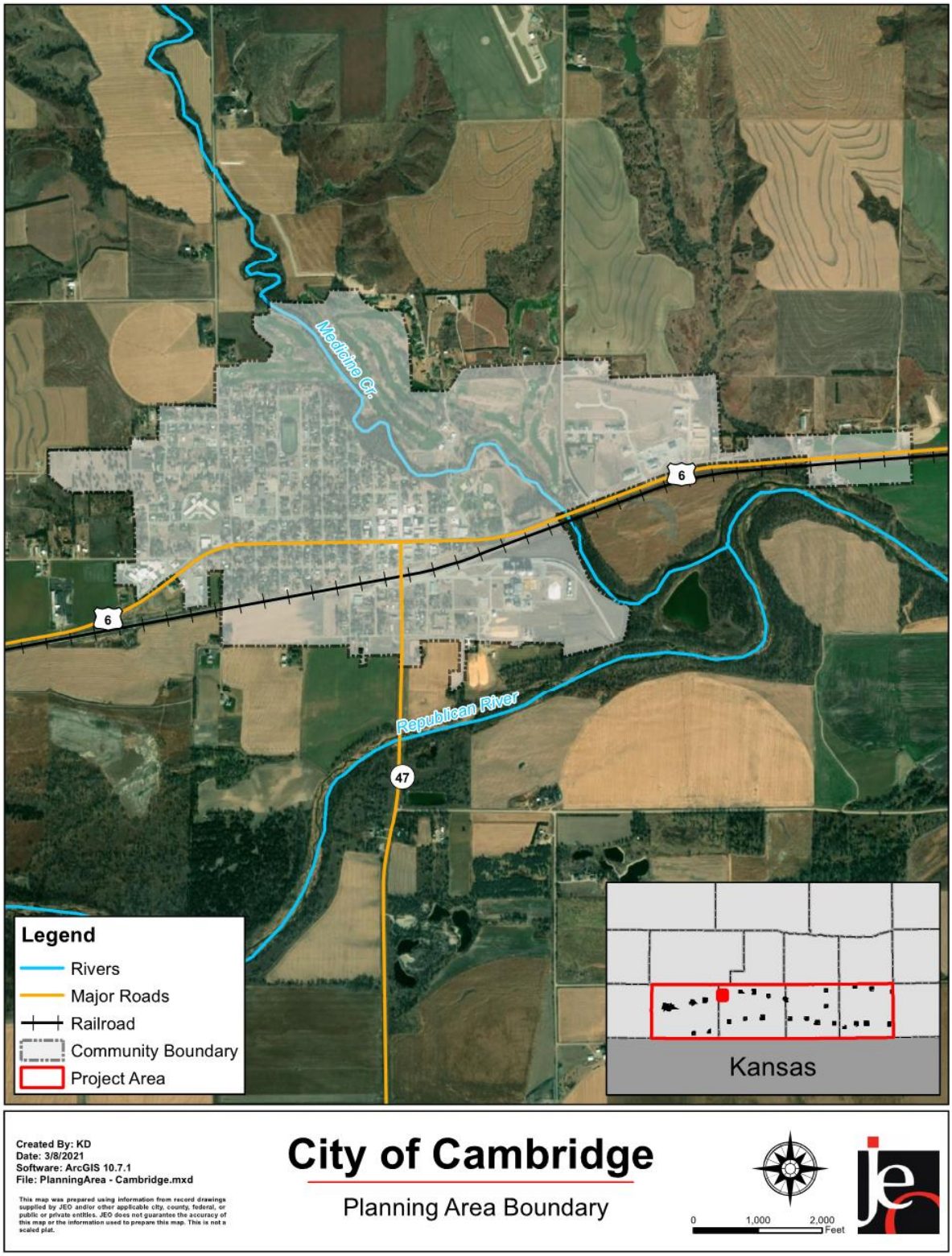


Source: U.S. Census Bureau

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

20 United States Census Bureau. 2018. "DP05: Demographic and Housing Estimates [database file]. https://data.census.gov/cedsci/.

Figure CMG.2: City of Cambridge



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

- **Slightly older.** The median age of Cambridge was 47.9 years old in 2018, compared with Furnas County's median of 46.5 years. Cambridge's population grew older since 2010, when the median age was 47.6 years old.[20]
- **Similarly ethnically diverse**. Since 2010, Cambridge grew more ethnically diverse. In 2010, 1.4% of Cambridge's population was non-white. By 2018, about 3.1% was non-white. During that time, the non-white population in the county grew from 3.1% in 2010 to 3.5% in 2018.[20]
- **Less likely to be below the federal poverty line.** The poverty rate in the City of Cambridge (8.1% of people living below the federal poverty line) was lower than the county's poverty rate (10.9%) in 2018.[21]

Employment and Economics

In comparison to Furnas County, Cambridge's economy had:

- **Different mix of industries.** Cambridge's major employment sectors, accounting for 10% or more of employment each, were transportation and education.[21]
- **Similar median household income.** Cambridge's median household income in 2018 ($48,977) was about $1,000 higher than the county ($47,989).[21]
- **More long-distance commuters.** About 71.3% of workers in Cambridge commuted for fewer than 15 minutes, compared with about 60.3% of workers in Furnas County. About 19.4% of workers in Cambridge commuted 30 minutes or more to work, compared to about 18.0% of county workers.[22]

Major Employers

Major employers in Cambridge include Tri-Valley Health System, Cambridge Public School, Twin Valleys Public Power District, Nebraska Corn Processers, Pinpoint Communications, and Anew Travel Center. The local planning team estimated that some residents commute to McCook for employment but more drive to Cambridge.

Housing

In comparison to Furnas County, Cambridge's housing stock was:

- **Newer.** Cambridge had a smaller share of housing built prior to 1970 than the county (69.1% compared to 73.4%).[23]
- **Less mobile and manufactured housing.** The City of Cambridge had a smaller share of mobile and manufactured housing (0.6%) compared to the county (1.7%).[23]
- **More renter-occupied**. About 29.9% of occupied housing units in Cambridge were renter-occupied compared with 28.1% of occupied housing in Furnas County.[23]
- **More occupied.** Approximately 11.3% of Cambridge's housing units were vacant compared to 21.0% of units in Furnas County.[23]

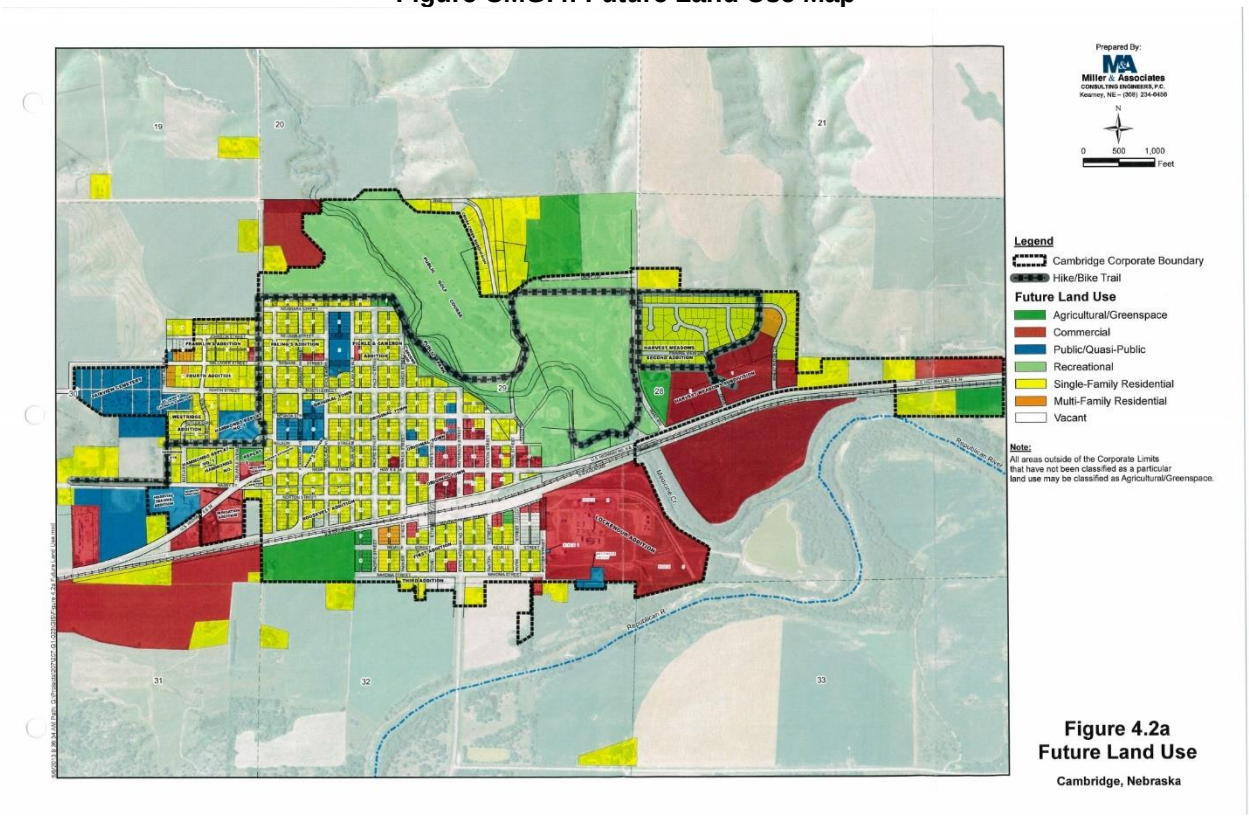
21 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.
22 United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://data.census.gov/cedsci/.
23 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if poorly maintained. Unoccupied housing may also suggest that future development may be less likely to occur. 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 flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

Over the past five years, several new businesses moved to Cambridge including Lifetime Eye Care, GTA Insurance, Medicine Creek Counseling, Country Touch Massage, H & H Photography, and two new feed and seed stores. In addition, four new houses were built, new streets were constructed in Harvest Meadows, and a new electrical feed was put into the ethanol plant. None of the new structures were developed in the floodplain. The zoning ordinance was also updated for the city. According to the 2018 American Community Survey estimates, Cambridge's population is growing. The local planning team attributed this to new housing opportunities and Tri Valley Health. In the next five years, additional houses are planned in the Harvest Meadows Subdivision. Figure CMG.3 shows the city's future land use map. New housing will be located in the northeastern corner of the community, while commercial will be located along the highway.

Figure CMG.4: 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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table CMG.2: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
532	$47,387,958	21	$10,377,565	3.9%

Source: County Assessor, 2018

Table CMG.3: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
532	$47,387,958	9	$143,700	1.7%

Source: County Assessor, 2018

Community Lifelines

Critical Facilities

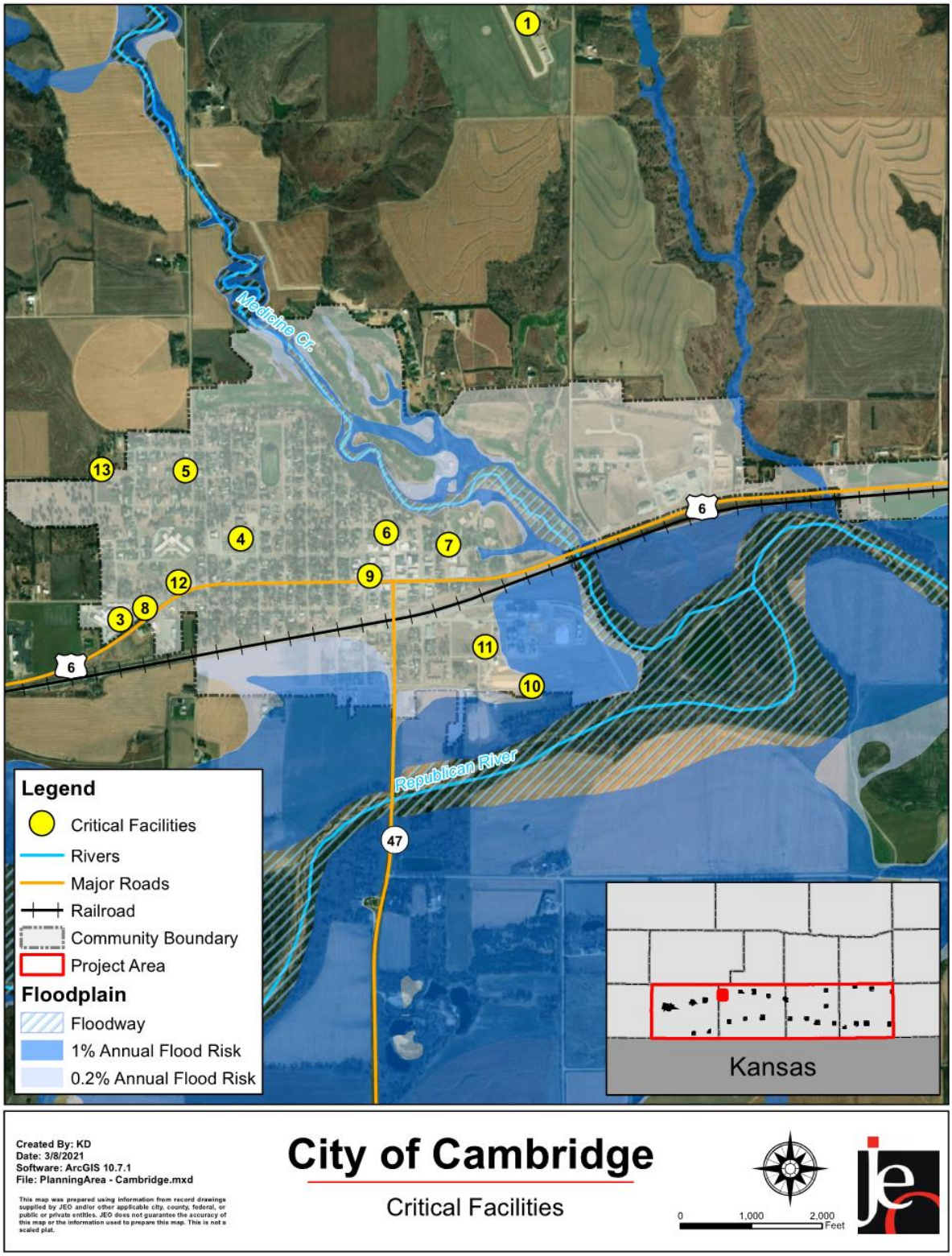
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster, per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table CMG.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Airport	N	N	N
2*	BIC Wells	N	Y	N
3	Cambridge Hospital	N	Y	N
4	Cambridge Public School	Y	N	N
5	City Generators/Substation #2	N	N	N
6	Community Building & City Office	Y	N	N
7	Fire Barn	N	N	N
8	Medical Clinic	N	Y	N
9	Power Plant	N	N	N
10	Sewer Plant	N	Y	N
11	Substation #1	N	N	N
12	Twin Valley Public Power	N	Y	N
13	Water Tower	N	N	N

**Not mapped but located east of the community near Bartley.*

Figure CMG.3: Critical Facilities



Historical Occurrences

See the Furnas 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the community. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Animal and Plant Disease

The primary concern related to animal and plant disease is the Emerald Ash Borer. The Emerald Ash Borer has not been found in the city but has been found nearby in Buffalo County and will likely spread across the state over the next five to ten years. There is not a large concentration of ash trees in Cambridge but there are trees scattered throughout the city. Cambridge does not currently have a plan to remove or treat affected ash trees.

