

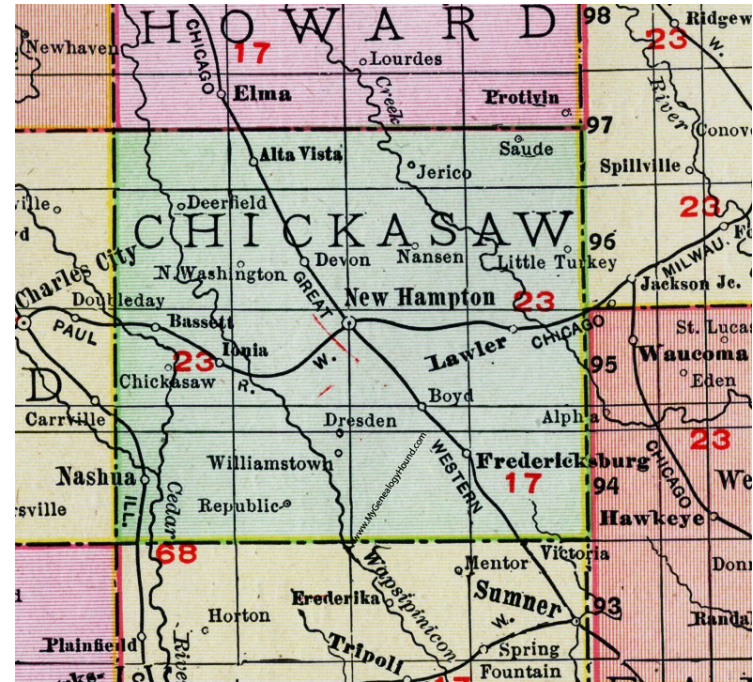
Nashua-Plainfield Community School District Hazard Mitigation Plan 2024

Appendix J
of the Chickasaw County
Multi-Jurisdictional
Hazard Mitigation Plan

Funded by the Chickasaw County Emergency
Management Agency

Prepared by Iowa Northland Regional Council
of Governments (INRCOG)

May 2024



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About

The Nashua-Plainfield Community School District developed a Hazard Mitigation Plan as part of a larger effort to update the 2024 Chickasaw County Multi-Jurisdictional Hazard Mitigation Plan. Federal hazard mitigation grant programs require an updated hazard mitigation plan approved by FEMA to be in good standing and remain eligible for grant funding. The Plan was developed to meet the requirements in Title 44 CFR § 201.6.

Elected officials, city clerks, planners, first responders, and school superintendents were invited to attend planning committee meetings as participants while they completed worksheets that were returned to the Chickasaw County's Emergency Management Agency (EMA) and INRCOG. Chickasaw County's EMA initiated and funded this effort for all participating communities and contracted INRCOG to coordinate a multi-jurisdictional approach to this plan development process.

Participating communities included all nine (9) incorporated jurisdictions in Chickasaw County. Other participating members were representing their respective County departments. The school district superintendents of three public school districts participated and represented their jurisdictions. Four (4) committee meetings were held between March 19th and April 23rd wherein each participant provided data and completed work sheets to develop their hazard mitigation plans.

FEMA's Emergency Management Cycle



What is Hazard Mitigation?

Hazard Mitigation is any *sustained* action taken to reduce or eliminate long-term risk to life and property from hazards.

The emergency management cycle has 4 phases:

- **Preparedness** is the assessment of potential risks, hazards, and vulnerabilities that a community may face. The development and updating of activities, programs, and systems before an event occurs is included in this phase of the cycle.
- **Response** is the immediate effects after a disaster.
- **Recovery** is a long-term phase that focuses on returning the community to normal after a disaster.
- **Mitigation** is an action that can occur at any phase.

The Benefits of Hazard Mitigation

For local governments, there are benefits in knowing hazards, their risks, and planning for mitigation strategies.

