

Lincoln County

HAZARD MITIGATION PLAN ELEMENT DRAFT
APRIL 21, 2021

2021

NORTHEAST COLORADO REGIONAL HAZARD MITIGATION PLAN

Section One – Introduction

Overview

The purpose of the ***Lincoln County Plan Element*** is to provide Lincoln County and political subdivisions within the county with a comprehensive hazard mitigation strategy for reducing long-term risks to people, property and natural resources. It is the intent of this plan to help ensure that Lincoln County remains a safe place to live and work and to provide a framework for addressing potential future hazards through hazard mitigation planning.

Hazard mitigation is defined by FEMA as “any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event.” Mitigation creates safer communities by reducing loss of life, risk of injury, property damage, and damage to the environment.

The ***Lincoln County Plan Element*** is an annex of the ***Northeast Colorado Regional Hazard Mitigation Plan***. This Plan Element (“Plan”) is organized into the following sections:

- 1. Introduction – Overview and Community Profile***
- 2. Risk Assessment***
- 3. Capability Assessment***
- 4. Vulnerability Assessment***
- 5. Mitigation Strategy***
- 6. Maintaining and Updating the County Plan Element.***

Participating Jurisdictions and Stakeholders

The jurisdictions and organizations that participated in the 2020 plan update process are identified in Table 1.1 below. *Participating Jurisdictions* that adopt the updated plan are eligible to receive federal hazard mitigation grant funds directly from FEMA. In addition to participating in the planning process and formally adopting the updated plan, Participating Jurisdictions must also identify specific mitigation actions for reducing risks from local hazards. *Stakeholders* are jurisdictions or organizations that participate in and have an interest in the planning process, but are not required to formally adopt the updated plan or identify mitigation actions. Stakeholders that identify specific mitigation actions may be the recipient of federal hazard mitigation grant funds, but are required to work through a Participating Jurisdiction that agrees to sponsor the project application.

Table 1.1 Participating Jurisdictions and Stakeholders

Participating Jurisdictions and Stakeholders	
Lincoln County*	Town of Limon
Town of Arriba	Karval Fire Protection District
Town of Hugo*	Limon Area Fire Protection District
Town of Karval	Lincoln Community Hospital
Town of Genoa	Northeast Lincoln Fire Protection District

* Participating Jurisdiction

Staff from the Colorado Department of Public Safety, Division of Homeland Security and Emergency Management, provided technical planning support for the project.

Planning Process and Public Involvement

A planning workshop was conducted on February 17, 2020, 7:00-9:00 PM, in Hugo to gather and evaluate information to include in the 2020 updates to the Lincoln County Hazard Mitigation Plan Element. The workshop was attended by representatives of Lincoln County and its local partners. The workshop was facilitated by a mitigation specialist from the Colorado Division of Homeland Security and Emergency Management and the contractor hired to coordinate the project. Prior to the workshop, a survey of Participating Jurisdictions and Stakeholders was conducted to collect initial information for updates to the Plan, including hazard events and mitigation efforts from the previous five years.

The survey and workshop provided two opportunities to (1) review and update the Risk Assessment and assess the vulnerability of community assets to local hazards, (2) review local mitigation capabilities and update the Capability Assessment, and (3) determine the status of 2015 Mitigation Actions and identify new opportunities and projects to include in the updated plan. The workshop was open to the public and citizens and volunteers were also provided an opportunity to review and comment on draft updates prior to final review by the Lincoln County Hazard Mitigation Planning Team.

