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# County Profile

# Nemaha County

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

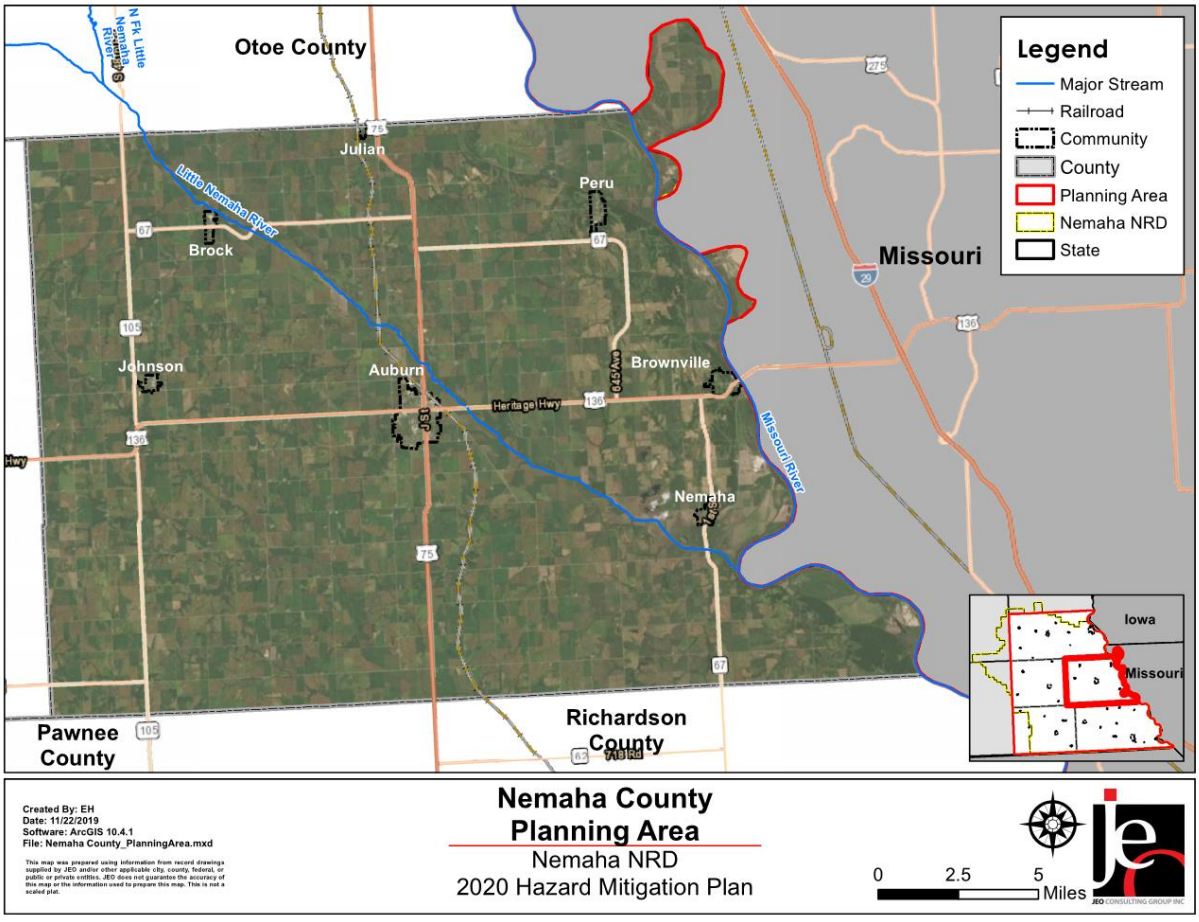
**Table NCO.1: Nemaha County Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Renee Crister | Emergency Manager | Nemaha County |
| Jeff Rowell | Deputy Director | Nemaha County |

## Location and Geography

Nemaha County is located in southeastern Nebraska and is bordered by Johnson, Otoe, Pawnee, and Richardson Counties. It also shares a border with the State of Missouri to the east. The total area of Nemaha County is 410 square miles. The Missouri River forms its eastern boundary and the Little Nemaha River runs through the center of the county. Most of the county's land is used for agricultural production.

**Figure NCO.1: Nemaha County**




## Transportation

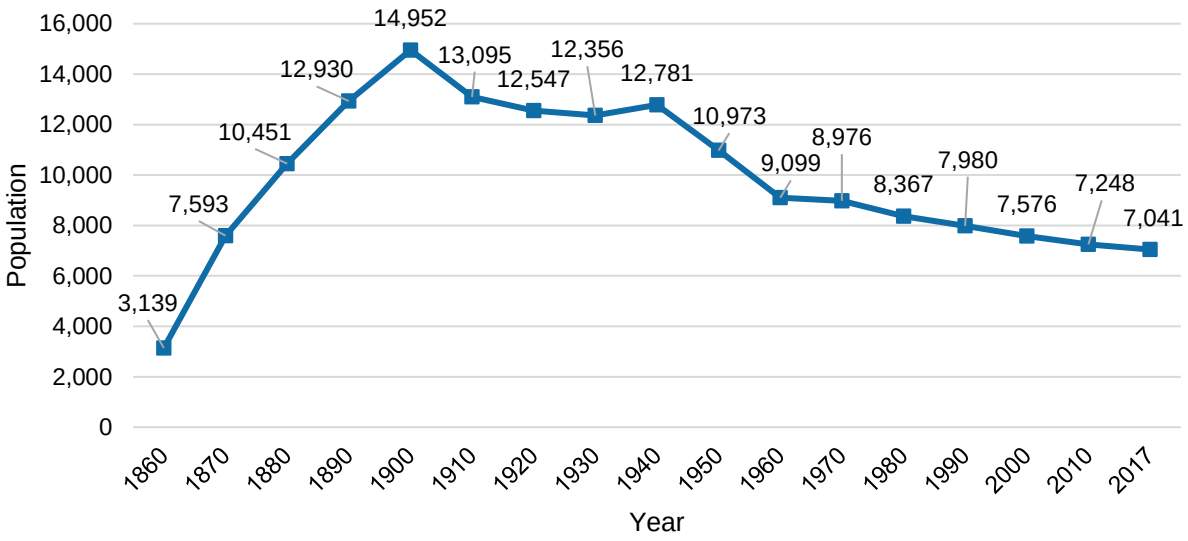
Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. Nemaha County's major transportation corridors include US Highways 75 and 136 and Nebraska State Highways 62, 67, and 105. A Union Pacific Railroad line runs north to south through the county. The county also

has three air landing strips in Auburn and Johnson. The transportation route of most concern is Highway 136 at the Brownville Bridge as it is routinely closed due to flooding. A variety of chemicals are transported through Nemaha County via rail and highways.

## Demographics, Employment, and Economics

The following figure displays the historical population trend from 1860 to 2017. This figure indicates that the population of Nemaha County has been decreasing since 1940 and was at 7,041 people in 2017.

**Figure NCO.2: Population**




*Source: U.S. Census Bureau, 1860 - 2017*[1]

The young, elderly, minority populations, and low-income populations may be more vulnerable to certain hazards than other groups. The following table indicates that the county is older than the state, has a less diverse population, and has a slightly lower poverty rate. The per capita income in Nemaha County is lower than the State of Nebraska. A more detailed discussion of the vulnerabilities associated with age, ethnicity, and poverty can be found in *Section Four: Risk Assessment*.

**Table NCO.2: Demographics**

| | Nemaha County | State of Nebraska |
|---|---|---|
| Median age | 38 years old | 36.3 years old |
| Hispanic | 2.6% | 10.5% |
| Below the federal poverty line | 11.5% | 12.0% |
| Per capita income | 28,572 | $29,866 |

*Source: U.S. Census Bureau*[2]

### Major Employers

Major employers in the county include Cooper Nuclear Station, Peru State College, Fast Global Solutions, Nemaha County Hospital, and Magnolia Metal Company. There is some commuting to communities outside the county, but most stay local as Nemaha is a primarily agriculturally-based county.

1 United States Census Bureau. "American Fact Finder: S0101: Age and Sex." [database file]. https://factfinder.census.gov.

**Table NCO.3: Business in Nemaha County**

| | Total Businesses | Number of Paid Employees | Annual Payroll (In Thousands) |
|---|---|---|---|
| Total for all sectors | 183 | 1,502 | $45,583 |

*Source: U.S Census Bureau*[2]

Agriculture is important to the economic fabric of the State of Nebraska. Nemaha County's 303 farms cover 216,157 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute to agriculture by producing, processing and marketing farm products. These businesses generate income, employment and economic activity throughout the region.

**Table NCO.4: Agricultural Inventory**

| | Agricultural Inventory |
|---|---|
| Number of farms with harvested cropland | 303 |
| Acres of harvested cropland | 216,157 |

*Source: USDA Census of Agriculture, 2019*[3]

## Housing

Housing age can serve as an indicator of vulnerability, as structures that are poorly maintained or that were built prior to state building codes are at greater risk to damage from hazards. The following table indicates that most of the housing in Nemaha County was built prior to 1970 (61.6%). The original Flood Insurance Rate Map (FIRM) was developed in April 1992. Housing built in the floodplain after the FIRM was adopted is built to a standard of 1 foot above the base flood elevation, as required by the floodplain ordinance; housing built prior to 1992 will be vulnerable to flood damage.

In the county, about 2.8% of housing units are mobile homes. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Nemaha County has less renter-occupied but more vacant housing than the state. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards.

**Table NCO.5: Housing**

| | Nemaha County | State of Nebraska |
|---|---|---|
| Housing built before 1970 | 61.6% | 47.2% |
| Mobile and manufactured | 2.8% | 3.4% |
| Renter-occupied | 28.1% | 34.0% |
| Vacant | 19.9% | 9.2% |

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

2 United States Census Bureau. "American Fact Finder: Geography Area Series County Business Patterns 2016 Business Patterns." [database file]. https://factfinder.census.gov.
3 U.S. Department of Agriculture. 2019. "2017 Census of Agriculture." https://www.nass.usda.gov/Publications/AgCensus/2017/.
4 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov.
5 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov.

## Future Development Trends

Over the past five years, flooding has primarily impacted the eastern side of the county. According to American Community Survey estimates, Nemaha County's population is generally declining. This decline can lead to decreasing tax base. The local planning team attributed the loss to a lack of employment opportunities and farming not being able to sustain multiple families. In the next five years, no business or housing developments are planned in the unincorporated areas of the county.

## Parcel improvements and Valuation

GIS parcel data was acquired from the County Assessor. This data was analyzed for the location, number, and value of property improvements at the parcel level. Property improvements include any built structures such as roads, buildings, and paved lots. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table NCO.6: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 4,506 | $260,445,337 | 706 | 15.66% | $33,704,677 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[6]

6 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

# Critical Infrastructure

## Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of eight chemical storage sites in the unincorporated areas of Nemaha County. The table below lists the name and location of the sites and whether they are in the floodplain.

**Table NCO.7: Chemical Storage Fixed Sites**

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| AT&T Communications 1190 | 63713 727 Road, Auburn, NE | N |
| OPPD Substation No. 1280 | 63464 727 Road, Auburn, NE | N |
| CenturyLink | 725 Road, Auburn, NE | N |
| Midwest Farmers Cooperative | 62934 NE-62, Auburn, NE | N |
| NPPD Cooper Nuclear Station | 72676 648A Avenue, Brownville, NE | Y |
| Auburn Municipal Airport | 64171 Highway 136, Auburn, NE | N |
| OPPD Substation No. 1263 | 63452 Highway 67, Brock, NE | N |
| OPPD Substation No.963 | 63550 Highway 67, Brock NE | N |

*Source: Nebraska Department of Environment and Energy, 2019*[7]

## Critical Facilities

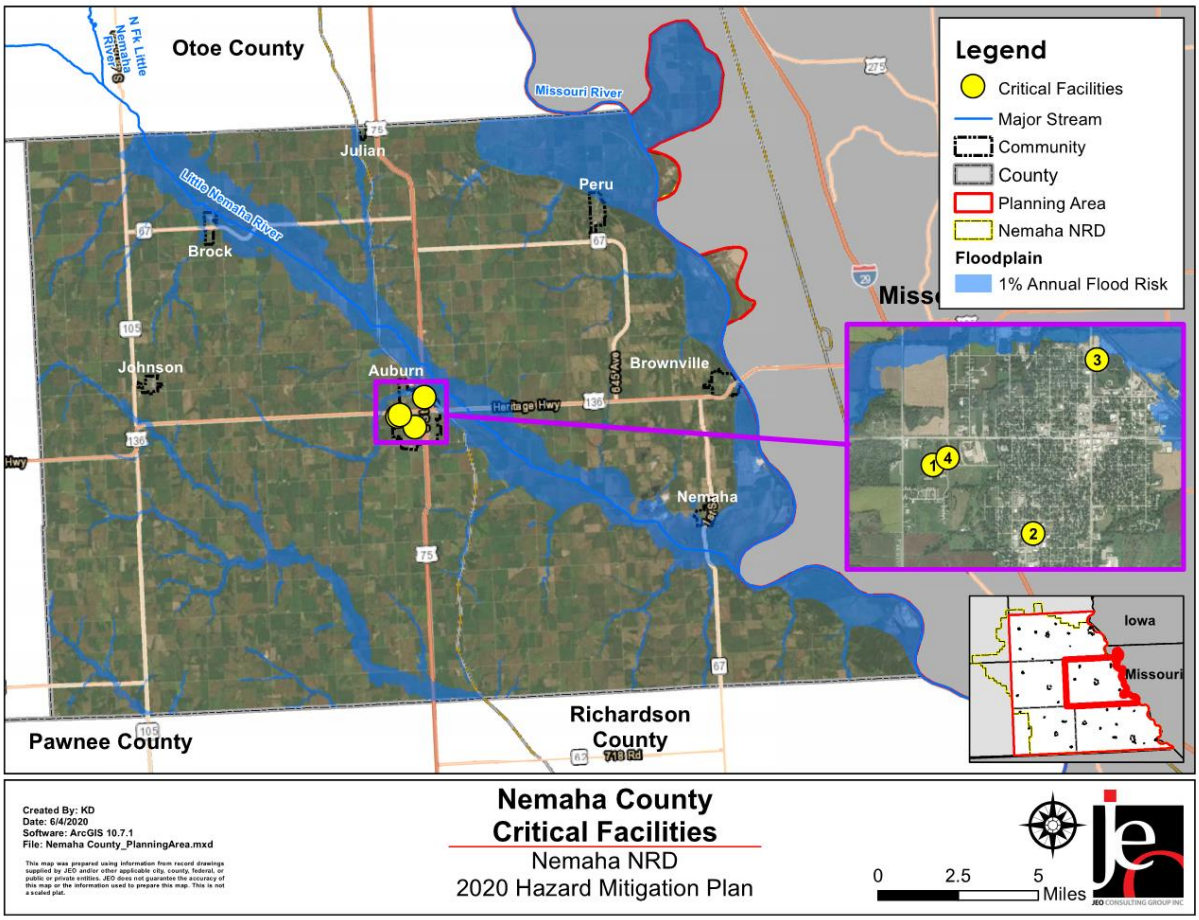
The planning team identified critical facilities necessary for Nemaha County's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the county.

**Table NCO.8: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Good Samaritan Long Term Care Facility | N | Y | N |
| 2 | Nemaha County Courthouse and Sheriff's Department | N | N | N |
| 3 | Nemaha County Emergency Management Office | N | Y | N |
| 4 | Nemaha County Hospital | N | Y | N |

7 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

**Figure NCO.3: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

The following table provides a statistical summary for hazards that have occurred in the county. These are county-specific broad estimates.

**Table NCO.9: County Hazard Loss History**

| Hazard Type | | Count | Property Damage | Crop Damage[2] |
|---|---|---|---|---|
| Agricultural Disease | Animal Disease[1] | 15 | 822 animals | N/A |
| | Plant Disease[2] | 10 | N/A | $30,386 |
| Chemical & Radiological Spills (Fixed Site)[3] | | 1 | $0 | N/A |
| Chemical & Radiological Spills (Transportation)[4] | | 5 | $230 | N/A |
| Dam Failure[5] | | 0 | N/A | N/A |
| Drought and Extreme Heat | Drought[6] | 432/1,496 months | N/A | $36,382,955 |
| | Extreme Heat[7] | Avg. 6 days/year | | |
| Earthquake[13] | | 2 | $0 | N/A |
| Flooding[8] | Flash Flood | 12 | $698,000 | $9,115,318 |

| Hazard Type | | Count | Property Damage | Crop Damage[2] |
|---|---|---|---|---|
| | Flood | 53 | $500,000 | |
| Levee Failure[10, 11] | | 7 | N/A | N/A |
| Severe Thunderstorms[8] | Thunderstorm Wind<br>Range: 50-74 kts<br>Average: 57 kts | 69 | $50,000 | $17,649,125 |
| | Hail<br>Range: 0.75-2.75 in<br>Average: 1.1 in | 106 | $0 | |
| | Heavy Rain | 3 | $0 | |
| | Lightning | 0 | $0 | |
| Severe Winter Storms[8] | Blizzard | 4 | $0 | $229,092 |
| | Extreme Cold/Wind chill | 4 | $0 | |
| | Heavy Snow | 6 | $0 | |
| | Ice Storm | 4 | $400,00 | |
| | Winter Storm | 32 | $0 | |
| | Winter Weather | 6 | $0 | |
| Terrorism[12] | | 0 | $0 | N/A |
| Tornadoes and High Winds[8] | High Winds<br>Range: 42-55 kts<br>Average: 47 kts | 12 | $0 | $1,226,322 |
| | Tornadoes<br>Range: EF0-EF1<br>Average: EF1 | 8 | $103,000 | |
| Wildfire[9] | | 285 | 3,565 acres | $29,484 |
| **Total** | | **644** | **$1,751,230** | **$64,662,944** |

*N/A: Data not available*
*1 - NDA, 2014 – October 2019*
*2 - USDA RMA, 2000 – November 2019*
*3 - NRC, 1990 - November 2019*
*4 - PHSMA, 1971 - November 2019*
*5 - Stanford NPDP, 1911 - 2018*
*6 - NOAA, 1895 - August 2019*
*7 - NOAA Regional Climate Center, 1897 - September 2019*
*8 - NCEI, 1996 - September 2019*
*9 - NFS, 2010 - 2018*
*10 - USACE NLD, 1900 - 2019*
*11 - USACE, 2019*
*12 – Global Terrorism Database, 1970-2018*
*13 – USGS, 1900- November 2019*

The following table provides a summary of hazards that have or have the potential to affect each participating jurisdiction in Nemaha County. Each jurisdiction was evaluated for previous hazard occurrence and the probability of future hazard events on each of the 12 hazards profiled in this plan. The evaluation process was based on data collected and summarized in Table NCO.9; previous impacts or the potential for impacts to infrastructure, critical facilities, people, and the economy; and the proximity to certain hazards such as dams.

**Table NCO.10: Nemaha County and Community Hazard Matrix**

| Hazard | Ag. Disease | Chemical – Fixed Site | Chemical - Transportation | Dam Failure | Drought and Extreme Heat | Earthquakes | Flooding | Levee Failure | Severe Thunderstorms | Severe Winter Storms | Terrorism | Tornadoes and High Winds | Wildfires |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemaha County | X | X | X | X | X | X | X | X | X | X | X | X | X |
| City of Auburn | X | X | X | | X | | X | | X | X | X | X | X |
| Village of Brock | X | X | X | | X | | X | | X | X | X | X | X |
| Village of Brownville | X | X | X | | X | | X | X | X | X | X | X | X |
| Village of Johnson | X | X | X | | X | | X | | X | X | X | X | X |
| Village of Julian | X | | X | | X | | X | | X | X | X | X | X |
| Village of Nemaha | X | | X | | X | | X | X | X | X | X | X | X |
| City of Peru | X | X | X | | X | | X | X | X | X | X | X | X |
| Auburn Volunteer Fire Dept. | | X | X | | X | | X | | X | X | X | X | X |
| Peru Rural Fire District | | X | X | | X | | X | X | X | X | X | X | X |

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## County Hazard Prioritization

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

### Flooding

The eastern boundary of Nemaha County is the Missouri River and flooding in the area is a concern every year. Large flooding events have occurred in 1993, 2010, 2011, and 2019. The March 2019 floods flooded 5,000+ acres of land, destroyed crops, and damaged structures. Riverine flooding from the Missouri and Little Nemaha River is the largest concern. However, flash flooding has caused a significant amount of scouring and erosion of the culverts, bridges, and tubes within Nemaha County. To mitigate the impacts of flooding the county uses erosion control and backfill.

### Levee Failure

There are six levee systems which travel through Nemaha County. The figure below shows the name and location of the levees. None of the levees are FEMA certified. The local planning team indicated that all of the levees are a concern as they have not completed SWIF plans. This disqualifies them for any federal grants to rebuild if they are damaged. Management and maintenance are limited due to funding mechanisms. During the March 2019 flooding event the Peru Missouri River RB breached. This caused the City of Peru's water treatment facility to be completely destroyed and damaged their sewer lagoons.

### Severe Thunderstorms

Primary concerns related to severe thunderstorms are wind damage and erosion from heavy rains. Severe thunderstorms occur multiple times a year in the county but are usually limited in the extent of damage. No significant infrastructure damages have occurred recently. Should damage occur, all county-owned buildings are insured. Important records and devices are backed up and have surge protectors. Richardson County Emergency Management offers text alerts for severe weather via the Everbridge system. Weather radios are also installed at critical facilities.

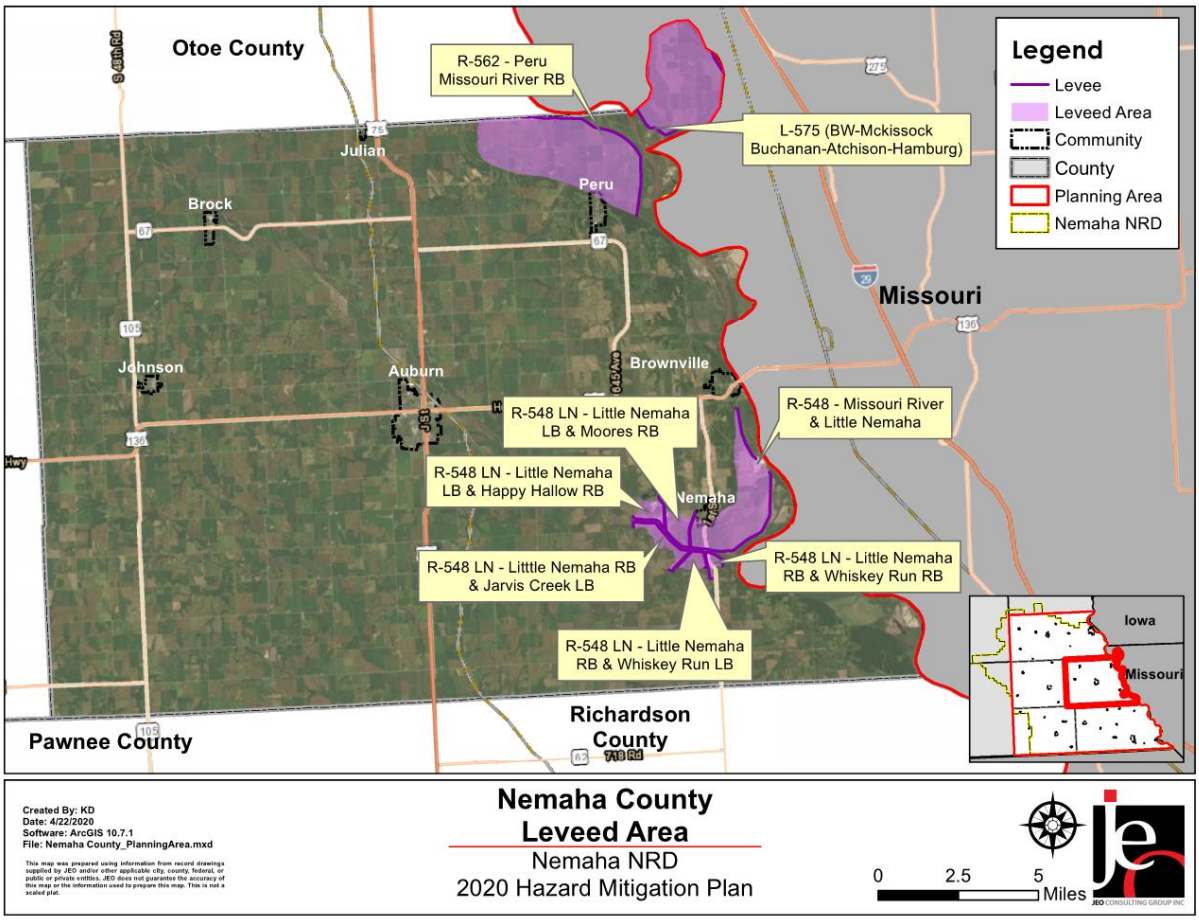
### Severe Winter Storms

The last significant severe winter storm that caused damages occurred in 2010. Power outages, road closures, and emergency service delays were all impacts associated with that and other storm events. Critical facilities have not been damaged from past events. Snow removal within communities is handled by the local jurisdiction. County roads are handled by Richardson County and snow removal on highways is handled by the State of Nebraska. Equipment for snow removal is sufficient for most winter storm events.

### Tornadoes and High Winds

High winds and tornadoes have occurred throughout the county; however, damage has been usually minimal and localized. Critical facilities have not been significantly damaged. In unincorporated areas, there is a warning siren at Duck Creek Recreation Area. This siren is solar charged and radio frequency operated. There are no certified safe rooms in the county with very few public sheltering options. The best option is private residences for those seeking shelter. In the event of a disaster the County Courthouse has a continuity of operations plan in place and all communities are encouraged to create a continuity of operations plan for their jurisdiction.