Those include:

- ✓ An increased understanding of natural, technical, and man-made hazards faced by communities.
- ✓ Taking an opportunity to create more sustainable and disaster-resistant communities.
- ✓ Participating in this collaborative intergovernmental effort is cost effective for all participants.
- ✓ Using limited resources on hazards that have the biggest impacts on a community.
- ✓ Reducing or preventing damage to existing structures, subsequently reducing repair costs.
- ✓ Identifying vulnerable populations to establish equitable outcomes.
- ✓ Setting long-term goals that can be compatible with city policies or planning documents.

The Planning Process

In emergency management planning, reducing the community's risk to natural hazards is a multi-step process which involves collaboration among stakeholders, assessing risk and vulnerabilities of hazards facing the community, establishing actions or activities to reduce risk, and assembling an organized strategy to carry out all mitigation activities.

Participants in the Chickasaw County Multi-Jurisdictional Hazard Mitigation Planning Committee provided the information in this plan including community profile information, hazard mitigation goals, mitigation activities/action, updates to existing mitigation activities, and elements included in the strategy such as priorities, designated agencies, estimated costs, and overall strategic direction of this plan.

Participants in the Plan Followed This 5 Step Process



School District Profile

Jurisdiction: Nashua-Plainfield Community School District
Counties: Chickasaw, Floyd, Fayette, and Bremer County
Student Enrollment (2022-2023): 593

The Nashua-Plainfield Community School District is based in the City of Nashua, Iowa. The district provides pre-kindergarten through 12th grade education to 593 students. The school district was established in 1997 with the merger of two school districts: Nashua and Plainfield. The school district operates two schools both located in Nashua.

Nashua-Plainfield Elementary School	Nashua-Plainfield Jr/Sr. High School
621 Panama Street Nashua, IA 50658	612 Greeley Street Nashua, IA 50658

There are 198 students that ride the buses daily. There are 8 buses in the school district fleet. The school district conducts 2 bus safety drills each year.

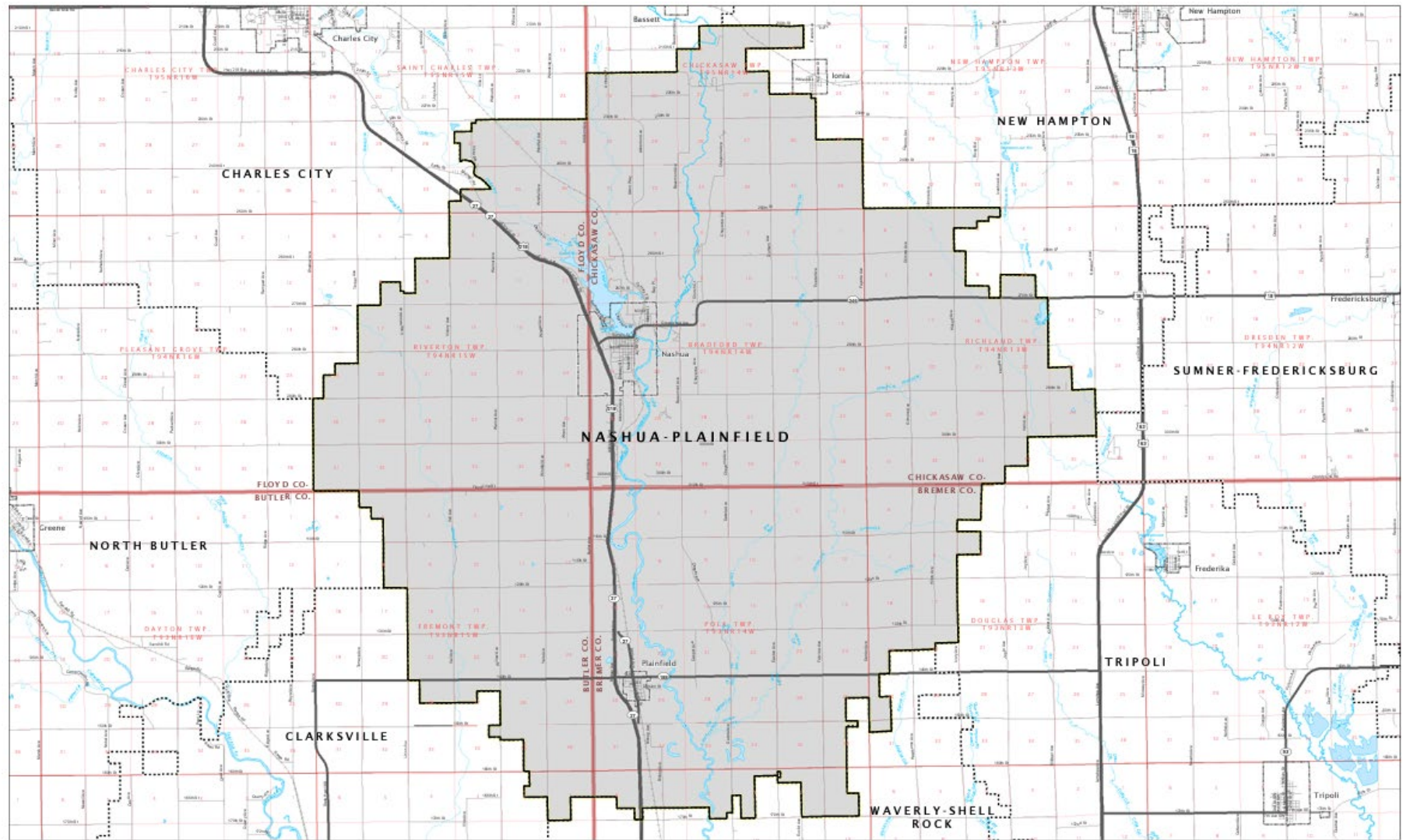
2023-2024	593
2022-2023	582
2021-2022	592
2020-2021	601
2019-2020	600
2018-2019	622