Table 1.2 Lincoln County Hazard Mitigation Planning Team

Lincoln County Hazard Mitigation Planning Team		
Name	Position	Organization
Steve Burgess	Commissioner	Lincoln County
Jason Farley	Lieutenant	Limon Area Fire Protection District
Fritz Gilbert	Lieutenant	Limon Area Fire Protection District
Chris Harper	Chief	Karval Fire Protection District
Lucas Koch	Director of Maintenance & Engineering	Lincoln Community Hospital
Fred Lundy	Land Use Director	Lincoln County
Robert Payne	Chief Marshal	Town of Hugo
Chris Monks	Foreman	Lincoln County Road and Bridge Department
Lori Nyman	Emergency Management Assistant	Cheyenne County
Jacob Piper	County Administrator	Lincoln County
Doug Stone	Commissioner	Lincoln County
Greg Tacha	Town Manager	Town of Limon
Lynn Yowell	Police Chief	Town of Limon
Ken Stroud	Emergency Manager	Lincoln County
Mark Thompson	Mitigation Planning Specialist	Colorado Division of Homeland Security and Emergency Management
Bob Wold	Consultant	Robert Wold Emergency Management Planning Services

Representatives of the Town of Limon were unable to attend the Planning Workshop in Hugo, so a follow-up meeting was conducted on March 6, 2020 with Town Manager Greg Tacha, Police Chief Lynn Yowell, Lincoln County Emergency Manager Ken Stroud, and project consultant Bob Wold in attendance. The risks and vulnerable community assets specific to the Town of Limon were discussed, as well as potential projects and mitigation opportunities.

Community Profile

	Established	1889
	Land Area (Square Miles)	2,593
	County Seat	Hugo
	Elevation Range	4,500'-5,400'
	Assessed Value (2019)	\$170,659,837
	Top Industry	Agriculture
	Population (2010)	5,467
	Population (2017)	5,520

History

In 1889, the Colorado General Assembly formed Lincoln County, named in honor of President Abraham Lincoln, from parts of Elbert and Bent Counties and established Hugo as the county seat. Prior to 1860, the landscape that became Lincoln County was inhabited by Native Americans and buffalo, but soon after the discovery of gold in the Colorado mountains large cattle ranches began to move into the area to provide meat for miners and growing towns along the Front Range. Sheep ranchers followed the cattlemen and then homesteaders and the railroads arrived in the 1880s.

In 1870, the small town of Hugo grew up around a watering stop for the Kansas-Pacific Railroad and became the Lincoln County Seat in 1889, followed by incorporation 20 years later in 1909. Like other communities in Lincoln County, Limon was founded as a work camp for the railroad and was named after the original construction foreman of the Chicago and Rock Island Railroad line to Colorado Springs. Located at the crossing of two rail lines and the crossroads of I-70 and U.S. Highways 24, 40, 71 and 287, Limon became known as Hub City and became the most populous community in the county. The towns of Arriba, Bovina and Genoa also grew up along the Rock Island line. Despite the ups and downs of reliance on the railroad industry, all of these communities survived on the strength of farming and ranching.

On June 6, 1990, most of downtown Limon was destroyed by an F3 tornado that caused an estimated \$20 million in damages, or \$39.1 million in 2019 dollars (source: Rocky Mountain Insurance and Information Association). Although 14 people were injured, there were no fatalities and after a long recovery effort the Limon business district came back stronger than ever.

Today, dry land wheat farming and cattle ranching are still the staples of Lincoln County's agricultural economy, together with relatively new crops like corn and sunflowers in land under irrigation as well as a return of the buffalo with commercial bison ranching.

Geography

Lincoln County lies in the High Plains of East Central Colorado and covers 2,593 square miles (1,644,800 acres) of land, principally rolling prairie, at altitudes varying from 4,500 feet in the southeast to about 5,400 feet in the northwest, where the highest point in the county is 5,960 feet. The main watersheds in the county are the Arickaree and Republican Rivers in the northern part of the county and Big Sandy, Rush and Horse Creeks in the southern part of the county, which drain ultimately into the Arkansas River. Vegetation is generally sage,

Conservation Reserve Program (CRP) grasses, short-grass prairie, and croplands, with cottonwood and some tamarisk in the drainages.

Climate

According to the Colorado Climate Center, the climate of Lincoln County is characterized by low relative humidity, frequent sunshine, infrequent moisture, moderate to high winds, and temperature extremes that range from zero to -15°F in winter months to daily maximum temperatures of 95°F or above during the summer. Between 2015 and 2019, the average high temperature was 65°F and the average low temperature was 31°F. The average annual precipitation for Lincoln County for the same period ranged from 12 inches (2016) to 21 inches (2015). Precipitation is seasonal, with most of the annual total (70-80%) falling during the growing season from April through September.

