

Community Appendix

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Community Profile

City of Ackley

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table ACK.1: Ackley Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Mike Nuss	Mayor	City of Ackley	Round 1 & 2
Kendall Meyer	Public Works/Fire Chief	City of Ackley	-
Gerald Frick	Police Chief	City of Ackley	-
Tim Eichmeier	Past Fire Chief	City of Ackley	-

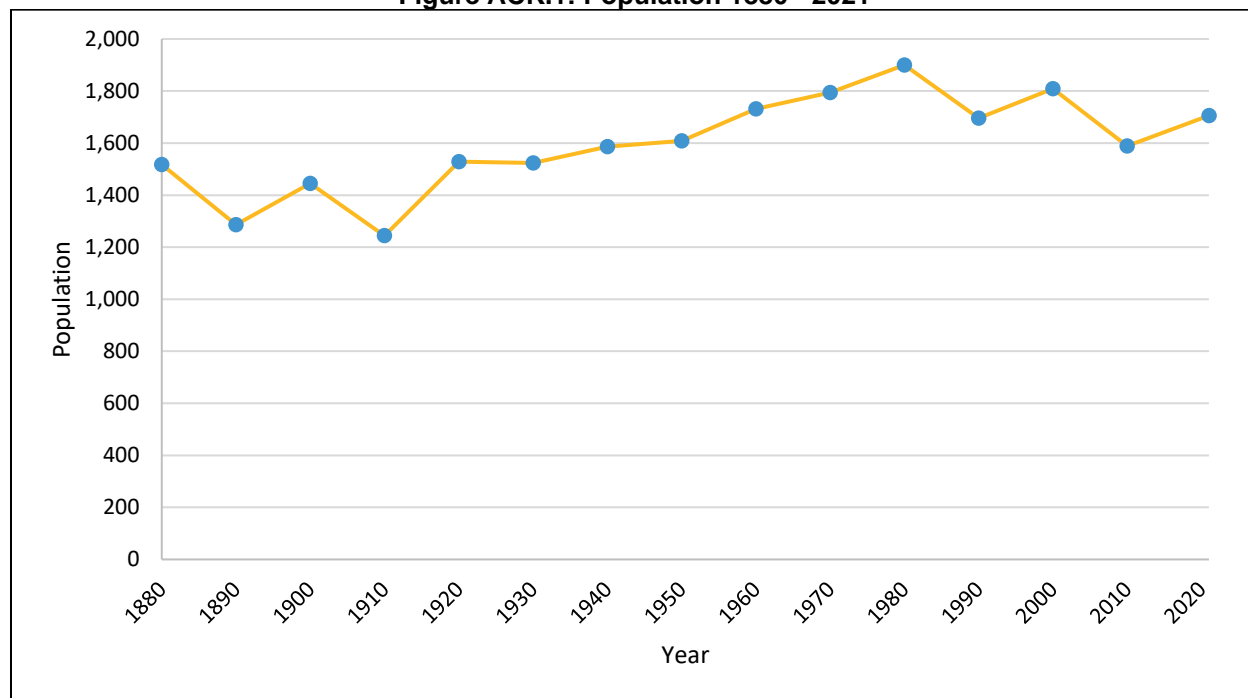
Location and Geography

The City of Ackley is located in northeast Hardin County and southeast Franklin County. The city covers an area of 2.48 square miles. Waterways in the area include Beaver Creek, which runs along the north side of the city, and Middle Fork South Beaver Creek, located in the south side.

Demographics

Ackley’s estimated population in 2021 was 1,706. The following figure displays the historical population trend from 1880 to 2021. This figure indicates that the population of Ackley steadily increased from 1920 to 1980 but has since fluctuated. Over the last ten years, the city has seen an increase in population. Increasing populations are associated with more robust hazard mitigation and emergency planning requirements for development. Growing populations can also increase tax revenues, allowing communities to pursue additional mitigation projects. Ackley’s population accounted for 10% of Hardin County’s population in 2021.¹

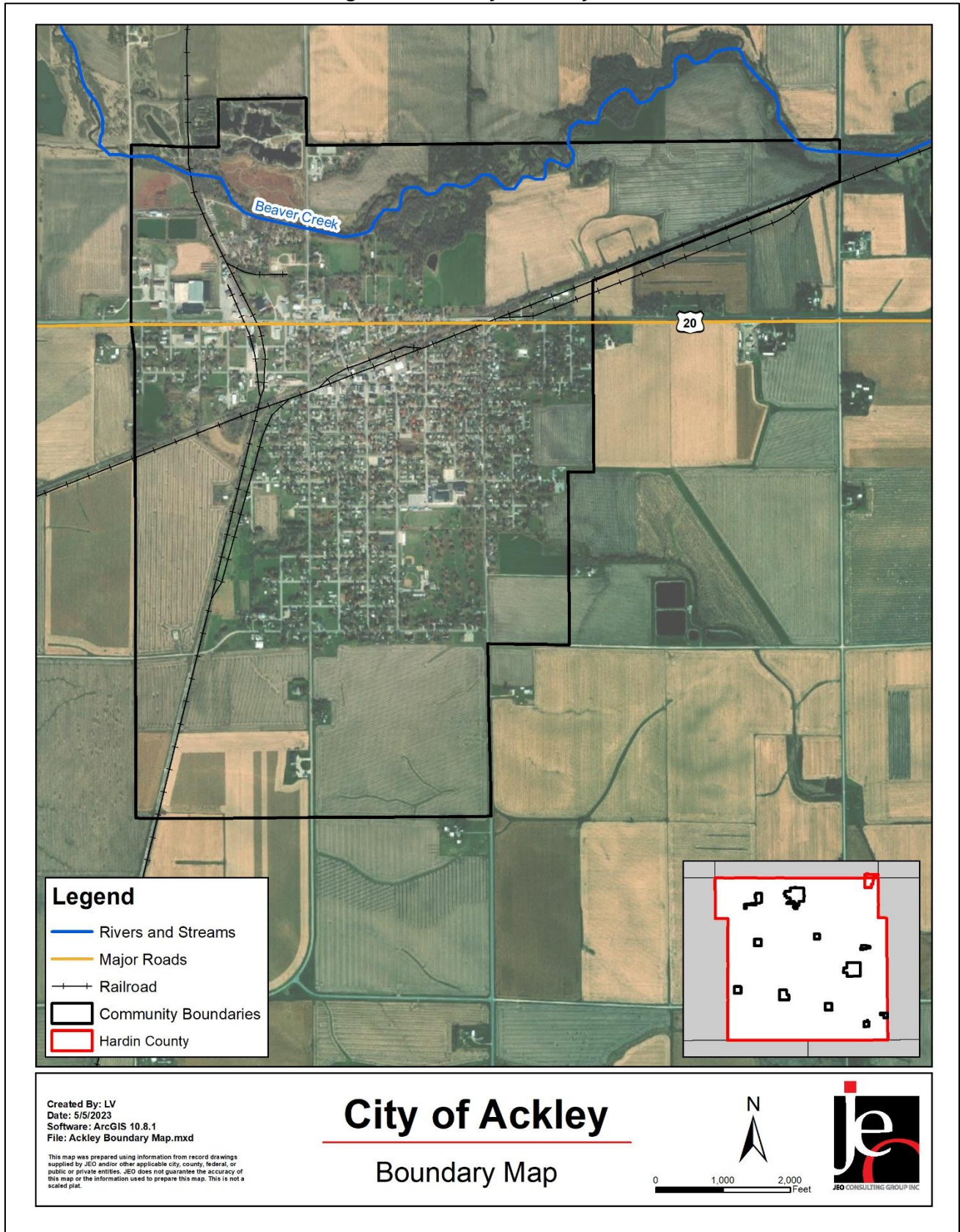
Figure ACK.1: Population 1880 - 2021



Source: U.S. Census Bureau

¹ United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” [database file]. <https://data.census.gov>.

Figure ACK.2: City of Ackley

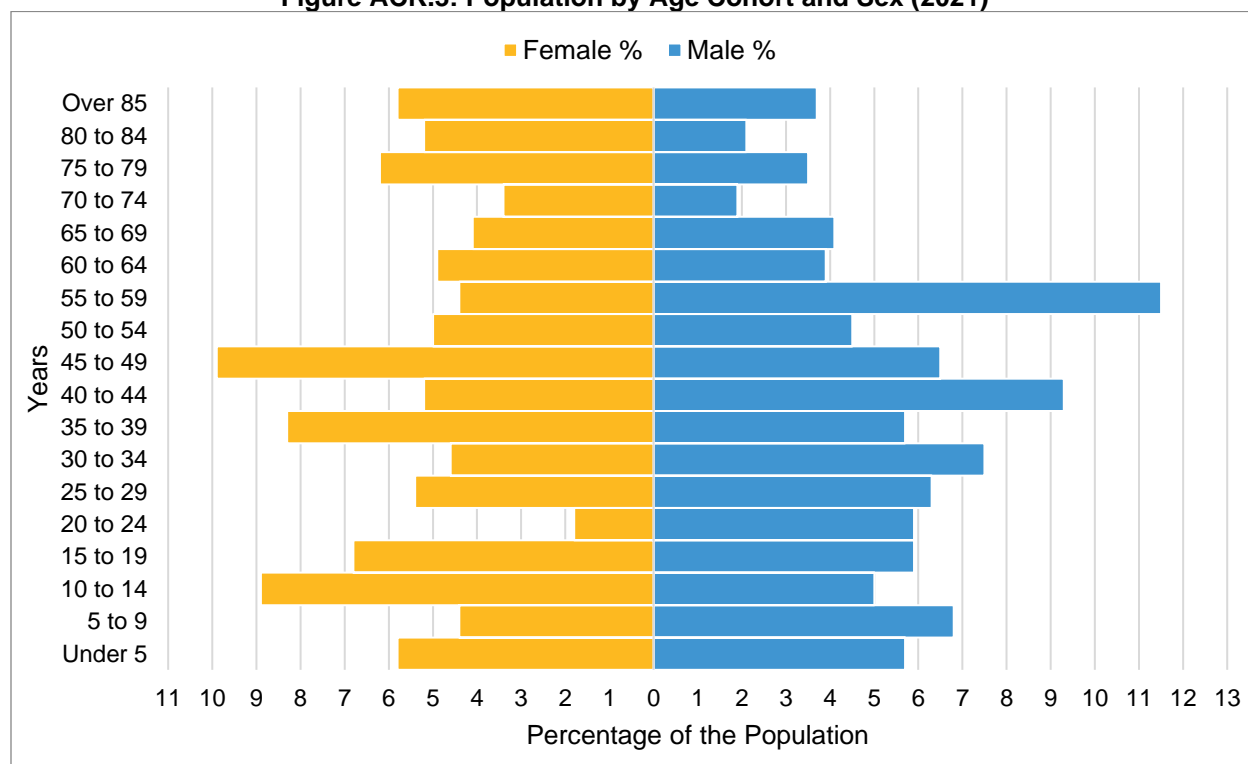


Section Seven: City of Ackley Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Ackley's population:

- **8.4% is non-white.** Since 2010, Ackley became more racially diverse. In 2010, 5.2% of the Ackley's population was non-white. By 2021, 8.4% was non-white.^{2 3}
- **Median age of 41.5.** The median age of Ackley was 41.5 years old in 2021. The population became younger since 2010, when the median age was 48.2.⁴

Figure ACK.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau⁵

The figure above shows Ackley's population percentage broken down by sex and five-year age groups. Ackley's population is similarly spread throughout most age groups. This indicates that the population is likely to remain stable in the future.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Ackley's population has:

2 United States Census Bureau. "2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates." <https://data.census.gov/>.

3 United States Census Bureau. "2010 Census Redistricting Data (Public Law 94-171): P1: Race." <https://data.census.gov/>.

4 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

5 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

- **13.4% of people living below the poverty line.** The poverty rate (13.4%) in the City of Ackley was higher than the state’s poverty rate (11%) in 2021.⁶
- **\$54,250 median household income.** Ackley’s median household income in 2021 (\$54,250) was \$11,179 lower than the state (\$65,429).
- **3% unemployment rate.** In 2021 Ackley had a lower unemployment rate (3%) when compared to the state (3.9%).
- **28.7% of workers commuted 30 minutes or more to work.** Fewer workers in Ackley commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (28.7% compared to 42.4%).⁷

Major Employers

The main employers in Ackley include AGWSR Schools, Grand JiVante, and TRI Rinse. The local planning team indicated that a large percentage of residents commute to other communities such as Iowa Falls, Waterloo, Hampton, and Sheffield.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Ackley’s housing stock has:

- **65.7% of housing built prior to 1970.** Ackley has a larger share of housing built prior to 1970 than the state (65.7% compared to 49.9%).⁸
- **11.9% of housing units vacant.** Ackley has a higher vacancy rate (11.9%) compared to the rest of the state (9.3%).
- **0.9% mobile and manufactured housing.** The City of Ackley has a smaller share of mobile and manufactured housing (0.9%) compared to the state (3.5%).
- **21.6% renter-occupied.** The rental rate of Ackley was 21.6% in 2021. This is lower than the state’s rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or

6 United States Census Bureau. “2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics.” <https://data.census.gov/>.

7 United States Census Bureau. “2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics.” <https://data.census.gov/>.

8 United States Census Bureau. “2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics.” <https://data.census.gov/>.

broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

- **78.6% of households have a broadband internet subscription.** Ackley has a smaller share of households with broadband (78.6%) compared to the state (84.9%).⁹

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Ackley has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Chief of Police
- Fire Chief
- Water/Wastewater Superintendent
- Public Works Director
- Airport Authority Chairperson
- Library Board Chairperson
- GIS/Zoning Administrator

Capability Assessment

The planning team assessed the City of Ackley’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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. The planning team indicated that a large portion of funds are currently dedicated to water and sewer infrastructure projects. Limited funding is a concern for the community.

Table ACK.2: Capability Assessment

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

⁹ United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

Section Seven: City of Ackley Community Profile

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

Table ACK.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Moderate
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Moderate

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Ackley, is Relatively Low (60.93). The average for the State of Iowa is 43.31.¹⁰

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Ackley compared to the county.

Table ACK.4: Rural Capacity Index

Components of Index	City of Ackley	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	Yes	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	20%	20%
Families Below Poverty Level:	7%	5%
Households with Broadband:	79%	77%
People without Health Insurance:	8%	4%

¹⁰ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Components of Index	City of Ackley	Hardin County
Voter Turnout:	69%	69%
Income Stability Score (0 to 100):	36	42
Population Change (2010 to 2021):	156	-688
Overall Rural Capacity Index Score	53	61

Source: *Headwaters Economics*¹¹

National Flood Insurance Program (NFIP)

Ackley is a member of the NFIP, having joined on 8/1/2021. The city’s Zoning Administrator oversees the commitments and requirements of the NFIP, including enforcement of the local floodplain management regulations. The initial FIRM for the city was delineated on 6/9/2012 and the current effective map date is 6/9/2012, which has been adopted and incorporated into the local floodplain management regulations. As of September 30, 2022, there are nine NFIP policies in-force for the city totaling \$502,500. Ackley does not currently have any repetitive loss or severe repetitive loss structures. The city requires permits for development in the floodplain and requires flood insurance on all mortgaged property in the floodplain. Any new development in the floodplain also requires a floodplain permit. The local planning team has said that Ackley will continue to pursue good standing and involvement with the NFIP in the future.

After a flood event, the community implements substantial improvement and substantial damage provisions as outlined in FEMA's Substantial Improvement/Substantial Damage Desk Reference, which can be found here:

https://www.fema.gov/sites/default/files/documents/fema_nfip_substantial-improvement-substantial-damage-desk-reference.pdf.

Due to the community's lower capacity, as noted in the Rural Capacity Index, when substantial damage determinations are needed, state resources should be sought, or a contractor hired to assist.

Plans and Studies

Ackley has multiple 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of Ackley’s funds are currently limited to maintaining current facilities and municipal systems. A large portion of municipal funds have been dedicated to water, sewer, and storm sewer improvements. The current focus is on upgrades to the equalization basin and completion of the sewer treatment system. The amount of municipal funds has decreased in recent years. The municipal budget currently includes several hazard mitigation planning projects. These projects are ash tree removal, water/sewer infrastructure improvements, backup generator, and

11 Headwaters Economics. June 2023. “Rural Capacity Map”. Accessed June 2023. <https://headwaterseconomics.org/equity/rural-capacity-map/>.

a detention pond. The city applied for and was awarded the Catalyst Grant, Façade Grant, and DOT Street Funding grants in the last five years.

Comprehensive Plan (2012)

The comprehensive plan is designed to guide the future actions and growth of the city. The plan contains goals and objectives aimed at Safe Growth, limits density in areas adjacent to known hazardous areas, encourages infill development, identifies areas that need emergency shelters, and encourages preservation of open space in hazard-prone areas. The plan also integrates hazard mitigation by describing the flood hazard and identifying the critical facilities, vulnerable populations, and mitigation actions from the HMP. Currently there is no plan or timeline for the next update of the city's comprehensive plan.

Floodplain Regulations (2012), Zoning Ordinance (2016), and Subdivision Regulations (2022)

The city's floodplain regulations, zoning ordinance, and subdivision regulations outline where and how development should occur in the future. These documents contain floodplain maps, prohibit some development within the floodplain, discourage development in the floodplain, discourage development near chemical storage sites, includes well setback requirements, and restrict subdivision of land within or adjacent to the floodplain. In future document updates, the city plans to prohibit filling of wetlands. There is no timeline to update any of these documents.

Wellhead Protection Plan (2022)

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

Future Development Trends

In the last five years, new housing development has been minimal; however, four new businesses were recently constructed in an industrial park. One partial block (five buildings) is in need of demolition. No new structures were developed in the floodplain or any other hazardous areas. Any new development in the floodplain requires a floodplain permit. No new housing or commercial development is currently planned for the next five years. The city is pursuing an upgrade of water treatment and storage infrastructure.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table ACK.5: Community Lifelines

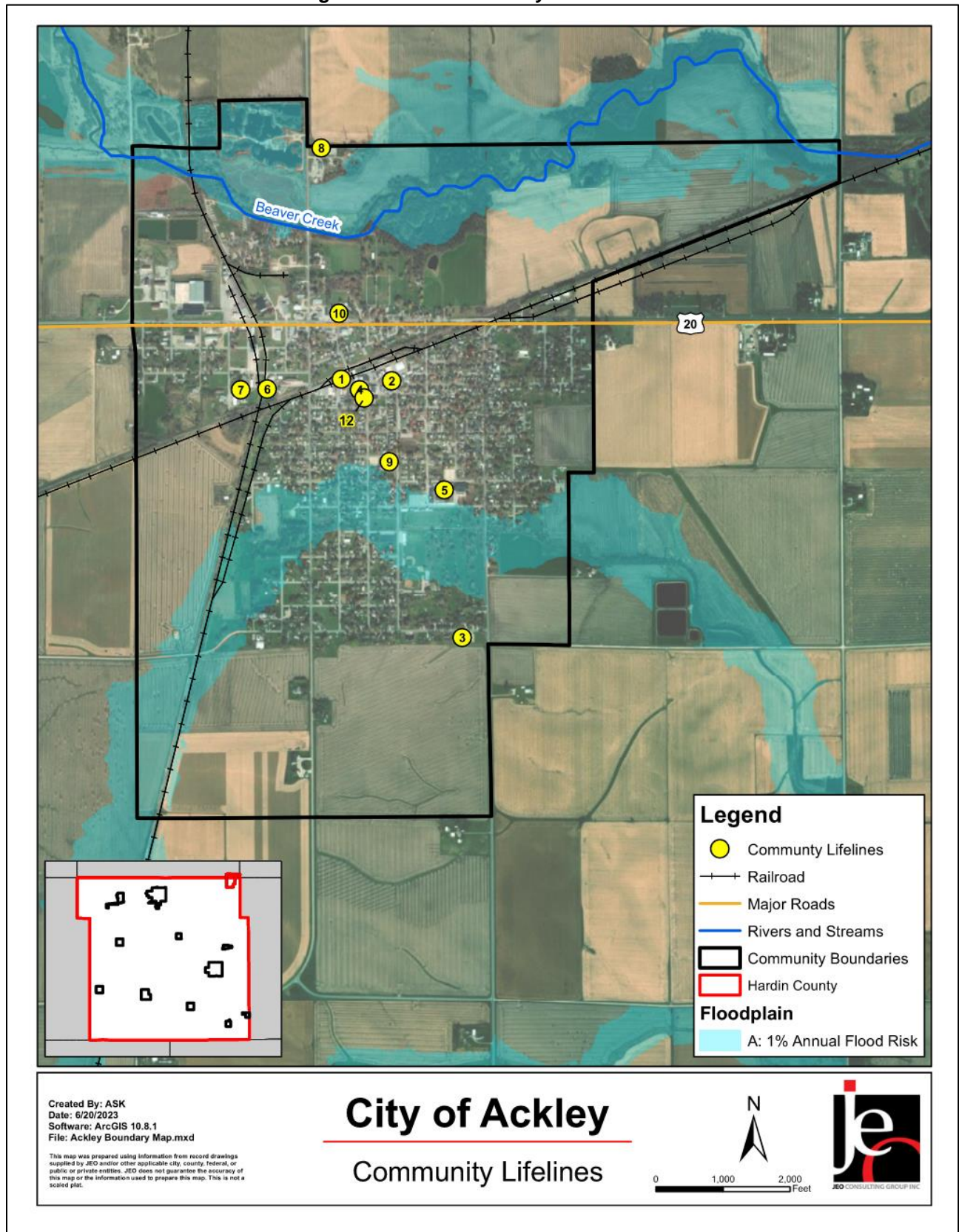
CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	Fire Station	Safety and Security	G, S	N
2	City Hall	Safety and Security	S	N
3	Medical Center	Health and Medical	G	N
4	Civic Center	Food, Water, and Shelter	S	N
5	AGWSR Schools	Other	G, S	Y
6	Water Treatment	Food, Water, and Shelter	-	N
7	Water Storage	Food, Water, and Shelter	-	N
8	Power Substation	Energy	-	N
9	St. John’s UCC Church	Food, Water, and Shelter	S	N
10	St. Mary’s Catholic Church	Food, Water, and Shelter	S	N
11*	AgVantage FS, A Division of Growmark, Inc. - Ackley West	Hazardous Material	-	N
12	CenturyLink - Ackley CDO	Hazardous Material	-	N
13*	Innovative Ag Services - Cleves	Hazardous Material	-	N
14*	Landus Cooperative	Hazardous Material	-	N

Source: Local Planning Team, E-Plan¹²

*Community Lifeline located outside of map viewing area.

12 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure ACK.5: Community Lifelines



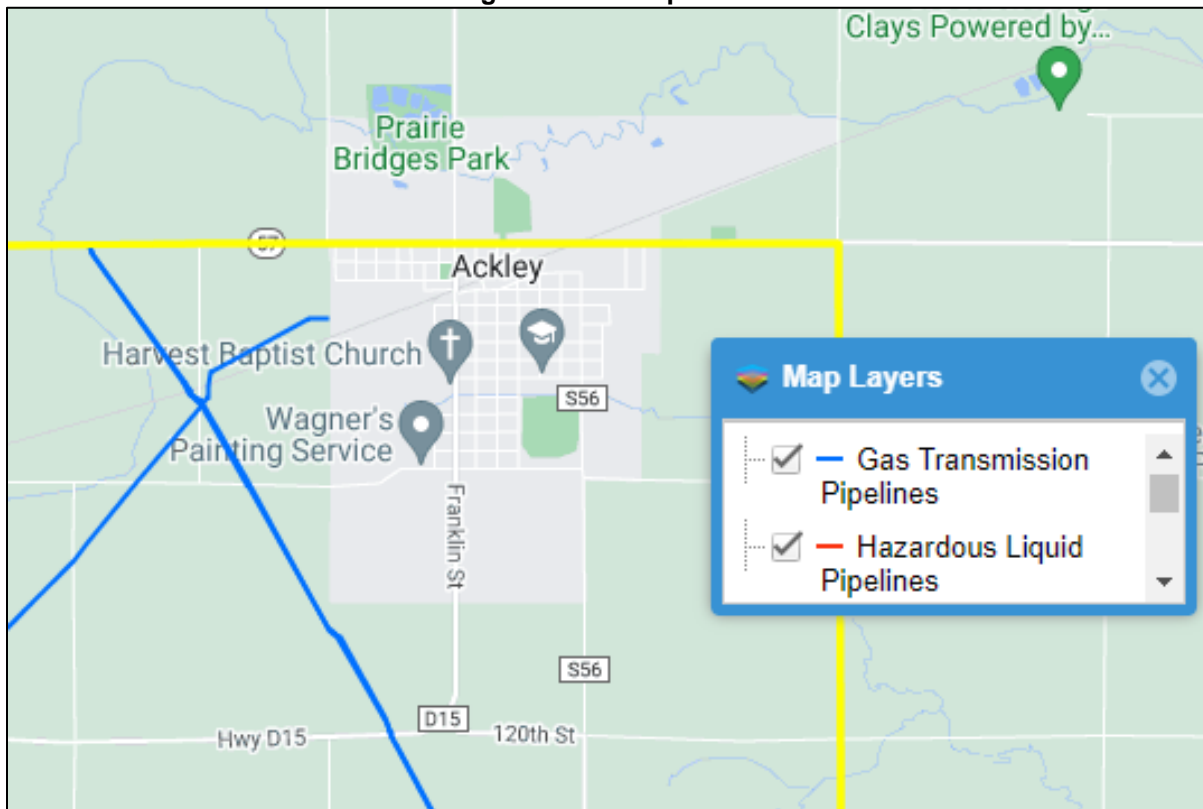
Transportation

Ackley’s major transportation corridors include State Highway 57 and County Roads D15 and S56. The most traveled route is Highway 57 with an average of 2,390 vehicles daily, 268 of which are trucks.¹³ Ackley has a Canadian National rail line and an Iowa River rail spur that travel through the community.¹⁴ The Ackley Municipal Airport is located just east of the city.¹⁵ According to the local planning team, no significant transportation events have occurred locally. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There are two gas transmission pipelines that travel near the community. These can be seen in Figure ACK.4.

Figure ACK.4: Pipelines



Source: National Pipeline Mapping System¹⁶

13 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.

14 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

15 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023. <https://iowadot.gov/aviation/airport-information>.

16 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are four chemical storage sites within or near Ackley that contain hazardous materials (listed in Table ACK.5). The planning team indicated that chemicals are regularly transported along local routes, such as ethanol on the railroads and ammonia on Highway 57 and County Road S56. The team noted that no significant chemical spills have happened in Ackley.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. Please note that the parcels and improvements only represent the portion of Ackley within Hardin County. 31 LOMAs were also identified for the City of Ackley.¹⁷

Table ACK.6: Ackley Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
1,011*	788	\$70,295,310	107	\$9,145,060

Source: County Assessor, 2023

*This table represents only the parcels and improvements within the portion of Ackley in Hardin County.

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Animal and Plant Disease

The destruction caused by the Emerald Ash Borer has heavily impacted the City of Ackley's ash tree population. The dead ash trees become hazardous as they weaken and have damaged cars and other property as limbs fall. The local planning team's top concern is future damage or injury from fallen limbs. The city has 146 trees in city parking areas and current funding levels allow for the removal of 10-12 trees per year. There is a strong potential for property damage or injury before all ash trees are removed.

Flooding

According to the NCEI, there were three flood events in Ackley from 1996 to 2022. These events resulted in \$135,000 in property damage, but no injuries or fatalities. The local planning team indicated that flooding in 2008 and 2010 resulted in damaged basements, roads, trails and

¹⁷ Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed June 2023. <https://msc.fema.gov/portal/home>.

campers at Prairie Bridges. Flood insurance is required on all mortgaged property in Ackley's floodplain. Any new development in the floodplain requires a floodplain permit.

According to the Risk Factor website, Ackley has a minor risk of flooding with 75 properties and four miles of roads having a greater than 26% chance of being affected by flooding over the next 30 years. That risk is unlikely to change in the next 30 years.¹⁸

Hazardous Materials Release

Hazardous materials release was identified as a top concern due to the potential for release of ethanol and farm chemicals from the nearby railroad and highway transportation. According to the Pipeline and Hazardous Materials Safety Administration, Ackley experienced a railway hazardous materials release in 2017, when a tank car leaked an unspecified alcohol from a valve. The damage from the event totaled \$18,453. The National Response Center reported two fixed hazardous materials release in Ackley. A 2005 event resulted in 1,000 gallons of soybean oil spilled. A 2006 event happened when 24 pounds of hydrogen sulfide spilled at a hog operation. No evacuations, injuries, or fatalities were reported from any of the events. To reduce future risk of hazardous materials releases, the local planning team indicated that signals are needed at railroad crossings and HAZMAT training is needed.

Infrastructure Failure

The local planning team identified this as a top hazard due to both hazardous buildings and past water/sewer infrastructure issues caused by storms. In 2008 and 2010, the city experienced sewer backups due to flooding, flooded basements, and flooded sewer treatment. To reduce its risk to this hazard, the city built an equalization basin at the sewer treatment, installed sewer lift stations, disconnected sump pumps from the sanitary sewer, lined sanitary sewers, and built a stormwater detention pond. Projects identified for the future include additional stormwater drainage and detention ponds, additional sanitary sewer lining, and looping dead end water mains.

In both 2017 and 2022, the city experiences a building collapse. Since 2017, five buildings have been condemned and are in need of demolition; however, legal and insurance issues have prevented this from happening. The city fenced off the area and one building is undergoing repair. The planning team indicated that demolition and a rebuild of the block is necessary.

Severe Winter Storms

Severe winter storms are a regular part of the climate and weather for Ackley. Severe winter storms include blizzards, ice accumulation, heavy snow, and winter storms. These storms can cause power outages during bitterly cold temperatures, road closures, and economic impacts. According to the NCEI, there were 87 winter storm events in Hardin County from 1996 to 2022. The local planning team indicated that additional backup generators and designated shelters are needed to reduce risk for the community.

Tornado and Windstorm

The local planning team identified tornado and windstorm as a top hazard due to their prevalence in the area and potential for damage and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and two tornadoes in Ackley. Both tornadoes occurred on August 16, 2004. An F0 and F1 both touched down near Ackley but mainly tracked through open fields

¹⁸ Risk Factor. "Flood Factor: Ackley, Iowa". Accessed June 2023. https://riskfactor.com/city/ackley-ia/1900190_fsid/flood.

and caused little damage. No injuries or deaths were reported. According to the local planning team, a tornado and windstorm caused tree damage and roof damage. Ackley Foods Warehouse was also damaged. To reduce impacts from this hazard the planning team identified backup generators, safe rooms, and designated shelters as being needed in the future.

Mitigation Strategy

Completed Mitigation and Strategic Actions

Mitigation Action	Emergency Equipment Upgrades
Description	Update or replace substandard emergency equipment in emergency departments
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Status	Equipment has been updated.

Mitigation Action	Purchase Warning Siren With Battery Powered Backup
Description	Purchase and install a battery-operated warning siren
Hazard(s)	Tornado and Windstorm
Status	A warning siren was purchased and installed.

Mitigation Action	Radio System for Schools and Presbyterian Village
Description	Secure funding to provide NOAA All-Hazard Radios to AGWSR Schools and Presbyterian Village Retirement Community
Hazard(s)	Animal & Plant Disease, Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Status	NOAA Radios have been purchased.

Mitigation Action	Distribute NOAA All-Hazard Radios to All Ackley Residents
Description	Create a program or secure funding to provide NOAA All-Hazard Radios to all Ackley residents
Hazard(s)	Animal & Plant Disease, Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Status	Radios were made available to residents that requested one.

New Mitigation and Strategic Actions

Mitigation Action	Ash Tree Removal
Description	Remove city-owned ash trees due to Emerald Ash Borer. 146 trees have been identified as needing removal. This would take place over ten years approximately.
Hazard(s)	Animal/Plant Disease
Estimated Cost	\$150,000
Local Funding Source	City General Budget
Timeline	5+ years
Priority	High
Lead Agency/Department	Tree Board, City Council, Mayor
Status	Not started

Mitigation Action	Demolish Hazardous Structures
Description	Demolish and replace (if needed) hazardous structures in the city.
Hazard(s)	Infrastructure Failure
Estimated Cost	\$500,000+
Local Funding Source	Private Funding, State Grants
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor, City Council, EMS, Owners
Status	Currently tied up in litigation.

Mitigation Action	HazMat Transportation Safety Measures
Description	Provide increased HazMat safety training to first responders. Install crossing signals where applicable to reduce and mitigate transportation-related hazardous materials releases.
Hazard(s)	Hazardous Materials Release
Estimated Cost	\$150,000
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Medium
Lead Agency/Department	Mayor, City Council, Fire Chief, EMS
Status	Not started

Mitigation Action	Water, Wastewater, and Storm Sewer Upgrades
Description	Upgrade water, wastewater, and storm sewer infrastructure.
Hazard(s)	Infrastructure Failure
Estimated Cost	\$250,000
Local Funding Source	Water/Sewer Receipts, Stormwater Receipts, Other Grants
Timeline	5+ years
Priority	Medium
Lead Agency/Department	Mayor, City Council, Public Works
Status	Not started

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Mitigation Action	Designate Emergency Shelters
Description	Designate shelters where the public can go in the case of severe weather events or other hazards.
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	Staff Time
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor, City Council, Public Works,
Status	Not started

Continued Mitigation and Strategic Actions

Mitigation Action	Construct a Safe Room at Prairie Bridges Park
Description	Add a safe room at the Prairie Bridges Park in Ackley
Hazard(s)	Severe Thunderstorms, Severe Winter Storms, Tornado and Windstorm
Estimated Cost	\$350,000+
Local Funding Source	City General Budget, CDBG
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Placed on hold due to lack of funds.

Mitigation Action	Purchase Generators for Critical Facilities
Description	Purchase portable generators for Ackley’s identified critical facilities
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$20,000+ per generator
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor, City Council
Status	Not started

Mitigation Action	Add Lift Station
Description	Add a lift station to the city's sanitary sewer
Hazard(s)	Flooding, Human Infectious Disease
Estimated Cost	\$500,000
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor
Status	Four lift stations currently installed. Engine/motor and pump maintenance is also a priority.

Mitigation Action	Purchase New Communication Equipment
Description	Update or replace substandard communication equipment in all city departments
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor, Fire Department, EMS
Status	Some communication equipment has been updated. Currently awaiting results of countywide study by Emergency Management.

Mitigation Action	Create Detention Basins
Description	Create pocket wetlands east of Butler/south of the Otter Creek, south of Tenth Avenue, and west of Blue Earth Street.
Hazard(s)	Flooding, Infrastructure Failure
Estimated Cost	\$250,000
Local Funding Source	City General Budget, Stormwater Receipts
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Existing wetland to be dredged and replanted this fiscal year. Other basins are awaiting land acquisition.

Section Seven: City of Ackley Community Profile

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor, City Council, Fire Chief, EMS
Status	In progress

Removed Mitigation and Strategic Actions

Mitigation Action	Construct Safe Rooms at Presbyterian Village
Description	Add safe rooms at the Presbyterian Village Retirement Community
Hazard(s)	Severe Thunderstorms, Severe Winter Storms, Tornado and Windstorm
Reason for Removal	This is no longer a priority for the retirement community as they feel they have adequate protection.

Mitigation Action	Enhance Structural Properties of Older Properties
Description	Bring a structural engineer to a workshop to discuss potential problems that older properties face within the community.
Hazard(s)	Infrastructure Failure
Reason for Removal	This is no longer a priority for the city at this time.

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 (e.g., 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 planning team will include the Mayor, Police Chief, Fire Chief, and Public Works Supervisor. The City Council, City Clerk, and Hardin County Emergency Manager will provide assistance. The plan will be reviewed and updated annually. The public will be involved in the review and revision process through the city website, social media, newspapers, and city council meetings.

Community Profile

City of Alden

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table ALD.1: Alden Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Jeff Fiscus	Mayor	City of Alden	Round 1 & 2
Thomas Craighton	Emergency Manager	Hardin County	Round 1 & 2

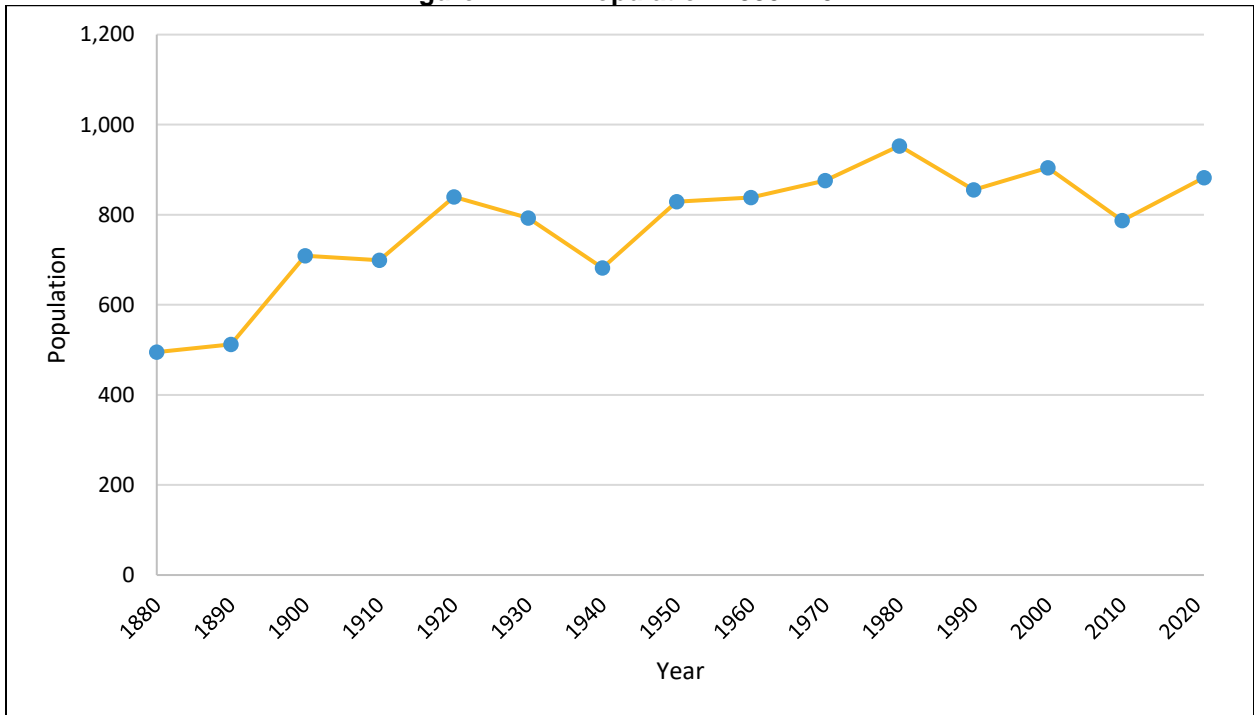
Location and Geography

The City of Alden is located in northwest Hardin County and covers an area of 1.54 square miles. The main waterway in the area is the Iowa River, which runs through the north side of the city.

Demographics

Alden’s estimated population in 2021 was 882. The following figure displays the historical population trend from 1880 to 2021. This figure indicates that the population of Alden increased from 1940 to 1980 but has since fluctuated. Over the last ten years, the city has seen an increase in population. Increasing populations are associated with more robust hazard mitigation and emergency planning requirements for development. Growing populations can also increase tax revenues, allowing communities to pursue additional mitigation projects. Alden’s population accounted for 5.2% of Hardin County’s population in 2021.¹⁹

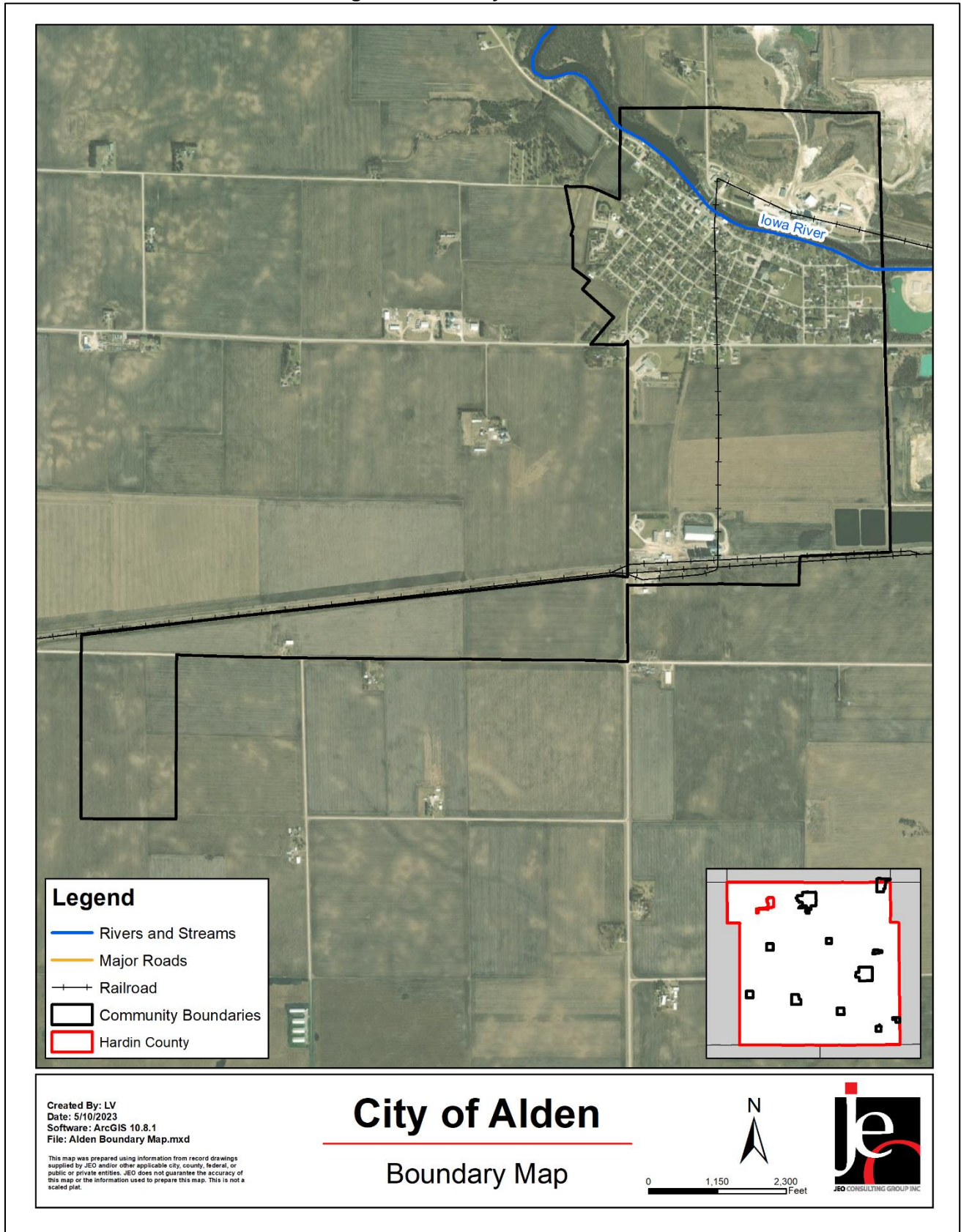
Figure ALD.1: Population 1880 - 2021



Source: U.S. Census Bureau

19 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” [database file]. <https://data.census.gov>.

