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COUNTY PROFILE

GARFIELD COUNTY

Lower Loup Natural Resources District Hazard Mitigation Plan 2022

Local Planning Team

Table GAR.1: Garfield County Local Planning Team

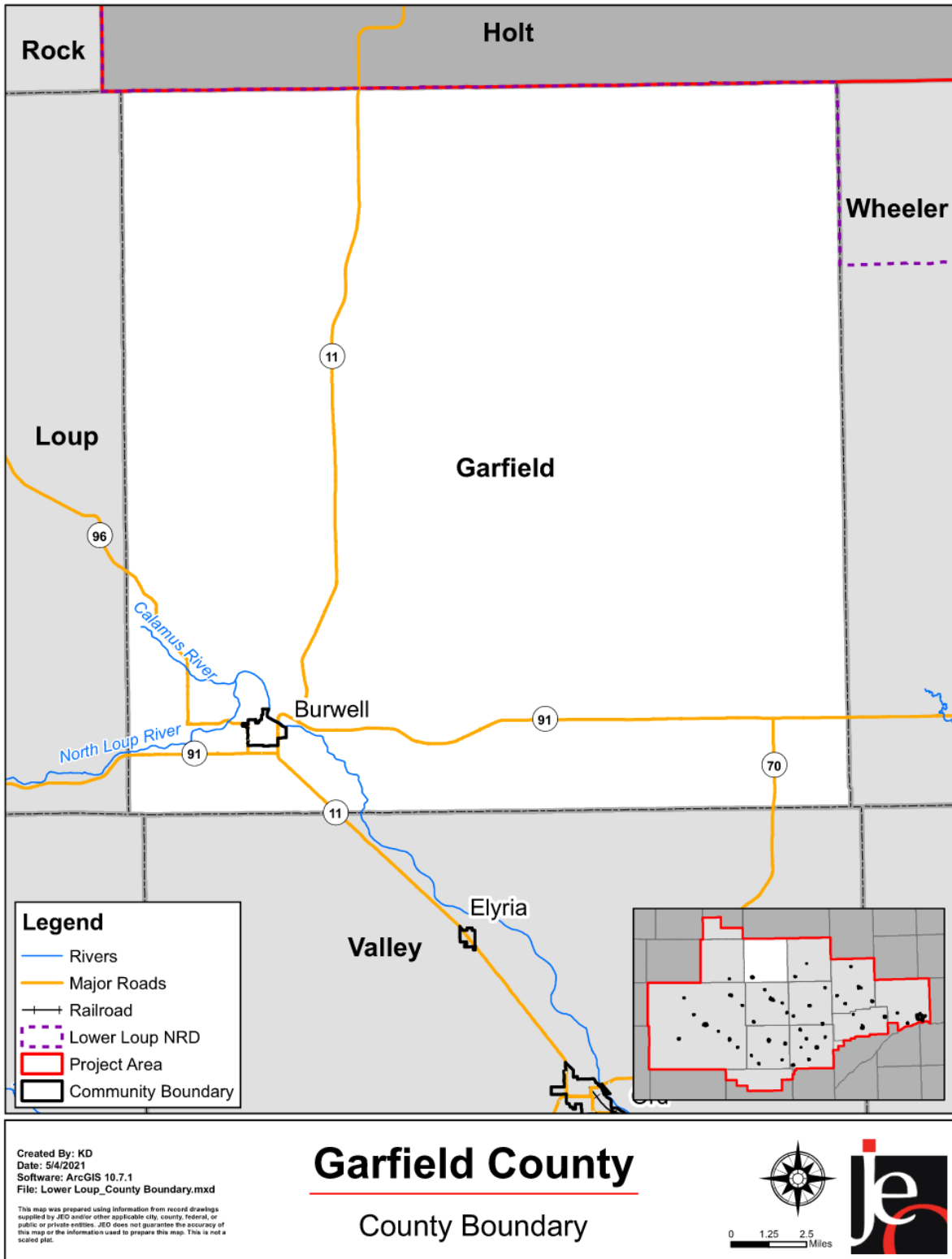
NAME	TITLE	JURISDICTION
ALMA BELAND	Director Emergency Management	Region 26
MARVIN HULINSKY	Emergency manager	Garfield county

Location, Geography, & Climate

Garfield County is located in central Nebraska and is bordered by Loup County, Wheeler County, and Valley County.

The total area of Garfield County is 571 square miles. Major waterways within the county include the North Loup River and a number of small lakes and ponds in the north. The county is not heavily forested, nor is it located in a geographic area of the state prone to landslides. Most of Garfield County lies in the sand hills topographic region, with the vast majority of the county's land characterized by agricultural fields.

Figure GAR.1: Garfield County Jurisdictional Boundary



Climate

The average high temperature in Garfield County for the month of July is 86.2 degrees and the average low temperature for the month of January is 12.2 degrees. On average, Garfield County receives over 25 inches of rain and 29 inches of snowfall per year. The following table compares these climate indicators with those of the entire 11-county planning area and the state. Climate data is helpful in determining if certain events are higher or lower than normal. For example, if the high temperatures in the month of July are running well into the 90s, high heat events may be more likely which could impact vulnerable populations.

Table GAR.2: Garfield County Climate Normals

	GARFIELD COUNTY	PLANNING AREA	STATE OF NEBRASKA
JULY NORMAL HIGH TEMP	86.2°F	62.7°F	87.4°F
JANUARY NORMAL LOW TEMP	12.2°F	12.1°F	13.9°F
ANNUAL NORMAL PRECIPITATION	25.9 inches	26.36 inches	24.0 inches
ANNUAL NORMAL SNOWFALL	29.2 inches	28.6 inches	28.2 inches

Source: NCEI 1991-2020 Climate Normals¹

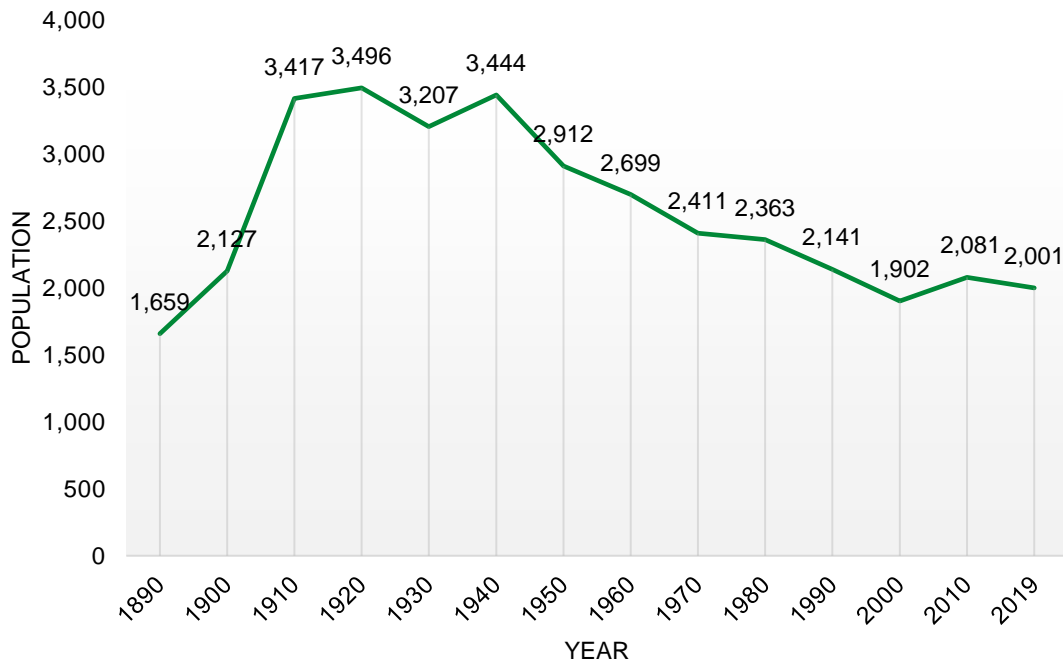
Precipitation includes all rain and melted snow and ice.

