

Table of Contents

Arthur County.....2
Village of Arthur.....16
Arthur County Schools.....26

County Profile

Arthur County

Twin Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table ART.1: Arthur County Local Planning Team

Name	Title	Jurisdiction
Bill Simpson	Emergency Manager	Arthur County
David Hardin	Planning/Zoning/Assistant Road Superintendent	Arthur County
Mark Wilson	Commissioner	Arthur County

Location, Geography, and Climate

In western Nebraska, Arthur County is bordered by Grant, McPherson, Keith, and Garden Counties. The county's total area is 718 square miles with the Village of Arthur being the only incorporated community in the county. While no major waterways are in the county, a few smaller lakes are located throughout the county. The county is part of the west central Sandhills.

Climate

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

Table ART.2: Arthur County Climate

	Arthur County	State of Nebraska
July Normal High Temp ¹	88.0°F	87.4°F
January Normal Low Temp ¹	12.9°F	13.8°F
Annual Normal Precipitation ²	19.4"	23.8"
Annual Normal Snowfall ²	31.4"	25.9"

Source: NCEI 1981-2010 Climate Normals¹, High Plains Regional Climate Center, 1981-2010²
Precipitation includes all rain and melted snow and ice.

Transportation

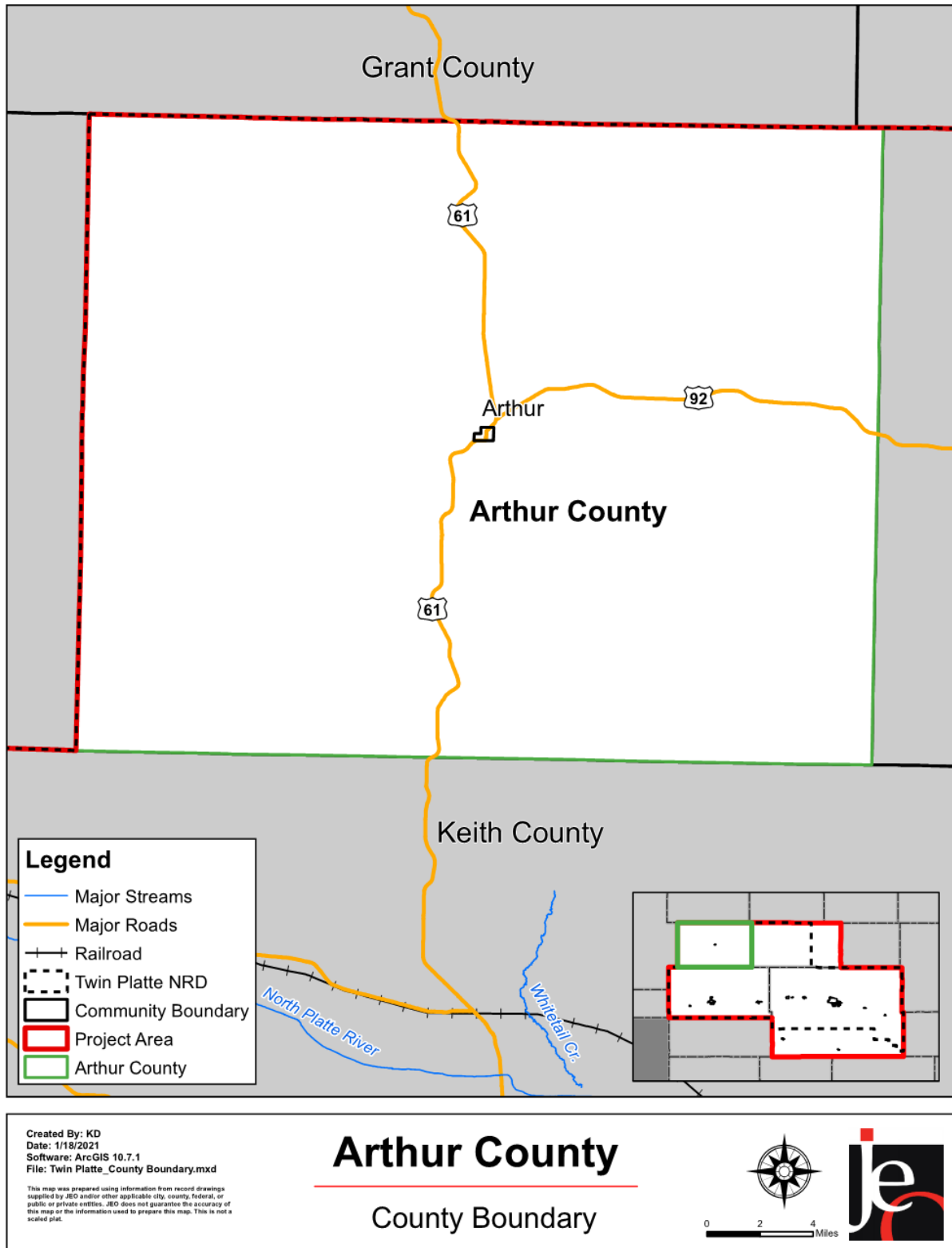
Arthur County's major transportation corridors include Nebraska State Highways 61 and 92. The most traveled route is Highway 61 with an average of 490 vehicles daily, 55 of which are trucks.³ Anhydrous ammonia is regularly transported on both highways and other local routes. Neither rail lines nor airports are located in the county. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors, as well as areas more at risk of transportation incidents.

1 National Centers for Environmental Information. "1981-2010 U.S. Climate Normals." Accessed July 2020.
<https://www.ncdc.noaa.gov/cdo-web/datatools>.

2 High Plains Regional Climate Center. "Monthly Climate Normals 1981-2010 – Arthur NE US." Accessed July 2020.
<http://climod.unl.edu/>.

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

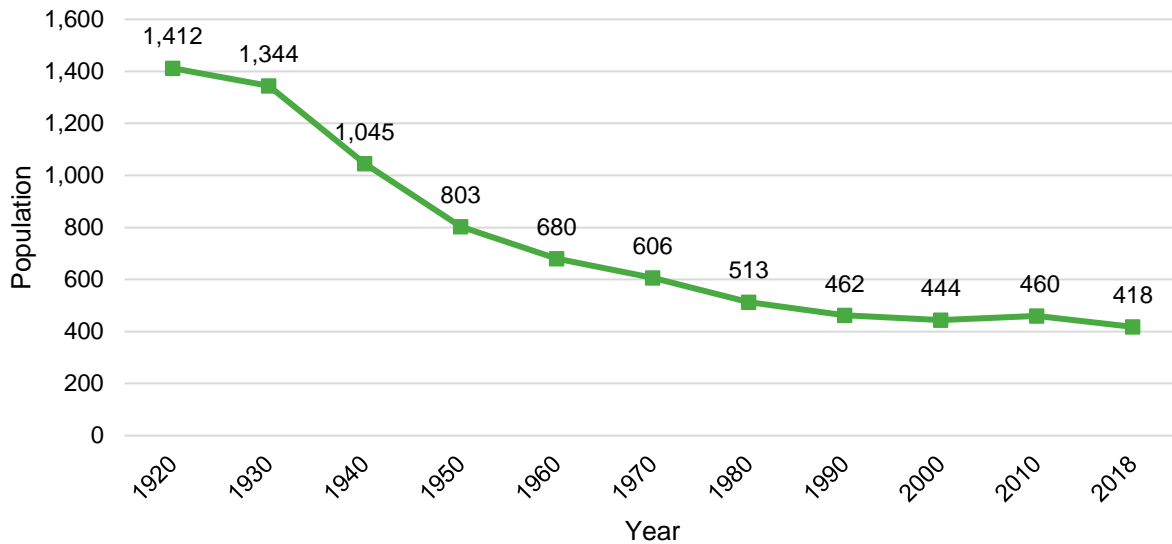
Figure ART.1: Arthur County



Demographics, Economics, and Housing

The following figure displays the county’s historical population trend from 1920 to 2018.⁴ This figure indicates that the population of Arthur County has been decreasing since 1920. A declining population can lead to more unoccupied and unmaintained housing that is then at risk to high winds and other hazards. Furthermore, with fewer residents, tax revenue decreases for the county, likely making it more fiscally challenging to implement mitigation projects.