Source: Iowa Dept. of Education Certified Enrollment Data

Electric	MidAmerican Energy
Natural Gas	Symmetry
Telephone/Internet	ICN
Cable TV	Butler Bremer
Water Services	City of Nashua
Sewer Services	City of Nashua
Sanitation	Jendro Sanitation

Community Tornado Safe Room	No
Wind Resistant Structural Retrofits to Any Buildings?	No
How the district shares information	Website, Social Media (Facebook), Monthly High School Newsletter
District send information to households for fire/police/emergency preparedness?	No
School district participate in emergency preparedness awareness week?	Yes, Fire and tornado drills
English as a Second Language Resources?	Yes, for 1 ESL parent
District Safety Team?	No

Figure 1: District Map (Source: Iowa Dept. of Education)



 Iowa Department of Education School District Boundary Verification 2022 - 2023
NASHUA-PLAINFIELD

-  NASHUA-PLAINFIELD
-  Other School District Boundary
-  Township
-  Section
-  County



The data used to create this map was derived from the Iowa Department of Education and the National Center for Education Statistics. The data was verified against the U.S. Census Bureau's 2010 Census of Population and Housing. The Department of Education is not responsible for any errors or omissions in this map. The Department of Education is not liable for any damages or losses resulting from the use of this map. Map Released 4/10/2023

Risk Assessment

Hazard Risk Scores Results

The top three hazards from the risk assessment are:

1. Severe Winter Storm
2. Extreme Heat
3. Transportation Incidents

The ranking used to compute the risk assessment score used the following formula.

Hazard Risk Score Formula

$$\begin{aligned}
 &[\text{Probability}] \times 45\% + [\text{Magnitude or Severity}] \times 30\% \\
 &+ [\text{Warning Time}] \times 15\% + [\text{Duration}] \times 10\% \\
 &= \text{Final Hazard Assessment}
 \end{aligned}$$

Source: Provided by Iowa H.S.E.M.D.

Score Value vs. Hazard Risk Level	Description of hazard with this rating
Scores with a value closer to 1: <u>Low risk hazard</u>	Hazard is not likely to affect people or property because the likelihood is minimal.
Scores with a value closer to 4: <u>High risk hazard</u>	The hazard has historically occurred and may have significant impacts to people and property.