Large thunderstorms are common in the spring and summer months and capable of producing small- to medium-size tornadoes, crop-damaging hail, and heavy rainfall that can result in localized flood events. Although winter weather is generally dry, severe winter weather events are fairly common, including blizzards and wind-blown snow that results in closed highways and isolated communities and rural residents. Fall is the most stable time of year for weather conditions, with much cooler temperatures and very low humidity levels for most of the season. Multi-year drought is common to the area, such as the intense widespread drought of the early 2000s.

Population

Lincoln County has experienced a slight increase in population since 2010, from 5,467 to a total population in 2017 of 5,520 (0.97% increase). Other population characteristics for Lincoln County from the 2017 U.S. Census are shown in the following table.

Table 1.3 Population Characteristics

Population Characteristics	Lincoln County	Town of Limon	Town of Hugo
Population (2017)	5,520	1,256	669
Median Age	38.5	45.5	49.2
Population 65 Years and Over	951	275	232
Female Population	1998	703	371
Male Population	3,522	553	298
Average Household Size	2.38	2.20	2.16
Average Family Size	2.98	2.77	2.70
Percent of Total Population with Disabilities	17.9	20.9	25.2
Residents with Disabilities less than 18 Years Old (%)	1.8	3.6	0.0
Residents with Disabilities 18-64 Years Old (%)	11.2	12.7	15.9
Residents with Disabilities over 65 Years Old (%)	51.4	62.2	56.3
Residents with Health Insurance Coverage (%)	94.3	92.8	96.7
Residents with High School Degree (%)	87.8	90.9	82.9
Residents with Bachelor's Degree (%)	13.2	19.4	11.7

U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Select 2017 economic and housing statistics for Lincoln County are provided in Table 1.4 below.

Table 1.4 Economic and Housing Characteristics

Economic and Housing Characteristics	Lincoln County	Town of Limon	Town of Hugo
Median Household Income	\$44,725	\$39,167	\$38,359
Percent of Total Population that is Unemployed	3.7	4.7	6.0
Percent of Families Living Below Poverty Level	10.7	12.5	15.7
Percent of Individuals Living Below Poverty Level	14.0	17.8	16.5
Total Housing Units	1,903	693	322
Vacant Housing Units	426	123	59
Homeowner Vacancy Rate (%)	0.8	2.3	0.0
Rental Vacancy Rate (%)	7.9	8.0	0.0
Number of Businesses/Companies*	323	N/A	N/A

U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

* 2012 Survey of Business Owners

Section Two – Risk Assessment

Risk is the potential for damage, loss, or other impacts created by the interaction of natural or other types of hazards with community assets. The purpose of the **risk assessment** is to provide a better understanding of local risks and establish a framework for developing and prioritizing mitigation actions to reduce risk from future natural hazard events.

Local Natural Hazards

The risk assessment matrix below reflects the results of the rating-ranking exercise conducted during updates to the plan in 2014 and 2020. **Probability** is defined by FEMA as the likelihood of the hazard occurring in the future, based on historical frequencies or statistical probability models. **Magnitude** refers to the scale or severity of a hazard event in terms of the impacts to public safety, critical infrastructure, private property, economic activity, natural resources and other community assets. **Significance** is a measure of the need for planning and mitigation action, based on the geographic extent, probability and magnitude of potential impacts.

In light of the growing incidence of grassfires in the years 2014-2019, the Magnitude rating for the **Wildland/Grassland Fire** hazard was increased from *Limited* to **Critical**, meaning the hazard now presents a greater risk to public health and safety and future incidents could result in major impacts to property and infrastructure. The Probability and Magnitude ratings for all other hazards in the table below were validated and no further changes were made.