Demographics

The following figure displays the historical population trend from 1890 to 2019. This figure indicates that the population of Garfield County declined between 1940 to 2000, with a small increase between 2000 and 2010. 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 will be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Decreasing populations can also represent decreasing tax revenue for the county which could make implementation of mitigation actions more fiscally challenging.

¹ NOAA National Centers for Environmental Information. May 2021. "Data Tools: 1991-2020 Normals." [datafile]. <https://www.ncdc.noaa.gov/cdo-web/datatools/normals>.

Figure GAR.2: Garfield County Population 1890-2019



Source: U.S. Census Bureau²

The following table indicates the State of Nebraska has a higher percentage of people under the age of 5 than Garfield County and between the ages of 5 and 64. Garfield County has a higher percentage of people over the age of 64 than the state. 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 GAR.3: Population by Age

AGE	GARFIELD COUNTY	STATE OF NEBRASKA
<5	4.4%	6.9%
5-64	66.9%	78.1%
>64	28.5%	15.0%
MEDIAN AGE	50.9	36.4

Source: U.S. Census Bureau³

The following table indicates that the county’s median household income and per capita income are slightly lower than those of the state. Median home values and rent are notably lower compared to the state. 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.

² United States Census Bureau. "2019 American Fact Finder: S0101: Age and Sex." [database file]
³ United States Census Bureau. "2019 American Fact Finder: S0101: Age and Sex." [database file]

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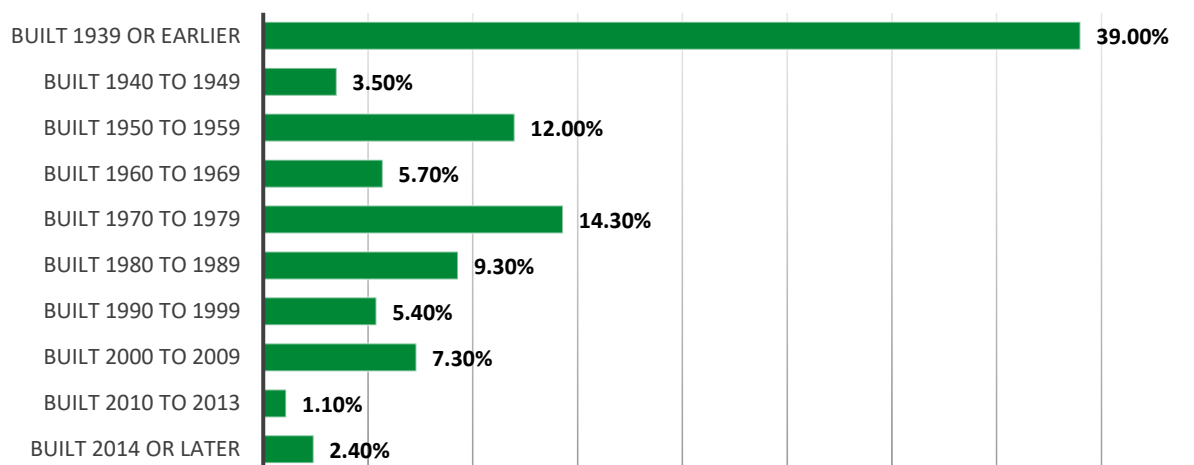
Table GAR.4: Housing and Income

AGE	GARFIELD COUNTY	STATE OF NEBRASKA
MEDIAN HOUSEHOLD INCOME	\$53,000	\$59,116
PER CAPITA INCOME	\$29,146	\$31,101
MEDIAN HOME VALUE	\$105,100	\$147,800
MEDIAN RENT	\$443	\$805

Source: U.S. Census Bureau^{4,5}

The following figure indicates that the majority of the housing in Garfield County was built prior to 1940. According to the United States Census Bureau 2019 ACS 5-year estimates, the county has 1,230 housing units; with 71.9 percent of those units occupied. Approximately 12.6 percent of the county’s housing is classified as mobile homes. The local planning team noted mobile homes are located around the Calamus golf course and throughout the county. 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, with the International Building Code adopted in 2010. The current edition of the IBC was updated in 2018. Finally, communities with a substantial number of mobile homes may have a higher number of residents vulnerable to the impacts of high winds, tornadoes, and severe winter storms.

Figure GAR.3: Housing Units by Age



Source: U.S. Census Bureau⁶

Table GAR.5: Housing Units

JURISDICTION	TOTAL HOUSING UNITS				OCCUPIED HOUSING UNITS			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
GARFIELD COUNTY	884	71.9%	346	28.1%	688	77.8%	196	22.2%
NEBRASKA	754,063	90.8%	76,686	9.2%	498,567	67.1%	255,496	33.9%

Source: U.S. Census Bureau⁷

4 United States Census Bureau. "2019 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

5 United States Census Bureau. "2019 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

6 United States Census Bureau. "2019 American Fact Finder: SP04: Selected Housing Characteristics." [database file]

7 United States Census Bureau. "2019 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

Employment Factors

According to 2018 Business Patterns Census Data, Garfield County had 100 business establishments. 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 GAR.6: Businesses in Garfield County

	TOTAL BUSINESSES	NUMBER OF PAID EMPLOYEES	ANNUAL PAYROLL (IN THOUSANDS)
TOTAL FOR ALL SECTORS (2014)	98	584	\$14,470
TOTAL FOR ALL SECTORS (2016)	94	601	\$16,124
TOTAL FOR ALL SECTORS (2018)	100	613	\$17,786

Source: U.S. Census Bureau^{8,9}

Agriculture is also important to the economic fabric of Garfield County, and the state of Nebraska as a whole. Garfield County's 202 farms cover 342,498 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well by producing, processing and marketing farm and food products. These businesses generate income, employment and economic activity throughout the region.

Table GAR.7: Garfield County Agricultural Inventory

	2012 CENSUS	2017 CENSUS	PERCENT CHANGE
NUMBER OF FARMS WITH HARVESTED CROPLAND	226	202	-10.62%
ACRES OF HARVESTED CROPLAND	345,908	342,498	-0.99%

Source: USDA Census of Agriculture^{10,11}

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, clerk, county court, emergency management, planning and zoning, register of deeds, roads, sheriff, treasurer, veterans office, the Burwell Fire Department, and weed control.

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

8 2016 County Business Patterns and 2016 Nonemployer Statistics. <https://www.census.gov/programs-surveys/cbp/technical-documentation/methodology.html> and <https://www.census.gov/programs-surveys/nonemployer-statistics/technical-documentation/methodology.html>.

9 2018 County Business Patterns and 2018 Nonemployer Statistics. <https://www.census.gov/programs-surveys/cbp/technical-documentation/methodology.html> and <https://www.census.gov/programs-surveys/nonemployer-statistics/technical-documentation/methodology.html>.

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."

