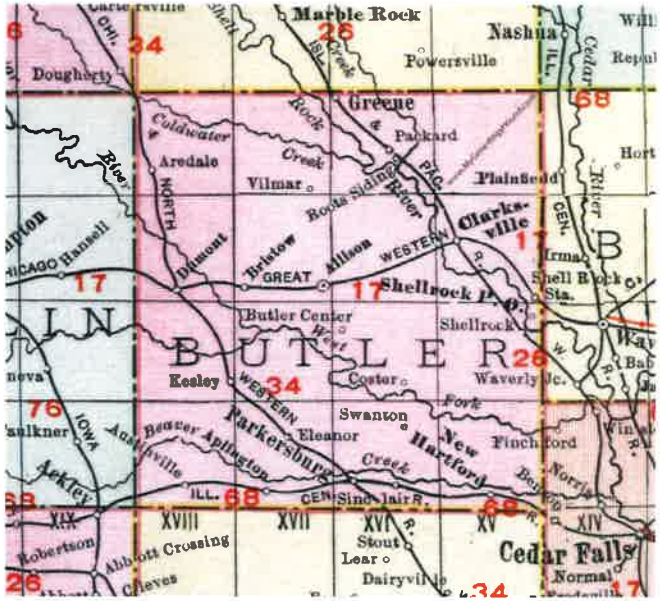
City of Shell Rock, Iowa

Hazard Mitigation Plan
2025 Update



Appendix J
of Butler County
Multi-Jurisdictional
Hazard Mitigation Plan

Funded by the Butler County Emergency Management Agency

Prepared by Iowa Northland Regional Council of Governments (INRCOG)

January 2025

EMERGENCY MANAGEMENT
Butler County

INRCOG
Iowa Northland Regional
Council of Governments

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Resolution Adopting Plan by City Council

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About

The City of Shell Rock developed this Plan as part of the 2020 Butler County Multi-Jurisdictional Hazard Mitigation Plan update process. The 2025 Butler County Multi-Jurisdictional Hazard Mitigation Plan is a sequential 5-year update to the previous document. Federal regulations regarding how local governments may receive funding from FEMA require that the specified jurisdiction (city, school district, county) have an approved hazard mitigation plan that is in good standing (updated and FEMA approved) to remain eligible for grant funding. This Plan was developed to meet the requirements in Title 44 CFR § 201.6.

Elected officials, city clerks, planners, first responders, and other stakeholders were invited to attend planning committee meetings as participants to learn about hazard mitigation and complete data gathering assignments. These assignments were submitted to the plan development coordinators: Butler County Emergency Management Agency (EMA) and Iowa Northland Regional Council of Government (INRCOG). Butler County's EMA initiated and funded this effort for all participating communities and contracted INRCOG to coordinate the plan development process with a multi-jurisdictional approach.

Participating communities included all ten (10) incorporated municipalities of Butler County. County staff participating in the committee were representing their respective County departments. School district superintendents the public school districts attended and completed the data gathering assignments for their district communities. Four (4) committee meetings were held between October 1st and December 12th 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

For local governments, there are benefits in knowing how specific hazards may affect their communities, its potential to cause negative impacts, and develop pre-disaster actions or activities to lessen or avoid those anticipated negative impacts. Benefits include:

- ✓ An increased understanding of how natural and human caused hazards develop under certain conditions which may inform a level of magnitude or intensity.
- ✓ Take advantage of the opportunity to create more sustainable and disaster-resistant communities.
- ✓ Participating in this collaborative intergovernmental effort is cost effective for all participants.
- ✓ Using limited resources to address the threat from hazard events that may have the biggest impact on the community.
- ✓ Reducing or preventing damage to existing structures and reducing their subsequent repair costs.
- ✓ Identifying vulnerable populations to establish equitable outcomes.
- ✓ Hazard mitigation involves a commitment to long-term goals that focus on lessening or reducing negative impacts of natural, and human caused hazards.

The Planning Process

In order to reduce the threat of negative impacts from natural hazards, a risk informed approach was used in this planning process. A risk informed approach is a multi-step process. This Plan also involves collaboration among participants in the planning committee. The process involved learning the historical occurrence of when such hazards may have occurred in Butler County.

Participants in the Butler County Multi-Jurisdictional Hazard Mitigation Plan Planning Committee determined the level of risk facing their communities by completing a risk assessment. Data gathering by committee participants involved giving updates to existing mitigation activities by the local government.

Participants in the Plan followed a general 5 step process. (below)

Community Data Sources

Population data is based on 2020 decennial Census data. The 2022 American Community Survey 5-year estimates are the latest and most reliable survey data sets to understand what is taking place in the county and each city. Most counties, cities, and towns rely on 5-year estimates. Employment, workforce, and industry figures in this Plan are estimates that have a margin of error.

It is important to note that the ACS estimates used for rural communities will have a degree of uncertainty associated with them, called sampling error, because they are based on a sample. In general, the larger the sample, the smaller the level of sampling error. Rural communities tend to have smaller samples than larger cities, so the "margin of error"–a measure of the precision of an estimate at a given level of confidence–likely will be larger for rural areas.

Crash data along roadways within each jurisdiction is collected between the period of 2019 and 2023. Using a map tool interface, the data was taken at a city level and presented to understand incident severity, casualties, and property damage from reported accidents. Accident data is added to the site daily and accessible through an online website, https://icat.iowadot.gov/ .

In the risk analysis section of this Plan, estimates of property loss are measured using mapping of hazardous zones. For the vulnerability risk assessment, flood prone homes were determined using the boundaries of the 100 year (1%) annual chance flood zone. The value of potential property loss was derived from the 2023 assessed dollar value of structures and dwellings on affected parcels provided by the Butler County Assessor's Office.

Shell Rock Historical Museum

City Profile

Jurisdiction: City of Shell Rock
County: Butler County
Population (2020): 1,268

The City of Shell Rock is located in the eastern portion of Butler County, approximately 2 miles west of Highway 218.

The following data presented in tables on the following page include population, employment, and industry sector data for the community based on 2020 Census data and 2022 American Community Survey 5-year Estimates.