Dam Failure

As seen in Figure CMG.4, the Medicine Creek Dam is located upstream of the community along Medicine Creek. The dam is owned and operated by the U.S. Bureau of Reclamation. Inundation maps are not shown for security reasons; however, the Furnas County Local Emergency Operations Plan (LEOP) indicates the affected area would be slightly greater than the 100-year floodplain. Dam failure has not occurred in the past. If a dam failure were to occur, the city would refer to the Furnas County LEOP for response protocol.

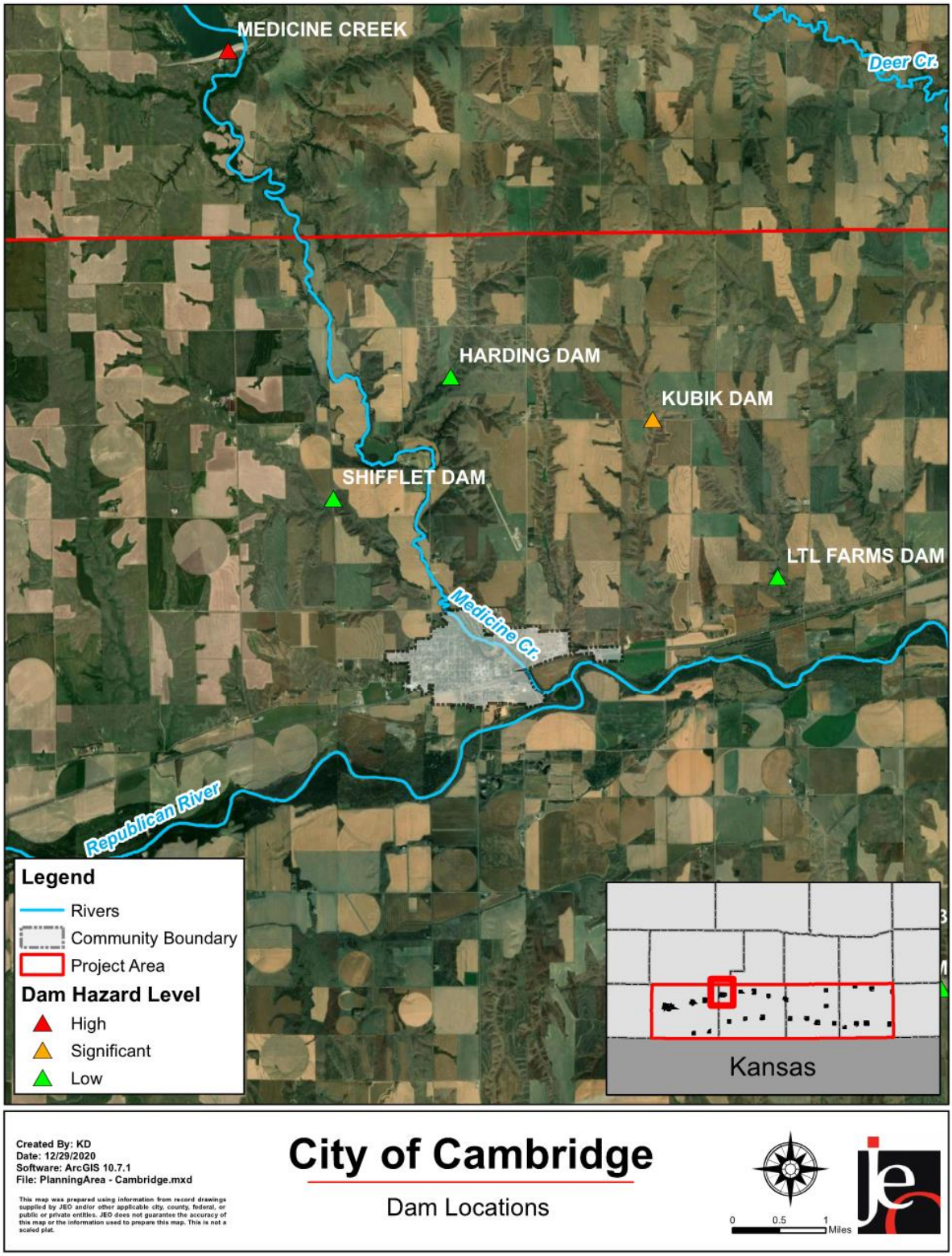
Drought

The NCEI reported that the planning area experienced 483 months in drought from 1895 to 2019. The city did not report any monetary losses from drought. The city does not have a drought monitoring board or drought plan but has a drought ordinance. The city monitors the water supply during drought and can implement voluntary water restrictions if necessary. Cambridge does not require native plantings of irrigation limits on residents. The city has sufficient water supply and is not looking for additional sources.

Flooding

There have been two recorded flood events for the City of Cambridge. Both were relatively minor and only caused $8,000 in damages when water ran over Highway 6 on the west side of the community. There are no repetitive flood loss properties in the City of Cambridge as of June 2020. Cambridge is a member of the NFIP. In addition to the flood risk areas, the southwest area of the city has poor storm water drainage that can cause localized flooding in that part of the city. The city regularly updates and enforces floodplain regulations. Since the last plan, Medicine Creek from the Republican River to the Medicine Creek Dam had trees removed from the creek so water would flow better. The city also completed downtown stormwater improvements and cleaned drainage ditch.

Figure CMG.4: Dam Locations



Levee Failure

One levee is located in the village. The Medicine Creek Levee is 0.55 mile in length and protects 144 people and 63 structures valued at $13.3 million. The levee is owned by the City of Cambridge. The levee does not provide 1% annual flood protection. The city has continued to remove trees from the levee so that roots do not cause issues. Figure CMG.5 shows the location of the levee and the levee protected area.

Severe Thunderstorms

NCEI reported 73 severe thunderstorm (wind, rain, hail, and lightning) events between January 1996 and December 2019 that resulted in $3,258,000 in property damage. The most damaging event occurred in June 2014 when wind and hail caused $2,000,000 in damages to buildings, trees, and power lines. Municipal facilities have insurance to reduce vulnerability. The city has surge protectors to protect devices that contain municipal records. The city's critical facilities have weather radios. Only one percent of power lines within the city are buried, which makes the community more vulnerable to power outages. However, the city recently added a second feed for power to the community and regularly removes trees near powerlines.

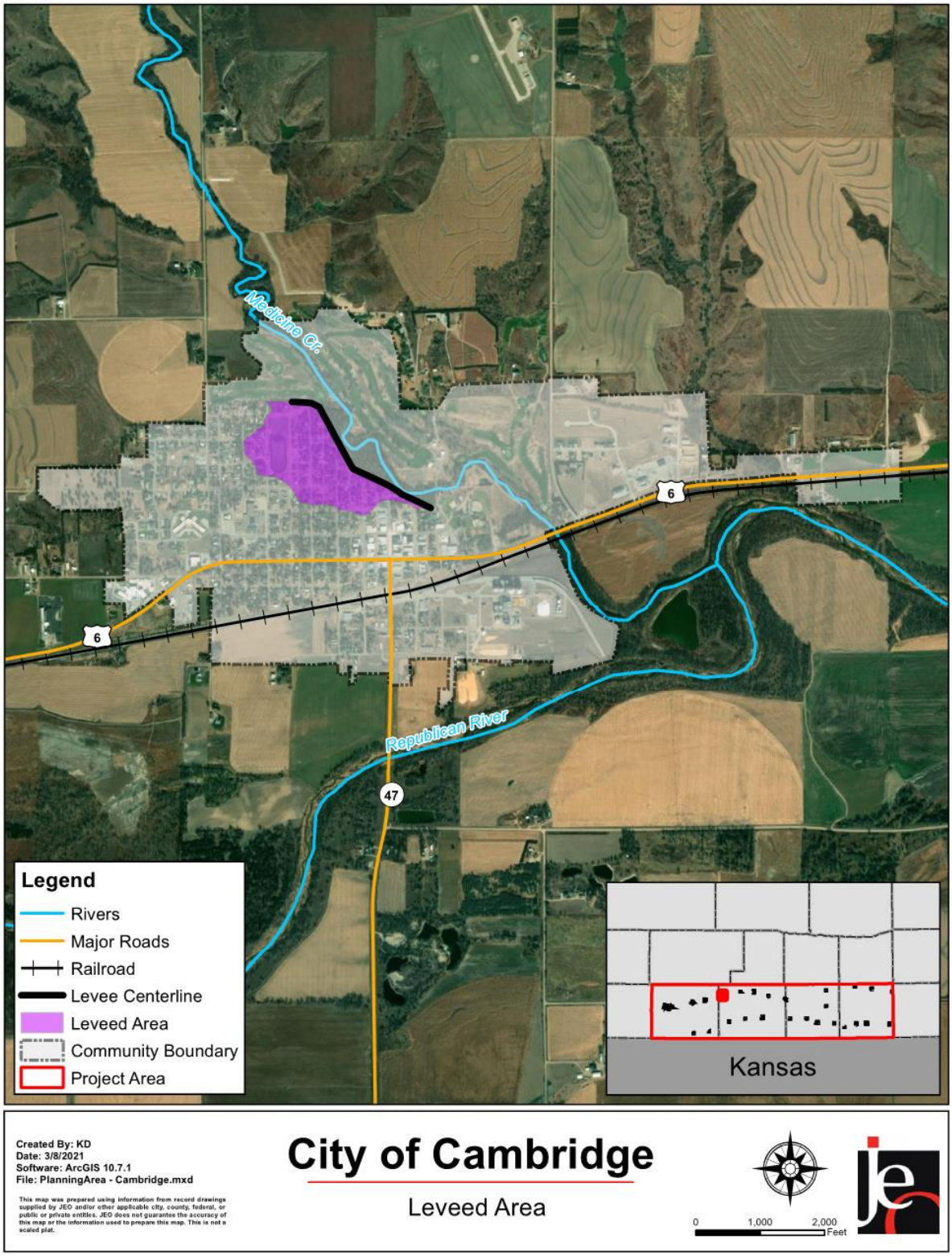
Severe Winter Storms

Severe winter weather occurs annually within Cambridge and the planning area. The city does not have designated snow routes and does not use snow fences. The streets in the city are cleared by city staff using trucks with blades, a road grader, skid steer, and dump trucks. Snow removal resources have been determined sufficient for the city for local events. However, as the city continues to grow additional equipment and staff may be necessary.

Tornadoes and High Winds

No tornadoes have been reported by the NCEI for the city. The city has taken steps to increase the community's resilience to tornadoes. The city backs up municipal records. The county offers text alerts to residents and pager alerts are available for fire department volunteers. Most residents can take shelter in their homes during tornadoes; residents can also seek shelter at the community center and hospital. There are no safe rooms in the community that would meet FEMA standards. Since the last plan, Cambridge has upgraded and installed new alert sirens.

Figure CMG.5: Leveed Area



Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Cambridge is governed by a mayor and city council; other governmental offices and departments are listed below.

- Clerk
- Economic Development
- Utilities
- Board of Health

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. Cambridge's municipal funds are limited to maintaining current facilities and systems and have decreased over recent years. The city has experience applying for grants and has been awarded grants in the past.

Table CMG.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	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	-
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	Yes
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-

Survey Components/Subcomponents		Yes/No
Fiscal Capability	Capital Improvement Plan/ 1- & 6-Year Plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural disaster or safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	Yes
	Other (if any)	-

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

Plan Integration

The City of Cambridge has several planning documents that discuss or relate to hazard mitigation. Each plan is listed below along with a short description of how it is integrated with the hazard mitigation plan. In addition, the city has a 2020 municipal code that provides regulations for the city. No other planning documents were identified during this process. The city will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Building Code

The building code sets standards for constructed buildings and structures. The city has adopted the 2018 International Building Codes with no amendments.

Comprehensive Plan (2013)

The comprehensive plan is designed to guide the future actions of the city. It contains goals aimed at safe growth, directs development away from the floodplain, encourages infill development, directs development away from chemical storage facilities, encourages clustering of development, directs housing and vulnerable populations away from major transportation routes, encourages elevation of structures located in the floodplain, and encourages the preservation of open space. There are currently no plans to update this document.

Floodplain Ordinance (2020), Zoning Ordinance (2020), and Subdivision Regulations (2020)

The city's floodplain regulations, zoning ordinance, and subdivision regulations outline where and how development should occur in the future. These documents contain floodplain maps, discourage development in the floodplain, limit population density in the floodplain, require more than one foot of elevation above Base Flood Elevation, discourage development near chemical storage sites, discourage development along major transportation routes, consider the wildland urban interface, include the ability to implement water restrictions, allow density transfers in subdivisions, and restrict the subdivision of land within the floodplain.

Furnas County Local Emergency Operations Plan (2019)

The City of Cambridge is an annex in the Furnas County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years.

Mitigation Strategy

The City of Cambridge has the administrative staff and fiscal capabilities to implement some mitigation projects without assistance. Larger projects such as safe rooms or drainage improvements may require the city to partner with the county emergency management, Furnas County, LRNRD, and other regional and state agencies.

Completed Mitigation Actions

Mitigation Action	Alert/Warning Sirens
Description	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or the placement of new sirens.
Hazard(s) Addressed	All Hazards
Status	Completed. New alert sirens were installed in 2015.

Mitigation Action	Civil Service Improvements
Description	Purchase an additional snowplow.
Hazard(s) Addressed	Severe Winter Storms
Status	Completed.

Mitigation Action	Floodplain Regulation Updates
Description	Update the city's floodplain regulations.
Hazard(s) Addressed	Flooding
Status	Completed.

Continued Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Provide a safe backup power supply for the community. There is a need to install two generators at the community building/city offices and fire barn.
Hazard(s) Addressed	All Hazards
Estimated Cost	$1,500,000
Funding	General Budget
Timeline	1 Year
Priority	Medium
Lead Agency	City Council, City Utilities, Twin Valleys Public Power District
Status	In Progress. The city has some backup power generators for critical facilities, but it is still needed for the fire barn and community building.

Mitigation Action	Power, Service, Electrical, and Water Distribution Lines
Description	Work with local Public Power District or electric department to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures to be less vulnerable to storm events. Electrical utilities should be required to use underground construction methods where possible for future installation of power lines.
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds, Drought
Estimated Cost	Unknown
Funding	General Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	Street Department
Status	Not Started.

Mitigation Action	Storm Shelters/Safe Rooms
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	Unknown
Funding	City Taxes, General Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	City Council, City Utilities
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	$232,000
Funding	General Budget, CDBG
Timeline	1 Year
Priority	High
Lead Agency	City Council
Status	In Progress. The city completed downtown stormwater improvements and cleaned out drainage ditches.

Removed Mitigation Actions

Mitigation Action	Designated Snow Routes
Hazard(s) Addressed	Severe Winter Storms
Reason for Removal	The city would like to focus on other projects.

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

Mitigation Action	Public Awareness/Education
Hazard(s) Addressed	All Hazards
Reason for Removal	The city would like to focus on other projects.

Mitigation Action	Weather Radios
Hazard(s) Addressed	All Hazards
Reason for Removal	The city would like to focus on other projects.

Community Profile

Village of Edison

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table EDN.1: Edison Local Planning Team

Name	Title	Jurisdiction
Kent Tidyman	Superintendent	Village of Edison
Todd Abraham	Chairman	Village of Edison

Location and Geography

The Village of Edison is in northeastern Furnas County and covers 173 acres. The Republican River flows south of the village.