Figure ART.2: Population 1920 - 2018



Source: U.S. Census Bureau

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

Table ART.3: Population by Age

Age	Arthur County	State of Nebraska
<5	2.6%	6.9%
5-64	72.1%	78.1%
>64	25.3%	15.0%
Median	47.1	36.4

Source: U.S. Census Bureau³

The following table indicates that both median household income and per capita income for the county are lower than the State of Nebraska. Median home value and rent are also both lower than the rest of the state. These economic indicators are relevant to hazard mitigation because they indicate the area’s relative economic strength compared to the state as a whole. Areas with relatively low economic indicators may be less resilient during hazardous events.

⁴ United States Census Bureau. 2018. "S0101: Age and Sex." [database file]. <https://data.census.gov/cedsci/>.

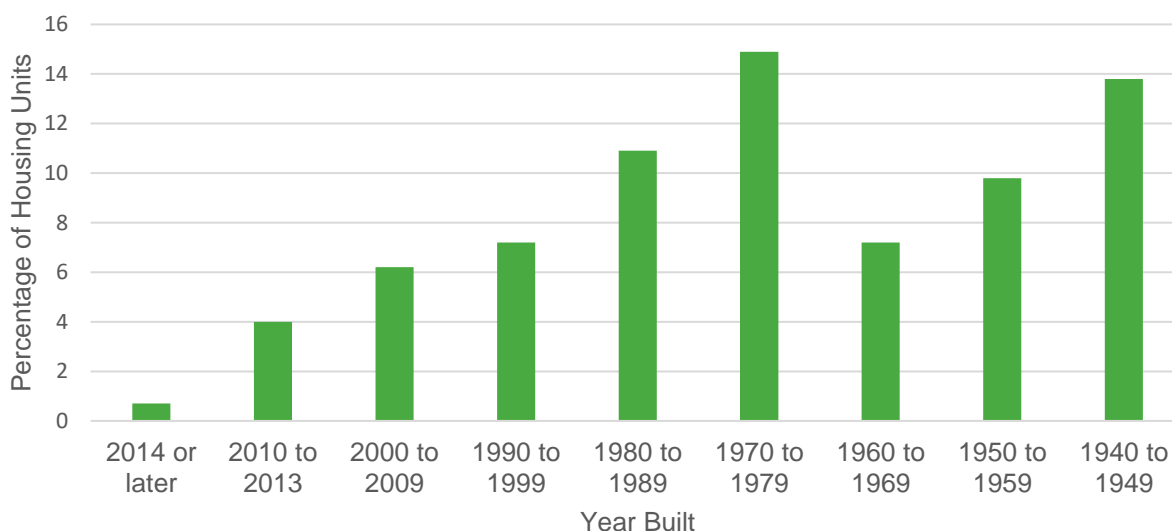
Table ART.4: Housing and Income

	Arthur County	State of Nebraska
Median Household Income	\$43,854	\$59,116
Per Capita Income	\$26,514	\$31,101
Median Home Value	\$104,600	\$147,800
Median Rent	\$525	\$805

Source: U.S. Census Bureau^{5,6}

The following figure indicates that the majority of housing in Arthur County was built between 1970 and 1979 (14.9%). Housing age can serve as an indicator of risk, as structures built prior to the development of state building codes may be at greater risk to hazards and deterioration. According to 2018 ACS 5-year estimates, the county has 276 housing units with 69.9% of those units occupied. There are approximately 20 mobile homes in the county. Residents that live in mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if not anchored correctly.

Figure ART.3: Housing Units by Year Built



Source: U.S. Census Bureau⁵

Table ART.5: Housing Units

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Arthur County	193	69.9%	83	30.1%	131	67.9%	62	32.1%
Nebraska	754,063	90.8%	76,686	9.2%	498,567	66.1%	255,496	33.9%

Source: U.S. Census Bureau⁵

Major Employers

According to 2016 Business Patterns Census Data, Arthur County had 11 business establishments. The following table presents the number of establishments, number of paid employees, and the annual payroll in thousands of dollars.

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

⁶ United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. <https://data.census.gov/cedsci/>.

Table ART.6: Business in Arthur County

	Total Businesses	Number of Paid Employees	Annual Payroll (In Thousands)
Total for All Sectors	11	68	1,912,000

Source: U.S Census Bureau⁷

Agriculture is important to the State of Nebraska's economic fabric. Arthur County's 95 farms cover 452,733 acres of land—about 98.4% of the county's total area. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute to agriculture by producing, processing, and marketing farm products. These businesses generate income, employment, and economic activity throughout the region.

Table ART.7: Agricultural Inventory

Agricultural Inventory	
Number of Farms with Harvested Cropland	61
Acres of Harvested Cropland	24,955

Source: USDA Census of Agriculture, 2017⁸

Future Development Trends

Over the past five years, two new buildings (one at the fairgrounds and one in the Village of Arthur) and several sheds were constructed in the county. Additionally, two new homes were built in Arthur. The county demolished a building at the fairgrounds and demolished another building in the western part of the county. None of the new structures were built in the floodplain. According to the 2018 American Community Survey estimates, Arthur County's population is declining. The local planning team attributed this to an aging population and the youth leaving after high school. In the next five years, no new housing or businesses are planned.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g., buildings, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

Table ART.8: Parcel Improvements and Value in the Floodplain

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain*	Value of Improvements in Floodplain*	Percentage of Improvements in Floodplain*
311	\$28,085,860	93	\$8,992,420	29.9%

Source: County Assessor, 2018

*Based off a HAZUS created floodplain.

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

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

Community Lifelines

Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, one chemical storage site is located in Arthur County. The following table lists its name, location, and floodplain status. Critical facilities are not located near the fixed chemical site.

Table ART.9: Chemical Storage Fixed Sites

Facility Name	Location	In Floodplain (Y/N)*
NDOT Arthur Yard	118 Hawkins Street, Arthur, NE	N

Source: Nebraska Department of Environment and Energy, 2020⁹

*Based off a HAZUS created floodplain.

Critical Facilities

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

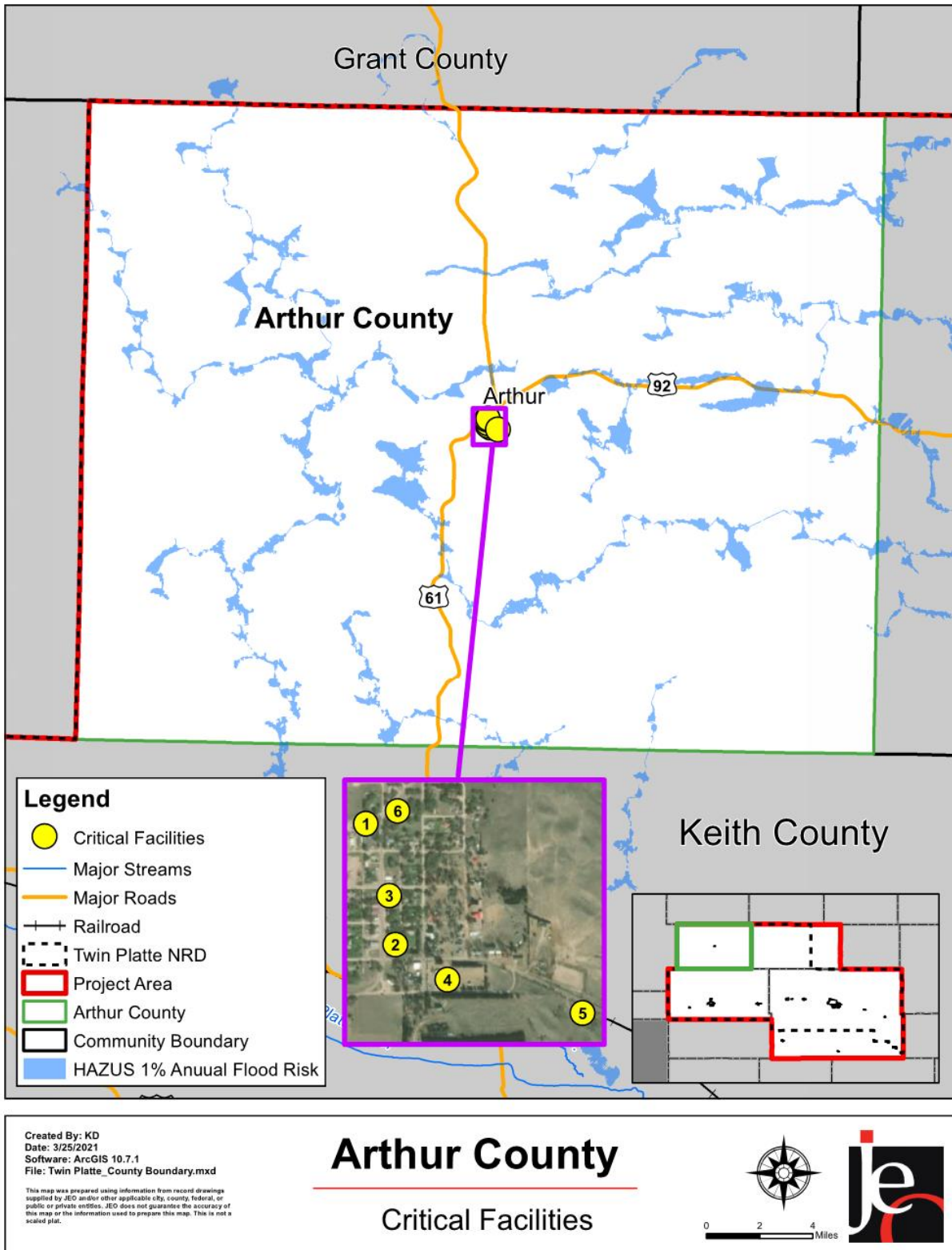
Table ART.10: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)*
1	County Shop	N	N	N
2	Courthouse	N	N	N
3	Fire Station	N	N	N
4	High School	Y	N	N
5	Substation	N	N	N
6	Village Shop	N	N	N