In 2020, the city's population was 1,268 and 99% were White with the median age is 44.5. Working aged residents (15-60 years) made up 39% of the population. Children and teens (younger than 15 years) made up 18.9% of Shell Rock's population while older adults (older than 65 years) made up 26.4%.

The median household income in 2022 was $70,556. The unemployment rate was 1.8%. Most people commute to work, and 6% of people work from home. The top three largest industry sectors in Shell Rock are as follows (in order from highest to lowest): 1) Education services, and health care and social assistance; 2) Manufacturing, and 3) Retail Trade.

Figure 1: Map of Butler County

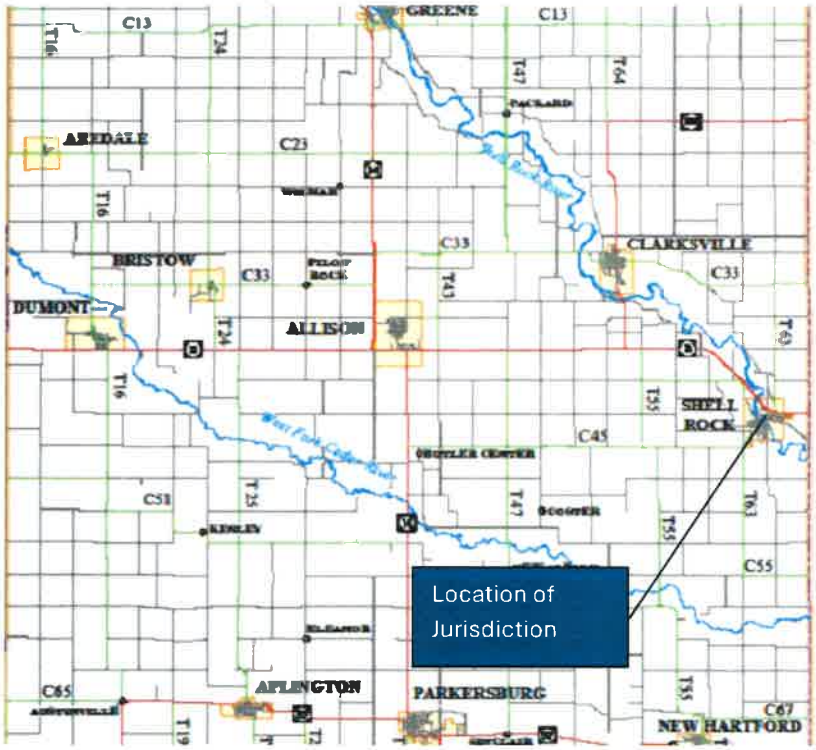


Table 1: Population Data (2020)		
City of Shell Rock		
	Total	% of Population
Total population	1,268	100%
AGE		
Under 5 years	61	4.8%
5 to 9 years	78	6.2%
10 to 14 years	100	7.9%
15 to 19 years	53	4.2%
20 to 24 years	47	3.7%
25 to 29 years	68	5.4%
30 to 34 years	71	5.6%
35 to 39 years	109	8.6%
40 to 44 years	51	4.0%
45 to 49 years	71	5.6%
50 to 54 years	54	4.3%
55 to 59 years	66	5.2%
60 to 64 years	103	8.1%
65 to 69 years	95	7.5%
70 to 74 years	86	6.8%
75 to 79 years	55	4.3%
80 to 84 years	31	2.4%
85 years and over	69	5.4%
Median Age	44.5	-
RACE		
White	1,219	96.1%
Black or African American	0	0%
Hispanic or Latino (of any race)	0	0%
American Indian and Alaska Native	0	0%
Asian	2	0.2%
Native Hawaiian/Other Pacific Islander	0	0%
Some Other Race	7	0.6%
Two or More Races	40	3.2%
Source: 2020 Census, 2022 ACS 5-Yr Estimates		

Table 2: Employment Data (2022)		
City of Shell Rock		
	Value	% of Population
Median Household Income	$68,125	-
Unemployment Rate (2022)	1.8%	-
Workers that commute to work	676	94%
Workforce that works from home	43	6%
Source: 2022 American Community Survey 5-Yr Estimates		

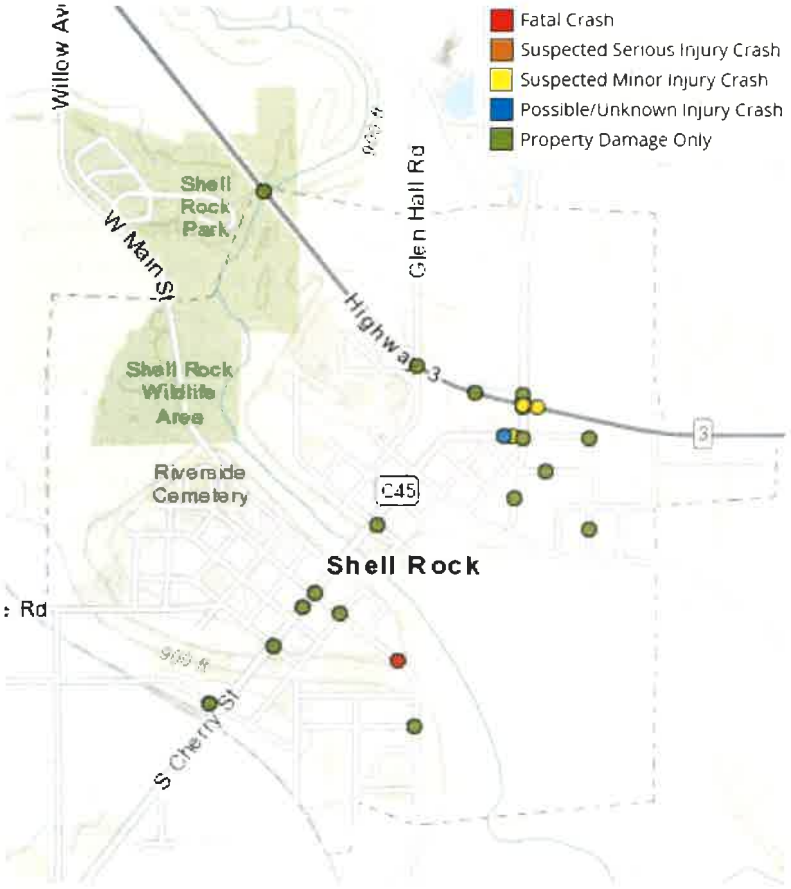
Table 3: Employment Industry Data (2022)		
City of Shell Rock		
Workforce Industry	# of Workers	% of Workforce
Workforce	725	100%
Agriculture, forestry, fishing and hunting, and mining	25	3.4%
Construction	26	3.6%
Manufacturing	127	17.5%
Wholesale trade	43	5.9%
Retail trade	83	11.4%
Transportation -warehousing, utilities	76	10.5%
Information	20	2.8%
Finance and insurance, and real estate and rental and leasing	74	10.2%
Professional, scientific, and management, and administrative and waste management services	27	3.7%
Educational services, and health care and social assistance	146	20.1%
Arts, entertainment, and recreation, and accommodation and food services	27	3.7%
Other services, except public administration	32	4.4%
Public administration	19	2.6%
Source: 2022 American Community Survey 5-Yr Estimates		