Table 2.1 Lincoln County Risk Assessment

LINCOLN COUNTY HAZARDS	Geographic Extent	Probability	Magnitude	Significance
Biological Hazards: Pandemic	Extensive	Occasional	Critical	High
Biological Hazards: Pestilence	Extensive	Occasional	Limited	Medium
Biological Hazards: Zoonotic Diseases	Limited	Likely	Limited	Medium
Blizzards and Severe Winter Storms	Extensive	Likely	Critical	High
Dam Failures/Levee Failures	Limited	Likely	Limited	Low
Drought	Extensive	Likely	Critical	High

Earthquake	Limited	Occasional	Limited	Medium
Flooding	Significant	Likely	Critical	High
Fog	Significant	Likely	Negligible	Low
Hailstorms	Extensive	Highly Likely	Limited	Medium
Landslides	Limited	Occasional	Negligible	Low
Lightning	Extensive	Highly Likely	Limited	Medium
Noxious Weeds	Extensive	Highly Likely	Negligible	Low
Straight-Line Winds	Extensive	Highly Likely	Limited	High
Temperature Extremes	Extensive	Highly Likely	Limited	Low
Tornadoes	Extensive	Likely	Critical	High
Wildland and Grassland Fires	Extensive	Highly Likely	Critical	High

Legend		
Geographic Extent	Extensive	50-100% of planning area.
	Significant	10-50% of planning area.
	Limited	Less than 10% of planning area.
Probability	Highly Likely	Near 100% chance of occurrence each year.
	Likely	10-100% chance of occurrence each year (recurrence interval: 10 yrs. or less).
	Occasional	1-10% chance of occurrence each year (recurrence interval: 11-100 yrs.)
	Unlikely	Less than 1% chance of occurrence each year (recurrence interval: >100 yrs.).
Magnitude	Catastrophic	Mass casualties and/or illnesses; extraordinary levels of destruction and service interruptions; sustained impacts to infrastructure, government functions and the economy; local and state resources overwhelmed (>50% of property severely damaged).
	Critical	Isolated deaths; multiple injuries and/or illnesses; major property damage; impacts to critical infrastructure; and/or disruption of essential services (25-50% of property severely damaged).
	Limited	Minor injuries, manageable number of illnesses; minor property damage; and/or interruption of essential services for less than 24 hrs. (10-25% of property severely damaged).
	Negligible	No injuries or illnesses; little or no property damage; brief disruptions of essential services (<10% of property severely damaged).
Significance	High	Widespread potential impacts (planning and mitigation priority: high).
	Medium	Moderate potential impacts (planning and mitigation priority: medium).
	Low	Minimal potential impacts (planning and mitigation priority: low).

Significant Hazard Events in Lincoln County, 2015-2020

On March 13, 2019, Northeast Colorado experienced a rare weather phenomenon known as a **Bomb Cyclone**. According to the National Weather Service, a bomb cyclone is a rapidly intensifying storm system with hurricane-strength winds (60-80 mph) and moderate to heavy snowfall, sometimes referred to as “thundersnow.” During the 2019 Bomb Cyclone, Colorado recorded its lowest barometric pressure on record. Barometric pressure is the primary tool used to assess the overall strength of a storm (the lower the pressure, the stronger the storm).

As the updates to this plan were being completed, the **2020 COVID-19 Pandemic** spread across the globe, United States and Colorado. COVID-19 is an infectious disease caused by the most recently discovered coronavirus that was unknown before the outbreak began in Wuhan, China in December 2019. The illness rapidly spread to other continents and on March 5, 2020, the Colorado Department of Public Health and Environment’s (CDPHE) public health laboratory confirmed the first presumptive positive COVID-19 test result in Colorado. Soon thereafter, most areas in eastern and northeastern Colorado reported cases of the virus. Locations where groups of people congregate in confined spaces – nursing homes/assisted-care facilities, manufacturing plants, correctional facilities – were prime locations for rapid disease transmission. The crisis resulted in statewide “stay at home” and “safer at home” orders as well as orders closing certain businesses (e.g., restaurants, bars, gyms and non-essential retail stores)

and prohibiting gatherings of 10 or more people in a confined space. Many local governments and health departments also instituted requirements relative to safe-distancing, wearing face masks and other protective measures.