**NCO.4: Leveed Area**




## Governance

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

- County Clerk
- County Assessor
- County Treasurer
- County Attorney
- District Health Department
- Emergency Manager
- Sheriff
- Surveyor
- Safety Committee

## Capability Assessment

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

**Table NCO.11: Capability Assessment**

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

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Other (if any) | - |

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| Support to implement projects | Limited |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

Nemaha County has several plans that relate to or directly discuss hazards and hazard mitigation. The county's comprehensive plan outlines where and how development should occur in the future. The floodplain regulations for the county was last updated in 1992. It prohibits development within the floodplain and encourages maintaining open space within the floodplain. Nemaha County has a local emergency operations plan which was last updated in 2018. It contains information for the county and local communities regarding communications and warning, direction and control, damage assessment, emergency public information, evacuation, fire services, health and human services, law enforcement, mass care, protective shelter, and resource management. The plan is updated regularly and distributed to all communities. The county's 1-and 6-year plan includes projects to be done over that time period. Projects discussed include upsizing culverts and drainage structures, improving transportation routes for drainage, widening roadways used for evacuations, and bridge improvements. In addition to the plan listed above, there are wellhead protection areas and plans across the county. No other examples of plan integration were identified. The county will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

## Mitigation Strategy

### Continued and New Mitigation Actions

| Mitigation Action | Alert/Warning Sirens |
|---|---|
| **Description** | Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where needed. The county would like an alert siren at Duck Creek. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms |
| **Estimated Cost** | $15,000+ |
| **Funding** | General Budget, Local Budgets |
| **Timeline** | 5+ Years |
| **Priority** | High |
| **Lead Agency** | Nemaha County Emergency Management Agency, Local Jurisdictions |
| **Status** | Ongoing. Local entities are responsible for their own sirens. Nemaha County currently has one siren. |

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **Description** | Identify and evaluate current backup and emergency generators. Obtain additional generators based on identification and evaluation. Provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters. A backup generator is needed at the health department office, which serves as a backup location for the EOC. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $30,000+ |
| **Funding** | General Budget, Health Department Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Emergency Manager, Health Department Director |
| **Status** | New Action. Not Started. |

| Mitigation Action | Bank Stabilization |
|---|---|
| **Description** | Bank degradation is occurring along many rivers and creeks. Stabilization improvements including rock rip rap, vegetative cover, j-hooks, boulder vanes, etc. can be implemented to reestablish the channel banks. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | Local Budgets, General Budget |
| **Timeline** | 5+ Years |
| **Priority** | High |
| **Lead Agency** | Nemaha County Road and Bridge Department |
| **Status** | Ongoing. Stabilization occurs when issues are identified. |

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing equipment. For example: backup systems for emergency vehicles, training additional personnel, upgrading radio systems, etc. Nemaha County would like to obtain and train their local fire and rescue departments up to the ability of water and rope rescue equipment. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $30,000 |
| **Funding** | General Budget |
| **Timeline** | 1-3 Years |
| **Priority** | High |
| **Lead Agency** | Nemaha County Emergency Management |
| **Status** | New Action. Not Started. |

| Mitigation Action | Communication System |
|---|---|
| **Description** | Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. Establish interoperable communications. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $10,000+ |
| **Funding** | General Budget, Health Department Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | Emergency Manager, Health Department Director |
| **Status** | New action. Not Started. |

| Mitigation Action | Community Education and Awareness |
|---|---|
| **Description** | Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $500+ |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | High |
| **Lead Agency** | Nemaha County Emergency Management Agency, County Board |
| **Status** | Ongoing. All departments in the county perform public education on an annual basis. |

| Mitigation Action | Levee/Floodwall Construction and/or Improvements |
|---|---|
| **Description** | Improve existing flood control structures to meet community needs or construct additional/new flood control measures. This project will be located in Peru, Nemaha, and Brownville. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | Tax Base |
| **Timeline** | 3-5 Years |
| **Priority** | High |
| **Lead Agency** | Local Levee Districts, County Board |
| **Status** | Not Started. |

| Mitigation Action | Power and Service Lines |
|---|---|
| **Description** | Work with local Public Power District or Electricity Department to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures/infrastructure to be less vulnerable to storm events. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms |
| **Estimated Cost** | $70,000 per mile |
| **Funding** | General Budget, Local Budgets |
| **Timeline** | 5+ Years |
| **Priority** | High |
| **Lead Agency** | Local Entities, County Board |
| **Status** | Ongoing. The local boards of public works, Nebraska Public Power District, and Omaha Public Power District have all started to bury power lines. |

| Mitigation Action | Safe Rooms and Storm Shelters |
|---|---|
| **Description** | Design and construct fully supplied storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $200 - $300/sf stand alone; $150 - $200/sf addition/retrofit |
| **Funding** | General Budget, Local Budgets |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Local Jurisdictions, County Emergency Management Agency |
| **Status** | Ongoing. Storm shelters have been installed in jurisdictions around the county. |

| Mitigation Action | Stormwater System and Drainage Improvements |
|---|---|
| **Description** | Undersized systems can contribute to localized flooding. Stormwater system improvements, such as pipe upsizing and additional inlets, installation of retention and detention facilities can be implemented to decrease runoff rates while also decrease the need for other stormwater system improvements. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $100,000+ |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | County Board |
| **Status** | Ongoing. Improvements are made when issues are identified. |

# Community Profile

# City of Auburn

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table AUB.1: City of Auburn Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Dan White | Mayor | City of Auburn |
| Sherry Heskett | Clerk and Floodplain Administrator | City of Auburn |
| Vaughn Severs | Fire Chief | City of Auburn – Fire Department |
| Dave Hunter Jr. | General Manager | Auburn Board of Public Works |

## Location and Geography

The City of Auburn is in central Nemaha County and covers an area of 2.18 square miles in Nebraska's rolling hills region. The land around the city is used primarily for pasturing and irrigated row-crop agriculture.

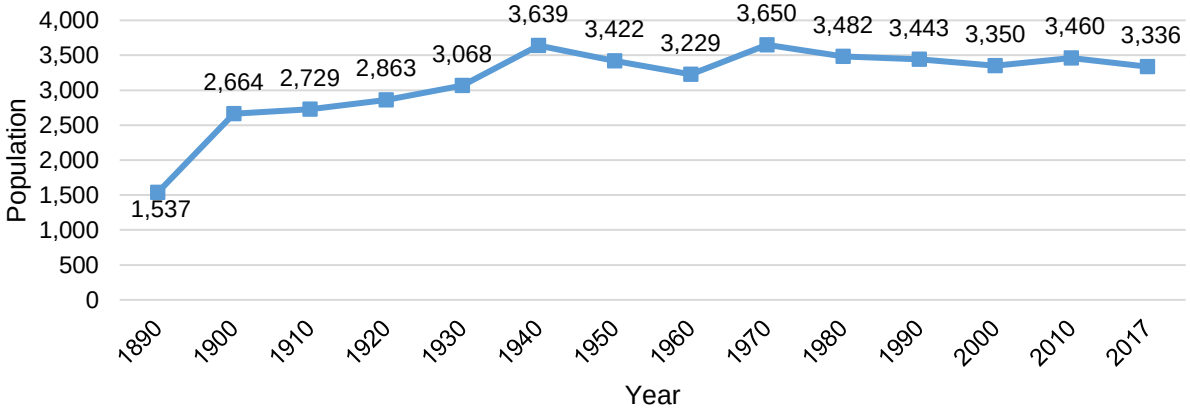
## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Auburn's major transportation corridors are US Highways 75 and 136. Highway 75 is traveled by a total annual average of 8,990 vehicles daily, 800 of which are trucks. Highway 136 is traveled by an average of 3,775 vehicles daily, 380 of which are trucks.[8] The city has one Union Pacific Railroad line traveling northwest to southeast on the community's eastern edge. The Auburn Municipal Airport is located to the east of the city. Transportation routes of most concern are Highway 75 and Highway 136 due to the high number of vehicles, especially when other roads are closed due to flooding. This occurred frequently in 2019 when Interstate 29 was closed. Highway 136 just east of Auburn has also been closed in the past due to flooding.

## Demographics

The City of Auburn's population has been stable since 2010, providing a reliable tax base that could fund mitigation projects. Auburn's population accounted for 47% of Nemaha County's population in 2017.[9]

**Figure AUB.1: Population**

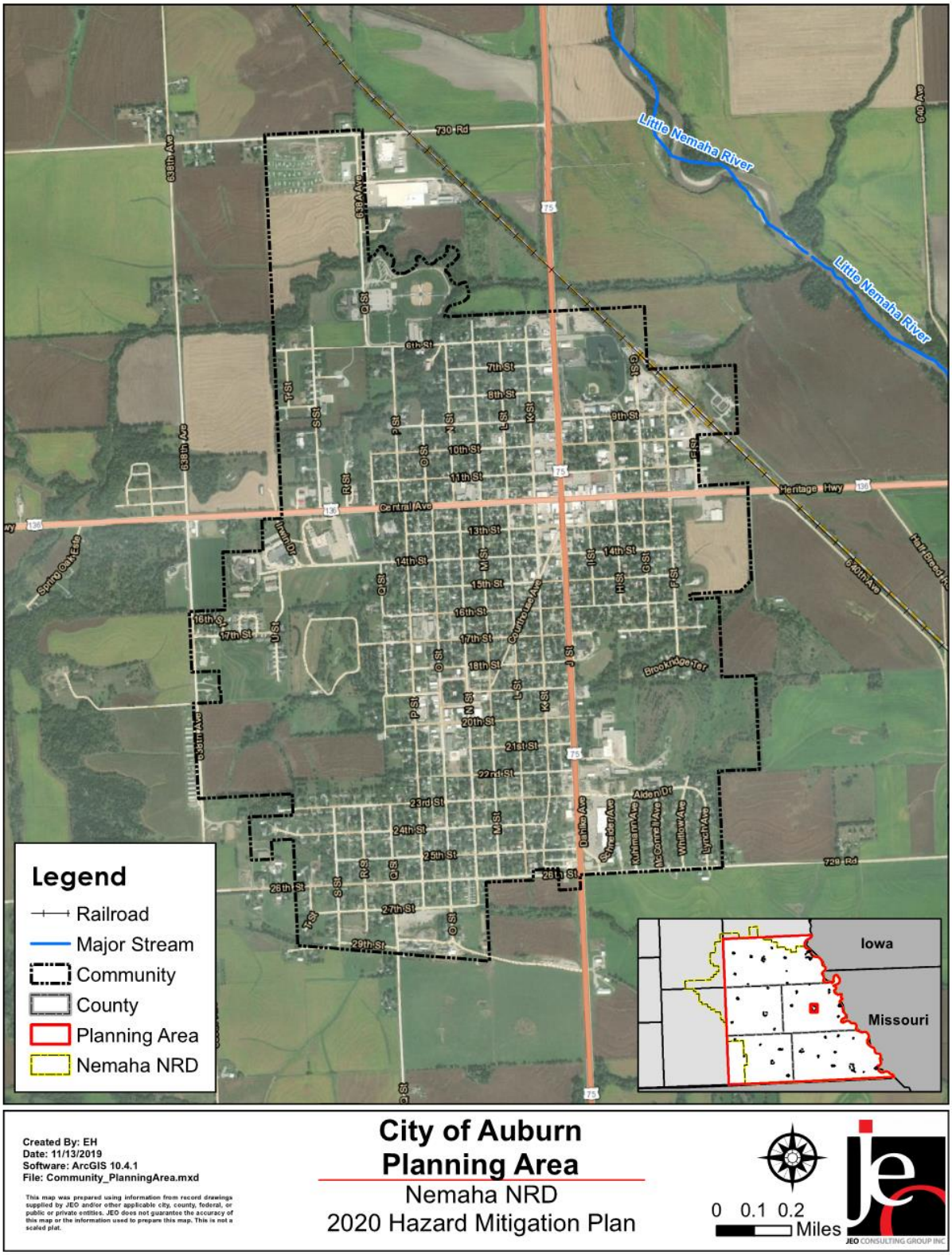



*Source: U.S. Census Bureau, 1890 – 2017*

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

9 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

**Figure AUB.2: City of Auburn**



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

- **Slightly younger.** The median age of Auburn was 37.8 years old in 2017, compared with Nemaha County's median of 41.7 years. Auburn's population grew younger since 2010, when the median age was 43.3 years old.[9]
- **Less ethnically diverse**. Since 2010, Auburn grew less ethnically diverse. In 2010, 1.2% of Auburn's population was Hispanic or Latino. By 2017, about 0.5% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.6% in 2010 to 2.6% in 2017.[9]
- **As likely to be below the federal poverty line.** The poverty rate in the City of Auburn (11.7% of people living below the federal poverty line) was similar to the county's poverty rate (11.5%) in 2017.[10]

## Employment and Economics

The City of Auburn's economic base is a mixture of industries. In comparison to Nemaha County, Auburn's economy had:

- **Larger mix of industries.** Auburn's major employment sectors, accounting for 10% or more of employment each, were: manufacturing; retail trade; transportation and warehousing, and utilities; and educational services, and health care and social assistance.[10]
- **Lower per capita income.** Auburn's per capita income in 2017 ($27,361) was $1,211 lower than the county ($28,572).[10]
- **Similar percentage of long-distance commuters.** About 53.8% of workers in Auburn commuted for fewer than 15 minutes, compared with about 46.1% of workers in Nemaha County. About 20.1% of workers in Auburn commuted 30 minutes or more to work, compared to about 20.2% of county workers.[11]

### Major Employers

Major employers in the city include Auburn Public Schools, Educational Service Unit 4, Fast Global Solutions, Good Samaritan Society, Magnolia Metal Corp, Nemaha County, Nemaha County Hospital, and Southeast Developmental Services. Residents also commute to Lincoln, Omaha, Nebraska City, Peru, and Tecumseh for employment.

## Housing

In comparison to Nemaha County, the City of Auburn's housing stock was:[12]

- **Older.** Auburn had a larger share of housing built prior to 1970 than the county (66.4% compared to 61.6%).
- **Similarly made up of mobile and manufactured housing.** The City of Auburn had a similar share of mobile and manufactured housing (2.6%) compared to the county (2.8%).
- **More renter-occupied**. About 36.8% of occupied housing units in Auburn were renter-occupied compared with 28.1% of occupied housing in Nemaha County.

10 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
11 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
12 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

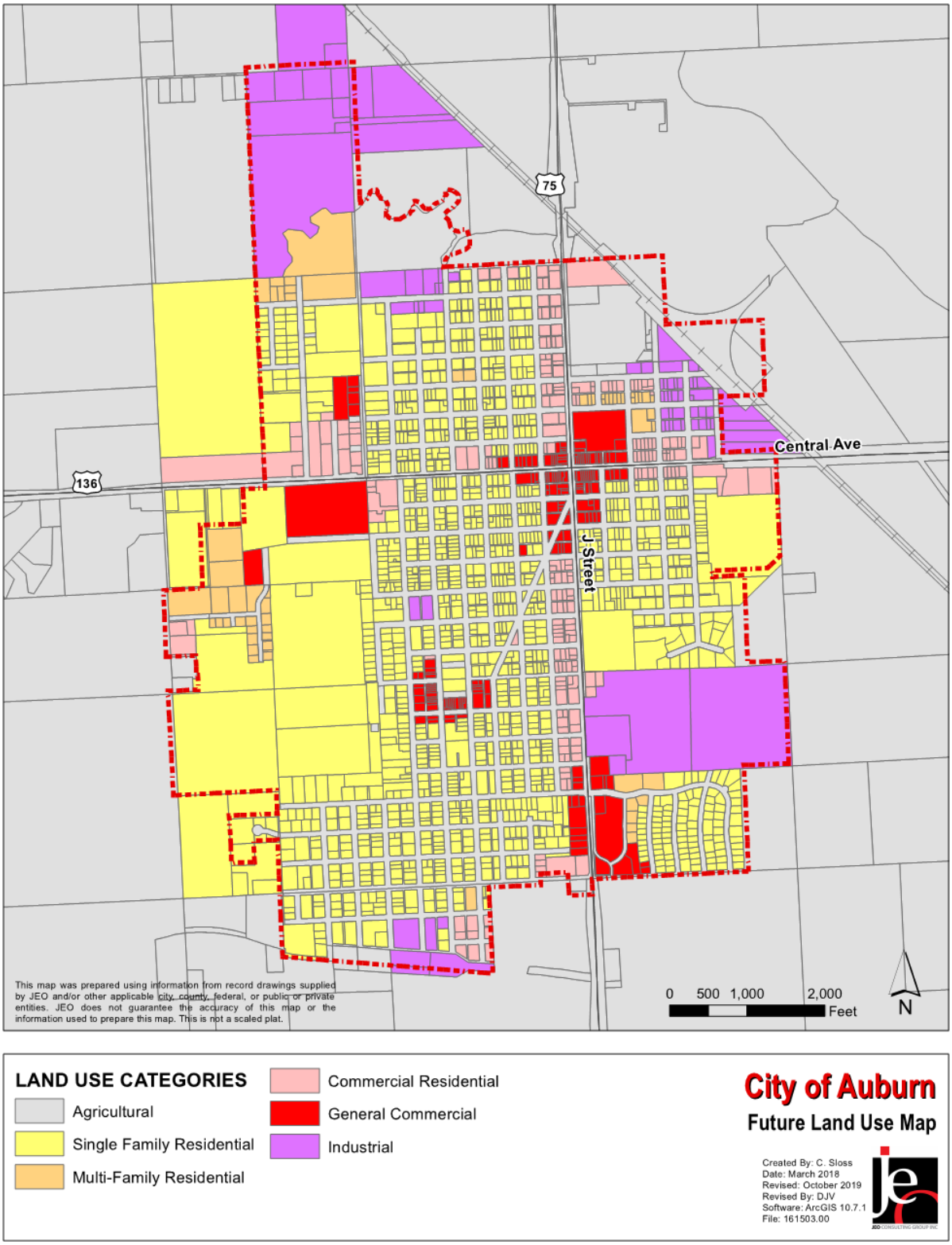
- **Similarly occupied.** Approximately 22.0% of Auburn's housing units were vacant compared to 19.9% of units in Nemaha County.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

## Future Development Trends

Over the past five years, Auburn has demolished more than 35 houses and have built nine new homes. Three new businesses were also constructed during this time and eight new businesses moved into previously constructed locations. According to the most recent American Community Survey estimates, Auburn's population is generally stable. The local planning team attributes the stability to employment opportunities and a high number of younger individuals. In the next five years there are some infill areas and available lots that can be developed for additional housing. New housing is directed away from floodplain areas.

**Figure AUB.3: Future Land Use Map**



## Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

**Table AUB.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 1,635 | $ 124,173,913 | 25 | 1.53% | $ 3,717,806 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[13]

## Critical Infrastructure

### Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are a total of nine chemical storage sites in Auburn. The table below lists the name and location of the sites and whether they are in the floodplain.

**Table AUB.3: Chemical Storage Fixed Sites**

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| AT&T Communications | 63713 727 Road | N |
| Charter Communications | 72742 638A Avenue | N |
| Farmers Cooperative | 922 J Street | N |
| FAST Global Solutions Inc | 2111 J Street | N |
| Ferrellgas | 9th Street | N |
| Magnolia Metal Corp | 63859 730 Road | N |
| Frontier Farmers Cooperative | 504 10th Street | Y |
| NDOT Auburn Yard | 2127 J Street | N |
| Southeast Ready Mix | 800 F Street | N |

*Source: Nebraska Department of Environment and Energy*[14]

13 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

14 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

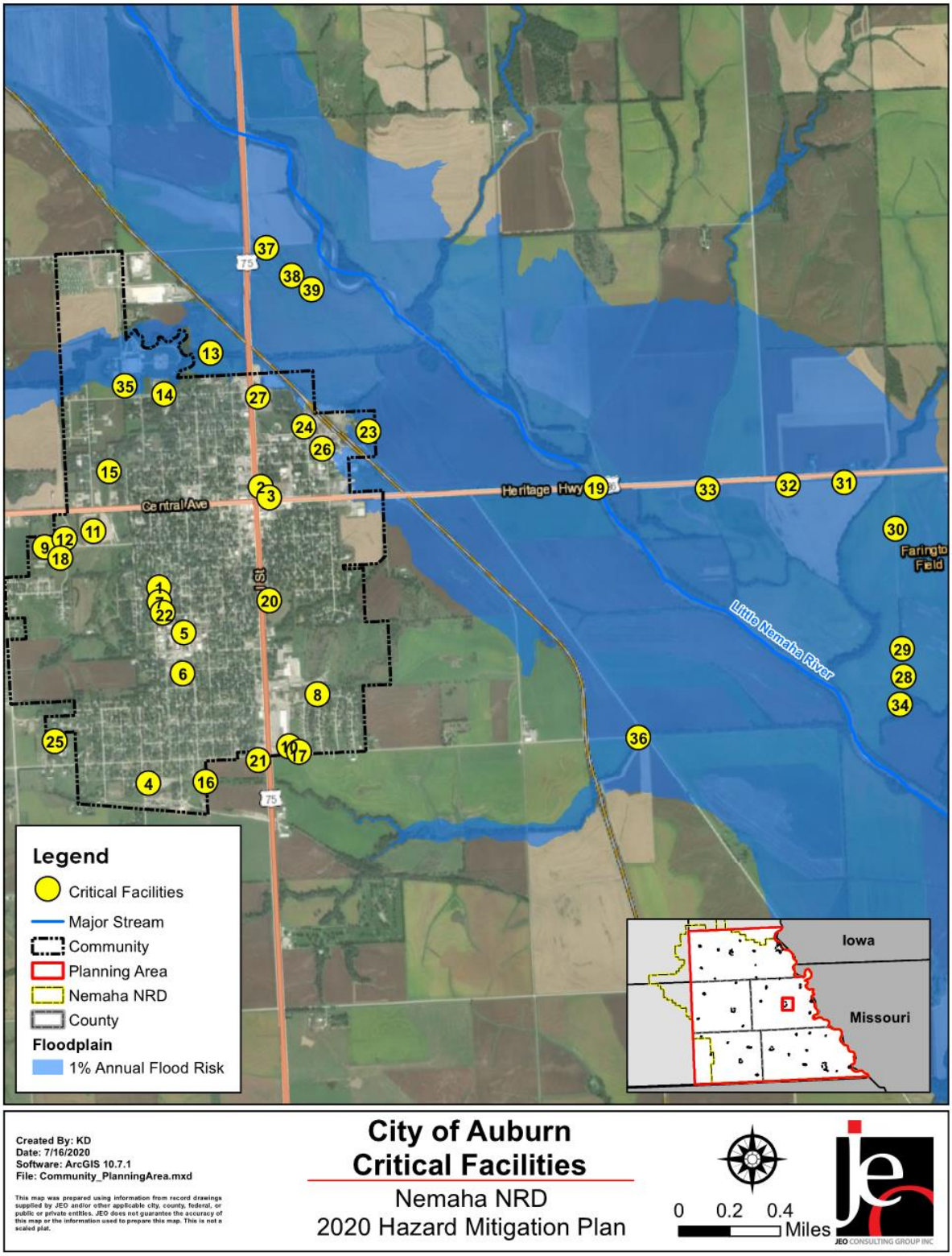
## Critical Facilities

The planning team identified critical facilities necessary for the City of Auburn's disaster response and continuity of operations. Critical facilities were identified during the 2015 planning process and revised for this plan update. The following table and figure provide a summary of the critical facilities for the community.

**Table AUB.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Board of Public Works & Power Plant | N | Y | N |
| 2 | City Hall | N | N | N |
| 3 | Cooper Nuclear Emergency Operation Facility | N | N | N |
| 4 | County District 2 - Shop & Yard | N | N | N |
| 5 | Court House | N | N | N |
| 6 | Elementary School | N | N | N |
| 7 | Fire Hall | N | N | N |
| 8 | Good Samaritan Society, Assisted Living | N | Y | N |
| 9 | Good Samaritan Center | N | Y | N |
| 10 | Health Department | N | N | N |
| 11 | High School | N | N | N |
| 12 | Hospital | N | Y | N |
| 13 | Lift Station #1 | N | Y (Portable) | Y |
| 14 | Lift Station #2 | N | N | N |
| 15 | Lift Station #3 | N | N | N |
| 16 | Lift Station #4 | N | Y (Portable) | N |
| 17 | Lift Station #5 | N | N | N |
| 18 | Medical Clinic | N | N | N |
| 19 | Nemaha River Raw Water Crossing | N | N | Y |
| 20 | School Facility | N | N | N |
| 21 | South Power Sub-Station | N | N | N |
| 22 | Underground Fuel Storage for Power Plant | N | N | N |
| 23 | Wastewater Treatment Plant | N | Y | N |
| 24 | Water Clear Wells & Booster Station | N | N | N |
| 25 | Water Storage | N | Y | N |
| 26 | Water Treatment Plant | N | Y | N |
| 27 | Wellness Center & EOC | N | Y | N |
| 28 | Well #1 | N | N | Y |
| 29 | Well #2 | N | N | Y |
| 30 | Well #3 | N | N | Y |
| 31 | Well #4 | N | N | Y |
| 32 | Well #5 | N | N | Y |
| 33 | Well #6 | N | N | Y |
| 34 | Well #7 | N | N | Y |
| 35 | Well #11 | N | N | Y |
| 36 | Well #13 | N | N | Y |
| 37 | Well #18 | N | N | Y |
| 38 | Well #19 | N | N | Y |
| 39 | Well #20 | N | N | Y |

**Figure AUB.4: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

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

## Hazard Prioritization

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

### Chemical and Radiological Spills (Fixed Site)

Chemical and radiological fixed site spills are a top hazard of concern for the city. The city's primary concern is combustion from a spill starting a fire at one of the sites. There are nine Tier II chemical storage sites in and around the city. There have been no reported spills which have impacted the community. In the event of a spill the fire department would be the first to respond.

### Chemical and Radiological Spills (Transportation)

Chemical and radiological transportation spills are a top hazard of concern for the city. Routes of most concern are Highway 75 and Highway 136 because of the high amounts of truck traffic. Both city hall and the high school are located directly on a highway. If a large spill were to occur near these locations an evacuation might be necessary. There have been five reported transportation chemical spills in Auburn. The largest occurred in 1990 when an accident caused 15 gallons of paint to be released. Damages from all five events were very limited.

### Drought and Extreme Heat

Drought and extreme heat are top hazards of concern for the Auburn Board of Public Works. The primary concern related to drought and extreme heat is having a prolonged drought impact the water supply for the community and service area. Past drought events have impacted the water supply levels and a response plan has been used. The board uses various means to identify drought and monitors water quantity by looking at aquifer levels, river levels, and well levels. The Auburn Board of Public Works is currently working with the NRD to create a drought management plan. Water and sanitary sewer services are provided to the Cities of Auburn and Peru, and the Villages of Brownville and Nemaha.

### Flooding

Flooding is a top hazard of concern for the Board of Public Works, especially because of past flood events in 2011, 2012, and 2019. Flood waters caused overloaded sewer lines and limited access to water wells. Most of the board's flood risk comes from the Nemaha River as stormwater drainage is typically not an issue. None of the board's critical facilities have been damaged by past flooding events.

### Severe Thunderstorms

Both City of Auburn and its Board of Public Works identified severe thunderstorms as a top hazard of concern. The city is primarily concerned with wind and hail causing power outages, damage to trees, and damage to property. In May 2004, golf ball sized hail caused vehicle and tree damage. In May 2007, a thunderstorm wind event caused $15,000 in damages to a machine shed southeast of the city. In the event of lightning strikes, all important city electronic devices have surge protectors. Important records are also backed up off site by the computer service provider.

The primary concern for the Board of Public Works related to severe thunderstorms is damage to electrical lines from lightning, high winds, and fallen trees/branches. Past thunderstorm events have impacted power lines and caused power outages. It is estimated that approximately 20% of power lines in the service area are buried. Hazardous trees are located throughout the board's service area and could cause power loss if they fell or lost branches. The Board of Public Works provides electricity to the City of Auburn, the Villages of Brownville, Johnson, and Nemaha, and the rural areas of Nemaha, Richardson, and Johnson Counties.

### Severe Winter Storms

Both the city and the Board of Public Works identified severe winter storms as a hazard of top concern. Past impacts from winter storms include power outages, damage to power lines, damage to trees, damage to property, and hazardous travel. The city's street department removes snow on city-owned streets and public parking areas. The State of Nebraska removes snow on Highways 136 and 75. Equipment used includes dump trucks, a pickup with a blade, skid loader with a blade, and a snowplow. A sand and salt mixture is also used at intersections and on major streets. Removal resources are sufficient, but in some years, sand/salt mixtures can be difficult to obtain.

The last significant winter storm event to impact the Board of Public Works occurred in 2008. An ice storm damaged power lines across the community and service area. Loss of power is the primary concern related to severe winter storms. The Auburn Board of Public Works keeps power lines in good working condition to reduce the likelihood of severe weather causing prolonged power loss.

### Tornadoes and High Winds

Both the city and the Board of Public Works identified tornadoes and high winds as hazards of top concern. One reported tornado has impacted the city. On May 4, 2001, an F0 tornado touched down just outside the city. If a tornado were to touch down in the city, potential damages could be very high. The city does not have any certified safe rooms and residents must use basements or interior rooms for shelter. Notification for severe storms is offered through County Emergency Management text alerts, warning sirens, and storm watchers. In the event of a disaster, the fire department has mutual aid agreements with surrounding districts.

Past high wind events have caused the board to lose sections of power lines. The board has data backup systems for important records. If a tornado were to occur and impact the Auburn Board of Public Works, mutual aid agreements are in place through NeWARN and MEAM.