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

Table GAR.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	Yes
		Storm Water Management Plan	No
		National Flood Insurance Program	No
		Community Rating System	No
	Other (if any)		
ADMINISTRATIVE & TECHNICAL CAPABILITY		Planning Commission	Yes
		Floodplain Administration	Yes
		GIS Capabilities	Yes
		Chief Building Official	No
		Civil Engineering	Yes
		Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
		Grant Manager	No
		Mutual Aid Agreement	No
		Other (if any)	
FISCAL CAPABILITY		1 & 6 Year Plan	No
		Applied for grants in the past	No
		Awarded a grant in the past	No
		Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
		Gas/Electric Service Fees	Yes
		Storm Water Service Fees	Yes
		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)	Yes

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 GAR.14: Overall Capability

OVERALL CAPABILITY	2017 PLAN	2022 PLAN LIMITED/MODERATE/HIGH
FINANCIAL RESOURCES NEEDED TO IMPLEMENT MITIGATION PROJECTS	Limited	Limited
STAFF/EXPERTISE TO IMPLEMENT PROJECTS	Limited	Limited
COMMUNITY SUPPORT TO IMPLEMENT PROJECTS	Limited	Moderate
TIME TO DEVOTE TO HAZARD MITIGATION	Limited	Limited

Plan Integration

The County has several planning documents that discuss or relate to hazard mitigation. Each applicable planning mechanism is listed below along with a short description of how it is integrated with the hazard mitigation plan. Participating jurisdictions will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Annual Budget

County funds have remained steady over recent years and are limited to maintaining current facilities and systems. A large portion of municipal funds are dedicated to improving transportation routes throughout the county, particularly those damaged after the March 2019 flood events. The county has received FEMA funds to assist with these repairs.

Comprehensive Plan

Garfield County has a comprehensive plan that was last updated in 2016. The comprehensive plan encourages infill development as well as the elevation of structures located in the floodplain.

Zoning Ordinance and Floodplain Ordinance (2015)

The county's floodplain ordinance, zoning ordinance, and subdivision regulations outline where and how development should occur in the future and were last updated and amended in 2015. The regulations contain floodplain maps and hazard overlay districts, discourage development in the floodplain and hazardous areas in the ETJ. Specifically, manufactured homes are prohibited from developing the floodplain, new development must meet the 1 ft BFE, and hazardous material facilities must be developed in non-hazard prone areas.

Garfield County Local Emergency Operations Plan

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.

Central Sandhills Community Wildfire Protection Plan

The Nebraska Forest Service updated the Central Sandhills Community Wildfire Protection Plan (CWPP), which includes Garfield County in June 2019. The purpose of the 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.

Future Development Trends

In the last five years, some new homes and roads have been built in Garfield County, specifically around Calamus Lake north of Burwell. According to the census data, Garfield County's population is declining. The local planning team attributed the decline to aging populations. Agricultural opportunities and Calamus Lake will continue to draw residents to the county.

Community Lifelines

Transportation

Garfield County's major transportation corridors include Highway 91 and Highway 11. This information is important to hazard mitigation plans insofar as it suggests possible evacuation corridors in the county, as well as areas more at risk to transportation incidents. The local planning team also identified Highway 96 as a transportation corridor of concern. 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.

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are 10 chemical storage sites throughout Garfield County which house hazardous materials. For a description of chemical sites located in incorporated areas, please see the jurisdiction's participant section. In the event of a chemical spill, the Burwell Volunteer Fire Department would be first to respond. The local planning team identified response resources as being sufficient at this time.

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 GAR.9: Garfield County Critical Facilities

CF #	COMMUNITY LIFELINES	NAME	SHELTER (Y/N)	GENERATOR (Y/N)	FLOODPLAIN (Y/N)
1	Safety and Security	Virginia Smith Dam	N	N	Y
2	Safety and Security	County Courthouse	N	N	N
3	Communications	Emergency Radio Communication Tower	N	N	N
4	Safety and Security	County Shop	N	N	N
5	Safety and Security	County Shed	N	N	N
6	Safety and Security	County Shed	N	N	N
7	Food, Water, and Shelter	County Fairground	N	N	N

Although not listed in the table above, critical infrastructure also include power substations, cell towers, and alert sirens in the county. These assets are typically owned and maintained by other agencies and are not the responsibility of the jurisdiction.

Health and Medical Facilities

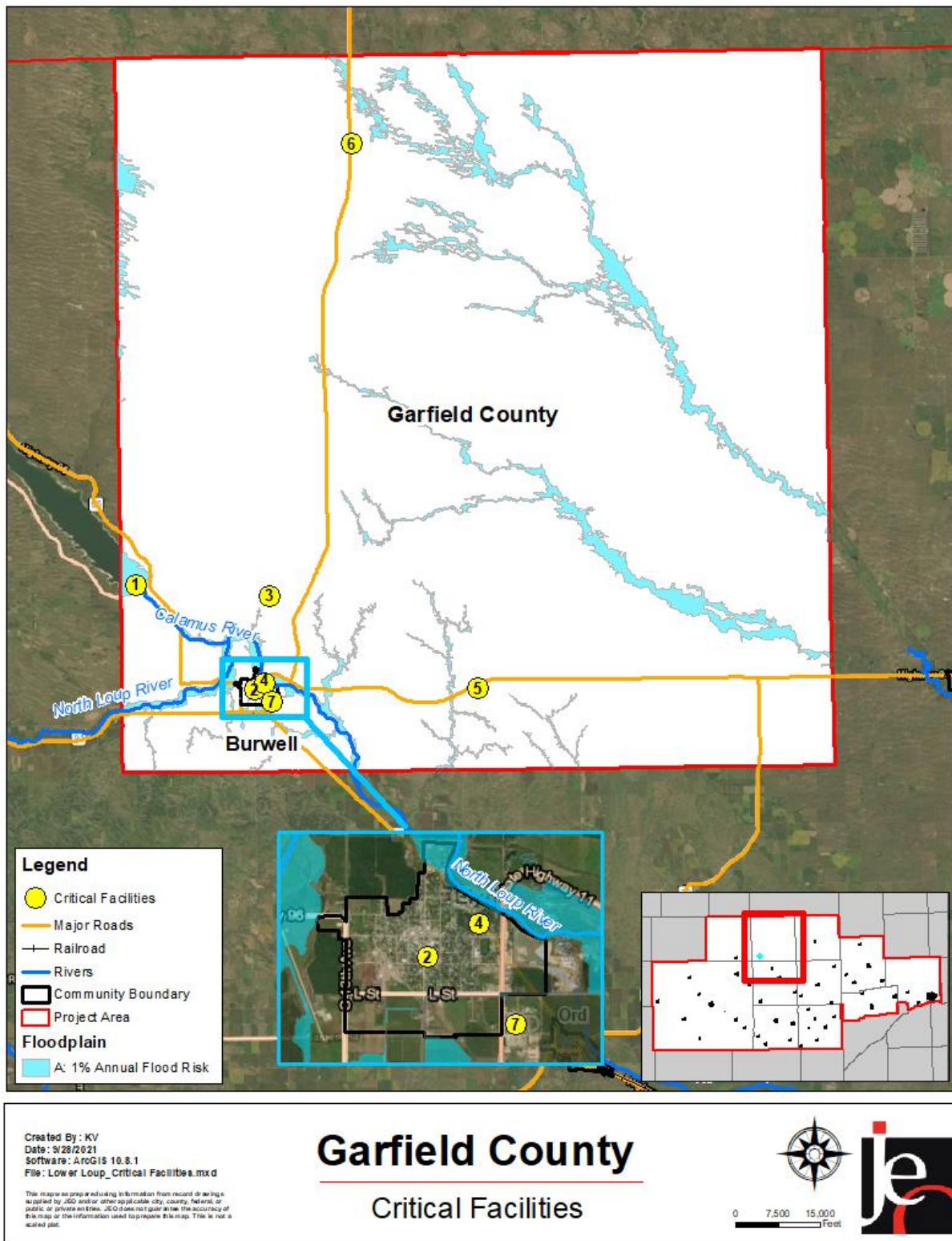
The following medical and health facilities are located within the county.