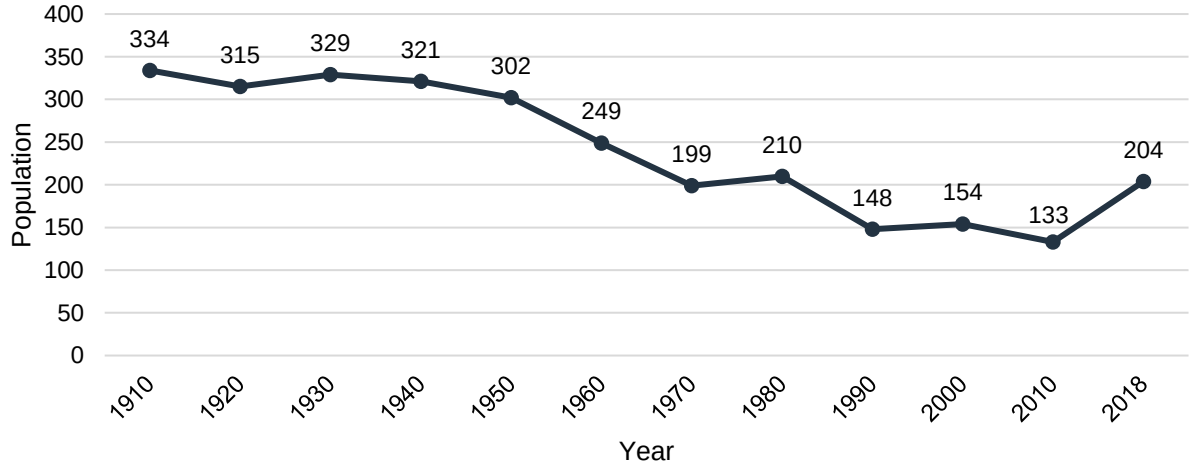
Transportation

Edison's major transportation corridor is US Highway 136. It is traveled by an average of 625 vehicles daily, 90 of which are trucks.[24] The village has one Burlington Northern Santa Fe Railway and Amtrak line traveling east to west on the northern edge of the community. Highway 136 is the route of most concern due to the high amount of traffic and the various chemicals that are carried on it. Chemicals from Ag Valley Co-op are also carried in and out of the facility on local routes. No large spills or accidents have occurred locally. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The Village of Edison's population has been increasing since 2010 with around 204 people in 2018. Increasing populations are associated with increased hazard mitigation and emergency planning requirements for development. Growing populations also contribute to tax revenue, allowing communities to pursue additional mitigation projects. Edison's population accounted for 4.3% of Furnas County's population in 2018.[25] However, the local planning team indicated that the population is likely staying the same or declining as of 2020.

Figure EDN.1: Population 1910 - 2018

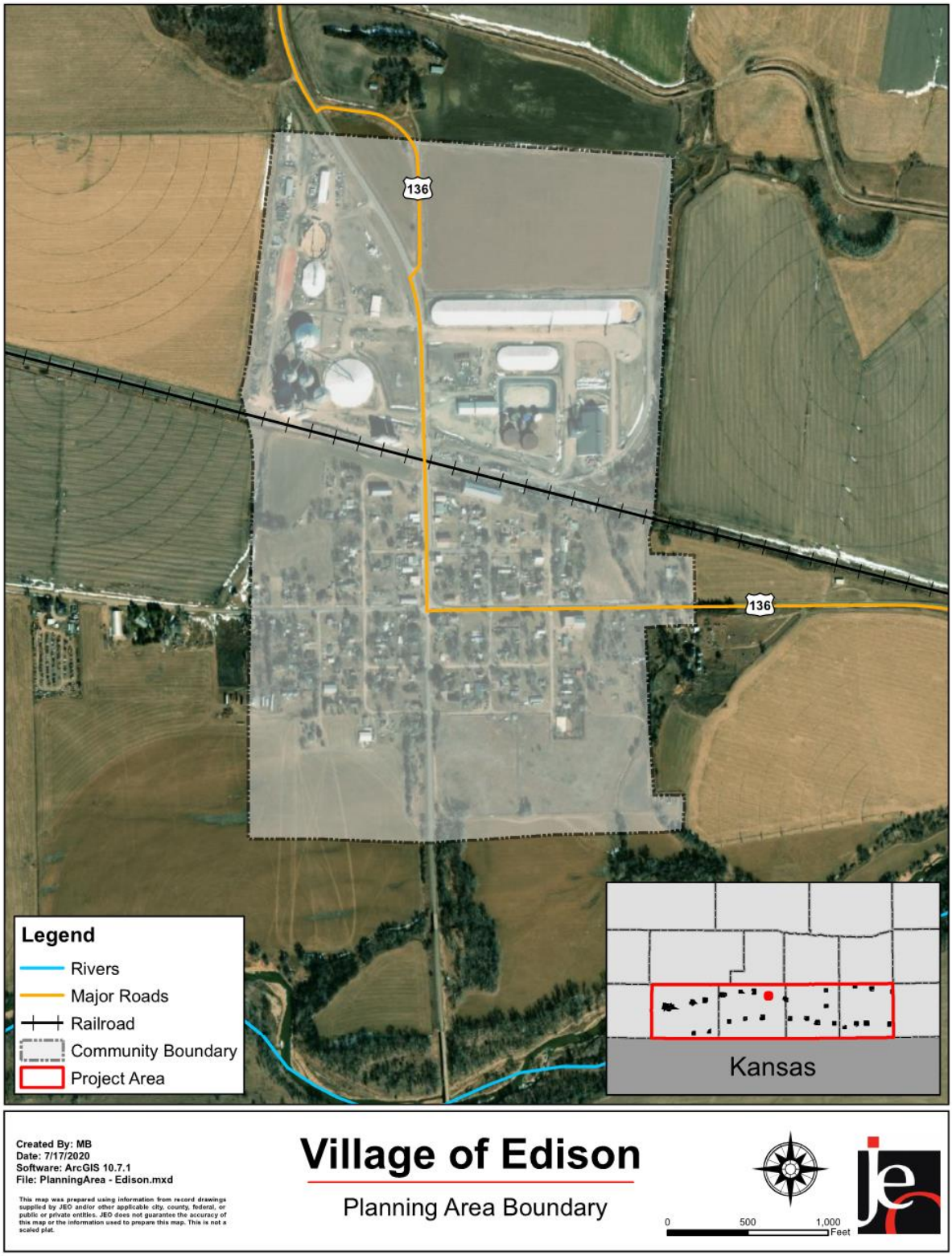


Source: U.S. Census Bureau

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

25 United States Census Bureau. 2018. "DP05: Demographic and Housing Estimates [database file]. https://data.census.gov/cedsci/.

Figure EDN.2: Village of Edison



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

- **Younger.** The median age of Edison was 37.2 years old in 2018, compared with Furnas County's median of 46.5 years. Edison's population grew younger since 2010, when the median age was 45.4 years old.[25]
- **Less ethnically diverse**. Since 2010, Edison became less ethnically diverse. In 2010, 2.3% of Edison's population was non-white. By 2018, about 1.5% was non-white. During that time, the non-white population in the county grew from 3.1% in 2010 to 3.5% in 2018.[25]
- **Much more likely to be below the federal poverty line.** The poverty rate in the Village of Edison (27.0% of people living below the federal poverty line) was higher than the county's poverty rate (10.9%) in 2018.[26]

Employment and Economics

In comparison to Furnas County, Edison's economy had:

- **Different mix of industries.** Edison's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, retail trade, education, and other services.[26]
- **Lower median household income.** Edison's median household income in 2018 ($32,188) was about $15,800 lower than the county ($47,989).[26]
- **Fewer long-distance commuters.** About 63.0% of workers in Edison commuted for fewer than 15 minutes, compared with about 60.3% of workers in Furnas County. About 6.7% of workers in Edison commuted 30 minutes or more to work, compared to about 18.0% of county workers.[27]

Major Employers

The Ag Valley Co-op is the only major employer in the community. The local planning team estimates that a major of residents commute to various other communities for employment.

Housing

In comparison to Furnas County, Edison's housing stock was:

- **Similarly aged.** Edison had a similar share of housing built prior to 1970 than the county (72.4% compared to 73.4%).[28]
- **Less mobile and manufactured housing.** The Village of Edison had a smaller share of mobile and manufactured housing (0.0%) compared to the county (1.7%).[28]
- **Less renter-occupied**. About 26.5% of occupied housing units in Edison were renter-occupied compared with 28.1% of occupied housing in Furnas County.[28] However, the local planning team reported two mobile homes in Edison.
- **More occupied.** Approximately 15.3% of Edison's housing units were vacant compared to 21.0% of units in Furnas County.[28]

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if it is poorly

26 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.
27 United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://data.census.gov/cedsci/.
28 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.

maintained. Unoccupied housing may also suggest that future development may be less likely to occur. 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. There are only two mobile homes located in 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 flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

No major changes have occurred during the last five years. No new houses or businesses were built. The local planning team indicated that the population in the community has declined in recent years. This is attributed to a lack of housing and work opportunities. In the next five years, no housing developments or businesses are planned at this time.

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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table EDN.2: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
105	$5,909,965	6	$4,684,295	5.7%

Source: County Assessor, 2018

Table EDN.3: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
105	$5,909,965	0	$0	0%

Source: County Assessor, 2018

Community Lifelines

Critical Facilities

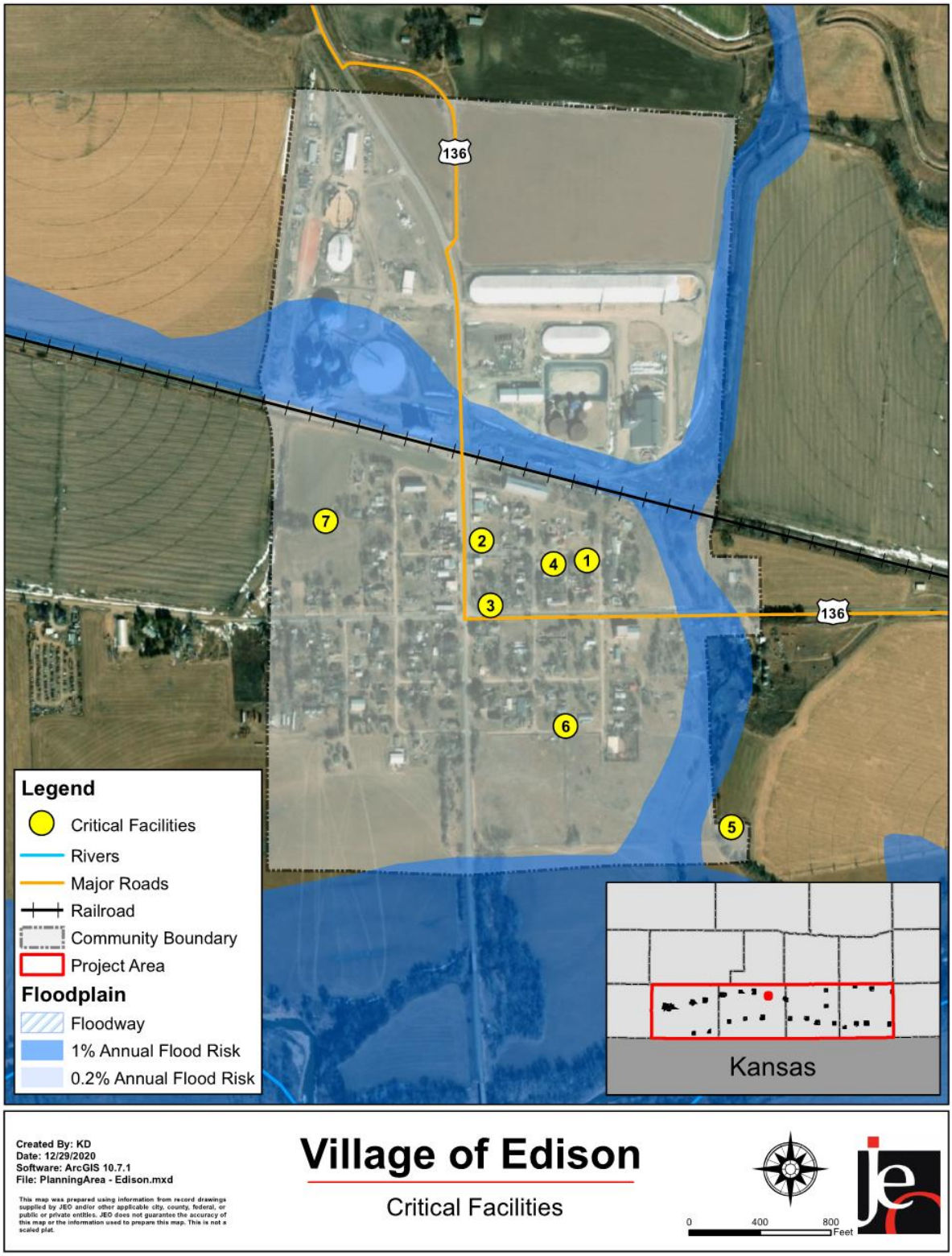
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table EDN.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Church	N	N	N
2	Community Building	N	N	N
3	Fire Hall	N	N	N
4	Post Office	N	N	N
5	Wastewater Plant	N	N*	N
6	Water Tower	N	N	N
7	Well	N	Y	N

**Plant has hook-ups available for a backup power generator.*

Figure EDN.3: Critical Facilities



Historical Occurrences

See the Furnas 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the community. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Flooding

Although not listed as a top hazard of concern by the local planning team, there is a floodplain within the community. It is primarily located along the eastern border and central portion of the community. NCEI data report four flooding events since 1996 causing $130,000 in property damages. The community does not participate in the NFIP.

Severe Thunderstorms

Severe thunderstorms occur several times annually in Edison and the planning area. The NCEI reported 46 thunderstorms in Edison since 1996 that have caused $535,000 in property damages. Past heavy rain events have also caused minor flooding in some areas of the community. Critical municipal records are protected with surge protectors on electronic devices. None of the powerlines in the village are buried, which causes an increased vulnerability of power loss. In the event of a power outage, the well has a backup generator and the wastewater treatment plant has hookups for a backup generator. Critical facilities in Edison are fitted with hail-resistant building materials. Despite this, critical facilities have been damaged by hail in the past. Municipal facilities are insured for hail damage. After a storm, the village superintendent helps residents clean up any damage. More equipment for storm cleanup and better drainage for stormwater is needed.

Severe Winter Storms

Severe winter weather occurs annually in Edison and the planning area. Severe winter weather can cause power outages resulting in dangerous conditions for vulnerable populations. After a winter storm, streets are cleared by a village tractor. Additional snow removal resources and better equipment is needed to help improve the timeliness of removal. In addition, equipment is needed to haul snow piles away from the center of the community. Past events have caused ice and water problems at intersections due to not removing the snow quick enough and large snow piles.

Tornadoes and High Wind

The NCEI reported one tornado in Edison since 1996. This brief tornado did not hit the village directly, only causing $8,000 in property damages to a rural farmstead. Tornadic events have the potential to cause significant damages and loss of life. Edison does not have a safe room within the community. Residents seeking shelter can go to the bank or church in the event of a tornado. However, the bank is only open from 8 am to 3 pm, Monday through Friday. The local planning team indicated that high wind events occur frequently within Edison. High wind events can cause significant damages to trees, powerlines, and buildings.

Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Edison is governed by a village board; other governmental offices and departments are listed below.

- Clerk
- Treasurer
- Utility Superintendent
- Health Board
- Nuisance Committee
- Fire Department

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. Edison's municipal funds are limited to maintaining current facilities and systems but have increased over recent years.

Table EDN.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)	-
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	No
	Mutual Aid Agreement	No
	Other (if any)	-

Survey Components/Subcomponents		Yes/No
Fiscal Capability	Capital Improvement Plan/ 1- & 6-Year Plan	No
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural disaster or safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

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

Plan Integration

The Village of Edison does not have any formal planning documents. However, the village is an appendix in the 2019 Furnas County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years. 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

The Village of Edison has limited fiscal capabilities and administrative support available for implementing mitigation projects. The village will continue to benefit from strong partnerships, such as with the county and LRNRD, and will need to explore outside funding assistance for project implementation. Edison has experience applying for grants and has been awarded some in the past.