Hazard scores were collected during the 2nd county committee meeting. INRCOG planners calculated the hazard risk score for each hazard based on the formula in this section. Results are shown on Table 5.

Hazards	Probability	Magnitude	Warning Time	Duration	Score
Severe Winter Storm	4	2	1	3	2.9
Extreme Heat	3	2	1	4	2.5
Transportation Incidents	2	3	4	1	2.5
Thunderstorm with Lighting/ Hail	4	1	1	2	2.5
Tornado/Windstorm	1	4	4	1	2.4
Hazardous Materials	1	1	4	4	1.8
Infrastructure Failure	1	1	4	4	1.8
Radiological	1	1	4	4	1.8
Pandemic/ Endemic Human Disease	1	2	1	4	1.6
Terrorism	1	1	4	2	1.6
Earthquake	1	1	4	1	1.5
Grass/ Wildland Fire	1	1	4	1	1.5
Drought	1	1	1	4	1.3
Sinkholes	1	1	1	4	1.3
Expansive Soils	1	1	1	1	1.0
Flooding - Flash	1	1	1	1	1.0
Landslide	1	1	1	1	1.0
Levee/Dam Failure	1	1	1	1	1.0
Flooding - Riverine	1	1	1	1	1.0
Animal/ Crop/ Plant Disease	1	1	1	1	1.0

Scores and Descriptions Used in Risk Assessment

Magnitude or Severity Score Definitions		
Score	Description	
1	Negligible	Less than 10% of property severely damaged, the shutdown of facilities and services for less than 24 hours, and/or injuries/illnesses treatable with first aid
2	Limited	10% to 25% of property severely damaged, shutdown of facilities and service for more than a week, and/or injuries/illnesses that do not result in permanent disability.
3	Critical	25% to 50% of property severely damaged, shutdown of facilities and services for at least two weeks, and/or injuries/illnesses that result in permanent disability.
4	Catastrophic	More than 50% of property severely damaged, shutdown of facilities and services for more than 30 days, and/or multiple deaths.

Duration Score Definitions	
Score	Description
1	Less than 6 hours
2	Less than 1 day
3	Less than 1 week
4	More than 1 week

Probability Score Definitions		
Score	Description	
1	Unlikely	<i>Less than 10%</i> probability in any given year (up to 1 in 10 chance of occurring), a history of events is less than 10% likely or the event is unlikely but there is a possibility of its occurrence.
2	Occasional	<i>Between 10% and 20%</i> probability in any given year (up to 1 in 5 chance of occurring), history of events is greater than 10% but less than 20% or the event could possibly occur.
3	Likely	<i>Between 20% and 33%</i> probability in any given year (up to 1 in 3 chance of occurring), history of events if greater than 20% but less than 33% or the event is likely to occur.
4	Highly Likely	<i>More than 33%</i> probability in any given year (event has up to a 1 in 1 chance of occurring), history of events is greater than 33% likely or the event is highly likely to occur.

Warning Time Score Definitions		
Score	Description	
1	Forecasted	More than 24 hours warning time.
2	Likely	12 to 24 hours warning time.
3	High Chance	6 to 12 hours warning time
4	Imminent	Minimal or no warning time (up to 6 hours warning)

Future Development and Hazards in Chickasaw County

Recent updates in Title 44 CFR §201.6 (c) (2) (i) require this risk assessment include a section with future conditions on the type, location, and range of anticipated intensities of natural hazards.

Long term trends of climate patterns for the region were summarized in the Fourth National Climate Assessment Midwest Section.¹ The National Climate Report is mandated to be updated every 4 years and deliver results to Congress and President on the effects to agriculture, energy productions, land use, transportation, and human health.