Other significant hazard events that occurred in Lincoln County between 2015-2020 were reviewed at the workshop and through the survey process and the most significant events during the period are summarized in the table below, with additional data from the National Centers for Environmental Information (NCEI) Storm Events Database.

Table 2.2 Significant Hazard Events in Lincoln County, 2015-2020

Hazard Event	Date(s)	Impacts
Blizzard	November 16, 2015	High winds; blowing snow; zero or near-zero visibilities
Blizzard	March 23, 2016	High winds; blowing snow; zero or near-zero visibilities
Blizzard	March 24, 2017	High winds; blowing snow; zero or near-zero visibilities
Blizzard	April 13, 2018	Combination of heavy snow and high winds snapped and uprooted trees in Hugo and Limon
Blizzard	January 21-22, 2019	High winds; blowing snow; zero or near-zero visibilities
Blizzard	March 13, 2019	Bomb Cyclone* caused 60 mph straight-line winds, blowing/drifted snow, zero visibilities, power outages, closure of roads including I-70, and the need to open warming centers and shelters
Blizzard	November 26, 2019	High winds; blowing snow; zero or near-zero visibilities
Flooding	May 10, 2015	Minor flooding NNE of Genoa (\$15,000 damage)
Hailstorm	June 19, 2018	Thunderstorms produced large hail that damaged vehicles along I-70 near Arriba and Genoa; severe straight-line winds up to 70 mph and a small tornado also reported
Hailstorm	2015-2019	26 days with severe hail (hailstones measuring 1" in diameter or greater)
Pandemic	2020**	The COVID-19 pandemic was still at a crisis stage in Colorado as updates to this plan were completed in July 2020. Impacts to date in Lincoln County include several confirmed cases, economic losses, and public health orders requiring social distancing.
Straight-Line Winds	2015-2019	10 days with winds recorded at 50 kts (57.5 mph) or greater
Tornado	August 17, 2015	Two EF1 tornadoes near Genoa destroyed 2 grain silos, power lines and outbuildings; one home received minor damage (\$50,000); semi-truck blown into car on I-70
Tornado	May 9, 2018	EF0 tornado touched down near Karval (no damage reported)
Tornado	May 26, 2019	EF0 tornado touched down in open field (no damage)

Source: National Centers for Environmental Information (NCEI) Storm Events Database

* According to the National Weather Service, a "bomb cyclone" is a storm with rapidly plummeting atmospheric pressure, usually when a cold air mass collides with a warm air mass.

** The Coronavirus COVID-19 outbreak began in Colorado in March 2020 and was still impacting Lincoln County as of the completion of updates to this document.

History of Natural Hazard Events in Lincoln County

Extreme weather events in Lincoln County occasionally result in major damage to homes, businesses, utilities, agricultural operations and crops. On June 6, 1990, an F3 tornado destroyed most of downtown Limon and caused an estimated \$20 million in damages. On May 31, 1999, an F3 tornado north of Genoa caused an estimated \$4 million in damages to homes, farms and utility poles, including two mobile homes that were destroyed.

When the response capacity of an affected jurisdiction is exhausted by a natural disaster, a **state disaster declaration** may be issued, allowing for the provision of state assistance, usually for the purpose of covering the costs of state assets committed to response operations. Lincoln County has been designated as a state-declared disaster area 11 times since 1980, including eight statewide declarations.

Federal disaster declarations are granted when the magnitude and severity of impacts caused by an event surpass the ability of state and affected local governments to respond and recover. Most disaster assistance programs are supplemental and require a local cost-sharing match. Lincoln County has received a major federal disaster declaration on four (4) occasions:

1. June 19, 1965 for tornadoes, severe storms and flooding (DR-200) that occurred on May 23, 1965 (F2 tornado touched down briefly in northern Lincoln County and did \$25,000 damage);
2. August 1, 1997 (DR-1186) for Public Assistance only for a flood event that caused approximately \$70,000 in road /bridge damage and destroyed 10,000 acres of millet/wheat crops;
3. September 14, 2013 (DR-4145) for Public Assistance only to repair flood-damaged public facilities in the Haswell area (2 bridges destroyed/approximately \$150,000); and
4. May 17, 2001 following ice storms in April that caused extensive damage to REA-owned power lines and poles in Lincoln County and other Eastern Colorado counties (DR-1374).