## Governance

The City of Auburn is governed by a mayor and a six-member city council; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Attorney
- Board of Public Works
- Board of Public Works General Manager
- Fire Chief
- Water/Wastewater Manager
- City Services Commissioner
- Planning Commission Chairman
- Engineer
- Building Inspector
- Library Director

## Capability Assessment

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

**Table AUB.5: 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 | Yes |
| | Storm Water Management Plan | Yes |
| | Zoning Ordinance | Yes |
| | Subdivision Regulation/Ordinance | Yes |
| | Floodplain Ordinance | Yes |
| | Building Codes | Yes |
| | National Flood Insurance Program | Yes |
| | Community Rating System | No |
| | Other (if any) | - |
| Administrative & Technical Capability | Planning Commission | Yes |
| | Floodplain Administration | Yes |
| | GIS Capabilities | Yes |
| | Chief Building Official | Yes |
| | Civil Engineering | Yes |
| | Local Staff Who Can Assess Community's Vulnerability to Hazards | Yes |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Grant Manager | Yes |
| | Mutual Aid Agreement | Yes |
| | Other (if any) | - |
| Fiscal Capability | 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 | Yes |
| | General Obligation Revenue or Special Tax Bonds | Yes |
| | Other (if any) | Tax Increment Financing |
| Education & Outreach Capability | Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.<br>Ex. CERT Teams, Red Cross, etc. | No |
| | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | Yes |
| | Natural Disaster or Safety related school programs | Yes |
| | StormReady Certification | No |
| | Firewise Communities Certification | No |
| | Tree City USA | Yes |
| | Other (if any) | Tree Cities of the World |

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Moderate |
| Staff/expertise to implement projects | High |
| Community support to implement projects | Moderate |
| Time to devote to hazard mitigation | Moderate |

## Plan Integration

The City of Auburn has several plans that relate to hazard mitigation or specifically address hazards. Auburn's Comprehensive Plan was last updated in 2019 and discusses flooding, severe winter storms, hail, severe thunderstorms, urban fire, and extreme heat. It also contains goals aimed at safe growth, directs development away from the floodplain, and encourages infill development. The city's zoning ordinance, floodplain ordinance, and subdivision regulations are all currently being updated and will integrate the hazard mitigation plan where possible. Auburn's building codes are based on the 2015 International Building Codes. The capital improvement plan is reviewed annually and adopted as part of the budget. Projects in the plan include maintenance for drainage and stormwater structures, construction of a new fire hall, updating the electrical distribution system, phone and computer system improvements, and street improvements. Auburn is an annex in the 2018 Nemaha County Local Emergency Operations Plan. It contains

information regarding basic disaster operations, incident command, field operations, first responders, and emergency operations center.

In addition to the plans listed above, the city also has a one- and six-year street improvements plan, wellhead protection plan, a MOU with the health district for pandemics due to Covid-19, a drinking water protection plan, has conducted a housing study, and a blight and substandard study. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates. Specifically, the community plans to update the comprehensive plan in 2029 and capital improvement plan annually. The goals, objectives, and mitigation actions in the HMP should be integrated in these updates.

## Mitigation Strategy

### Completed Mitigation Actions

| Mitigation Action | Alert Sirens |
|---|---|
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Status** | Completed in 2017 through FEMA grant funds and local funding. |

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Hazard(s) Addressed** | All Hazards |
| **Status** | Completed. In 2016 an aerial truck was purchased and in 2017 a pumper truck was purchased. |

| Mitigation Action | Tree City USA – Tree Maintenance Program |
|---|---|
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Status** | Completed, the city is currently a member of Tree City USA. |

### Continued and New Mitigation Actions

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **Description** | Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters. Generators are needed for the wells and lift stations that do not already have them. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Auburn Board of Public Works (Water and Wastewater Departments) |
| **Status** | In Progress. Some wells already have backup power generators. |

| Mitigation Action | Bank Stabilization |
|---|---|
| **Description** | Longs Creek was damaged during flooding in 2019. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $150,000 |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Street Department, County Emergency Manager |
| **Status** | New Action. Planning stage, disaster funds were submitted to FEMA. |

| Mitigation Action | Bury Power and Service Lines |
|---|---|
| **Description** | Work with Auburn Board of Public Works to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures/infrastructure to be less vulnerable to storm events. Have about 15 – 20 percent of power lines buried. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms |
| **Estimated Cost** | $70,000 per mile |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Auburn Board of Public Works (Electric Department) |
| **Status** | Not Started. |

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing equipment. For example: backup systems for emergency vehicles, training additional personnel, upgrading radio systems, etc. The fire department would like to upgrade breathing apparatus, compressor, and bunker gear. The city needs phone and computer system upgrades. The street department needs a new truck for salt and sand spreading. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies Depending on Project, $16,000+ for Bunker Gear |
| **Funding** | General Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Fire Department, Street Department |
| **Status** | New Action. Planning stage, the city has budgeted for the upgrades to the phone system, computer systems, and truck. |

| Mitigation Action | Communication System |
|---|---|
| **Description** | Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. Establish inner-operable communications. Provide equipment such as satellite telephones and radios. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $5,000+ |
| **Funding** | General Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | All Departments, Fire Department |
| **Status** | Not Started. |

| Mitigation Action | Community Education and Awareness |
|---|---|
| **Description** | Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $500+ |
| **Funding** | General Budget |
| **Timeline** | Continued |
| **Priority** | High |
| **Lead Agency** | Board of Public Works, Fire Department, Auburn Public Schools |
| **Status** | Continued, educational activities are done regularly by multiple city entities. |

| Mitigation Action | Develop a Regional Water System |
|---|---|
| **Description** | Work with Nemaha County to develop a Regional Water System to serve the entire county. The county has a need for new water sources in all jurisdictions. The regional system would be able to use the new wells near the Missouri River that the Auburn Board of Public Works would like to install. The new system would help alleviate health issues from high nitrate levels in the county as well. |
| **Hazard(s) Addressed** | Drought |
| **Estimated Cost** | $350,000 - $450,00 for new well |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Board of Public Works (Water Department) |
| **Status** | Not Started. |

| Mitigation Action | Elevate Wells |
|---|---|
| **Description** | Elevate the city's wells out of the 1% annual floodplain. There are three wells that need to be elevated. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $50,000+ |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Board of Public Works (Water Department) |
| **Status** | Not Started. |

| Mitigation Action | Fire Alarm System |
|---|---|
| **Description** | A new or upgraded fire alarm system is needed at city hall. |
| **Hazard(s) Addressed** | Wildfire |
| **Estimated Cost** | $15,000+ |
| **Funding** | General Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | City Hall, Fire Department |
| **Status** | New Action. Planning stage, the city has budgeted for the upgrades. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous limbs and/or trees. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms. |
| **Estimated Cost** | $10,000+ |
| **Funding** | General Budget |
| **Timeline** | Continued |
| **Priority** | High |
| **Lead Agency** | Board of Public Works (Electric Department), Street Department, Tree Board |
| **Status** | Continued. This is done on an annual basis as a protective measure. |

| Mitigation Action | Levee/Floodwall Construction and/or Improvements |
|---|---|
| **Description** | Improve existing flood control structures to meet community needs or construct additional/new flood control measures. |
| **Hazard(s) Addressed** | Levee Failure, Flooding |
| **Estimated Cost** | $500,000+ |
| **Funding** | General Budget, Bond |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council, Nemaha County, NRD |
| **Status** | Not Started. |

| Mitigation Action | Lower Well Pumps |
|---|---|
| **Description** | Work with DHHS to allow BPW to lower well pumps to a level just above the bottom of the well. Currently, DHHS requires the pump level to be above or at the screen level. By lowering well pumps, it's anticipated to provide 3-10 ft more of available aquifer to pump during an extreme drought condition |
| **Hazard(s) Addressed** | Drought |
| **Estimated Cost** | Staff Time |
| **Funding** | General Budget |
| **Timeline** | 1-2 years |
| **Priority** | High |
| **Lead Agency** | Board of Public Works (Water Department) |
| **Status** | Internal conversations underway. Next step is to draft and send a letter to DHHS for approval. |

| Mitigation Action | New Fire and Rescue Building |
|---|---|
| **Description** | The city is looking at the construction of a new fire and rescue building. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $2,440,500 |
| **Funding** | USDA Loans, General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | City Council, Fire Department |
| **Status** | New Action. Not Started. The city and fire department are currently applying for funding. |

| Mitigation Action | New Municipal Well |
|---|---|
| **Description** | Communities can evaluate the need to install a new well to provide a safe backup water supply for the community, replace existing wells affected by drought, and additional water for fire protection. |
| **Hazard(s) Addressed** | Drought |

| Mitigation Action | New Municipal Well |
|---|---|
| **Estimated Cost** | $350,000 - $450,000 |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Board of Public Works (Water Department) |
| **Status** | Planning Stage. The board is currently working on a replacement well. |

| Mitigation Action | New Salt and Sand Storage Building |
|---|---|
| **Description** | The streets department would like to construct a storage building/shed for sand and salt. |
| **Hazard(s) Addressed** | Severe Winter Storms |
| **Estimated Cost** | $15,000 |
| **Funding** | General Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Street Department |
| **Status** | New Action. Planning stage, the city has budgeted for the construction. |

| Mitigation Action | Safe Rooms and Storm Shelters |
|---|---|
| **Description** | Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $350+ per square foot |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council, Fire Department |
| **Status** | New Action. Not Started. |

| Mitigation Action | Weather Radios |
|---|---|
| **Description** | Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $50/radio |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Fire Department |
| **Status** | Not Started. |

## Removed Mitigation Actions

| Mitigation Action | Floodplain Regulation Enforcements/Updates |
|---|---|
| **Hazard(s) Addressed** | Flooding |
| **Reason for Removal** | The city currently has no plans to update their floodplain regulation. The city regularly reviews their regulations and ordinances and updates as needed. They will continue to enforce all local regulations. |

| Mitigation Action | Maintain Good Standing in the National Flood Insurance Program (NFIP) |
|---|---|
| **Hazard(s) Addressed** | Flooding |
| **Reason for Removal** | While the city will continue to participate and maintain compliance in the NFIP, this project can be removed as it is considered an ongoing effort. |

# Community Profile

# Village of Brock

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table BRK.1: Village of Brock Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Rachael Brook | Clerk and Floodplain Administrator | Village of Brock |

## Location and Geography

The Village of Brock is in northwestern Nemaha County and covers an area of 0.31 square miles in the valley and rolling hills region of Nebraska. The land around the village is used primarily for pasturing and irrigated row-crop agriculture.

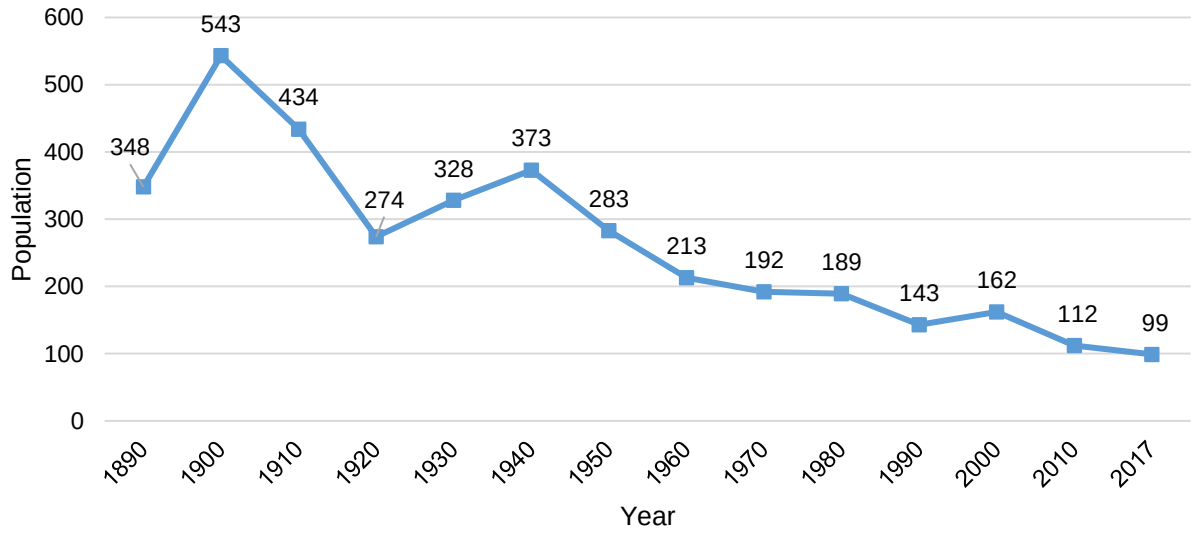
## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Brock's major transportation corridor is State Highway 67. It is traveled by an average of 440 vehicles daily, 50 of which are trucks.[15] Highway 67 is the transportation route of most concern to the local planning team due to the amount of vehicle traffic. Evacuation is not a concern for the village as it is surrounded by many gravel roads that could be used if needed.

## Demographics

The Village of Brock's population has declined to about 99 people, providing only a small tax base that could fund mitigation projects. Brock's population accounted for 1.4% of Nemaha County's population in 2017.[16]

**Figure BRK.1: Population**

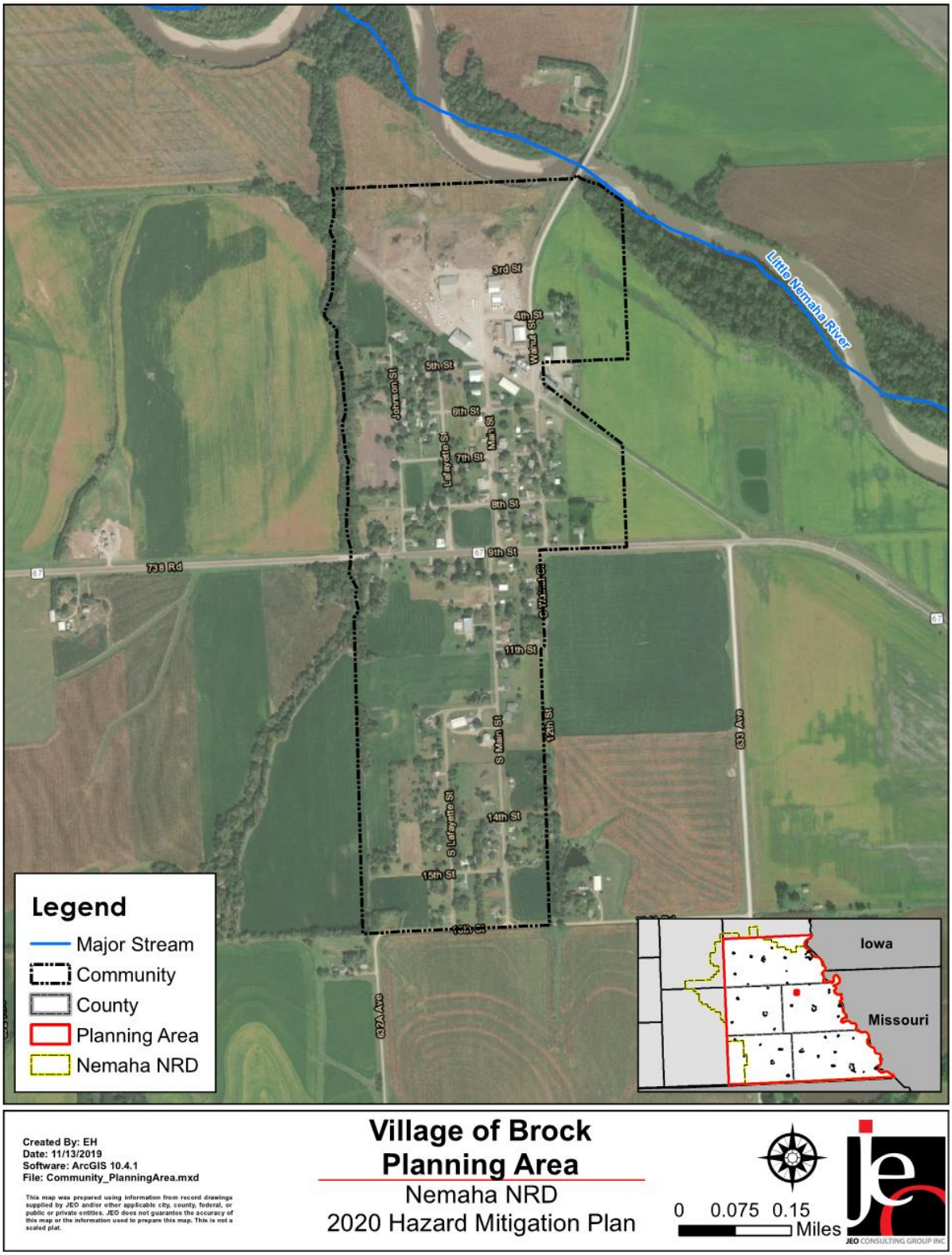



*Source: U.S. Census Bureau, 1890 – 2017*

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

16 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates [database file]. https://factfinder.census.gov/.

**Figure BRK.2: Village of Brock**



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

- **Similarly aged.** The median age of Brock was 39.8 years old in 2017, compared with Nemaha County's median of 38 years. Brock's population grew younger since 2010, when the median age was 46 years old. The village has a smaller proportion of residents under 18 years old (10.1%) compared to the county (21%).[16]
- **Less ethnically diverse**. In 2010 and 2017 Brock did not have a Hispanic or Latino population. During that time, the county's Hispanic population grew from 1.6% in 2010 to 2.6% in 2017.[16]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Brock (27.3% of people living below the federal poverty line) was higher than the county's poverty rate (11.5%) in 2017.[17]

## Employment and Economics

The Village of Brock's economic base is a mixture of industries. In comparison to Nemaha County, Brock's economy had:

- **Larger mix of industries.** Brock's major employment sectors, accounting for 10% or more of employment each, were: agriculture, forestry, fishing and hunting, and mining; retail trade; information; professional, scientific, and management, and administrative and waste management services; and arts, entertainment, and recreation, and accommodation and food services.[17]
- **Lower per capita income.** Brock's per capita income in 2017 ($22,325) was $6,247 lower than the county ($28,572).[17]
- **More long-distance commuters.** About 11.3% of workers in Brock commuted for fewer than 15 minutes, compared with about 46.1% of workers in Nemaha County. About 36.3% of workers in Brock commuted 30 minutes or more to work, compared to about 20.2% of county workers.[18]

### Major Employers

Frontier Cooperative is the main employer in the community as a large percentage of residents commute to Auburn for employment.

## Housing

In comparison to Nemaha County, the Village of Brock's housing stock was:[19]

- **Similarly aged.** Brock had a similar share of housing built prior to 1970 than the county (62.2% compared to 61.6%).
- **More mobile and manufactured housing.** The Village of Brock had a larger share of mobile and manufactured housing (10.8%) compared to the county (2.8%).
- **Less renter-occupied**. About 19.3% of occupied housing units in Brock were renter-occupied compared with 28.1% of occupied housing in Nemaha County.

17 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
18 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
19 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

- **Similarly occupied.** Approximately 23% of Brock's housing units were vacant compared to 19.9% of units in Nemaha County.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Additionally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Renter occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

## Future Development Trends

There have been no housing or business developments within the village in the past five years and none are anticipated in the next five years. According to the American Community Survey estimates, Brock's population is generally declining. The local planning team attributes the decline to a lack of businesses, new housing, and a school in the community. Municipal funds are limited to maintaining current facilities and system, with a large portion already dedicated to water, sewer, and street maintenance. Funds have slightly increased over recent years.

## Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

**Table BRK.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 93 | $ 3,236,167 | 37 | 39.8% | $ 1,743,744 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[20]

20 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

# Critical Infrastructure

## Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there is one chemical storage site in Brock. The table below lists the name and location of the site and whether it is in the floodplain.

**Table BRK.3: Chemical Storage Fixed Sites**

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Midwest Farmers Cooperative | 401 Main Street | Y |

*Source: Nebraska Department of Environment and Energy*[21]

## Critical Facilities

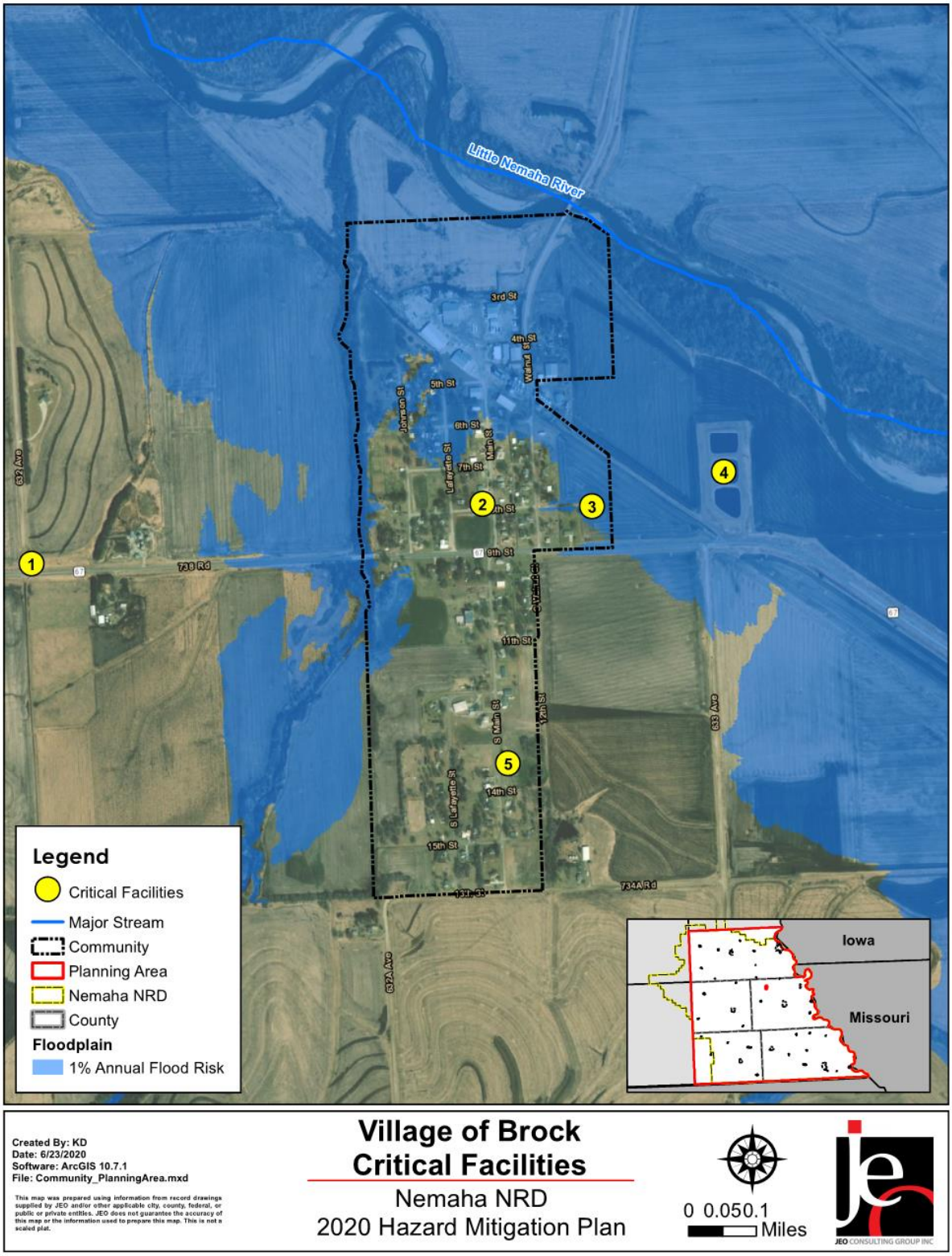
The planning team identified critical facilities necessary for the Village of Brock's disaster response and continuity of operations. Critical facilities were identified during the 2015 planning process and revised for this plan update. The following table and figure provide a summary of the critical facilities for the community.

**Table BRK.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | City Wells | N | N | N |
| 2 | Fire Hall | N | N | N |
| 3 | Lift Station | N | N | N |
| 4 | Sewer Lagoon | N | N | Y |
| 5 | Water Tower | N | N | N |

21 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

**Figure BRK.3**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

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

## Hazard Prioritization

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

### Flooding

Past impacts from flood events include damage to crops and residential basements. Critical facilities have not been damaged from past events. Some flooding stems from the Little Nemaha River which runs northeast of Brock. However, flash flooding is a greater concern as it is more likely to occur. The 100-year floodplain covers the entire northern half of the community with several critical facilities located within it.

### Severe Thunderstorms

Concerns regarding severe thunderstorms include downed power lines, power loss, fallen tree limbs, and property damage. NCEI data shows that one severe thunderstorm event caused damage in the community. In June 2000, 1.75-inch hail caused $50,000 dollars in damages. No critical facilities have been damaged in the past. Village-owned property is protected by hail-resistant building materials and are insured against hail damage. In the event of power loss, backup generators have been installed at the lift stations. In addition, surge protectors are used on electronic devices and records are stored in fireproof file cabinets and safes. Hazardous trees are primarily located on private property as the village removes dead trees and trims branches in intersections and other public areas.

### Severe Winter Storms

In recent years, damaging winter storm events have not impacted the village or its critical facilities. However, severe winter storms are an annual occurrence for the community and the county. Potential impacts include power loss from downed power lines, residents being snowed in, and hazardous road conditions. The village board is responsible for snow removal in the community using a truck and blade. For most events, these resources are sufficient. To help mitigate the impacts of severe winter storms, plowing is done immediately and if a sand mix is needed, the village has a contract with an individual.

### Tornadoes and High Winds

In 2000 and 2012, tornado events occurred near the village, but no damage to critical facilities or homes was recorded. If a large tornado were to touch down in the village, potential damages would be very high. Brock has warning sirens which are activated by the Nemaha County Emergency Management, but there are no safe rooms in the community and individuals seeking safe shelter must use basements or interior rooms. If a disaster were to occur, mutual aid agreements are in place with nearby villages and the county.

## Governance

The Village of Brock is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk
- Attorney
- Utility Superintendent
- Fire Chief
- Street Superintendent
- Engineer

## Capability Assessment

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

**Table BRK.5: Capability Assessment**

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

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

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| Community support to implement projects | Moderate |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

The Village of Brock has several plans that relate to or directly discuss hazards and hazard mitigation. Brock's comprehensive plan was last updated in 2001 and discusses fire, flooding, and tornadoes. It contains goals aimed at safe growth, directs development away from the floodplain, directs development away from chemical storage facilities, directs development away from major transportation routes, limits density in known hazardous areas, encourages elevation of structures in the floodplain, and identifies areas that need emergency shelters. Floodplain regulations were last updated in 2019 and the zoning ordinance was last updated in 2013. These documents identify floodplain areas as open space, require more than one-foot elevation above Base Flood Elevation, discourage development near chemical storage sites, discourage development along major transportation routes, include well setback requirements, include the ability to implement water restrictions, and limit density in the floodplain. The village's building code was last updated in 2013. It requires elevation of structures in the floodplain, requires mechanical systems be elevated in the floodplain, requires sewer backflow valves in the floodplain, encourages the use of hail-resistant building materials, and encourages the use of fire-resistant building materials. Brock is also an annex in the 2018 Nemaha County Local Emergency Operations Plan. It contains information regarding warning, incident command, law enforcement, fire department, emergency medical services, public works, emergency operations center,

emergency public information, sheltering, public health, and damage assessment. In addition to the plans listed above, the village also has a wellhead protection plan that discusses drought and water conservation. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

## Mitigation Strategy

### Continued and New Mitigation Actions

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **Description** | Identify and evaluate current backup and emergency generators. Obtain additional generators based on identification and evaluation. Provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Board of Trustees |
| **Status** | In Progress. Generators have been installed at the lift station and well. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous limbs and/or trees. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | $1,000+ |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | Board of Trustees |
| **Status** | Ongoing, every year the board trims trees where needed. |

### Removed Mitigation Actions

| Mitigation Action | Floodplain Regulation |
|---|---|
| **Hazard(s) Addressed** | Flooding |
| **Reason for Removal** | The village currently has no plans to update their floodplain regulations. The village regularly reviews their regulations and ordinance and updates them as needed. They will continue to enforce all local regulations. |

| Mitigation Action | Maintain Good Standing in the National Flood Insurance Program (NFIP) |
|---|---|
| **Hazard(s) Addressed** | Flooding |
| **Reason for Removal** | While the village will continue to participate and maintain compliance in the NFIP, this project can be removed as it is considered an ongoing effort. |

| Mitigation Action | Public Awareness/Education |
|---|---|
| **Hazard(s) Addressed** | All Hazards |
| **Reason for Removal** | There was not enough feedback or cooperation from residents. |

# Community Profile

# Village of Brownville

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table BNV.1: Village of Brownville Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Gary Stuchal | Board Member | Village of Brownville |
| Paul Fish | Board Member | Village of Brownville |

## Location and Geography

The Village of Brownville is in eastern Nemaha County next to the Missouri River and covers an area of 0.65 square miles. The village is located near the Cooper Nuclear Station and is located in the plume emergency planning zone (EPZ). If a release were to occur, the village would be evacuated to Tecumseh, Falls City, or Nebraska City. The land around the village is used primarily for pasturing and irrigated row-crop agriculture.