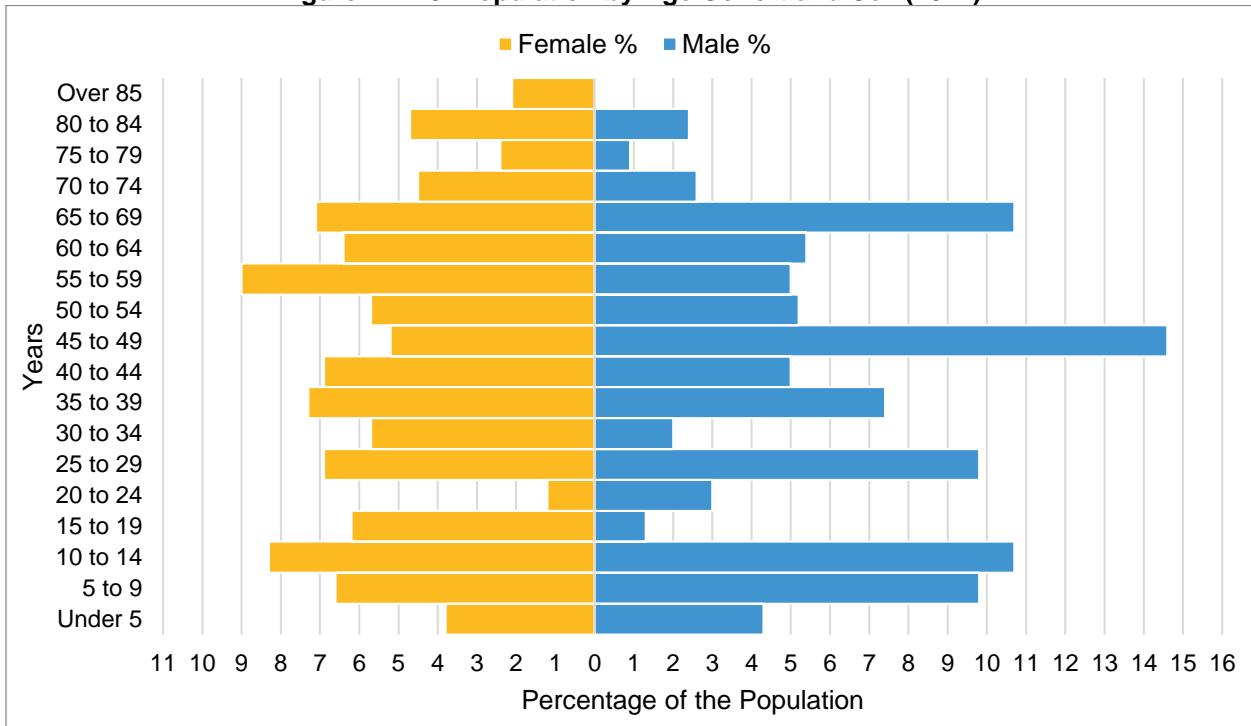
Figure ALD.2: City of Alden



The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Alden’s population:

- **10.1% is non-white.** Since 2010, Alden has become more racially diverse. In 2010, 2.5% of the Alden’s population was non-white. By 2021, 10.1% was non-white.^{20 21}
- **Median age of 41.3.** The median age of Alden was 41.3 years old in 2021. The population became slightly older since 2010, when the median age was 40.6.²²

Figure ALD.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau²³

The figure above shows Alden’s population percentage broken down by sex and five-year age groups. Alden’s population is similarly spread throughout most age groups. This indicates that the population is likely to remain stable in the future.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Alden’s population has:

20 United States Census Bureau. “2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates.” <https://data.census.gov/>.

21 United States Census Bureau. “2010 Census Redistricting Data (Public Law 94-171): P1: Race.” <https://data.census.gov/>.

22 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

23 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

Section Seven: City of Alden Community Profile

- **14.4% of people living below the poverty line.** The poverty rate (14.4%) in the City of Alden was higher than the state's poverty rate (11%) in 2021.²⁴
- **\$57,969 median household income.** Alden's median household income in 2021 (\$57,969) was \$7,460 lower than the state (\$65,429).
- **6.6% unemployment rate.** In 2021 Alden had a higher unemployment rate (6.6%) when compared to the state (3.9%).
- **12.4% of workers commuted 30 minutes or more to work.** Fewer workers in Alden commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (12.4% compared to 43.1%).²⁵

Major Employers

The local planning team indicated that major employers in the area include Iowa Limestone and Martin & Marietta. A large percentage of residents commute to Iowa Falls and other communities for work.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Alden's housing stock has:

- **60% of housing built prior to 1970.** Alden has a larger share of housing built prior to 1970 than the state (60% compared to 49.9%).²⁶
- **3.9% of housing units vacant.** Alden has a lower vacancy rate (3.9%) compared to the rest of the state (9.3%).
- **0% mobile and manufactured housing.** The City of Alden has a smaller share of mobile and manufactured housing (0%) compared to the state (3.5%).
- **40.6% renter-occupied.** The rental rate of Alden was 40.6% in 2021. This is higher than the state's rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or

24 United States Census Bureau. "2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics." <https://data.census.gov/>.

25 United States Census Bureau. "2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics." <https://data.census.gov/>.

26 United States Census Bureau. "2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics." <https://data.census.gov/>.

broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

- **74.3% of households have a broadband internet subscription.** Alden has a smaller share of households with broadband (74.3%) compared to the state (84.9%).²⁷

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Alden has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief
- Wastewater Plant Superintendent
- Water/Sewer Superintendent
- Solid Waste Superintendent
- Street Superintendent
- Library Board Chairperson

Capability Assessment

The planning team assessed the City of Alden’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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 ALD.2: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	Yes
	Economic Development Plan	No
	Emergency Operations Plan	County
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	Yes
	Source Water Protection Plan	Yes
	Water System Emergency Response Plan	No
National Flood Insurance Program	Yes	

27 United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

Section Seven: City of Alden Community Profile

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

Table ALD.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Moderate
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Limited

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Alden, is Relatively Low (60.93). The average for the State of Iowa is 43.31.²⁸

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Alden compared to the county.

Table ALD.4: Rural Capacity Index

Components of Index	City of Alden	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	14%	21%
Families Below Poverty Level:	4%	6%
Households with Broadband:	74%	73%
People without Health Insurance:	2%	4%

²⁸ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Section Seven: City of Alden Community Profile

Components of Index	City of Alden	Hardin County
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	-45	-1,966
Overall Rural Capacity Index Score	46	77

Source: Headwaters Economics²⁹

National Flood Insurance Program (NFIP)

Alden is a member of the NFIP, having joined on 9/1/1996. The city's Mayor and Clerk oversee the commitments and requirements of the NFIP, including enforcement of the local floodplain management regulations. The initial FIRM for the city was delineated on 9/1/1996 and the current effective map date is 6/19/2012, which was adopted in 207 and has been incorporated into the local floodplain management regulations. As of September 30, 2022, the city has three NFIP policies in-force totaling \$239,000. Alden does not currently have any repetitive loss or severe repetitive loss structures. The city requires permits for development in the floodplain and manages floodplain management violations by sending a formal letter from the city about permits and the ordinance. The local planning team has said that Alden will continue to pursue good standing and involvement with the NFIP in the future.

After a flood event, the community implements substantial improvement and substantial damage provisions as outlined in FEMA's Substantial Improvement/Substantial Damage Desk Reference, which can be found here:

https://www.fema.gov/sites/default/files/documents/fema_nfip_substantial-improvement-substantial-damage-desk-reference.pdf.

Due to the community's lower capacity, as noted in the Rural Capacity Index, when substantial damage determinations are needed, state resources should be sought, or a contractor hired to assist.

Plan Integration

Alden has multiple 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of Alden's funds are sufficient to pursue new capital projects. The amount of municipal funds has increased in recent years due to state valuation changes. The municipal budget currently includes one hazard mitigation planning project – a new generator. The city applied for and was awarded the Schiller Grant, Region 6 Block Grant, and a Hardin County Endowment grant in recent years.

29 Headwaters Economics. January 2022. "Rural Capacity Map". Accessed May 2023.
<https://headwaterseconomics.org/equity/rural-capacity-map/>.

Building Codes (2004)

The building code sets standards for constructed buildings and structures. These codes regulate and govern the conditions and maintenance of all property, buildings, and structures by providing the standards for supplied utilities, facilities, and other physical things and conditions essential to ensure that structures are safe, sanitary, and fit for occupation and use.

Capital Improvement Plan (2022)

The capital improvement plan outlines large purchases and projects that the city would like to pursue. Projects identified in the plan include storm water projects, upsizing of culverts and drainage structures, regular maintenance for drainage structures, upgrading storm sewer systems, and regular maintenance for the storm sewer system. The city also plans to make bridge improvements, install new municipal wells, upsize water distribution pipes, and install emergency generators in critical facilities. The city recently completed installing water meters for residential structures, built a new fire hall, and built a new community center. Other projects include removing dead ash trees, swimming pool repairs, and resurfacing main street. The capital improvement plan is updated annually.

Floodplain Regulations (2017) and Zoning Ordinance (2020)

The city's floodplain regulations and zoning ordinance outline where and how development should occur in the future. These documents contain floodplain maps, prohibit some development within the floodplain, discourage development in the floodplain, and identify floodplain areas as parks or open space. In future document updates, the city plans to limit population density in the floodplain. These regulations are re-codified regularly.

Wellhead Protection Plan (2020)

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

Future Development Trends

In the past five years, multiple homes were removed, two new homes were added, and Water Street through downtown was repaved. A new higher capacity farm-to-market bridge was also built. The city plans to re-pave Main Street from the new bridge to County Road D20. There are currently no plans for residential or commercial development over the next five years.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table ALD.5: Community Lifelines

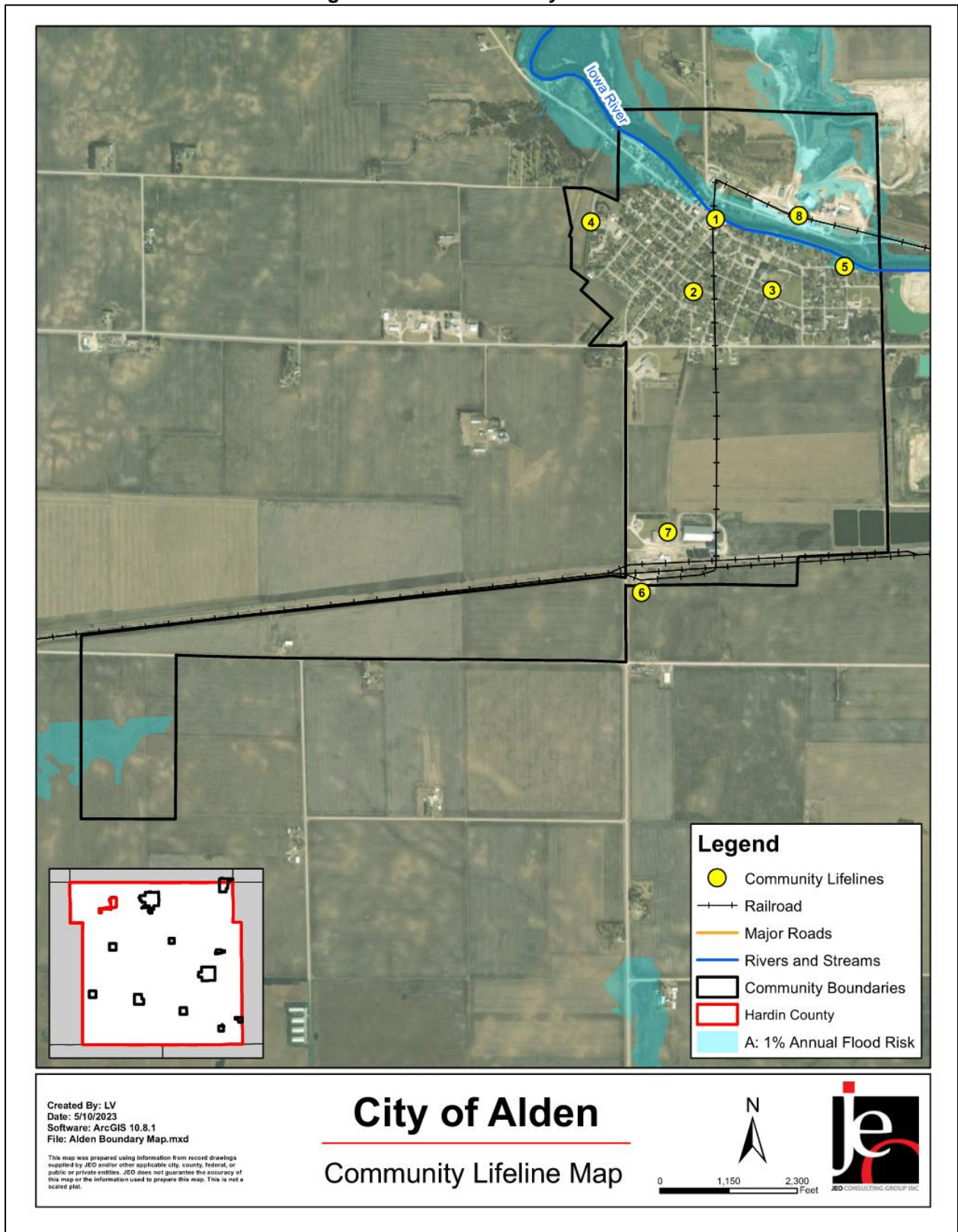
CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	EMS/Fire Station	Safety and Security	S	Y
2	Water Storage	Food, Water, and Shelter	-	N
3	IFA School Buses	Transportation	S	N
4	Community Building	Food, Water, and Shelter	S	N
5	Lift Station	Other	G	Y
6	AgVantage FS, A Division of Growmark, Inc. - Alden	Hazardous Material	-	N
7	Innovative Ag Services - Alden	Hazardous Material	-	N
8	Iowa Limestone Company Resources	Hazardous Material	-	Y
9*	Mathy Construction Co. Plant 92	Hazardous Material	-	N
10*	MCI- ALDEIA (VZB- IAALDEIA)	Hazardous Material	-	N

Source: Local Planning Team, E-Plan³⁰

*Community Lifeline located outside of map viewing area.

30 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure ALD.5: Community Lifelines



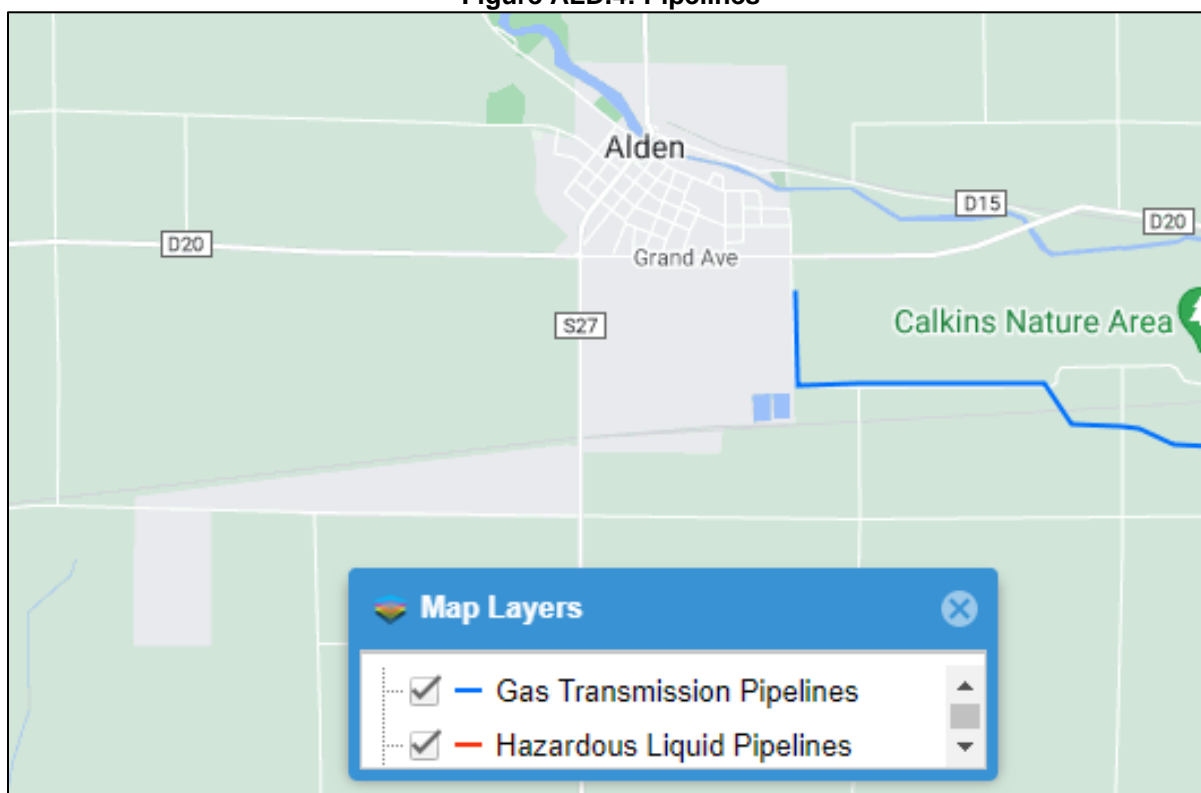
Transportation

Alden's major transportation corridors include County Roads D20, S27, and S25. The most traveled route is County Road D20 with an average of 2,400 vehicles daily.³¹ Alden has a Canadian National rail line and a Union Pacific rail spur that travel through the community.³² The nearest airport is the Iowa Falls Municipal Airport, just south of Iowa Falls.³³ 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There is one transmission pipeline that travels near the community. This can be seen in Figure ALD.4.

Figure ALD.4: Pipelines



Source: National Pipeline Mapping System³⁴

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are five chemical storage sites within or near Alden that contain hazardous materials (listed in Table ALD.5). The planning team indicated that various chemicals are regularly transported through the city, much of it on its way to Iowa Limestone and Martin & Marietta in Iowa Falls. No major chemical spills have occurred locally.

31 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.

32 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

33 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023. <https://iowadot.gov/aviation/airport-information>.

34 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of Alden.³⁵

Table ALD.6: Alden Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
549	392	\$43,405,790	51	\$9,275,640

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Flooding

According to the NCEI, there were three flood events in Alden from 1996 to 2022. These events resulted in \$175,000 in property damage, but no injuries or fatalities. The three flood events took place in April 2008, May 2008, and June 2010. As of September 30, 2022, the city has three NFIP policies in-force totaling \$239,000. According to the IDNR, Alden does not currently have any repetitive loss or severe repetitive loss structures. The city added riprap along the river to reduce flooding impacts in the city. According to the Risk Factor website, Alden has a minor risk of flooding with 34 properties and two miles of roads having a greater than 26% chance of being affected by flooding over the next 30 years. That risk is unlikely to change in the next 30 years.³⁶

Hazardous Materials Release

According to the Pipeline and Hazardous Materials Safety Administration, Alden experienced two transportation-related hazardous materials releases between 1971 and 2022. The larger of the two occurred in October 1994 when 74 gallons of diesel fuel spilled due to a loose closure while unloading the product. The damages from the event totaled \$8,044. No evacuations, injuries, or fatalities were reported from either. The National Response Center reported no fixed hazardous materials spills from 1990-2022.

35 Federal Emergency Management Agency. 2023. “FEMA Flood Map Service Center.” Accessed May 2023. <https://msc.fema.gov/portal/home>.

36 Risk Factor. “Flood Factor: Alden, Iowa”. Accessed June 2023. https://riskfactor.com/city/alden-ia/1901045_fsld/flood.

Infrastructure Failure (Water Tower)

The local planning team is concerned about infrastructure failure impacting the city water tower, resulting in the loss of adequate water supply. The water tower sits on top of a hill and is the only storage facility for domestic water. The tower does not currently have a backup generator, but the city is currently working to get one. Other things needed to reduce risk to this hazard include fencing around the perimeter and the pumps moved to an enclosed concrete building.

Tornado and Windstorms

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and one F1 tornado in Alden. The tornado occurred on April 20, 2001, and resulted in \$500,000 property damage. No injuries or deaths were reported. Impacts from recent derechos include damaged trees and several buildings damaged.

Transportation Incident

The local planning team is concerned about auto accidents, especially ones that include hazardous materials trucks. The city has discussed the desire to add a truck route around the city to mitigate risk through town. Such a project would add four miles to the route. Projects that the city has completed include a bridge replacement, intersection re-design, and repaving of Main Street.

Mitigation Strategy

New Mitigation and Strategic Actions

Mitigation Action	Backup Generator at Pump Station
Description	Purchase and install a backup generator at the pump station.
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$50,000
Local Funding Source	CIP
Timeline	2-5 years
Priority	High
Lead Agency/Department	Public Works Department
Status	Not started

Mitigation Action	Public HazMat Safety Awareness
Description	Increase public awareness on shelter in place during a hazardous materials release event.
Hazard(s)	Hazardous Materials Release
Estimated Cost	\$100,000
Local Funding Source	Fire Department, City General Budget, Hardin County
Timeline	2-5 years
Priority	High
Lead Agency/Department	Fire Department, City/County Engineers
Status	Not started

Mitigation Action	Water Tower Improvements
Description	Make improvements to the water tower, including: moving pumps to enclosed concrete building, adding backup generator, and installing fencing around its perimeter.
Hazard(s)	Infrastructure Failure, Terrorism and Civil Unrest, Flooding
Estimated Cost	\$150,000+
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Public Works Department
Status	Not started

Section Seven: City of Alden Community Profile

Mitigation Action	Truck Route
Description	Add a four-mile truck route around the city to mitigate truck-car accidents on city streets.
Hazard(s)	Transportation Incident, Infrastructure Failure
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Public Works Department
Status	Not started

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	In progress

Continued Mitigation and Strategic Actions

Mitigation Action	Lift Station Flood Control
Description	Procure pumps to mitigate flooding of lift station.
Hazard(s)	Flooding, Human Infectious Disease, Infrastructure Failure
Estimated Cost	\$60,000
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	City has two pumps from 2008 from FEMA but still need mutual aid fire departments to assist in pumping.

Mitigation Action	New Water Well to Increase Capacity for the City
Description	Dig a new water well to increase capacity for the city
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$2,000,000
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Ensure Senior Citizen Centers Have NOAA Weather Radios
Description	Ensure Senior Citizen Centers have NOAA weather radios because sirens cannot be heard there
Hazard(s)	Extreme Temperature, Flooding, Severe Thunderstorms, Severe Winter Storms, Tornado & Windstorm
Estimated Cost	\$1,000
Local Funding Source	City General Budget, Hardin County Endowment Fund
Timeline	2 years
Priority	High
Lead Agency/Department	Mayor
Status	Need to apply for grants

Mitigation Action	Purchase Generators
Description	Purchase generators for city use in critical facilities
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$300,000
Local Funding Source	CIP
Timeline	5+ years
Priority	Medium
Lead Agency/Department	Mayor
Status	Currently working with electrician to size generators for Community Building, fire station, and pump station.

Section Seven: City of Alden Community Profile

Mitigation Action	Purchase Extra Warning Siren
Description	Purchase and install extra warning siren
Hazard(s)	Tornado and Windstorm
Estimated Cost	\$50,000
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Public Fire Prevention Education Program
Description	Create a program to educate Alden residents about the dangers of fire hazards and how to prepare through informational meetings, and interactive media like drills and workshops
Hazard(s)	Grass and Wildfire
Estimated Cost	\$1,000
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Annual fire department project

Mitigation Action	Education and Training for Emergency Responders
Description	Hold session to train emergency personnel to identify weather-related hazards and proper response
Hazard(s)	Drought, Extreme Temperatures, Flooding, Severe Thunderstorms, Severe Winter Storms, Tornado and Windstorm
Estimated Cost	\$2,000
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Hardin County Emergency Management
Status	Conducted bi-annually with NWS.

Mitigation Action	Continuity of Operations Plan
Description	Complete a plan for use if the city's functions are disabled
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	Staff Time
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor
Status	Not started. Need to coordinate with County EMA.

Removed Mitigation and Strategic Actions

Mitigation Action	Generator and Electrical Fixtures for School
Description	Purchase a generator and electrical fixtures for school
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Reason for Removal	The school district would be responsible for any school improvements.

Mitigation Action	Generator for Senior Center
Description	Purchase a generator for the Senior Center
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Reason for Removal	This project is not a current priority for the city.

Mitigation Action	Enhance Greenspace by the River, with Adequate Flood Safety Measures
Description	Enhance greenspace by the river and ensure adequate safety measures are included to address periodic flooding
Hazard(s)	Flooding
Reason for Removal	This project is not a current priority for the city.

Mitigation Action	Distribute NOAA All-Hazard Radios to All Alden Residents
Description	Create a program or secure funding to provide NOAA All-Hazard Radios to all Alden residents
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Reason for Removal	This project is not a current priority for the city.

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 (e.g., 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 planning team will include the Mayor, City Clerk, and County EMA. The plan will be reviewed and updated annually. The public will be involved in the review and revision process through social media, website updates, council meetings, and letters to all residents.

Community Profile

City of Buckeye

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table BUC.1: Buckeye Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Julie Lycke	Mayor	City of Buckeye	Round 1
Heather Vierkandt	City Clerk	City of Buckeye	Round 1
Michael Vierkandt	Fire Chief	City of Buckeye	-

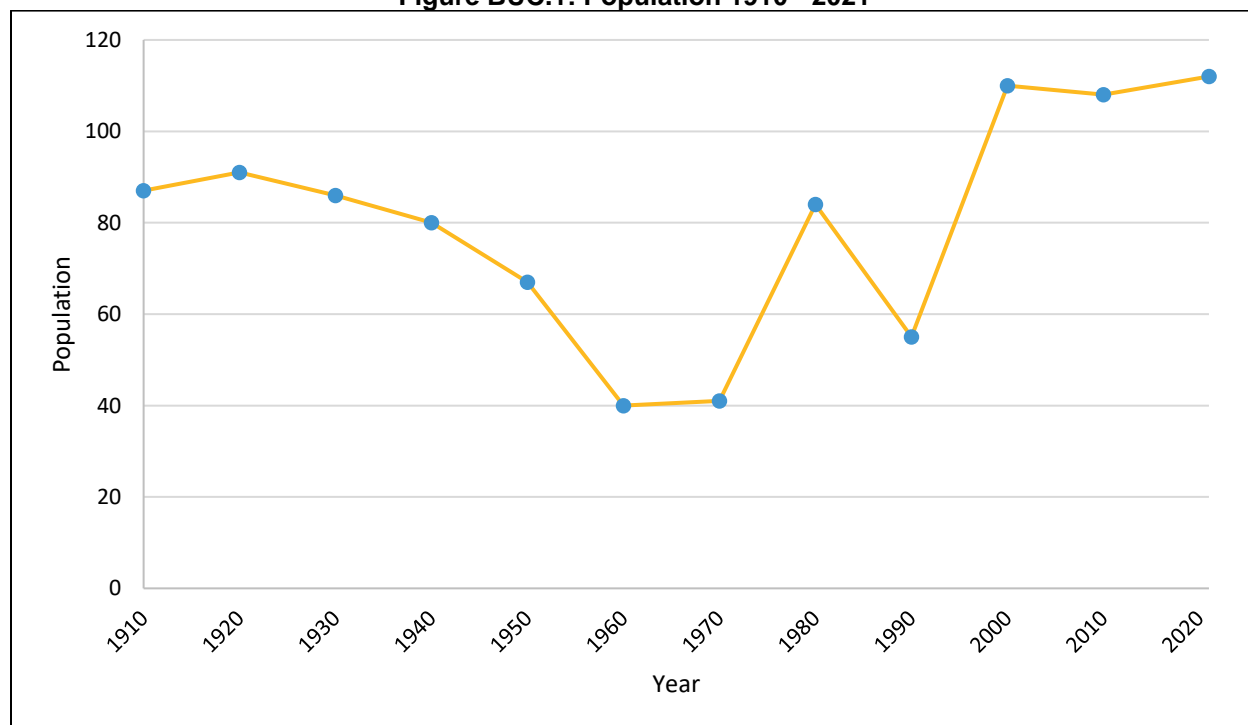
Location and Geography

The City of Buckeye is located in west central Hardin County and covers an area of 1.00 square mile. The main waterway in the area is the South Fork Iowa River, which runs east of the city.

Demographics

Buckeye’s estimated population in 2021 was 112. The following figure displays the historical population trend from 1910 to 2021. This figure indicates that the population of Buckeye significantly increased from 1990 to 2000 and has remained fairly stable since. If the population declines, it can lead to more unoccupied housing that is not being maintained and is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which can make implementation of mitigation projects fiscally challenging. Buckeye’s population accounted for 0.7% of Hardin County’s population in 2021.³⁷

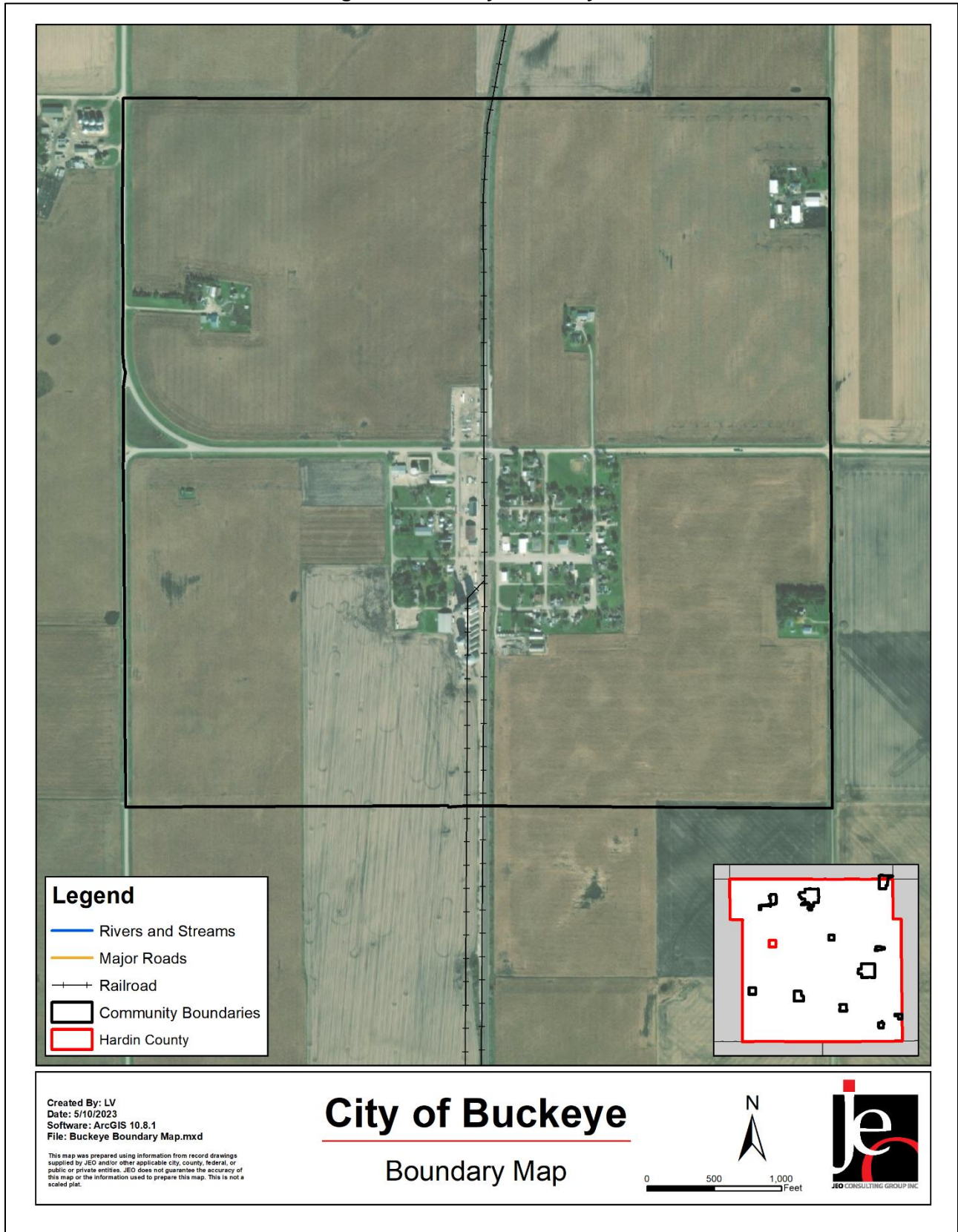
Figure BUC.1: Population 1910 - 2021



Source: U.S. Census Bureau

37 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” [database file]. <https://data.census.gov>.

Figure BUC.2: City of Buckeye

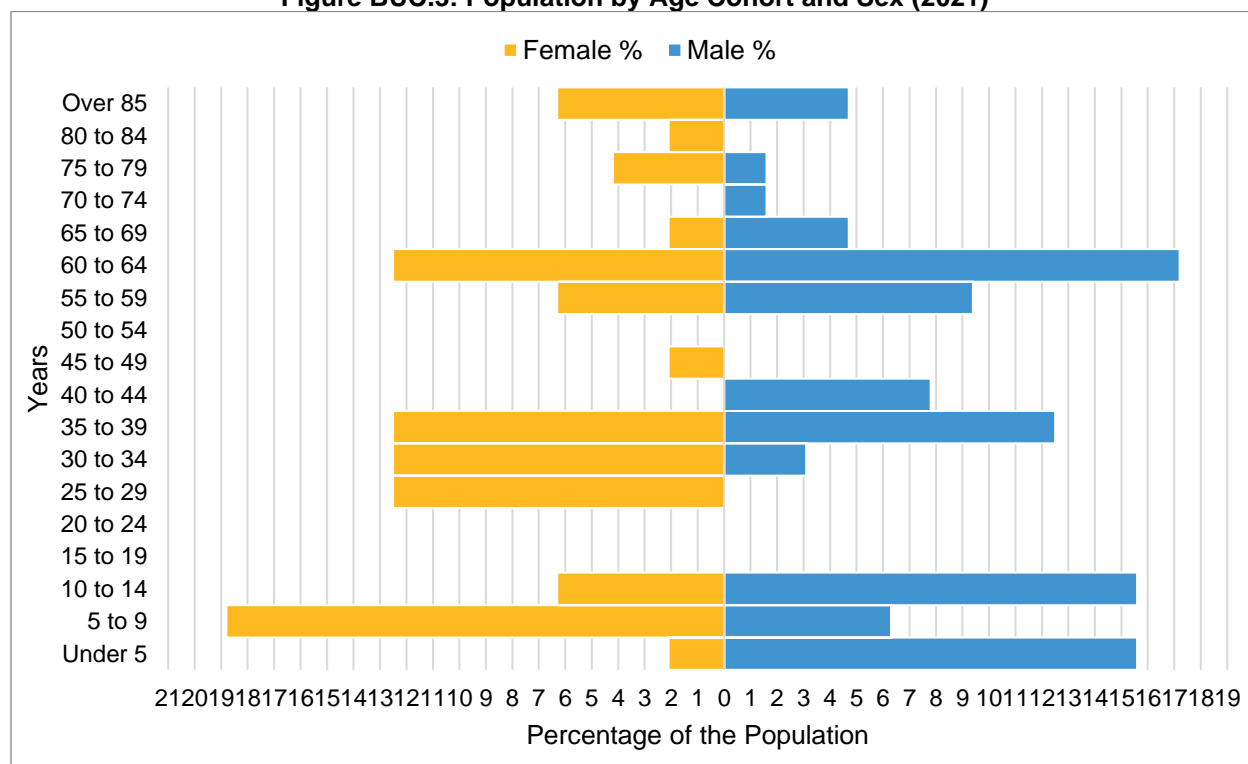


Section Seven: City of Buckeye Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Buckeye’s population:

- **0% is non-white.** Since 2010, Buckeye’s racial diversity has remained the same. In 2010, 0% of the Buckeye’s population was non-white. In 2021, 0% was non-white.^{38 39}
- **Median age of 35.8.** The median age of Buckeye was 35.8 years old in 2021. The population became older since 2010, when the median age was 42.8.⁴⁰

Figure BUC.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau⁴¹

The figure above shows Buckeye’s population percentage broken down by sex and five-year age groups. Buckeye’s population is inconsistent and bottom heavy. This suggests a greater number of young families, and the potential for population growth in the future.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Buckeye’s population has:

38 United States Census Bureau. “2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates.” <https://data.census.gov/>.

39 United States Census Bureau. “2010 Census Redistricting Data (Public Law 94-171): P1: Race.” <https://data.census.gov/>.

40 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

41 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

- **10.7% of people living below the poverty line.** The poverty rate (10.7%) in the City of Buckeye was lower than the state’s poverty rate (11%) in 2021.⁴²
- **\$52,083 median household income.** Buckeye’s median household income in 2021 (\$52,083) was \$13,346 lower than the state (\$65,429).
- **4.2% unemployment rate.** In 2021 Buckeye had a higher unemployment rate (4.2%) when compared to the state (3.9%).
- **6.5% of workers commuted 30 minutes or more to work.** Fewer workers in Buckeye commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (6.5% compared to 37%).⁴³

Major Employers

The local planning team indicated that major employers in the area include Midstates Milling and Landus Cooperative. Most residents do not commute to other communities for work.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Buckeye’s housing stock has:

- **93.9% of housing built prior to 1970.** Buckeye has a larger share of housing built prior to 1970 than the state (92.9% compared to 49.9%).⁴⁴
- **0% of housing units vacant.** Buckeye has a lower vacancy rate (0%) compared to the rest of the state (9.3%).
- **16.7% mobile and manufactured housing.** The City of Buckeye has a greater share of mobile and manufactured housing (16.7%) compared to the state (3.5%).
- **28.6% renter-occupied.** The rental rate of Buckeye was 28.6% in 2021. This is higher than the state’s rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

42 United States Census Bureau. “2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics.” <https://data.census.gov/>.

43 United States Census Bureau. “2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics.” <https://data.census.gov/>.

44 United States Census Bureau. “2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics.” <https://data.census.gov/>.

- **83.3% of households have a broadband internet subscription.** Buckeye has a smaller share of households with broadband (83.3%) compared to the state (84.9%).⁴⁵

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Buckeye has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief
- Street Superintendent

Capability Assessment

The planning team assessed the City of Buckeye’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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 BUC.2: Capability Assessment

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

⁴⁵ United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

Survey Components/Subcomponents		Yes/No
Capability	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	No
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education & 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)	

Table BUC.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Limited

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Buckeye, is Relatively Low (60.93). The average for the State of Iowa is 43.31.⁴⁶

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Buckeye compared to the county.

Table BUC.4: Rural Capacity Index

Components of Index	City of Buckeye	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	4%	21%
Families Below Poverty Level:	7%	6%
Households with Broadband:	72%	73%
People without Health Insurance:	3%	4%
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	-2	-1,966
Overall Rural Capacity Index Score	44	77

Source: Headwaters Economics⁴⁷

46 Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

47 Headwaters Economics. January 2022. “Rural Capacity Map”. Accessed May 2023. <https://headwaterseconomics.org/equity/rural-capacity-map/>.

National Flood Insurance Program (NFIP)

Buckeye has chosen not to participate in the NFIP at this time due to the low flood risk to community structures and because of the minimal impacts from historical flooding. NFIP participation will be reevaluated if the community's flood risk changes. The initial FIRM for the city was delineated in 6/19/2012 and the current effective map date is 6/19/2012. Buckeye does not currently have any repetitive loss or severe repetitive loss structures.

Plan Integration

Buckeye has no planning documents that discuss or relate to hazard mitigation. When the city adds or updates any planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of Buckeye's funds are limited to maintaining current facilities and municipal systems. Municipal funds are very limited, and the amount of funds has decreased in recent years. In the last five years, the city applied for and was awarded a grant from the Hardin County Endowment.

Future Development Trends

According to the local planning team, there was no change in the city over the past five years. There are currently no plans for residential or commercial development in the next five years.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



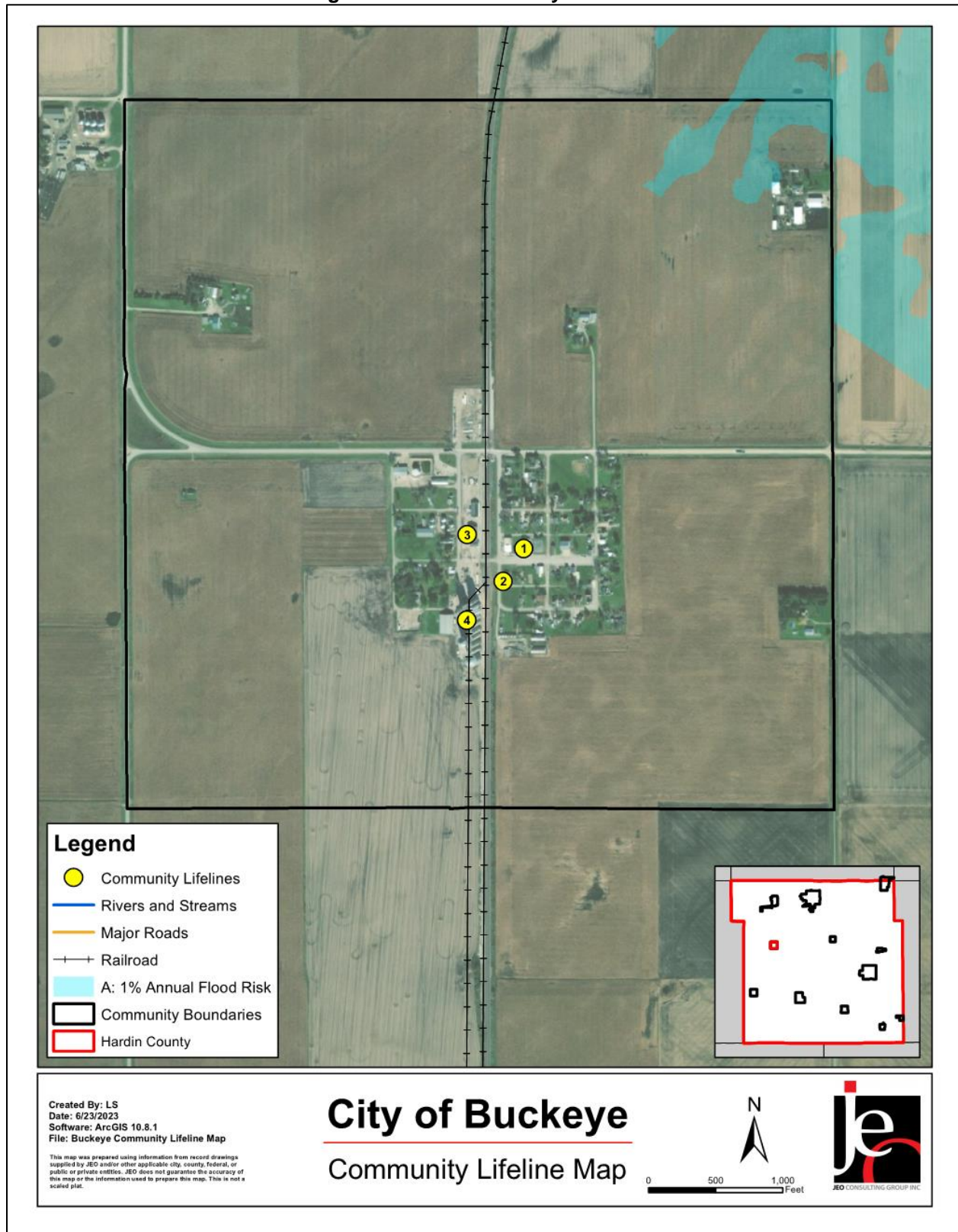
Table BUC.5: Community Lifelines

CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	City Hall/Community Building	Safety and Security	S	N
2	Fire Station	Safety and Security	S	N
3	Landus Cooperative - Buckeye	Hazardous Material	-	N
4	New Century FS Buckeye	Hazardous Material	-	N

Source: Local Planning Team, E-Plan⁴⁸

48 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure BUC.5: Community Lifelines



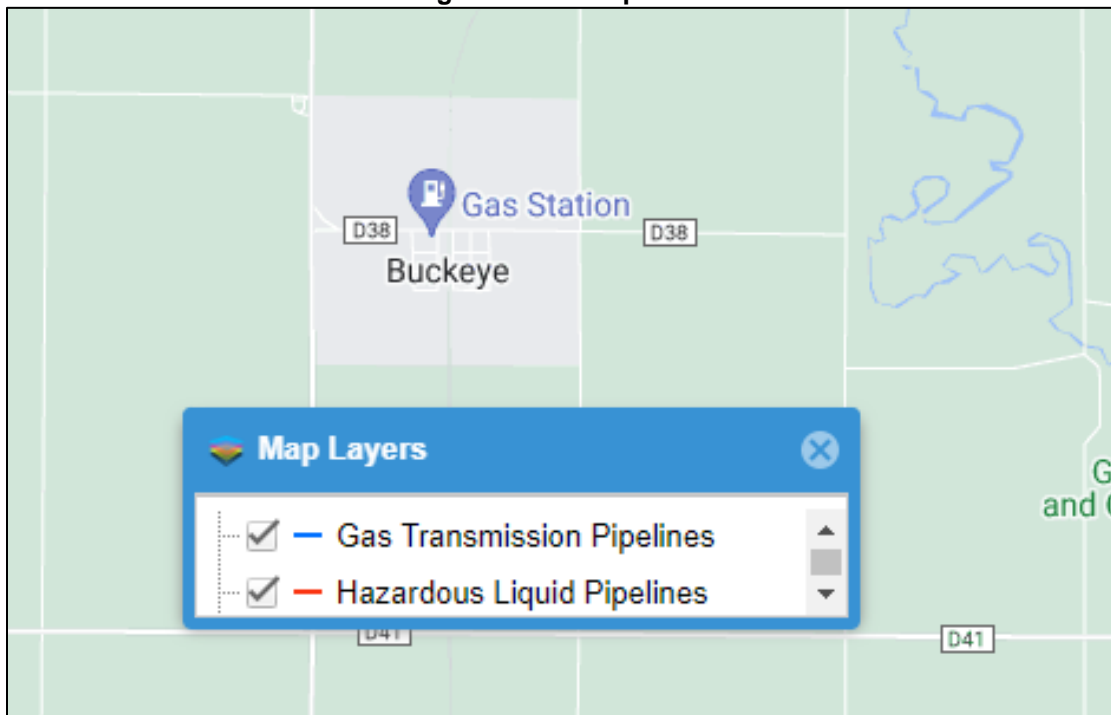
Transportation

Buckeye’s major transportation corridors include U.S. Highway 20, and County Roads S27, D38, and D41. The most traveled route is Highway 20 with an average of 9,400 vehicles daily.⁴⁹ A Union Pacific rail line travels north-south through the community.⁵⁰ The Iowa Falls Municipal Airport is the nearest airport to the city, located six miles northeast.⁵¹ 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There are no gas transmission pipelines or hazardous liquid pipelines that travel near the community (Figure BUC.4).