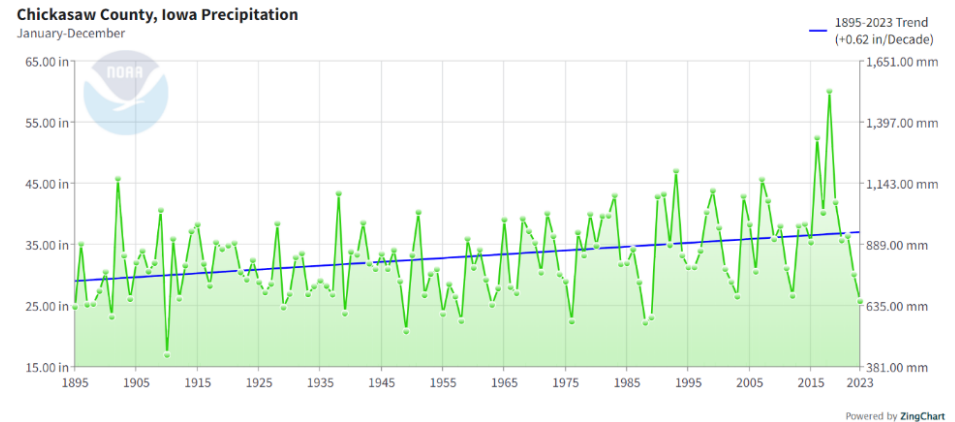
Yearly precipitation levels and annual average temperatures offer insights into future conditions of our climate system.

Annual Precipitation Levels in Chickasaw County

Taking the monthly precipitation records from January to December between 1895 and 2023 is shown in Figure 2. The values hover between 25 - 35 inches of precipitation levels recorded. The average precipitation level for the year is plotted and a linear trend of those values is shown in Figure 2. The trend shows a growing level of annual precipitation on average of 0.62 in more than the decade before. Based on this historical trend, precipitation is likely to continue to increase in the coming years.

¹ USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018.

Figure 2: Historical Precipitation Data and Trend for Chickasaw County, Iowa²

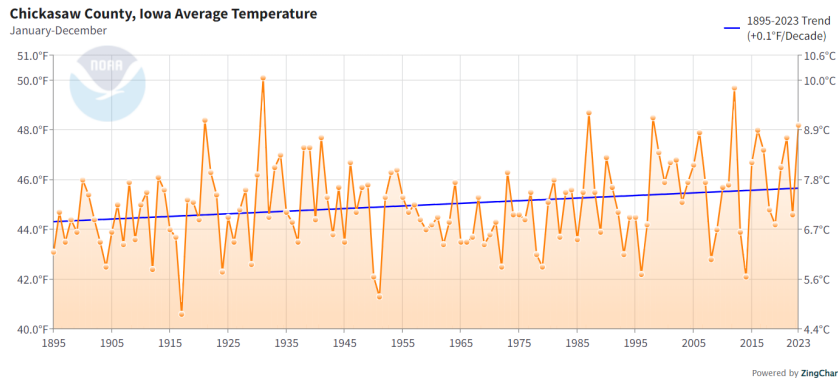


Average Annual Temperatures in Chickasaw County

The monthly average temperature is plotted over a 12-month period from 1885 to 2023 in Figure 3. The annual average temperature is also shown with a linear trend in Figure 3. This trend shows the average temperature in Chickasaw County increasing at a rate of +0.1^o F every 10 years.

² NOAA National Centers for Environmental information, Climate at a Glance: County Time Series, published February 2024, retrieved on April 15, 2024 from <https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series>

Figure 3: Historical Temperature Data and Trend for Chickasaw County, Iowa²



Climate Patterns from Increasing Precipitation and Higher Temperatures

Drought

The relationship between increasing precipitation, temperature, and drought is complex, and often counterintuitive at first thinking about it. While increasing precipitation may seem like it would mitigate drought conditions, higher temperatures can exacerbate the situation in several ways:

1. Evapotranspiration: Higher temperatures lead to increased evaporation rates from soil, bodies of water, and plants. This means that even if there is more precipitation, it may quickly be evaporated before it can effectively replenish soil moisture or water sources.
2. Changes in precipitation patterns: Increasing temperatures can alter precipitation patterns, leading

to more intense rainfall events but also longer periods of drought between these events. This pattern can result in rapid runoff and soil erosion during heavy rain, followed by extended dry periods that contribute to drought conditions.