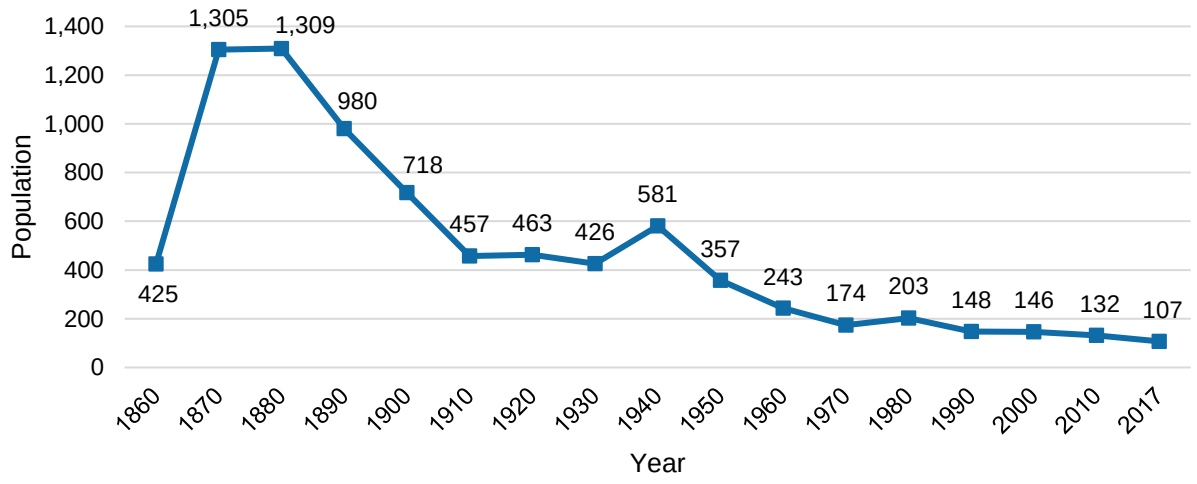
## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Brownville's major transportation corridors are US Highway 136 and State Highway 67. US Highway 136 is traveled by a total annual average of 2,205 vehicles daily, 465 of which are trucks. State Highway 67 is traveled by an average of 1,155 vehicles daily, 70 of which are trucks.[22] The local planning team identified 648 Avenue as the transportation route of most concern because it has flooded in the past and also leads to the Cooper Nuclear Station. Chemicals are periodically transported along Highway 136.

## Demographics

The Village of Brownville's population has been declining, reducing the tax base that could fund mitigation projects. Brownville's population accounted for 1.5% of Nemaha County's population in 2017.[23]

**Figure BNV.1: Population**

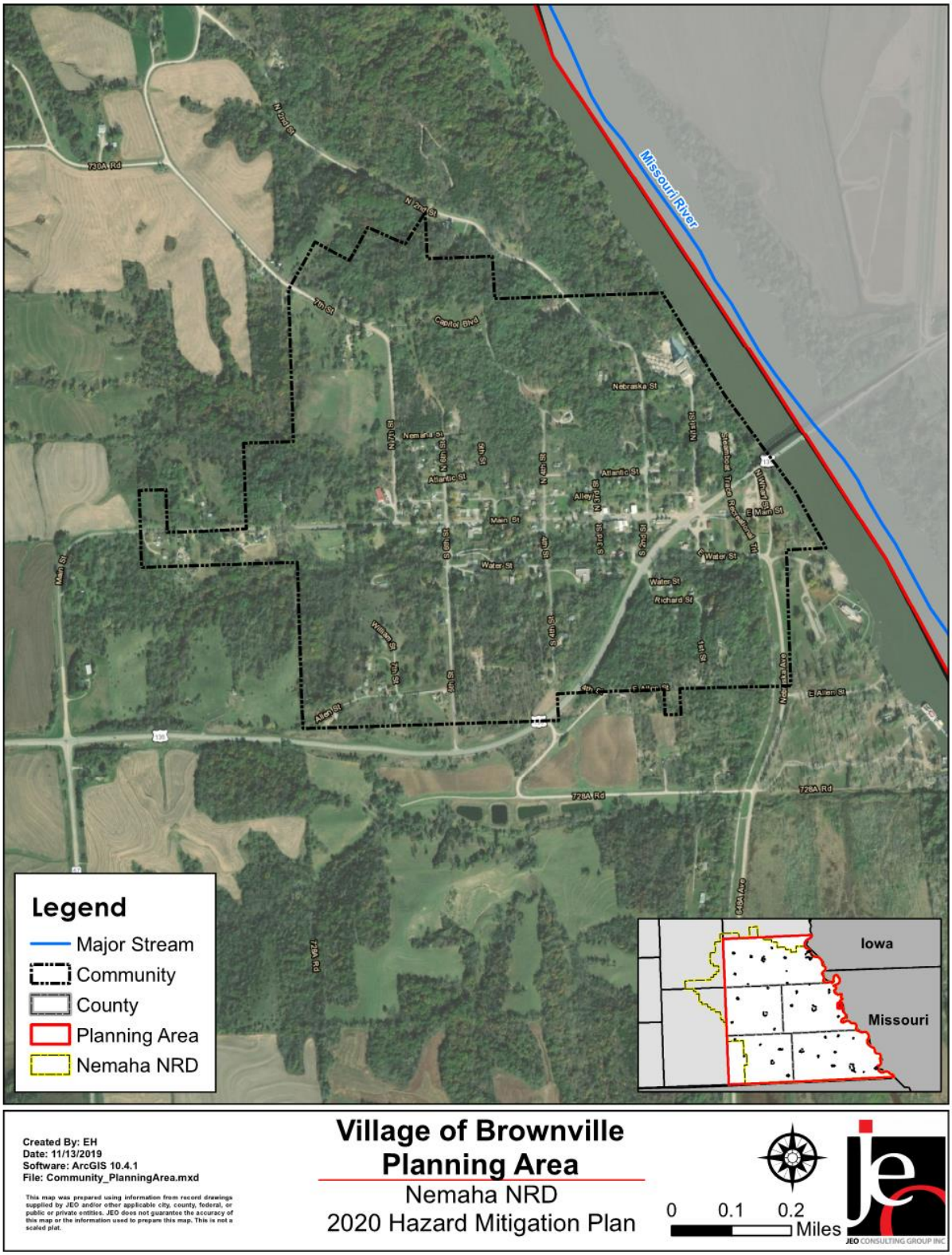



*Source: U.S. Census Bureau, 1860 – 2017*

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

23 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

**Figure BNV.2: Village of Brownville**



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

- **Older.** The median age of Brownville was 63.3 years old in 2017, compared with Nemaha County's median of 38 years. Brownville's population grew slightly older since 2010, when the median age was 62.5 years old. Brownville has a smaller proportion of residents under the age of 18 years old than the county (7.5% vs 21%) and a larger proportion of residents over the age of 65 years old than the county (44.9% vs 18.9%).[23]
- **More ethnically diverse**. Since 2010, Brownville grew more ethnically diverse. In 2010, none of Brownville's population was Hispanic or Latino. By 2017, about 7.5% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.6% in 2010 to 2.6% in 2017.[23]
- **Slightly more likely to be below the federal poverty line.** The poverty rate in the Village of Brownville (14% of people living below the federal poverty line) was slightly higher than the county's poverty rate (11.5%) in 2017.[24]

## Employment and Economics

The Village of Brownville's economic base is a mixture of industries. In comparison to Nemaha County, Brownville's economy had:

- **Larger mix of industries.** Brownville's major employment sectors, accounting for 10% or more of employment each, were: manufacturing; retail trade; transportation and warehousing, and utilities; educational services, and health care and social assistance; and arts, entertainment, and recreation, and accommodation and food services.[24]
- **Higher per capita income.** Brownville's per capita income in 2017 ($32,684) was $4,112 higher than the county ($28,572).[24]
- **More long-distance commuters.** About 50% of workers in Brownville commuted for fewer than 15 minutes, compared with about 46.1% of workers in Nemaha County. About 29.6% of workers in Brownville commuted 30 minutes or more to work, compared to about 20.2% of county workers.[25]

### Major Employers

Major employers in Brownville include Nebraska Public Power District, self-agriculture, and trucking. A large percentage of residents commute to Auburn, Rock Port, and Nebraska City.

## Housing

In comparison to Nemaha County, the Village of Brownville's housing stock was:[26]

- **Older.** Brownville had a larger share of housing built prior to 1970 than the county (74.8% compared to 61.6%).
- **Larger amounts of mobile and manufactured housing.** The Village of Brownville had a larger share of mobile and manufactured housing (4.7%) compared to the county (2.8%).
- **Less renter-occupied**. About 6.6% of occupied housing units in Brownville were renter-occupied compared with 28.1% of occupied housing in Nemaha County.

24 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
25 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
26 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

- **More unoccupied.** Approximately 52% of Brownville's housing units were vacant compared to 19.9% of units in Nemaha County.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. The village's significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

## Future Development Trends

Although over the last five years, new housing and new businesses have been built, the latest American Community Survey estimates that Brownville's population is declining. A declining population can mean a decreasing tax base, which may make implementing mitigation projects difficult. The local planning team attributes the decline to an aging population base. Municipal funds are limited to maintaining current facilities and have stayed the same over recent years. In the next five years, no new businesses or housing developments are planned.

## Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

**Table BNV.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 125 | $ 5,597,303 | 1 | 2.4% | $ 96,910 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[27]

27 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

# Critical Infrastructure

## Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there is one chemical storage site in Brownville. The table below lists the name and location of the site and whether it is in the floodplain.

**Table BNV.3: Chemical Storage Fixed Site**

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| NPPD Cooper Nuclear Station | 72676 648A Avenue | Y |

*Source: Nebraska Department of Environment and Energy*[28]

## Critical Facilities

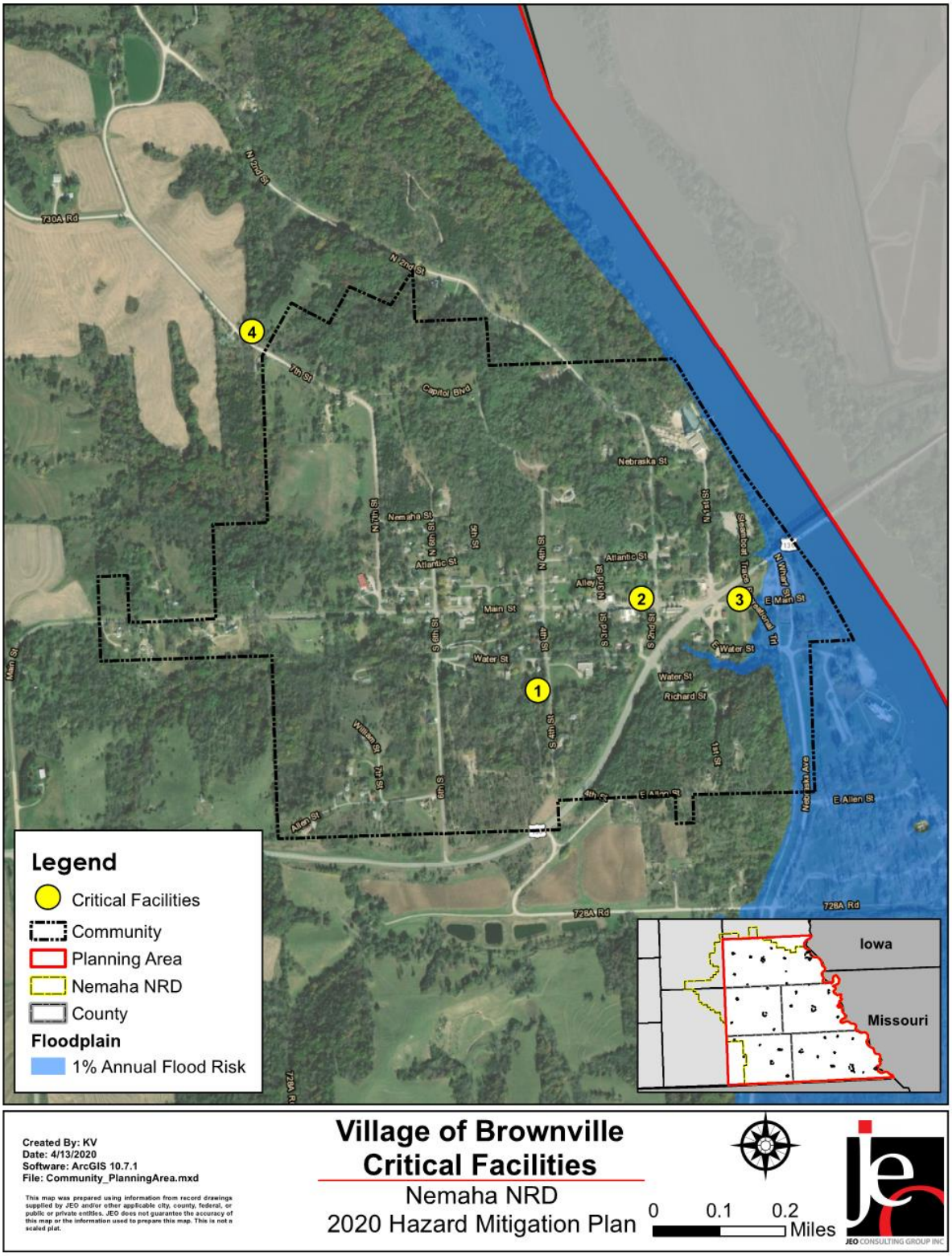
The planning team identified critical facilities necessary for the Village of Brownville's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table BNV.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | Located in Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Maintenance Building | N | Y | N |
| 2 | Town Hall / Community Building | N | N | N |
| 3 | Wastewater Pumping Station | N | N | N |
| 4 | Water Tower | N | N | N |

28 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

**Figure BNV.3: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

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

## Hazard Prioritization

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

### Chemical and Radiological Spills (Fixed Site)

The NPPD Cooper Nuclear Station is the village's primary concern regarding fixed site chemical and radiological spills. It is located four miles south of the community, which puts the village in the plume EPZ. If a release were to occur, the village would be evacuated to Tecumseh, Falls City, or Nebraska City. The nuclear station has sirens that would go off if a spill or release occurred. Tests of the sirens are done regularly, and the station sends out public information packets to all residents annually. An emergency team that includes the county and surrounding communities regularly meets and runs scenarios of how to handle a release from the station.

### Flooding

In both 2011 and 2019, the village experienced flood damages stemming from the Missouri River. In 2019, Riverside Park and a landing area were flooded and nearly destroyed. Picnic tables, camping areas, and trees were all washed away. The local planning team estimated that there was over a foot and a half of debris in most flooded areas. No homes or businesses were damaged from the event, but the Highway 136 bridge was closed for nine months. The 2011 event resulted in similar damages with the highway bridge closed for a shorter amount of time. The eastern edge of the community is located in the floodplain; however, it is mainly park land. Only one structure is in the floodplain, and it is not inhabited. Critical facilities have not been damaged during past flood events.

### Terrorism

Damage to the wastewater controls and water tower are the village's primary concerns related to terrorism. In the past people have shot at the water tower causing punctures and leaks. These past leaks have nearly drained the tower and caused thousands of dollars in repairs. A fence was added around the tower to deter people from shooting it, but shooting has still occurred. The village is able to prosecute individuals if they are seen shooting at the tower. Controls for the lagoon are currently in a box out in the open. The village board is looking into the possibility of adding a fence around the lagoon and controls to keep people out.

### Tornadoes and High Winds

Tornadoes have not impacted the village, but high winds cause damage on an annual basis. In 2020, Brownville has spent thousands of dollars removing damaged trees and limbs. Power outages rarely occur but are a potential issue as most power lines are above ground. Structures have experiences limited damage as most hazardous trees are not near buildings. The village has one tornado siren that sits on a hill so the entire community can hear it. The county also offers text alerts for severe weather. There are no safe rooms in the community, and residents must use their own private residences for shelter. In the event of a disaster, the village has mutual aid agreements in place.

## Governance

The Village of Brownville is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Park Commissioner

## Capability Assessment

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

**Table BNV.5: Capability Assessment**

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

| Survey Components/Subcomponents | | Yes/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 | No |
| | StormReady Certification | No |
| | Firewise Communities Certification | No |
| | Tree City USA | No |
| | Other (if any) | - |

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| Community support to implement projects | Limited-Moderate |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

Brownville does not have a comprehensive plan or buildings codes, but it does have a zoning ordinance. Due to the age of the document, it contains little discussion of natural hazards. However, codes do allow the village to implement water restrictions. Brownville is also an annex in the 2018 Nemaha County Local Emergency Operations Plan. It contains information regarding incident command and field response, law enforcement, fire department, emergency medical services, public works, emergency operations center, sheltering, emergency public information, and damage assessment. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

# Mitigation Strategy

## New Mitigation Actions

| Mitigation Action | Backup and Emergency Generator |
|---|---|
| **Description** | Identify and evaluate current backup and emergency generators. Obtain additional generators based on identification and evaluation. Provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

| Mitigation Action | Fencing Around Lagoon |
|---|---|
| **Description** | Add fencing around the village's wastewater lagoon and controls for security. |
| **Hazard(s) Addressed** | Terrorism |
| **Estimated Cost** | $20 per linear foot of chain linked fence |
| **Funding** | General Budget |
| **Timeline** | 1 Year |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Conduct tree inventory. Develop and implement tree maintenance and trimming program to remove hazardous limbs and trees. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms, Severe Winter Storms |
| **Estimated Cost** | $200 per tree |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | Village Board, Park Commissioner |
| **Status** | New Action. Ongoing, the village annually trims and removes hazardous trees. |

# Community Profile

# Village of Johnson

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table JHN.1: Village of Johnson Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Rachael Brook | Clerk and Floodplain Administrator | Village of Johnson |

## Location and Geography

The Village of Johnson is in western Nemaha County and covers an area of 0.22 square miles. Johnson is located northeast of Muddy Creek.

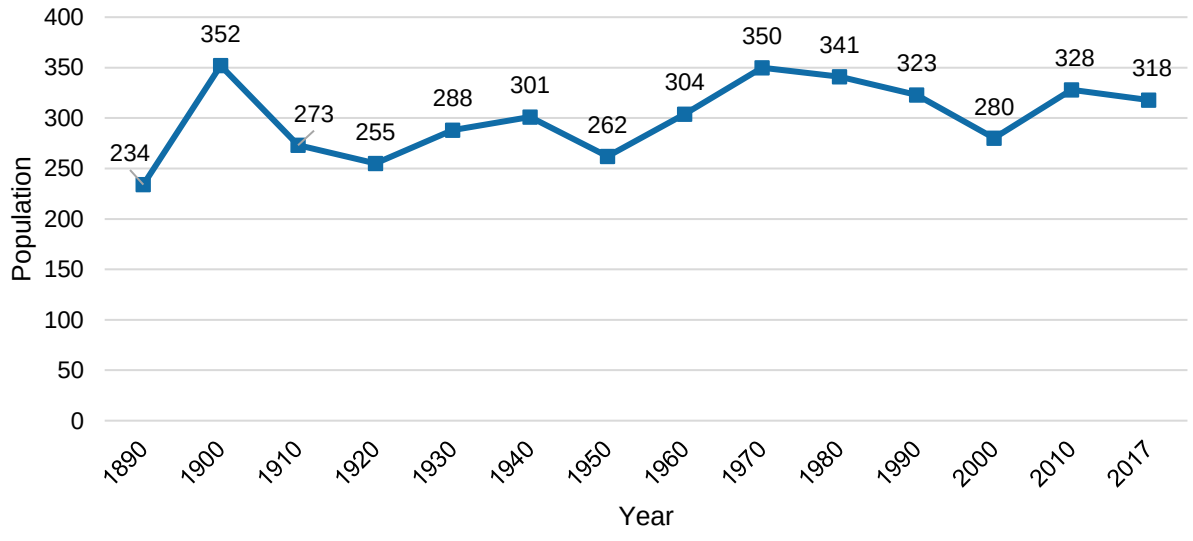
## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Johnson's major transportation corridors, and routes of most concern, are the spur of State Highway 64B and State Highway 105. Highway 64B is traveled by an average of 840 vehicles daily and State Highway 105 is traveled by an average of 565 vehicles daily.[29] The village does not have any railway lines traveling through the village. Community evacuation is not a concern as the village is surrounded by gravel roads that can be used if needed.

## Demographics

The Village of Johnson's population has slightly declined since 2010 and was at 318 people in 2017. A declining population may result in a decreasing tax base, which may make funding mitigation projects more difficult. Johnson's population accounted for 4.5% of Nemaha County's population in 2017.[30]

**Figure JHN.1: Population**

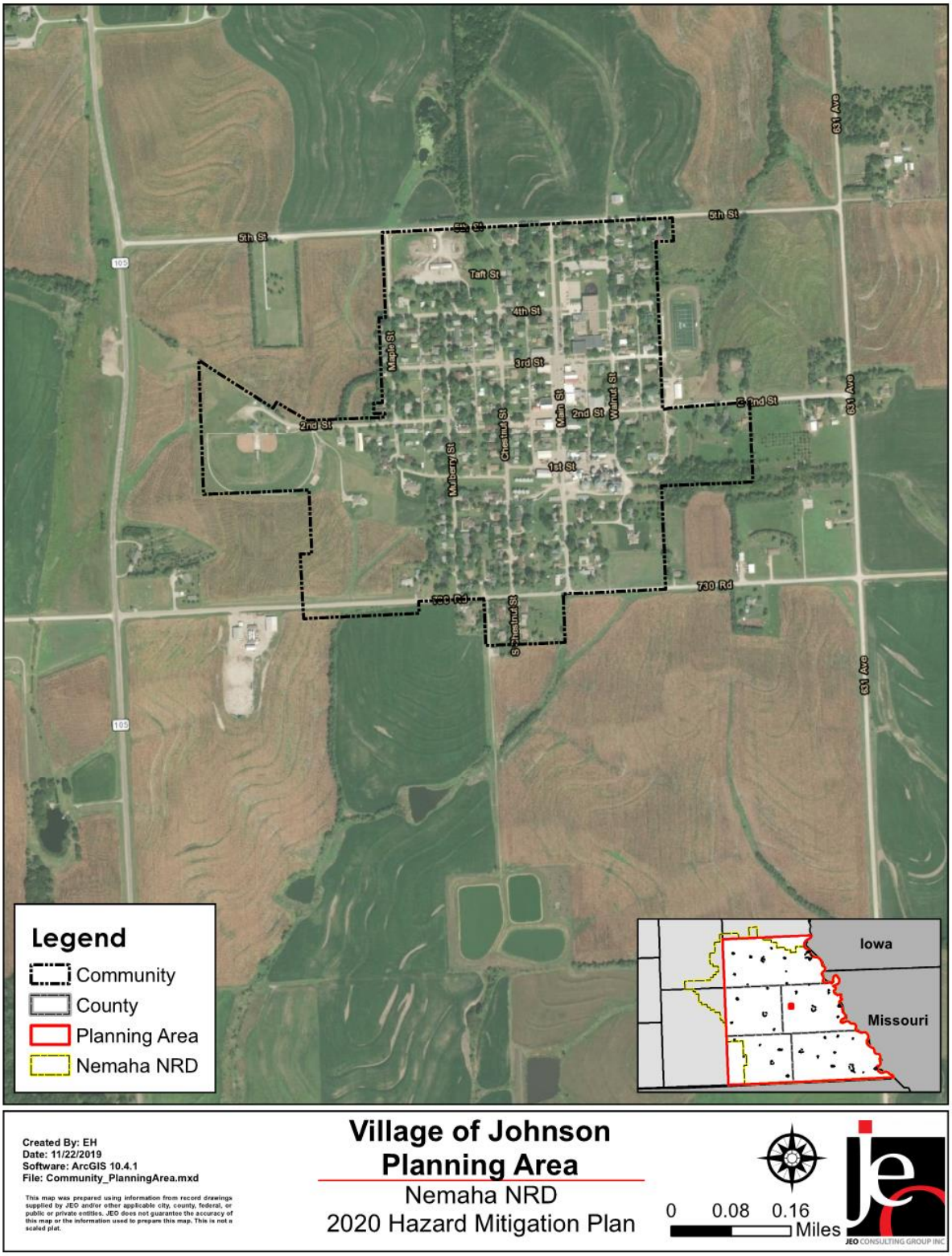



*Source: U.S. Census Bureau, 1890 – 2017*

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

30 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

**Figure JHN.2: Village of Johnson**



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

- **Older.** The median age of Johnson was 55.4 years old in 2017, compared with Nemaha County's median of 38 years. Johnson's population grew older since 2010, when the median age was 32.9 years old.[30]
- **Equally ethnically diverse**. Since 2010, Johnson became less ethnically diverse. In 2010, 4.1% of Johnson's population was Hispanic or Latino. By 2017, about 2.5% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.6% in 2010 to 2.6% in 2017.[30]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Johnson (13.2% of people living below the federal poverty line) was higher than the county's poverty rate (11.5%) in 2017.[31]

## Employment and Economics

The Village of Johnson's economic base is a mixture of industries. In comparison to Nemaha County, Johnson's economy had:

- **Similar mix of industries.** Johnson's major employment sectors, accounting for 10% or more of employment each, were: agriculture, transportation, and education.[31]
- **Higher per capita income.** Johnson's per capita income in 2017 ($32,327) was about $3,700 higher than the county ($28,572).[31]
- **Fewer long-distance commuters.** About 52.2% of workers in Johnson commuted for fewer than 15 minutes, compared with about 46.1% of workers in Nemaha County. About 18.6% of workers in Johnson commuted 30 minutes or more to work, compared to about 20.2% of county workers.[32]

### Major Employers

Major employers in the community include Nutrien Ag Solutions, gas station, bar, bank, post office, Clarks Grain, and the school. Residents that commute generally do so in a 30-mile radius of the village.

## Housing

In comparison to Nemaha County, the Village of Johnson's housing stock was:[33]

- **Similarly aged.** Johnson had a similar share of housing built prior to 1970 than the county (59.6% compared to 61.6%).
- **Less mobile and manufactured housing.** The Village of Johnson had a smaller share of mobile and manufactured housing (1.7%) compared to the county (2.8%).
- **Less renter-occupied**. About 12.1% of occupied housing units in Johnson were renter-occupied compared with 28.1% of occupied housing in Nemaha County.
- **More occupied.** Approximately 17.7% of Johnson's housing units were vacant compared to 19.9% of units in Nemaha County.

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

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

## Future Development Trends

Over the past five years, a few new houses have been built and nuisance properties have been cleaned up. According to the American Community Survey estimates, Johnson's population is generally declining. The local planning team attributed the decline to a lack of strong work opportunities and a lack of new housing options. While municipal funds have increased over recent years, they are limited to maintaining current facilities and systems, with a large portion already dedicated the installation of automatic water meters and water and sewer infrastructure. In the next five years, no housing or business developments are planned.

## Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

**Table JHN.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 207 | $ 12,379,359 | 0 | 0% | 0 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[34]

34 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

# Critical Infrastructure

## Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there is one chemical storage site in Johnson. The table below lists the name and location of the site and whether it is in the floodplain.

**Table JHN.3: Chemical Storage Fixed Sites**

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Nutrien Ag Solutions | 63019 730 Road | N |

*Source: Nebraska Department of Environment and Energy*[35]

## Critical Facilities

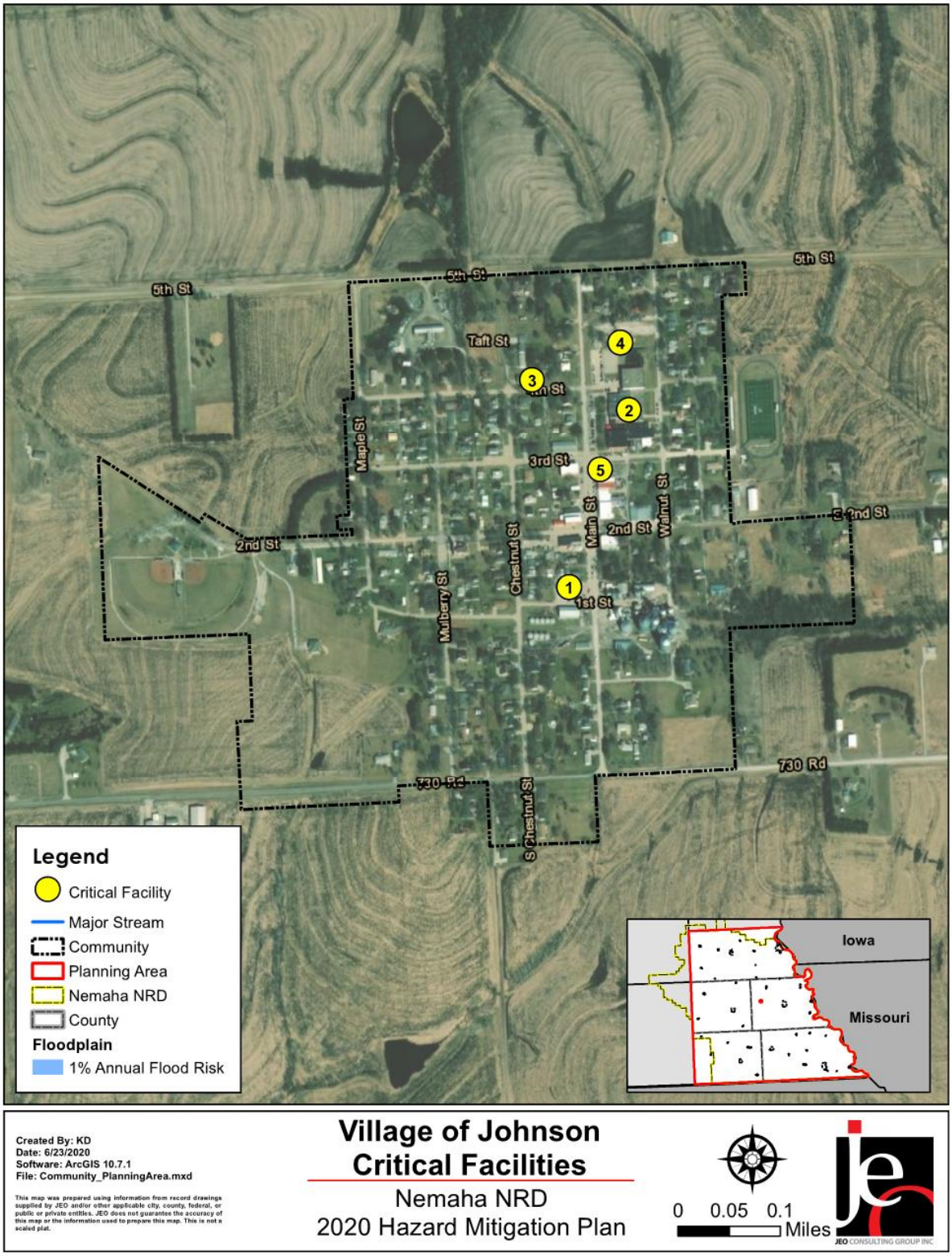
Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the Village of Johnson's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table JHN.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Fire Hall | N | N | N |
| 2 | Johnson-Brock School | N | N | N |
| 3 | Sewer Lift Station | N | N | N |
| 4 | Water Tower | N | N | N |
| 5 | Village Office | N | N | N |

35 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

**Figure JHN.3: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

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

## Hazard Prioritization

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

### Flooding

The most recent flooding event to impact the village occurred in March 2019. Heavy rains and snow melt caused floodwaters to overload the lift station and several sewer lines. After the event, the village worked with FEMA to have the risk mitigated and proper equipment in place. Flash flooding is more of a concern for the village as the community is not located in the 100-year floodplain. To help mitigate flash flooding, storm drains and culverts are regularly budgeted for cleaning.

### Severe Winter Storms

Severe winter storms are an annual occurrence in the community and across the planning area. Past impacts include hazardous roadways, crop damage, and power loss. Snow removal in Johnson is handled by the utility superintendent using a tractor and truck with a blade. The local planning team indicated that snow removal resources are sufficient for most events.

### Tornadoes and High Winds

In 2008 four tornadoes touched down in or near Johnson. Three out of the four tornadoes occurred June 5 and impacted rural areas by knocking down barns, damaging roofs, and knocking down power lines. The fourth tornado occurred April 24 and caused $100,000 in damages to buildings along Main Street between 2nd and 3rd streets. Trees were also destroyed, and two garages were pushed off their foundations. No critical facilities were damaged in the event. The village has a warning siren system that can be activated by Nemaha Emergency Management. There are no certified safe rooms in the community, but the school can be used as a shelter location. If a disaster were to occur mutual aid agreements are in place with the City of Aurora.

## Governance

The Village of Johnson is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Attorney
- Utility Superintendent
- Fire Department
- Street Superintendent
- Engineer

## Capability Assessment

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

**Table JHN.5: Capability Assessment**

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

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Ex. CERT Teams, Red Cross, etc. | |
| | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | No |
| | Natural Disaster or Safety related school programs | Yes |
| | StormReady Certification | No |
| | Firewise Communities Certification | No |
| | Tree City USA | No |
| | Other (if any) | - |

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| Community support to implement projects | Moderate |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

The Village of Johnson has several plans that relate to or directly discuss hazards and hazard mitigation. Johnson's comprehensive plan was last updated in 2001 and discusses fire, flooding, and severe weather. It contains goals aimed at safe growth, directs development away from the floodplain, directs development away from chemical storage facilities, directs development away from major transportation routes, limits density in known hazardous areas, encourages elevation of structures in the floodplain, and identifies areas that need emergency shelters. Floodplain regulations were last updated in 2019 and the zoning ordinance was last updated in 2013. These documents identify floodplain areas as open space, require more than one-foot elevation above Base Flood Elevation, discourage development near chemical storage sites, discourage development along major transportation routes, include well setback requirements, include the ability to implement water restrictions, and limit density in the floodplain. The village's building code was last updated in 2001. It requires elevation of structures in the floodplain, requires mechanical systems be elevated in the floodplain, requires sewer backflow valves in the floodplain, encourages the use of hail-resistant building materials, and encourages the use of fire-resistant building materials. Johnson is also an annex in the 2018 Nemaha County Local Emergency Operations Plan. It contains information regarding warning, incident command, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, public health, and damage assessment. In addition to the plans listed above, the village also has a wellhead protection plan that discusses drought and water conservation. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

# Mitigation Strategy

## Continued and New Mitigation Actions

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **Description** | Provide a portable or stationary source of backup power for the village office, fire hall, and school. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | Village Office |
| **Status** | Not Started. |

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This could include fire trucks, ATVs, water tanks/truck, snow removal equipment, etc. This would also include developing backup systems for emergency vehicles and identifying and training additional personnel for emergency response. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board, Fire Department |
| **Status** | In Progress. The village is currently upgrading snow removal equipment and purchasing a new fire truck. |

| Mitigation Action | Community Education and Awareness |
|---|---|
| **Description** | Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $500+ |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | Ongoing, education is done throughout the year. |

| Mitigation Action | First Aid Training |
|---|---|
| **Description** | Promote first aid training for all residents. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $500+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Village Board |
| **Status** | Not Started. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous limbs and/or trees. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | $1,000 |
| **Funding** | Street Funds |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | Ongoing, the board provides tree removal every year along streets and intersections. Residents are encouraged to trim, cut, or remove dangerous trees during that time at a discounted price. |

| Mitigation Action | New Municipal Well |
|---|---|
| **Description** | Provide a safe backup water supply for the community; replace existing wells affected by drought, increase of demand in water, and additional water for fire protection. |
| **Hazard(s) Addressed** | Drought |
| **Estimated Cost** | $350,000 - $450,000 |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Village Board |
| **Status** | Not Started. |

| Mitigation Action | Safe Rooms and Storm Shelters |
|---|---|
| **Description** | Design and construct fully supplied storm shelters and safe rooms for the school. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $350 per square foot |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | Not Started. |

| Mitigation Action | Tree City USA |
|---|---|
| **Description** | Work to become a Tree City USA through the National Arbor Day Foundation in order to receive direction, technical assistance, and public education on how to establish a hazardous tree identification and removal program in order to limited potential tree damage and damages caused by trees in a community when a storm event occurs. The four main requirements include: 1) Establish a tree board; 2) Enact a tree care ordinance; 3) Establish a forestry care program; 4) Enact an Arbor Day observance and proclamation. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Planning Commission, Johnson Area Foundation |
| **Status** | Not Started. |

| Mitigation Action | Weather Radios |
|---|---|
| **Description** | Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $50 per radio |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Village Board |
| **Status** | Not Started. |

## Removed Mitigation Actions

| Mitigation Action | Maintain Good Standing in the National Flood Insurance Program (NFIP) |
|---|---|
| **Hazard(s) Addressed** | Flooding |
| **Reason for Removal** | While the village will continue to participate and maintain compliance in the NFIP, this project can be removed as it is considered an ongoing effort. |

# Community Profile

# Village of Julian

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table JLN.1: Village of Julian Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Carol Woerlen | Village Clerk | Village of Julian |

## Location and Geography

The Village of Julian is in north Nemaha County and covers an area of 0.09 square miles east of Rock Creek.

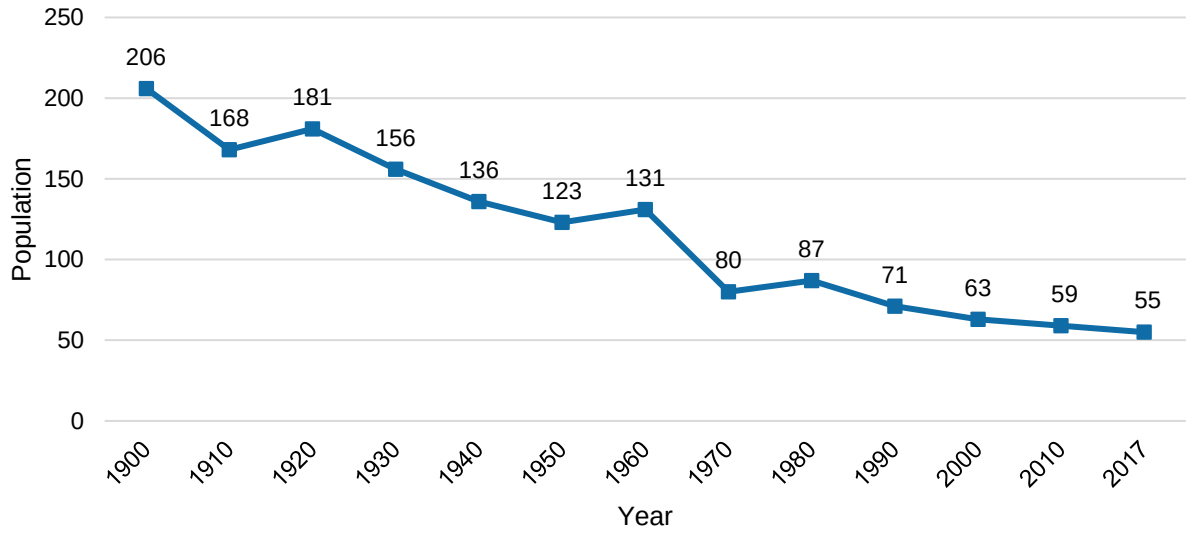
## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Julian's major transportation corridor is the spur of State Highway 64A. It is traveled by an average of 225 vehicles daily, 25 of which are trucks.[36] The village has one Union Pacific Railroad line traveling north to south on the western edge of the community. The transportation route of most concern is Highway 75 due to the high amount of traffic.

## Demographics

The Village of Julian's population has been declining since 1980 and was at 55 people in 2017. A declining population could mean a decreasing tax base, which could make funding mitigation projects more difficult. Julian's population accounted for 0.78% of Nemaha County's population in 2017.[37]

**Figure JLN.1: Population**

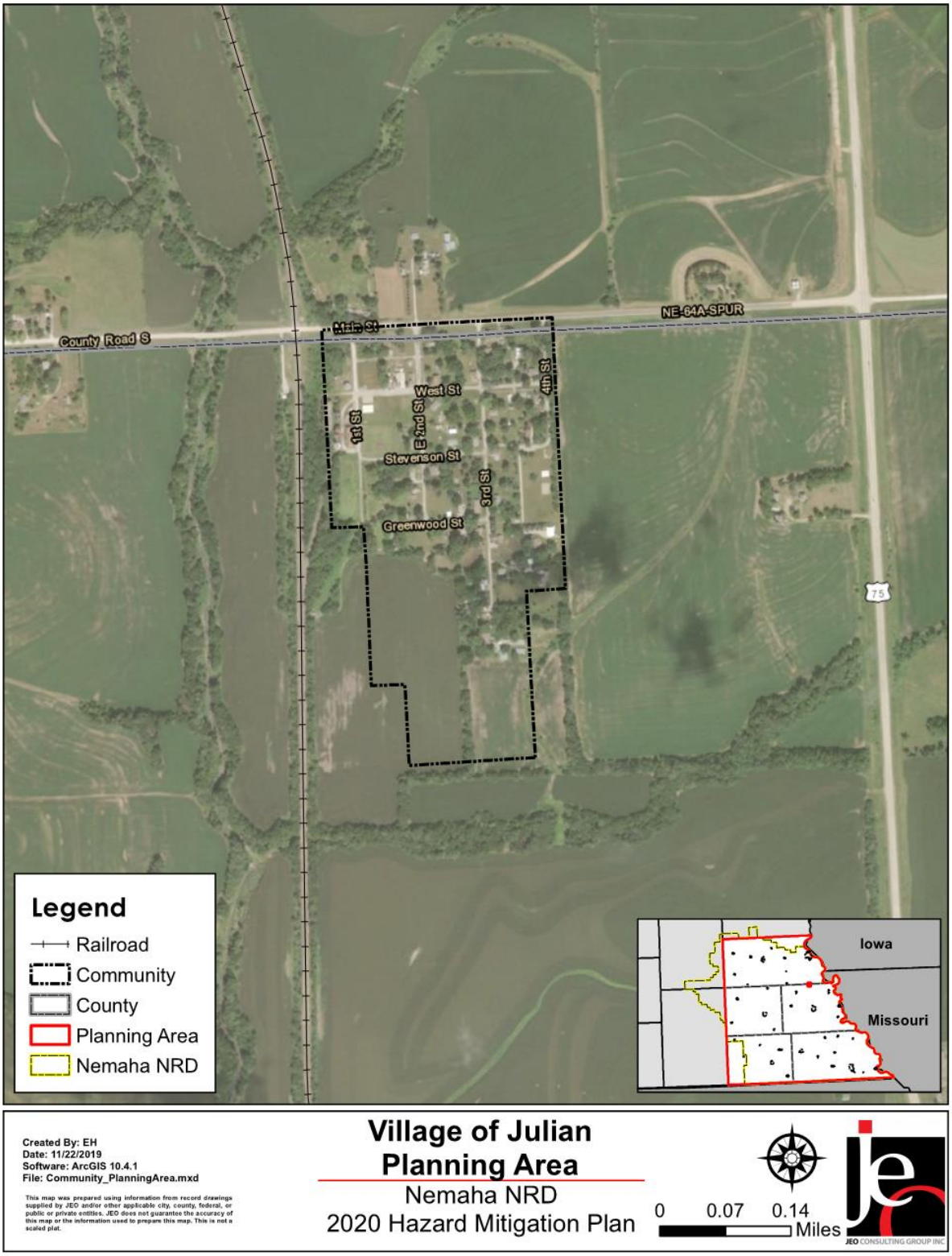



*Source: U.S. Census Bureau, 1900 – 2017*

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

37 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

**Figure JLN.2: Village of Julian**



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

- **Older.** The median age of Julian was 59.6 years old in 2017, compared with Nemaha County's median of 38 years. Julian's population grew older since 2010, when the median age was 44.1 years old.[37]
- **More ethnically diverse**. Since 2010, Julian grew more ethnically diverse. In 2010, 20.3% of Julian's population was Hispanic or Latino. By 2017, about 21.8% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.6% in 2010 to 2.6% in 2017.[37]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Julian (1.8% of people living below the federal poverty line) was lower than the county's poverty rate (11.5%) in 2017.[38]

## Employment and Economics

The Village of Julian's economic base is a mixture of industries. In comparison to Nemaha County, Julian's economy had:

- **Similar mix of industries.** Julian's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, transportation, and education.[38]
- **Higher per capita income.** Julian's per capita income in 2017 ($31,231) was about $2,600 higher than the county ($28,572).[38]
- **More long-distance commuters.** About 0% of workers in Julian commuted for fewer than 15 minutes, compared with about 46.1% of workers in Nemaha County. About 24.3% of workers in Julian commuted 30 minutes or more to work, compared to about 20.2% of county workers.[39]

### Major Employers

The Village of Julian is the largest employer in the community as there are no other businesses. A large percentage of residents commute to Nebraska City, Auburn, and Brownville for employment.

## Housing

In comparison to Nemaha County, the Village of Julian's housing stock was:[40]

- **Older.** Julian had a larger share of housing built prior to 1970 than the county (88.1% compared to 61.6%).
- **More mobile and manufactured housing.** The Village of Julian had a larger share of mobile and manufactured housing (7.1%) compared to the county (2.8%).
- **Less renter-occupied**. About 7.4% of occupied housing units in Julian were renter-occupied compared with 28.1% of occupied housing in Nemaha County.
- **Less occupied.** Approximately 35.7% of Julian's housing units were vacant compared to 19.9% of units in Nemaha County.

38 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.

39 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.

40 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

## Future Development Trends

In the past five years, no new housing has been built but two houses have been demolished. According the most recent American Community Survey estimates, Julian's population is declining. The local planning team attributes this decline to an aging population and not having a large employer in the community. In the next five years, no commercial or residential developments are planned.

## Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

**Table JLN.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 49 | $ 1,158,939 | 1 | 2.04% | $ 8660 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[41]

41 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

## Critical Infrastructure

### Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy and the local planning team, there are no chemical storage sites in Julian.

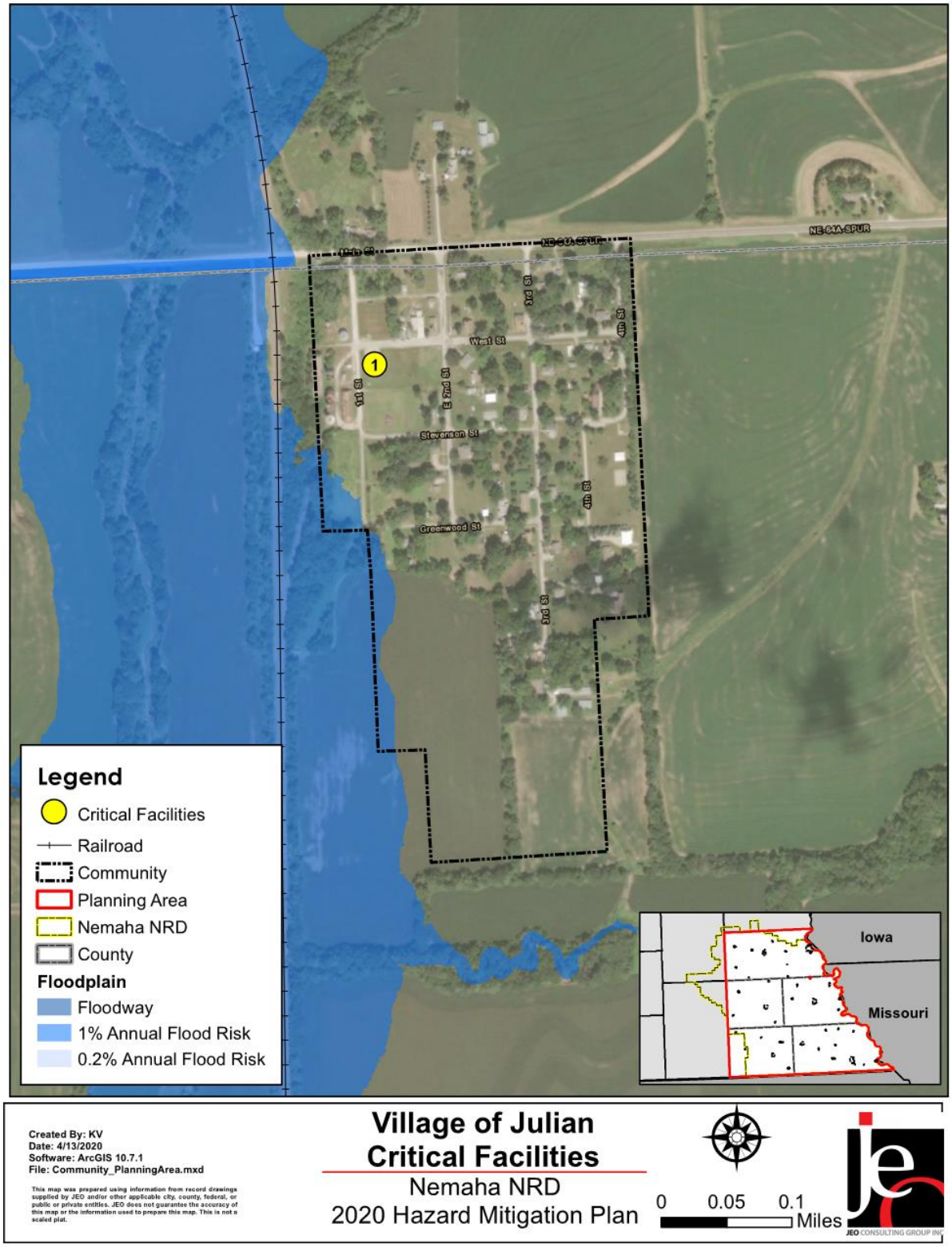
### Critical Facilities

Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the Village of Julian's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table JLN.3: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Community Building and Fire Hall | N | N | N |

**Figure JLN.3: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

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

## Hazard Prioritization

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

### Severe Thunderstorms

The village's primary concern related to severe thunderstorms is loss of electrical power. The local planning team indicated that no power lines are buried, and hazardous trees are located in residential yards. This leads to an increased risk of power loss due to fallen limbs and trees. Unfortunately, since most hazardous trees are located on private property the village cannot trim or remove them. Severe thunderstorms occur on an annual basis, but no significant events have impacted Julian. In the event of a hailstorm, critical facilities do not have hail-resistant building materials but are insured. In the event of power loss, hard copies of important documents are backed up on the cloud and kept in a safe. There are no weather radios at any of the community buildings.

### Severe Winter Storms

Winter storms are an annual occurrence across the planning area and within the village. Past impacts include power loss and closed roads and highways. A village employee is responsible for snow removal and equipped with a tractor with a blade. The local planning team indicated that the removal resources are sufficient for normal snowfall. For larger amounts, the village would require help from Nemaha County.

### Tornadoes and High Winds

Tornadoes and high winds have not impacted the community in the past; however, the risk still exists. If a large tornado were to touch down, the village could sustain large amounts of damage. The tornado siren is activated by the Nemaha County Emergency Management and cannot be activated in the village. There are no certified safe rooms and residents must use their own home or a neighbor's home for shelter. In the event of disaster, mutual aid agreements are in place with Nemaha County.

## Governance

The Village of Julian is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Attorney
- Street Commissioner
- Water Commissioner
- Building Maintenance
- Street Superintendent
- Engineer

## Capability Assessment

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

**Table JLN.4: Capability Assessment**

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| Planning & Regulatory Capability | Comprehensive Plan | No |
| | Capital Improvements Plan | No |
| | Economic Development Plan | No |
| | Local Emergency Operations Plan | Yes |
| | Floodplain Management Plan | No |
| | Storm Water Management Plan | No |
| | Zoning Ordinance | No |
| | Subdivision Regulation/Ordinance | No |
| | Floodplain Ordinance | No |
| | Building Codes | No |
| | National Flood Insurance Program | No |
| | Community Rating System | No |
| | Other (if any) | Yes (Wellhead Protection Plan & Water System Emergency Operational Plan) |
| 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 | Yes |
| | Other (if any) | - |
| Fiscal Capability | Applied for grants in the past | No |
| | Awarded a grant in the past | No |
| | Authority to Levy Taxes for Specific Purposes such as Mitigation Projects | Yes |
| | Gas/Electric Service Fees | No |
| | Storm Water Service Fees | No |
| | Water Service Fees | Yes |
| | Development Impact Fees | No |
| | General Obligation Revenue or Special Tax Bonds | No |
| | Other (if any) | - |

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

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| Community support to implement projects | Limited |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

Julian is part of two emergency operational plans. The village's water system has an emergency operational plan that was updated in 2020. It covers response to different events that could impact the water system. The village is also an annex in the 2018 Nemaha County Local Emergency Operations Plan. It contains information regarding warning, incident command and field response, law enforcement, fire department, emergency medical services, public works, emergency operations center, emergency public information, sheltering, resources, damage assessment, health and human services, public health, and financial accountability. Julian's wellhead protection plan was created in 2012. The plan identifies specific areas with potential groundwater contamination. The village has started working with the Nebraska Department of Natural Resources to join the National Flood Insurance Program in 2020. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

## Mitigation Strategy

### Continued and New Mitigation Actions

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **Description** | Provide a portable or stationary source of backup power to the fire hall. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | $15,000 - $30,000 Per Generator |
| **Funding** | Village Budget |
| **Timeline** | 1 Year |
| **Priority** | Low |
| **Lead Agency** | Board of Trustees |
| **Status** | Not Started. |

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This could include fire trucks, ATVs, water tanks/truck, snow removal equipment, etc. This would also include developing backup systems for emergency vehicles and identifying and training additional personnel for emergency response. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | Village Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Board of Trustees |
| **Status** | Not Started. |

| Mitigation Action | Community Awareness/Education |
|---|---|
| **Description** | Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $500+ |
| **Funding** | Village Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | Board of Trustees |
| **Status** | Not Started. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous limbs and/or trees. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | $1,000+ |
| **Funding** | Village Budget |
| **Timeline** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | Board of Trustees |
| **Status** | Ongoing. Trees are trimmed on a regular basis. |

| Mitigation Action | Participate in the National Flood Insurance Program (NFIP) |
|---|---|
| **Description** | Participate in the NFIP. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Village Clerk |
| **Status** | Planning State. |

| Mitigation Action | Warning Systems |
|---|---|
| **Description** | Improve/ implement village cable TV interrupt warning system and telephone interrupt system such as Reverse 911. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $5,000+ |
| **Funding** | Village Budget, County Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Board of Trustees, County Emergency Management |
| **Status** | Not Started. |

# Community Profile

# Village of Nemaha

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table NMH.1: Village of Nemaha Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Janice Boden | Clerk | Village of Nemaha |

## Location and Geography

The Village of Nemaha is in southeastern Nemaha County and covers an area of 0.3 square miles. The village is located near the Cooper Nuclear Station and is within the plume emergency planning zone (EPZ). If a release were to occur, the village would be evacuated to Falls City. The Little Nemaha River is located to the south of the community and the Missouri River is located to the east.