Figure BUC.4: Pipelines



Source: National Pipeline Mapping System⁵²

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are two chemical storage sites within or near Buckeye that contain hazardous materials (listed in Table BUC.5). The planning team indicated that no significant chemical spills have occurred in the city.

49 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.

50 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

51 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023. <https://iowadot.gov/aviation/airport-information>.

52 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of Buckeye.⁵³

Table BUC.6: Buckeye Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
129	78	\$5,333,860	1	\$201,480

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Grass and Wildland Fire

The planning team indicated that a CRP fire went out of control and if it were not contained, could have easily burned houses and other buildings. A concern for the planning team is that the fire department is volunteer, and all firefighters live outside the city. Wildland fire equipment was recently purchased for the fire department to better respond to fires.

Severe Thunderstorms (includes Hail and Lightning)

Severe thunderstorms are a regular part of the climate and weather in the Midwest. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 12 instances of severe thunderstorms that occurred in Buckeye from 1996 to 2022. These storm events resulted in \$59,000 in property damage, with no injuries or deaths. The city experienced some property damage and a downed tree from the thunderstorm that accompanied the derecho in December 2021. The local planning team indicated that the city does not have a storm shelter in their community building nor the manpower to help residents in need should a major storm occur.

Severe Winter Storms

Severe winter storms are a regular part of the climate and weather for Buckeye. Severe winter storms include blizzards, ice accumulation, heavy snow, and winter storms. These storms can cause power outages during bitterly cold temperatures, road closures, and economic impacts. According to the NCEI, there were 87 winter storm events in Hardin County from 1996 to 2022.

53 Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed May 2023. <https://msc.fema.gov/portal/home>.

The local planning team indicated that there are two facilities that residents can go to get warm during a storm but there is no backup generator if a power outage were to occur.

Mitigation Strategy

Continued Mitigation and Strategic Actions

Mitigation Action	Generator for Community Building (Storm Shelter)
Description	Complete a plan for use if the city's functions are disabled
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$20,000+
Local Funding Source	City General Budget, Donations
Timeline	1-2 years
Priority	High
Lead Agency/Department	Fire Department
Status	Not started

Mitigation Action	Retrofit Fire Station as a Community Shelter
Description	Maintain structural integrity of fire station/shelter for the public (heat and cool events)
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget, CDBG
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Demolish of Abandoned Residential Properties
Description	Demolish abandoned residential property, remove unsafe structures, fire hazards, and blight from the community
Hazard(s)	Infrastructure Failure, Grass and Wildland Fire
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	Not started

Section Seven: City of Buckeye Community Profile

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Fund
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	In progress

Removed Mitigation and Strategic Actions

Mitigation Action	Create Leach Fields for Sewage
Description	Create individual leach fields for sewage
Hazard(s)	Human Infectious Disease, Infrastructure Failure
Reason for Removal	This project is no longer a priority for the community.

Mitigation Action	Sewer Improvements
Description	Improve existing storm & sanitary sewer/ Collection system improvements. Increase capacity.
Hazard(s)	Human Infectious Disease, Infrastructure Failure
Reason for Removal	This project is no longer a priority for the community.

Mitigation Action	Rural Water Upgrades
Description	Create a program or secure funding to help upgrade individual resident's systems
Hazard(s)	Drought, Human Infectious Disease, Infrastructure Failure, Grass and Wildland Fire
Reason for Removal	This project is no longer a priority for the community.

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 (e.g., 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 planning team will include the Mayor and the City Clerk. The plan will be reviewed and updated annually. The public will be involved in the review and revision process through council meetings and letters to all residents.

Community Profile

City of Eldora

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table ELD.1: Eldora Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
David W Dunn	Mayor	City of Eldora	Round 1 & 2
Maile Carter	EMS Director	City of Eldora	Round 1 & 2
Aaron Budweg	City Administrator	City of Eldora	-

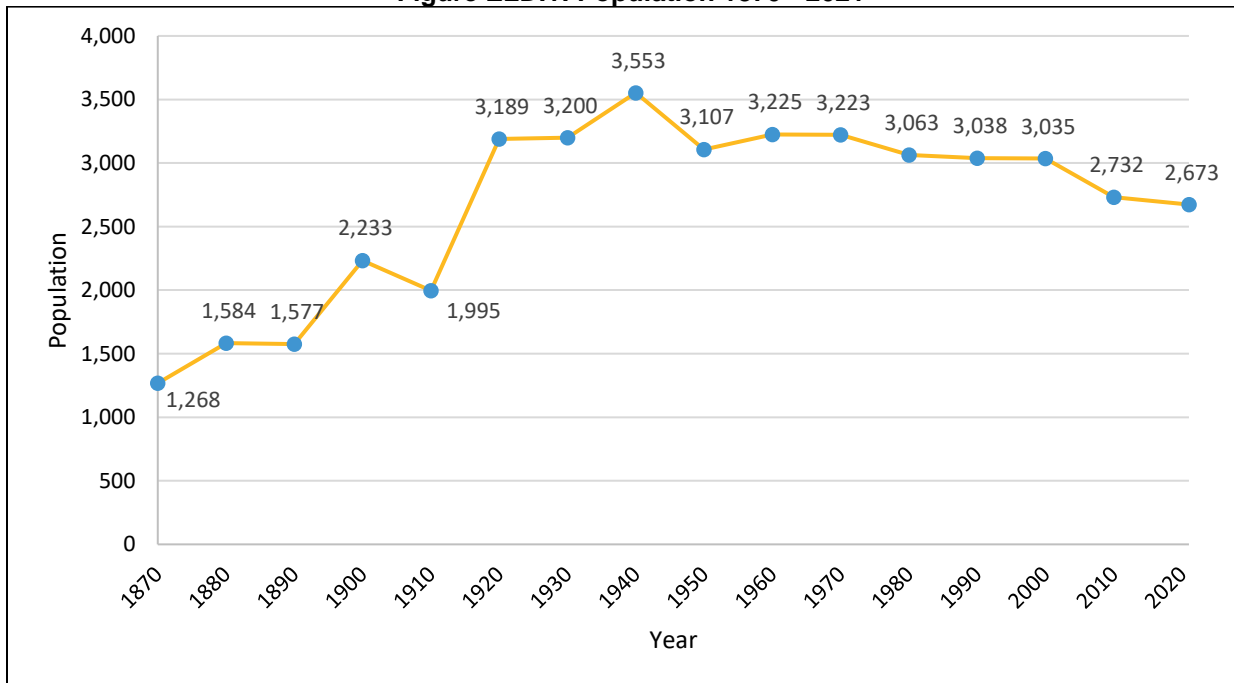
Location and Geography

The City of Eldora is located in east central Hardin County and covers an area of 4.33 square miles. It is the county seat for Hardin County. Major waterways in the area include the Iowa River, which runs through the eastern edge of the city, and Pine Lake, located just northeast of Eldora.

Demographics

Eldora’s estimated population in 2021 was 2,673. The following figure displays the historical population trend from 1870 to 2021. This figure indicates that the population of Eldora dramatically increased from 1910 to 1940 but has since slowly declined. A declining population can lead to more unoccupied housing that is not being maintained and is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which can make implementation of mitigation projects fiscally challenging. Eldora’s population accounted for 15.7% of Hardin County’s population in 2021.⁵⁴

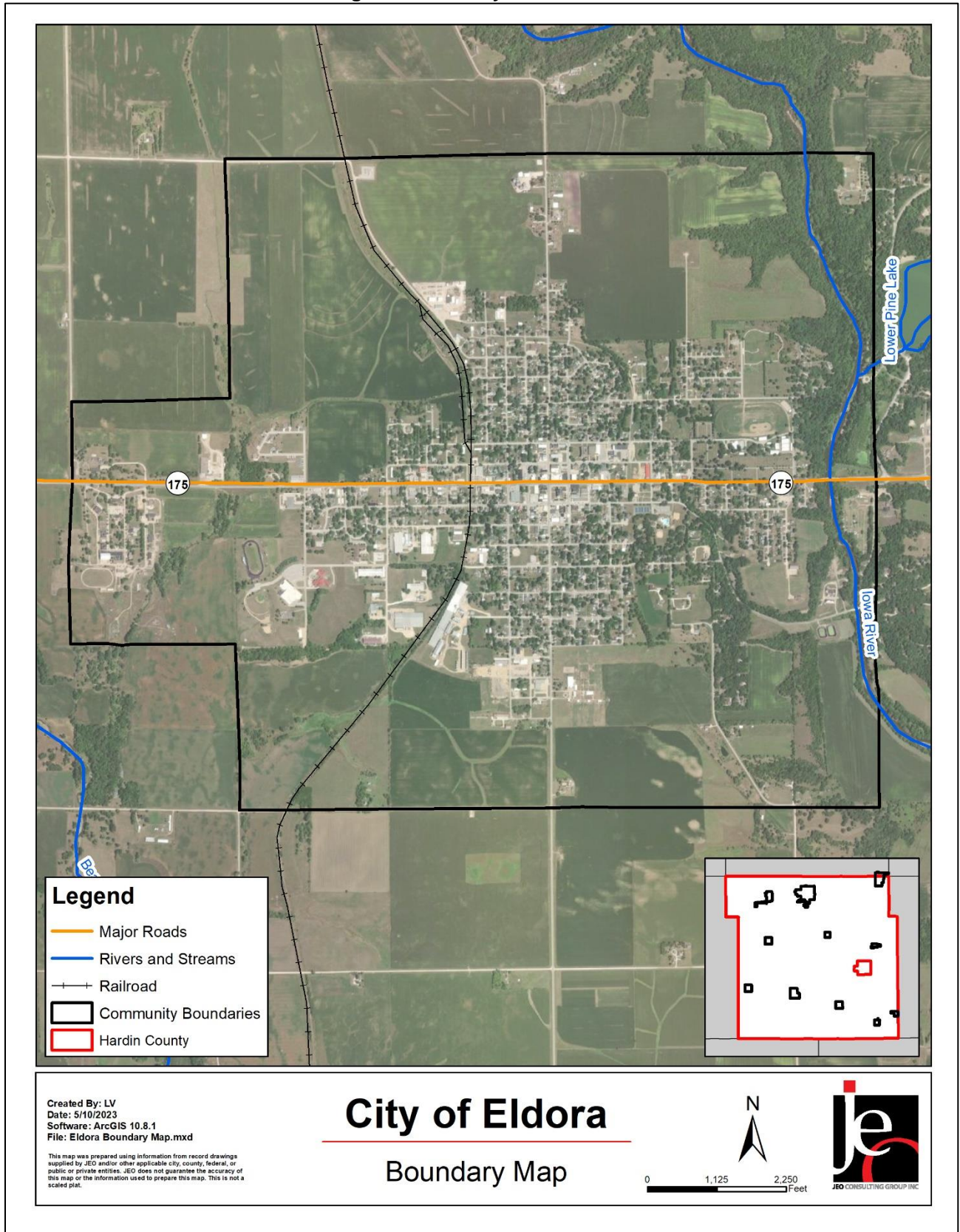
Figure ELD.1: Population 1870 - 2021



Source: U.S. Census Bureau

54 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." [database file]. <https://data.census.gov>.

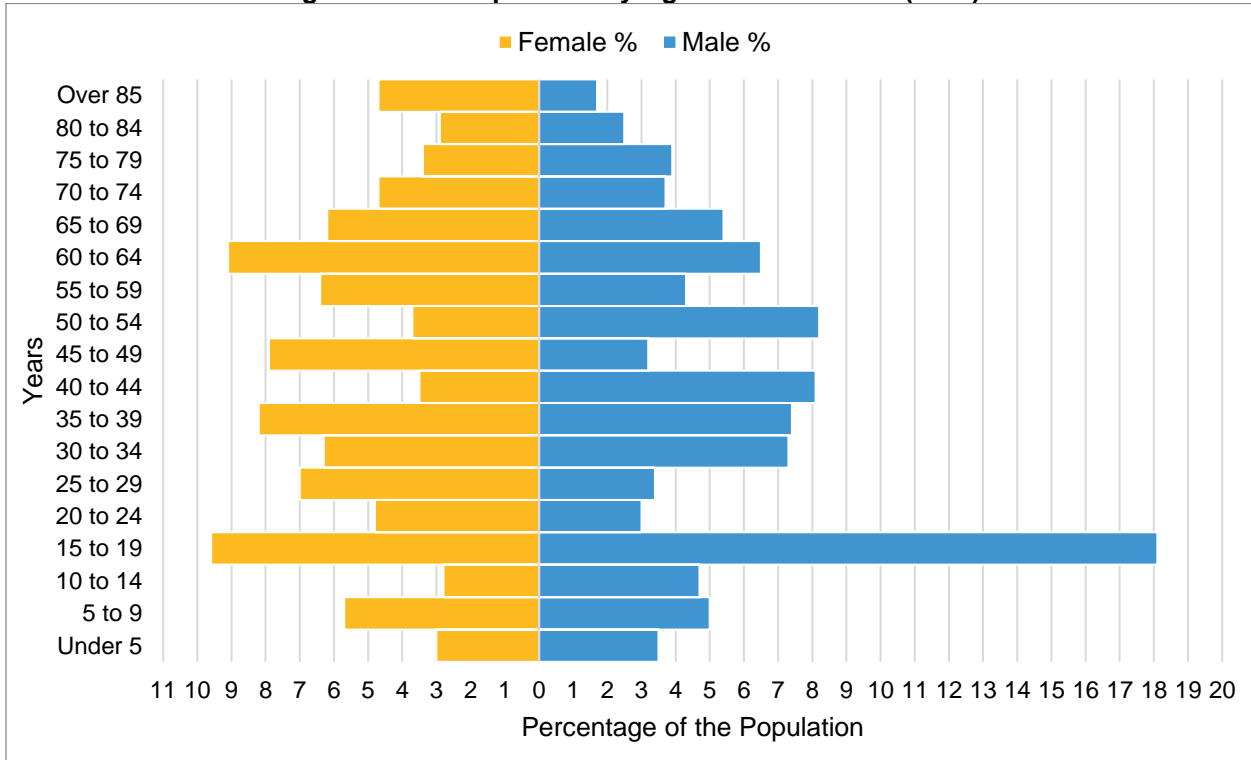
Figure ELD.2: City of Eldora



The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Eldora’s population:

- **17.5% is non-white.** Since 2010, Eldora became more racially diverse. In 2010, 5.2% of the Eldora’s population was non-white. By 2021, 17.5% was non-white.^{55 56}
- **Median age of 40.** The median age of Eldora was 40 years old in 2021. The population became younger since 2010, when the median age was 44.2.⁵⁷

Figure ELD.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau⁵⁸

The figure above shows Eldora’s population percentage broken down by sex and five-year age groups. Eldora’s population is similarly spread throughout most age groups, except for the 15-19 age group which makes up a quarter of the population. This indicates that the population is likely to remain stable in the future.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Eldora’s population has:

55 United States Census Bureau. “2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates.” <https://data.census.gov/>.

56 United States Census Bureau. “2010 Census Redistricting Data (Public Law 94-171): P1: Race.” <https://data.census.gov/>.

57 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

58 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

Section Seven: City of Eldora Community Profile

- **6.5% of people living below the poverty line.** The poverty rate (6.5%) in the City of Eldora was lower than the state’s poverty rate (11%) in 2021.⁵⁹
- **\$61,384 median household income.** Eldora’s median household income in 2021 (\$61,384) was \$4,045 lower than the state (\$65,429).
- **2.1% unemployment rate.** In 2021 Eldora had a lower unemployment rate (2.1%) when compared to the state (3.9%).
- **23.3% of workers commuted 30 minutes or more to work.** Fewer workers in Eldora commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (23.3% compared to 50.5%).⁶⁰

Major Employers

The local planning team indicated that major employers in the area include Remington Seeds, South Hardin School District, City of Eldora, State of Iowa Boys Training School, and the Iowa Justice Detention Center.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. A mobile home park is located on the northwest edge of the city. The planning team indicated the park is mostly dilapidated.

Eldora’s housing stock has:

- **63.1% of housing built prior to 1970.** Eldora has a larger share of housing built prior to 1970 than the state (63.1% compared to 49.9%).⁶¹
- **16.2% of housing units vacant.** Eldora has a higher vacancy rate (16.2%) compared to the rest of the state (9.3%).
- **5.2% mobile and manufactured housing.** The City of Eldora has a larger share of mobile and manufactured housing (5.2%) compared to the state (3.5%).
- **31.7% renter-occupied.** The rental rate of Eldora was 31.7% in 2021. This is higher than the state’s rate of 28.4%.

59 United States Census Bureau. “2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics.” <https://data.census.gov/>.

60 United States Census Bureau. “2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics.” <https://data.census.gov/>.

61 United States Census Bureau. “2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics.” <https://data.census.gov/>.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

- **76.4% of households have a broadband internet subscription.** Eldora has a smaller share of households with broadband (76.4%) compared to the state (84.9%).⁶²

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Eldora has a mayor, a five-member city council, and the following offices.

- City Administrator
- Clerk/Treasurer
- Attorney
- Chief of Police
- Fire Chief
- EMS Director
- Wastewater Plant, Sewer and Street Superintendent
- Library Board Chairperson

Capability Assessment

The planning team assessed the City of Eldora’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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. The planning team indicated that the city is in the process of a major street/water/sewer project on 11th Avenue. The project is scheduled to be completed in Fall 2023.

Table ELD.2: Capability Assessment

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

62 United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

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Survey Components/Subcomponents		Yes/No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	Yes
	Source Water Protection Plan	Yes
	Water System Emergency Response Plan	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	No
	Floodplain Administration	Yes
	GIS Capabilities	Yes
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	Mutual Aid Agreement	Yes
	Other (if any)	
Fiscal Capability	Capital Improvement Plan/ 1 & 6 Year Plan	Yes
	Applied for grants in the past	Yes
	Awarded a grant in the past	Yes
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	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	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Tree City USA	No
	Other (if any)	

Table ELD.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	High
Community support to implement projects	High
Time to devote to hazard mitigation	Moderate
Ability to expand and improve identified capabilities to achieve mitigation	High

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Eldora, is Relatively Low (60.93). The average for the State of Iowa is 43.31.⁶³

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Eldora compared to the county.

Table ELD.4: Rural Capacity Index

Components of Index	City of Eldora	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	Yes	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	16%	21%
Families Below Poverty Level:	7%	6%
Households with Broadband:	71%	73%
People without Health Insurance:	5%	4%

⁶³ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Components of Index	City of Eldora	Hardin County
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	-390	-1,966
Overall Rural Capacity Index Score	65	77

Source: Headwaters Economics⁶⁴

National Flood Insurance Program (NFIP)

Eldora is a member of the NFIP, having joined on 5/1/1987. The city’s City Administrator and Mayor oversee the commitments and requirements of the NFIP, including enforcement of the local floodplain management regulations. The initial FIRM for the city was delineated on 5/1/1987 and the current effective map date is 6/19/2012, which has been adopted and incorporated into the local floodplain management regulations. As of September 30, 2022, the city does not have any NFIP policies in-force. Eldora does not currently have any repetitive loss or severe repetitive loss structures. The local planning team indicated that city officials would like to learn more about the NFIP and how it applies to the city.

After a flood event, the community implements substantial improvement and substantial damage provisions as outlined in FEMA's Substantial Improvement/Substantial Damage Desk Reference, which can be found here:

https://www.fema.gov/sites/default/files/documents/fema_nfip_substantial-improvement-substantial-damage-desk-reference.pdf.

Depending on the extent of flood impacts and number of substantial damage determinations needed, state resources may be sought, or a contractor could be hired to assist.

Plan and Studies

Eldora has multiple 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of Eldora’s funds are largely limited to maintaining current facilities and municipal systems. Some water/sewer funds are set aside in the budget for capital or emergency projects. The amount of municipal funds has decreased in recent years due to property values and declining population. The municipal budget currently includes multiple hazard mitigation planning projects, including tree removal and water/sewer improvements. The city was awarded an EPA Brownfields grant and a fire department grant for equipment upgrades. Two other grants are currently pending.

64 Headwaters Economics. January 2022. “Rural Capacity Map”. Accessed April 2023.
<https://headwaterseconomics.org/equity/rural-capacity-map/>.

Building Codes

The building code sets standards for constructed buildings and structures. These codes regulate and govern the conditions and maintenance of all property, buildings, and structures by providing the standards for supplied utilities, facilities, and other physical things and conditions essential to ensure that structures are safe, sanitary, and fit for occupation and use.

Capital Improvement Plan (2022)

The capital improvement plan outlines large purchases and projects that the city would like to pursue. Projects identified in the plan include installing emergency generators in critical facilities, constructing a new community center, and updating equipment for streets and water departments. The city recently completed an improvement project to the police headquarters and is currently in the process of making upgrades to the water treatment facility. In future updates, the city would like to add projects that include storm water improvements, drainage structure maintenance, storm sewer upgrades, storm sewer maintenance, new municipal wells, additional emergency generators, new police headquarters, and a new water treatment facility. The capital improvement plan will be updated Fall 2023.

Comprehensive Plan (2022)

The comprehensive plan is designed to guide the future actions and growth of the city. The plan contains goals and objectives aimed at Safe Growth, limits density in areas adjacent to known hazardous areas, encourages infill development, and encourages preservation of open space in hazard-prone areas. The plan also integrates hazard mitigation by describing the flood hazard and identifying the critical facilities, vulnerable populations, and mitigation actions from the HMP. In future updates, the local planning team would like to encourage “clustering of development” in sensitive areas and identify areas that need emergency shelters. Currently there is no plan or timeline for the next update of the city’s comprehensive plan.

Floodplain Regulations (2012), Zoning Ordinance (2023), and Subdivision Regulations (2000)

The city’s floodplain regulations, zoning ordinance, and subdivision regulations outline where and how development should occur in the future. These documents prohibit some development within the floodplain and discourage development in the floodplain. There is no timeline to update any of these documents.

Water System Emergency Response Plan

Water system emergency response plans ensure the drinking water systems that serve the City of Eldora are prepared to supply customers with drinking water in the event of an emergency. It includes identifying potential emergencies and how the utility will ensure water delivery in specific scenarios.

Future Development Trends

In the last five years, the city added a community garden, disc golf course, new lights at the swimming pool, and demolished a building and four houses. A street/sewer/water project on 11th Avenue is also underway. The city was recently awarded a community development block grant. The local planning team indicated that a rural housing assessment is being completed through Iowa State University. No new housing or business developments are currently planned.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communications; Transportation; and Hazardous Material facilities.



Table ELD.5: Community Lifelines

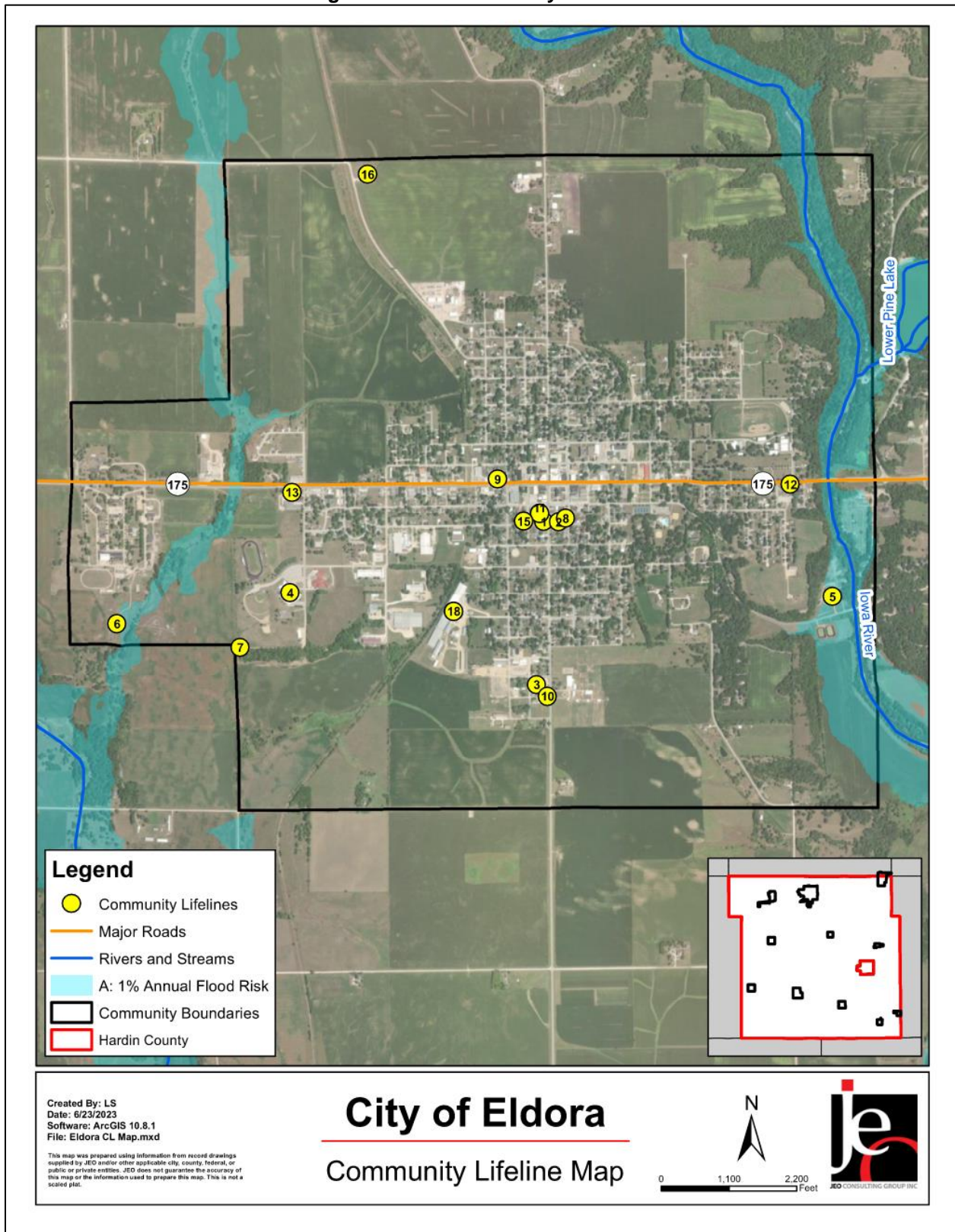
CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	Eldora City Hall	Safety and Security	G, S	N
"	Eldora Police Dept	Safety and Security	G, S	N
2	Eldora EMS	Health and Medical	G	N
3	Eldora Fire Dept	Safety and Security	G	N
4	Eldora-New Providence High School	Other		N
5	Wastewater Treatment Center	Other	G	Y
6	West Lift Station	Other	-	N
7	East Lift Station	Other	-	N
8	Water Tower	Food, Water, and Shelter	G	N
9	UnityPoint Clinic	Health and Medical	-	N
10	Alert Siren - South	Communications	-	N
11	Alert Siren – City Hall	Communications	-	N
12	Alert Siren - East	Communications	-	N
13	Alert Siren - West	Communications	-	N
14*	Winfield United - Eldora	Hazardous Material	-	N
15	Eldora CO - Heart of Iowa Communications Cooperative	Hazardous Material	-	N
16	ITC Midwest Otter Creek	Hazardous Material	-	N
17*	AgVantage FS, A Division of Growmark, Inc. - Eldora West Plant	Hazardous Material	-	N
18	Remington Seeds	Hazardous Material	-	N

Source: Local Planning Team, E-Plan⁶⁵

*Community Lifeline located outside of map viewing area.

65 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure ELD.5: Community Lifelines



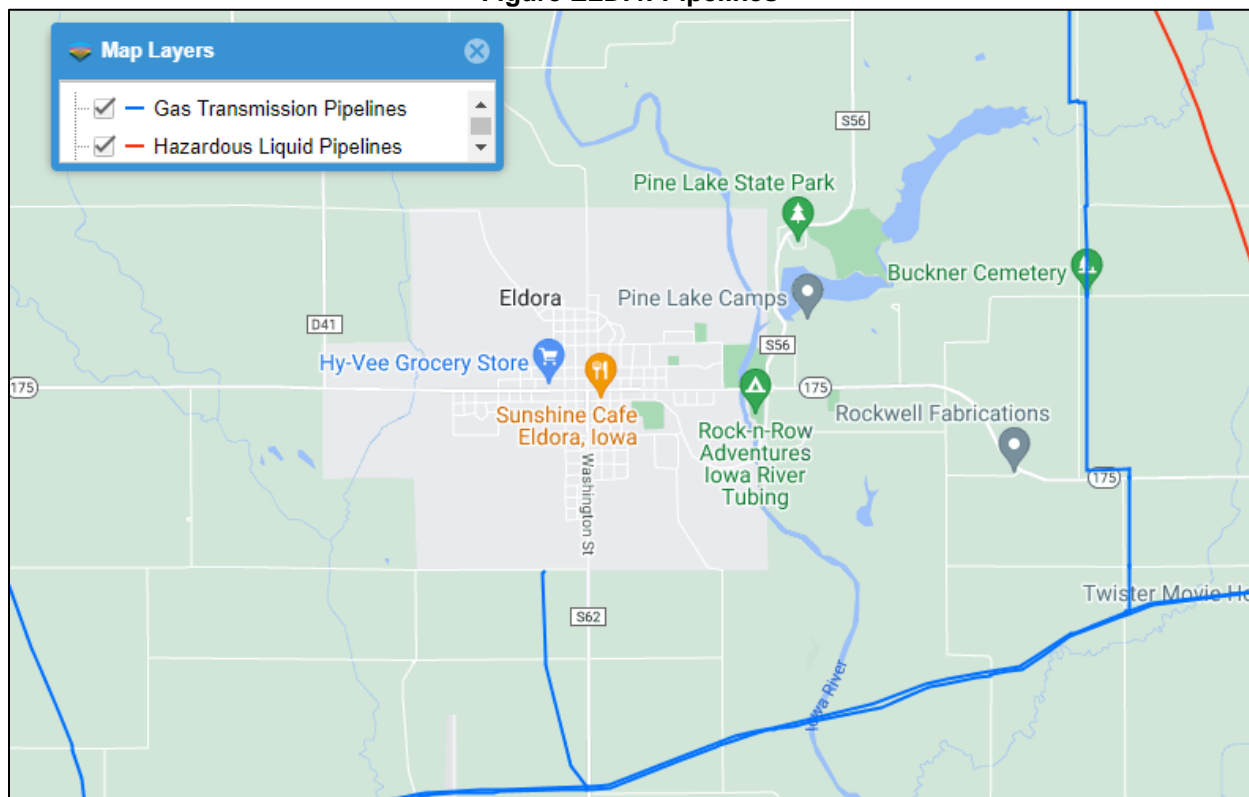
Transportation

Eldora's major transportation corridors include State Highway 175 and U.S. Highway 65, which is just west of the city. The most traveled route is Highway 175 with an average of 5,000 vehicles daily, 276 of which are trucks.⁶⁶ Eldora has no rail lines traveling through the community. The Eldora Airport is privately-owned but open for public use.⁶⁷ According to the local planning team, no significant transportation events have occurred locally. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There are multiple gas transmission pipelines and one hazardous liquid pipeline that travel near the community. These can be seen on Figure ELD.4.

Figure ELD.4: Pipelines



Source: National Pipeline Mapping System⁶⁸

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are five chemical storage sites within or near Eldora that contain hazardous materials (listed

66 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed April 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.

67 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed April 2023.

<https://iowadot.gov/aviation/airport-information>.

68 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

in Table ELD.5). The planning team indicated that various chemicals are regularly transported along Highway 175.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of Eldora.⁶⁹

Table ELD.6: Eldora Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
1,620	1,224	\$111,330,660	16	\$2,654,370

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Hazardous Materials Release

Hazardous materials release was identified as a top concern due to a large gasoline spill at a gas station in the fall of 2021. The planning team indicated that a spill event occurred at the FS fueling station where 7,500 gallons of gasoline was released. The spill resulted in the station being removed and the soil mitigated. The neighboring bank still has fumes and is currently closed. The city must monitor wells regularly for contamination. Only one gas station remains in the city, resulting in issues getting fuel for city vehicles after the station closes for the day. The planning team expressed a need for another fueling station in town to reduce those issues.

According to the Pipeline and Hazardous Materials Safety Administration, Eldora experienced two minor transportation-related hazardous materials releases between 1971 and 2022. The larger of the two occurred when 15 liquid gallons of sulfuric acid spilled due to a punctured container. The damage from the event was minimal. The National Response Center reported one fixed hazardous materials release from 1990-2022. The spill occurred in 2006 when 201 pounds of ammonia and 48 pounds of hydrogen sulfide spilled at a hog operation. No evacuations, injuries, or fatalities were reported from any of the events.

69 Federal Emergency Management Agency. 2023. “FEMA Flood Map Service Center.” Accessed May 2023. <https://msc.fema.gov/portal/home>.

Human Infectious Diseases

This hazard was selected as a top concern because of the recent COVID-19 pandemic. The local planning team indicated that EMS has limited budget, does not stockpile supplies, nor does it have a large buying partnership. These factors have resulted in running out of everyday medical supplies multiple times. Additionally, when the derecho hit the city and power went out, those using home health devices such as oxygen, ventilators, etc., were not allowed temporary access at the nursing homes like they normally would. City EMS now keeps some extra supplies on its shelves and try to pre-order without hoarding. One project identified as being needed to reduce impacts to this hazard is acquiring backup generators at more city buildings that can act as shelter locations.

Severe Thunderstorms (includes Hail and Lightning)

Severe thunderstorms are a regular part of the climate and weather for Eldora. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 47 severe thunderstorm events occurring in Eldora from 1996 to 2022. These storms caused a total of \$21,958,000 in property damage. The local planning team noted one severe storm event that hit the city in August 2009. Trees were damaged and power/communication infrastructure went out. Windows on the north and west sides of buildings were destroyed, as was the siding on all buildings. Eleven people were injured. The storm was especially devastating because the entire city and all buildings were severely impacted.

To reduce risk and vulnerability to this hazard, the city mandated in 2022 that all city employees complete FEMA Courses 100, 200, and 700. Over one year, Eldora has a 99% compliance rate.

Severe Winter Storms

Severe winter storms are a regular part of the climate and weather for Eldora and surrounding areas. Severe winter storms include blizzards, ice accumulation, heavy snow, and winter storms. These storms can cause power outages during bitterly cold temperatures, road closures, and economic impacts. According to the NCEI, there were 87 winter storm events in Hardin County from 1996 to 2022. A severe winter storm event in December 2022 resulted in six inches of snow, single digit temperatures and wind chills between -20 and -40 degrees. Many travelers became stranded on unpassable roads and required rescue by local police and the county sheriff's department. One person died as a result of the extreme cold. The local planning team indicated that the police department is working on funding for a Polaris Ranger with snow tracks to aid in rescuing stranded travelers in the future.

Tornado and Windstorms

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and two EF0 tornadoes in Eldora. The first tornado occurred on June 20, 2018. The second occurred on May 29, 2019, near the airport and caused \$30,000 in property damage. No injuries or deaths were reported from either tornado. The city saw minor damage from the December 2021 derecho and was able to help neighboring communities.

Mitigation Strategy

Completed Mitigation and Strategic Actions

Mitigation Action	Develop New Emergency Operations Plan
Description	Develop a New Emergency Operations Plan for the City of Eldora
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Status	Emergency Operations Plan was completed in July 2022.

New Mitigation and Strategic Actions

Mitigation Action	Backup Generators
Description	Acquire backup generators for critical facilities
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$100,000
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	HazMat Training
Description	Train all city employees in HazMat response.
Hazard(s)	Hazardous Materials Release
Estimated Cost	Staff Time
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	EMS
Status	Currently all city employees have completed ICS 100, ICS 200, & NIMS 700

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Mitigation Action	Update/Purchase Emergency Response Equipment
Description	Update/Purchase Emergency Response Equipment
Hazard(s)	Human Infectious Disease
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	1-5 years
Priority	Medium
Lead Agency/Department	EMS
Status	Currently have ventilator in each truck and extra PPE on hand.

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	In progress

Continued Mitigation and Strategic Actions

Mitigation Action	Eliminate Blighted Structures and Residences
Description	Develop a plan to eliminate blighted structures and residences within the city, to address the public health hazards of private owned structures who cannot control pest infestations.
Hazard(s)	Infrastructure Failure, Human Infectious Disease, Hazardous Materials Release
Estimated Cost	\$18,000 per house
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	Currently working on code compliance and housing committee.

Mitigation Action	Update Fire and Rescue Equipment
Description	Purchase new/update equipment as needed for fire and police department
Hazard(s)	Grass/Wildfire, Dam Failure, Earthquake, Extreme Temperature, Flooding, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Some equipment has been updated. Additional updates still needed.

Mitigation Action	Hazard Education Campaign
Description	Educate Eldora residents about the dangers of hazard and how to prepare through informational literature. Create informative hazard literature or use FEMA's free literature.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	Staff Time
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Update Communication System
Description	Update communication system, purchase back-up system
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	County EMA is currently looking at this.

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Mitigation Action	Stormwater System and Drainage Improvements
Description	Improve stormwater system. This may include pipe upsizing, additional inlets, retention and detention facilities.
Hazard(s)	Flooding, Infrastructure Failure
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor
Status	New street, sewer, and infrastructure on 11 th Ave completed. More improvements needed.

Mitigation Action	Purchase Debris Removal Equipment
Description	Purchase debris removal equipment
Hazard(s)	Flooding, Infrastructure Failure
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	Not started

Removed Mitigation and Strategic Actions

Mitigation Action	Build New Emergency Medical Service Facility
Description	Build a new Emergency Medical Service Facility
Hazard(s)	Human Infectious Diseases
Reason for Removal	EMS moved to former Eldora Fire Department facility.

Mitigation Action	Construct a New Fire Station
Description	Build a new fire station/shelter for the public (heat/ cool events)
Hazard(s)	Grass/Wildfire, Extreme Temperature
Reason for Removal	Fire Department moved into former car dealership building.

Mitigation Action	Distribute Portable NOAA All-Hazard Radios to All Eldora Residents
Description	Create a program or secure funding to provide NOAA All-Hazard Radios to all Eldora residents
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Reason for Removal	County-wide notifications are now in place.

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 (e.g., 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 planning team will include the City Council/Mayor, City Administrator, and Department Leaders. The plan will be reviewed and updated bi-annually. The public will be involved in the review and revision process through social media, website updates, letters to residents, and council meetings.

