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# County Profile

# Otoe County

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

**2020**

## Local Planning Team

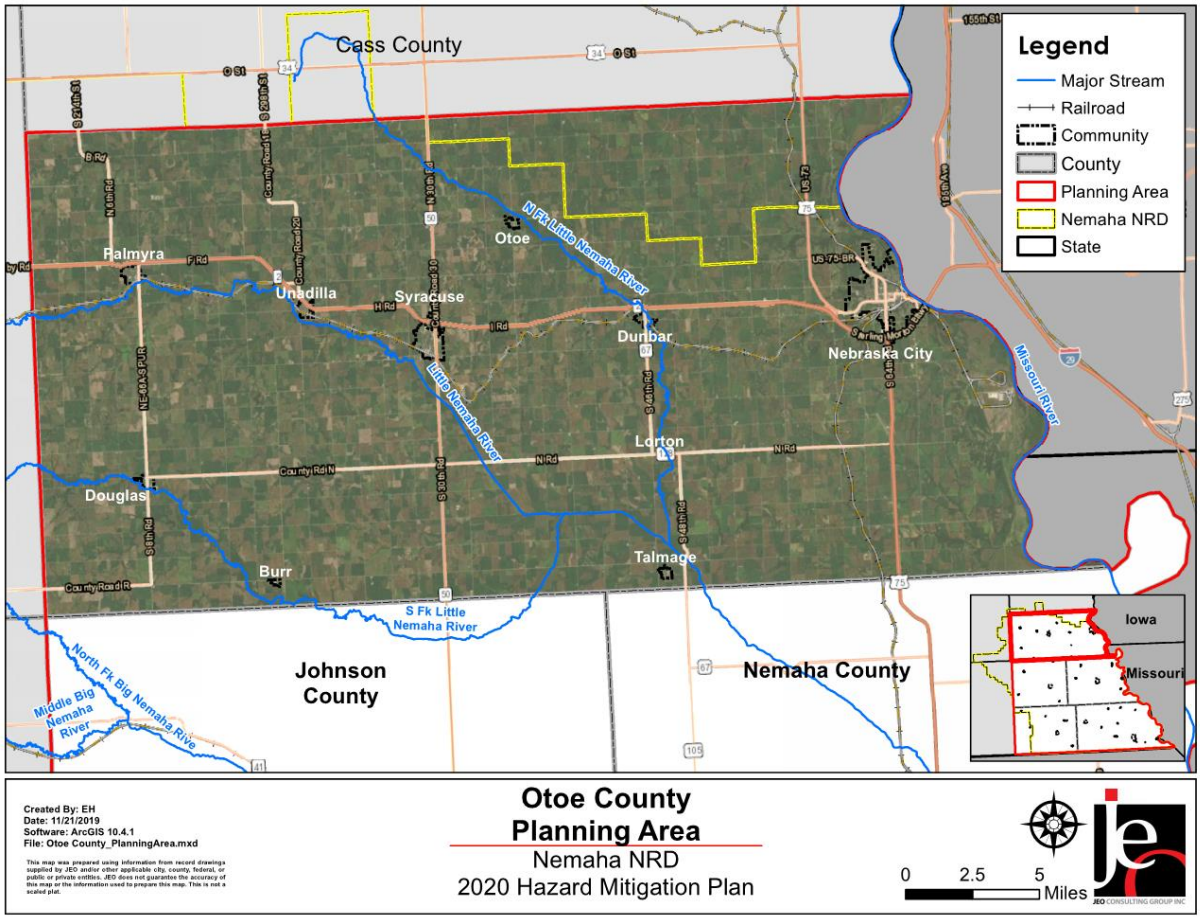
**Table OCO.1: Otoe County Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Gregg Goebel | Emergency Manager | Otoe County |
| Steve Cody | Deputy Emergency Manager | Otoe County |
| Jonathan Brinkman | Highway Department | Otoe County |

## Location and Geography

Otoe County is located in southeastern Nebraska and is bordered by Gage, Lancaster, Cass, Johnson, and Nemaha Counties. It also borders the States of Iowa and Missouri to the east. The total area of Otoe County is 619 square miles. The Missouri River forms its eastern boundary and the Little Nemaha River runs through the county. Most of the county's land is used for agricultural production.

**Figure OCO.1: Otoe County**




## Transportation

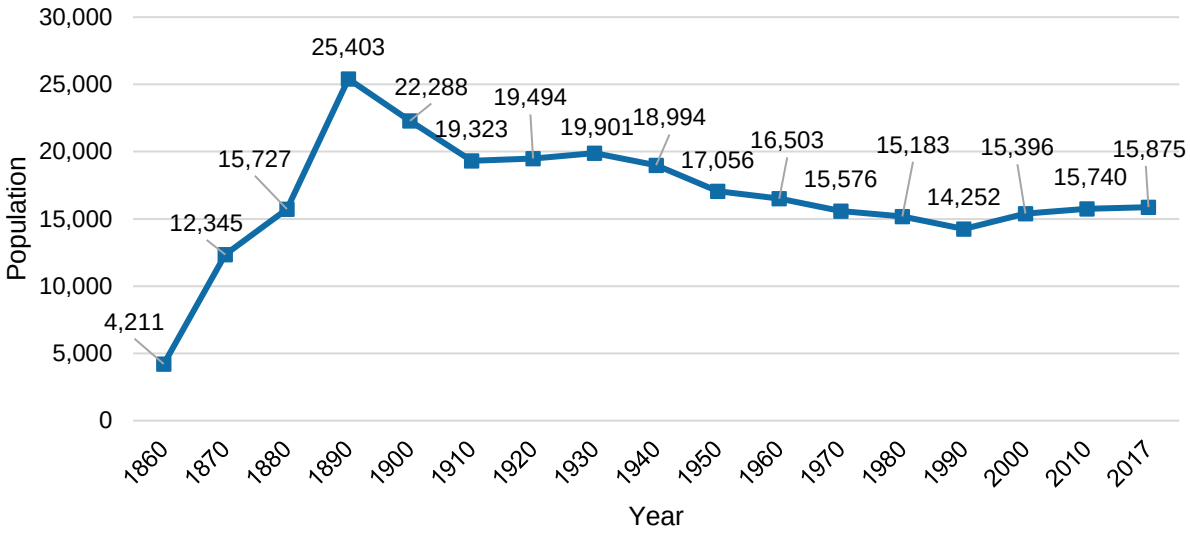
Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. Otoe County's major transportation corridors include US Highway 75 and Nebraska State Highways 2, 42, 50, 67, and 128. A Union Pacific Railroad line runs north to south through the county and a Nebraska Public

Power District rail line runs east to west. The county also has two heliports located in Nebraska City and Syracuse, one private landing strip located in Burr, and one public landing strip located in Nebraska City. Transportation routes of most concern include all the highways due to the chemicals regularly transported along them. During heavy rains, Highway 2 east and Highway 75 can become closed due to hazardous road conditions.

## Demographics, Employment, and Economics

The following figure displays the historical population trend from 1860 to 2017. This figure indicates that the population of Otoe County has been increasing since 1990 and was at 15,875 people in 2017.

**Figure OCO.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 lower poverty rate. The per capita income in Otoe 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 OCO.2: Demographics**

| | Otoe County | State of Nebraska |
|---|---|---|
| Median age | 41.7 years old | 36.3 years old |
| Hispanic | 7.6% | 10.5% |
| Below the federal poverty line | 10.0% | 12.0% |
| Per capita income | $28,567 | $29,866 |

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

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

### Major Employers

The major employers in Otoe County include Nebraska City, OPPD Coal Plant, Otoe County, Nebraska Department of Roads, Honeywell, Cargill, Walmart, Syracuse Area Health, St. Mary's, and the school districts. A large percentage of the population commutes to Lincoln, Omaha, and Iowa for employment.

**Table OCO.3: Business in Otoe County**

| | Total Businesses | Number of Paid Employees | Annual Payroll (In Thousands) |
|---|---|---|---|
| Total for all sectors | 467 | 5,031 | $156,972 |

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

Agriculture is important to the economic fabric of the State of Nebraska. Otoe County's 617 farms cover 315,519 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 OCO.4: Agricultural Inventory**

| | Agricultural Inventory |
|---|---|
| Number of farms with harvested cropland | 617 |
| Acres of harvested cropland | 315,519 |

*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 Otoe County was built prior to 1970 (55.8%). The original Flood Insurance Rate Map (FIRM) was developed in March 1998. 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 1998 will be vulnerable to flood damage.

In the county, about 2.6% 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. Otoe County has less renter-occupied but slightly 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.

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/.

**Table OCO.5: Housing**

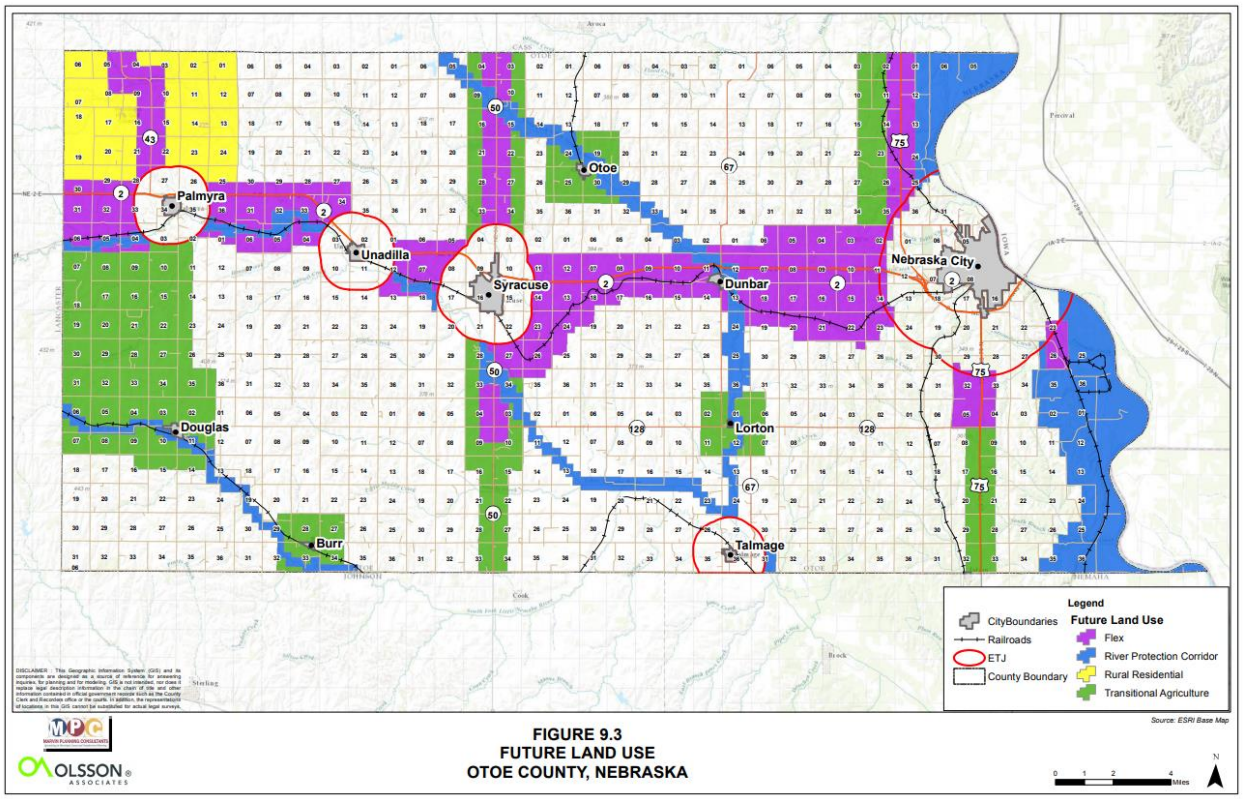
| | Otoe County | State of Nebraska |
|---|---|---|
| Housing built before 1970 | 55.8% | 47.2% |
| Mobile and manufactured | 2.6% | 3.4% |
| Renter-occupied | 27.65 | 34.0% |
| Vacant | 9.8% | 9.2% |

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

## Future Development Trends

Over the past five years there have been no large housing or commercial developments built. According to the American Community Survey estimates, Otoe County's population is generally increasing. The local planning team attributed this growth to populations moving from large communities like Lincoln and Omaha to rural communities. In the next five years, no new housing or commercial developments are planned.

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




## 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.

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.

**Table OCO.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 |
|---|---|---|---|---|
| 9,348 | $817,514,570 | 1,521 | 16.27% | $116,801,490 |

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

# 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 17 chemical storage sites in the unincorporated areas of Otoe County. The table below lists the name and location of the sites and whether they are in the floodplain.

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

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Northern Natural Gas Company | 1170 N 10th Rd, Palmyra | N |
| NGPL Compressor Station 196 | 2382 E Rd, Syracuse | N |
| OPPD Nebraska City Station | 7264 L Rd, Nebraska City | N |
| Midwest Farmers Cooperative | 5811 G Rd, Nebraska City | N |
| Unadilla Pump Station | 1233 S 20th Rd, Burr | N |
| AT&T Relay Station | 5733 I Rd, Nebraska City | N |
| OPPD Substation No 962 | C Rd, Nebraska City | N |
| OPPD Substation No 971 | 1997 County Road F | N |
| OPPD Substation No 974 | S 8th Rd & R Rd, Douglas | N |
| Vantage Agri Service Inc | 3492 B Rd, Avoca | N |
| OPPD Substation No 977 | 5905 N Rd, Nebraska City | N |
| Concrete Industries Inc | 2984 E Rd, Syracuse | N |
| Farmers Cooperative | S 30th Rd, Syracuse | N |
| NDOT Palmyra Yard | 510 F Rd, Palmyra | N |
| Highway 2 Ready Mix | 488 F Rd, Palmyra | N |
| Constructors Inc Plant 830 | Otoe County | N |
| Zayo Amplification Facility | 896 S 56th Rd, Nebraska City | N |

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

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

7 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 Otoe County's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the county. Although not mapped for security reasons, critical facilities also include rural water towers, pumping stations, and radio towers throughout the county.

**Table OCO.8: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Burr Community Building | Y | N | N |
| 2 | Burr Fire | N | N | N |
| 3 | County Roads Shop Nebraska City | N | N | N |
| 4 | County Roads Shop Syracuse | N | N | N |
| 5 | County Roads Shop West | N | N | N |
| 6 | Douglas Fire Rescue | N | Y | N |
| 7 | Dunbar Fire | N | N | Y |
| 8 | Nebraska City Fire Rescue | N | Y | N |
| 9 | Nebraska City Hayward School | Y | N | N |
| 10 | Nebraska City Middle School | Y | N | N |
| 11 | Nebraska City North Side Elementary | Y | N | N |
| 12 | Nebraska City Senior High School | Y | N | N |
| 13 | Nebraska City Utilities | N | Y | N |
| 14 | Otoe County Courthouse and Sheriff's Office | N | Y | N |
| 15 | Palmyra Fire Rescue | N | N | N |
| 16 | Palmyra High School | Y | N | N |
| 17 | Syracuse Elementary | Y | N | N |
| 18 | Syracuse Fire Rescue | N | Y | N |
| 19 | Syracuse High School | Y | N | N |
| 20 | Talmage Fire | N | N | N |
| 21 | Unadilla Community Center | Y | N | N |
| 22 | Unadilla Fire | N | N | N |

**Figure OCO.4: Critical Facilities**

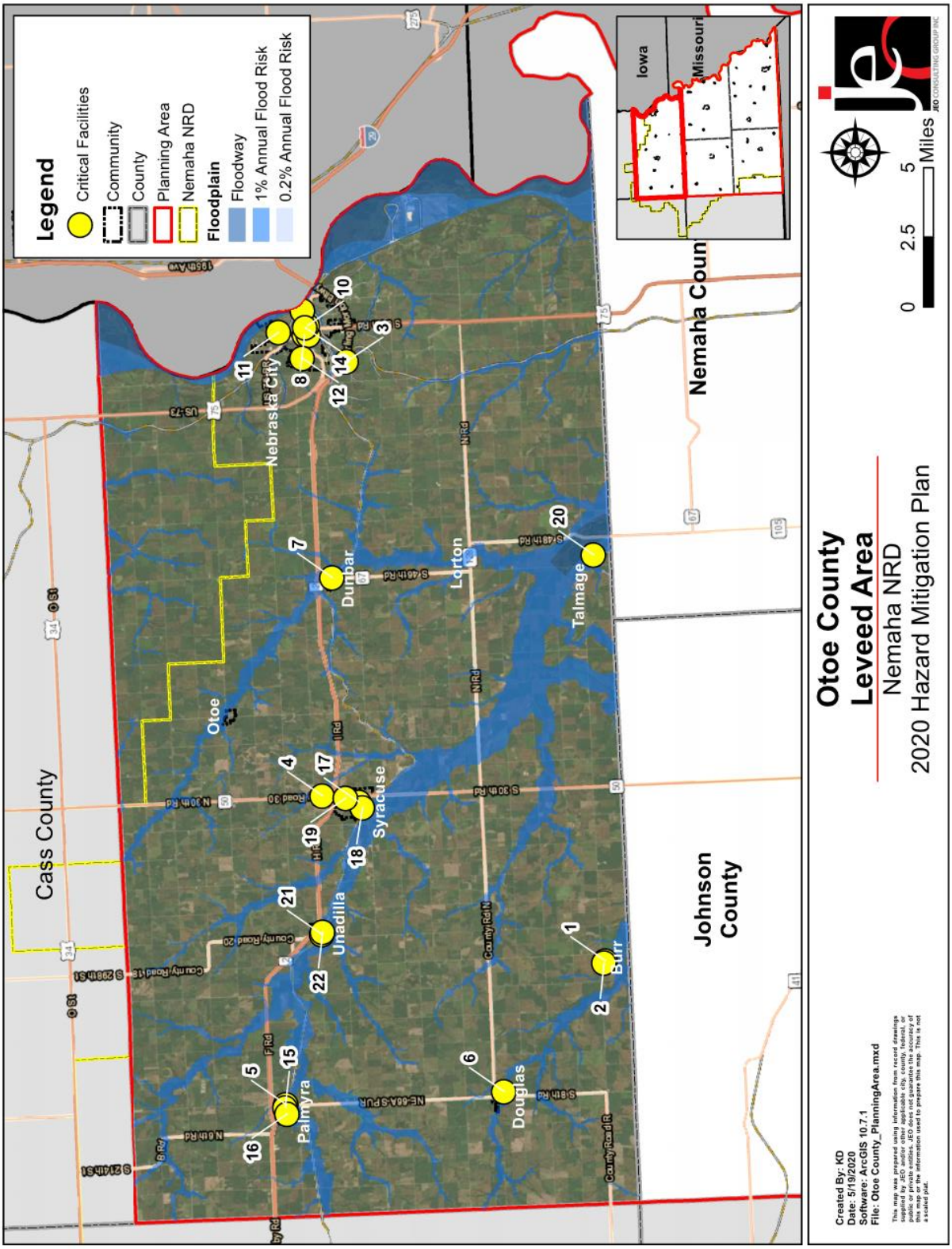
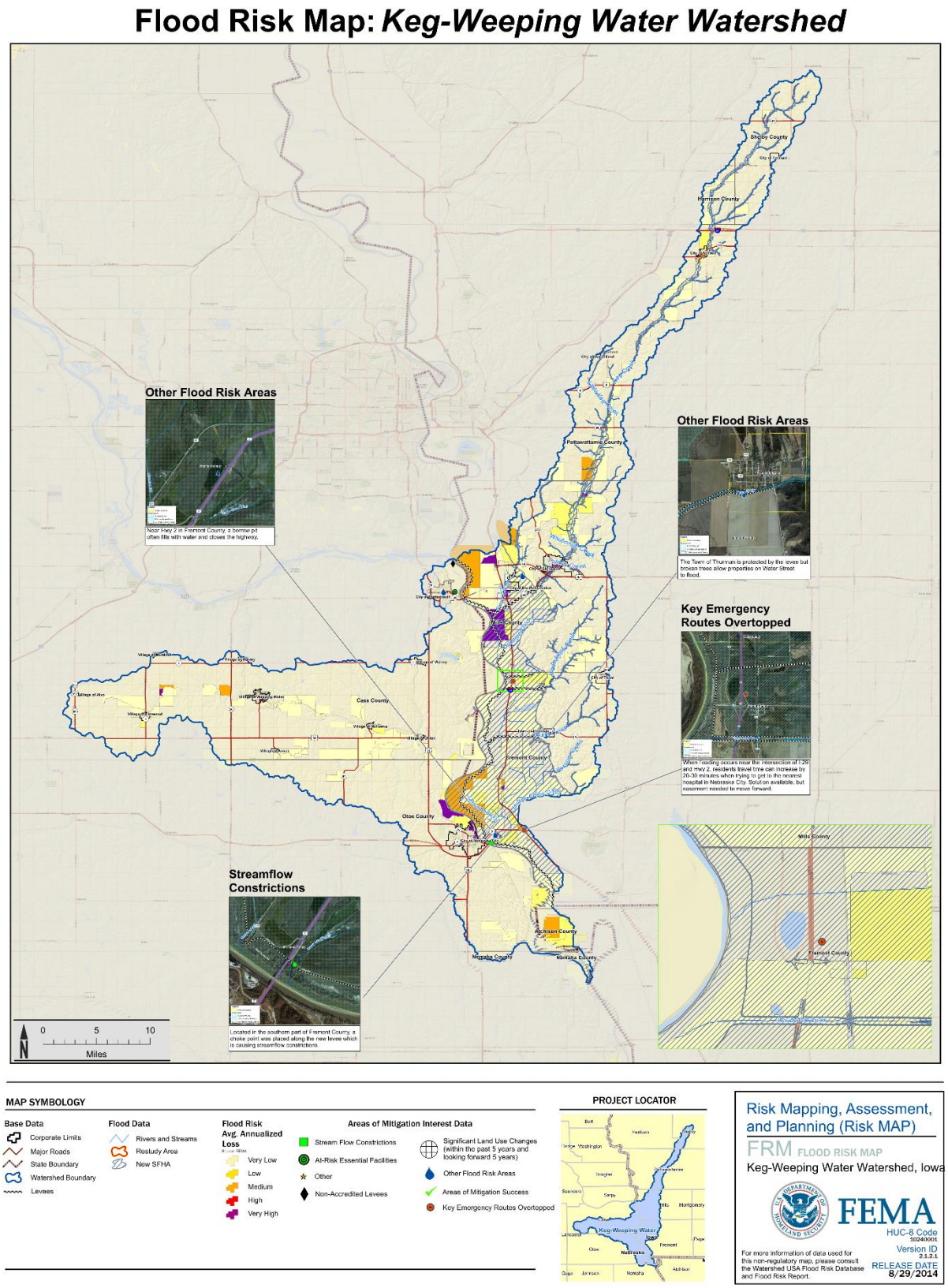


**Figure OCO.5: Risk Map for Portions of Otoe County**



## Historical Occurrences

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

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

| Hazard Type | | Count | Property Damage | Crop Damage[2] |
|---|---|---|---|---|
| Agricultural Disease | Animal Disease[1] | 10 | 18 animals | N/A |
| | Plant Disease[2] | 22 | N/A | $98,100 |
| Chemical & Radiological Spills (Fixed Site)[3] | | 25 | $0 | N/A |
| Chemical & Radiological Spills (Transportation)[4] *1 Injury* | | 10 | $158,472 | N/A |
| Dam Failure[5] | | 2 | N/A | N/A |
| Drought and Extreme Heat | Drought[6] | 432/1,496 months | N/A | $57,302,710 |
| | Extreme Heat[7] | Avg. 7 days/year | | |
| Earthquake[13] | | 0 | $0 | N/A |
| Flooding[8] *1 Injury* | Flash Flood | 24 | $650,000 | $4,848,912 |
| | Flood | 35 | $489,000 | |
| Levee Failure[10, 11] | | 3 | N/A | N/A |
| Severe Thunderstorms[8] | Thunderstorm Wind Range: 50-70 kts Average: 56 kts | 74 | $345,000 | $13,888,749 |
| | Hail Range: 0.75-2.5 in Average: 1.1 in | 166 | $0 | |
| | Heavy Rain | 2 | $0 | |
| | Lightning | 4 | $168,000 | |
| Severe Winter Storms[8] | Blizzard | 7 | $0 | $248,244 |
| | Extreme Cold/Wind chill | 4 | $0 | |
| | Heavy Snow | 4 | $5,000,000 | |
| | Ice Storm | 3 | $0 | |
| | Winter Storm | 37 | $0 | |
| | Winter Weather | 8 | $0 | |
| Terrorism[12] | | 0 | $0 | N/A |
| Tornadoes and High Winds[8] *1 Fatality, 1 Injury* | High Winds Range: 35-60 kts Average: 49 kts | 15 | $0 | $271,854 |
| | Tornadoes Range: EF0-EF2 Average: EF1 | 12 | $20,071,000 | |
| Wildfire[9] | | 397 | 4,135 acres | $0 |
| **Total** | | **864** | **$26,881,472** | **$76,658,569** |

*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 Otoe 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 OCO.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 OCO.10: Otoe 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Otoe County | X | X | X | X | X | | X | X | X | X | X | X | X |
| Village of Burr | X | X | X | | X | | X | | X | X | X | X | X |
| Village of Douglas | X | | X | | X | | X | | X | X | X | X | X |
| Village of Dunbar | X | X | X | X | X | | X | | X | X | X | X | X |
| Village of Lorton | X | | X | | X | | X | | X | X | X | X | X |
| City of Nebraska City | X | X | X | | X | | X | | X | X | X | X | X |
| Village of Otoe | X | | X | X | X | | X | | X | X | X | X | X |
| Village of Palmyra | X | X | X | | X | | X | | X | X | X | X | X |
| City of Syracuse | X | X | X | | X | | X | | X | X | X | X | X |
| Village of Talmage | X | X | X | | X | | X | | X | X | X | X | X |
| Village of Unadilla | X | | X | X | X | | X | | X | X | X | X | X |
| Palmyra District OR-1 | | X | X | | X | | X | | X | X | X | X | X |
| Nebraska City Public Schools | | X | X | | X | | X | | X | X | X | X | X |
| Palmyra Rural Fire District | | X | X | | X | | X | | X | X | X | X | X |
| Syracuse Volunteer Fire Dept. | | X | X | | X | | X | | X | X | X | X | X |
| Talmage Rural Fire Dept. | | X | X | | X | | X | | X | X | X | X | X |
| Unadilla Volunteer Fire and Rescue | | X | X | X | X | | X | | X | X | X | X | X |

## 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*.

### Agricultural Animal and Plant Disease

The primary concern related to agricultural animal and plant disease outbreaks is a general lack of planning for an event across the responsible parties. Currently the only response plan in the event of an outbreak is from the state. That plan provides a very board overview and is not specific to individual counties or local communities. Education on agricultural disease is done by the State of Nebraska Agriculture Department and local extension offices. There have been 31 reported events in the county, but all have been small with minor numbers of affected plants/animals.

### Chemical and Radiological Spills (Fixed Site)

There have been 25 fixed site chemical spills reported in Otoe County. The largest was from an anhydrous ammonia spill, which required a large emergency response. Local fire departments are the primary responders to an event. Gear is available for most and training has been provided. For larger HazMat spills many individuals have not been technician trained so additional personnel and departments would need to be called in.

### Chemical and Radiological Spills (Transportation)

Past spills include hydrazine, potassium permanganate, gasoline, potassium cyanide, propane, anhydrous ammonia, Roundup concentrate, and polychlorinated biphenyls. Most of these are minor spills with minimal damage. Transportation routes of most concern are Highway 2 and Highway 75 due to the high amounts of truck traffic. There is also a lack of education and compliance on transportation, which is a concern for the local planning team. There are several critical facilities located along main transportation routes. Both hospitals are located near the Highway 2 corridor. Long-term care facilities are often located near the railroad and main roadways. In addition, the northern third of Nebraska City can be blocked by train, making possible evacuations very difficult.

### Dam Failure

Although not identified as a top hazard of concern by the local planning team, there are two high hazard dams located in county. The figure below shows the locations and hazard levels of all the dams in the county. Dam inundation maps are not shown due to security concerns. There have been two occurrences of dam failure, one at the Johnson Dam and the other at the Nebraska City dam. There were no reported impacts or damages from either event.

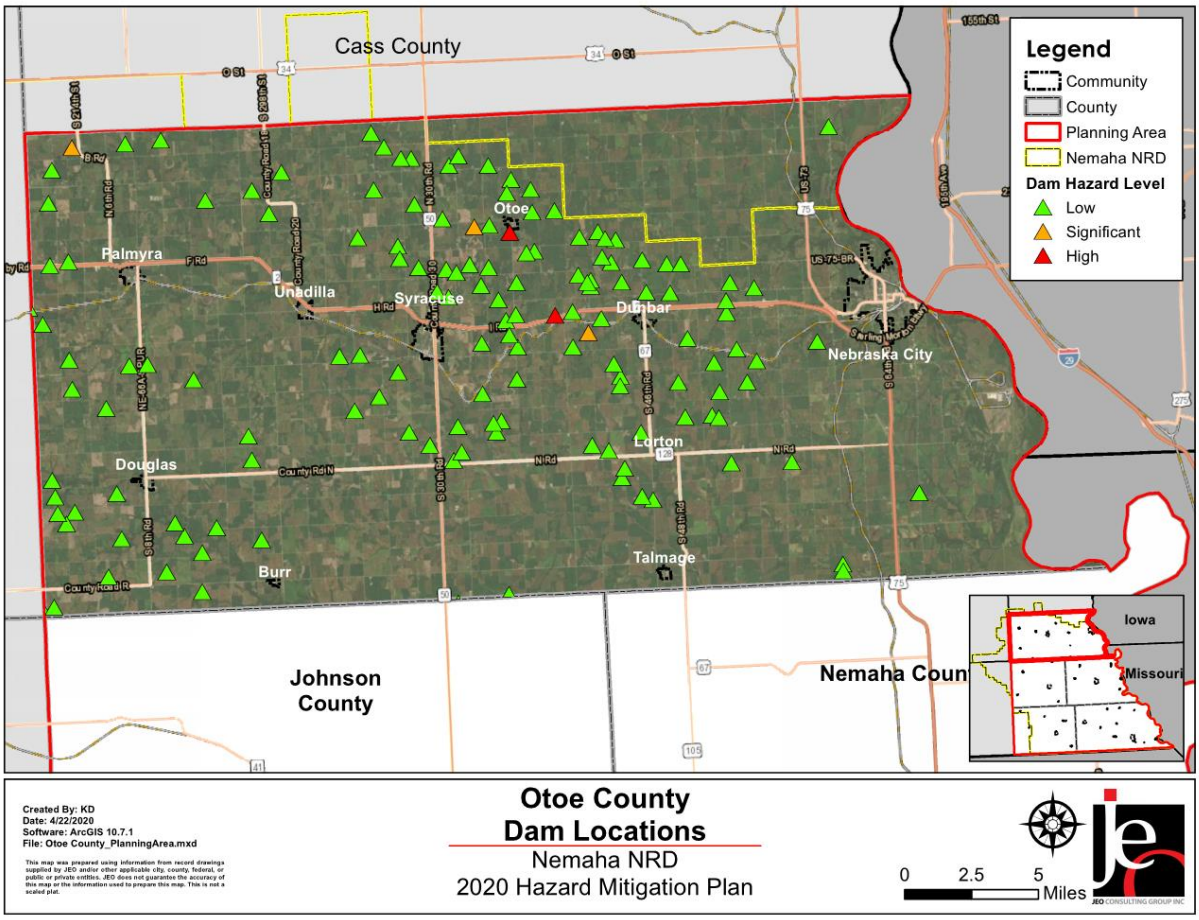
### Flooding

The two largest recorded floods occurred in 2011 and 2019. Highway 2 between Nebraska and Iowa was closed during both events impacting businesses, industries, communities, and emergency services. Water bodies most likely to flood include the Missouri River, North and South Table Creek, Wilson Creek, Muddy Creek, North and South Little Nemaha, Little Muddy, and North and South Camp Creek. Critical facilities located in Nebraska City have been damaged during past flood events.

Risk Mapping, Assessment, and Planning (Risk MAP) was completed for eastern portions of Otoe County and includes the community of Nebraska City. As shown in Figure OCO.5, additional

products, such as Flood Risk Average Annualized Loss and Areas of Mitigation Interest Data provide additional information to the county and community to assist with identifying areas for potential mitigation.

**Figure OCO.5: Dam Locations**



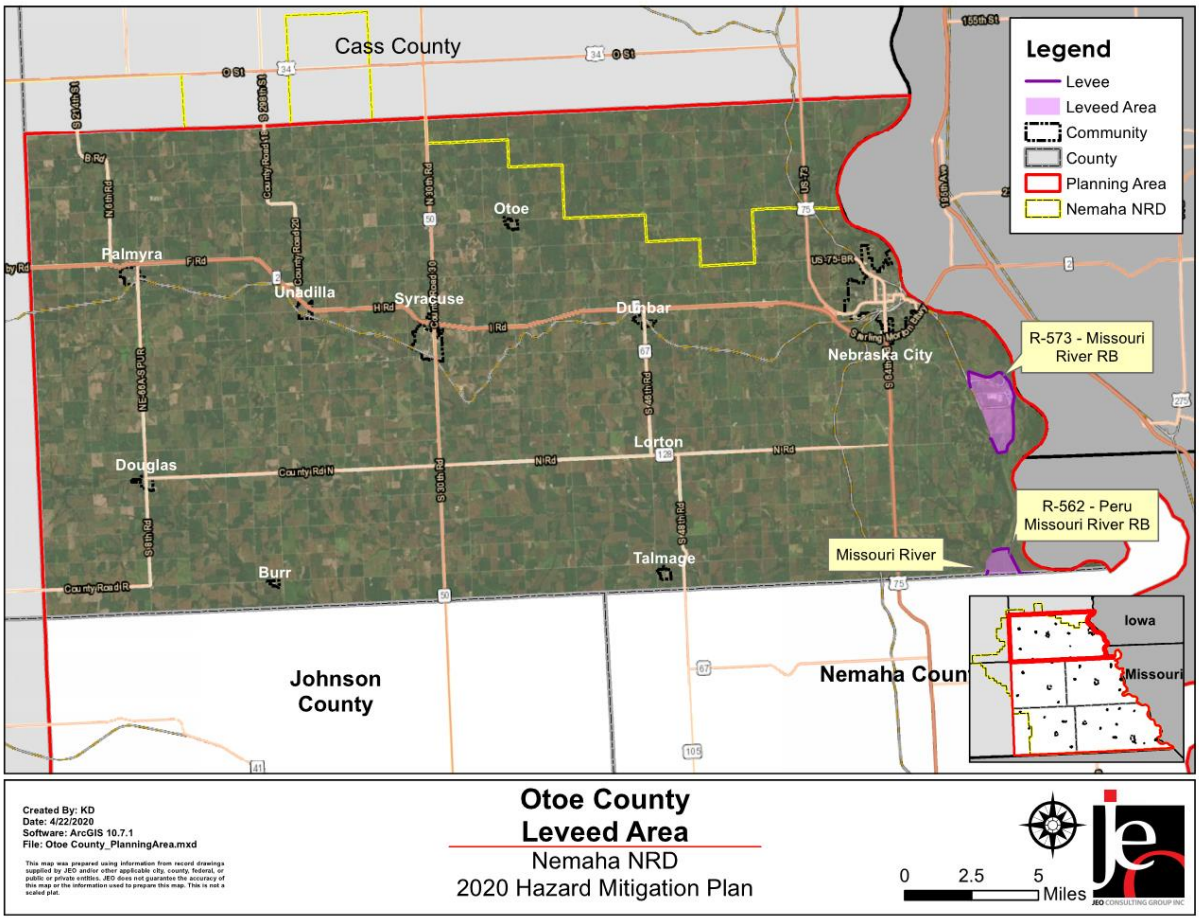

## Levee Failure

Although not identified as a top hazard of concern by the local planning team, there are three levees located in the county. The figure below shows the location of the levees and leveed areas. Levee failure has occurred three times, once in 2019 and twice in 2011. Impacts from these events are discussed in the flooding section above.

## Severe Thunderstorms

The primary concerns related to severe thunderstorms include notification for outdoor events, flooding from heavy rains, and lightning strikes. Severe thunderstorms occur multiple times annually across the county. The most damaging reported event occurred in 1998 when thunderstorm winds caused $85,000 in damages to barns and hay sheds west of Syracuse. Otoe County provides the Southeast Nebraska Emergency Notification System, citizen can opt-in to receive weather alert notifications by voice, text, and email. Important county records are backed up both off site and by mag-tape. Otoe County is a Storm Ready County and a Weather Ready Nation Ambassador.

**OCO.6: Leveed Area**




## Severe Winter Storms

Winter storms are an annual occurrence, and the county has experienced a few significant winter storms over the past years. In October of 1997 a heavy snow event caused $5,000,000 in property damages and caused prolonged power outages. Other past impacts include closed roads, reduction of emergency services, and power loss. The local planning team estimates that 25% of power lines in the county are buried leaving many people at high risk of power loss. Snow removal is done by the state, county, and local jurisdictions.

## Tornadoes and High Winds

In the past ten years, there have been a few small tornadic and high events, but damages have been fairly minimal. In 2004 the county experienced an F1 tornado near Palmyra that caused $20,000,000 in damages. No significant damages to critical facilities have been reported. Otoe County does not own any alert sirens, but most cities and villages have a tornado siren which they own. All radio activated sirens in Otoe County can be activated by Otoe County Emergency Management, Otoe County Sheriff's Office, the Nebraska City Fire/Rescue Department, and department radios. There are no certified safe rooms in the county and residents must use private residences or community buildings for shelter. In the event of a disaster, mutual aid agreements are in place. However, they are outdated and are currently in the process of being updated.

## Governance

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

- County Clerk
- County Assessor
- County Treasurer
- County Attorney
- Southeast District Health Department
- Emergency Manager
- Highway Department
- Planning & Zoning
- Sheriff
- Deeds
- Veteran Services

## 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 OCO.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 | Yes |
| | 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 | Yes |
| | Chief Building Official | No |
| | Civil Engineering | Yes |
| | Local Staff Who Can Assess County's Vulnerability to Hazards | Yes |
| | Grant Manager | Yes |
| | Mutual Aid Agreement | Yes |

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

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

## Plan Integration

Otoe County has several plans that relate to or directly discuss hazards and hazard mitigation. The county's 2016 comprehensive plan outlines future development in the coming years across the county. The zoning ordinance and subdivision regulations were both last updated in 2016. Those documents along with the floodplain regulations discourage development in the floodplain, require more than one foot elevation above base flood elevation, discourage development near chemical storage sites, limit population density in the floodplain, include well setback requirements, allow for clustering of subdivisions, and restrict subdivision of land within the floodplain. Otoe 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 during and after an emergency event. The plan is updated regularly and distributed to all communities. Otoe County's building code was last updated in 2015. The code requires elevation of structures in the floodplain, requires mechanical systems be elevated in the floodplain, outline sump pump installation, require onsite stormwater detention for commercial structures, require sewer backflow valves in the floodplain, encourages the use of fire-resistant building materials , and requires defensible space around structures. 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. Tecumseh has new sirens, but other communities may need upgrades or replacements. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $25,000+ |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | County Emergency Management, Local Jurisdictions |
| **Status** | Ongoing. Some sirens are 40+ years old and need to be updated. |

| 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. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $80,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Emergency Management, Individual County Departments, Local Jurisdictions |
| **Status** | Planning Stage. Potential locations and funding options are currently being determined. |

| 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** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | County Roads Department, Individual Jurisdictions |
| **Status** | Ongoing. Improvements are made as issues are identified. |

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This can include fire trucks, ATVs, water tanks/trucks, snow removal equipment, etc. This would also include developing backup systems for emergency vehicles and training personnel for emergency response. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | County Board, Individual Departments |
| **Status** | Ongoing. Equipment is purchased as needed and when funding is available. |

| Mitigation Action | Communication Systems |
|---|---|
| **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** | $100,000+ |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | County Emergency Management |
| **Status** | Ongoing. Communications are updated as needed and funding is available. Currently emergency communications in the county are 15+ years old. |

| 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. Also, educate citizens on water conservation methods, evacuation plans, etc. In addition, purchase equipment such as overhead projectors and laptops. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $500+ |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | County Emergency Management |
| **Status** | Ongoing. Public education is done on a regular basis through mailings, the newspaper, and social media. |

| 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 stormwater evaluation, identifying multiple problem areas, and potentially multiple drainage improvements for each. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $10,000 - $100,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | County Roads Department, Individual Jurisdictions |
| **Status** | Not Started. |

| Mitigation Action | Evacuation Plan |
|---|---|
| **Description** | Establish a plan to effectively evacuate residents during storm event and major flooding. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $2,000 |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | County Emergency Management. Local Jurisdictions |
| **Status** | Ongoing. Evacuation routes are updated as needed. |

| 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, schools and other areas. |
| **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** | County Emergency Management, Local Jurisdictions |
| **Status** | Not Started. |

| Mitigation Action | Stormwater System and Drainage Improvements |
|---|---|
| **Description** | Undersized systems can contribute to localized flooding. Stormwater system improvements may include pipe upsizing and additional inlets. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $100,000+ |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | County Roads Department, Individual Jurisdictions |
| **Status** | Ongoing. Improvements are made as issues are identified. |

| 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** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | County Emergency Management |
| **Status** | Ongoing. Weather radios were replaced in 2015 but some may need to be updated again soon. |

## Removed Mitigation Actions

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

| Mitigation Action | Flood-Prone Property Acquisition |
|---|---|
| **Hazard(s) Addressed** | Flooding |
| **Reason for Removal** | This would be better handled by local jurisdictions. |

# Community Profile

# Village of Burr

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

**2020**

## Local Planning Team

**Table BRR.1: Village of Burr Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Donald Schmit | Board Chair and Floodplain Administrator | Village of Burr |

## Location and Geography

The Village of Burr is in southwestern Otoe County and covers an area of 58 acres. Burr is located north of the South Fork Little Nemaha River.

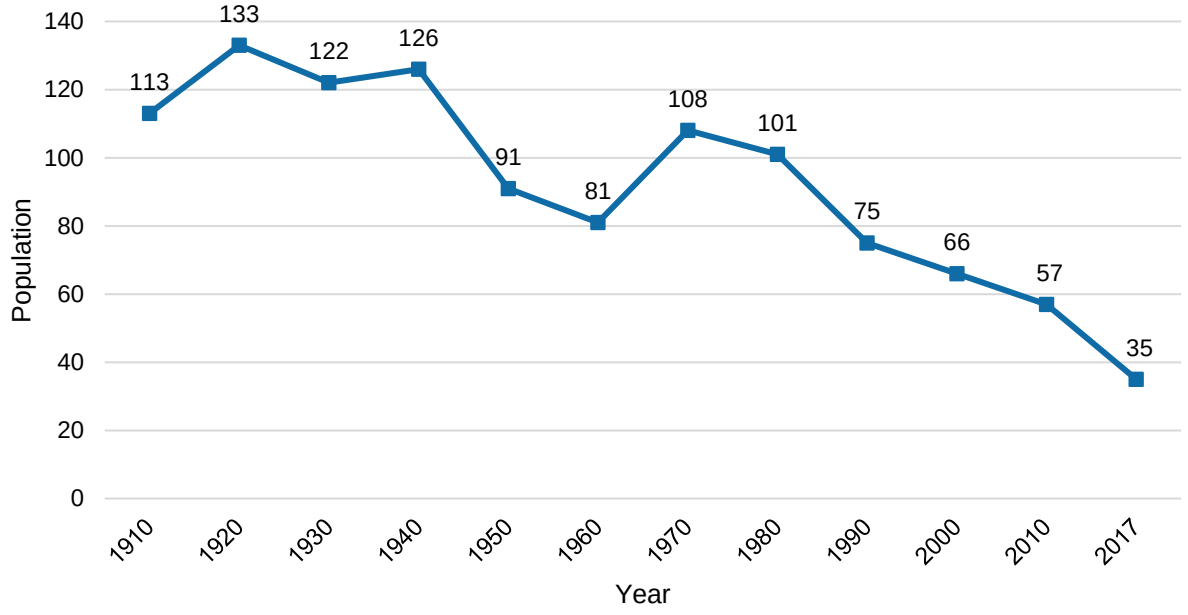
## Transportation

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. Burr's major transportation corridor is State Highway Spur 66. It is traveled by an average of 545 vehicles daily, 50 of which are trucks.[8] The village does not have a rail line traveling through the community. The local planning team identified State Highway Spur 66 as the transportation route of most concern. Hazardous chemicals are regularly transported to the Frontier Cooperative Elevator via State Highway Spur 66.