Table DAY.4: Daykin Critical Facilities

TYPE OF FACILITY	FACILITY NAME	COMMUNITY	NUMBER OF LICENSED BEDS
Assisted Living	Friendship Home Assisted Living	Burwell	18
Long Term Care	Community Memorial Health Center	Burwell	65

Source: DHHS Care Rosters, 2021

Figure GAR.4: Garfield County Critical Facilities



Parcel Improvements and Valuation

GIS parcel data as of December 2020 was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

Table GAR.8: Garfield County Parcel Valuation

NUMBER OF PARCELS	NUMBER OF IMPROVEMENTS	TOTAL IMPROVEMENT VALUE	NUMBER OF IMPROVEMENTS IN FLOODPLAIN	VALUE OF IMPROVEMENTS IN FLOODPLAIN	PERCENT OF IMPROVEMENTS IN FLOODPLAIN
2,664	926	78,273,943	133	13,198,830	14.36%

Source: County Assessor, GIS Workshop

Table GAR.13: Garfield County Flood Map Products

TYPE OF PRODUCT	PRODUCT ID	EFFECTIVE DATE	DETAILS
LOMA	20-07-0181A-310437	12/23/2019	Structure removed from SFHA
LOMA	21-07-0242A-310437	1/4/2021	Portion of property removed from SFHA

Source: FEMA Flood Map Service Center

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 – December 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 2020.

For the complete discussion on historical occurrences, please refer to *Section 4: Risk Assessment*.

Table GAR.10: Hazard Risk Assessment – Garfield County

Hazard Type		Garfield County		
		Count	Property	Crop
Agricultural Disease	Animal Disease ²	12	724 animals	N/A
	Plant Disease ³	1	N/A	\$13,758
Dam Failure ⁷		0	\$0	N/A
Drought ⁸		444 out of 1,512 Months	\$2,000,000	\$121,917
Earthquakes ¹¹		0	\$0	\$0
Extreme Heat ⁹		Avg 3 Days per Year	\$0	\$763,116
Flooding ¹	Flash Flood	4	\$0	\$111,125
	Flood	8	\$460,000	
Grass/Wildfires ⁴		81	4,416 Acres	\$34,533

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Hazard Type		Garfield County		
		Count	Property	Crop
Hazardous Materials	Chemical Spills (Fixed Site) ⁵	0	\$0	N/A
	Chemical Spills (Transportation) ⁶	0	\$0	N/A
Levee Failure ¹²		N/A	N/A	N/A
Public Health Emergency ¹³		~151 cases, 1 death	N/A	N/A
Severe Thunderstorms ¹	Hail Average: 1.23" Range: 0.75"-4.5"	294	\$489,800	\$1,810,680
	Heavy Rain	0	\$0	\$277,143
	Lightning 2 injuries	6	\$230,000	N/A
	Thunderstorm Wind Average: 54.7mph Range: 50-70mph	74	\$458,000	N/A
Severe Winter Storms ¹	Blizzard	18	\$90,500	\$22,128
	Extreme Cold/Wind Chill	16	\$0	
	Heavy Snow	8	\$0	
	Ice Storm	2	\$0	
	Winter Storm	36	\$75,000	
	Winter Weather	0	\$0	
Terrorism ¹⁰		0	\$0	N/A
Tornadoes & High Winds ¹	High Winds Average: 45.1mph Range: 35-59mph	32	\$0	\$191,075
	Tornadoes Average: EF0 & F2 Range: EF0/F0-F2	8	\$0	\$0
Totals		600	\$3,803,300	\$3,345,475

1 - NCEI, Jan 1996-Dec 2020

2 - USDA, 2014-2020

3 - USDA RMA, 2000-2020

4 - NFS, 2000- April 2020

5 - NRC, 1990-2020

6 - PHSMA, 1971- Jan 2021

7 - NeDNR Dam Safety Division, 2021

8 - NOAA, 1895-2020

9 - HPRCC & NOAA Regional Climate Center, 1983-2021

10 - Global Terrorism Database, 1970-2017

11 - USGS, 1900-2021

12 - USACE, 2021

13 - NE DHHS, May 12, 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 GAR.11: Garfield County and Communities Hazard Matrix

JURISDICTION	AG DISEASE	DAM FAILURE	DROUGHT & EXTREME HEAT	EARTHQUAKES	FLOODING	GRASS/WILDFIRE	HAZARDOUS MATERIALS	LEEVE FAILURE	PUBLIC HEALTH EMERGENCY	SEVERE THUNDERSTORMS	SEVERE WINTER STORMS	TERRORISM	TORNADOES & HIGH WINDS
GARFIELD COUNTY	X	X			X	X				X	X	X	X
BURWELL		X			X					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 Disease

Agriculture and specifically ranching provide a large portion of the economy in Garfield County. Any occurrence of agricultural animal disease has the potential to cause significant harm to the Garfield County economy. Between January 2015 to October 2016, the NDA reported an outbreak of paratuberculosis in Garfield County that affected 200 animals. Garfield County will utilize an emergency exercise and education programs to mitigate future impacts.

Dam Failure

There are two dams in Garfield County. Of these two dams, the Virginia Smith Dam has been identified as a high hazard dam. Local concerns regarding dam failure include damages to personal property, potential for economic losses, and potential for loss of life. In the event of dam failure, emergency housing would be available in the school gym in Burwell. The county does have a dam failure evacuation plan that was last updated in 2020. The county plans to implement training and communication with dam owners to mitigate against future impacts from this hazard.

Table GAR.16: Dams in Garfield County

	NUMBER OF DAMS	MINIMAL	LOW	SIGNIFICANT	HIGH
GARFIELD COUNTY	2	0	1	0	1
PLANNING AREA	135	5	119	6	5

Source: NeDNR, 2017

Table GAR.17: High Hazard Dams

NIDID	DAM NAME	LOCATION
NE02287	Virginia Smith Dam	Northwest of Burwell

Source: NeDNR, 2017

Flooding

Flooding was not identified as a concern to the local planning team. Unincorporated areas of Garfield County have no NFIP policies in-force. There are no repetitive flood loss properties in unincorporated areas of Garfield County. Main concerns for this hazard are crop damage, and losses of revenue and business. In 2010, heavy rains caused flooding that damaged county infrastructure and personal property. In 2019, the county had a dam go under high watch for possible failure. The Calamus River, North Loup River, and City of Burwell are all prone to flooding in the county. During the major flooding in 2019, impacts included washed out roads, erosion of riverbanks, and flooded fields. The county needs training and communication to mitigate against impacts from this hazard. According to NCEI data, flooding in 2019 caused \$200,000 in property damages in the county.

Grass/Wildfire

The NFS identified five occurrences of grass/wildfires within Garfield County. Grass/wildfires have the potential to cause damages to property and crops, cause loss of life, and impact the economy. The Burwell volunteer fire department is responsible for responding to grass/wildfires in the county. Past events have resulted in a loss of land for livestock grazing. The county does not have a Wildland Urban Interface code at this time. Property owners are encouraged to have defensible space around their structures. Garfield County is part of the Central Sandhills Community Wildfire Protection Plan, which was updated in 2019. The county needs training and education for the public to help mitigate against impacts from this hazard.

Severe Thunderstorms (including Hail)

Local concerns regarding this hazard include damages to property, roofs, siding, trees, vehicles, and crops. Past hail events have caused over \$1.9 million in damages to property and crops. The county's critical facilities are insured for hail damage, and some have backup generators. According to NCEI data, there have been 374 severe thunderstorm events between 1996 and 2021 that have resulted in \$1,177,800 in property damages. To mitigate against this hazard, the county needs to update their warning siren.

Severe Winter Storms

Concerns regarding this hazard include power outages, residents being caught out in the storm, the difficulty of snow removal, and threats to public safety. According to the NCEI, severe winter

storms have resulted \$120,250 in property damages in Garfield County between 1996 to 2015. The local planning team identified that past events have caused damages to power lines. Snow removal equipment have been identified as being sufficient 90% of the time. Garfield County will utilize education programs to improve the preparedness of county residents. The county superintendent of roads is responsible for removing snow in the community. Landscaping of bad areas and technology updates are needed to help the county mitigate against this hazard.