*Based off a HAZUS created floodplain.

⁹ Nebraska Department of Environment and Energy. “Search Tier II Data.” Accessed August 2020. <https://deq-iis.ne.gov/tier2/tier2Download.html>.

Figure ART.4: Critical Facilities



Note: There is no DFIRM for the county. Floodplain was generated using the HAZUS program.

Governance

The county’s governmental structure impacts its capability to implement mitigation actions. Arthur County is governed by a Board of Commissioners. The county also has the following offices and departments:

- County Clerk
- County Assessor
- Highway Superintendent
- Planning & Zoning
- Sheriff’s Department
- County Treasurer
- Emergency Management

Capability Assessment

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

Table ART.11: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	No
	Local Emergency Operations Plan	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	No
	Building Codes	Yes
	National Flood Insurance Program	No
	Community Rating System	No
Other (if any)		
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	No
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess County’s Vulnerability to Hazards	No
	Grant Manager	No
	Mutual Aid Agreement	Yes
Other (if any)		

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

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

Plan Integration

Arthur County has several planning documents that discuss or relate to hazard mitigation. Each plan is listed below along with a short description of how it is integrated with the hazard mitigation plan. In addition, the county has a zoning ordinance, building codes, and subdivision regulations that have not been integrated with the hazard mitigation plan. No other planning documents were identified during this process. The county will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Arthur County Local Emergency Operations Plan (2017)

The local emergency operations plan establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information regarding direction and control, communications

and warning, damage assessment, emergency public information, evacuation, fire services, health and human services, law enforcement, mass care, protective shelters, and resource management. This plan is updated every five years.

Comprehensive Plan

The comprehensive plan is designed to guide the future actions of the county. It contains goals aimed at safe growth and discusses flooding. There are currently no plans to update the document.

Western Sandhills Community Wildfire Protection Plan (2019)

The purpose of the Western Sandhills Community Wildfire Protection Plan (CWPP) is to help effectively manage wildfires and increase collaboration and communication among organizations who manage fire. The CWPP discusses county-specific historical wildfire occurrences and impacts, identifies areas most at risk from wildfires, discusses protection capabilities, and identifies wildfire mitigation strategies. This document is updated every five years.

Historical Occurrences

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

Table ART.11: County Hazard Loss History

Hazard Type		Count	Property Damage	Crop Damage ²
Agricultural Disease	Animal Disease ¹	2	2 animals	N/A
	Plant Disease ²	0	N/A	\$0
Chemical Spills – Fixed Site³		1	N/A	N/A
Chemical Spills – Transportation⁴		0	\$0	N/A
Dam Failure⁵		0	N/A	N/A
Drought^{6,8}		434 months in drought out of 1,498	\$0	\$0
Earthquakes¹¹		0	N/A	N/A
Extreme Heat⁷		Average: 3 days/year	N/A	\$197,481
Flooding⁸	Flash Flood	2	\$50,000	\$0
	Flood	0	\$0	\$0
Grass/Wildfires¹² <i>2 injuries</i>		83	30,127 acres	\$500
Hail⁸ Range (in): 0.75-2.75 Average (in):1.14		142	\$131,000	\$1,349,630
High Winds⁸ Range (mph): 40-66 Average (mph): 53		25	\$500	\$254,996
Levee Failure¹⁰		0	N/A	N/A
Public Health Emergency		Undefined	N/A	N/A
Severe Thunderstorms⁸	Thunderstorm Wind Range (mph): 58-90 Average (mph): 64	34	\$103,500	\$13,839

Hazard Type	Count	Property Damage	Crop Damage ²
Heavy Rain	2	\$0	
Lightning	2	\$30,000	
Severe Winter Storms⁸ <i>2 injuries</i>	Blizzard	\$5,000	
	Extreme Cold/Wind chill	\$0	
	Heavy Snow	\$5,000	\$0
	Ice Storm	\$0	
	Winter Storm	34	\$15,000
Winter Weather	0	\$0	
Terrorism⁹	0	\$0	N/A
Tornadoes⁸ Range: EF0-EF1 Average: EF0	6	\$35,000	\$0
Total	351	\$375,000	\$1,816,446

N/A: Data not available
 1 - NDA, 2014 – November 2020
 2 - USDA RMA, 2000 – 2019
 3 - NRC, 1990 – February 2020
 4 - PHSMA, 1971 – July 2020
 5 – NeDNR Correspondence
 6 - NOAA, 1895 – October 2019

7 - NOAA, 1893 – July 2020
 8 - NCEI, 1996 - December 2019
 9 - University of Maryland, 1970-2018
 10 – USACE NLN, 1900 – July 2020
 11 – USGS, 1900 – July 2020
 12 – NFS 2000 – 2017

The following table provides a summary of hazards that have affected or have the potential to affect each participating jurisdiction in Arthur County. Each jurisdiction was evaluated for previous hazard occurrences and the probability of future hazard events on each of the 17 hazards profiled in this plan. The evaluation process was based on data collected and summarized in Table ART.1; previous impacts or the potential for impacts to infrastructure, critical facilities, people, and the economy; and the proximity to certain hazards such as dams and levees.

Table ART.12: Arthur County and Community Hazard Matrix

Hazard	Arthur County	Village of Arthur	Arthur County Schools
Ag. Disease	X	X	X
Chemical Spills (Fixed Site)	X	X	X
Chemical Spills (Transportation)	X	X	X
Dam Failure			
Drought	X	X	X
Earthquakes	X	X	X
Extreme Heat	X	X	X
Flooding	X	X	X
Grass/Wildfires	X	X	X
Hail	X	X	X
High Winds	X	X	X
Levee Failure			
Public Health Emergency	X	X	X
Severe Thunderstorms	X	X	X
Severe Winter Storms	X	X	X
Terrorism	X	X	X
Tornadoes	X	X	X

County Hazard Prioritization

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

Chemical Spills (Transportation)

The local planning team mentioned an incident about twenty years ago involving a truck carrying anhydrous ammonia. The truck was involved in an accident leading to the spill of some anhydrous ammonia. Although no recent spills have occurred, trucks carrying chemicals and propane frequently cross the county along Highways 92 and 61. Arthur County also lacks resources to respond adequately if there was a chemical spill. North Platte HazMat would respond to local incidents.