## Demographics

The Village of Burr's population has been declining since 1970 and was estimated at 35 in 2017. A declining population leads to a decreasing tax base, which may make funding mitigation projects more difficult. Burr's population accounted for 0.2% of Otoe County's population in 2017.[9]

**Figure BRR.1: Population**

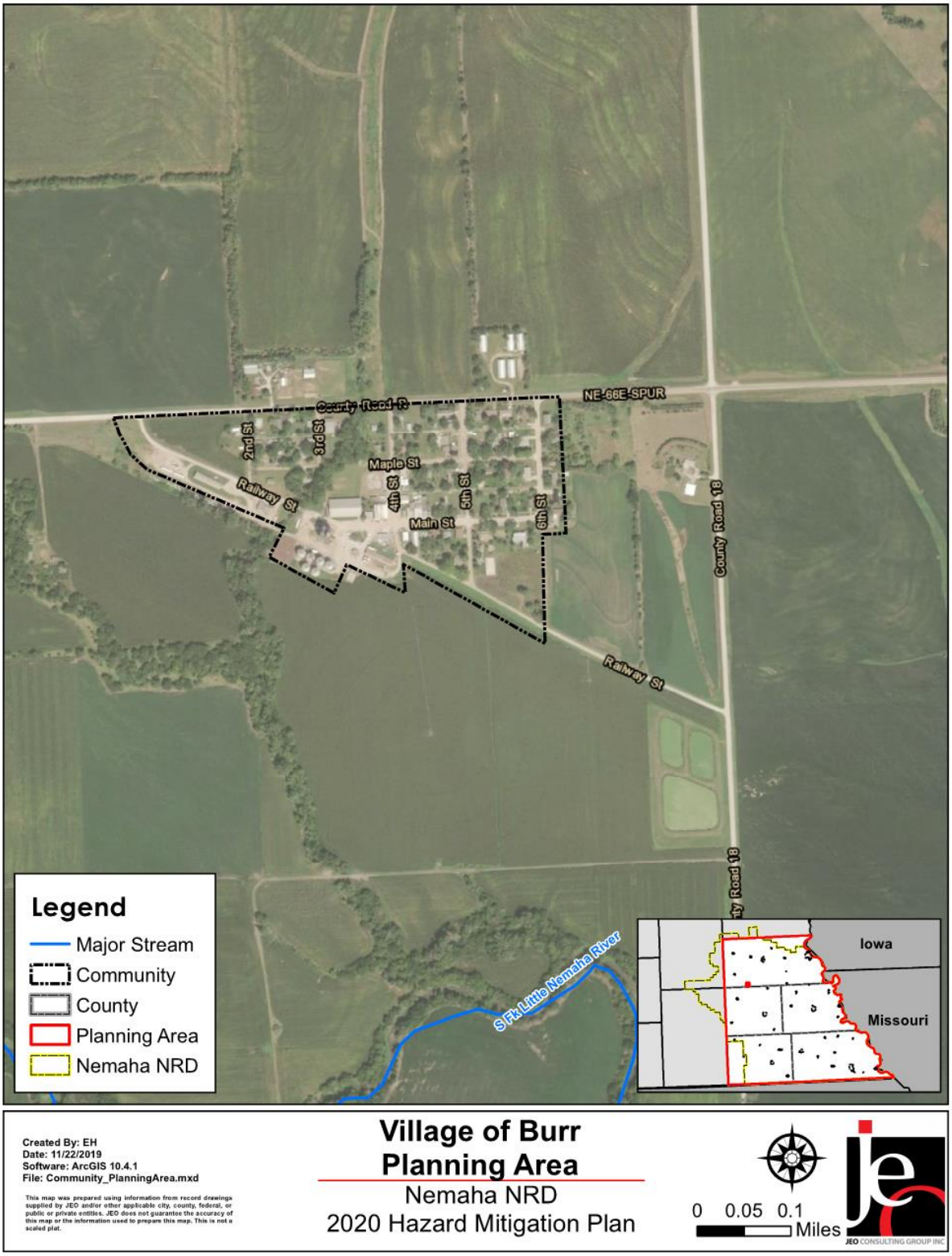



*Source: U.S. Census Bureau, 1910 – 2017*

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 BRR.2: Village of Burr**



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

- **Older.** The median age of Burr was 57.8 years old in 2017, compared with Otoe County's median of 41.7 years. Burr's population grew older since 2010, when the median age was 37.1 years old.[9]
- **Less ethnically diverse**. Since 2010, Burr stayed as ethnically diverse. In 2010 and 2017, 0% of Burr's population was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[9]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Burr (0% of people living below the federal poverty line) was lower than the county's poverty rate (10%) in 2017.[10]

## Employment and Economics

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

- **Different mix of industries.** Burr's major employment sectors, accounting for 10% or more of employment each, were: construction, wholesale trade, retail trade, information, and public administration.[10]
- **Lower per capita income.** Burr's per capita income in 2017 ($24,563) was about $4,000 lower than the county ($28,567).[10]
- **More long-distance commuters.** About 42.9% of workers in Burr commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 42.9% of workers in Burr commuted 30 minutes or more to work, compared to about 34.1% of county workers.[11]

### Major Employers

The Frontier Cooperative Elevator is the largest employer for the Village of Burr. A large percentage of residents also commute to the nearby communities of Lincoln, Tecumseh, Omaha, and Beatrice for work.

## Housing

In comparison to Otoe County, the Village of Burr's housing stock was:[12]

- **Older.** Burr had a larger share of housing built prior to 1970 than the county (58.8% compared to 55.8%).
- **Larger amounts of mobile and manufactured housing.** The Village of Burr had a larger share of mobile and manufactured housing (11.8%) compared to the county (2.6%).
- **Less renter-occupied**. About 15% of occupied housing units in Burr were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Less occupied.** Approximately 41.2% of Burr's housing units were vacant compared to 9.8% of units in Otoe 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/.

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

The planning team indicated that little has changed in the past five years in the Village of Burr. According to the U.S. Census Bureau American Community Survey estimates, Burr's population has declined. The general decline can be attributed to an aging population. Municipal funds are limited to maintaining current facilities and systems, and have stayed the same over recent years. No new housing or commercial 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 BRR.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 |
|---|---|---|---|---|
| 55 | $ 2,356,930 | 0 | 0% | 0 |

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

13 GIS Workshop/Otoe 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 Burr. The table below lists the name and location of the site and whether it is in the floodplain.

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

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Frontier Farmers Cooperative | 333 Main Street | N |

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

## Critical Facilities

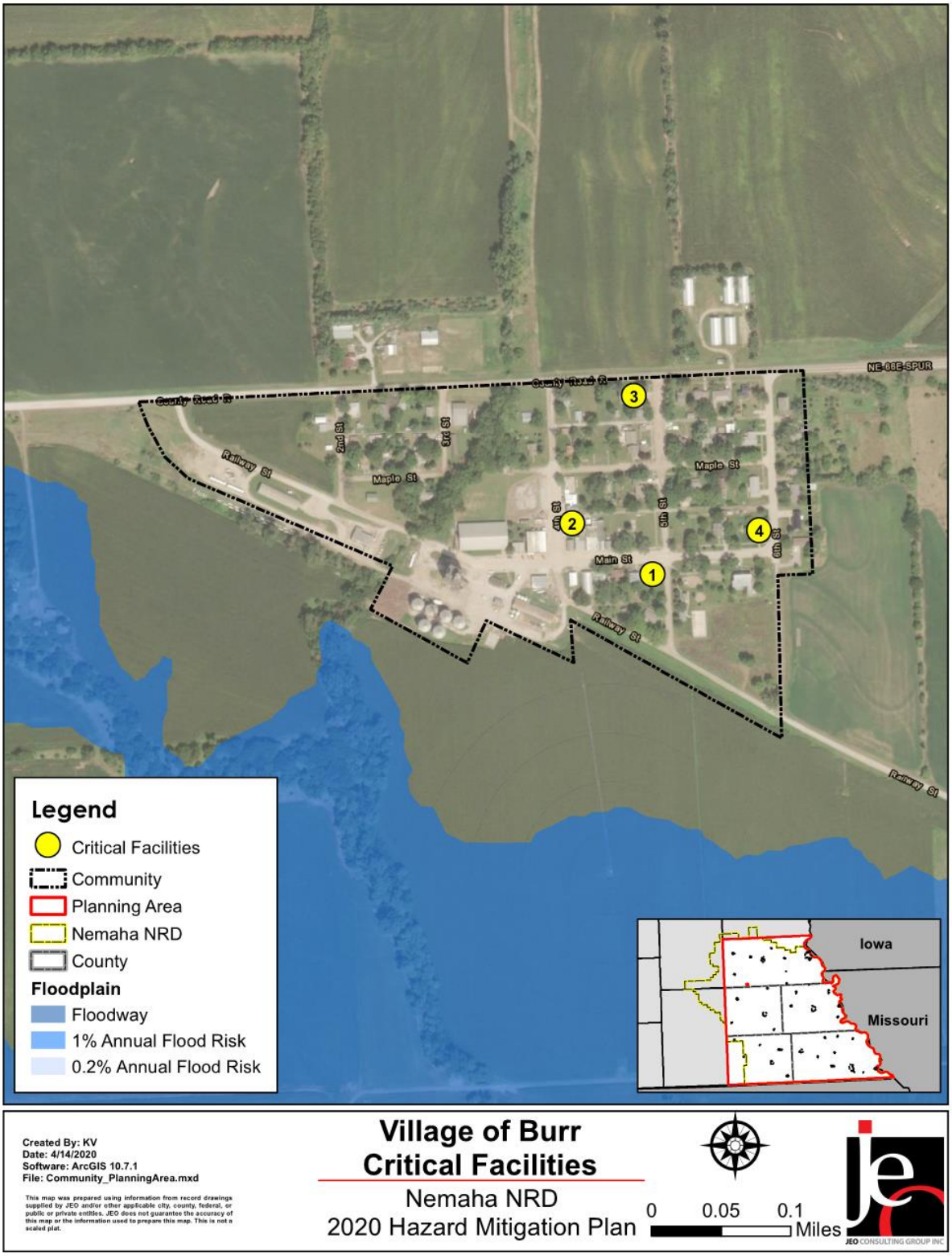
The planning team identified critical facilities necessary for the Village of Burr's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table BRR.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Community Hall | N | N | N |
| 2 | Fire Department | N | N | N |
| 3 | Hope Lutheran Church | Y | N | N |
| 4 | United Methodist Church | N | N | N |

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

**Figure BRR.3: Critical Facilities**



## Historical Occurrences

See the Otoe 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 the Frontier Cooperative Elevator as a chemical storage site that is potentially hazardous. The elevator has large amounts of liquid fertilizer stored on-site. The village also has large quantities of anhydrous ammonia stored in tanks nearby that have been identified as potentially hazardous. The Village of Burr was built around the elevator, making most of the community vulnerable to chemical spills. The local fire department receives a chemical list from the elevator on an annual basis. Fire department staff also tour the elevator and chemical shed as a measure to mitigate the risk of chemical spills.

### Chemical and Radiological Spills (Transportation)

Chemical transportation spills are a concern for the village due to the high volume of chemicals transported to and from the elevator. Trucks regularly haul anhydrous ammonia and fertilizer via State Highway Spur 66 and a local truck route that travels through Burr. No transportation chemical spills have occurred in the village.

### Severe Thunderstorms

The primary concern regarding severe thunderstorms for the Village of Burr is power outages. Many of the power lines in the planning area are located above the ground, making them more vulnerable. In the event of a power surge or outage, Burr has surge protectors in place to protect municipal records. To mitigate the impacts of severe thunderstorms, the county emergency management offers text alerts and the community uses weather radios.

### Tornadoes and High Winds

The Village of Burr has one warning siren located at the firehouse that is activated manually by designated individuals. There are likely areas of the community not reached by the siren due to its limited directional range. In addition to the sirens, text alerts are offered by the county emergency management. Otoe County provides the Southeast Nebraska Emergency Notification System, citizens can opt-in to receive weather alter notifications by voice, text, and email. Individuals in the community have participated in tornado spotter training in both Syracuse and Sterling and continually go "weather spotting" to mitigate the impacts of tornadoes and high winds. In the event of a disaster, the Village of Burr has a mutual aid agreement with the Cook Fire Department. Residents are limited to seeking shelter in their basements in the event of a tornado as there are no designated community shelters. In past years, the elevator basement was designed to be the "fallout shelter" for the community. The elevator has since merged multiple times and has a new owner, so the state of that shelter for community use is unknown.

### Wildfire

According to the local planning team, there has been a reduction in wildfires in the past few years due to local farmers converting CRP into farmable land. With very few people in the community,

having adequate human resources to address wildfires is a major concern. There are typically between six to eight people in the fire department, with the amount of people available dependent on the time of day. The largest wildfire in the fire district occurred in 2006 when 400 acres of rangeland burned.

## Governance

The Village of Burr 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
- Utility Superintendent
- Sewer/Water Commissioner
- Street Commissioner
- 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 BRR.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 | No |
| | Subdivision Regulation/Ordinance | No |
| | Floodplain Ordinance | No |
| | Building Codes | No |
| | National Flood Insurance Program | No |
| | Community Rating System | No |
| | Other (if any) | - |
| Administrative & Technical Capability | Planning Commission | No |
| | Floodplain Administration | No |
| | GIS Capabilities | No |
| | Chief Building Official | No |
| | Civil Engineering | Contracted |
| | 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 | 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 |
| | Natural Disaster or Safety related school programs | No |
| | StormReady Certification | Yes |
| | 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 |
| Time to devote to hazard mitigation | Moderate |

## Plan Integration

The village does not have a comprehensive plan, zoning ordinance, building code, or capital improvements plan. Burr is an annex in the 2018 Otoe 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, and public health. The village also in a wellhead protection area and is able to implement water restrictions through the municipal code. 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 | Alert/Warning Siren |
|---|---|
| **Description** | Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking with remote activation options. The current siren is directional and does not rotate. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $5,000+ |
| **Funding** | General Fund, Donations |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Village Board, Fire Department, Cook Rural Board |
| **Status** | New Action. Not Started. |

| Mitigation Action | Relocate Chemical Storage |
|---|---|
| **Description** | There is an anhydrous ammonia storage tank owned by Frontier Cooperative located inside the village limits. Work with Frontier Cooperative to move the tank outside community limits. |
| **Hazard(s) Addressed** | Chemical and Radiological Spills (Fixed Site) |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board, Frontier Cooperative |
| **Status** | New Action. In progress, the village board is currently in discussion with the cooperative. |

# Community Profile

# Village of Douglas

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

**2020**

## Local Planning Team

**Table DGS.1: Village of Douglas Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Joe Moller | Fire Chief/Village Board | Village of Douglas |
| Bernie Masek | Village Chair | Village of Douglas |
| Vicki Focken | Clerk | Village of Douglas |

## Location and Geography

The Village of Douglas is in southwestern Otoe County and covers an area of 0.22 square miles. The South Fork Little Nemaha River is located southern and southwestern edge of the village.

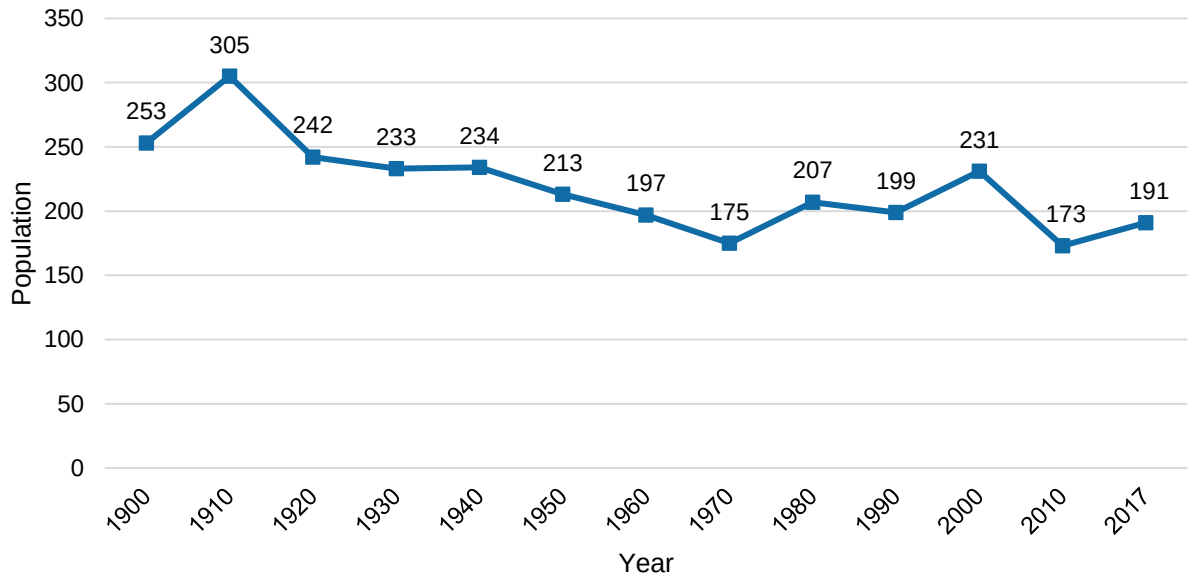
## Transportation

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. Douglas's major transportation corridor is the spur of State Highway 66. It is traveled by an average of 980 vehicles daily, 60 of which are trucks.[15] There are no rail lines near the village. Transportation routes of most concern are Spur 66A, County Road 8 south, and County Road N east and west. All of these routes have been closed in the past due to flooding and regularly transport anhydrous ammonia and farm chemicals.

## Demographics

The Village of Douglas's population has increased since 2010 to about 191 people in 2017. The growing population means an increasing tax base which can make funding mitigation projects easier. Douglas's population accounted for 1.2% of Otoe County's population in 2017.[16]

**Figure DGS.1: Population**

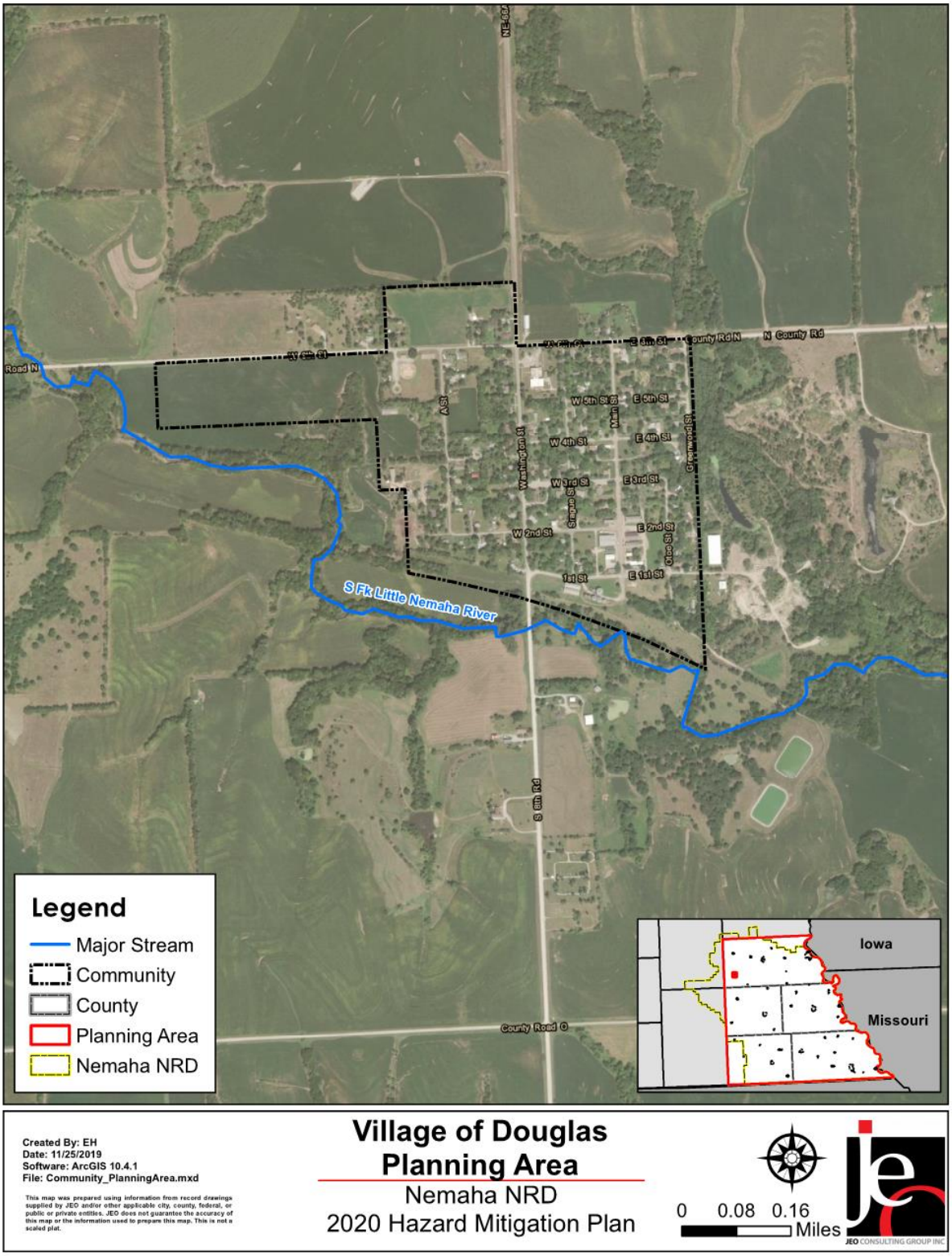



*Source: U.S. Census Bureau, 1900 – 2017*

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 DGS.2: Village of Douglas**



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

- **Similarly aged.** The median age of Douglas was 42.8 years old in 2017, compared with Otoe County's median of 41.7 years. Douglas's population grew younger since 2010, when the median age was 50.1 years old.[16]
- **Less ethnically diverse**. Since 2010, Douglas stayed as ethnically diverse. In 2010 and 2017, 0% of Douglas's population was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[16]
- **Similarly likely to be below the federal poverty line.** The poverty rate in the Village of Douglas (11% of people living below the federal poverty line) was similar than the county's poverty rate (10%) in 2017.[17]

## Employment and Economics

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

- **Similar mix of industries.** Douglas's major employment sectors, accounting for 10% or more of employment each, were: retail trade, and education.[17]
- **Lower per capita income.** Douglas's per capita income in 2017 ($26,080) was about $2,500 lower than the county ($28,567).[17]
- **More long-distance commuters.** About 11% of workers in Douglas commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 62.3% of workers in Douglas commuted 30 minutes or more to work, compared to about 34.1% of county workers.[18]

### Major Employers

Major employers within Douglas include RFD Sales Company and the Village of Douglas. A large percentage of residents commute to the City of Lincoln for employment.

## Housing

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

- **Older.** Douglas had a larger share of housing built prior to 1970 than the county (64.1% compared to 55.8%).
- **More mobile and manufactured housing.** The Village of Douglas had a larger share of mobile and manufactured housing (11.1%) compared to the county (2.6%).
- **Less renter-occupied**. About 18.8% of occupied housing units in Douglas were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Less occupied.** Approximately 31.6% of Douglas's housing units were vacant compared to 9.8% of units in Otoe 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

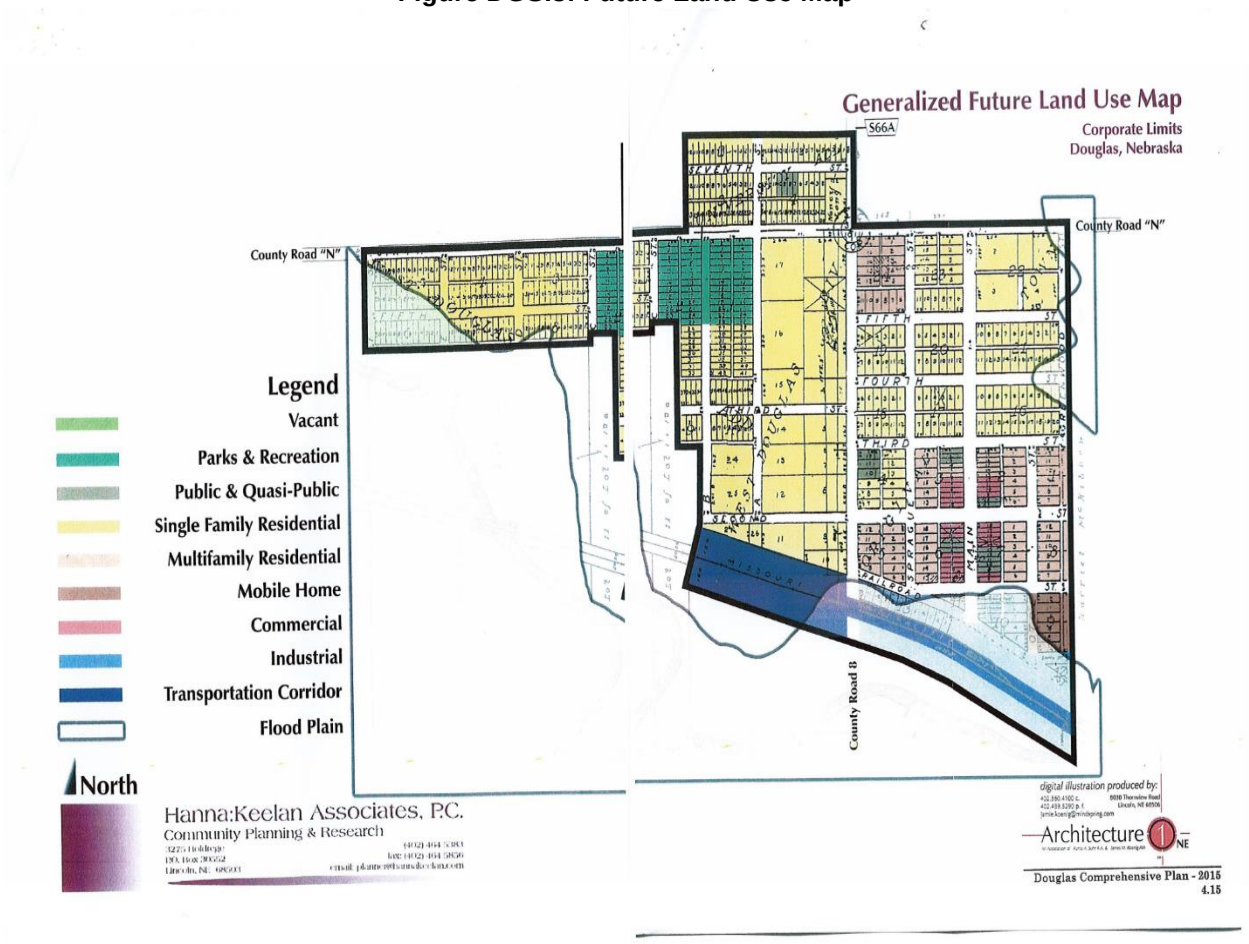
17 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
18 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.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

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. Mobile homes in the community are located along the western edge and southeast corner of the village. 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 the village has demolished uninhabited buildings. No new housing or businesses were built. According to the American Community Survey, Douglas's population is generally increasing. Current municipal funds have stayed steady and are limited to maintaining facilities with a large portion already dedicated to water tower maintenance and street improvements. In the next five years, no housing or businesses are planned.

**Figure DGS.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 DGS.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 |
|---|---|---|---|---|
| 118 | $ 5,246,030 | 9 | 7.62% | $ 232,480 |

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

## 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 Douglas.

### 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 Douglas's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

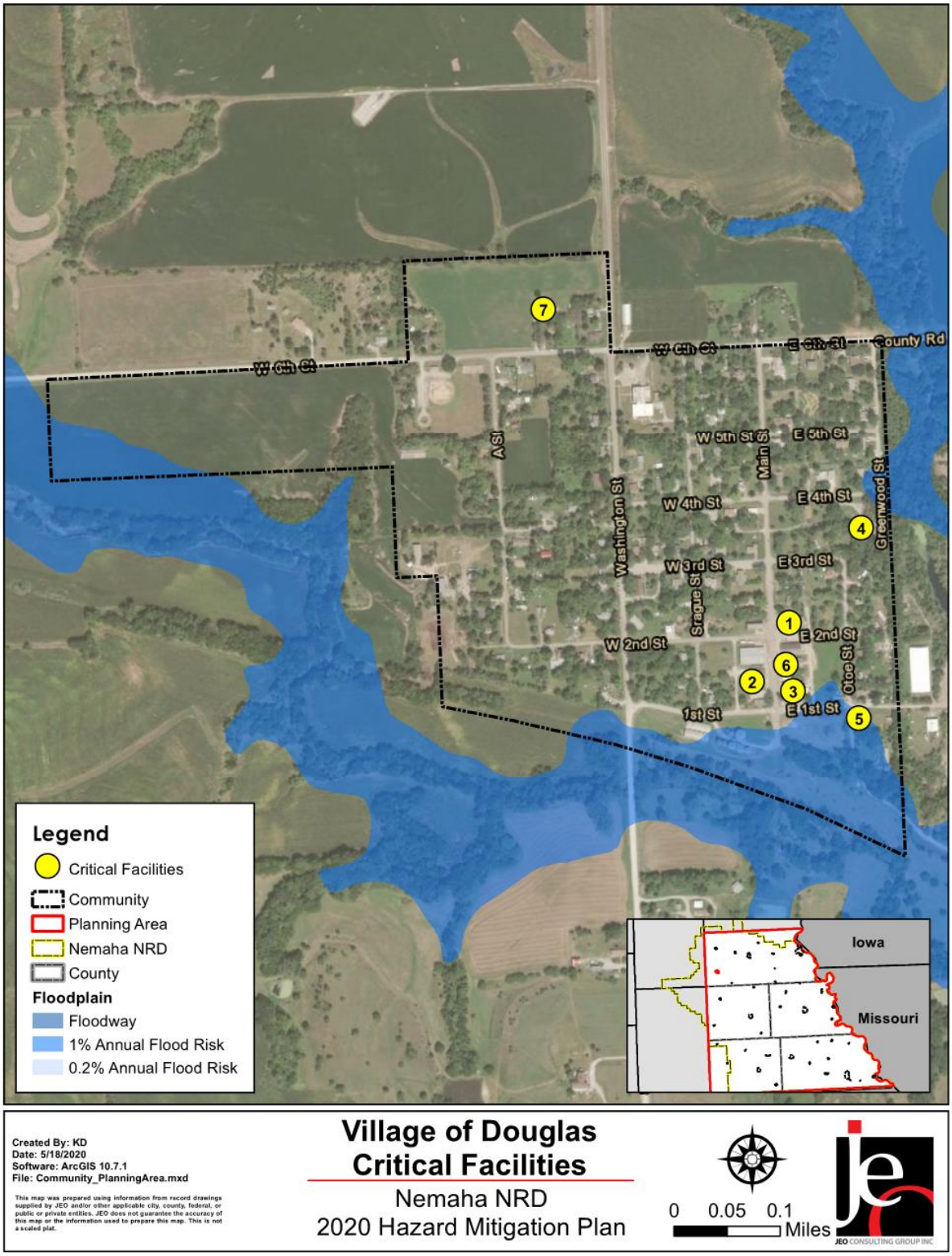
**Table DGS.3: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Community and Senior Center | Y | N | N |
| 2 | EMS Building | N | Y | N |
| 3 | Fire & Rescue Station | N | Y | N |
| 4 | Lift Station 1 | N | Y | N |
| 5 | Lift Station 2* | N | Y | Y |
| 6 | Village Office | N | Y | N |
| 7 | Water Tower | N | Y | N |

*Raised up above the floodplain

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

**Figure DGS.4: Critical Facilities**



## Historical Occurrences

See the Otoe 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*.

### Drought and Extreme Heat

The village's primary concerns related to drought and extreme heat are the potential for water shortages and grass fires due to dry conditions. In the 1990s the village had to implement water restriction policies due to drought conditions. Drought is monitored through the Otoe County Emergency Management Agency and the National Weather Service. The village uses an altimeter valve to maintain a pre-set amount in the tower to monitor the water supply. Monthly water quality tests are performed and there have been no historical issues. If additional water was needed, the village has the ability to bring in bottled water for drinking. In the event of prolonged extreme heat, both the community center and EMS building can be used as cooling centers. However, those buildings are only available when staffed.

### Flooding

The village has twice had all access roads to and from the community closed due to flooding events. Other past impacts included culverts being washed out and debris in the lift stations. The south fork of the Little Nemaha River is located on southern border of the village is the primary flood risk. Areas most prone to flooding are on the south and east sides of the village, but the local planning team indicated that flooding can occur across the community due to drainage issues. If flooding were to occur on the southeast corner of the community or near the Greenwood area, it would isolate those areas making evacuation difficult. The village is working on improving drainage in the areas that are most impacted.

### Severe Thunderstorms

Primary concerns related to severe thunderstorms is damage to power lines and roads. In the 1980s and 1991 downed trees blocked roads, damaged a propane line, and power loss issues occurred. The control panel at the water tower has been struck by lightning which limited the village's ability to monitor the water level. The repeater tower has also been repeatedly struck by lightning which caused problems. Past electrical failures have limited the local fire and rescue department's ability to communicate. The local planning team indicated that no power lines in the community are buried. Backup generators have been installed to help some of the power loss issues. If power loss were to occur, municipal records are backed up on flash drives. In the event of hail many critical facilities have hail-resistant materials, and all are insured. The community center has a weather radio, but the village would like to purchase additional weather radios. Otoe County provides the Southeast Nebraska Emergency Notification System, citizens can opt-in to receive weather alert notifications by voice, text, and email.

### Severe Winter Storms

While winter storms are an annual occurrence, the village had multiple blizzards of note starting in December 2009. The fire department had to use the village dump truck to try to plow their way to a rescue call and damaged the truck's transmission. Other impacts include road closures and

ice storms that caused power outages. Snow removal is conducted by village maintenance and their equipment includes a truck with a blade and a tractor with a bucket and blade. The village would like to replace the dump truck that was damaged and the tractor. Sand, brine, and de-icer is also used on the roads throughout the community. There are several large old cottonwood trees in the village which could drop limbs or fall during a severe storm event.

### Tornadoes and High Winds

The village experienced one unconfirmed tornado in the 1980s which caused major tree damage. Other tornadoes have occurred within two miles of the community but did not impact the village. In 2016 the village experienced 50 mph straight-line winds. The village has one siren which is radio activated by the Otoe County Sheriff's Office, Otoe County Emergency Management, Nebraska City Fire/Rescue Department, or department radios. There are no safe rooms in the community, but the Community Center and Village Office both have basements for the public to use; however, they can only be used when somebody with the village is present. The Community Center is designated as a Red Cross shelter to be used after an emergency. If a disaster were to occur, the village has mutual aid agreements in place with Otoe County, Lancaster County, Village of Palmyra, Village of Bennet, and OR1 school district.

## Governance

The Village of Douglas 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
- Rescue Squad
- Planning Commission

## 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 DGS.4: Capability Assessment**

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

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | 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 |
| | Local Staff Who Can Assess Community's Vulnerability to Hazards | Yes |
| | Grant Manager | No |
| | Mutual Aid Agreement | Yes |
| | Other (if any) | Yes (Palmyra, Bennet, Douglas School, District OR1) |
| 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. | Yes |
| | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | Yes |
| | Natural Disaster or Safety related school programs | No |
| | StormReady Certification | Yes |
| | 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 | Moderate |
| Community support to implement projects | Moderate |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

Douglas's comprehensive plan, zoning ordinance, floodplain regulations, and subdivision regulations were all last updated in 2005. Due to the age of the plans the only hazard discussed is flooding and the floodplain. The documents contain goals aimed at safe growth, direct development away from the floodplain, encourage infill development, encourage elevation of structures located in the floodplain, encourage the preservation of open space in the floodplain, and include the ability to implement water restrictions. There are no plans to update of the documents at this time. The village is also an annex in the Otoe County's 2018 Local Emergency Operations Plan which contains information regarding disaster operations, warning, incident command and field response, law enforcement, fire department, emergency medical services, public works, emergency operations center, communications, emergency public information, sheltering, resources, damage assessment, health and human services, public health, and financial accountability. 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

### Completed Mitigation Actions

| Mitigation Action | Anemometer Installation |
|---|---|
| **Hazard(s) Addressed** | All Hazards |
| **Status** | Completed in 2018. Anemometer was installed on the EMS building. |

| Mitigation Action | Filled Old Well |
|---|---|
| **Hazard(s) Addressed** | Drought, Flooding, Chemical Spills |
| **Status** | Completed in 2013. |

| Mitigation Action | Flood-Prone Property Acquisition |
|---|---|
| **Hazard(s) Addressed** | Flooding |
| **Status** | Completed in January of 2020. One property on 1st and Main Street was acquired. |

## Continued and New Mitigation Actions

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. The village would like to purchase a new village tractor and dump truck. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $100,000+ |
| **Funding** | Bond, Property Tax Revenue |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | Ongoing. The village bought a blade for snow removal. |

| 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** | $4,000 - $10,000+ |
| **Funding** | Bond, Property Tax Revenue |
| **Timeline** | 5+ Years |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | Planning Stage. The village is looking at putting in a new community center in the acquired property and having a safe room in it. |

| Mitigation Action | Surge Protection/Computer Battery Backup |
|---|---|
| **Description** | Purchase a surge protector or batter backup for the village computer to help prevent data from being lost. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $50-$100 |
| **Funding** | General Fund |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **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** | Tornadoes and High Winds, Severe Thunderstorms, Severe Winter Storms |
| **Estimated Cost** | $50 per radio |
| **Funding** | Fundraiser, General Fund |
| **Timeline** | 1 Year |
| **Priority** | Medium |
| **Lead Agency** | Village Board, Fire Department |
| **Status** | Not Started. |

# Community Profile

# Village of Dunbar

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

**2020**

## Local Planning Team

**Table DBR.1: Village of Dunbar Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Patricia Petersen | Clerk/Floodplain Administrator | Village of Dunbar |
| Mike Doty | Board Chairperson | Village of Dunbar |

## Location and Geography

The Village of Dunbar is in central Otoe County and covers an area of 0.23 square miles. Dunbar is located near Wilson Creek to the east, North Fork Little Nemaha River to the north and east, and Deer Creek to the west.

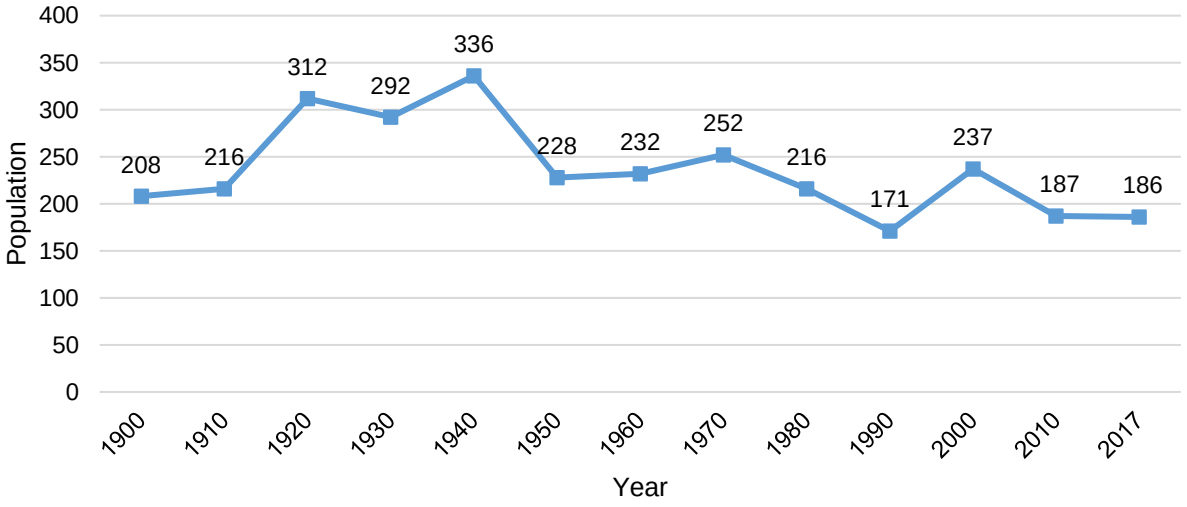
## Transportation

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. Dunbar's major transportation corridor is State Highway 67. It is traveled by an average of 475 vehicles daily, 35 of which are trucks.[21] The village has one non-operating rail line running north south through the east side. The transportation routes of most concern are Highway 67 and Nebraska Street. Highway 67 is heavily traveled by trucks and runs through the center of the village. Nebraska Street has flooded in the past and the bridge over the Little Nemaha River is in poor condition. If an evacuation was necessary, the east side of the community may have difficulty due to flooding concerns.