Continued Mitigation Actions

Mitigation Action	Alert/Warning Sirens
Description	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens and remote activation where lacking.
Hazard(s) Addressed	All Hazards
Estimated Cost	$15,000+
Funding	General Budget
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board, Fire Department
Status	Not Started. The village is still seeking funding opportunities.

Mitigation Action	Emergency Response Plan
Description	Establish a Comprehensive Village Emergency Response Plan.
Hazard(s) Addressed	All Hazards
Estimated Cost	$6,000+
Funding	General Budget
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Sewer Project
Description	Update the sewer plant that is southeast of the village.
Hazard(s) Addressed	Flooding
Estimated Cost	$200,000+
Funding	General Budget, CDBG
Timeline	2-5 Years
Priority	High
Lead Agency	Utility Superintendent
Status	In Progress. The lift station has been rebuilt. Phase II should be completed by 2022.

Mitigation Action	Storm Shelters / Safe Rooms
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as schools, and other critical facilities.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$4,500+
Funding	Village Taxes, General Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board, Fire Chief
Status	Not Started. The village is still seeking funding opportunities.

Removed Mitigation Actions

Mitigation Action	Public Awareness/Education
Hazard(s) Addressed	All Hazards
Status	Removed. The village would like to prioritize other mitigation actions.

Community Profile

Village of Hendley

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table HND.1: Hendley Local Planning Team

Name	Title	Jurisdiction
Teresa Youngquist	Village Clerk	Village of Hendley

Location and Geography

The Village of Hendley is in central Furnas County and covers 134 acres. Beaver Creek runs west to east along Hendley's southern border.

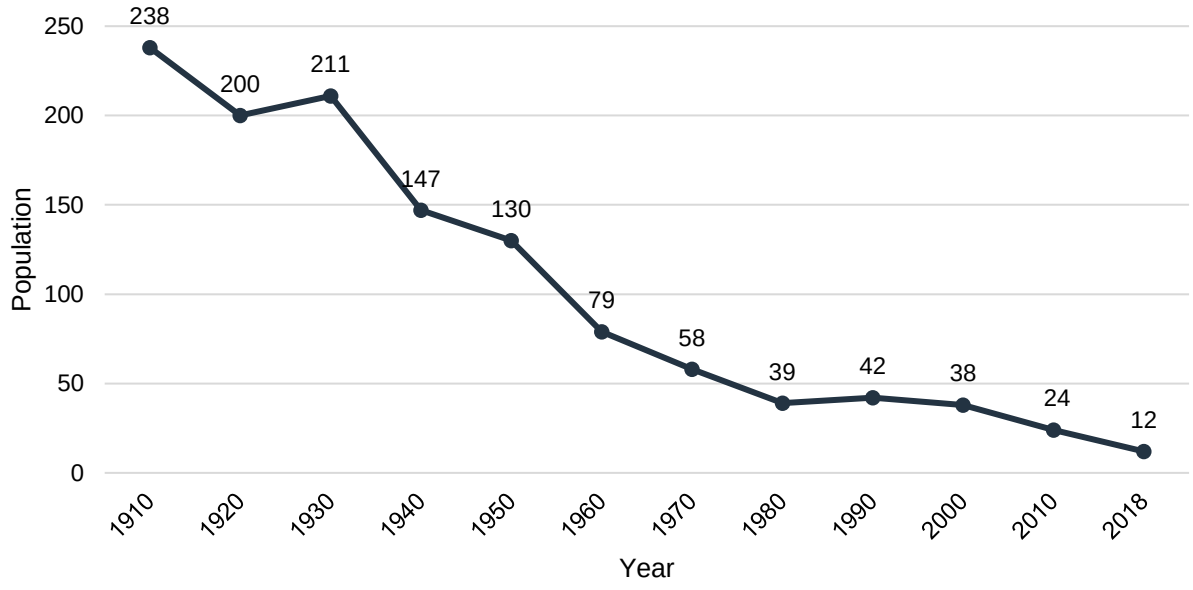
Transportation

Hendley's major transportation corridor is State Highway 89. It is traveled by an average of 410 vehicles daily, 65 of which are trucks.[29] Farm chemicals and fuel are regularly transported along local transportation routes. The village has one Nebraska Kansas Colorado Railway line traveling east to west on the southern edge of the community. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The Village of Hendley's population has been declining since 1990 to around 12 people in 2018. A declining population can lead to more unoccupied and unmaintained housing that is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which could make implementation of mitigation projects more fiscally challenging. Hendley's population accounted for 0.3% of Furnas County's population in 2018.[30]

Figure HND.1: Population 1910 - 2018

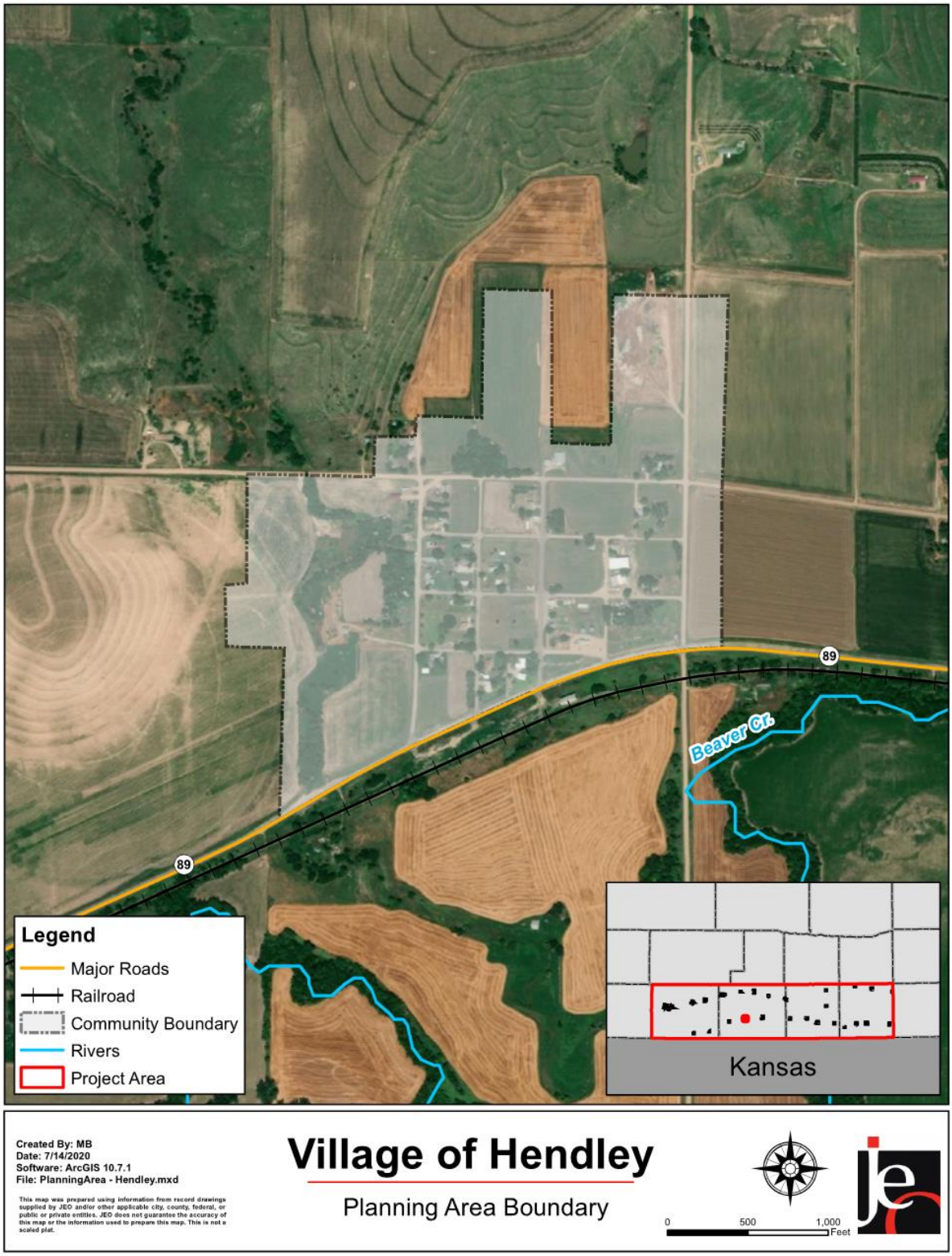


Source: U.S. Census Bureau

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. 2018. "DP05: Demographic and Housing Estimates [database file]. https://data.census.gov/cedsci/.

Figure HND.2: Village of Hendley



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

- **Older.** The median age of Hendley was 52.5 years old in 2018, compared with Furnas County's median of 46.5 years. Hendley's population grew younger since 2010, when the median age was 56 years old.[30]
- **Less ethnically diverse**. Since 2010, Hendley remained homogenous. In 2010 and 2018, 0% of Hendley's population was non-white. During that time, the non-white population in the county grew from 3.1% in 2010 to 3.5% in 2018.[30]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Hendley (8.3% of people living below the federal poverty line) was lower than the county's poverty rate (10.9%) in 2018.[31]

Employment and Economics

In comparison to Furnas County, Hendley's economy had:

- **Different mix of industries.** Hendley's major employment sectors, accounting for 10% or more of employment each, were: agriculture, retail trade, transportation, and education.[31]
- **Lower median household income.** Hendley's median household income in 2018 ($42,500) was about $5,500 lower than the county ($47,989).[31]
- **More long-distance commuters.** About 50% of workers in Hendley commuted for fewer than 15 minutes, compared with about 60.3% of workers in Furnas County. About 50% of workers in Hendley commuted 30 minutes or more to work, compared to about 18% of county workers.[32]

Major Employers

The major employer within Hendley is the hog farm. Many residents are employed by surrounding and nearby farms.

Housing

In comparison to Furnas County, Hendley's housing stock was:

- **Slightly newer.** Hendley had a smaller share of housing built prior to 1970 than the county (70% compared to 73.4%).[33]
- **More mobile and manufactured housing.** The Village of Hendley had a larger share of mobile and manufactured housing (5%) compared to the county (1.7%).[33]
- **Less renter-occupied**. About 20% of occupied housing units in Hendley were renter-occupied compared with 28.1% of occupied housing in Furnas County.[33]
- **Less occupied.** Approximately 50% of Hendley's housing units were vacant compared to 21% of units in Furnas County.[33]

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Unoccupied housing may also suggest that future development may be less likely to occur. Communities with a substantial number of mobile homes may be more vulnerable to the

31 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.
32 United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://data.census.gov/cedsci/.
33 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.

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 flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

Over the past five years, there have been no changes or new structures built in the community. According to the 2018 American Community Survey estimates, Hendley's population is declining. The local planning team attribute this to a lack of local businesses. In the next five years, no housing or business developments 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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table HND.2: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
33	$426,190	3	$22,180	9.1%

Source: County Assessor, 2018

Table HND.3: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
33	$426,190	0	$0	0%

Source: County Assessor, 2018

Community Lifelines

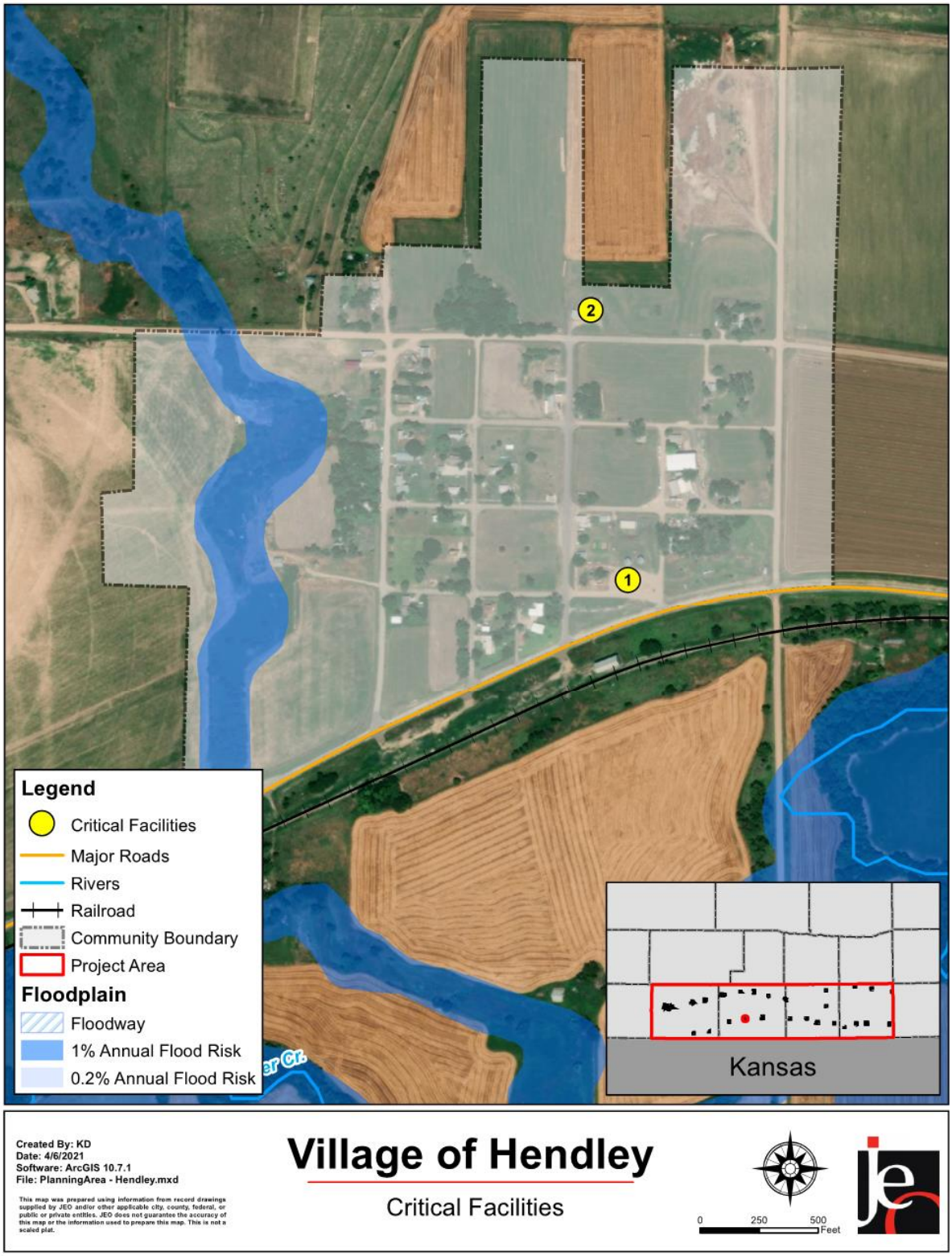
Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table HND.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	County Roads Shop	N	N	
2	School Building	N	N	

Figure HND.3: Critical Facilities



Historical Occurrences

See the Furnas 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the community. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Grass/Wildfires

The Village of Hendley is surrounded by dry farmland on all sides. If a grass/wildfire were to occur nearby, it would likely spread and affect most of the structures in the community. There is no fire department in the village; the closest is being Beaver City, which is seven miles away. This affects response times to fires. The Beaver City Fire Department has 23 volunteer firefighters and nine trucks. Controlled burns are done in surrounding areas to help reduce fuel loads. There are no ordinances or regulations regarding grass/wildfire in the community.

Flooding

Although not identified as top concern by the local planning team, there is floodplain located in the community. There was one reported flood event in 2007. It did not cause any damages in the village. Hendley does not participate in the NFIP.