A **USDA disaster declaration** is the most common type of federal disaster assistance and is limited to low-interest loans to farmers and ranchers to help compensate for losses due to natural hazards, including drought, freezing, hail, and insect infestations. Lincoln County received USDA disaster declarations for drought and other hazards 18 times between 2003-2019.

Section Three – Capability Assessment

Mitigation capabilities refer to the programs and policies currently in place to reduce hazard impacts, principally through the identification and implementation of cost-effective hazard mitigation measures. Capabilities can take the form of regulatory requirements (e.g., building codes or hazard-specific zoning ordinances), plans (e.g., hazard mitigation plans or stormwater master plans), certification programs (e.g., *Firewise* or *StormReady*), personnel (e.g., floodplain administrators and community planners), insurance (e.g., National Flood Insurance Program), and structural projects that protect critical facilities and other property. Hazard awareness and public education programs are also proven measures for preparing citizens to cope with hazard events that cannot be avoided.

On March 11, 2019, the Town of Hugo adopted a new Land Development Code that includes building code requirements (UBC 2006), subdivision regulations, zoning regulations, and conditions for extension of town services. Restrictions on development in floodplain areas are

addressed in the zoning section and zoning map. On November 9, 2017, the Lincoln County Board of County Commissioners passed a resolution revising the zoning ordinance to, among other things, identify standards that a proposed development must meet before permits can be issued in identified floodplains. On June 5, 2015, the Lincoln County Board of County Commissioners approved a resolution replacing the 1997 Building Code with the 2006 Uniform Building Code for residential and commercial development and construction.

The political jurisdictions within Lincoln County enforce a range of other regulations that support mitigation goals and principles by restricting development in areas prone to natural hazards. In most jurisdictions, the local comprehensive plan, zoning ordinance and building codes are the primary tools utilized to regulate development in hazard-prone areas. The mitigation capabilities and resources currently in place in the Participating Jurisdictions are summarized in the table below.

Table 3.1 Mitigation Capabilities

Capability	Lincoln County	Town of Limon	Town of Hugo
Planning and Regulatory Capabilities			
Building Codes	Yes	Yes	Yes
Building Codes Year	2006	2006	2006
BCEGS Rating	N/A	N/A	N/A
Capital Improvements Program or Plan (CIP)	No	No	No
Community Rating System	No	No	No
Community Wildfire Protection Plan (CWPP)	No	No	No
Comprehensive, Master or General Plan	Yes	No	No
Economic Plan	Yes	Yes	Yes
Elevation Certificates	No	No	N/A
Erosion/Sediment Control Program	No	No	No
Floodplain Management Plan or Ordinance	Yes	Yes	No
Flood Insurance Study (FIS)	No	No	No
Growth Management Ordinance	No	No	No
Non-Flood Hazard-Specific Ordinance	No	No	No
National Flood Insurance Program (NFIP) Participant	Yes	Yes	No
Site Plan Review Requirements	Yes	Yes	Yes
Stormwater Plan, Program or Ordinance	No	Yes	No
Zoning Ordinance	Yes	Yes	Yes
Financial, Administrative and Technical Capabilities			
Utilities Fees	E911	No	No
Stormwater Service Fees	No	No	No
Capital Improvement Project (CIP) Funding	No	No	No
Community Development Block Grant (CDBG) Funds	Yes	No	No
Emergency Manager	Yes	Yes (County)	Yes (County)
Floodplain Administrator	Yes	Yes	No
Land Use/Community Planner	Yes	Yes	Yes
Planner/Engineer (Construction/Development)	No	No	No
Resiliency Planner	No	No	No
Transportation Planner	No	No	No