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Community Profile

City of Hubbard

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table HUB.1: Hubbard Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Randy Smuck	City Council Member	City of Hubbard	Round 1 & 2
Marie Neubauer	Clerk	City of Hubbard	-

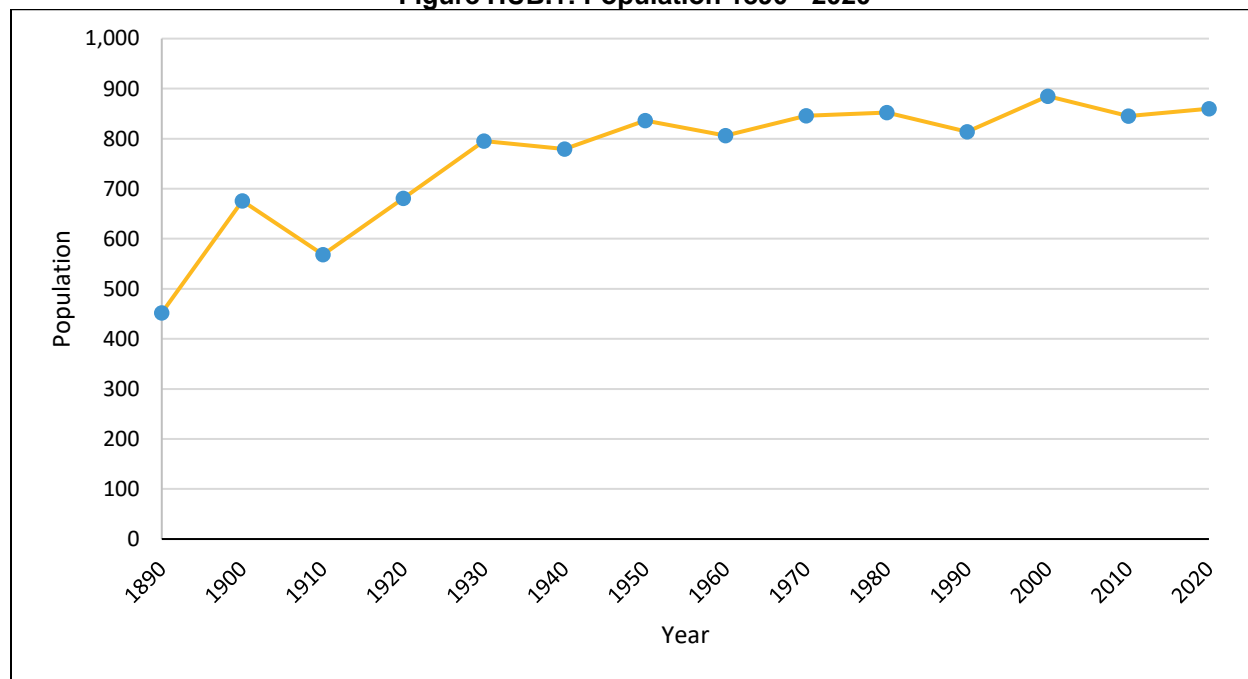
Location and Geography

The City of Hubbard is located in southwest Hardin County and covers an area of 1.85 square miles. The main waterway in the area is Honey Creek, which runs along the south side of the city.

Demographics

Hubbard’s population estimate in 2021 is listed at 745.⁷⁰ However, the local planning team indicated the population is 860. The following figure displays the historical population trend from 1890 to 2020. This figure indicates that the population of Hubbard significantly increased from 1910 to 1930 and has remained fairly stable since. The city has seen a slight increase in population over the past decade. Increasing populations are associated with more robust hazard mitigation and emergency planning requirements for development. Growing populations can also increase tax revenues, allowing communities to pursue additional mitigation projects. Hubbard’s population accounted for 4.4% of Hardin County’s population in 2021.⁷¹

Figure HUB.1: Population 1890 - 2020

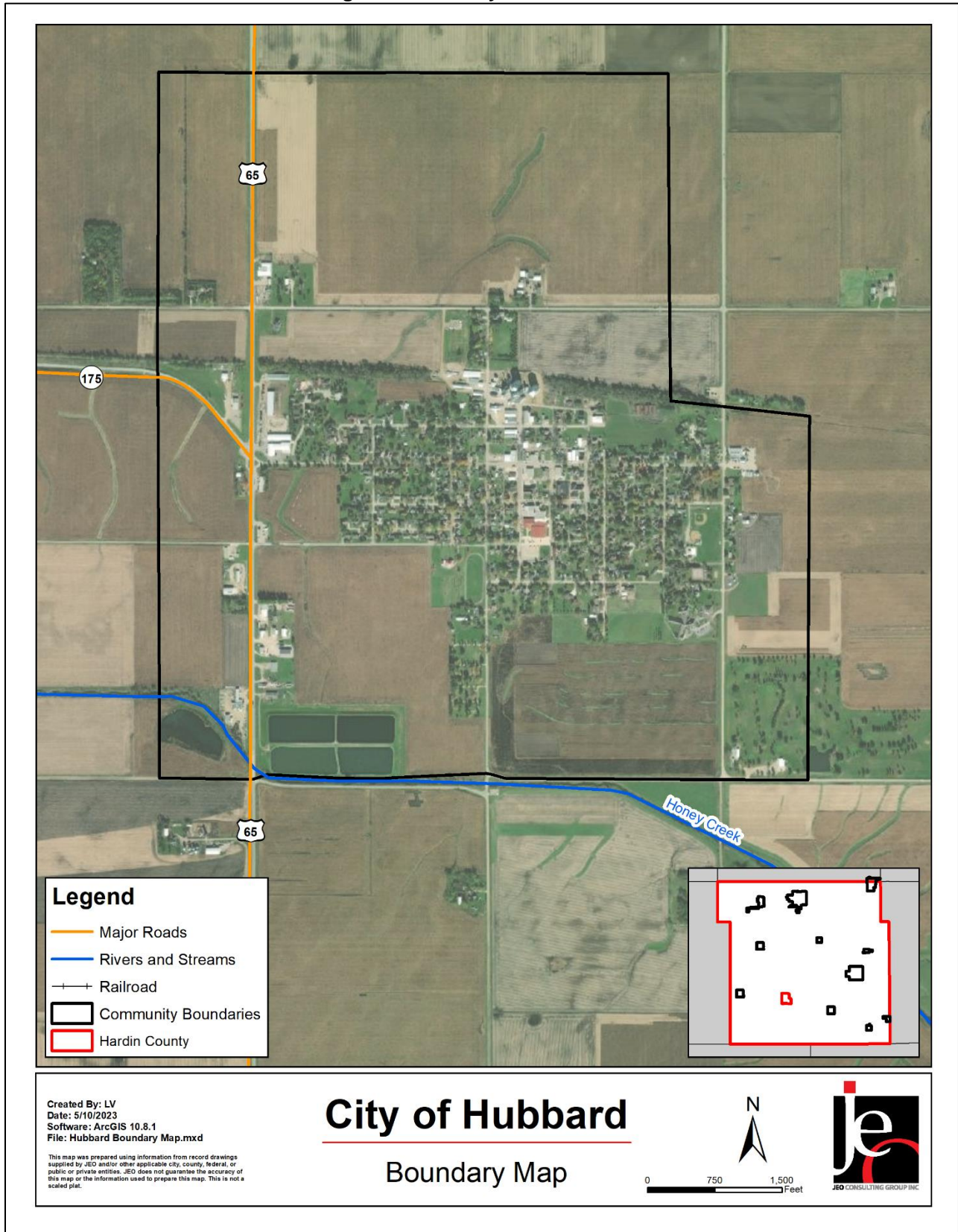


Source: U.S. Census Bureau

70 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” [database file]. <https://data.census.gov>.

71 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” [database file]. <https://data.census.gov>.

Figure HUB.2: City of Hubbard

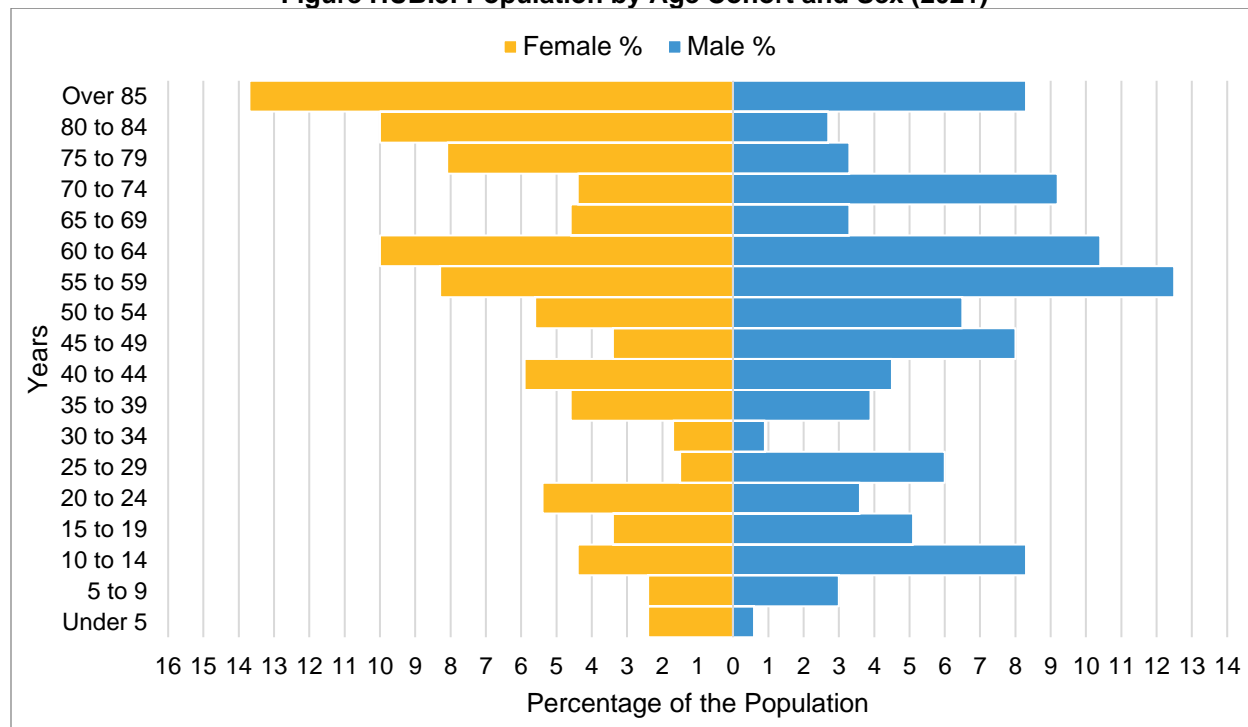


Section Seven: City of Hubbard Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Hubbard’s population:

- **1.1% is non-white.** Since 2010, Hubbard has become less racially diverse. In 2010, 2.4% of the Hubbard’s population was non-white. By 2021, 1.1% was non-white.^{72 73}
- **Median age of 57.8.** The median age of Hubbard was 57.8 years old in 2021. The population became older since 2010, when the median age was 50.1.⁷⁴

Figure HUB.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau⁷⁵

The figure above shows Hubbard’s population percentage broken down by sex and five-year age groups. Hubbard’s population is top heavy. This suggests future population decline as older generations are replaced by fewer younger residents.

72 United States Census Bureau. “2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates.” <https://data.census.gov/>.

73 United States Census Bureau. “2010 Census Redistricting Data (Public Law 94-171): P1: Race.” <https://data.census.gov/>.

74 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

75 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Hubbard's population has:

- **3.4% of people living below the poverty line.** The poverty rate (3.4%) in the City of Hubbard was lower than the state's poverty rate (11%) in 2021.⁷⁶
- **\$61,964 median household income.** Hubbard's median household income in 2021 (\$61,964) was \$3,465 lower than the state (\$65,429).
- **0.6% unemployment rate.** In 2021 Hubbard had a lower unemployment rate (0.6%) when compared to the state (3.9%).
- **38.8% of workers commuted 30 minutes or more to work.** More workers in Hubbard commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (38.8% compared to 36.3%).⁷⁷

Major Employers

The local planning team indicated that major employers in the area include D&B Agro Systems, Van Wall Equipment, J&T Logistics, Innovative Ag Services, and Hubbard Care Center. A large percentage of residents commute to other communities for work, such as Ames and Iowa Falls.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Hubbard's housing stock has:

- **73.8% of housing built prior to 1970.** Hubbard has a larger share of housing built prior to 1970 than the state (73.8% compared to 49.9%).⁷⁸
- **5.4% of housing units vacant.** Hubbard has a lower vacancy rate (5.4%) compared to the rest of the state (9.3%).
- **0% mobile and manufactured housing.** The City of Hubbard has a smaller share of mobile and manufactured housing (0%) compared to the state (3.5%).
- **12.3% renter-occupied.** The rental rate of Hubbard was 12.3% in 2021. This is lower than the state's rate of 28.4%.

76 United States Census Bureau. "2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics." <https://data.census.gov/>.

77 United States Census Bureau. "2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics." <https://data.census.gov/>.

78 United States Census Bureau. "2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics." <https://data.census.gov/>.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

- **74.9% of households have a broadband internet subscription.** Hubbard has a smaller share of households with broadband (74.9%) compared to the state (84.9%).⁷⁹

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Hubbard has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief
- Utilities Superintendent
- Library Board Chairperson

Capability Assessment

The planning team assessed the City of Hubbard’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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. Funding hazard mitigation projects is a concern for the city of Hubbard.

Table HUB.2: Capability Assessment

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

⁷⁹ United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

Survey Components/Subcomponents		Yes/No
	Water System Emergency Response Plan	No
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	No
	Civil Engineering	No
	Local Staff Who Can Assess Community's Vulnerability to Hazards	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	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)	

Table HUB.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Moderate
Staff/expertise to implement projects	Limited
Community support to implement projects	Moderate
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Limited

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Hubbard, is Relatively Low (60.93). The average for the State of Iowa is 43.31.⁸⁰

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Hubbard compared to the county.

Table HUB.4: Rural Capacity Index

Components of Index	City of Hubbard	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	17%	21%
Families Below Poverty Level:	1%	6%
Households with Broadband:	74%	73%
People without Health Insurance:	6%	4%

⁸⁰ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Components of Index	City of Hubbard	Hardin County
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	-124	-1,966
Overall Rural Capacity Index Score	46	77

Source: Headwaters Economics⁸¹

National Flood Insurance Program (NFIP)

Hubbard is a member of the NFIP, having joined on 8/7/2012. The initial FIRM for the city was delineated on 6/19/2012 and the current effective map date is 6/19/2012, which has been adopted and incorporated into the local floodplain management regulations. As of September 30, 2022, the city does not have any NFIP policies in-force. Additionally, Hubbard does not currently have any repetitive loss or severe repetitive loss structures. Hubbard’s city clerk is responsible for the city’s NFIP commitments and enforcement. Hubbard requires permits for developments in the floodplain. The local planning team indicates that Hubbard will continue to pursue good standing and involvement with the NFIP in the future.

After a flood event, the community implements substantial improvement and substantial damage provisions as outlined in FEMA's Substantial Improvement/Substantial Damage Desk Reference, which can be found here:

https://www.fema.gov/sites/default/files/documents/fema_nfip_substantial-improvement-substantial-damage-desk-reference.pdf.

Due to the community's lower capacity, as noted in the Rural Capacity Index, when substantial damage determinations are needed, state resources should be sought, or a contractor hired to assist.

Plan Integration

Hubbard has multiple 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The city of Hubbard’s municipal funds is currently limited to maintaining facilities and municipal systems. There is no project that municipal funds are being used for at this time. Available municipal funds have decreased over time due to a lowered taxable valuation for Hubbard. Funds will continue to decrease because of Iowa House Bill HF718. The city has applied for and won the Prairie Meadows Grant, Hardin County Community Endowment Grant, Iowa Community Attraction and Tourism Grant, and the Barlow Challenge Grant.

81 Headwaters Economics. January 2022. “Rural Capacity Map”. Accessed May 2023. <https://headwaterseconomics.org/equity/rural-capacity-map/>.

Capital Improvement Plan

The purpose of the capital improvement plan is for the city to strategize how to budget for nonrecurring physical or digital purchases. A capital improvement plan typically spans multiple years and includes financing plans. The city plans to update the capital improvement plan after the next election.

Floodplain Regulations, Zoning Ordinance, and Subdivision Regulations

The city’s floodplain regulations, zoning ordinance, and subdivision regulations outline where and how development should occur in the future. These documents contain floodplain maps, establish a conservation district that is subject to frequent flooding and limits development within said district, establishes performance standards within the conservation district to address flooding, maintains well setback requirements, and has the ability to implement water restrictions. The city plans to update these ordinances in the future.

Future Development Trends

In the last five years, new developments include J&T Logistics, a medical clinic, and a new swimming pool. None of these were built in the floodplain or other hazardous areas. The planning team indicated that development in the floodplain is regulated through the local floodplain management ordinance and IDNR. There are currently no plans for residential or commercial developments in the next five years.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table HUB.5: Community Lifelines

CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	City Hall	Safety and Security	-	N
2	Hubbard Fire Station	Safety and Security	G, S	N
3	Hubbard Medical Clinic	Health and Medical	-	N
4	Emergency Siren	Communications	-	N
5	Wells	Food, Water, and Shelter	-	N
6	Water Storage	Food, Water, and Shelter	-	N
7	Lift Station	Other	-	N
8*	AT&T - IA4660	Hazardous Material	-	N

Section Seven: City of Hubbard Community Profile

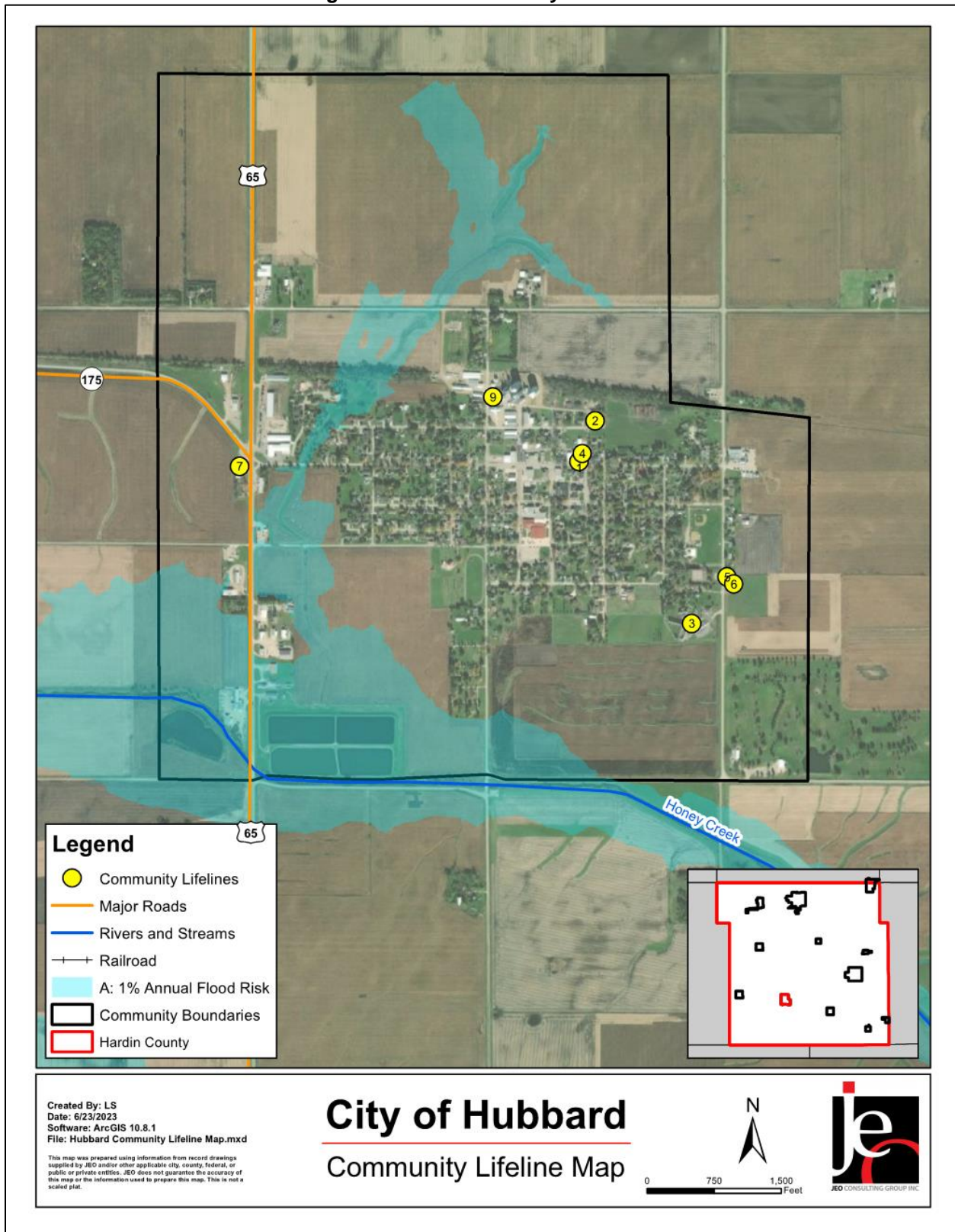
9	Innovative Ag Services - Hubbard Bulk Fuels	Hazardous Material	-	N
10*	Northern Natural Gas - Hubbard Compressor Station	Hazardous Material	-	N

Source: Local Planning Team, E-Plan⁸²

*Community Lifeline located outside of map viewing area.

82 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022.
<https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure HUB.5: Community Lifelines



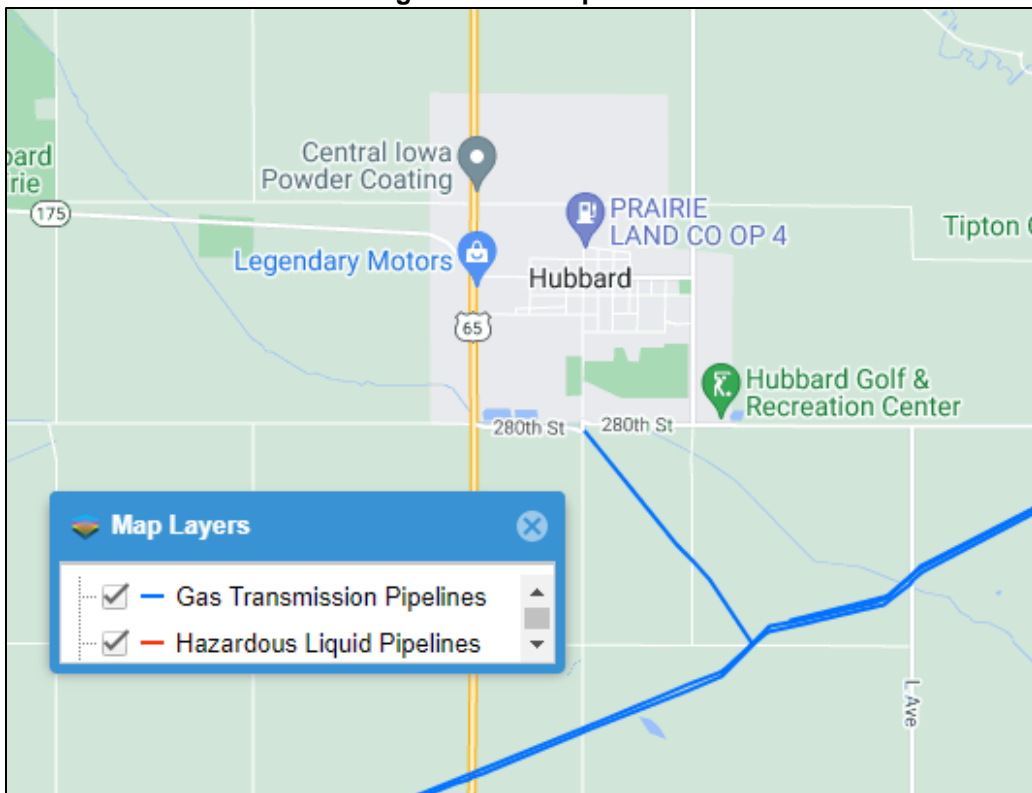
Transportation

Hubbard’s major transportation corridors include U.S. Highway 65, State Highway 175, and County Roads S33 and D55. The most traveled route is Highway 65 with an average of 1,820 vehicles daily, 329 of which are trucks.⁸³ No rail lines travel in or near the community.⁸⁴ The Eldora Airport and Iowa Falls Municipal Airport are the two nearest airports to the city.⁸⁵ 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There are multiple gas transmission pipelines that travel near the community. These can be seen in Figure HUB.4.

Figure HUB.4: Pipelines



Source: National Pipeline Mapping System⁸⁶

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are three chemical storage sites within or near Hubbard that contain hazardous materials

83 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023. <https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.
 84 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023. <https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.
 85 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023. <https://iowadot.gov/aviation/airport-information>.
 86 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

(listed in Table HUB.5). The planning team indicated that various chemicals are regularly transported along local routes. No significant spills have occurred locally.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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 Table HUB.6.

Table HUB.6: Hubbard Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
605	429	\$57,694,570	22	\$4,256,110

Source: County Assessor, 2023

Table HUB.7: Hubbard Flood Map Products

Type of Product	Product ID	Effective Date	Details
LOMA	18-07-0972A-190411	03/07/2018	Structure removed from SFHA

Source: FEMA Flood Map Service Center⁸⁷

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Flooding

According to the NCEI, there were two flood events in Hubbard from 1996 to 2022. These events resulted in \$300,000 in property damage, but no injuries or fatalities. The two flood events took place in June 1996 and June 2007. The local planning team also indicated that flooding in 2019 resulted in flooded basements. The community is especially concerned about this hazard due to the local floodplain.

The city participates in the National Flood Insurance Program and as of September 30, 2022, the city has no NFIP policies in-force. According to the IDNR, Hubbard does not currently have any repetitive loss or severe repetitive loss structures. The city updated its sewer system recently to reduce flooding impacts in the city. Continued maintenance is needed. According to the Risk Factor website, Hubbard has a minor risk of flooding with 41 properties and 1 mile of road having

87 Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed May 2023. <https://msc.fema.gov/portal/home>.

a greater than 26% chance of being affected by flooding over the next 30 years. That risk is unlikely to change in the next 30 years.⁸⁸

Severe Thunderstorms (includes Hail & Lightning)

Severe thunderstorms are a regular part of the climate and weather in the Midwest. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 40 instances of severe thunderstorms that occurred in Hubbard from 1996 to 2022. These storm events resulted in \$1,098,000 in property damage, with no injuries or deaths. The local planning team identified this hazard due to the city’s location in a hail zone. The planning team also indicated that an August 2022 thunderstorm resulted in damage to roofs, siding, and trees.

Tornado and Windstorm

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and one F0 tornado in Hubbard. The tornado occurred on August 3, 2004, and resulted in \$20,000 property damage. No injuries or deaths were reported. The December 2021 derecho damaged roofs, siding, and trees. The planning team indicated that an updated siren is needed, and additional sirens should be added in the city.

Mitigation Strategy

Completed Mitigation and Strategic Actions

Mitigation Action	Identify Community Shelter and Resources
Description	Identify community shelter and resources. Purchase stranded motorist cots and bedding.
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Status	Community shelter has been identified and cots purchased.

Mitigation Action	Purchase 6-inch Water Pump
Description	Purchase 6-inch water pump.
Hazard(s)	Drought, Grass and Wildland fire
Status	Equipment has been purchased.

Mitigation Action	Repair Sanitary Sewer System
Description	Repair sanitary sewer system to mitigate backups.
Hazard(s)	Flooding, Human Infectious Diseases, Infrastructure Failure
Status	Sewer system has been repaired.

⁸⁸ Risk Factor. “Flood Factor: Hubbard, Iowa”. Accessed June 2023. https://riskfactor.com/city/hubbard-ia/1937425_fsid/flood.

New Mitigation and Strategic Actions

Mitigation Action	Update Public Safety/Communications
Description	Update Hubbard’s public safety and communications.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor
Status	Not started.

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Fund
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	In progress

Mitigation Action	Establish City Hall as the Short-Term Recovery Center
Description	Establish city hall as the short-term location for recovery shelter.
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started.

Continued Mitigation and Strategic Actions

Mitigation Action	Repair Storm Sewer System
Description	Repair storm sewer system.
Hazard(s)	Flooding, Infrastructure Failure, Severe Thunderstorms
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor
Status	Not started.

Mitigation Action	Public Education Program
Description	Create a program to educate Hubbard residents about the dangers of hazards and how to prepare for them through informational flyers, meetings, and other interactive media such as drills or workshops.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started.

Section Seven: City of Hubbard Community Profile

Mitigation Action	Utilize Alternate Methods of Educating Citizens on Hazard Safety
Description	Utilize alternate methods of educating citizens on hazard safety. Hubbard could potentially use the local TV station to educate citizens.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started.

Mitigation Action	Purchase Backup Generators
Description	Purchase portable backup generators for Hubbard’s identified critical facilities.
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$20,000+ per generator
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started.

Mitigation Action	Purchase New Warning Sirens
Description	Purchase and install three new warning sirens.
Hazard(s)	Tornado and Windstorm
Estimated Cost	\$100,000
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor, Hardin County Emergency Management
Status	Not started.

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 (e.g., 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 city clerk, mayor, and city council comprise the local planning team. The plan will be reviewed and updated annually. The city council will update the public on the plan review and revision, along with Hardin County Emergency Management.

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Community Profile

City of Iowa Falls

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table IAF.1: Iowa Falls Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Jody Anderson	City Manager	City of Iowa Falls	Round 1
Kaci Elkin	City Clerk	City of Iowa Falls	-
Michael Emerson	Mayor	City of Iowa Falls	Round 2
Josh Nelson	Chief of Police	City of Iowa Falls	Round 2

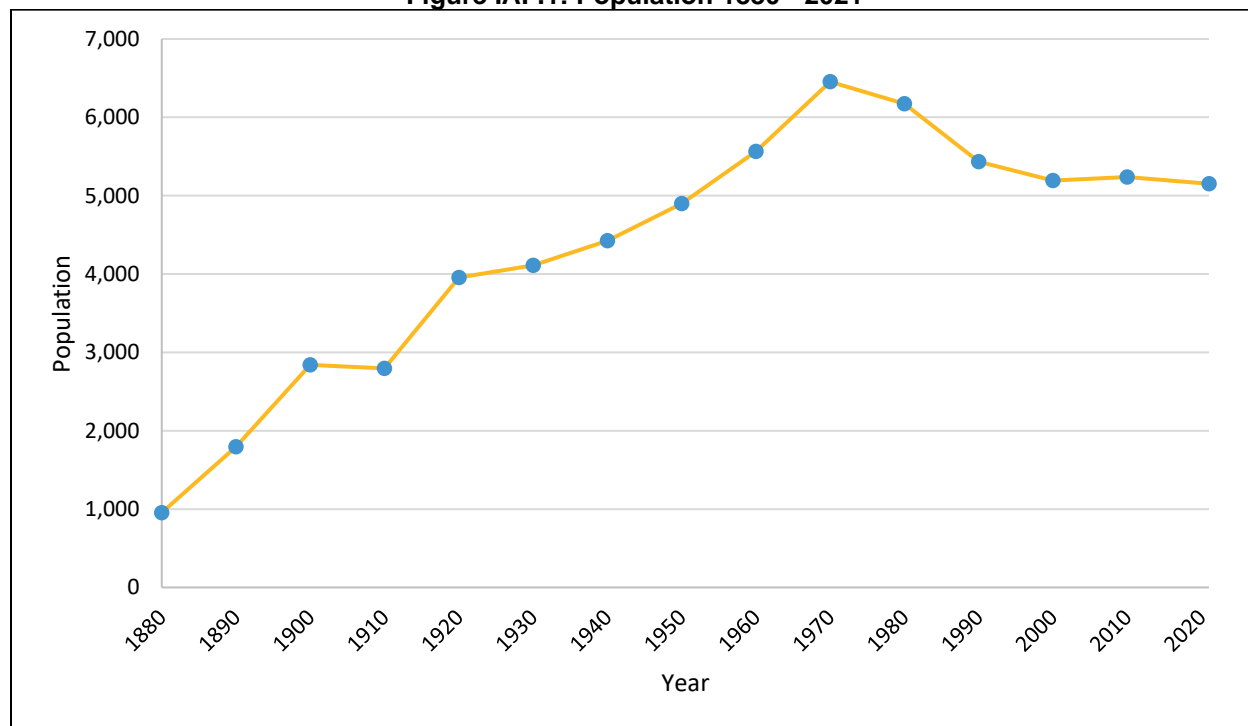
Location and Geography

The City of Iowa Falls is located in north central Hardin County and covers an area of 5.46 square miles. Waterways in the area include the Iowa River, which runs through the middle of the city, and Elk Creek, which runs on the northwest side.

Demographics

Iowa Falls’ estimated population in 2021 was 5,154. The following figure displays the historical population trend from 1880 to 2021. This figure indicates that the population of Iowa Falls steadily increased from 1910 to 1970 but has since slowly declined. A declining population can lead to more unoccupied housing that is not being maintained and is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which can make implementation of mitigation projects fiscally challenging. Iowa Falls’ population accounted for 30.3% of Hardin County’s population in 2021.⁸⁹

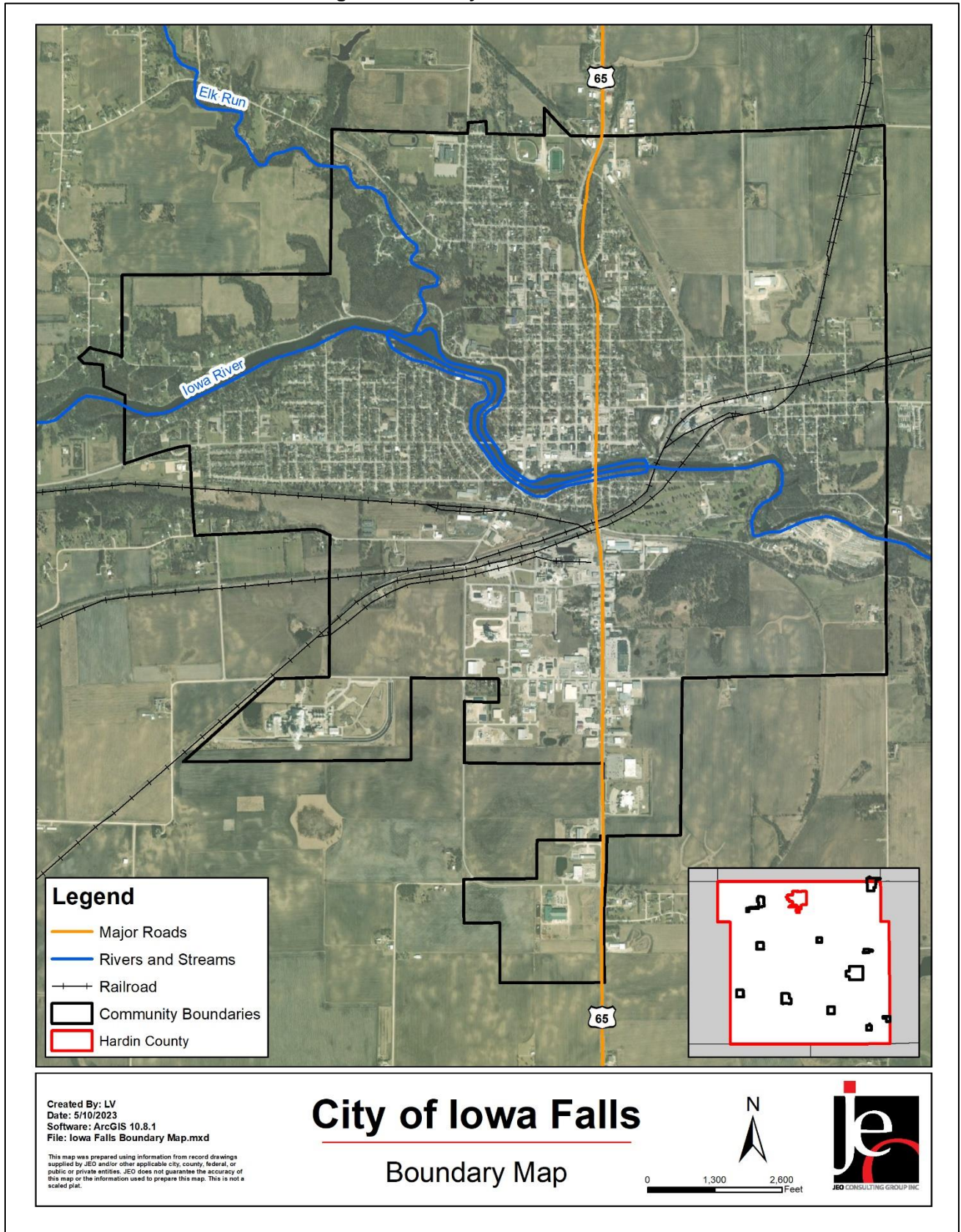
Figure IAF.1: Population 1880 - 2021



Source: U.S. Census Bureau

89 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” [database file]. <https://data.census.gov>.

Figure IAF.2: City of Iowa Falls

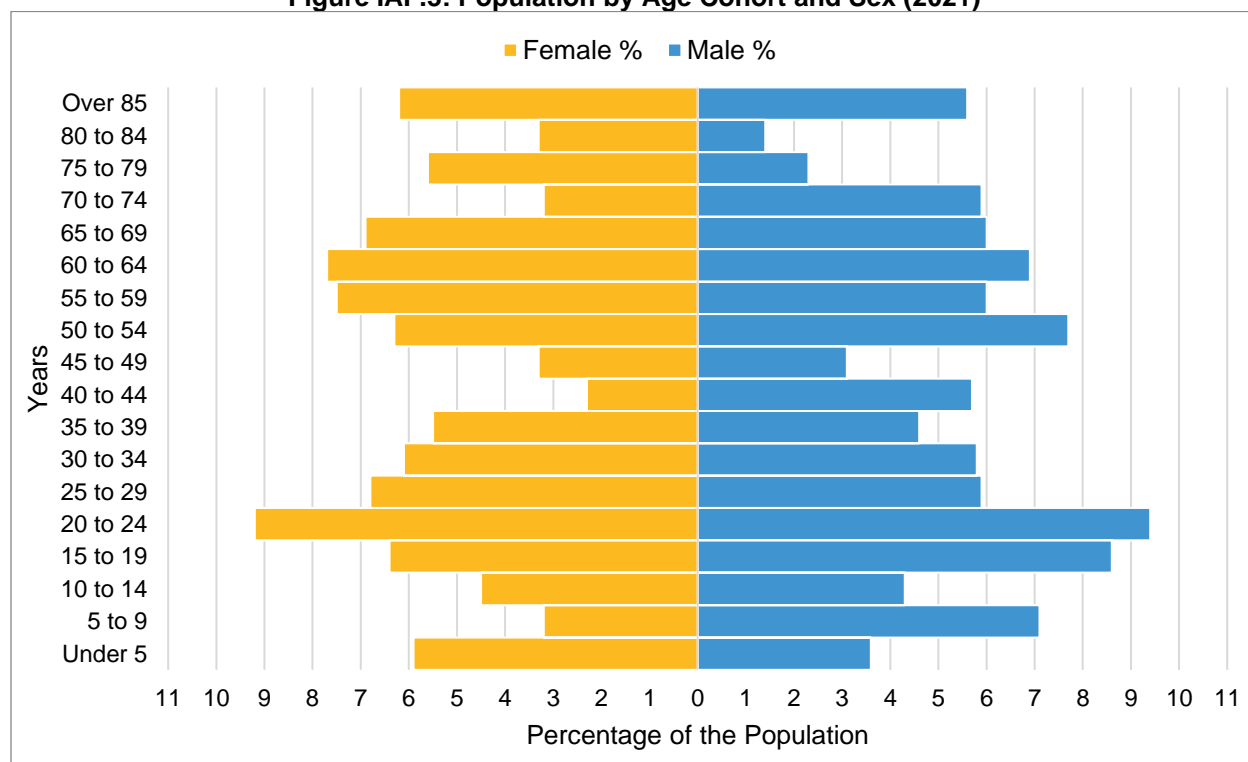


Section Seven: City of Iowa Falls Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Iowa Falls' population:

- **4.7% is non-white.** Since 2010, Iowa Falls became less racially diverse. In 2010, 6% of the Iowa Falls' population was non-white. By 2021, 4.7% was non-white.^{90 91}
- **Median age of 41.6.** The median age of Iowa Falls was 41.6 years old in 2021. The population became slightly older since 2010, when the median age was 41.1.⁹²

Figure IAF.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau⁹³

The figure above shows Iowa Falls' population percentage broken down by sex and five-year age groups. Iowa Falls' population is similarly spread throughout most age groups. This indicates that the population is likely to remain stable in the future.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Iowa Falls' population has:

90 United States Census Bureau. "2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates." <https://data.census.gov/>.

91 United States Census Bureau. "2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates." <https://data.census.gov/>.

92 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

93 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

- **9.3% of people living below the poverty line.** The poverty rate (9.3%) in the City of Iowa Falls was lower than the state’s poverty rate (11%) in 2021.⁹⁴
- **\$45,896 median household income.** Iowa Falls’ median household income in 2021 (\$45,896) was \$19,533 lower than the state (\$65,429).
- **3.8% unemployment rate.** In 2021 Iowa Falls had a lower unemployment rate (3.8%) when compared to the state (3.9%).
- **10% of workers commuted 30 minutes or more to work.** Fewer workers in Iowa Falls commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (10% compared to 67.1%).⁹⁵

Major Employers

The local planning team indicated that major employers in the area include Cargill, Iowa Select Farms, Scenic Living Communities, Iowa Falls-Alden Schools, Hansen Family Hospital, POET, Wal-Mart, and Seaboard Foods. A large percentage of residents commute to other cities for work such as Ames, Fort Dodge, Webster City, Hampton, Cedar Falls, and Mason City.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. The planning team indicated that there are mobile homes at South Park Estates on Highway 65 and a single-family unit on Sherman Street. Iowa Falls’ housing stock has:

- **75.5% of housing built prior to 1970.** Iowa Falls has a larger share of housing built prior to 1970 than the state (75.5% compared to 49.9%).⁹⁶
- **12.1% of housing units vacant.** Iowa Falls has a higher vacancy rate (12.1%) compared to the rest of the state (9.3%).
- **0% mobile and manufactured housing.** The City of Iowa Falls has a smaller share of mobile and manufactured housing (0%) compared to the state (3.5%).
- **32.5% renter-occupied.** The rental rate of Iowa Falls was 32.5% in 2021. This is higher than the state’s rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings,

94 United States Census Bureau. “2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics.” <https://data.census.gov/>.

95 United States Census Bureau. “2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics.” <https://data.census.gov/>.

96 United States Census Bureau. “2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics.” <https://data.census.gov/>.

Section Seven: City of Iowa Falls Community Profile

evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

- **72% of households have a broadband internet subscription.** Iowa Falls has a smaller share of households with broadband (72%) compared to the state (84.9%).⁹⁷

Governance

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Iowa Falls has a mayor, a five-member city council and the following offices.

- City Manager
- Clerk/Treasurer
- Attorney
- Assistant City Manager
- Chief of Police
- Fire Chief
- Water/Sewer Superintendent
- Solid Waste Superintendent
- Street Superintendent
- Airport Authority Chairperson
- City Inspector
- Economic Development Director
- Library Board Chairperson
- Parks Superintendent
- EMS Director

Capability Assessment

The planning team assessed the City of Iowa Falls' hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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. According to the planning team, a large portion of city funds are currently dedicated to projects, including a sewer lining project, a flood mitigation project, and a GIS mapping project.

Table IAF.2: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Economic Development Plan	Yes
	Emergency Operations Plan	Yes

97 United States Census Bureau. "2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States." <https://data.census.gov/>.

Section Seven: City of Iowa Falls Community Profile

Survey Components/Subcomponents		Yes/No
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	Yes
	Source Water Protection Plan	No
	Water System Emergency Response Plan	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative & Technical Capability	Planning Commission	Yes
	Floodplain Administration	Yes
	GIS Capabilities	No
	Chief Building Official	City Inspector
	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	Yes
	Awarded a grant in the past	Yes
	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	Yes
	Other (if any)	
Education & Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No

Survey Components/Subcomponents		Yes/No
	Tree City USA	No
	Other (if any)	

Table IAF.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Moderate
Staff/expertise to implement projects	Moderate
Community support to implement projects	Moderate
Time to devote to hazard mitigation	Moderate
Ability to expand and improve identified capabilities to achieve mitigation	Moderate

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Iowa Falls, is Relatively Low (60.93). The average for the State of Iowa is 43.31.⁹⁸

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Iowa Falls compared to the county.