Flooding

Although not identified as a top hazard of concern by the local planning team, HAZUS indicated that there are floodplain areas in the county. NCEI data since 1996 show that the county has experienced two flooding events. Damages from those events totaled \$50,000. With no major bodies of water, the floodplain in the county consists of smaller lakes and areas connecting them.

Grass/Wildfire

The planning team indicated that wildfires are a common occurrence in the county. In March of 2015, there was a large wildfire that started in Arthur County and spread to Keith and McPherson Counties. Wildfires have the ability to spread quickly through the county due to vegetation and generally dry conditions. Areas most at risk from grass/wildfires include the land surrounding the Village of Arthur and ranches located throughout the county. The local fire department belongs to two mutual aid districts to help reduce the risk and impacts from a fire.

Hail

Hail is a frequently occurring hazard in the county. There have been 129 recorded hail events in Arthur County since 1996 that caused \$131,000 in property damages. A substantial hail event in Arthur County occurred on Father's Day 2015. This event caused significant damages to homes, the school, and buildings across the county.

Severe Winter Storms

Severe winter weather is a regular part of the climate in Arthur County, occurring every year. The local planning team indicated that the county experiences power outages approximately six times annually. No critical facilities have backup power generators, which increases vulnerability. The snow removal resources have been determined adequate for county needs.

Tornadoes

Tornadoes have the potential for significant damages and loss of life. According to the NCEI, there have been four tornadic events in Arthur County since 1996 that have caused \$35,000 in damages. Although the county does not have identified safe rooms, the local planning team indicated that residents can go to the church basement, high school, and courthouse for shelter. Arthur County recently updated the warning siren in the Village of Arthur.

Mitigation Strategy

Arthur County’s funds are limited to maintaining current facilities and systems and have stayed the same over recent years. Although a large portion of funds is not yet dedicated to a project, the county will likely need grant assistance to help pay for many of the actions listed below. The county has experience applying for and has been awarded FEMA roads grants in the past.

Completed Mitigation Actions

Mitigation Action	Improve Warning Systems
Description	Evaluate current warning systems, improve warning systems, and develop new warning systems. Obtain/upgrade warning system equipment and methods, including alert sirens. Identify locations of weather warning radios, improve weather radio system, and obtain/upgrade weather radios.
Hazard(s) Addressed	All Hazards
Status	Completed

Continued Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Identify and evaluate current backup and emergency generators. Obtain additional generators based on identification and evaluation.
Hazard(s) Addressed	Tornados, High Winds, Severe Winter Storms, Severe Thunderstorms, Flooding
Estimated Cost	\$20,000 to \$50,000 per generator
Funding	County General Fund, Private Entities
Timeline	2-5 Years
Priority	Medium
Lead Agency	Emergency Manager
Status	Not Started

Mitigation Action	Provide Adequate Fire Protection
Description	Identify and evaluate current fire hall and improve and/or replace fire hall. Identify and evaluate current firefighting equipment locations and improve and/or add firefighting equipment at additional locations.
Hazard(s) Addressed	Wildfire, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	\$30,000+
Funding	Village of Arthur General Fund, County General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Fire Chief, Emergency Management
Status	Not Started

Mitigation Action	Reduce Tree Damage
Description	Conduct tree inventory, develop tree maintenance/trimming program, and implement tree maintenance/trimming program.
Hazard(s) Addressed	Wildfire, Tornados, Severe Thunderstorms, Severe Winter Storms, Hail
Estimated Cost	\$500 to \$5,000
Funding	County General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	County Board, Twin Platte NRD, Emergency Management
Status	Not Started

Community Profile

Village of Arthur

Twin Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update

2021

Local Planning Team

Table ATH.1: Arthur Local Planning Team

Name	Title	Jurisdiction
Belinda Daly	Village Clerk	Village of Arthur
Bill Simpson	Sheriff/Emergency Manager	Arthur County
Dave Hardin	Street Superintendent	Village of Arthur
Laura Cooney	Village Chairperson	Village of Arthur

Location and Geography

As the county seat of Arthur County, the Village of Arthur covers an area of 198 acres. The closest waterbody to Arthur is Lake McConaughy, which is located 25 miles south of the village.

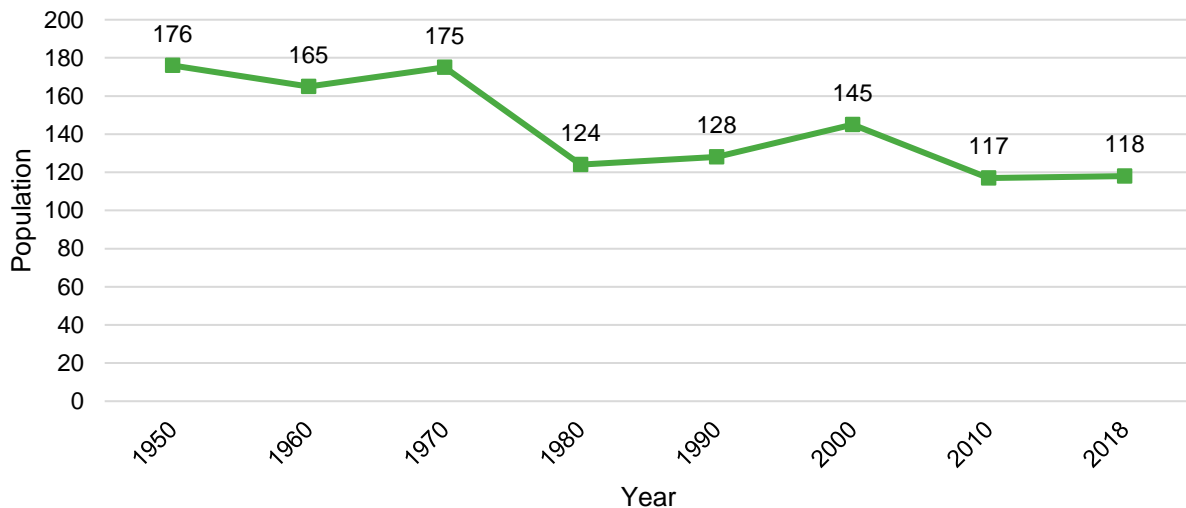
Transportation

Arthur’s major transportation corridors include State Highway 61 and 92. The most traveled route is Highway 61 with an average of 490 vehicles daily, 55 of which are trucks.¹⁰ The village does not have a rail line traveling near or through the community. The local planning team indicated that no large crashes or chemical spills have occurred on any local transportation routes. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Demographics

The Village of Arthur’s population has been stable since 2010 at about 118 people in 2018. A stable population can lead to a stable tax base, making it easier to implement mitigation actions. Arthur’s population accounted for 28.2% of Arthur County’s population in 2018.¹¹