Building Official	Yes	Yes	No
GIS Specialist and Capability	Yes	No	No
Warning Systems/Services			
♦ General	Yes	Yes	Yes
♦ Flood	No	No	No
♦ Wildfire	No	No	No
♦ Tornado Sirens	Yes	Yes	Yes
♦ Geologic Hazards	No	No	No
Education and Outreach			
Local Citizen Groups that Communicate Hazard Risks	Yes	Yes (County)	Yes (County)
Firewise	No	No	No
StormReady	Yes	Yes (County)	Yes (County)
Note: The Statutory Towns of Arriba (2010 pop: 193) and Genoa (2010 pop: 139) are governed by a Town Board and Mayor and have a limited regulatory structure. A Town Clerk provides administrative services, the Lincoln County Sheriff provides law enforcement services, Lincoln County OEM provides emergency management and preparedness services, and fire protection is provided by local fire protection districts. The unincorporated community of Karval has a U.S. Post Office, public school and volunteer fire protection district.			

Section Four – Vulnerability Assessment

Community Assets at Risk

This section describes the community assets at risk to natural hazards in Lincoln County, including people and property; economic assets; critical facilities and infrastructure; and natural, cultural, and historic resources.

In 2019, the total assessed value of taxable properties in unincorporated Lincoln County was \$170,659,837. According to the 2019 Lincoln County Abstract of Assessment, State Assessed Properties (public utilities and rail transportation) are the top property class in the county in assessed value at \$72,543,100 (42.50%), followed by Oil and Gas Properties at \$35,755,686 (20.95%), Agricultural Properties at \$29,967,454 (17.56%), and Commercial Properties at \$17,151,461 (10.05%). Assessed values by property classification are shown in Table 4.1 below.

Table 4.1 Summary of Taxable Properties in Lincoln County, 2019

Property Classification	2019 Assessed Value	Percent
Agricultural Properties	\$29,967,454	17.56
Commercial Properties	\$17,151,461	10.05
Industrial Properties	\$270,540	0.16
Natural Resources	\$1,703,557	1.00
Oil and Gas Properties	\$35,755,686	20.95
Residential Properties	\$11,778,821	6.91
State Assessed Properties	\$72,543,100	42.50
Vacant Properties	\$1,489,218	0.87
Total Taxable Property	\$170,659,837	100.00

Source: 2019 Lincoln County Abstract of Assessment

A summary of the 2019 assessed values of municipalities, school districts and fire protection districts within Lincoln County is provided in the table below.

Table 4.2 Summary of Taxable Properties for Municipalities, Schools and Fire Districts

2019 Assessed Values					
Municipalities		School Districts		Fire Protection Districts	
Arriba	\$887,935	Arriba-Flagler R-20	\$14,200,954	Edison FPD	\$2,923,113
Genoa	\$958,110	Crowley RE-1J	\$949,913	Hugo FPD	\$35,051,178
Hugo	\$3,867,780	Edison JT-54	\$2,923,113	Karval FPD	\$8,014,323
Limon	\$22,574,289	Genoa-Hugo C-113	\$74,110,789	Limon Area FPD	\$65,787,666
		Karval RE-23	\$6,433,990	NE Lincoln FPD	\$14,145,949
		Limon RE-4J	\$65,787,666	Tri-CO FPD	\$5,926,087
		Miami/Yoder JT-60	\$5,926,086		

Source: 2019 Lincoln County Abstract of Assessment

Critical Facilities

Critical facilities and infrastructure are the structures and systems that are integral to day-to-day functions and, if damaged, would have serious adverse impacts on disaster response and recovery operations. Infrastructure and facilities that are commonly considered *critical* include law enforcement facilities, fire service facilities, health care facilities, government facilities, emergency operations centers, public shelters, transportation systems, water supply facilities, wastewater treatment facilities, agricultural production facilities, electrical power systems and other utilities. In addition, critical facilities are those that house vulnerable populations, such as schools and assisted living or senior housing.