Highway Traffic and Crash Data

Based on Iowa DOT crash data, between 2019 and 2024 there have been 32 incidents. Of those incidents, most were for property damage only, resulting in $264,400 in total damage. One fatality was reported with seven suspected minor injuries.

Table 4: Crash Data from 2019-2024	
Total Crashes	32
Crash Severity	
Fatal	1
Suspected Serious Injury	0
Suspected Minor Injury	7
Unknown	4
Property Damage Only	20
Property Damage Total	$264,400
Source: Iowa DOT Crash Data	

Figure 2: Iowa Crash Analysis for All Traffic Incidents (2019-2024)



Source: Iowa DOT

Housing Data

The City of Shell Rock has 577 occupied housing units. Nearly 90% of them are single family, detached housing. There are 0 housing units that are mobile homes or other types of housing. There are 58 or 10.1% multifamily housing units (greater than 2 units).

A large portion of the housing stock was built prior to 1940 (32.9%). About 80.0% of the housing stock was built prior to 1980. Most homes heat their units with utility gas (69.2%) or electricity (28.1%).

Community Utility Providers

MidAmerican Energy provides utility electric services and natural gas services. Butler-Bremer Communications or Mediacom provide telephone services and broadband internet services. Residents receive water and sewer services from the city. A small number of households have their own well and septic.

Table 6: Utility Providers

City of Shell Rock	
Electric	MidAmerican Energy
Natural Gas	MidAmerican Energy
Telephone/Internet	Butler-Bremer Communications
Cable TV	Butler-Bremer Communications, Mediacom
Water Services	City of Shell Rock
Sewer Services	City of Shell Rock
Sanitation	Jendro Sanitation Services

Table 5: Housing Data (2022)

City of Shell Rock		
	Total	% of Occupied Units
Occupied housing units	577	100%
Housing Unit Type		
1, detached	519	89.9%
1, attached	0	0%
2 apartments	0	0%
3 or more apartments	58	10.1%
Mobile home or other type of housing	0	0%
Year Structure Built	Total	% of Occupied Units
2020 or later	0	0%
2010 to 2019	23	4.0%
2000 to 2009	43	7.5%
1980 to 1999	49	8.5%
1960 to 1979	145	25.1%
1940 to 1959	127	22.0%
1939 or earlier	190	32.9%
House Heating Fuel	Total	% of Occupied Units
Utility gas	399	69.2%
Bottled, tank, or LP gas	16	2.8%
Electricity	162	28.1%
Fuel oil, kerosene, etc.	3	0%
Coal or coke	0	0%
All other fuels	0	0%
No fuel used	0	0%
Source: 2022 American Community Survey 5-Year Estimates		

Vulnerable Assets

People

Vulnerability to hazard losses increases where there are larger concentrations of people. In towns where population density increases, the number of people that can be harmed during a hazard event (tornado, flood, etc.) increases. In addition, there are segments of the population that may be more susceptible to impacts and/or harm from a hazard depending on their location within the area (i.e. flood zone or near industrial plants with hazardous materials). This includes underserved or socially vulnerable populations.

Vulnerable Age Groups

Both younger and older aged groups are likely to require assistance with physically moving to shelters or finding safety. Elderly residents may not have a personal vehicle to move away from a hazard quickly. Cognitive impairments among older adults may cause some to get easily confused.

Households Facing Poverty or With Limited Income

Families or older adults living at, near, or below poverty are more likely to be impacted by hazards than other households with higher incomes. The costly repairs from a tornado or derecho for a low-income household may be more adversely affected than another household that has the same damage but may be able to afford the repairs without much change to their lifestyles or needs. That disparity is also different during extreme weather events such as heat waves. Low-income households may not be able to afford the electricity to run air conditioning and many may face complications that involve heat stroke, fatigue, or death due to their age (infants or the infirm) and health conditions (obesity, heart conditions, diabetes).

Shell Rock's Vulnerable Populations

In Shell Rock, 7.2% (or 108 out of 1,491) of individuals are below the poverty level. About 39.3% (227) of occupied households have elderly occupants (60 years and over). About 14.2% of occupied households have elderly residents (65 years and over) living alone.

Most residents have access to vehicles. Nearly 10% of households have a person living with a disability. This is broadly defined from the data estimates for Shell Rock. However, persons with mobility disabilities may be at a higher risk than others especially during unexpected natural disasters where accessibility is not always guaranteed to shelter.

Manufactured homes are unsafe in a tornado. Fatality rates are significantly higher than sturdy buildings. An alternative shelter should be identified prior to a tornado watch or warning. In 2022, there are 0 mobile homes estimated in Shell Rock.

Shell Rock has about 52 individuals in institutionalized quarters, which consist of nursing/skilled-nursing facilities.