Table IAF.4: Rural Capacity Index

Components of Index	City of Iowa Falls	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	Yes	Yes
Has a College or University?	Yes	Yes
Adults with Higher Education:	22%	21%

⁹⁸ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Components of Index	City of Iowa Falls	Hardin County
Families Below Poverty Level:	7%	6%
Households with Broadband:	68%	73%
People without Health Insurance:	4%	4%
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	-71	-1,966
Overall Rural Capacity Index Score	76	77

Source: Headwaters Economics⁹⁹

National Flood Insurance Program (NFIP)

Iowa Falls is a member of the NFIP, having joined on 8/1/1987. The city's City Manager oversees the commitments and requirements of the NFIP, including enforcement of the local floodplain management regulations. The initial FIRM for the city was delineated on 8/1/1987 and the current effective map date is 6/19/2012, which has been adopted and incorporated into the local floodplain management regulations. As of September 30, 2022, the city has four NFIP policies in-force totaling \$846,300. Iowa Falls does not currently have any repetitive loss or severe repetitive loss structures. The city requires permits for development in the floodplain and addresses floodplain management violation through municipal infractions. The local planning team has said that Iowa Falls will continue to pursue good standing and involvement with the NFIP in the future.

After a flood event, the community implements substantial improvement and substantial damage provisions as outlined in FEMA's Substantial Improvement/Substantial Damage Desk Reference, which can be found here:

https://www.fema.gov/sites/default/files/documents/fema_nfip_substantial-improvement-substantial-damage-desk-reference.pdf.

Depending on the extent of flood impacts and number of substantial damage determinations needed, state resources may be sought, or a contractor could be hired to assist.

Plan Integration

Iowa Falls has multiple 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of Iowa Falls' funds are sufficient enough to allow for some new capital projects. A large portion of municipal funds have been dedicated to building new wells and expanding water, sewer, and streets for new homes. The amount of municipal funds has remained steady or slightly

99 Headwaters Economics. January 2022. "Rural Capacity Map". Accessed April 2023.
<https://headwaterseconomics.org/equity/rural-capacity-map/>.

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decreased in recent years. The municipal budget currently includes several hazard mitigation planning projects. These include a backup city government operation facility (EMS building), the installation of emergency pumps to the sewer system, and a public education program. The city applied for and was awarded flood mitigation funding for wells and wastewater plant as well as state and federal bridge grants in the last five years.

Building Codes (2015)

The building code sets standards for constructed buildings and structures. The city has adopted the 2015 International Building Codes. These codes regulate and govern the conditions and maintenance of all property, buildings, and structures by providing the standards for supplied utilities, facilities, and other physical things and conditions essential to ensure that structures are safe, sanitary, and fit for occupation and use.

Capital Improvement Plan (2022)

The capital improvement plan outlines large purchases and projects that the city would like to pursue. Projects identified in the plan include storm water projects, upsizing of culverts and drainage structures, regular maintenance for drainage structures, upgrading storm sewer systems, regular maintenance for the storm sewer system, improving transportation routes for drainage, and widening roadways that would improve evacuations if they were required. The city also plans to make bridge improvements install new municipal wells, upsize water distribution pipes, install water meters for residential structures, bury powerlines, and install emergency generators in critical facilities. Other projects include improvements to the fire hall, police headquarters, public works facility, community center, water treatment facility, and other community owned structures. Equipment updates and improvements to park facilities and other city-owned structures are also included. The capital improvement plan is updated annually.

Comprehensive Plan (2012)

The comprehensive plan is designed to guide the future actions and growth of the city. The plan contains goals and objectives aimed at Safe Growth, limits density in areas adjacent to known hazardous areas, encourages infill development, and encourages preservation of open space in hazard-prone areas. The plan also integrates hazard mitigation by describing the flood hazard and identifying the critical facilities, vulnerable populations, and mitigation actions from the HMP. In future updates, the local planning team would like to encourage “clustering of development” in sensitive areas and identify areas that need emergency shelters. Currently there is no plan or timeline for the next update of the city’s comprehensive plan.

Floodplain Regulations (2012), Zoning Ordinance (2019), and Subdivision Regulations (2019)

The city’s floodplain regulations, zoning ordinance, and subdivision regulations outline where and how development should occur in the future. These documents contain floodplain maps, prohibit some development within the floodplain, discourage development in the floodplain, limit population density in the floodplain, require more than one foot above base flood elevation in the floodplain, prohibit filling of wetlands, discourage development near chemical storage sites, includes well setback requirements, includes the ability to implement water restrictions, and restrict subdivision of land within or adjacent to the floodplain. There is no timeline to update any of these documents.

Water System Emergency Response Plan (2022)

Water system emergency response plans ensure the drinking water systems that serve the City of Iowa Falls are prepared to supply customers with drinking water in the event of an emergency.

It includes identifying potential emergencies and how the utility will ensure water delivery in specific scenarios.

Wellhead Protection Plan (2022)

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

Future Development Trends

In the last five years, there were new housing developments, new businesses, new roads built, and multiple dilapidated residences demolished. No structures were developed in the floodplain or other hazardous area. Development in the floodplain is managed by the city manager. New developments are currently planned on River Road and Washington/Wyerauch.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table IAF.5: Community Lifelines

CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	Fire Station	Safety and Security	G, S	N
2	EMS Station	Health and Medical	S	N
3	City Hall	Safety and Security	G, S	N
4	Pineview Elementary	Other	S	N
5	Rock Run Elementary	Other	S	N
6	Riverbend Middle School	Other	S	N
7	Iowa Falls-Alden High School	Other	S	N
8	Animal Health International	Hazardous Material	-	N
9	Cargill Inc	Hazardous Material	-	N
10	CenturyLink - Iowa Falls CO	Hazardous Material	-	N
11	Concrete Inc--Iowa Falls	Hazardous Material	-	N
12	Forterra Concrete Products Inc - Iowa Falls	Hazardous Material	-	Y
13	Iowa DOT Iowa Falls Maintenance Garage	Hazardous Material	-	N
14*	Iowa Falls – Midwest Custom Ag Aviation	Hazardous Material	-	N

Section Seven: City of Iowa Falls Community Profile

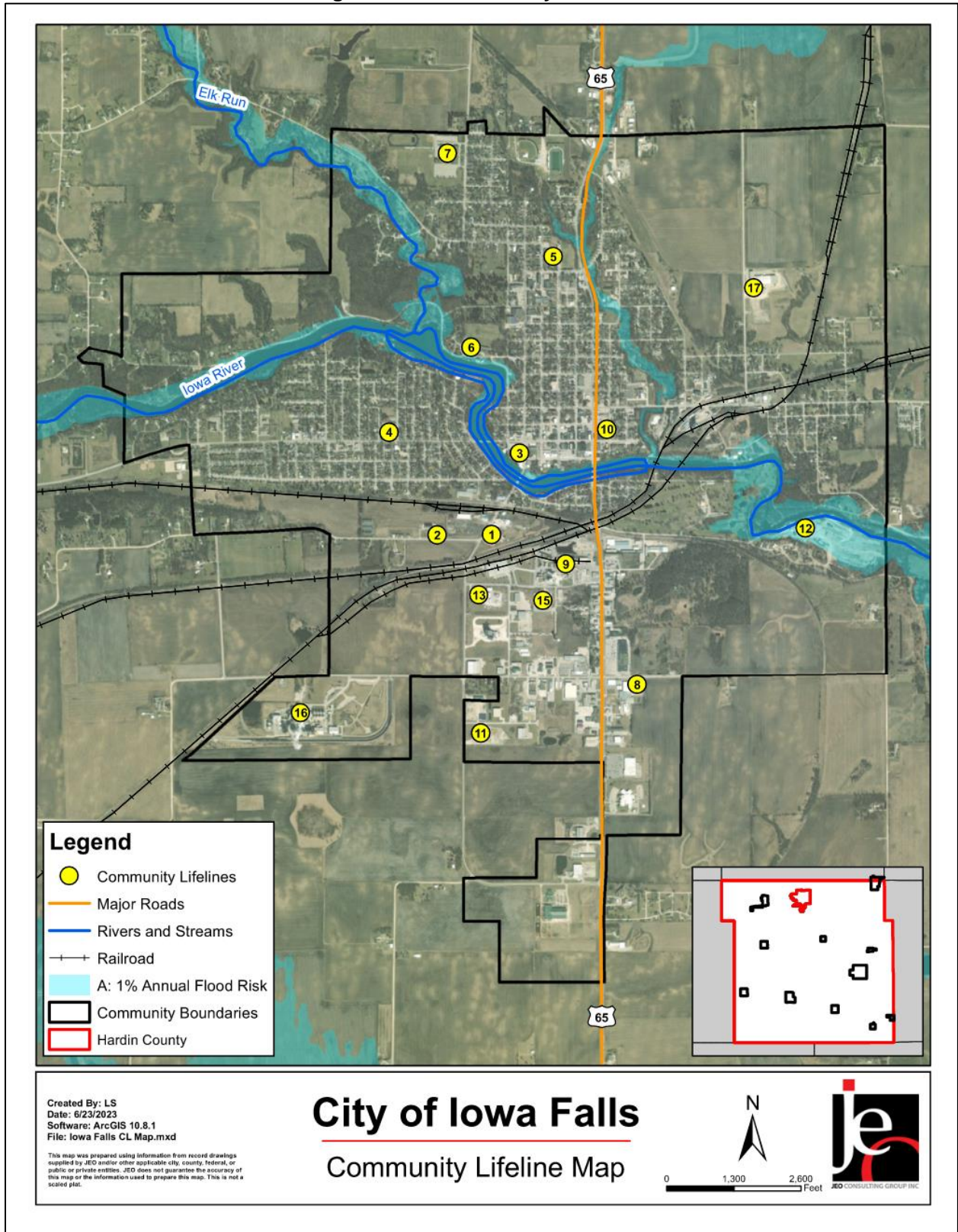
15	ITC Midwest Iowa Falls Industrial	Hazardous Material	-	N
16	POET Biorefining - Iowa Falls, LLC	Hazardous Material	-	N
17	Winfield United - Iowa Falls	Hazardous Material	-	N

Source: Local Planning Team, E-Plan¹⁰⁰

*Community Lifeline located outside of map viewing area.

100 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022.
<https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure IAF.5: Community Lifelines



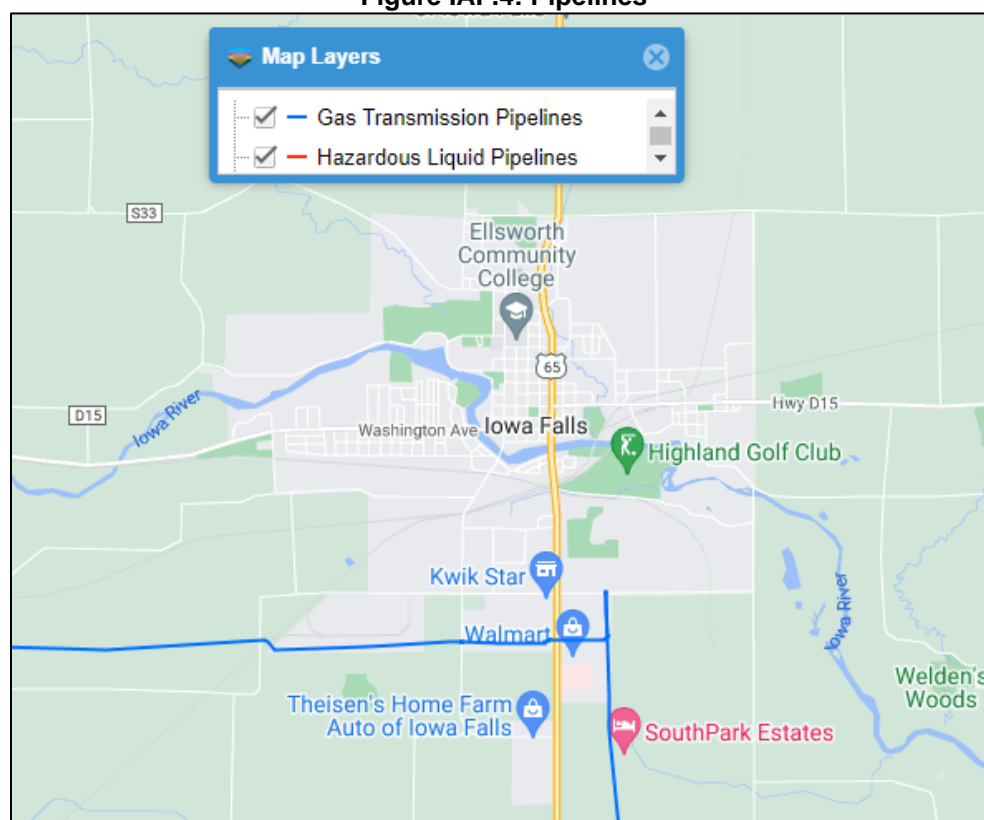
Transportation

Iowa Falls' major transportation corridors include U.S. Highway 65 and County Roads D20 and D15. The most traveled route is Highway 65 with an average of 7,800 vehicles daily, 624 of which are trucks.¹⁰¹ Iowa Falls has a Union Pacific rail line and Canadian National rail line that travel through the community.¹⁰² The Iowa Falls Municipal Airport is located just south of the city.¹⁰³ Other routes of concern to the local planning team include Rocksylvania Avenue and Washington Avenue. 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There are two gas transmission pipelines that travel within or near the community and can be seen in Figure IAF.4.

Figure IAF.4: Pipelines



Source: National Pipeline Mapping System¹⁰⁴

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are ten chemical storage sites within or near Iowa Falls that contain hazardous materials

101 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0c9e99afb78e4d3b9b24f8263717f910>.

102 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

103 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023.

<https://iowadot.gov/aviation/airport-information>.

104 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

(listed in Table IAF.5). The planning team noted that chemicals such as biofuel, ethanol, and glycerin are regularly transported along local routes. A chemical spill has occurred locally at the ethanol plant. There was no impact according to the planning team. The spill was controlled and contained, and the dirt was hauled away.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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 Table IAF.6.

Table IAF.6: Iowa Falls Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
2,792	2,248	\$311,245,080	161	\$33,724,740

Source: County Assessor, 2023

Table IAF.7: Iowa Falls Flood Map Products

Type of Product	Product ID	Effective Date	Details
LOMA	12-07-2105A-190140	08/02/2012	Structure (residence) outside of SFHA
LOMA	12-07-2231A-190140	06/21/2012	Structure outside of SFHA
LOMA	12-07-2265A-190140	06/21/2012	Structure outside of SFHA
LOMA	12-07-2419A-190140	06/26/2012	Structure outside of SFHA
LOMA	12-07-2448A-190140	08/16/2012	Structure outside of SFHA
LOMA	12-07-2947A-190140	08/09/2012	Structure outside of SFHA
LOMA	14-07-1610A-190140	06/10/2014	Structure removed from SFHA
LOMA	14-07-2598A-190140	10/14/2014	Structure outside of SFHA
LOMA	15-07-0451A-190140	01/15/2015	Structure removed from SFHA
LOMA	21-07-0500A-190140	02/24/2021	Structure removed from SFHA
LOMA	21-07-0814A-190140	05/13/2021	Structure (residence) removed from SFHA
LOMA	22-07-0989A-190140	08/18/2022	Structure removed from SFHA

Source: FEMA Flood Map Service Center¹⁰⁵

105 Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed May 2023. <https://msc.fema.gov/portal/home>.

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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 Iowa Falls Milldam is located near the city's wastewater treatment plant. The dam is owned by Renewable World Energies and its primary purpose is hydroelectric. According to the USACE, the dam is 26 feet high and is rated as having "Low" hazard potential.¹⁰⁶ Additionally, the dam has a "Satisfactory" condition assessment. No failure events have occurred in the past, according to Iowa DNR.¹⁰⁷ The city is currently working on a dam monitoring plan with the dam owner.

Hazardous Materials Release

According to the Pipeline and Hazardous Materials Safety Administration, Iowa Falls experienced zero transportation-related hazardous materials releases between 1971 and 2022. The National Response Center reported 24 fixed hazardous materials releases from 1990-2022. The two largest spills occurred in 1990 and 2017. The 1990 event resulted in 3,500 gallons of oil spilled and 4,000 gallons of gasoline spilled. The 2017 event resulted in 1,600 gallons of diesel oil. Both spills reached water. Another event in 2017 required the evacuation of six employees when a fire with acrolein broke out. Of all the spill events that occurred, no injuries or fatalities were reported.

The local planning team is concerned about the several large-scale businesses in the community that handle hazardous chemicals. The size of these businesses and the river running through the community pose potential vulnerabilities. The city has held trainings on hazards and safety protocols for local emergency responders.

Severe Thunderstorms (includes Hail & Lightning)

Severe thunderstorms are a regular part of the climate and weather in the Midwest. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 86 instances of severe thunderstorms that occurred in Iowa Falls from 1996 to 2022. These storm events resulted in \$1,116,000 in property damage, with no injuries or deaths. Some impacts from severe thunderstorms include localized street flooding and damage from wind and hail. The city has held trainings on hazards and safety protocols for local emergency responders.

Tornado and Windstorms

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and four tornadoes in Iowa Falls. The largest was an EF1, which occurred on December 15, 2021, and

¹⁰⁶ United States Army Corps of Engineers. May 2023. "National Inventory of Dams." <https://nid.sec.usace.army.mil/#/>.

¹⁰⁷ Iowa Department of Natural Resources. May 12, 2023. *Personal Correspondence*.

caused \$25,000 in property damage. No injuries or deaths were reported. Impacts from the recent derechos were minimal, according to the planning team.

Mitigation Strategy

Completed Mitigation and Strategic Actions

Mitigation Action	Repair or Replace River Street and River Road Bridges
Description	These two bridges have been identified as needing repair or replacement
Hazard(s)	Flooding, Infrastructure Failure
Status	Completed

New Mitigation and Strategic Actions

Mitigation Action	Dam Monitoring
Description	Develop a dam monitoring plan with private dam owner to ensure the dam is being monitored and inspected on a regular basis.
Hazard(s)	Dam Failure
Estimated Cost	Staff Time
Local Funding Source	City General Budget
Timeline	1 year
Priority	Medium
Lead Agency/Department	Mayor, Iowa Hydro LLC
Status	Not started

Mitigation Action	HazMat Training/Supplies
Description	Provide the fire department with HazMat training and additional supplies to mitigate hazardous materials releases.
Hazard(s)	Hazardous Materials Release
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	1 year
Priority	Medium
Lead Agency/Department	City Council
Status	Not started

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Mitigation Action	Radios
Description	Purchase backup radios and weather radios for City Hall.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$1,500
Local Funding Source	City General Budget
Timeline	1 year
Priority	Medium
Lead Agency/Department	City Council
Status	Not started

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Fund
Timeline	5+ years
Priority	Low
Lead Agency/Department	City Council
Status	In progress

Continued Mitigation and Strategic Actions

Mitigation Action	Add Backup City Government Operation Facility
Description	Add backup city government operation facility. This would be added to the next city building
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$200,000
Local Funding Source	Bonds, Grants, City General Budget
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council
Status	Planning stage

Mitigation Action	Investigate New Technology to Keep Citizens Better Informed
Description	Investigate cutting edge communications for city and its residents
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	Staff Time
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council
Status	In progress

Section Seven: City of Iowa Falls Community Profile

Mitigation Action	Training for Emergency Responders
Description	Hold session to train emergency personnel to identify hazards and proper response
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	Staff Time
Local Funding Source	Hardin County
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Hardin County Emergency Management
Status	Planning stage

Mitigation Action	Install Emergency Pumps to Sewer System
Description	Install Emergency Pumps to redirect overflow
Hazard(s)	Infrastructure Failure
Estimated Cost	\$10,000
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council, Hardin County Sanitarian
Status	Planning stage

Mitigation Action	Create Storm Detention Basins
Description	Create storm water detention basins to mitigate flooding of city infrastructure during and immediately following a hazard event
Hazard(s)	Flooding, Infrastructure Failure
Estimated Cost	\$2 million
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Planning to include in the new wastewater treatment plant project.

Mitigation Action	Sewer Improvements
Description	Improve existing storm & sanitary sewer/ Collection system improvements. Increase capacity. The City Council ordered a facility study for new wastewater treatment plant in 2017,
Hazard(s)	Flooding, Infrastructure Failure, Human Infectious Disease
Estimated Cost	\$38 million
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council
Status	Planning stage

Mitigation Action	Public Education Program
Description	Create a program to educate Iowa Falls residents about the dangers of hazards and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$2,500
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council
Status	In progress

Mitigation Action	Expand Warning System Programs
Description	Expand warning system programs. Purchase an additional warning siren with backup power capability.
Hazard(s)	Tornado and Windstorm
Estimated Cost	\$25,000+
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council, Hardin County Emergency Management
Status	In progress

Mitigation Action	Improve and Update Emergency Operations Center
Description	Improve and update emergency operations center
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$25,000+
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council, Hardin County Emergency Management
Status	In progress

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 (e.g., 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 planning team will include the City Manager and City Clerk. The plan will be reviewed and updated annually. The public will be involved in the review and revision process through the city website and the newspaper.

Community Profile

City of New Providence

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table NPR.1: New Providence Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Dennis Reece	Mayor	City of New Providence	-
Rod Hanson	City Council Member	City of New Providence	Round 1 & 2
Lou Schafer	City Council Member	City of New Providence	-

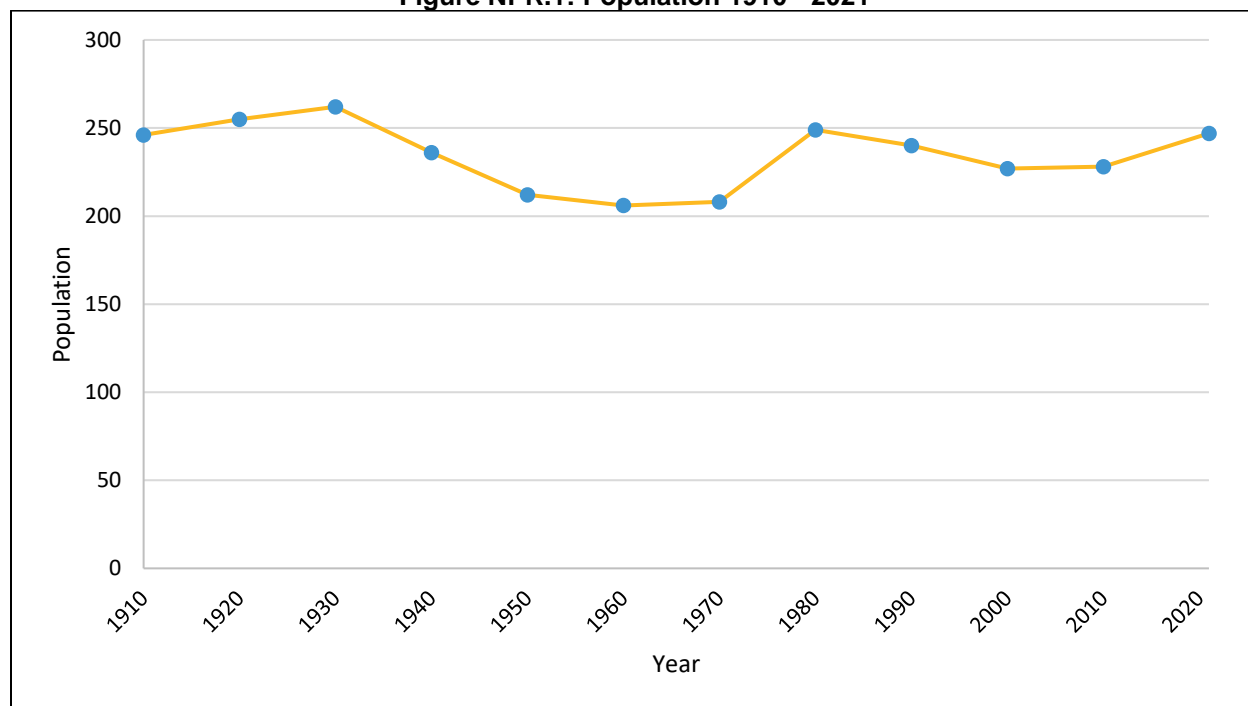
Location and Geography

The City of New Providence is located in southeast Hardin County and covers an area of 1.01 square miles. There are no waterways in or near the city.

Demographics

New Providence’s estimated population in 2021 was 247. The following figure displays the historical population trend from 1910 to 2021. This figure indicates that the population of New Providence saw a sharp increase from 1970-1980 then saw a few decades of decline. However, the population has increased over the last decade. Increasing populations are associated with more robust hazard mitigation and emergency planning requirements for development. Growing populations can also increase tax revenues, allowing communities to pursue additional mitigation projects. New Providence’s population accounted for 1.5% of Hardin County’s population in 2021.¹⁰⁸

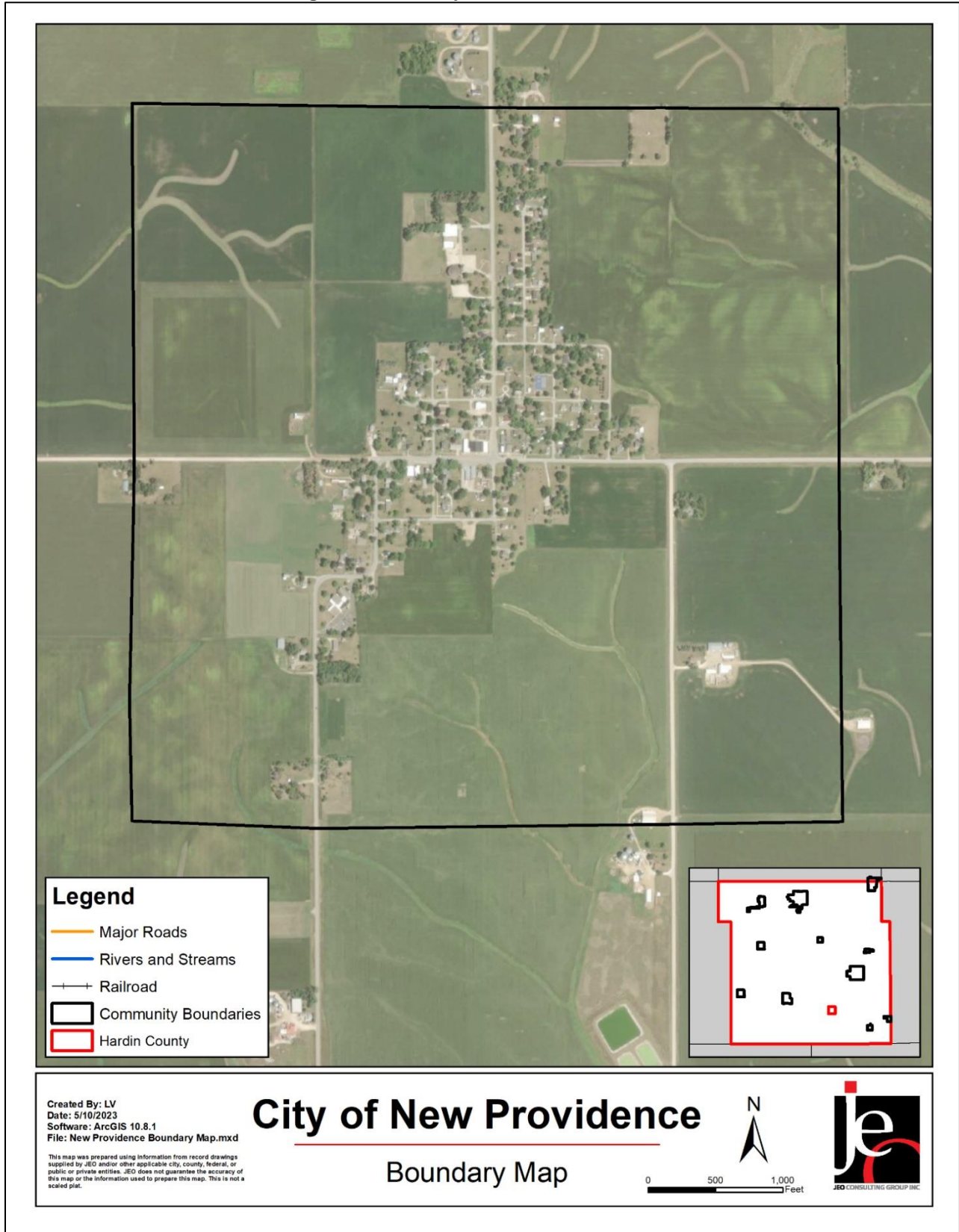
Figure NPR.1: Population 1910 - 2021



Source: U.S. Census Bureau

108 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." [database file]. <https://data.census.gov>.

Figure NPR.2: City of New Providence

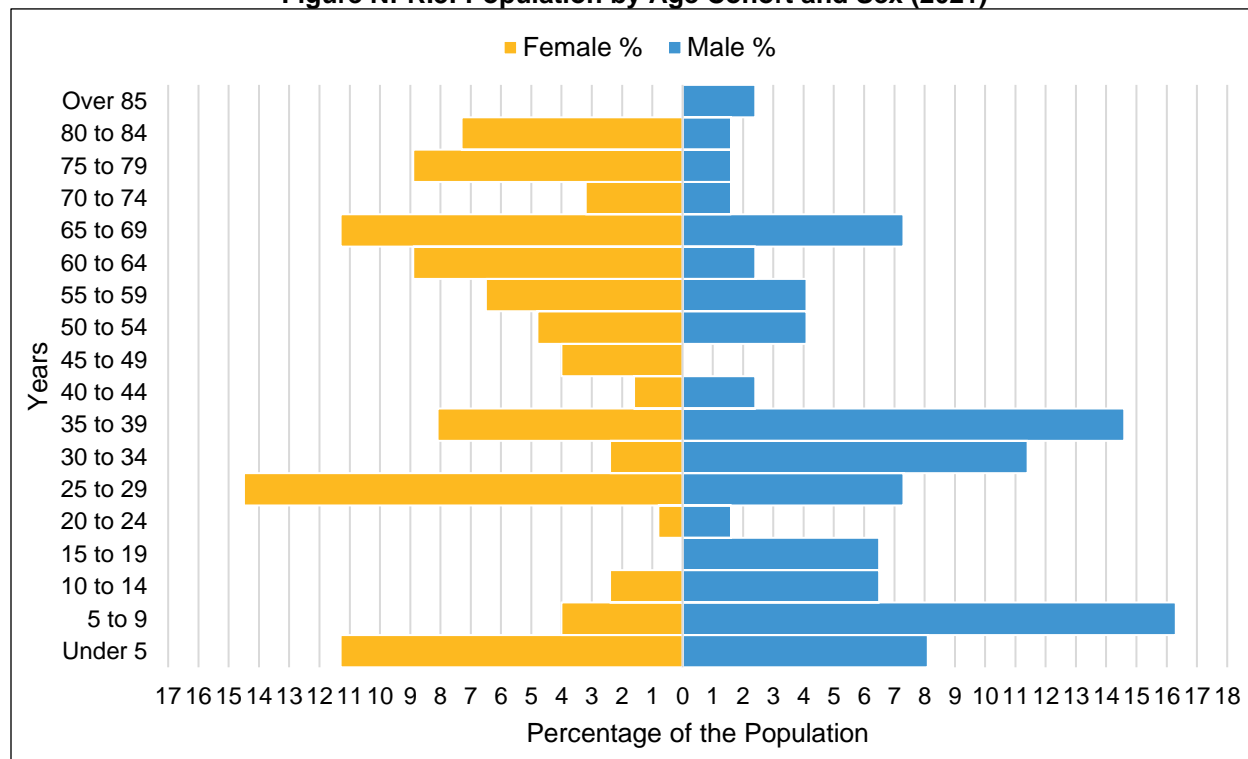


Section Seven: City of New Providence Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at New Providence’s population:

- **4% is non-white.** Since 2010, New Providence has become more racially diverse. In 2010, 3.9% of the New Providence’s population was non-white. By 2021, 4% was non-white.^{109 110}
- **Median age of 36.6.** The median age of New Providence was 36.6 years old in 2021. The population became younger since 2010, when the median age was 39.6.¹¹¹

Figure NPR.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau¹¹²

The figure above shows New Providence’s population percentage broken down by sex and five-year age groups. New Providence’s population is bottom heavy. This suggests a greater number of young families and children who will likely contribute to an increasing population in the future.

109 United States Census Bureau. “2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates.” <https://data.census.gov/>.

110 United States Census Bureau. “2010 Census Redistricting Data (Public Law 94-171): P1: Race.” <https://data.census.gov/>.

111 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

112 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. New Providence's population has:

- **3.2% of people living below the poverty line.** The poverty rate (3.2%) in the City of New Providence was lower than the state's poverty rate (11%) in 2021.¹¹³
- **\$68,125 median household income.** New Providence's median household income in 2021 (\$68,125) was \$2,696 higher than the state (\$65,429).
- **4.5% unemployment rate.** In 2021 New Providence had a higher unemployment rate (4.5%) when compared to the state (3.9%).
- **49.2% of workers commuted 30 minutes or more to work.** More workers in New Providence commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (49.2% compared to 20.8%).¹¹⁴

Major Employers

The local planning team indicated that major employers in the area include Honey Creek Construction, New Providence Hardware, and Rustic Rose. A large percentage of residents commute to other cities for work, such as Eldora, Marshalltown, and Ames.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. New Providence's housing stock has:

- **76.7% of housing built prior to 1970.** New Providence has a larger share of housing built prior to 1970 than the state (76.7% compared to 49.9%).¹¹⁵
- **6.8% of housing units vacant.** New Providence has a lower vacancy rate (6.8%) compared to the rest of the state (9.3%).
- **1% mobile and manufactured housing.** The City of New Providence has a smaller share of mobile and manufactured housing (1%) compared to the state (3.5%).
- **18.8% renter-occupied.** The rental rate of New Providence was 18.8% in 2021. This is lower than the state's rate of 28.4%.

113 United States Census Bureau. "2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics." <https://data.census.gov/>.

114 United States Census Bureau. "2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics." <https://data.census.gov/>.

115 United States Census Bureau. "2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics." <https://data.census.gov/>.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

- **88.5% of households have a broadband internet subscription.** New Providence has a greater share of households with broadband (88.5%) compared to the state (84.9%).¹¹⁶

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. New Providence has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief
- Wastewater Plant Superintendent
- Water/Sewer Superintendent
- Solid Waste Superintendent
- Street Superintendent
- Parks Superintendent

Capability Assessment

The planning team assessed the City of New Providence’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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. The planning team indicated that municipal funds are limited to maintaining current facilities. The city does not participate in the NFIP due to the unlikely exposure to flooding.

Table NPR.2: Capability Assessment

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

¹¹⁶ United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

Section Seven: City of New Providence Community Profile

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

Table NPR.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Limited

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes New Providence, is Relatively Low (60.93). The average for the State of Iowa is 43.31.¹¹⁷

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of New Providence compared to the county.

Table NPR.4: Rural Capacity Index

Components of Index	City of New Providence	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	25%	21%
Families Below Poverty Level:	6%	6%
Households with Broadband:	68%	73%
People without Health Insurance:	3%	4%

¹¹⁷ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Components of Index	City of New Providence	Hardin County
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	40	-1,966
Overall Rural Capacity Index Score	47	77

Source: Headwaters Economics¹¹⁸

Plan Integration

New Providence has limited 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of New Providence’s municipal funds are currently limited to maintaining current facilities and municipal systems. The tax revenue in New Providence has increased due to increased assessments. The city has not applied for any grants in the past five years.

Zoning Ordinance (2020)

The city’s zoning ordinance outlines where and how development should occur in the future. New Providence’s zoning ordinance does not limit development in the floodplain or discourage it. The zoning ordinance does not contain floodplain maps. In general, the zoning ordinance does not prohibit or discourage development in risky areas. The local planning team indicated that the zoning ordinance will not be updated.

Capital Improvement Plan

The purpose of the capital improvement plan is for the city to strategize how to budget for nonrecurring physical or digital purchases. A capital improvement plan typically spans multiple years and includes financing plans. New Providence’s plan includes constructing the fire hall. There is currently no plan to update the capital improvement plan.

Future Development Trends

The planning team indicated that there were new businesses and houses built over the last five years and that multiple buildings were demolished. No new structures were developed in hazardous areas. There are currently no plans for new housing or commercial development in the next five years.

118 Headwaters Economics. January 2022. “Rural Capacity Map”. Accessed May 2023.
<https://headwaterseconomics.org/equity/rural-capacity-map/>.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table NPR.5: Community Lifelines

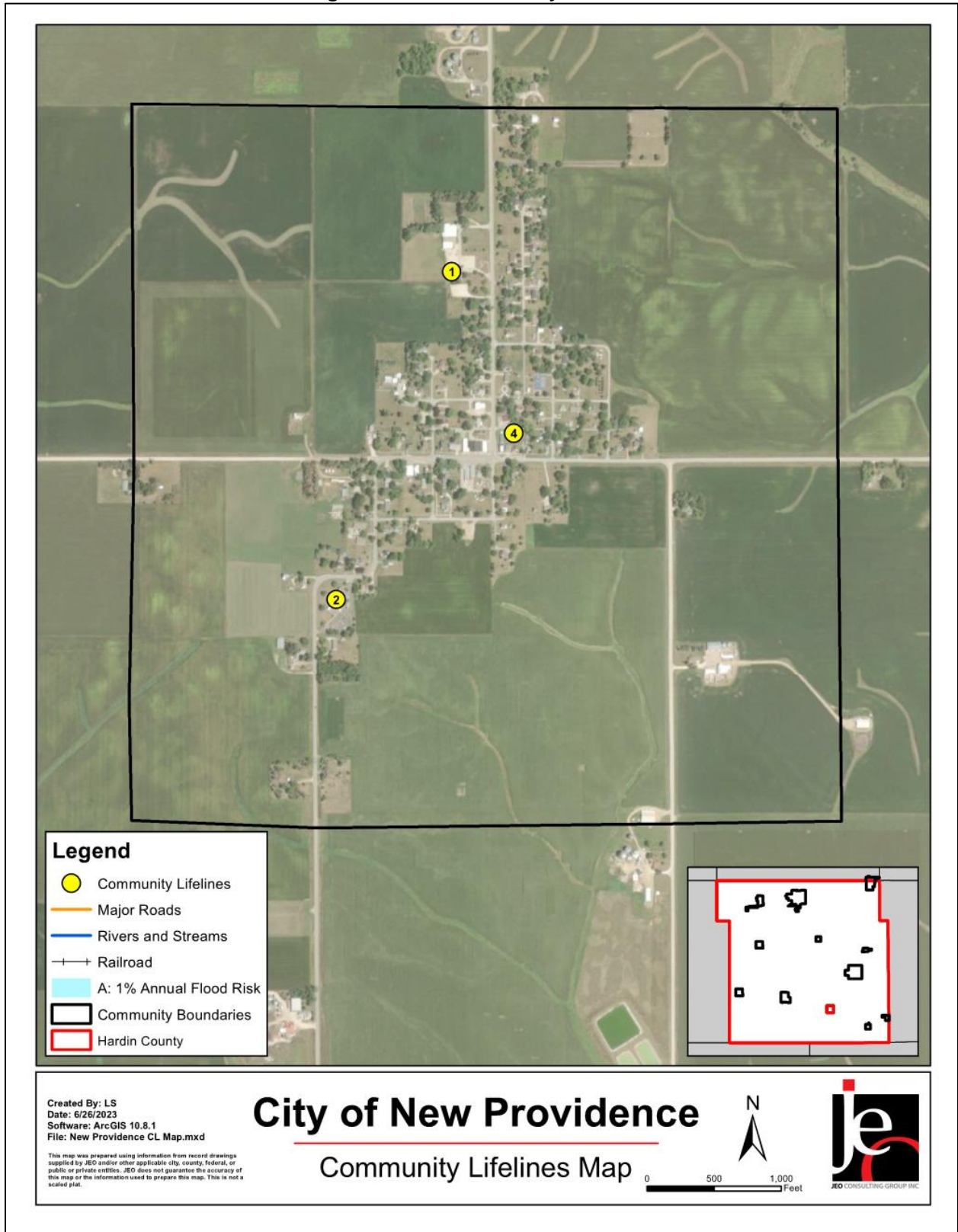
CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	New Providence Roundhouse	Food, Water, and Shelter	S	N
2	Honey Creek - New Providence Friends Church	Food, Water, and Shelter	S	N
3*	Innovative Ag Services - Lawn Hill	Hazardous Material	-	N
4	New Providence CO – Heart of Iowa Communications Cooperative	Hazardous Material	-	N

Source: Local Planning Team, E-Plan ¹¹⁹

*Community Lifeline located outside of map viewing area.

119 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure NPR.5: Community Lifelines

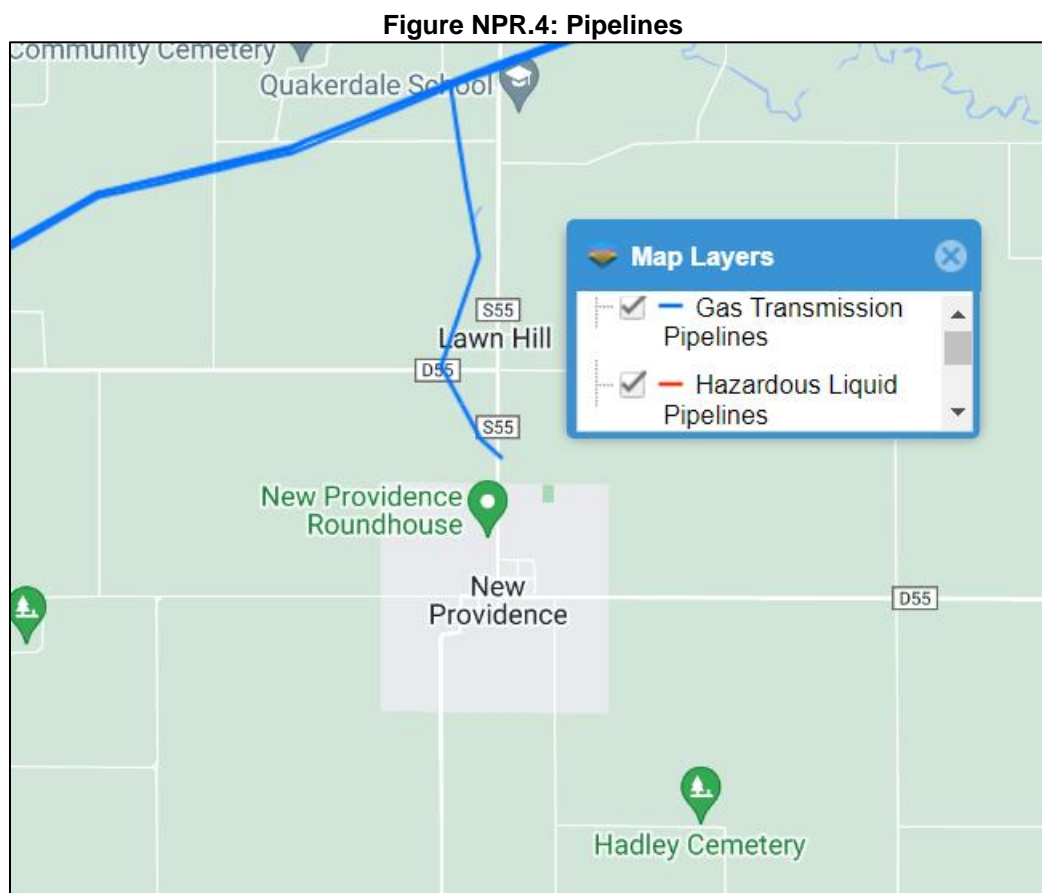


Transportation

New Providence's major transportation corridors include County Roads D55, S55, and S57. The most traveled route is S55 with an average of 700 vehicles daily.¹²⁰ No rail lines travel in or near the community.¹²¹ The Eldora Airport is located four miles northeast of New Providence.¹²² 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There are multiple gas transmission pipelines that travel near the community. These can be seen in Figure NPR.4.