Tornadoes and High Winds

Local concerns regarding high winds include damages to trees and structures, and power outages. According to the NCEI, Garfield County has experienced ten tornadic events from 1996 – 2015. In August 2014, high winds caused heavy tree damages, and a major power outage throughout the county. These events have caused a reported \$222,000 in property damages. In August 2014, one tornado began west of Burwell, lifted back into the clouds and went over town. The tornado came back down northeast of Burwell and proceeded east.

Power poles and lines that connect to the Burwell water system have been damaged by high winds in the past. Garfield County has data backup systems for critical county records. The county does not have a safe room. Region 26 Emergency Management offers text alerts. Garfield County has warning sirens throughout the county, but they are old and in need of updating. In the event of a disaster, the community has mutual aid agreements with neighboring communities.

Terrorism

The main concerns with terrorism in the county are with cyber security. No major attacks have been made in the past which disrupted local systems. The county is currently looking into security deficiencies to determine what improvements are needed.

Mitigation Strategy

Completed Mitigation Actions

OBJECTIVE	FIRE PREVENTION PROGRAM AND TRAINING
DESCRIPTION	1. Participate in the Nebraska Forest Service Wildland Fire Protection Program (training in wildfire suppression training, equipment, pre-suppression planning, wildfire prevention, aerial fire suppression, etc.)
HAZARD(S) ADDRESSED	Grass/Wildfires
STATUS	Complete: County staff has been trained and an updated Community Wildfire Protection Plan has addressed any training needs.

OBJECTIVE	RESOURCE TRACKING
DESCRIPTION	1. Develop real time resource tracking capabilities to monitor resources (people/credentials/equipment) during wildfire response
HAZARD(S) ADDRESSED	Grass/Wildfires
STATUS	A full roster of equipment has been developed as part of the CWPP process for all local fire departments.

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OBJECTIVE	WEATHER RADIOS
DESCRIPTION	<ol style="list-style-type: none"> 1. Conduct inventory of weather radios 2. Provide new/upgraded radios as needed
HAZARD(S) ADDRESSED	All Hazards
STATUS	Completed: Weather radios are located in all fire departments and county facilities. Otherwise all staff have access to emergency alerts through phones.

Continued Mitigation Actions

OBJECTIVE	PUBLIC SAFE ROOMS & POST-DISASTER STORM SHELTERS
DESCRIPTION	<ol style="list-style-type: none"> 1. Identify and evaluate existing safe rooms and/or storm shelters 2. Improve and/or construct safe rooms and/or storm shelters 3. Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, etc.
HAZARD(S) ADDRESSED	All Hazards
ESTIMATED COST	Varies by project
POTENTIAL FUNDING	HMGP, PDM, City General Fund
TIMELINE	2-5 Years
PRIORITY	Medium
LEAD AGENCY	Region 44 Emergency Management, Fire Department
STATUS	This project has not yet been started.

Removed Mitigation Actions

OBJECTIVE	AGRICULTURAL DISEASE EDUCATION PROGRAM
DESCRIPTION	<ol style="list-style-type: none"> 1. Develop educational programs for farmers and general public on the types of agricultural diseases, what to do in an outbreak and general best practices
HAZARD(S) ADDRESSED	Agricultural Animal Disease, Agricultural Plant Disease
REASON FOR REMOVAL	Current education and information is provided by local vets and is not a priority for County staff.

OBJECTIVE	EMERGENCY EXERCISE: AGRICULTURAL DISEASE OUTBREAK
DESCRIPTION	<ol style="list-style-type: none"> 1. Conduct an outbreak exercise with producers, emergency managers, veterinarians, extension agents, etc. 2. Identify areas for improvements and become familiar with procedures
HAZARD(S) ADDRESSED	Agricultural Animal Disease, Agricultural Plant Disease
REASON FOR REMOVAL	This is not a priority for the county and emergency exercises are conducted as needed through the LEOP.

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 profile as changes occur or after a major event. The local planning team will include the County Board of Commissioners, County Emergency Management, and Region 26 EMA. The plan will be reviewed no less than annually and will include the public in the review and revision process by sharing information at local council meetings and on the county website.

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COMMUNITY PROFILE

CITY OF BURWELL

Lower Loup Natural Resources District Hazard Mitigation Plan 2022

Local Planning Team

Table BUR.1: City of Burwell Local Planning Team

NAME	TITLE	JURISDICTION
MITCH LAMM	City Administrator	City of Burwell
MARVIN HULINSKY	Fire Chief	City of Burwell

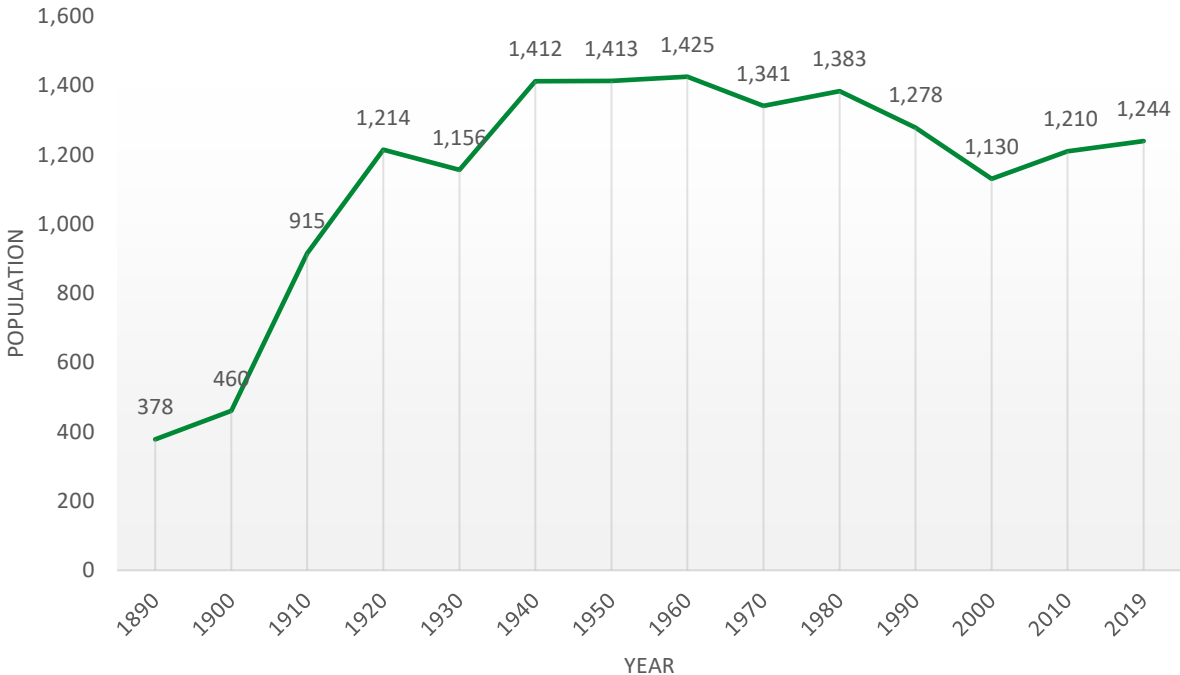
Location and Geography

The City of Burwell is located in southwestern Garfield County and covers an area of 1.04 square miles. The North Loup River runs along the northeastern side of the city. The Calamus Reservoir is located five miles northwest of the city. The area is not heavily forested, nor is it located in a geographic area of the state prone to landslides. Burwell lies in the plains topographic region and is surrounded by agricultural fields.