Critical Facilities

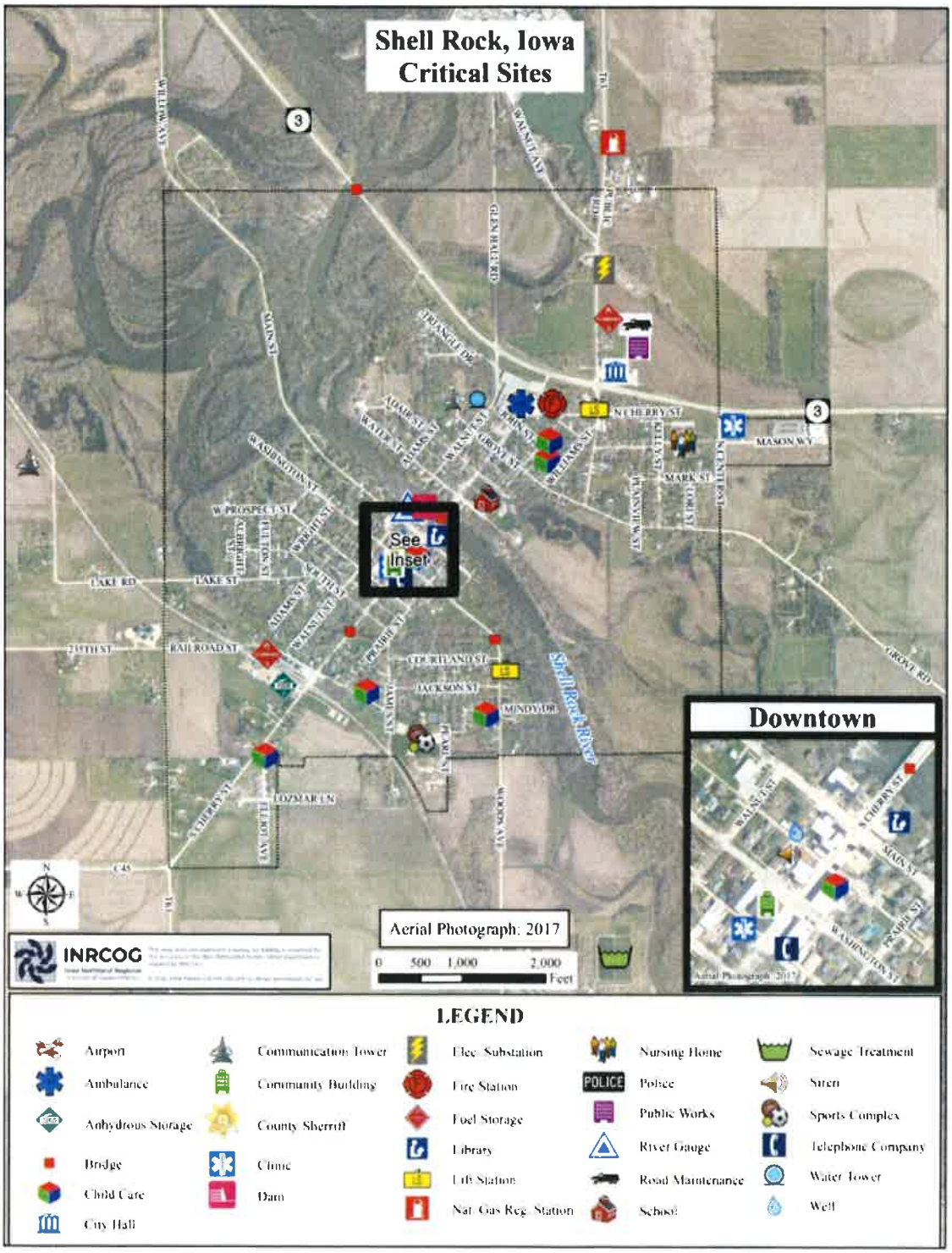
Water Supply

The City of Shell Rock utilizes a municipal water supply system serving approximately 1,300 residents. The system sources water from two active wells, known as Shell Rock #1 and Shell Rock #2, both drawing from the Devonian aquifer at depths of 160 feet. Water is treated with chlorine at the well site to ensure quality and safety. The city maintains an elevated water tower with a capacity of 200,000 gallons to support consistent water pressure and supply.

Wastewater Treatment Plant and Lift Stations

The City of Shell Rock operates a wastewater treatment facility that processes municipal wastewater collected through a network of sewer lines and two lift stations. The treatment system employs a lagoon-based process. There is a current project in place to increase the capacity of the wastewater treatment system by 20%.

Figure 3: Critical Facilities



Measuring Vulnerability to Selected Hazards

Tornado Hazard

In 2021, an EF2 tornado was confirmed about 2 miles south of Shell Rock.

All buildings in Shell Rock are prone to being damaged by a tornado. Therefore, the vulnerability of the community was determined by the assessed valuation of all buildings and dwellings on all parcels within the city's limits.

Using the assessed value from December 2023, the valuation of all 837 parcels in the City of Shell Rock is $113,827,780 based on Butler County assessor data. The City of Shell Rock has a potential property loss of $100,952,770 from a tornado disaster.

Table 7: Valuation of All Parcels in City of Shell Rock (2023)	
Percent of City at Risk of a Tornado	100%
# of Parcels	837
Total Assessed Value of Buildings and Dwellings on Affected Parcels in 2023	$100,952,770
Source: Butler County Assessor's Office	

Flood Prone Areas

The potential property losses of structures prone to flooding were calculated using the effective flood insurance rate map (FIRM) flood hazard zones for a 100-year (1%) annual chance flood.

Assessing the community's vulnerability to losses from tornado and flood hazards is determined with county assessor data. The potential property losses of structures prone to flooding were calculated using the effective flood insurance rate map (FIRM) flood hazard zones for a 100-year (1%) annual chance flood.

In Figures 4 and 5, the flood plain map shows the 1% annual chance of flooding in and around the City of Shell Rock. The river basin is depicted in the topography shown on the map.

The parcels that are impacted by the 1% annual chance of flood are highlighted in Figure 6. There are 84 parcels within Shell Rock that are potentially affected. The value of all buildings and dwellings on the affected parcels is $6,419,540 based on the latest Butler County Assessor's office. This covers 6.73% of the city's total parcels.