## Demographics

The Village of Dunbar's population has been declining since 2000 and the local planning team estimates it is at 186 people in 2017. Dunbar's population accounted for 1.2% of Otoe County's population in 2017.[22]

**Figure DBR.1: Population**

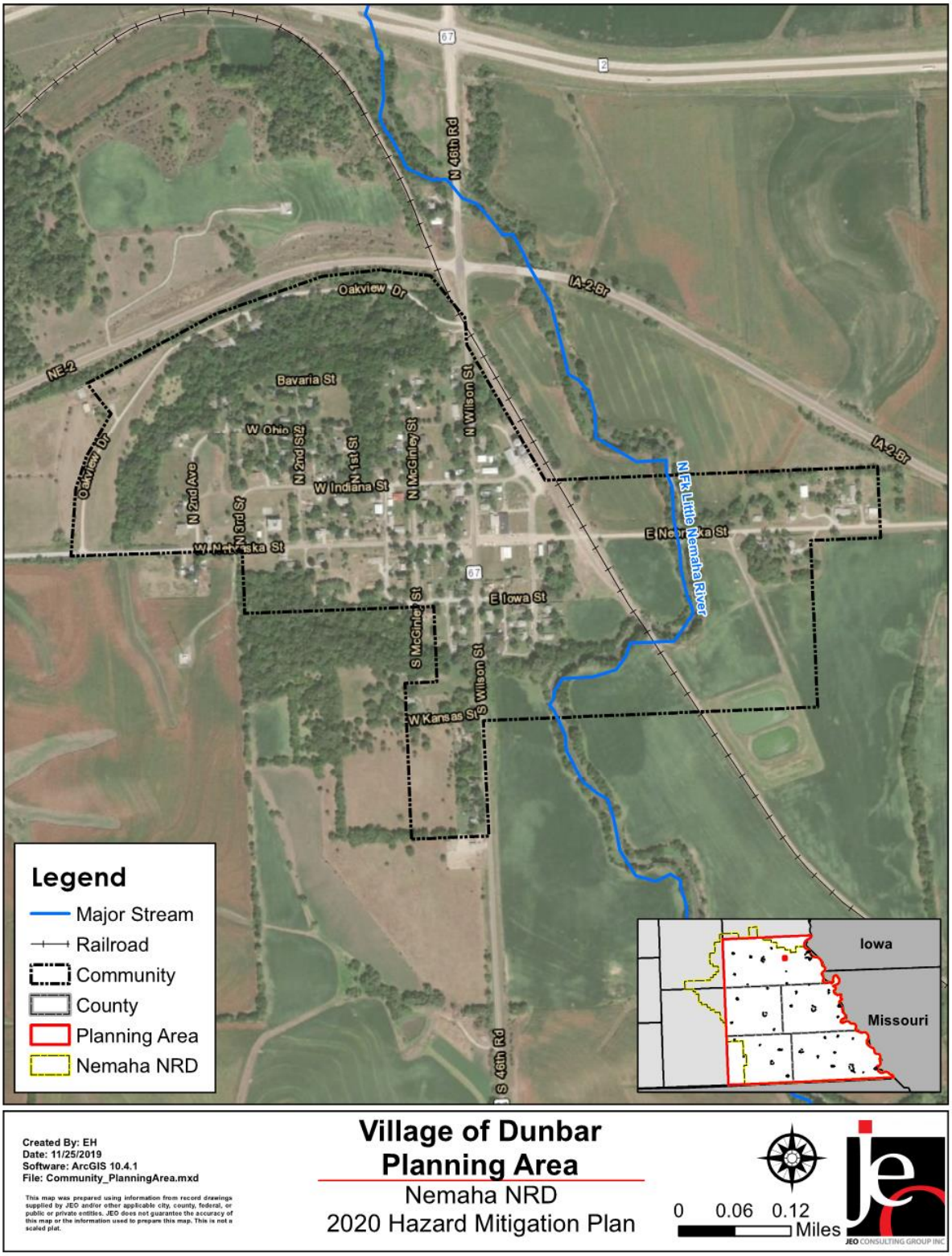



*Source: U.S. Census Bureau, 1900 – 2010, Local Planning Team, 2017*

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

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

**Figure DBR.2: Village of Dunbar**



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

- **Older.** The median age of Dunbar was 46.6 years old in 2017, compared with Otoe County's median of 41.7 years. Dunbar's population grew older since 2010, when the median age was 33.5 years old.[22]
- **More ethnically diverse**. Since 2010, Dunbar grew more ethnically diverse. In 2010, 1.8% of Dunbar's population was Hispanic or Latino. By 2017, about 9.8% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[22]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Dunbar (2.9% of people living below the federal poverty line) was lower than the county's poverty rate (10%) in 2017.[23]

## Employment and Economics

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

- **Different mix of industries.** Dunbar's major employment sectors, accounting for 10% or more of employment each, were: construction, manufacturing, retail trade, transportation, arts, and other services.[23]
- **Higher per capita income.** Dunbar's per capita income in 2017 ($31,002) was about $5,500 higher than the county ($28,567).[23]
- **Fewer long-distance commuters.** About 33% of workers in Dunbar commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 33% of workers in Dunbar commuted 30 minutes or more to work, compared to about 34.1% of county workers.[24]

### Major Employers

The only employer in the community is Winn Rack. A large percentage of residents commute to Nebraska City and Lincoln for employment.

## Housing

In comparison to Otoe County, the Village of Dunbar's housing stock was:[25]

- **Older.** Dunbar had a larger share of housing built prior to 1970 than the county (58.6% compared to 55.8%).
- **More mobile and manufactured housing.** The Village of Dunbar had a larger share of mobile and manufactured housing (4.6%) compared to the county (2.6%).
- **More renter-occupied**. About 30.8% of occupied housing units in Dunbar were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Similarly occupied.** Approximately 10.3% of Dunbar's housing units were vacant compared to 9.8% of units in Otoe County.

23 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
24 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
25 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, two new homes were built, one home was demolished, and several were remodeled. No new businesses were added but a new fire station was completed in 2019. According to census data, Dunbar's population is general declining. The local planning team attributed this decline to an older population and very little available housing. Municipal funds, while remaining steady over the years, are limited to maintaining current facilities and systems with a large portion already dedicated to water repairs. In the next five years, one new home is planned for construction. This will be located out of the floodplain. The village is looking at purchasing the old fire house building to turn it into a community building and the old schoolhouse is going to be remodeled. No businesses or industry are 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 DBR.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentages of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 103 | $ 4,158,350 | 24 | 23.3% | $ 889,640 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[26]

26 GIS Workshop/Otoe 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 Dunbar. The table below lists the name and location of the site and whether it is in the floodplain.

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

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Midwest Farmers Cooperative | 202 E Indiana Street | Y |

*Source: Nebraska Department of Environment and Energy*[27]

## Critical Facilities

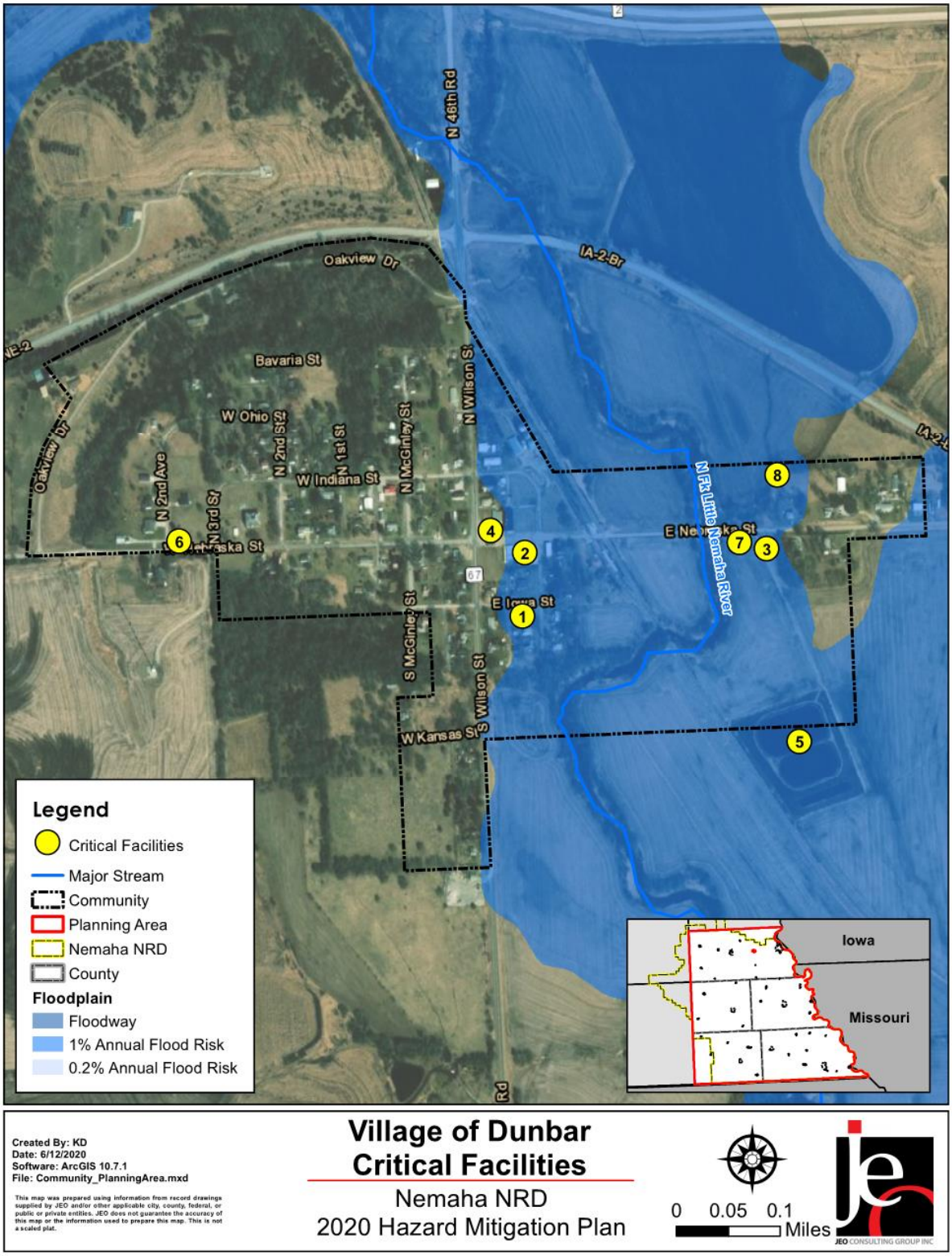
The planning team identified critical facilities necessary for the Village of Dunbar's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table DBR.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Church | N | N | Y |
| 2 | Fire Station | N | N | Y |
| 3 | Pumping Station | N | Y | Y |
| 4 | Village Office | N | N | N |
| 5 | Wastewater Lagoon | N | N | Y |
| 6 | Water Tower | N | N | N |
| 7 | Well 1 | N | N | Y |
| 8 | Well 2 | N | N | Y |

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

**Figure DBR.3: Critical Facilities**



## Historical Occurrences

See the Otoe 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

Major flood events impacted the village in 2011 and March 2019. In 2011, houses along Wheeler Street were flooded. In 2019 one home had a sewage backup and the village's sewage pump was unable to keep up with all the water. Since then the village has installed a larger, newer pump. The bridge on Nebraska Street over the Little Nemaha River is a major concern for the community, as it is starting to deteriorate and there are issues surrounding who owns and maintains the bridge. The village's sewage and water line also cross at this point which leave them vulnerable to breaks and erosion during flood events. Rip rap is used on the banks to stabilize the pipes and reduce erosion. Another concern is the wastewater lagoon silting in from heavy rain events. The village would like to add rip rap to the sides to slow down that process. Stormwater drainage used to be a concern in the village, but larger culverts were installed in the 1990s has and have drastically reduced that issue. The figure above shows that the eastern half of the village is located in the 100-year floodplain. However, the local planning team indicated that most of the village's housing is located on the western side, outside of the floodplain.

### Severe Thunderstorms

The village's primary concern related to severe thunderstorms is power loss. Nebraska City Utilities is the power supplier for the village. If there is a power outage in the village, it takes longer for the utilities to drive out and fix the problem. The local planning team indicated that most power outages do not last long and occur fewer than five times a year. All power lines are above ground, which leaves them more susceptible to high winds and fallen tree limbs. Hazardous trees are located throughout the community, but both the village and utilities perform annual tree trimming. Past severe thunderstorm events have not caused significant damage. In 2016, the village experienced a hailstorm that damaged roofs and garages. In 2020, a thunderstorm wind event knocked down a large maple tree that blocked part of a street. No damages to critical facilities have occurred. If damage were to occur, all village-owned buildings are insured. Municipal records are not electronically backed up and only paper copies are kept. Otoe County provides the Southeast Nebraska Emergency Notification System, citizens can opt-in to receive weather alert notifications by voice, text, and email. In order to mitigate the impacts of severe thunderstorms, the one warning siren is tested every Saturday during the spring, summer, and fall months. The siren is radio activated by the Otoe County Sheriff's Office, Otoe County Emergency Management, Nebraska City Fire/Rescue Department, or department radios.

### Severe Winter Storms

The most recent severe winter storm event occurred in 2018, when the village received numerous of heavy snow fall. No damages occurred but hazardous road conditions were an issue. During that time the village contracted out snow removal to an individual who lived in another nearby community. This individual also removed snow for other communities, so roads in Dunbar were usually not cleared until late morning or early afternoon. This caused issues for people commuting

to work. In 2019, the village purchased their own equipment so that snow removal could be conducted earlier. Equipment now includes a tractor with a blade run by the board chairperson who lives in the village. It is unknown if these resources are sufficient because the 2019/2020 winter was very mild. Salt is also applied during removal to some of the hillier roads in the community.

## Governance

The Village of Dunbar 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
- Utility Superintendent
- Fire Department
- Sewer/Water 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 DBR.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 | No |
| | Subdivision Regulation/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 | No |
| | Floodplain Administration | Yes |
| | GIS Capabilities | No |
| | Chief Building Official | No |
| | Civil Engineering | Contracted |
| | Local Staff Who Can Assess Community's Vulnerability to Hazards | Yes |
| | Grant Manager | No |
| | Mutual Aid Agreement | Yes |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Other (if any) | - |
| Fiscal Capability | Applied for grants in the past | Yes |
| | Awarded a grant in the past | No |
| | Authority to Levy Taxes for Specific Purposes such as Mitigation Projects | No |
| | Gas/Electric Service Fees | 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.<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 | Yes |
| | 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 | Moderate |
| Community support to implement projects | Limited |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

Dunbar has floodplain regulations which outline requirements for new construction and upgrades in the floodplain. The village is also an annex in the 2018 Otoe 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, public health, 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 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. The village would like to add a generator to the new community building once it gets constructed. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $30,000+ |
| **Funding** | General Budget |
| **Timeline** | 1-2 Years |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

| Mitigation Action | Bank Stabilization |
|---|---|
| **Description** | Stabilize banks along streams and rivers. This may include, but is not limited to: reducing bank slope, addition of riprap, installation of erosion control materials/fabrics. Rip rap around the sewer and water lines is needed to protect against breakage and erosion. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | Water Department |
| **Status** | New Action. Ongoing, the village regularly adds rip rap around the lines. |

| Mitigation Action | Lagoon Improvements |
|---|---|
| **Description** | Add rip rap around the lagoon walls to reduce erosion and silting. |
| **Hazard(s) Addressed** | Flooding, Severe Thunderstorms |
| **Estimated Cost** | Unknown |
| **Funding** | General Budget |
| **Timeline** | 1-2 Years |
| **Priority** | High |
| **Lead Agency** | Water Department |
| **Status** | New Action. Not Started. |

| Mitigation Action | New Community Building |
|---|---|
| **Description** | Purchase the old fire hall and convert it into a community building for meetings, events, and sheltering. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Unknown |
| **Funding** | General Budget |
| **Timeline** | 1-2 Years |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

| Mitigation Action | Transportation Drainage Improvements |
|---|---|
| **Description** | Make improvements to roadways and drainage ways to prevent damage to key transportation routes. Utilize geosynthetic products for repair and mitigation of damages. Consider covering of road washouts, culvert sizing headwalls, steep banks, slides, in-road springs, roadway edge armoring, low water crossings, pothole grading, weak foundations, gravel road maintenance, ditch linings, on steep grades, erosion protection, etc. A two-block area on Nebraska Street needs to be redone. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | Street Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Street Superintendent |
| **Status** | New Action. Not Started. |

# Community Profile

# Village of Lorton

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

**2020**

## Local Planning Team

**Table LRN.1: Village of Lorton Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Nina Landwehr | Board Chairperson | Village of Lorton |
| Stephanie DeGroot | Clerk | Village of Lorton |

## Location and Geography

The Village of Lorton is in east-central Otoe County and covers an area of 0.04 square miles. The North Fork Little Nemaha River is located to the north and east of the village.

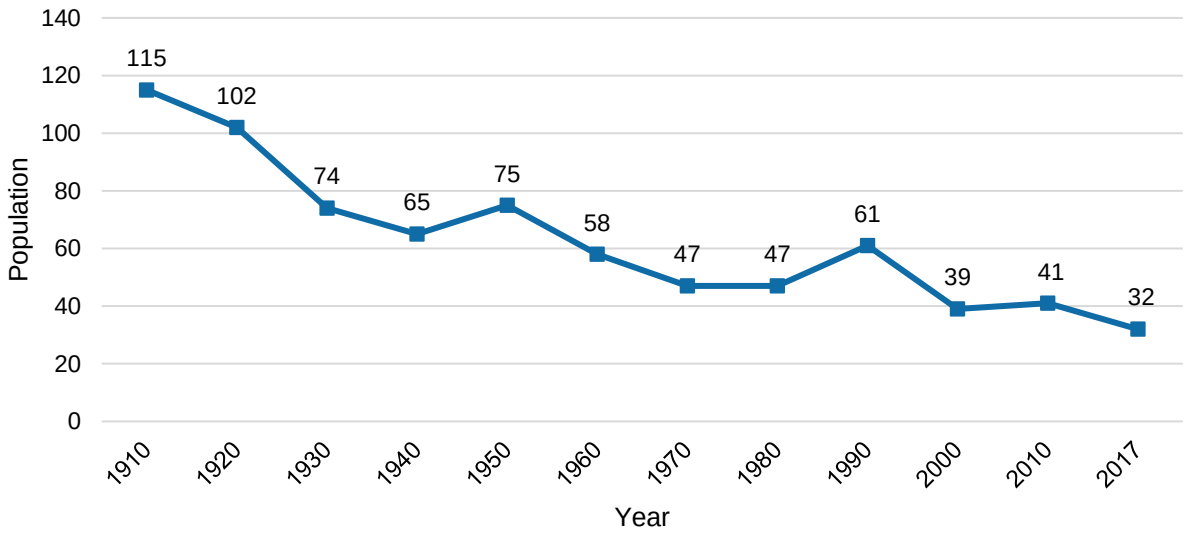
## Transportation

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. Lorton's major transportation corridor is State Highway 67. It is traveled by an average of 960 vehicles daily, 90 of which are trucks.[28] The village does not have any railway lines traveling through the community. The local planning team identified State Highway 67 as the transportation corridor of concern due to its high volume of traffic, and more specifically, semi-truck traffic. On Highway 67 north of Lorton, a bridge over the North Fork Little Nemaha River has been replaced in the last year. If Highway 67 became closed, the Village of Lorton would likely have difficulty evacuating.

## Demographics

The Village of Lorton's population has been declining since 2010 and was at 32 people in 2017. A declining population may mean a decreasing tax base, which could make funding mitigation projects more difficult. Lorton's population accounted for 0.20% of Otoe County's population in 2017.[29]

**Figure LRN.1: Population**

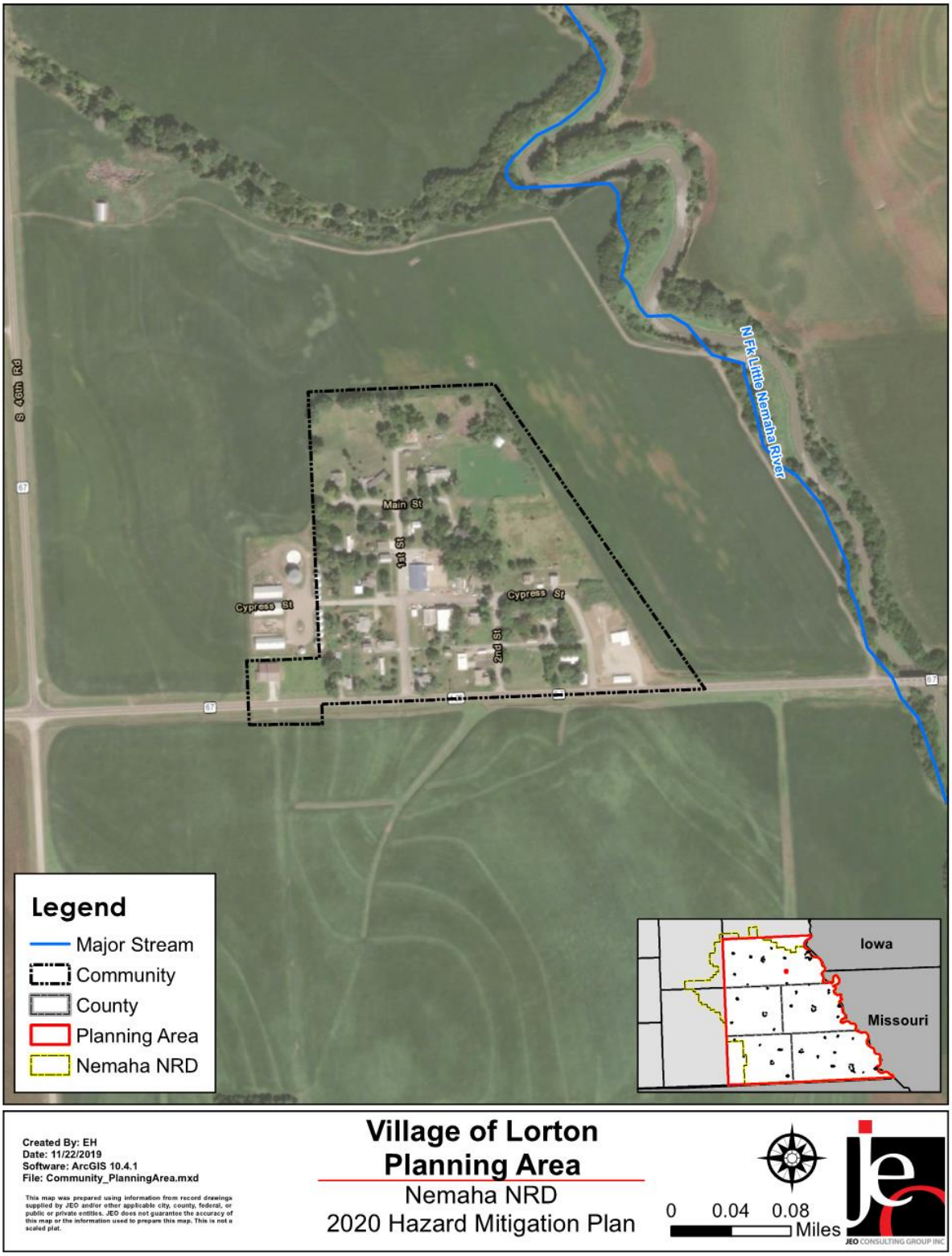



*Source: U.S. Census Bureau, 1910 – 2010, Local Planning Team: 2017*

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

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

**Figure LRN.2: Village of Lorton**



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

- **Similarly aged.** The median age of Lorton was 41 years old in 2017, compared with Otoe County's median of 41.7 years. Lorton's population grew younger since 2010, when the median age was 60.3 years old.[29]
- **More ethnically diverse**. Since 2010, Lorton became more ethnically diverse. In 2010, 15% of Lorton's population was Hispanic or Latino. By 2017, the local planning team indicated about 25% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.9% in 2017.[29]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Lorton (5% of people living below the federal poverty line) was less than the county's poverty rate (10%) in 2017.[30]

## Employment and Economics

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

- **Different mix of industries.** Lorton's major employment sectors, accounting for 10% or more of employment each, were: construction, manufacturing, finance, and education.[30]
- **Lower per capita income.** Lorton's per capita income in 2017 ($27,105) was about $1,500 lower than the county ($28,567).[30]
- **Fewer long-distance commuters.** About 0% of workers in Lorton commuted for fewer than 15 minutes, compared with about 22.2% of workers in Otoe County. About 46.3% of workers in Lorton commuted 30 minutes or more to work, compared to about 34.1% of county workers.[31]

### Major Employers

The Lorton Lounge is the largest employer in the Village of Lorton. A large percentage of residents commute to Omaha, Nebraska City, and Lincoln.

## Housing

In comparison to Otoe County, the Village of Lorton's housing stock was:[32]

- **Older.** Lorton had a larger share of housing built prior to 1970 than the county (100% compared to 55.8%).
- **More mobile and manufactured housing.** The Village of Lorton had a much larger share of mobile and manufactured housing (50%) compared to the county (2.6%).
- **Less renter-occupied**. About 12.5% of occupied housing units in Lorton were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Less occupied.** Approximately 33.3% of Lorton's housing units were vacant compared to 9.8% of units in Otoe County.

30 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
31 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
32 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 Lorton has several mobile homes located on the West side of the village off 1st street. 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 little has changed in the past five years in the Village of Lorton other than one building being demolished. According to the U.S. Census Bureau American Community Survey estimates, Lorton's population has declined. The general decline can be attributed to an aging population. Municipal funds are sufficient to purse new capital projects due to Keno revenue and have increased steadily over recent years. No new housing or commercial 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 LRN.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 |
|---|---|---|---|---|
| 25 | $ 784,500 | 10 | 40% | $ 203,790 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[33]

33 GIS Workshop/Otoe 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 no chemical storage sites in Lorton.

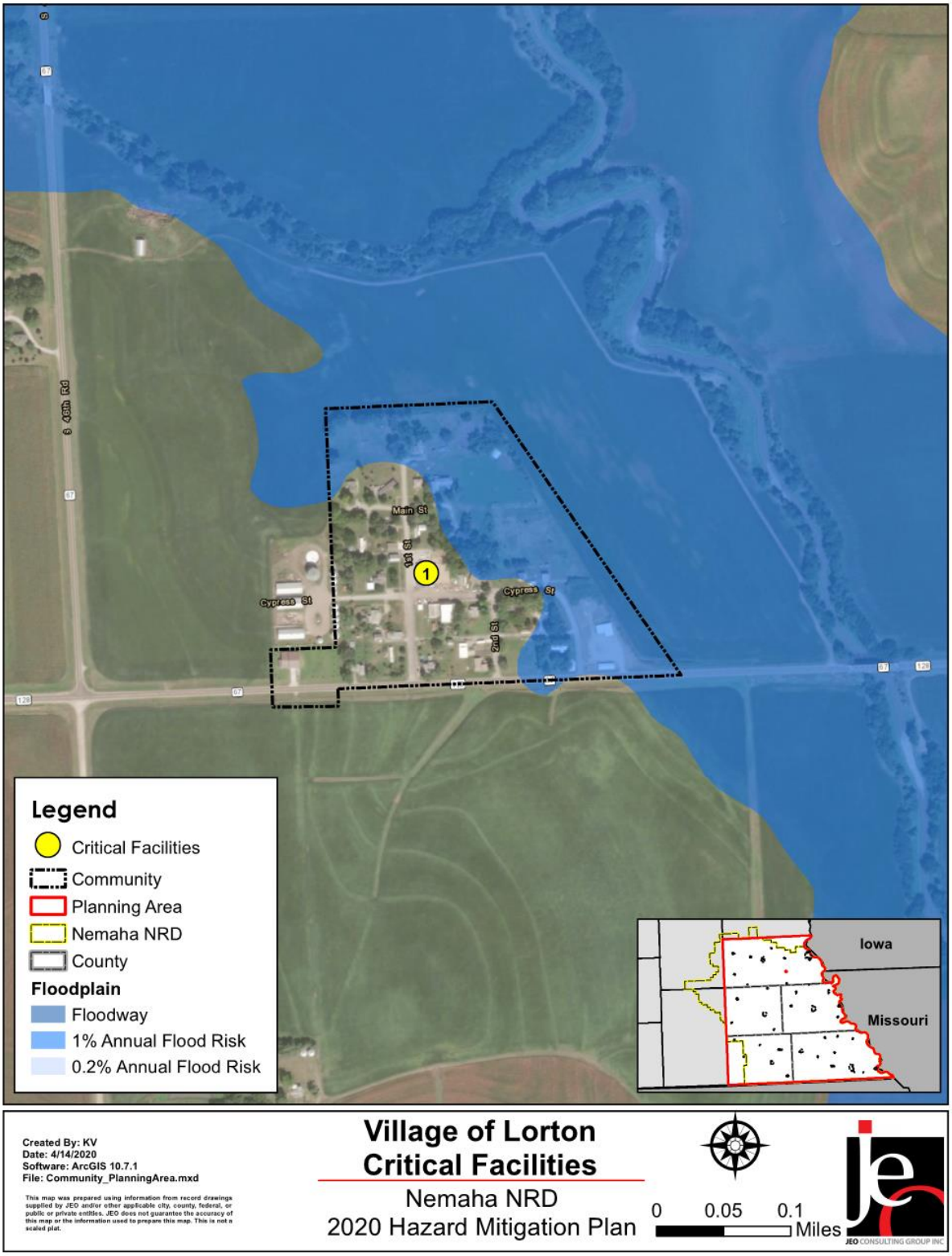
### Critical Facilities

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

**Table LRN.3: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Lorton Lounge | N | N | N |

**Table LRN.3: Critical Facilities**



## Historical Occurrences

See the Otoe 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*.

### Agricultural Animal and Plant Disease

The Village of Lorton and its residents are surrounded by agriculture that impacts the community and residents. Soybeans and corn are the primary crops in the area. If a large animal or crop disease outbreak were to occur, the local economy could be negatively impacted. The local planning team indicated that there are currently no plans in place to deal with the impacts of an agricultural disease outbreak. No specific outbreaks were noted in Lorton, however in Otoe County, ten animal disease outbreaks occurred in the last six years and one plant disease outbreak occurred in 2019.

### Flooding

The Village of Lorton has not experienced past flooding impacts but has identified it as a concern due to the village's proximity to the North Fork Little Nemaha River. During the statewide March 2019 flooding events, Lorton was spared any impacts and has had no drainage issues in the community. There are currently two homes located in the floodplain. Specific areas of concern for flooding impacts are the Lorton Lounge and Highway 67.

### Severe Thunderstorms

Severe thunderstorms have been identified as a concern for the Village of Lorton due to past damage to property that includes minor impacts from hail. Presently, the community building only has liability insurance in place. Other than the Lorton Lounge which may offer shelter in the bathrooms, residents must rely on their own homes for safe shelter. Important village records are backed up on flash drives to prevent the permanent loss of records. Otoe County provides the Southeast Nebraska Emergency Notification system for severe storms. Citizens can opt-in to receive weather alert notifications by voice, text, and email.

### Severe Winter Storms

The village's primary concern regarding severe winter storms is damage to buildings. While no specific events were noted in Lorton, Otoe County experiences severe winter storms nearly every year. A local resident in Lorton provides snow removal services with a tractor to clear streets quickly. Although power outages are a concern, Lorton has not experienced any outages that have lasted for an extended period.

### Tornadoes and High Winds

While no tornadic events have occurred specifically in Lorton, 12 tornadoes have occurred in Otoe county in the last 20 years. Three of those tornadoes were spotted near Nebraska City located just northeast of Lorton. Potential damages to buildings due to tornadoes and high winds are a top concern identified by the local planning team. Other than the Lorton Lounge, which may offer shelter in the bathrooms, residents must rely on their own homes for safe shelter. Lorton does not have a warning siren but has continued to discuss the possible need for one.

## Governance

The Village of Lorton 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
- Engineer (Contracted)

## 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 LRN.4: Capability Assessment**

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

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

## Plan Integration

Lorton does not have any formal planning documents but is an annex in the 2018 Otoe 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, public health, and financial accountability. 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 | 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 lacking with remote activation options. Potential siren would be located by the community building. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $5,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

# Community Profile

# City of Nebraska City

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

**2020**

## Local Planning Team

**Table NBC.1: City of Nebraska City Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Mary Stovall | Construction/Facility Manager and Floodplain Administrator | Nebraska City |
| Keith Morrison | Building Inspector | Nebraska City |
| Jerry Whitehead | Wastewater Treatment Superintendent | Nebraska City Utilities |
| Jeff Kohrs | General Manager | Nebraska City Utilities |
| Dan Patton | Operations Superintendent | Nebraska City Utilities |
| Bryan Turner | Gas and Water Superintendent | Nebraska City Utilities |
| Mark Lant | Wastewater Treatment Plant Superintendent | Nebraska City Utilities |

## Location and Geography

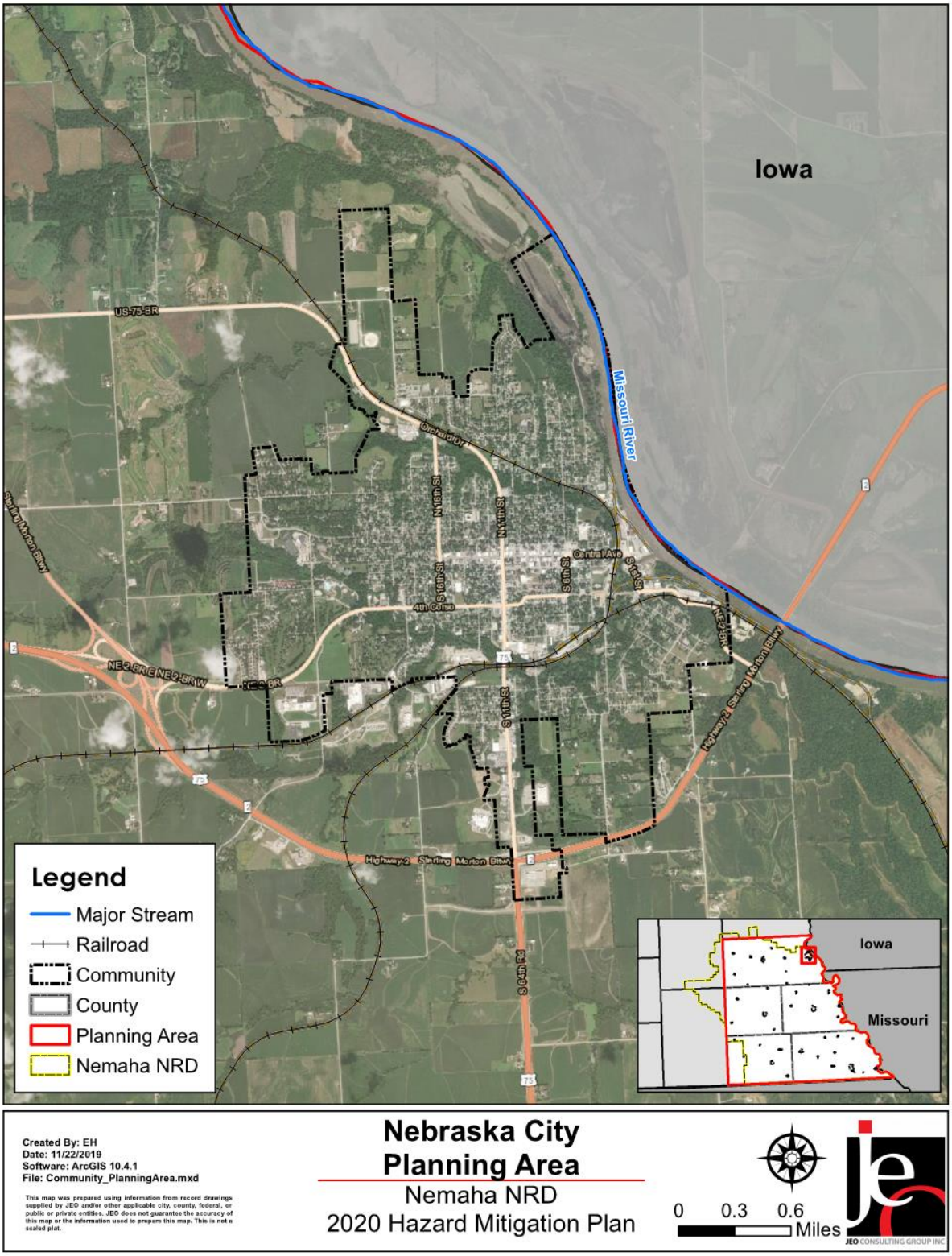
The City of Nebraska City is in eastern Otoe County and covers an area of 4.97 square miles. The Missouri River is located on the eastern border of the community and both North Table Creek and South Table Creek run through the city.

## 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. Nebraska City's major transportation corridors are State Highway 2 and US Highway 75. Highway 75 has an average of 9,365 vehicles a day and Highway 2 has an average of 9,850 vehicles a day.[34] The city has Union Pacific Railroad lines and non-operating lines traveling throughout the city. The transportation routes of most concern for the city are Highways 2 and 75, the railroads, North 10th Street, North 11th Street, and barge river traffic. Chemicals are regularly transported along all of these routes with Highway 2 having chemicals transported multiple times a day. There are two roads which are routinely closed when flooding occurs: 1st Street and the wellfield access road. There is commercial property located along 1st Street but no residential lots. The only part of the city that could be difficult to evacuate during an emergency would be north of the railroad if a train blocked the roads.

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

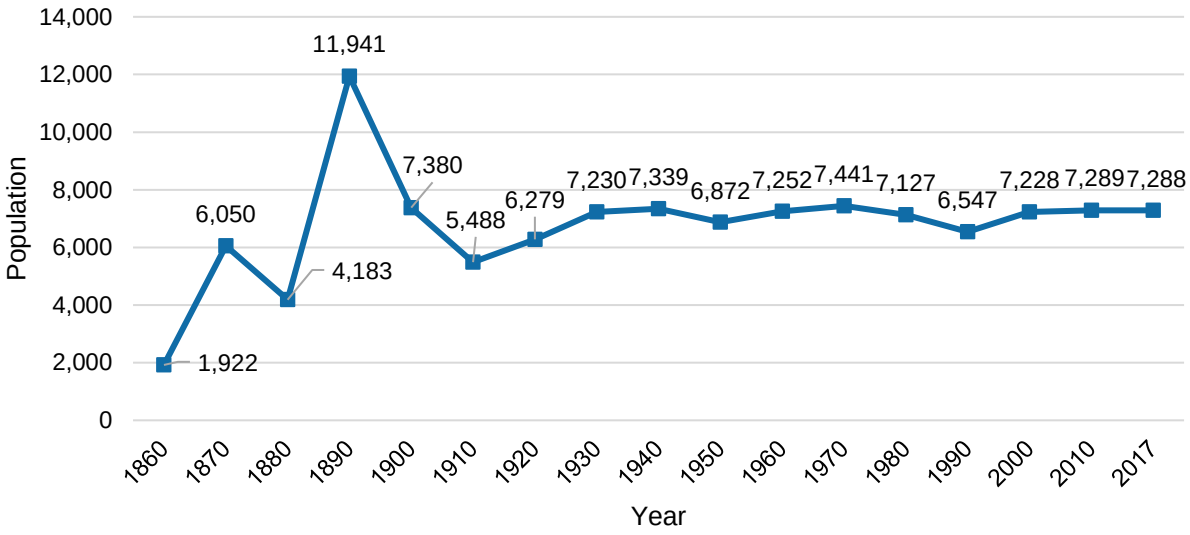
**Figure NBC.1: City of Nebraska City**



## Demographics

The City of Nebraska City's population has been stable at about 7,288 people since 2000, providing a stable tax base that could fund mitigation projects. Nebraska City's population accounted for 45.9% of Otoe County's population in 2017.[35]

**Figure NBC.2: Population**




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

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

- **Younger.** The median age of Nebraska City was 37.1 years old in 2017, compared with Otoe County's median of 41.7 years. Nebraska City's population grew younger since 2010, when the median age was 41.8 years old.[35]
- **More ethnically diverse**. Since 2010, Nebraska City grew more ethnically diverse. In 2010, 9.8% of Nebraska City's population was Hispanic or Latino. By 2017, about 15.3% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[35]
- **More likely to be below the federal poverty line.** The poverty rate in the City of Nebraska City (13.6% of people living below the federal poverty line) was higher than the county's poverty rate (10%) in 2017.[36]

## Employment and Economics

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

- **Similar mix of industries.** Nebraska City's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, retail trade, education, and arts.[36]

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

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

- **Lower per capita income.** Nebraska City's per capita income in 2017 ($23,837) was about $4,700 lower than the county ($28,567).[36]
- **Fewer long-distance commuters.** About 71.7% of workers in Nebraska City commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 19.5% of workers in Nebraska City commuted 30 minutes or more to work, compared to about 34.1% of county workers.[37]

### Major Employers

Major employers within the city include Honeywell, Cargill, CHI Saint Mary's, Walmart, Arbor Day Farms, Nebraska City Public Schools, Nebraska City, and Otoe County. The local planning team estimated that approximately 30% of residents commute to surrounding communities such as Lincoln, Omaha, and Syracuse.

## Housing

In comparison to Otoe County, the City of Nebraska City's housing stock was:[38]

- **Older.** Nebraska City had a larger share of housing built prior to 1970 than the county (63.8% compared to 55.8%).
- **Similar amounts of mobile and manufactured housing.** The City of Nebraska City had a slightly smaller share of mobile and manufactured housing (2.1%) compared to the county (2.6%).
- **More renter-occupied**. About 34.4% of occupied housing units in Nebraska City were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Similarly occupied.** Approximately 8.8% of Nebraska City's housing units were vacant compared to 9.8% of units in Otoe 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. The city has two mobile home parks. One is located on 19th Street surrounded by South Table Creek, the other is located on 16th Street near North Table Creek. Some units are located in the 100-year floodplain, but they were elevated out in 1993. There is also an RV park located near the bypass of Highway 2. 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

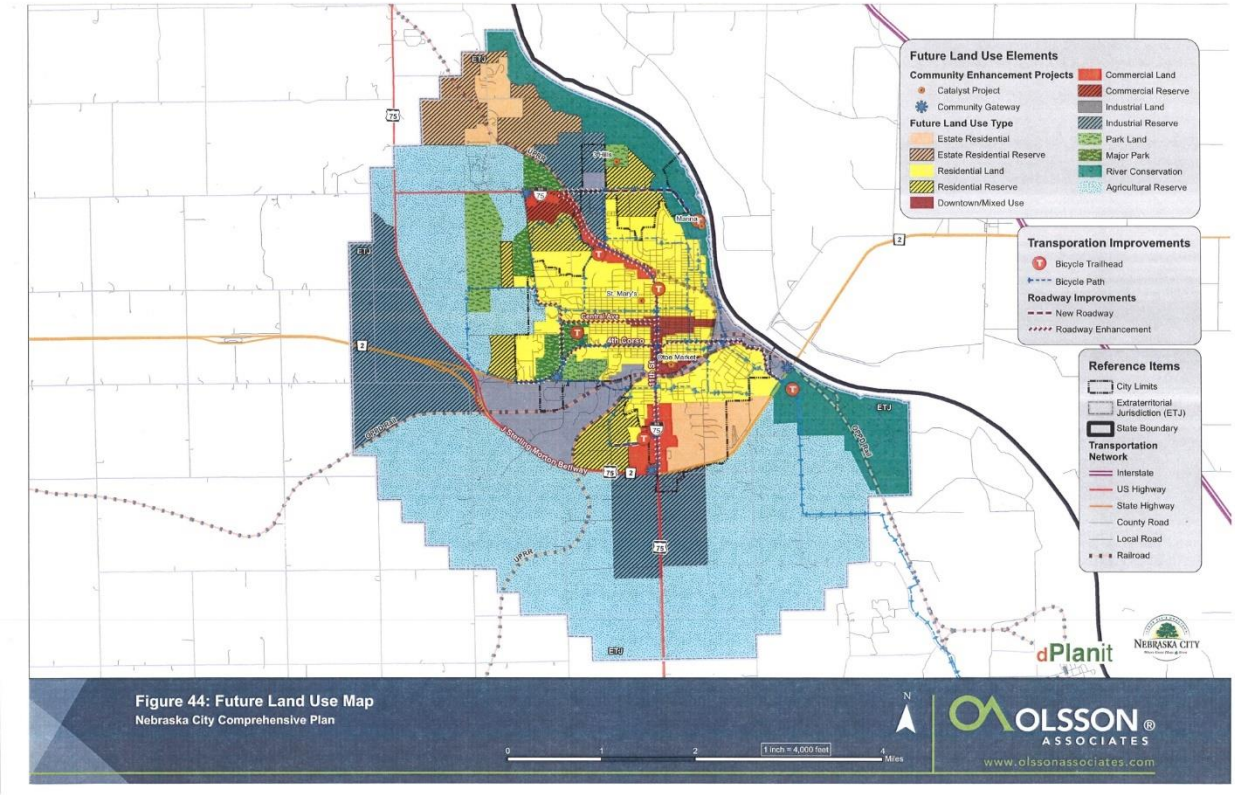
The city has averaged four new construction units a year for the last five years. In 2019 a 28-unit development was constructed. A Holiday Inn was the only new business constructed in the city. According to American Community Survey data, Nebraska City's population is generally stable. The local planning team attributes the stability to good schools and employment opportunities. A

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

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

potential reason for the lack of growth was attributed to minimal housing availability. Municipal funds are currently limited to maintaining current facilities, with a large portion already dedicated to large construction projects but have remained steady in recent years. In the next five years another new 28-unit single family housing development is being planned on the south side of the community. On the north side of the city, a new retirement home is planned. No other businesses are planned, however there is a non-operating plant that could be transitioned to a new facility if there was a willing business.