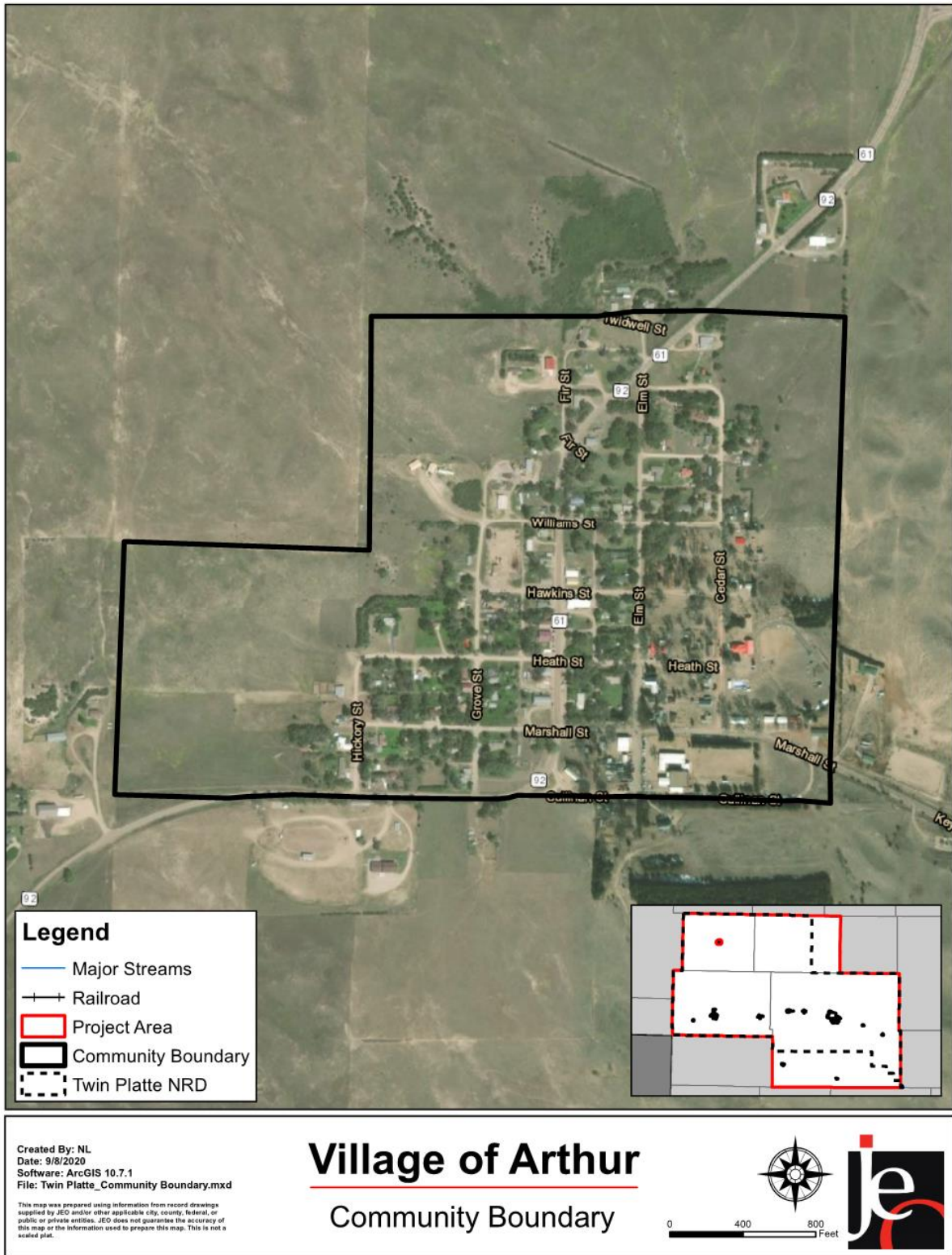
Figure ATH.1: Population 1950 - 2018



Source: U.S. Census Bureau

10 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map." [map]. <https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34>.
 11 United States Census Bureau. 2018. "DP05: Demographic and Housing Estimates [database file]. <https://data.census.gov/cedsci/>

Figure ATH.2: Village of Arthur



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

- **Older.** The median age of Arthur was 53 years old in 2018, compared with Arthur County's median of 47.1 years. Arthur's population grew slightly older since 2010, when the median age was 52.5 years old.¹¹
- **Much less ethnically diverse.** Since 2010, Arthur grew less ethnically diverse. In 2010, 0.9% of Arthur's population was non-white. By 2018, about 0% was non-white. During that time, the non-white population in the county slightly declined from 4.6% in 2010 to 4.3% in 2018.¹¹
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Arthur (11% of people living below the federal poverty line) was slightly higher than the county's poverty rate (10.3%) in 2018.¹²

Employment and Economics

In comparison to Arthur County, Arthur's economy had:

- **Different mix of industries.** Arthur's major employment sectors, accounting for 10% or more of employment each, were: agriculture, construction, manufacturing, retail trade, and education.¹²
- **Lower median household income.** Arthur's median household income in 2018 (\$40,417) was about \$3,400 lower than the county (\$43,854).¹²
- **Fewer long-distance commuters.** About 64.2% of workers in Arthur commuted for fewer than 15 minutes, compared with about 50.6% of workers in Arthur County. About 34% of workers in Arthur commuted 30 minutes or more to work, compared to about 33.1% of county workers.¹³

Major Employers

Arthur's major employers include Arthur County Schools and Arthur County. The local planning team estimated that approximately 10% of residents also commute to Ogallala, Hyannis, Paxton, Grant, or out of state for employment.

Housing

In comparison to Arthur County, Arthur's housing stock was:

- **Newer.** Arthur had a smaller share of housing built prior to 1970 than the county (44.9% compared to 56.2%).¹⁴
- **More mobile and manufactured housing.** The Village of Arthur had a larger share of mobile and manufactured housing (13.3%) compared to the county (7.2%).¹⁴
- **More renter-occupied.** About 42% of occupied housing units in Arthur were renter-occupied compared with 32.1% of occupied housing in Arthur County.¹⁴
- **Slightly more occupied.** Approximately 29.6% of Arthur's housing units were vacant compared to 30.1% of units in Arthur County.¹⁴

¹² United States Census Bureau. 2018. "DP03: Selected Economic Characteristics." [database file]. <https://data.census.gov/cedsci/>.

¹³ United States Census Bureau. 2018. "S0802: Means of Transportation to Work by Selected Characteristics." [database file]. <https://data.census.gov/cedsci/>.

¹⁴ United States Census Bureau. 2018. "DP04: Selected Housing Characteristics." [database file]. <https://data.census.gov/cedsci/>.

The age of housing may indicate which housing units were built prior to the development of state building codes. Vacant housing stock may also be more vulnerable to hazard events if poorly maintained. Unoccupied housing may also suggest that future development may be less likely to occur. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. The local planning team indicated that there are no mobile homes located in the village, however, the village does have a significant number of manufactured housing. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have flood insurance, or to know their risks to flooding and other hazards.

Future Development Trends

No housing or business developments have occurred within the village in the past five years, and none are anticipated in the next five years. According to the American Community Survey estimates, Arthur’s population is stable. According to the local planning team, the village population is stable due to its proximity to other communities that provide jobs.

Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g., buildings, garages, sheds etc.) at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

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

Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain*	Value of Improvements in Floodplain*	Percentage of Improvements in Floodplain*
106	\$3,394,835	0	0	0

Source: County Assessor, 2018

*Based off a HAZUS-created floodplain.