Table 8: Potential Property Losses from the 1% Annual Chance Flood	
Percent of City Affected	6.73%
# of Parcels	84
Total Assessed Value of Buildings and Dwellings on Affected Parcels in 2023	$6,419,540
Source: Butler County Assessor's Office	

Figure 4: Flood Plain Map

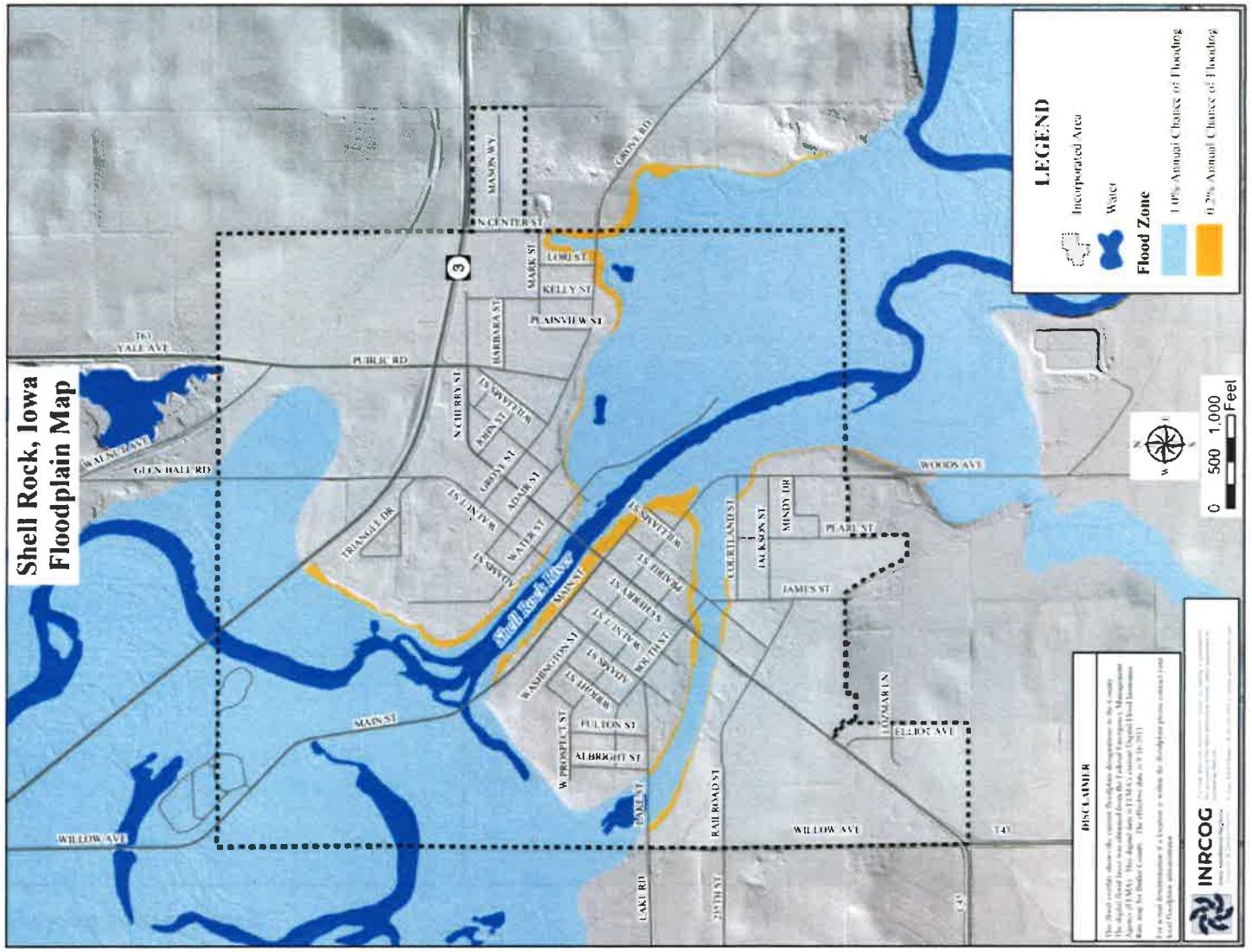
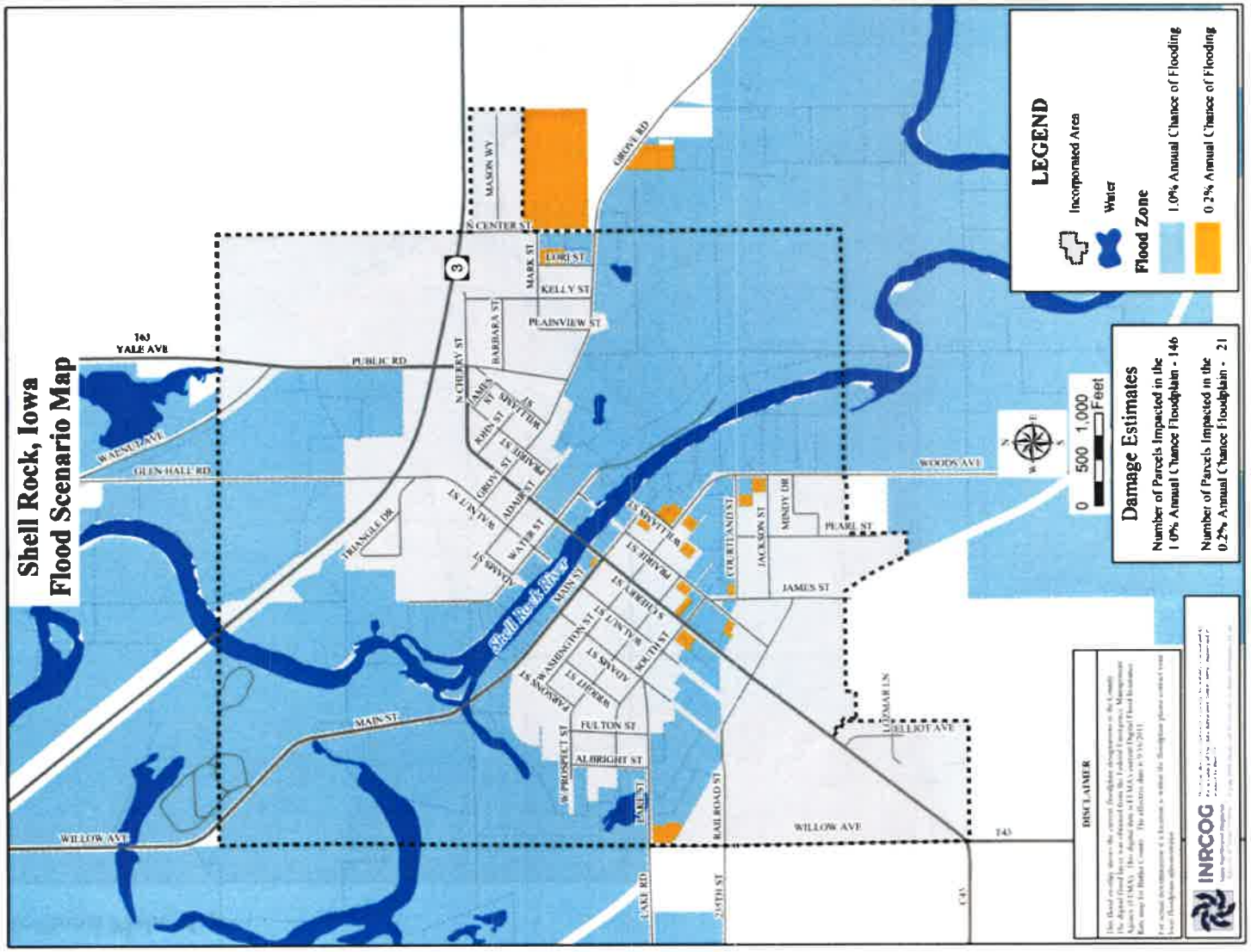


