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COUNTY PROFILE

THAYER COUNTY

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table THA.1: Thayer County Local Planning Team

Name	Title	Jurisdiction
Colt Farringer	Emergency Manager/ Floodplain Administrator/ Zoning and Planning Administrator	Thayer County
Dave Bruning	County Board	Thayer County
Roger Hofts	County Roads	Thayer County

Location, Geography, & Climate

Thayer County is located in southwest Nebraska and is bordered by Fillmore County, Jefferson County, and Nuckolls County. Thayer also shares a border with Washington County and Republic County in Kansas.

The total area of Thayer County is 713 square miles. Major waterways within the county include the Little Blue River, Balls Branch, Big Sandy Creek, Dry Creek, Dry Sandy Creek, Little Sandy Creek, Rose Creek, Spring Creek. The county is not heavily forested. Thayer County has had 5 known landslides; however, the exact location of these events is unknown. Most of Thayer County lies in the plains topographic region, with the vast majority of the county's land characterized by agricultural fields.

Climate

The average high temperature in Thayer County for the month of July is 89.1 degrees and the average low temperature for the month of January is 14.6 degrees. On average, Thayer County gets 31.4 inches of rain and 24 inches of snowfall per year. The following table compares these climate indicators with those of the entire nine-county planning area. 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.

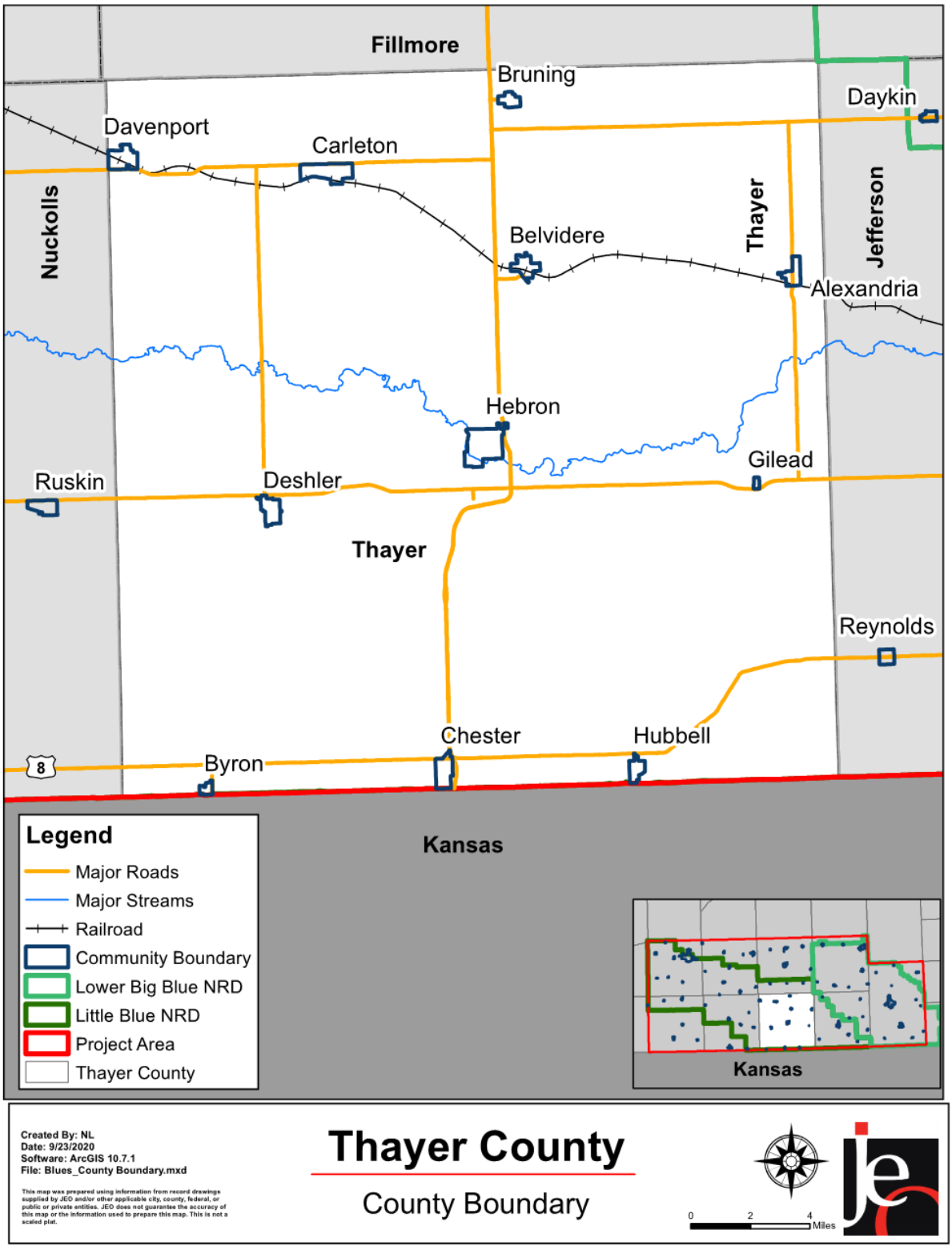
Table THA.2: Thayer County Climate Normals

	Thayer County	Planning Area Average
July Normal High Temp	89.1°F	88.5°F
January Normal Low Temp	14.6°F	14.2°F
Annual Normal Precipitation	31.39"	29.37"
Annual Normal Snowfall	24.0"	21.63"

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

1 NOAA National Centers for Environmental Information. August 2020. "Data Tools: 1981-2010 Normals." [datafile]. https://www.ncdc.noaa.gov/cdo-web/datatools/normals.
2 High Plains Regional Climate Center. 2020. "CLIMOD." http://climod.unl.edu/.

Figure THA.1: Thayer County Jurisdictional Boundary



Transportation

Thayer County's major transportation corridors include State Highway 136, which runs east-west through the center of the county, State Highway 81, which runs north-south Hebron. The speed limit on Highway 81 was recently raised which has led to additional accidents between vehicles and semi-trucks. Several incidents have caused injuries and fatalities. Additionally, this has created additional concerns due to increasing volume of hazardous material transport along this highway.

Other major highways include Highway 4 which passes through the upper half of the county, running east-west, and highway 8 passes through the lower half of the county, running east-west. Highway 5 and Highway 53 are other notable routes, running north-south through the county. The local planning team also noted numerous local roads of concern which are vital for local travel and were impacted during the 2019 flood event. These routes are listed below:

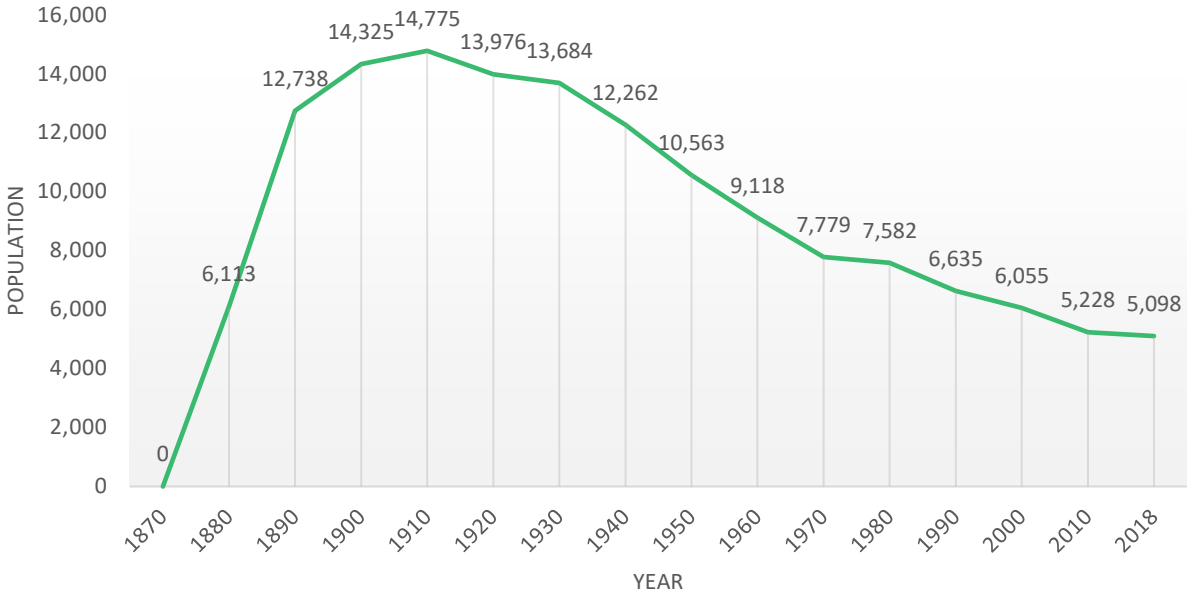
- Rd Z from Rd 5000 to Rd 5100
- RD X from Rd 6900 to Rd 7000
- Rd D From Rd 4900 to Rd 5000
- Rd C from Rd 6500 to Rd 6600
- Rd A from Rd 5500 to Rd 5600
- Rd 6700 from Rd P to River Rd
- Rd 6700 from Rd P to River Rd
- Rd 6700 from Rd P to River Rd
- Rd 5900 From Hwy 136 to Rd K
- Rd 5600 from Rd P to Rd Q
- rd 5200 from hwy 4 to Rd Y
- Rd 4900 From Rd M to Rd N
- Rd 4900 from Rd L to Rd M
- Rd 4900 from Rd K to Rd L
- Rd 4900 From Hwy 136 to Rd K
- Rd 6200 from Rd G to Rd H
- Rd E From 5200 to 5300
- Rd 5100 from Rd J to Rd K
- Rd 6100 from Hwy 136 to Lincoln Ave
- 4th St from Holdrege to Park Ave

The county also has one railroad operated by UPPR. The line runs east-west and enters from the northwest, passing through Davenport, Carleton, Belvidere and Alexandria before exiting into Jefferson County. The county also has a number of air landing strips dispersed throughout the county. This information is important to hazard mitigation plans insofar as is suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

Demographics

The following figure displays the historical population trends from 1870 to 2018 (estimated). This figure indicates that the population of Thayer County has declined since 1910. This is notable for hazard mitigation as communities with declining population have a higher probability of unoccupied housing that is not being maintained and may be less prone to pursuing residential/commercial development, which may reduce the number of structures vulnerable to hazards in the future.

Figure THA.2: Thayer County Population 1870-2018



Source: U.S. Census Bureau[3]

The following table indicates the State of Nebraska has a higher percentage of people under the age of 5 and between the ages of 5 and 64 than Thayer County. Thayer County has a higher median age percentage of people over the age of 65. This is relevant to hazard mitigation insofar as 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 THA.3: Population by Age

Age	Thayer County	State of Nebraska
<5	6.0%	6.9%
5-64	69.0%	78.1%
<64	25.1%	15%
Median Age	47.0	36.2

Source: U.S. Census Bureau[4]

3 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
4 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]

The following table indicates that the county's median household income and per capita income are lower than those of the state. Median home values and median rent are both notably lower. These economic indicators are relevant to hazard mitigation because they show the relative economic strength compared to the state as a whole. Areas with economic indicators which are relatively low may influence a community's level of resiliency during hazardous events.

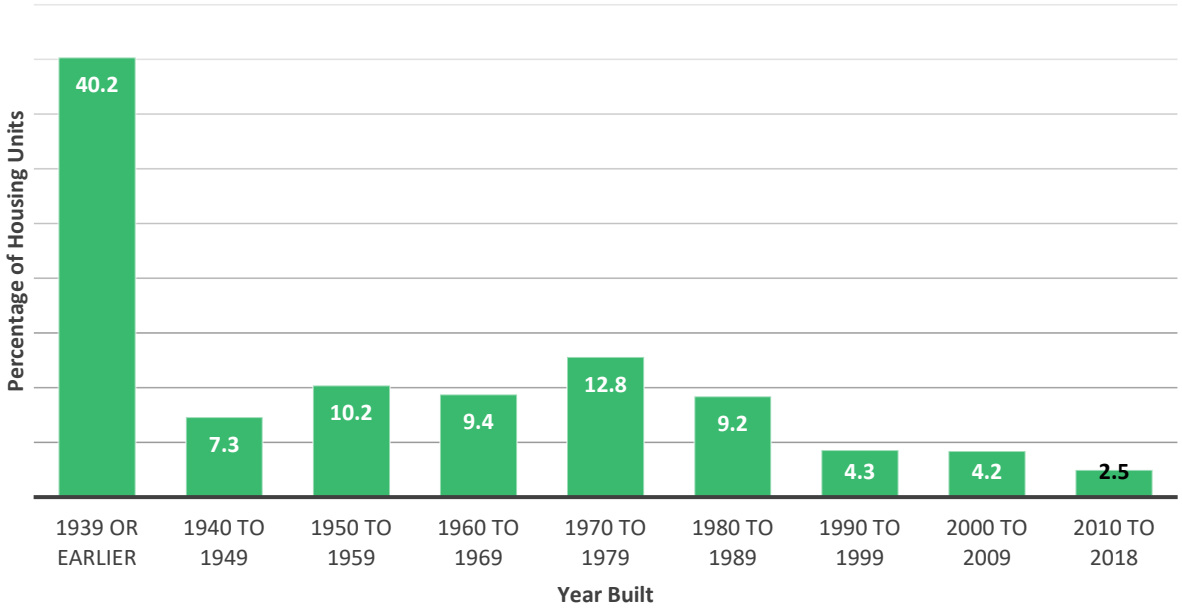
Table THA.4: Housing and Income

Age	Thayer County	State of Nebraska
Median Household Income	$50,734	$59,116
Per Capita Income	$28,793	$31,101
Median Home Value	$66,800	$147,800
Median Rent	$566	$805

Source: U.S. Census Bureau[5],[6]

The following figure indicates that the majority of the housing in Thayer County was built prior to 1940. According to Census Bureau, the county has 2,759 housing units; with 82.7 percent of those units occupied. Approximately 1.8 percent of the county's housing is classified as mobile homes and 85.6 percent of the county's housing was built before 1980. Housing age can serve as an indicator or risk as structures built prior to state building codes being developed may be at greater risk. The State of Nebraska first adopted building codes in 1987, the state currently has adopted the 2018 International Building Code. Finally, communities with a substantial number of mobile homes may have a higher number of residents vulnerable to the impacts of high winds, tornados, and severe winter storms.

Figure THA.3: Housing Units by Age



Source: U.S. Census Bureau[7]

5 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

6 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

7 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Table THA.5: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Thayer County	2,283	82.7%	476	17.3%		1,797	78.7	486	21.3%
Nebraska	754,063	90.8%	76,686	9.2%		498,567	66.1%	255,496	33.9%

Source: U.S. Census Bureau[8]

Employment Factors

The following table presents the number of establishments, number of paid employees, and the annual payroll in thousands of dollars. Communities which have a diverse economic makeup may be more resilient following a hazardous event, especially if certain industries are more impacted than others.

Table THA.6: Businesses in Thayer County

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
Total for All Sectors (2012)	206	1,367	$48,193
Total for All Sectors (2016)	212	1,974	$68,387
Total for All Sectors (2018)	209	1,923	$72,093

Source: U.S. Census Bureau[9]

Agriculture is also important to the economic fabric of Thayer County, and the state of Nebraska as a whole. Thayer County's 333 farms cover 243,564 acres of land. Both the number of farms and acres of harvested cropland have decreased since 2012. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well by producing, processing and marketing farm and food products. These businesses generate income, employment and economic activity throughout the region.

Table THA.7: Thayer County Agricultural Inventory

	2012 Census	2017 Census	Percent Change
Number of Farms with Harvested Cropland	432	333	-29.7%
Acres of Harvested Cropland	326,300 acres	243,564 acres	-34.0%

Source: USDA Census of Agriculture[10,11]

Future Development Trends

Over the past five years no new residential or commercial development has occurred in unincorporated Thayer County. However, the local planning team noted several structures are located in flood prone areas, particularly pole sheds and cattle barns The population in Thayer County has declined in the past few decades which the local planning team attributed to lack of

8 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]
9 United States Census Bureau. 2020. "2018 County Business Patterns and Nonemployer Statistics Combined Report."
10 United States Department of Agriculture, National Agricultural Statistics Server. 2014. "2012 Census of Agriculture – County Data."
11 United States Department of Agriculture, National Agricultural Statistics Server. 2019. "2017 Census of Agriculture – County Data."

industries and small businesses. At this time there are no new housing or commercial developments planned for the next five years.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. Several structures in unincorporated Thayer County have been removed from the floodplain via LOMA. A summary of LOMAs can be found in the table below.

Table THA.8: Thayer County Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
7,071	2,292	$169,015,679	343	15%	$30,418,989

Source: County Assessor, GIS Workshop

Table THA.9: Thayer County Flood Map Products

Type of Product	Product ID	Effective Date	Details
LOMA	06-07-0209A-310479	1/10/2006	Portion of property removed from SFHA
LOMA	09-07-1086A-310479	7/14/2009	Structure removed from SFHA
LOMA	13-07-1920A-310479	7/11/2013	Structure (residence) removed from SFHA
LOMA	18-07-1264A-310479	5/7/2018	Structure (residence) removed from SFHA

Source: County Assessor, GIS Workshop

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy in 2019, there 21 chemical storage sites throughout Thayer County which house hazardous materials. In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident. For a description and map of chemical sites located in incorporated areas, please see the jurisdiction's participant section.

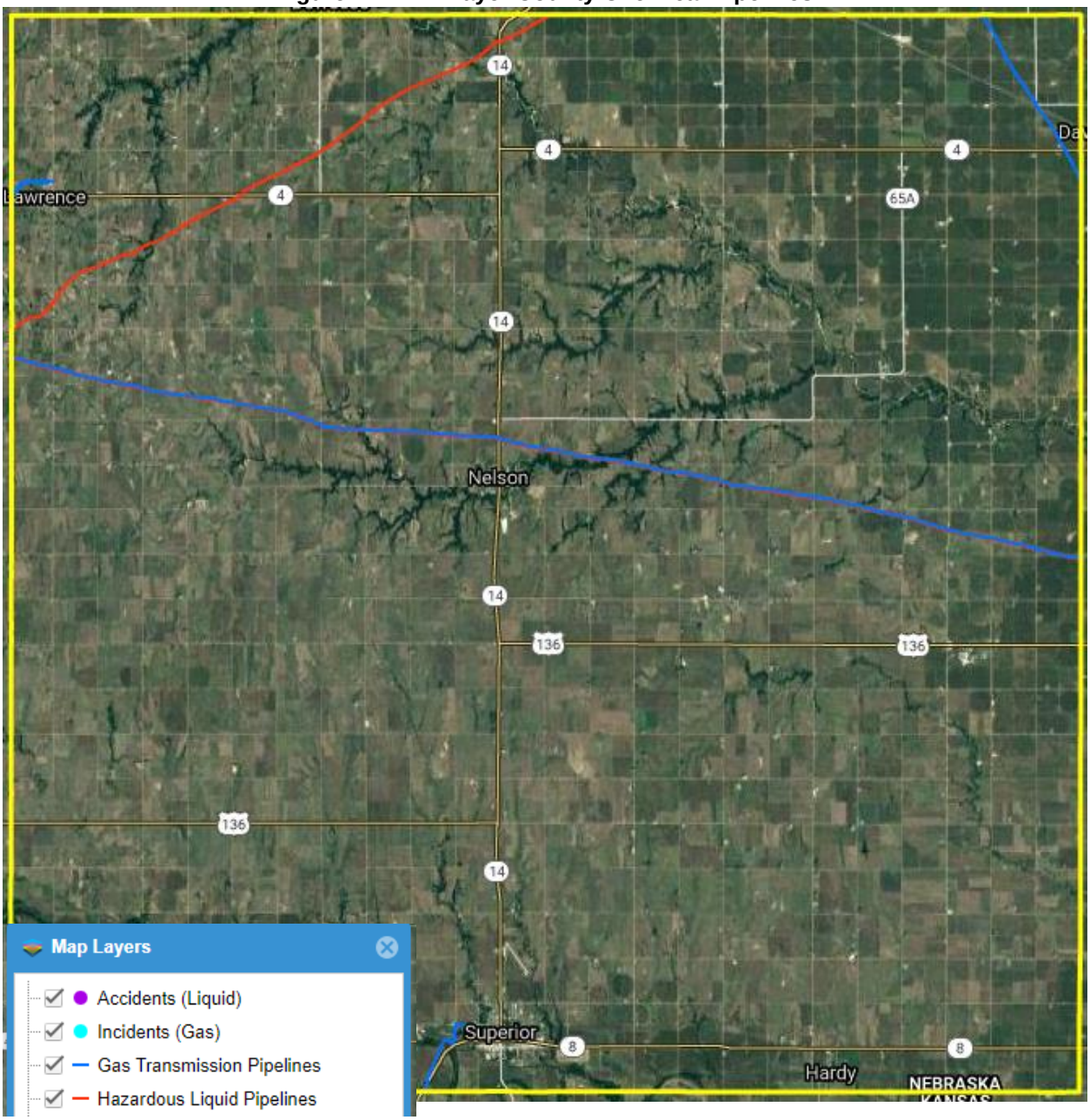
Chemical Transportation

Hazardous chemicals, particularly agricultural based chemicals, are commonly transported through the county by a range of transportation methods, including highways, rail, air, and pipeline. The county also has one railroad operated by UPPR. The line runs east-west and enters from the northwest, passing through Davenport, Carleton, Belvidere and Alexandria before exiting into Jefferson County. Chemical types range from household cleaners and agricultural chemicals to fuel and industrial chemicals. Main concerns pertain to anhydrous ammonia, crude oil, ethanol, propane, and other hazardous materials that are regularly transported through the county and are not placarded, because they do not meet federal quantity requirements. A spray plane crash in

2020 caused an incident where a lack of available information about transported chemicals led to additional education efforts for local first responders and emergency management.

The type and quantities of chemicals transported through the county is unknown. While incident proximity will always occur near or on transportation methods, it is not possible to predict precise locations of possible future events. Proximity of pipelines, rail lines, and highways near critical facilities or vulnerable population centers, including schools, daycares, nursing homes, and/or hospitals, increases overall vulnerability to chemical transportation spills. While minor spill events have taken place in the county, no events caused significant damages or impacts. The largest spill included 1,460 liquid gallons of Anhydrous Ammonia in Gilead. Private entities, local emergency response units, and state resources have strict regulatory oversight and emergency action plans in place to respond to significant chemical spills.

Figure THA.4: Thayer County Chemical Pipelines



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 a part of this plan update.

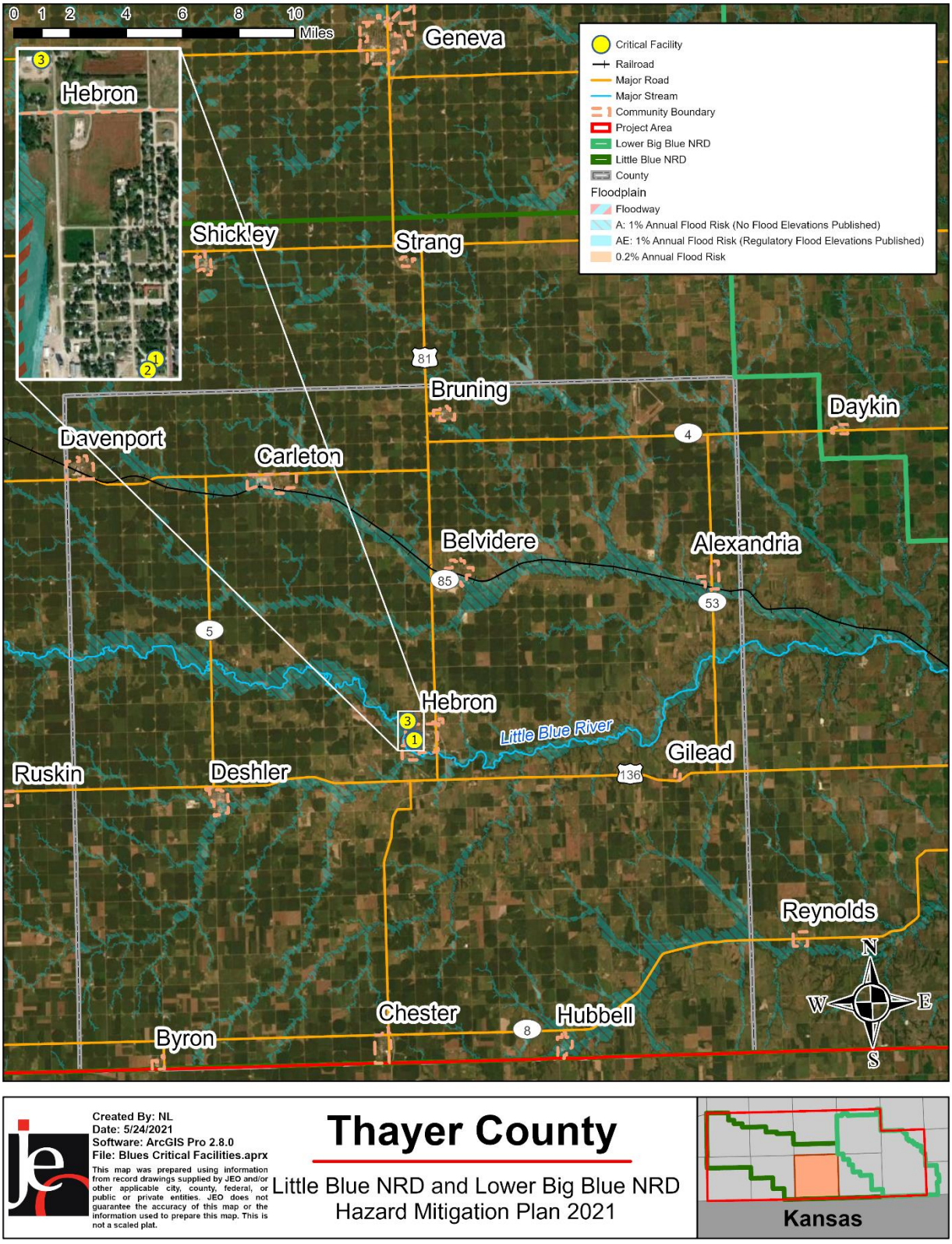
Critical facilities for Thayer County are located primarily in the county's incorporated communities. There are two historic properties in Thayer County; one in Alexandria and one in Hebron. All critical facilities for Thayer County are located outside of the established floodplain. The Thayer County EOC and mass care facilities within the county have not been identified.

The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table THA.10: Thayer County Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Safety and Security	County Courthouse	N	Y	N
2	Safety and Security	Thayer County Sheriff's Office/Jail	N	Y	N
3	Transportation	Roads Department	N	N	N

Figure THA.5: Thayer County Critical Facilities



Historical Occurrences

The following table provides a statistical summary for hazards that have occurred in the planning area. The property damages from the NCEI Storm Events Database (January 1996 – April 2020) should be considered only as broad estimates. Sources include but are not limited to: emergency management; local law enforcement; Skywarn spotters; NWS damage surveys; newspaper clipping services; insurance industry; and the general public. Crop damages reports come from the USDA Risk Management Agency between 2000 and June 2020. For the complete discussion on historical occurrences, please refer to *Section 4: Risk Assessment*.

Table THA.11: Hazard Risk Assessment – Thayer County

Hazard		Count	Property Damage	Crop Damage[3]
Agricultural Disease	Animal Disease[2]	10	16 animals	N/A
	Plant Disease[3]	31	N/A	$340,193
Dam Failure[7]		4	$0	N/A
Drought[8]		493 out of 1,504 months	$35,000,000	$16,813,716
Earthquakes[11]		0	$0	$2,328
Extreme Heat[9]		Avg 9 days/yr	$0	$1,246,177
Flooding[1]	Flash Flood	13	$4,226,000	$182,058
	Flood	6	$1,200,000	
Grass/Wildfire[4] *1 death, 6 injuries*		237	2,807 acres	$37,885
Hazardous Materials	Chemical Fixed Site Spills[5]	5	$0	N/A
	Chemical Transportation Spills[6]	3	$54,446	N/A
Levee Failure[12]		0	$0	N/A
Public Health Emergency[13]		~489 cases, 4 deaths	$0	N/A
Severe Thunderstorms[1]	Hail	201	$4,818,000	$2,461,903
	Heavy Rain	37	$525,000	$2,281,497
	Lightning	2	$501,000	N/A
	Thunderstorm Wind	80	$4,192,500	N/A
Severe Winter Storms[1] *1 injury*	Blizzard	8	$10,000	$1,163,707
	Extreme Cold/Wind Chill	2	$0	
	Heavy Snow	4	$0	
	Ice Storm	4	$145,000	
	Winter Storm	48	$200,000	
	Winter Weather	27	$45,000	
Terrorism[10]		1	$0	N/A
Tornadoes and High Winds[1]	High Winds	15	$7,080	$658,064
	Tornadoes *1 death, 8 injuries*	31	$20,815,000	$21,258
Totals		**769**	**$71,739,026**	**$25,208,786**

1 – NCEI, Jan 1996-April 2020
2 – USDA, 2014-June 2020

3 – USDA RMA, 2000-Aug 2020
4 – NFS, 2000-2020
5 – NRC, 1990-2019
6 – PHSMA, 1971-2020
7 – NeDNR Dam Safety Division, 2020
8 – NOAA, 1985-2020
9 – NOAA Regional Climate Center, 1983-2020
10 – Global Terrorism Database, 1970-2017
11 – USGS, 1960-2020
12 – USACE, 2020
13 – CDC, April 2021 (COVID only)

The following table provides a summary of hazards that have or have the potential to affect each jurisdiction in the county. Each jurisdiction was evaluated for previous hazard occurrence and the probability of future hazard events on each of the hazards profiled in this plan. The evaluation process was based on data collected and summarized in the previous table; 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. For example, while there may not been instances of dam failure in the planning area, there exists a possibility for a dam to fail in the future due to the presence of dams.

Table THA.12: Thayer County and Communities Hazard Matrix

Jurisdiction	Agricultural Animal and Plant Disease	Dam Failure	Drought & Ex Heat	Earthquakes	Flooding	Grass/ Wildfire	Hazardous Materials	Levee Failure	Public Health Emergency	Severe Thunderstorms	Severe Winter Storms	Terrorism	Tornadoes and High Winds
Thayer County	X		X		X	X				X	X		X
Alexandria					X		X				X		X
Belvidere					X					X	X		X
Bruning					X		X			X	X		X
Chester						X				X	X		X
Davenport						X	X				X		X
Deshler					X		X				X		X
Hebron		X			X		X						X
Hubbell					X					X			X

Hazard Prioritization

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

Agricultural Animal and Plant Disease

Because of the importance of agriculture for Thayer County's economy, diseases affecting local cattle, hogs, and dairy cattle can result in fewer sales and lower income for farmers. Lower incomes may trickle down and affect the entire local economy, including local businesses. Fairbury, in particular, has a large concentration of livestock.

While no major disease outbreaks have affected operations in the county in the past, Thayer County is part of an animal agricultural emergency plan with the Nebraska Department of Agriculture. Educational programs are conducted by that agency, and the US Department of Agriculture. Paratuberculosis, Enzootic Bovine Leukosis, Seneca Valley Virus, and Bovine Viral Diarrhea have all been reported in the county.

Drought and Extreme Heat

Like most of southeastern Nebraska, drought is a significant concern in Thayer County, due to economic losses and increased fire danger from dried fuels. The county has experienced several wildfires recently, resulting in losses of crops and grasslands, and threatening local residences. The county defines drought as a lack of rain over a given period of time. According to the NCEI, drought conditions have contributed to over $35,000,000 in property damages, primarily on road infrastructure stress and irrigation equipment. The USDA Risk Management Agency reported over $16 million in crop damages from drought and over $1 million in crop damages from extreme heat.

The county does not have a drought monitoring board, or a drought response plan but both have been identified as needs in the future. It also does not have a water conservation program, or a landscape ordinance requiring native plantings or establishing irrigation limits. The municipal water supply consists of deep wells that supply most municipal operations and rural residences in the county. The supply is sufficient in most areas of the county, though there are areas where both water supply and quality are problematic.

Flooding

Flash flooding and riverine flooding are both significant concerns in the county, but riverine flooding happens the most frequently. Flooding is a particular worry in Thayer County, and the county has allocated a significant amount of personnel and time trying to restore service following major flood events. The Little Blue River, and Spring, Dry, Rose, and Big Sandy Creeks can cause severe flooding to lowland areas in the county, as any land adjacent to these areas are prone to flooding. The high hazard dam, Hebron Dam, is also located in the county, north of Hebron.