Community Lifelines

Critical Facilities

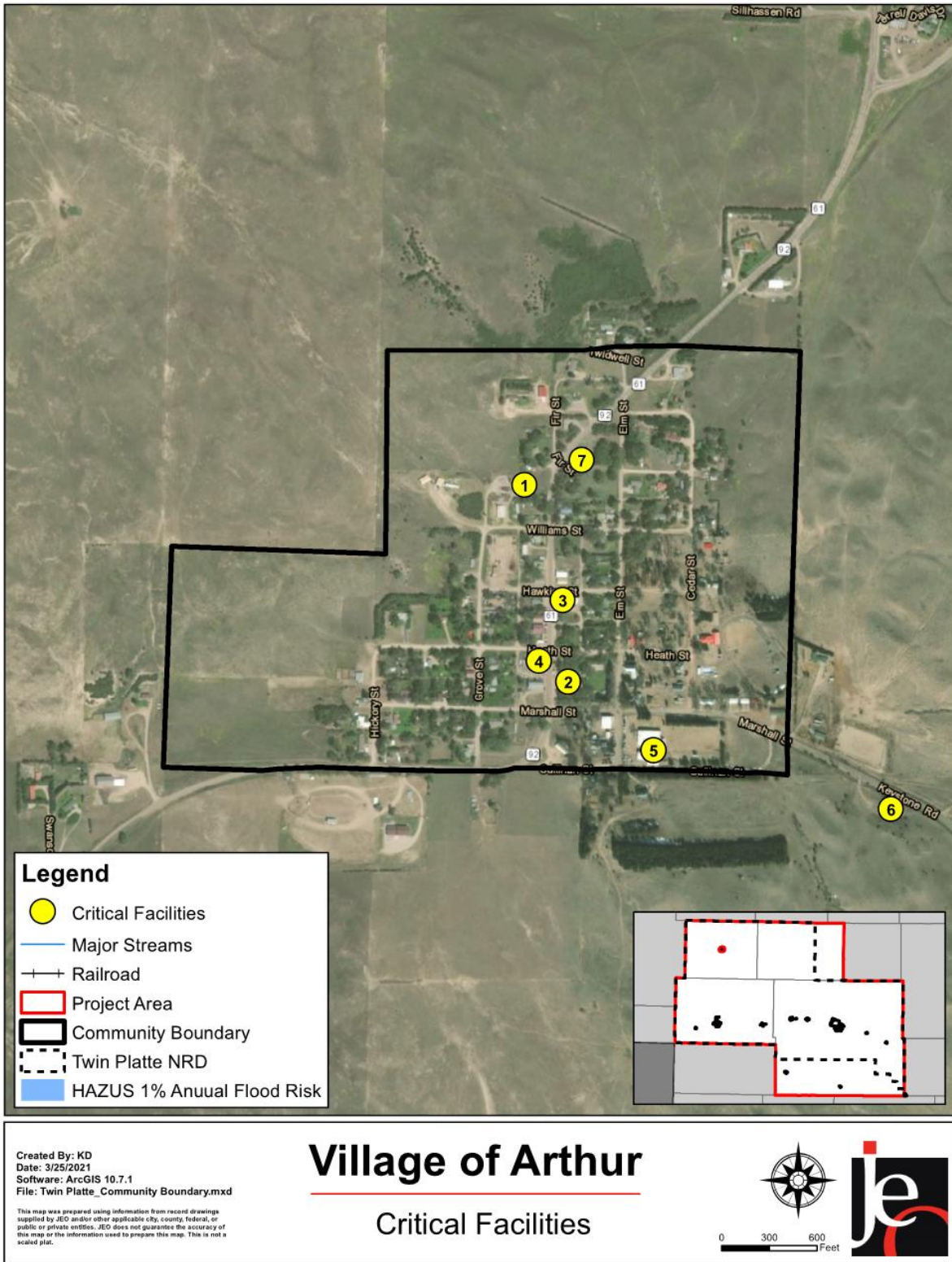
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during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

Table ATH.3: Critical Facilities

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)*
1	County Shop	N	N	N
2	Courthouse	N	N	N
3	Fire Station	N	N	N
4	Gas Station	N	N	N
5	High School	Y	N	N
6	Substation	N	N	N
7	Village Shop	N	N	N

*Based off a HAZUS created floodplain.

Figure ATH.3: Critical Facilities



Note: There is no DFIRM for the county. Floodplain was generated using the HAZUS program.

Governance

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

- Clerk/Treasurer/Secretary
- Street Superintendent

Capability Assessment

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

Table ATH.4: Capability Assessment

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

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

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

Plan Integration

The Village of Arthur does not have any formal planning documents. However, they are an annex in the 2017 Arthur County Local Emergency Operations Plan (LEOP). The LEOP establishes standardized policies, plans, guidelines, and procedures for emergency resources and governmental entities to respond and recover when a disaster event occurs. It contains information regarding direction and control, communications and warning, damage assessment, emergency public information, evacuation, fire services, health and human services, law enforcement, mass care, protective shelters, and resource management. This plan is updated every five years. The village will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Historical Occurrences

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

Hazard Prioritization

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

Chemical Spills (Transportation)

Chemical transportation was identified as a top concern for the village. The local planning team mentioned an incident located just outside the village about twenty years ago involving a truck carrying anhydrous ammonia. The truck experienced an accident and some of the anhydrous ammonia to be spilled. Although no chemical spills have occurred recently, trucks carrying chemicals and propane frequently cross the county along Highways 92 and 61. Arthur lacks the response resources if a chemical spill occurred in the village. North Platte Hazmat would respond to local incidents. Increased law enforcement is needed to help maintain safe speeds in the village as there is a lower speed limit on the highway through the community.

Grass/Wildfire

Wildfire was identified as a top concern by the local planning team. Although wildfire has not caused damage within the village, the planning team indicated that wildfires are a common occurrence in the surrounding area. In March of 2015, a large wildfire started in Arthur County and spread to Keith and McPherson Counties. Wildfires have the ability to spread quickly through the county due to the vegetation and generally dry conditions. Since the last plan update, the local Fire Department has updated their equipment.

Hail

Hail is a frequently occurring hazard in Arthur. There have been 129 recorded hail events in Arthur since 1996 that caused \$131,000 in property damages. There was a substantial hail event in Arthur on Father's Day 2015. This event caused significant damages to buildings and property within the village. The largest reported hailstone during that time was 2.5 inches.

Severe Thunderstorms

NCEI data reports 37 severe thunderstorm events since 1996. The storms resulted in \$103,500 in property damages. In 2015, a severe thunderstorm event damaged a roof causing extensive water damage and \$75,000 in property damages. Local concerns regarding this hazard include power outages and flash floods leading to impassable roads.

Severe Winter Storms

Severe winter weather is a regular part of the climate in Arthur, occurring every year. Local concerns regarding this hazard include closed transportation routes, loss of power, and the lack of mobility of the village's older population. The local planning team indicated that the community experiences power outages a few times a year. Severe winter weather has also impacted transportation routes in the community. The local planning team expressed a need for improved snow removal equipment in the future.

Tornadoes

Tornadoes have the potential for significant damage and loss of life. According to the NCEI, four tornadic events have occurred in or near Arthur since 1996 that caused \$35,000 in property damages. Although the village did not identify any safe rooms, the local planning team indicated

that residents could go to the church basement, high school, and village courthouse for shelter. Arthur recently upgraded the warning siren in the village.

Mitigation Strategy

Arthur has limited fiscal capabilities and administrative support available for implementing mitigation projects. Arthur's municipal funds have stayed the same over recent years and are limited to maintenance in the village with a large portion of funds dedicated to road infrastructure. The community will continue to benefit from strong partnerships, such as with the county, and TPNRD and will need to explore outside funding assistance for project implementation.

New Mitigation Actions

Mitigation Action	Public Awareness/Education
Description	Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. Educate citizens on water conservation methods, evacuation plans, etc. Purchase equipment such as overhead projectors and laptops.
Hazard(s) Addressed	All Hazards
Estimated Cost	\$500+
Funding	General Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	Village Board, Clerk
Status	Not Started

Completed Mitigation Actions

Mitigation Action	Improve Warning Systems
Description	Evaluate current warning systems, improve warning systems, and develop a new warning system.
Hazard(s) Addressed	All Hazards
Status	Completed

Mitigation Action	Provide Adequate Fire Protection
Description	Identify and evaluate current fire hall to improve and/or replace. Identify and evaluate current firefighting equipment locations. Improve and/or add firefighting equipment at additional locations.
Hazard(s) Addressed	Wildfire, Severe Thunderstorms, Severe Winter Storms
Status	Completed

Mitigation Action	Reduce Tree Damage
Description	Conduct tree inventory, develop tree maintenance/trimming program, and implement tree maintenance/trimming program.
Hazard(s) Addressed	Wildfire, Tornados, Severe Thunderstorms, Severe Winter Storms, Hail
Status	Completed

Removed Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Hazard(s) Addressed	All Hazards
Status	The village would like to prioritize other actions. Removed.

School District Profile

Arthur County Schools

**Twin Platte NRD
Multi-Jurisdictional Hazard Mitigation Plan Update**

2021

Local Planning Team

Table ARS.1: Arthur County Schools Local Planning Team

Name	Title	Jurisdiction
Barry Schaeffer	Superintendent/K-6 Principal	Arthur County Schools
Bill Simpson	Arthur County Emergency Manager/Sheriff	Arthur County

Location

In central Arthur County, Arthur County Schools serves two schools: Arthur County Elementary School and Arthur County High School. The school district provides services to students in the entire county.