Overall, while increasing precipitation may provide temporary relief from drought, the combined effects of rising temperatures can outweigh this benefit, leading to more frequent and severe drought events in certain regions.

Pest Infestation

With more humidity, the daily minimum temperature may increase across all seasons. Warming winters can increase the survival and reproduction of existing insect pests which allow new insect pests and crop pathogens to move into the Midwest region.

Extreme Heat Domes

A heat dome is a weather phenomenon characterized by a high-pressure system that traps hot air beneath it, leading to prolonged periods of extremely high temperatures and often causing heatwaves. Extreme heat events during the summers may occur with more frequency in the Midwest.

The human impacts of extreme heat affect socially and economically vulnerable populations the most. The higher costs of energy during heat waves disproportionately impact cost-burdened households. Heat related illness may be more severe among infants, elderly populations, and those with chronic health conditions.

Projected Trends of Natural Hazards in Chickasaw County

- Prologued drought is probably as the atmosphere holds more moisture (even pulling moisture from plants) as the temperature increases. Longer periods between weather events means there are dryer and longer periods in between these events.
- Floods (flash or major types) will increase in intensity as the atmosphere holds more moisture to drive stronger storms and drop heavier rainfall over a shorter period during an event.
- Extreme heat may occur more frequently. The human health impacts are higher among socially vulnerable populations (elderly, infants, those with chronic health issues, cost burdened households).
- Agricultural pests and pathogens may increase in growing plants and stored grain. Warming temperatures in the spring and summer have led to rising humidity. Higher dew and moisture conditions may increase the presence of these pests or crop diseases.

Mitigation Activities by Type

Mitigation actions and activities in this Plan will be organized according to these 5 categories: Emergency Services, Education and Outreach Projects, Natural Resource Protection or Natural Based Solutions, Structural Projects, or Local Plans and Regulations.

Emergency Services in the City of Nashua

Chickasaw County Emergency Management Agency

The City of Nashua works with the Chickasaw County Emergency Management Coordinator, based out of the City of New Hampton on various safety and emergency events. The Emergency Management Coordinator works in conjunction with local fire, rescue, police, and government officials to draft and implement workable emergency action plans in the community. The Chickasaw County Emergency Management Coordinator is Jeff Bernatz.

Law Enforcement

Nashua has a 28E agreement with the Chickasaw County Sheriff's Office for law enforcement services. The Sheriff's Office is located out of New Hampton at 116 N. Chestnut.

The Office of the Sheriff holds the responsibility of enforcing federal, state, county, and municipal ordinances across the county, which encompasses investigations into various criminal activities such as theft, vandalism, assault, illegal drug involvement, and instances of reported child or domestic abuse. Additionally, the Sheriff is mandated to handle tasks pertaining to the involuntary hospitalization of individuals with mental illness.

Fire Protection and EMS Services

Fire protection is provided by the Nashua Fire Department. The station is located at 125 Greenwood Avenue in Nashua. There are 30 volunteer fire fighters that serve in the department currently. The members of the department meet monthly and take training in fire suppression, hazardous materials, and emergency medical services.

Dispatch is provided through the Chickasaw County Sheriff's Office.

Equipment used by the Nashua Fire Department includes the following:

- 1993 GMC Pumper
- 1977 Ford Pumper
- 1975 Ford Tanker
- 1965 Ford Tanker
- 1984 Chevy 1-ton Rescue Truc
- 1984 Chevy 1-ton, 4x4 Grass/Rescue Truck
- 17 ft. Rescue Boat w/ 40 hp outboard
- Jaws of Life (vehicle extraction device)

EMS Services

Nashua Area EMS provides ambulance service to area hospitals. The company is based out of Nashua.

Chickasaw County Rescue Squad also provides service in Fredericksburg. There are 42 EMT certified individuals who volunteer to respond to emergency calls on an as-need basis.