Severe Thunderstorms

Hendley experienced a large hail event on Father's Day in 2014. The event resulted in damage to trees and buildings across the entire village, but no community-owned buildings were damaged. In the event of damage, community-owned buildings are insured. There are no backup generators, but power loss rarely occurs. Twin Valley provides electricity to the village. Trees are regularly trimmed to reduce the occurrence of power outages.

Severe Winter Storms

The primary concern regarding severe winter storms is transportation. There are no village employees, so snow removal is done by volunteer citizens using private equipment. Because of this, it takes a while to clear streets and there are concerns about emergency services being able to reach people. Hendley did not experience any issues from the extremely cold temperatures in February 2021. No damage to buildings has occurred from past winter storms.

Tornadoes and High Winds

Tornadoes have not impacted the village in the past, but the risk of tornadoes still exists. If a large-scale tornado were to go through the community, it would likely destroy most, if not all, structures. There is no safe room and residents must use private basements or interior rooms for shelter. There is no alert siren in the community, which leaves residents vulnerable during a storm. Village records are not backed up and are primarily on paper copies.

Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Hendley is governed by a village board and village clerk.

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 HND.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)	-
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	Capital Improvement Plan/ 1- & 6-Year Plan	No
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	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)	-

Survey Components/Subcomponents		Yes/No
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural disaster or safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

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

Plan Integration

The Village of Hendley does not have any formal planning documents. However, the village is an appendix in the 2019 Furnas County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years. 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

Hendley's municipal budget is limited to maintaining current facilities and systems and has stayed the same over recent years. Although a large portion of the budget is not dedicated to a specific project, the village will likely need assistance from grants to help pay for the projects listed below. The village would benefit from partnerships with state organizations and the county as they have not applied for grants in the past.

New Mitigation Actions

Mitigation Action	Alert/Warning Sirens
Description	Purchase and install a warning siren for the community.
Hazard(s) Addressed	Severe Thunderstorms, Tornadoes and High Winds
Estimated Cost	$15,000+
Funding	Donations, General Budget
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board, County EM
Status	Not Started.

Mitigation Action	Backup and Emergency Generators
Description	Provide a safe backup power supply for critical facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	Donations, General Budget
Funding	Donations, General Budget
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board, County EM
Status	Not Started.

Community Profile

Village of Holbrook

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table HLB.1: Holbrook Local Planning Team

Name	Title	Jurisdiction
Mark Weatherwax	Utility Superintendent	Village of Holbrook
Gary Metzger	Planning Committee	Village of Holbrook
Ken Cobb	Planning Committee	Village of Holbrook
Nancy Pemberton	Planning Committee	Village of Holbrook

Location and Geography

The Village of Holbrook is in northwestern Furnas County and covers 102 acres. The topographic region Holbrook lies in is the dissected plains. This hilly land has moderate to steep slopes and sharp ridge crests. They are remnants of the old plain eroded by water and wind. There is one waterway near the village. Deer Creek runs along the north and east of the village.

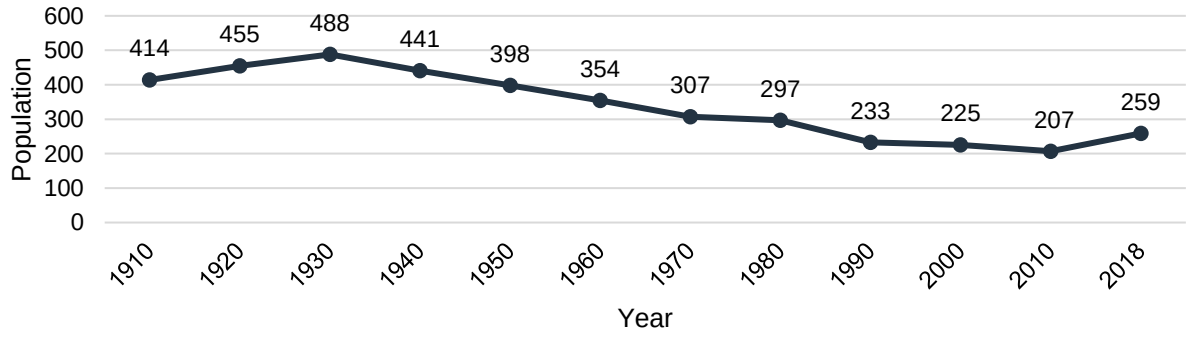
Transportation

Holbrook's major transportation corridor is State Highway 6. It is traveled by an average of 2,475 vehicles daily, 395 of which are trucks.[34] During planting and harvesting, there are high levels of traffic in the community. The village has one Burlington Northern Santa Fe Railway/Union Pacific and Amtrak line traveling east to west on the southern edge of the community. Fertilizers, fuel, and hazardous chemicals are regularly transported on Highway 6, Highway 34, Center Avenue, and the Burlington Northern Santa Fe rail line. No chemical spills have occurred locally, however there was a train derailment in the 1980s west of the village. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The Village of Holbrook's population has been increasing since 2010 to around 259 people in 2018. Increasing populations are associated with increased hazard mitigation and emergency planning requirements for development. Growing populations also contribute to tax revenues, allowing communities to pursue additional mitigation projects. Holbrook's population accounted for 5.4% of Furnas County's population in 2018.[35]

Figure HLB.1: Population 1910 - 2018

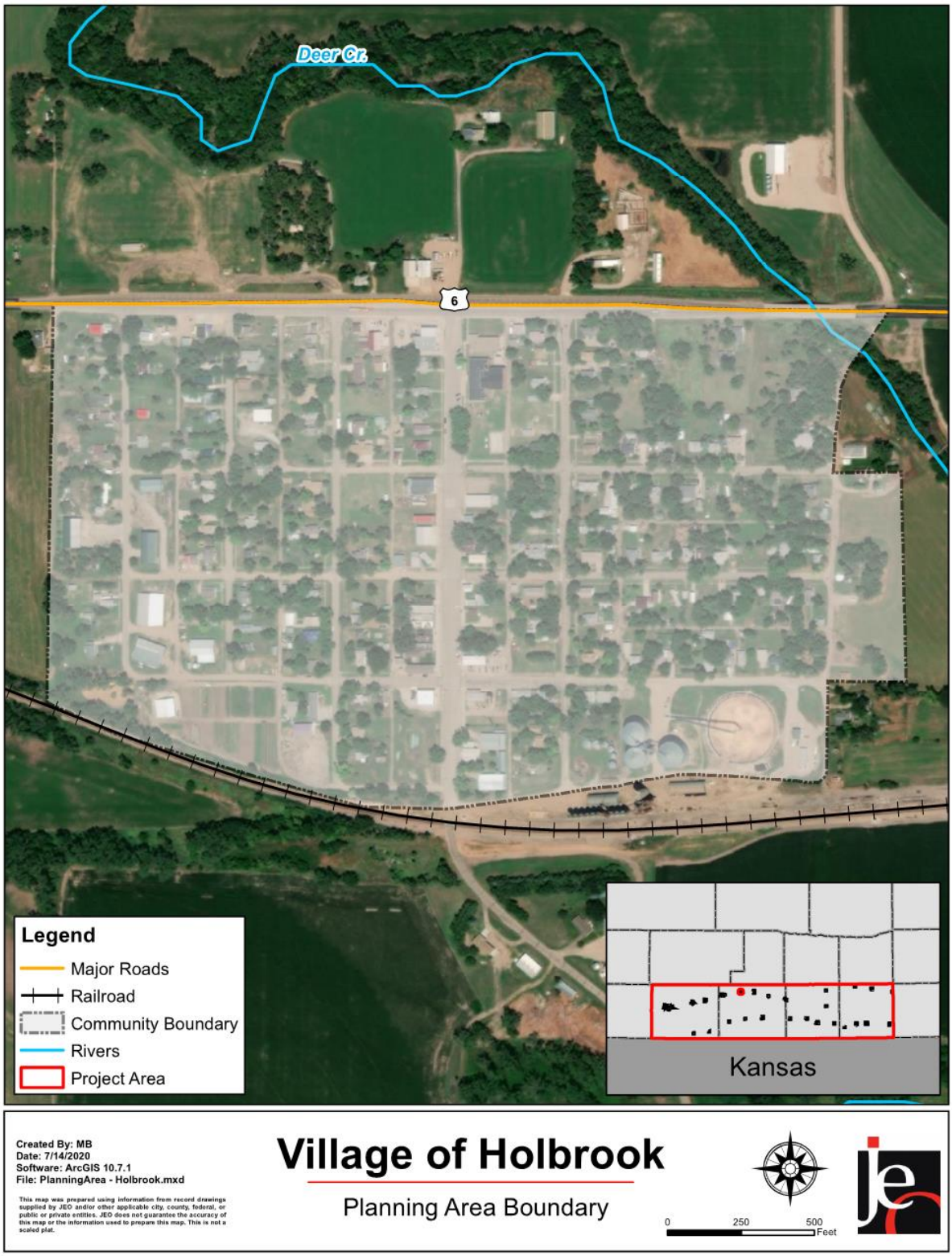


Source: U.S. Census Bureau

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

35 United States Census Bureau. 2018. "DP05: Demographic and Housing Estimates [database file]. https://data.census.gov/cedsci/.

Figure HLB.2: Village of Holbrook



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

- **Slightly younger.** The median age of Holbrook was 44.5 years old in 2018, compared with Furnas County's median of 46.5 years. Holbrook's population grew older since 2010, when the median age was 43.8 years old.[35]
- **More ethnically diverse**. Since 2010, Holbrook grew more ethnically diverse. In 2010, 2.4% of Holbrook's population was non-white. By 2018, about 6.6% was non-white. During that time, the non-white population in the county grew from 3.1% in 2010 to 3.5% in 2018.[35]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Holbrook (23.2% of people living below the federal poverty line) was higher than the county's poverty rate (10.9%) in 2018.[36]

Employment and Economics

In comparison to Furnas County, Holbrook's economy had:

- **Different mix of industries.** Holbrook's major employment sectors, accounting for 10% or more of employment each, were: agriculture, manufacturing, transportation, education, and entertainment.[36]
- **Similar median household income.** Holbrook's median household income in 2018 ($47,708) was about $300 lower than the county ($47,989).[36]
- **More long-distance commuters.** About 53.4% of workers in Holbrook commuted for fewer than 15 minutes, compared with about 60.3% of workers in Furnas County. About 26.4% of workers in Holbrook commuted 30 minutes or more to work, compared to about 18% of county workers.[37]

Major Employers

Major employers in Holbrook include Ag Valley Co-op, the Village of Holbrook, and Twin Valleys Public Power District. The local planning team estimates that 65% of residents commute to Arapahoe, Beaver City, Cambridge, Elwood, Holdrege, Lexington, and McCook for employment.

Housing

In comparison to Furnas County, Holbrook's housing stock was:

- **Older.** Holbrook had a larger share of housing built prior to 1970 than the county (91.6% compared to 73.4%).[38]
- **Without mobile and manufactured housing.** The Village of Holbrook no mobile and manufactured housing (0%) compared to the county (1.7%).[37]
- **Equally renter-occupied**. About 28.7% of occupied housing units in Holbrook were renter-occupied compared with 28.1% of occupied housing in Furnas County.[37]
- **Less occupied.** Approximately 29.4% of Holbrook's housing units were vacant compared to 21% of units in Furnas County.[37]

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if it is poorly

36 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.
37 United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://data.census.gov/cedsci/.
38 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.

maintained. Unoccupied housing may also suggest that future development may be less likely to occur. 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 flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

Over the past five years several older homes have been demolished. No new structures were built in the community. According to the 2018 American Community Survey estimates, Holbrook's population is growing. The local planning team attributed this to affordable housing and lower utility rates than surrounding communities. In the next five years, no housing or business developments 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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table HLB.2: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
158	$3,799,425	1	$250	0.6%

Source: County Assessor, 2018

Table HLB.3: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
158	$3,799,425	0	$0	0%

Source: County Assessor, 2018

Community Lifelines

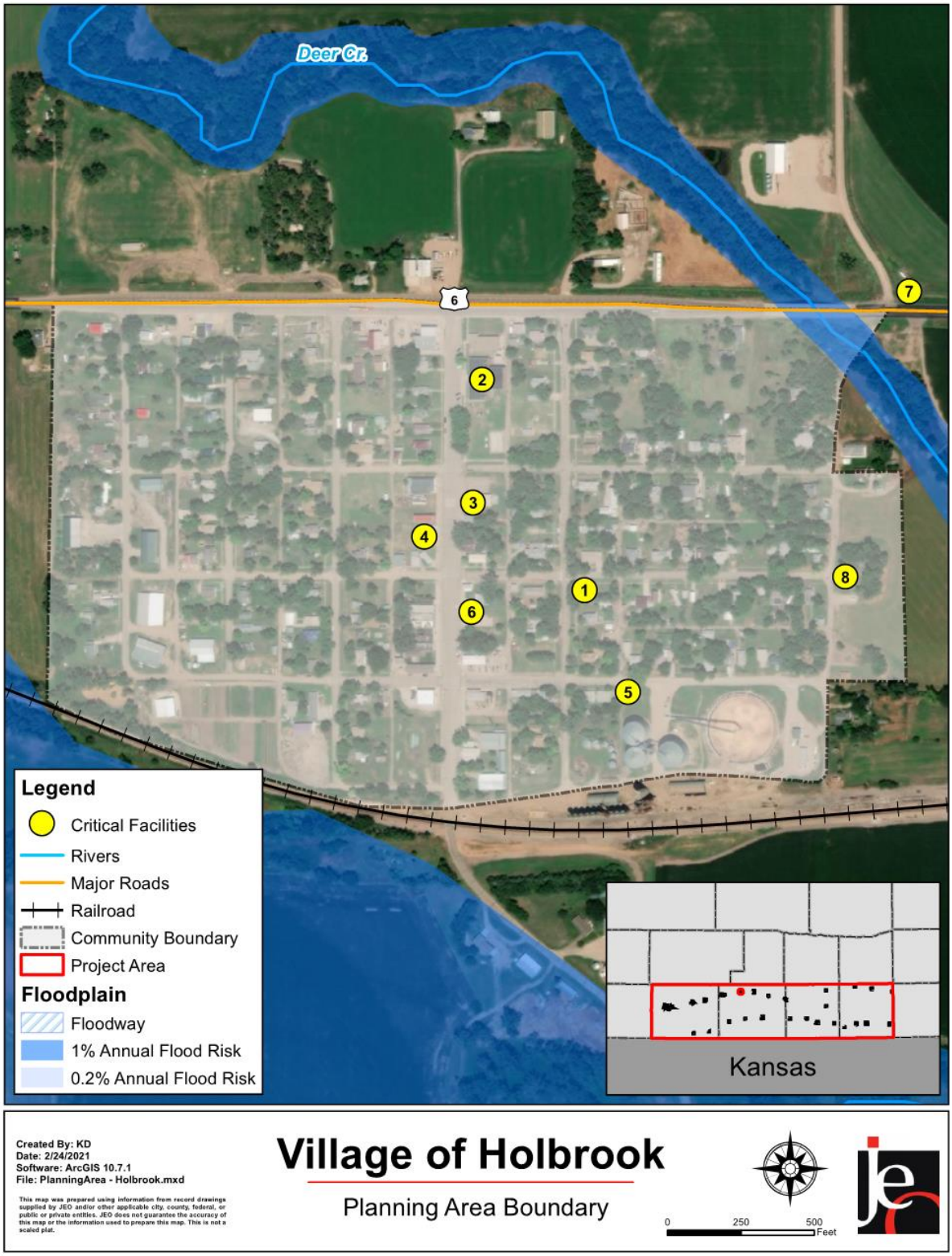
Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table HLB.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Baptist Church	N	N	N
2	Central Plains Development Center	N	N	N
3	Community Building	N	N	N
4	Fire and EMS Building	N	N	N
5	Sewer Lift Station	N	N	N
6	US Post Office	N	N	N
7	Water Control Station	N	N	N
8	Water Tower	N	N	N

Figure HLB.3: Critical Facilities



Historical Occurrences

See the Furnas 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the community. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the community's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Animal and Plant Disease

This hazard is a concern to Holbrook, as it is estimated that 95% of the village's income is from farming. The local planning team indicated that an occurrence of plant disease would also result in price increases for food. No occurrences of animal or plant disease have occurred near the village in the past. Both the Furnas County Agriculture and Furnas County Farm Services Agency provide educational materials on agricultural diseases.