Figure 5: Flood Scenario Map



Future Development

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.

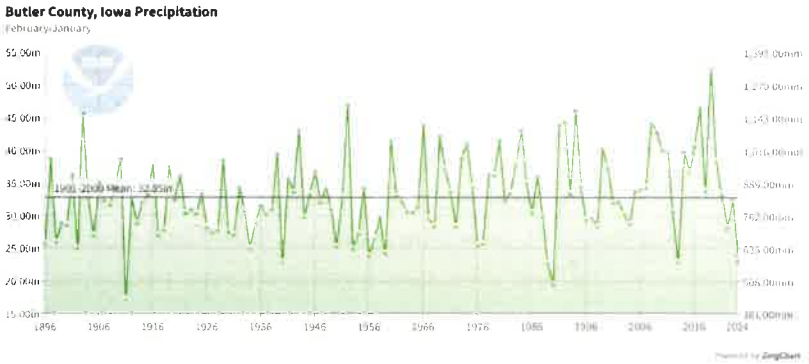
Long term trends of climate patterns for the region were summarized in the Fourth National Climate Assessment Midwest Section.[1] The National Climate Report is mandated to be updated every 4 years and deliver results to Congress and President on the effects to agriculture, energy productions, land use,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

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

Annual Precipitation Levels in Butler County

Taking the monthly precipitation records from January to December between 1895 and 2024 is shown in Figure 6. The values hover between 20 – 50 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 6. The trend shows a growing level of annual precipitation on average of 32.80 inches. Based on this historical trend, precipitation is likely to continue to increase in the coming years.

Figure 6: Historical Precipitation Data and Trend for Butler County, Iowa[2]



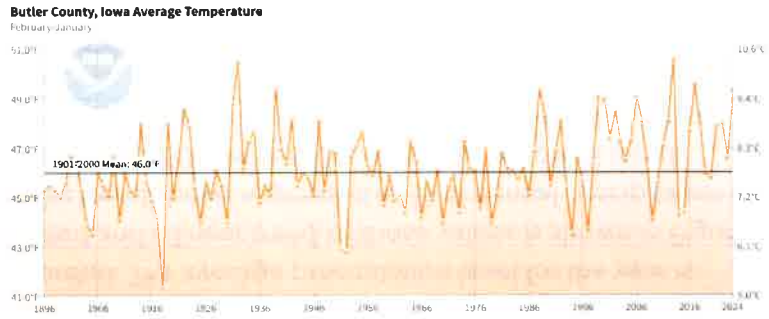
Average Annual Temperatures in Butler County

The monthly average temperature is plotted over a 12-month period from 1885 to 2023 in Figure 7. The annual average temperature is also shown with a linear trend in Figure 7. This trend shows the average temperature in Butler County increasing at a rate of +0.1° F every 10 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.

[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 7: Historical Temperature Data and Trend for Butler County, Iowa[2]



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 evaporate 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 more frequently 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 Butler County

- Prologued drought may occur as the atmosphere holds more moisture (even pulling moisture from plants) as the temperature increases. Longer periods between weather events mean there are drier 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. Human health impacts are higher among socially vulnerable populations (the 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.

National Flood Insurance Program

The City of Shell Rock participates in the National Flood Insurance Program. The current effective FIRM map date is December 17, 2020. Butler County participates in the NFIP, and its effective map date is November 6, 2000.

FEMA defines a repetitive loss property as an insurable building that has experienced two losses in a 10-year period in which each loss is $1,000 or more. There is 1 reported repetitive loss property. The City has 1 total policy with a total net dollar paid value of $437,028.

The City continues to ensure that repetitive loss properties are minimized and safeguard with preventive measures the development of flood prone areas.

Hazard Risk Assessment

The top three hazards from the risk assessment are:

1. Animal/Crop/Plant Disease
2. Hazardous Materials
3. Drought

Methodology

This risk assessment identifies how people, property, and structures would be harmed or damaged by one of the listed hazard events. Iowa Homeland Security and Emergency Management Department (Iowa H.E.S.M.D.) provided the hazard risk score formula for determining the level of risk used in this analysis.

Factors of Hazard Risk

Risks to a hazard may differ across geographical locations or even differ based on certain times of year. For example, tornado season in Iowa is usually in May and tornados have the highest risk during this time due to change in weather patterns from the western and central Gulf of Mexico causing higher chances of extreme weather.