Source: National Pipeline Mapping System¹²³

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are two chemical storage sites within or near New Providence that contain hazardous

120 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f826371f910>.

121 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

122 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023.

<https://iowadot.gov/aviation/airport-information>.

123 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

materials (listed in Table NPR.5). The planning team indicated that they are not aware of what or how many chemicals are transported along local routes. The team also noted that no significant chemical spills have occurred locally.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of New Providence.¹²⁴

Table NPR.6: New Providence Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
166	117	\$7,090,930	0	N/A

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Severe Thunderstorms (includes Hail & Lightning)

Severe thunderstorms are a regular part of the climate and weather in the Midwest. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 18 instances of severe thunderstorms that occurred in New Providence from 1996 to 2022. These storm events resulted in \$139,000 in property damage, with no injuries or deaths. The local planning team is concerned about loss of power caused by a storm event.

Severe Winter Storms

Severe winter storms are a regular part of the climate and weather for New Providence. Severe winter storms include blizzards, ice accumulation, heavy snow, and winter storms. These storms can cause power outages during bitterly cold temperatures, road closures, and economic impacts. According to the NCEI, there were 87 winter storm events in Hardin County from 1996 to 2022. The local planning team is concerned about loss of power caused by a winter storm event.

Tornado and Windstorm

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater.

124 Federal Emergency Management Agency. 2023. “FEMA Flood Map Service Center.” Accessed May 2023. <https://msc.fema.gov/portal/home>.

Section Seven: City of New Providence Community Profile

Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and two EF0 tornadoes in New Providence. The tornadoes occurred on April 18, 2002, and May 29, 2019. The 2002 tornado resulted in \$1,000 in property damage. No injuries or deaths were reported from either event. The August 2020 derecho resulted in widespread damage. The planning team is concerned about a power outage resulting from one of these storm events.

Mitigation Strategy

Completed Mitigation and Strategic Actions

Mitigation Action	Veterans Memorial Preservation
Description	Veterans Memorial Preservation (lighting, vandalism, maintenance etc.)
Hazard(s)	Infrastructure Failure
Status	Completed

Mitigation Action	Preserve Historical Round House
Description	Preservation/Maintenance of Historical Round House
Hazard(s)	Infrastructure Failure
Status	Historical round house preserved.

Continued Mitigation and Strategic Actions

Mitigation Action	Portable Generator for Fire Department
Description	Purchase a portable generator for the Fire Department
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$2,000+
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	High
Lead Agency/Department	New Providence Fire Department
Status	This project is currently underway.

Mitigation Action	Acquire Heavy Duty Washer/Dryer
Description	Acquire Heavy Duty Washer/Dryer for Fire Dept. Apparel
Hazard(s)	Grass and Wildland Fire, Hazards Materials Release
Estimated Cost	\$3,000+
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	New Providence Fire Department
Status	This project is currently underway.

Section Seven: City of New Providence Community Profile

Mitigation Action	Larger/New Fire Dept. Building
Description	Build a larger and/or new Fire Dept. Building. This could act as a storm/emergency shelter.
Hazard(s)	Grass and Wildland Fire, Severe Thunderstorms, Severe Winter Storms, Tornado & Windstorm
Estimated Cost	\$2,000,000
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Low
Lead Agency/Department	New Providence Fire Department
Status	The project is currently underway.

Mitigation Action	Water Tower Backup/Maintenance
Description	Water Tower Backup/Maintenance
Hazard(s)	Flooding, Human Infectious Diseases
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	This project is currently in the planning stages.

Mitigation Action	Repair/Upgrade Lagoon System
Description	<p>Repair/Upgrade city lagoon system. Currently have issues due to excessive rain and other unknown causes.</p> <ol style="list-style-type: none"> 1. Dredge/clean out 2. Backup meter 3. Culverts Bigger/updated/new 4. Sewer lines inspected/repair/updated 5. Blueprint upgrade/maintained
Hazard(s)	Infrastructure Failure, Human Infectious Disease
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Repairs/Upgrades are being made incrementally.

Section Seven: City of New Providence Community Profile

Mitigation Action	Education/Training Regarding Terrorism/Bomb Threat/Shootings
Description	Provide education/training regarding terrorism/bomb threat/shootings
Hazard(s)	Terrorism and Civil Unrest
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council, Fire Department, Local Law Enforcement
Status	Educational outreach is conducted on a regular basis.

Mitigation Action	Generator(s) at Water Tower
Description	Acquire generator(s) to run water pump at water tower
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$70,000 per generator
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	This is still in the planning stages.

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	City Council, Fire Department, Local Law Enforcement
Status	In progress

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 (e.g., 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 the city profile as necessary. The planning team will include the mayor and two city council representatives. The plan will be reviewed and updated on an annual basis. The Hardin County EMA will provide assistance with notifying the public. The public will be involved in the review and revision process through the publication of city council meetings and are encouraged to attend meetings.

Community Profile

City of Radcliffe

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table RAD.1: Radcliffe Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Jessica Krause	City Council Member	City of Radcliffe	Round 1 & 2
Ben Krause	EMS	City of Radcliffe	Round 1 & 2

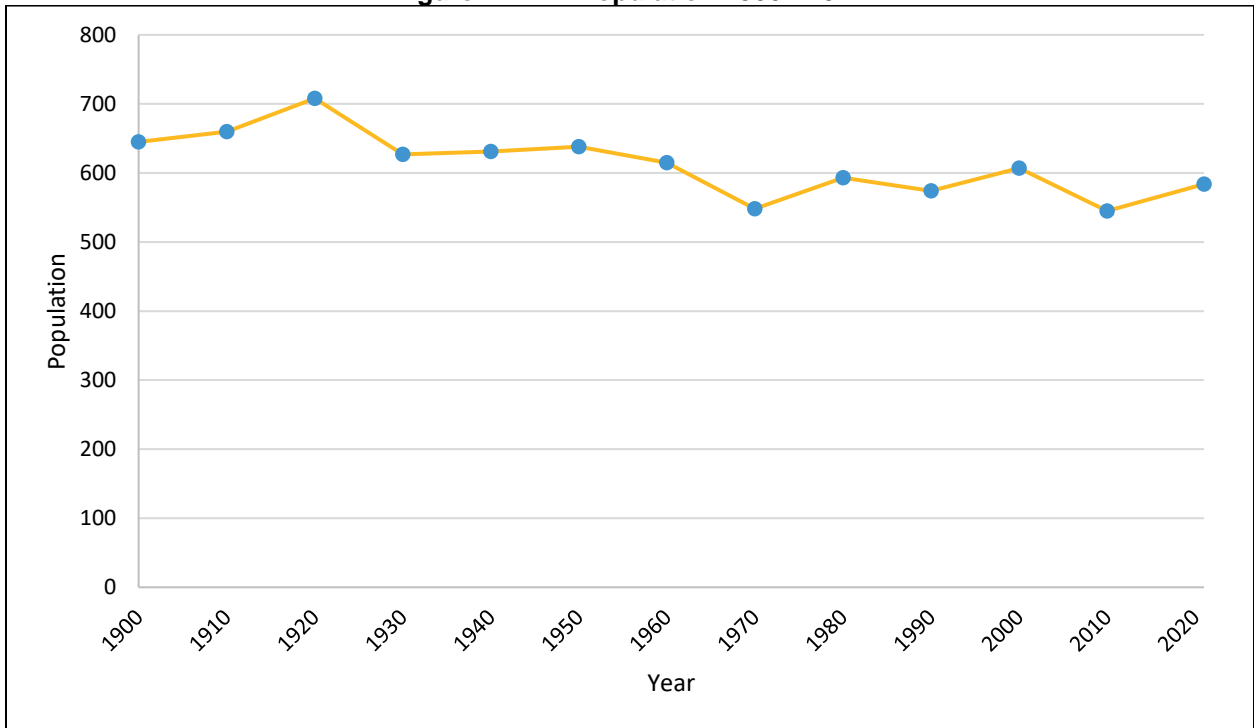
Location and Geography

The City of Radcliffe is located in southwest Hardin County and covers an area of 1.00 square mile. The closest waterway in the area is Honey Creek, which runs north of the city.

Demographics

Radcliffe’s estimated population in 2021 was 584. The following figure displays the historical population trend from 1900 to 2021. This figure indicates that the population of Radcliffe has remained fairly stable over the last 50 years. The city has seen an increase in population over the last decade. Increasing populations are associated with more robust hazard mitigation and emergency planning requirements for development. Growing populations can also increase tax revenues, allowing communities to pursue additional mitigation projects. Radcliffe’s population accounted for 3.4% of Hardin County’s population in 2021.¹²⁵

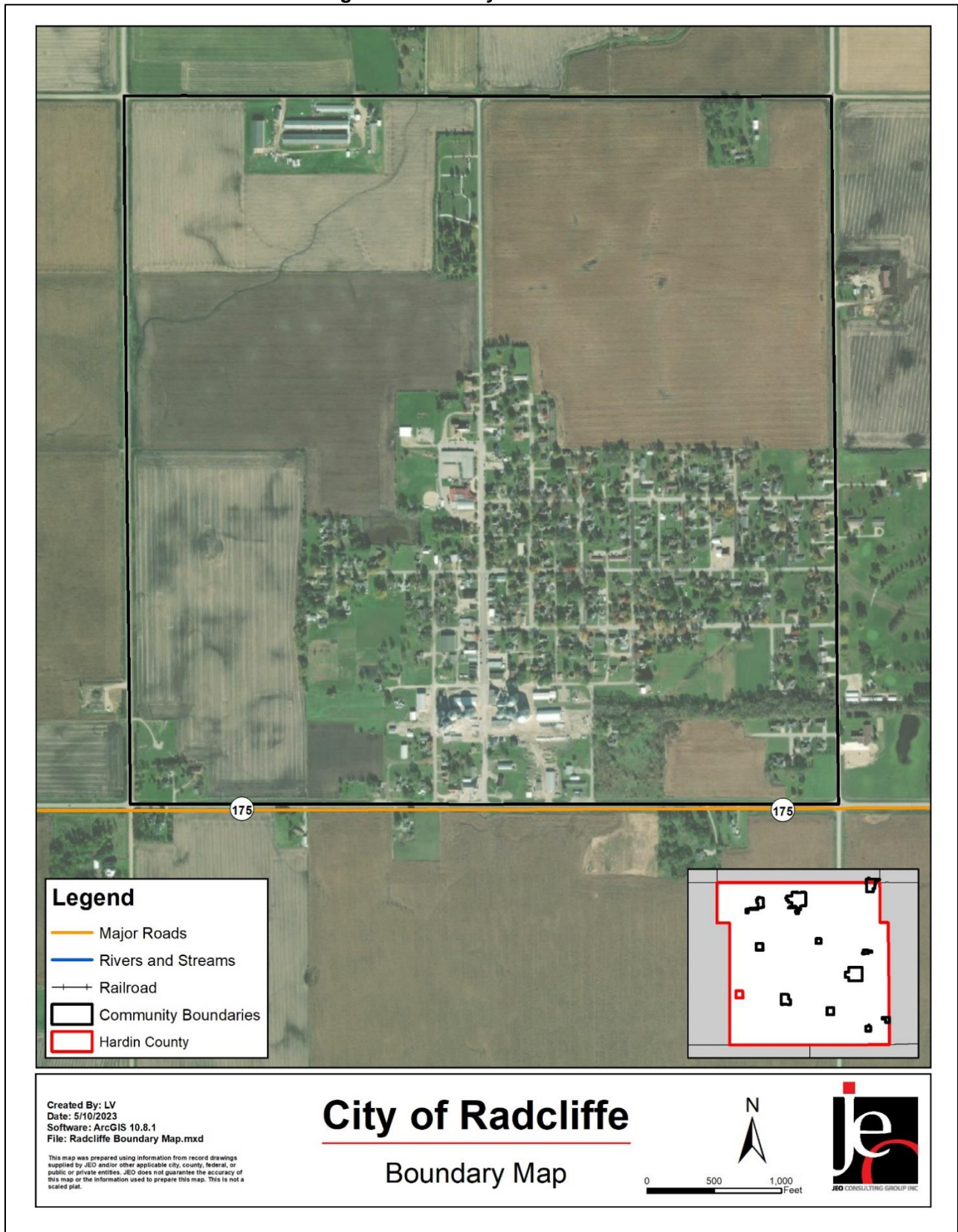
Figure RAD.1: Population 1900 - 2021



Source: U.S. Census Bureau

125 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." [database file]. <https://data.census.gov>.

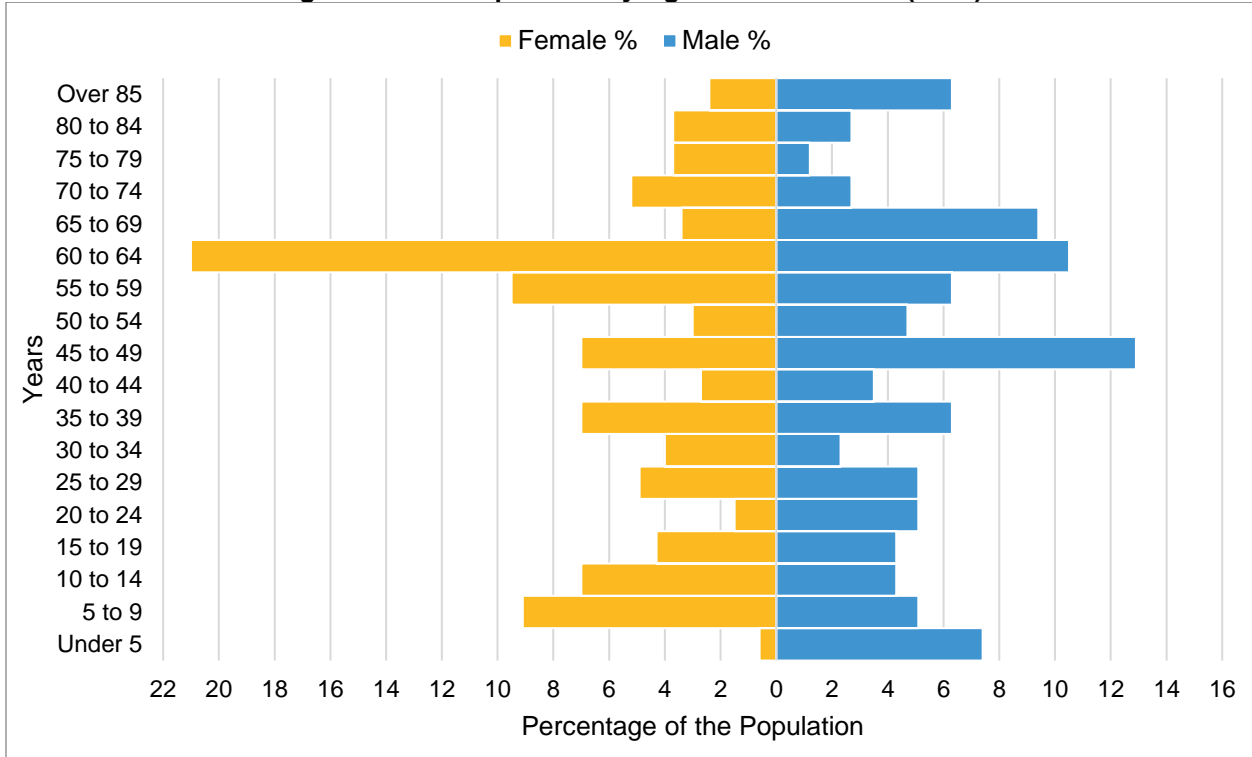
Figure RAD.2: City of Radcliffe



The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Radcliffe’s population:

- **5.5% is non-white.** Since 2010, Radcliffe has become more racially diverse. In 2010, 3.9% of the Radcliffe’s population was non-white. By 2021, 5.5% was non-white.^{126 127}
- **Median age of 49.6.** The median age of Radcliffe was 49.6 years old in 2021. The population became older since 2010, when the median age was 35.7.¹²⁸

Figure RAD.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau¹²⁹

The figure above shows Radcliffe’s population percentage broken down by sex and five-year age groups. Radcliffe’s population is top heavy. This suggests a future population decline as older generations are replaced by fewer younger residents.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Radcliffe’s population has:

126 United States Census Bureau. “2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates.” <https://data.census.gov/>.

127 United States Census Bureau. “2010 Census Redistricting Data (Public Law 94-171): P1: Race.” <https://data.census.gov/>.

128 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

129 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

Section Seven: City of Radcliffe Community Profile

- **11.1% of people living below the poverty line.** The poverty rate (11.1%) in the City of Radcliffe was higher than the state's poverty rate (11%) in 2021.¹³⁰
- **\$62,500 median household income.** Radcliffe's median household income in 2021 (\$62,500) was \$2,929 lower than the state (\$65,429).
- **3.3% unemployment rate.** In 2021 Radcliffe had a lower unemployment rate (3.3%) when compared to the state (3.9%).
- **38.4% of workers commuted 30 minutes or more to work.** More workers in Radcliffe commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (38.4% compared to 30.3%).¹³¹

Major Employers

The local planning team indicated that major employers in the area include Hubbard-Radcliffe Elementary, Radcliffe Cooperative, Security State Bank, and Radcliffe Telephone. A large percentage of residents commute to other cities for work, such as Ames and Iowa Falls

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Radcliffe's housing stock has:

- **63.2% of housing built prior to 1970.** Radcliffe has a larger share of housing built prior to 1970 than the state (63.2% compared to 49.9%).¹³²
- **13.4% of housing units vacant.** Radcliffe has a higher vacancy rate (13.4%) compared to the rest of the state (9.3%).
- **0% mobile and manufactured housing.** The City of Radcliffe has a smaller share of mobile and manufactured housing (0%) compared to the state (3.5%).
- **18.3% renter-occupied.** The rental rate of Radcliffe was 18.3% in 2021. This is lower than the state's rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

130 United States Census Bureau. "2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics." <https://data.census.gov/>.

131 United States Census Bureau. "2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics." <https://data.census.gov/>.

132 United States Census Bureau. "2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics." <https://data.census.gov/>.

- **73.8% of households have a broadband internet subscription.** Radcliffe has a smaller share of households with broadband (73.8%) compared to the state (84.9%).¹³³

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Radcliffe has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief
- Wastewater Plant Superintendent
- Water/Sewer Superintendent
- Street Superintendent
- City Inspector
- Library Board
- Parks Superintendent
- GIS/Zoning Administrator
- EMS Director

Capability Assessment

The planning team assessed the City of Radcliffe’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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. The local planning team noted that a large portion of funds are currently dedicated to a sewer repair project and the removal of dead ash trees.

Table RAD.2: Capability Assessment

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

133 United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

Section Seven: City of Radcliffe Community Profile

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

Table RAD.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Moderate
Time to devote to hazard mitigation	Moderate
Ability to expand and improve identified capabilities to achieve mitigation	Moderate

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Radcliffe, is Relatively Low (60.93). The average for the State of Iowa is 43.31.¹³⁴

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Radcliffe compared to the county.

Table RAD.4: Rural Capacity Index

Components of Index	City of Radcliffe	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	17%	21%
Families Below Poverty Level:	11%	6%
Households with Broadband:	76%	73%
People without Health Insurance:	4%	4%

¹³⁴ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Components of Index	City of Radcliffe	Hardin County
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	26	-1,966
Overall Rural Capacity Index Score	46	77

Source: Headwaters Economics¹³⁵

National Flood Insurance Program (NFIP)

Radcliffe has chosen not to participate in the NFIP at this time due to the low flood risk to community structures and because of the minimal impacts from historical flooding. NFIP participation will be reevaluated if the community's flood risk changes. The initial FIRM for the city was delineated in 6/19/2012 and the current effective map date is 6/19/2012. Radcliffe does not currently have any repetitive loss or severe repetitive loss structures.

Plan Integration

Radcliffe has limited 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

Radcliffe's funds are currently being used for a new sewer system project. The local planning team indicated that municipal funds were not limited to this project and that if needed there are funds available to pursue other capital projects. In recent years municipal funds have increased. Flood protection and water emergency planning are hazard mitigation actions that the city has already budgeted for.

Zoning Ordinance

The city's zoning ordinance regulations outline where and how development should occur in the future. The zoning ordinance does not include floodplain regulations or maps as Radcliffe has a low probability of flooding. The ordinance contains wellhead protections with setback requirements. There is no plan to update the zoning ordinance.

Capital Improvements Plan

The purpose of the capital improvement plan is for the city to strategize how to budget for nonrecurring physical or digital purchases. A capital improvement plan typically spans multiple years and includes financing plans. The city is currently in the process of updating the capital improvements plan. The plan includes updates to the storm sewer system, providing regular maintenance for the sewer system, improvements to the fire hall, improvements to the community center. In future updates the electrical distribution to critical facilities will be updated.

135 Headwaters Economics. January 2022. "Rural Capacity Map". Accessed May 2023.
<https://headwaterseconomics.org/equity/rural-capacity-map/>.

Wellhead Protection Plan

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

Water System Emergency Response Plan

An emergency response plan for water systems typically includes descriptions of strategies, resources, and procedures to prepare and respond to emergencies regarding the water system in the community.

Future Development Trends

Over the last five years, there was a main tile/drainage project and a road/sidewalk project to update Main Street. No new structures were developed in hazardous areas. No new housing or commercial developments are currently planned for the next five years.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table RAD.5: Community Lifelines

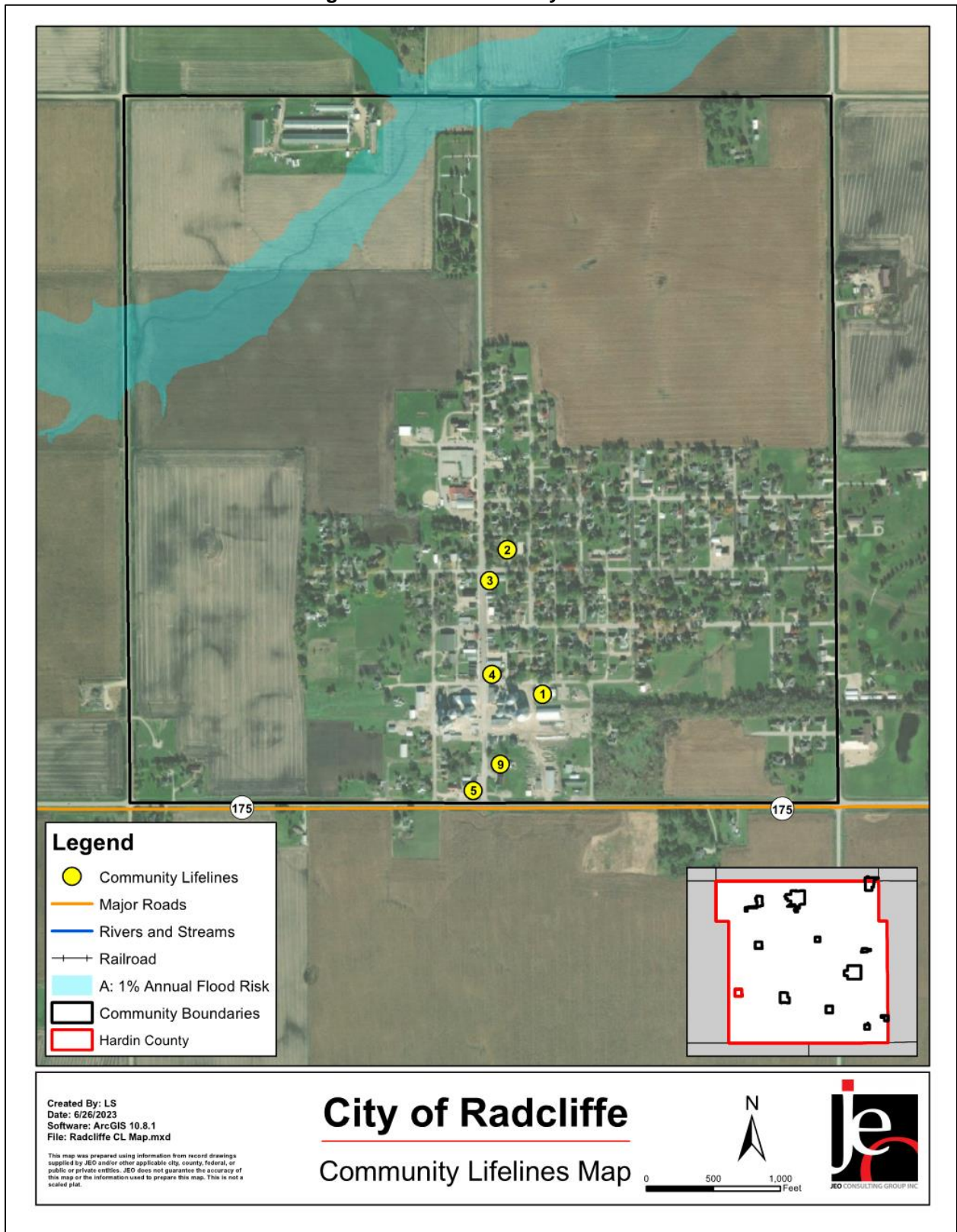
CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	Radcliffe Fire Station	Safety and Security	G, S	N
"	Radcliffe Ambulance	Health and Medical	G, S	N
"	Tornado Siren	Communications	G	N
2	City Wells	Food, Water, and Shelter	-	N
3	City Hall	Safety and Security	S	N
4	Radcliffe Telephone	Communications	G	N
5	Comart (Fuel)	Energy	-	N
6*	Hardin County Sheriff	Safety and Security	G	N
*	Waterloo Fire (HAZMAT)	Safety and Security	-	N
7*	Alliant Energy	Energy	-	N
8*	Drake Airport	Hazardous Material	-	N
9	Farmers Cooperative Elevator - Radcliffe	Hazardous Material	-	N

Source: Local Planning Team, E-Plan¹³⁶

*Not displayed on map

136 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure RAD.5: Community Lifelines

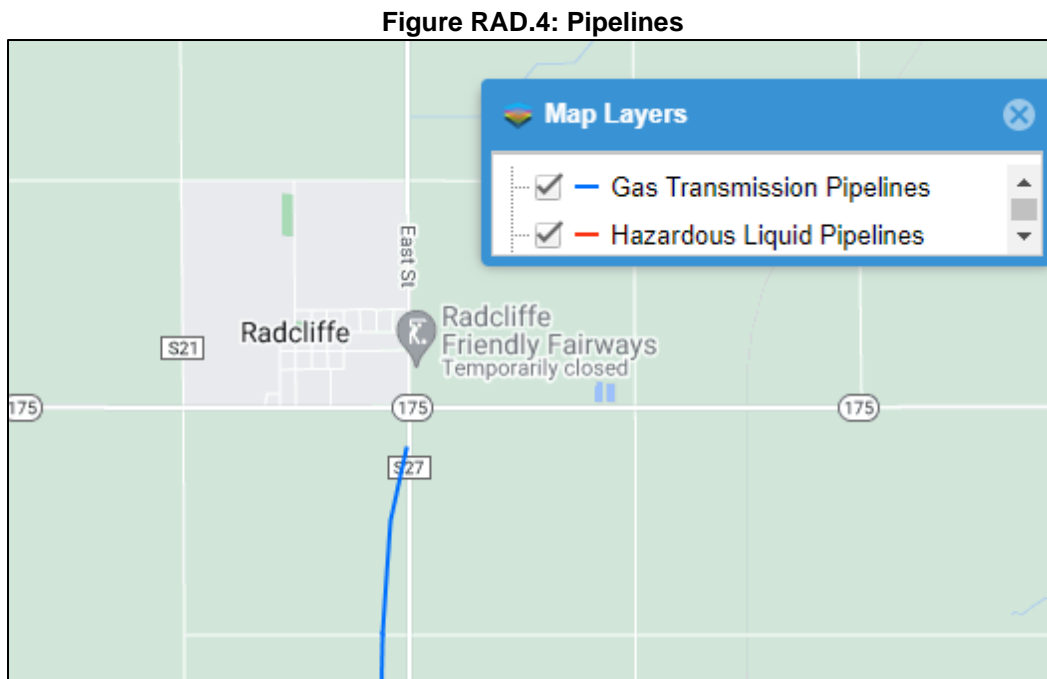


Transportation

Radcliffe’s major transportation corridors include State Highway 175, and County Roads S21 and S27. The most traveled route is Highway 175 with an average of 1,780 vehicles daily, 185 of which are trucks.¹³⁷ A Union Pacific rail line travels north-south a mile and a half east of Radcliffe.¹³⁸ Drake Airport, a privately owned airport, is located on the east side of the city.¹³⁹ The planning team indicated that there may be hazardous materials at the Drake Airport. 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There is one gas transmission pipeline that travels near the community. This can be seen in Figure RAD.4.



Source: National Pipeline Mapping System¹⁴⁰

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there is one chemical storage site within or near Radcliffe that contains hazardous materials (listed in Table RAD.5). The planning team indicated that chemicals such as fuel, fertilizer, and pesticides are regularly transported along local routes. No significant spills have occurred locally.

137 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.

138 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

139 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023.

<https://iowadot.gov/aviation/airport-information>.

140 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of Radcliffe.¹⁴¹

Table RAD.6: Radcliffe Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
402	294	\$30,410,810	2	\$159,950

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Hazardous Materials Release

According to the Pipeline and Hazardous Materials Safety Administration, Radcliffe experienced zero transportation-related hazardous materials releases between 1971 and 2022. Additionally, the National Response Center reported no fixed hazardous materials spills from 1990-2022. The planning team identified this as a hazard of top concern due to the chemical storage at the local co-op, as well as the regular transport of fuel, fertilizer, and pesticides along local routes. Radcliffe Fire Department does annual training with Waterloo HAZMAT to stay current on skills for potential scenarios.

Severe Thunderstorms (includes Hail & Lightning)

Severe thunderstorms are a regular part of the climate and weather in the Midwest. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 17 instances of severe thunderstorms that occurred in Radcliffe from 1996 to 2022. These storm events resulted in \$732,000 in property damage, with no injuries or deaths. The local planning team indicated that Radcliffe can experience power outages during these storms and suffer hail damage and lightning strikes.

Severe Winter Storms

Severe winter storms are a regular part of the climate and weather for Radcliffe. Severe winter storms include blizzards, ice accumulation, heavy snow, and winter storms. These storms can cause power outages during bitterly cold temperatures, road closures, and economic impacts.

141 Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed May 2023. <https://msc.fema.gov/portal/home>.

According to the NCEI, there were 87 winter storm events in Hardin County from 1996 to 2022. The local planning team recorded that Radcliffe experiences a temporary loss of transportation access due to large amounts of snow. This can close businesses and make it difficult for residents to access necessities such as grocery stores. Severe winter storms have historically caused power outages. The extreme low temperatures have also caused pipes to freeze in the area.

Tornado and Windstorm

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and one EF0 tornado in Radcliffe. The tornado occurred on November 28, 2016, and resulted in \$5,000 in property damage. No injuries or deaths were reported from the event. A microburst event in 2016 caused \$150,000 in damage. High wind speeds have caused damage to homes and trees.

Transportation Incident

The local planning team identified this as a hazard of top concern due to the large amount of commercial traffic and rail transport in the area. There is also concern due to the regular transport of fuel, fertilizer, and pesticides along local routes. The local planning team maintains that the city can prepare and plan for events with hazard trainings.

Mitigation Strategy

Completed Mitigation and Strategic Actions

Mitigation Action	Create a Public Information Session and Conservation (Water) Program for Radcliffe
Description	Create a public information session and conservation (water) program for Radcliffe
Hazard(s)	Human Infectious Disease, Infrastructure Failure, Grass and Wildland Fire
Status	A public information session and conservation of water program has been created.

Mitigation Action	Create a Public Information Session about Insurance Coverage and Regulations
Description	Create a public information session to inform citizens of ways to protect themselves and their property
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Status	A public information session about insurance coverage and regulations has been created.

Section Seven: City of Radcliffe Community Profile

Mitigation Action	Create a Communication Strategy
Description	Create a hazard communication strategy between city and citizens.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Status	This has been completed in collaboration with Hardin County EMA.

Continued Mitigation and Strategic Actions

Mitigation Action	Backup Water Plan
Description	Develop backup water plan. A. Generator B. Hook into rural water C. Drill 2nd well
Hazard(s)	Human Infectious Disease, Infrastructure Failure, Drought, Hazardous Materials Release
Estimated Cost	\$10,000 – 50,000
Local Funding Source	City General Budget, Grant
Timeline	2-5 years
Priority	High
Lead Agency/Department	City Council
Status	This project is currently underway with rural water. A 2 nd well has been drilled.

Mitigation Action	Create Disaster Preparation and Cleanup Plan
Description	Create a plan for pre-disaster preparation and post disaster clean up
Hazard(s)	Dam Failure, Earthquake, Expansive Soils, Flooding, Grass/Wildfire, Hazardous Materials Release, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	High
Lead Agency/Department	City Council
Status	This action is still in the process of being completed in collaboration with the Hardin County EMA.

Mitigation Action	Purchase/ Update Snow Removal Equipment
Description	Purchase/update snow removal equipment for use following a severe winter storm
Hazard(s)	Severe Winter Storm
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	The equipment is still being updated and purchased.

Mitigation Action	Purchase Generators for Critical Facilities
Description	Purchase generators for use in critical facilities
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$20,000+
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	This project is currently underway.

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	City Council
Status	In progress

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 (e.g., 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 revising the profile as changes occur. The local planning team consists of city officials and the Hardin County EMA. The plan will be reviewed annually. The public will be notified and have the ability to provide commentary on revisions through city council meetings.

Community Profile

City of Steamboat Rock

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table SBR.1: Steamboat Rock Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Tim Stearns	Mayor	City of Steamboat Rock	Round 1 & 2
JJ Veld	City Maintenance	City of Steamboat Rock	-
Jon Schurman	City Council Member	City of Steamboat Rock	-
Kevin Pieters	City Council Member	City of Steamboat Rock	-
Dave Mull	City Council Member	City of Steamboat Rock	-
Adam Blackburn	City Council Member	City of Steamboat Rock	-
Cory Schurman	City Council Member	City of Steamboat Rock	-

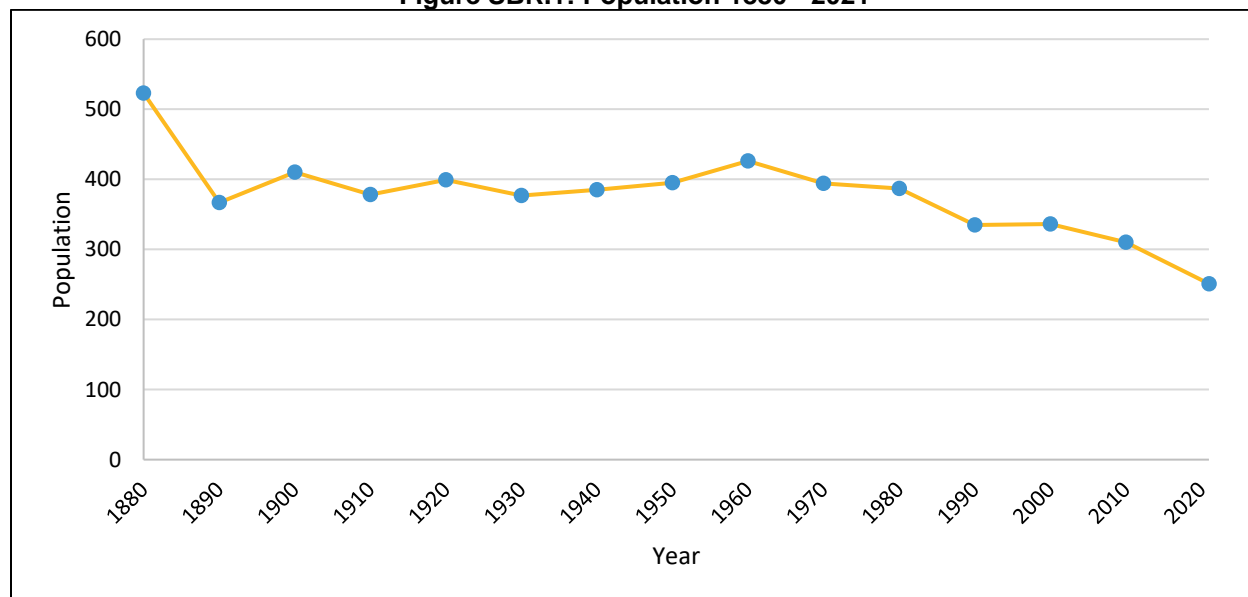
Location and Geography

The City of Steamboat Rock is located in east-central Hardin County and covers an area of 0.55 square miles. The main waterways in the area are the Iowa River, which runs north-south through the city, and Pine Ridge Lake, just north of Steamboat Rock.

Demographics

Steamboat Rock’s estimated population in 2021 was 251. The following figure displays the historical population trend from 1880 to 2021. This figure indicates that the population of Steamboat Rock was fairly stable during the first part of the 20th century but has seen a decline since 1960. A declining population can lead to more unoccupied housing that is not being maintained and is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which can make implementation of mitigation projects fiscally challenging. Steamboat Rock’s population accounted for 1.5% of Hardin County’s population in 2021.¹⁴²

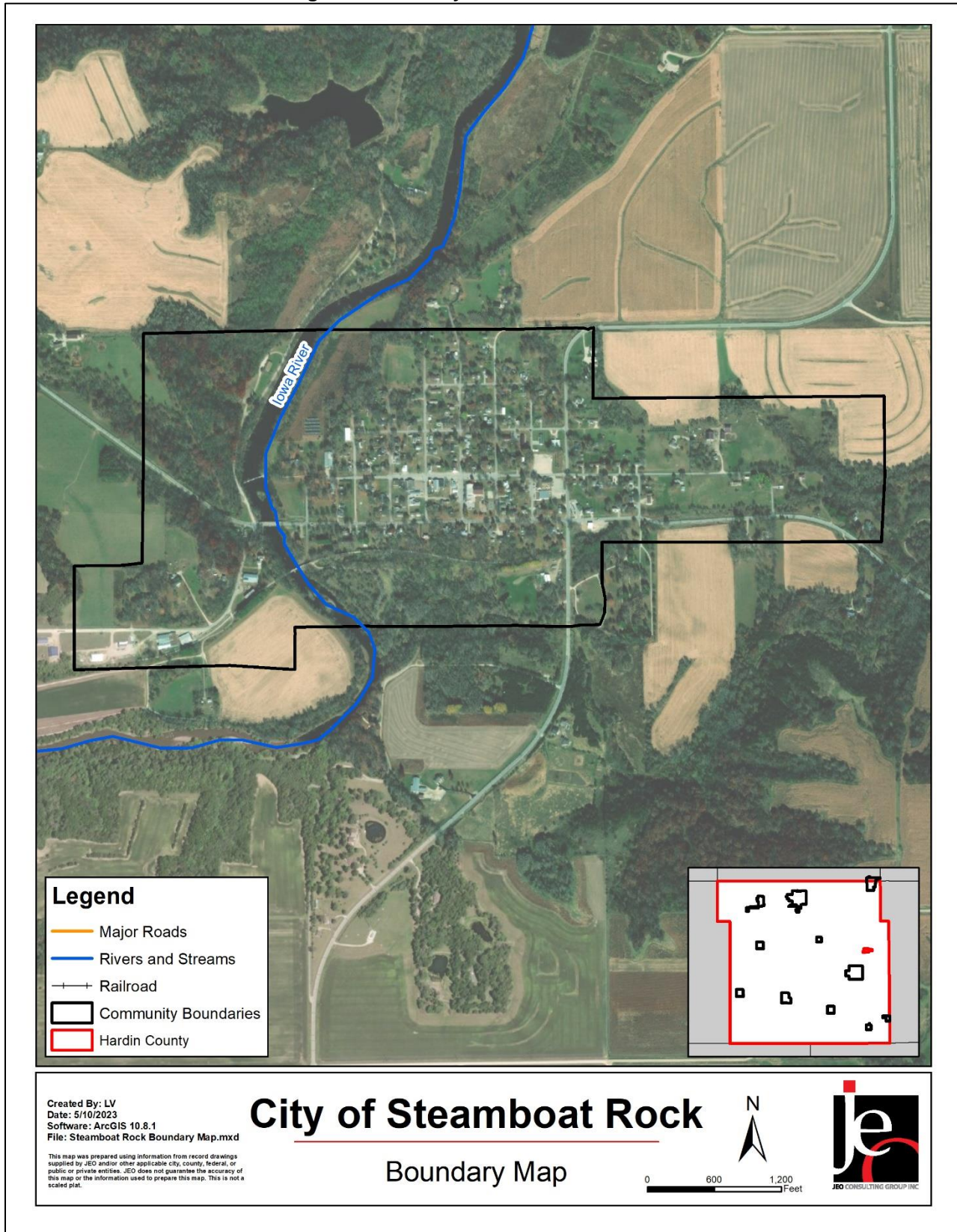
Figure SBR.1: Population 1880 - 2021



Source: U.S. Census Bureau

142 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." [database file]. <https://data.census.gov>.

Figure SBR.2: City of Steamboat Rock

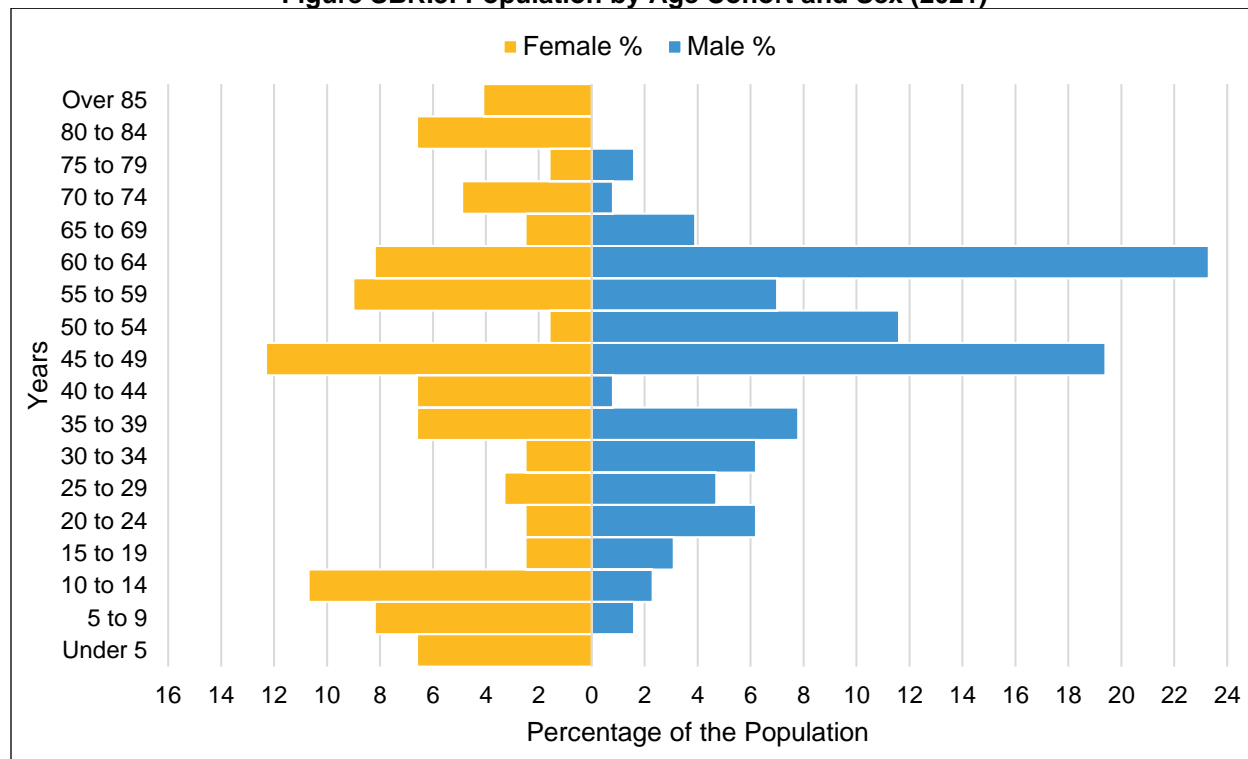


Section Seven: City of Steamboat Rock Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Steamboat Rock’s population:

- **8.8% is non-white.** Since 2010, Steamboat Rock has become more racially diverse. In 2010, 1.9% of the Steamboat Rock’s population was non-white. By 2021, 8.8% was non-white.^{143 144}
- **Median age of 48.1.** The median age of Steamboat Rock was 48.1 years old in 2021. The population became older since 2010, when the median age was 46.9.¹⁴⁵

Figure SBR.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau¹⁴⁶

The figure above shows Steamboat Rock’s population percentage broken down by sex and five-year age groups. Steamboat Rock’s population is top heavy. This suggests a future population decline as older generations are replaced by fewer younger residents.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Steamboat Rock’s population has:

143 United States Census Bureau. “2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates.” <https://data.census.gov/>.