Demographics

The following figure displays the historical population trend from 1890 to 2019 (estimated). This figure indicates that the population of Burwell increased dramatically from 1900 to 1920 and has mostly fluctuated since. The population has steadily increased since 2000. Increasing populations are associated with increased hazard mitigation and emergency planning requirements for development. Increasing populations can also contribute to increasing tax revenues, allowing communities to pursue additional mitigation projects. The city’s population accounted for 62% of Garfield County’s population in 2019.

Figure BUR.2: Burwell Population 1890-2019



Source: U.S. Census Bureau¹²

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

- Similarly aged.** The median age of Burwell was 50.3 years old in 2019, compared with the county average of 50.9 years. Burwell’s population has grown older since 2010, when the median age was 46 years old. Burwell had a similar proportion of people under 20 years old as the county did in 2019 (about 21%).¹³
- More ethnically diverse.** In 2010, 0.2% of Burwell’s population was two or more races. By 2019, 0.6% was Black and 1.7% was other races. During that time, Garfield County went from 0% to 0.3% Black, 0.3% to 0% American Indian, and 2.8% to 1.6% other races from 2010 to 2019 respectively.¹⁴

¹² United States Census Bureau. “2019 American Fact Finder: S0101: Age and Sex.” [database file]
¹³ United States Census Bureau. “2019 American Fact Finder: S0101: Age and Sex.” [database file]
¹⁴ United States Census Bureau. “2019 American Fact Finder: DP05: ACS Demographic and Housing Estimates.” [database file]

- **As likely to be at the federal poverty line.** The poverty rate of all persons in Burwell (5.4%) was about the same as the county (5.3%) in 2019.¹⁵

Employment and Economics

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

- **Different mix of industries.** Employment sectors accounting for 10% or more of employment in Burwell included Education, Arts/Entertainment, Retail, and Manufacturing. In comparison Garfield County's included Agriculture, Education, and Arts/Entertainment.¹⁶
- **Lower household income.** Burwell's median household income in 2019 (\$46,691) was about \$6,000 lower than the county (\$53,000).¹⁷
- **Fewer long-distance commuters.** 77.1% percent of workers in Burwell commuted for fewer than 15 minutes, compared with 74.2% of workers in Garfield County. 7.7% of workers in Burwell commute 30 minutes or more to work, compared to 10.4% of the county workers.¹⁸

Major Employers

Major employers in the city include the Community Memorial Health Center and Subconn Inc. Additionally, there is a Nebraska DOT yard and Trotter Fertilizer outside of town which employ numerous residents. A small percentage of residents also commute to Ord for work.

Housing

In comparison to the Garfield County, Burwell's housing stock was:¹⁹

- **More owner occupied.** About 74% of occupied housing units in Burwell are owner occupied compared with 72.0% of occupied housing in Garfield County in 2019.
- **Greater share of aged housing stock.** Burwell has more houses built prior to 1970 than the county (80.4% compared to 60.2%).
- **More multi-family homes.** The predominant housing type in the city is single family detached and Burwell contains more multifamily housing with five or more units per structure than the County (8.5% compared to 4.9%). 89.3% of housing in Burwell was single-family detached, compared with 81.5% of the county's housing. Burwell has a smaller share of mobile and manufactured housing (0.3%) compared to the county (12.6%)

There are approximately 20 mobile homes in the community and 39.3 percent of the community's housing was built before 1940. One mobile home park is located at the 900 block of F Street. Blighted properties are located throughout the community. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future

15 United States Census Bureau. "2019 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

16 United States Census Bureau. "2019 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

17 United States Census Bureau. "2019 American Fact Finder: DP03: Selected Economic Characteristics." [database file]

18 United States Census Bureau. "2019 American Fact Finder: s0802: Means of Transportation to Work by Selected Characteristics." [database file]

19 United States Census Bureau. "2019 American Fact Finder: DP04: Selected Housing Characteristics." [database file]

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.

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Burwell has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The city has a mayor, a four-member council and the following offices: clerk/treasurer, city administrator, city superintendent, economic development director, sewage plant operator, water commissioner, sewage commissioner, volunteer fire department, and electric line foreman.

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 BUR.2: 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 - County
	Floodplain Ordinance	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Building Codes	Yes
	Chief Building Official	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	National Flood Insurance Program	No
	Community Rating System	No
Other (if any)		
ADMINISTRATIVE & TECHNICAL CAPABILITY	Planning Commission	Yes
	Floodplain Administration	No
	GIS Capabilities	No
	Civil Engineering	Yes
	Local Staff Who Can Assess Community's Vulnerability to Hazards	No
	Grant Manager	Yes
	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

SURVEY COMPONENTS		YES/NO
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	Yes
	Gas/Electric Service Fees	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	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)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

Table BUR.3: Overall Capability

OVERALL CAPABILITY	2017 PLAN	2022 PLAN
FINANCIAL RESOURCES NEEDED TO IMPLEMENT MITIGATION PROJECTS	Limited	Limited
STAFF/EXPERTISE TO IMPLEMENT PROJECTS	Limited	Limited
COMMUNITY SUPPORT TO IMPLEMENT PROJECTS	Moderate	Moderate
TIME TO DEVOTE TO HAZARD MITIGATION	Limited	Limited

Plan Integration

Communities have several planning documents that discuss or relate to hazard mitigation. Each applicable planning mechanism is listed below along with a short description of how it is integrated with the hazard mitigation plan. Participating jurisdictions will seek out and evaluate any opportunities to integrate the results of the current hazard mitigation plan into other planning mechanisms and updates.

Grants and Funding

The City of Burwell's municipal funds have remained steady over recent years and are limited to maintaining current facilities and systems. A large portion of municipal funds are dedicated to improving transportation routes.

Comprehensive Plan

Burwell's Comprehensive Plan was last updated in 2016 and integrates hazard mitigation in the following ways: directs development away from the floodplain, encourages infill development, encourages elevation of structures located in the floodplain, and encourages strengthening retrofits to historic structures. The city is currently discussing updating its comprehensive plan, potentially aiming for the next five years. Future updates will incorporate additional mitigation efforts to address the following: directing development away from chemical storage facilities, limit density in areas adjacent to know hazardous areas, identify areas that need emergency shelters, and encourage preservation of open space in hazard-prone areas.

Building Codes (2018)

Burwell has adopted the 2018 International Building Codes. The code integrates hazard mitigation in the following ways: requires elevation of structures in the floodplain, requires mechanical systems to be elevated for structures in the floodplain, requires onsite storm water detention for commercial structures, encourages the use of permeable surfaces, and requires a safe room in multiple dwelling units.

Garfield County Local Emergency Operations Plan

The City of Burwell is an annex in the Garfield 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.

Central Sandhills Community Wildfire Protection Plan

The Nebraska Forest Service updated the Central Sandhills Community Wildfire Protection Plan (CWPP), which includes Garfield County in June 2019. The purpose of the 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.

Future Development Trends

In the past five years, the Village of Burwell has demolished six blighted homes, cleaned up two homes, and added a new subdivision on the northwest side of town that contains 20 lots, several of which have already been sold. A new park building was built in the floodplain but has been elevated. A new car wash was built, and new storage buildings were built by NDOT outside of the city. As part of the development NDOT included new water and sewer lines. This area could be developed in the future for additional homes; however, no plans are currently in place. Trotter's fertilizer replaced Big Red. According to census data, the population is increasing. The village needs additional housing to accommodate more people. Potential areas in the community for future development are between G Street and L Street. The local planning team also identified a need to pave an access road behind the new nursing home that will become part of D Street.

Community Lifelines

Transportation

Burwell's major transportation corridors include Highway 91 with 1,270 vehicles per day, and Highway 11 with 1,705 vehicles per day. Cram Field Airport is located west of the city, just outside of the corporate limits. Burwell does not have rail lines. According to the Pipeline and Hazardous Materials Administration, there were no reported transportation-related chemical spills in Burwell from 1971 to 2021. 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.