Medical Facilities

The closest ER facility is the MercyOne New Hampton Medical Center in New Hampton, IA. This is the only medical facility with an ER unit located in the county. MercyOne has 11 private inpatient rooms, and the ER is open 24/7.

Other health care centers include:

- Nashua Clinic at 80 Amherst Boulevard, # 400 in Nashua, IA
- Waverly Medical Center in Waverly, IA
- Floyd Medical Center in Charles City, IA

HAZMAT Response Teams

Nashua contracts with Northeast Iowa Response Group for response to hazardous material spills. The Northeast Iowa Response Group is a division of Waterloo Fire Rescue as is the Hazardous Materials Regional Training Center. The Training Center provides training to fire departments and companies from around the state and country. Not only is this a training center, but it also serves as a hazardous materials quick response unit to Black Hawk County, surrounding counties, and many municipalities in a ten-county region. The Unit provides local fire departments with hazard materials emergency procedures thus reducing additional contamination.

Warning Systems in Nashua

1) Tornado Sirens

Nashua has purchased a new tornado warning siren system as of November 2023 with a 30-year life use.

The activation systems of warning systems are activated and operated by a central command system operated by the Chickasaw County Rescue Squad in New Hampton, IA.

2) Alert Iowa Mass Communication System

Chickasaw County has implemented the use of Alert Iowa, a mass communication notification system. The system features are controlled through the Chickasaw County Emergency Management Agency. Residents can customize their alert settings including the type of alerts they would get.

Alert Iowa allows for emergency notifications via landline telephones, cell phones, email, text messages, and social media. This is useful for communities that may not have an operating warning siren or may not hear the sirens.

Education and Outreach Projects Mitigation Activities

The district participates in the annual emergency preparedness awareness week. Fire and weather are the two hazards that are prepared for during this time. The school district has completed hazard awareness activities and cooperated with organizations such as the American Red Cross, Chickasaw County Emergency Management Agency

to educate residents on how to respond to a variety of hazards.

Natural Resource Protection Mitigation Activities

The school district has completed several projects to improve stormwater drainage.

Structural Projects Mitigation Activities

There have been no recent structural projects.

Local Plans and Regulations in Nashua

The School District participated in the Chickasaw County Multi-Jurisdictional Hazard Mitigation Plan, which was adopted in 2019.

The school district prepares a school safety plan annually in June. This is sent to the state department of education per their requirements.

Components of the Implementation Strategy

The end of this section has strategic implementation information prepared in consultation with the school district's superintendent and INRCOG. This is a guide for a strategic approach when implementing the school district's efforts in hazard mitigation. The tasks in these tables are drawn from problems statements and new mitigation activity worksheets.

Notes about the tasks (listed as line items) in each table.

- Each task (line item) stands on its own so it can be completed whenever possible.

- Each action item is not limited to the details presented below and may change based on future conditions.
- The tasks were categorized based on mitigation type. The mitigation types are not shown in any order (no priority over the other).

This implementation strategy is presented to help with the general understanding of how hazard mitigation may feed into existing or future priorities.

Priority Level

The priority level was informed through discussions among planning committee members who considered potential benefits of implementing the activity, some hurdles that the city may face in implementing the action step, and the drawbacks of implementation. *Committee representatives considered a cost-benefit approach.*

Estimated Costs

Cost estimates are based on the associated costs of additional staffing that may or may not be needed, time for planning/meetings/coordinating, and cost of the proposed action/program/ project.

Cost	Estimated Cost Range
Minimal	Less than \$10,000
Low	\$10K to \$99K
Moderate	\$100K to \$299K
High	Greater than \$300K

Timeframe

Timeframe	Description
Immediate	1-6 months
Short Term	1-5 years
Mid-Term	5-10 Years
Long-Term	More than 10 Years

Hazard Mitigation Goals

The following list of goals was adopted by the school district.