144 United States Census Bureau. “2010 Census Redistricting Data (Public Law 94-171): P1: Race.” <https://data.census.gov/>.

145 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

146 United States Census Bureau. “2021 Census Bureau American Community Survey: S0101: Age and Sex.” <https://data.census.gov/>.

- **12.4% of people living below the poverty line.** The poverty rate (12.4%) in the City of Steamboat Rock was higher than the state's poverty rate (11%) in 2021.¹⁴⁷
- **\$38,438 median household income.** Steamboat Rock's median household income in 2021 (\$38,438) was \$26,991 lower than the state (\$65,429).
- **1.4% unemployment rate.** In 2021 Steamboat Rock had a lower unemployment rate (1.4%) when compared to the state (3.9%).
- **28.3% of workers commuted 30 minutes or more to work.** Fewer workers in Steamboat Rock commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (28.3% compared to 46.5%).¹⁴⁸

Major Employers

The local planning team indicated that major employers in the area include Rock Stop Convenience Store, OEM Cement Contractors, Happenings Bar, and Steamboat Rock Baptist Church. A large percentage of residents commute to other cities for work, such as Eldora, Iowa Falls, Waterloo/Cedar Falls, Mason City, and Ames.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Steamboat Rock's housing stock has:

- **73.6% of housing built prior to 1970.** Steamboat Rock has a larger share of housing built prior to 1970 than the state (73.6% compared to 49.9%).¹⁴⁹
- **20.2% of housing units vacant.** Steamboat Rock has a higher vacancy rate (20.2%) compared to the rest of the state (9.3%).
- **0% mobile and manufactured housing.** The City of Steamboat Rock has a smaller share of mobile and manufactured housing (0%) compared to the state (3.5%).
- **36.2% renter-occupied.** The rental rate of Steamboat Rock was 36.2% in 2021. This is higher than the state's rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings,

147 United States Census Bureau. "2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics." <https://data.census.gov/>.

148 United States Census Bureau. "2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics." <https://data.census.gov/>.

149 United States Census Bureau. "2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics." <https://data.census.gov/>.

evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

- **65.4% of households have a broadband internet subscription.** Steamboat Rock has a smaller share of households with broadband (65.4%) compared to the state (84.9%).¹⁵⁰ The local planning team indicated that fiber was installed in 2021 and has been a huge improvement.

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Steamboat Rock has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief
- Utilities Superintendent

Capability Assessment

The planning team assessed the City of Steamboat Rock’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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. The planning team noted that the city has no additional capital available for projects at this time.

Table SBR.2: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operations Plan	County
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	No
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	Yes
	Source Water Protection Plan	Yes
	Water System Emergency Response Plan	Yes
	National Flood Insurance Program	Yes

150 United States Census Bureau. "2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States." <https://data.census.gov/>.

Section Seven: City of Steamboat Rock Community Profile

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

Table SBR.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Moderate

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Steamboat Rock, is Relatively Low (60.93). The average for the State of Iowa is 43.31.¹⁵¹

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Steamboat Rock compared to the county.

Table SBR.4: Rural Capacity Index

Components of Index	City of Steamboat Rock	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	12%	21%
Families Below Poverty Level:	10%	6%
Households with Broadband:	63%	73%
People without Health Insurance:	7%	4%

¹⁵¹ Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

Components of Index	City of Steamboat Rock	Hardin County
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	-53	-1,966
Overall Rural Capacity Index Score	43	77

Source: Headwaters Economics¹⁵²

National Flood Insurance Program (NFIP)

Steamboat Rock is a member of the NFIP, having joined on 8/24/2012. The city’s Mayor and City Council oversees the commitments and requirements of the NFIP, including enforcement of the local floodplain management regulations. The initial FIRM for the city was delineated on 6/19/2012 and the current effective map date is 6/19/2012, which has been adopted and incorporated into the local floodplain management regulations. As of September 30, 2022, the city has two NFIP policies in-force for \$543,000. Additionally, Steamboat Rock does not currently have any repetitive loss or severe repetitive loss structures. The local planning team indicated that the city does not approve any development or new construction in the floodplain. Additionally, Steamboat Rock will continue to pursue good standing and involvement with the NFIP in the future.

After a flood event, the community implements substantial improvement and substantial damage provisions as outlined in FEMA's Substantial Improvement/Substantial Damage Desk Reference, which can be found here:

https://www.fema.gov/sites/default/files/documents/fema_nfip_substantial-improvement-substantial-damage-desk-reference.pdf.

Due to the community's lower capacity, as noted in the Rural Capacity Index, when substantial damage determinations are needed, state resources should be sought, or a contractor hired to assist.

Plan Integration

Steamboat Rock has limited 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of Steamboat Rock’s funds are limited to maintaining current facilities and municipal systems; however, grants are needed to properly maintain them. Municipal funds are very limited, and the amount of funds has decreased in recent years. The municipal budget includes one hazard mitigation project: the west side sewer main project. The city needs funding from outside sources to pay for the project. In the last five years, the city applied for and was awarded a brownfield grant for \$10,000 and a USDA grant for a generator at the city well.

152 Headwaters Economics. January 2022. “Rural Capacity Map”. Accessed May 2023.
<https://headwaterseconomics.org/equity/rural-capacity-map/>.

Building Codes (2021)

The building code sets standards for constructed buildings and structures. The city has adopted the State of Iowa's building codes (2015 International Building Code) with a few amendments, including when a property owner needs to apply for a building permit. These codes regulate and govern the conditions and maintenance of all property, buildings, and structures by providing the standards for supplied utilities, facilities, and other physical things and conditions essential to ensure that structures are safe, sanitary, and fit for occupation and use.

Floodplain Regulations (2012)

The city's floodplain regulations outline where and how development should occur in the future. These documents contain floodplain maps, prohibit development within the floodplain, discourage development in the floodplain, and limit population density in the floodplain. There is no timeline to update these regulations.

Water System Emergency Response Plan

Water system emergency response plans ensure the drinking water systems that serve the City of Steamboat Rock are prepared to supply customers with drinking water in the event of an emergency. It includes identifying potential emergencies and how the utility will ensure water delivery in specific scenarios.

Wellhead Protection Plan

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

Future Development Trends

Over the last few years, 18 new families moved to Steamboat Rock, many with young children. Fiber was installed citywide in 2021 which has significantly improved broadband access. Four properties were mitigated in 2022, with three of them sold to private individuals who cleaned up the properties and mitigated any risks. The fourth was declared a "Dangerous Property" as defined by Iowa Code and the city then mitigated the property. The planning team noted that the city will not approve building permits for development in the floodplain. There are currently no plans for new housing or commercial developments in the next five years.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table SBR.5: Community Lifelines

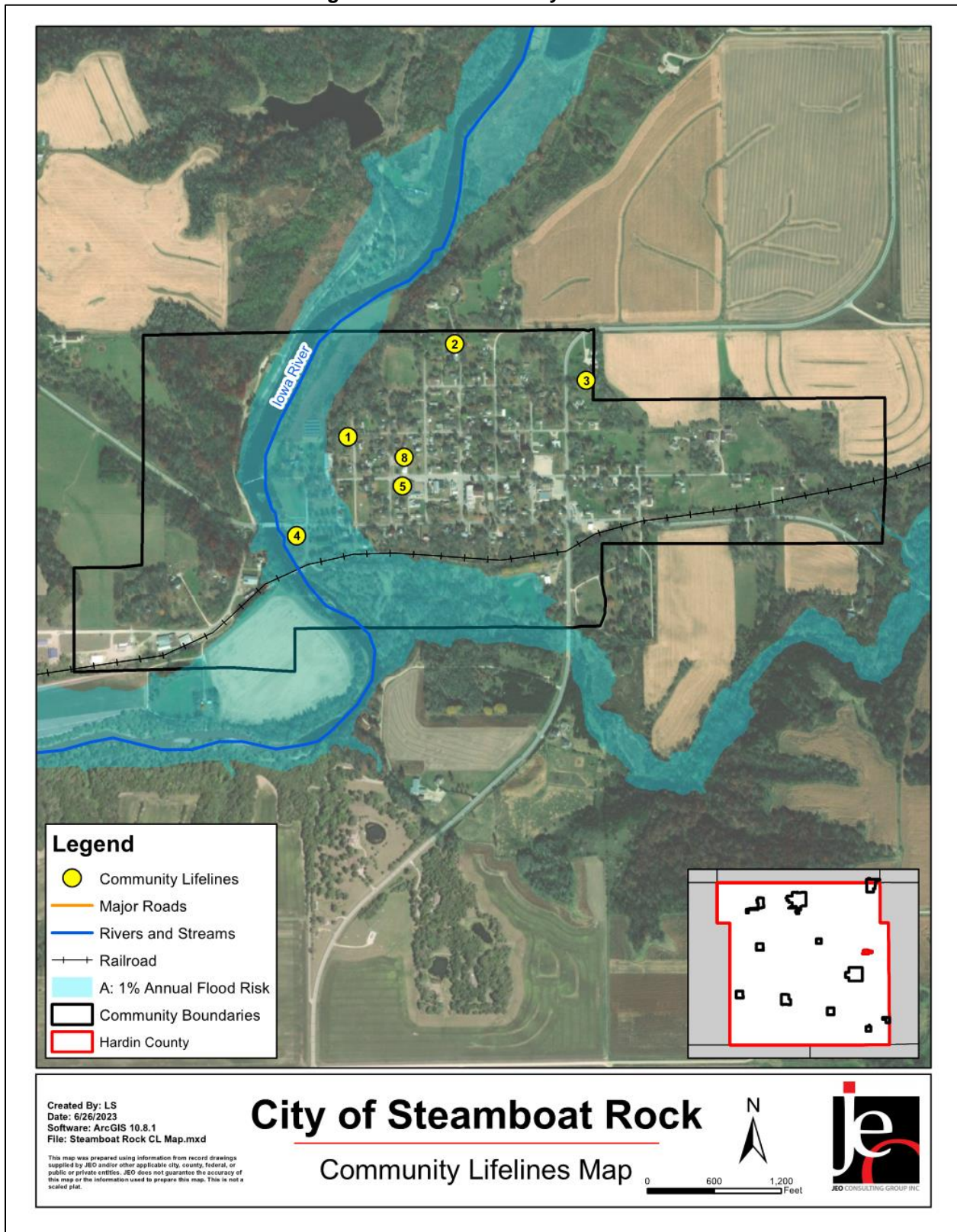
CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	Fire Station	Safety and Security	-	N
2	City Well	Food, Water, and Shelter	-	N
3	Water Tower	Food, Water, and Shelter	-	N
4	Sewer Lift Station	Other	G	Y
5	City Hall	Safety and Security	-	N
"	Alert Siren	Communications	-	N
6*	Naturally Recycled Proteins of Iowa LLC	Hazardous Material	-	N
7*	Pine Lake Corn Processors	Hazardous Material	-	N
8	Steamboat Rock CO - Heart of Iowa Communications Cooperative	Hazardous Material	-	N

Source: Local Planning Team, E-Plan¹⁵³

*Community Lifeline located outside of map viewing area.

153 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure SBR.5: Community Lifelines



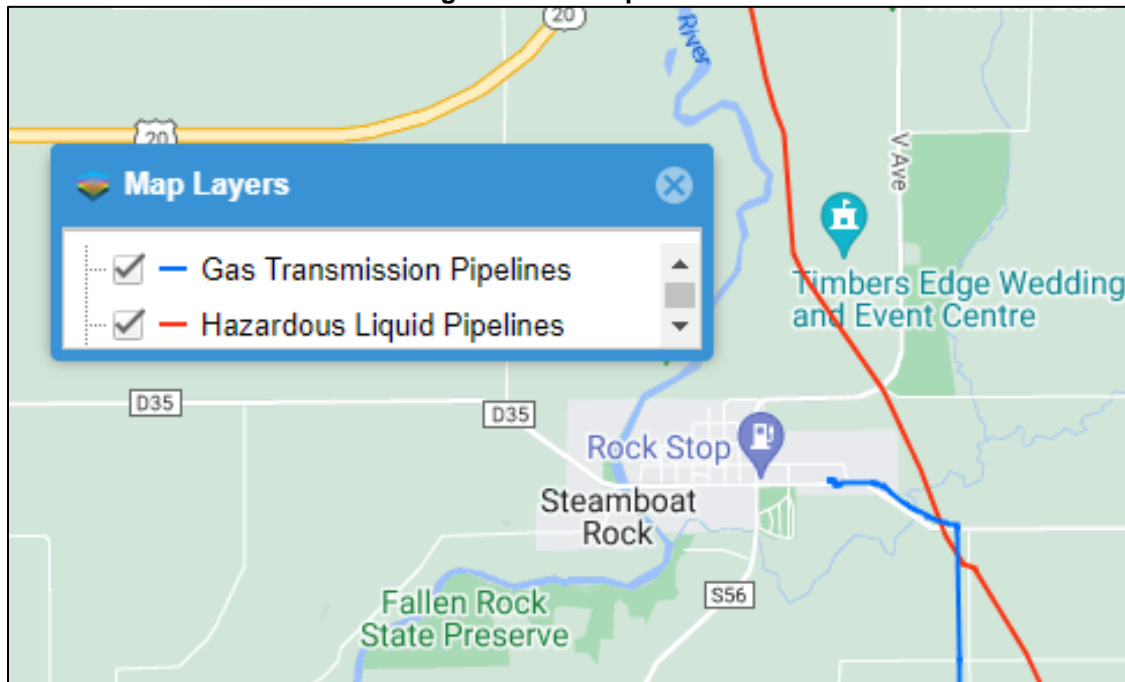
Transportation

Steamboat Rock’s major transportation corridors include County Road S56, D35, and UU Avenue. The most traveled route is County Road S56 with an average of 1,680 vehicles daily.¹⁵⁴ There are no rail lines in the city.¹⁵⁵ The nearest airport is Eldora Airport, located approximately five miles southwest of Steamboat Rock.¹⁵⁶ The planning team noted that a culvert on D35 (Main Street) is rapidly deteriorating, and that failure would close east-west traffic through town. 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There is one gas transmission pipeline and one hazardous liquid pipeline that travel near the community. These can be seen in Figure SBR.4.

Figure SBR.4: Pipelines



Source: National Pipeline Mapping System¹⁵⁷

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are three chemical storage sites within or near Steamboat Rock that contain hazardous materials (listed in Table SBR.5). The planning team indicated that various chemicals are transported along local routes and that the contents usually depend on the season. No significant spills have occurred in the city.

154 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0c9e99afb78e4d3b9b24f8263717f910>.

155 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

156 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023.

<https://iowadot.gov/aviation/airport-information>.

157 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of Steamboat Rock.¹⁵⁸

Table SBR.6: Steamboat Rock Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
348	185	\$13,580,250	15	\$1,760,170

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Flooding

According to the NCEI, there were two flood events in Steamboat Rock from 1996 to 2022. These events resulted in \$250,000 in property damage, but no injuries or fatalities. The two flood events took place in March 2019 and June 2019, and affected multiple communities. As of September 30, 2022, the city has two NFIP policies in-force totaling \$543,000. According to the IDNR, Steamboat Rock does not currently have any repetitive loss or severe repetitive loss structures. Past flooding of the Iowa River in 2008 resulted in the city sewer lift station being under water which required repairs to the pump motors and controls. The local planning team is concerned with avoiding fines imposed by IDNR for raw sewage ending up in the Iowa River.

A FEMA grant application is currently in process to purchase and install a new automatic generator to be elevated above the 500-year floodplain. The city is unable to get parts for the old generator what was below water in 2008. Installation of a flood wall around the perimeter of the lifts station was identified as being needed to isolate it from future flooding.

158 Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed May 2023. <https://msc.fema.gov/portal/home>.

According to the Risk Factor website, Steamboat Rock has a minor risk of flooding with 25 properties and three miles of roads having a greater than 26% chance of being affected by flooding over the next 30 years. That risk is unlikely to change in the next 30 years.¹⁵⁹

Hazardous Materials Release

According to the Pipeline and Hazardous Materials Safety Administration, Steamboat Rock experienced zero transportation-related hazardous materials releases between 1971 and 2022. Additionally, the National Response Center reported no fixed hazardous materials spills from 1990-2022. The planning team identified this as a hazard of top concern due to asbestos in the old schoolhouse. An asbestos study was completed in 2022 to identify which areas need mitigation. However, the building is on the national historic registry so the city is unsure if federal grants can be used for mitigation.

Severe Thunderstorms (includes Lightning and Hail)

Severe thunderstorms are a regular part of the climate and weather in the Midwest. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 17 instances of severe thunderstorms that occurred in Steamboat Rock from 1996 to 2022. These storm events resulted in \$73,000 in property damage, with no injuries or deaths. This is a top hazard for the planning team because water flows and erodes in every direction except where it was planned to flow. Silting and damaged culverts along 200th Street leads to flooding. Needed projects identified by the planning team include culvert repair/replacement and ditch cleaning along 200th Street and along 3rd Street for three blocks south of 200th Street.

159 Risk Factor. "Flood Factor: Steamboat Rock, Iowa". Accessed June 2023. https://riskfactor.com/city/steamboat-rock-ia/1975180_fsaid/flood.

Mitigation Strategy

New Mitigation and Strategic Actions

Mitigation Action	Floodwall at Lift Station
Description	Install a floodwall around the city lift station to mitigate 500-year floodplain risk.
Hazard(s)	Flooding
Estimated Cost	\$150,000
Local Funding Source	City General Fund, Grants
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Culvert near East Market Street
Description	Construct a stormwater culvert in the watershed area to divert stormwater away from E Market Street. Needed due to excessive rains weakening the west end of E Market Street.
Hazard(s)	Flooding, Severe Thunderstorms
Estimated Cost	\$25,000
Local Funding Source	City General Fund, ARPA Funds
Timeline	1 year
Priority	High
Lead Agency/Department	Mayor
Status	Currently in negotiations with dirt contractor.

Mitigation Action	Asbestos Removal
Description	Remove asbestos from old schoolhouse.
Hazard(s)	Hazardous Material Release, Human Infectious Diseases
Estimated Cost	\$100,000
Local Funding Source	City General Fund, Grants
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Asbestos/hazardous materials survey was completed in 2022 through a brownfield grant. Cost estimate also completed.

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Fund
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	In progress

Continued Mitigation and Strategic Actions

Mitigation Action	Backup Generator for Lift Station
Description	Place backup generator at the city’s lift station
Hazard(s)	Flooding, Human Infectious Disease, Infrastructure Failure
Estimated Cost	\$50,000
Local Funding Source	City General Fund, HMA
Timeline	1-2 years
Priority	High
Lead Agency/Department	Mayor
Status	FEMA grant application for \$50,000 currently in process. Project would install a new standby generator above the 500-year floodplain on piers next to the lift station.

Mitigation Action	Construct Culvert
Description	Add culvert county road in the 3200 mile of 200 St. to allow water to drain under the road. Need culvert repair/replacement and ditch cleaning along 200th Street and along 3rd Street for three blocks south of 200th Street. This is hazardous because water flows and erodes in every direction except where it was planned to flow. May include additional ditch cleaning.
Hazard(s)	Flooding, Infrastructure Failure
Estimated Cost	\$30,000
Local Funding Source	City General Fund, Grants
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Section Seven: City of Steamboat Rock Community Profile

Mitigation Action	Backup Generator
Description	Purchase and install standby generator at multiple locations to be used as emergency storm shelters. Could include the Community building/ Shelter
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$50,000
Local Funding Source	City General Fund, HMA, Other Grants
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Add Lift Station
Description	Add a lift station to the city's sanitary sewer when and where it is needed.
Hazard(s)	Flooding, Human Infectious Disease, Infrastructure Failure
Estimated Cost	\$600,000
Local Funding Source	City Sewer Fund, Hardin County, USDA Grants
Timeline	0-2 years
Priority	High
Lead Agency/Department	Mayor
Status	A new sewer main including a small lift station is in planning process on the west side of the Iowa River. This is a joint project between the IDNR, Hardin County Conservation, and the City of Steamboat Rock. Grant applications are in process through USDA. Large cash injection in the amount of \$75,000 from the Hardin County Conservation to allow them to hook up the Pine Ridge campground. City plans to inject \$50,000 into the project and the Hardin County Supervisors have indicated a desire to fill in \$ where needed. Estimate construction to begin April 1st, 2024.

Mitigation Action	Update Sewer Treatment Plant
Description	<p>Improve sewer line or replace it. This was built in the 1960s and there are lots of leaking and issues.</p> <p>Storage tank has limited capacity. Would like to increase the storage capacity. Build an underground piping station that would transport the material from the storage tank to the dry bed area. Currently, they have to pump it out and release it to the dry bed. Would like to have a structure over the dry bed so it has a chance to filter through the system.</p>
Hazard(s)	Human Infectious Disease, Infrastructure Failure, Flooding
Estimated Cost	\$200,000
Local Funding Source	City General Fund, USDA Grant
Timeline	5+ years
Priority	Medium
Lead Agency/Department	Mayor
Status	<p>Not started. Potential that IDNR may require a change in how city's sewer sludge is stored prior to removal from the plant. Change would require an approximately 100,000-gallon concrete sludge tank with side elevation high enough to mitigate any risk of 500-year flood waters flowing into the tank. A tank 30' x 50' x 10' deep may require the purchase of additional property adjacent to the existing sewer plant.</p>

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 (e.g., 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 planning team will include the Mayor, City Council, and City Maintenance Supervisor. The plan will be reviewed and updated annually. The public will be involved in the review and revision process through city website updates, city Facebook page, and public postings at city hall, the library, and post office.

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Community Profile

City of Union

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table UNI.1: Union Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Lacey Hansen	City Clerk	City of Union	Round 2
Cindy Clemons	Mayor	City of Union	Round 2
Tom Bays	Representative	City of Union	Round 2

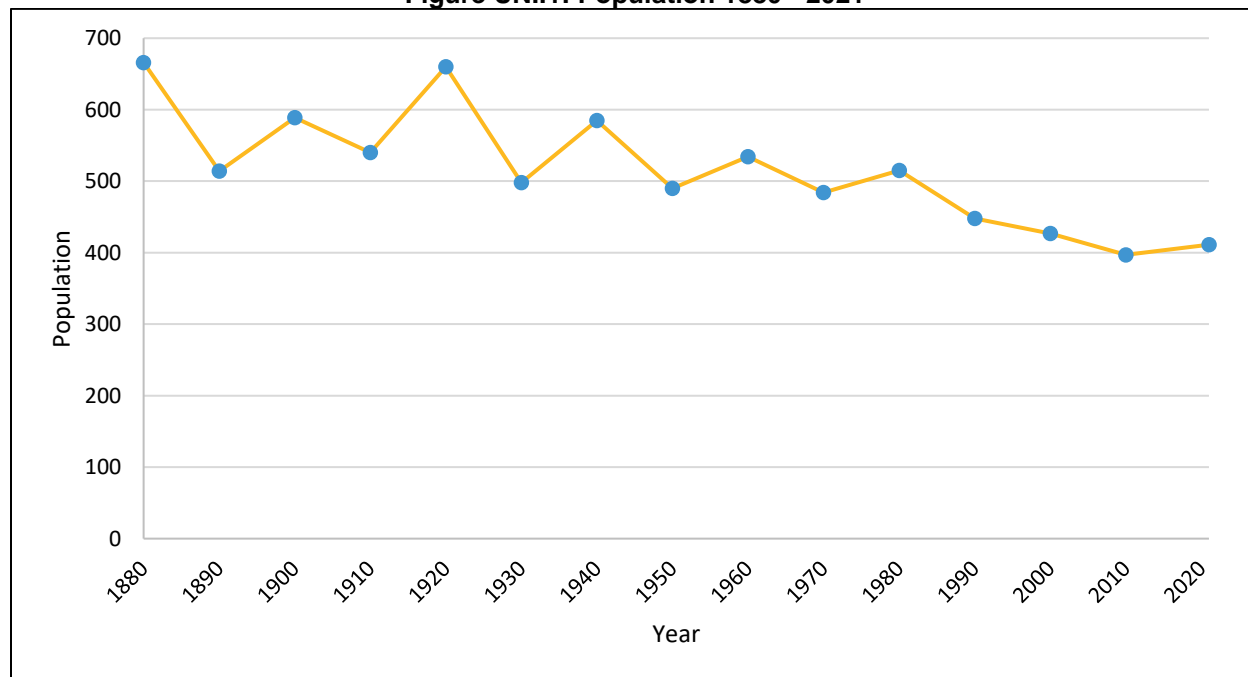
Location and Geography

The City of Union is located in southeast Hardin County and covers an area of 0.55 square miles. The main waterway in the area is the Iowa River, which runs just east of the city.

Demographics

Union’s estimated population in 2021 was 411. The following figure displays the historical population trend from 1880 to 2021. This figure indicates that the population of Union saw a steady decline from 1980 to 2010 but has since seen an increase over the last decade. Increasing populations are associated with more robust hazard mitigation and emergency planning requirements for development. Growing populations can also increase tax revenues, allowing communities to pursue additional mitigation projects. Union’s population accounted for 2.4% of Hardin County’s population in 2021.¹⁶⁰

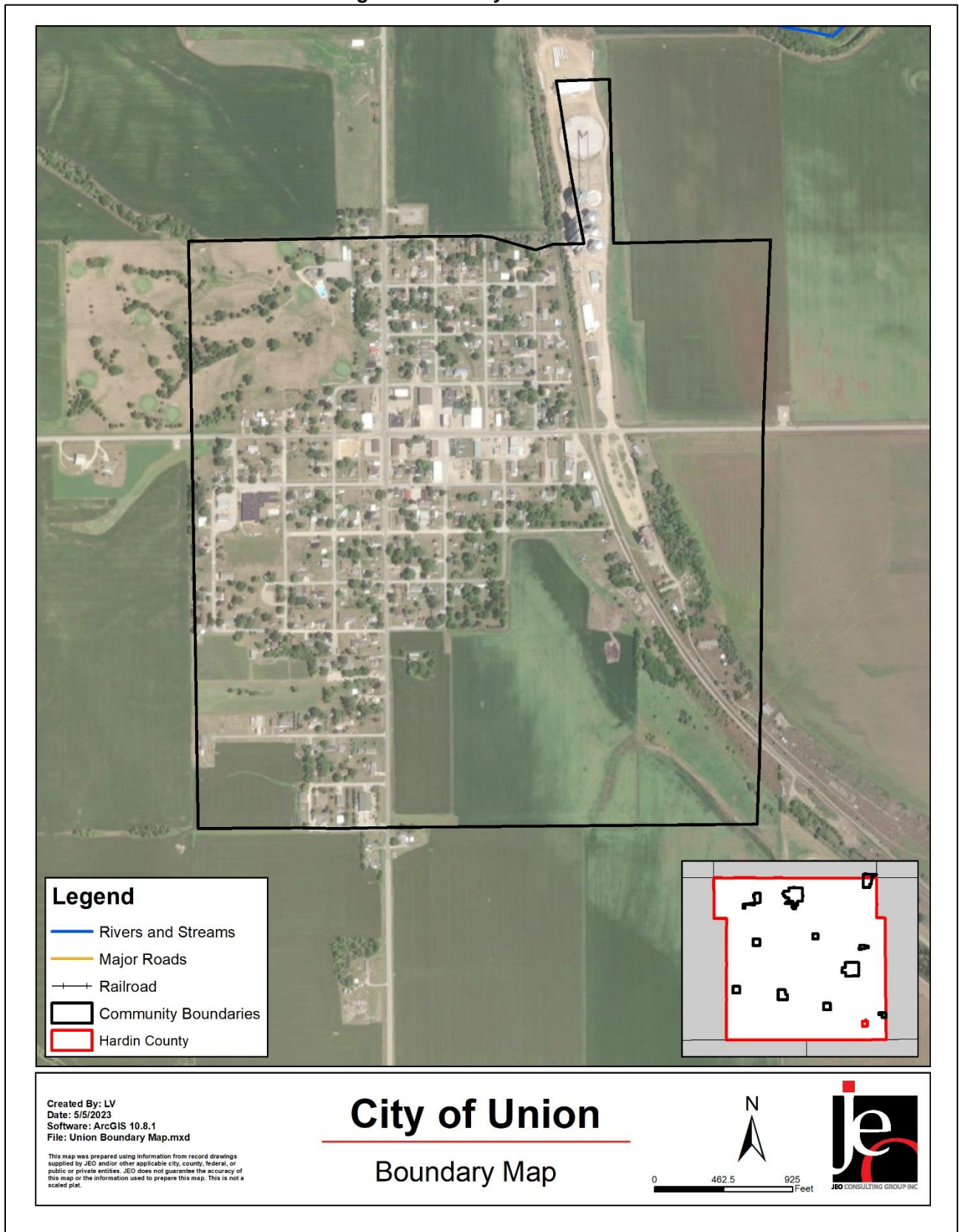
Figure UNI.1: Population 1880 - 2021



Source: U.S. Census Bureau

¹⁶⁰ United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." [database file]. <https://data.census.gov>.

Figure UNI.2: City of Union

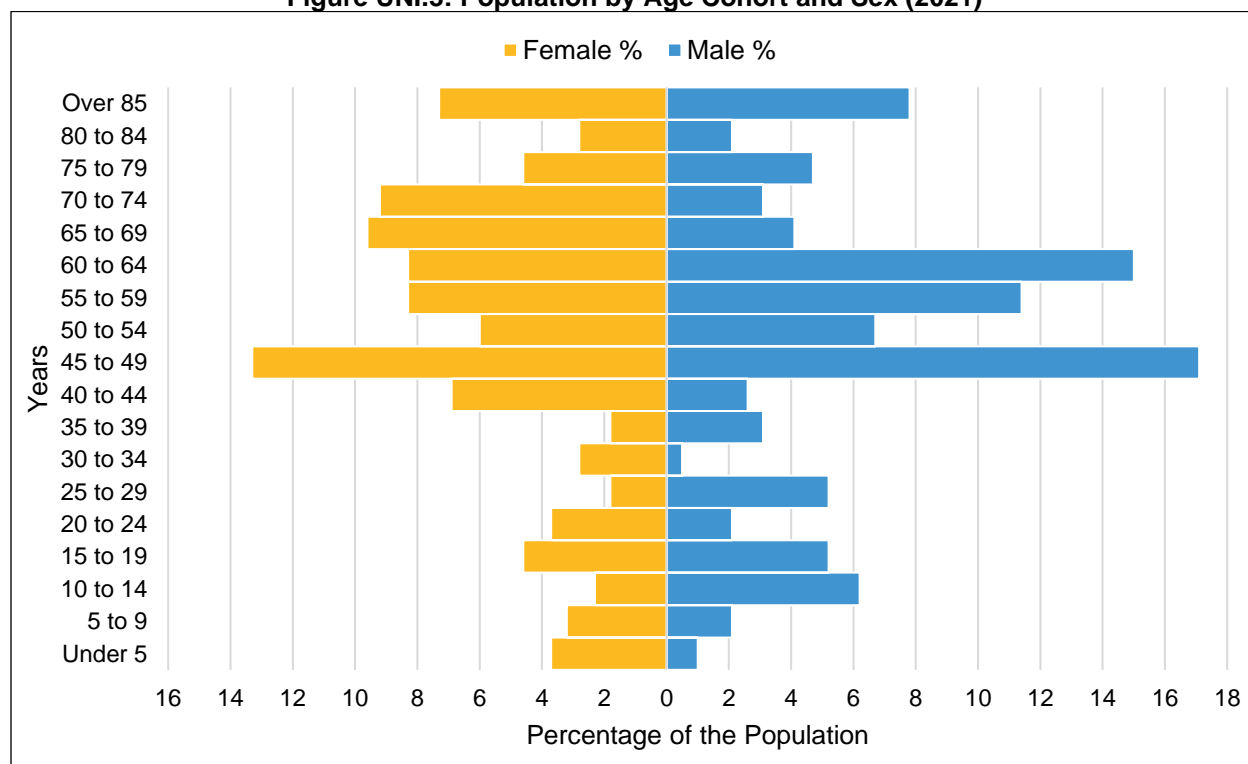


Section Seven: City of Union Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Union's population:

- **2.2% is non-white.** Since 2010, Union has become less racially diverse. In 2010, 4% of the Union's population was non-white. By 2021, 2.2% was non-white.^{161 162}
- **Median age of 54.4.** The median age of Union was 54.4 years old in 2021. The population became older since 2010, when the median age was 32.9.¹⁶³

Figure UNI.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau¹⁶⁴

The figure above shows Union's population percentage broken down by sex and five-year age groups. Union's population is top heavy. This suggests a future population decline as older generations are replaced by fewer younger residents.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Union's population has:

161 United States Census Bureau. "2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates." <https://data.census.gov/>.

162 United States Census Bureau. "2010 Census Redistricting Data (Public Law 94-171): P1: Race." <https://data.census.gov/>.

163 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

164 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

- **14.1% of people living below the poverty line.** The poverty rate (14.1%) in the City of Union was higher than the state's poverty rate (11%) in 2021.¹⁶⁵
- **\$49,583 median household income.** Union's median household income in 2021 (\$49,583) was \$15,846 lower than the state (\$65,429).
- **3.8% unemployment rate.** In 2021 Union had a lower unemployment rate (3.8%) when compared to the state (3.9%).
- **31.4% of workers commuted 30 minutes or more to work.** Fewer workers in Union commuted 30 minutes or more to work compared to workers commuting less than 15 minutes (31.4% compared to 47.5%).¹⁶⁶

Major Employers

The local planning team indicated that major employers in the area include Innovative Ag, Heart of Iowa, and Dave's Crane. A large percentage of residents commute to other cities for work, such as Marshalltown.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Union's housing stock has:

- **63.4% of housing built prior to 1970.** Union has a larger share of housing built prior to 1970 than the state (63.4% compared to 49.9%).¹⁶⁷
- **13% of housing units vacant.** Union has a higher vacancy rate (13%) compared to the rest of the state (9.3%).
- **0.9% mobile and manufactured housing.** The City of Union has a smaller share of mobile and manufactured housing (0.9%) compared to the state (3.5%).
- **15% renter-occupied.** The rental rate of Union was 15% in 2021. This is lower than the state's rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

165 United States Census Bureau. "2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics." <https://data.census.gov/>.

166 United States Census Bureau. "2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics." <https://data.census.gov/>.

167 United States Census Bureau. "2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics." <https://data.census.gov/>.

- **68.4% of households have a broadband internet subscription.** Union has a smaller share of households with broadband (68.4%) compared to the state (84.9%).¹⁶⁸

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Union has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief
- Water/Sewer Superintendent
- Library Board Chairperson
- EMS Director

Capability Assessment

The planning team assessed the City of Union’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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 UNI.2: Capability Assessment

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

168 United States Census Bureau. “2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States.” <https://data.census.gov/>.

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

Table UNI.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Limited

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Union, is Relatively Low (60.93). The average for the State of Iowa is 43.31.¹⁶⁹

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Union compared to the county.

Table UNI.4: Rural Capacity Index

Components of Index	City of Union	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	15%	21%
Families Below Poverty Level:	17%	6%
Households with Broadband:	67%	73%
People without Health Insurance:	7%	4%
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	-47	-1,966
Overall Rural Capacity Index Score	43	77

Source: Headwaters Economics¹⁷⁰

169 Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

170 Headwaters Economics. January 2022. “Rural Capacity Map”. Accessed May 2023. <https://headwaterseconomics.org/equity/rural-capacity-map/>.

National Flood Insurance Program (NFIP)

Union is a member of the NFIP, having joined on 6/1/1987. The city's Mayor oversees the commitments and requirements of the NFIP, including enforcement of the local floodplain management regulations. The initial FIRM for the city was delineated on 6/1/1987 and the current effective map date is 6/19/2012, which has been adopted and incorporated into the local floodplain management regulations. The city requires permits for development within the floodplain. Violators of regulations and the ordinance are subject to a \$500 fine and the possibility of imprisonment for 30 days or less. As of September 30, 2022, the city has six NFIP policies in force for \$503,100. Union does not currently have any repetitive loss or severe repetitive loss structures. Union will continue to pursue good standing with the NFIP. The local planning team indicated that the city has challenges with floodplain management and requires assistance from the Iowa Department of Natural Resources.

After a flood event, the community implements substantial improvement and substantial damage provisions as outlined in FEMA's Substantial Improvement/Substantial Damage Desk Reference, which can be found here:

https://www.fema.gov/sites/default/files/documents/fema_nfip_substantial-improvement-substantial-damage-desk-reference.pdf.

Due to the community's lower capacity, as noted in the Rural Capacity Index, when substantial damage determinations are needed, state resources should be sought, or a contractor hired to assist.

Plan Integration

Union has limited 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The city of Union's municipal funds is currently limited to maintaining facilities and municipal systems. A large portion of the funds are being used to maintain and update streets. The local planning team stated that the amount of available funds has stayed the same over the past few years. The city's sewer lagoon is a hazard mitigation action that is already included in the budget. In the last five years Union applied to and was awarded the FEMA firefighter's grant, ARPA, and funds for the 2020 derecho.

Floodplain Ordinance (2022)

A floodplain ordinance outlines where and when development can occur within or near the floodplain. The floodplain ordinance contains flood maps that display where the floodplain is, regulations, and requires permits for any development within the floodplain.

Wellhead Protection Plan (2004)

The purpose of a wellhead protection plan is to protect and preserve local wells. The plans typically have surface and subsurface regulations to prevent water contamination.

Future Development Trends

In the last five years, a dilapidated house was removed and damaged trees were removed post derecho. No structures were developed in the floodplain or other hazardous areas. There are currently no plans for new housing or commercial developments in the next five years.

Community Lifelines

Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



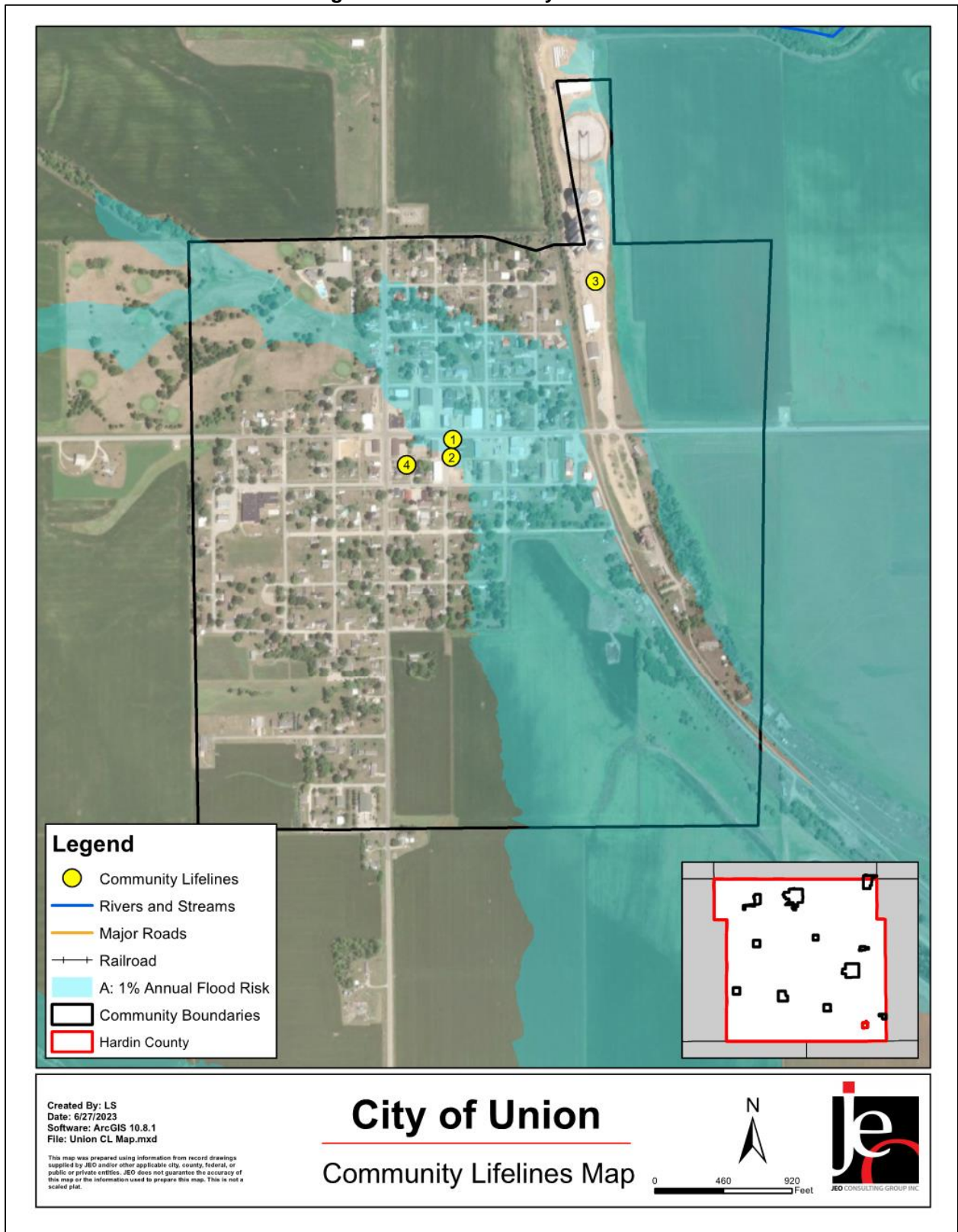
Table UNI.5: Community Lifelines

CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	City Hall	Safety and Security	S	Y
2	Fire Station	Safety and Security	-	Y
"	Ambulance	Health and Medical	-	Y
"	Alert Siren	Communications	-	Y
3	Innovative Ag Services - Union	Hazardous Material	-	Y
4	Union CO - Heart of Iowa Communications Cooperative	Hazardous Material	-	N

Source: Local Planning Team, E-Plan ¹⁷¹

171 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022.
<https://erplan.net/eplan/actions/facilitySearch.htm>.