Flooding

Flash flooding is a larger concern for the village although there is very little floodplain within the community. There are many unpaved roads that have been washed out due to flooding events in the past. Water flows east to west in Holbrook. Some residents have had minor flooding in their basements. A drainage study was conducted in January 2014; there are plans to replace the curb and gutter along Center Avenue to help improve stormwater drainage.

Grass/Wildfires

Wildfires occur frequently in the area outside of Holbrook, mostly due to farm equipment fires. In the spring of 2014, there was a large wildfire northeast of the village. During the fire, some fire suppression equipment stopped working, including a chainsaw. Much of the firefighters' equipment is out of date and needs to be updated, however a new fire truck was purchased since the last plan. The local planning team indicated that there is an abundance of fuel around the community, which increases the wildfire risk. The village does not have a Wildland-Urban Interface Code. In the future the village would like to recruit more volunteer firefighters and provide all local farmers and ranchers with education, fire extinguishers, and other fire suppression equipment.

Severe Thunderstorms

Every year in Holbrook, a thunderstorm causes power outages. None of the powerlines in the community are buried which leaves them susceptible to downed trees and limbs. Twin Valley Public Power operates the electrical grid in the community and trims trees around powerlines. Additional tree trimming is still needed. Holbrook has some clean-up equipment such as a backhoe to respond after a severe thunderstorm. A new bucket truck is needed as the city no longer has one. All community-owned buildings are insured for hail and wind damage. Past hailstorms have damaged residential roofs and siding. The village would like to add shelters over critical facilities to help against storm damage.

Tornadoes and High Winds

Tornadoes have the potential to cause severe property damage and loss of life. High wind events occur frequently in Holbrook. A past high wind event trapped a resident in their house due to a fallen tree. Holbrook lost its ambulance, and as such, EMT response time has severely increased.

There is no safe room in the community, but many houses have basements or cellars that can be used to shelter in place. In the future, the village would like to build a community storm shelter. Holbrook has a tornado siren and a Reverse 911 warning system. The community also has a chain of command emergency plan. If a disaster were to occur, mutual aid agreements are in place with neighboring communities.

Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Holbrook is governed by a village board; other governmental offices and departments are listed below.

- Clerk
- Fire Department
- EMT Squad
- Planning Commission
- Health Board
- Furnas County Sheriff
- Furnas County Emergency Manager

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 HLB.5: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	No
	Local Emergency Operations Plan	No
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	No
	National Flood Insurance Program	No
	Community Rating System	No
	Other (if any)	Water System Emergency Response Plan
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes

Survey Components/Subcomponents		Yes/No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Capital Improvement Plan/ 1- & 6-Year Plan	Yes
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural disaster or safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

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

Plan Integration

The Village of Holbrook has several planning documents that discuss or relate to hazard mitigation. Each plan is listed below along with a short description of how it is integrated with the hazard mitigation plan. No other planning documents were identified during this process. The village will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Capital Improvements Plan
The capital improvements plan lists projects the community would like to undertake in the future. Projects within the plan include stormwater improvements, upsizing culverts, and improving transportation routes for drainage.

Comprehensive Plan (2014)
The comprehensive plan is designed to guide the future actions of the village. It contains goals aimed at safe growth, directs development away from the floodplain, encourages infill, directs development away from chemical storage facilities, encourages the preservation of open space, and directs housing and vulnerable populations away from major transportation routes. This plan will be updated in 2024.

Furnas County Local Emergency Operations Plan (2019)
The Village of Holbrook is an annex in the Furnas County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years.

Water System Emergency Response Plan (2020)
A water system emergency response plan serves as a guideline for water operators and village administration to minimize the disruption of normal services to consumers and to provide public health protection during an emergency event. The document identifies several natural and manmade events and discusses the water system's response during those events.

Zoning Ordinance (2014)
The village's zoning ordinance outlines where and how development should occur in the future. It contains floodplain maps, limits population density in the floodplain, identifies floodplain areas as parks and open space, and discourages development along major transportation routes. This ordinance will be updated in 2024.

Mitigation Strategy
The Village of Holbrook has limited fiscal capabilities and administrative support available for implementing mitigation projects. The village will continue to benefit from strong partnerships, such as with the county and LRNRD, and will need to explore outside funding assistance for project implementation.

New Mitigation Actions

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. A bucket truck is needed to help clean up after a storm. The fire department is in need of updated equipment.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50,000+
Funding	General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board, Fire Department
Status	Not Started.

Mitigation Action	Hazardous Tree Removal
Description	Identify and remove hazardous trees and limbs.
Hazard(s) Addressed	Severe Thunderstorms, Tornadoes and High Winds, Severe Winter Storms
Estimated Cost	$500 per tree
Funding	General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board, Twin Valley Public Power
Status	In Progress. Twin Valley Public Power has trimmed trees around power lines, but additional trimming and removal is needed.

Mitigation Action	Storm Shelters/Safe Rooms
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as schools, and critical facilities.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$10,000+
Funding	General Fund
Timeline	5+ Years
Priority	Low
Lead Agency	Village Board
Status	Not Started.

Continued 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.
Hazard(s) Addressed	All Hazards
Estimated Cost	$20,000 - $50,000 per generator
Funding	General Fund, Private Entities
Timeline	2-5 Years
Priority	High
Lead Agency	Clerk, County Emergency Manager
Status	Not Started.

Mitigation Action	Participate in the NFIP
Description	Participate in the NFIP to allow residents to purchase flood insurance.
Hazard(s) Addressed	Flooding
Estimated Cost	Staff Time
Funding	Staff Time
Timeline	2-5 Years
Priority	Low
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Public 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. 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	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, Clerk, County Emergency Manager
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	$10,000 - $100,000+
Funding	General Fund
Timeline	5+ Years
Priority	Low
Lead Agency	Village Board
Status	Planning Stage. There are plans to replace the curb and gutters along Center Avenue.

Mitigation Action	Tree City USA
Description	Work to become a Tree City USA through the National Arbor Day Foundation in order to receive direction, technical assistance, and public education on how to establish a hazardous tree identification and removal program in order to limit potential tree damage and damages caused by trees in a community when a storm event occurs.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	$1,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, Clerk
Status	Not Started.

Removed Mitigation Actions

Mitigation Action	Stream Bank Stabilization/Grade Control Structure/Channel Improvements
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
Reason for Removal	The village would like to focus on other actions.

Community Profile

Village of Oxford

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table OXF.1: Oxford Local Planning Team

Name	Title	Jurisdiction
Duane Hoffman	Public Works Director/Floodplain Manager	Village of Oxford
Neal McInturf	Board Chairman	Village of Oxford
Clint McQuiston	Board Vice Chairman	Village of Oxford
Scott Hamilton	Board member	Village of Oxford

Location and Geography

The Village of Oxford is on the border of Furnas and Harlan Counties and covers 582 acres. The topographic region Oxford lies in is the dissected plains. This hilly land has moderate to steep slopes and sharp ridge crests. They are remnants of the old plain eroded by water and wind. There is one waterway near the village. The Republican River passes to the south of the village.

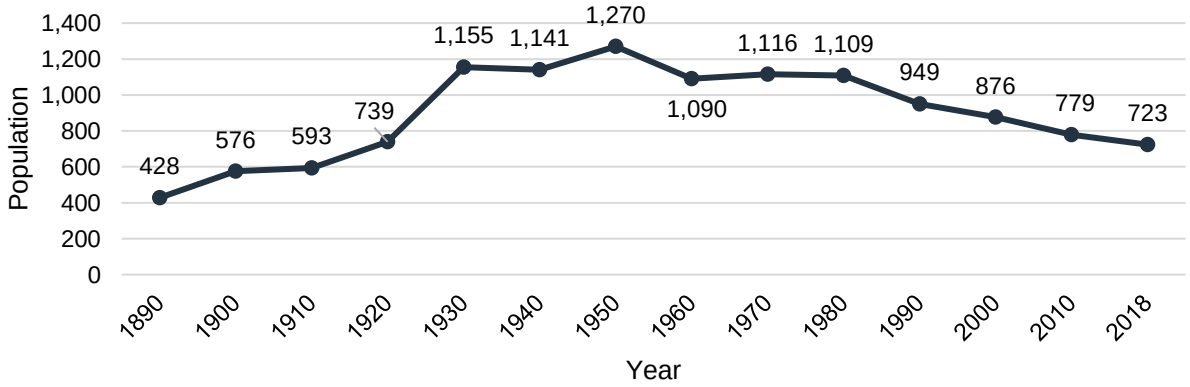
Transportation

Oxford's major transportation corridors include US Highway 136 and Nebraska Highway 46. The most traveled route is Highway 136 with an average of 1,410 vehicles daily, 125 of which are trucks.[39] The village has one Burlington Northern Santa Fe Railway/Amtrak line traveling east to west on the southern portion of the community. Both the highways and rail line regularly transport agricultural and a variety of other chemicals. No large spills have occurred for transportation routes. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The Village of Oxford's population has been declining since 1970 to around 723 people in 2018. A declining population can lead to more unoccupied and unmaintained housing that is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which could make implementation of mitigation projects more fiscally challenging. Oxford's population accounted for 21% of Harlan County's population in 2018.[40]

Figure OXF.1: Population 1890 - 2018

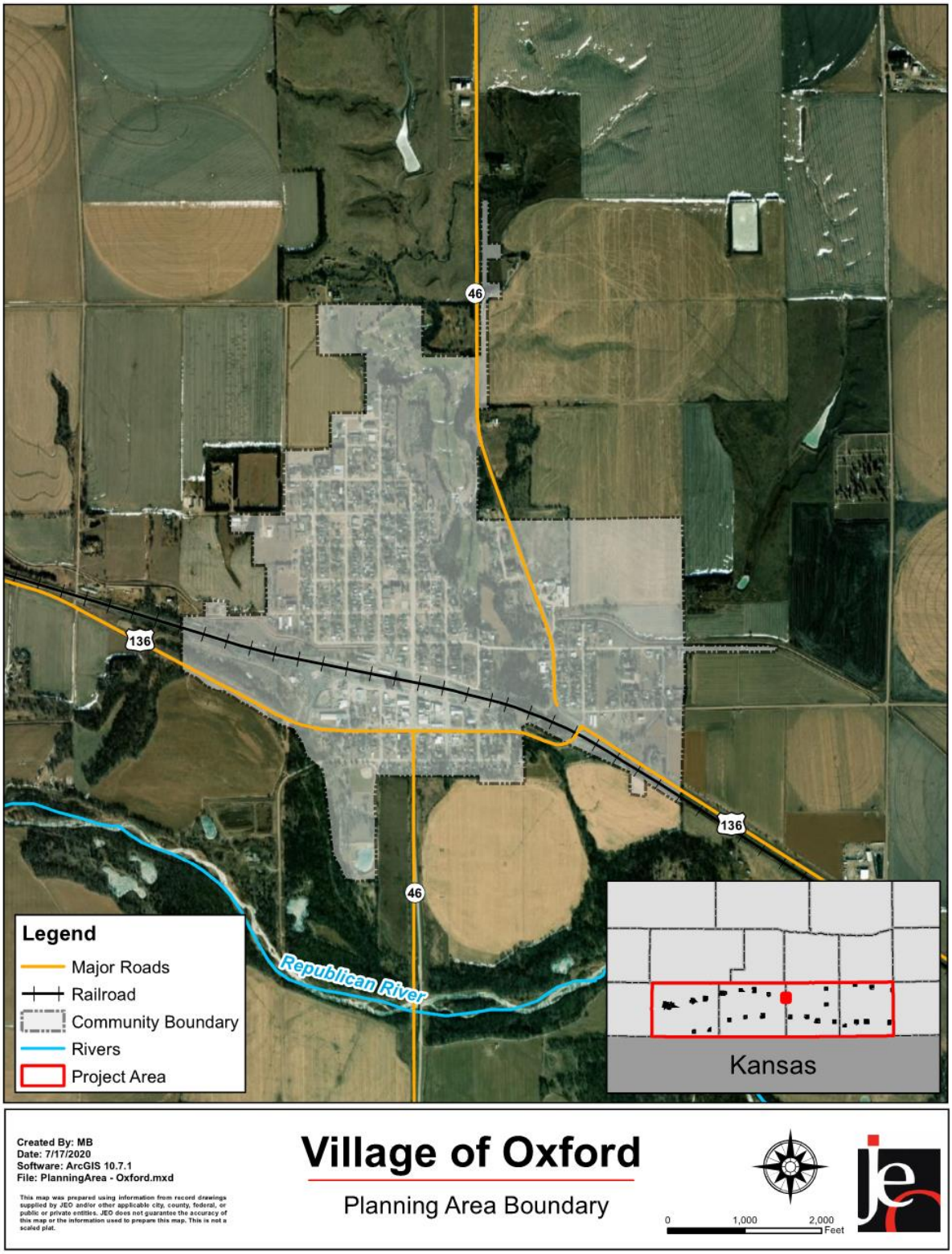


Source: U.S. Census Bureau

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

40 United States Census Bureau. 2018. "DP05: Demographic and Housing Estimates [database file]. https://data.census.gov/cedsci/.

Figure OXF.2: Village of Oxford



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

- **Younger.** The median age of Oxford was 45.5 years old in 2018, compared with Harlan County's median of 47.9 years. Oxford's population grew younger since 2010, when the median age was 46.2 years old.[40]
- **More ethnically diverse**. Since 2010, Oxford grew more ethnically diverse. In 2010, 4% of Oxford's population was non-white. By 2018, about 8.3% was non-white. During that time, the non-white population in the county grew from 1.6% in 2010 to 4.5% in 2018.[40]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Oxford (5.8% of people living below the federal poverty line) was lower than the county's poverty rate (11.2%) in 2018.[41]

Employment and Economics

In comparison to Harlan County, Oxford's economy had:

- **Different mix of industries.** Oxford's major employment sectors, accounting for 10% or more of employment each, were: agriculture, manufacturing, wholesale trade, retail trade, and education.[41]
- **Lower median household income.** Oxford's median household income in 2018 ($47,019) was about $3,300 lower than the county ($50,344).[41]
- **Fewer long-distance commuters.** About 53.9% of workers in Oxford commuted for fewer than 15 minutes, compared with about 58.8% of workers in Harlan County. About 14.9% of workers in Oxford commuted 30 minutes or more to work, compared to about 21.4% of county workers.[42]

Major Employers

Major employers in Oxford include Mid Nebraska Individual Services, Ag-Valley, Maashoffs, Nutrien, Southern Valley Schools, and the Oxford Locker. The local planning team estimates that 30% of residents commute to Holdrege, Southern Valley, Arapahoe, Kearney, or Edison for employment.