Riverine flooding has affected the county in 2019, 2016, 2015, 2003, 2000, and 1997. Damaging flooding occurred in Thayer County on May 6-7, 2015, when bridges and roads were closed or

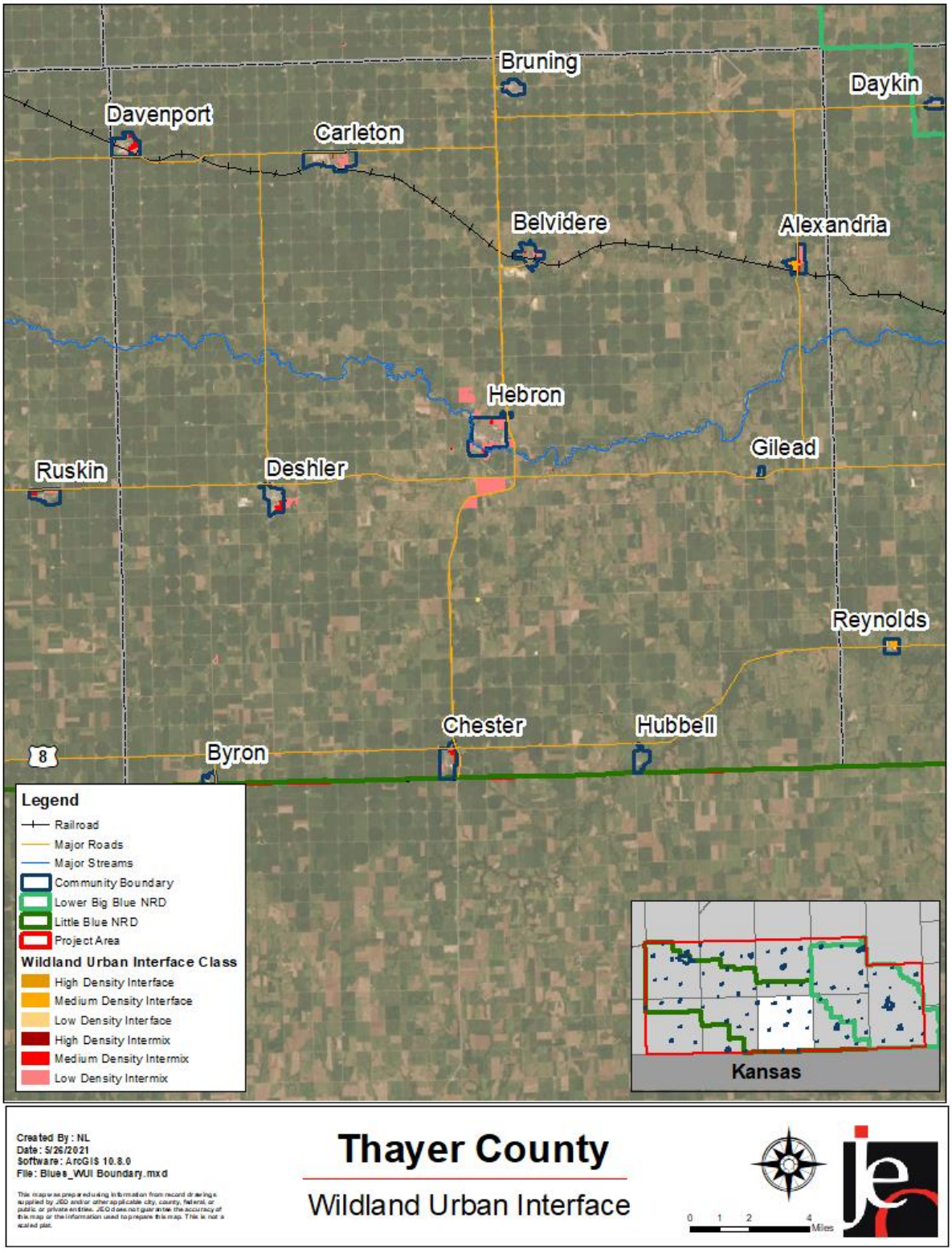
washed out, livestock drowned, and 50 residences were heavily damaged. Travel to the local hospital was impeded during this event, as the bridge leading to the hospital was washed out. The flooding caused more than $1.5 million in damage to public infrastructure. The March 2019 flood event also contributed to significant damages across the county. Long term impacts to waterways caused significant flow restrictions and contributed to repeated flooding throughout the rest of the year and through 2020. The county replaced two bridges and removed and decommissioned another one. FEMA assistance was used on one bridge while the other two projects were denied.

The county participates in the NFIP and, as of November 2020, had six policies in force for $688,500. The county has been working with communities and throughout the county to up size or replace culverts and box culverts to address issues identified during the 2019 floods. Local first responders have contributed in the development of a Flood Response Plan for EMS units. A concern identified has been the lack of access to the Thayer County Hospital when transportation corridors are blocked by flood waters. The county would like to hold an emergency exercise to test the plan and train with EMS units. Other needs include to update and track maintenance records for all county bridges, map county bridges, and invest in the salamander tracking system for employees and equipment.

Grass/Wildfire

The main concern regarding grass and wildfires in Thayer County is the difficulty of dousing these fires in areas with a limited water supply and difficulty in access due to their remote location. A fire in April 2014 with a fire fanned by high winds traveled across the county and blocked several roads. A separate fire in March 2010 burned many acres of pastureland. The county has a volunteer fire department. It does not have a Wildland Urban Interface Code. Past events have burned over 2,800 acres in the county and have lead to one fatality and six injuries. In the past few years there have been several large fires which have required up to 15 fire departments in the surrounding areas to respond. Local farmers also assist by disking fields to prevent continual spread of fire. The local planning team identified the need to bolster the mutual aid agreements in the county to improve available resources.

Figure THA.6: Thayer County WUI



Severe Thunderstorms

Severe thunderstorms are frequent occurrences in Thayer County and include hail, heavy rain, lightning, and strong winds. The county's main concerns regarding these storms are their unpredictability to track, and potential for damage and loss of life, loss of crops, and personal property damage to livestock. Per the National Climatic Data Center, straight-line thunderstorm winds in the county frequently exceed 60 mph and 70 mph, and have been known to even reach 90 mph. In particular, storms in the county on May 6-7, 2015 produced 13 inches of rain, severe flooding that affected areas even outside of the floodplain, and tornadoes. The county also stated that 2019 was one of the most active weather event years in recent memory. There county lacks enough community shelters to ensure the safety of persons without their own shelters or basements, and has insufficient community warning systems. Recent hailstorms in the county have damaged the roofs, sidewalls, and windows of homes and buildings. Hail has a large economic impact on the county because many losses are not covered by insurance.

Critical electronic municipal records are protected with surge protectors. The county courthouse and 9-1-1 dispatch center are fully supported by a backup generator. Few if any of the power lines in the county are buried – possibly less than one percent. Hazardous trees in the county are removed by Norris Public Power District, which services the county. Not all critical facilities have weather radios; however, the county will be distributing 112 weather radios to critical facilities as well as the general public in March 2021 per a HMGP project. Currently, critical facilities in the county are not fitted with hail resistant building materials, and have experienced damage from hail to their roofs, windows, and water infiltration systems from hail damage. County facilities are insured against hail damage. The town does not have a tree board. Residents do not receive information regarding hail resistant building materials. The county is exploring options to update outdoor warning sirens for remote control and installing additional community shelters for the general public to use.

Severe Winter Storms

The county's concerns about severe winter weather include power losses that impact the safety and comfort of residents who must ride out the storms and very cold weather in their homes, without heat or water; and medical emergencies during the storms, when conditions impede the abilities of responders to transport patients due to hazardous road conditions. A severe winter storm in 1999 led to one injury from a vehicle accident on icy roads. Less than one percent of the power lines in town are buried. Power lines are frequently knocked down in these storms. The county needs to continue burying power lines to reduce future outage risks. The county has purchased a backup generator to provide power to the courthouse, jail, and dispatch.

Tornadoes and High Winds

Thayer County, like all of Nebraska, is prone to damaging high winds and tornadoes. Most notably, an F-2 tornado on June 22, 2003 caused more than $10 million in damage in the county. In Deshler, the tornado killed one person in his garage before he could get to shelter, injured seven people, damaged 400 homes (four of them completely), and destroyed six businesses. More recently, an EF-2 tornado on May 6, 2015 that was part of a multi-day tornado outbreak sequence in the Great Plains affected the county, and caused damage near Deshler. One residence was destroyed by this tornado. The county's main concerns about tornados are loss of life due to a lack of safe rooms and residential shelters, and due to travelers through the county not finding a safe place to take cover.

Thayer County does not operate any community safe rooms, which means that residents must rely on their own or a neighbor's basement or shelter, or basement in a public building, in case of a tornado. Thayer County Emergency Management offers text alerts for severe weather. Rotary Clubs and youth groups promote emergency preparedness in the community. The county is part of the Southeast Nebraska Planning, Exercise, and Training Region, and through that partnership has mutual aid agreements in place with 14 counties. All of the communities within Thayer County also have mutual aid agreements with other jurisdictions. The county backs-up its electronic municipal records and has identified the need to design and construct additional storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, or other areas.

Governance

A community's governance structure impacts its capability to implement mitigation actions. The county is governed by a three-member board of supervisors. The county also has the following offices or departments: assessor, attorney, County Clerk, County Treasurer, county court, district court, emergency management, extension office, roads department, sheriff, treasurer, veteran's affairs, weed control, and zoning and planning.

Capabilities

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

Table THA.13: Capability Assessment

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

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

Table THA.14: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Moderate
Staff/Expertise to Implement Projects	Moderate
Community Support to Implement Projects	Moderate
Time to Devote to Hazard Mitigation	Moderate

Plan Integration

The Comprehensive Plan was last updated in 2017 The county follows state required building and zoning codes. All structures being built in the county must meet the most current version of the International Building Code. The comprehensive plan does not address or discuss natural hazards; however, future updates should include hazard mitigation goals and objectives as identified in this HMP. The Zoning Ordinance and Floodplain Ordinances were last updated in

2006 and 2010 respectively. They are both up for revision and adoption in 2021. These ordinances discourage development in the floodplain and require a two foot BFE for structures in floodplain areas. The ordinances also discourage development around hazardous chemical sites, major transportation routes, and in the wildland urban interface.

The Local Emergency Operations Plan (LEOP) for Thayer County, which was last updated in November 2016, addresses natural and man-made disasters. The plan will be updated in 2021 and will include components of this HMP. The plan provides a clear assignment of responsibility in case of an emergency. It includes, as annexes, emergency operations plans (EOPs) for the Cities of Deshler and Hebron, and the Villages of Alexandria, Belvidere, Bruning, Byron, Carleton, Chester, Davenport, Gilead, and Hubbell.

The local planning team noted the annual municipal budget's funds are currently sufficient and have available funding to pursue additional mitigation efforts. However, overall funds have decreased over the past few years.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The local planning team is responsible for reviewing and updating this community profile as changes occur or after a major event. The local planning team will include the County Roads Supervisor, County Clerk, Zoning and Planning, Emergency Management, Floodplain Administrator, and the county board. The local planning team will review the plan no less than annually and will include the public in the review and revision process by: updating the county website, social media posts, notices in the local paper, and sharing information at board meetings open to the public.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	BACKUP COUNTY RECORDS
DESCRIPTION	Develop protocol for back-up of critical county records
HAZARD(S)	All hazards
STATUS	Backup systems have been installed for county records.

MITIGATION ACTION	SURGE PROTECTORS
DESCRIPTION	Purchase and install surge protectors on sensitive equipment in critical facilities.
HAZARD(S)	Severe Thunderstorms
STATUS	Surge protectors have been installed and equipment is updated on needed.

MITIGATION ACTION	UPDATE COMPREHENSIVE PLAN AND REGULATIONS
DESCRIPTION	Update comprehensive plan and regulations. Integrate plan with Hazard Mitigation Plan components.
HAZARD(S)	All hazards
STATUS	Comprehensive plan was updated in 2018 with components of the HMP. All future updates will also integrate relevant information.

MITIGATION ACTION	WEATHER RADIOS
DESCRIPTION	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
STATUS	Weather radios have been installed at critical facilities. Equipment will be updated on an as needed basis.

Continued Mitigation Actions

MITIGATION ACTION	EMERGENCY OPERATIONS
DESCRIPTION	Identify and establish an Emergency Operations Center in Hebron
HAZARD(S)	All hazards
ESTIMATED COST	$50,000
FUNDING	County funds, HMGP, BRIC
TIMELINE	1 year
PRIORITY	High
LEAD AGENCY	Thayer County EMA
STATUS	The county is currently working on identifying a permanent location.

MITIGATION ACTION	SAFE ROOMS/STORM SHELTER
DESCRIPTION	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, and other areas, in cities in Thayer County.
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
ESTIMATED COST	$200-$250 per square foot
FUNDING	General Fund, HMGP, BRIC
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Thayer County Roads Dept, Thayer County EMA
STATUS	The county is currently working to identify suitable locations.

MITIGATION ACTION	STORMWATER SYSTEM AND DRAINAGE IMPROVEMENTS
DESCRIPTION	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)	Flooding
ESTIMATED COST	$300,000
FUNDING	County Funds, BRIC, FMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Thayer County Roads Dept.
STATUS	County is currently working on FFF (Find, Fix, and Finish) issues found from the 2019 flood events.

New Mitigation Actions – 2021 Plan

MITIGATION ACTION	ALERT SIRENS
DESCRIPTION	Install and link outdoor warning sirens to local dispatch center for the ability to sound siren in the event of a severe weather event or other outdoor emergency.
HAZARD(S)	All hazards
ESTIMATED COST	$300,000
FUNDING	County funds, HMA
TIMELINE	5+ years
PRIORITY	Medium
LEAD AGENCY	Emergency Management
STATUS	This is a new mitigation action.

MITIGATION ACTION	COMPREHENSIVE DISASTER/EMERGENCY RESPONSE PLAN AND EXERCISE
DESCRIPTION	Develop and practice an emergency response plan specifically for Agricultural and Animal Disease and Drought and Extreme Heat
HAZARD(S)	Agricultural Plant and Animal Disease, Drought and Extreme Heat
ESTIMATED COST	$30,000
FUNDING	County funds
TIMELINE	5+ years
PRIORITY	Medium
LEAD AGENCY	Emergency Management
STATUS	This is a new mitigation action.

MITIGATION ACTION	GRASS/WILDFIRE TRAINING
DESCRIPTION	Provide additional training to local firefighters to increase capabilities in grass and wildfire fighting. Particularly additional training for air assists.
HAZARD(S)	Grass/Wildfire
ESTIMATED COST	$30,000
FUNDING	County funds, South East PET Region
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Emergency Management
STATUS	This is a new mitigation action.

Removed Mitigation Actions

MITIGATION ACTION	EMERGENCY SHELTER
DESCRIPTION	Establish a community and/or county safe room/areas for residents living in vulnerable structures/locations.
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
REASON FOR REMOVAL	This project was identified as redundant and the objectives are addressed by “Safe Rooms/Storm Shelters”.

MITIGATION ACTION	INFRASTRUCTURE ASSESSMENT STUDY
DESCRIPTION	Conduct an assessment of bridges in the county and assess other potential areas of concern.
HAZARD(S)	Flooding
REASON FOR REMOVAL	This action has been integrated into annual maintenance and budget.

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
REASON FOR REMOVAL	While the county will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA. Enforcement of floodplain policies is required as part of ongoing codes.

MITIGATION ACTION	REMOVE FLOW RESTRICTIONS
DESCRIPTION	Cleanout drainage ditches to improve water flow with a wheeled excavator
HAZARD(S)	Flooding
REASON FOR REMOVAL	This action has been integrated into annual maintenance and budget.

MITIGATION ACTION	SNOW FENCES
DESCRIPTION	Construct snow fences to protect main transportation routes and critical facilities from excessive snow drifting and road closure.
HAZARD(S)	Severe Winter Storms
REASON FOR REMOVAL	This action has been integrated into annual maintenance budget.

COMMUNITY PROFILE

VILLAGE OF ALEXANDRIA

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table ALE.1: Village of Alexandria Local Planning Team

Name	Title	Jurisdiction
Jeremy VanWesten	Board Chairman	Village of Alexandria
Tommy Schmidt	Board Member	Village of Alexandria
James Wassom	Board Member	Village of Alexandria
Angie Erickson	Board Member	Village of Alexandria
Marj Durflinger	Board Member	Village of Alexandria
Donna Rut	Village Clerk	Village of Alexandria
Alen Drupicka	Village Utilities Operator	Village of Alexandria

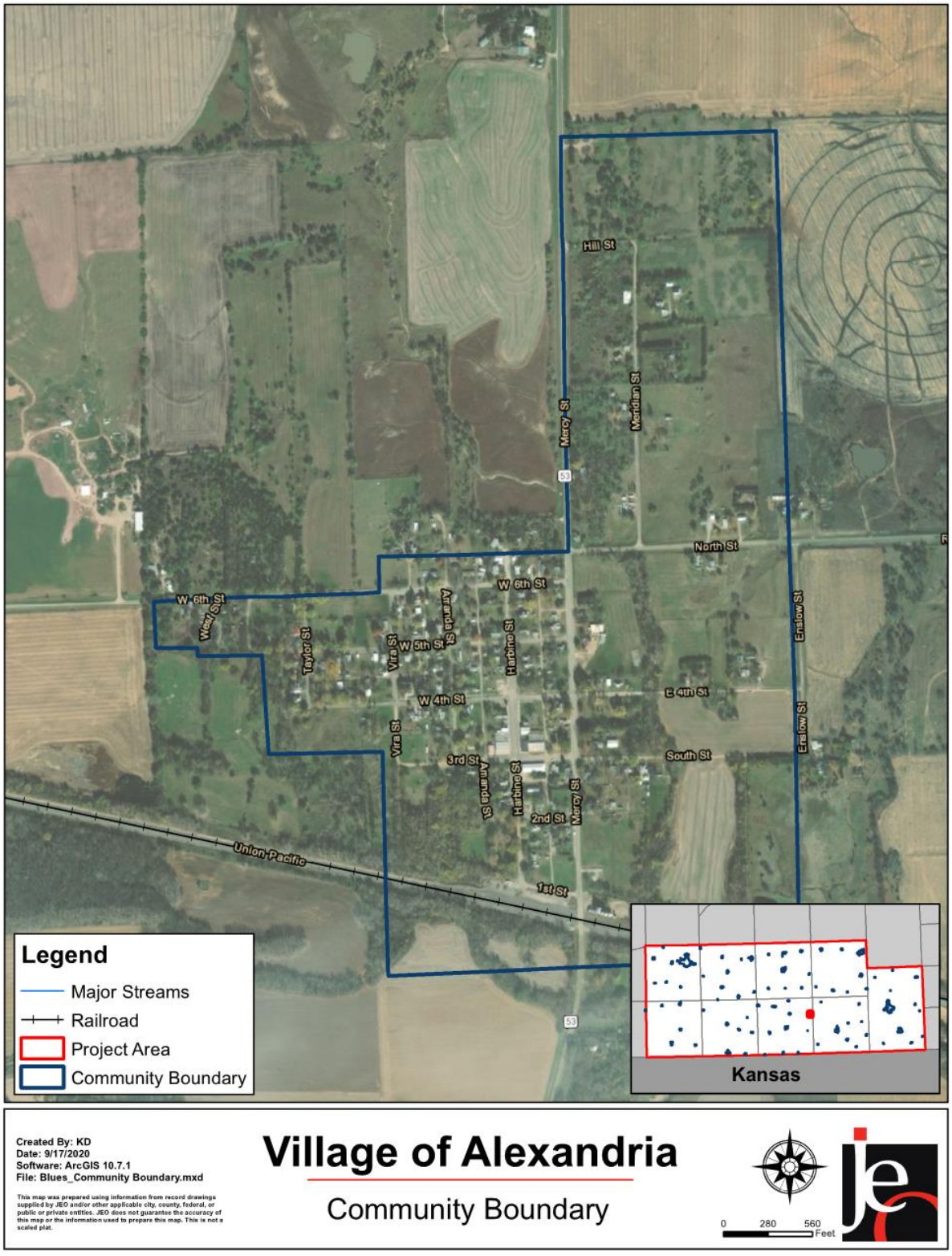
Location and Geography

The Village of Alexandria is located in the east central portion of Thayer County and covers an area of 0.4 square miles. Major waterways within the area include Big Sandy Creek, which runs east-west just south of the community. The area is not heavily forested, although there is some tree cover in the community and just beyond its borders. Thayer County has had five known instances of landslides; however, it in unknown if these occurred near Alexandria. The village lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Alexandria's major transportation corridors include State Highway 53, which runs north-south through Alexandria. Highway 53 accommodates on average 240 vehicles per day, 20 of which are heavy commercial vehicles. Alexandria has one railroad, Union Pacific line. At Alexandria, the UPRR runs east-west and connects Alexandria to Hastings to the northwest. At Hastings, the UPRR continues to Kearney, and then turns east-west again to connect Alexandria to the rest of the line. Hazardous chemicals are commonly transported through the community, most notably propane which is of concern for the local planning team. There are critical facilities located along major transportation routes such as the lift station in town. This information is important to hazard mitigation plans insofar as it suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

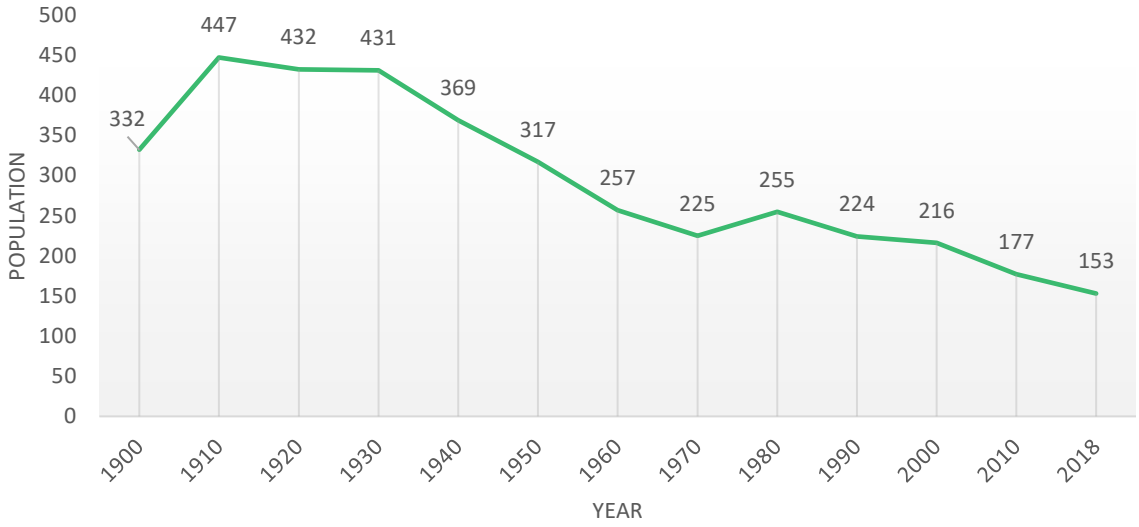
Figure ALE.1: Village of Alexandria Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1900 to 2018 (estimated). This figure indicates that the population of Alexandria experienced prolonged decline between 1910 and 1970, then again since 1980. This is notable for hazard mitigation because communities with a declining population may also have a higher level of unoccupied housing that is not being up kept. Furthermore, areas with declining population may be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Decreasing populations can also represent decreasing tax revenue for the community which could make implementation of mitigation actions more fiscally challenging. The village's estimated population accounted for 3% of Thayer County's total population in 2018.

Figure ALE.2: Alexandria Population 1900-2018



Source: U.S. Census Bureau[12]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Alexandria's population was:

- **Younger.** The median age of Alexandria was 45.7 years old in 2018, compared with the county average of 47 years. Alexandria's population has grown older since 2010, when the median age was 41.8 years old. Alexandria had a smaller proportion of people under 20 years old (10.5%) than the county (23.5%).[13]
- **More ethnically diverse.** In 2010, 94% of Alexandria's population was White, non-Hispanic, 1% was American Indian, 2% was some other race alone, and 3% was two or more races. By 2018, 95% was White, non-Hispanic and 5% was two or more races. During that time, Thayer County declined 1% (two or more races).[14]
- **More likely to be at the federal poverty line.** The estimated poverty rate of all persons in Alexandria was 11.1% in 2018. The poverty rate in the county was 8.4%.[15]

12 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
13 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
14 United States Census Bureau. "2018 American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]
15 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Alexandria's economy had:

- **Similar mix of industries**. Employment sectors accounting for 10% or more of employment in Alexandria included Education, Agriculture, and Manufacturing. In comparison, Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[16]
- **Less household income**. Alexandria's median household income in 2018 ($42,500) was about $8,234 lower than the county ($50,734).[17]
- **More long-distance commuters**. About 19.7% percent of workers in Alexandria commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 32.4% of workers in Alexandria commute 30 minutes or more to work, compared to about 11.7% of the county workers.[18]

Major Employers

There are no major employers located within the Village of Alexandria. Residents commute to the neighboring communities for employment including Fairbury, Hebron, Daykin, Bruning, Deshler, Carleton, and Lincoln.

Housing

In comparison to the county, Alexandria's housing stock was: [19]

- **More owner occupied.** About 92.1% of occupied housing units in Alexandria are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Greater share of aged housing stock**. Alexandria has more houses built prior to 1970 than the county (82.1% compared to 67.1%).
- **Fewer multi-family homes**. The predominant housing type in the village is single family detached and Alexandria contains less multifamily housing with five or more units per structure than the county (0% compared to 3.8%). About 89.6% of housing in Alexandria was single-family detached, compared with 90.6% of the county's housing. Alexandria has a larger share of mobile and manufactured housing (10.4%) compared to the county (1.8%). The local planning team noted there are approximately three mobile homes located in the community.

This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

16 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
17 United States Census Bureau. "2018American Fact Finder: DP03: Selected Economic Characteristics." [database file]
18 United States Census Bureau. "2018American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]
19 United States Census Bureau. "2018American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

In the past five years Highway 53 through the village has undergone road improvement projects; however, there have been no new commercial or residential developments in the village. Additionally, there is no new commercial or residential development planned for the next five years. The population of the village has been declining in the past, which the local planning team attributes to a lack of a economic opportunities in the community.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. No LOMAs were identified for Alexandria.

Table ALE.2: Alexandria Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
241	79	$1,616,668	27	34%	$30,418,989

Source: County Assessor, GIS Workshop

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are no chemical storage sites in Alexandria which house hazardous materials.[20] In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident.

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 a part of this plan update.

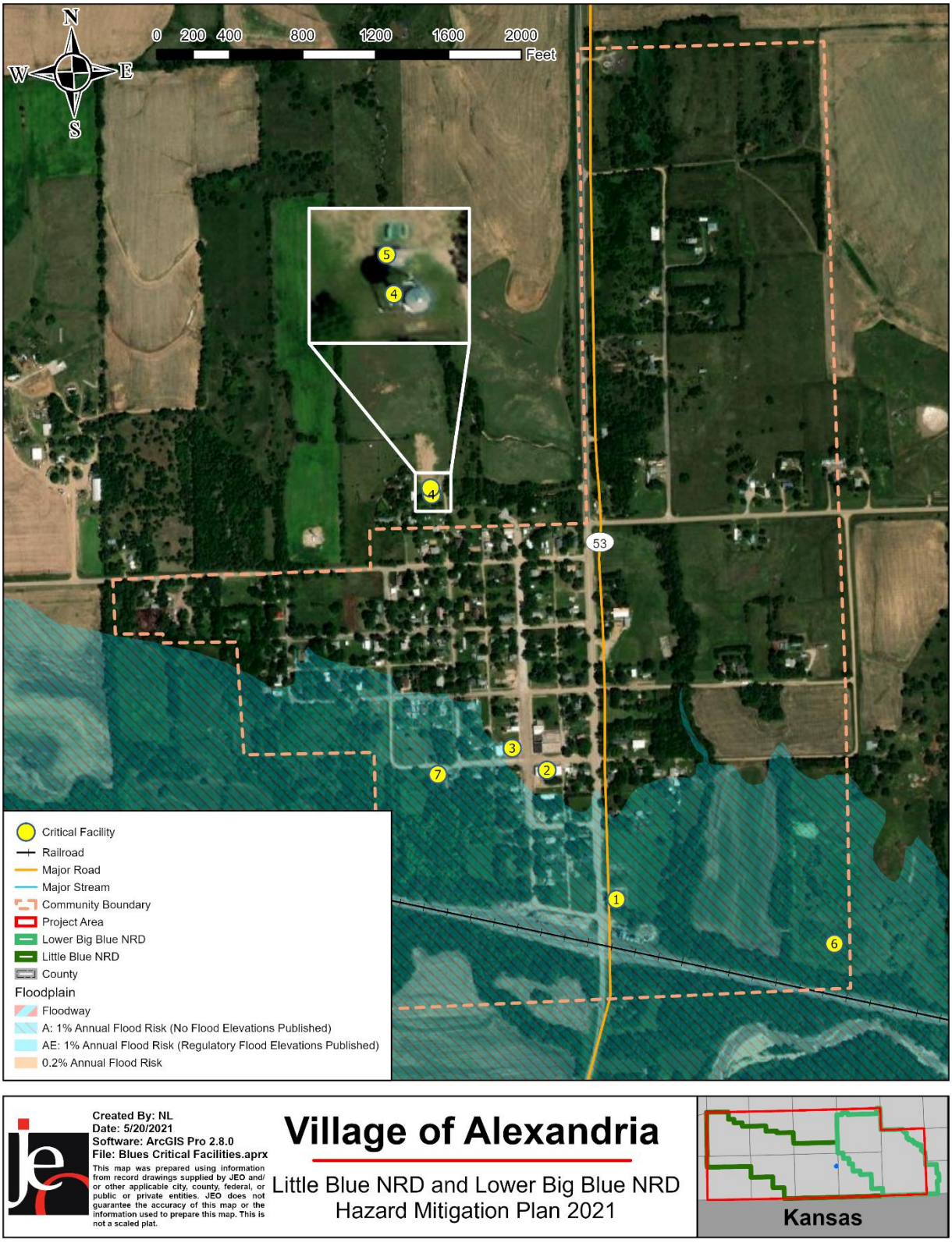
The following table and figure provide a summary of the critical facilities for the jurisdiction.

20 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

Table ALE.3: Alexandria Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Food, Water, Shelter	Lift Station	N	N	Y
2	Safety & Security	Fire Hall	Y	N	N
3	Food, Water, Shelter	City Hall/Library	Y	N	N
4	Food, Water, Shelter	Water Tower	N	Y	N
5	Food, Water, Shelter	Well North	N	Y	N
6	Food, Water, Shelter	Sewage Lagoon	N	N	Y
7	Food, Water, Shelter	Well	N	Y	Y

Figure ALE.3: Alexandria Critical Facilities



Historical Occurrences

See the Thayer County community profile for historical hazard events.

Hazard Prioritization

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

Flooding

Flooding is a particular worry in Alexandria from both riverine and flash flooding. The south side of town is within the floodplain and especially prone to flooding and experiences poor stormwater drainage, as well. The Little Blue River and Sandy Creek run close to town. The village experienced damages from floods in 2007 and 2008. The 2008 flood event caused damage to Highway 53 near the village. In 2015, Sandy Creek impacted the village and flooded the lift station and south well. The south well has since been removed. The village noted that drainage ditches through the village are insufficient and need to be cleared out. During the March 2019 flood event low lying areas south of 2nd Street were covered by flood waters. Areas underwater included 1st street, Harbine Street, and Highway 53. No facilities were damaged during this event.

The Village of Alexandria is surrounded by floodplain on the south and east. Arlington participates in the NFIP and has four policies in-force for $110,800. According to NeDNR as of February 2020, there are no repetitive flood loss properties in the Village.

Hazardous Materials (Transportation)

Rail and air incidents are of primary concern to the village specifically for a train derailment involving tankers carrying chemicals, or an accident involving propane trucks. Chemicals are transported along rail routes, and a train derailment occurred west of town circa 2012. Derailments have occurred in Alexandria proper going back to 1994 and 1970, per the National Transportation Safety Board The sewer lift station is located the corner of Highway 53 and the railroad tracks and is at risk of damage during transportation incidents.

Severe Winter Storms

Thayer County, including Alexandria, frequently experiences hazardous winter weather, sometimes including ice storms and blizzards. The main concern for this hazard is extended power outages, which could cause the town to run out of water and its lift station to shut down. The village reports that in 1998, one ice storm knocked out power in the village for a week. Less than one percent of the power lines in town are buried. No structural damage to facilities has occurred in recent years from winter storms.

The village owns a tractor, and the village board is in charge of snow removal. The village believes these resources are sufficient for snow removal. The village does not use snow fences. There are no designated snow routes in town.

Tornadoes and High Winds

Alexandria, like its surrounding county, is at risk to high winds and tornadoes. On April 14, 2012, an EF-0 tornado touched down about a mile north of town and damaged a home, destroyed a grain bin, and overturned some irrigation equipment. The village is concerned that a large tornado, as sometimes happens in the region, could cause catastrophic damage to the entire town; or that even if damage doesn't occur on that scale, a tornado could still disrupt the village's water and system systems.

Critical facilities in the village have not been damaged in the past by wind events. The village does not backup its municipal records. The village does not have a community safe room, so residents must rely on their own or a neighbor's basement during tornadoes. Thayer County offers text alerts for severe weather and the village has a mutual aid agreement with the Village of Daykin. The village does not promote tornado preparedness education efforts in the community.

Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Alexandria has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The village has a five-member village board, a clerk/treasurer, attorney, utility superintendent, and fire chief. The village also uses Thayer County Emergency Management for support.

Capabilities

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

Table ALE.4: Capability Assessment

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

Survey Components		Yes/No
	Civil Engineering	*No*
	Local Staff Who Can Assess Community's Vulnerability to Hazards	*No*
	Grant Manager	*No*
	Mutual Aid Agreement	*Yes*
	Other (if any)	
Fiscal Capability	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 and Outreach	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	*No*
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	*No*
	Natural Disaster or Safety related school programs	*No*
	StormReady Certification	*No*
	Firewise Communities Certification	*No*
	Tree City USA	*No*
	Other (if any)	

Table ALE.5: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Limited
Community Support to Implement Projects	Limited
Time to Devote to Hazard Mitigation	Moderate

Plan Integration

The village has a Comprehensive Plan last updated in 2016. The comprehensive plan addresses hazards including flooding, hazardous materials, and severe storms. The plan is aimed at safe growth in the community but no specific limitations have been outlined to avoid development in hazardous areas.

The local planning team noted the village has applied and received grant funds in the past for the new well and water main projects. The current municipal budget is limited to maintaining current facilities; however, there are no projects currently earmarked for funds.

The Local Emergency Operations Plan (LEOP) for Alexandria, which was last updated in 2016, is an annex of Thayer County's LEOP. The plan will be updated in 2021 and will include components of this HMP. The plan addresses hazards such as chemical releases, severe winter storms, severe thunderstorms, and tornadoes. The plan provides a clear assignment of responsibility in case of an emergency, shelter locations, and evacuation routes but does not identify any gaps related to a particular hazard.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The local planning team is responsible for reviewing and updating this community profile as changes occur or after a major event. The last review of the profile was performed in 2016; however, no changes or revisions were identified. The local planning team will include the Village Board and Clerk. The local planning team will review the plan no less than annually and will include the public in the review and revision process by sharing information at board meetings.

Mitigation Strategy

Continued Mitigation Actions

MITIGATION ACTION	BACKUP 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)	All hazards
ESTIMATED COST	$100,000
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	The village is currently exploring funding opportunities for generators.

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, ATV's, 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)	All hazards
ESTIMATED COST	$100,000
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Volunteer Fire Department
STATUS	The village is currently evaluating what equipment needs to be updated or replaced.

MITIGATION ACTION	COMPREHENSIVE DISASTER/EMERGENCY RESPONSE PLAN AND EXERCISE
DESCRIPTION	Develop a Comprehensive Village Disaster and Emergency Response plan
HAZARD(S)	All hazards
ESTIMATED COST	$40,000
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	INTERIOR DITCHES AND CULVERT IMPROVEMENTS
DESCRIPTION	Deepen drainage ditches and clean out culverts
HAZARD(S)	Flooding
ESTIMATED COST	$1,000+
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	Improvements are made as financially feasible. The southern portion of the village needs additional stormwater improvements.