**Figure NBC.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 100-year floodplain. A summary of the results of this analysis is provided in the following table.

**Table NBC.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 |
|---|---|---|---|---|
| 2,941 | $ 308,736,350 | 86 | 2.92% | $ 21,318,990 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[39]

39 GIS Workshop/Otoe 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 12 chemical storage sites in Nebraska City. The table below lists the name and location of the sites and whether they are in the floodplain.

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

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Concrete Industries Inc. | 68410-2824, Nebraska City | N |
| Gavilon Grain LLC | 100 N 1st Street | Y |
| Honeywell American Meter Company | 2221 Industrial Road | N |
| Gavilon Grain LLC | 500 1st Terrace | N |
| Ferrellgas | 401 S 4th Street | N |
| WayFare Foods | 1320 S 19th Street | N |
| Nebraska City Potable Water | N 3rd Street | N |
| Frontier Cooperative | 1301 8th Corso | Y |
| Windstream Communications | 124 N 10th Street | N |
| Heartland Co-op | 200 E Central Avenue | N |
| Cargill Meat Solutions Corp | 2601 Industrial Road | N |
| Frontier Cooperative | 1401 8th Corso | Y |

*Source: Nebraska Department of Environment and Energy*[40]

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

## Critical Facilities

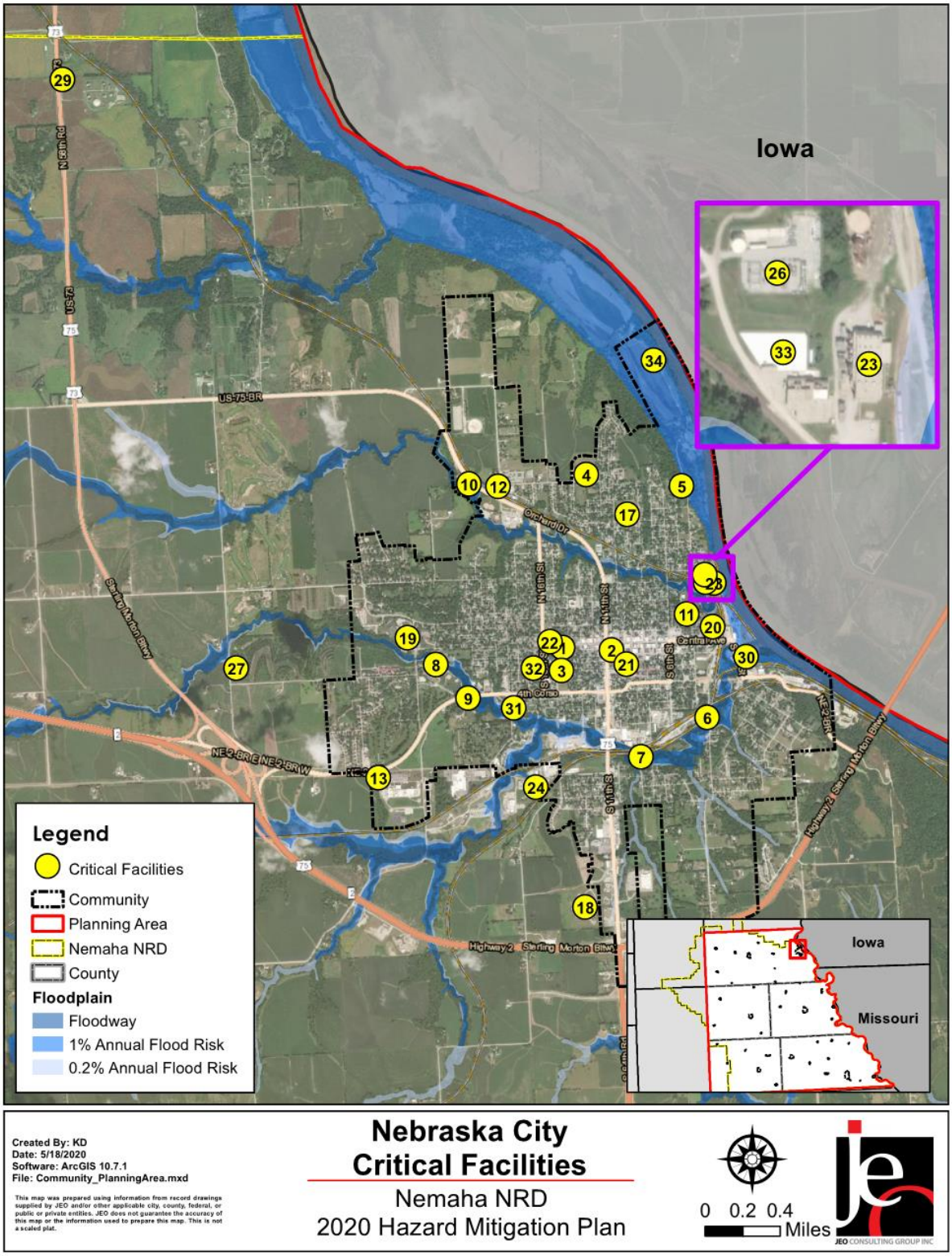
Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the City of Nebraska City's disaster response and continuity of operations. The following table and figure provide a summary of the critical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

**Table NBC.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | City Hall and Fire Department | N | Y | N |
| 2 | Courthouse and Sheriff's Office | N | Y | N |
| 3 | Elementary School Hayward | Y | N | N |
| 4 | Elementary School Northside | Y | N | N |
| 5 | Lift Station N 4th Street | N | N | N |
| 6 | Lift Station S 3rd Street | N | In-Process | Y (1%) |
| 7 | Lift Station S 9th Street | N | In-Process | Y (0.2%) |
| 8 | Lift Station Steinhart Park Swimming Pool | N | N | N |
| 9 | Lift Station Terra Oaks | N | N | Y (1%) |
| 10 | Lift Station Timber Ridge Apartments | N | N | N |
| 11 | Lourdes Central Catholic High School | N | N | N |
| 12 | Natural Gas Border Station #3 | N | N | N |
| 13 | Natural Gas Border Station #4 | N | N | N |
| 14*** | Natural Gas Border Station Dunbar | N | N | N |
| 15** | Natural Gas Border Station Syracuse | N | N | N |
| 16***** | Natural Gas Tie in with NGPL | N | N | N |
| 17 | Nebraska Center for the Education of Children Who Are Blind or Visually Impaired | N | Y | N |
| 18 | Nebraska City Community Hospital & Medical Center | N | Y | N |
| 19 | Nebraska City High School | Y | N | N |
| 20 | Nebraska City Housing Authority | N | N | N |
| 21 | Nebraska City Public Middle School | Y | N | N |
| 22 | Police Station and Rowe Safety Complex | N | Y | N |
| 23 | Power Plant Site #1 | N | N | N |
| 24 | Power Plant Site #2 and Sub 905 | N | N | N |
| 25* | Power Plant Site #3 and Sub 902 | N | N | N |
| 26 | Sub 901 | N | N | N |
| 27 | Sub 903 | N | N | N |
| 28**** | Sub 904 | N | N | N |
| 29 | Sub 906-Magellan | N | N | N |
| 30 | Wastewater Treatment Plant | N | Y | N |
| 31 | Water 2nd Pressure Zone | N | Y | N |
| 32 | Water Tower | N | Y | N |
| 33 | Water Treatment Plant | N | Y | N |
| 34 | Well Fields | N | 1-7 (N) 8-11 (Y) | Y (1%) |

*Located on Hwy 50 Directly North of Syracuse
**Located on Hwy 2 East of Syracuse
***Located in Dunbar
****Located in Syracuse
*****Located Northwest of Otoe

**Figure NBC.4: Critical Facilities**



## Historical Occurrences

See the Otoe 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 (Transportation)

According to the Pipeline and Hazardous Materials Safety Administration, Nebraska City has experienced five recorded transportation spills. However, most were relatively small with the largest release being 20 liquid gallons. The rail lines and highways all regularly carry many types of chemicals. The Nebraska City Fire Department has limited training in spill response and outside resources have been used in the past to clean up spills.

### Flooding

The largest flooding risk to Nebraska City comes from South Table Creek, North Table Creek, and the Missouri River. There have been two major floods in the city in recent years, 2011 and 2019. The 2011 flood was slightly smaller with lower high-water marks, but significant damage still occurred. After the 2011 flood, wells number 8, 9, 10, and 11 were all raised up five feet so that they would be above the 100-year floodplain elevation as published in the Otoe County Flood Insurance Study (FIS).

In the spring of 2019, the city was severely impacted by the statewide flooding. From March 15 through July 23 the wastewater treatment plant was shut down. Four wellhouses (numbers 1 through 4) had standing water and were taken out of service. The access road to the well fields was flooded from March to November and could only be accessed via boat. Other than the access road, the only other road that was flooded was 1st Street. A few commercial facilities are located along this road, but they sustained minimal damages. Also, during this time, a railroad bridge over South Table Creek owned by Gavilon collapsed and has since been replaced. Considerable bank erosion occurred along South Table Creek and North Table Creek. The erosion exposed water and gas mains that would normally be buried. A few 69 kv transmission power poles were also affected by the erosion and have been replaced with new poles and were set in steel casing. Damage to residential structures in the community was primarily limited to water in basements due to seepage.

### Severe Thunderstorms

Past severe thunderstorms have damaged powerlines and trees due to high wind gusts. Underground powerlines are being added where possible and in new developments. The local planning team estimated that 20% of powerlines are buried in the community. In the event of power failure, the city backs up vital records on offsite tapes and on the cloud. The wastewater treatment plant, city hall, parks and recreation buildings, and the water treatment plant have all been damaged in the past five years due to hail events. Otoe County provides the Southeast Nebraska Emergency Notification System, citizens can opt-in to receive weather alert notification by voice, text, and email.

### Severe Winter Storms

The local planning team indicated that past large severe winter storm events occurred in 1991, 1993, 1998, 2008, and 2009. An ice storm in 1991 caused a prolonged power outage across the city. Most of the community was without power for 24 to 48 hours. A redundant power system can provide backup power to the community, as long as powerlines are still up. Snow removal is done by the city and is adequate for most snowstorms. If a large snowstorm were to occur, the city is also able to subcontract out snow removal if necessary.

### Tornadoes and High Winds

No major tornadoes have impacted the community; however, tornadoes have impacted rural areas near the city. In the event of a tornado or high wind event, Nebraska City does not have any safe rooms or community shelters. Residents must use local businesses or residences for shelter. The city has five tornado sirens that are 40+ years old and should be considered for replacement. Within the zoning code, as the city expands there is a requirement to add additional siren coverage. Currently the city has 11 sirens which are radio activated by the Otoe County Sheriff's Office, Otoe County Emergency Management, Nebraska City Fire/Rescue Department, or department radios.

## Governance

The City of Nebraska City 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
- Mayor
- City Administrator
- Construction and Facility Manager
- Building Inspector
- Attorney
- Police Department
- Fire Department
- Utility General Manager
- Operations Superintendent
- Economic Development
- Water & Sewage Plant Operators
- Engineer
- Nebraska City Utilities
- Dock Board
- Airport Authority
- Utilities Board
- Board of Health

## 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 NBC.5: Capability Assessment**

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

| Survey Components/Subcomponents | | Yes/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 | Yes |
| | Chief Building Official | Yes |
| | Civil Engineering | Yes |
| | Local Staff Who Can Assess Community's Vulnerability to Hazards | Yes |
| | 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 | 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. | Yes |
| | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | Yes |
| | Natural Disaster or Safety related school programs | Yes |
| | StormReady Certification | Yes |
| | Firewise Communities Certification | No |
| | Tree City USA | Yes |
| | Other (if any) | Yes – Tree Line USA, Tree City World |

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

## Plan Integration

Nebraska City's comprehensive plan was last updated in 2016. The plan contains goals aimed at safe growth, directs development away from the floodplain, directs development away from chemical storage facilities, limits density in known hazardous areas, encourages infill, allows clustering of development, and encourages elevation of structures located in the floodplain. The local planning team indicated that the hazard mitigation plan will be incorporated into future updates of the comprehensive plan. The zoning ordinance, floodplain regulations, and subdivision regulations were all updated in 2018 with reviews annually. These documents discourage development in the floodplain, identify floodplain areas as parks and open space, prohibit filling of wetlands, discourage development near chemical storage sites, limit development in the extraterritorial jurisdiction, limit density in the floodplain, include well setback requirements, restrict the subdivision of land within the floodplain, and allow for cluster subdivisions. Building codes for the city are based on the 2012 International Building Code. The 2019 Capital Improvements Plan contains many projects to help mitigate hazards. Projects include upsizing culverts and drainage structures, upgrading the storm sewer system, improving transportation routes for drainage, bridge improvements, new municipal wells, upsizing water distribution pipes, installing water meters, updating the electrical distribution system, burying power lines, installing emergency generators, and improving the water treatment facility. The city's wellhead protection plan was last updated in 2018. It includes plans for water conservation and has a drought plan in place. 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 | Alert/Warning Sirens |
|---|---|
| **Description** | Performed an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. There were four sirens in the community that need to be upgraded or replaced. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $105,000 |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | City Administrator, County Emergency Manager |
| **Status** | Ongoing, four new siren receivers were completed in 2019. The city will continue to upgrade remaining sirens are needed. |

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **Description** | Provide a portable or stationary source of backup power to redundant power supplies, lift stations, and other critical facilities and shelters. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms |
| **Estimated Cost** | $40,000 - $60,000 per generator |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | Utilities, City Administrator |
| **Status** | Ongoing. Two lift stations are currently in the process of getting backup generators. |

| 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. Location will typically be along South Table Creek and North Table Creek. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | Utilities, City Administrator |
| **Status** | Ongoing. Once issues are identified the city works to correct them. |

| Mitigation Action | Channel and Bridge Improvements |
|---|---|
| **Description** | Implement channel and bridge improvements to increase channel conveyance and decrease the base flood elevations. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | City Council |
| **Status** | Not Started, New Action. |

| 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 stormwater evaluation, identifying multiple problem areas, and potentially multiple drainage improvements for each. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $10,000 - $100,000+ |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | City Council |
| **Status** | Not Started. |

| Mitigation Action | Elevate Wells |
|---|---|
| **Description** | Elevate water wells above known high water marks from the 2019 flood event. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $35,000 - $40,00 per well |
| **Funding** | General Budget |
| **Timeline** | 1-2 years |
| **Priority** | High |
| **Lead Agency** | Utilities |
| **Status** | Not Started, New Action. |

| 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. Some properties were acquired after the 1993 flood. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | Ongoing. Some properties were acquired after the 1993 flood but more are needed. |

| 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** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | New Action. Not Started. |

| Mitigation Action | Flood Resiliency Plan |
|---|---|
| **Description** | Develop local flood risk for the wastewater treatment facility and develop facility-specific mitigation actions to reduce the impacts of future flooding. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $80,000 |
| **Funding** | General Budget |
| **Timeline** | 1-2 Years |
| **Priority** | High |
| **Lead Agency** | Utilities |
| **Status** | New Action. In Progress, currently awaiting funding from HMGP. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous trees and limbs. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Winter Storms, Severe Thunderstorms, Agricultural Disease |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | City Administrator, Utilities |
| **Status** | Ongoing. The city and utilities work together to identify and remove hazardous trees. |

| Mitigation Action | Power and Service Lines |
|---|---|
| **Description** | Communities can work with their local Public Power District or Electricity Department to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures to be less vulnerable to storm events. Electrical utilities shall be required to use underground construction methods where possible for future installation of power lines. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $70,000 - $175,00 per mile |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | Utilities |
| **Status** | Ongoing. On a yearly and five-year basis, a list is constructed for points to address. |

| Mitigation Action | Safe Rooms and Storm Shelters |
|---|---|
| **Description** | Design and construct storm shelters and safe rooms in highly vulnerable areas. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $4,000 - $10,000+ |
| **Funding** | General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | Not Started. |

| Mitigation Action | Stormwater System and Drainage Improvements |
|---|---|
| **Description** | Larger communities generally utilize underground stormwater systems comprising of pipes and inlets to convey runoff. Undersized systems can contribute to localized flooding. Stormwater system improvements may include pipe upsizing and additional inlets. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $100,000 |
| **Funding** | General Budget |
| **Timeline** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | City Administrator |
| **Status** | Ongoing. Updates are made as issues are identified and funding is available. |

## Removed Mitigation Actions

| Mitigation Action | Maintain Good Standing with 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. |

| Mitigation Action | Public Awareness |
|---|---|
| **Hazard(s) Addressed** | All Hazards |
| **Reason for Removal** | Multiple groups in the community and county better handle this mitigation action. |

| Mitigation Action | Warning System |
|---|---|
| **Hazard(s) Addressed** | All Hazards |
| **Reason for Removal** | This action is better handled by Otoe County Emergency Management. |

# Community Profile

# Village of Otoe

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

**2020**

## Local Planning Team

**Table OTO.1: Village of Otoe Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| John Groathouse | Board Member | Village of Otoe |
| Ralph Edwards | Board Chairperson | Village of Otoe |

## Location and Geography

The Village of Otoe is in southern Otoe County and covers an area of 0.16 square miles south of the North Fork Little Nemaha River.

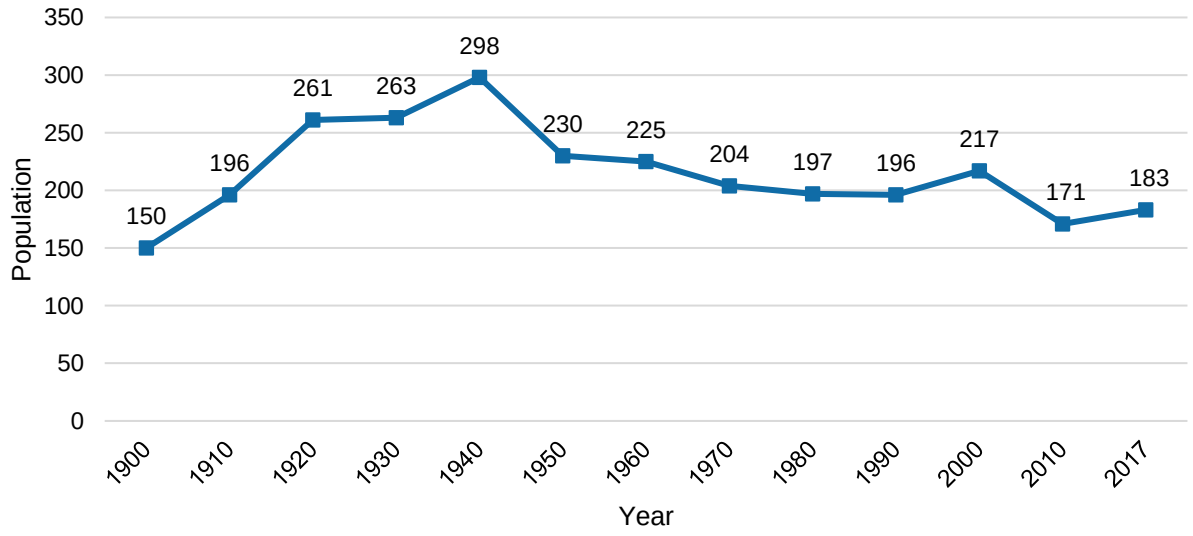
## Transportation

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. Otoe's major transportation corridor is the spur of State Highway 66C. It is traveled by an average of 425 vehicles daily, 40 of which are trucks.[41] The village does not have a railway line traveling through the community. The local planning team identified State Highway 66C and 36 Road as the major transportation routes of most concern. Occasionally, agricultural chemicals like herbicides and fertilizer are transported along these routes.

## Demographics

The Village of Otoe's population has increased since 2010 to 183 people in 2017. An increasing population means a growing tax base, which may make funding mitigation projects easier. Otoe's population accounted for 1.15% of Otoe County's population in 2017.[42]

**Figure OTO.1: Population**

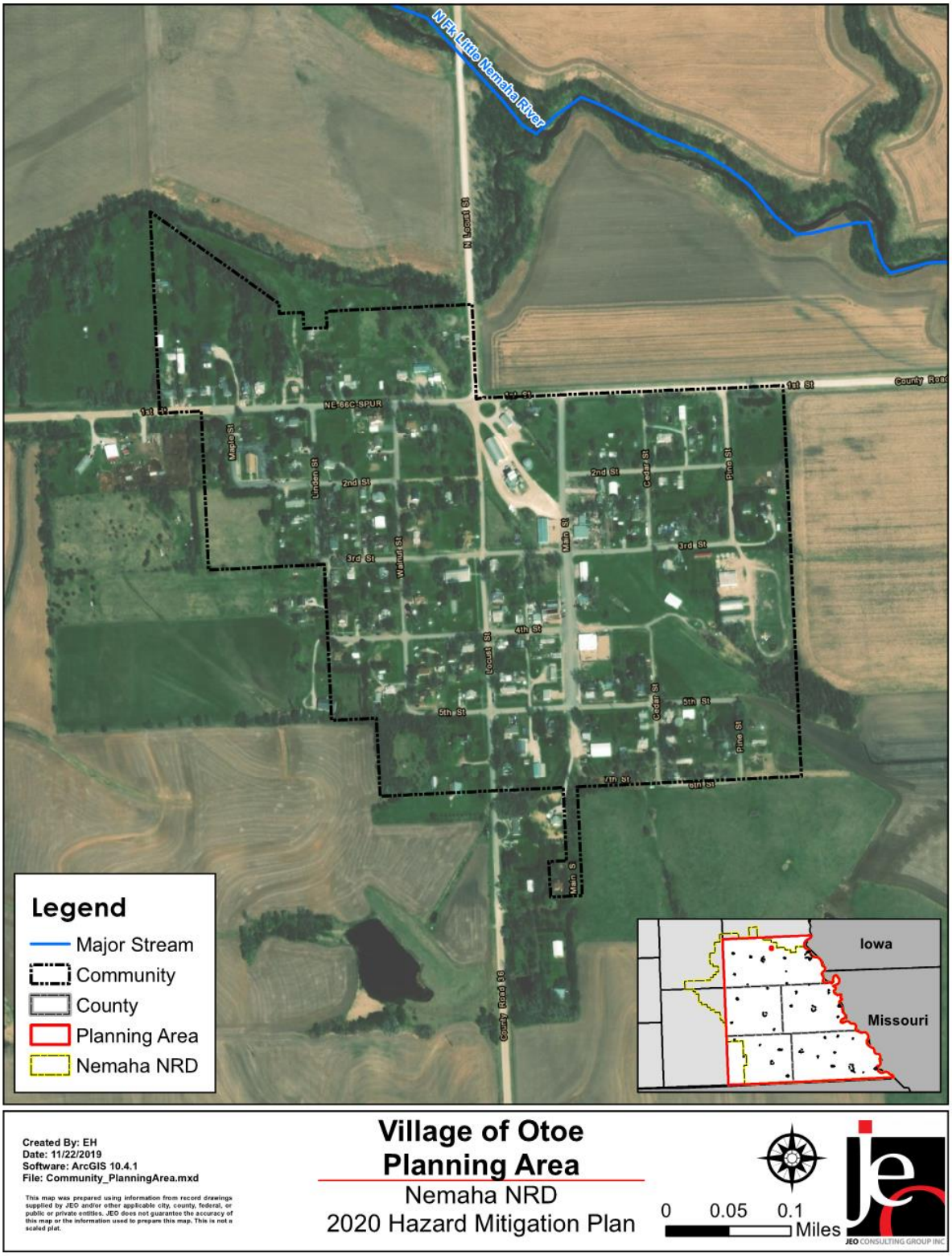



*Source: U.S. Census Bureau, 1900 – 2017*

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

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

**Figure OTO.2: Village of Otoe**



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

- **Younger.** The median age of Otoe was 32 years old in 2017, compared with Otoe County's median of 41.7 years. Otoe's population grew older since 2010, when the median age was 30.6 years old.[42]
- **Less ethnically diverse**. Since 2010, Otoe grew more ethnically diverse. In 2010, 2.7% of Otoe's population was Hispanic or Latino. By 2017, about 3.3% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[42]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Otoe (13.7% of people living below the federal poverty line) was higher than the county's poverty rate (10%) in 2017.[43]

## Employment and Economics

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

- **Similar mix of industries.** Otoe's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, retail trade, and education.[43]
- **Lower per capita income.** Otoe's per capita income in 2017 ($20,877) was about $7,700 lower than the county ($28,567).[43]
- **More long-distance commuters.** About 25.6% of workers in Otoe commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 65.9% of workers in Otoe commuted 30 minutes or more to work, compared to about 34.1% of county workers.[44]

### Major Employers

The local planning team indicated that there are no major employers in the community. A large percentage of residents commute to Nebraska City, Lincoln, Omaha, and Syracuse for employment.

## Housing

In comparison to Otoe County, the Village of Otoe's housing stock was:[45]

- **Older.** Otoe had a larger share of housing built prior to 1970 than the county (83.9% compared to 55.8%).
- **More mobile and manufactured housing.** The Village of Otoe had a larger share of mobile and manufactured housing (5.7%) compared to the county (2.6%).
- **Less renter-occupied**. About 25.7% of occupied housing units in Otoe were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Less occupied.** Approximately 30.2% of Otoe's housing units were vacant compared to 9.8% of units in Otoe County.

43 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
44 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
45 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 Otoe has one mobile home located at 6th Street and Cedar Street. 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 in the past five years four houses have been remodeled and one new house has been moved into the community. According to the U.S. Census Bureau American Community Survey estimates, Otoe's population has increased. This general increase can be attributed to the development of housing in the community. Municipal funds are limited to maintaining current facilities and systems but have slightly increased over recent years. No new businesses or industries 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 OTO.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 |
|---|---|---|---|---|
| 95 | $ 2,130,480 | 17 | 17.9% | $ 349,420 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[46]

46 GIS Workshop/Otoe 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 Otoe.

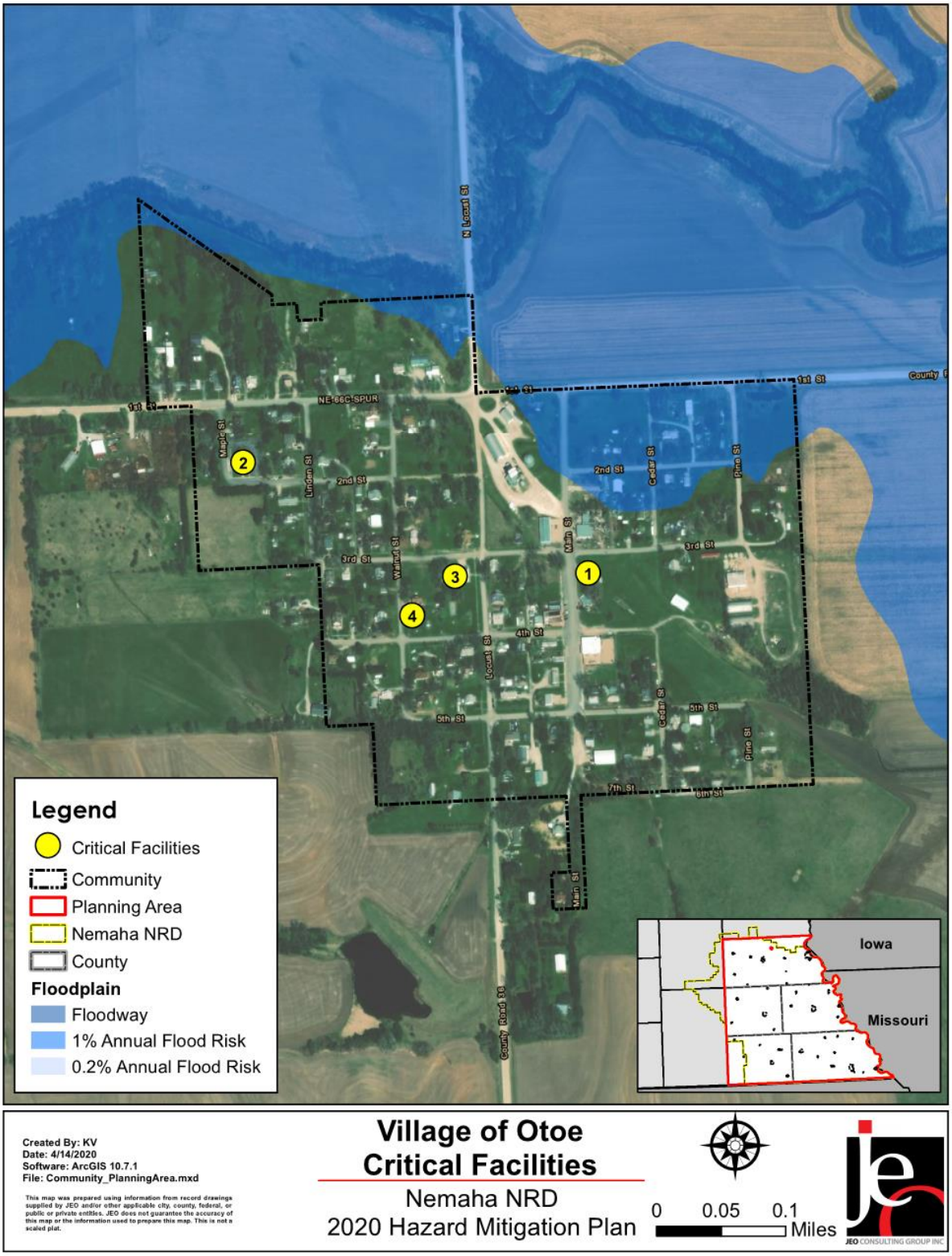
### Critical Facilities

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

**Table OTO.3: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Fire Department | N | Y | N |
| 2 | Lutheran Church | N | N | N |
| 3 | Community Center | N | N | N |
| 4 | Water Tower | N | N | N |

**Figure OTO.3: Critical Facilities**



## Historical Occurrences

See the Otoe 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 (Transportation)

Agricultural chemicals are regularly transported along local transportation corridors and are a concern for the local planning team. State Highway 66C and 36 Road are the main routes of concern for possible chemical spills. Hazardous chemicals such as herbicides and fertilizer are regularly transported in the area. The local planning team indicated that no critical facilities are located along the transportation corridors of concern.

### Dam Failure

While there have been no dam failure incidents in the past, Otoe would be heavily impacted if the high hazard dam southwest of the village were to fail. The dam was built in 1964 with the purpose of flood control and storm water management. It is currently owned and maintained by the Nemaha Natural Resources District. The dam has an emergency action plan in place. The figure below shows the location of the high hazard Wilson Creek 2-N dam.

### Flooding

Although the Village of Otoe hasn't experienced any major impacts from flooding in the past, it remains a top concern for the local planning team. The North Fork Little Nemaha River runs along the east and north sides of the village. Residents in those areas may be at a higher risk for flooding. The local planning team also indicated that the entire community suffers from poor stormwater drainage.

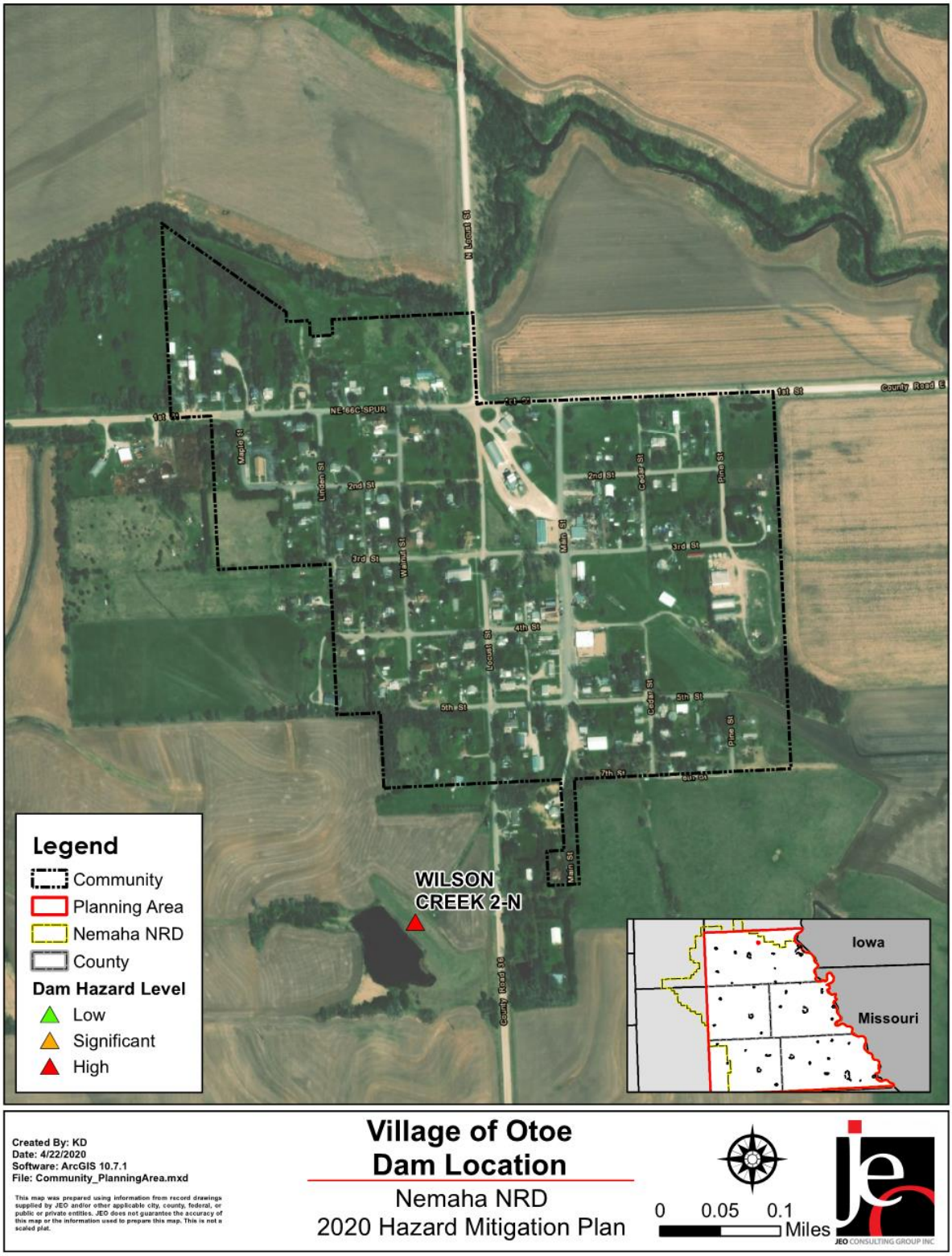
### Severe Winter Storms

Otoe experiences severe winter storms every year. No critical facilities have been damaged by severe winter storms in past years, but the possibility of restricted travel remains a concern for the local planning team. Approximately 40% of the village's power lines are buried, making the rest susceptible to damage from severe winter storms. Snow removal in the community is done by a private contractor with a snowplow and blade. Snow plowing during winter storms is the main mitigation technique used by the community to keep travel unrestricted.

### Tornadoes and High Winds

Tornadoes are a hazard of top concern due to their potential to cause catastrophic damage and the threat to lives and safety of residents. The local planning team indicated that a tornado occurred in 1913 that damaged critical facilities in the community. In April 2017, a tornado was observed in Otoe County near the village. The tornado was slow-moving and caused no damage. In the event of a tornado, there is not a warning siren in the village. There are no designated safe rooms in the community, so residents must rely on their own homes for shelter. Otoe County provides the Southeast Nebraska Emergency Notification System, citizens can opt-in to receive weather alert notifications by voice, text, and email.

**Figure OTO.4: Dam Location**



## Governance

The Village of Otoe 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
- Sewer Commissioner
- Street Commissioner
- Water Commissioner
- Parks & Recreation

## 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 OTO.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 | No |
| | Subdivision Regulation/Ordinance | No |
| | Floodplain Ordinance | No |
| | Building Codes | No |
| | National Flood Insurance Program | Yes |
| | Community Rating System | No |
| | Other (if any) | - |
| Administrative & Technical Capability | Planning Commission | No |
| | Floodplain Administration | Yes |
| | GIS Capabilities | No |
| | Chief Building Official | No |
| | Civil Engineering | No |
| | Local Staff Who Can Assess Community's Vulnerability to Hazards | Yes |
| | Grant Manager | Yes |
| | Mutual Aid Agreement | No |
| | Other (if any) | - |
| Fiscal Capability | Applied for grants in the past | Yes |
| | Awarded a grant in the past | Yes |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Authority to Levy Taxes for Specific Purposes such as Mitigation Projects | Yes |
| | Gas/Electric Service Fees | No |
| | Storm Water Service Fees | No |
| | Water/Sewer Service Fees | Yes |
| | Development Impact Fees | No |
| | General Obligation Revenue or Special Tax Bonds | Yes |
| | Other (if any) | - |
| Education & 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 | Yes |
| | 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 |
| Time to devote to hazard mitigation | Moderate |

## Plan Integration

Otoe's comprehensive plan contains goals aimed at safe growth, directs development away from the floodplain, encourages infill development, encourages the elevation of structures in the floodplain, identifies areas that need emergency shelters, and encourages clustering of development. The floodplain ordinance prohibits development in the floodplain, identifies floodplain areas as parks or open space, and prohibits the filling of wetlands. The village is also an annex to in the 2018 Otoe 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. 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 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. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies by size |
| **Funding** | USDA Grant, General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Water and Wastewater |
| **Status** | New Action. 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. Replace eight fire hydrants located throughout the village. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $2,200 per hydrant |
| **Funding** | USDA Grant, General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Water and Wastewater |
| **Status** | New Action. Not Started. |

| Mitigation Action | Infrastructure Hardening |
|---|---|
| **Description** | Upgrade water and sewer lines throughout the community. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $1,800,000 |
| **Funding** | USDA Grant, General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Water and Wastewater |
| **Status** | New Action. Not Started. |

| Mitigation Action | Lagoon Improvements |
|---|---|
| **Description** | Add a new cell to the existing lagoon to treat additional wastewater. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $675,000 |
| **Funding** | USDA Grant, General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Water and Wastewater |
| **Status** | New Action. Not Started. |

| Mitigation Action | Lift Station Pump Replacement |
|---|---|
| **Description** | Replace the existing pump for the lift station. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $68,000 |
| **Funding** | USDA Grant, General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Water and Wastewater |
| **Status** | New Action. Not Started. |

# Community Profile

# Village of Palmyra

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

**2020**

## Local Planning Team

**Table PLR.1: Village of Palmyra Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Bill Thomas | Board Member | Village of Palmyra |

## Location and Geography

The Village of Palmyra is in northwestern Otoe County and covers an area of 0.34 square miles directly north of the Little Nemaha River.

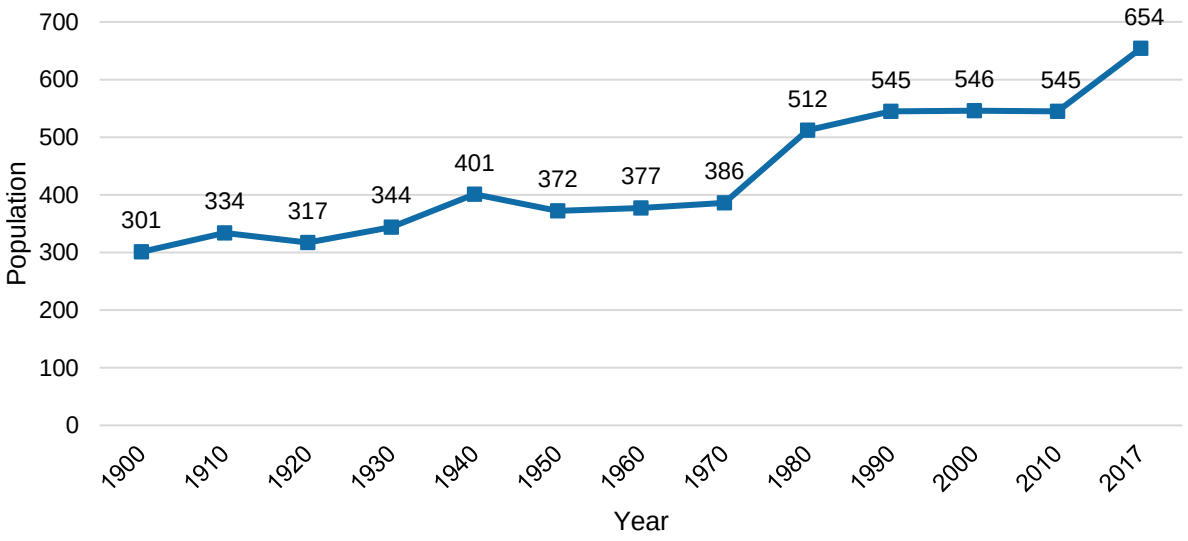
## Transportation

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. Palmyra's major transportation corridors are State Highway 43, State Highway 2, and the spur of State Highway 66A. Highway 43 has an average of 1,030 vehicles a day, Highway 2 has an average of 11,830 vehicles a day, and Highway 66A has an average of 1,285 vehicles a day.[47] The village has one nonoperating rail line traveling along the southeastern border of the community. The transportation route of most concern is Highway 2 as radiological materials are regularly transported along it. Highway Spur 66A has been closed in the past due to flooding at the Nemaha River.