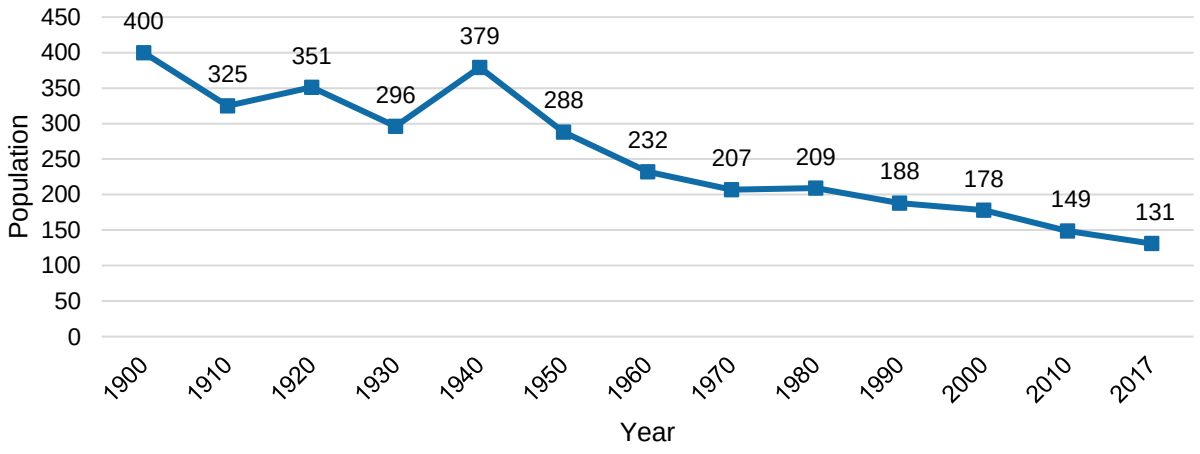
## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Nemaha's major transportation corridor is State Highway 67. It is traveled by an average of 1,050 vehicles daily, 70 of which are trucks.[42] The village does not have any railway lines traveling through the community. The local planning team identified State Highway 67 as the transportation route of most concern as it is the main route through town and has a high amount of traffic. In addition to traffic, hazardous chemicals such as anhydrous ammonia are regularly transported along Highway 67.

## Demographics

The Village of Nemaha's population has been declining since 1980 and was at 131 people in 2017. A declining population can mean a decreasing tax base, which may make funding mitigation projects more difficult. Nemaha's population accounted for 1.86% of Nemaha County's population in 2017.[43]

**Figure NMH.1: Population**

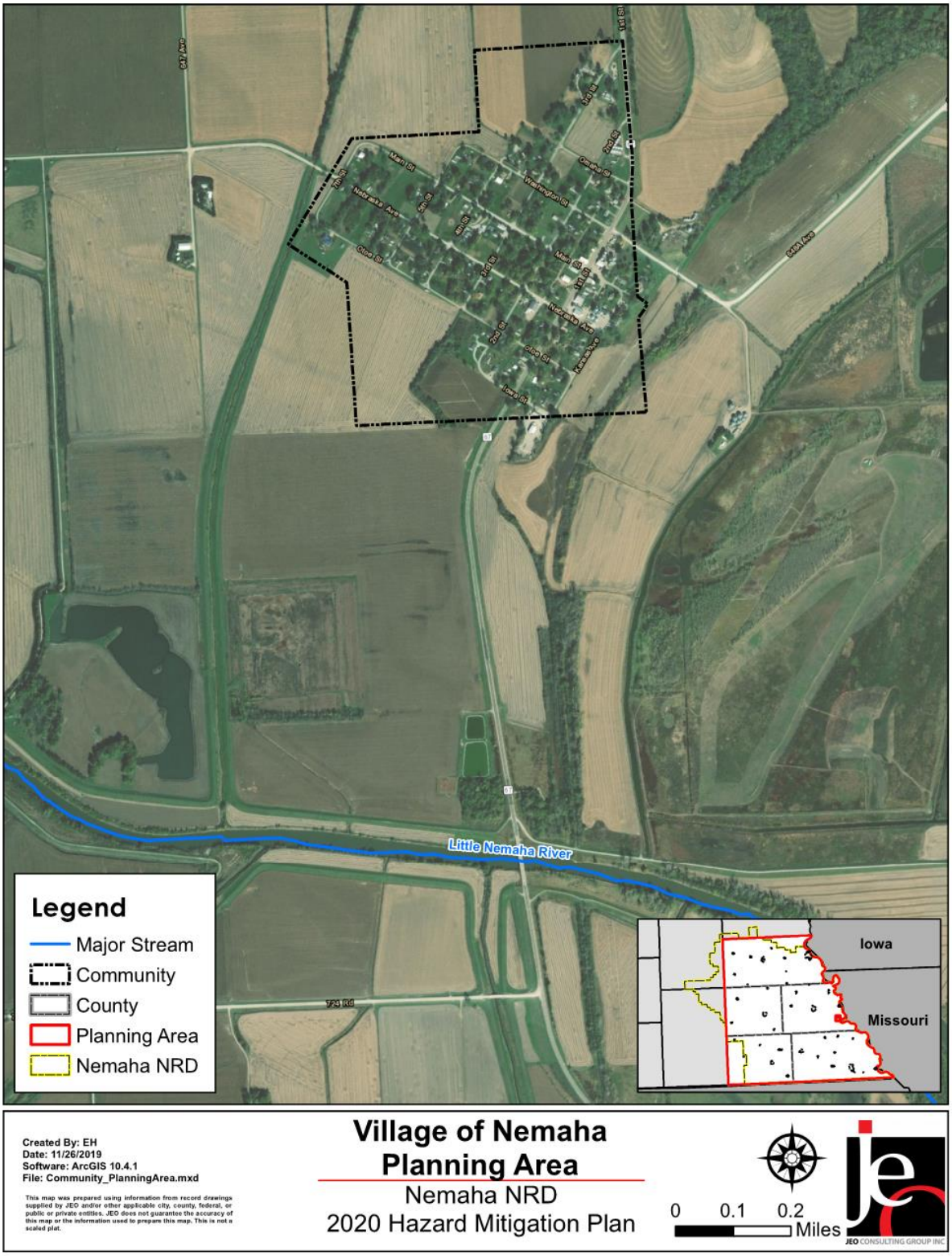



*Source: U.S. Census Bureau, 1900 – 2017*

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

43 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

**Figure NMH.2: Village of Nemaha**



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

- **Older.** The median age of Nemaha was 51.9 years old in 2017, compared with Nemaha County's median of 38 years. Nemaha's population grew slightly older since 2010, when the median age was 51.5 years old.[43]
- **Less ethnically diverse**. Since 2010, Nemaha stayed as ethnically diverse. In 2010 and 2017, 0% of Nemaha's population was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.6% in 2010 to 2.6% in 2017.[43]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Nemaha (31.8% of people living below the federal poverty line) was higher than the county's poverty rate (11.5%) in 2017.[44]

## Employment and Economics

The Village of Nemaha's economic base is a mixture of industries. In comparison to Nemaha County, Nemaha's economy had:

- **Different mix of industries.** Nemaha's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, transportation, education, arts, and other services.[44]
- **Lower per capita income.** Nemaha's per capita income in 2017 ($21,378) was about $7,200 lower than the county ($28,572).[44]
- **Fewer long-distance commuters.** About 53.7% of workers in Nemaha commuted for fewer than 15 minutes, compared with about 46.1% of workers in Nemaha County. About 16.7% of workers in Nemaha commuted 30 minutes or more to work, compared to about 20.2% of county workers.[45]

### Major Employers

Andrew Fertilizer and Chemical and Cooper Nuclear Station are the major employers in the Village of Nemaha. A large percentage of residents also commute to Auburn.

## Housing

In comparison to Nemaha County, the Village of Nemaha's housing stock was:[46]

- **Newer.** Nemaha had a smaller share of housing built prior to 1970 than the county (56.3% compared to 61.6%).
- **More mobile and manufactured housing.** The Village of Nemaha had a larger share of mobile and manufactured housing (21.4%) compared to the county (2.8%).
- **More renter-occupied**. About 41.6% of occupied housing units in Nemaha were renter-occupied compared with 28.1% of occupied housing in Nemaha County.
- **Less occupied.** Approximately 25.2% of Nemaha's housing units were vacant compared to 19.9% of units in Nemaha County.

44 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
45 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
46 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. The Village of Nemaha has three mobile homes located along Otoe Street, Washington Street, and Nebraska Avenue. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards. A significant number of unoccupied housing suggests that future development may be unlikely to occur in the area.

## Future Development Trends

The local planning team indicated that future developments for the community include a new storage building for Anderson Fertilizer and Chemical, and a private entity is building another storage building. Additionally, the Village of Nemaha received a grant to build a community building due to be completed by 2021. According to the U.S. Census Bureau American Community Survey estimates, Nemaha's population has declined. The general decline can be attributed to aging infrastructure. No new housing or business developments are planned at this time.

## Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

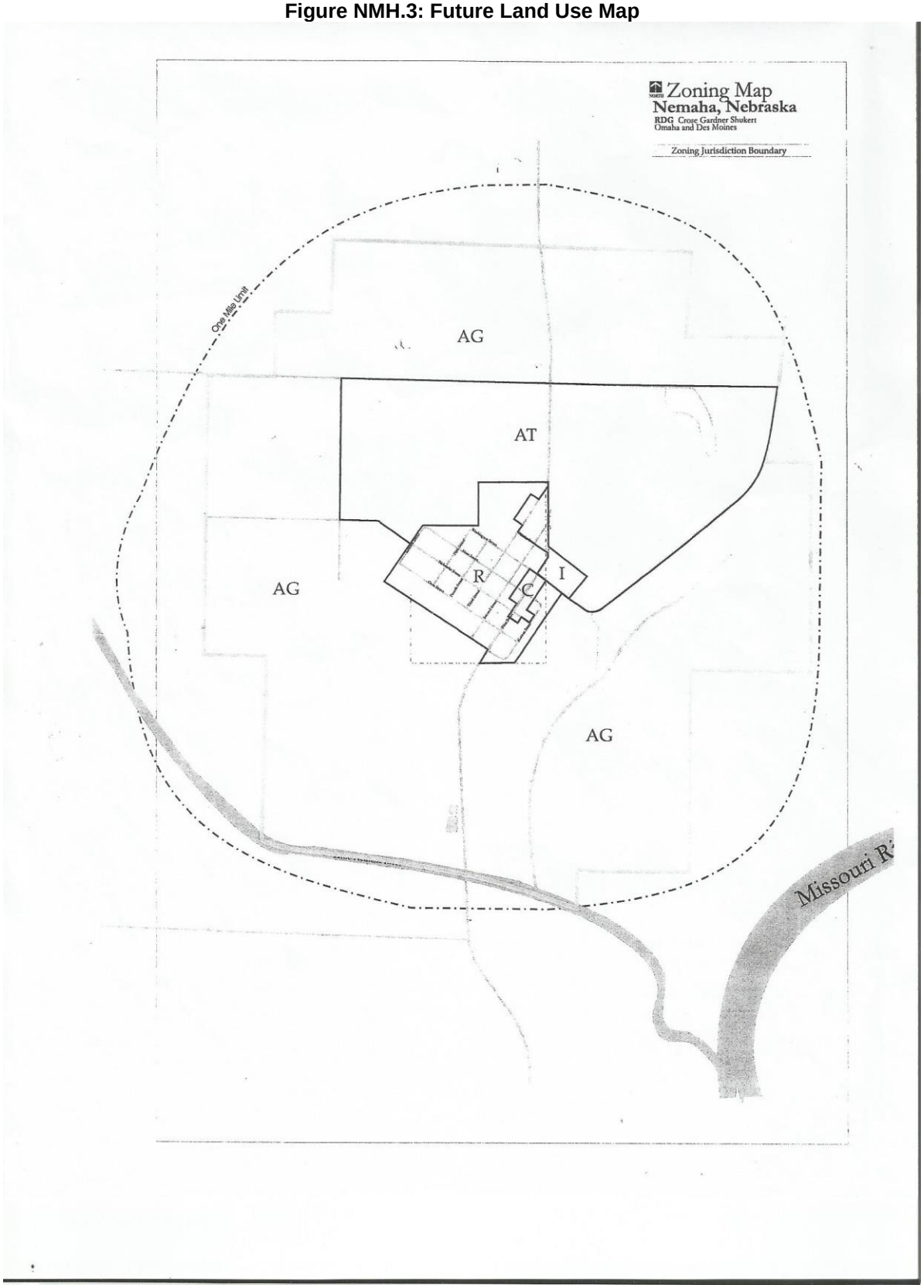
**Table NMH.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 111 | $ 1,743,744 | 14 | 12.6% | $ 495,433 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[47]

47 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

**Figure NMH.3: Future Land Use Map**




*Source: Village of Nemaha*

# Critical Infrastructure

## Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there are no chemical storage sites in Nemaha.

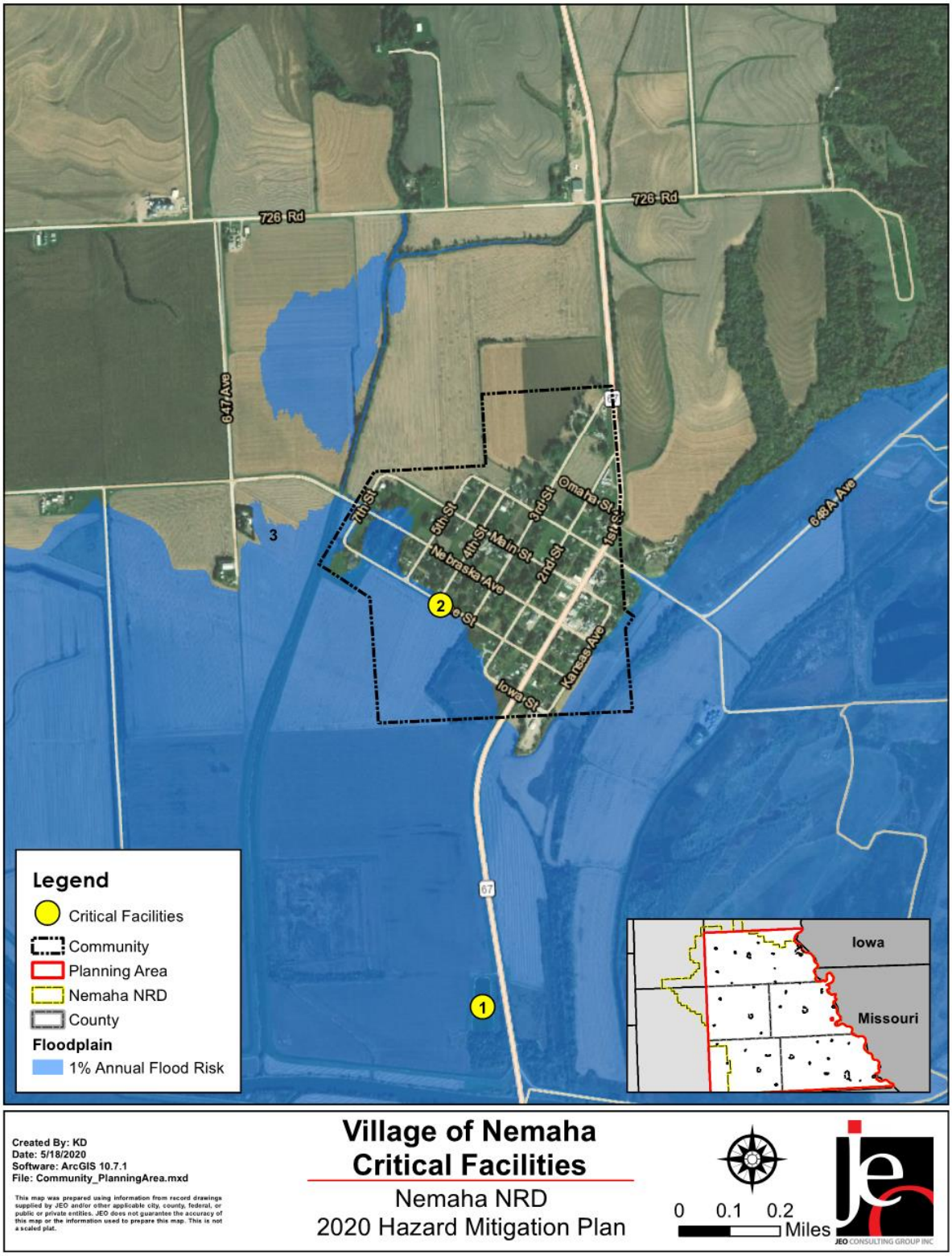
## Critical Facilities

The planning team identified critical facilities necessary for the Village of Nemaha's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table NMH.3: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Lagoons | N | N | Y |
| 2 | Well, Water Tank, and Well House | N | Y | Y |

**Figure NMH.4: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

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

## Hazard Prioritization

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

### Chemical and Radiological Spills (Fixed Site)

The local planning team identified Andrew Fertilizer and Chemical as a potentially hazardous chemical storage site in the community. The planning team indicated that the village has control over what can go in the village boundary. In the past, the village has moved storage tanks outside of the community boundaries.

### Chemical and Radiological Spills (Transportation)

With chemical storage sites located in the village, hazardous chemicals like anhydrous ammonia are regularly transported through the community. To date, there have been no chemical spills, but the local planning team remains concerned with the possibility. In the event of a spill, the local fire department would have difficulty dealing with cleanup due to a lack of equipment and human resources.

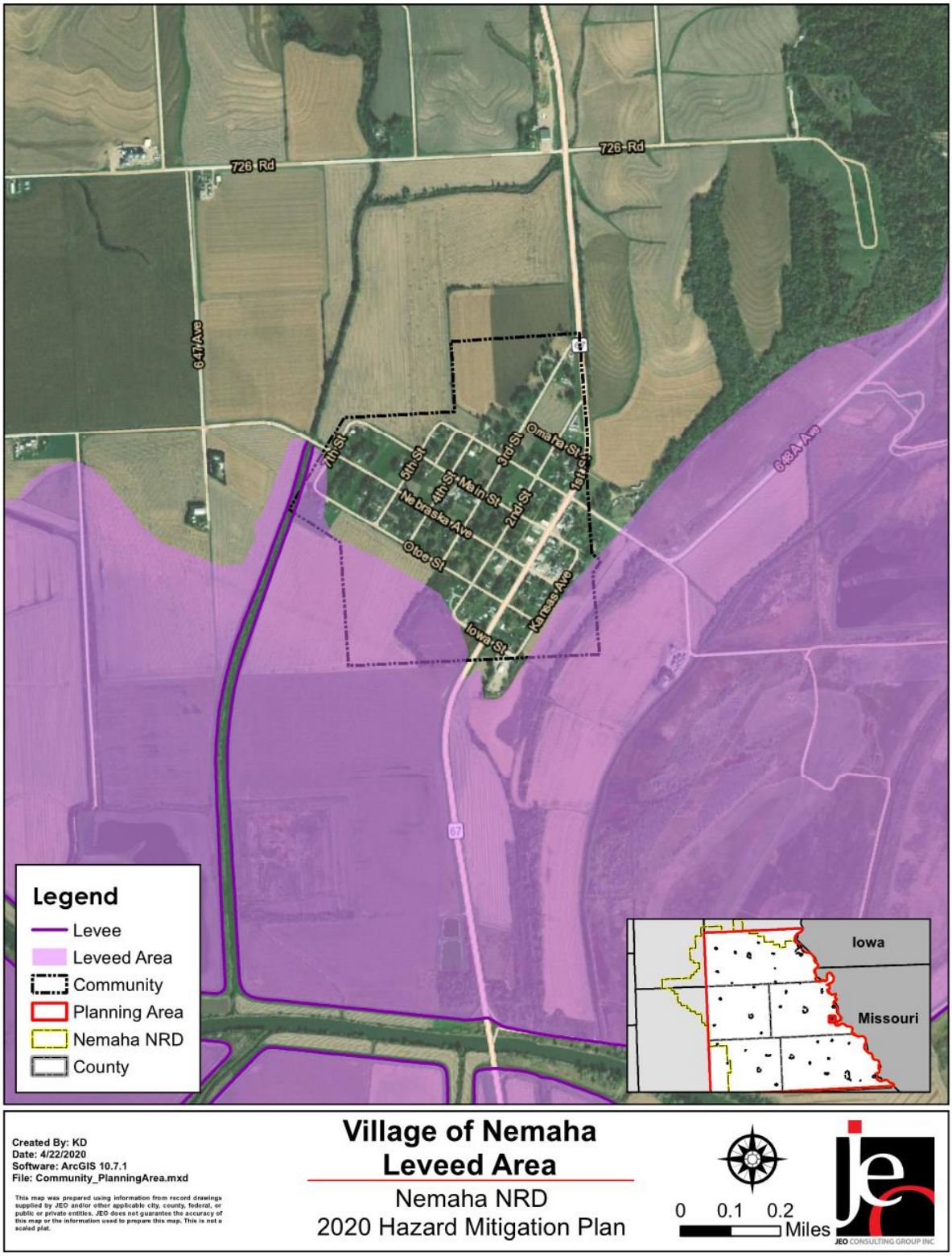
### Flooding

The local planning team identified flooding as a major concern since the village is near the Little Nemaha River and the Missouri River. Several issues arose in the community with the recent March 2019 flooding. The village's lagoons and lift station are located on the south side of the village next to the Little Nemaha River and were almost flooded in 2019. The community resorted to laying sandbags around their lift station to stop the floodwaters. Highway 67 was closed for one day, and one trailer located in the floodplain had to be sandbagged with the help of the local fire department and community volunteers. Overall, there were no significant impacts on the community. During past flooding events, Highway 67 has been closed for several days at a time. The possibility of this occurring again in the future remains a concern for the community.

### Levee Failure

Although not identified as a top hazard of concern by the local planning team, part of the village is located in a leveed area. The figure below shows the location of the R-548 – Missouri River and Little Nemaha levee and leveed area. If the levee were to fail it would likely impact the southeastern and southwestern corners of the community. The levee overtopped in 1993, 2011, and 2019 without breach. Impacts from the 2019 overtopping are discussed in the flooding section.

**Figure NMH.5: Leveed Area**



### Severe Winter Storms

Nemaha has experienced impacts from a bad ice storm that hit the community in the past. The ice storm destroyed large amounts of trees that the village was unable to dispose of immediately. The village had to apply for a special permit that allowed them to burn the tree debris. There have been no issues with power surges or outages from severe winter storms to date. The Auburn Board of Public Works owns and maintains all the powerlines for the community. During severe winter storm events, snow removal services are provided by the county through interlocal agreements. In addition to the county, residents also assist with snow removal with the use of their own equipment.

## Governance

The Village of Nemaha is governed by a five-member village board; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Attorney
- Fire Department
- Street Commissioner

## Capability Assessment

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

**Table NMH.4: Capability Assessment**

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

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

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| Community support to implement projects | Moderate |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

Nemaha's comprehensive plan was last updated in 2002. Due to the age of the plan, flooding is the only natural hazard discussed. The plan contains goals aimed at safe growth, directs development away from the floodplain, limits density in hazardous areas, encourages the preservation of open space, and encourages the elevation of structures located in the floodplain. There are currently no plans to update the comprehensive plan. The village also as a zoning ordinance and floodplain regulations. These documents discourage development in the floodplain, identify floodplain areas as parks or open space, and include the ability to implement water restrictions. Nemaha does not have its own building codes but does use the state's codes for new construction. No other examples of plan integration were identified. The community will

seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

## Mitigation Strategy

### New Mitigation Actions

| Mitigation Action | Backup and Emergency Generator |
|---|---|
| **Description** | Identify and evaluate current backup and emergency generators. Obtain additional generators based on identification and evaluation. Provide portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations and other critical facilities and shelters. The village would like a backup generator for the well house. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | Water Fund |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Conduct tree inventory. Develop and implement tree maintenance and trimming program to remove hazardous limbs and trees. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | $200+ per tree |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. Trimming was done about seven years ago but has not been done since then. |

| Mitigation Action | New Community Building |
|---|---|
| **Description** | The village would like to construct a new community building that could be used for meetings, emergency operations center, or shelter location. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $200,000+ |
| **Funding** | General Fund |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | New Action. In Progress. The village recently received grant funding from the state to start construction. |

| Mitigation Action | New Municipal Well |
|---|---|
| **Description** | The secondary well for the village was recently capped due to high nitrates. A new secondary well is needed for the village as a backup supply of drinking water. |
| **Hazard(s) Addressed** | Drought |
| **Estimated Cost** | $250,000 - $350,000 |
| **Funding** | Water Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

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

# Community Profile

# City of Peru

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table PRU.1: City of Peru Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Dave Pease | Mayor | City of Peru |
| Charlotte Carpenter | Clerk | City of Peru |

## Location and Geography

The City of Peru is in northeastern Nemaha County and covers an area of 0.53 square miles. Buck Creek runs to the east, west, and north of the city. The city is located near the Cooper Nuclear Station and is in the plume emergency planning zone (EPZ). If a release were to occur, the city would be evacuated to Nebraska City. The Missouri River is located less than a mile to the east of the community.

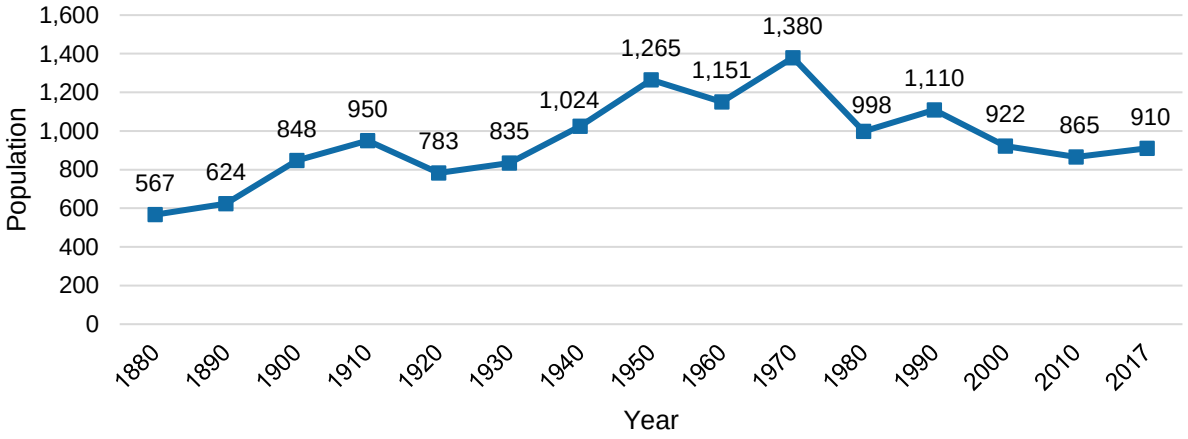
## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community and areas more at risk of transportation incidents. Peru's major transportation corridor is the spur of State Highway 64G. It is traveled by an average of 1,225 vehicles daily, 35 of which are trucks.[48] The city does not have any railway lines traveling through the community. The local planning team identified Spur 64G, Highway 67, and County Road 645A as transportation routes of most concern. Anhydrous ammonia is regularly transported along local routes. Bluff Road is a transportation route that has been closed in the past due to flooding.

## Demographics

The City of Peru's population has increased since 2010 and was at 910 people in 2017. An increasing population means a growing tax base, which could make funding mitigation projects easier. Peru's population accounted for 12.9% of Nemaha County's population in 2017.[49] Peru College is located in the city and makes up a significant portion of the population and economy.