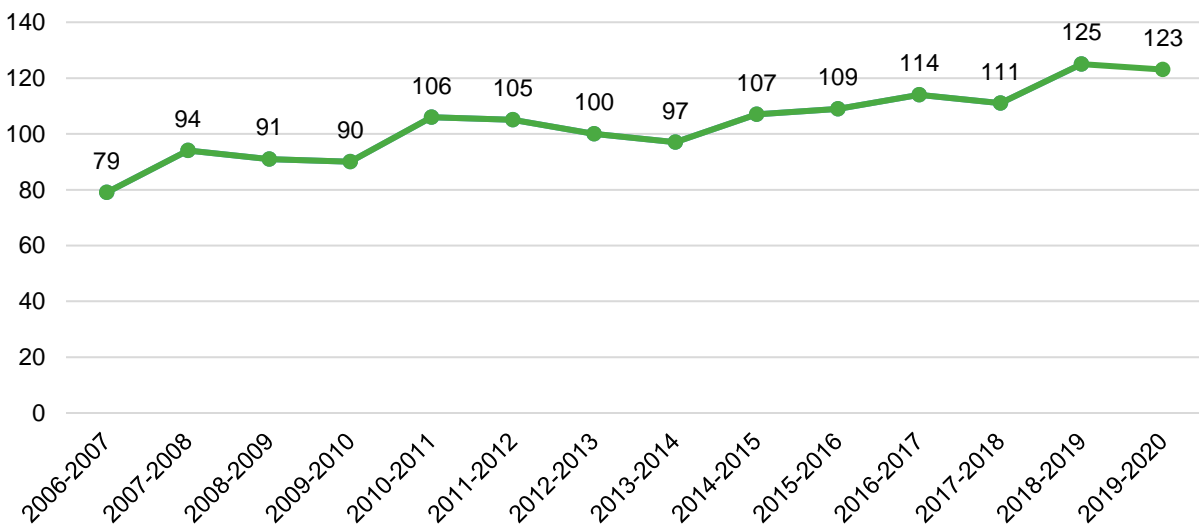
Transportation

Two major transportation corridors intersect near the district’s schools: State Highway 61 and 92. The most traveled route is Highway 61 with an average of 490 vehicles daily, 55 of which are trucks.¹⁵ In addition to the highways, Whitman Road and county roads are also a concern to the local planning team. In the winter of 2018, an accident closed roads and caused school to be cancelled for a day. There are no rail lines that run through the district. The district owns two buses and transports 40-50 students to and from school. Transportation information is important to hazard mitigation plans because it suggests areas more at risk of transportation incidents.

Demographics

The following figure displays the historical student population trend starting with the 2006-07 school year and ending with the 2019-20 year. It indicates that the student population has generally increased with minimal change the past two years. There are 123 students enrolled in the district.¹⁶ The district does not anticipate much change in student population in the coming years.

Figure ARS.1: Student Population 2006-20120



Source: Nebraska Department of Education

15 Nebraska Department of Roads. 2018. "Interactive Statewide Traffic Counts Map."

<https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34>.

16 Nebraska Department of Education. September 2020. "2018-2019 Education Profile for District: Arthur County Schools."

<https://nep.education.ne.gov/Districts/Index/03-0500-000?DataYears=20182019>

Figure ARS.2: Arthur County Schools

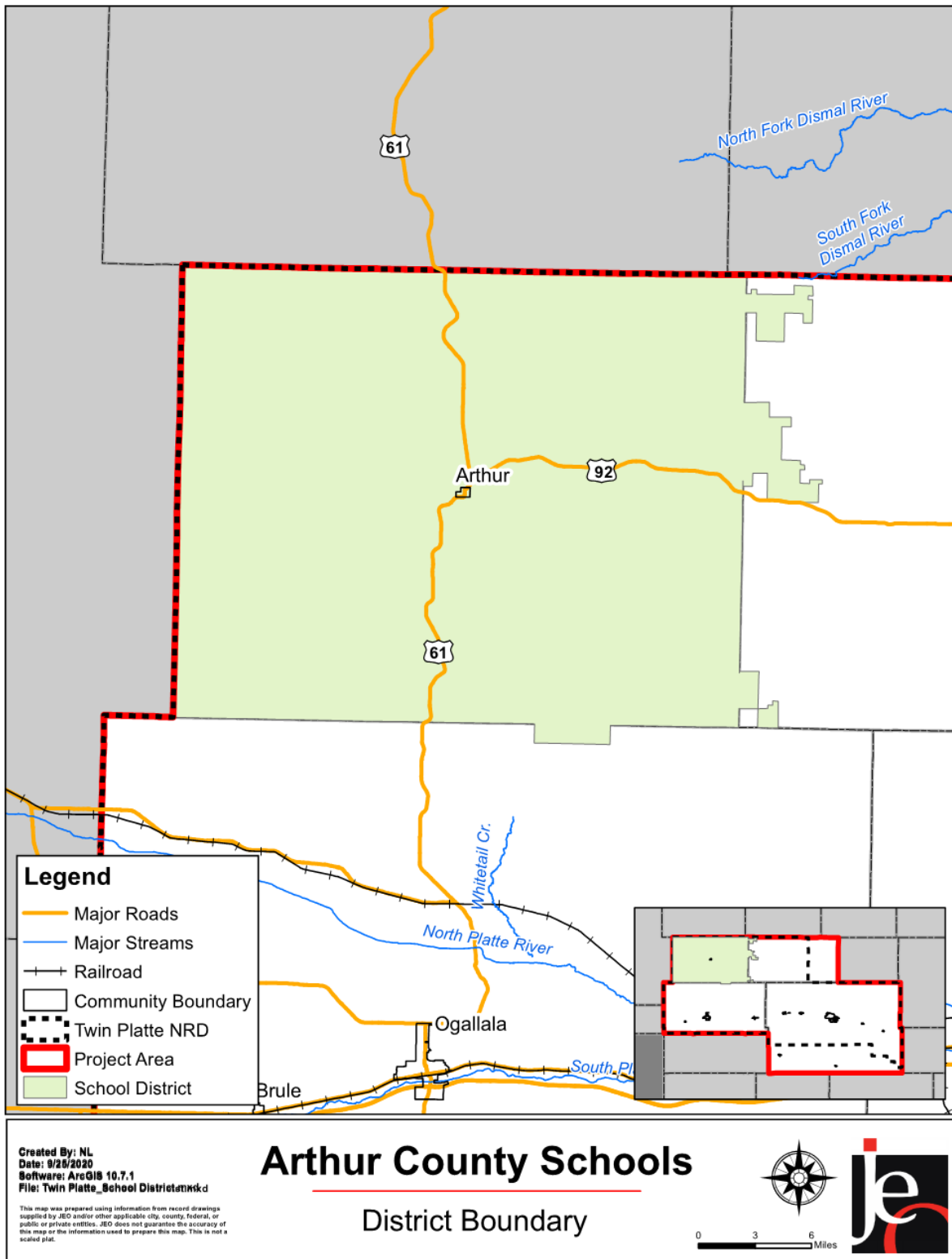
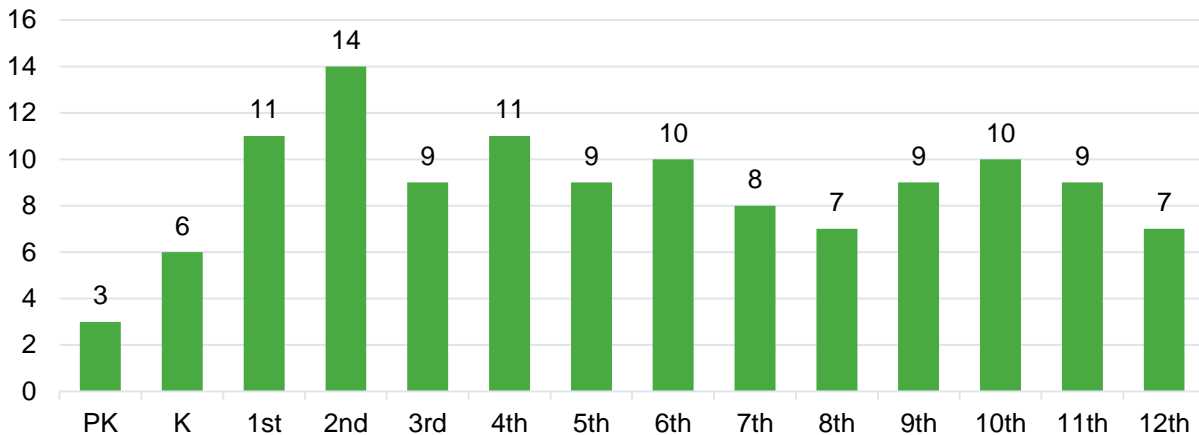


Figure ARS.3: Number of Students by Grade, 2019-2020



Source: Nebraska Department of Education

The figure above indicates that the largest number of students are in the 2nd, 1st, and 4th grades. The lowest population of students are pre-kindergarten and kindergarten. According to the Nebraska Department of Education (NDE), there are ten or fewer students that are English Language Learners. Besides English, Spanish is also spoken by students in the district. There are also ten or fewer students that receive free or reduced priced meals at school. Nearly 9% of students are in the Special Education Program, which is lower than the state average of 15.48%. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

Table ARS.2: Student Statistics, 2018-2019

	School District	State of Nebraska
Free/Reduced Priced Meals	*	45.21%
School Mobility Rate	*	4.61%
English Language Learners	*	6.87%
Special Education Students	9%	15.48%

Source: Nebraska Department of Education¹⁷

*Fewer than 10 students were reported in a group.