## Demographics

The Village of Palmyra's population has increased since 2010 and was at 654 people in 2017. An increasing population means a growing tax base, which may make funding mitigation projects easier. Palmyra's population accounted for 4.12% of Otoe County's population in 2017.[48]

**Figure PLR.1: Population**

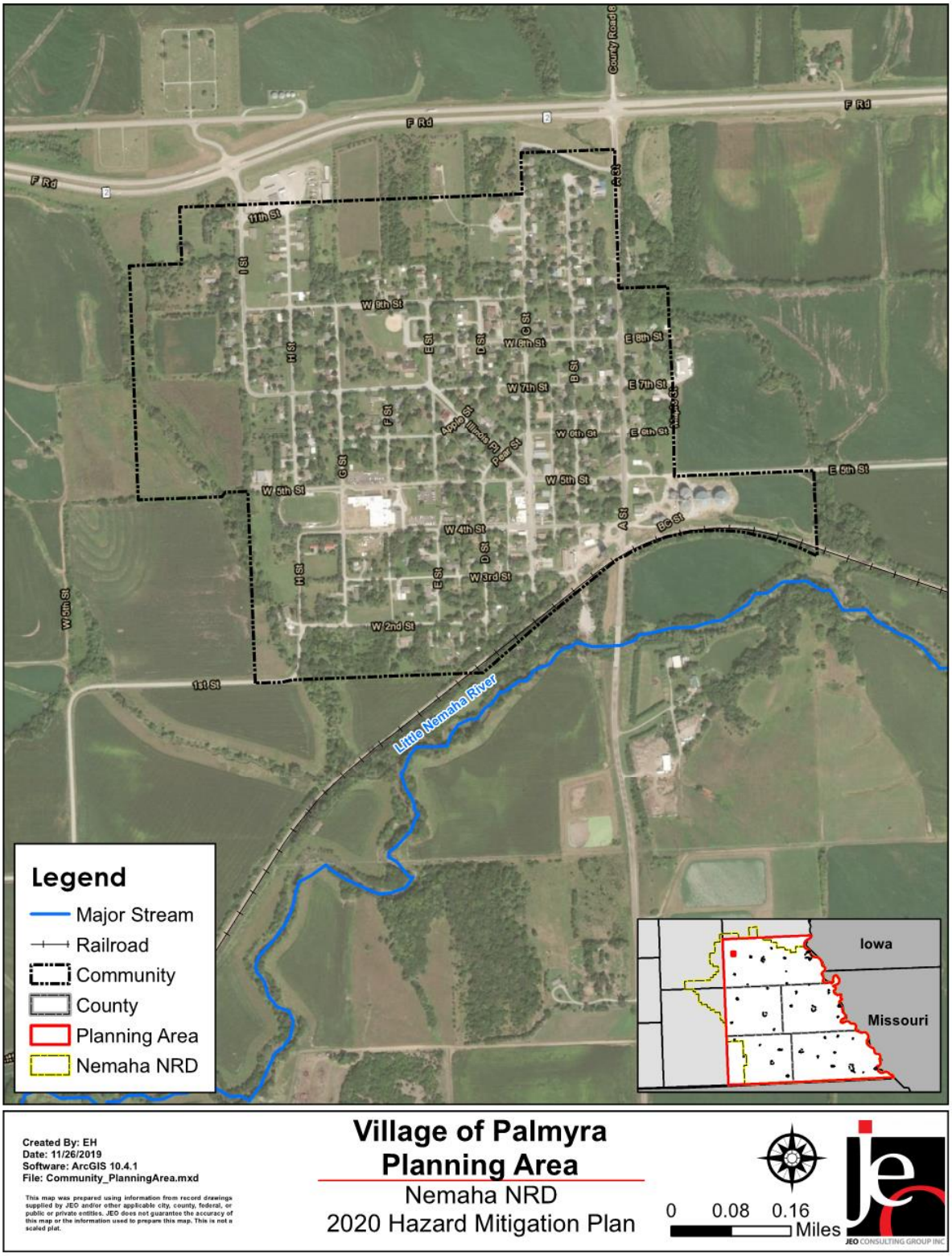



*Source: U.S. Census Bureau, 1880 – 2017*

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

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

**Figure PLR.2: Village of Palmyra**



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

- **Younger.** The median age of Palmyra was 37.5 years old in 2017, compared with Otoe County's median of 41.7 years. Palmyra's population grew older since 2010, when the median age was 34.1 years old.[48]
- **Less ethnically diverse**. Since 2010, Palmyra became less ethnically diverse. In 2010, 1.7% of Palmyra's population was Hispanic or Latino. By 2017, about 0% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[48]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Palmyra (8.3% of people living below the federal poverty line) was lower than the county's poverty rate (10%) in 2017.[49]

## Employment and Economics

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

- **Different mix of industries.** Palmyra's major employment sectors, accounting for 10% or more of employment each, were: retail trade, finance, education, and public administration.[49]
- **Lower per capita income.** Palmyra's per capita income in 2017 ($25,924) was about $2,600 lower than the county ($28,567).[49]
- **More long-distance commuters.** About 8.2% of workers in Palmyra commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 60.3% of workers in Palmyra commuted 30 minutes or more to work, compared to about 34.1% of county workers.[50]

### Major Employers

Major employers in Palmyra include Casey's Gas Station, Palmyra Pub, and the Co-op. The local planning team indicated that a large percentage of residents commute to Lincoln for employment.

## Housing

In comparison to Otoe County, the Village of Palmyra's housing stock was:[51]

- **Newer.** Palmyra had a smaller share of housing built prior to 1970 than the county (50.4% compared to 55.8%).
- **More mobile and manufactured housing.** The Village of Palmyra had a larger share of mobile and manufactured housing (4%) compared to the county (2.6%).
- **Less renter-occupied**. About 19.4% of occupied housing units in Palmyra were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **More occupied.** Approximately 7.7% of Palmyra's housing units were vacant compared to 9.8% of units in Otoe County.

49 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
50 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
51 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 last five years, Palmyra has had an increase in new housing and old houses have been demolished. According to the American Community Survey estimates, Palmyra's population is generally increasing. The local planning team attribute the growth to the school and cleaning up the community. Municipal funds are limited to maintain current facilities and system but have generally increased at the rate of inflation. In the next five years, a housing development is planned on the south end of the village. A second bar or pizza parlor is anticipated as well.

## 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 PLR.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 |
|---|---|---|---|---|
| 268 | $ 23,278,960 | 24 | 8.95% | $ 4,389,870 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[52]

52 GIS Workshop/Otoe 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 three chemical storage sites in Palmyra. The table below lists the name and location of the sites and whether they are in the floodplain.

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

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Midwest Farmers Cooperative | 68418-0008, Palmyra | N |
| NDOT Palmyra Yard | 510 F Road | N |
| Highway 2 Ready Mix | 488 F Road | N |

*Source: Nebraska Department of Environment and Energy*[53]

## Critical Facilities

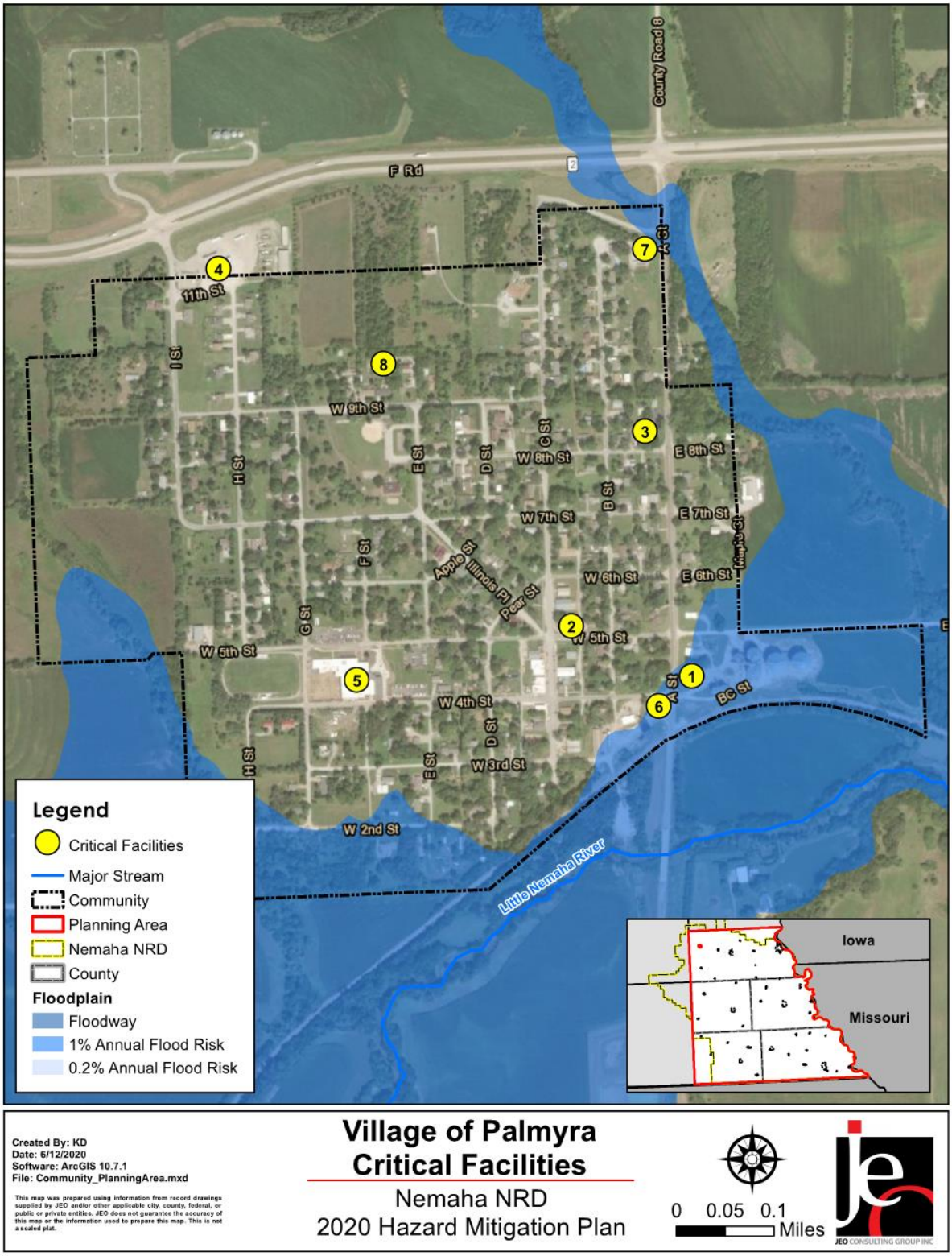
Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the Village of Palmyra's disaster response and continuity of operations. The following table and figure provide a summary of the critical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

**Table PLR.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Co-Op | N | N | Y |
| 2 | Fire and Rescue | N | N | N |
| 3 | Gas Station | N | N | N |
| 4 | Gas Station | N | N | N |
| 5 | Jr. – Sr. High School | Y | N | N |
| 6 | Lift Station 1 | N | Y | Y |
| 7 | Lift Station 2 | N | N | N |
| 8 | Water Tower | N | N | N |

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

**Figure PLR.3: Critical Facilities**



## Historical Occurrences

See the Otoe 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 Little Nemaha River flows along the southeast border of the community and has flooded in the past. Past flood events typically result in roadway damage with some residential basements flooded. There is also a water way that starts on the north end of the village by the main highway that flows through the community to the Little Nemaha River. This water way has poor drainage is some areas, which have caused issues in the past. A project in 2018 helped improve the flow along the water way across two blocks in the community. Critical facilities have not been damaged from past events.

### Severe Thunderstorms

In 2007 a hailstorm damaged almost every structure in the community. Most critical facilities were damaged in the event, but all community-owned buildings are insured against hail damage. The local planning team estimates that less than 10% of power lines are buried in the community, leaving them more susceptible to power outages from downed poles and tree limbs. Hazardous trees are located in the park and the village is in the process of trimming or removing them. Surge protectors are used on important electronic devices and municipal records are backed up. Otoe County provides the Southeast Nebraska Emergency Notification system, citizens can opt-in to receive weather alert notifications by voice, text, and email.

### Severe Winter Storms

Deep snow and ice causing power outages and hazardous road conditions are the most common impacts from severe winter storms. Critical facilities have not been damaged from past events. The village has also taken in stranded travelers when Highway 2 closes due to snow. If needed the school can be used as a community shelter location. Snow removal is done by the town maintenance person using a truck with a plow, front loader, and road grader.

### Tornadoes and High Winds

Palmyra has experienced three tornado events; however, all were located in rural areas outside the village and did not cause damage within the community. The EF1 Hallam tornado in 2004 stopped one mile short of the village and caused $20,000,000 in damages. The village has three warning sirens which are radio activated by the Otoe County Sheriff's Office, Otoe County Emergency Management, the Nebraska City Fire/Rescue Department, or department radios. Storm spotting is also done by the local fire department. There are no safe rooms in the community, but the village is discussing adding one to the basement of the new library. Currently, individuals seeking safe shelter must use their own homes or a neighbor's. In the event of a disaster, mutual aid agreements are in place with surrounding communities.

## Governance

The Village of Palmyra 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 and Rescue
- Water Commissioner
- Sewer Commissioner
- Street Commissioner
- Building, Grounds & Finance Superintendent
- Parks Commissioner
- 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 PLR.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 | 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 | No |
| | Floodplain Administration | Yes |
| | GIS Capabilities | No |
| | Chief Building Official | No |
| | Civil Engineering | No |
| | Local Staff Who Can Assess Community's Vulnerability to Hazards | Yes |
| | Grant Manager | No |
| | Mutual Aid Agreement | Yes |

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

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

## Plan Integration

Palmyra has a comprehensive plan, zoning ordinance, building codes, and subdivision regulations. However, due to the age of the planning documents they have not been integrated with the hazard mitigation plan and do not discuss hazards or hazard mitigation. The village does have floodplain regulations, which outline construction standards for new buildings located in the floodplain. Palmyra is also an annex in the 2018 Otoe 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, public health, 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

## Continued and New Mitigation Actions

| Mitigation Action | Civil Service Improvements |
|---|---|
| **Description** | Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This can include fire trucks, ATVs, water tanks/trucks, snow removal equipment, etc. This would also include developing backup systems for emergency vehicles and identifying and training additional personnel for emergency response. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board, Palmyra Fire and Rescue |
| **Status** | Planning Stage. The village is currently working with the rural fire district on additional funding. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous trees and limbs in the park. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | Varies |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Parks Commissioners |
| **Status** | In Progress. Some trees in the park have been trimmed. |

| 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** | Bonds, General Budget |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Library Board |
| **Status** | Planning Stage. Looking at having a safe room in the basement of the new library. |

| Mitigation Action | Stormwater System and Drainage Improvements |
|---|---|
| **Description** | Larger communities generally utilize underground stormwater systems comprising of pipes and inlets to convey runoff. Undersized systems can contribute to localized flooding. Stormwater system improvements may include pipe upsizing and additional inlets. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $10,000 - $100,000+ |
| **Funding** | General Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | Maintenance Department |
| **Status** | Not Started. |

## Removed Mitigation Actions

| Mitigation Action | Maintain Good Standing In 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

# City of Syracuse

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

**2020**

## Local Planning Team

**Table SRC.1: City of Syracuse Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Deb Dettmer | City Council | City of Syracuse |
| Bruce Neemann | Fire Chief/Floodplain Administrator | City of Syracuse |
| Jeff Vogt | Superintendent of Public Works | City of Syracuse |
| Jessica Meyer | City Administrator | City of Syracuse |

## Location and Geography

The City of Syracuse is in central Otoe County and covers an area of 1.3 square miles directly northeast of the Little Nemaha River.

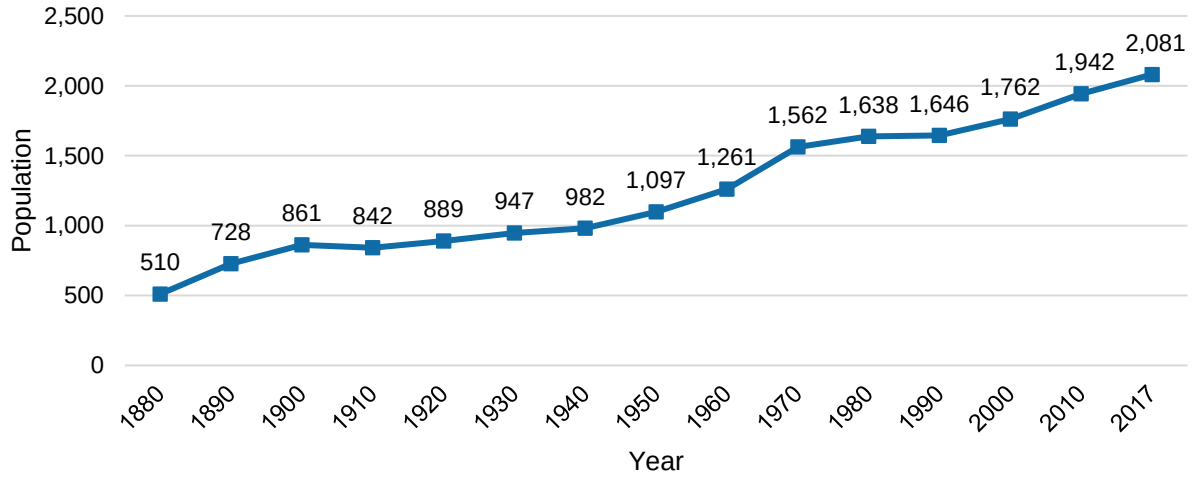
## Transportation

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. Syracuse's major transportation corridors are State Highway 2 and State Highway 50. Highway 2 averages 10,130 vehicles a day and Highway 50 averages 5,145 vehicles a day.[54] The city has one non-operating rail line on the southern edge. Transportation routes of most concern are the snow routes and Highways 2 and 50 due to truck traffic. During heavy rains, any street south of the railroad tracks can become closed due to flooding. This has the possibility of impacting evacuation.

## Demographics

The City of Syracuse's population has been increasing since 1910 and was at 2,081 people in 2017. An increasing population means a growing tax base, which may make funding mitigation projects easier. Syracuse's population accounted for 13.1% of Otoe County's population in 2017.[55]

**Figure SRC.1: Population**

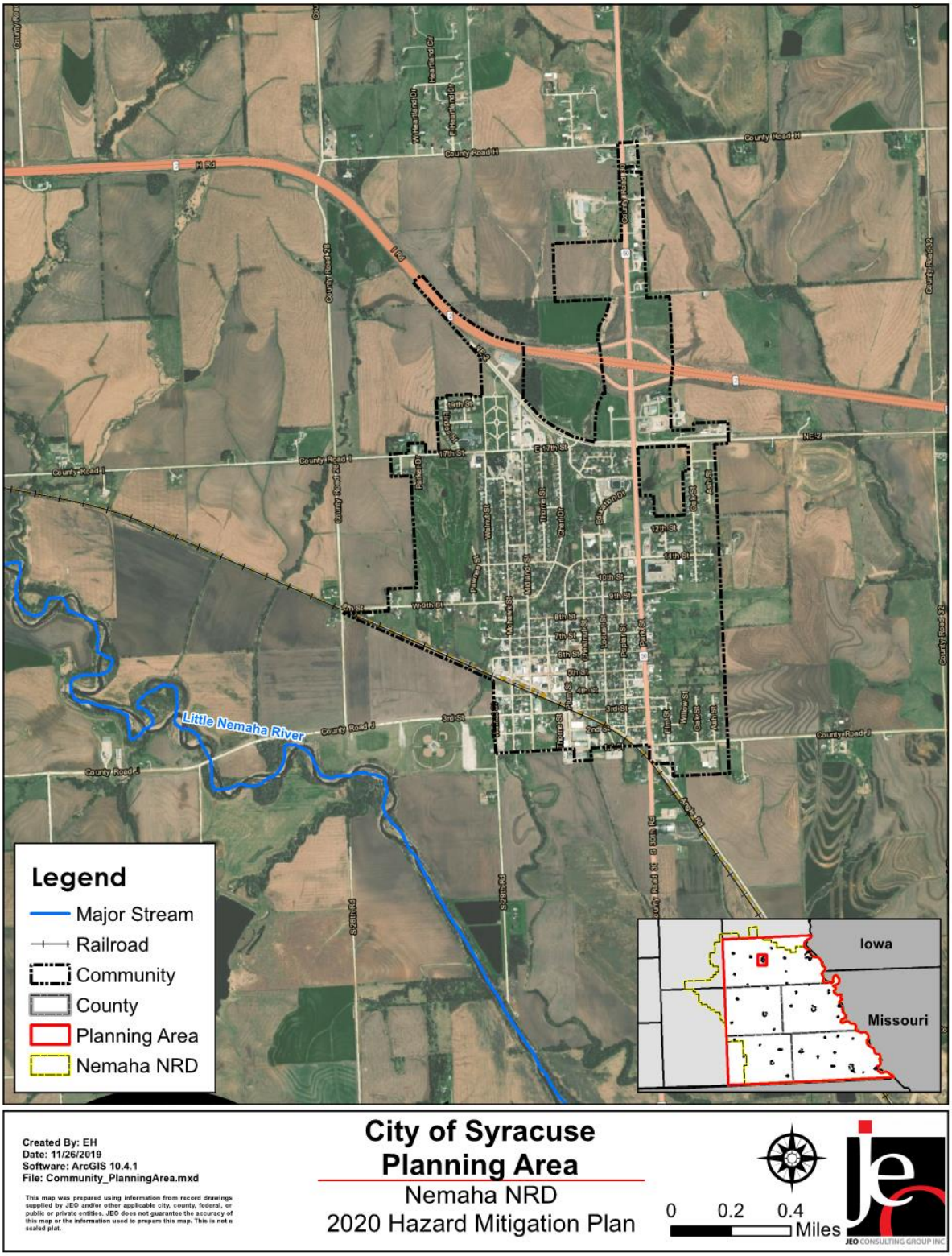



*Source: U.S. Census Bureau, 1880 – 2017*

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

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

**Figure SRC.2: City of Syracuse**



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

- **Older.** The median age of Syracuse was 44.4 years old in 2017, compared with Otoe County's median of 41.7 years. Syracuse's population grew older since 2010, when the median age was 46.7years old.[55]
- **Less ethnically diverse**. Since 2010, Syracuse stayed as ethnically diverse. In 2010 and 2017, 0.4% of Syracuse's population was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[55]
- **Less likely to be below the federal poverty line.** The poverty rate in the City of Syracuse (8% of people living below the federal poverty line) was less than the county's poverty rate (10%) in 2017.[56]

## Employment and Economics

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

- **Similar mix of industries.** Syracuse's major employment sectors, accounting for 10% or more of employment each, were: manufacturing, retail trade, and education.[56]
- **Similar per capita income.** Syracuse's per capita income in 2017 ($28,268) was about $300 lower than the county ($28,567).[56]
- **Slightly more long-distance commuters.** About 38.7% of workers in Syracuse commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 35.6% of workers in Syracuse commuted 30 minutes or more to work, compared to about 34.1% of county workers.[57]

### Major Employers

Syracuse's major employers include the hospital, school district, OPPD, Good Samaritan, and the three implement dealers. A large percentage of residents commute to Lincoln, Omaha, Tecumseh, and Nebraska City for employment.

## Housing

In comparison to Otoe County, the City of Syracuse's housing stock was:[58]

- **Equally aged.** Syracuse had a similar share of housing built prior to 1970 than the county (55.7% compared to 55.8%).
- **Less mobile and manufactured housing.** The City of Syracuse had a smaller share of mobile and manufactured housing (0%) compared to the county (2.6%).
- **More renter-occupied**. About 32.3% of occupied housing units in Syracuse were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **More occupied.** Approximately 7.4% of Syracuse's housing units were vacant compared to 9.8% of units in Otoe County.

56 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
57 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
58 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. Mobile homes are located in the southwest corner of the community. 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 new hospital, Love's Truck Stop, Mainstreet Bank, and U Save Pharmacy were all built. In addition, new homes were built across the community. According to the most recent American Community Survey estimates, Syracuse's population is generally increasing. The local planning team attributed the growth to Highway 2 improvements and the city being located close to Lincoln and Omaha. Municipal funds are sufficient to pursue new projects that are added every year. Currently funds are used to maintain facilities with no large new projects identified. Funds have stayed fairly consistent over the past few years. In the next five years, new housing is planned in the northeast corner of the community, which is located outside the floodplain. A new Tri Valley Bank building and tap room are also 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.

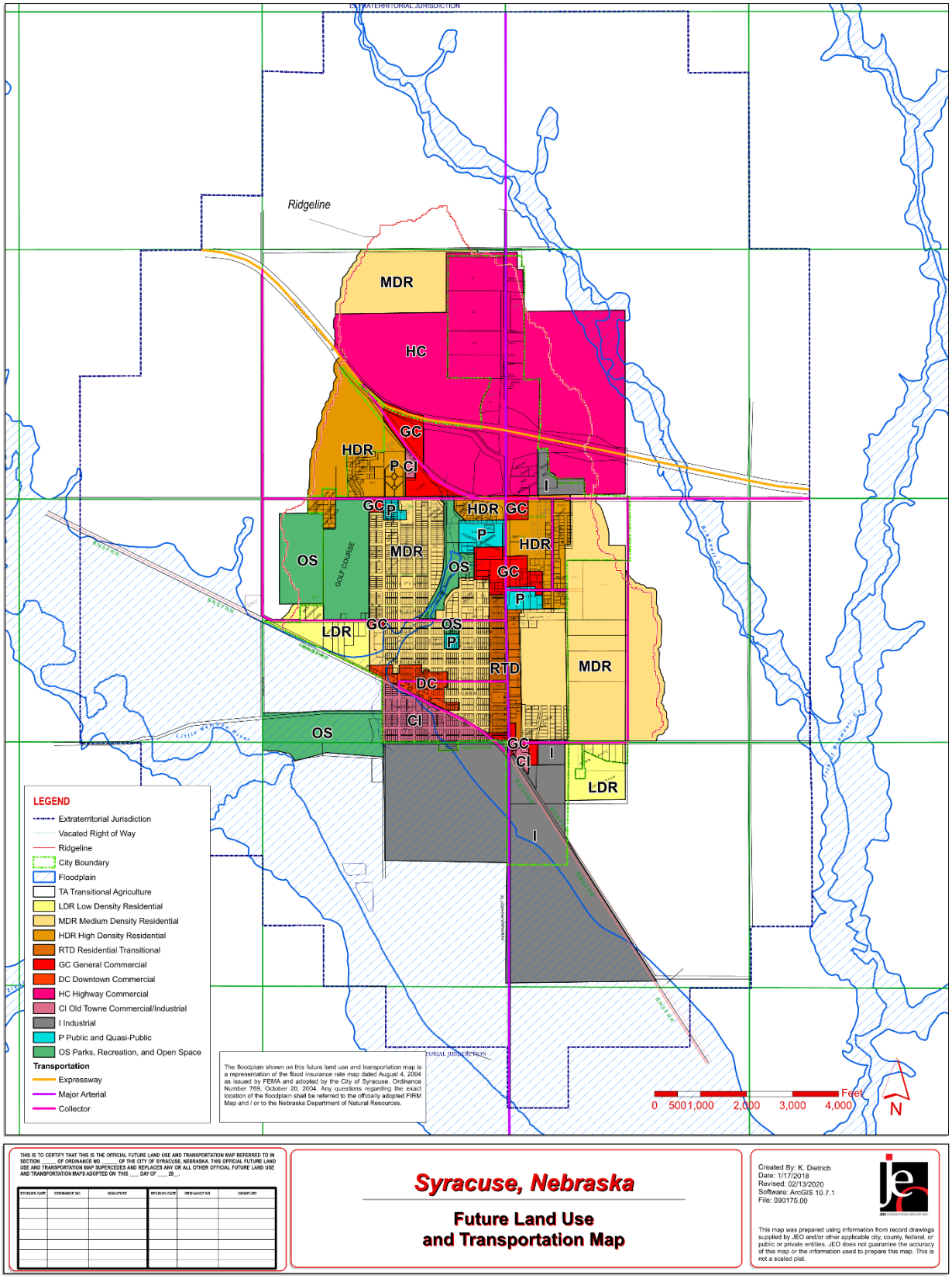
**Table SRC.2: Parcel Improvements and Value in the Floodplain**

| Number of Improvements | Total Improvement Value | Number of Improvements in Floodplain | Percentage of Improvements in Floodplain | Value of Improvements in Floodplain |
|---|---|---|---|---|
| 907 | $ 92,554,050 | 58 | 6.39% | $ 3,600,830 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[59]

59 GIS Workshop/Otoe County Assessor. 2019. [Personal correspondence].

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



# 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 four chemical storage sites in Syracuse. The table below lists the name and location of the sites and whether they are in the floodplain.

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

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Frontier Farmers Cooperative | 501 1st Street | Y |
| OPPD Syracuse Service Center | 935 11th Street | N |
| OPPD Substation No. 970 | 783 1st Street | N |
| Frontier Farmers Cooperative | 3176 K Road | Y |

*Source: Nebraska Department of Environment and Energy*[60]

## Critical Facilities

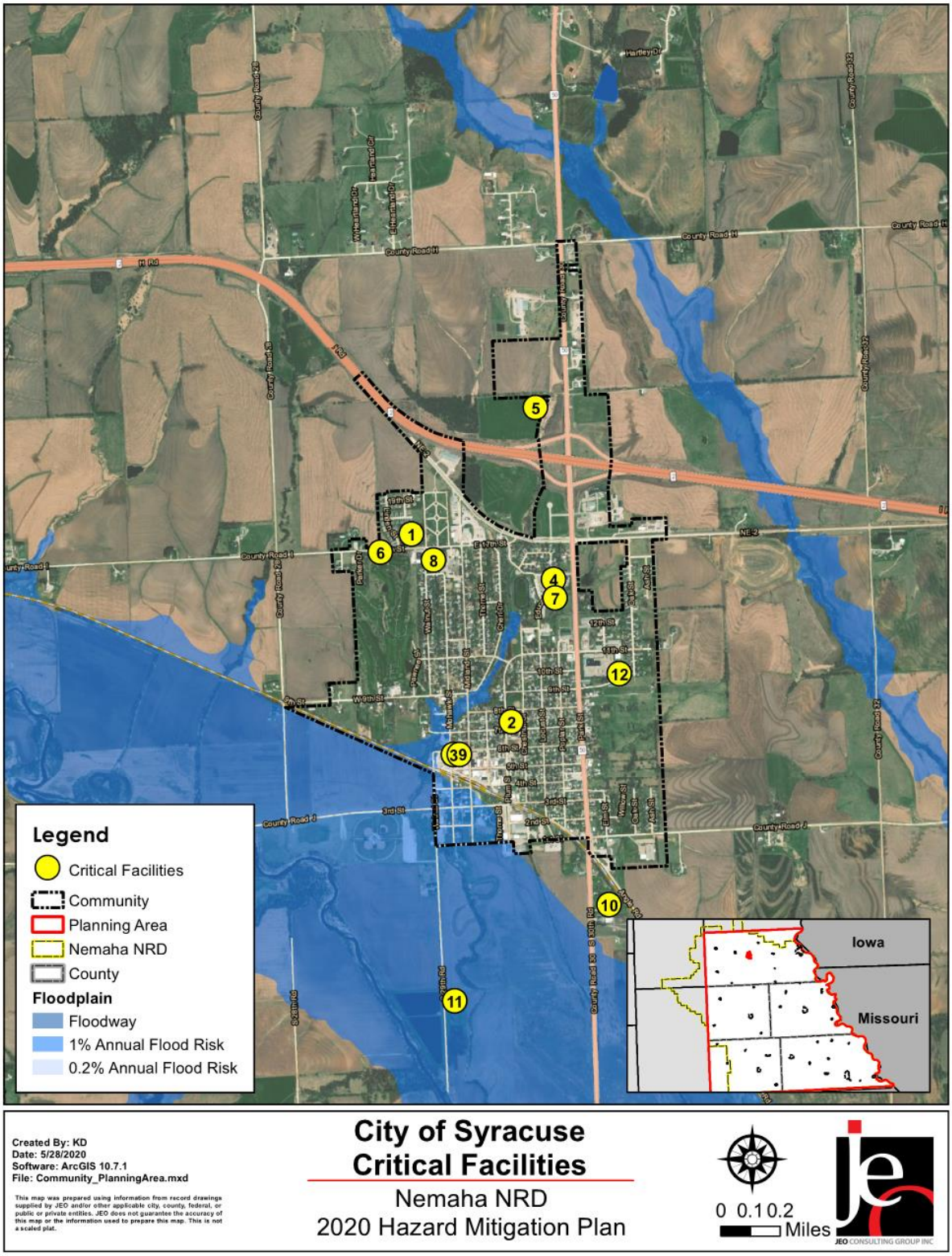
Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the City of Syracuse's disaster response and continuity of operations. The following table and figure provide a summary of the critical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

**Table SRC.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Assisted Living | N | Y | N |
| 2 | Elementary School | Y | N | N |
| 3 | Fire Barn | N | N | N |
| 4 | High School | Y | N | N |
| 5 | Hospital | N | Y | N |
| 6 | Lift Station | N | N | N |
| 7 | Middle School | N | N | N |
| 8 | Nursing Home | N | Y | N |
| 9 | Rescue Barn | N | N | N |
| 10 | Utilities Center | N | Y | N |
| 11 | Wastewater Treatment Plant | N | Y | Y |
| 12 | Water Tower | N | N | N |

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

**Figure SRC.4: Critical Facilities**



## Historical Occurrences

See the Otoe 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

On average, flooding occurs in the city once every five years. Past impacts include street closings and wastewater plant issues. Flash flooding is a larger concern for the city than riverine flooding. A small creek running through the community is the water body most likely to flood. The southwest corner of town is also prone to flooding due to poor stormwater drainage and is located in the 100-year floodplain.

### Severe Thunderstorms

The last damaging severe thunderstorm event occurred in September 2014. High winds and rain caused power loss across the city, downed trees, downed power lines, and blocked streets due to tree limbs. Critical facilities have not been damaged in past events. The local planning team estimated that approximately 30% of power lines are buried. This leaves many locations at high risk of power loss from fallen poles and trees. Hazardous trees are typically not an issue as the Utilities Department regularly maintains trees near power lines. In the event of a power surge or power loss, important municipal records are backed up. Otoe County provides the Southeast Nebraska Emergency Notification System, citizens can opt-in to receive weather alert notifications by voice, text, and email.

### Severe Winter Storms

The city's primary concern related to severe winter storms is ensuring snow routes are cleared for schools and emergency services. In October 1997 the city experienced a major snowstorm which caused power outages throughout the community. Volunteers were needed to help clear snow from streets. Another large snowstorm also occurred in December 2009. Critical facilities have not been damaged in past events. The Street Department is responsible for snow removal in the city. Their equipment includes a snowblower, motor grader, plow trucks, tractor, and a skid steer. The local planning team indicated that snow removal resources are sufficient for most severe winter storm events.

### Tornadoes and High Winds

There have been no reported tornado or high wind events that have impacted the city; however, the risk still exists. If a large tornado were to touch down in the city, the potential damages could be very high. Tornado sirens can be activated from the CAD system by the Otoe County Sheriff or from the radio system at the fire barn. There are no safe rooms in the city, however the fire department is able to unlock a basement at a local bank for individuals seeking safe shelter.

## Governance

The City of Syracuse 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.

- City Administrator
- Clerk
- Treasurer
- Attorney
- Utility Superintendent
- Police Department
- Fire & Rescue
- Street Commissioner
- Parks and Recreation
- Planning
- Economic Development
- Purchasing Officers
- 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 SRC.5: Capability Assessment**

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| Planning & Regulatory Capability | Comprehensive Plan | Yes |
| | Capital Improvements Plan | Yes |
| | Economic Development Plan | Yes |
| | 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 | Yes |
| | Civil Engineering | Yes |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Local Staff Who Can Assess Community's Vulnerability to Hazards | Yes |
| | Grant Manager | Yes |
| | Mutual Aid Agreement | Yes |
| | Other (if any) | - |
| Fiscal Capability | Applied for grants in the past | Yes |
| | Awarded a grant in the past | Yes |
| | Authority to Levy Taxes for Specific Purposes such as Mitigation Projects | Yes |
| | Gas/Electric Service Fees | Yes |
| | Storm Water Service Fees | No |
| | Water/Sewer Service Fees | Yes |
| | Development Impact Fees | No |
| | General Obligation Revenue or Special Tax Bonds | 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 | Yes |
| | 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 | High |
| Community support to implement projects | Moderate |
| Time to devote to hazard mitigation | Moderate |

## Plan Integration

Syracuse's comprehensive plan was initially adopted in 2001 and was amended in 2015. The primary hazard discussed in the plan is flooding and the floodplain. It contains goals aimed at safe growth, directs development away from the floodplain, directs development away from chemical storage sites, limits density in the floodplain, and encourages elevation of structures in the floodplain. The city's floodplain ordinance, zoning ordinance, and subdivision regulations were all last updated in 2016. These documents discourage development in the floodplain, identify parks and open space in the floodplain, limit population density in the floodplain, and include the ability to implement water restrictions. Syracuse's building code is based on the 2012 International Building Code. The last update of the Capital Improvements Plan was 2011. It includes

stormwater projects, bridge improvements, installing new municipal wells, installing water meters, upsizing water distribution pipes, improving electrical distribution, and installing backup generators. Syracuse's Wellhead Protection Plan was last updated in 2016 and is currently being updated again. In plan are water conservation measures and a drought plan of action. Finally, the city is an annex in the 2018 Otoe County Local Emergency Operations Plan. It contains information regarding, disaster operations, incident command, field operations, first responders, and emergency operations center. 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 finish updating the Wellhead Protection Plan and the goals, objectives, and mitigation actions of the HMP should integrated in the update.

## Mitigation Strategy

### Continued and New Mitigation Actions

| Mitigation Action | Backup and Emergency Generators |
|---|---|
| **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** | All Hazards |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | State Revolving Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Water Department |
| **Status** | Planning Stage. The city is currently identifying which locations have a need for a backup generator. |

| 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** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | Street Department |
| **Status** | Ongoing. Improvements are made as issues are identified. |

| Mitigation Action | Drought Monitoring Plan and Procedures |
|---|---|
| **Description** | Develop a plan and procedures to monitor drought onset and impacts. |
| **Hazard(s) Addressed** | Drought |
| **Estimated Cost** | $1,000+ |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | Water Department |
| **Status** | Not Started. |

| Mitigation Action | Evacuation Plan |
|---|---|
| **Description** | Establish a plan to effectively evacuate residents during storm events and major flooding. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $2,000 |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | Not Started. |

| Mitigation Action | Expand Water Storage Capacity |
|---|---|
| **Description** | Identify and expand water storage capabilities to ensure sufficient water supplies to mitigate against water supply emergencies. |
| **Hazard(s) Addressed** | Drought |
| **Estimated Cost** | $30,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Water Department |
| **Status** | Not Started. |

| 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** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | City Council, Fire Department |
| **Status** | Not Started. |

| Mitigation Action | Floodplain Management |
|---|---|
| **Description** | Preserve natural and beneficial functions of floodplain land through measures such as: retaining natural vegetation, restoring streambeds; and preserving open space in the floodplain. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | Planning Department |
| **Status** | Not Started. |

| Mitigation Action | Hail-Resistant Building Materials |
|---|---|
| **Description** | Encourage the use of hail-resistant roofing for any new construction. |
| **Hazard(s) Addressed** | Severe Thunderstorms |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | Utilities |
| **Status** | Not Started. |

| Mitigation Action | Low Impact Development |
|---|---|
| **Description** | Utilize Low Impact Development practices and Green Infrastructure to reduce flood risk. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | Planning Department |
| **Status** | Ongoing. Low impact development is being used for new construction. |

| 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 |
| **Estimated Cost** | $350,000 - $450,000 |
| **Funding** | State Revolving Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Water Department |
| **Status** | Planning Stage. A location has been found nine miles south of the city. |

| Mitigation Action | No Adverse Impact |
|---|---|
| **Description** | Adopt a No Adverse Impact approach to floodplain management. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Planning Department |
| **Status** | Not Started. |

| 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. The city identified park and pool. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $350 per square foot |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | City Council |
| **Status** | Not Started. |

| Mitigation Action | Stormwater System and Drainage Improvements |
|---|---|
| **Description** | Undersized systems can contribute to localized flooding. Stormwater system improvements may include pipe upsizing and additional inlets. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $100,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Street Department |
| **Status** | In Progress. Improvements are currently being made. |

| Mitigation Action | Tree City USA |
|---|---|
| **Description** | Work to become a Tree City USA through the National Arbor Day Foundation in order to receive direction, technical assistance, and public education on how to establish a hazardous tree identification and removal program in order to limit potential tree damage and damages caused by trees in a community when a storm event occurs. The four main requirements include: 1) establishing a tree board; 2) enacting a tree care ordinance; 3) establishing a forestry care program; 4) enacting an Arbor Day observance and proclamation. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 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. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $50 per radio |
| **Funding** | General Fund |
| **Timeline** | 1 Year |
| **Priority** | High |
| **Lead Agency** | City Council |
| **Status** | In Progress. Radios have been purchased for some critical facilities. |

# Community Profile

# Village of Talmage

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

**2020**

## Local Planning Team

**Table TLG.1: Village of Talmage Local Planning Team**

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

## Location and Geography

The Village of Talmage is in south-central Otoe County and covers an area of 0.2 square miles. Talmage is located near the Little Nemaha River to the northeast.

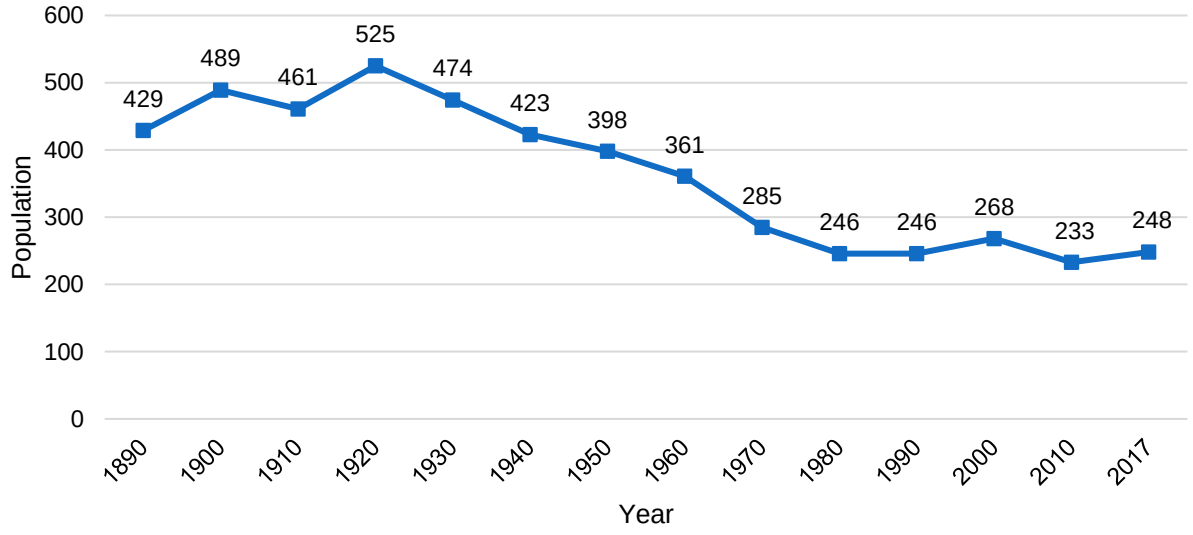
## Transportation

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. Talmage's major transportation corridor is the spur of State Highway 66D. It is traveled by an average of 450 vehicles daily, 50 of which are trucks.[61] The village does not have any railway lines traveling through the community. Highway 66D is the transportation route of most concern the local planning team due to the amount of vehicle traffic. Evacuation is not a concern as Talmage is surrounded by gravel roads providing many alternate paths for evacuating.