**Figure PRU.1: Population**

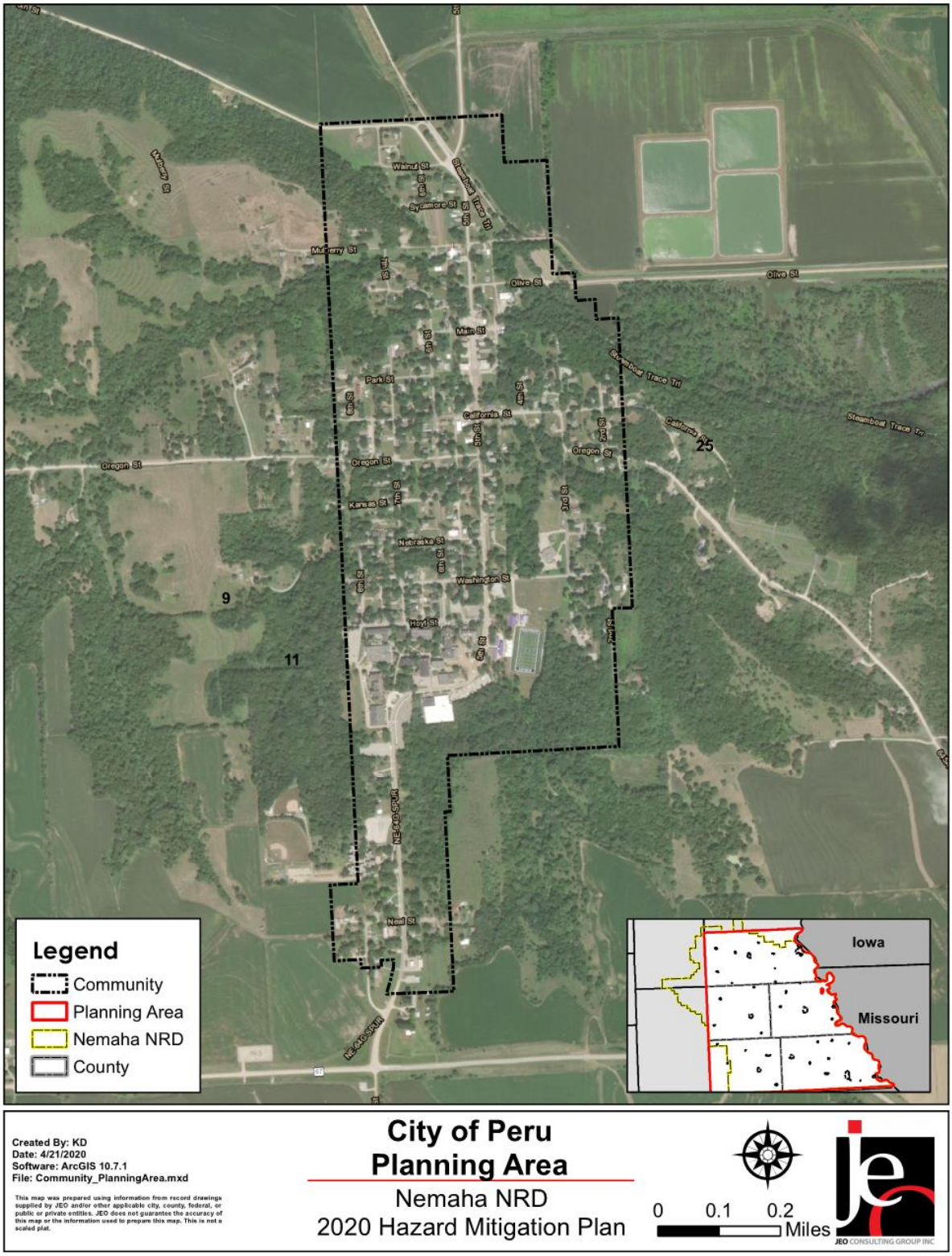



*Source: U.S. Census Bureau, 1880 – 2017*

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

49 United States Census Bureau. "American Fact Finder: DP05: Demographic and Housing Estimates." [database file]. https://factfinder.census.gov/.

**Figure PRU.2: City of Peru**



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

- **Younger.** The median age of Peru was 22.7 years old in 2017, compared with Nemaha County's median of 38 years. Peru's population grew older since 2010, when the median age was 21.3 years old.[49]
- **More ethnically diverse**. Since 2010, Peru grew more ethnically diverse. In 2010, 3.1% of Peru's population was Hispanic or Latino. By 2017, about 9.2% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 1.6% in 2010 to 2.6% in 2017.[49]
- **More likely to be below the federal poverty line.** The poverty rate in the City of Peru (35.2% of people living below the federal poverty line) was higher than the county's poverty rate (11.5%) in 2017.[50]

## Employment and Economics

The City of Peru's economic base is a mixture of industries. In comparison to Nemaha County, Peru's economy had:

- **Similar mix of industries.** Peru's major employment sectors, accounting for 10% or more of employment each, were: retail trade, education, and arts.[50]
- **Lower per capita income.** Peru's per capita income in 2017 ($15,530) was about $13,000 lower than the county ($28,572).[50]
- **Fewer long-distance commuters.** About 53.5% of workers in Peru commuted for fewer than 15 minutes, compared with about 46.1% of workers in Nemaha County. About 8.1% of workers in Peru commuted 30 minutes or more to work, compared to about 20.2% of county workers.[51]

### Major Employers

Major employers within the city include the Cooper Nuclear Station and Peru State College. A large percentage of residents commute to Nebraska City and Auburn for employment.

## Housing

In comparison to Nemaha County, the City of Peru's housing stock was:[52]

- **Older.** Peru had a larger share of housing built prior to 1970 than the county (88% compared to 61.6%).
- **Less mobile and manufactured housing.** The City of Peru had a smaller share of mobile and manufactured housing (0.7%) compared to the county (2.8%).
- **More renter-occupied**. About 37.8% of occupied housing units in Peru were renter-occupied compared with 28.1% of occupied housing in Nemaha County.
- **More occupied.** Approximately 16.1% of Peru's housing units were vacant compared to 19.9% of units in Nemaha County.

50 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
51 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
52 United States Census Bureau. "American Fact Finder: DP04: Selected Housing Characteristics." [database file]. https://factfinder.census.gov/.

The age of housing may indicate which housing units were built prior to the development of state building codes. Homes built within a flood hazard area before the adoption of their community's Flood Rate Insurance Map (FIRM) are not likely to be built above the 1% annual chance floodplain. Older and vacant housing stock may also be more vulnerable to hazard events if it is poorly maintained. Communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornadoes, and severe winter storms if those homes are not anchored correctly. The 2019 flood destroyed many mobile homes in the community. One occupied mobile home is located near the Oak Hill Housing Complex. Renter-occupied housing depends on the initiative of landlords for proper maintenance and retrofitting to be resilient to disasters. They are less likely than homeowners to have renter's insurance or flood insurance, or to know their risks to flooding and other hazards.

## Future Development Trends

Over the last five years, one new home was built, three houses were removed through nuisance abatement, and seven houses were destroyed by the 2019 floods. According to the latest American Community Survey estimates, Peru's population is increasing. The local planning team attributes the growth to Peru State College and an increase in rental housing. Municipal funds are currently limited to maintain facilities and systems because of the expenses caused by the March 2019 flood. Funds have decreased over recent years. In the next five years, there are no new housing developments or businesses anticipated.

## Parcel Improvements and Valuation

The planning team acquired GIS parcel data from the County Assessor to analyze the location, number, and value of property improvements (e.g. buildings, paved lots, roads, etc.) at the parcel level. The data did not contain the number of structures on each parcel. The parcel data was analyzed to determine the number and valuation of property improvements located in the 1% annual chance floodplain. A summary of the results of this analysis is provided in the following table.

**Table PRU.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 255 | $ 8,529,815 | 12 | 4.7% | $ 153,062 |

*Source: GIS Workshop/Nemaha County Assessor, 2019*[53]

53 GIS Workshop/Nemaha County Assessor. 2019. [Personal correspondence].

# Critical Infrastructure

## Chemical Storage Fixed Sites

According to the Tier II System reports submitted to the Nebraska Department of Environment and Energy, there is a total of one chemical storage site in Peru. The table below lists the name and location of the site and whether it is in the floodplain.

**Table PRU.3: Chemical Storage Fixed Sites**

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| OPPD Substation No. 973 | 64448 Highway 67 | N |

*Source: Nebraska Department of Environment and Energy*[54]

## Critical Facilities

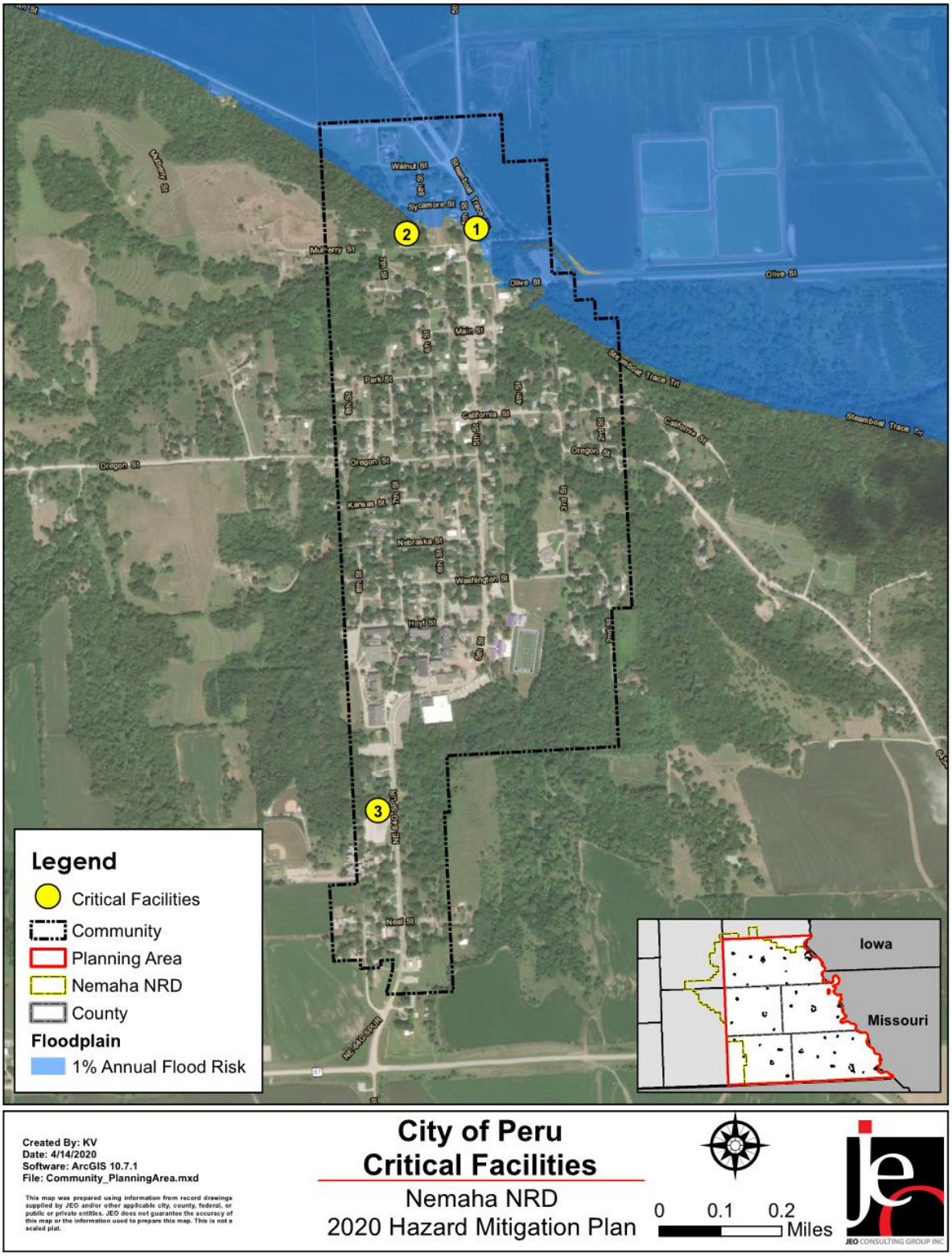
Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the City of Peru's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table PRU.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Lift Station | N | N | Y |
| 2 | Portable Water Treatment Shed | N | Y | N |
| 3 | Water Tower | N | N | N |

54 Nebraska Department of Environment and Energy. "Search Tier II Data." Accessed November 2019. https://deq-iis.ne.gov/tier2/tier2Download.html.

**Figure PRU.3: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

## Historical Occurrences

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

## Hazard Prioritization

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

### Flooding

Peru has experienced multiple flooding events. The most recent events occurred in 1993, 2011, and 2019. In 1993 several homes on the north end of the city suffered extensive water damage and the bottom ground near the lagoons was all under water. In 2011, the majority of damage was done to just the bottom ground and water didn't come into the city itself. The water treatment plant, both wells, and seven homes were destroyed by the 2019 floods. One well was able to be repaired and is now working, while the other well and water treatment plant were damaged beyond repair. Alternatives are being evaluated to replace the municipal water supply. The wastewater lagoons were also damaged from the 2019 event. A majority of the stormwater drains were damaged and now need to be repaired. Riverine flooding from the Missouri River was historically the largest concern. However, with the ground being so saturated, flash flooding is now also a concern. The area in the community most prone to flooding is the north end from Plum Street to Mulberry Street.

### Levee Failure

The March 2019 flood caused multiple breaches to the R562 levee north of Peru that protects the community. The breaches allowed floodwaters to impact the north end of Peru. Flooding damaged both city wells, the water treatment facility, wastewater lagoons, and destroyed several homes. The figure below shows the levee-protected area prior to the breaches and damages. It is a non-accredited levee and currently provides less than a 100-year flood level of protection because of the unrepaired breaches.

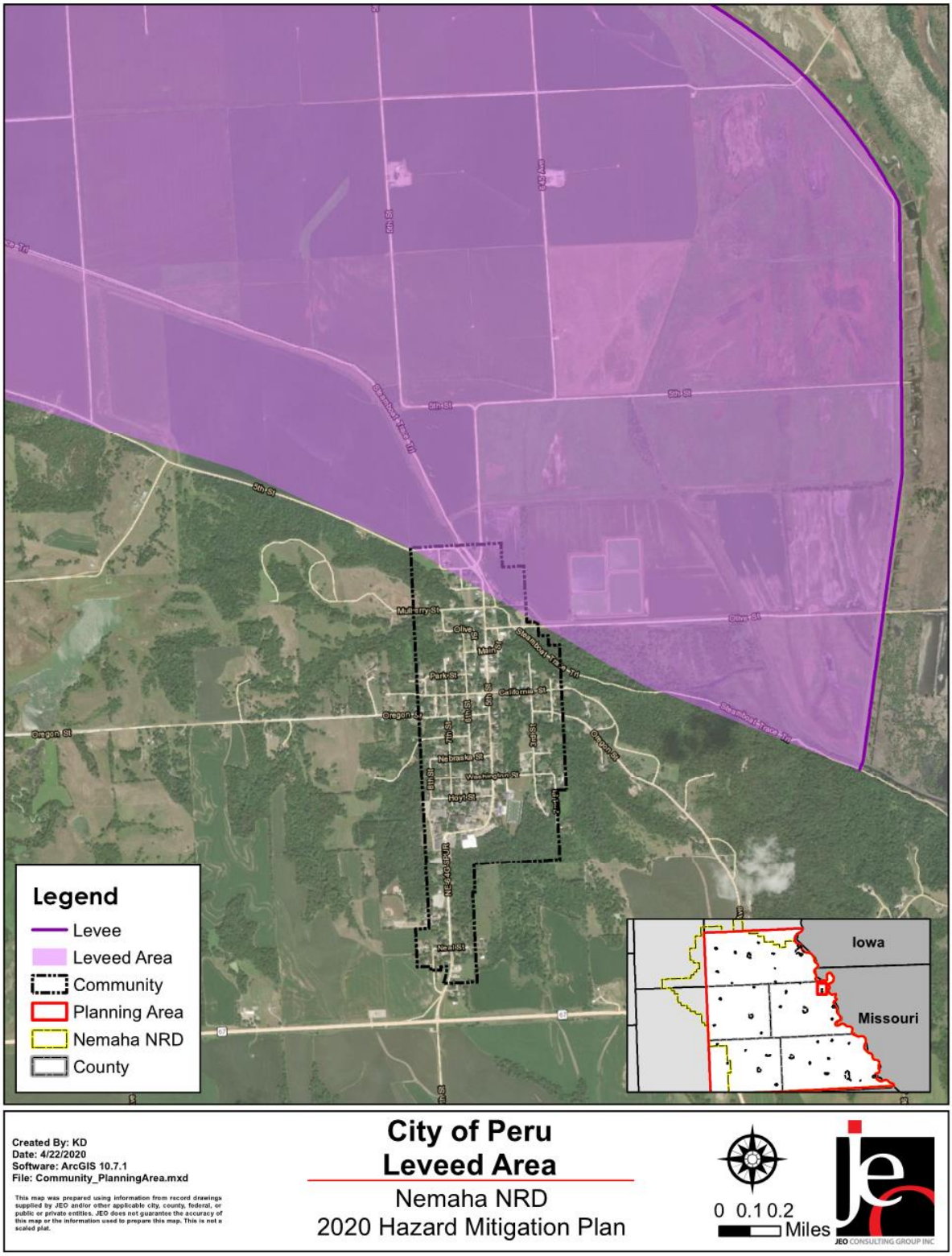
### Severe Thunderstorms

The primary concern related to severe thunderstorms is power loss due to fallen tree limbs on power lines and knocked down poles. Past power outages have not lasted longer than 24 hours. The local planning team indicated that none of the power lines in the city are buried, increasing the community's risk of power loss. Hazardous trees that need to be trimmed or removed are mainly located in alleyways throughout the city. Critical facilities do not have hail-resistant building materials; however, they are insured against hail damage. Municipal records are backed up frequently and important electronic devices have surge protectors. City Hall and the city maintenance buildings all have weather radios.

### Severe Winter Storms

The last significant severe storm event to impact the city occurred in the 90s. A major ice storm caused power outages across the city for more than a 24-hour period. Critical facilities have not been damaged from past events. Snow removal in the city is done by two maintenance employees using a pickup with a snow blade and a skid steer. These resources are sufficient for most events that occur on an annual basis.

**Figure PRU.4: Leveed Area**



### Tornadoes and High Winds

Peru has experienced several high wind events but not a significant tornado. Damage from the high wind events is typically limited to tree damage and short-term power outages. Although a tornado has not impacted the community, if a large tornado were to touch down in the city, potential damages would be very high. The city has warning sirens which are activated by the Cooper Nuclear Power Plant. The city does not have a certified safe room. Options available to the public consist of their own homes or the Peru State College campus facilities.

## Governance

The City of Peru is governed by a five-member city council; other governmental offices and departments are listed below. The community government will oversee the implementation of hazard mitigation projects.

- Clerk/Treasurer
- Utility Superintendent
- Fire Department
- Engineer

## Capability Assessment

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

**Table PRU.5: Capability Assessment**

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

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Grant Manager | No |
| | Mutual Aid Agreement | Yes |
| | Other (if any) | - |
| Fiscal Capability | 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 | 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.<br>Ex. CERT Teams, Red Cross, etc. | No |
| | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | Yes |
| | Natural Disaster or Safety related school programs | No |
| | StormReady Certification | No |
| | Firewise Communities Certification | No |
| | Tree City USA | No |
| | Other (if any) | - |

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| Community support to implement projects | Moderate |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

The City of Peru has several plans that relate to or directly discuss hazards and hazard mitigation. Peru's comprehensive plan outlines future development and expansion of the city in the coming years. The zoning ordinance, subdivision regulations, and floodplain regulations discourage development in the floodplain. The building codes require elevation of structures in the floodplain, require mechanical structures in the floodplain be elevated, require backflow valves in the floodplain, and encourage the use of fire-resistant building materials. The city's capital improvements plan was last updated in 2018. It contains projects for the city to budget for. Projects include widening roadways used for evacuations, installing water meters, installing emergency generators, improving the existing fire hall, and improving other community-owned structures. Peru is also an annex in the 2018 Nemaha County Local Emergency Operations Plan. It contains information regarding basic disaster operations, incident command, field operations, first

responders, and emergency operations center. In addition to the plans listed above, the city also has a wellhead protection plan and a water conservation/drought plan. No other examples of plan integration were identified. The community will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

## Mitigation Strategy

### Continued and New Mitigation Actions

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **Description** | Provide a portable or stationary source of backup power to the fire station. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms. |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | City Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Fire Department |
| **Status** | In Progress. A new concrete pad and retaining wall is needed prior to generator installation. |

| Mitigation Action | Bridge and Street Improvements |
|---|---|
| **Description** | Raise streets and bridges out of the floodplain that are routinely closed due to flooding. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | City Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | New Action. Not Started. |

| Mitigation Action | Community Education and Awareness |
|---|---|
| **Description** | Activities such as outreach projects, distribution of maps and environmental education increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. In addition, educate citizens on erosion control and water conservation methods. Educate residents on response and rescue plans for all hazard types. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $500+ |
| **Funding** | City Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | City Council |
| **Status** | Not Started. The city would like to keep the public informed of flood recovery efforts. |

| Mitigation Action | Drainage Study/Stormwater Master Plan |
|---|---|
| **Description** | Drainage studies can be conducted to identify and prioritize improvements to address site specific localized flooding/drainage problems. Stormwater master plans can be conducted to perform a community wide evaluation. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $10,000 - $100,000+ |
| **Funding** | Bonds, CDBG |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | Not Started. |

| Mitigation Action | Flood-Prone Property Acquisition |
|---|---|
| **Description** | Voluntary acquisition and demolition of properties prone to flooding will reduce the general threat of flooding for communities. Additionally, this can provide flood insurance benefits to those communities within the NFIP. Repetitive loss structures are typically highest priority. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | City Budget |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | City Council |
| **Status** | New Action. Not Started. |

| Mitigation Action | Flood-Prone Property Mitigation |
|---|---|
| **Description** | Decrease the number of structures at risk to flooding by elevating structures or filling in basements. Additionally, this can provide flood insurance benefits to those communities within the NFIP. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | City Budget |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | City Council |
| **Status** | New Action. Not Started. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous limbs and/or trees. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Tornadoes and High Winds, Severe Winter Storms |
| **Estimated Cost** | $1,000+ |
| **Funding** | City Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | OPPD |
| **Status** | Ongoing. Hazardous limbs and trees are removed as they are identified. |

| Mitigation Action | Lagoon Improvements |
|---|---|
| **Description** | The existing lagoons are subject to regular flooding now that the levee has been breached. The lagoons are estimated to be flooded by a 10-year flood. The project consists of building a flood control berm around the perimeter of the lagoons. If this option is not feasible relocation of the wastewater treatment plant may be necessary. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $4,000,000+ |
| **Funding** | Bonds, City Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | City Council |
| **Status** | New Action. Not Started. |

| Mitigation Action | Long-Term Sustainable Water Supply |
|---|---|
| **Description** | Both the existing water treatment plant and both water supply wells were damaged in the March 2019. Flooding. The city is actively considering two alternatives to restore the water system. The first consists of relocating a new water plant outside the floodplain and drilling two new wells. The second consists of connecting to a nearby water system. |
| **Hazard(s) Addressed** | Flooding, Drought |
| **Estimated Cost** | $5,000,000+ |
| **Funding** | Bonds, Public Assistance, WSF |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | City Council |
| **Status** | Planning Stage. The city is currently identifying potential locations and designs for flood protection. |

| Mitigation Action | Stormwater System and Drainage Improvements |
|---|---|
| **Description** | Undersized systems can contribute to localized flooding. Stormwater system improvements, such as pipe upsizing and additional inlets, installation of retention and detention facilities can be implemented to decrease runoff rates while also decrease the need for other stormwater system improvements. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $100,000+ |
| **Funding** | Bonds |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | Not Started. |

| Mitigation Action | Weather Radios |
|---|---|
| **Description** | Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed. NPPD has weather radios but additional radios are needed in city buildings. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms, Severe Winter Storms |
| **Estimated Cost** | $50 per radio |
| **Funding** | City Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | City Council |
| **Status** | Not Started. |

## Removed Mitigation Actions

| Mitigation Action | Storm Shelter / Safe Rooms |
|---|---|
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Reason for Removal** | The city determined that this action is no longer a priority. |

| Mitigation Action | Tree City USA – Tree Maintenance Program |
|---|---|
| **Hazard(s) Addressed** | Severe Thunderstorms, Tornadoes and High Winds, Severe Winter Storms |
| **Reason for Removal** | Recovery and mitigation efforts from the flood damage is a higher priority at this time. |

# District Profile

# Auburn Volunteer Fire Department

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table AFD.1: Auburn Volunteer Fire Department Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Vaughn Severs | Fire Chief | Auburn Volunteer Fire Department |

## Location and Geography

The Auburn Volunteer Fire Department covers 51,520 acres in the central portion of Nemaha County, including the City of Auburn. The fire district mainly addresses grass and wildfire in the region's rural area as well as structural fires in Auburn.

## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. US Highways 75, 136, and Nebraska Highway 67 all travel through the fire district. US Highway 75 is traveled by a total annual average of 8,990 vehicles daily, 800 of which are trucks. US Highway 136 is traveled by a total annual average of 3,645 vehicles daily, 320 of which are trucks. Nebraska Highway 67 is traveled by a total annual average of 1,375 vehicles daily, 95 of which are trucks.[55] A Union Pacific Railroad line runs through the district. Highway 136 east of Auburn is routinely closed due to flooding.

## Demographics

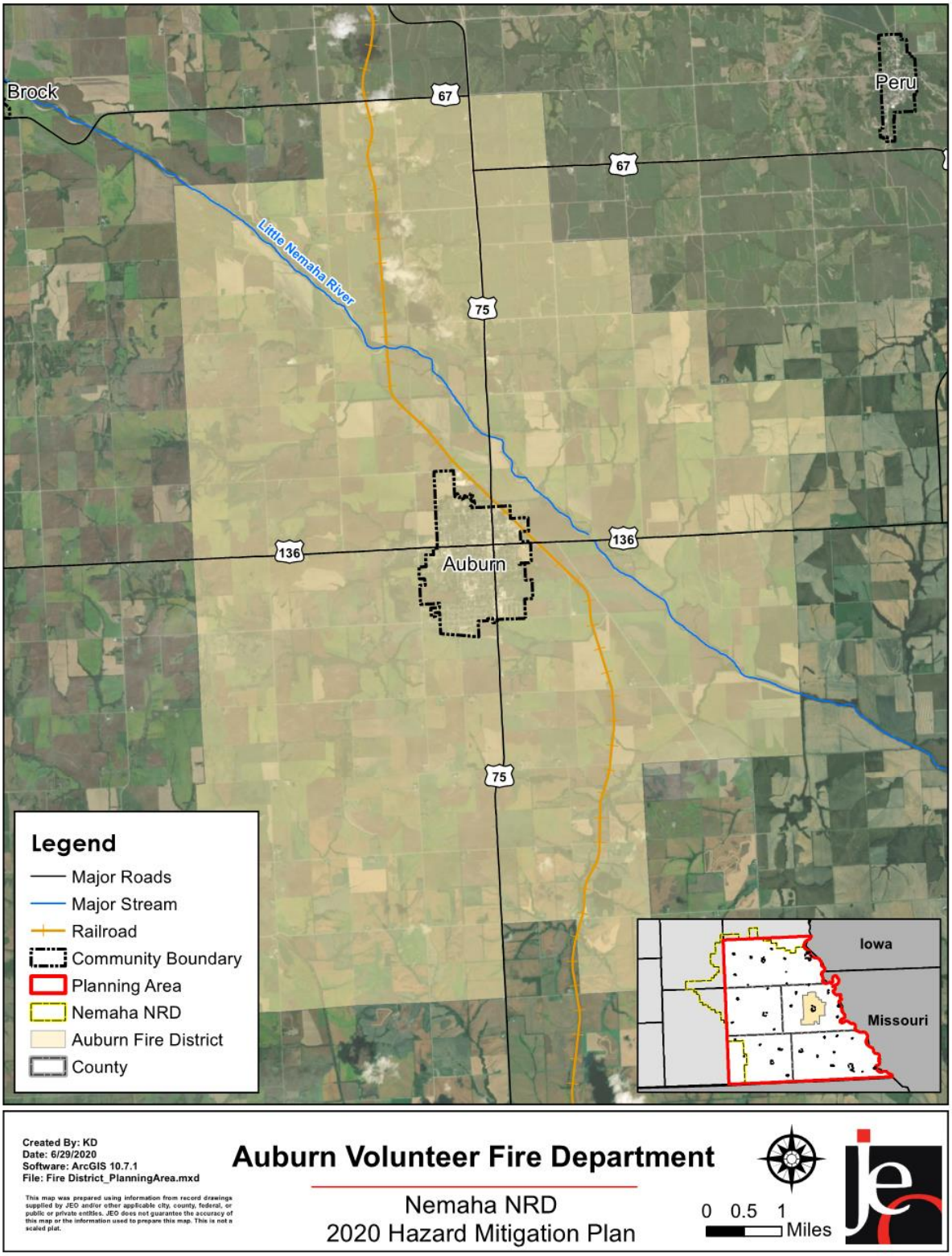
See the City of Auburn and the Nemaha County profiles for regional demographic information. The district serves approximately 3,600 people.