Hazardous Materials – Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are ten chemical storage sites throughout Burwell 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.

Table BUR.4: Chemical Storage Fixed Sites

FACILITY NAME	ADDRESS	LOCATED IN FLOODPLAIN?
GREAT WESTERN GAS CO	110 S Highway 11	N
NDOT BURWELL YARD	82403 State Highway 11	N
BURWELL INDEPENDENT OIL CO	747 G St	N
BURWELL INDEPENDENT OIL CO	132 Grand Ave	N
MAVERICK FERTILIZER	350 S Railroad	N
BURWELL INDEPENDENT OIL CO	220 Grand Ave	N
MAVERICK TRUCK STOP	250 S Highway 11	N
BURWELL INDEPENDENT OIL CO	L St	N
NEBRASKA CENTRAL TELEPHONE CO	887 H St	N
NEBRASKA CENTRAL TELEPHONE CO	46975 844th Rd	N

Source: Nebraska Department of Environment and Energy²⁰

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 previous planning process and updated by the local planning team as a part of this plan update.

The American Red Cross has agreements with Burwell Elementary and the Junior/Senior High School and Kamp Kaleo to serve as mass care facilities during disaster events. 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." Accessed August 2020.

Table BUR.5: Burwell Critical Facilities

CF #	COMMUNITY LIFELINE	NAME	SHELTER (Y/N)	GENERATOR (Y/N)	FLOODPLAIN (Y/N)
1	Transportation	Airport	N	N	N
2	Safety and Security	Burwell Diversion Dam	N	N	Y
3	Food, Water, and Shelter	Burwell Elementary School	Y	N	N
4	Food, Water, and Shelter	Burwell Junior-Senior High School	Y	N	N
5	Safety and Security	City Equipment Shed	N	N	N
6	Safety and Security	City Equipment Shed	N	N	N
7	Safety and Security	City Hall	N	N	N
8	Energy	City Light Plant	N	N	N
9	Energy	Lift Station	N	N	N
10	Energy	Natural Gas Pump Station (privately managed)	N	N	Y
11	Energy	Substation – Loup Valley	N	N	N
12	Energy	Substation – Loup Valley (privately owned)	N	N	N
13	Food, Water, and Shelter	Wastewater Treatment Plant	N	N	N
14	Food, Water, and Shelter	Water Tower	N	N	N
15	Food, Water, and Shelter	Well - North	N	N	N
16	Food, Water, and Shelter	Well – West	N	N	N
17	Food, Water, and Shelter	Well – South	N	N	N

Although not listed in the table above, critical infrastructure also includes power substations, cell towers, and alert sirens in the community. These assets are typically owned and maintained by other agencies and are not the responsibility of the jurisdiction.

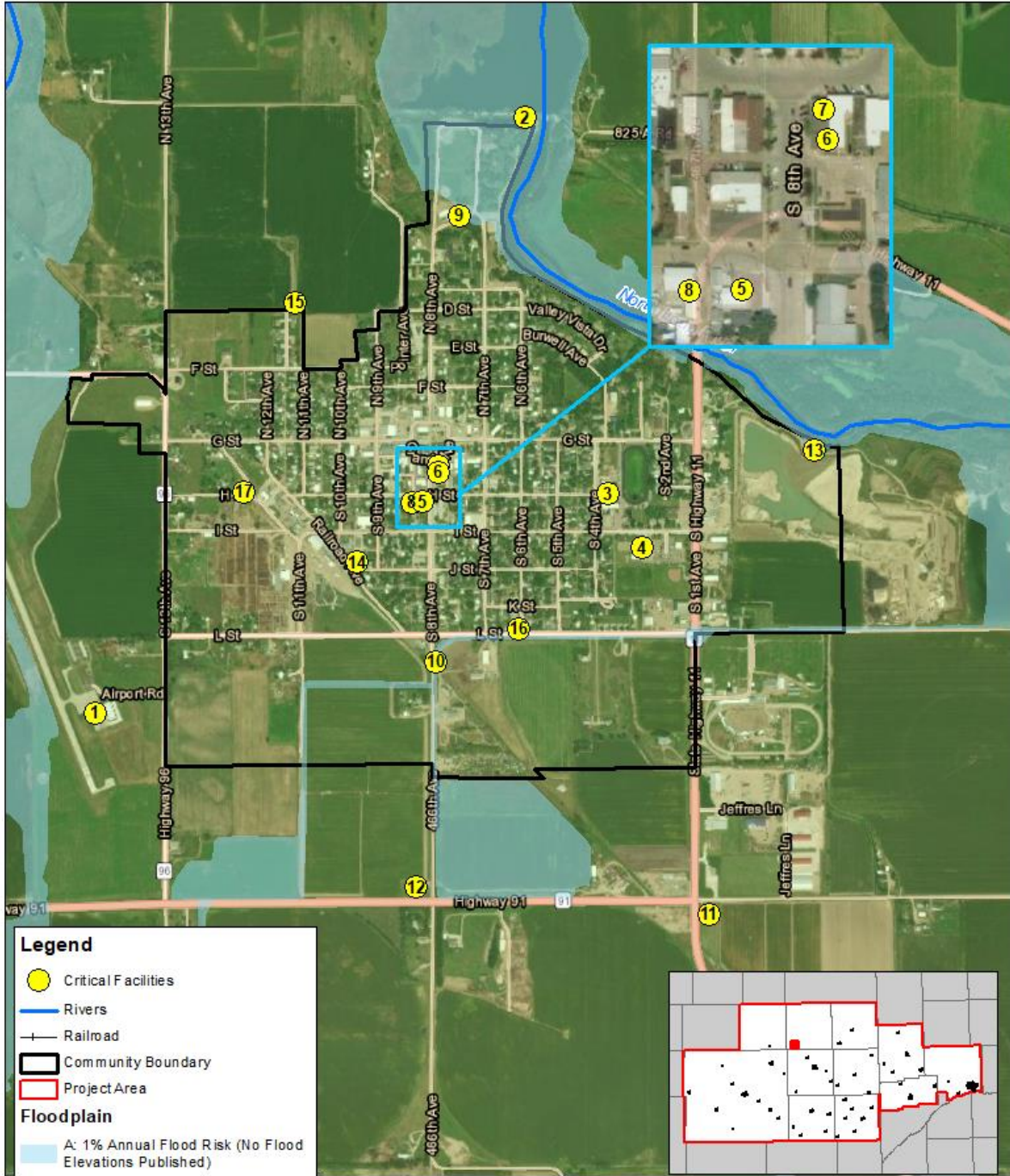
Health and Medical Facilities

The following medical and health facilities are located within the community.

Table BUR.6: Burwell Critical Facilities

TYPE OF FACILITY	NAME OF FACILITY	NUMBER OF LICENSED BEDS
ASSISTED LIVING	Friendship Home Assisted Living	18
LONG TERM CARE	Community Memorial Health Center	64

Figure BUR.3: Burwell Critical Facilities



Created By : KV
 Date : 5/20/2021
 Software : ArcGIS 10.8.1
 File : Lower Loup_Community Boundary.mxd

City of Burwell

Critical Facilities

This map was prepared using information from records of a high accuracy or private enterprise. JE does not guarantee the accuracy of this map or the information used to prepare this map. This is not a scaled plot.

Parcel Improvements and Valuation

GIS parcel data as of December 2020 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 Flood Map Products currently available for Burwell.