## Demographics

The Village of Talmage's population has increased since 2010 and was at 248 people in 2017. An increasing population means a growing tax base, which may make funding mitigation projects easier. Talmage's population accounted for 1.6% of Otoe County's population in 2017.[62]

**Figure TLG.1: Population**

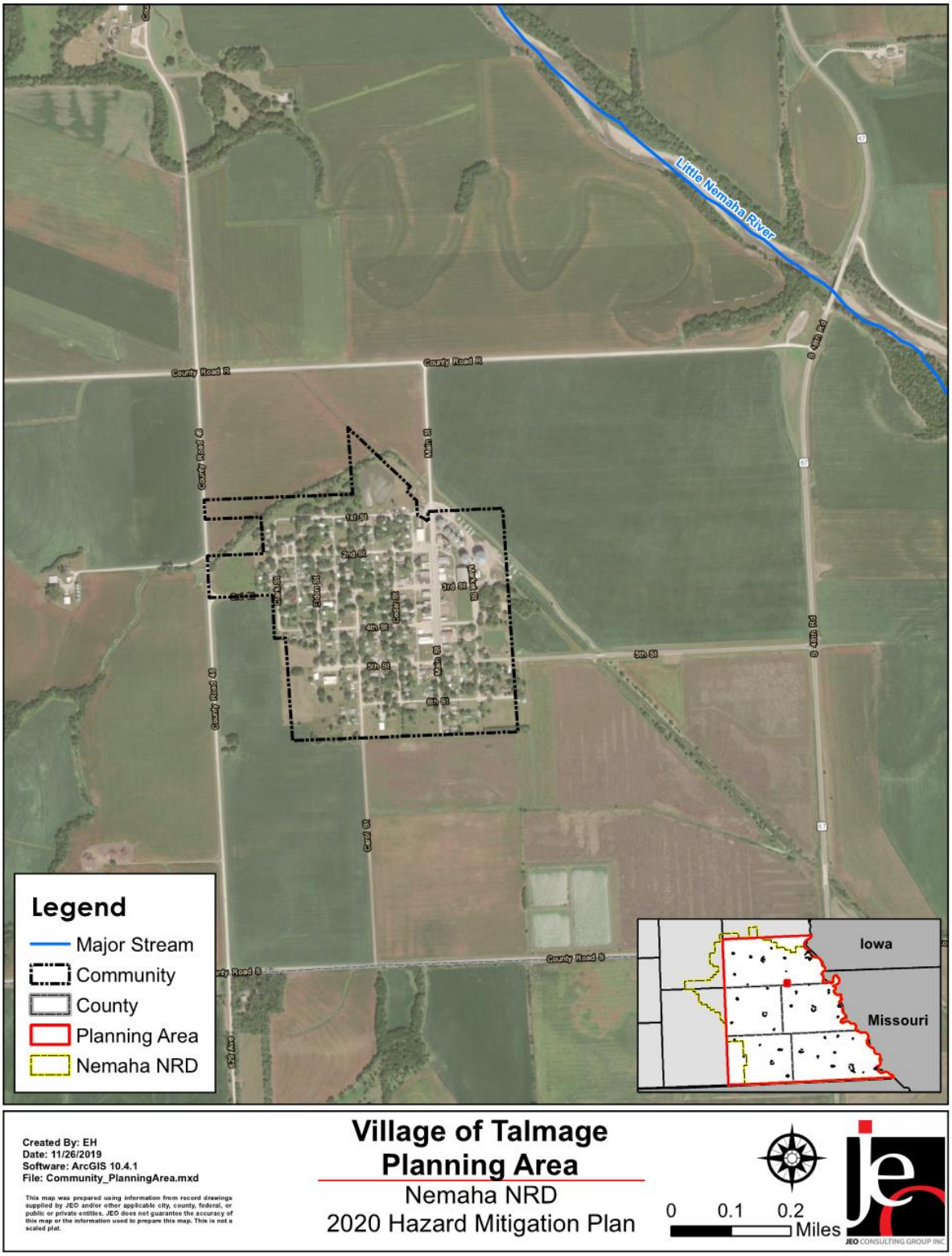



*Source: U.S. Census Bureau, 1890 – 2017*

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

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

**Figure TLG.2: Village of Talmage**



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

- **Older.** The median age of Talmage was 44.8 years old in 2017, compared with Otoe County's median of 41.7 years. Talmage's population grew younger since 2010, when the median age was 53.6 years old.[62]
- **Similarly ethnically diverse**. Since 2010, Talmage grew more ethnically diverse. In 2010, 0% of Talmage's population was Hispanic or Latino. By 2017, about 6.9% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[62]
- **More likely to be below the federal poverty line.** The poverty rate in the Village of Talmage (39.1% of people living below the federal poverty line) was higher than the county's poverty rate (10%) in 2017.[63]

## Employment and Economics

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

- **Similar mix of industries.** Talmage's major employment sectors, accounting for 10% or more of employment each, were: construction, manufacturing, retail trade, and education.[63]
- **Lower per capita income.** Talmage's per capita income in 2017 ($17,711) was about $10,900 lower than the county ($28,567).[63]
- **Similar long-distance commuters.** About 20.2% of workers in Talmage commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 33.3% of workers in Talmage commuted 30 minutes or more to work, compared to about 34.1% of county workers.[64]

### Major Employers

Farmers Cooperative is the only major employer in the community, with most residents commuting within a 30-mile radius of the village for employment.

## Housing

In comparison to Otoe County, the Village of Talmage's housing stock was:[65]

- **Older.** Talmage had a larger share of housing built prior to 1970 than the county (78.2% compared to 55.8%).
- **More mobile and manufactured housing.** The Village of Talmage had a larger share of mobile and manufactured housing (8.5%) compared to the county (2.6%).
- **More renter-occupied**. About 30.5% of occupied housing units in Talmage were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Similarly occupied.** Approximately 10.4% of Talmage's housing units were vacant compared to 9.8% of units in Otoe County.

63 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
64 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
65 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 buildings were demolished and a housing grant has helped improve homes across the community. According to the American Community Survey estimates, Talmage's population has generally remained consistent. The local planning team attributes the consistency to the housing grant and lack of new developments. Municipal funds are limited to maintaining current facilities and systems. In the next five years, no new 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 TLG.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 |
|---|---|---|---|---|
| 25 | $ 784,500 | 10 | 40% | $ 203,790 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[66]

66 GIS Workshop/Otoe 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 Talmage. The table below lists the name and location of the site and whether it is in the floodplain.

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

| Facility Name | Address | In Floodplain (Y/N) |
|---|---|---|
| Farmers Cooperative Company | 123 Main Street | Y |

*Source: Nebraska Department of Environment and Energy*[67]

## Critical Facilities

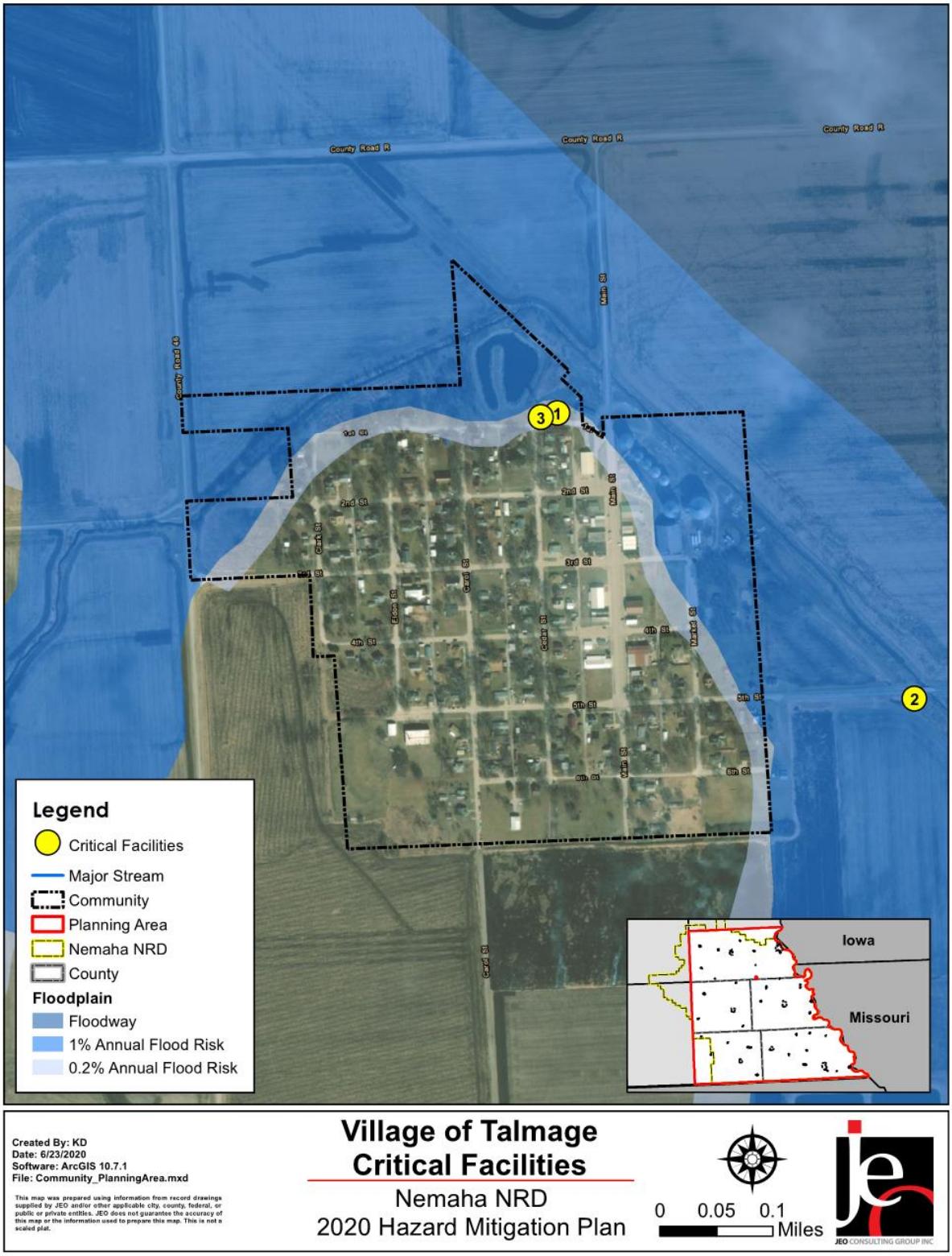
Critical facilities were identified during the 2015 planning process and revised for this plan update. The planning team identified critical facilities necessary for the Village of Talmage's disaster response and continuity of operations. The following table and figure provide a summary of the critical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

**Table TLG.4: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Electric Substation | N | N | Y (0.2%) |
| 2 | Lift Station | N | N | Y (1%) |
| 3 | Water Plant | N | N | Y (0.2%) |

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

**Figure TLG.3: Critical Facilities**



## Historical Occurrences

See the Otoe 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

Flooding in and around the community has impacted crop production, which impacts the local economy. It has also caused water damage is several basements. Most of the potential flooding comes from the Little Nemaha River to the northeast. However, flash floods are of most concern as they occur more often. The floodplain is located on the northern and eastern boundary of the village, but most areas of the community are not located in the floodplain. Past events have damaged the village's water treatment plant. The village is currently working with Otoe County Emergency Management on floodplain issues.

### Severe Thunderstorms

Concerns related to severe thunderstorms include downed power lines, power loss, and falling tree limbs. NCEI data since 1996 shows four reported severe thunderstorm events in the village. None resulted in damages or injuries. In the event of hail damage, all community-owned buildings are insured. Tree trimming and removal is done regularly in public areas, however, most hazardous trees are located on private property. Surge protectors are used on important electronic devices and records are stored in fireproof cabinets. The village has one weather radio located at the fire hall. Otoe County provides the Southeast Nebraska Emergency Notification System, citizens can opt-in to receive weather alert notifications by voice, text, an email.

### Severe Winter Storms

No recent severe winter storms have caused damage in the village or its critical facilities. However, they are an annual occurrence in the community and across the county. Potential impacts include power loss, damage to trees, and hazardous road conditions. The village board is responsible for snow removal using a truck with a snow blade. A salt and sand mix is also available and can be used to reduce hazardous road conditions. The local planning team indicated that these resources are sufficient for most events.

### Tornadoes and High Winds

Tornadoes and high winds have impacted the village, but exact details are unknown. No records of damage to critical facilities or residences were found. The village has one warning siren, which is manually activated. There are no safe rooms and individuals seeking safe shelter must use residential basements or interior rooms. If a disaster were to occur, mutual aid agreements are in place with the Otoe County Emergency Management and nearby villages.

## Governance

The Village of Talmage 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
- 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 TLG.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 | 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 | Yes |
| | 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 |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Authority to Levy Taxes for Specific Purposes such as Mitigation Projects | Yes |
| | Gas/Electric Service Fees | Yes |
| | Storm Water Service Fees | No |
| | Water/Sewer Service Fees | Yes |
| | Development Impact Fees | No |
| | General Obligation Revenue or Special Tax Bonds | No |
| | Other (if any) | - |
| Education & Outreach Capability | Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. Ex. CERT Teams, Red Cross, etc. | No |
| | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | No |
| | Natural Disaster or Safety related school programs | No |
| | StormReady Certification | Yes |
| | 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 Talmage has several plans that relate to or directly discuss hazards and hazard mitigation. Talmage has floodplain regulations and a zoning ordinance. These documents prohibit development in the floodplain, identify floodplain areas as open space, limit development in the extraterritorial jurisdiction, prohibit filling of wetlands, discourage development near chemical storage sites, discourage development along major transportation routes, include well setback requirements, include the ability to implement water restrictions, and restrict the subdivision of land within the floodplain. The village's building code requires elevation of structures in the floodplain, requires mechanical systems be elevated in the floodplain, requires sewer backflow valves in the floodplain, outlines sump pump installation, encourages the use of hail-resistant building materials, and encourages the use of fire-resistant building materials. Talmage is also an annex in the 2018 Otoe 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 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 | 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 lacking. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $15,000+ |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Village Attorney, County Emergency Management, Fire Department |
| **Status** | In Progress. The village is currently going through the grant process for funding. |

| 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. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Utility Superintendent, Village Board |
| **Status** | Not Started. |

| Mitigation Action | Bury Power and Service Lines |
|---|---|
| **Description** | Talmage and Nebraska City Utilities can work to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures to be less vulnerable to storm events. Electrical utilities shall be required to use underground construction methods where possible for future installation of power lines. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | $2,000,000 per miles |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **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 can include fire trucks, ATVs, water tanks/trucks, snow removal equipment, etc. This would also include developing backup systems for emergency vehicles and identifying and training additional personnel for emergency response. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | Village Board, Fire Department |
| **Status** | Ongoing, when funding is available the fire department is ready to improve equipment. |

| 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 stormwater evaluation, identifying multiple problem areas, and potentially multiple drainage improvements for each. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $30,000+ |
| **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 trees and limbs. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | Ongoing, every year the board trims or cuts trees. |

| Mitigation Action | Stormwater System and Drainage Improvements |
|---|---|
| **Description** | Undersized systems can contribute to localized flooding. Stormwater system improvements may include pipe upsizing and additional inlets. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. |
| **Hazard(s) Addressed** | Flooding |
| **Estimated Cost** | $10,000 - $100,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Utility Superintendent, 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 limit potential tree damage and damages caused by trees in a community when a storm event occurs. The four main requirements include: 1) establishing a tree board; 2) enacting a tree care ordinance; 3) establishing a forestry care program; 4) enacting an Arbor Day observance and proclamation. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Village Board |
| **Status** | Not Started. |

## Removed Mitigation Actions

| Mitigation Action | Database of Vulnerable Populations |
|---|---|
| **Hazard(s) Addressed** | All Hazards |
| **Reason for Removal** | This is no longer a priority as the population is small. |

| Mitigation Action | First Aid Training |
|---|---|
| **Hazard(s) Addressed** | All Hazards |
| **Reason for Removal** | There is little interest from the community. |

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

| Mitigation Action | New Municipal Well |
|---|---|
| **Hazard(s) Addressed** | Drought |
| **Reason for Removal** | No funding if available at this time. If funding becomes available the village will review this action. |

# Community Profile

# Village of Unadilla

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

**2020**

## Local Planning Team

**Table UDL.1: Village of Unadilla Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Danny Crownover | Board Chairperson | Village of Unadilla |
| Scott Hincker | Board Member | Village of Unadilla |
| Corinne Zahn | Clerk and Floodplain Administrator | Village of Unadilla |

## Location and Geography

The Village of Unadilla is in west-central Otoe County and covers an area of 0.3 square miles directly to the east and north of the Little Nemaha River.

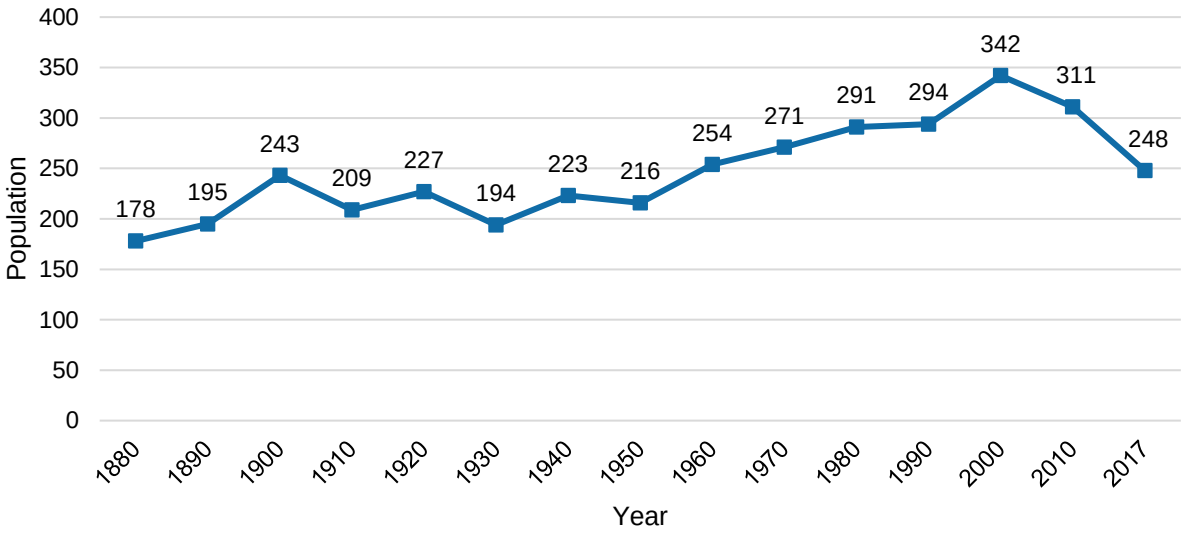
## Transportation

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. Unadilla's major transportation corridor is State Highway 2. It is traveled by an average of 11,335 vehicles daily, 2,605 of which are trucks.[68] The village has a rail line on the community's southern side. Highway 2 is the transportation route of most concern due to the high amount of traffic and radiological/chemicals which are transported on it.

## Demographics

The Village of Unadilla's population has been declining since 2000 and was at 248 people in 2017. A declining population could mean a decreasing tax base, which may make funding mitigation projects more difficult. Unadilla's population accounted for 1.6% of Otoe County's population in 2017.[69]

**Figure UDL.1: Population**

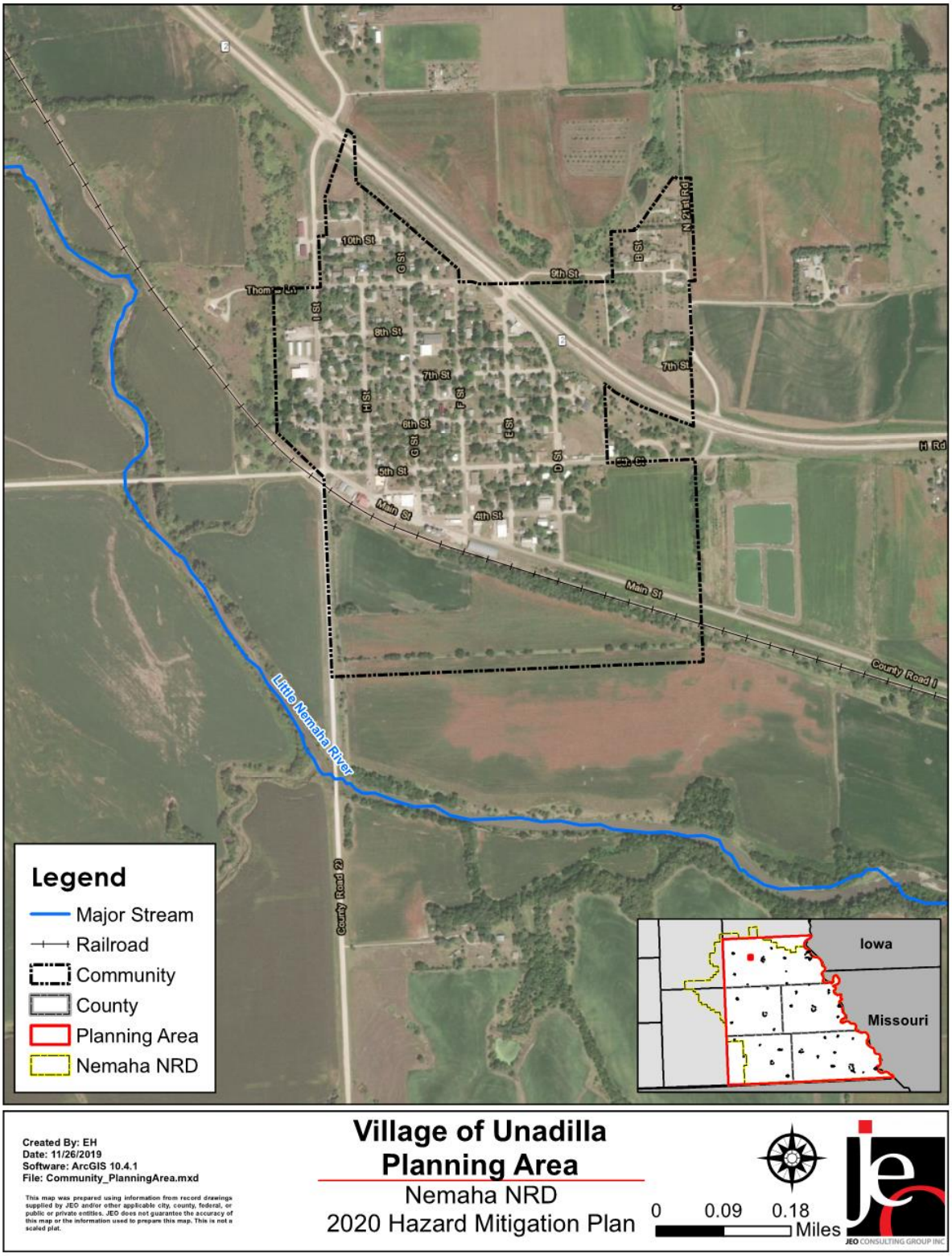



*Source: U.S. Census Bureau, 1880 – 2017*

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

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

**Figure UDL.2: Village of Unadilla**



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

- **Older.** The median age of Unadilla was 51.6 years old in 2017, compared with Otoe County's median of 41.7 years. Unadilla's population grew slightly older since 2010, when the median age was 51.1 years old.[69]
- **Less ethnically diverse**. Since 2010, Unadilla grew more ethnically diverse. In 2010, 0% of Unadilla's population was Hispanic or Latino. By 2017, about 1.2% was Hispanic or Latino. During that time, the Hispanic population in the county grew from 4.9% in 2010 to 7.6% in 2017.[69]
- **Less likely to be below the federal poverty line.** The poverty rate in the Village of Unadilla (3.6% of people living below the federal poverty line) was lower than the county's poverty rate (10%) in 2017.[70]

## Employment and Economics

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

- **Similar mix of industries.** Unadilla's major employment sectors, accounting for 10% or more of employment each, were: retail trade and education.[70]
- **Lower per capita income.** Unadilla's per capita income in 2017 ($27,408) was about $1,200 lower than the county ($28,567).[70]
- **More long-distance commuters.** About 34.5% of workers in Unadilla commuted for fewer than 15 minutes, compared with about 46.3% of workers in Otoe County. About 56.6% of workers in Unadilla commuted 30 minutes or more to work, compared to about 34.1% of county workers.[71]

### Major Employers

Countryside Bank, Nitty Gritty Gas and Thrift, The Bar, and the Village of Unadilla are the major employers in the community. A large percentage of residents commute to Lincoln and Syracuse for employment.

## Housing

In comparison to Otoe County, the Village of Unadilla's housing stock was:[72]

- **Older.** Unadilla had a larger share of housing built prior to 1970 than the county (64% compared to 55.8%).
- **More mobile and manufactured housing.** The Village of Unadilla had a larger share of mobile and manufactured housing (8.8%) compared to the county (2.6%).
- **Less renter-occupied**. About 20.2% of occupied housing units in Unadilla were renter-occupied compared with 27.6% of occupied housing in Otoe County.
- **Similarly occupied.** Approximately 8.8% of Unadilla's housing units were vacant compared to 9.8% of units in Otoe County.

70 United States Census Bureau. "American Fact Finder: DP03: Selected Economic Characteristics." [database file]. https://factfinder.census.gov/.
71 United States Census Bureau. "American Fact Finder: S0802: Means of Transportation to Work by Selected Characteristics." [database file]. https://factfinder.census.gov/.
72 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. Mobile homes are located in the central and southwest portions of the village. 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, while no businesses or industries were built, a new subdivision was built north of Highway 2. According to the most recent American Community Survey estimates, Unadilla's population is declining. The local planning team attributes the decline to the school no longer being located in the community. Municipal funds are limited to maintaining current facilities and systems but have increased over recent years for water projects. In the next five years, additional houses are planned at the development north of Highway 2. This development is located away from the floodplain.

## 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 UDL.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 |
|---|---|---|---|---|
| 169 | $ 11,739,300 | 11 | 6.5% | $ 423,780 |

*Source: GIS Workshop/Otoe County Assessor, 2019*[73]

73 GIS Workshop/Otoe 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 no chemical storage sites in Unadilla.

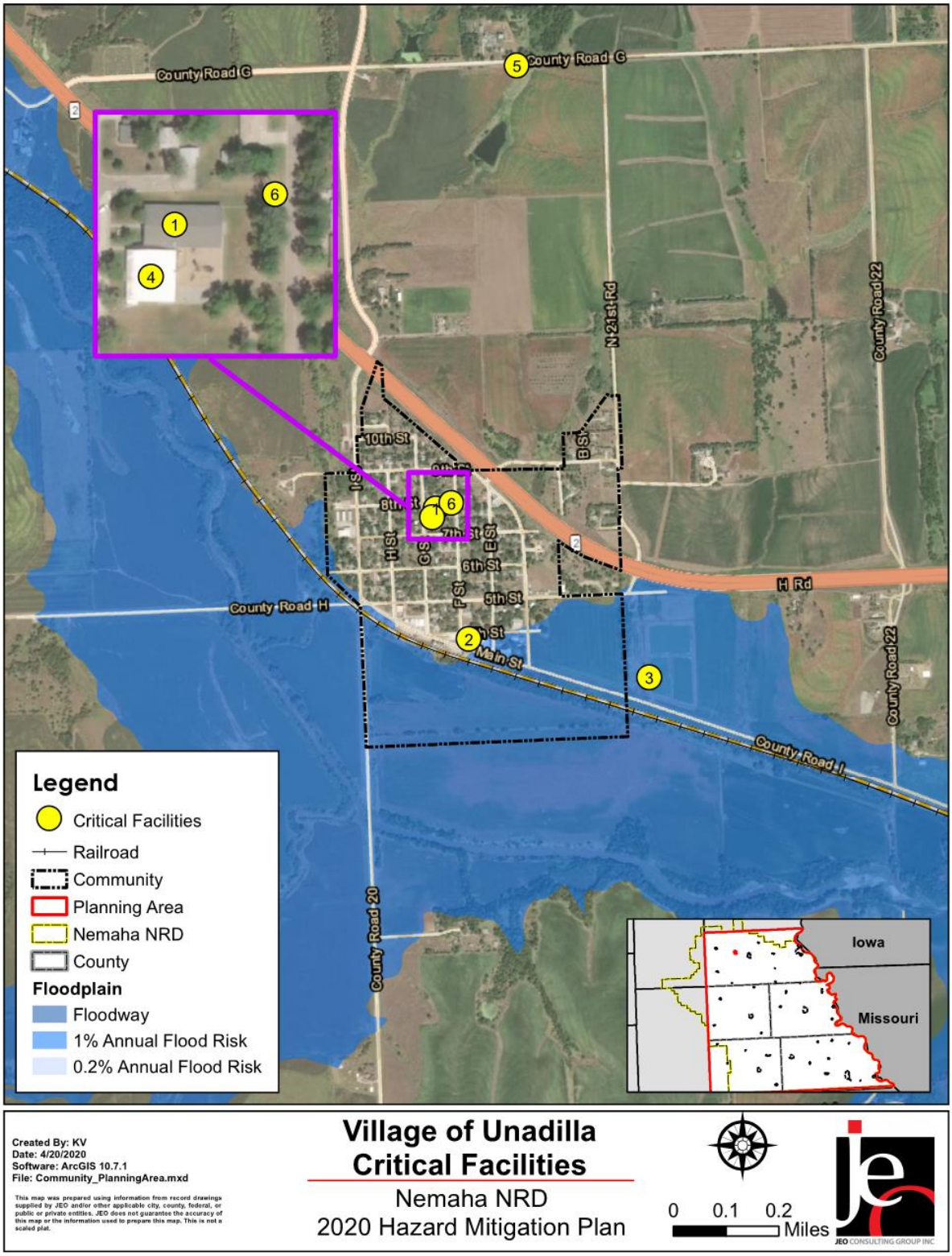
## Critical Facilities

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 Unadilla's disaster response and continuity of operations. The following table and figure provide a summary of the critical facilities for the community.

**Table UDL.3: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Community Center | Y | N | N |
| 2 | Fire Station | N | Y | N |
| 3 | Lift Station | N | N | Y |
| 4 | Village Office | N | N | N |
| 5 | Water Pit/Pump | N | N | N |
| 6 | Water Tower | N | N | N |

**Figure UDL.3: Critical Facilities**



## Historical Occurrences

See the Otoe 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 concerns related to severe thunderstorms include hail and wind damage to buildings, cars, and trees. In May 2016, the village experienced hail and wind damage throughout the community. The community center and village offices were damaged in the event, costing $75,000 to repair. Critical facilities do not have hail-resistant building materials but are insured against hail and wind damage. Hazardous trees are located in the park and throughout the community. In the event of power surges and outages, municipal records are kept in a fireproof cabinet and backed up online. There are no weather radios located at critical facilities, but Otoe County provides the Southeast Nebraska Emergency Notification System. Citizens can opt-in to receive weather alert notifications by voice, text, and email.

### Severe Winter Storms

Winter storms are an annual occurrence across the planning area and in the village. However, a large damaging storm has not occurred for several years. Past impacts have included power outages from downed power lines and trees. No power lines in the community are buried so the village is at a high risk of power loss. Critical facilities have not been damaged from past events. The village is responsible for snow removal and uses a pickup with a snowplow, tractor and blade, four-wheeler with a blade, and a snow blower. Snow removal resources are sufficient at this time.

### Tornadoes and High Winds

No tornado events have occurred in the village, but high winds have caused tree damage in the past. The village has one tornado siren which is radio activated through an internet program by the fire department. There is no certified safe room, but the community center is an approved Red Cross shelter. While the village does not have mutual aid agreements in place, the local fire department has mutual aid in place with the other surrounding fire districts in case of disaster.

## Governance

The Village of Unadilla 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
- Water Operator
- Wastewater Operator
- 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 UDL.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 | 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 | 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 | Yes |
| | Development Impact Fees | No |
| | General Obligation Revenue or Special Tax Bonds | Yes |
| | Other (if any) | - |
| Education & | Local citizen groups or non-profit organizations focused on environmental protection, emergency | No |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| Outreach Capability | preparedness, access and functional needs populations, etc.<br>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 | No |
| | StormReady Certification | Yes |
| | Firewise Communities Certification | No |
| | Tree City USA | No |
| | Other (if any) | - |

-

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

## Plan Integration

Unadilla has several plans that directly discuss or relate to hazards and hazard mitigation. The comprehensive plan was last updated in 2012. It directs development away from the floodplain, limits density in areas adjacent to known hazardous areas, encourages clustering of development, and encourages elevation of structures in the floodplain. The village's zoning code, floodplain regulations, and subdivision regulations were also last updated in 2012. These documents contain floodplain maps and include the ability to implement water restrictions. Unadilla's building code was last updated in 2012 and requires elevation of structures in the floodplain, requires mechanical systems in the floodplain to be elevated, and requires the use of fire-resistant building materials. The village is looking into incorporating additional hazard mitigation principles in the next update of the building code. The community is also an annex in the 2018 Otoe 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, sheltering, public health, 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

## 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 lacking with remote activation options. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $15,000+ |
| **Funding** | General Fund, Keno Funds |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | Not Started. |

| 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. The village would like a backup generator for the village office. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $15,000 - $30,000 per generator |
| **Funding** | Keno Funds |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | Village Board |
| **Status** | Not Started. |

| Mitigation Action | Hazardous Tree Removal |
|---|---|
| **Description** | Identify and remove hazardous trees and limbs. |
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Estimated Cost** | $100+ per tree |
| **Funding** | General Fund, Keno Funds |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Village Board |
| **Status** | In Progress. The village has started to trim trees. |

| Mitigation Action | Water System Improvements |
|---|---|
| **Description** | Repair and updated water lines for the village. |
| **Hazard(s) Addressed** | Drought and Extreme Heat |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Village Board |
| **Status** | New Action. Not Started. |

## Removed Mitigation Actions

| Mitigation Action | Tree City USA |
|---|---|
| **Hazard(s) Addressed** | Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds |
| **Reason for Removal** | The village is with the Nebraska Arboretum and no longer seek to be with Tree City USA. |

# District Profile

# Nebraska City Public Schools

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

**2020**

## Local Planning Team

**Table NPS.1: Nebraska City Public Schools Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Rex Pfeil | Superintendent | Nebraska City Public Schools |

## Location

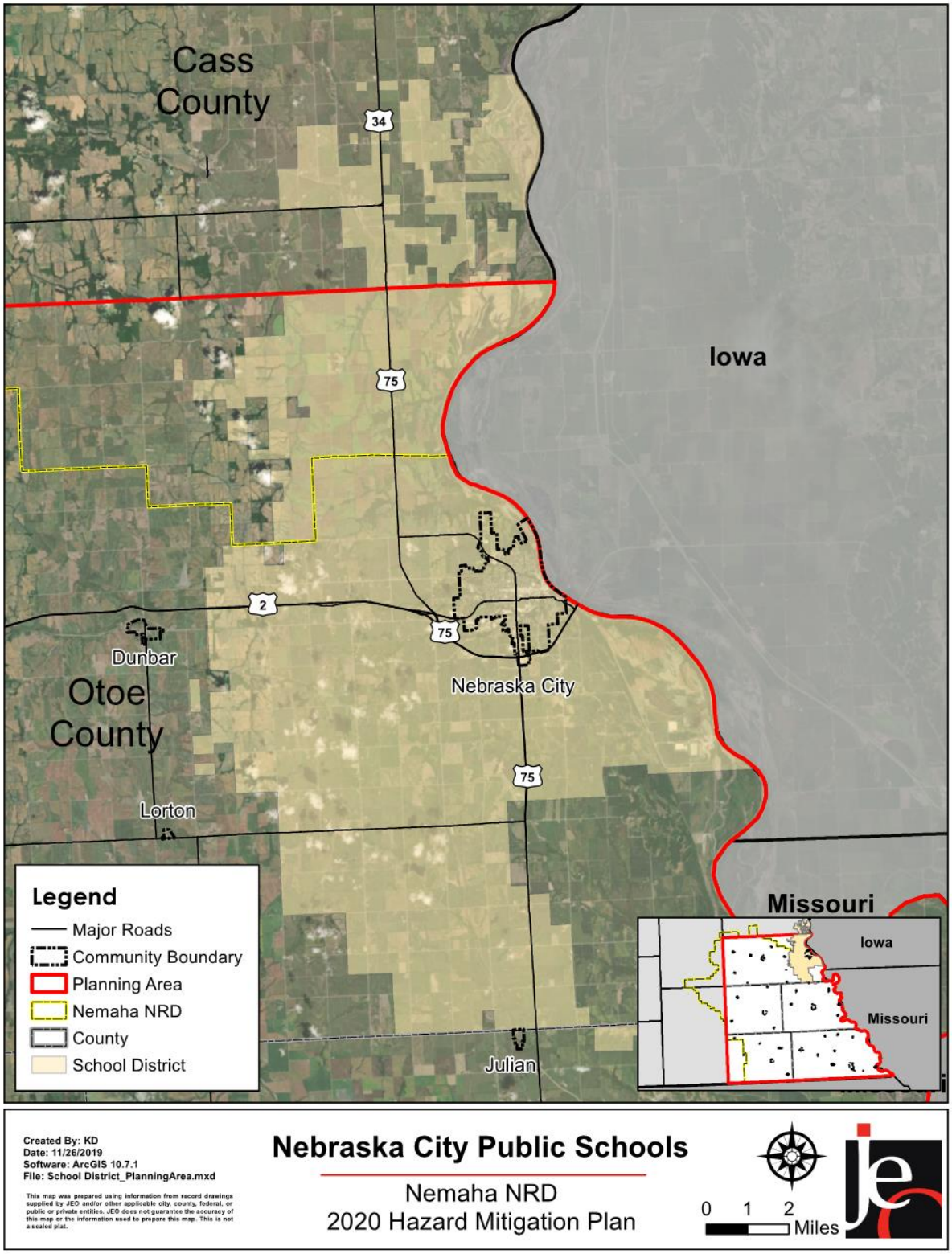
The Nebraska City Public School District is in eastern Otoe County and consists of four schools. Other buildings owned by the district include an administration building, career academy, and three maintenance buildings. The school district provides services to students in Nebraska City and surrounding rural areas.

## Transportation

Transportation information is important to hazard mitigation plans because it suggests areas more at risk of transportation incidents. Two major transportation corridors intersect near the district's schools: US Highway 75 and Nebraska State Highway 2. US Highway 75 is traveled by a total annual average of 9,365 vehicles daily, 2,620 of which are trucks. Nebraska State Highway 2 is traveled by a total annual average of 9,425 vehicles daily, 2,540 of which are trucks.[74] A Union Pacific Railroad line runs north to south through the district and a nonoperating rail line runs east to west. Transportation routes of most concern to the district include Highway 75 due to the high amount of traffic, Highway 2 due to the high amount of semi-truck traffic, and the county roads due to the poor road conditions and blind corners. The district contracts busing out from Mid States School Bus and approximately 300 students are bused to school.

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

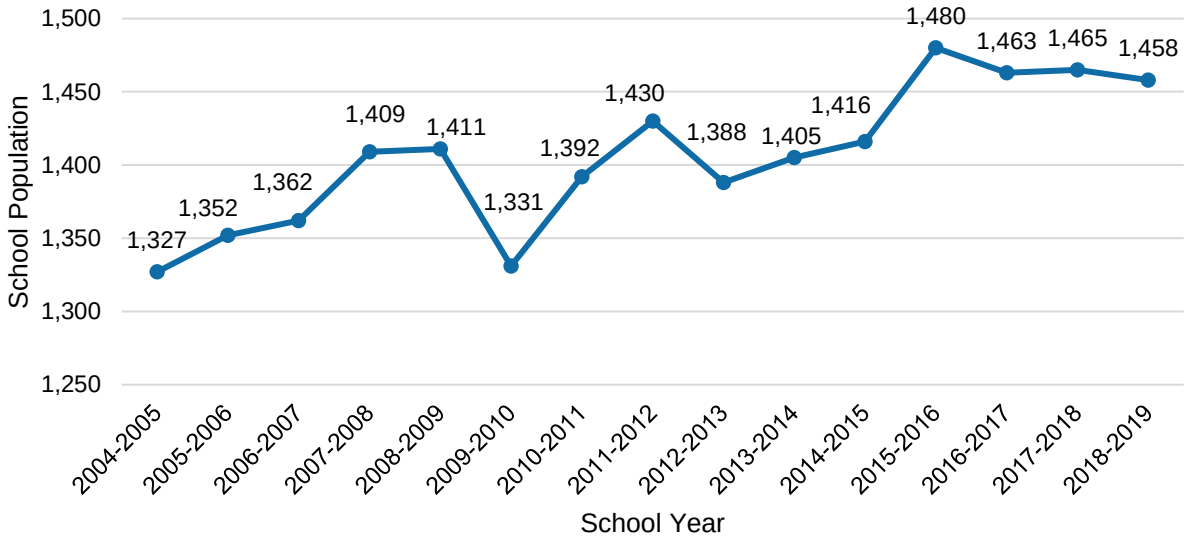
**Figure NPS.1: Nebraska City Public Schools**



## Demographics

The following figure displays the student population trend. It indicates that the student population has generally increased since 2005 but has declined slightly since 2016. In the 2018-2019 school year there were 1,327 students enrolled at Nebraska City Public Schools.[75] The district anticipates a steady population over the next five years.

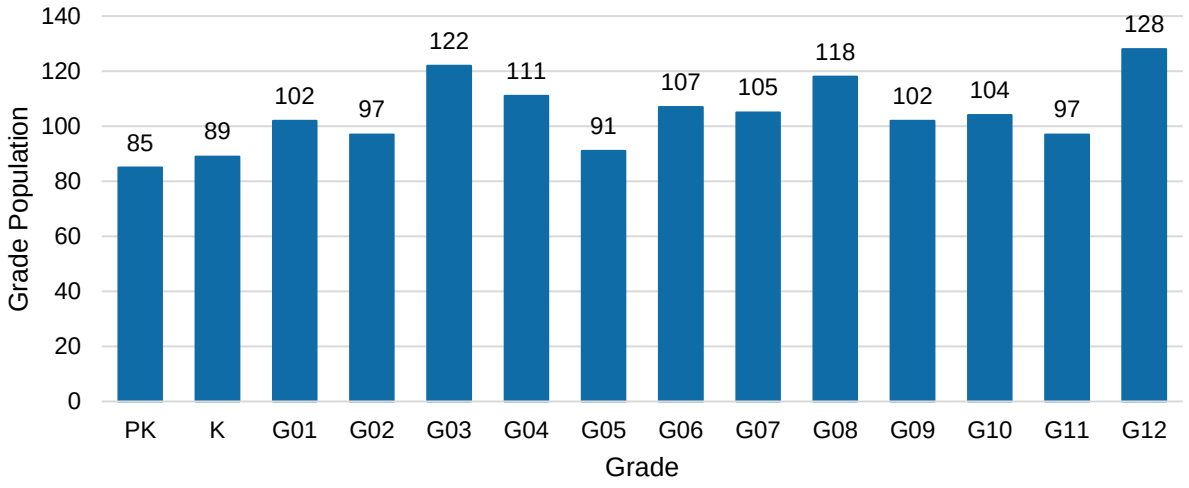
**Figure NPS.2: Student Population**




*Source: Nebraska Department of Education, 2019*

During the 2018-2019 school year, the largest number of students were in 3rd, 8th, and 12th grade. The lowest population of students were in pre-kindergarten, kindergarten, and 5th grade. Children under 16 are especially vulnerable to hazard events because they are dependent on parents and guardians for transportation and financial support.

**Figure NPS.3: Number of Students by Grade**




*Source: Nebraska Department of Education, 2019*

75 Nebraska Department of Education. 2019. "Nebraska Education Profile." https://nep.education.ne.gov/.

According to the Nebraska Department of Education, 21% of students are in a Special Education program. This is higher than the state average of 15%. About 52% of students receive either free or reduced priced meals at school. About 8% of students are English Language Learners; students fluent in a second language most commonly speak Spanish. These students may be more vulnerable during a hazardous event than the rest of the student population.

**Table NPS.2: Student Demographics**

| | School District | State of Nebraska |
|---|---|---|
| Free/Reduced Priced Meals | 51.58% | 45.21% |
| English Language Learners | 7.94% | 7.16% |
| Special Education Students | 20.61% | 15.48% |

*Source: Nebraska Department of Education, 2019*

## Future Development Trends

Additions to the high school occurred from 2008 to 2011. During that time Northside Elementary School was also built. Whenever buildings are updated or renovated it is required that the entire building be brought up to the newest building codes and requirements. In the next five years the school district will try to sell Second Avenue School. Currently the building is empty and for sale.