MITIGATION ACTION	IMPROVE OR ACQUIRE PROPERTY AT HIGH RISK TO FLOODING
DESCRIPTION	Voluntary acquisition and demolition of properties prone to flooding will reduce the general threat of flooding for communities. Additionally, this can provide flood insurance benefits to those communities within the NFIP. Repetitive loss structures are typically the highest priority.
HAZARD(S)	Flooding
ESTIMATED COST	Varies by project
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	The village is currently evaluating properties in need of acquisition and exploring funding opportunities.

MITIGATION ACTION	STORMWATER SYSTEM AND DRAINAGE IMPROVEMENTS
DESCRIPTION	Improve storm sewers and drainage patterns in and around the community
HAZARD(S)	Flooding
ESTIMATED COST	$25,000
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	All areas in town need to be reconditioned and improved for drainage.

MITIGATION ACTION	TRAIN DERAILMENT RESPONSE TRAINING
DESCRIPTION	Provide training for first responders in the event of a train derailment and related Haz. Mat. incidents. Train first responders to properly secure and size up an incident site before railroad responders can arrive on scene.
HAZARD(S)	Hazardous Materials (Transportation)
ESTIMATED COST	$3,000
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	Medium
LEAD AGENCY	Village Board, Fire Department
STATUS	This project has not yet been started.

MITIGATION ACTION	WEATHER RADIOS
DESCRIPTION	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
HAZARD(S)	All hazards
ESTIMATED COST	$100
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	Low
LEAD AGENCY	Village Board, Fire Department
STATUS	The village is currently evaluating funding opportunities.

Removed Actions

MITIGATION ACTION	BACKUP MUNICIPAL RECORDS
DESCRIPTION	Develop protocol for back-up of critical municipal records.
HAZARD(S)	All hazards
REASON FOR REMOVAL	This action was identified as no longer a priority for the village.

MITIGATION ACTION	FLOODPLAIN MANAGEMENT
DESCRIPTION	Preserve natural and beneficial functions of floodplain land through measures such as retaining natural vegetation, restoring streambeds, and preserving open space in the floodplain.
HAZARD(S)	Flooding
REASON FOR REMOVAL	This action does not address local flooding concerns and thus is being removed.

MITIGATION ACTION	MUTUAL AID THROUGH WARN PROGRAM
DESCRIPTION	Establish mutual aid agreements through Water/Wastewater Agency Response Network (WARN) program
HAZARD(S)	All hazards
REASON FOR REMOVAL	This action does not address local concerns and has been removed by the local planning team.

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the village will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

MITIGATION ACTION	RESCUE/SNOW REMOVAL
DESCRIPTION	Improve capabilities to rescue those stranded in blizzards and increase the capacity to which snow can be removed from roadways after an event
HAZARD(S)	Severe Winter Storms
REASON FOR REMOVAL	This is no longer a priority for the village and has been removed.

COMMUNITY PROFILE

VILLAGE OF BELVIDERE

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table BEL.1: Village of Belvidere Local Planning Team

Name	Title	Jurisdiction
Dianne Waldmeier	Village Clerk	Village of Belvidere
Josh Waldmeier	Fire Chief	Belvidere Fire Department

Location and Geography

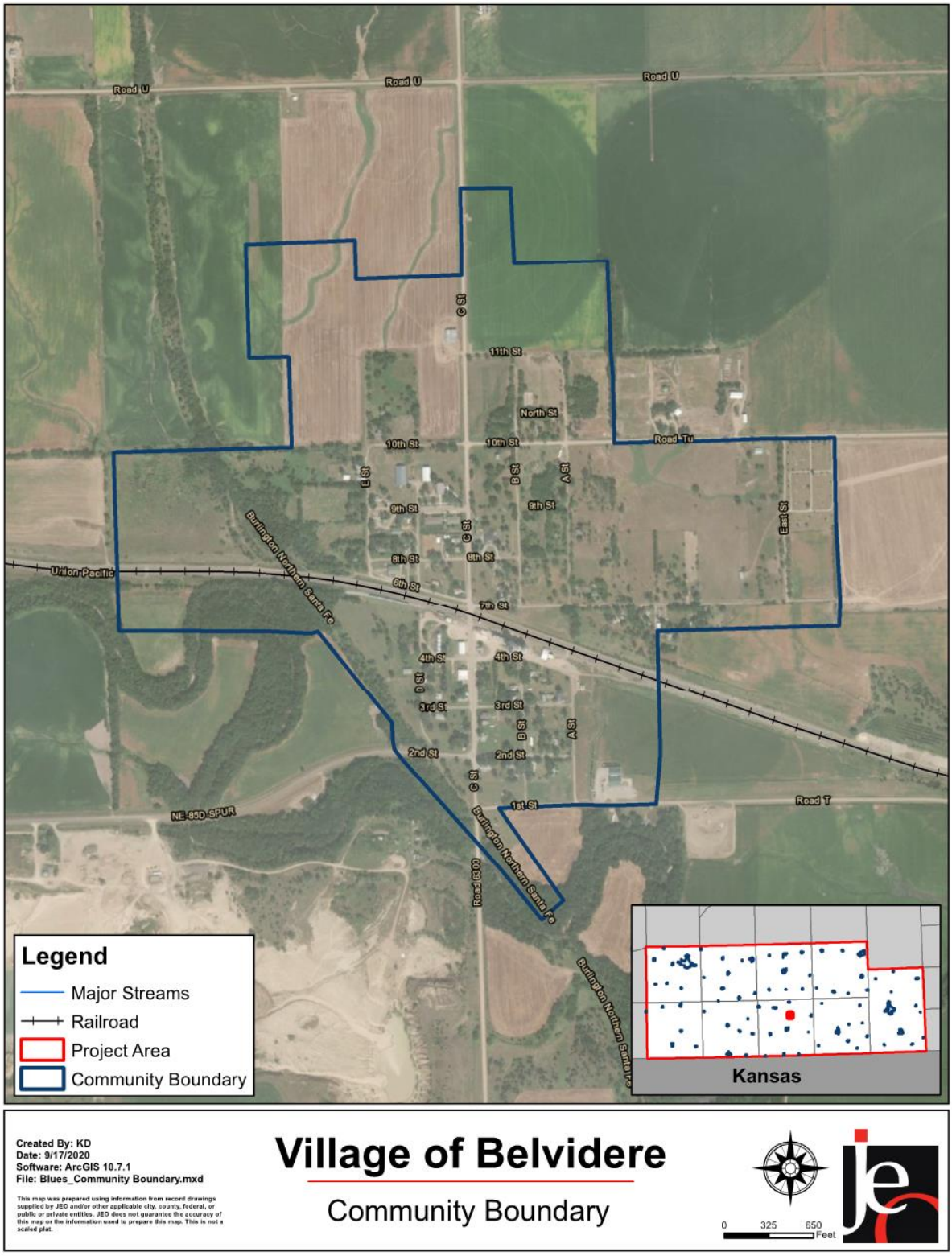
The Village of Belvidere is located in the central portion of Thayer County and covers an area of 0.48 square miles. Major waterways within the area include Big Sandy Creek, which runs east-west along the south side of the community. The area is not heavily forested, although there is some tree cover in the center of the community and along Big Sandy Creek. Thayer County has had five known instances of landslides, however it in unknown if these occurred near Belvidere. The village lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Belvidere's major transportation corridors include State Highway Spur 85D, which runs east-west and connects Belvidere to State Highway 81. Highway Spur 85D was identified as a route of top concern for the community and is the main road into Belvidere. There are gravel roads going north-south and east of Belvidere that are used by many vehicles. Highway Spur 85D accommodates on average 315 vehicles per day, 30 of which are heavy commercial vehicles.

NE-81 runs north-south immediately west of Belvidere, and accommodates on average 4,705 vehicles per day, 1,085 of which are heavy commercial vehicles. Belvidere has one railroad, the Union Pacific line. At Belvidere, the UPRR runs east-west and connects Belvidere to Hastings to the northwest. At Hastings, the UPRR continues to Kearney, and then turns east-west again to connect Belvidere to the rest of the line. There are chemicals transported along the Spur and north-south, plus the roads going east and north out of town, roads U and T out of Belvidere. Hazardous chemicals are transported on these routes but it is unknown the type and amount. No significant transportation spills have occurred locally. This information is important to hazard mitigation plans insofar as is suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

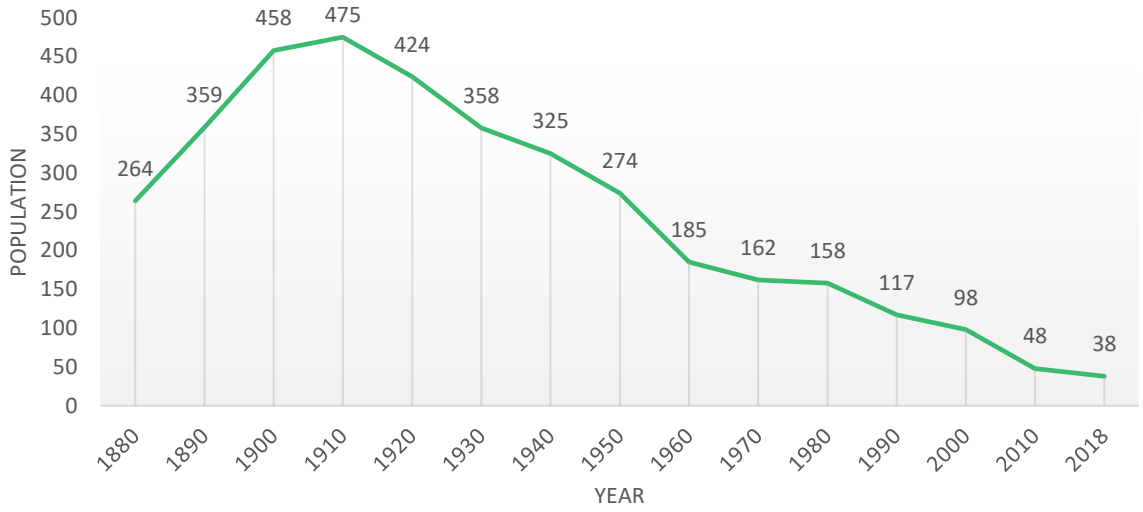
Figure BEL.1: Village of Belvidere Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1880 to 2018 (estimated). This figure indicates that the population of Belvidere has been declining continuously since 1910.This is notable for hazard mitigation because communities with declining population may also have a higher level of unoccupied housing that is not being up kept. Furthermore, areas with declining population may be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Decreasing populations can also represent decreasing tax revenue for the community which could make implementation of mitigation actions more fiscally challenging. The village's estimated population accounted for 1% of Thayer County's total population in 2018.

Figure BEL.2: Belvidere Population 1880-2018



Source: U.S. Census Bureau[21]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Belvidere's population was:

- **Younger.** The median age of Belvidere was 53 years old in 2018, compared with the county average of 47 years. Belvidere's population has grown older since 2010, when the median age was 25 years old. Belvidere had a smaller proportion of people under 20 years old (18.5%) than the county (23.5%).[22]
- **Less ethnically diverse.** In 2010, 96% of Belvidere's population was White, non-Hispanic and 4% was two or more races. By 2018, 100% was White, non-Hispanic. During that time, Thayer County declined 1% (two or more races).[23]
- **More likely to be at the federal poverty line.** The estimated poverty rate of all persons in Belvidere was 18.4% in 2018. The poverty rate in the county was 8.4%.[24]

21 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
22 United States Census Bureau. "2018 ACS American Fact Finder: S0101: Age and Sex." [database file]
23 United States Census Bureau. "2018 ACS American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]
24 United States Census Bureau. "2018 ACS American Fact Finder: DP03: Selected Economic Characteristics." [database file]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Belvidere's economy had:

- **Different mix of industries**. Employment sectors accounting for 10% or more of employment in Belvidere included Education, Manufacturing, Construction, Whole Sale Trade, and Retail Trade. In comparison, Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[25]
- **Similar household income**. Belvidere's median household income in 2018 ($50,625) was about the same as the county ($50,734).[26]
- **More long-distance commuters**. About 26.7% percent of workers in Belvidere commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 20% of workers in Belvidere commute 30 minutes or more to work, compared to about 11.7% of the county workers.[27]

Major Employers

In the community, the major employers are Bruning Grain and Feed, Toad's Bar and Waldemeier Well Repair. About 90 percent of the Belvidere population commutes to other communities for work, such as Hebron, Geneva, and Deshler.

Housing

In comparison to the county, Belvidere's housing stock was: [28]

- **Less owner occupied.** About 76.5% of occupied housing units in Belvidere are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Greater share of aged housing stock**. Belvidere has more houses built prior to 1970 than the county (82.3% compared to 67.1%).
- **Fewer multi-family homes**. The predominant housing type in the village is single family detached and Belvidere contains less multifamily housing with five or more units per structure than the county (0% compared to 3.8%). About 100% of housing in Belvidere was single-family detached, compared with 90.6% of the county's housing. Belvidere has a smaller share of mobile and manufactured housing (0%) compared to the county (1.8%). There are approximately 3 mobile homes in the community according to the local planning team.

This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

25 United States Census Bureau. "2018 ACS American Fact Finder: DP03: Selected Economic Characteristics." [database file]
26 United States Census Bureau. "2018 ACS American Fact Finder: DP03: Selected Economic Characteristics." [database file]
27 United States Census Bureau. "2018 ACS American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]
28 United States Census Bureau. "2018 ACS American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

Since 2016, there have been a few new developments. One new house has been built, while no new structures were developed in the floodplain or other hazardous areas. The streets in town need repair from heavy use of semi-trucks but currently the town does not have the resources to get them fixed.

According to the census data, Belvidere's population declined over the past few decades. This is likely due to lack of adequate housing and job opportunities for residents. High flood insurance also acts as a deterrent for residents to move to Belvidere.

There are no new housing developments planned for the next five years. One business on the north side of town is anticipated but has been limited by the COVID-19 pandemic.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. No LOMAs were identified for the Village of Belvidere.

Table BEL.2: Belvidere Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
125	29	$496,893	15	52%	$188,334

Source: County Assessor, GIS Workshop

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are no chemical storage sites in Belvidere which house hazardous materials[29]. In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident. No chemical spills have occurred locally.

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 a part of this plan update.

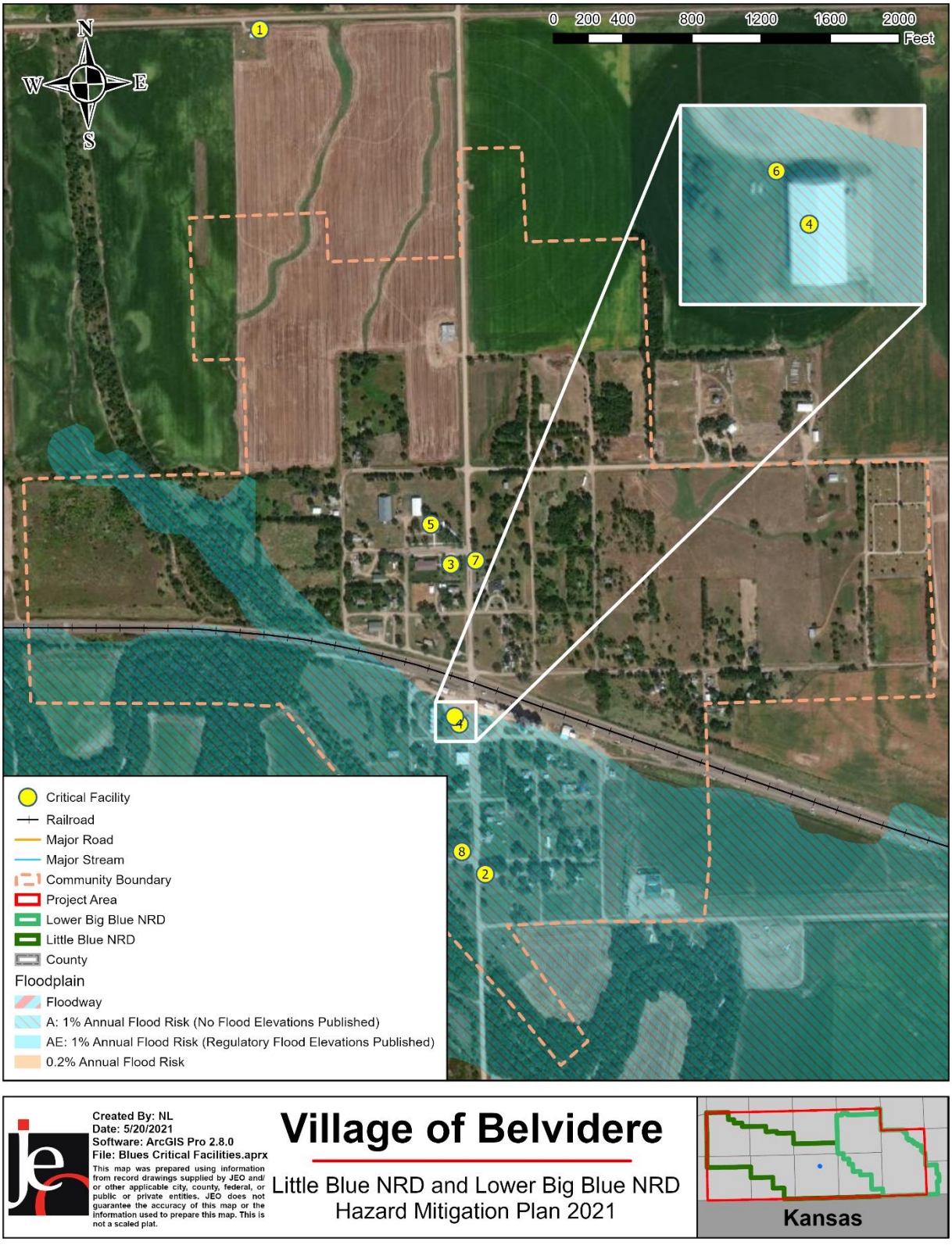
The following table and figure provide a summary of the critical facilities for the jurisdiction.

29 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

Table BEL.3: Belvidere Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Food, Water, Shelter	Bruning Wells	N	Y	N
2	Food, Water, Shelter	Church	Y	N	Y
3	Food, Water, Shelter	Community Center	Y	N	N
4	Safety & Security	Fire Hall & City Hall	N	Y	Y
5	Food, Water, Shelter	Museum	N	N	N
6	Safety & Security	Siren	N	N	Y
7	Food, Water, Shelter	Water Tower	N	N	N
8	Food, Water, Shelter	Well - Backup	N	N	Y

Figure BEL.3: Belvidere Critical Facilities



Historical Occurrences

See the Thayer County community profile for historical hazard events.

Hazard Prioritization

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

Flooding

While the Village of Belvidere has not suffered damages resulting from flooding, flash flooding is a concern on utilities, property, and safety of residents within the village. The southern portion of the Village is in the floodplain of Big Sandy Creek, which is located directly south of the village. About one third of the community is in the floodplain, with many residential structures at risk. The village noted poor stormwater drainage is a problem in these areas and they are currently working to clear ditches. On September 9, 2015, two small storms briefly developed and moved into the northwest corner of Thayer county, dropping two to three inches of rain in one hour. This resulted in a flash flood, with several inches of water flowing across Highway 6. During the March 2019 flood event no major damages were reported, but the southern portion of town experienced poor drainage and ponding. The county receives an average of 30 inches of rain annually according to NCEI.

Belvidere is a member of the NFIP and has 12 policies in force for $752,700. Belvidere has worked to buy out homes in the floodplain and identified actions including developing a flood mitigation plan, drainage ditch improvements, and doing a parcel level evaluation of flood prone properties.

Severe Thunderstorms

Belvidere's main concerns from hailstorms include damage to homes not covered by insurance, and damage to community infrastructure. Since 1996, there have been seven hailstorms which cost $170,000 in property damage and $800,000 in crop damage. Four severe thunderstorms have impacted the community as well. Golf ball-sized hail was reported in Belvidere on June 15, 2017 and smaller hail occurred on April 19, 2017, but no damages were reported. A hailstorm on June 6, 2015 caused about $10,000 in damage to the village's activity center.

Currently, critical facilities in the village are fitted with hail resistant building materials. Municipal facilities are insured against hail damage. The town does not have a tree board. Residents do not receive information regarding hail resistant building materials. Snow and hailstorms in the past have resulted in power outages that lasted multiple days. Since the last plan, the village has purchased a backup generator.

Severe Winter Storms

Like the rest of Thayer County, Belvidere experiences significant winter weather events, including heavy snow, ice accumulation, extreme cold, winter storms, and blizzards. While there have been no reported damages in the village from winter storms, a storm on February 2, 2016 closed I-80

from Lincoln to North Platte. Since Belvidere is located near this area, road closures and safety of residents are a concern. The village reports that on Christmas Eve in 2009, a blizzard struck, completely covering fire hydrants in snow. An October 1997 blizzard also damaged trees and power lines, and an ice storm in 1976 knocked out power as well. The main concern for this hazard is extended power outages, blocked roads that impede emergency response, and freezing of the water tower. Water lines in the village have frozen during severe winter weather.

The village owns a tractor with a scoop, and a pickup with a blade, and either village personnel or a local contractor is responsible for clearing the roads of snow. The village believes these resources are insufficient for snow removal and a new plow truck is needed. The village does not use snow fences. There are no designated snow routes in town. No power lines in town are buried.

Tornadoes and High Winds

Belvidere, like its surrounding county, is prone to damaging high winds and tornadoes. Since 1996, four high-wind storms and one tornado have effected the community. An EF-2 tornado on May 22, 2004 hit three miles east of town, traveling eight miles, damaging six farms, destroying a house, stacking three semi-trucks in a pile on top of one another, and causing $2.5 million in property damage and $500,000 in crop damage. The 2003 tornado that killed a person in Deshler also tracked close to town. On May 6, 2015, high winds blew an irrigation pivot into a pole, resulting in damage. Going back to 1949, a tornado killed three people in Belvidere. While no recent tornadoes have affected Belvidere specifically, the climatology of the region indicates it is a concern.

The village's main concern about tornados is public safety, as there are no public shelters at the village's museum or activity center for anyone who might be attending events there. The village does not have a community safe room, so residents must rely on their own or a neighbor's basement or storm shelter for safety.

Critical facilities in the village have not been damaged by tornadoes in recent history. The village does not backup its municipal records. Thayer County offers text alerts for severe weather. The village does not promote tornado preparedness education efforts in the community, and the village reports that such efforts occur through regional media. In the event of a disaster, the village has a mutual aid agreement with the Alexandria, Bruning, Carleton, and Hebron.

Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Belvidere has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The village has a four-member village board, a clerk/treasurer, fire chief, street commissioner and water commissioner.

Capabilities

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

Table BEL.4: Capability Assessment

Survey Components		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	*No*
	Capital Improvements Plan	*No*
	Economic Development Plan	*No*
	Local Emergency Operational Plan	*Yes*
	Floodplain Ordinance	*Yes*
	Zoning Ordinance	*No*
	Subdivision Regulation/Ordinance	*No*
	Building Codes	*No*
	Floodplain Management Plan	*No*
	Storm Water Management Plan	*No*
	National Flood Insurance Program	*Yes*
	Community Rating System	*No*
Administrative & Technical Capability	Planning Commission	*No*
	Floodplain Administration	*Yes*
	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*
Fiscal Capability	1 & 6 Year Plan	*Yes*
	Applied for grants in the past	*Yes*
	Awarded a grant in the past	*Yes*
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	*No*
	Gas/Electric Service Fees	*No*
	Storm Water Service Fees	*No*
	Water/Sewer Service Fees	*No*
	Development Impact Fees	*No*
	General Obligation Revenue or Special Tax Bonds	*No*
Education and Outreach	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*

Table BEL.5: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Limited
Community Support to Implement Projects	Limited
Time to Devote to Hazard Mitigation	Limited

Plan Integration

The local planning team indicates municipal funds are insufficient to pursue new capital projects and the village is limited to maintaining current facilities and systems. A large portion of funds have been dedicated to cleaning ditches in the south side of town. The amount of municipal funds has mostly stayed the same over recent years. In the last five years, the village has applied for two grants, and won one from the Little Blue NRD.

The village has a floodplain ordinance which limits development in the floodplain and requires all structures to be elevated to base flood elevation. While the village does not have its own zoning ordinance or building codes adopted, they follow all county and state requirements.

The Local Emergency Operations Plan (LEOP) for Belvidere, which was last updated in 2016, is an annex of Thayer County's LEOP. The plan will be updated in 2021 and will include components of this HMP. The plan addresses hazards such as chemical releases, severe winter storms, severe thunderstorms, and tornadoes. The plan provides a clear assignment of responsibility in case of an emergency, shelter locations, and evacuation routes but does not identify any gaps related to a particular hazard.

No other planning mechanisms were identified which integrate hazard mitigation goals and objectives.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The local planning team is responsible for reviewing and updating this community profile as changes occur or after a major event. It is unknown when the community profile last reviewed by the local planning team, and no revisions or changes were identified during the last review. For Belvidere, the positions responsible for reviewing and updating the community profile outside of the five-year update are the village clerk, fire chief, village board, street commissioner, and water commissioner. The jurisdiction intends to review and revise the profile annually. The village will notify and involve the public in the plan review and revision through board meetings.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	BACKUP GENERATOR
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)	All hazards
STATUS	A new backup generator has been purchased for village use.

MITIGATION ACTION	DRAINAGE DITCHES
DESCRIPTION	Deepen drainage ditches and clean out culverts.
HAZARD(S)	Flooding
STATUS	A large portion of municipal funds have been dedicated to cleaning ditches in the south side of town.

Continued Mitigation Actions

MITIGATION ACTION	ALERT 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)	Tornadoes
ESTIMATED COST	$25,000
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	COMPREHENSIVE DISASTER/EMERGENCY RESPONSE PLAN
DESCRIPTION	Develop a Comprehensive Village Disaster and Emergency Response plan
HAZARD(S)	All hazards
ESTIMATED COST	$40,000
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	FIRST AID TRAINING
DESCRIPTION	Promote first aid training for all residents.
HAZARD(S)	All hazards
ESTIMATED COST	$500
FUNDING	Village general funds, HMA
TIMELINE	Ongoing
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	FLOOD MITIGATION STUDY AND/OR PARCEL LEVEL FLOOD MITIGATION PLAN
DESCRIPTION	Conduct a study examining parcels located in flood prone areas and identify mitigation measures that can reduce future impacts. Preliminary drainage studies and assessments can be conducted to identify and prioritize design improvements to address site specific localized flooding/drainage issues to reduce and/or alleviate flooding. Stormwater master plans can be developed to help identify stormwater problem areas and potential drainage improvements.
HAZARD(S)	Flooding
ESTIMATED COST	$25,000 or $1,000 per home
FUNDING	Village general funds, HMA
TIMELINE	5+ years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	Belvidere has purchase homes in the floodplain in the past and had them inspected and burned. This process costed about $1,000 per house. As of this 2021 plan, two additional homes need to be removed.

MITIGATION ACTION	FLOODPLAIN MANAGEMENT
DESCRIPTION	Preserve natural and beneficial functions of floodplain land through measures such as retaining natural vegetation, restoring streambeds, and preserving open space in the floodplain.
HAZARD(S)	Flooding
ESTIMATED COST	Unknown
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	INSTALL VEHICULAR BARRIERS
DESCRIPTION	Install highway railings along two locations of steep ditches.
HAZARD(S)	Hazardous Materials (Transportation)
ESTIMATED COST	$15,000
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	PUBLIC EDUCATION AND OUTREACH
DESCRIPTION	Through 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, purchasing equipment such as overhead projectors and laptops.
HAZARD(S)	All hazards
ESTIMATED COST	$200
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	TREE CARE ORDINANCE
DESCRIPTION	Pass and enforce a tree care ordinance to improve tree health and remove dangerous trees and limbs.
HAZARD(S)	All hazards
ESTIMATED COST	$25,000
FUNDING	Village general funds
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

Removed Mitigation Actions

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the village will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

COMMUNITY PROFILE

VILLAGE OF BRUNING

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table BRU.1: Village of Bruning Local Planning Team

Name	Title	Jurisdiction
Sarah Krehnke	Clerk	Village of Bruning
Jim Hogeland	Board Member	Village of Bruning
Zach Messman	Board Chairman	Village of Bruning
Tom Hoesen	Board Member	Village of Bruning
Colt Farringer	Emergency Manager, Floodplain Manager	Thayer County

Location and Geography

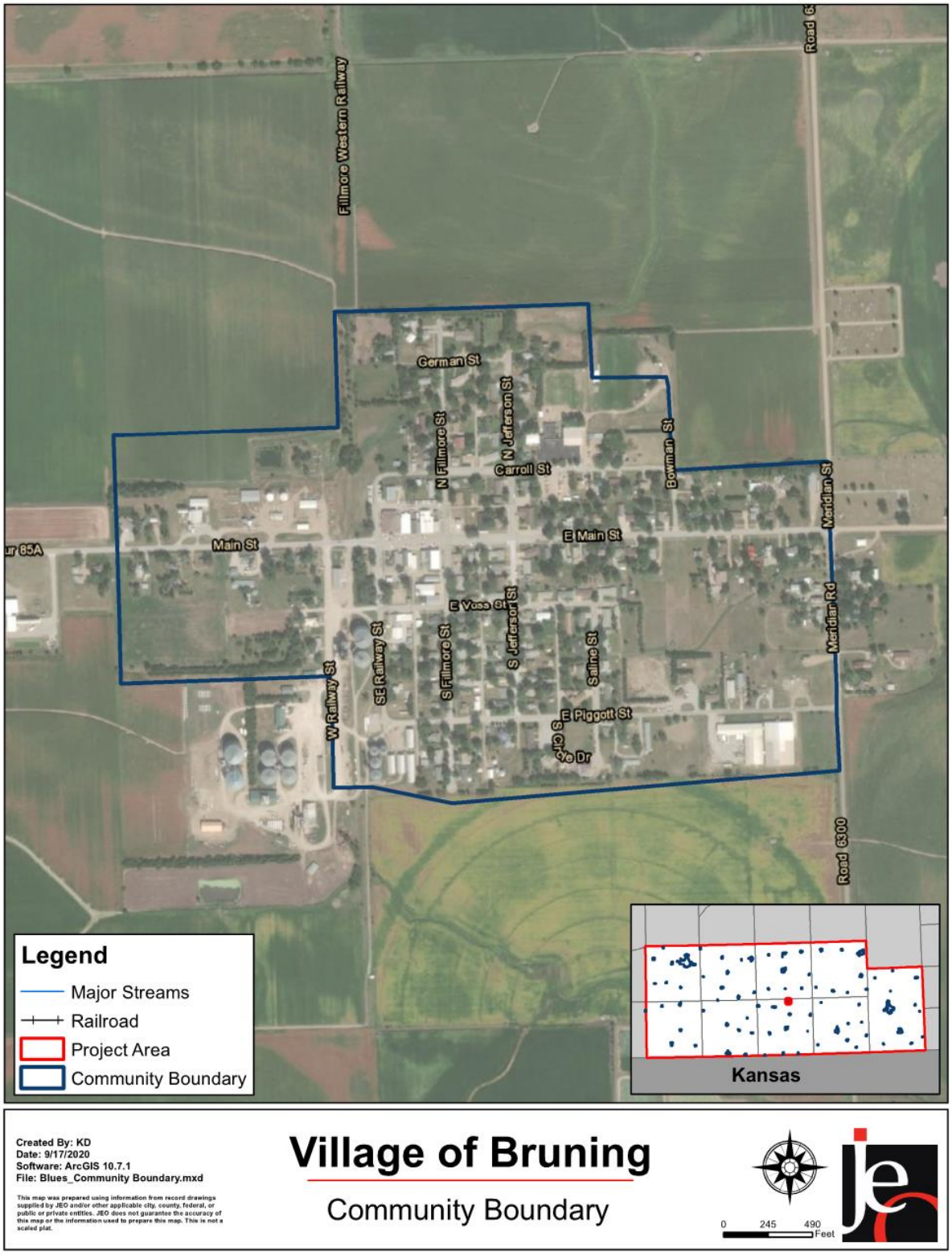
The Village of Bruning is located in the north central portion of Thayer County and covers an area of 0.28 square miles. Major waterways within the area include Dry Sandy Creek, which is approximately 3,000 feet northeast of the community. The area is not heavily forested, nor is it located in a geographic area of the state prone to landslides. The village lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Bruning's major transportation corridors include State Highway Spur 85C, which runs east-west and connects Bruning and State Highway 81. Highway Spur 85C accommodates on average 1,060 vehicles, 110 of which are heavy commercial vehicles. NE-81 accommodates on average 5,165 vehicles per day, 1,470 of which are heavy commercial vehicles. Ammonia is transported through the community on Spur 85C and on Road 6300, but no transportation spills have occurred within the community.

Some critical facilities are located along these major routes, specifically the combined village office and community building, fire hall, and church. While these critical facilities have not been affected by the transportation of chemicals in the past, a spill or accident near one of these facilities may lead to an evacuation. Bruning does not have any rail lines. This information is important to hazard mitigation plans insofar as is suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

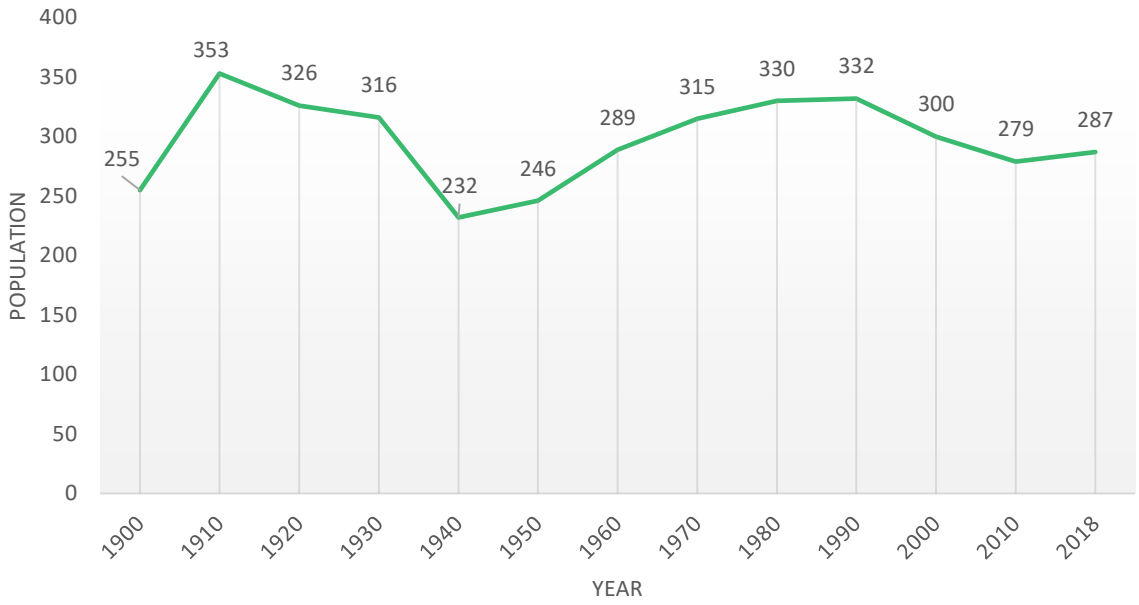
Figure BRU.1: Village of Bruning Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1900 to 2018 (estimated). This figure indicates that the population of Bruning experienced steady growth from 1940 to 1990 but declined between 1990 and 2010. However, estimated census information may be indicating that population change has stabilized. While there are early indications that population change may be stabilized or increasing, several decades of population decline can lead to a higher level of unoccupied housing that is not being up kept. Furthermore, areas with declining population may be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Decreasing populations can also represent decreasing tax revenue for the community which could make implementation of mitigation actions more fiscally challenging. The village's estimated population accounted for 6 percent of Thayer County's total population in 2018.