Housing

In comparison Harlan County, Oxford's housing stock was:

- **Older.** Oxford had a larger share of housing built prior to 1970 than the county (71.2% compared to 52.7%).[43]
- **No mobile and manufactured housing.** The Village of Oxford had a smaller share of mobile and manufactured housing (0%) compared to the county (22.9%).[43]
- **More renter-occupied**. About 29.9% of occupied housing units in Oxford were renter-occupied compared with 19.9% of occupied housing in Harlan County.[43]
- **More occupied.** Approximately 18.3% of Oxford's housing units were vacant compared to 36.2% of units in Furnas and Harlan County.[43]

41 United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. https://data.census.gov/cedsci/.
42 United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://data.census.gov/cedsci/.
43 United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. https://data.census.gov/cedsci/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Unoccupied housing may also suggest that future development may be less likely to occur. 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. As Oxford has no mobile or manufactured homes, this vulnerability does not exist. 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 flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

Over the past five years, the village has demolished substandard homes and paved Bright Street in east Oxford. No new structures were built during this time. According to the 2018 American Community Survey estimates, Oxford's population is declining. The local planning team attributes this to a lack of large-scale employment opportunities and less services available to aging residents. In the next five years, no housing developments or new industries are planned at this time.

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, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following tables.

Table OXF.2: Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
461	$19,298,160	13	$342,675	2.8%

Source: County Assessor, 2018

Table OXF.3: Parcel Improvements and Value in the 0.2% Annual Flood Risk Area

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain	Percentage of Improvements in Floodplain
461	$19,298,160	0	$0	0%

Source: County Assessor, 2018

Community Lifelines

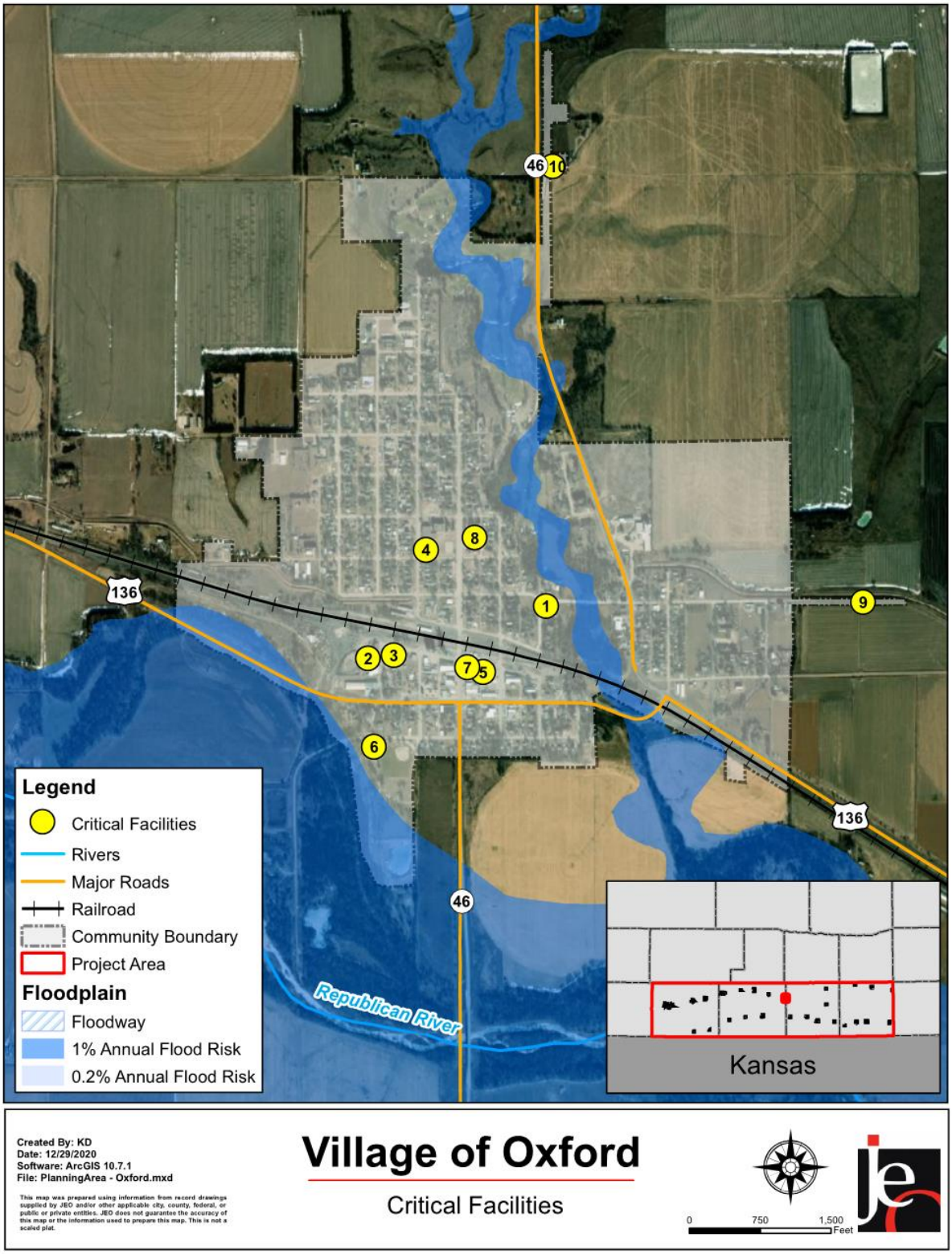
Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table OXF.4: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Bright Street Lift Station	N	N	N
2	Electric Light Plant	N	N	N
3	Fire Hall	N	N	N
4	Hilltop Event Center	N	N	N
5	Post Office	N	N	N
6	Sewer Lift Station	N	N	N
7	Village Office	N	N	N
8	Water Tower	N	N	N
9	Wells #5 & #6	N	N	N
10	Well #7	N	N	N

Figure OXF.3: Critical Facilities



Historical Occurrences

See the Furnas and Harlan County profiles 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the community. The planning team prioritized the selected hazards 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 Spills

Chemical spills along transportation routes were identified as a top concern by the local planning team. There are two highways that run through the village: US Highway 136 and NE Highway 46. A railway also passes through the southern portion of the village. Chemicals are regularly transported along these routes, but no spills have occurred in the past. The local response would have limited resources to contain a spill of hazardous materials. The village would like to create an evacuation plan that identifies places for people to meet if a spill occurred on the tracks. A trailer-mounted generator was also identified as a need.

Drought

The Village of Oxford relies heavily on the surrounding agricultural economy. A sustained drought would have severe economic consequences for the community. Oxford does not have a drought response plan. The water supply has been identified as sufficient; however, nitrates have been increasing over time and Well #5 is pumping 68°F water. The village would like a new quality well to address nitrate levels and a larger water tower for additional storage.

Flooding

The NCEI reported four flooding events for the Village of Oxford. The events caused $250,000 in damages to roadways. The Elgin Street Bridge and north Railway Bridge have overtopped with water three times in the last 15 years. During one of the events, a car attempted to cross the Elgin Street Bridge and floated into the ditch. The local planning team also indicated that the golf course experiences periodic flooding. Highway 46 has poor stormwater drainage in areas which floods a property on Oak Street. Oxford is a member of the NFIP and there are no repetitive flood loss properties in the village, as of 2020. The village would like to divert floodwaters from Highway 46 by digging a ditch from Highway 136 to the Republican River.

Grass/Wildfire

Wildfires are a common occurrence in nearby rural areas. The local planning team indicated that recent wildfires have been caused by farm machinery and hay bales catching fire. The community is concerned with a wind-driven fire spreading into the creek area through the village. Debris in the creek needs to be cleaned out to reduce the likelihood of this occurring. The local firefighting resources were determined to be sufficient to handle local events. The water supply was determined to be sufficient for local events.

Severe Thunderstorms

Severe thunderstorms occur several times a year in Oxford and throughout the rest of the planning area. The NCEI recorded 71 severe thunderstorm events from 1996 to 2019 that caused a total of $1,625,000 in property damage. The most damaging event occurred in September 2007 when 2.75-inch hail caused $500,000 in damages to structures and trees. Oxford experiences at least

one power outage per year, for approximately 30 minutes due to aging powerline infrastructure. Critical facilities need backup generators as none have them. It is estimated that five percent of Oxford's electrical lines are buried. The village is currently budgeting money to begin a powerline burying project.

Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The Village of Oxford is governed by a village board; other governmental offices and departments are listed below.

- Clerk/Treasurer
- Public Works
- Fire Chief
- Water/Wastewater Operator
- Sewer/Street/Water Commissioner
- Sheriff Department

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. Oxford's municipal budget is sufficient to pursue, but not complete, new capital projects and funds have moderately increased over recent years. The village has experience applying for grants and has been awarded them in the past.

Table OXF.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	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	Water System Emergency Response Plan, Wellhead Protection Plan
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No

Survey Components/Subcomponents		Yes/No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Capital Improvement Plan/ 1- & 6-Year Plan	No
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	-
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural disaster or safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	-

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

Plan Integration

The Village of Oxford has several planning documents that discuss or relate to hazard mitigation. Each plan is listed below along with a short description of how it is integrated with the hazard mitigation plan. In addition, the village has a 2008 comprehensive plan that has not been integrated with the hazard mitigation plan. No other planning documents were identified during

this process. The village will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Floodplain Regulations, Zoning Ordinance, and Subdivision Regulations (2008)

The village's floodplain regulations, zoning ordinance, and subdivision regulations outline where and how development should occur in the future. These documents contain floodplain maps, prohibit development in the floodplain, identify floodplain areas as parks or open spaces, and include well setback requirements.

Furnas County Local Emergency Operations Plan (2019)

The Village of Oxford is an annex in the Furnas County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information 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. This plan is updated every five years.

Water System Emergency Response Plan

A water system emergency response plan serves as a guideline for water operators and village administration to minimize the disruption of normal services to consumers and to provide public health protection during an emergency event. The document identifies several natural and manmade events and discusses the water system's response during those events.

Wellhead Protection Plan

The purpose of wellhead protection plans is to protect the public drinking water supply wells from contamination. It includes identifying potential sources of groundwater contamination in the area and managing the potential contaminant sources.

Mitigation Strategy

The Village of Oxford has limited fiscal capabilities and administrative support available for implementing mitigation projects. The village will continue to benefit from strong partnerships, such as with the county and LRNRD, and will need to explore outside funding assistance for project implementation.

Continued Mitigation Actions

Mitigation Action	Alert/Warning Sirens
Description	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens and remote activation where lacking.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$15,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Assess Vulnerability to Drought Risk
Description	The jurisdiction will review relevant plans and municipal systems to identify factors which may increase drought impacts or gaps in planning and service delivery. This may include but is not limited to: assessing water distribution system(s), reviewing well levels and identifying alternative water sources (if needed), examining water intensive consumers, review of water pricing structures, considering the need for municipal water meters, and other locally appropriate actions.
Hazard(s) Addressed	Drought
Estimated Cost	$2,000
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Public Works
Status	Not Started.

Mitigation Action	Backup and Emergency Generators
Description	Provide a safe backup power supply for critical facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, Fire Department
Status	Not Started.

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	CDBG, General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board, Fire Department
Status	Not Started.

Mitigation Action	Develop a Drought Management Plan
Description	Work with relevant stakeholders to develop a drought management plan. The drought management plan would identify water monitoring protocols, outline drought responses, identify opportunities to reduce water consumption, and establish the jurisdictional management procedures.
Hazard(s) Addressed	Drought
Estimated Cost	$5,000
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Public Works, 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 stormwater evaluation, identifying multiple problem areas, and potentially multiple drainage improvements for each.
Hazard(s) Addressed	Flooding
Estimated Cost	$10,000-$50,000
Funding	CDBG, General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Establish Formal Drought Response Protocols
Description	Establish a response protocol for times of drought. This may include, but is not limited to: lawn watering restrictions, requirements for water intensive businesses (i.e. car washes, golf courses, etc.) responses for local facilities (swimming pools, public fountains, etc.).
Hazard(s) Addressed	Drought
Estimated Cost	$2,000
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Public Works, Village Board
Status	Not Started.

Mitigation Action	Hazardous Tree Removal
Description	Identify and remove hazardous trees and limbs.
Hazard(s) Addressed	Severe Thunderstorms, Tornadoes and High Winds, Severe Winter Storms
Estimated Cost	$500 per tree
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board, Fire Department
Status	Not Started.

Mitigation Action	Incorporate Native Species into Municipal Landscapes
Description	Work to incorporate native species of plants into municipal landscapes when updates/improvements are implemented.
Hazard(s) Addressed	Drought, Extreme Heat
Estimated Cost	$2,000
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Public Works, Village Board
Status	Not Started.

Mitigation Action	Monitor Drought Conditions
Description	Establish specific drought monitoring protocols. These protocols will serve as triggers for implementing drought response actions.
Hazard(s) Addressed	Drought
Estimated Cost	Staff Time
Funding	Staff Time
Timeline	2-5 Years
Priority	Medium
Lead Agency	Public Works
Status	Not Started.

Mitigation Action	Power, Service, Electrical, and Water Distribution Lines
Description	Communities can work with their local Public Power Districts or Electric Department to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures to be less vulnerable to storm events. Electrical utilities shall be required to use underground construction methods where possible for future installation of power lines.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	$1.5 Million
Funding	General Fund
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board
Status	Planning Process. The village is currently budgeting for the action.

Mitigation Action	Public 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	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board
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 schools, and critical facilities.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$4,500+
Funding	General Fund
Timeline	2-5 Years
Priority	High
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Source Water Contingency Plan
Description	Evaluate and locate new sources of groundwater to ensure adequate supplies to support the existing community and any additional growth which may occur.
Hazard(s) Addressed	Drought
Estimated Cost	$5,000
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Public Works
Status	Not Started.

Mitigation Action	Stabilize/Anchor Fertilizer, Fuel, and Propane Tanks
Description	Anchor fuel tanks to prevent movement. If left unanchored tanks could present major threat to property and safety in a tornado or high wind event.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$1,000+
Funding	Private Funds, General Fund
Timeline	2-5 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 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	$10,000-$100,000+
Funding	CDBG, General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Stream Bank Stabilization/Grade Control Structure/Channel Improvement
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	$10,000-$100,000+
Funding	CDBG, General Fund
Timeline	5+ Years
Priority	Low
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Update Comprehensive Plan
Description	Update the comprehensive plan. Integrate plan with Hazard Mitigation Plan components.
Hazard(s) Addressed	All Hazards
Estimated Cost	$10,000+
Funding	General Fund
Timeline	2-5 Years
Priority	Medium
Lead Agency	Village Board
Status	Not Started.

Mitigation Action	Weather Radios
Description	Conduct an inventory of weather radios at critical facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50 per radio
Funding	General Fund
Timeline	2-5 Years
Priority	Low
Lead Agency	Village Board, Fire Department
Status	Not Started.

Removed Mitigation Actions

Mitigation Action	NFIP Continuation and Enforcement
Hazard(s) Addressed	Flooding
Reason for Removal	While the village will continue to maintain good standing in the NFIP by enforcing floodplain regulations, this is considered an ongoing project.

Mitigation Action	Tree City USA
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms, Severe Winter Storms
Status	The village would like to focus on other actions.

School District Profile

Arapahoe-Holbrook Public Schools

Quad Counties
Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table AHS.1: Arapahoe-Holbrook Public Schools Local Planning Team

Name	Title	Jurisdiction
George Griffith	Superintendent	Arapahoe-Holbrook Public Schools
Roger Powell	Furnas County Emergency Manager	Furnas County

Location

Arapahoe-Holbrook Public Schools is located in north-central Furnas County and serves two schools in one building. The school district provides services to students in the communities of Arapahoe, Holbrook, Edison, and a number of students who option into the district.