## 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 18 chemical storage sites that house hazardous materials in the Nebraska City Public Schools District. Refer to the Nebraska City and Otoe County profiles for more information on these sites. No schools are located near chemical facilities.

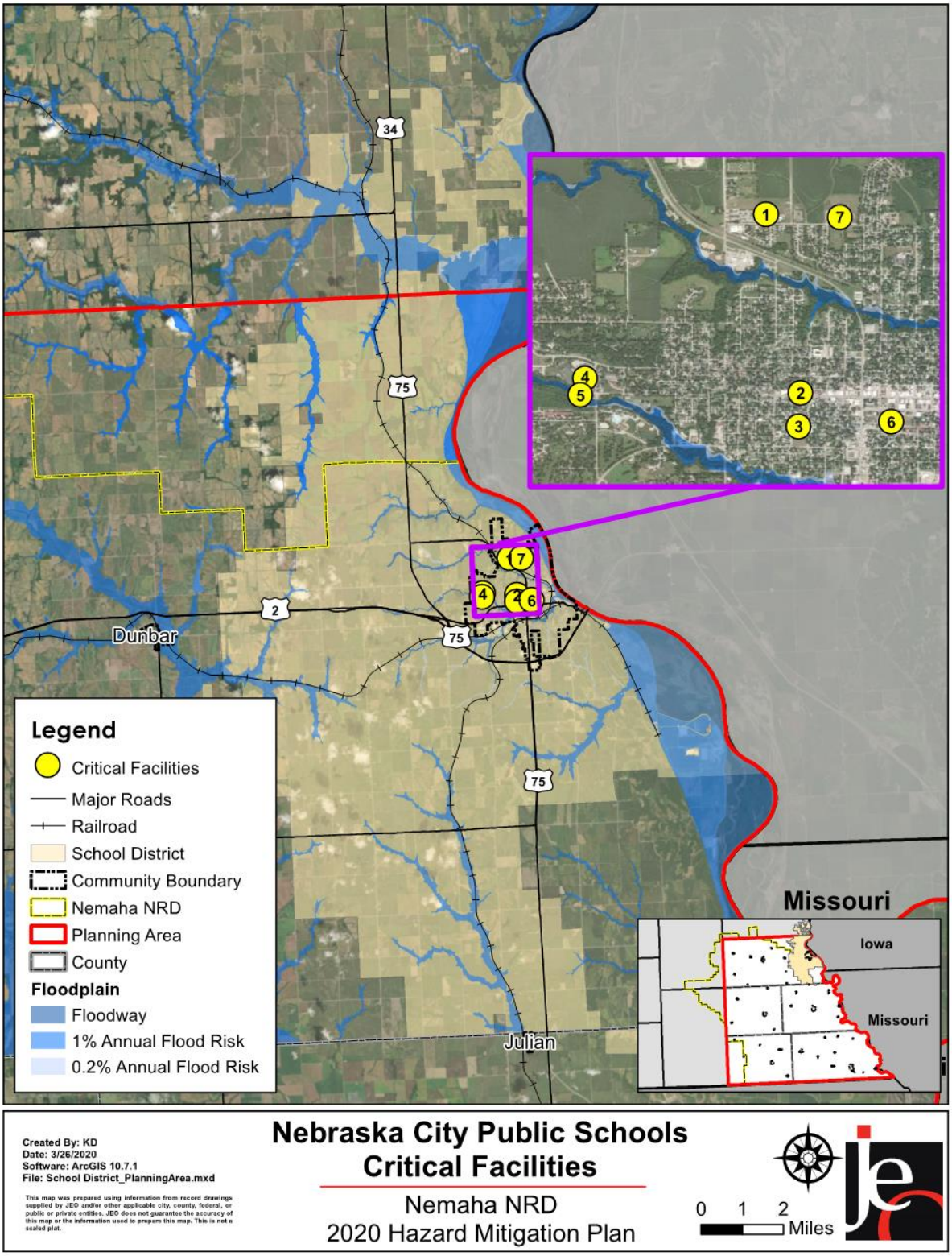
### Critical Facilities

Nebraska City Public Schools identified the following critical facilities necessary to maintain the functions of the schools. The following table and figure provide a summary of the critical facilities for the community.

**Table NPS.3: Critical Facilities**

| CF Number | Name | # of Students | # of Staff | Community Shelter (Y/N) | Safe Room (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|---|---|---|
| 1 | Administration Building | 8 | 3 | N | N | N | N |
| 2 | Career Academy | 30 | 3 | N | N | N | N |
| 3 | Hayward Elementary School | 320 | 40 | Y | N | N | N |
| 4 | High School | 450 | 60 | Y | N | N | N |
| 5 | Maintenance Buildings | 0 | 0 | N | N | N | Y |
| 6 | Middle School | 320 | 40 | Y | N | N | N |
| 7 | Northside Elementary School | 400 | 50 | Y | N | N | N |

**Figure NPS.4: Critical Facilities**



## Historical Occurrences

See the Otoe 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 school district's 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*.

### Severe Thunderstorms

A lightning strike could lead to potential power loss and affect electrical equipment within the school and grounds. Hail can cause damage to school roofs and buildings. Heavy rain can cause water infiltration and damage systems within the schools. The district planning team indicated that there have been no historical damages related to severe thunderstorm events. Every school has safety glass installed in all of the windows. Northside Elementary, the high school, and the sports fields are all grounded in the event of a lightning strike. In the event of a power loss, data for the district is backed up on the cloud.

### Severe Winter Storms

The primary concerns related to severe winter storms are snow load on roofs causing damage, potential multiple day school closure, power outage, and low temperatures inside the schools. All the schools have flat roofs which can build up significant amounts of snow, but no past damages to the roofs have occurred. Snow removal at the parking lots is contracted out, and the school district handles the rest of the sidewalks where snow needs to be removed. During past winter storm events bus routes have been rerouted due to county roads being in poor condition or not having been cleared.

### Terrorism

School shooting and individuals attempting to get into the school building are the primary concerns for the school district related to terrorism. In 2019, an adult tried to break into the Middle School. All schools were placed in lock down until the situation was addressed by the local police department. No damages or injuries occurred from the incident. The school district added approximately 100 two-way radios in 2019. The radios can connect to each other, local dispatch, and emergency management. Any groups that leave the building are required to take radios with them for communication. The two-way radios were purchased by a local grant.

### Tornadoes and High Winds

The district planning team did not indicate any historical tornado or high wind events that impacted district-owned buildings. However, if a large tornado were to hit the community it could cause extensive damage to the school buildings. Students are educated on tornado safety throughout the year and tornado drills are conducted in the fall and spring. Each school building has a location for students to go to during a tornado event, and Northside has a tornado shelter that was installed when built.

## Administration

The Nebraska City Public Schools Board of Education, comprised of a locally elected nine-member panel, establishes regulations and policies to govern the school district. They appoint a superintendent to implement these regulations. The superintendent in turn appoints principals who supervises the schools' operations. These administrators will manage the implementation of hazard mitigation projects. Local community entities and individuals are also partnered with to fund district projects. The district also has the following offices, departments, and committees.

- Building and Grounds Committee (Subcommittee of the school board)
- Finance Committee (Subcommittee of the school board)
- Education Committee (Subcommittee of the school board)
- Secretary
- Treasurer
- Director of Maintenance

## Capability Assessment

The following table summarizes the district's overall capability to implement mitigation projects. Once a year the district trains its staff on emergency procedures. Students are educated on procedures in the classroom and families are informed via the website or take-home materials. The district partners with the local fire department for Fire Awareness Week and Severe Weather Awareness Week. The district is also participates in the Nebraska City School Safety Committee along with the catholic school, pre-schools, fire department, EMS, Emergency Management, CHI St Mary's Hospital, Otoe County Sheriff, Nebraska City Police, and the Nebraska State Patrol.

**Table NPS.4: Capability Assessment**

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| Planning Capability | Capital Improvements Plan/Long-Term Budget | No – Under Development |
| | Continuity of Operations Plan | No |
| | Disaster Response Plan | No |
| | Other (if any) | Crisis Response Plan |
| Administration & Technical Capability | GIS Capabilities | No |
| | Civil Engineering | No |
| | Local staff who can assess district'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 grants in the past | Yes |
| | Authority to levy taxes for specific purposes such as mitigation projects | No |
| | General Obligation Revenue or Special Tax Bonds | Yes |
| | Approved bonds in the past | Yes |
| | Flood Insurance | No |
| | Other (if any) | - |
| Education & Outreach Capability | Local school groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations, etc. (Ex. Parent groups, hazard mitigation boards, etc.) | No |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Ongoing public education or information program (Ex. Responsible water use, fire safety, household preparedness, environmental education, etc.) | Yes |
| | StormReady Certification | Yes |
| | Other (if any) | - |
| Drills | Fire/Evacuation | 10 / year |
| | Tornado | 4 / year |
| | Intruder | 8 / year |
| | Bus evacuation | 4 / year |
| | 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

The school district has a crisis response plan in which tornadoes, severe thunderstorms, and severe winter storms are discussed. The plan assigns specific responsibilities to individuals, addresses shelter in place protocols, and identifies evacuation routes. All schools and leadership are familiar with the crisis response plan. 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 | 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 the high school, middle school, both elementary schools, and the central office. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies by size |
| **Funding** | Building Fund, General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Central Office, Facilities |
| **Status** | New Action. Not Started. |

| Mitigation Action | Community Education and Awareness |
|---|---|
| **Description** | Educate staff, students, and parents about hazard vulnerability and mitigation measures. Activities may include classroom modules profiling certain hazards and discussing preparedness measures. Educational materials, such as brochures and fliers, can be developed and provided to parents to increase community wide hazard awareness. Staff training can be conducted regarding school hazard vulnerability. In addition, purchase education equipment such as overhead projectors and laptops. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Low |
| **Lead Agency** | Central Offices |
| **Status** | New Action. Ongoing, information is sent out regularly to staff, students, and parents. |

| Mitigation Action | Communication System |
|---|---|
| **Description** | Establish an action plan to improve communication between schools and other government agencies to better assist students and staff during and following emergencies. Establish interoperable communications. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $10,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Central Offices |
| **Status** | New Action. Not Started. |

| Mitigation Action | Continuity Planning |
|---|---|
| **Description** | Develop continuity plans for critical community services. Develop continuity plans for critical services in order to increase resiliency after a hazardous event. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $8,000 |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | Low |
| **Lead Agency** | Central Offices |
| **Status** | New Action. Not Started. |

| Mitigation Action | First Aid Training |
|---|---|
| **Description** | Promote first aid training for all staff. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $100 per person |
| **Funding** | General Fund |
| **Timeline** | 1-3 Years |
| **Priority** | High |
| **Lead Agency** | Central Offices |
| **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** | Low |
| **Lead Agency** | Central Offices |
| **Status** | New Action. Not Started. |

| Mitigation Action | Install Vehicular Barriers |
|---|---|
| **Description** | Install vehicular barriers to protect critical facilities where possible. |
| **Hazard(s) Addressed** | Terrorism |
| **Estimated Cost** | $500 per concrete barrier |
| **Funding** | General Fund |
| **Timeline** | 5+ Year |
| **Priority** | Low |
| **Lead Agency** | Central Offices |
| **Status** | New Action. Not Started. |

| Mitigation Action | Safe Rooms and Storm Shelters |
|---|---|
| **Description** | Design and construct storm shelters and safe rooms in the schools and central office. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $350+ per square foot |
| **Funding** | Building Fund, General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Central Office, Facilities |
| **Status** | New Action. Not Started. |

| Mitigation Action | Tornado Safety |
|---|---|
| **Description** | Implement a tornado safety program. |
| **Hazard(s) Addressed** | Tornadoes and High Winds |
| **Estimated Cost** | $5,000 |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Central Offices |
| **Status** | New Action. Ongoing, the district performs tornado drills four times a year. |

| Mitigation Action | Warning Systems |
|---|---|
| **Description** | Implement telephone interrupt system such as Reverse 911, emergency text messaging warning system, etc. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | 1-3 Years |
| **Priority** | Medium |
| **Lead Agency** | Central Offices |
| **Status** | New Action. Not Started. |

# District Profile

# Palmyra District OR-1

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

**2020**

## Local Planning Team

**Table OR1.1: Palmyra District OR-1 Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Heath Johnson | Principal | Palmyra District OR-1 |
| Michael Hart | Superintendent | Palmyra District OR-1 |

## Location

Palmyra District OR-1 is in western Otoe County and eastern Lancaster County. It consists of two schools, storage garage, old football fields, and a new athletic complex. The school district provides services to students in the communities of Palmyra and Bennet.

## Transportation

Transportation information is important to hazard mitigation plans because it suggests areas more at risk of transportation incidents. Highway 2, Highway 43, and Highway Spur 66A all travel through the district boundary. Nebraska Highway 2 is traveled by a total annual average of 12,320 vehicles daily, 2,585 of which are trucks. Nebraska State Highway 43 is traveled by a total annual average of 7,235 vehicles daily, 370 of which are trucks. Highway 66A is traveled by a total annual average of 1,285 vehicles daily, 70 of which are trucks.[76] The district owns approximately eight buses with 200 students bused to and from school.

## Demographics

The figure below displays the student population trend. It indicates that the student population has been increasing since 2015. In the 2018-2019 school year, there were 591 students enrolled at Palmyra District OR-1.[77] The district anticipates an increase in student population in the coming years. This is due to the growing communities and the construction of the Lincoln South Beltway which will increase housing in the area.

76 Nebraska Department of Roads. 2018. “Interactive Statewide Traffic Counts Map.” [map]. https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34.
77 Nebraska Department of Education. 2019. "Nebraska Education Profile." https://nep.education.ne.gov/.

**Figure OR1.1: Palmyra District OR-1**

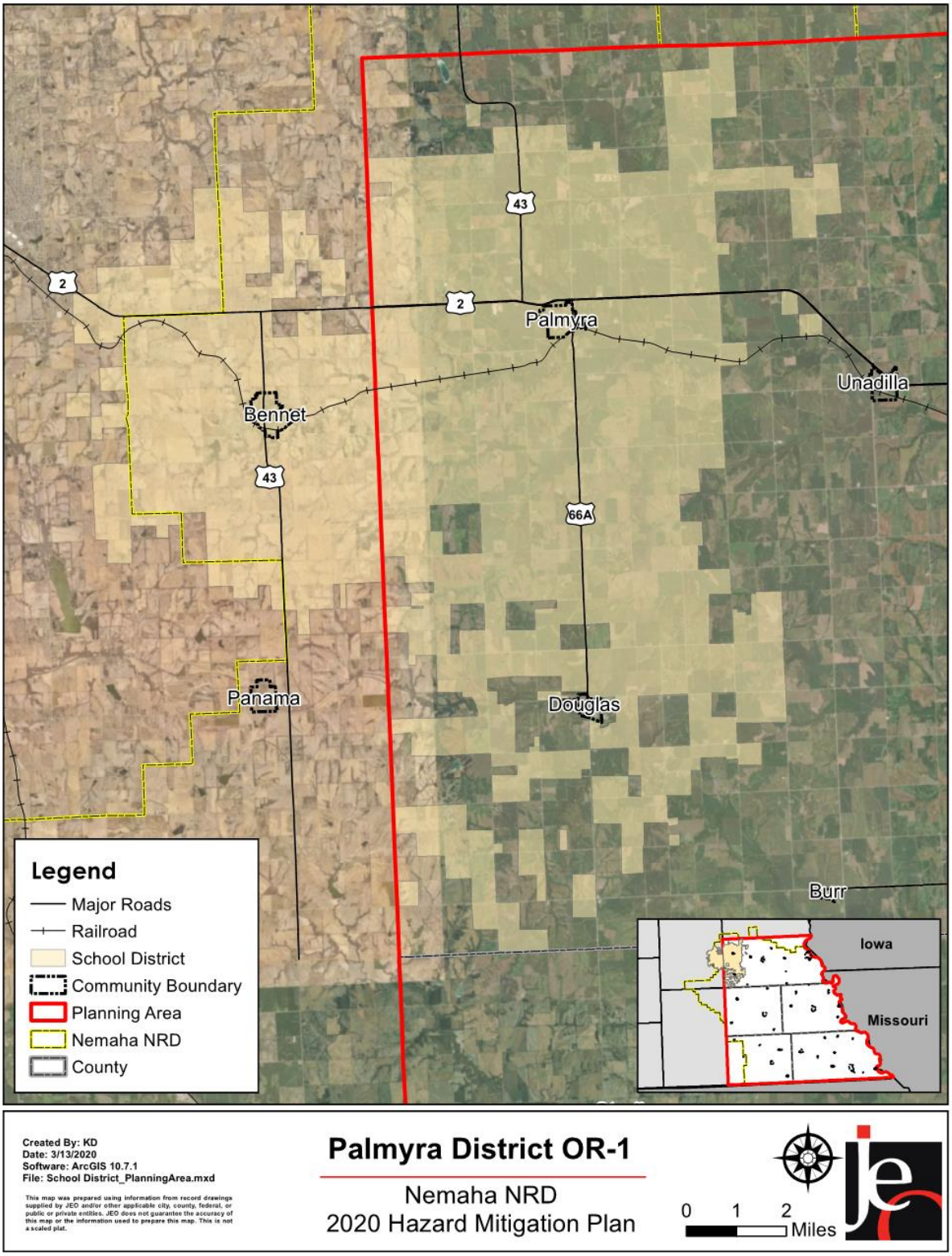
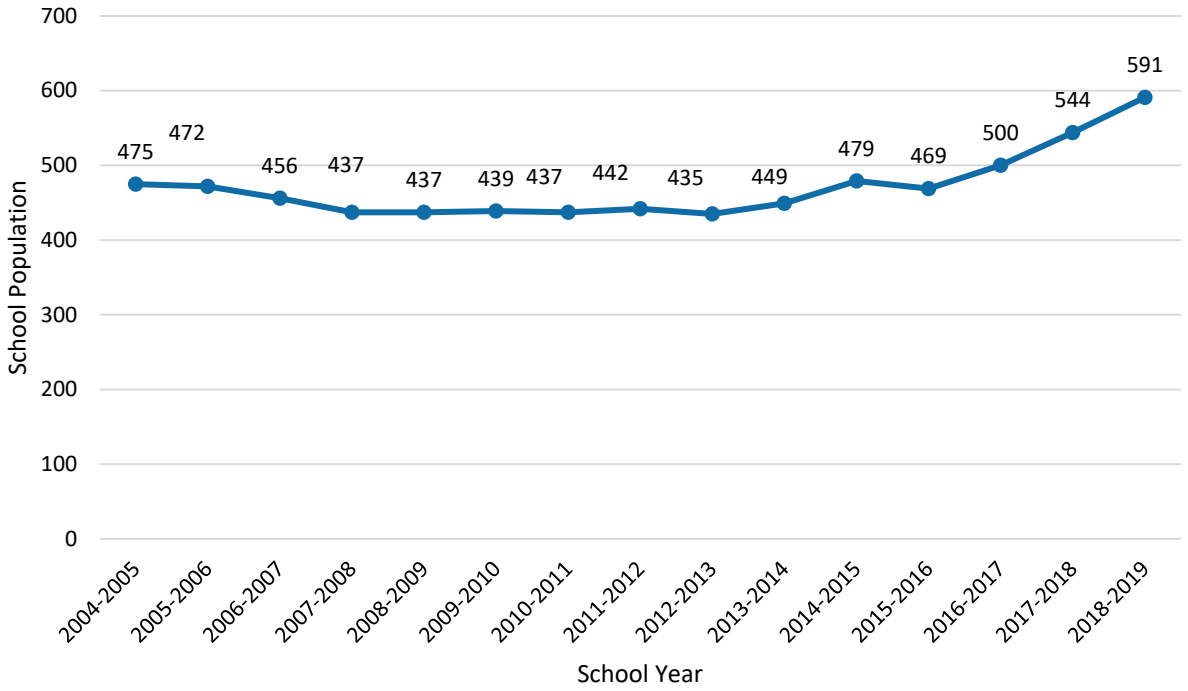


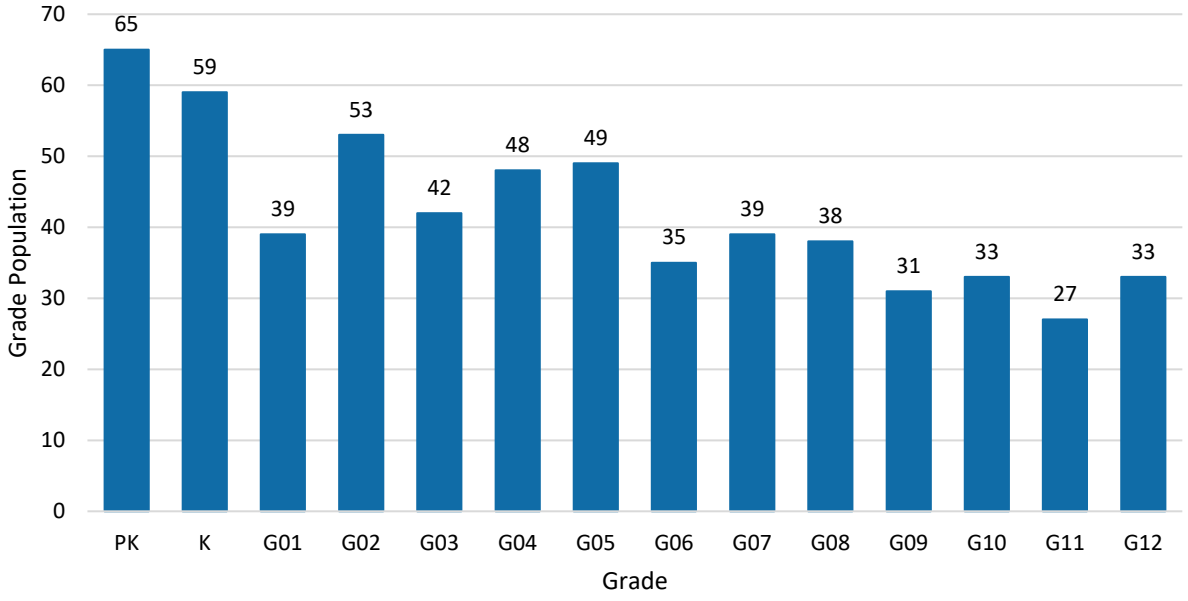
**Figure OR1.2: Student Population**




*Source: Nebraska Department of Education, 2019*

During the 2018-2019 school year, the student population was higher in the younger grades, with the largest number of students in prekindergarten, kindergarten, and 2nd grade. The lowest population of students was in 11th, 9th, and 12th grades. Children under 16 are especially vulnerable to hazard events because they are dependent on parents and guardians for transportation and financial support.

**Figure OR1.3: Number of Students by Grade**




*Source: Nebraska Department of Education, 2019*

According to the Nebraska Department of Education, 23% of students are in a Special Education program. This is higher than the state average of 15%. About 20% of students receive either free or reduced priced meals at school. These students may be more vulnerable during a hazardous event than the rest of the student population.

**Table OR1.2: Student Demographics**

| | School District | State of Nebraska |
|---|---|---|
| Free/Reduced Priced Meals | 19.80% | 45.21% |
| English Language Learners | Not Available | 7.16% |
| Special Education Students | 22.81% | 15.48% |

*Source: Nebraska Department of Education, 2019*

## Future Development Trends

Over the last five years, the elementary and high school were added on to and renovated. A new athletic complex was built, and a house was removed from school property. In the next five years, additional renovations are likely to occur but nothing is planned yet. The elementary school is at capacity and will likely need additions or to remove grades.

## 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 four chemical storage sites that house hazardous materials in Palmyra District OR-1. Refer to the Village of Palmyra and Otoe County profiles for more information on these sites. School buildings are not located near fixed chemical sites.

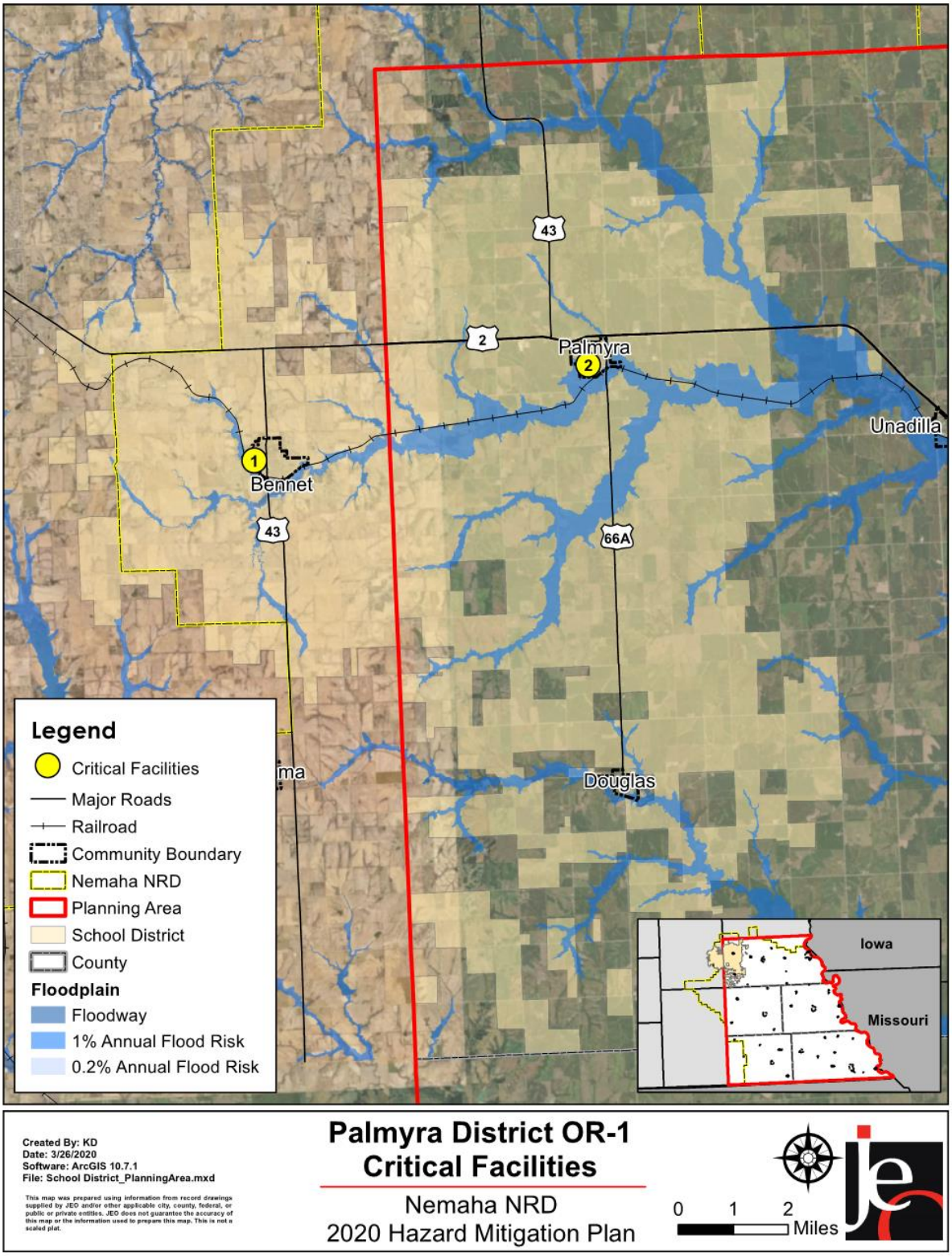
### Critical Facilities

Palmyra District OR-1 identified the following critical facilities necessary to maintain the functions of the schools. The following table and figure provide a summary of the critical facilities for the community.

**Table OR1.3: Critical Facilities**

| CF Number | Name | # of Students | # of Staff | Community Shelter (Y/N) | Safe Room (Y/N) | Generator (Y/N) | Located in Floodplain (Y/N) |
|---|---|---|---|---|---|---|---|
| 1 | Elementary School | 229 | 30 | Y | Y | Y | N |
| 2 | Junior/Senior High School | 400 | 30 | Y | N | Y | N |

**Figure OR1.4: Critical Facilities**



## Historical Occurrences

See the Otoe 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 (Transportation)

The junior/senior high school is located near Highway 2, which transports a high volume of chemicals on a daily basis. If a spill were to occur on the highway near the school, evacuation could be extremely difficult as the evacuation routes would likely lead closer to the spill. The district does not have any plans related to chemical spills response. No historical occurrences of chemical spills have impacted the school district.

### Severe Thunderstorms

The primary concern related to severe thunderstorms is damage to buildings. Schools would likely shelter-in place, so risk of injury is low. There have been no past damages due to thunderstorms; however, power loss has occurred for short periods of time. Both schools have very small backup generators which can run minimal equipment like heat and lights. In the event of power loss, data is backed up on the cloud and on a server at the schools.

### Severe Winter Storms

Severe winter storms are most likely to impact transportation and student safety to and from the school buildings. If Highway 2 is closed, that will severely impact students' ability to get to school. The district handles snow removal on school grounds; the rest is handled by the villages or counties. Equipment for snow removal includes a pickup with a blade and a lawn mower with a blade. Typically, these resources are sufficient, but the school district can contract out snow removal if needed. School closures are also a possibility due to severe winter storm events. In 2019 a snowstorm closed school for three days. Because severe winter storms are an annual occurrence, the district has snow days built into the yearly schedule. All district-owned buildings have flat roofs which could become damaged due to heavy snow loads.

### Terrorism

The district is primarily concerned with student-related violence or a lone student incident. Procedures are in place should a terrorism type event occur. Typically, students are told to shelter-in place, but evacuation routes and locations have been identified. In 2015 a student pointed a bb gun at a teacher, but the incident did not result in any injuries. Both schools use a buzzer system to enter the school, and the district has the ability to lock all doors with a switch. The junior/senior high school has shatter-proof windows installed.

### Tornadoes and High Winds

No tornado or high wind events have impacted the school district. In the event of a tornado or high wind event, the entire east wing of the junior/senior high school is concrete and is designed to be a shelter location. Doors in the wing are steel and windows are designed for high winds. Interior rooms are available in the elementary school for shelter locations. The district has a

response plan in place for tornadoes and the schools can be used as a community shelter if the need arises.

## Administration

The Palmyra District OR-1 Board of Education, comprised of a locally elected six-member panel, establishes regulations and policies to govern the school district. They appoint a superintendent to implement these regulations. The superintendent in turn appoints principals who supervise the schools' operations. These administrators will manage the implementation of hazard mitigation projects. The district also has the following offices, departments, and committees.

- Jr/Sr High Secretary
- Elementary Secretary
- Bookkeeper
- School Maintenance

## Capability Assessment

The following table summarizes the district's overall capability to implement mitigation projects. Staff is trained on emergency procedures at the beginning of the year through a handbook. Students and families are educated on emergency procedures in the classroom and through calls and social media. Each school has an EMT on location, and the fire department and sheriff tour the buildings and perform an inspection each year. The district participates in Tornado Awareness Week and Fire Prevention Week

**Table OR1.4: Capability Assessment**

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| Planning Capability | Capital Improvements Plan/Long-Term Budget | Yes |
| | Continuity of Operations Plan | No |
| | Disaster Response Plan | Yes |
| | Other (if any) | School Shooter/Bomb Threat Plan |
| Administration & Technical Capability | GIS Capabilities | Yes |
| | Civil Engineering | Yes |
| | Local staff who can assess community's vulnerability to hazards | Yes |
| | Grant Manager | Yes |
| | Mutual Aid Agreement | Yes |
| | Other (if any) | - |
| Fiscal Capability | Applied for grants in the past | Yes |
| | Awarded grants in the past | Yes |
| | Authority to levy taxes for specific purposes such as mitigation projects | Yes |
| | Development Impact Fees | No |
| | General Obligation Revenue or Special Tax Bonds | Yes |
| | Approved bonds in the past | Yes |
| | Flood Insurance | No |
| | Other (if any) | - |
| Education & Outreach Capability | Local school groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations, etc. (Ex. Parent groups, hazard mitigation boards, etc.) | Yes |

| Survey Components/Subcomponents | | Yes/No |
|---|---|---|
| | Ongoing public education or information program (Ex. Responsible water use, fire safety, household preparedness, environmental education, etc.) | Yes |
| | StormReady Certification | No |
| | Other (if any) | - |
| Drills | Fire | 11 / year |
| | Tornado | 2 / year |
| | Intruder | 2 / year |
| | Bus evacuation | 2 / year |
| | Evacuation | 11 / year |
| | Other (if any) | - |

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

## Plan Integration

The school district has a crisis response/disaster response plan which covers response to intruders, fire, tornadoes, and chemical spills. This plan assigns specific responsibilities, addresses shelter in place protocols, identifies scenarios that would require evacuation, and identifies sheltering locations. All departments are familiar with this part of the handbook. 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 | 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 schools. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies by size |
| **Funding** | School Budget |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Superintendent, Principal |
| **Status** | New Action. Not Started. |

# District Profile

# Palmyra Rural Fire District

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

**2020**

## Local Planning Team

**Table PFD.1: Palmyra Rural Fire District Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Joe Moller | Fire Chief | Douglas Volunteer Fire Department |

## Location and Geography

The Palmyra Rural Fire District covers 75,500 acres in the western portion of Otoe County, including the Village of Douglas and the Village of Palmyra. The district is made up of the Douglas Volunteer Fire Department and Palmyra Fire Department. The fire district addresses structure and wildland fire as well as rescue/EMS services.

## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. Nebraska Highway 2, 43, and Spur 66A all travel through the Palmyra Rural Fire District. Nebraska Highway 2 is traveled by a total annual average of 11,830 vehicles daily, 2,595 of which are trucks. Nebraska Highway 43 is traveled by a total annual average of 1,030 vehicles daily, 90 of which are trucks. Spur 66A is traveled by a total annual average of 930 vehicles daily, 60 of which are trucks.[78] Transportation routes of most concern included Highway Spur 66A, Highway 2, Highway 43, and county roads. Spur 66A and the county roads have been closed in the past due to flooding. Varies chemicals are regularly transported on Highway 2. If an evacuation is necessary, the northeast and southeast edges of Douglas may be difficult if flooding is occurring.

## Demographics

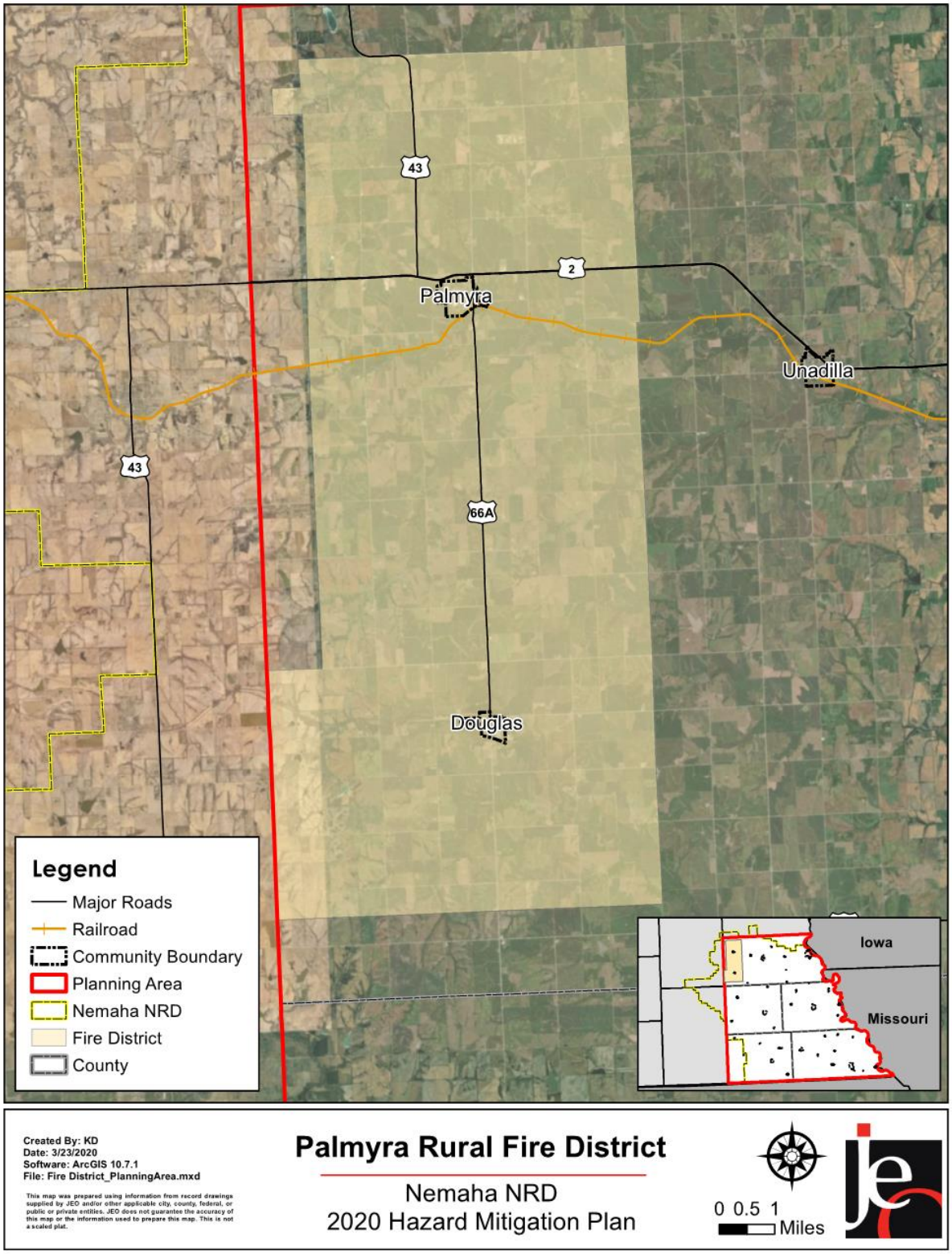
See the Village of Douglas, Village of Palmyra, and the Otoe County profiles for regional demographic information. The district serves approximately 2,500 people.

## Future Development Trends

In the last five years both the Douglas Volunteer Fire Department and Palmyra Fire Department have implemented automatic dual response to all calls in the district. This has increased the number calls each department responds to. The fire district does not plan on any development changes in the next five years.

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

**Figure PFD.1: Palmyra Rural Fire District**



# Critical Infrastructure

## Chemical Storage Fixed Sites

Information on chemical storage sites can be found in the Village of Douglas, Village of Palmyra, and Otoe County profiles. The primary concern for fixed chemical sites is the Palmyra Co-op. Chemicals stored there vary by the season.

## 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 Palmyra Rural Fire District.

**Table PFD.2: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | In Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | EMS Building | N | Y | N |
| 2 | Douglas Fire Station | N | Y | N |
| 3 | Palmyra Fire Station | N | Y (Portable) | N |

# Historical Occurrences

See the Otoe 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*.

## Drought and Extreme Heat

The primary concern related to drought and extreme heat is the increased risk of wildfires and water shortages. In the 1990s, water restriction policies were put into effect. During that time, the district still had the water needed to handle fires. If water was needed during a drought, the district has access to a farm pond that could be used to fill trucks. Otoe County Emergency Management and the National Weather Service are used to identify drought conditions.

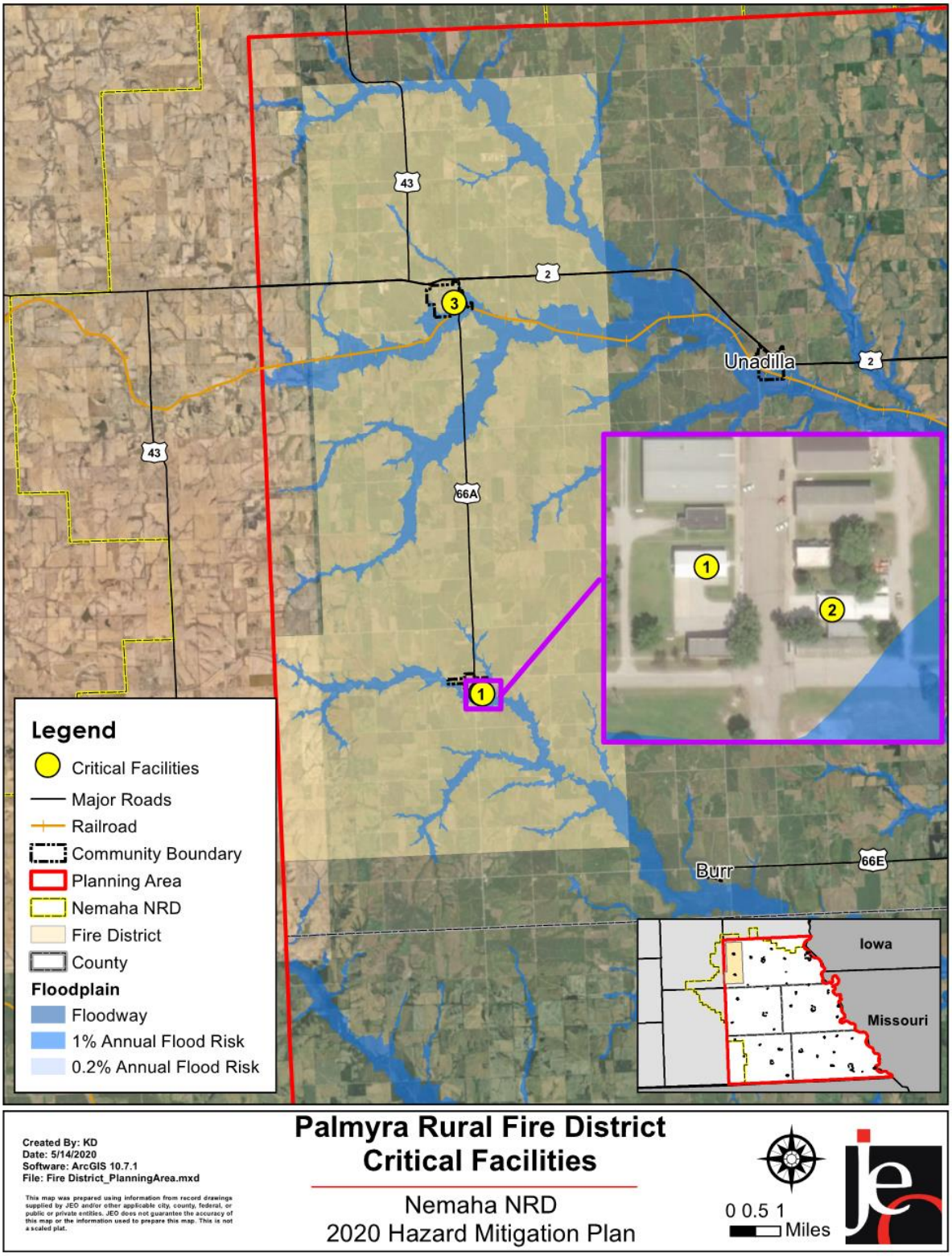
## Flooding

Past flooding events have closed roads to and from the Village of Douglas two different times. This drastically impacted response times for fire and EMS services. Individual roads and culverts have been washed out which altered routes. The Little Nemaha River and Silver Creek are the bodies of water most likely to flood in the district.

## Severe Thunderstorms

Past severe thunderstorm events have caused flooding, downed trees, blocked roads, and lightning strikes. Lightning hit the control panel at the water tower in Douglas knocking out the ability to monitor the water level. Power loss has also caused emergency communication to not be functional. The Douglas Volunteer Fire Department repeater tower has had issues due to multiple lightning strikes. A backup generator has been installed which has helped reduce some of these issues. All critical facilities have hail insurance. Electrical equipment has surge protectors and critical records are backed up on flash drives.