Table BUR.7: Burwell Parcel Valuation

NUMBER OF PARCELS	NUMBER OF IMPROVEMENTS	TOTAL IMPROVEMENT VALUE	NUMBER OF IMPROVEMENTS IN FLOODPLAIN	VALUE OF IMPROVEMENTS IN FLOODPLAIN	PERCENT OF IMPROVEMENTS IN FLOODPLAIN
770	503	38,635,880	13	2,317,060	2.58%

Source: County Assessor, GIS Workshop

Hazard Prioritization

For additional discussion regarding area-wide hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Garfield County jurisdictional profile. 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 dams of concern for the community include Virginia Smith Dam (seven miles northeast of Highway 96) and the irrigation diversion dam (adjacent to city park). The Bureau of Land Management owns the Virginia Smith Dam; North Loup Rural Public Power and Irrigation District owns the diversion dam. Dam failure can lead to loss of life and property, damage to crops, and impacts to recreation. Garfield County has a dam failure evacuation plan.

Table BUR.9: High Hazard Dams in Burwell

NIDID	DAM NAME	STREAM NAME	OWNER
NE02287	Virginia Smith Dam	Calamus River	Bureau of Land Management

During the major flooding in 2019, the irrigation diversion dam came close to overtopping. During the event, residents were given an hour to evacuate the area. Lots of debris came over the dam but the park itself saw no major impacts.

Flooding

Local concerns regarding flooding focus on the potential for property damages along the North Loup River. The NCEI recorded ten flooding events from 1996 to 2019 that resulted in \$460,000 in property damages. Burwell has four NFIP policies in-force for \$395,000. There are no repetitive flood loss properties in Burwell.

During the major flooding in 2019, the city primarily experienced impacts due to backed up flows into the southern portion of the city. Unincorporated county land to the south of the city has changed over the past decade which has affected the flow of water. The floods caused damage to the cemetery, some residential homes, and farmland surrounding the city. The local planning team noted empty propane tanks floated through the city during the flood and debris from the surrounding flooded agricultural land. Damage assistance from FEMA reached \$80,000. The road to the water sewer plant was severely undercut from water flows. The main sewer line also runs directly under the road but was not damaged during this event. The city has installed riprap along the riverbank side and plans to further repair the road to prevent future wash out, which is estimated to be completed in 2022. The estimated cost of repairs is \$8,000 which was paid through the city funds.

During the flood event residents in flood prone areas were evacuated to the Parish Center Catholic Church. While the local school is the primary shelter location for the city, school was in session and the school was unavailable. Residents were housed at the church for a few hours; however, the local planning team noted the church is also at risk of flooding due to flows from the south of the city. The village would like to partner with the county to look into possible mitigation of flood prone areas in surrounding farmland.

Severe Thunderstorms (includes hail)

Local concerns regarding hail include damages to property, roofs, siding, trees, vehicles, and crops. The city's critical facilities are insured for hail damage to reduce the impacts of future hail events, but do not have hail-resistant roofing. Burwell has a local tree board that can identify hail damage.

In the event of power outages, the light plant in town has autonomous power generators which can be hooked into the city's utilities and provide power. Lightning rods are located at the city hall, electric plant, and water tower to protect critical facilities. Hazardous trees are removed throughout the city on an as needed basis and removal is built into the general budget. Approximately 35%-45% of powerlines in Burwell are buried. All new development requires buried power lines and areas which require improvements or repairs are buried.

Severe Winter Storms

Concerns regarding this hazard include power outages, residents being caught out in the storm, and the difficulty of snow removal. In 2006, Burwell received 38 inches of snow overnight. In March of 2016, Burwell received 12 inches or more snow with high winds. Past events have caused damages to power lines in the ice storm. The city adopted a new code in February 2021 to include the following designated snow routes: Grand Avenue, F Street, G Street, H Street, I Street, Fourth Avenue, 8th Avenue, 9th Avenue, and 10th Avenue. There are no backup generators in town. Power is supplied by the Loup Public Power District. Outages in the past have been relatively limited, but the cold snap in February 2021 did cause the system to be overwhelmed.

The city lost power for approximately 5 hours on Monday and 12 hours on Tuesday. During this time temperatures reached -30 to -40°F. The city is responsible for its own snow removal and the local planning team noted snow removal resources are adequate.

Tornadoes and High Winds

According to the NCEI, Burwell experienced eight tornadic events from 2001 – 2014. These events have caused a reported \$222,000 in property damages. In August 2014, one tornado began west of town, lifted back into the clouds and went over town. The tornado came back down northeast of town and proceeded east. Burwell has warning sirens that are activated manually by city employees. Burwell does not have any safe rooms. Region 26 Emergency Management offers text alerts. In the event of a disaster, the community has mutual aid agreements with neighboring communities.

Local concerns regarding high winds include damages to trees and structures, and power outages. In August 2014, high winds caused heavy tree damages, and a major power outage. Power poles and lines that connect to the city water system have been damaged by high winds in the past. Burwell has data backup systems for municipal records. The community does not have a safe room. There is a warning siren located at the light plant and is loud enough to reach the whole community. The siren is tested monthly. Region 26 Emergency Management also offers text alerts. The local volunteer fire department in town would be first to respond to hazard events. One ambulance is located at the local fire department which transports victims to Ord.

Mitigation Strategy

Completed Mitigation Actions

OBJECTIVE	IMPROVE ELECTRICAL SERVICE
DESCRIPTION	<ol style="list-style-type: none"> 1. Evaluate hardening, retrofitting, looping and/or burying of power lines and related infrastructure and/or comparable protection measures 2. 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 3. Implement measures to improve electrical service 4. Bury power lines for future construction
HAZARD(S) ADDRESSED	Tornadoes, High Winds, Severe Winter Storms, Severe Thunderstorms, Flooding
STATUS	Local electrical service lines have been buried and/or hardened.

Continued Mitigation Actions

OBJECTIVE	BACKUP AND EMERGENCY GENERATORS
DESCRIPTION	<ol style="list-style-type: none"> 2. Identify and evaluate current backup and emergency generators 3. Obtain additional generators based on identification and evaluation 4. Provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters
HAZARD(S) ADDRESSED	All Hazards
ESTIMATED COST	\$20,000 to \$75,000+ per generator
POTENTIAL FUNDING	City General Funds, CDGB, Property Taxes, HMGP, PDM
TIMELINE	2-5 Years
PRIORITY	Medium
LEAD AGENCY	City Council, Electric Department, Water Department
STATUS	This project is under discussion and not yet started.

OBJECTIVE	IMPROVE WARNING SYSTEMS
DESCRIPTION	<ol style="list-style-type: none"> 1. Evaluate current warning systems 2. Improve warning systems/develop new warning system 3. Obtain/Upgrade warning system equipment and methods 4. Conduct evaluation of existing alert sirens for replacement or placement of new sirens 5. Identify location of weather warning radios 6. Improve weather radio system 7. Obtain/Upgrade weather radios
HAZARD(S) ADDRESSED	All Hazards
ESTIMATED COST	Varies by project
POTENTIAL FUNDING	Bonds, Property Taxes, PDM, HMGP
TIMELINE	2-5 Years
PRIORITY	Medium
LEAD AGENCY	City Council and Electric Department
STATUS	This project is in the works.

OBJECTIVE	PUBLIC EDUCATION ON HAZARD EVENTS & PREPAREDNESS
DESCRIPTION	<ol style="list-style-type: none"> 1. Obtain or develop materials about hazards 2. Conduct multifaceted public education 3. Distribute fact sheet at community events, schools, other venues 4. Conduct scheduled siren/warning system tests 5. Prepare/distribute educational materials listing safe room and shelters
HAZARD(S) ADDRESSED	All Hazards
ESTIMATED COST	\$0 - \$5,000+
POTENTIAL FUNDING	City General Funds
TIMELINE	Ongoing
PRIORITY	Medium
LEAD AGENCY	Electric Department, City Council, Emergency Manager
STATUS	This project is in the works.

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 City of Burwell's Emergency Manager will annually review the community's profile and notify and involve the public via local website updates.