For this analysis, four hazard risk factors are rated on a scale between 1 and 4 by committee participants after reviewing profiles of each hazard with the planning coordinator. Information was shared with the committee which described the hazard, historical occurrences, impact, duration, and warning time. Participants used this information to strengthen their understanding to rate each hazard factor.

Hazard Risk Score Formula

[Probability] **x 45%** + [Magnitude or Severity] **x 30%**
+ [Warning Time] **x 15%** + [Duration] **x 10%**
= Final Hazard Assessment

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

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 for Shell Rock are located below.

Score Value vs. Hazard Risk Level	Description of hazard with this rating
Scores with a value closer to 1: Low risk hazard	Hazard is not likely to affect people or property because the likelihood is minimal.
Scores with a value closer to 4: High risk hazard	The hazard has historically occurred and may have significant impacts to people and property.
Scores with a value Of 0 No Presumed Risk	The hazard is extremely unlikely to impact the community, thus, the community has not taken it into consideration for mitigation actions.

Probability

The probability score reflects the likelihood of the hazard occurring in the near future. Historical data of the hazard event occurring in Butler County or Iowa informed the likelihood of future occurrence.

Probability Score Definitions

Score	Description	
1	Unlikely	*Less than 10%* 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	*Between 10% and 20%* 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	*Between 20% and 33%* 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	*More than 33%* 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.

Magnitude or Severity

The magnitude or severity of the hazard event is measured by the level of impact on the human environment. Property damage is assessed by the whole planning area.

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.

Warning Time

This should be taken as an anticipated warning time.

The warning time score assesses the ability to warn a population before the hazard occurs. The values of the score range from 1 (at least 24 hours) to 4 (minimal or no warning time).

For many of the climate hazards, there is a considerable amount of warning time as opposed to the human-caused hazards (transportation and hazardous materials incidents) that occur instantaneously or without any significant warning time.

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)

Duration

The duration is the time of a typical or expected hazard event to occur. For an earthquake or traffic accident that is a score of 1. For infrastructure failure, it is likely a 4.

Table 10 displays rated risk scores for each associated hazard. This assessment was completed by city representatives based on hazard profiles prepared for the planning committee.

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

Table 10: Hazard Risk Assessment					
Hazards	**Probability**	**Magnitude**	**Warning Time**	**Duration**	**Score**
Animal/Crop/Plant Disease	4	3	1	4	3.25
Hazardous Materials	4	1	4	4	3.1
Drought	4	2	1	4	2.95
Extreme Heat	4	2	1	3	2.85
Transportation Incident	4	1	4	1	2.8
Severe Winter Storm	4	2	1	1	2.65
Pandemic Human Disease	2	4	1	4	2.65
River Flood	4	1	1	3	2.55
Radiological Incident	1	4	4	1	2.35
Terrorism	1	3	4	4	2.35
Grass/Wild Land Fire	2	2	4	2	2.3
Tornado/Windstorm	2	2	4	1	2.2
Levee/Dam Failure	1	2	4	4	2.05
Thunderstorm/Lightning/Hail	3	1	1	1	1.9
Sinkholes	1	1	4	4	1.75
Flash Flood	1	1	4	1	1.45
Infrastructure Failure	1	1	1	4	1.3
Expansive Soils	1	1	1	1	1
Earthquake*	0	0	0	0	0
Landslides*	0	0	0	0	0

Source: Completed by City Representative. Calculated score completed by INRCOG.

* The hazard is extremely unlikely to impact the community, thus, the community has not taken it into consideration for mitigation actions.

Hazard Mitigation Goals

in Shell Rock, Iowa

The following list of goals was developed by planning committee participants from the associated jurisdiction. Goals 1 through 7 were developed in the previous 2020 Butler County Multi-Jurisdictional Hazard Mitigation Plan. The planning committee participants chose to adopt the same goals and add additional goals after review.

Goal #1 Minimize to the greatest possible extent the number of injuries and/or loss of life associated with all identified hazards.

Goal #2 Reduce or eliminate property damage due to the occurrence of disasters.

Goal #3 Improve response operations in the event of a disaster.

Goal #4 Return the community to either a pre-disaster or improved conditions in a timely manner in the wake of a disaster.

Goal #5 Develop strategies that can be used to reduce the community's overall risk to the negative effects of natural, technological, and man-made disasters.

Goal #6 Reconvene the planning committee annually to review the plan document, check for compliance with the plan goals, and track progress in achieving the mitigation strategies.

Goal #7 Maintain the Countywide Multi-Jurisdictional format for future updates.

Previous 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 Shell Rock

Butler County Emergency Management Agency

Shell Rock works with the Butler County Emergency Management Coordinator, based out of the City of Allison, 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 Butler County Emergency Management Coordinator is Chris Showalter.

Law Enforcement

Shell Rock contracts for law enforcement services with the Butler County Sheriff's Department. The Department provides routine services and support for the city. They are located at 428 Sixth Street in Allison.

Fire Protection and EMS Services

Fire protection for the City of Shell Rock is provided by the Shell Rock Fire Department. The station is located at 513 E Cherry Street in Shell Rock. There are 14 volunteer fire fighters that serve in the department currently. Each of the members is HAZMAT certified Firefighter 1 trained. There are several members that have Firefighter 2 training, and others with driver/operator training. Dispatch is provided via a paging system called I Am Responding app that is accessible through a phone app.

The Shell Rock Fire Department maintains 28E agreements with surrounding communities to provide additional support when needed and required.

EMS Services

Butler County EMS represents all 8 of the EMS service in the County. Butler County Board of Supervisors deemed EMS an Essential Service for the County according to Iowa Code Chapter 422D and recently hired an EMS Coordinator to provide coverage and support for EMS services within the county.

Medical Facilities

The City of Shell Rock has a medical clinic, Shell Rock Clinic.

The Waverly Health Center in Waverly is located approximately 6 miles east and the MercyOne Waterloo Medical Center in Waterloo is located approximately 30 miles southeast.