Figure BRU.2: Bruning Population 1900-2018



Source: U.S. Census Bureau[30]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Bruning's population was:

- **Older.** The median age of Bruning was 50.5 years old in 2018, compared with the county average of 47 years. Bruning's population has grown younger since 2010, when the median age was 59.8 years old. Bruning had a smaller proportion of people under 20 years old (21.3%) than the county (23.5%).[31]
- **Less ethnically diverse.** In 2010, 100% of Bruning's population was White, non-Hispanic. In 2018, the population remained 100% White, non-Hispanic. During that time, Thayer County declined 1% (two or more races).[32]

30 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
31 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
32 United States Census Bureau. "2018 American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]

- **Less likely to be at the federal poverty line.** The estimated poverty rate of all persons in Bruning was 6.6% in 2018. The poverty rate in the county was 8.4%.[33]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Bruning's economy had:

- **Different mix of industries**. Employment sectors accounting for 10% or more of employment in Bruning included Education and Agriculture. In comparison, Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[34]
- **Less household income**. Bruning's median household income in 2018 ($48,214) was about $2,520 lower than the county ($50,734).[35]
- **Fewer long-distance commuters**. About 77.2% percent of workers in Bruning commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 7.9% of workers in Bruning commute 30 minutes or more to work, compared to about 11.7% of the county workers.[36]

Major Employers

Major employers in the community are Bruning-Davenport Unified School District, Norder Ag, Bruning Bank, and Metal-Tech. Approximately 14 percent of residents commute to other communities for work such as Fairbury or Geneva.

Housing

In comparison to the county, Bruning's housing stock was: [37]

- **More owner occupied.** About 85.3% of occupied housing units in Bruning are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Smaller share of aged housing stock**. Bruning has fewer houses built prior to 1970 than the county (58.5% compared to 67.1%). 57.3 percent of the community's housing was built before 1960.
- **Fewer multi-family homes**. The predominant housing type in the village is single family detached and Bruning contains less multifamily housing with five or more units per structure than the county (0% compared to 3.8%). About 97.2% of housing in Bruning was single-family detached, compared with 90.6% of the county's housing. Bruning has a smaller share of mobile and manufactured housing (0%) compared to the county (1.8%).

This housing information is relevant to hazard mitigation as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

33 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
34 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
35 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
36 United States Census Bureau. "2018 American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]
37 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

Since the 2016 update, two new businesses have opened in Bruning, three houses were demolished, and one business closed. Bruning Grain and Feed also opened a new bin. No buildings or facilities were developed in the floodplain. In the next five years, one new house is anticipated to be built and a residential subdivision is under consideration. One person is currently searching for retail space in town, and an antique store was recently purchased.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. No LOMAs were reported in the village.

Table BRU.2: Bruning Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
284	139	$8,936,418	0	0%	$0

Source: County Assessor, GIS Workshop

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are four chemical storage sites in Bruning which house hazardous materials. However, the community identified a fifth chemical storage location at Messman Fertilizer. In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident. According to the planning team, no critical facilities or vulnerable populations are located near chemical fixed sites. No chemical spills have occurred locally.

Table BRU.3: Chemical Storage Fixed Sites

Facility Name	Address	Located in Floodplain?
Bruning Grain & Feed Co	200 W Railway	No
Norder Supply Inc	6215 Spur 85C	No
Lichti Bros Oil Co Inc	320 E Railway St	No
Metal-Tech Partners	525 Piggott	No
Messman Fertilizer	W Main St	No

Source: Nebraska Department of Environment and Energy[38]

38 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

Critical Facilities

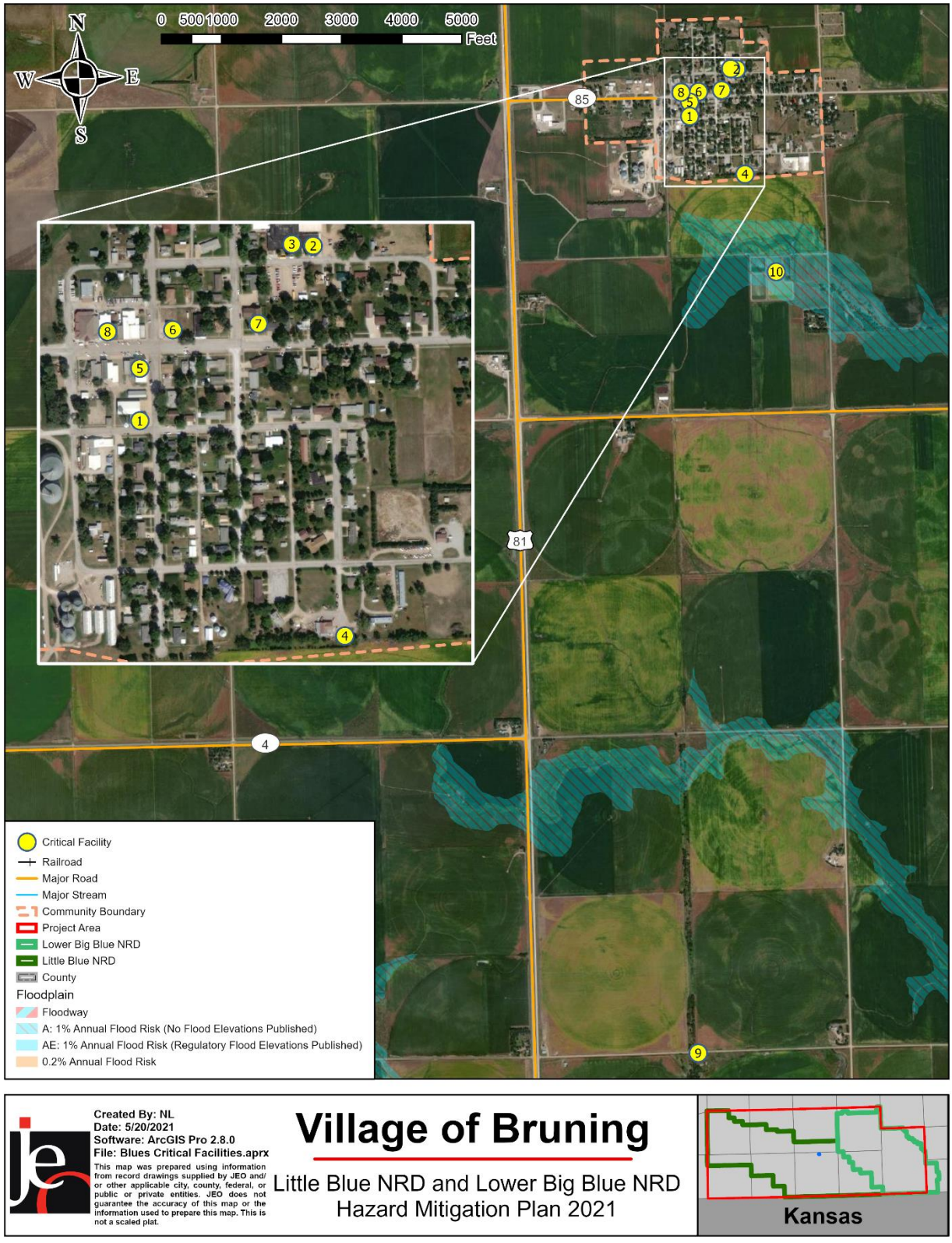
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during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

The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table BRU.4: Bruning Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Safety & Security	Village Shop	N	N	N
2	Food, Water, Shelter	Elementary School	Y	N	N
3	Food, Water, Shelter	High School	Y	Y	N
4	Health and Medical	Lift station	N	Y	N
5	Food, Water, Shelter	Village Office and Community Building (Opera House)	Y	N	N
6	Safety & Security	Fire Hall	N	N	N
7	Food, Water, Shelter	Trinity Lutheran Church	Y	N	N
8	Food, Water, Shelter	Bruning Grocery	N	N	N
9	Food, Water, Shelter	Wellhouse	N	Y	N
10	Health and Medical	Lagoons	N	Y	Y

Figure BRU.3: Bruning Critical Facilities



Historical Occurrences

See the Thayer County community profile for historical hazard events.

Hazard Prioritization

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

Flooding

Although the floodplain is not located within the jurisdictional boundary of Bruning and riverine flooding is not of concern, flash flooding is a particular worry in the community due to drainage concerns. In 2014, eight to 10 inches of rain fell in one storm. With poor drainage, this creates a flood risk for the community. North Jefferson Street and other city streets are prone to flooding, in part because the town's topography is flat. Dry Sandy Creek is located to the northeast and an unnamed water source to the south and southeast have not caused issues to the community. No critical facilities in the village are known to have been damaged by flooding.

Currently, the village clears the drainage ditch every few years, which travels north out of town. To mitigate the impacts of flash flooding, Bruning identified drainage improvements as a future project. Bruning is a member of the NFIP, but as of November 2020, there are no policies in force for the community.

Hazardous Materials (Fixed Sites)

No major fixed site chemical spills have occurred in Bruning, but there are storage sites of concern with propane, nitrogen gas, and dry and liquid fertilizer. Because Bruning is a small village, chemical facilities are located near the village's critical facilities, as well as some older residents, who comprise a vulnerable population.

Local residents are not aware about the potential risk of a chemical incident and appropriate response in the event of a spill. The fire department is trained to respond to these incidents and have appropriate gear for response. The community is interested in conducting a tabletop exercise for hazardous spills to test response and improve education and outreach.

Severe Thunderstorms

Severe thunderstorms are frequent occurrences in Thayer County, and Bruning is prone to these storms. Thirty-six storm events have occurred in Bruning since 1998, 14 of which have been since 2016. A storm on September 7, 2019 produced golf ball-sized hail and extreme winds, resulting in $25,000 worth of property damage and $1,000,000 in crop damage. Additional village concerns from this hazard are power lines being snapped, disruptions to businesses, broken windows, loss of inventory due to property damage, and water in the homes of basements from the heavy rain that often accompanies severe thunderstorms.

Since the last HMP update, Bruning has backed up municipal records and added generators to wells south of town, and the sewer plant has a dedicated unit. Less than five percent of the power lines in the village are buried. There are no weather radios in critical facilities, as personnel rely on Internet access and phone apps for warning information. There are occasionally hazardous trees in the city, which are removed by the village as needed. Warning sirens are identified as part of the community's mitigation strategy.

Severe Winter Storms

Thayer County, including Bruning, frequently experiences hazardous winter weather. The village reports that one winter storm in December 2009 knocked out power for 2-3 days, while another in 1997 knocked out power for a week. The village is concerned about these storms damaging trees, power lines, and water pipes. It is also concerned about senior citizens and people experiencing medical emergencies being stranded and inaccessible due to blocked roads. Winter storms have damaged the roofs of critical facilities in town.

The village owns a tractor blade and loader, and the village maintenance department and two to four local farmers with whom the village contracts are in charge of snow removal. The village believes these resources are sufficient for snow removal. The village does not use snow fences. There are no designated snow routes in town. Less than five percent of the power lines in town are buried. The community is interested in updating the building codes to eliminate flat roofs in new construction.

Tornadoes and High Winds

Bruning, like its surrounding county, is prone to high winds and tornadoes. Most notably an F-3 tornado on June 12, 1984 struck just south of town, caused $2.5 million in property damage, and injured five people. A tornado complex on May 22, 2004 included a EF-2 tornado which struck just east of town as part of the "Belvidere/Bruning Tornado" complex and the EF-1 "Bruning/Ohiowa Tornado" which was a 3.5 mile tract east of Bruning to Ohiowa. The EF-2 tornado event struct six farmsteads, destroyed a home, machine shed, and several center pivots. The EF-1 tornado struck one farmstead and dislodged the home from its foundation. No tornadoes have been recorded in Bruning since then. The village is concerned that a large tornado, as sometimes happens in the region, could cause catastrophic damage to the entire town, which is a small community.

Village records are now backed up and stored offsite. The village does not have a community safe room, so residents must rely on their own or a neighbor's basement or storm shelter for safety. Thayer County offers text alerts for severe weather. The village participates in an annual state-wide tornado drill. The village has explored options for a new tornado siren but funding is still needed. In the future, Bruning would like to buy this siren to improve safety and response.

Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Bruning has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The village has a five-member village board, clerk, treasurer, attorney, water operator, sewer operator and fire chief.

Capabilities

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

Table BRU.5: Capability Assessment

Survey Components		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Economic Development Plan	No
	Local Emergency Operational Plan	Yes
	Floodplain Ordinance	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Building Codes	Yes – through County
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	National Flood Insurance Program	Yes
	Community Rating System	No
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	Yes
Fiscal Capability	1 & 6 Year Plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	Looking into sales tax
Education and Outreach	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire	Yes

Survey Components		Yes/No
	safety, household preparedness, environmental education)	
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No

Table BRU.6: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Moderate
Community Support to Implement Projects	Moderate
Time to Devote to Hazard Mitigation	Limited

Plan Integration

The Village of Bruning currently has a Comprehensive Plan, Local Emergency Operations Plan (LEOP), Zoning Ordinance, and Building Codes (through the county). During this planning process, these mechanisms were encouraged to incorporate principles of the hazard mitigation plan, and vice versa.

The village's Comprehensive Plan was updated in 2011. The village follows and adheres to zoning and building codes as established by Thayer County. The village applied for a partial Emergency Management grant for a new tornado siren. However, this project was not funded. The local planning team noted the annual municipal funds are limited to maintaining current facilities and systems. Funds are not specifically dedicated to a specific project and have mostly stayed the same in recent years. Additional funding through grants or taxes would be needed to pursue additional mitigation activities.

The Local Emergency Operations Plan (LEOP) for Belvidere, which was last updated in 2016, is an annex of Thayer County's LEOP. The plan addresses hazards such as chemical releases, severe winter storms, severe thunderstorms, and tornadoes. The plan provides a clear assignment of responsibility in case of an emergency, shelter locations, and evacuation routes but does not identify any gaps related to a particular hazard. The village office is familiar with the LEOP. The village also has a mutual aid agreement with Thayer County and neighboring fire districts.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The local planning team comprised of the Village Clerk and Trustees, will review the Community Profile annually. The public will be notified and involved in the update review process through village board meetings and required notifications.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	BACK UP MUNICIPAL RECORDS
DESCRIPTION	Develop protocol for backup of critical municipal records.
HAZARD(S)	All hazards
STATUS	A system for backing up records regularly is in place. They are stored offsite and backed up daily.

MITIGATION ACTION	CIVIL SERVICE IMPROVEMENTS
DESCRIPTION	Improve emergency rescue and response equipment and facilities by providing additional equipment or updating existing emergency response equipment. This can include fire trucks, ATV's, 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. This would also include constructing a new fire hall and shelter.
HAZARD(S)	All hazards
STATUS	A new fire hall was completed in 2019 and acquired a new ambulance in 2018. New fire trucks were purchased in 2020.

Continued Mitigation Actions

MITIGATION ACTION	ALERT 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)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
ESTIMATED COST	$20,000
FUNDING	Tax revenue, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	Village applied for Emergency Management grant funding for a siren but did not receive funding. The Village is interested in pursing HMA grant funding. Will work with EM to complete application.

MITIGATION ACTION	EMERGENCY EXERCISE: HAZARDOUS SPILL
DESCRIPTION	Utilize exercise to prepare for potential explosions or hazardous spills. Ensure that nearby businesses and residents have appropriate plans in place.
HAZARD(S)	Hazardous Materials
ESTIMATED COST	$2,500
FUNDING	Tax revenue, HMA
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	Village Board, Emergency Management
STATUS	This project has not yet been started.

MITIGATION ACTION	HIGHER BUILDING CODES AND STANDARDS
DESCRIPTION	Prohibit the installation of flat roofs in new construction.
HAZARD(S)	All hazards
ESTIMATED COST	Staff time
FUNDING	Tax revenue
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	The board will work with the county to address improvements in codes and flat roof installation, which is needed to reduce damages to roofs during heavy snow and other hazardous events.

MITIGATION ACTION	INTERIOR DITCHES AND CULVERT IMPROVEMENTS
DESCRIPTION	Deepen drainage ditches and clean out culverts.
HAZARD(S)	Flooding
ESTIMATED COST	$10,000
FUNDING	Tax revenue, HMA
TIMELINE	2-3 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	Drainage ditch north of town is regularly maintained and cleaned out. Deepening of the ditch may be needed in the future.

MITIGATION ACTION	STORMWATER SYSTEM AND DRAINAGE IMPROVEMENTS
DESCRIPTION	Improve storm sewers and drainage patterns in and around the community. Upsize culverts to convey higher flows.
HAZARD(S)	Flooding
ESTIMATED COST	$10,000-$20,000
FUNDING	Tax revenue, HMA
TIMELINE	5+ years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	The village has begun the process to implement a sales tax to help pay for projects.

Removed Mitigation Actions

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the village will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

COMMUNITY PROFILE

VILLAGE OF CHESTER

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table CHE.1: Village of Chester Local Planning Team

Name	Title	Jurisdiction
Roger Crouse	Board Chairman	Village of Chester
Loren Pachta	Board Member	Village of Chester
Mark Miller	Board Member	Village of Chester
Joseph Carbonneau	Board Member	Village of Chester
Ashley Wit	Board Member	Village of Chester

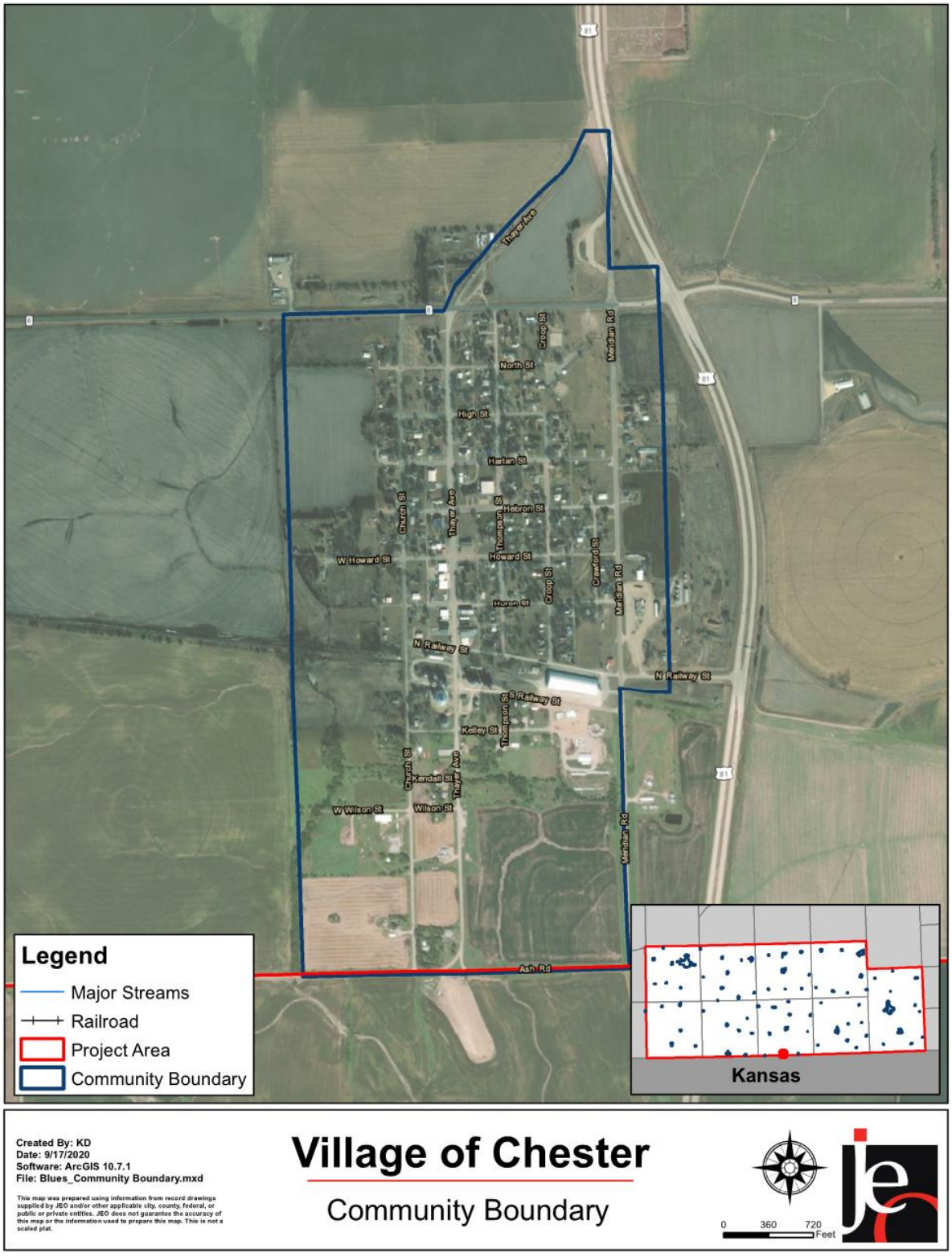
Location and Geography

The Village of Chester is located in the south central portion of Thayer County and covers an area of 0.59 square miles. There are no major waterways within the area. The area is not heavily forested, nor is it located in a geographic area of the state prone to landslides. The village lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Chester's major transportation corridors include Highway 8, which runs east-west just north of Chester. Highway 8 accommodates on average 635 vehicles per day, 80 of which are heavy commercial vehicles. NE-81 runs north-south just east of Chester and accommodates on average 3,460 vehicles per day, 1,230 of which are heavy commercial vehicles. Chester does not have rail lines; however, hazardous agricultural and petroleum products are regularly transported along the highway. This information is important to hazard mitigation plans insofar as it suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

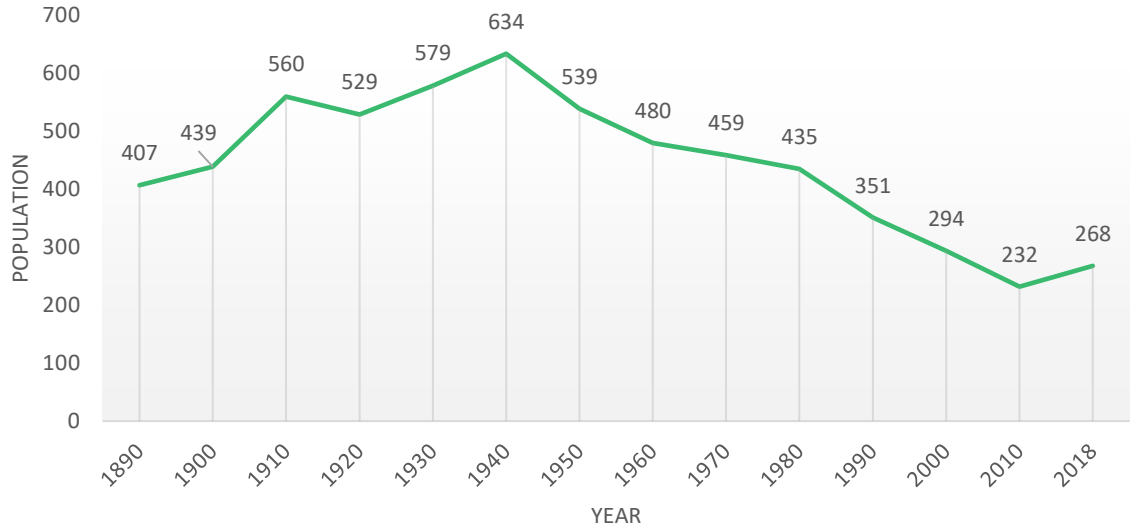
Figure CHE.1: Village of Chester Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1890 to 2018 (estimated). This figure indicates that the population of Chester has been declining since the 1940s.This is notable for hazard mitigation because communities with declining population may also have a higher level of unoccupied housing that is not being kept up. Furthermore, areas with declining population may be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Decreasing populations can also represent decreasing tax revenue for the community which could make implementation of mitigation actions more fiscally challenging. The village's estimated population accounted for 5% of Thayer County's total population in 2018.

Figure CHE.2: Chester Population 1890-2018



Source: U.S. Census Bureau[39]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Chester's population was:

- **Younger.** The median age of Chester was 46 years old in 2018, compared with the county average of 47 years. Chester's population has grown older since 2010, when the median age was 36 years old. Chester had a larger proportion of people under 20 years old (26.9%) than the county (23.5%).[40]
- **More ethnically diverse.** In 2010, 97% of Chester's population was White, non-Hispanic, 1% was Asian, and 2% was two or more races. By 2018, 98% was White, non-Hispanic and 2% was American Indian. During that time, Thayer County declined 1% (two or more races).[41]
- **More likely to be at the federal poverty line.** The estimated poverty rate of all persons in Chester was 13.1% in 2018. The poverty rate in the county was 8.4%.[42]

39 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
40 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
41 United States Census Bureau. "2018 American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]
42 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Chester's economy had:

- **Similar mix of industries**. Employment sectors accounting for 10% or more of employment in both Chester and Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[43]
- **Less household income**. Chester's median household income in 2018 ($45,208) was about $5,526 lower than the county ($50,734).[44]
- **More long-distance commuters**. 18% of workers in Chester commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 38.5% of workers in Chester commute 30 minutes or more to work, compared to about 11.7% of the county workers.[45]

Major Employers

The major employers in Chester include AGP and Nutrien Ag Solutions. The local planning team noted approximately 10% of the population commute for work. Commuting locations include the Hebron Hospital, Metal Quest (Hebron), nursing homes, and Reinke MF6 in Deshler.

Housing

In comparison to the county, Chester's housing stock was: [46]

- **More owner occupied.** About 92.4% of occupied housing units in Chester are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Greater share of aged housing stock**. Chester has more houses built prior to 1970 than the county (87% compared to 67.1%).
- **Fewer multi-family homes**. The predominant housing type in the village is single family detached and Chester contains less multifamily housing with five or more units per structure than the county (0% compared to 3.8%). About 95.7% of housing in Chester was single-family detached, compared with 90.6% of the county's housing. Chester has a smaller share of mobile and manufactured housing (1.4%) compared to the county (1.8%). However, the local planning team noted that as of 2020 there were no livable mobile homes in the community.

This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

43 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
44 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
45 United States Census Bureau. "2018 American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]
46 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

In the past five years the Village has built one new home and demolished 11 dilapidated houses in the community. The village's population has experienced relatively steady decline which the local planning team attributes to a lack of available employment options in town. As of 2020 there were no additional residential or industrial developments planned.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. No LOMAs were reported in the Village of Chester.

Table CHE.2: Chester Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
346	120	$4,424,201	0	0%	$0

Source: County Assessor, GIS Workshop

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are two chemical storage sites in Chester which house hazardous materials. Additionally, there is a pipeline approximately a quarter mile west of town. If chemical spills were to occur they would likely impact major transportation routes (Highways 8 and 81). In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident.

Table CHE.3: Chemical Storage Fixed Sites

Facility Name	Address	Located in Floodplain?
Nutrien Ag Solutions	421 Croop St	No
AGP Grain Marketing LLC	421 Thayer	No

Source: Nebraska Department of Environment and Energy[47]

47 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

Critical Facilities

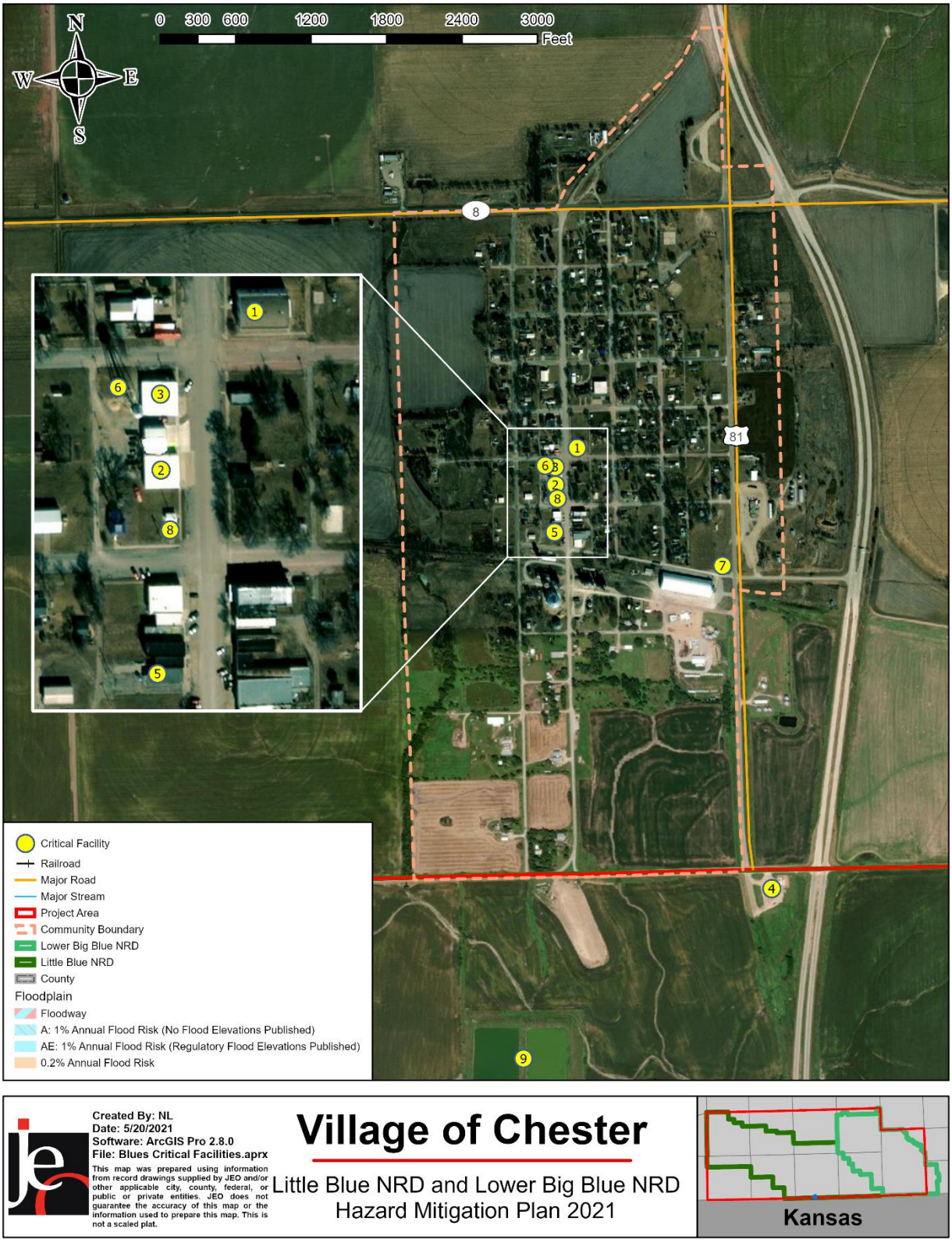
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during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

The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table CHE.4: Chester Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Safety & Security	City Auditorium/ Storm Shelter	Y	Y	N
2	Safety & Security	Fire Hall	N	Y	N
3	Safety & Security	City Hall	N	Y	N
4	Hazardous Materials	Fuel Station	N	N	N
5	Communications	Post Office	N	N	N
6	Food, Water, Shelter	Water Tower	N	Y	N
7	Food, Water, Shelter	Water Well 1	N	Y	N
8	Food, Water, Shelter	Water Well 2	N	N	N
9	Health and Medical	Lagoons	N	N	Y

Figure CHE.3: Chester Critical Facilities



Historical Occurrences

See the Thayer County community profile for historical hazard events.

Hazard Prioritization

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

Grass/Wildfires

Chester is concerned about the risks to property and life from grass and wildfires, particularly when fires are spread by high winds. Wind-whipped crop fires have occurred recently close to town, including in the surrounding corn agricultural lands. The village has a well-staffed fire department.

Property owners are not required to have defensible space around their structures, nor are there incentive programs for landowners to use ignition-resistant materials during construction. However, the village has taken steps to reduce the amount of tall grass that surrounds the village. The village has also recently updated some fire suppression equipment but additional tankers are needed. Chester identified becoming a Firewise community and water system improvements as ways to reduce overall vulnerability.

Severe Thunderstorms

Chester is at risk of experiencing powerful, damaging thunderstorms. Severe thunderstorms commonly occur in the state and include heavy rain, strong winds, lightning, and hail. The National Climate Data Center records several incidents of severe thunderstorm winds impacting the village, including a storm with 70 mph winds that destroyed a grain elevator in town and caused $50,000 in property damage on May 5, 2010. Chester has experienced severe incidents of severe hail in recent years, most notably a June 17, 2009 storm that dropped baseball size hail and caused $15,000 of damage in town, and damage to crops. Another storm with 81 mph winds on May 29, 2011 blew the roof off a grain company in town and caused $100,000 in damage. A severe hail storm in September 2015 caused $1,000,000 in damages from hail between two and three inches in diameter. The village is concerned about the risk of property damage from hail and loss of life or injuries to residents.

Critical electronic municipal records are protected with surge protectors and most have backup generators. About five percent of the power lines in the village are buried and the village is actively working to update the overall electrical system. There are hazardous trees that need to be removed but the village does not have a tree board. Critical facilities currently all have sufficient weather radios.