Figure UNI.5: Community Lifelines



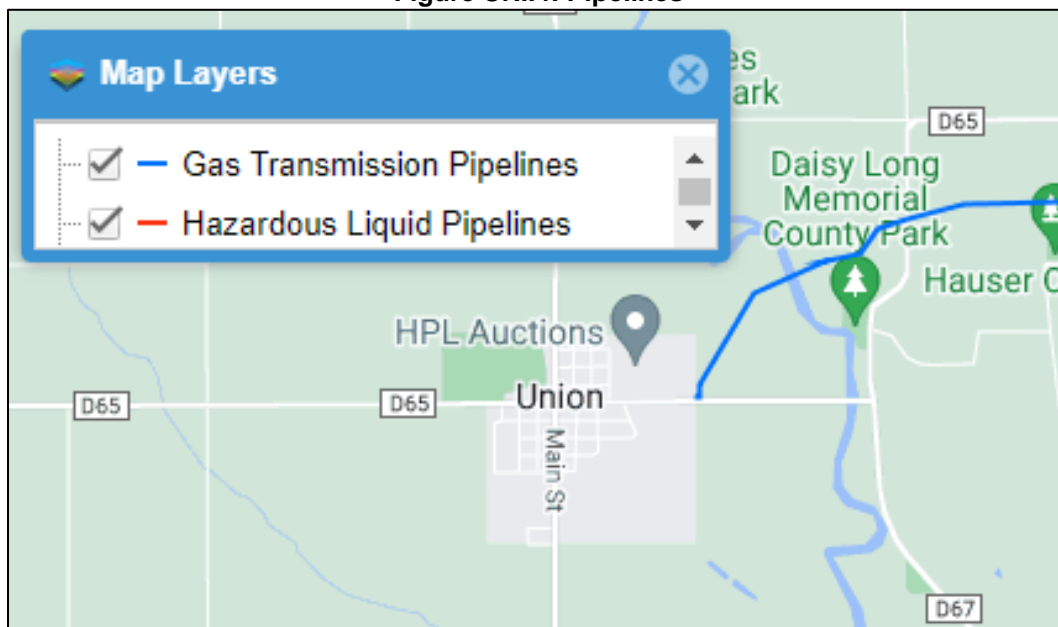
Transportation

Union's major transportation corridors include County Roads D65, S62, and D67. The most traveled route is County Road D65 with an average of 1,080 vehicles daily.¹⁷² There are no rail lines in the city.¹⁷³ The nearest airport is Eldora Airport, located approximately six miles northwest of Union.¹⁷⁴ 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There is one gas transmission pipeline that travels near the community. This can be seen in Figure UNI.4.

Figure UNI.4: Pipelines



Source: National Pipeline Mapping System¹⁷⁵

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are two chemical storage sites within or near Union that contain hazardous materials (listed in Table UNI.5). The local planning team indicated that chemicals such as fuel, anhydrous ammonia, and other fertilizers are regularly transported along local routes. No significant chemical spills have occurred locally.

172 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023.

<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.

173 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023.

<https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.

174 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023.

<https://iowadot.gov/aviation/airport-information>.

175 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of Union.¹⁷⁶

Table UNI.6: Union Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
328	236	\$15,475,840	98	\$5,473,970

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Extreme Temperatures

The local planning team identified this as a hazard of top concern due to vulnerable populations within the community, especially elderly residents. Power loss from extreme temperatures has impacted the community, making it especially difficult for residents needing electricity for medical needs. The city has also experienced road damage as a result of this hazard. To reduce the community's risk to this hazard, the city has coordinated with local churches for possible shelter locations for backup and assistance. The planning team indicated that a backup generator is needed.

Flooding

Although not identified as a top hazard of concern by the local planning team, much of the community lies in the 1% Annual Chance Floodplain. The city participates in the National Flood Insurance Program and as of September 30, 2022, the city has six NFIP policies in-force for \$503,100. According to the IDNR, Union does not currently have any repetitive loss or severe repetitive loss structures.

According to the Risk Factor website, Union has a minor risk of flooding with 23 properties and two miles of roads having a greater than 26% chance of being affected by flooding over the next 30 years. That risk is unlikely to change in the next 30 years.¹⁷⁷ Union has experienced property

176 Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed May 2023. <https://msc.fema.gov/portal/home>.

177 Risk Factor. "Flood Factor: Union, Iowa". Accessed June 2023. https://riskfactor.com/city/union-ia/1979545_fsid/flood.

damage, waterway erosion, bridge damage, sewer back-up issues, water treatment and sewer lagoon issues, and well house power loss.

Severe Thunderstorms (includes Hail & Lightning)

Severe thunderstorms are a regular part of the climate and weather in the Midwest. These storms can cause damage through heavy rain, lightning strikes, hail, and high winds. The NCEI reports 11 instances of severe thunderstorms that occurred in Union from 1996 to 2022. These storm events resulted in \$130,000 in property damage, with no injuries or deaths. The planning team indicated that past impacts include damage to the lagoon control panel and surge protection from a lightning strike. The control panel required immediate panel as it shuts down the pump, which could cause flooding or water backflow into sewer lines and homes.

Tornado and Windstorms

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and three tornadoes in Union. The first tornado was an EF1 and occurred on June 29, 2014. The other two, an EF0 and EF1, both occurred one day later - on June 30, 2014. These events resulted in \$53,000 in property damage. No injuries or deaths were reported from the event.

The local planning team indicated that the August 2020 derecho damaged homes and businesses from high winds and downed trees. Downed trees also led to a loss of power for multiple days, making cleanup and travel more difficult. Since the event, the city removed damaged trees to reduce risk of falling.

Mitigation Strategy

New Mitigation and Strategic Actions

Mitigation Action	Demolition of Abandoned Buildings
Description	Demolish abandoned buildings.
Hazard(s)	Infrastructure Failure
Estimated Cost	TBD
Local Funding Source	City General Fund
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	One building was torn down. Others still needed.

Mitigation Action	Replace PPE for First Responders
Description	Replace outdated PPE for first responders and ensure the condition is within the standards
Hazard(s)	Human Infectious Disease
Estimated Cost	TBD
Local Funding Source	City General Fund, FEMA Firefighters Grant and First Responders Grants
Timeline	1 year
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Storm Water Control
Description	Dredge creek and maintain storm drains.
Hazard(s)	Flooding, Infrastructure Failure, Severe Thunderstorm
Estimated Cost	\$10,000-\$15,000
Local Funding Source	City General Fund, Neighborhood Stabilization Program
Timeline	1 year
Priority	High
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Retrofit City Hall as Shelter
Description	City hall needs to be updated and retrofitted to also serve as a shelter during heating or cooling events.
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$250,000-\$1,000,000
Local Funding Source	City General Fund, HMGP, Assist to FF grants
Timeline	2-5 years
Priority	High
Lead Agency/Department	Mayor
Status	Not started

Section Seven: City of Union Community Profile

Mitigation Action	Purchase Emergency Generators
Description	Generators are needed for city hall, water tower, lagoon, and well house to power critical facilities
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$5,000-\$10,000+
Local Funding Source	City General Fund, HMGP, Assist to FF grants
Timeline	1 year
Priority	High
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Fund
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	In progress

Continued Mitigation and Strategic Actions

Mitigation Action	Sanitary Sewer and Lagoon Rehabilitation
Description	Identify and refurbish or replace sewer manholes and reline sewer lines with an epoxy product that will seal and strengthen existing sewer lines.
Hazard(s)	Human Infectious Disease, Infrastructure Failure, Flooding
Estimated Cost	\$250,000
Local Funding Source	City Bonds
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	This project is underway.

Mitigation Action	Evacuation Plan
Description	Develop an Emergency Evacuation Plan. Coordinate with the fire dept. - the school - Union ambulance service - Hardin Co Law Enforcement
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	Undetermined
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	This project is currently in the development planning stages.

Mitigation Action	Public Education Program
Description	Create a program to educate Union residents about the dangers of hazards and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council
Status	This is an ongoing project, and a monthly newsletter currently goes out with the water bills.

Mitigation Action	Coordinate City Public Awareness and Emergency Plan
Description	Create a communication strategy between city and citizens. Alert Iowa classes and training.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council
Status	This project is currently underway.

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 (e.g., 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 necessary. The local planning team consists of the city clerk, mayor, and the Hardin County EMA. The planning team will review the plan annually. The public will be notified of the revision and review process through social media and monthly newsletters. There will also be postings as the post office and local bank.

Community Profile

City of Whitten

**Hardin County
Hazard Mitigation Plan 2023**

Local Planning Team

Table WTN.1: Whitten Local Planning Team

Name	Title	Jurisdiction	Meeting Attendance
Erin Cross	Mayor	City of Whitten	Round 1
Kristi Schiebel	City Clerk	City of Whitten	-

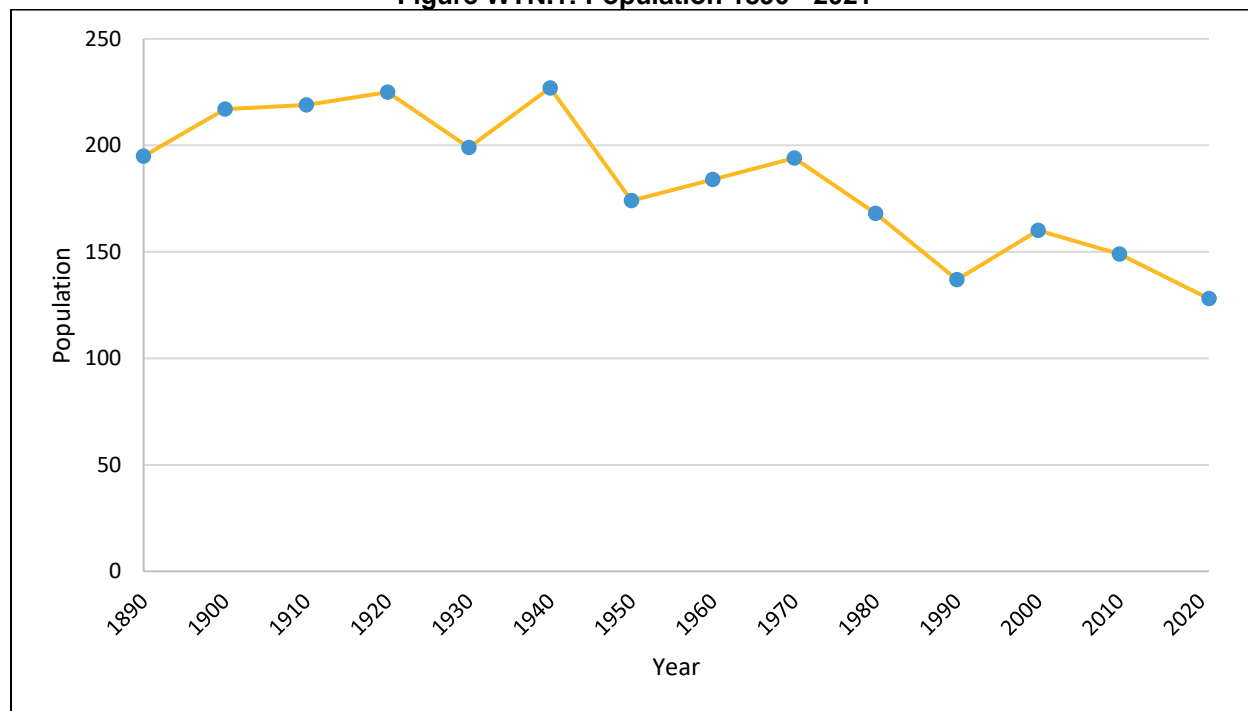
Location and Geography

The City of Whitten is located in southeast Hardin County and covers an area of 0.54 square miles. The main waterways in the area are the Iowa River, west of the city, and Dowd Creek, south and east of Whitten.

Demographics

Whitten’s estimated population in 2021 was 128. The following figure displays the historical population trend from 1890 to 2021. This figure indicates that the population of Whitten has seen a decline over the last two decades. A declining population can lead to more unoccupied housing that is not being maintained and is then at risk to high winds and other hazards. Furthermore, with fewer residents, there is decreasing tax revenue for the community, which can make implementation of mitigation projects fiscally challenging. Whitten’s population accounted for 0.8% of Hardin County’s population in 2021.¹⁷⁸

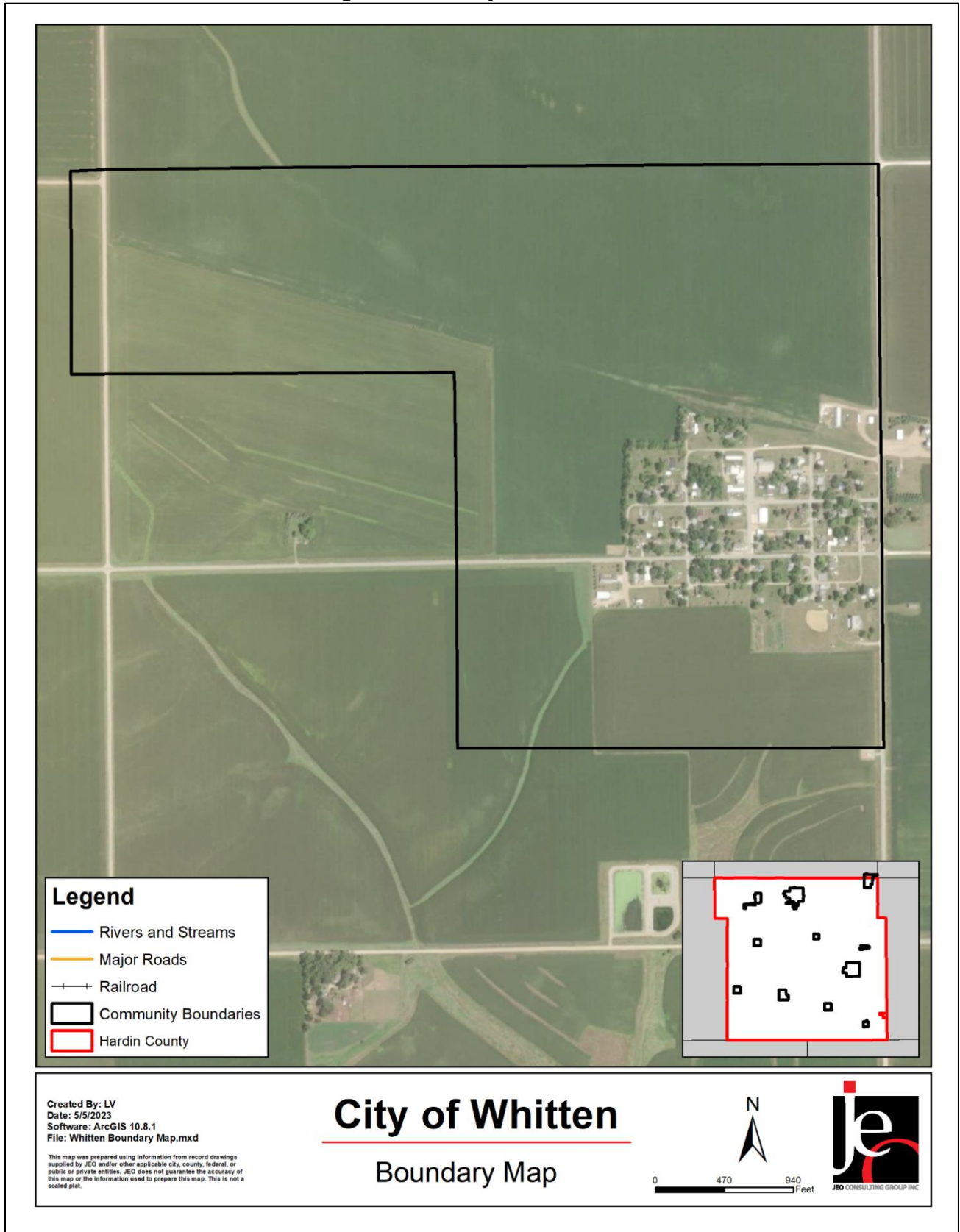
Figure WTN.1: Population 1890 - 2021



Source: U.S. Census Bureau

178 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." [database file]. <https://data.census.gov>.

Figure WTN.2: City of Whitten

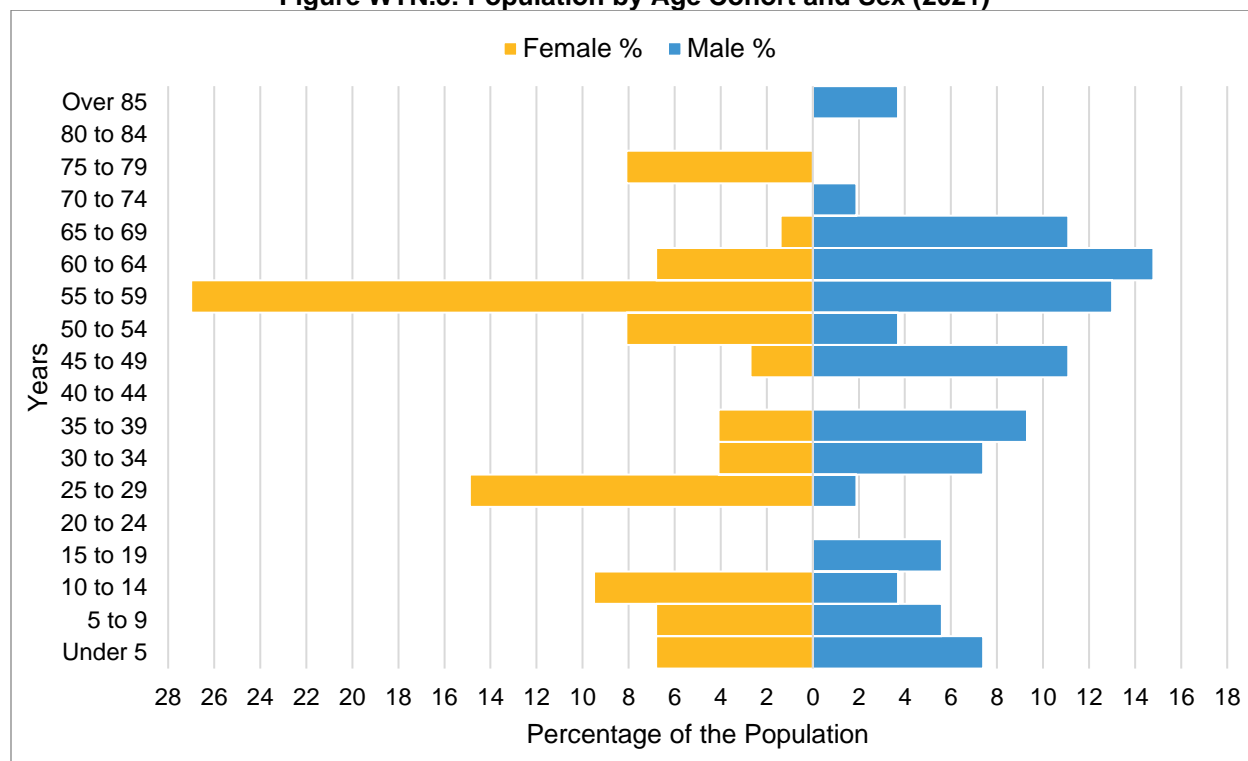


Section Seven: City of Whitten Community Profile

The young, elderly, and minority populations may be more vulnerable to hazards than other groups. Looking at Whitten's population:

- **12.5% is non-white.** Since 2010, Whitten has become more racially diverse. In 2010, 4.7% of the Whitten's population was non-white. By 2021, 12.5% was non-white.^{179 180}
- **Median age of 50.** The median age of Whitten was 50 years old in 2021. The population became older since 2010, when the median age was 34.8.¹⁸¹

Figure WTN.3: Population by Age Cohort and Sex (2021)



Source: U.S. Census Bureau¹⁸²

The figure above shows Whitten's population percentage broken down by sex and five-year age groups. Whitten's population is top heavy. This suggests a future population decline as older generations are replaced by fewer younger residents.

Employment and Economics

Low-income populations, long distance commuters, and the unemployed may be more vulnerable to certain hazards like extreme heat and flooding than other groups. Whitten's population has:

179 United States Census Bureau. "2021 Census Bureau American Community Survey: DP05: ACS Demographic and Housing Estimates." <https://data.census.gov/>.

180 United States Census Bureau. "2010 Census Redistricting Data (Public Law 94-171): P1: Race." <https://data.census.gov/>.

181 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

182 United States Census Bureau. "2021 Census Bureau American Community Survey: S0101: Age and Sex." <https://data.census.gov/>.

- **2.3% of people living below the poverty line.** The poverty rate (2.3%) in the City of Whitten was lower than the state’s poverty rate (11%) in 2021.¹⁸³
- **\$61,875 median household income.** Whitten’s median household income in 2021 (\$61,875) was \$3,554 lower than the state (\$65,429).
- **3.2% unemployment rate.** In 2021 Whitten had a lower unemployment rate (3.2%) when compared to the state (3.9%).
- **21.7% of workers commuted 30 minutes or more to work.** Fewer workers in Whitten commuted 30 minutes or more to work than workers commuting less than 15 minutes (21.7% compared to 30%).¹⁸⁴

Major Employers

The planning team indicated that the majority of residents commute to other cities for work, such as Marshalltown, Eldora, Conrad, and Union. There are no major employers within Whitten.

Housing

Multiple factors inform the vulnerability of housing units to hazard events. Housing age, for example, may indicate which housing units were built prior to the development of state building codes. Older houses and vacant housing are generally more vulnerable to hazards if poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe thunderstorms if those homes are not anchored correctly. Renters are particularly vulnerable, as renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. Renters are less likely than homeowners to have flood insurance, have ready access to financial resources to evacuate, or to know their risks to flooding and other hazards. Whitten’s housing stock has:

- **98.2% of housing built prior to 1970.** Whitten has a larger share of housing built prior to 1970 than the state (98.2% compared to 49.9%).¹⁸⁵
- **43.6% of housing units vacant.** Whitten has a higher vacancy rate (43.6%) compared to the rest of the state (9.3%).
- **1.8% mobile and manufactured housing.** The City of Whitten has a smaller share of mobile and manufactured housing (1.8%) compared to the state (3.5%).
- **21% renter-occupied.** The rental rate of Whitten was 21% in 2021. This is lower than the state’s rate of 28.4%.

Broadband Access

Internet or broadband access – through Wi-Fi or cellphone coverage – is a critical means of sharing and receiving information regarding hazardous events, including storm warnings, evacuation orders, or weather updates. Rural communities often lack adequate internet or broadband access. However, internet access is as vital a utility as electricity, as seen through the COVID-19 pandemic when many people worked or attended school from home.

183 United States Census Bureau. “2021 Census Bureau American Community Survey: DP03: Selected Economic Characteristics.” <https://data.census.gov/>.

184 United States Census Bureau. “2021 Census Bureau American Community Survey: S0802: Means of Transportation to Work by Selected Characteristics.” <https://data.census.gov/>.

185 United States Census Bureau. “2021 Census Bureau American Community Survey: DP04: Selected Housing Characteristics.” <https://data.census.gov/>.

- **77.4% of households have a broadband internet subscription.** Whitten has a smaller share of households with broadband (77.4%) compared to the state (84.9%).¹⁸⁶

Governance

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Whitten has a mayor, a five-member city council, and the following offices.

- Clerk/Treasurer
- Attorney
- Fire Chief

Capability Assessment

The planning team assessed the City of Whitten’s hazard mitigation capabilities by reviewing local existing policies, regulations, plans, and programs related to hazard mitigation. 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 WTN.2: Capability Assessment

Survey Components/Subcomponents		Yes/No
Planning & Regulatory Capability	Comprehensive Plan	No
	Capital Improvements Plan	No
	Economic Development Plan	No
	Emergency Operations Plan	County
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	No
	Building Codes	Yes
	Source Water Protection Plan	No
	Water System Emergency Response Plan	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

186 United States Census Bureau. "2021 Census Bureau American Community Survey: DP02: Selected Social Characteristics in the United States." <https://data.census.gov/>.

Survey Components/Subcomponents		Yes/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	No
	Applied for grants in the past	No
	Awarded a grant in the past	No
	Authority to Levy Taxes for Specific Purposes such as Mitigation Projects	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
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)	

Table WTN.3: Overall Capability

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Community support to implement projects	Limited
Time to devote to hazard mitigation	Limited
Ability to expand and improve identified capabilities to achieve mitigation	Limited

Social Vulnerability

FEMA’s National Risk Index is a new mapping tool that analyzes a community’s risk to natural hazards on a scale of 0 (lowest possible value) to 100 (highest possible value). The overall risk for Hardin County, which includes Whitten, is Relatively Low (60.93). The average for the State of Iowa is 43.31.¹⁸⁷

- **Social Vulnerability:** Social groups in Hardin County have a Very Low (16.52) susceptibility to adverse impacts of natural hazards when compared to the rest of the U.S.
- **Community Resilience:** Communities in Hardin County have a Very High (84.25) ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

An additional tool developed by Headwaters Economics, the Rural Capacity Index, evaluates rural communities and counties nationwide for local capacity. Capacity includes the staffing, resources, and expertise to both apply for funding and fulfill reporting requirements, as well as design, build, and maintain infrastructure products over the long term. Communities lacking local capacity often have the greatest need for infrastructure investments, particularly rural communities and communities of color. The Rural Capacity Index helps identify communities with limited capacity on a scale of 0 (no capacity) to 100 (high capacity). This index is based on 10 variables that can function as proxies for community capacity. The following table lists the components and scores for the City of Whitten compared to the county.

Table WTN.4: Rural Capacity Index

Components of Index	City of Whitten	Hardin County
County is Metropolitan?	No	No
Has a Head of Planning?	No	Yes
Has a College or University?	No	Yes
Adults with Higher Education:	1%	21%
Families Below Poverty Level:	5%	6%
Households with Broadband:	67%	73%
People without Health Insurance:	5%	4%
Voter Turnout:	75%	75%
Income Stability Score (0 to 100):	48	48
Population Change (2000 to 2019):	30	-1,966
Overall Rural Capacity Index Score	44	77

Source: Headwaters Economics¹⁸⁸

187 Federal Emergency Management Agency. “National Risk Index”. Accessed April 2023. <https://hazards.fema.gov/nri/map>.

188 Headwaters Economics. January 2022. “Rural Capacity Map”. Accessed May 2023. <https://headwaterseconomics.org/equity/rural-capacity-map/>.

Plan Integration

Whitten has limited 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 or how it contains hazard mitigation principles. When the city updates these planning mechanisms, the local planning team will review the hazard mitigation plan for opportunities to incorporate the goals and objectives, risk and vulnerability data, and mitigation actions into the plan update.

Grants and Funding

The City of Whitten’s funds are limited to maintaining current facilities and municipal systems and the amount of funds has decreased in recent years. In recent years, the city applied for a grant for fire protection through the USDA but has not been awarded funding.

Zoning Ordinance (2023)

The city’s zoning ordinance outlines where and how development should occur in the future. According to the local planning team, the zoning ordinance does not contain floodplain maps or discourage development in the floodplain. There is currently no timeline to update the ordinance.

Future Development Trends

The planning team indicated that there were no changes in the last five years. There are currently no plans for residential or commercial development over the next five years.

Community Lifelines

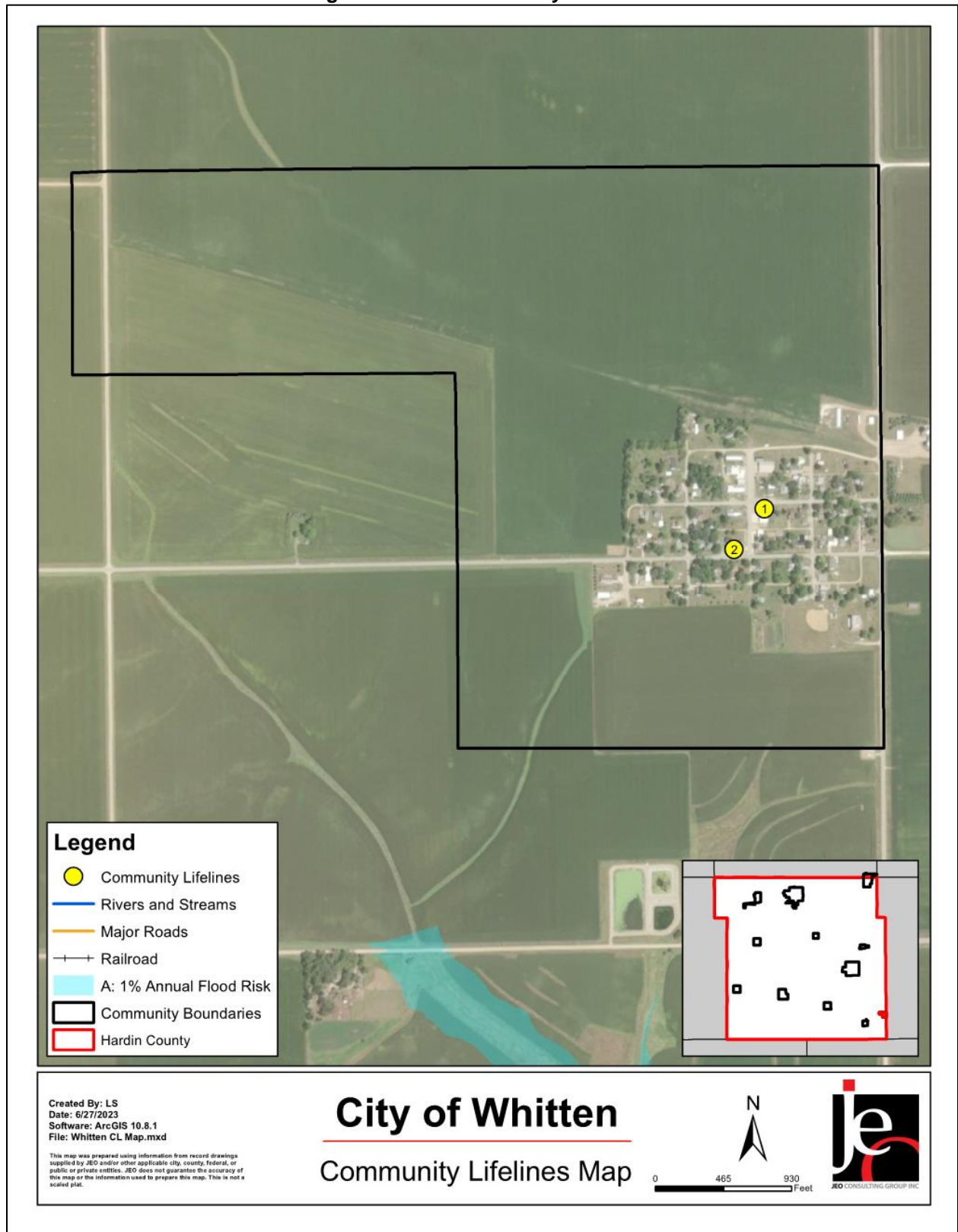
Each participating jurisdiction identified community lifelines that are vital for disaster response and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. The FEMA-recognized lifelines include: Safety and Security; Food, Water, and Shelter; Health and Medical; Energy; Communication; Transportation; and Hazardous Material facilities.



Table WTN.5: Community Lifelines

CL#	Name	Lifeline Type	Generator (G) Shelter (S)	Floodplain (Y/N)
1	Whitten Fire Department	Safety and Security	G, S	N
2	Whitten Community Church	Food, Water, and Shelter	S	N

Figure WTN.5: Community Lifelines



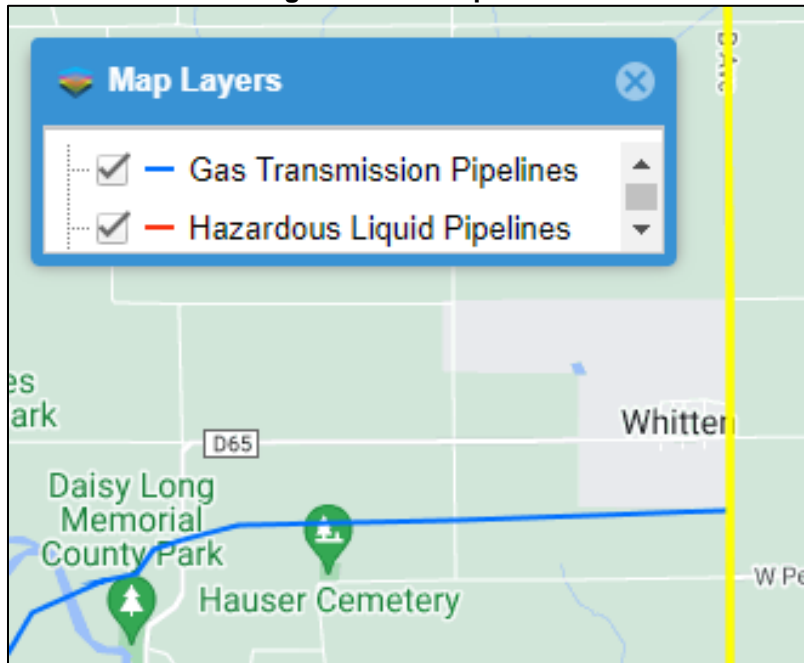
Transportation

Whitten’s major transportation corridors include County Roads D65 and S75. The most traveled route is County Road S75 with an average of 530 vehicles daily.¹⁸⁹ There are no rail lines in the city.¹⁹⁰ The nearest airport is Eldora Airport, located approximately seven miles northwest of Whitten.¹⁹¹ 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.

Hazardous Materials

The Hazardous Materials Lifeline includes chemical storage facilities, pipelines, and transported chemical tanks. There is one gas transmission pipeline that travels near the community. This can be seen in Figure WTN.4.

Figure WTN.4: Pipelines



Source: National Pipeline Mapping System¹⁹²

According to the Tier II System reports submitted to the Iowa Department of Natural Resources, there are no chemical storage sites within or near Whitten that contain hazardous materials.¹⁹³ The planning team noted that farm chemicals are regularly transported along local routes. No significant spills have occurred in the community.

189 Iowa Department of Transportation. 2021. "Iowa Traffic Data". Accessed May 2023. <https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=0cce99afb78e4d3b9b24f8263717f910>.
 190 Iowa Department of Transportation. 2021. "Iowa Railroads." Accessed May 2023. <https://iowadot.gov/iowarail/railroads/maps/basemap.pdf>.
 191 Iowa Department of Transportation. 2021. "Public Use Airports in Iowa". Accessed May 2023. <https://iowadot.gov/aviation/airport-information>.
 192 National Pipeline Mapping System. 2022. "Public Viewer." Accessed April 2023. <https://pvnpm.phmsa.dot.gov/PublicViewer/>.
 193 E-Plan – Emergency Response Information System. 2022. "Facility Search." Accessed November 2022. <https://erplan.net/eplan/actions/facilitySearch.htm>.

Parcel Improvements and Valuation

The planning team requested GIS parcel data from the County Assessor as of June 2023. This data allowed the planning team 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. No LOMAs were identified for the City of Whitten.¹⁹⁴

Table WTN.6: Whitten Parcel Improvements and Value in the 1% Annual Flood Risk Area

Number of Parcels	Number of Improvements	Total Improvement Value	Number of Improvements in Floodplain	Value of Improvements in Floodplain
114	76	\$3,246,780	0	N/A

Source: County Assessor, 2023

Hazard Prioritization

The Hardin County Hazard Mitigation Plan evaluates a range of natural and manmade hazards which pose a risk to the county, communities, and other participants. For a review and analysis of identified regional hazards, please see *Section Four: Risk Assessment*. A full list of historical hazard occurrences can be found in the Hardin 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.

Hazardous Materials Release

According to the Pipeline and Hazardous Materials Safety Administration, Whitten experienced zero transportation-related hazardous materials releases. The National Response Center reported a fixed hazardous materials release in 2012 when an unknown amount of anhydrous ammonia was released at a bulk transfer plant due to unknown causes. No evacuations, injuries, or fatalities were reported from this event.

The planning team identified this as a hazard of top concern due to the many trucks going through the community and surrounding area that carry hazardous farm chemicals. If a spill were to happen, it could greatly impact the city as there is no equipment to handle a spill locally. More training to handle chemical spills was identified as a needed action for the city.

Severe Winter Storms

Severe winter storms are a regular part of the climate and weather for Whitten. Severe winter storms include blizzards, ice accumulation, heavy snow, and winter storms. These storms can cause power outages during bitterly cold temperatures, road closures, and economic impacts. According to the NCEI, there were 87 winter storm events in Hardin County from 1996 to 2022. The planning team identified this as a hazard of top concern due to the potential for power outage and difficulty in snow removal. Power can go out for many hours and large drifts make snow removal difficult. The city recently purchased a generator to have at the fire hall to provide as a

194 Federal Emergency Management Agency. 2023. "FEMA Flood Map Service Center." Accessed May 2023. <https://msc.fema.gov/portal/home>.

shelter. A snowblower that will fit on a tractor is needed to remove drifts larger than the city plow can handle.

Tornado and Windstorm

Tornadoes and Windstorms have the potential for significant damage, economic impacts, and loss of life. Windstorms are common across the county and can cause property and tree damage and brief power outages. Tornadoes are much less common, but the impacts can be far greater. Between 1996 and 2022, the NCEI recorded 38 high wind events in Hardin County and one EF0 tornado in Whitten. The tornado occurred on June 15, 2019, and resulted in \$1,000 in property damage. No injuries or deaths were reported from the event. The planning team noted that the August 2020 derecho downed many trees in Whitten, requiring large cleanup efforts. Trimming on city property has been completed since that event, but there are many other trees in the community that could cause issues. The planning team indicated that a tree assessment is needed to identify which trees are vulnerable to storms.

Mitigation Strategy

New Mitigation and Strategic Actions

Mitigation Action	Response Plan - Hazardous Materials Release
Description	Develop an emergency response plan for hazardous materials release.
Hazard(s)	Hazardous Materials Release
Estimated Cost	\$5,000+
Local Funding Source	City General Budget
Timeline	1 year
Priority	High
Lead Agency/Department	Mayor
Status	Early stages

Mitigation Action	Identify and Acquire Winter Storm Resources
Description	Identify and acquire needed equipment and resources to mitigate and respond to severe winter storm events.
Hazard(s)	Severe Winter Storms
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Section Seven: City of Whitten Community Profile

Mitigation Action	Infrastructure Hardening
Description	Harden critical facilities to withstand high winds, hail, heavy snow, etc. by: hardening roofs, hail resistant barriers to HVAC systems, shatter-proofing windows, building tie-downs and anchors, flood walls, etc.
Hazard(s)	Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Tornadoes and Windstorms
Estimated Cost	Varies by structure
Local Funding Source	City General Budget
Timeline	5+ years
Priority	Low
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Hazardous Materials Awareness and Release Prevention
Description	Increase public awareness and support for prevention of hazardous materials release.
Hazard(s)	Hazardous Materials Release
Estimated Cost	\$500+
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	Mayor
Status	Not started

Mitigation Action	Public Awareness and Education
Description	Through activities such as outreach projects, distribution of maps, and environmental education increase public awareness of natural and manmade 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.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$500+
Local Funding Source	City General Fund
Timeline	5+ years
Priority	Low
Lead Agency/Department	City Council
Status	In progress

Continued Mitigation and Strategic Actions

Mitigation Action	Purchase Generators for Critical Facilities
Description	Purchase generators for use in critical facilities
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$20,000+ per generator
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	High
Lead Agency/Department	City Council
Status	One generator was installed in 2022.

Mitigation Action	Create Fuel Storage in City
Description	Install fuel storage facility within the city
Hazard(s)	Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Not started

Mitigation Action	Plant Windbreaks
Description	Plant windbreaks around town
Hazard(s)	Severe Winter Storms, Infrastructure Failure
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Some new trees have been planted to start the windbreak. More trees will be planted as grant funds come available with local funding match.

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Mitigation Action	Construct a Safe Room
Description	Construct a safe room
Hazard(s)	Severe Thunderstorms, Severe Winter Storms, Tornado and Windstorm
Estimated Cost	\$350+ per square feet
Local Funding Source	City General Budget, CDBG
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Not started

Mitigation Action	Portable Generators for Vulnerable Population Residents and Structures
Description	Purchase generators for use in vulnerable population homes and structures
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$20,000+ per generator
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	No generator purchased; however, the fire station has been designated as a shelter when electricity is out.

Mitigation Action	Construct a Community Shelter
Description	Construct a community shelter
Hazard(s)	Dam Failure, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Severe Thunderstorms, Severe Winter Storms, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget, CDBG
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Not started

Mitigation Action	Identify Backup Communication Equipment to be Purchased for a Communications Failure
Description	Identify back up communication equipment to be purchased for widespread breakdown or disruption of normal communication system capabilities including loss of or long-term interruption of local government radio facilities and major telephone outages due to mechanical failure, traffic accidents, power failure, line severance, and weather.
Hazard(s)	All hazards
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Not started. The fire department currently has radios that can be used. Cell phones can also be used, with the ability to charge them at the fire station.

Mitigation Action	Start Community Food, Water, and Clothing Shelf
Description	Start community shelf to provide essentials in hazard events
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council, Hardin County Emergency Management
Status	Not started

Mitigation Action	First Aid and Filtration Equipment
Description	Purchase and store first aid equipment at fire station and enroll one firefighter and one city council member or resident in a class on first aid. Purchase a Berkey water filtration system.
Hazard(s)	Dam Failure, Drought, Earthquake, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency/Department	City Council
Status	Not started

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Mitigation Action	NOAA All-Hazard Radios
Description	Create a program or secure funding to provide NOAA All-Hazard Radios to all city buildings and Whitten residents.
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	\$50+ per unit
Local Funding Source	City General Budget, Hardin County
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council, Hardin County Emergency Management
Status	Not started

Mitigation Action	Promote Home Disaster Preparedness
Description	Create a program to educate Whitten residents about the dangers of hazards and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Hazard(s)	Animal & Plant Disease, Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Temperature, Flooding, Grass/Wildfire, Hazardous Materials Release, Human Infectious Diseases, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Estimated Cost	TBD
Local Funding Source	City General Budget
Timeline	2-5 years
Priority	Low
Lead Agency/Department	City Council
Status	Not started

Removed Mitigation and Strategic Actions

Mitigation Action	Acquisition and Elevation of Structures
Description	Acquire or elevate structures that are damaged by flooding
Hazard(s)	Flooding, Infrastructure Failure
Reason for Removal	No structures have been damaged by flooding. There is no floodplain in the city.

Mitigation Action	Create a Plan of Action for Disasters to Announce Shelter, Food and Water Locations
Description	Create an emergency, strategic plan of action for disasters i.e., announce shelter, food, and water locations
Hazard(s)	Dam Failure, Earthquake, Expansive Soils, Flooding, Grass/Wildfire, Hazardous Materials Release, Infrastructure Failure, Severe Thunderstorms, Severe Winter Storms, Sinkhole, Terrorism & Civil Unrest, Tornado & Windstorm, Transportation Incident
Reason for Removal	Handled through social media, phone, and door to door.

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 (e.g., 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 planning team will include the Mayor and City Council. The plan will be reviewed and updated annually. The public will be involved in the review and revision process through council meetings.