Future Development Trends

Over the past five years, a new building was added for grades 4-6. No plans currently exist for any new construction or renovation in the next five years.

Community Lifelines

Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the school. None of the facilities have weather radios. In addition to the buildings listed below, the district also owns six teacher house rental units.

17 Nebraska Education Profile. “School Report Card.” Accessed September 2020. <http://nep.education.ne.gov/Home/>.

Table ARS.3: Critical Facilities

CF #	Name	# of Students	# of Staff	Community Shelter (Y/N)	Safe Room (Y/N)	Generator (Y/N)	Floodplain (Y/N)*
1	Arthur County High School	53	8	Y	N	N	N
2	Arthur Elementary School	38	4	N	N	N	N
3	Arthur Middle School	30	4	N	N	N	N

*Based off a HAZUS created Floodplain.

Administration

The school district has two administrators, a superintendent/elementary principal and 7-12 principal/athletic director. The school board is made up of a six-member panel. Additional positions and teams that may be involved with mitigation actions are listed below.

- Learning Coaches
- Library/Media Services
- PARA Education
- Technology
- Transportation
- Safety Team
- Crisis Team
- Threat Assessment Team

Figure ARS.4: Critical Facilities



Note: There is no DFIRM for the county. Floodplain was generated using the HAZUS program.

Capability Assessment

The capability assessment consisted of a review of local existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following tables summarize the community’s planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects. Staff are trained on emergency procedures through drills and a review of procedures. Students are educated on emergency procedures through drills.

Table ARS.4: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning Capability	Capital Improvements Plan/Long-Term Budget	Yes
	Continuity of Operations Plan	Yes
	Disaster Response Plan	Yes
	Other (if any)	
Administration & Technical Capability	GIS Capabilities	No
	Civil Engineering	No
	Local staff who can assess community’s vulnerability to hazards	Yes
	Grant Manager	No
	Mutual Aid Agreement	No
Fiscal Capability	Other (if any)	
	Applied for grants in the past	Yes
	Awarded grants in the past	Yes
	Authority to levy taxes for specific purposes such as mitigation projects	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Approved bonds in the past	No
	Flood Insurance	No
Other (if any)		
Education & Outreach Capability	Local school groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations, etc. (Ex. Parent groups, hazard mitigation boards, etc.)	Yes
	Ongoing public education or information program (Ex. Responsible water use, fire safety, household preparedness, environmental education, etc.)	Yes
	StormReady Certification	No
	Other (if any)	
Drills	Fire	9 / year
	Tornado	2 / year
	Intruder	No
	Bus evacuation	2 / year
	Evacuation	9 / year
	Other (if any)	

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

Plan Integration

The school conducts an annual safety audit as a requirement of Rule 10. Rule 10 encompasses the mandated rules and procedures for accreditation by Nebraska Department of Education. The district also has a safety/hazards plan. This plan covers responses during a fire, intruder, tornado, bomb threat, accident, and chemical spill. The Threat Assessment team has reviewed that plan in the past. No other plans were identified during this process. The school district will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Historical Occurrences

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

Hazard Prioritization

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

Chemical Spills (Transportation)

The local planning team mentioned an incident located just outside the Village of Arthur about twenty years ago involving a truck carrying anhydrous ammonia. The truck was involved in an accident that led to the spill of some anhydrous ammonia. The school was not affected by this incident. Although there have not been any recent occurrences, trucks carrying chemicals and propane frequently cross the county along Highways 92 and 61. The Village of Arthur has limited resources available to respond if there were a chemical spill near the school. North Platte HazMat would respond to local incidents. To prepare for this hazard, the school district will continue to perform evacuation drills.

Grass/Wildfire

Grass/wildfire was identified as a top concern by the local planning team. Although no wildfire has damaged the school or the village, the planning team indicated that wildfires are a common occurrence in the surrounding area. In March of 2015, a large wildfire started in Arthur County and spread to Keith and McPherson Counties. Another recent wildfire almost caused the evacuation of the village. Wildfires have the ability to spread quickly through the county due to the vegetation and generally dry conditions. The school district will continue to perform fire drills monthly to prepare for this hazard.

Hail

Hail is a frequently occurring hazard in Arthur. According to NCEI data, there have been 129 recorded hail events in Arthur since 1996. There was a damaging hail event in Arthur on Father's Day 2015. This event damaged buildings and school property. Any new school facilities will be

built with hail-resistant building materials. However, no new facilities are planned for the next five years.

Public Health Emergency

Public health emergencies are a top concern for the school district due to the current Covid-19 pandemic. In March of 2020, all schools in Nebraska were required by state officials to complete the school year via remote learning. The district completed the school year by using online resources and providing resources through packets to students and parents. Special education resources and services were also provided through online tools and other resources. To help reduce the spread of disease during the 2020-2021 school year, masks were recommended when not social distancing, students washed their hands after class, and additional monitoring of symptoms was done. Because of the pandemic, the district learned that online-only learning was not the best method for learning and that steps can be taken for students and staff to safely continue in-person learning. In the future, the district would prefer more autonomy to decide if a closure is needed. Due to the rural nature of the county, there were no confirmed cases until several months into the pandemic and cases stayed low.

Severe Thunderstorms

Severe thunderstorms are a regular part of the climate in Arthur, occurring several times every year. The local planning team indicated that the community experiences power outages a few times a year, some from severe thunderstorms. None of the school buildings have backup power generators.

Severe Winter Storms

Severe winter weather is a regular part of the climate in Arthur and occurs every year. Some power outages that occur across the county are likely due to severe winter storms. In addition to power outages, closed and dangerous roads have affected bus routes and travel to and from school. Municipal snow removal resources have been determined adequate for school needs. During the winter months the district monitors the weather and has the ability to start later or close the school if needed.

Tornadoes

Tornadoes have the potential for significant damages and loss of life. According to the NCEI, four tornadic events have occurred in or near Arthur since 1996 that have caused \$35,000 in property damages. Although the village did not identify safe rooms, the school indicated that the high school has a space available for shelter. The Village of Arthur does have a tornado siren and is in the process of getting a new one.

Mitigation Strategy

The Arthur County Schools budget is limited to maintaining current facilities and systems and has stayed the same over recent years. The district may need grant assistance to help pay for many of the actions listed below. The school district has applied for and won grants in the past.

New Mitigation Actions

Mitigation Action	Access Control
Description	Update the access control to all buildings.
Hazard(s) Addressed	Terrorism
Estimated Cost	\$15,000 - \$20,000
Funding	School Budget
Timeline	2-5 Years
Priority	Medium
Lead Agency	School Board, Superintendent
Status	In Progress: Some updates have already been made

Continued Mitigation Actions

Mitigation Action	Backup and Emergency Generators
Description	Identify and evaluate current backup and emergency generators. Obtain additional generators based on identification and evaluation. Backup generators are needed at all buildings.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Winter Storms, Severe Thunderstorms, Flooding
Estimated Cost	\$20,000 - \$50,000 per generator
Funding	County Funds, School Budget
Timeline	5+ Years
Priority	Medium
Lead Agency	School Board, Superintendent
Status	Not Started