Currently, critical facilities in the village are fitted with hail resistant building materials, and municipal facilities are insured against hail damage. Village residents receive information regarding hail resistant building materials in the newsletter.

Severe Winter Storms

Per NCEI information, Thayer County has experienced many severe winter storms in recent years, including impacts from heavy snow, extreme cold, ice accumulation, blizzards, and winter storms. Past events have caused whiteout conditions in the village and blocked major transportation routes. Primary concerns for severe winter storms include loss of power and blocked roads. The village owns a tractor and blade, truck with snowplow, and a motor grader, and a village employee is in charge of snow removal. The local planning team noted the snowplow needs to be replaced and does not meet local needs. The village uses snow fences. There are no designated snow routes in town.

Tornadoes and High Winds

Thayer County, including Chester, is prone to damaging tornadoes and high wind events that produce structural damage, power outage, and damage to homes from falling trees. An EF-0 tornado that was part of a significant outbreak on May 22, 2004 struck three miles outside of Chester, and another EF-0 on the edge of town caused $150,000 in damage on June 13, 1998. An EF2 tornado impacted the area in 2015 and caused $1,000,000 in damages. The NCEI reported for this event "*In Thayer County, NE, portion of this tornado, trees were damaged and pivots were overturned. Power poles and grain bins were damaged. One home southeast of Hebron had its roof partially removed. This tornado crossed Highway 81 approximately 6 miles south of Hebron.*" Primary concerns for this hazard include loss of power, property damage or damage to infrastructure, and resident safety.

The village has backup systems for their municipal records. The village has a community shelter in the basement of the City Auditorium. The Village recently acquired a wheelchair ramp for the auditorium to improve accessibility. Otherwise, residents must rely on their own or a neighbor's basement or storm shelter for safety. Thayer County offers text alerts to warn of severe weather. Storm spotter trainings are held each spring in Chester to promote community emergency preparedness.

Flooding

Flooding was not identified as a hazard of top concern as only a small portion to the south of town is located within the floodplain. As of November 2020, Chester participated in the NFIP but had no active policies in force.

Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Chester has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The village has a five-member village board, clerk/treasurer, attorney, utility superintendent, fire chief, and sewer/water commissioner.

Capabilities

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the jurisdiction's

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

Table CHE.5: Capability Assessment

Survey Components		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	*Yes*
	Capital Improvements Plan	*No*
	Economic Development Plan	*No*
	Local Emergency Operational Plan	*Yes*
	Floodplain Ordinance	*Yes*
	Zoning Ordinance	*Yes*
	Subdivision Regulation/Ordinance	*No*
	Building Codes	*Yes*
	Floodplain Management Plan	*No*
	Storm Water Management Plan	*No*
	National Flood Insurance Program	*Yes*
	Community Rating System	*No*
	Other (if any)	
Administrative & Technical Capability	Planning Commission	*No*
	Floodplain Administration	*Yes*
	GIS Capabilities	*No*
	Chief Building Official	*No*
	Civil Engineering	*No*
	Local Staff Who Can Assess Community's Vulnerability to Hazards	*Yes*
	Grant Manager	*No*
	Mutual Aid Agreement	*Yes*
	Other (if any)	
Fiscal Capability	1 & 6 Year Plan	*No*
	Applied for grants in the past	*Yes*
	Awarded a grant in the past	*Yes*
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	*No*
	Gas/Electric Service Fees	*No*
	Storm Water Service Fees	*No*
	Water/Sewer Service Fees	*No*
	Development Impact Fees	*No*
	General Obligation Revenue or Special Tax Bonds	*No*
	Other (if any)	
Education and Outreach	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*

Survey Components		Yes/No
	Natural Disaster or Safety related school programs	*No*
	StormReady Certification	*No*
	Firewise Communities Certification	*No*
	Tree City USA	*No*
	Other (if any)	

Table CHE.6: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Limited
Community Support to Implement Projects	Limited
Time to Devote to Hazard Mitigation	Limited

Plan Integration

The Village of Chester currently has a Comprehensive Plan, Emergency Operations Plan (EOP), Zoning Ordinance, Building Code, and a Floodplain Regulations/Ordinance. The Comprehensive Plan, which was last updated in 2017, addresses the threat of flooding, and contains current and future land use maps. The future land use map does not promote development inside the floodplain or other known hazardous areas.

The Local Emergency Operations Plan (LEOP) for Chester, which was last updated in 2016, is an annex of Thayer County's LEOP. The plan will be updated in 2021 and will include components of this HMP. The plan addresses hazards such as chemical releases, severe winter storms, severe thunderstorms, and tornadoes. The plan provides a clear assignment of responsibility in case of an emergency, shelter locations, and evacuation routes but does not identify any gaps related to a particular hazard. The village offices, fire department, and ambulance service are familiar with the EOP.

The Zoning Ordinance was last updated in 2006 and discourages development in hazard areas. The ordinance prohibits development within, or filling of wetlands, floodways, or floodplains. The ordinance discourages development in the wildland-urban interface, which is a zone of transition between unoccupied land and human development that is most susceptible to wildfire impacts. The ordinance accounts for population changes when considering future land uses and has zones that limit the density of developments in the floodplain. The Floodplain Ordinance was last updated in 2006 and meets minimum federal and state requirements. The city has not adopted more stringent ordinances to reduce risk further. It does prohibit development within, or filling of wetlands, floodways, and floodplains.

The village follows the Thayer County building codes adopted in 2011. There are requirements for building design standards and enforcement for residential structures to be elevated. There are also requirements for non-residential structures to be elevated or flood proofed. There are no requirements for wind resistant construction practices. There are no codes that address urban fire hazards.

The village has applied for and received numerous grants including those to reline sewer system (2015, $350k), security camera system (2016, $1,838), ambulance building (2015, $40k), and Auditorium disability ramp (2018, $500). The local planning team indicated the annual municipal budget is generally limited to maintaining current infrastructure and funds have been relatively consistent in recent years. Most funds are currently earmarked to maintain the electric, street, and water infrastructure with some upgrades or equipment purchases planned.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The Village of Chester last reviewed their section of the HMP in January 2016 with the local planning team which includes the Chairman of the Board and the Board of Trustees. The local planning team will review the Community Profile annually at a minimum. The public will be notified and involved in the update review process through letters to all residents and announcements at board and council meetings.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	RETROFIT AUDITORIUM STORM SHELTER
DESCRIPTION	Retrofit the city auditorium basement/storm shelter to become handicap accessible. Add ramp or elevator.
HAZARD(S)	All hazards
STATUS	A ramp has been installed to improve accessibility.

MITIGATION ACTION	WEATHER RADIOS
DESCRIPTION	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
HAZARD(S)	All hazards
STATUS	All critical facilities now have weather radios and are updated on an as needed basis.

MITIGATION ACTION	WELL IMPROVEMENT
DESCRIPTION	Improve community well system.
HAZARD(S)	Grass/Wildfires
STATUS	New wells were installed and completed in 2012 for $400,000+.

Continued Mitigation Actions

MITIGATION ACTION	ALERT 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)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
ESTIMATED COST	$15,000+
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	The village is currently evaluation siren needs and ways to improve communication communications.

MITIGATION ACTION	ASSESS VULNERABILITY AND DEVELOP DROUGHT RESPONSE PROTOCOLS
DESCRIPTION	Coordinate with the National Drought Mitigation Center to develop or 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)	Drought, Grass/Wildfires
ESTIMATED COST	Staff Time
FUNDING	Village general funds
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	FACILITIES FOR VULNERABLE POPULATIONS
DESCRIPTION	Ensure that facilities which will house vulnerable populations are placed in the least vulnerable areas of the community. Harden existing facilities if applicable.
HAZARD(S)	All hazards
ESTIMATED COST	Staff time
FUNDING	Village general funds
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	The village is currently evaluating sheltering and facility needs for the community. Locations have not yet been identified.

MITIGATION ACTION	FIREWISE COMMUNITY
DESCRIPTION	Work with the Nebraska Forest Service and US Forest Service to become a Firewise Communities/USA participant. Develop a Community Wildfire Protection Plan. Train landowners about creating defensible space. Enact ordinances and building codes to increase defensible space, improve building materials to reduce structure ignitability, and increase access to structures by responders. Develop and implement brush and fuel thinning projects.
HAZARD(S)	Grass/Wildfires
ESTIMATED COST	10,000+ annually, Staff time
FUNDING	Village general funds
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	FIRST AID TRAINING
DESCRIPTION	Promote first aid training for all residents
HAZARD(S)	All hazards
ESTIMATED COST	$100 per person
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	Village Board, Fire Department
STATUS	This project has not yet been started.

MITIGATION ACTION	IMPROVE AND REVISE SNOW/ICE REMOVAL PROGRAM OR RESOURCES
DESCRIPTION	Purchase additional snowplow.
HAZARD(S)	Severe Winter Storms
ESTIMATED COST	$40,000+
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	PUBLIC AWARENESS AND EDUCATION
DESCRIPTION	Through 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, purchasing equipment such as overhead projectors and laptops.
HAZARD(S)	All hazards
ESTIMATED COST	$3,000+
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	Village Board, Clerk
STATUS	This project has not yet been started.

MITIGATION ACTION	WATER SYSTEM IMPROVEMENTS
DESCRIPTION	Make water system improvements to include additional fire hydrants/increase supply and pressure. High pressure is needed in the event of an emergency to effectively fight fires and also to meet increasing demands. Additional water tankers are needed to increase fire fighting capacity
HAZARD(S)	Grass/Wildfires
ESTIMATED COST	$10,000+
FUNDING	Village general funds, HMA
TIMELINE	5+ years
PRIORITY	Low
LEAD AGENCY	Village Board, Utilities Superintendent
STATUS	This project has not yet been started.

Removed Mitigation Actions

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the village will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

COMMUNITY PROFILE

VILLAGE OF DAVENPORT

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table DAV.1: Village of Davenport Local Planning Team

Name	Title	Jurisdiction
Kate Manes	Assistant Village Clerk	Village of Davenport
Arlene Vorce	Village Clerk	Village of Davenport

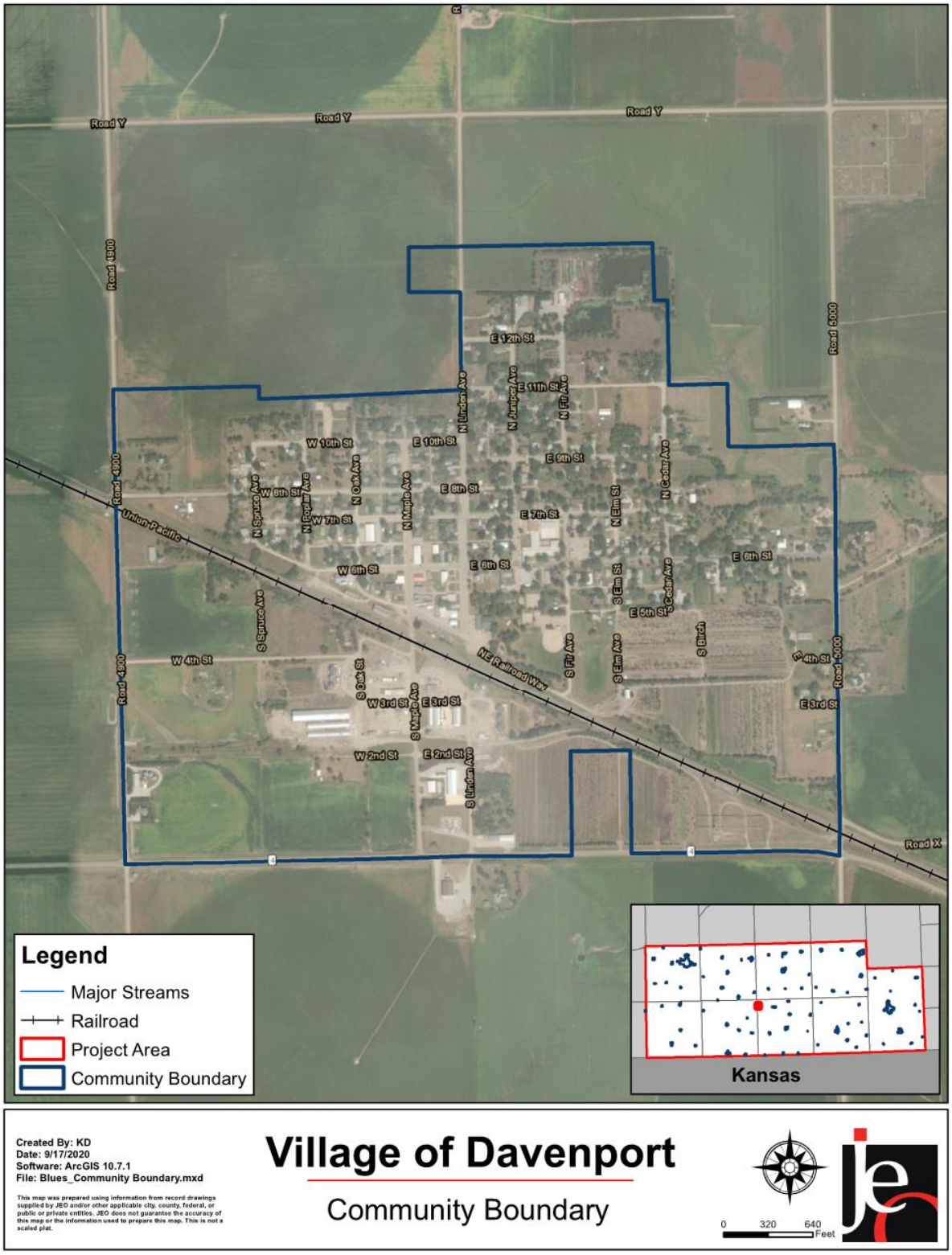
Location and Geography

The Village of Davenport is located in the north western portion of Thayer County and covers an area of 0.65 square miles. Major waterways within the area include Little Sandy Creek, which is located approximately 2,000 feet north and east of the community. There is also a small lake at the northern edge of the community. The area is not heavily forested, although there is some tree cover in the community and just beyond its borders. Thayer County has had five known instances of landslides; however, it in unknown if these occurred near Davenport. The village lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Davenport's major transportation corridors include State Highway 4, which runs east-west, south of Davenport. Highway 4 accommodates on average 655 vehicles per day, 115 of which are heavy commercial vehicles. Davenport has one railroad, the Union Pacific line. At Davenport, the UPRR runs east-west and connects Davenport to Hastings to the northwest. At Hastings, the UPRR continues to Kearney, and then turns east-west again to connect Davenport to the rest of the line. Fertilizers, propane, anhydrous ammonia, and gas are commonly transported through the community. This information is important to hazard mitigation plans insofar as is suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

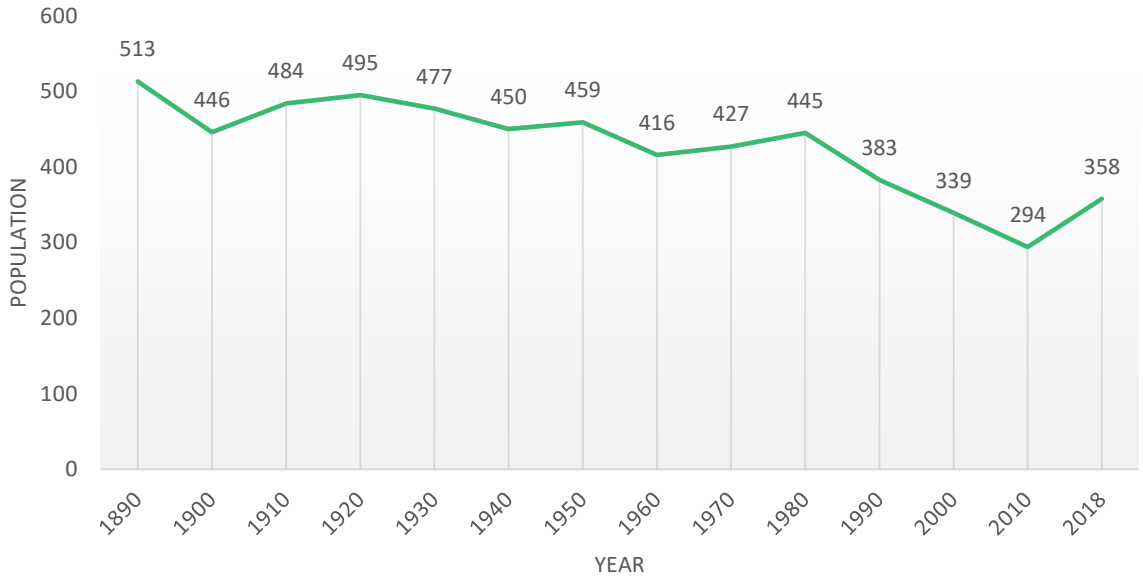
Figure DAV.1: Village of Davenport Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1890 to 2018 (estimated). This figure indicates that the population of Davenport declined from 1980 to 2010 but increased between 2010 and 2018. This is relevant to hazard mitigation because communities with a growing population may be more prone to developing additional land and building new structures, while communities with declining populations may have larger shares of unoccupied housing or decreasing tax revenues. The village's estimated population accounted for 7% of Thayer County's total population in 2018.

Figure DAV.2: Davenport Population 1890-2018



Source: U.S. Census Bureau[48]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Davenport's population was:

- **Younger.** The median age of Davenport was 40.8 years old in 2018, compared with the county average of 47 years. Davenport's population has grown younger since 2010, when the median age was 44.3 years old. Davenport had a larger proportion of people under 20 years old (32.7%) than the county (23.5%).[49]
- **More ethnically diverse.** In 2010, 96% of Davenport's population was White, non-Hispanic, 1% was some other race, and 2% was two or more races. By 2018, 96% was White, non-Hispanic and 4% was some other race. During that time, Thayer County declined 1% (two or more races).[50]
- **Less likely to be at the federal poverty line.** The estimated poverty rate of all persons in Davenport was 4.5% in 2018. The poverty rate in the county was 8.4%.[51]

48 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
49 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
50 United States Census Bureau. "2018 American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]
51 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Davenport's economy had:

- **Different mix of industries**. Employment sectors accounting for 10% or more of employment in Davenport included Agriculture, Education, Arts and Entertainment, and Other Services. In comparison, Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[52]
- **Less household income**. Davenport's median household income in 2018 ($40,750) was about $10,000 lower than the county ($50,734).[53]
- **More long-distance commuters**. 51.3% of workers in Davenport commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 30.3% of workers in Davenport commute 30 minutes or more to work, compared to about 11.7% of the county workers.[54]

Major Employers

The major employers in the community include Nutrien Ag, the local school district, RW's (the local café), Plains Tree Farm, and DPM. About half of Davenport's residents commute for work including to Reinke's, Metal Tech, the hospitals (in Deshler, Superior, and Geneva) and surrounding nursing homes.

Housing

In comparison to the county, Davenport's housing stock was: [55]

- **More owner occupied.** About 89.5% of occupied housing units in Davenport are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Greater share of aged housing stock**. Davenport has more houses built prior to 1970 than the county (71.8% compared to 67.1%).
- **Fewer multi-family homes**. The predominant housing type in the village is single family detached and Davenport contains less multifamily housing with five or more units per structure than the county (0% compared to 3.8%). About 99.4% of housing in Davenport was single-family detached, compared with 90.6% of the county's housing. Davenport has a smaller share of mobile and manufactured housing (0%) compared to the county (1.8%).

This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

52 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
53 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
54 United States Census Bureau. "2018 American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]
55 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

In the past five years three businesses in town have expanded and built additional structures. Additionally, four dilapidated homes were demolished. The population of Davenport has declined in recent years which the local planning team attributed to an aging population and emigration as residents retire to larger communities. At this time there are no residential or industrial developments planned for the next five years.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. No LOMAs were identified for structures in Davenport.

Table DAV.2: Davenport Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
344	167	$5,592,729	0	0%	$0

Source: County Assessor, GIS Workshop

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there is one chemical storage site in Davenport which houses hazardous materials. In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident. The local planning team also noted Heyen Oil in town houses hazardous chemicals of concern. Additional concerns exist for Maple Street and the railroad crossing being blocked if spills were to occur.

Table DAV.3: Chemical Storage Fixed Sites

Facility Name	Address	Located in Floodplain?
Nutrien Ag Solutions	207 S Maple Ave	No

Source: Nebraska Department of Environment and Energy[56]

56 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

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 a part of this plan update.

The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table DAV.4: Davenport Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Food, Water, Shelter	Music Room	Y	N	N
2	Safety & Security	Fire Hall	Y	Y	N
3	Food, Water, Shelter	Water Tower	N	Y	N
4	Food, Water, Shelter	Well House	N	N	N
5	Food, Water, Shelter	Well House	N	N	N
6	Food, Water, Shelter	Community Building	Y	N	N
7	Health and Medical	Lift Station	N	Y	N

Figure DAV.3: Davenport Critical Facilities

Historical Occurrences

See the Thayer County community profile for historical hazard events.

Hazard Prioritization

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

Grass/Wildfires

Davenport's main concern for this hazard involve field fires during harvest time in the fall, impacts on the surrounding agricultural land and local economy. In the fall of 2014, there were large fires that came within two miles of the village. One fire consumed more than 640 acres. The village has two pickups with 300-gallon tanks and six fire engines. The village custodian is tasked with any debris cleanup following fire events. To address this hazard, Davenport would like to improve its civil service capabilities.

Hazardous Materials (Fixed Site and Transportation)

Regarding hazardous materials and chemical spills from fixed sites, Davenport is most concerned about the CPS Company which stores fertilizer, propane, and anhydrous ammonia. The facility has leaked before including in 2013, although no significant impacts resulted. The community does not have a response plan if a significant leak were to occur again. The Davenport Fire Department would be the first responders in the case of a chemical spill; however, additional training is needed for HAZMAT response. The department has 26 volunteer fire fighters, with some also trained in hazardous material response. For large spills, the City of Hastings would send additional response teams.

For transportation-related chemical spills, the planning team is most concerned about the UP Railroad for this hazard. The rail line commonly transports hazardous materials, potentially including radioactive materials. If a spill were to occur, UP would be able to send response crews in 15-20 minutes. While there have been no derailments in the past, there have been ones close by just outside of town. All rail crossings in town have crossing arms. To address this hazard, Davenport would like to improve its civil service capabilities.

Severe Winter Storms

Severe winter storms commonly occur across the county and include impacts from heavy snow, ice accumulation, blizzards, extreme cold, and winter storms. Davenport's main concern for this hazard are power outages (specifically from ice accumulation on power lines) and the safety of residents. Most powerlines in town are above ground. The local planning team also noted the aging population in town is at greater risk during power outages. The village uses a skid steer, pickup truck, and maintainer to remove snow from roads. Most homes in the village are heated by natural gas or electricity. Fifty percent of the community members are reported as having small backup generators, as does the village shop. The village is currently in the process of adding a backup generator to the village hall to serve as a local shelter location.

Tornadoes and High Winds

The village has had a number of historically significant events. Past high winds in the county have caused property damage and roof replacements for residents. An EF0 tornado caused $500,000 in damages in 2015 and an EF1 tornado caused $100,000 in damages in 2012. During this event, pivots were knocked over and crops were damaged. No injuries or fatalities occurred with either event. The village does not have any reinforced storm shelters; however, the village office is currently getting a backup generator and can be used as a shelter location. Some community members do have basements which are used for sheltering. The fire department controls alert sirens, which are presently in good condition and work well. There are weather radios at the community hall, bank, and various homes. In the past five years the village has installed Valmatic 504 Swing Check Valves on the well houses for easy shut off.

Flooding

While flooding was not identified as a hazard of top concern, there is designated floodplain area south of the village. No community parcels are within the floodplain. Davenport participates in the NFIP but had no active policies as of November 2020.

Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Davenport has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The village has a five-member village board, clerk/treasurer, attorney, utility superintendent, chief of police, fire chief, sewer plant operator, and street commissioner.

Capabilities

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

Table DAV.5: Capability Assessment

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

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

Table DAV.6: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Limited
Community Support to Implement Projects	Moderate
Time to Devote to Hazard Mitigation	Limited

Plan Integration

The village has applied for grants in the past including some to improve water supply and security. The local planning team indicated the annual municipal budget is generally limited to maintaining current infrastructure and funds have decreased in recent years. Most funds are currently earmarked to purchase the backup generator and improve the water tower.

The Local Emergency Operations Plan (LEOP) for Alexandria, which was last updated in 2016, is an annex of Thayer County's LEOP. The plan will be updated in 2021 and will include components of this HMP. The plan addresses hazards such as chemical releases, severe winter storms, severe thunderstorms, and tornadoes. The plan provides a clear assignment of responsibility in case of an emergency, shelter locations, and evacuation routes but does not identify any gaps related to a particular hazard. The village office, maintenance department, and fire department are all familiar with the EOP. The village also has a wellhead protection plan, which is related to ground water protection. The village follows the zoning ordinances and building codes as established by the county.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The Village of Davenport's local planning team will review the HMP bi-annually at a minimum. The public will be notified and involved in the update review process through letters to all residents.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	VALMATIC 504 SWING CHECK VALVE
DESCRIPTION	Input a Valmatic 504 Swing Check Valve on the well houses
HAZARD(S)	All hazards
STATUS	All three wellhouses have had swing check valves installed for $60,000.

Ongoing Mitigation Actions

MITIGATION ACTION	CIVIL SERVICE IMPROVEMENTS
DESCRIPTION	Improve emergency rescue and response equipment and facilities by providing additional equipment, or updating existing emergency response equipment. This can include fire trucks, ATV's, 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. This would also provide a rubber tire tractor with backhoe.
HAZARD(S)	Grass/wildfire, Severe Winter Storms
ESTIMATED COST	$50,000
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

Removed Mitigation Actions

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the village will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

COMMUNITY PROFILE

CITY OF DESHLER

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table DES.1: City of Deshler Local Planning Team

Name	Title	Jurisdiction
Steve Oakman	City Superintendent	City of Deshler
Julie Buescher	City Clerk	City of Deshler

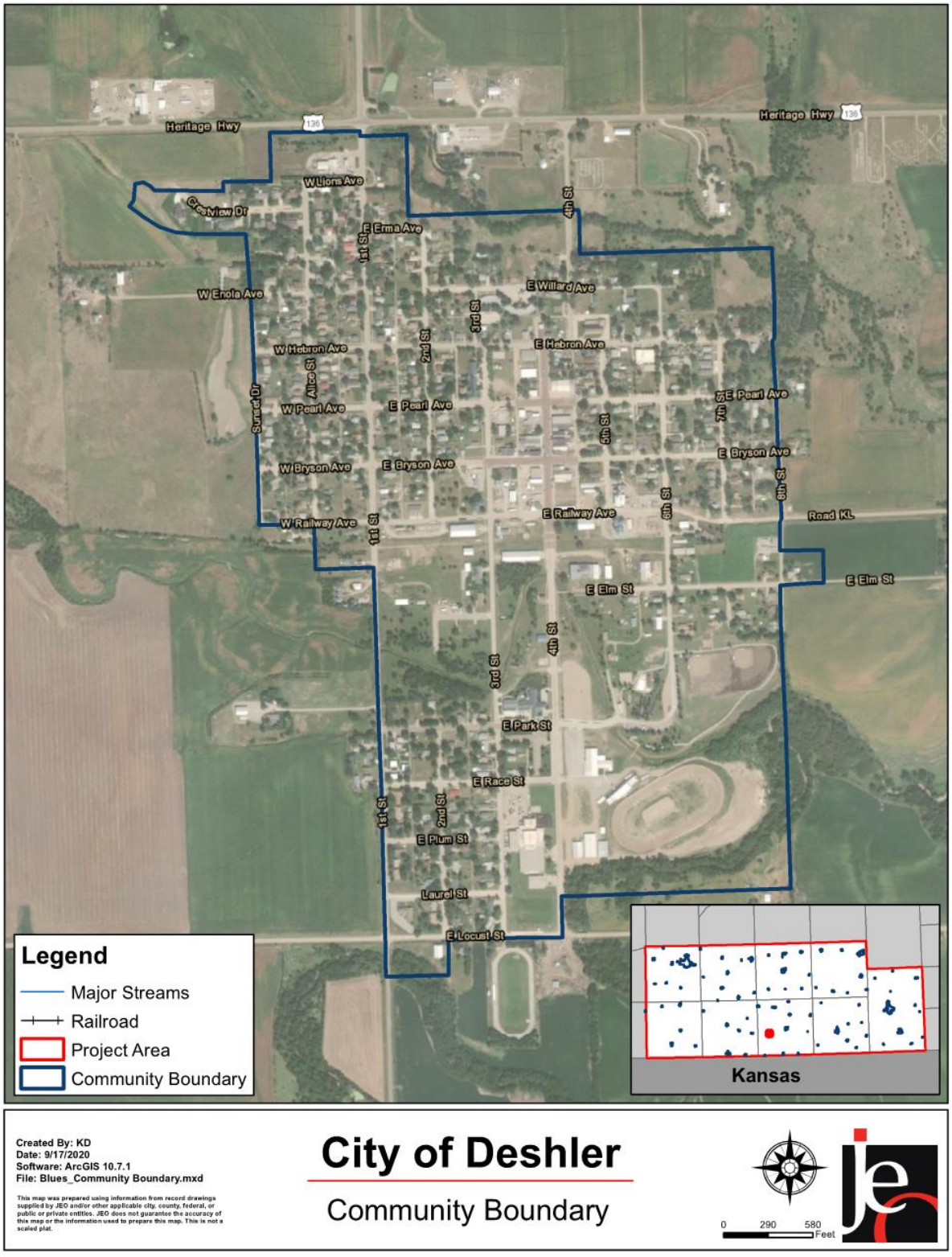
Location and Geography

The City of Deshler is located in the west central portion of Thayer County and covers an area of 0.51 square miles. Major waterways within the area include Spring Creek, which runs east-west along the southern edge of the community. There is also a small retention pond just west of the city. The area is not heavily forested, although there is some tree cover in the community and just beyond its borders. Thayer County has had five known instances of landslides, however it in unknown if these occurred near Deshler. The city lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Deshler's major transportation corridors include State Highway 5, which runs north-south, and connects Deshler and State Highway 136. Highway 5 accommodates on average 910 vehicles per day, 85 of which are heavy commercial vehicles. State Highway 136 runs east-west just north of Deshler, and accommodates on average 1,560 vehicles per day, 145 of which are heavy commercial vehicles. Deshler does not have any rail lines; however, the city has a galvanizing plant and chemical and fertilizer company in town which contribute to hazardous chemical transportation through the city, primarily along Highway 136. This information is important to hazard mitigation plans insofar as is suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

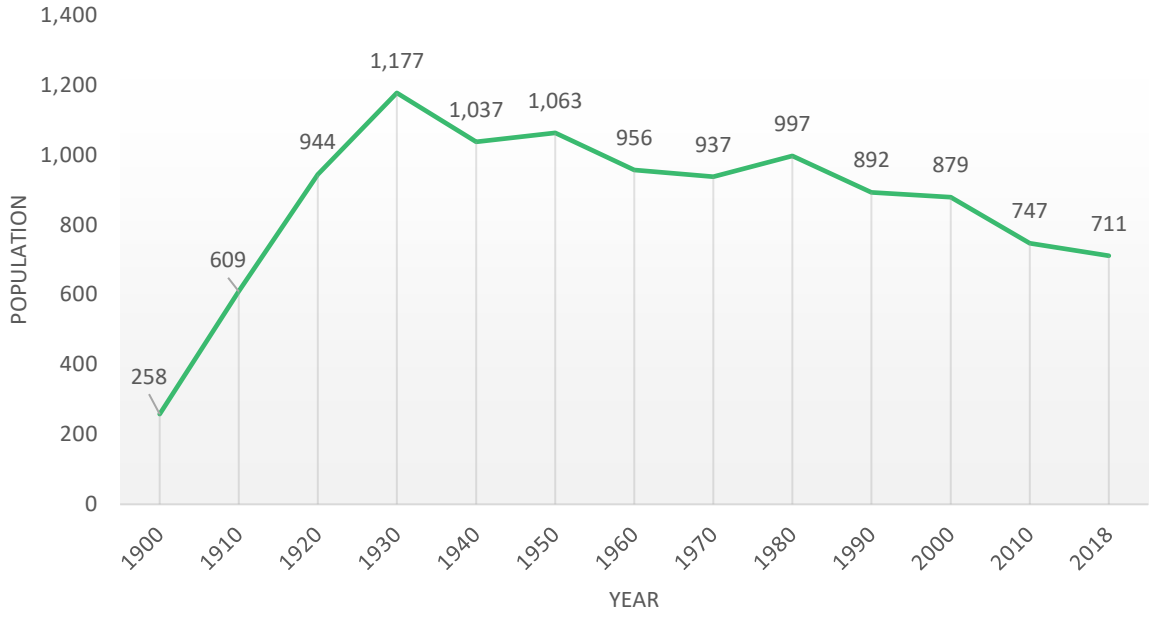
Figure DES.1: City of Deshler Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1900 to 2018 (estimated). This figure indicates that the population of Deshler was relatively stable between 1940 through 2000 but lost 15% of its population during the last decade. This is notable for hazard mitigation because communities with declining population may also have a higher level of unoccupied housing that is not being up kept. Furthermore, areas with declining population may be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Decreasing populations can also represent decreasing tax revenue for the community which could make implementation of mitigation actions more fiscally challenging. The city's estimated population accounted for 14% of Thayer County's total population in 2018.

Figure DES.2: Deshler Population 1900-2018



Source: U.S. Census Bureau[57]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Deshler's population was:

- **Younger.** The median age of Deshler was 41.8 years old in 2018, compared with the county average of 47 years. Deshler's population has grown older since 2010, when the median age was 35.2 years old. Deshler had a larger proportion of people under 20 years old (29.3%) than the county (23.5%).[58]
- **Less ethnically diverse.** In 2010, 99% of Deshler's population was White, non-Hispanic and less than 1% was American Indian or two or more races. By 2018, it was estimated that 99% was White, non-Hispanic and 1% was two or more races. During that time, Thayer County declined 1% (two or more races).[59]

57 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
58 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
59 United States Census Bureau. "2018 American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]

- **More likely to be at the federal poverty line.** The estimated poverty rate of all persons in Deshler was 13.1% in 2018. The poverty rate in the county was 8.4%.[60]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Deshler's economy had:

- **Similar mix of industries**. Employment sectors accounting for 10% or more of employment in Deshler included Education, Manufacturing, and Retail Trade. In comparison, Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[61]
- **Less household income**. Deshler's median household income in 2018 ($46,176) was about $4,558 lower than the county ($50,734).[62]
- **More long-distance commuters**. 45% of workers in Deshler commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 30% of workers in Deshler commute 30 minutes or more to work, compared to about 11.7% of the county workers.[63]

Major Employers

The major employer in Deshler is Reinke Manufacturing; however, many residents commute to the surrounding areas for employment. The local planning team also noted approximately 30% of the population commutes out of Thayer County for work.