HAZMAT Response Teams

Shell Rock 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. An evacuation plan is also in place in conjunction with the activities of the local department. Contact information for the facility is as follows: Hazardous Materials Regional Training Center, 1925 Newell Street, Waterloo, Iowa 50707, Phone: (319) 291-4275, Toll Free: (800) 291-4682, Fax: (319) 291-4285

The jurisdiction also partners with the Northeast Iowa Response Group for assistance in responding to any methamphetamine labs located in the city limits. The Response Group assists the Police Departments in the containment of the site and disposal of hazardous chemicals.

Warning Systems in Shell Rock

1. Tornado Sirens

   Shell Rock has an existing tornado siren installed in 2010 that it does not expect to need to be replaced in the next 3-5 years. They test the tornado siren monthly during the summer.

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

2) Alert Iowa Mass Communication System

   Butler County has implemented the use of Alert Iowa, a mass communication notification system. The system features are controlled through the Butler 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. The County will use its emergency notification network for all the following events: blizzards, flash flooding, severe thunderstorms, and tornadoes. There is an optional way to receive the same alert for events such as: excessive heat warnings, hazardous materials warnings,

heavy snow warning, high wind warnings, ice storm warnings, law enforcement warnings, shelter in place warnings, sleet warnings, wind chill warnings, and winter storm warnings.

Public Works/Street Department

The Public Works Department is located at City Hall at 802 N Public Rd.

Education and Outreach Projects in Shell Rock

Shell Rock currently has in place E911 Emergency Assistance. Other communications used by city personnel include pagers, radios, and cellular telephones. Radio, television, cellular telephones, landline telephones, newspapers, warning sirens, and NOAA Radio Service are available to the public at large. The city has developed a website in order to keep its citizens, and other interested parties, aware of local and government affairs. The website address is www.shellrockiowa.org. The city also has a social media account, newsletter, and community bulletin board for local notifications and updates.

The City partners with KWAY for radio announcements and KWWL to television announcements.

Natural Resource Protection in Shell Rock

Shell Rock does not have any natural resources protection actions.

Structural Projects in Shell Rock

The City currently has a project in place to increase the wastewater treatment capacity by 20% to increase effectiveness and comply with DNR and EPA Regulations.

Local Plans and Regulations in Shell Rock

Shell Rock completed a local plan and regulation assessment. The results are shown in the following table.

Table 11: Local Regulatory Capability Assessment	
Community	**City of Shell Rock**
Previous HMP Participant?	Yes
Comprehensive Plan?	Yes
Building Code?	No
Zoning Ordinance? RR=restricted residential	Yes
Subdivision Regulations?	Yes
Floodplain Management Ordinance?	Yes
Tree-Trimming Ordinance?	Yes
Storm Water Ordinance?	Yes
Snow Removal Ordinance?	Yes

Timeframe	Description
Immediate	1 - 6 months
Short Term	1-3 years
Mid-Term	3-5 Years
Long-Term	More than 5 Years

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

How to Use the Implementation Guide in this Plan

Notes about the tasks (listed as line items) on the tables on the following pages.

- 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 the City's 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.*

Timeframe & 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. The time frame to complete the column is based on four designations (see table to the left).

Strategic Implementation Guide for Hazard Mitigation Activities

Table 12: '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***
High	Collaborate with Butler County Emergency Management Agency to educate the public on emergency response.	All	City Clerk; Fire Depart; Butler Emergency Management	Short-Term	Minimal	City General Fund
Medium	Coordinate with schools, daycares, and businesses to run emergency drills to prepare the public and test systems.	Tornadoes, Severe Thunderstorms	Fire Dept; Butler Emergency Management; Local Entities	Immediate	Minimal	City General Fund
Low	Develop an evacuation and sheltering plan for the community with signage for location and route information.	All	Butler Emergency Management; Public Works	Short-Term	Minimal	City General Fund

Table 13: 'Emergency Services' Type Mitigation Activities						
Description: Actions that protect people and property during and immediately after a disaster or hazard event.						
Priority	*Tasks*	*Hazard(s)*	*Primary Agency Responsible for Implementation*	*Time Frame to Complete*	*Estimated Cost (s)*	*Funding Source*
High	Rework city ordinances and training to promote more Fire Department and First Responder volunteers.	All	Fire Department; City Council	Immediate	Minimal	City General Fund
High	Purchase essential equipment for fire and emergency response to more safely and effectively serve the community.	Hazardous Materials, Transportation Incident, Severe Winter Storm, Terrorism, Grass/Wild Land Fire, Tornado/Windstorm	Fire Department; City Council	Short-Term	High	Assistance to Firefighters Grant Program

Table 14: 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	Acquire generator to utilize City Hall as an emergency shelter to provide safer and more efficient response.	All	City Clerk	Short-Term	High	Hazard Mitigation Grant Program
High	Raise electrical components to protect wastewater treatment facilities from future flooding events.	River Flood, Flash Flood, Levee/Dam Failure, Infrastructure Failure	Public Works; City Council	Short-Term	High	Hazard Mitigation Grant Program
Medium	Update existing water mains and hydrants for improved potable water service and emergency services.	All	Public Works; City Council	Mid-Term	High	CDBG; Hazard Mitigation Grant Program

Table 15: 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 (s)**	**Funding Source**
Medium	Maintain partnership and active participation in the Shell Rock River Watershed Management Coalition	Flood, Hazardous Materials, Drought, Extreme Heat, Levee/Dam Failure	City Council; Shell Rock River Watershed	Long-Term	Medium	City General Fund
Medium	Develop community programs that promote the planting of more drought tolerance and shade providing landscaping.	Extreme Heat, Grass/Wildfire, Drought, Plant Disease, Sinkholes, Expansive Soils	City Council; Public Works	Long-Term	Minimum	City General Fund

Table 16: Local Plans and Regulations Mitigation Activities						
Description: Actions by administrative or regulatory processes which direct how land and buildings are developed and built. These actions include regulations by public entities to reduce hazard losses.						
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	Limit future development and purchase, remove, or rework existing hazards in floodplains.	Flood	City Council; Public Works	Long-Term	High	Hazard Mitigation Grant Program
Medium	Backup essential data and records digitally and on a cloud-based solution to provide access remotely.	All	City Council; City Clerk	Shot-Term	Minimal	City General Fund