Transportation

Major transportation corridors in the district include US Highways 6/34, 136, and 283. The most traveled route is Highway 6/34 with annual average of 3,435 vehicles daily, 375 of which are trucks.[44] A Burlington Northern Santa Fe Railway/Amtrak line runs east to west directly south of Arapahoe and Holbrook. Transportation information is important to hazard mitigation plans because it suggests areas more at risk of transportation incidents. The district owns seven buses and transports approximately 114 students of which 90 the district is required to transport.

The BNSF Railway is a concern for possible spills of various chemicals. The intersection at US Highway 6/34 and 283 is an issue with the high number of vehicles and lack of a stop light. A stop light would provide a safe crosswalk for students to walk to school from south of US Highway 6/34. Currently the district has to transport students who live south of the highway. County roads can also cause issues as they are not always maintained and wash out from time to time.

Demographics

Page 4 displays the historical student population trend starting with the 2005-06 school year and ending with the 2019-20 year. It indicates that the student population has been relatively stable since 2005. There are 351 students enrolled in the district.[45] The district anticipates little change in student population in the coming years.

44 Nebraska Department of Roads. 2018. “Interactive Statewide Traffic Counts Map.” https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.

45 Nebraska Department of Education. October 2020. “2019-2020 Education Profile for District: Arapahoe Public Schools.” https://nep.education.ne.gov/snapshot.html#33-0018-000.

Figure AHS.1: Arapahoe-Holbrook Public Schools

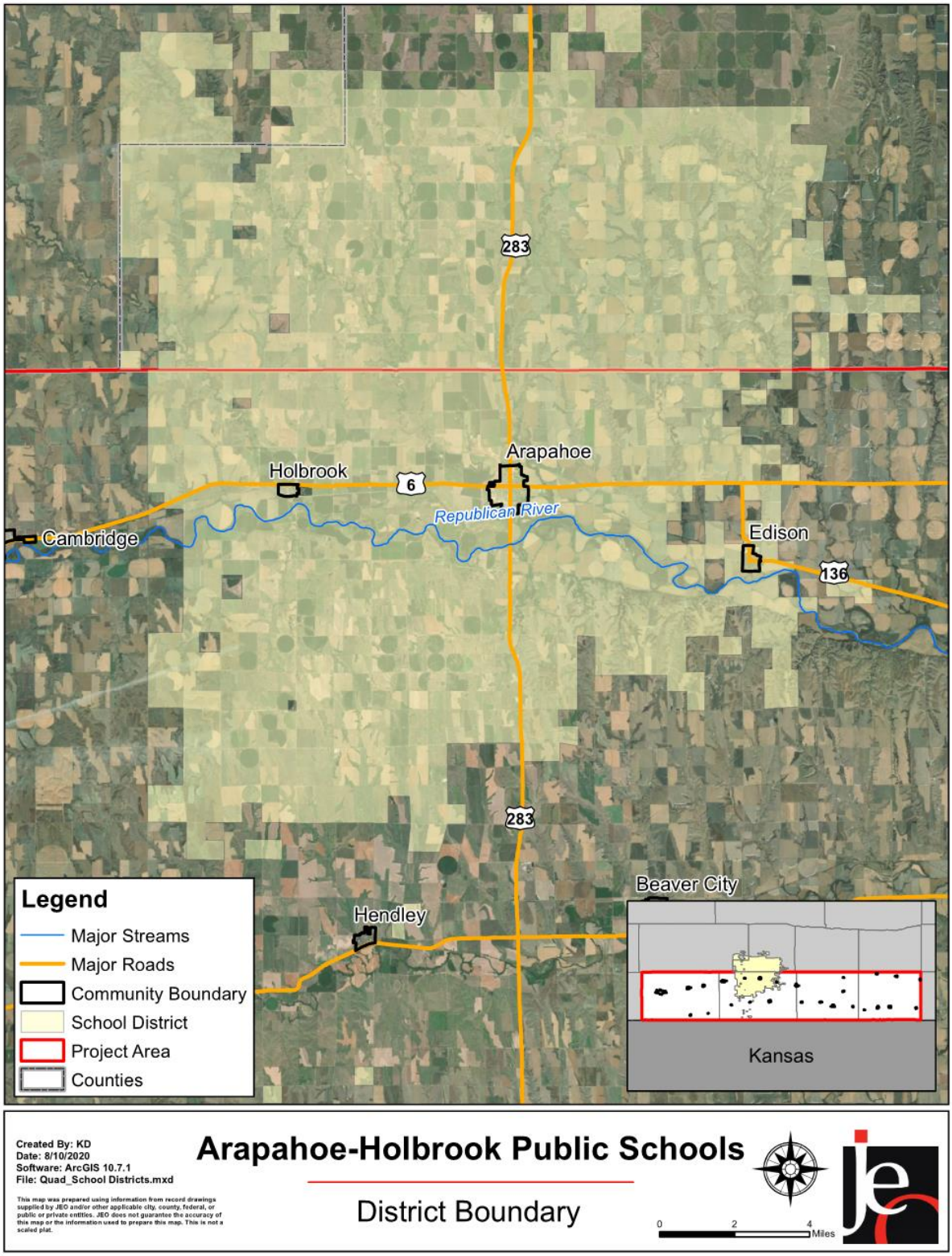
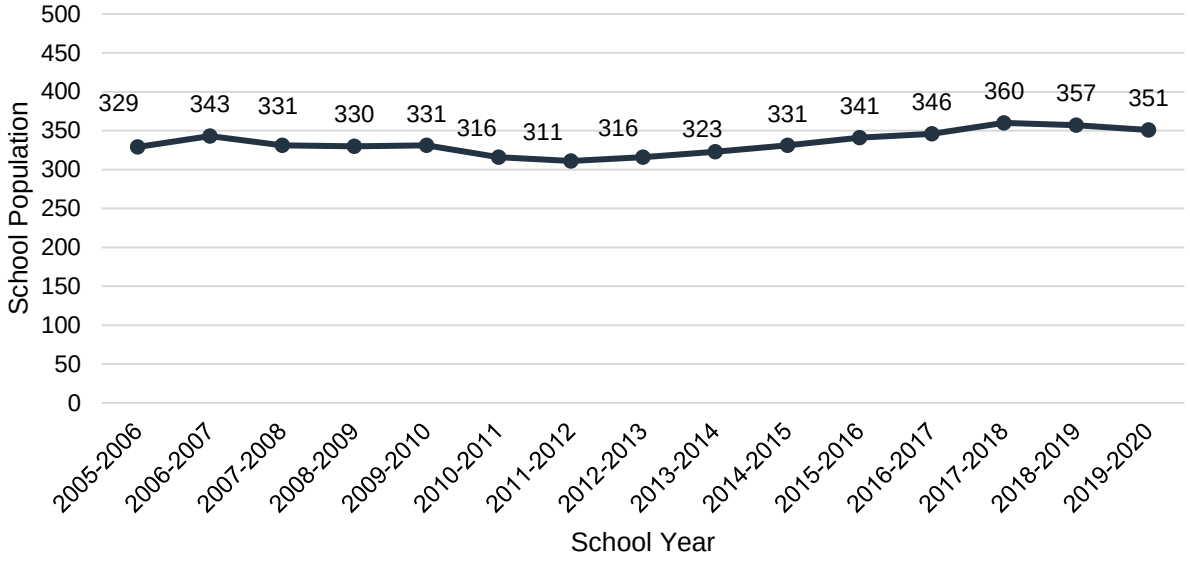
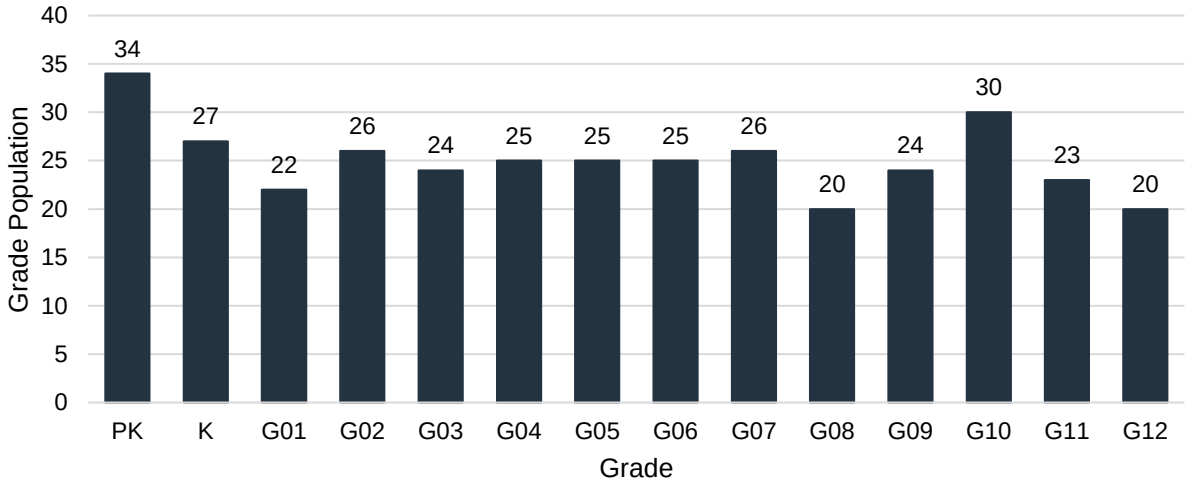


Figure AHS.2: Student Population 2005-2019



Source: Nebraska Department of Education

Figure AHS.3: Number of Students by Grade, 2019-2020



Source: Nebraska Department of Education

The figure above indicates that the largest number of students are in the pre-kindergarten, 10th, and kindergarten grades. The lowest population of students are 8th, 12th, and 1st grades. According to the Nebraska Department of Education (NDE), 57.8% of students receive either free or reduced priced meals at school. This is higher than the state average of 45.6%. Additionally, 11.7% of students are in the Special Education Program and 4.1% of students are English Language Learners. Most of the English Language Learners speak Spanish as a first language. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

Table AHS.2: Student Statistics, 2019-2020

	School District	State of Nebraska
Free/Reduced Priced Meals	57.8%	45.6%
School Mobility Rate	15.0%	10.3%
English Language Learners	4.1%	7.4%
Special Education Students	11.7%	15.6%

Source: Nebraska Department of Education[46]

Future Development Trends

Over the past five years, Arapahoe-Holbrook Public Schools passed a $12.665 million bond in 2016 and made the several changes. The multi-story Arapahoe High School was demolished. A new elementary wing, district offices, competition gym, commons, and kitchen were constructed. The elementary wing includes a FEMA-certified storm shelter. The old elementary wing was remodeled for use as the new high school. A weight room and two locker rooms were also added in the old common/small gym area. The facilities have also been constructed with impact-resistant glass and security updates including an electronic key system. Landscaping was also done in the northeast corner of the facility to decrease the risk of flooding. There are currently no additional plans for construction, but two roofs will be replaced in 2020-2021.

Community Lifelines

Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the school. The district office located in the main building has a weather radio.

Table AHS.3: Critical Facilities

CF Number	Name	# of Students	# of Staff	Community Shelter (Y/N)	Safe Room (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Arapahoe Public School	346	52	Y	Y	N	N
2	Bus Barn/Garage/ Storage Facility	0	0	N	N	N	N

*Note: The building with a red dot has been demolished and critical facility #1 has had an elementary wind addition that is not shown.

46 Nebraska Education Profile. "School Report Card." Accessed October 2020. https://nep.education.ne.gov//Districts/Index/33-0018-000?DataYears=20192020&type=#program-participation.

Figure AHS.4: Critical Facilities

Historical Occurrences

See the Furnas 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 either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

Severe Thunderstorms

Severe thunderstorms occur multiple times annually within the Arapahoe-Holbrook school district. Severe thunderstorms have the potential to damage the school, trees, and lead to power outages. There has been one instance of major hail damage over the past five years. The event also resulted in a delay in construction in order to get replacement building materials that were damaged. All of the school-owned facilities are insured for all types of severe weather. School records are backed up electronically on the cloud and on separate hard drives.

Severe Winter Storms

Severe winter storms occur annually within the Arapahoe-Holbrook school district. Although there have been no recorded damages from severe winter storms, the school district may be vulnerable to impacts. Bus routes have been affected by past winter storms, mainly on county roads. All bus drivers are required to have annual driver training. Snow removal on school property is done using a Grasshopper with a ploy and brush attachments. A local contractor is also hired to remove heavier snow in the parking areas. In the event of school closure, the district provides closure notices using Weatherthreat.com, School Beacon, an information line, school TV channel, and Facebook.

Tornadoes and High Winds

Tornadoes have the potential to cause significant damages and loss of life. There have been previous occurrences of tornadoes within the school district, however, no damages have been associated with those events. The school recently added a FEMA-certified safe room in the K-6 wing. High school students use the locker rooms as a shelter area. Education regarding tornadoes is done during tornado drills. The district would like to add a second safe room located near the high school wing.

Administration

The school district has a superintendent and one principal. The school board is made up of a six-member panel.

- Communications
- Curriculum/Assessment
- Facilities
- Finance Department
- Human Resources
- Learning Coaches
- Library/Media Services
- PARA Education

- Technology
- Transportation

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. Staff is trained about emergency procedures using the Alicap Safe Schools programs and teacher in-service days. Emergency procedure materials are shared with students and information for parents is on the school website. The district is currently working on providing materials in various languages.

Table AHS.4: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning Capability	Capital Improvements Plan/Long-Term Budget	Yes
	Continuity of Operations Plan	Yes
	Disaster Response Plan	Yes
	Other (if any)	-
Administration & Technical Capability	GIS Capabilities	Yes
	Civil Engineering	Yes
	Local staff who can assess community's vulnerability to hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	-
Fiscal Capability	Applied for grants in the past	Yes
	Awarded grants 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	Yes
	Approved bonds in the past	Yes
	Flood Insurance	No
	Other (if any)	-
Education & Outreach Capability	Local school groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations, etc. (Ex. Parent groups, hazard mitigation boards, etc.)	Yes
	Ongoing public education or information program (Ex. Responsible water use, fire safety, household preparedness, environmental education, etc.)	Yes
	StormReady Certification	Yes
	Other (if any)	-
Drills	Fire	9 / year

Survey Components/Subcomponents		Yes/No
	Tornado	3 / year
	Intruder	1 / year
	Bus evacuation	2 / year
	Evacuation	0 / year
	Other (if any)	-

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

Plan Integration

The Arapahoe-Holbrook Public School Safety Manual covers what staff and students should do in the event of a fire, evacuation, tornado, severe weather, intruder, active shooter, remote evacuation, suspicious package, and bomb threat. In addition to the manual, the district's insurance provider completes a safety inspection on an annual basis and the district has an individual complete a Rule 10 Safety Inspection. No other plans were identified during this process. The district will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Mitigation Strategy

Funds for the Arapahoe-Holbrook Public school district funds are limited to maintaining the new and updated facilities and funds have decreased as projects were completed. The district will likely need assistance from grants to help pay for many of the actions listed below.

Continued Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Provide a portable or stationary source of backup power to critical facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	$35,000
Funding	General Fund
Timeline	2-5 Years
Priority	High
Lead Agency	School Board, Superintendent
Status	Not Started.

Mitigation Action	Storm Shelters/Safe Rooms
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as school buildings.
Hazard(s) Addressed	Tornadoes and High Winds, Severe Thunderstorms
Estimated Cost	$4,500+
Funding	Bond
Timeline	5+ Years
Priority	Medium
Status	In Progress. A safe room was added to the K-6 wing, but a safe room is still needed for the high school wing.