Housing

In comparison to the county, Deshler's housing stock was: [64]

- **More owner occupied.** About 78.8% of occupied housing units in Deshler are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Greater share of aged housing stock**. Deshler has more houses built prior to 1970 than the county (77.7% compared to 67.1%).
- **Fewer multi-family homes**. The predominant housing type in the city is single family detached and Deshler contains less multifamily housing with five or more units per structure than the county (2.8% compared to 3.8%). About 90.4% of housing in Deshler was single-family detached, compared with 90.6% of the county's housing. Deshler has a smaller share of mobile and manufactured housing (0%) compared to the county (1.8%).

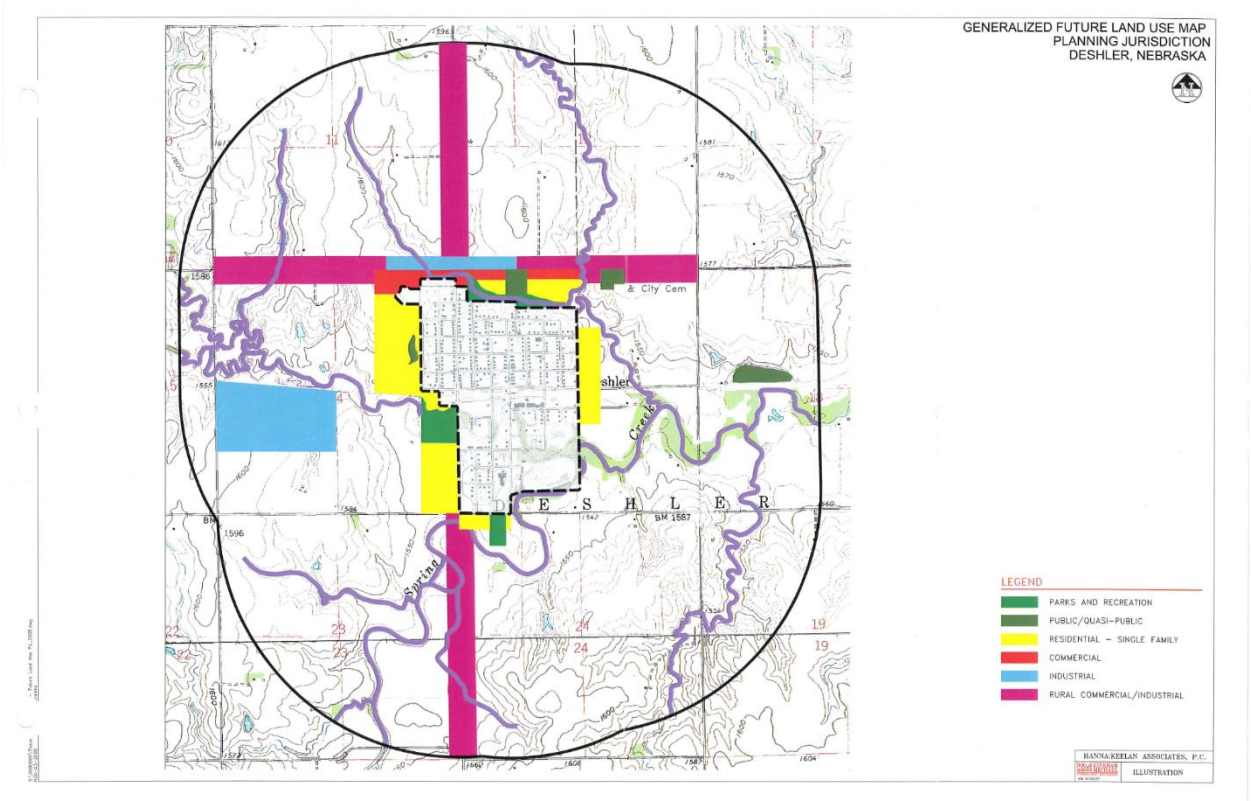
This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

60 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
61 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
62 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
63 United States Census Bureau. "2018 American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]
64 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

The city has improved and newly paved several roads in Deshler including Railway (between 5th and 8th Streets), the west end of Crestview Drive, and on the south end of 4th Street. However, no other housing or commercial developments have occurred or are planned for the next five years. The population in Deshler has declined in the past which the local planning team attributed to a lack of available housing and jobs.

Figure DES.3: Deshler Future Land Use Map



Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. Several structures in Deshler have been removed from the SFHA via LOMA.

Table DES.2: Deshler Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
558	316	$17,230,669	8	3%	$618,398

Source: County Assessor, GIS Workshop

Table DES.3: Deshler Flood Map Products

Type of Product	Product ID	Effective Date	Details
LOMA	08-07-0115A-310218	12/06/2007	Property removed from SFHA
LOMA	16-07-1538A-310218	7/13/2016	Structure removed from SFHA
LOMA	16-07-1539A-310218	8/29/2016	Structure removed from SFHA

Source: FEMA Flood Map Service Center

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are three chemical storage sites in Deshler which house hazardous materials. In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident. The local planning team noted vulnerable populations are located near chemical storage fixed sites on Highway 136 and are a concern during spill events.

Table DES.4: Chemical Storage Fixed Sites

Facility Name	Address	Located in Floodplain?
Reinke Manufacturing Co Inc	1040 Road 5300	No
Nutrien Ag Solutions	5372 Highway 136	No
Deshler Station	1263 Rd 5000	No

Source: Nebraska Department of Environment and Energy[65]

65 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

Critical Facilities

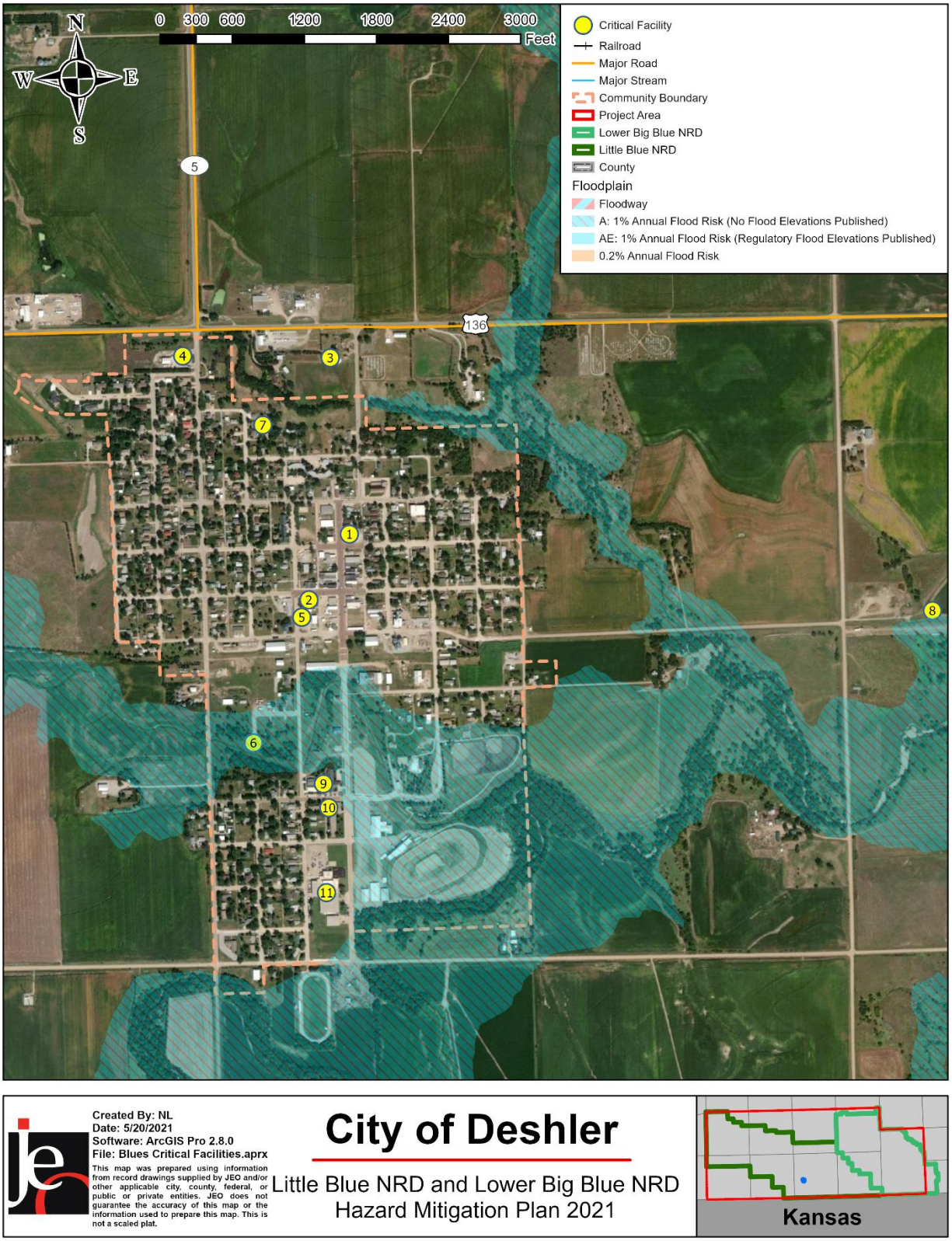
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during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

The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table DES.5: Deshler Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Safety & Security	Fire Hall	Y	Y	N
2	Safety & Security	City Hall	Y	Y	N
3	Food, Water, Shelter	Water Tower	N	N	N
4	Hazardous Materials	Gas Station	N	N	N
5	Energy	Substation	N	N	N
6	Health and Medical	Lift Station	N	N	Y
7	Health and Medical	Lift Station	N	N	N
8	Health and Medical	Lagoons & Lift Station	N	N	N
9	Health & Medical	Assisted Living	N	N	N
10	Health & Medical	Nursing Home	N	Y	N
11	Food, Water, Shelter	Deshler Public School District	N	N	N

Figure DES.4: Deshler Critical Facilities



Historical Occurrences

See the Thayer County community profile for historical hazard events.

Hazard Prioritization

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

Flooding

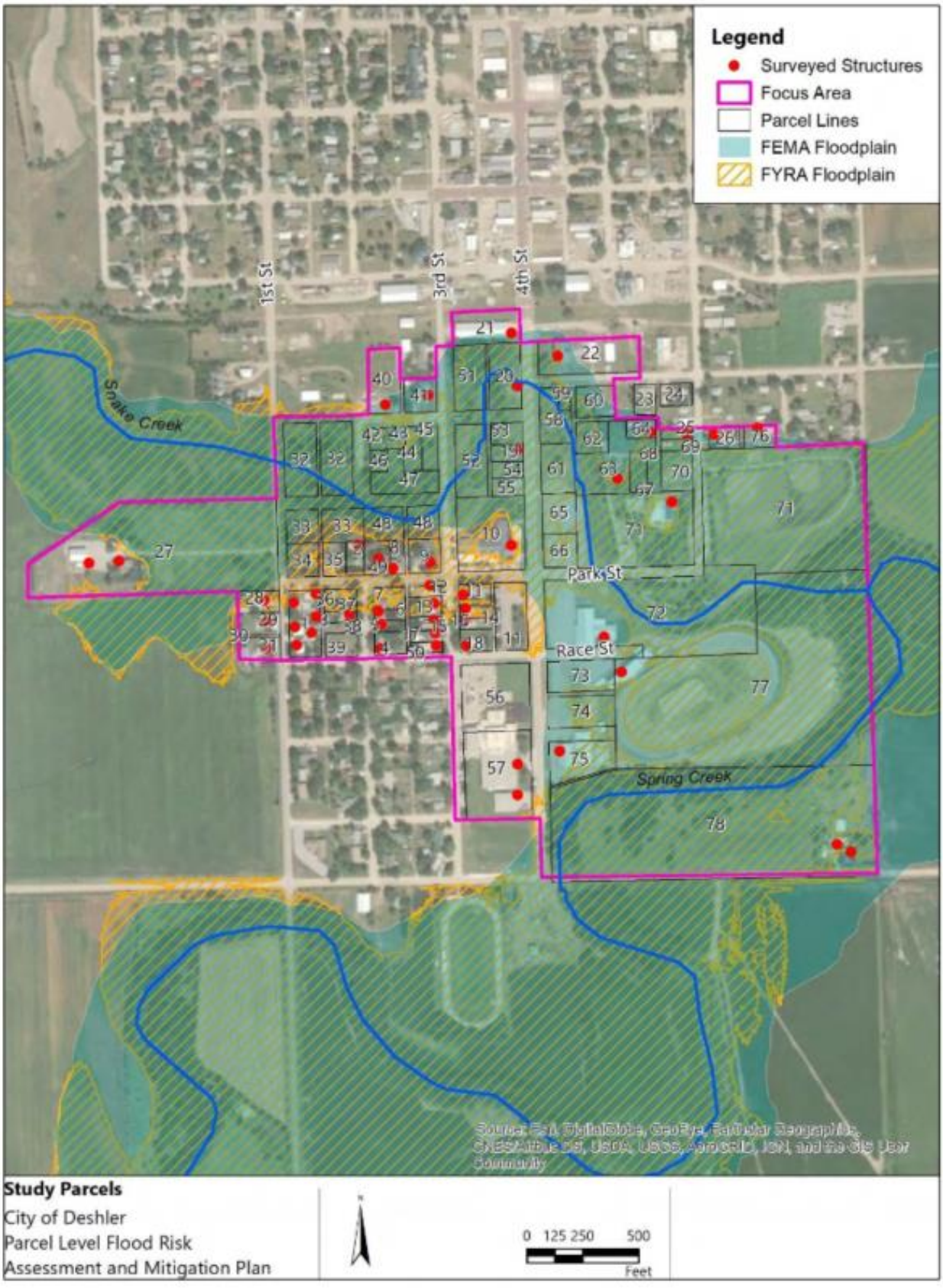
Flooding is a significant concern for the City of Deshler. Floodplain areas surround the city to the south and east and a significant portion of the community is located in the floodplain. On May 6, 2015, flash floods in Deshler destroyed a park, damaged homes, a nursing home, and an assisted living facility.. Both flash floods and riverine floods are a significant concern in the city, with the park and ballfields being especially prone. Spring and Snake Creeks pose a risk to the city. In June 2019 flooding impacted numerous bridges and roads near and around the village. Critical facilities have been damaged by floods in the past including schools and senior care facilities.

The southern part of the city experiences poor stormwater drainage. As for critical facilities, the nursing home, assisted living facility, and school have been damaged by flooding in town. The city participates in the NFIP and as of November 2020 had eight policies in force for $1,183,200. According to NeDNR as of February 2020, there were no repetitive loss properties in Deshler.

In 2018 a report titled "Nonstructural flood risk resiliency assessments for DeWitt, Deshler, and Hebron NE: Nebraska Silver Jackets Interagency project" was released (available here: https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/6440/). The report notes: *The City of Deshler, NE is located in Thayer County. Spring Creek runs through the south side of town and Snake Creek bisects Deshler through the middle. Flooding in May 2015 and April 2016 caused evacuations of two assisted living facilities, lifted cars, damaged buildings, and filled basements up with 7 feet of water. Many structures were built before the implementation of the NFIP and are pre-FIRM. Several structures have been flooded repeatedly in the past and are considered repetitive loss structures. Deshler sought technical assistance from NeDNR, NEMA, and other agencies to help understand how to reduce individual property owner risk as well as risk to the nursing home facilities. In 2016, Deshler sought an application from NeDNR for a Flood Mitigation Assistance Grant to update their hazard mitigation plan with better flood mitigation alternatives."*

In August 2019 the FMA funded flood study report was completed for the City of Deshler with the assistance of NeDNR and FYRA. This report was developed to address specific flood impacted structures in the city post 2015 and 2016 flood events at the parcel level. The report evaluated approximately 55 primary buildings including homes, businesses, or main structures. The following figure shows the identified focus area, primary structures surveyed, and floodplain areas as identified by FEMA FIRM (Panel 31169C0138C) and the FYRA hydraulic model. Note the following figure emphasizes the southern portion of the city.

Figure DES.5: Deshler Parcel Level Flood Risk



The following table lists parcels identified in the report and the potential mitigation actions applicable to each.

Table DES.6: Deshler Flood-prone Parcels and Mitigation Alternatives

Parcel Number	Parcel ID	Mitigation Options Identified
1	850056012	LOMA and Preferred Risk Policy (PRP)
3	850056047	LOMA and PRP Elevation
4	850056128	Flood Insurance
5	850056101	Flood Insurance
6	850056098	Flood Insurance Fill Basement Acquisition
8	850055911	Flood Insurance/Berm Parcel Barriers/berms Acquisition
9	850055938	Flood Insurance/Berm Acquisition Parcel Barriers/Berm
10	850055822	Flood Insurance/Berm Parcel Barriers/Berm Elevation
11	850056233	LOMA and PRP
12	850056195	Flood Insurance/Berm Acquisition Parcel Barriers/Berms
13	850056160	Parcel Barriers/Berms Acquisition Berm
14	850056209	Flood Insurance Parcel Barriers/Berms Acquisition
15	850056152	Flood Insurance
16	850056217	Flood Insurance Fill Basement Acquisition
17	850056144	Flood Insurance
18	850056225	Flood Insurance
19	850055423	Flood Insurance Acquisition Parcel Barriers/Berms
20	850055164	Flood Insurance/Acquisition Elevation Parcel Barriers/Berms
21	850082978	LOMA and PRP
22	850055148	Flood Insurance Acquisition
25	850055628	Parcel Barriers/Berms Fill Basement Acquisition
26	850055695	Parcel Barriers/Berms Fill Basement Acquisition

Parcel Number	Parcel ID	Mitigation Options Identified
27	850144096	LOMA and PRP
28	850027322	Flood Insurance/Berms Fill Basement Acquisition
29	850027349	Flood Insurance
31	850027330	Flood Insurance
41	850055202	Flood Insurance Fill Basement Acquisition
50	850056136	Flood Insurance
57	850056268	Flood Insurance Dry Floodproofing Barriers
63	850055504	Flood Insurance Acquisition Barriers
71	850055814	LOMA and PRP
72	850056241	LOMA and PRP
75	32B	LOMA and PRP
76	850055725	LOMA and PRP
77	32	Flood Insurance Acquisition/Demolition Barriers
78	850027381	LOMA and PRP

Numerous additional flood risk reduction strategies beyond the parcel level were evaluated in the report including the following:

- Upstream Stormwater Detention (costly and low benefit:cost ratio)
- By-pass Channel (not feasible due to channel topography and local hydraulics)
- Channel Improvements (unlikely to reduce flood impacts to critical facilities due to topography and hydraulics)
- Flood Protection Berm (costly, limited flood protection for parcels, and would not meet FEMA accredited levee requirements)

For a full analysis of flood-prone properties in Deshler and evaluated flood risk reduction strategies, please review a copy of the summary report (available with the City of Deshler).

The city has identified and pursued numerous mitigation strategies to reduce flood risk in the community. These include floodplain mapping, parcel level floodplain evaluations, participation in the NFIP, flood-prone property acquisition, and removing flow constrictions in primary drainage channels.

Hazardous Materials (Fixed Site)

While no significant chemical spills have occurred in recent years, the city is the site of a galvanizing plant, and chemical and fertilizer company that stores hazardous chemicals. There are no critical facilities near these sites, but there are homes located close to the chemical and fertilizer company. Additionally, the plant is located adjacent, but out of, the floodplain. Potential spill events could lead to significant concerns for the city if hazardous chemicals were to be released during a flood event. The village is uncertain whether these residents are knowledgeable

of the proper response in case of an incident or are educated about the threat. Local responders are not equipped to handle a fixed site chemical spill, and assistance would have to be called from Hastings or Beatrice.

Severe Winter Storms

Like the rest of Thayer County, Deshler experiences significant winter weather events, including blizzards, heavy snow, extreme cold, and ice accumulation. Winter storms in 2015 lead to white out conditions on local roads and one vehicle accident between Deshler and Hebron resulted in two injuries. A blizzard on December 24 and 25, 2009 knocked out power and made city roads impassable. Loss of life and power outages are the main concerns for the city from this threat. No structural damage to facilities has occurred in recent years from winter storms.

The village owns two snowplow pickup attachments, a tractor with a blade, and a skid loader, and city employees and contractors are in charge of snow removal. The village believes these resources are sufficient for snow removal. The village does not utilize snow fences. There are no designated snow routes in town. No power lines in town are buried.

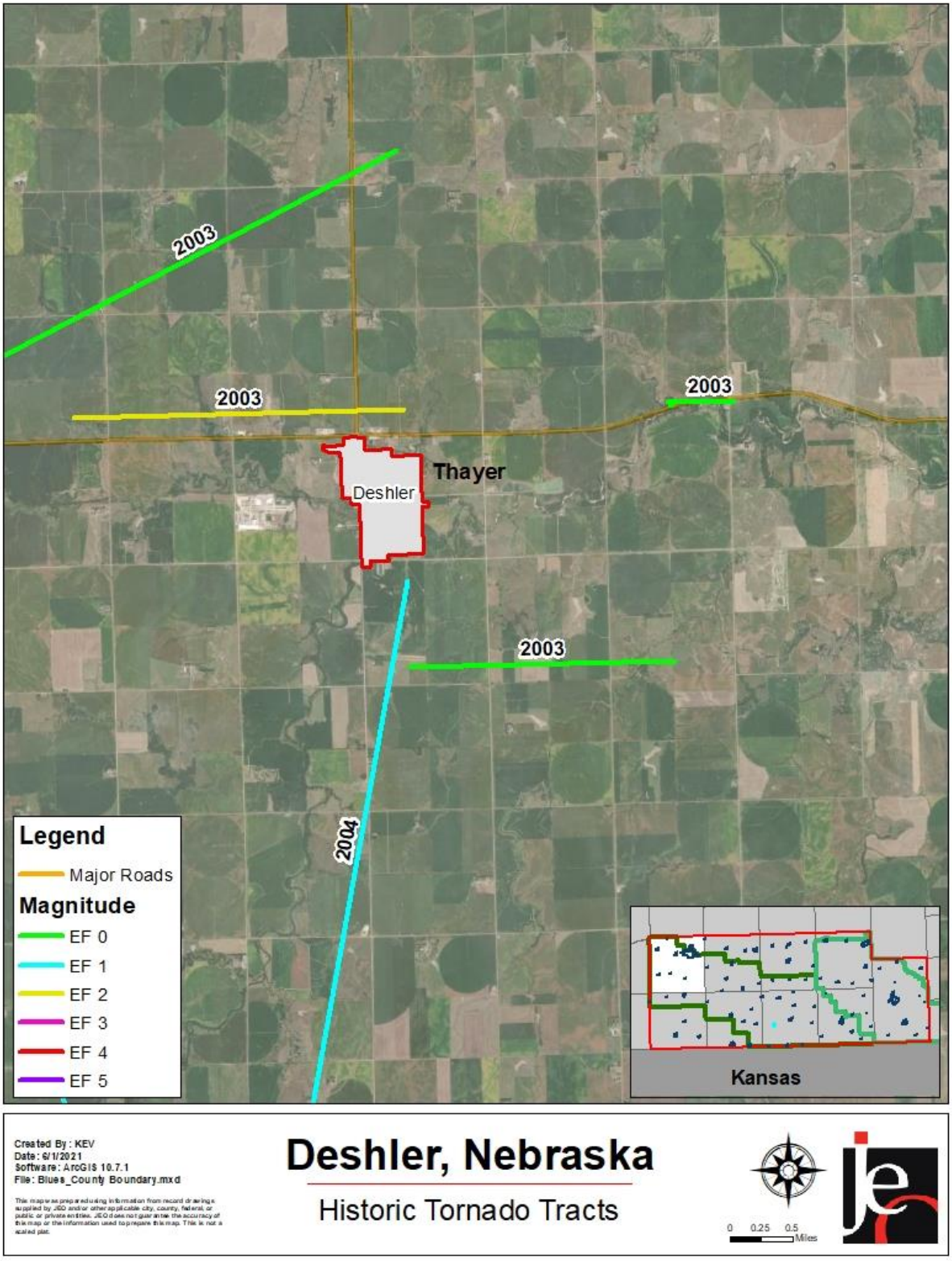
To address this hazard, Deshler identified the following mitigation actions during this plan update process: Implement higher building codes and standards, purchase a backup generator, and update the city's comprehensive plan.

Tornadoes and High Winds

Deshler has a history of experiencing powerful, damaging tornados. Most notably, on June 22, 2003, a series of at least four tornados ranging in intensity from F-0 to F-2 struck the city, causing at least $10.3 million in property damage, killing one person, and injuring seven. The southeast side of town was particularly affected by an F-2 tornado, and a man was killed in his garage while trying to get to shelter. As part of the May 22, 2004 tornado complex a F-1 tornado had a 10-mile path from near Byron to just south of Deshler. This tornado primarily damaged unpopulated areas. On May 6, 2015 another EF2 tornado impacted the city and caused $1,500,000 in property damages. This tornado damaged trees and snapped power poles throughout the county.

The city is concerned about the possibilities of loss of life, and damage to infrastructure and homes, from tornados. Fortunately, critical facilities in the city have not been damaged by a tornado in recent years. The city backs-up its municipal records via flash drives, external hard drive, and iDrive. The village has a community safe room at the fire hall, and the public library and city office are used as storm shelters. Otherwise, residents must rely on their own or a neighbor's basement or storm shelter for safety. Thayer County offers text alerts for severe weather. The village does not promote tornado preparedness education efforts in the community. The village has a mutual aid agreement through its membership in Nebraska WARN, a network of communities allied to offer mutual aid in case of a disaster.

Figure DES.5: Deshler Tornadoes



Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Deshler has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The city has a four-member city council, clerk/treasurer, attorney, fire chief, city superintendent, planning and zoning commission, sanitary facilities commissioners, street commissioner, utility superintendent, and park commissioner. The city also utilizes Thayer County Emergency Management to identify, implement, and manage hazard mitigation related activities.

Capabilities

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

Table DES.7: Capability Assessment

Survey Components		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	*Yes*
	Capital Improvements Plan	*No*
	Economic Development Plan	*No*
	Local Emergency Operational Plan	*Yes*
	Floodplain Ordinance	*Yes*
	Zoning Ordinance	*Yes*
	Subdivision Regulation/Ordinance	*Yes*
	Building Codes	*Yes*
	Floodplain Management Plan	*No*
	Storm Water Management Plan	*No*
	National Flood Insurance Program	*Yes*
	Community Rating System	*No*
	Other (if any)	
Administrative & Technical Capability	Planning Commission	*No*
	Floodplain Administration	*Yes*
	GIS Capabilities	*No*
	Chief Building Official	*No*
	Civil Engineering	*No*
	Local Staff Who Can Assess Community's Vulnerability to Hazards	*Yes*
	Grant Manager	*No*
	Mutual Aid Agreement	*Yes*
	Other (if any)	
Fiscal Capability	1 & 6 Year Plan	*Yes*
	Applied for grants in the past	*Yes*
	Awarded a grant in the past	*Yes*
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	*No*
	Gas/Electric Service Fees	*No*
	Storm Water Service Fees	*No*

Survey Components		Yes/No
	Water/Sewer Service Fees	*No*
	Development Impact Fees	*No*
	General Obligation Revenue or Special Tax Bonds	*No*
	Other (if any)	
Education and Outreach	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	*No*
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	*No*
	Natural Disaster or Safety related school programs	*No*
	StormReady Certification	*No*
	Firewise Communities Certification	*No*
	Tree City USA	*No*
	Other (if any)	

Table DES.8: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Limited
Community Support to Implement Projects	Limited
Time to Devote to Hazard Mitigation	Limited

Plan Integration

The Comprehensive Plan, which was last updated in 2012, is currently being revised with assistance from the Thayer County Economic Development Alliance as of 2020/2021. It addresses the threat of flooding and contains current and future land use maps. The future land use map does promote public spaces or parks and recreation within floodplain areas. Also, commercial development is organized near Highway 136, which is heavily trafficked, and there are residences near agronomy facilities. The plan does not call for growth away from hazardous areas. Transportation systems are not specifically designed to function under disaster conditions under the plan, as the plan does not refer to transportation during disaster conditions.

The EOP, which was last updated in 2016, is an annex of Thayer County's EOP. The plan addresses the following hazards: flooding, hazardous materials spills or releases, mass vaccinations due to bioterrorism, agricultural disease, and terrorism. Flooding is the hazard of most concern discussed in the plan. The plan provides a clear assignment of responsibility in case of an emergency. The plan has identified a gap in readiness for a hazardous materials incident, as the county has no trained and equipped hazmat team. Also, local resources are deemed insufficient to respond to events where mass vaccinations are needed, or incidences of

agricultural disease or terrorism. The city office and public works department are familiar with the EOP.

The Zoning Ordinance was last updated in October 2004 and discourages development in hazard areas. It does not contain natural hazard layers. The ordinance does not discourage development in the wildland-urban interface, which is a zone of transition between unoccupied land and human development that is most susceptible to wildfire impacts. The ordinance does not account for population changes when considering future land uses and does not have zones that limit the density of developments in the floodplain. There are no requirements that floodplains be kept as open space, and there are no rezoning procedures that limit changes that allow greater intensity or density in natural hazard impact areas.

The Floodplain Ordinance was last updated on September 7, 2004 and meets minimum federal and state requirements. The city has not adopted more stringent ordinances to reduce risk further. It does prohibit development within, or filling of wetlands, floodways, and floodplains, unless the city issues a floodplain permit.

The Subdivision Regulations were last updated in June 1979 and provides for conservation subdivisions or cluster subdivisions to conservative environmental resources. This space is reserved for schools, parks, and playgrounds. There are no regulations that allow density transfers in hazard areas. The regulations restrict subdivisions of land within or adjacent to the floodplain. They do allow for density transfers to avoid building in natural hazard areas.

The city is a member of the Thayer County Economic Development Alliance and is not believed to have a separate Economic Development Plan of its own. In the past the city has applied for grants including flood mitigation assistance for a parcel level flood risk assessment. This $37,500 grant was possible through participation in previous Hazard Mitigation Plans. The local planning team noted the annual municipal budget's funds are relatively limited to maintaining current facilities and systems, but no major projects are currently earmarked for improvements. Any new capital projects would require additional bonds or grant funding.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The local planning team is responsible for reviewing and updating this community profile as changes occur or after a major event. The local planning team will include the Mayor, City Superintendent, Fire Chief, and Thayer County Emergency Management. The local planning team will review the plan no less than bi-annually and will include the public in the review and revision process by: sharing posts on local social media, city council meetings, and sharing notices in utility billing statements.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	UPDATE COMPREHENSIVE PLAN
DESCRIPTION	Update comprehensive plan. Integrate plan with Hazard Mitigation Plan components.
HAZARD(S)	All hazards
STATUS	Updated Comprehensive and Strategic Plan in 2020.

Continued Mitigation Actions

MITIGATION ACTION	ALERT 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)	All hazards
ESTIMATED COST	$15,000+
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	City Council
STATUS	This project has not yet been started.

MITIGATION ACTION	BACKUP GENERATOR
DESCRIPTION	Purchase a backup generator for the assisted living facility
HAZARD(S)	All hazards
ESTIMATED COST	$3,500+
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	City Council
STATUS	This project has not yet been started.

MITIGATION ACTION	COMMUNITY RATING SYSTEM
DESCRIPTION	Join the Community Ratings System (CRS) program to reduce flood insurance premiums.
HAZARD(S)	Flooding
ESTIMATED COST	$5,000
FUNDING	City General Fund
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	City Council
STATUS	This project has not yet been started.

MITIGATION ACTION	FLOODPLAIN MAPPING/REMAPPING
DESCRIPTION	Conduct floodplain mapping of the planning area
HAZARD(S)	Flooding
ESTIMATED COST	$20,000
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	City Council, Thayer County Emergency Management, NeDNR
STATUS	A floodplain mapping effort is currently underway in the county through NeDNR.

MITIGATION ACTION	HIGHER BUILDING CODES AND STANDARDS
DESCRIPTION	Promote the use of higher codes and standards, such as the Fortified for Safer Living Standard, in order to provide greater protection for any new construction or building retrofits.
HAZARD(S)	Flooding, Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
ESTIMATED COST	Staff time
FUNDING	City General Fund
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	City Council
STATUS	The city should update to the newest 2018 IBC.

MITIGATION ACTION	IMPROVE OR ACQUIRE PROPERTY AT HIGH RISK TO FLOODING
DESCRIPTION	Voluntary acquisition and demolition of properties prone to flooding will reduce the general threat of flooding for communities. Additionally, this can provide flood insurance benefits to those communities within the NFIP. Repetitive loss structures are typically highest priority.
HAZARD(S)	Flooding
ESTIMATED COST	Varies by property
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	City Council
STATUS	This project has not yet been started.

MITIGATION ACTION	REMOVE FLOW CONSTRICTIONS
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 or modifying of bridges and other flow restrictions may be necessary to eliminate flooding threats and damages.
HAZARD(S)	Flooding
ESTIMATED COST	$100,000+
FUNDING	City General Fund, HMA
TIMELINE	1 year
PRIORITY	High
LEAD AGENCY	City Council
STATUS	This project has not yet been started.

Removed Mitigation Actions

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the city will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

MITIGATION ACTION	SAFE ROOM
DESCRIPTION	Install a safe room, possibly at the library
HAZARD(S)	Tornadoes and High Winds
REASON FOR REMOVAL	The library and city hall have been designated as storm shelters. A reinforced safe room was not identified as a priority at this time.