## Future Development Trends

Over the past five years there have been no changes for the fire department. In the next five years, there are plans for a new fire hall to be built in Auburn.

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

**Figure AFD.1: Auburn Volunteer Fire Department**



# Critical Infrastructure

## Chemical Storage Fixed Sites

Information on chemical storage sites can be found in the City of Auburn and Nemaha County profiles. The largest fixed chemical site concern is the Cooper Nuclear Station. Although the station is located outside the district boundary, the district does fall within the 10-mile emergency planning zone. In addition, trucks carrying radiological waste regularly travel through the district. The volunteer fire department does annual trainings with the Cooper Nuclear Station.

## Critical Facilities

The planning team identified critical facilities necessary for the fire district's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the Auburn Volunteer Fire Department.

**Table AFD.2: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Auburn Fire Hall | N | N | N |

# Historical Occurrences

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

# Hazard Prioritization

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

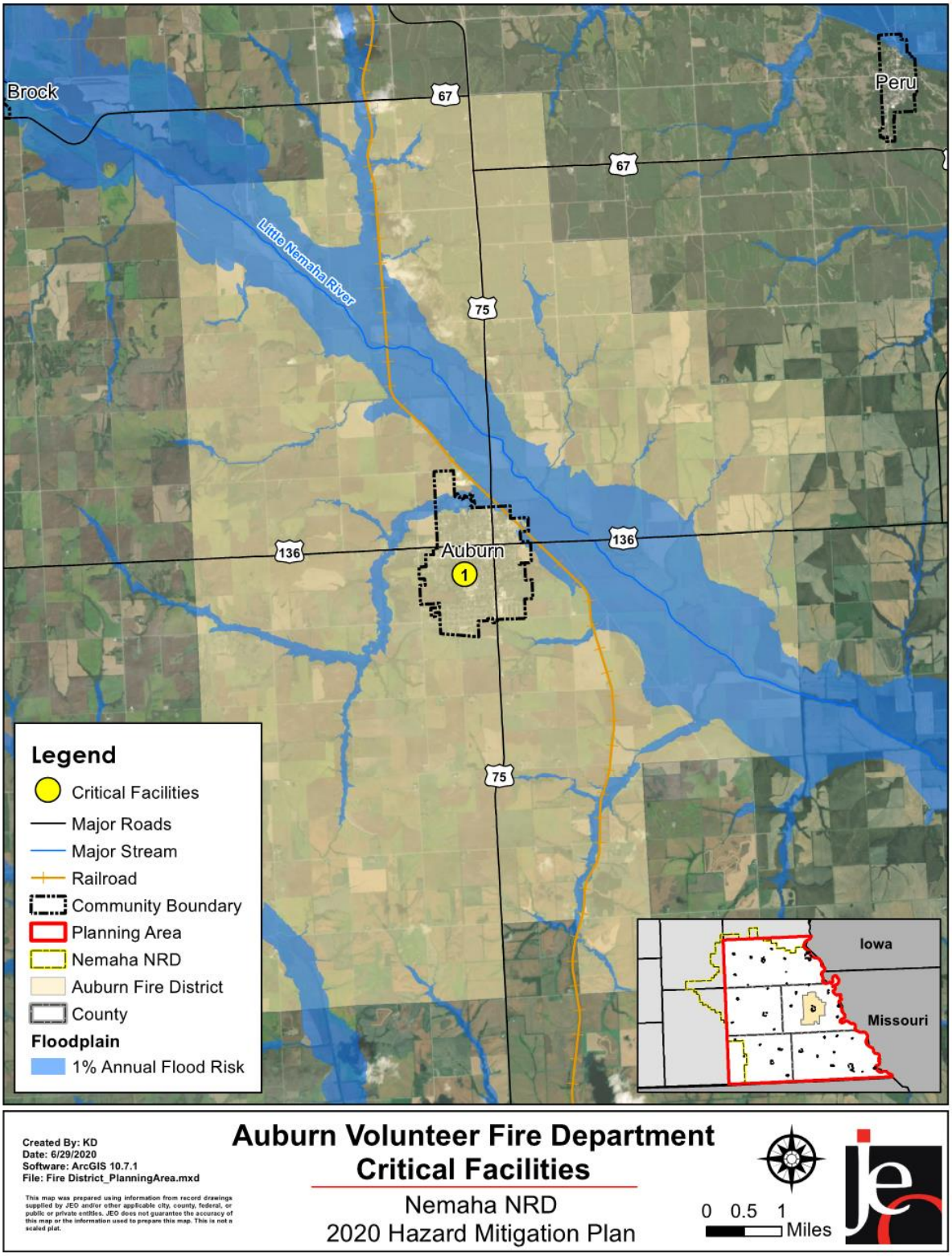
## Chemical and Radiological Spills (Fixed Site)

The primary concern regarding fixed site chemical spills is a major spill or incident occurring. The department lacks the manpower and equipment to deal with a major fixed site spill. In addition, the department is located in the Cooper Nuclear Station 10-mile emergency planning zone. If an emergency were to occur at the station, the fire department would likely assist in evacuations. The department does annual trainings with the Cooper Nuclear Station. Auburn Fire has not been the lead on any local spills but has provided mutual aid to other departments. Response equipment includes four pumpers, an aerial sprayer, a grass rig, and two tankers. Protective gear includes SCBA and structural gear. There are no critical facilities located near chemical fixed sites. However, the Auburn High Rise for seniors is located within six blocks of a business that sells farm chemicals.

## Chemical and Radiological Spills (Transportation)

Transportation routes of most concern include Highway 75, Highway 136, and the Union Pacific rail line. The highways are a concern as radiological waste from the Cooper Nuclear Station is regularly transported along them. The rail line hauls different types of fuel and farm chemicals such as anhydrous ammonia. If an evacuation was necessary, the Good Samaritan Care Home and Longs Creek Assisted Living would have difficulty evacuating due to the amount of people that are non-ambulatory and the lack of manpower to move residents. No transportation spills have occurred locally. Auburn's wastewater treatment plant is located along a truck route and the railroad.

**Figure AFD.2: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

### Severe Winter Storms

The last major severe winter storm occurred in December 2011 when two blizzards impacted the area. The event downed power lines and closed roads. It did not cause any damage to critical facilities. Snow removal in the district is managed by three different entities. The city is responsible for snow removal in Auburn, the State of Nebraska is responsible for Highways 75 and 126, and Nemaha County is responsible for snow removal in the rest of the county. Typically, roads are cleared quickly, however, hazardous road conditions have impacted response times in the past. If an incident were to occur during a severe winter storm event, the fire department has an arrangement with the city and county to make a snowplow available.

### Tornadoes and High Winds

A tornado occurred south and west of the Auburn in the early 1990s. It caused structural damage to rural buildings and crop damage. Critical facilities have not been damaged in past events. If damage was to occur, the fire hall is insured through the City of Auburn. Warning sirens are activated by the sheriff's department. Another warning system is offered by the Nemaha County Emergency Management through a cellphone application called "Page My Cell." There are no safe rooms or shelters in Auburn which is a concern for individuals outside during a severe storm event. In the event of a disaster the fire department has mutual aid agreements in place with all the other fire districts and departments in Nemaha County.

## Staffing

The Auburn Volunteer Fire Department is supervised by a fire chief and a five-member board who will oversee the implementation of hazard mitigation projects. Other offices are listed below.

- Assistant Fire Chiefs
- Treasurer
- Secretary
- Trustees

## Capability Assessment

Due to the unique structure of fire districts, the typical capability assessment table was not used. The following table summarizes the district's overall capabilities. The Auburn Volunteer Fire Department will continue to utilize existing relationships with local, county, state, and federal agencies to implement mitigation projects. The fire department has applied for grants in the past but has not been awarded any.

**Table AFD.3: Overall Capability Assessment**

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/expertise to implement projects | Limited |
| District support to implement projects | Limited |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

The Auburn Volunteer Fire Department does not have any formal planning documents, however it does have Standard Operating Guidelines (SOGs). These SOGs cover response for a variety of different calls that could be received. No other examples of plan integration were identified. The district will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

## Mitigation Strategy

### New Mitigation Actions

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing equipment. For example: backup systems for emergency vehicles, training additional personnel, upgrading radio systems, etc. The fire department would like to upgrade their breathing apparatus, compressor, and bunker gear. The city needs phone and computer system upgrades. The street department needs a new truck for salt and sand spreading. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies Depending on Project, $16,000+ for Bunker Gear |
| **Funding** | General Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Fire Chief |
| **Status** | New Action. Not Started. |

| Mitigation Action | Communication System |
|---|---|
| **Description** | Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. Establish interoperable communications. Provide equipment such as satellite telephones and radios. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $5,000+ |
| **Funding** | General Budget |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Fire Chief |
| **Status** | New Action. Not Started. |

| Mitigation Action | New Fire and Rescue Building |
|---|---|
| **Description** | Build a new fire hall located in Auburn. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $2,400,000 |
| **Funding** | General Budget |
| **Timeline** | 1-2 Years |
| **Priority** | High |
| **Lead Agency** | Rural Fire Board, City of Auburn |
| **Status** | New Action. Not Started. |

# District Profile

# Peru Rural Fire District

**Nemaha Natural Resources District**
**Multi-Jurisdictional Hazard Mitigation Plan Update**

**2020**

## Local Planning Team

**Table PRF.1: Peru Rural Fire District Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Brent Lottman | Fire Chief | Peru Rural Fire Department |

## Location and Geography

The Peru Rural Fire District covers 31,360 acres in the northeast portion of Nemaha County, including the City of Peru. The fire district mainly addresses grass and wildfire in the region's rural areas.

## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. Nebraska State Highway 67 travels through the Peru Rural Fire District. Nebraska State Highway 67 is traveled by a total annual average of 1,375 vehicles daily, 95 of which are trucks.[56] The district planning team indicated that the county roads north of Peru have been closed in the past due to flooding.

## Demographics

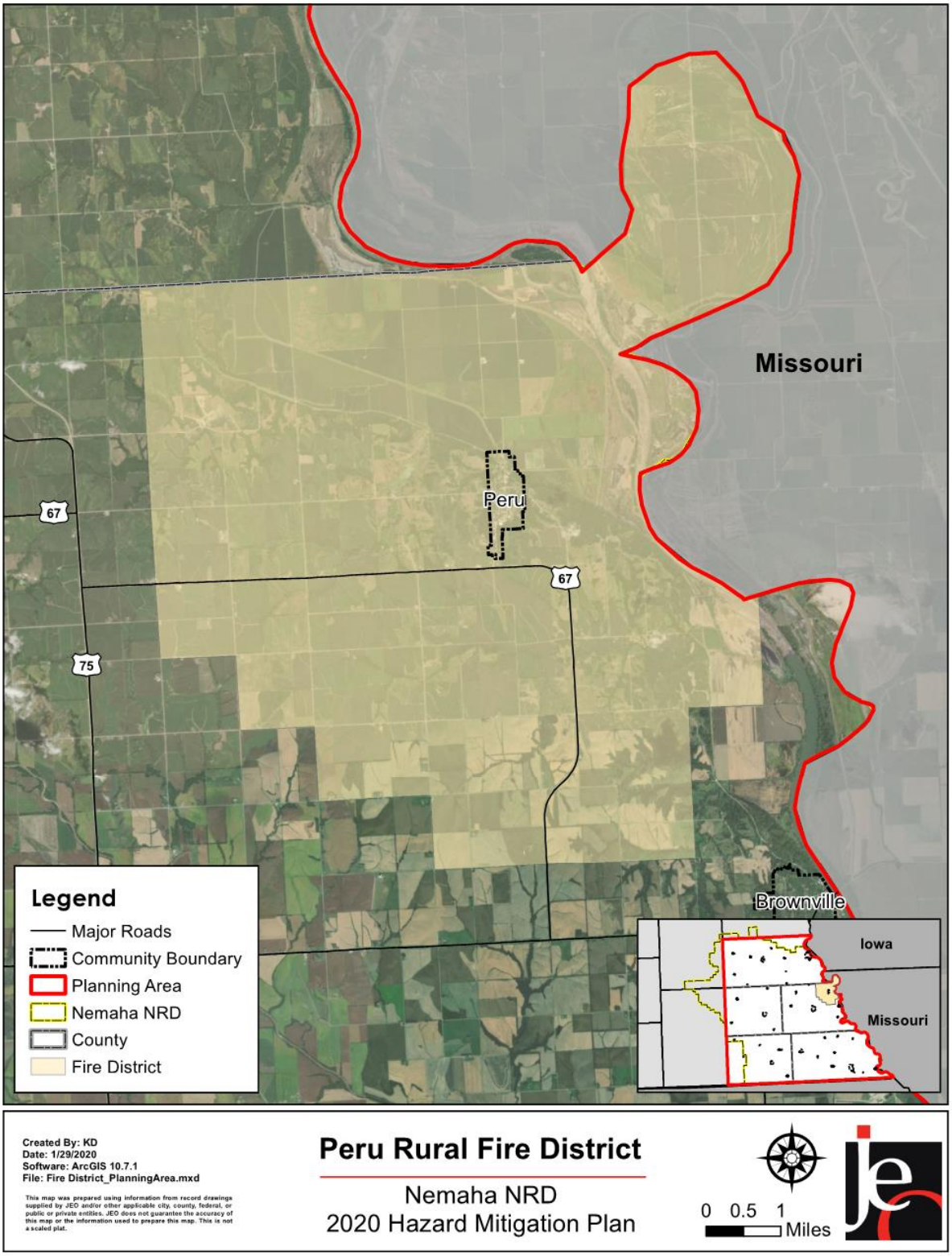
See the City of Peru and the Nemaha County profiles for regional demographic information. The district serves approximately 1,400 people with 1,000 additional when Peru State College is in session.

## Future Development Trends

Over the past five years, the district has not added any new buildings or remodeled existing structures. In the next five years, there are no new developments planned. The district would like to add on to the existing fire hall, but funds are not available at this time.

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

**Figure PRF.1: Peru Rural Fire District**



# Critical Infrastructure

## Chemical Storage Fixed Sites

Information on chemical storage sites can be found in the City of Peru and Nemaha County profiles. Chemical storage sites are limited within the district. The greatest concern is chlorine storage for the Peru water treatment plant.

## Critical Facilities

The planning team identified critical facilities necessary for the fire district's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the Peru Rural Fire District.

**Table PRF.2: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | Located in Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Fire Hall | N | Y (In Process) | N |

# Historical Occurrences

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

# Hazard Prioritization

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

## Chemical and Radiological Spills (Transportation)

The primary concern related to transportation chemical and radiological spills are crashes needing a hazardous materials response and the potential response to the Cooper Nuclear Station. Highway 67 is the transportation route of most concern for the district. The district planning team indicated that no major spills have occurred, however there is no way for the fire district to regulate transportation or what types of chemicals are transported.

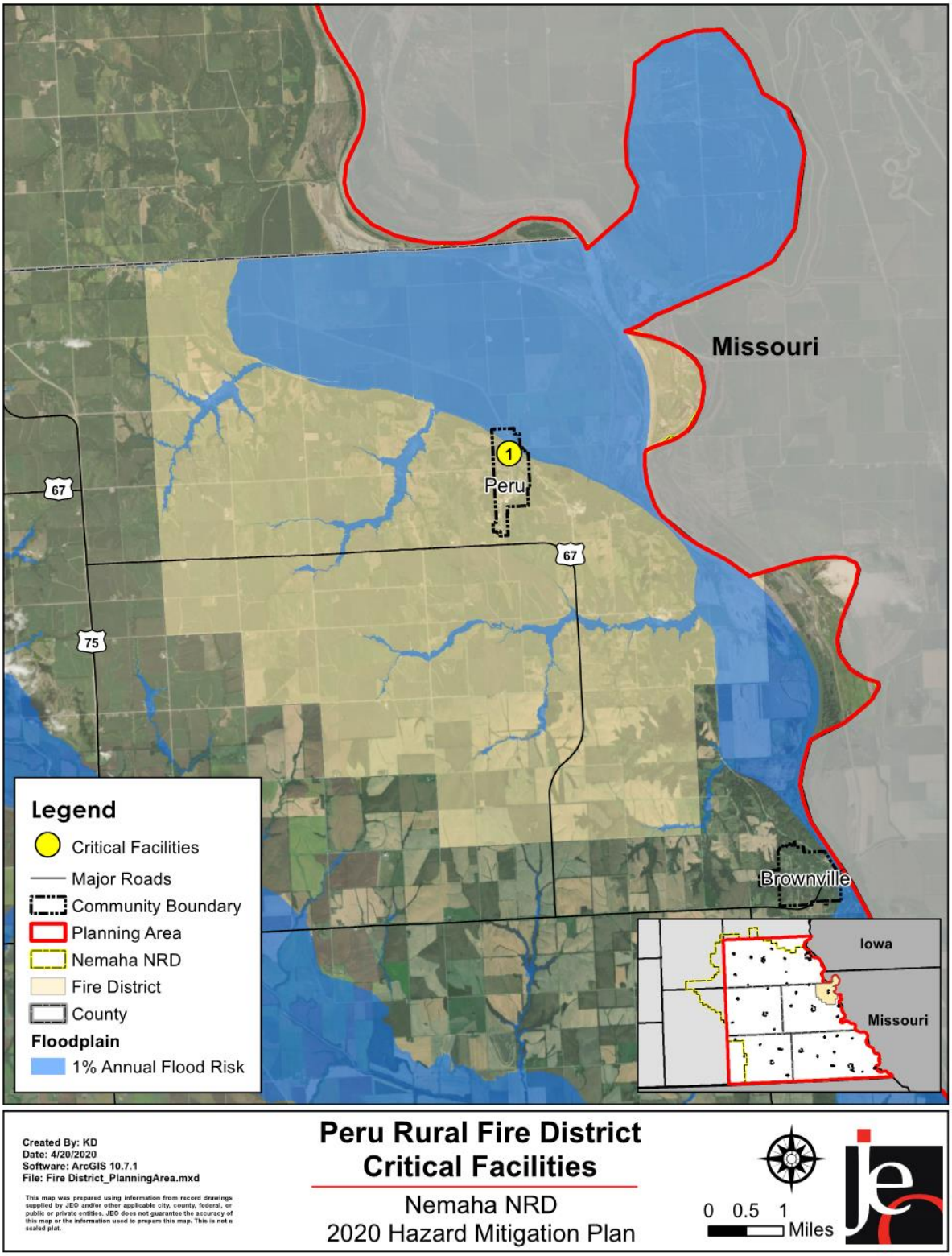
## Flooding

The March 2019 flood event had large impacts on the City of Peru and the surrounding area. Numerous square miles of crop land and woodland were flooded to the north and east of Peru. These fields remained flooded for most of the summer. This heavily impacted revenue for the area as many crops were destroyed or unable to be planted. Riverine flooding from the Missouri River is of most concern. As such, the north and east side of the district are most prone to flooding. The north end of the district also has poor stormwater drainage which has led to flooding in the past.

## Levee Failure

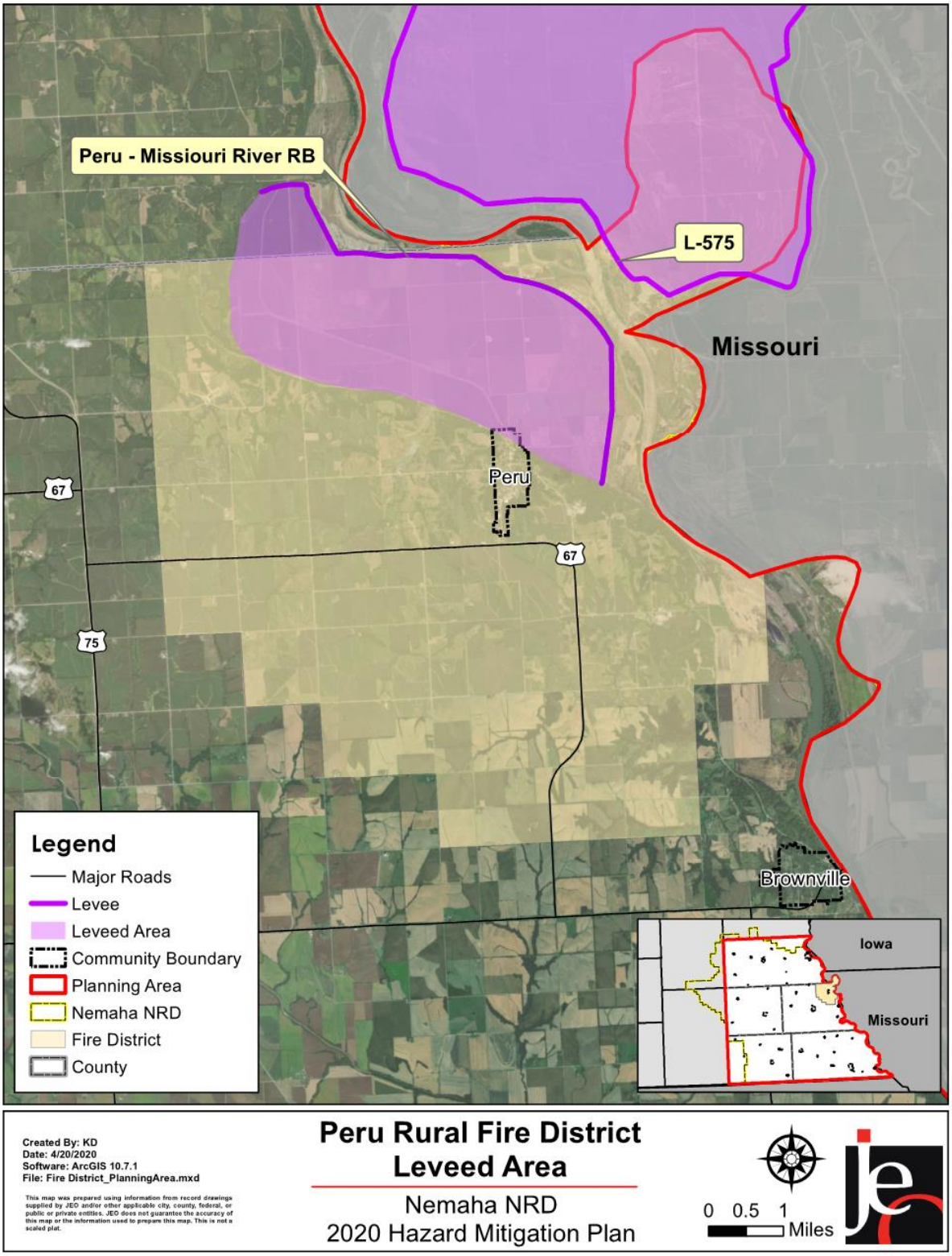
As seen in Figure PRF.4, the Peru-Missouri RB levee and L-575 levee are both located in the district. During the 2019 flooding, the Peru-Missouri RB levee breached and as of 2020 has not been repaired. Current protection from the levee is limited and provides no protection from flooding. The levee breaches create a potential for increased need for water rescue for which the rural fire district is not well equipped for.

**Figure PRF.2: Critical Facilities**




**Note: Floodplain is based off preliminary FIRM maps. Final effective FIRM maps are currently being produced.*

**Figure PRF.3: Leveed Area**



### Tornadoes and High Winds

In the summer of 2019 high winds and hail damaged roofs throughout the district. The district planning team indicated that there has not been historical damage to fire hall due to tornadoes or high winds. The district does not utilize any onsite data backup systems. In the event of a tornado, the district has mutual aid agreements in place with Auburn, Brock-Julian, Brownville, Johnson, and Nemaha fire districts. The district also participates in an annual storm training with the county emergency management.

### Wildfire

The primary concern for wildfires is impassible roads, growth in rural areas, and a limited water supply due to the 2019 flood event. The fire district has three pumper trucks, one tanker, two grass trucks, two ambulances, and one ATV to respond to wildfires. The district planning team indicated that most years there are varying numbers of grass/wildfires. According to the Nebraska Forestry Service, since 2000 there have been 40 fires that district has responded to. However, the local planning team indicated that number should be much higher as they have responded to 189 fire calls or crashes since 2004. The largest fire occurred in 2004 when 600 acres of rangeland burned. The district does not have a Wildland Urban Interface Code but does perform prescribed burning to help reduce the fire load in the area.

## Staffing

The Peru Rural Fire District is supervised by a fire chief and a five-member rural fire board who will oversee the implementation of hazard mitigation projects. The district currently has a staff of 22 volunteers. Other offices are listed below.

- Assistant Fire Chief
- Captain
- Lieutenant
- Treasurer
- Secretary

## Capability Assessment

Due to the unique structure of fire districts, the typical capability assessment table was not used. The following table summarizes the district's overall capabilities. The Peru Rural Fire District will continue to utilize existing relationships with local, county, state, and federal agencies in the implementation of mitigation projects.

The district trains all responders in HazMat Awareness and Operations. Public outreach and education are limited to social media and awareness campaigns. The fire district has applied for grants in the past and has been awarded a grant for a back-up generator which is in the process of being purchased.

**Table PRF.3: Overall Capability Assessment**

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Limited |
| Staff/Expertise to implement projects | Moderate |
| District support to implement projects | High |
| Time to devote to hazard mitigation | Moderate |

## Plan Integration

The Peru Rural Fire District has response plans and Standard Operating Guidelines (SOGs) that address fire, hazardous materials, and tornadoes. Mitigation is not discussed in these plans as they are meant to outline response procedures. The district also has an equipment replacement plan, which strives to replace major equipment that is of highest need and most frequently utilized on a rotating basis. This plan is updated regularly as needed. No other examples of plan integration were identified. The district will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates.

## Mitigation Strategy

### New Mitigation Actions

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing equipment. For example: backup systems for emergency vehicles, training additional personnel, upgrading radio systems, etc. The district would like to get water rescue training and equipment. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief |
| **Status** | New Action. Not Started. |

| Mitigation Action | Water System Improvements |
|---|---|
| **Description** | Make water system improvements to include additional fire hydrants/increase supply and pressure to effectively fight fires and meet increasing demands. Update/improve water distribution system (identifying and replacing leaky pipes, assisting residents in identifying inefficiencies, transitioning to smart irrigation systems, etc.). Upgrade water district infrastructure to decrease likelihood of damages and improve water system for emergency use. Work with the City of Peru to regain a more substantial municipal water supply. |
| **Hazard(s) Addressed** | Wildfire, Drought and Extreme Heat |
| **Estimated Cost** | Varies |
| **Funding** | Staff Time, General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Fire Chief, City of Peru Utilities |
| **Status** | New Action. In progress, as a result of the 2019 flooding. |