**Figure PFD.2: Critical Facilities**



### Severe Winter Storms

In December 2009 the district experienced several blizzards with heavy amounts of snow. The fire department had to use the town dump truck to try to plow their way to a rescue call and tore out the transmission. Other events have caused multiple road closures, making it extremely difficult for fire and rescue to respond to calls. The district relies on the villages and county roads department to clear roadways. Ice storms have also caused prolonged power outages.

### Tornadoes and High Winds

Tornadoes have occurred in the district but have only impacted rural areas. No critical facilities have been damaged by past tornado or high wind events. In the event of a disaster event, mural aid agreements are in place with Otoe County Mutual Aid and Lancaster County Mutual Aid. There are no safe rooms in the district, but residents can shelter in community centers, churches, or basements. Tornado sirens are tested monthly and can be activated by Otoe County Sheriff, fire district personnel, and Otoe County Emergency Management.

### Wildfire

Primary concerns related to wildfires are lack of personnel during daytime hours, lack of water resources, and the amount of area to cover. One of the largest fires occurred during a drought period and spanned approximately 200+ acres. Two other wildfires spread into creek bottoms and spread quickly due to high winds. All three events occurred in the last 10 years and caused crop and property damage. District resources for fires include a 2,300-gallon tanker, a 1,500 gallon per minute pumper, two grass trucks, and an ambulance. There is no wildland-urban interface code; however defensible spaces are encouraged. The district performs fire safety education and enforcement of prescribed burns.

## Staffing

The Palmyra Rural Fire District is governed by a five-member board of directors who will oversee the implementation of hazard mitigation projects. Other offices are listed below.

- Fire Chief
- Otoe County Mutual Aid President

## 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 Palmyra Rural Fire District will continue to utilize existing relationships with local, county, state, and federal agencies in the implementation of mitigation projects. The Douglas Volunteer Fire Department includes training information and community hazards in the monthly village newsletter. The district has applied for grants in the past and has been awarded grants through FEMA and the Nebraska Forestry Service.

**Table PFD.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 | Moderate |
| Time to devote to hazard mitigation | Moderate - High |

## Plan Integration

The Palmyra Rural Fire District does not have any formal planning documents; however, it does have Standard Operating Guidelines (SOGs), which outline the district's response for any type of call 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. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Varies |
| **Funding** | General Fund |
| **Timeline** | Ongoing |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief |
| **Status** | New Action. Ongoing, equipment is updated as needed and funding is available. |

| Mitigation Action | Community Education and Awareness |
|---|---|
| **Description** | Establish a community education program to increase awareness related to household level mitigation actions. Utilize outreach projects and the distribution of maps. Purchase equipment such as projectors and laptops to facilitate presentation of information. Educate new residents on the location of community shelters. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $5,000+ |
| **Funding** | Staff Time, General Fund |
| **Timeline** | 1 Year |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief |
| **Status** | New Action. Not Started. |

# District Profile

# Syracuse Volunteer Fire Department

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

**2020**

## Local Planning Team

**Table SVF.1: Syracuse Volunteer Fire Department Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Bruce Neemann | Fire Chief/Floodplain Administrator | Syracuse Volunteer Fire Department |

## Location and Geography

The Syracuse Volunteer Fire Department covers 105 square miles in the central portion of Otoe County, including the City of Syracuse and the Village of Otoe. The fire department mainly addresses grass and wildfire in the region's rural area and fires in the city.

## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. Nebraska Highways 2, 12B, and 50 all travel through the Syracuse fire district. Nebraska Highway 50 is traveled by a total annual average of 6,180 vehicles daily, 855 of which are trucks. Nebraska State Highway 2 is traveled by a total annual average of 10,975 vehicles daily, 2,740 of which are trucks.[79] Transportation routes of concern are Highway 2 and Highway 50 as radiological hazards are transported along those routes. The district planning team identified nursing homes and assisted living facilities have having difficulty if an evacuation became necessary due to limited mobility.

## Demographics

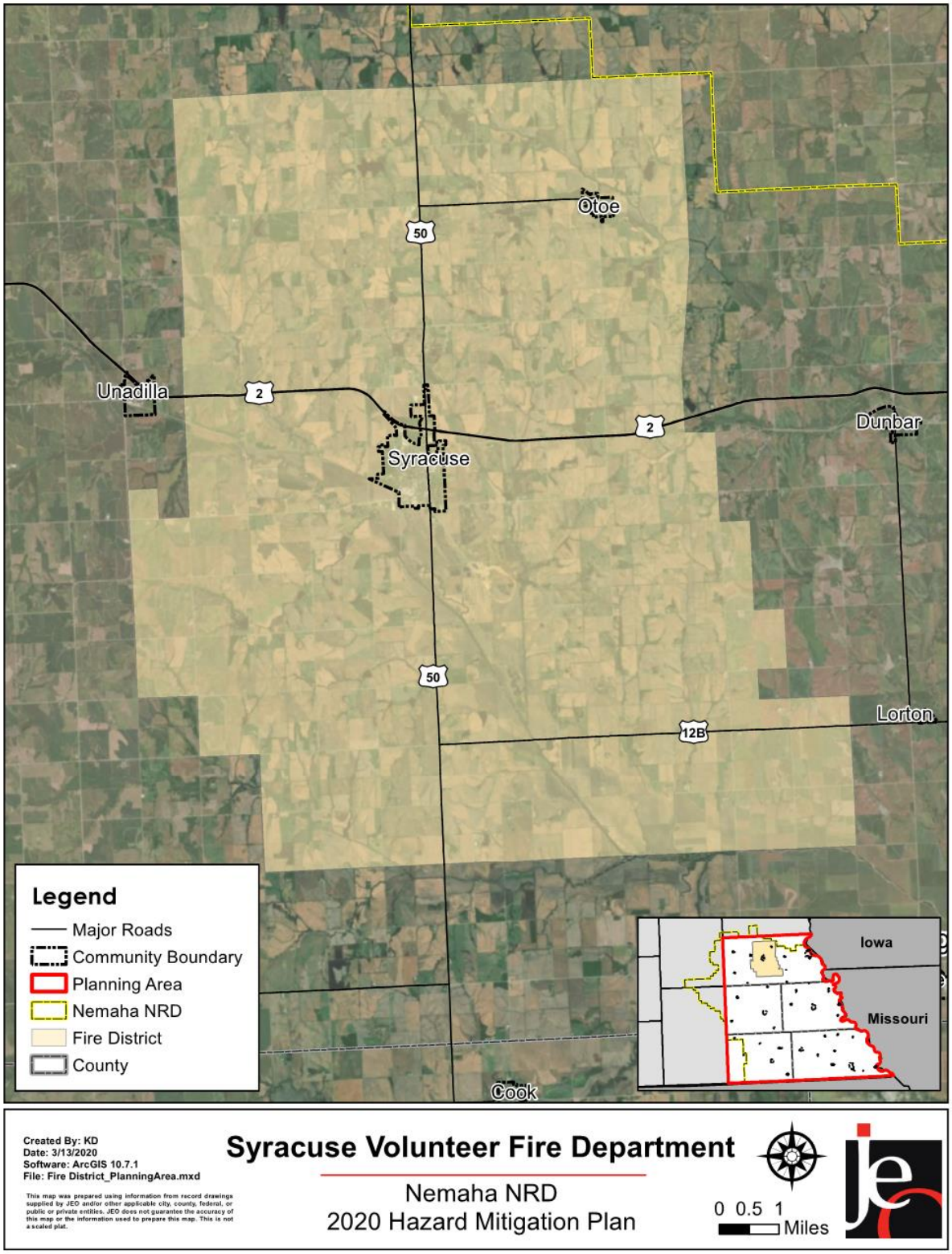
See the City of Syracuse, Village of Otoe, and the Otoe County profiles for regional demographic information. The district serves an estimated 3,500 people.

## Future Development Trends

In the past five years no changes to department-owned buildings occurred. Over the next five years, a new housing development is planned on the northeast corner of Syracuse. There are no planned changes for the fire department.

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

**Figure SVF.1: Syracuse Fire Department**



## Critical Infrastructure

### Chemical Storage Fixed Sites

Information on chemical storage sites can be found in the City of Syracuse, Village of Otoe, and Otoe County profiles. Within the department boundary, there is a large dry fertilizer storage, ammonia storage, and liquid petroleum gas storage. The department has monthly trainings covering a wide variety of topics from fire to hazardous materials response.

### 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 Syracuse Fire Department.

**Table SVF.2: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | Located in Floodplain (Y/N |
|---|---|---|---|---|
| 1 | Syracuse Fire Station | N | Y (In process) | N |
| 2 | Syracuse Rural Otoe Station | N | N | N |

## Historical Occurrences

See the Otoe 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*.

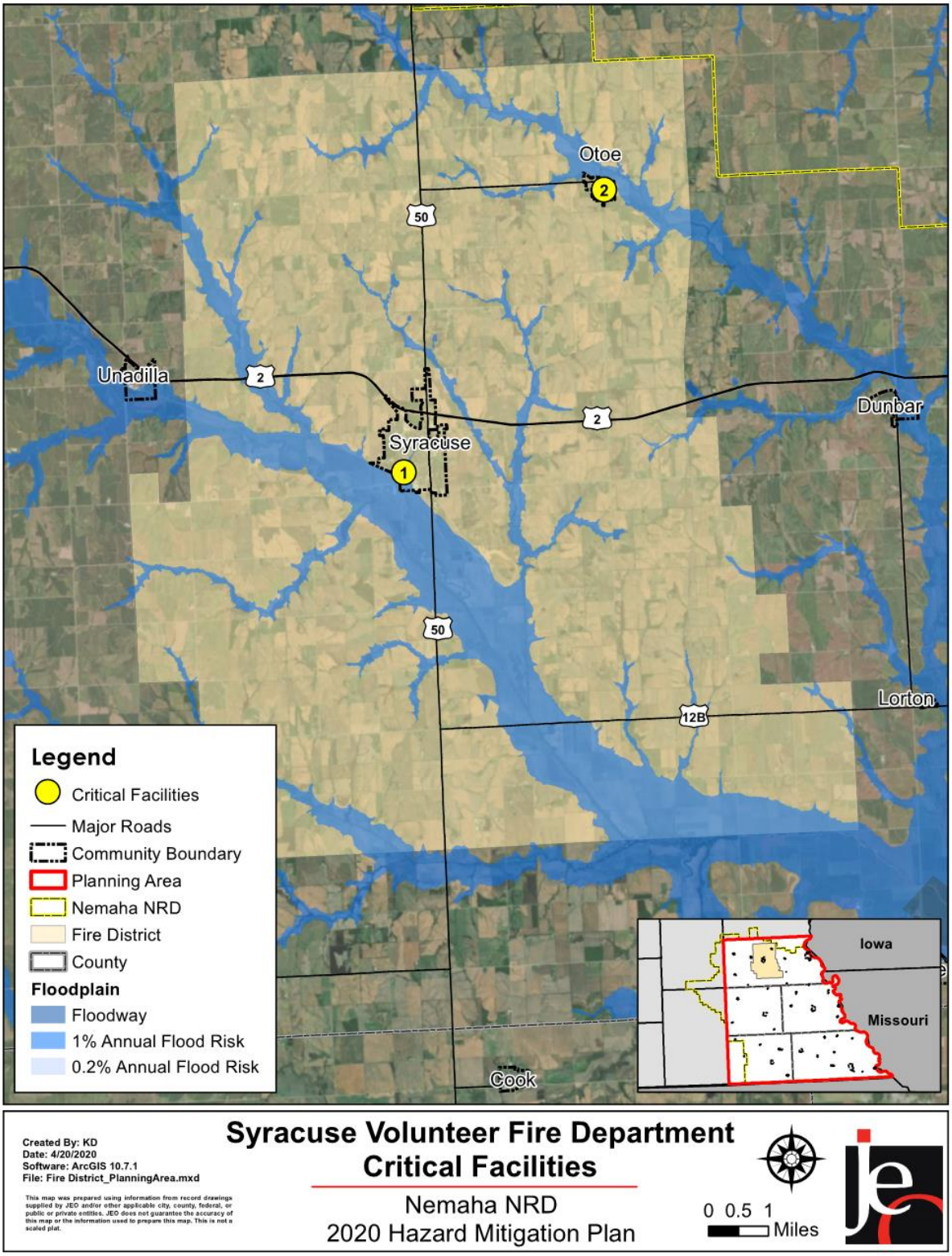
### Chemical and Radiological Spills (Fixed Site)

The fire department is primarily concerned with chemical sites, as there are no radiological sites in the jurisdiction. Most fixed sites in the area are related to agriculture, but the department is not always aware of what chemicals are being stored and where. Small releases of NH3 have occurred without any damages. No critical facilities are located near chemical fixed sites, only single-family dwellings. Response equipment includes three engines, three tankers, two utility vehicles, two grass rigs, fire protection PPE, and a limited number of HazMat suits. Some, but not all, responders are trained in HazMat releases. To mitigate the impacts of a release, the department visits sites yearly to become more familiar with the facilities' layouts.

### Chemical and Radiological Spills (Transportation)

The department's primary concern regarding transportation chemical and radiological spills is the amount of known and unknown chemicals being transported. Both Highway 2 and Highway 50 travel through the jurisdiction and each have high amounts of truck traffic. Common chemicals that are transported include gasoline, diesel fuel, radiological chemicals, corrosives, and acids. In the past, the department responded to a truck accident carrying sodium cyanide. No chemical release occurred during the event. Both the hospital and high school are located near major transportation routes. If a large spill were to occur near those sites, evacuations may be necessary. To reduce the impacts of chemical spills, the department conducts training on calls involving chemicals.

**Figure SVF.2: Critical Facilities**



### Severe Thunderstorms, Tornadoes, and High Winds

Severe thunderstorms are an annual occurrence across the district. No high wind events or tornadoes have occurred recently. Receiving advanced warnings of storms is the largest concern for the fire department. For notification, the fire department is able to activate warning sirens, and text alerts are available through the county to those that sign up. No critical facilities have been impacted by storms in recent years. In the event of damage, both buildings are insured. There are no FEMA certified safe rooms in the jurisdiction. The department can access the basement of a bank if public shelter is needed. After an event has occurred the fire department typically assists in clearing streets and helping residents if needed. Mutual aid agreements are in place through the Otoe County Mutual Aid Association.

## Staffing

The Syracuse 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 (3)
- Captains (2)
- President
- 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 Syracuse Fire Department will continue to utilize existing relationships with local, county, state, and federal agencies in the implementation of mitigation projects. The fire department has applied for grants in the past and has been awarded grants for SCBA and grain bin rescue equipment.

**Table SVF.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 | Moderate |

## Plan Integration

Syracuse Volunteer Fire Department does not have any formal planning documents; however, it does have Standard Operating Procedures (SOPs) for severe storm weather watches. These SOPs outline the response protocols for the fire department during severe weather events like notifying high risk facilities. No other examples of plan integration were identified. There are currently no plans to further integrate existing or future planning mechanisms.

## Mitigation Strategy

### New Mitigation Actions

| Mitigation Action | Safe Rooms and Storm Shelters |
|---|---|
| **Description** | Provide a building at the fire/rescue complex for the public for temporary shelter after a hazardous event. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $50,000 |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Syracuse Volunteer Fire Department |
| **Status** | New Action. Not Started. |

# District Profile

# Talmage Rural Fire Department

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

**2020**

## Local Planning Team

**Table TFD.1: Talmage Rural Fire Department Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Greg Conz | Fire Chief | Talmage Rural Fire Department |

## Location and Geography

The Talmage Rural Fire Department covers 64,000 acres in the central southern portion of Otoe County, including the Village of Talmage and Village of Lorton. It also covers portions of Johnson County and Nemaha County. The fire district mainly addresses grass and wildfire in the region's rural area.

## Transportation

Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors and areas more at risk of transportation incidents. Nebraska Highway 66D and 67 both travel through the Talmage Rural Fire Department. Nebraska Highway 66D is traveled by a total annual average of 450 vehicles daily, 50 of which are trucks. Nebraska Highway 67 is traveled by a total annual average of 885 vehicles daily, 80 of which are trucks.[80] A Union Pacific Railroad rail line runs through a small portion of the district. Transportation routes of most concern include the highways, and county roads 40, 46, and R. Many of these routes have agricultural chemicals regularly transported along them, and County Road R is routinely closed due to flooding.

## Demographics

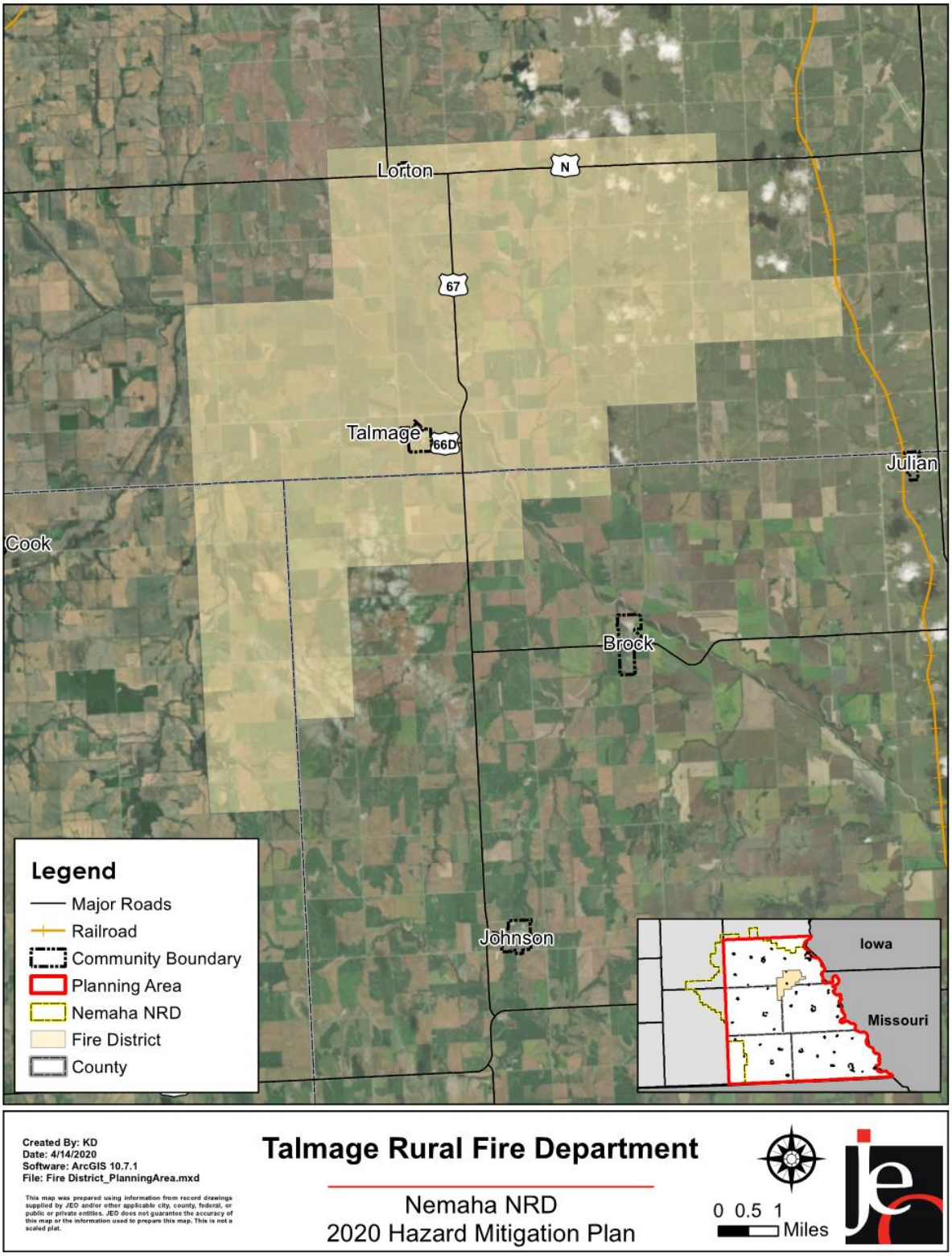
See the Village of Talmage, Village of Lorton, Johnson County, Nemaha County, and the Otoe County profiles for regional demographic information. The district serves approximately 1,800 people.

## Future Development Trends

In the last five years, a new fire hall was built in 2018 and the co-op added new grain bins. In the next five years the district planning team indicated that the co-op will likely construct additional grain bins.

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

**Figure TFD.1: Talmage Rural Fire Department**



# Critical Infrastructure

## Chemical Storage Fixed Sites

Information on chemical storage sites can be found in the Village of Talmage, Village of Lorton, Johnson County, Nemaha County, and Otoe County profiles.

## 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 Talmage Rural Fire Department.

**Table TFD.2: Critical Facilities**

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

# Historical Occurrences

See the Otoe 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*.

## Agricultural Animal and Plant Disease

The district's economy is heavily reliant on agriculture and animals. Any type of large disease outbreak would severely impact the local community and rural areas. In 2016, the corn crop was impacted by a mold fungus after a wet summer. There are two large pig feedlots and one cow feedlot located within the fire district.

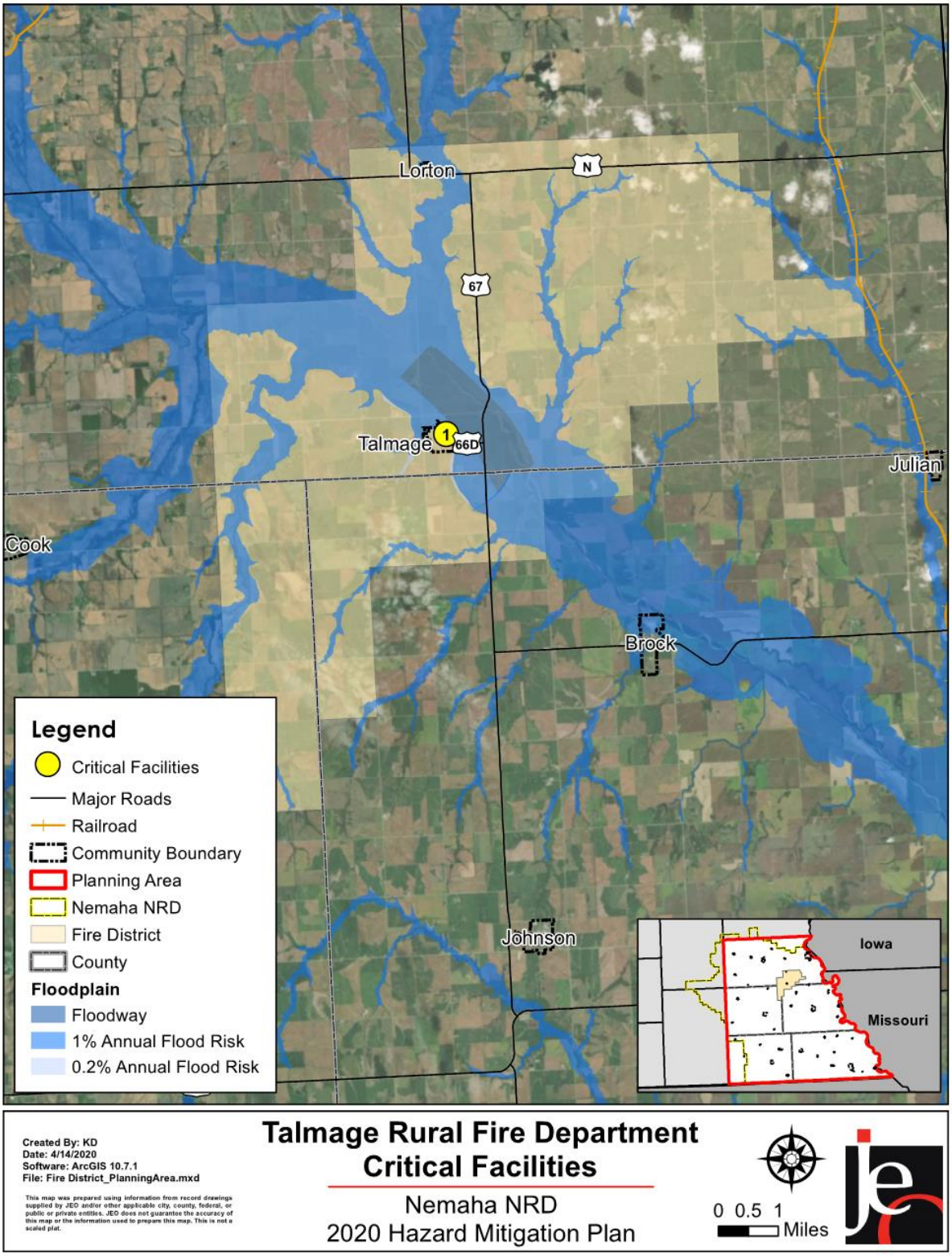
## Chemical and Radiological Spills (Transportation)

The primary concerns related to transportation chemical spills is the amount of anhydrous ammonia which is transported and the Cooper Nuclear Power Plant. The plant is located within 30 miles of the fire department and chemicals are regularly transported along nearby routes. No large spills have occurred. Response equipment includes two tankers and two pumper trucks. The department also works closely with Otoe County Emergency Management to mitigate the potential impacts of a spill.

## Flooding

Flooding from heavy rains has occurred in 2001, 2009, 2011, 2013, and 2019. Impacts from these events include damaged homes, crop damage, and closure of roads. The co-op has also been damaged in the past due to flood water. Response times have been impacted due to road closures. During a flooding event, the fire department assists in evacuations and sandbagging where necessary. Important records are not backed up. The department is trying to put records on the computer, but most are paper copies at this time.

**Figure TFD.2: Critical Facilities**



### Severe Winter Storms

Large winter storms occurred in 2018 and 2019. Impacts from those storms included shutting down roads which affected outside resources, like food, coming in. The road closures also affected the fire department's ability to respond to calls in a timely manner. Snow removal in done by the village within its boundary, the county along county roads, and the state along the highways. Removal is typically sufficient, but roads can become hazardous at night when removal does not occur.

### Tornadoes and High Winds

During the summers of 2017 and 2018, the district experienced four high wind events. The fire hall was not damaged during these past events. There is one warning siren in the district located in the southwest corner of Talmage. It can be activated by a push button at the fire hall. There are no certified safe rooms and the public must seek shelter at private residences. In the event of a disaster, the fire department has mutual aid agreements in place with other fire departments in Otoe County. Otoe County Emergency Management offers text alerts and holds an annual severe weather class.

## Staffing

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

- Assistant Fire Chiefs
- Treasurer/Secretary
- Safety Officer

## 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 Talmage Rural Fire Department will continue to utilize existing relationships with local, county, state, and federal agencies in the implementation of mitigation projects. The district has applied for grants in the past and has been awarded grants for SCBAs and personal protective equipment.

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

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

## Plan Integration

Talmage Rural Fire Department does not have any formal planning documents, however, it does have Standard Operation Guidelines (SOGs) which are currently in the process of being updated. The updated SOGs will outline the department's response to a variety of calls that could be received, including wildfire and chemical spills. The district will seek out and evaluate any opportunities to integrate the results of the current HMP into other planning mechanisms and updates. Specifically, the updated SOGs should integrate the goals, objectives, and mitigation actions in the HMP.

# Mitigation Strategy

## New Mitigation Actions

| Mitigation Action | Alert/Warning Siren |
|---|---|
| **Description** | Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking with remote activation options. The existing siren is very old and does not have remote access. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $5,000+ |
| **Funding** | General Budget, Village General Fund |
| **Timeline** | 1-2 Years |
| **Priority** | High |
| **Lead Agency** | Fire Chief, Village Board |
| **Status** | New Action. Not Started. |

| 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 the fire hall. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $30,000+ |
| **Funding** | General Budget, Donations |
| **Timeline** | 1-2 Years |
| **Priority** | High |
| **Lead Agency** | Rural Fire Board, Fire Chief |
| **Status** | New Action. Not Started. |

# District Profile

# Unadilla Volunteer Fire and Rescue

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

**2020**

## Local Planning Team

**Table UFR.1: Unadilla Volunteer Fire and Rescue Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Steven Vodicka | Fire Chief | Unadilla Volunteer Fire and Rescue |

## Location and Geography

The Unadilla Volunteer Fire and Rescue covers 40,320 acres in the west central portion of Otoe County, including the Village of Unadilla. The fire district mainly addresses grass and wildfire in the region's rural area.

## 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 2 travels through the Unadilla Volunteer Fire and Rescue district. Nebraska State Highway 2 is traveled by a total annual average of 11,335 vehicles daily, 2,605 of which are trucks.[81] Chemicals, radiological hazards, and explosives are all regularly transported along the highway.

## Demographics

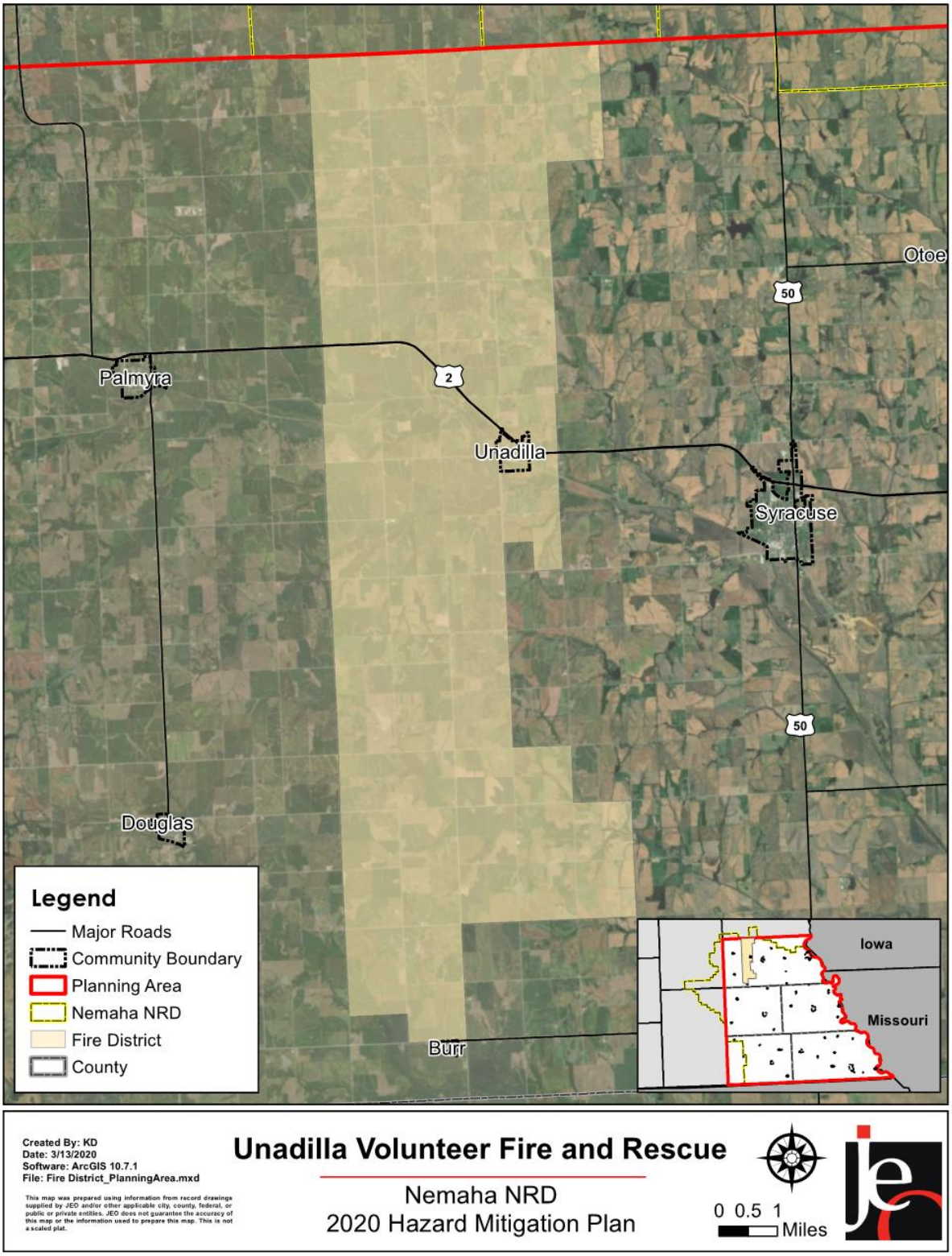
There are approximately 800 people living in the district. See the Village of Unadilla and the Otoe County profiles for regional demographic information.

## Future Development Trends

In the past five years there have been no changes to district-owned buildings. A new housing development has been added north of Unadilla. In the next five years, additional housing is planned and the district plans to add additional stalls to the fire station.

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

**Figure UFR.1: Unadilla Volunteer Fire and Rescue**



## Critical Infrastructure

### Chemical Storage Fixed Sites

Information on chemical storage sites can be found in the Village of Unadilla and Otoe County profiles. The primary concern related to chemical fixed sites is that many residents are not aware of the danger until an emergency happens. Responders are trained annually on HazMat and receive ongoing fire and rescue training.

### 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 Unadilla Volunteer Fire and Rescue.

**Table UFR.2: Critical Facilities**

| CF Number | Name | Community Shelter (Y/N) | Generator (Y/N) | Located in Floodplain (Y/N) |
|---|---|---|---|---|
| 1 | Unadilla Fire Station | N | Y | N |

## Historical Occurrences

See the Otoe 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*.

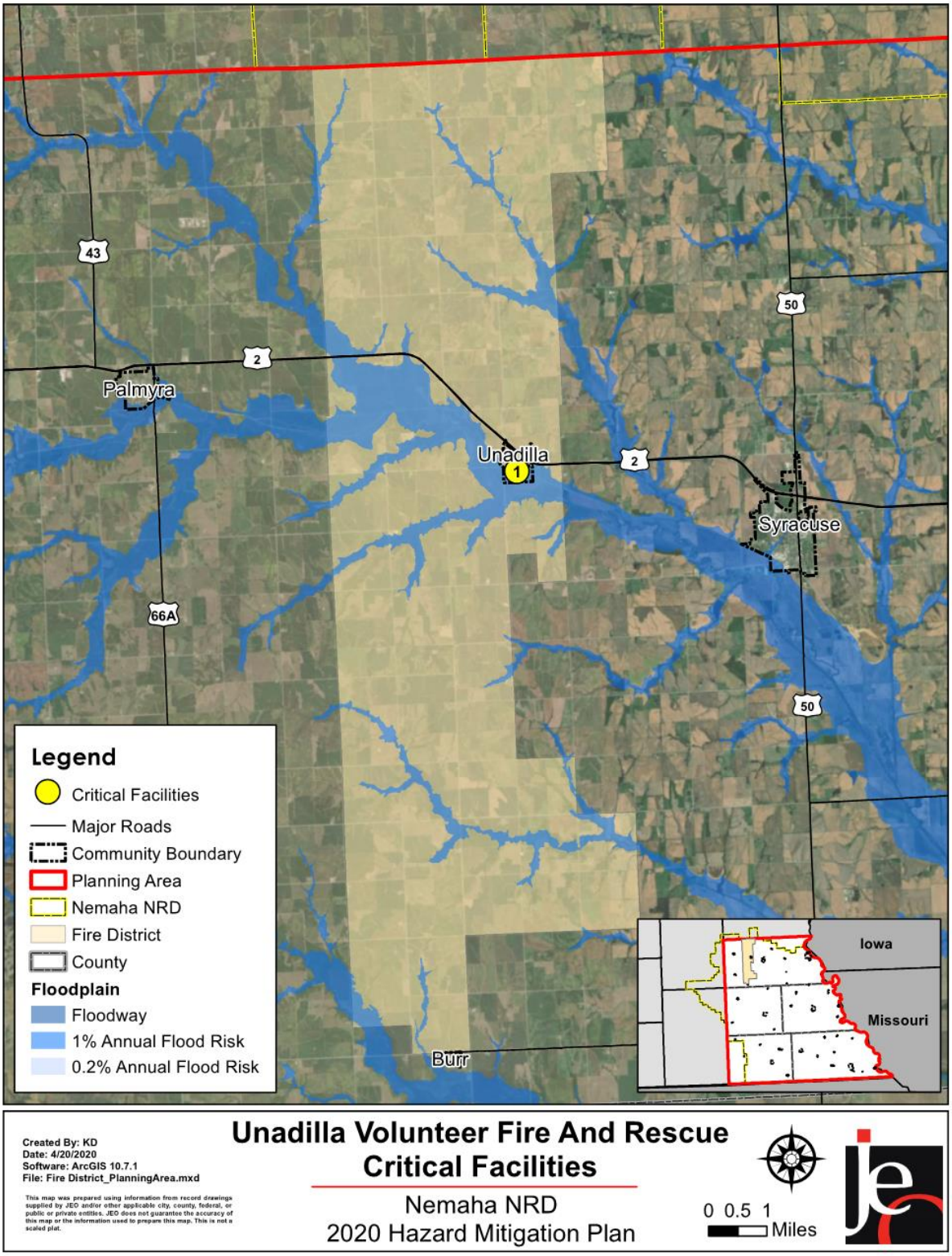
### Agricultural Animal and Plant Disease

In 2015, approximately 600 head of hogs died on a farm west of Unadilla from a virus. The fire department was called to help clean up and burn the animals. The district does not have the appropriate training or equipment to properly deal with this type of incident. Guidance primarily comes from the State of Nebraska veterinary individual. Usually notification occurs during the peak of an outbreak rather than at the beginning.

### Chemical and Radiological Spills (Transportation)

Highway 2 is the largest spill hazard, as it runs next to Unadilla with numerous semi-trucks carrying hazardous materials. Cooper Nuclear Station is located in the next county and radiological storage trucks pass through the area. Pervious accidents with cars and semi-trucks have occurred, but no large spills have. Response equipment for the fire district includes one 750-gallon pumper, one 1,000-gallon tank, one 1,250 tanker/pumper, a grass truck, a utility truck, and one ambulance. The district has an annual HazMat training for all volunteer responders.

**Figure UFR.2: Critical Facilities**



### Drought and Extreme Heat

The district's primary concerns related to drought and extreme heat are increased calls for heat related medical episodes and additional fires due to dry conditions. The district experiences numerous grass fires—during drought periods there have been up to six per day. Water for fires is provided by the Rural Water System. Historically, there has not been reduced water usage for training or response purposes. During times of drought and extreme heat, the fire district and community advise residents to reduce usage and to not work outside during the heat of the day. Cooling centers are offered within the gym/community center and local churches.

### Severe Thunderstorms

The district has been impacted by large hail events in both 2018 and 2019. Many buildings and roofs were damaged. The fire station has hail insurance should it be damaged. Past severe thunderstorms have resulted in power loss at the fire station; however, there is a backup generator available. In the event of power loss, there are also surge protectors on important electronic devices. The local planning team estimates that 50% of power lines in Unadilla are buried. Hazardous trees are located throughout the district with many older trees in the Village of Unadilla. Adequate warning is a major concern. Many times, warnings are received on pagers after the storm has already passed. Storm spotters are used as much as possible to help with this issue.

### Tornadoes and High Winds

A tornado in 2013 occurred in the district and damaged several buildings. The fire station was not damaged in this event. Past high wind events have damaged the roof of the fire station and caused the radio tower to collapse. There is no safe room in the fire station, so responders must take shelter in an interior room. Data and records are backed up on a flash drive. In the event of a disaster, the district has mutual aid agreements in place with all Otoe County fire and rescue districts.

## Staffing

The Unadilla Volunteer Fire and Rescue 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 Chief
- Treasurer/Secretary
- Secretary
- Two Captains

## 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. Unadilla Volunteer Fire and Rescue will continue to utilize existing relationships with local, county, state, and federal agencies in the implementation of mitigation projects. The fire district has applied for grants in the past and has been awarded a grant.

**Table UFR.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

Unadilla Volunteer Fire and Rescue is part of the Otoe County 2018 Local Emergency Operations Plan. The plan contains information regarding communications and warning, damage assessment, emergency public information, evacuation, fire services, health and human services, law enforcement, mass care, protective shelter, and resource management. Standard Operating Guidelines (SOGs) are discussed the district's bylaws. The SOGs outline the districts response for any type of call that may come in. 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 | 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 lacking with remote activation options. |
| **Hazard(s) Addressed** | Tornadoes and High Winds, Severe Thunderstorms |
| **Estimated Cost** | $5,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Rural Fire Board, Village of Unadilla |
| **Status** | New Action. Not Started. |

| Mitigation Action | Emergency Exercise: Hazardous Spill |
|---|---|
| **Description** | Utilize exercise to prepare for potential explosions or hazardous spills. Ensure that nearby business and residents have appropriate plans in place. |
| **Hazard(s) Addressed** | Chemical and Radiological Spills |
| **Estimated Cost** | $5,000+ |
| **Funding** | UVFR Training Funds |
| **Timeline** | 1 Year |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief, State Fire Marshal's Training Division |
| **Status** | New Action. Not Started. |

| Mitigation Action | Emergency Exercise: Radiological Incident |
|---|---|
| **Description** | Utilize exercise to prepare for potential explosions or radiological incidents. Ensure that businesses and residents along major transportation corridors have appropriate plans in place. |
| **Hazard(s) Addressed** | Chemical and Radiological Spills |
| **Estimated Cost** | $5,000+ |
| **Funding** | UVFR Training Funds |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Fire Chief, State Fire Marshal's Training Division |
| **Status** | New Action. Not Started. |

| Mitigation Action | Fire Station Expansion |
|---|---|
| **Description** | Add to existing structure to ensure all equipment and vehicles are maintained in a single area. |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | $100,000 |
| **Funding** | General Fund |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Rural Fire Board |
| **Status** | New Action. Planning stage. The board is currently looking at additional funding options. |

| Mitigation Action | Hazardous Waste Remediation |
|---|---|
| **Description** | Clean up hazardous waste in jurisdiction boundaries. |
| **Hazard(s) Addressed** | Chemical and Radiological Spills |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief, NDEE, Private Owners |
| **Status** | New Action. Not Started. |

| Mitigation Action | Resource Tracking |
|---|---|
| **Description** | Develop real time resource tracking capabilities to monitor resources (people/equipment) during wildfire response. |
| **Hazard(s) Addressed** | Wildfire |
| **Estimated Cost** | $15,000+ Start-up, $2,500+ Annually |
| **Funding** | UVFR Training Funds |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Rural Fire Board, UVFR Command Staff |
| **Status** | New Action. Not Started. |

| Mitigation Action | Shelter In Place |
|---|---|
| **Description** | Provide shelter in place training to facilities housing vulnerable populations (nursing homes, childcare facilities, schools, etc.). |
| **Hazard(s) Addressed** | All Hazards |
| **Estimated Cost** | Staff Time |
| **Funding** | Staff Time |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief, Village of Unadilla |
| **Status** | New Action. Not Started. |

| Mitigation Action | Wildfire Education |
|---|---|
| **Description** | Develop a wildfire education program to inform citizens of actions they can take to reduce personal vulnerabilities. |
| **Hazard(s) Addressed** | Wildfire |
| **Estimated Cost** | $3,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief, Nebraska State Forest Service |
| **Status** | New Action. Not Started. |

| Mitigation Action | Wildfire Hazard Identification and Mitigation System |
|---|---|
| **Description** | Develop a hazard rating system through the use of GIS to identify and rate areas of the region for their relative wildfire hazard. |
| **Hazard(s) Addressed** | Wildfire |
| **Estimated Cost** | $5,000+ |
| **Funding** | General Fund |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Fire Chief, Nebraska State Forest Service |
| **Status** | New Action. Not Started. |