COMMUNITY PROFILE

CITY OF HEBRON

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table HEB.1: City of Hebron Local Planning Team

Name	Title	Jurisdiction
Colt Vieselmeyer	City Superintendent	City of Hebron
Jana Tietjen	City Clerk	City of Hebron
Bill Linton	Airport Authority	City of Hebron
Deb Craig	Airport Authority	City of Hebron
Steve Tietjen	Norder Supply	City of Hebron
Andrew Fangmeier	Fire Chief	Hebron Fire and Rescue
Doug Huber	Mayor	City of Hebron
Colt Farringer	Emergency Manager	Thayer County Emergency Management

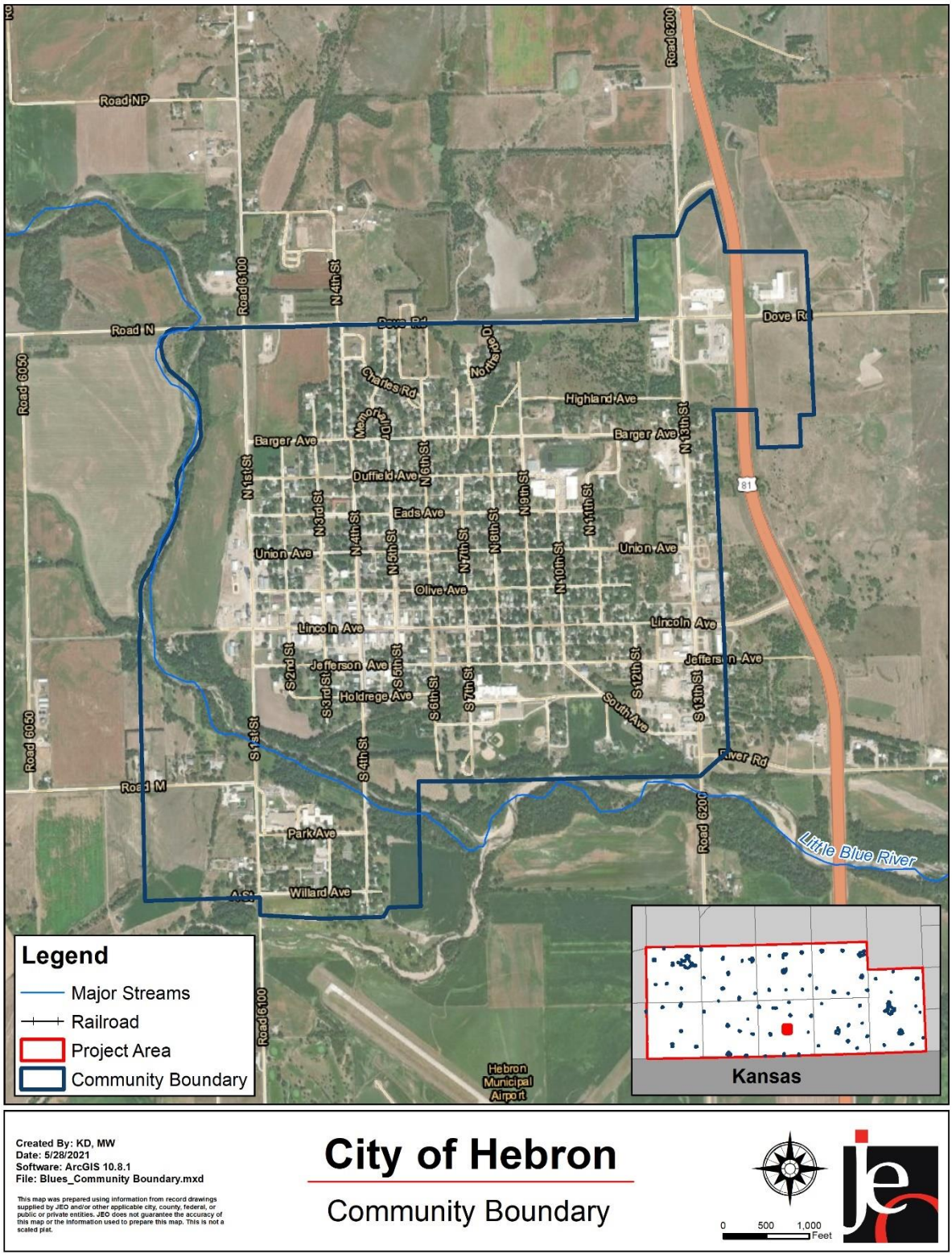
Location and Geography

The City of Hebron is located in the central portion of Thayer County and covers an area of 1.41 square miles. Major waterways within the area include the Little Blue River, which runs along the city's western and southern borders, and Spring Creek, which is located just beyond the city's southeastern edge. The area is not heavily forested, although there is some tree cover in the community and just beyond its borders. Thayer County has had five known instances of landslides; however, it in unknown if these occurred near Hebron. The city lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Hebron's major transportation corridors include State Highway 81, which runs north-south, to the east of Hebron. NE-81 accommodates on average 3,450 vehicles per day, 1,200 of which are heavy commercial vehicles. State Highway 136 runs east-west to the south of Hebron. NE-136 accommodates on average 1,075 vehicles per day, 110 of which are heavy commercial vehicles. Other major transportation routes of concern in the city include 1st Street and Dove Street. Hebron does not have any rail lines; however, hazardous materials such as glyphosate, Atrazine, 2-4D, Dicamba, and Anhydrous Ammonia are commonly transported through or near the city via highway. Critical facilities are located along these major routes including Thayer County Health Services, Thayer Central Schools, and Region 5 Blue Valley Lutheran Homes. This information is important to hazard mitigation plans insofar as is suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

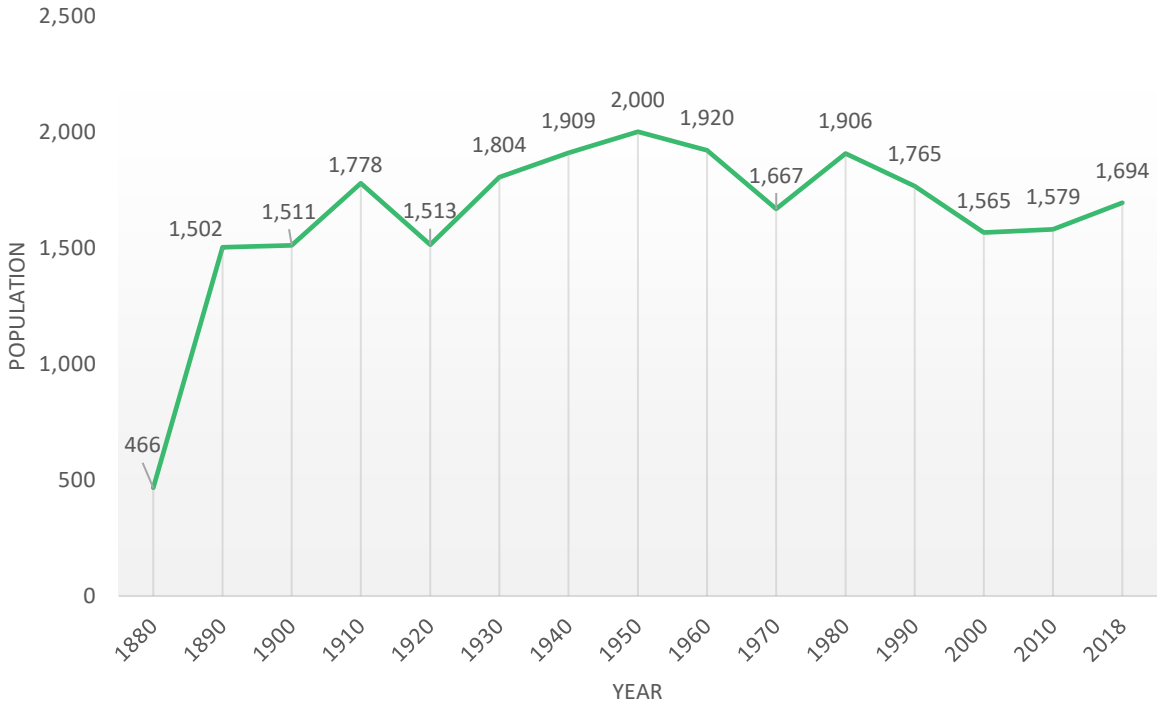
Figure HEB.1: City of Hebron Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1880 to 2018 (estimated). This figure indicates that the population of Hebron declined steadily between 1980 and 2000 but has stabilized and increased slightly since then. This is relevant to hazard mitigation because communities with a growing population may be more prone to developing additional land and building new structures, while communities with declining populations may have larger shares of unoccupied housing or decreasing tax revenues. Hebron's estimated population accounted for 33% of Thayer County's total population in 2018.

Figure HEB.2: Hebron Population 1880-2018



Source: U.S. Census Bureau[66]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Hebron's population was:

- **Older.** The median age of Hebron was 52.3 years old in 2018, compared with the county average of 47 years. Hebron's population has grown younger since 2010, when the median age was 56.5 years old. Hebron had a smaller proportion of people under 20 years old (18.7%) than the county (23.5%).[67]
- **More ethnically diverse.** In 2010, 98% of Hebron's population was White, non-Hispanic, 1% was Asian, and 1% was two or more races. By 2018, it was estimated that 94% was White, non-Hispanic, 1% was Black, and 5% was two or more races. During that time, Thayer County declined 1% (two or more races).[68]

66 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
67 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
68 United States Census Bureau. "2018 American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]

- **More likely to be at the federal poverty line.** The estimated poverty rate of all persons in Hebron was 10.8% in 2018. The poverty rate in the county was 8.4%.[69]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Hebron's economy had:

- **Similar mix of industries**. Employment sectors accounting for 10% or more of employment in Hebron included Education, Manufacturing, and Retail Trade. In comparison, Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[70]
- **Greater household income**. Hebron's median household income in 2018 ($50,990) was about $256 higher than the county ($50,734).[71]
- **More long-distance commuters**. 30.4% of workers in Hebron commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 50.3% of workers in Hebron commute 30 minutes or more to work, compared to about 11.7% of the county workers.[72]

Major Employers

Major employers in Hebron include: Thayer Central School, Thayer County Health Services, Blue Valley Lutheran Homes, Norder Supply, MetalQuest, Landmark Implement, and Case IH. Only approximately 35% of Hebron residents commute to surrounding areas for employment.

Housing

In comparison to the county, Hebron's housing stock was: [73]

- **Less owner occupied.** About 67.6% of occupied housing units in Hebron are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Greater share of aged housing stock**. Hebron has more houses built prior to 1970 than the county (69.2% compared to 67.1%).
- **More multi-family homes**. The predominant housing type in the city is single family detached and Hebron contains more multifamily housing with five or more units per structure than the county (9.8% compared to 3.8%). About 83% of housing in Hebron was single-family detached, compared with 90.6% of the county's housing. Hebron has a smaller share of mobile and manufactured housing (approximately four homes or 0.3%) compared to the county (1.8%).

This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

69 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
70 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
71 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
72 United States Census Bureau. "2018 American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]
73 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

Over the past five years the city has seen several changes. Four commercial buildings and 15 residential homes have been demolished by the city and/or fire department. Additionally Thayer Central Community Schools have installed a storm shelter at the elementary school. The city's population has grown in the past few decades which the local planning team attributed to the expansion of several businesses and improved quality of life. A new archery range, remodeled theatre, golf courses, and ballfields have all contributed to this. Additionally, younger persons are returning to the area to work surrounding agricultural land. To accommodate this growth, the city has started a program to sell lots where houses are demolished with the stipulation that a new home must be built within 24 months. Four homes have been built through this program as of winter 2020. Future commercial development indicates Landmark Implement is expanding.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. One structure in Hebron has been removed from the SFHA via LOMA. A summary of the LOMA is provided in the table below.

Table HEB.2: Hebron Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
1,014	610	$45,806,797	23	4%	$1,400,734

Source: County Assessor, GIS Workshop

Table HEB.3: Hebron Flood Map Products

Type of Product	Product ID	Effective Date	Details
LOMA	17-07-2672A-310219	10/31/2017	Structure (residence) removed from SFHA

Source: FEMA Flood Map Service Center

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are five chemical storage sites in Hebron which house hazardous materials. In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident. Local concerns for fixed sites include spills impacting major road ways (Dove Road and 1st Street, Highway 136, or Highway 81), or critical facilities such as city hall. Vulnerable populations are also located near facilities including Blue Valley Lutheran Homes and Thayer County Health Services.

Table HEB.4: Chemical Storage Fixed Sites

Facility Name	Address	Located in Floodplain?
Hebron Ready Mix Plant	6262 River Rd	Yes
Norder Supply Inc	204 N 1st St	Yes
NDOT Hebron Yard	110 N 13th St	No
NPPD Hebron Peaking Unit	N 13th St	No
Nutrien Ag Solutions	6210 Highway 136	No

Source: Nebraska Department of Environment and Energy[74]

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 a part of this plan update.

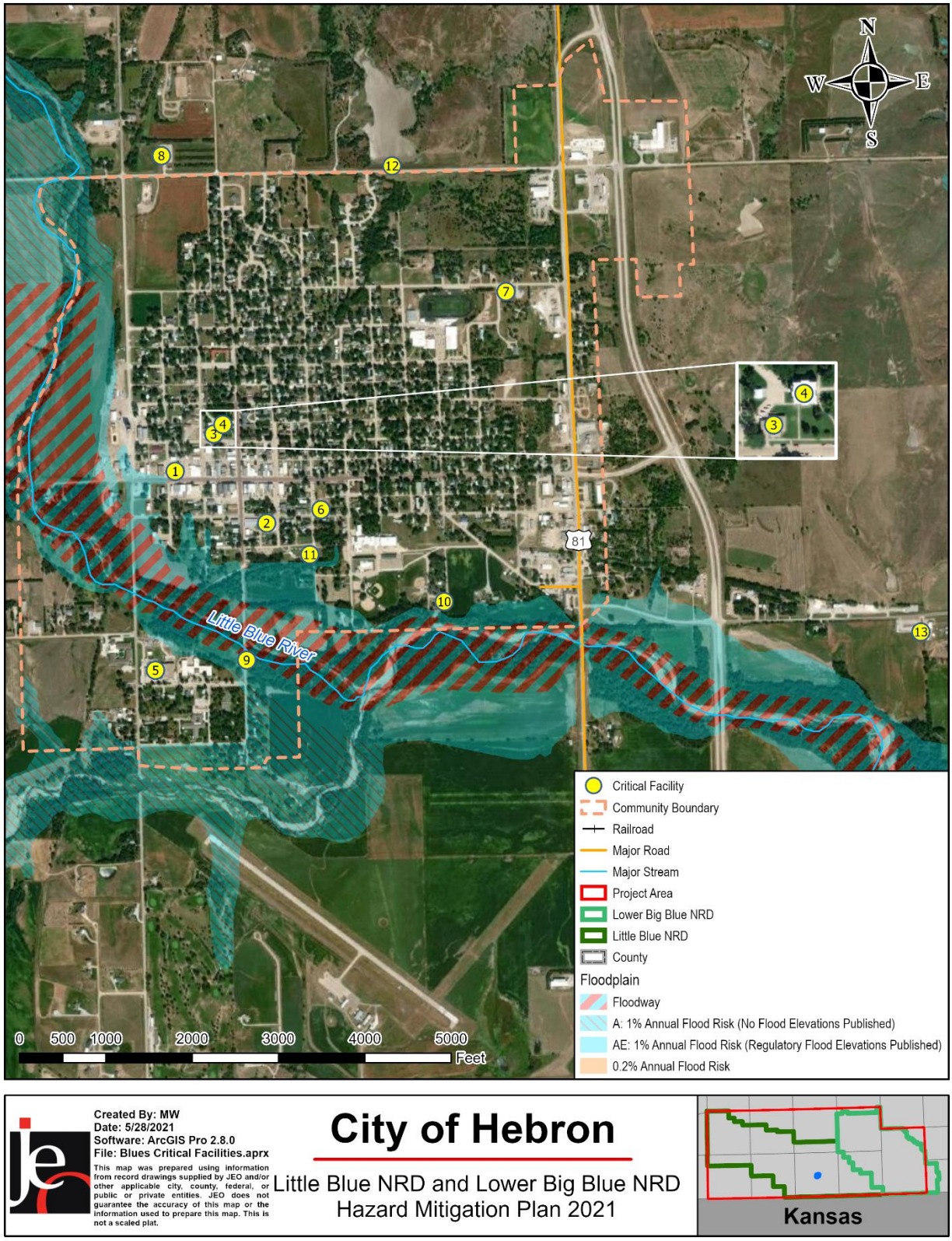
The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table HEB.5: Hebron Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Safety & Security	City Hall	N	Y	N
2	Safety & Security	Fire Department	N	Y	N
3	Safety & Security	Sheriff's Office	N	Y	N
4	Safety & Security	Courthouse	N	Y	N
5	Health & Medical	Hospital	N	Y	N
6	Food, Water, Shelter	Thayer Central Community School	N	N	N
7	Food, Water, Shelter	Water Tower	N	N	N
8	Energy	Power Station	N	N	N
9	Health and Medical	Sewer Lift Station	N	Y	Y
10	Health and Medical	Sewer Lift Station	N	N	N
11	Health and Medical	Sewer Lift Station	N	Y	N
12	Safety & Security	Hebron Road Dam	N	N	N
13	Health and Medical	Sewage Treatment Plant	N	Y	N

74 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

Figure HEB.3: Hebron Critical Facilities



Historical Occurrences

See the Thayer County community profile for historical hazard events.

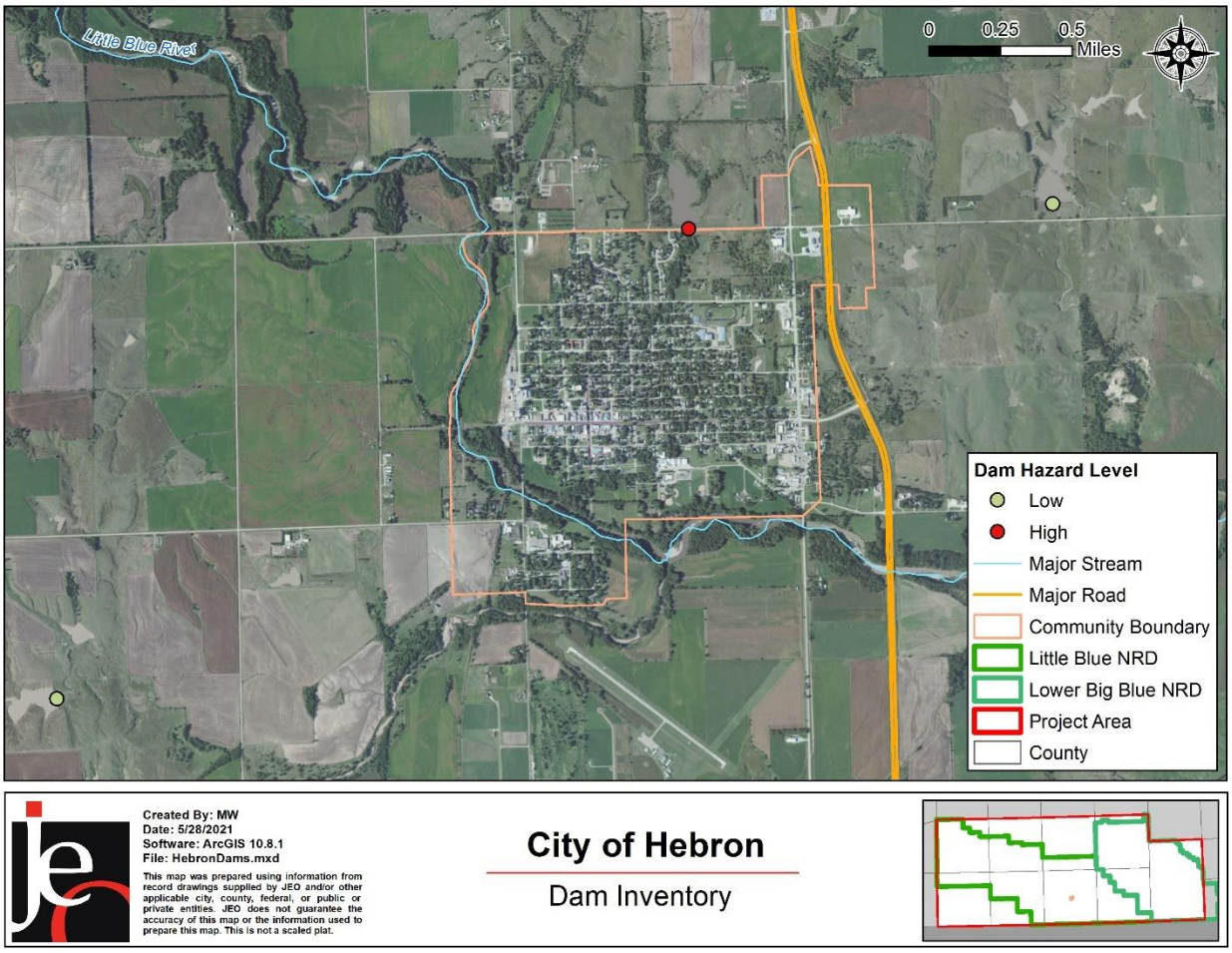
Hazard Prioritization

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

Dam Failure

The city is concerned about a failure of the Hebron Dam, a high hazard dam which lies along the northeastern edge of town. The dam is co-owned by the City of Hebron and Thayer County. In the past five years Thayer County has completed construction projects on the dam and changed the overflow channel to elevate the rip rapped channel. While no failure events have occurred at this dam, concerns exist due to the potential risk to city facilities, residential properties, and the safety of residents. The dam was last inspected in April 2020 and an Emergency Action Plan was developed which includes evacuation plans for the community. Due to the sensitive nature of this information, dam inundation maps and evacuation plans are not included here. However the city will acquire copies to share with the county sheriff, fire departments, city council and applicable city staff. The community noted the need to hold a mock dam failure exercise to prepare for potential events.

Figure HEB.4: Hebron Dams



Flooding

Flash flooding and riverine flooding are equally concerning to the city. The city experienced flooding in the spring of 2015, including basement flooding, streets under water, and flooding along roads leading to the hospital. The area west of downtown, and the southern areas of the city, are especially prone to flooding, thanks to their proximity to the Little Blue River, which runs around and through the city. Spring Creek also flows nearby. City Hall has experienced basement flooding during past events. The city noted South 4th Street, South 6th Street, Holdrege Avenue, Jefferson Avenue, and South Avenue have poor stormwater drainage in the city.

In the past five years the city has cleaned out and improved the area on South 4th Street; however, during flooding in 2019 continuously overtopped this bridge as well. The city participates in the NFIP program and as of November 2020 had three policies in-force for 320,000. According to NeDNR as of February 2020 there was one undefined repetitive loss property in the city. The fire department has purchased new swift water rescue equipment to aid in evacuation or rescues. The city has also submitted an HMA grant for FEMA assistance removing two properties from the floodplain (2020).

In 2018 a report titled "Nonstructural flood risk resiliency assessments for DeWitt, Deshler, and Hebron NE: Nebraska Silver Jackets Interagency project" was released (available here: https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/6440/). The report notes: *The City of Hebron is located in Southern Nebraska near the confluence of the Little Blue River and Spring Creek. Many structures were built before the implementation of the NFIP and are pre-FIRM. Hebron was hit by a severe storm in May 2015 (as was Deshler). Heavy rains made it impossible to get into Hebron. The flood waters prevented access to the hospital, damaged three bridges around Hebron, and City Hall has basement flooding. A handful of property owners have been seeking funds to assist with home elevations. The city has made a formal request for a home elevation to the HMA grant program when new funding becomes available."* The report identified and assessed 54 structures in the City of Hebron. At the time of the report development, three homeowners were identified as interested in pursuing FMA grants through FEMA. One homeowner had successfully applied for a Letter of Map Amendment – Out as Shown (LOMA – OAS) to show the primary structure was located out of the floodplain. The second homeowner was working with state and local officials to secure a grant for basement filling and structure relocation while the third homeowner was also developing a grant application for basement filling.

The Flood Insurance Study report for the City of Hebron (31169CV000A) is effective dated September 30, 2004 and the effective Flood Insurance Rate Map (FIRM) panels for Hebron (31169C0161C and 31169C0162C) are dated September 30, 2004.

Hazardous Materials (Fixed Sites and Transportation)

Both chemical fixed sites and transportation are a concern for the City of Hebron. An agriculture company is located near the Little Blue River in town, and chemicals from a catch pit on their property flowed in the river circa 2010, resulting in a fish kill. Since then they have installed a pivot irrigation system to dispose of excess rainwater from the containment pit. While no residential homes are near the site, the sheriff's office is two blocks east of this facility, and City Hall is located one block to the east. Chemicals are also regularly transported along local routes in Hebron, including anhydrous ammonia, pesticides, herbicides, fuel, oil, propane, and fertilizer. Highways 81 and 136, Dove Road, and 1st Street are routes of special concern, with several collisions of vehicles transporting these kinds of chemicals reported. Critical facilities including the hospital and airport are located on major routes at risk during chemical transportation incidents.

The Hebron Fire Department does have protective gear and training to handle hazardous materials incidents, and sheriff's office personnel also have some training. Approximately 30 of Hebron's Volunteer Fire Department members have completed Hazardous Material Training Operations and purchased new equipment. Current trainings include contamination and public safety themes for evacuation. The city identified the need to conduct a mock exercise and share more information with residents about local risks.

Tornadoes and High Winds

Hebron has a history of experiencing damaging tornadoes. On April 11, 2001, an EF-1 tornado in town caused $30,000 in property damage on the east side of town and injured one person. Two F0 tornadoes occurred in May of 2004 with no reported property damages, however trees and power poles were severely damaged in the areas surrounding Hebron. Going back further, a 1953 tornado severely damaged downtown Hebron, the hospital, and school; and a 1979 tornado struck the city park on the south side of town. Other, weaker tornados have struck along the fringes of

the city. The summer of 2020 produced significant high wind events in the city. Trees, power lines and poles throughout the city were damaged and power outages occurred for most residents.

The city backs-up its municipal records. The city has a community safe room in the basement of the sheriff's office and a new storm shelter was built at Thayer Central Elementary school for students and staff. In general, residents must rely on their own or a neighbor's basement or storm shelter for safety. Thayer County offers text alerts for severe weather. Storm spotter classes help to promote emergency preparedness in the community. The city has a mutual aid agreement with Deshler, Chester, Byron, Gilead, Hubbell, Belvidere, Bruning, and Carleton

Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Hebron has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The city has a mayor, a five-member city council, clerk, treasurer, attorney, fire chief, electric superintendent, water operator, and sewage plant operator.

Capabilities

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

Table HEB.5: Capability Assessment

Survey Components		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	*Yes*
	Capital Improvements Plan	*No*
	Economic Development Plan	*Yes*
	Local Emergency Operational Plan	*County*
	Floodplain Ordinance	*Yes*
	Zoning Ordinance	*Yes*
	Subdivision Regulation/Ordinance	*No*
	Building Codes	*No*
	Floodplain Management Plan	*No*
	Storm Water Management Plan	*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*
	Local Staff Who Can Assess Community's Vulnerability to Hazards	*Yes*
	Grant Manager	*No*
	Mutual Aid Agreement	*Yes*

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

Table HEB.6: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Limited
Community Support to Implement Projects	Limited
Time to Devote to Hazard Mitigation	Limited

Plan Integration

The City has a Comprehensive Plan which was last updated in 1995. The city noted the plan is anticipated to be updated in the coming five years. The Comprehensive Plan addresses flooding as a hazard of concern, but no other hazards are identified or discussed. The Comprehensive Plan, Zoning Ordinance, and Floodplain Ordinance will be updated together.

In the past the city has applied for grants including CDBG Downtown Revitalization Grants, HMA, and CCCFF for pool improvements. The local planning team noted the annual municipal budget is limited to maintaining current facilities and systems with a large portion of funds currently

earmarked for the pool and downtown revitalization efforts. Any new capital projects would require additional bonds or grant funding.

The Local Emergency Operations Plan (LEOP) for Hebron, which was last updated in 2016, is an annex of Thayer County's LEOP. The plan will be updated in 2021 and will include components of this HMP. The plan addresses hazards such as chemical releases, severe winter storms, severe thunderstorms, and tornadoes. The plan provides a clear assignment of responsibility in case of an emergency, shelter locations, and evacuation routes.

As a member of the NFIP, Hebron has a floodplain ordinance which regulates development in the floodplain. All development in the floodplain requires a permit and must be built to at least one foot above base flood elevation. The zoning ordinances also consider the wildland urban interface and development in hazardous areas or along major transportation routes. The city has a Capital Improvements Plan which has identified some projects for the city to implement in the coming years. These include conducting maintenance on drainage structures, bridge improvements, backup generators, installing new wells, and installing new water meters. The city has adopted and follows the 2018 edition of the International Building Codes.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The local planning team is responsible for reviewing and updating this community profile as changes occur or after a major event. The local planning team will include the Mayor, City Supervisor, Fire Chief, City Clerk, and Thayer County Emergency Manager. The local planning team will review the plan every six months and will include the public in the review and revision process by: updating the city website, social media posts, and sharing information in the city newsletter.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	DEVELOP DAM FAILURE EVACUATION PLAN
DESCRIPTION	Work with officials to develop emergency action and evacuation plans if a dam were to fail.
HAZARD(S)	Dam Failure
STATUS	Evacuation planning was done when dam EAPs were developed.

MITIGATION ACTION	DRAINAGE DITCHES
DESCRIPTION	Deepen drainage ditches and clean out culverts.
HAZARD(S)	Flooding
STATUS	Priority area under 4th Street Bridge was cleared out.

MITIGATION ACTION	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)	Tornadoes and High Winds
STATUS	A new storm shelter was constructed at Thayer Central Schools which increased capacity by 150-175.

Continued Mitigation Actions

MITIGATION ACTION	CONTINUITY PLANNING
DESCRIPTION	Develop continuity plans for critical community services. Encourage businesses to do the same.
HAZARD(S)	All hazards
ESTIMATED COST	$5,000+, Staff time
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	City Council, Planning Department
STATUS	The mayor, sheriff, fire department, and city council will begin plan development in 2021.

MITIGATION ACTION	EMERGENCY EQUIPMENT PURCHASE AND/OR UPGRADES
DESCRIPTION	Develop strategies and purchase additional equipment to provide necessary services in the event of flooding.
HAZARD(S)	Flooding
ESTIMATED COST	Staff time
FUNDING	City General Fund, HMA
TIMELINE	1 year
PRIORITY	Medium
LEAD AGENCY	City Council
STATUS	Fire department has purchased new swift water rescue equipment. Additional training and plans are needed.

MITIGATION ACTION	EMERGENCY EXERCISE: DAM FAILURE
DESCRIPTION	Conduct tabletop exercises to determine the response scenarios in the event of dam failure.
HAZARD(S)	Dam Failure
ESTIMATED COST	$5,000
FUNDING	City General Fund, HMA
TIMELINE	1 year
PRIORITY	Low
LEAD AGENCY	City Council, Fire Department
STATUS	This action has not yet been scheduled.

MITIGATION ACTION	EMERGENCY EXERCISE: HAZARDOUS SPILL
DESCRIPTION	Utilize exercise to prepare for potential explosions or hazardous spills. Ensure that nearby business and residents have appropriate plans in place.
HAZARD(S)	Hazardous Materials
ESTIMATED COST	$5,000+
FUNDING	City General Fund, HMA
TIMELINE	1 year
PRIORITY	Medium
LEAD AGENCY	City Council, Fire Department, Sheriff
STATUS	Formal exercise has not yet been scheduled. However, 30 Hebron Volunteer Fire Dept. members have completed Hazardous Material Training-Operations Level and have purchased new equipment. They are also training in contamination and Public Safety-how to isolate and evacuate.

MITIGATION ACTION	EMERGENCY FUEL SUPPLY PLAN
DESCRIPTION	Plan to ensure adequate fuel supply is available during an emergency. Actions might include prioritization and rationing plan for gasoline and diesel uses in extended loss of fuel supply or electric power supply; a plan to purchase local fuel supply, etc.
HAZARD(S)	All hazards
ESTIMATED COST	$1,000+, Staff time
FUNDING	City General Fund, HMA
TIMELINE	1 year
PRIORITY	Medium
LEAD AGENCY	City Council, Fire Department
STATUS	This project has not yet been started. City Supervisor will work with local gas stations to develop a plan.

MITIGATION ACTION	FACILITIES FOR VULNERABLE POPULATIONS
DESCRIPTION	Ensure that facilities which will house vulnerable populations are placed in the least vulnerable areas of the community. Harden existing facilities if applicable.
HAZARD(S)	All hazards
ESTIMATED COST	Staff time
FUNDING	City General Fund
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	City Council
STATUS	The city has put restrictions in place for future development in the floodplain. Existing structures need to be hardened to reduce flood risk.

MITIGATION ACTION	FIRST AID TRAINING
DESCRIPTION	Promote first aid training for all residents.
HAZARD(S)	All hazards
ESTIMATED COST	$100 per person
FUNDING	City General Fund, HMA
TIMELINE	1 year
PRIORITY	Medium
LEAD AGENCY	City Council, Fire Department, County Board, Health Department
STATUS	Training for all employees in CRP and AED is anticipated in the next year. The City is working with the Southeast Community College Hebron Learning Center to offer quarterly classes for residents. The city will write a grant to the Hebron Community Foundation to hopefully assist with the cost for residents.

MITIGATION ACTION	HIGHER BUILDING CODES AND STANDARDS
DESCRIPTION	Promote the use of higher codes and standards, such as the Fortified for Safer Living Standard, in order to provide greater protection for any new construction or building retrofits.
HAZARD(S)	All hazards
ESTIMATED COST	Staff time
FUNDING	City General Fund
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	City Council, Planning Department
STATUS	The city should adopt the 2018 IBC.

MITIGATION ACTION	PROTECT AND IMPROVE ROADS AND BRIDGES
DESCRIPTION	Provides improvements to bridges in the city.
HAZARD(S)	Flooding
ESTIMATED COST	$25,000+
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	City Council
STATUS	The 4th Street bridge was cleared out. However as it was overtopped in 2019, additional improvements or elevation may be needed.

MITIGATION ACTION	PUBLIC AWARENESS AND EDUCATION
DESCRIPTION	Develop an education program to inform residents of risks related to chemical releases. This could include direct outreach to residents living in the immediate vicinity of chemical storage sites. Additionally, the city shall educate citizens on water conservation methods, evacuation plans, shelter in place training, floodplain status, flood risk, etc. In addition, purchasing equipment such as overhead projectors and laptops.
HAZARD(S)	All hazards
ESTIMATED COST	$3,000+
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	City Council, School, Fire Department, County Board
STATUS	The city utilizes the monthly City Chat newsletter to educate the public. Additional information about hazardous chemicals should be incorporated. The city intends to include additional information in the city newsletter about household mitigation measures.