- Goal #1** Maintain emergency services during hazard events, or if this is not possible, return to pre-disaster service levels as soon as possible.
- Goal #2** Protect the health and welfare of students and staff by utilizing pre-disaster planning and constructing mitigation projects.
- Goal #3** Take steps to mitigate or minimize the impact of natural, technological, and/or man-made disasters.
- Goal #4** Take measures to minimize the occurrence of injuries and loss of life due to hazards.
- Goal #5** Take measures to minimize or eliminate damage that may occur as a result of hazards.
- Goal #6** Return to similar or improved pre-event conditions as quickly as possible following a disaster event.

Strategic Implementation Plan by Mitigation Activity Type

Table 6: 'Education and Awareness' Type Mitigation Activities						
Description: These types of actions keep residents informed about potential natural disasters.						
Priority	Tasks	Hazard(s)	Primary Agency Responsible for Implementation	Time Frame to Complete	Estimated Cost (s)	Funding Source
Medium	Share information through school website and school social media.	All	Superintendent and tech director	Immediate 1-6 months	Minimal \$0	None needed
Medium	Collect outreach information from Jeff Bernatz (Chickasaw County EMA) for Alert Iowa.	All	EMA coordinating sets	Immediate 1-6 Months	Minimal \$0	None needed
High	Improve school communication about various hazards that could potentially impact students.	All	EMA coordinating sets	Immediate 1-6 Months	Minimal \$0	None needed

Table 7: 'Emergency Services' Type Mitigation Activities

Description: Actions that protect people and property during and immediately after a disaster or hazard event.

<i>Priority</i>	<i>Tasks</i>	<i>Hazard(s)</i>	<i>Primary Agency Responsible for Implementation</i>	<i>Time Frame to Complete</i>	<i>Estimated Cost (s)</i>	<i>Funding Source</i>
High	Identify locations of critical public facilities to support a hazard plan.	All	Chickasaw County EMS, Superintendent, Principal	Short 1-3 years	Minimal 0-\$10K	School general fund
High	Prepare and sign an agreement for EMS services to be provided to the school district.	All	Chickasaw County EMA, Superintendent	Short 1-3 years	Minimal 0-\$10K	School general fund
Low	Ensure storm shelter remains in compliance with FEMA standards.	All	Chickasaw County EMS, Superintendent, Principal	Immediate 1-6 Months	Minimal \$0	None needed

Table 8: Structure and Infrastructure Project Type Mitigation Activities

Description: Actions that either modify existing buildings or structures to protect them from a hazard, or removal from the hazard area.

Priority	Action/Activity	Hazard(s) Addressed by Action	Primary Agency Responsible for Implementation	Time Frame to Complete Action	Estimated Cost(s) to Implement	Funding Source
High	Apply for grants and set aside funds to cover costs for infrastructure projects identified.	Thunderstorm with lightning/hail, tornado/windstorm	Superintendent, School Board, City Council	Long Term 5-10 Years	High \$300K+	School general fund, city general fund, hazard mitigation grant program

Table 9: Natural System Protection and Nature-Based Mitigation Type

Description: Actions that minimize damage and losses by preserving or restoring the functions of natural systems. This type of action can include green infrastructure and low impact development, nature-based solutions

Priority	Action/Activity	Hazard(s) Addressed by Action	Primary Agency Responsible for Implementation	Time Frame to Complete	Estimated Cost (\$)	Funding Source
Medium	Solicit donation and grants to plant trees and replace the tree shade canopy from cut ash trees.	Thunderstorm w/ lightning/hail, Tornado/ Windstorm, Winterstorm	Building and ground superintendent, School Board	Short Term 1-3 years	Minimal 0-\$10K	School general fund, Community Forestry Grant Program, Black Hills Energy Power of Trees
Medium	Continue to support and improve natural systems around the school to improve stormwater drainage.	Windstorm, Thunderstorm, Extreme Heat, Flash Flooding	Building and ground superintendent, School Board	Short Term 1-3 Years	Minimal 0-\$10K	School general fund, State and Federal Grant Funding