MITIGATION ACTION	STORM SHELTER IDENTIFICATION
DESCRIPTION	Identify any existing private or public storm shelters.
HAZARD(S)	Tornadoes and High Winds
ESTIMATED COST	Staff time
FUNDING	City General Fund, HMA
TIMELINE	5+ years
PRIORITY	High
LEAD AGENCY	City Council
STATUS	This project has not yet been 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)	Flooding
ESTIMATED COST	$100,000
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	City Council
STATUS	Improvements have been made along South 4th Street. Other areas in need of improvement include South 6th Street, Holdrege Avenue, Jefferson Avenue, and South Avenue

MITIGATION ACTION	STREAM AND CHANNEL RENOVATIONS
DESCRIPTION	Implement channel and bridge improvements to increase channel conveyance and decrease the base flood elevations.
HAZARD(S)	Flooding
ESTIMATED COST	$10,000+
FUNDING	City General Fund, HMA
TIMELINE	2-5 years
PRIORITY	Low
LEAD AGENCY	City Council
STATUS	The channel under 4th Street Bridge has been cleaned out. Other drainage ways in town should be cleared.

MITIGATION ACTION	ZONING ORDINANCE UPDATES
DESCRIPTION	Develop land use ordinances and regulations to prevent storage of chemicals near residential developments.
HAZARD(S)	Hazardous Materials
ESTIMATED COST	Staff time
FUNDING	City General Fund
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	City Council
STATUS	This project has not yet been started.

MITIGATION ACTION	WEATHER RADIOS
DESCRIPTION	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
HAZARD(S)	All hazards
ESTIMATED COST	$50 per unit
FUNDING	City General Fund, HMA
TIMELINE	1 year
PRIORITY	High
LEAD AGENCY	City Council, Sheriff
STATUS	This project has not yet been started.

Removed Mitigation Actions

MITIGATION ACTION	GRADE CONTROL STRUCTURES
DESCRIPTION	Provides improvements to bridges in the city.
HAZARD(S)	Flooding
REASON FOR REMOVAL	This project was identified as redundant and is addressed by "Improve/Upgrade Bridges".

MITIGATION ACTION	IMPROVE DRAINAGE
DESCRIPTION	Investigate, design and retrofit or improve bridges to provide greater capacity and maintain or improve structural integrity during flood events.
HAZARD(S)	Flooding
REASON FOR REMOVAL	This project was identified as redundant and is addressed by "Improve/Upgrade Bridges".

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the city will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

MITIGATION ACTION	RISK COMMUNICATION
DESCRIPTION	Provide educational materials to residents living in the floodplain
HAZARD(S)	Flooding
ESTIMATED COST	$500+
REASON FOR REMOVAL	This project was identified as redundant and is addressed by "Public Awareness and Education"

COMMUNITY PROFILE

VILLAGE OF HUBBELL

Little Blue NRD and Lower Big Blue NRD
Hazard Mitigation Plan 2021

Local Planning Team

Table HUB.1: Village of Hubbell Local Planning Team

Name	Title	Jurisdiction
Bonnie Welch	Assistant Clerk	Village of Hubbell
Edith Laue	Clerk	Village of Hubbell
Sherry Yacks	Board Chair	Village of Hubbell

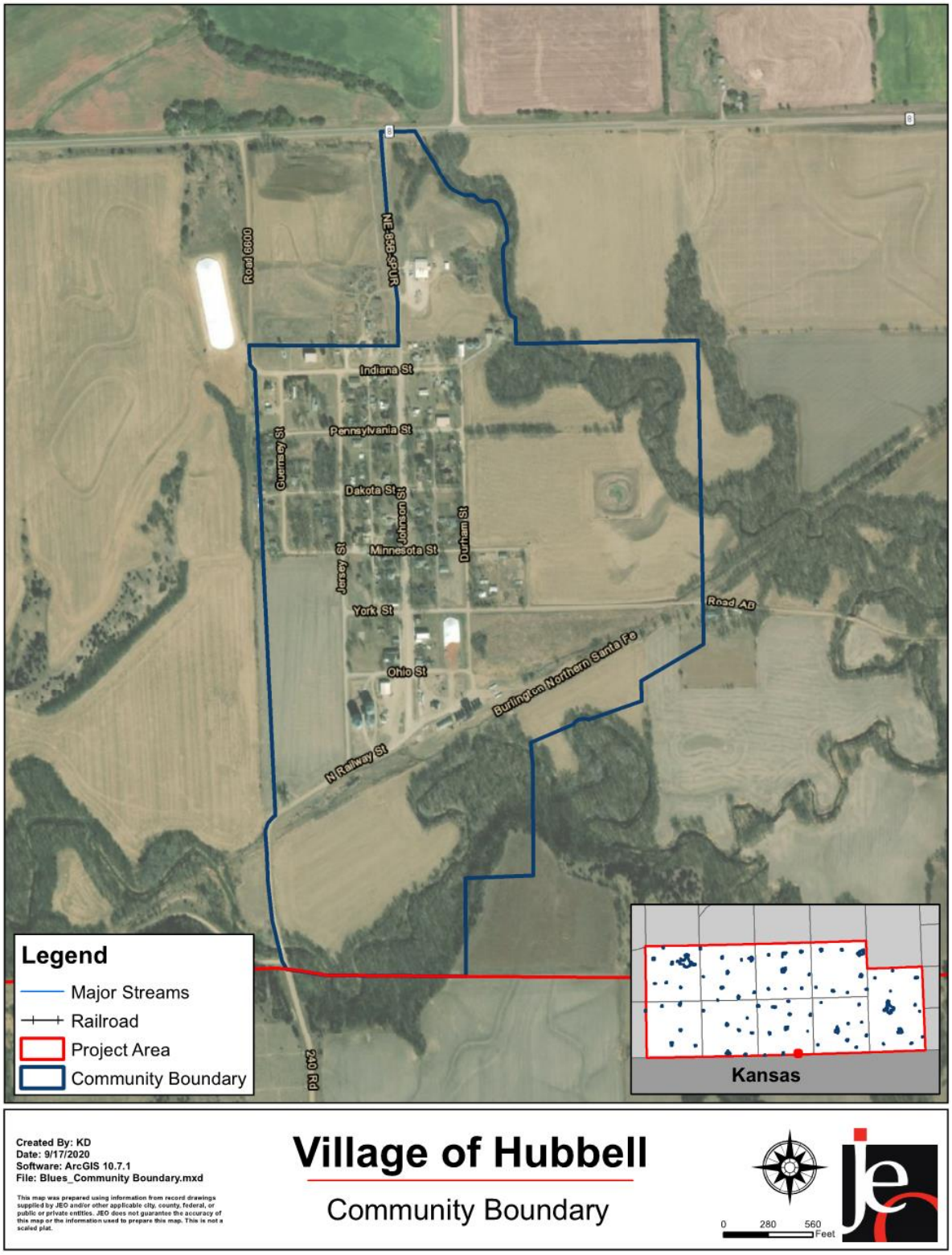
Location and Geography

The Village of Hubbell is located in the south eastern portion of Thayer County and covers an area of 0.34 square miles. Major waterways within the area include Rose Creek, which runs east to west in the southern portion of the community. The area is not heavily forested, although there is some tree cover in the community and just beyond its borders. Thayer County has had five known instances of landslides, however it in unknown if these occurred near Hubbell. The village lies in the plains topographic region and is surrounded by agricultural fields.

Transportation

Hubbell's major transportation corridors include State Highway 8, which runs east-west just north of Hubbell. Highway 8 accommodates on average 405 vehicles per day, 105 of which are heavy commercial vehicles. The local planning team noted Highway 8 is anticipated to be resurfaced in the coming five years. Road 6600 was also noted as a route of top concern as its used to access Hubbell's wells and water infrastructure. Hubbell does not have any rail lines. This information is important to hazard mitigation plans insofar as is suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

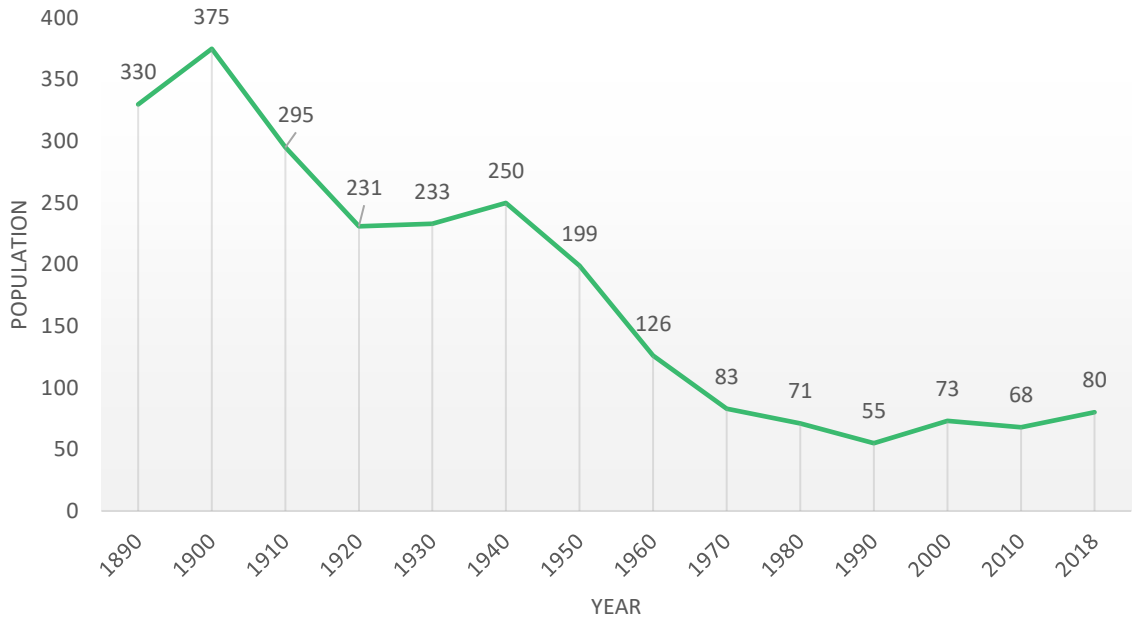
Figure HUB.1: Village of Hubbell Jurisdictional Boundary



Demographics

The following figure displays the historical population trend from 1890 to 2018 (estimated). This figure indicates that the population of Hubbell experienced a significant decline between 1940 and 1990. Since then, the population has stabilized and increased. This is relevant to hazard mitigation because communities with a growing population may be more prone to developing additional land and building new structures, while communities with declining populations may have larger shares of unoccupied housing or decreasing tax revenues. The village's estimated population accounted for 1.6% of Thayer County's total population in 2018.

Figure HUB.2: Hubbell Population 1890-2018



Source: U.S. Census Bureau[75]

The young, elderly, minorities, and poor may be more vulnerable to certain hazards than other groups. In comparison to the county, Hubbell's population was:

- **Older.** The median age of Hubbell was 47.8 years old in 2018, compared with the county average of 47 years. Hubbell's population has grown older since 2010, when the median age was 39.7 years old. Hubbell had a larger proportion of people under 20 years old (26.3%) than the county (23.5%).[76]
- **More ethnically diverse.** In 2010, 100% of Hubbell's population was White, non-Hispanic. By 2018, it was estimated that 95% was White, non-Hispanic and 5% was American Indian. During that time, Thayer County declined 1% (two or more races).[77]
- **More likely to be at the federal poverty line.** The estimated poverty rate of all persons in Hubbell was 35% in 2018. The poverty rate in the county was 8.4%.[78]

75 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
76 United States Census Bureau. "2018 American Fact Finder: S0101: Age and Sex." [database file]
77 United States Census Bureau. "2018 American Fact Finder: DP05: ACS Demographic and Housing Estimates." [database file]
78 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

Employment and Economics

The community's economic base is a mixture of industries. In comparison to Thayer County, Hubbell's economy had:

- **Different mix of industries**. Employment sectors accounting for 10% or more of employment in Hubbell included Education, Manufacturing, Whole Sale Trade, Retail Trade, Transportation, and Public Administration. In comparison, Thayer County included Education, Manufacturing, Agriculture, and Retail Trade.[79]
- **Less household income**. Hubbell's median household income in 2018 ($30,313) was about $20,421 lower than the county ($50,734).[80]
- **Fewer long-distance commuters**. 47.2% of workers in Hubbell commuted for fewer than 15 minutes, compared with about 63.3% of workers in Thayer County. About 11.1% of workers in Hubbell commute 30 minutes or more to work, compared to about 11.7% of the county workers.[81]

Major Employers

Major employers in Hubbell include Aurora Co-Op, Something Lucky, and Acreage Steakhouse. However, approximately 40% of residents commute to the surrounding areas for work including Hebron, Fairbury, and Belleville, Kansas.

Housing

In comparison to the county, Hubbell's housing stock was: [82]

- **More owner occupied.** About 78.8% of occupied housing units in Hubbell are owner occupied compared with 78.7% of occupied housing in Thayer County in 2018.
- **Greater share of aged housing stock**. Hubbell has more houses built prior to 1970 than the county (93.8% compared to 67.1%).
- **Fewer multi-family homes**. The predominant housing type in the village is single family detached and Hubbell contains less multifamily housing with five or more units per structure than the county (0% compared to 3.8%). About 95.8% of housing in Hubbell was single-family detached, compared with 90.6% of the county's housing. The U.S. Census Bureau states Hubbell has a larger share of mobile and manufactured housing (4.2%) compared to the county (1.8%). However, the local planning team noted there is only one mobile home located within the village.

This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

79 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
80 United States Census Bureau. "2018 American Fact Finder: DP03: Selected Economic Characteristics." [database file]
81 United States Census Bureau. "2018 American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]
82 United States Census Bureau. "2018 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Future Development Trends

In the past five years Aurora Co-Op has built a new grain bin and expanded production (largest employer in town). While the structure is located within the floodplain, it was elevated to above base flood elevation. The population in Hubbell has fluctuated over the past several years which the local planning team attributed to changes in family dynamics and size. At this time there are no future residential or commercial developments planned for the next five years.

Parcel Improvements and Valuation

GIS parcel data as of December 2019 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table. There are no LOMAs identified for Hubbell.

Table HUB.2: Hubbell Parcel Valuation

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Percent of Improvements in Floodplain	Value of Improvements in Floodplain
155	38	$798,290	14	37%	$386,397

Source: County Assessor, GIS Workshop

Community Lifelines

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there is one chemical storage site in Hubbell which houses hazardous materials. In the event of a chemical spill, the local fire department and emergency response may be the first to respond to the incident. The Co-Op is located in the floodplain and concerns exist if spills were to occur during flood events.

Table HUB.3: Chemical Storage Fixed Sites

Facility Name	Address	Located in Floodplain?
Aurora Co-op Elevator Company	320 N Railway St	Yes

Source: Nebraska Department of Environment and Energy[83]

83 Nebraska Department of Environment and Energy. "Search Tier II Data." August 2020.

Critical Facilities

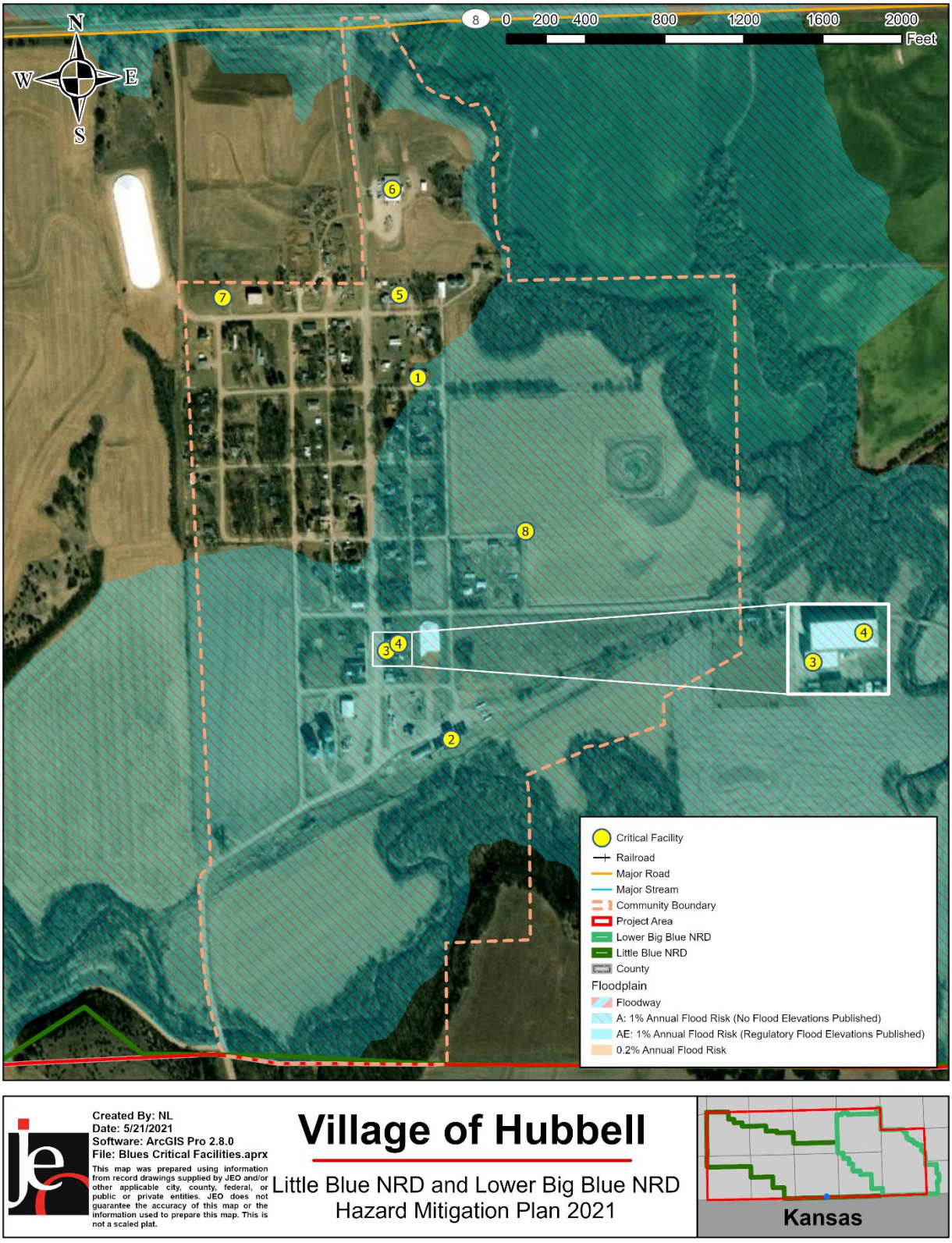
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during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

The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table HUB.4: Hubbell Critical Facilities

CF #	Type of Lifeline	Name	Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Safety & Security	Fire Hall	Y	Y	N
2	Food, Water, Shelter	Grain Elevator	N	Y	Y
3	Communications	Post Office	N	N	Y
4	Food, Water, Shelter	Community Hall	Y	N	Y
5	Safety & Security	Village Hall	Y	N	N
6	Food, Water, Shelter	Acreage Steakhouse	Y	N	N
7	Food, Water, Shelter	Water Tower	N	N	N
8	Health and Medical	Lift Station	N	Y	Y

Figure HUB.3: Hubbell Critical Facilities



Historical Occurrences

See the Thayer County community profile for historical hazard events.

Hazard Prioritization

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

Flooding

Flooding is a significant concern for the village due to the potential risk to property and safety. Hubbell experienced significant flooding in June 2003, May 2008, and July 2020. The 2008 episode featured the destruction of the village hall, community hall, and a restaurant, damage to the post office and a bank, and numerous incidents of property loss and damage, including flooded basements. The 2020 flooding caused extensive damage to the Community Hall with standing water reaching three feet in some areas. Water took over 12 hours to subside. Flash flooding is a significant concern in town. The south part of town, including the first three blocks on the south side, and areas near Railway Street, from Johnson to Minnesota, are especially prone to flooding. As for critical facilities, the nursing home, assisted living facility, and school have all been damaged by flooding in town. Another major concern for flooding is the risk of hazardous chemical contamination due to the location of the Aurora Co-Op in the floodplain.

Local planning team noted during flood events the flow of water appears to follow the original creek channel maps compared to currently mapped areas of floodplain. A collaborative effort between NeDNR and the village should be explored to remap the floodplain in this area. The village is a member in the NFIP and has received funding from the NRD in the past to clear all major drainage ditches in the village. As of November 2020 the village had seven policies in force for $826,300. Five total losses have been reported through the NFIP. The village is also working to develop a task force for quicker and more effective sand bagging efforts to protect property during flood events. This task force will include members from the village board, local fire department, and residents in Hubbell.

Severe Thunderstorms

Severe thunderstorms are frequent occurrences in Thayer County, and Hubbell occasionally receives heavy rain, lightning strikes, hail, and thunderstorm winds of 60 mph or greater. Hubbell is frequently impacted by hail from severe thunderstorms, including incidents of damaging golf ball size hail in April 2010 ($15,000 in damage), and quarter to golf ball size hail in June 2009 (another $15,000 in damage). The village is concerned about hail damage to homes, vehicles, streetlights, and trees, as well as power outages from damaged electrical poles.

Critical electronic municipal records are now protected with surge protectors; however, no power lines in town are buried and concerns exist for the aging power supply system. The water well, a critical facility, has a backup power generator. The village has developed an annual tree

inspection process to remove dead or dying trees. There are no hazardous trees that currently need to be removed, but the village trims all trees that might impact power lines in high winds.

The village does not have a tree board. Residents do not receive information regarding hail resistant building materials but the village is working to share information about removing hazardous trees from private property before major events. Critical facilities in the village are not fitted with hail resistant building materials. However, municipal facilities are insured against hail damage. In the future the village would like to include information to residents about hail resistant roofs and siding materials to reduce future damages.

Tornadoes and High Winds

Hubbell has a history of experiencing damaging high winds and tornadoes. Hubbell is concerned about these events, especially for their potential to knock down trees and power lines. A high wind event in June 2014 uprooted or toppled several trees. An EF-1 tornado on May 29, 2008 damaged grain bins, utility poles and power lines, uprooted trees and downed limbs, and electric meters and streetlights, along with destroying a park. EF-1 tornados have also caused damage in town on July 18, 2001 ($50,000 in damage) and June 13, 2001 ($500,000). A tornado has also destroyed a grain elevator in town.

The village now backups its municipal records. The village does not have a community safe room, but Hubbell Community Hall's basement has been identified as a public shelter. Otherwise, residents must rely on their own or a neighbor's basement or storm shelter for safety. Thayer County offers text alerts for severe weather. The fire department conducts emergency preparedness education efforts in the community.

The water well, a critical facility, has a backup power generator. No power lines in town are buried. There are no hazardous trees that currently need to be removed, but the village does an annual inspection, and trims all trees that might impact power lines in high winds. The local planning team noted a new warning and alert siren is needed.

Governance

A community's governance structure impacts its ability to implement hazard mitigation actions. Hubbell has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The village has a five-member village board, clerk/treasurer, fire chief, sewer/water superintendent, road/street superintendent, electric superintendent, parks/grounds, water operator, maintenance, and street engineer. Thayer County Emergency Management may also assist in pursueing future mitigation efforts.

Capabilities

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

Table HUB.5: Capability Assessment

Survey Components		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	*Yes*
	Capital Improvements Plan	*No*
	Economic Development Plan	*Yes*
	Local Emergency Operational Plan	*Yes*
	Floodplain Ordinance	*Yes*
	Zoning Ordinance	*Yes*
	Subdivision Regulation/Ordinance	*Yes*
	Building Codes	*Yes*
	Floodplain Management Plan	*No*
	Storm Water Management Plan	*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	*No*
	Local Staff Who Can Assess Community's Vulnerability to Hazards	*Yes*
	Grant Manager	*No*
	Mutual Aid Agreement	*Yes*
	Other (if any)	
Fiscal Capability	1 & 6 Year Plan	*Yes*
	Applied for grants in the past	*Yes*
	Awarded a grant in the past	*Yes*
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	*No*
	Gas/Electric Service Fees	*No*
	Storm Water Service Fees	*No*
	Water/Sewer Service Fees	*No*
	Development Impact Fees	*No*
	General Obligation Revenue or Special Tax Bonds	*No*
	Other (if any)	
Education and Outreach	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. 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*

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

Table HUB.6: Overall Capability

Overall Capability	Limited/Moderate/High
Financial Resources Needed to Implement Mitigation Projects	Limited
Staff/Expertise to Implement Projects	Moderate
Community Support to Implement Projects	Moderate
Time to Devote to Hazard Mitigation	Moderate

Plan Integration

In the past the city has applied for various grants including CDBG, USA, sewer grants, and grants through the NRD. The local planning team noted the annual municipal budget's funds are limited to maintaining current systems and facilities, but have increased slightly in recent years.

The Village of Hubbell currently has a Comprehensive Plan, Emergency Operations Plan (EOP), Zoning Ordinance, and Building Code. There are a Floodplain Regulations/Ordinance and Subdivision Regulations at the county level. The Comprehensive Plan, which was last updated in November 2011, addresses the threat of flooding, fire, and tornados, and does not contain current and future land use maps. Transportation systems are not designed to function under disaster conditions under the plan.

The Zoning Ordinance was last updated in 2006 and discourages development in hazard areas. It contains natural hazard layers, and prohibits development within, or filling of wetlands, floodways, or floodplains. The ordinance does not discourage development in the wildland-urban interface, which is a zone of transition between unoccupied land and human development that is most susceptible to wildfire impacts. The ordinance does not account for population changes when considering future land uses and has zones that limit the density of developments in the floodplain. There are requirements that floodplains be kept as open space, and there are rezoning procedures that limit changes that allow greater intensity or density in natural hazard impact areas.

The Building Code was last updated in 1984 and does not have higher standards at the local level than required by the state and federal government. There are no requirements for building design standards and enforcement for residential structures to be elevated. There are no requirements for non-residential structures to be elevated or flood proofed. There are no requirements for wind resistant construction practices. There are no codes that address urban fire hazards. There are no hazards specifically mentioned in the building codes.

The Floodplain Ordinance for the county was updated in 2011. The ordinances meet minimum federal and state requirements. The city has not adopted more stringent ordinances to reduce risk further. The ordinances prohibit development within, or filling of wetlands, floodways, and floodplains. The Subdivision Regulations, which are at the county level, were last updated in 2006.

The Local Emergency Operations Plan (LEOP) for Alexandria, which was last updated in 2016, is an annex of Thayer County's LEOP. The plan will be updated in 2021 and will include components of this HMP. The plan addresses hazards such as chemical releases, severe winter storms, severe thunderstorms, and tornadoes. The plan provides a clear assignment of responsibility in case of an emergency, shelter locations, and evacuation routes but does not identify any gaps related to a particular hazard. The village board and fire department are familiar with the EOP.

Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (i.e. annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The local planning team is responsible for reviewing and updating this community profile as changes occur or after a major event. The local planning team will include the Village Board, Fire Chief, maintenance personnel, and the village clerk The local planning team will review the plan no less than annually and will include the public in the review and revision process by: sharing social media posts and information at board meetings open to the public.

Mitigation Strategy

Completed Mitigation Actions

MITIGATION ACTION	BACKUP MUNICIPAL RECORDS
DESCRIPTION	Develop a protocol for backup of critical municipal records
HAZARD(S)	All hazards
STATUS	All municipal records are backed up and have paper copies available if needed.

MITIGATION ACTION	DRAINAGE DITCHES
DESCRIPTION	Deepen drainage ditches and clean out culverts
HAZARD(S)	Flooding
STATUS	Through grant funds through the NRD, the village has cleared all ditches in town to improve water flow.

MITIGATION ACTION	DRAINAGE STUDY / STORMWATER MASTER PLAN
DESCRIPTION	Preliminary drainage studies and assessments can be conducted to identify and prioritize design improvements to address site specific localized flooding/drainage issues to reduce and/or alleviate flooding. Stormwater master plans can be developed to help identify stormwater problem areas and potential drainage improvements.
HAZARD(S)	Flooding
STATUS	This project was completed through a NRD cost share grant.

MITIGATION ACTION	HAZARDOUS TREE REMOVAL
DESCRIPTION	Identify and remove hazardous limbs and/or trees.
HAZARD(S)	All hazards
STATUS	The village has developed an annual tree inspection process to remove dead or dying trees. This activity is now part of regular maintenance.

MITIGATION ACTION	RISK COMMUNICATION
DESCRIPTION	Require landlords to disclose if a rental property is located in a flood prone area or if the structure has been impacted previously by high-water events.
HAZARD(S)	Flooding
STATUS	The village has determined there are no rental properties in the floodplain.

MITIGATION ACTION	SURGE PROTECTION
DESCRIPTION	Purchase and install surge protectors on sensitive equipment in critical facilities.
HAZARD(S)	All hazards
STATUS	Surge protectors have been purchased and installed on critical municipal infrastructure.

MITIGATION ACTION	TREE CARE ORDINANCE
DESCRIPTION	Pass and enforce a tree care ordinance to improve tree health and remove dangerous trees and limbs.
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
STATUS	Guidance has been integrated into annual tree care inspections and maintenance.

MITIGATION ACTION	TREE INVENTORY
DESCRIPTION	Create tree inventory to identify problem trees that loose or drop branches
HAZARD(S)	All hazards
STATUS	The village has developed an annual tree inspection process to remove dead or dying trees which includes a full tree inventory.

MITIGATION ACTION	WEATHER RADIOS
DESCRIPTION	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
HAZARD(S)	Severe Weather Hazards
STATUS	Weather radios have been purchased for critical facilities.

Continued Mitigation Actions

MITIGATION ACTION	BACKUP GENERATOR
DESCRIPTION	Provide a portable or stationary source of backup power to alert siren.
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
ESTIMATED COST	$750
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	The village is currently exploring funding opportunities.

MITIGATION ACTION	BURY POWER AND SERVICE LINES
DESCRIPTION	Require powerlines installed as a part of new construction to be buried. Bury existing lines.
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
ESTIMATED COST	$1,000,000
FUNDING	Village general funds, HMA
TIMELINE	5+ years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	This project has not yet been started and is currently cost prohibitive.

MITIGATION ACTION	CIVIL SERVICE IMPROVEMENTS
DESCRIPTION	Improve emergency rescue and response equipment and facilities by providing additional equipment, or updating existing emergency response equipment. This can include fire trucks, ATV's, 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)	All hazards
ESTIMATED COST	Varies by need
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	Local fire department continues to upgrade equipment on an as needed basis. Specifically a new defibrillator is needed.

MITIGATION ACTION	IMPROVE OR ACQUIRE PROPERTY AT HIGH RISK TO FLOODING
DESCRIPTION	Voluntary acquisition and demolition of properties prone to flooding will reduce the general threat of flooding for communities. Additionally, this can provide flood insurance benefits to those communities within the NFIP. Repetitive loss structures are typically highest priority.
HAZARD(S)	All hazards
ESTIMATED COST	Varies by structure
FUNDING	Village general funds, HMA
TIMELINE	5+ years
PRIORITY	Low
LEAD AGENCY	Village Board
STATUS	The village continues to assess and remove properties from the floodplain as available. Priority has been on improve drainage to reduce flood risk.

MITIGATION ACTION	FLOODPLAIN MANAGEMENT
DESCRIPTION	Preserve natural and beneficial functions of floodplain land through measures such as: retaining natural vegetation, restoring streambeds, and preserving open space in the floodplain.
HAZARD(S)	Flooding
ESTIMATED COST	$5,000
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	The village will work to educate home owners on retaining beneficial vegetation and flood risk reduction strategies for properties in the floodplain.

MITIGATION ACTION	FLOODPLAIN EARLY ALERT SYSTEM
DESCRIPTION	Update equipment, ensure equipment is in a secure location, and install additional gauges. Hubbell also would like to assign roles and responsibilities to different village officials for flood warning events.
HAZARD(S)	Flooding
ESTIMATED COST	$20,000
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	HAZARDOUS MATERIAL CLEANUP AND RELOCATION
DESCRIPTION	Explore a plan and funding for relocation of tanks and hazardous storage located in the floodplain or flood prone areas.
HAZARD(S)	Flooding, Hazardous Materials
ESTIMATED COST	Unknown
FUNDING	Village general funds, HMA
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	A flooding event in 2003 dislocated several anhydrous ammonia containers. The elevator no longer fills tanks at this location and can move them to higher ground when heavy rain is anticipated. However, during flash flood events structures are still at risk and should be permanently relocated. The village would also like to relocate the grain elevator.

MITIGATION ACTION	PROVIDE BACKUP POWER SYSTEMS AND REDUNDANCIES
DESCRIPTION	Provide looped distribution service and other redundancies in the electrical system as a backup power supply in the event the primary system is destroyed or fails.
HAZARD(S)	All hazards
ESTIMATED COST	$75,000+
FUNDING	Village general funds, HMA
TIMELINE	5+ years
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	This project has not yet been started.

MITIGATION ACTION	PUBLIC EDUCATION AND OUTREACH
DESCRIPTION	Through 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, purchasing equipment such as overhead projectors and laptops.
HAZARD(S)	All hazards, especially flooding and tornadoes
ESTIMATED COST	$1,000
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	The village will hold local meetings for residents to discuss local mitigation efforts. Additional information about hail resistant building materials should be shared as well.

MITIGATION ACTION	TORNADO SAFETY PROGRAM
DESCRIPTION	Implement a tornado safety program
HAZARD(S)	Tornadoes and High Winds
ESTIMATED COST	$500
FUNDING	Village general funds, HMA
TIMELINE	1 year
PRIORITY	High
LEAD AGENCY	Village Board
STATUS	The fire department unlocks tornado shelter at fire hall during hazard events. The village will include a notice in spring utility bills with safety related information.

New Mitigation Actions – 2021 Plan

MITIGATION ACTION	ALERT SIRENS
DESCRIPTION	Update and/or replace alert sirens in the community
HAZARD(S)	All hazards
ESTIMATED COST	$25,000
FUNDING	General Fund, Fire Dept Funds, HMA
TIMELINE	2-5 years
PRIORITY	Medium
LEAD AGENCY	Village Board
STATUS	This is a new mitigation action.

Removed Mitigation Actions

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
HAZARD(S)	Flooding
REASON FOR REMOVAL	While the village will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA.

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. 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)	All hazards
REASON FOR REMOVAL	With the development of annual tree inspection process, this project was identified as no longer a priority for the village.