Table 4.3 Critical Facilities in Lincoln County

Critical Facility	Lincoln County	Town of Limon	Town of Hugo
Law Enforcement Facilities	1	1	1
Fire Stations	1	1	1
Hospitals/Clinics	0	2	2
EMS/Ambulance Stations	1	1	1
Emergency Operations Centers (EOCs)	1	0	0
Public Safety Communications Centers	1	0	0
Government Center (Courthouse/City Hall/Town Hall)	1	1	1
Public Schools	0	2	1
Assisted Living Facilities	0	4	2
Wastewater Treatment	0	1	1
Water Utilities/Treatment	0	1	1
Airports	0	1	0

Fire stations are also located in the following towns: Arriba (Northeast Lincoln Fire Protection District), Genoa (Genoa Volunteer Fire Department), and Karval (Karval Fire Protection District).

Electrical power transmission and distribution systems are particularly important given the role they play in providing power to all other critical facilities, including public safety facilities,

hospitals/clinics and emergency shelters, which do not always have backup generators. Critical facilities such as the substations, line-sectionalizing equipment, poles and lines are located at various locations in the communities and unincorporated areas of the county. It should be noted that these facilities are particularly vulnerable to many of the natural hazards addressed in this plan.

Economic Assets

Farming for wheat and other small grains and cattle ranching are the main components of the agriculture-based economy of Lincoln County. Other economic contributors include irrigation farming, oil and gas production, and wind energy projects.

Table 4.4 Industry Distribution – Top Three Industrial Sectors by Jurisdiction

Jurisdiction	Sector	Employees	Percent of Workforce
Lincoln County	1. Educational Services/Health Care/Social Assistance	335	23.1
	2. Agriculture (*Tie)	188	12.9
	2. Public Administration (*Tie)	188	12.9
Town of Limon	1. Educational Services/Health Care/Social Assistance	130	22.2
	2. Retail Trade	112	19.1
	3. Arts/Entertainment/Recreation/Accommodation-Food Services	99	16.9
Town of Hugo	1. Educational Services/Health Care/Social Assistance	38	20.1
	2. Retail Trade	20	10.6
	3. Transportation-Warehousing/Utilities	19	10.1

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates, 2012 Survey of Business Owners

Social Vulnerability

Certain demographic and housing characteristics are important considerations when identifying and prioritizing mitigation goals and actions. *Age* can affect the ability of individuals to safely evacuate away from hazardous conditions. *Language and cultural barriers* can affect the communication of warning information and access to post-disaster information. *Low-income residents* generally have fewer resources available for mitigation, preparedness, and recovery and are more likely to live in vulnerable structures.

Table 4.5 Social Vulnerability Indicators from U.S. Census, 2013-2017

Jurisdiction	Total Population	Housing Units	% Female	% Under 18 Yrs.	% 65 and Over	% Non-English at Home	Individuals Below Poverty Level (%)
Lincoln County	5,520	1,903	36.2	19.9	17.2	8.6	14.0
Town of Limon	1,256	693	56.0	28.5	21.9	8.2	17.8
Town of Hugo	669	322	55.5	23.8	34.7	2.6	16.5

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Historic, Cultural and Natural Resources

The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. The table below lists the properties in Lincoln County that are on the National Register of Historic Places.

Table 4.6 Historic Properties in Lincoln County on the National Register

Property	Location	Year Listed
Limon Railroad Depot (Limon Heritage Museum)	899 1 st St., Limon	2001
Rock Island Snowplow No. 95580	899 1 st St., Limon	2018
Hugo Municipal Pool	US 287 and 6 th Ave., Hugo	2008

Source: Directory of Colorado State Register Properties

The Colorado State Register of Historic Properties is a listing of the state's significant cultural resources worthy of preservation for the future education and enjoyment of Colorado's residents and visitors. The table below lists the properties in Lincoln County that are on the Colorado State Register of Historic Properties.

Table 4.7 Historic Properties in Lincoln County on the State Register

Property	Location	Year Listed
Carpenter Barn	CO 71 Limon Vicinity	2003
Hedlund House	617 3 rd St., Hugo	1997
Hugo Union Pacific Railroad Roadhouse	Adjacent UP RR Right-of-Way, Hugo	1997
Limon Railroad Depot (Limon Heritage Museum)	899 1 st St., Limon	2001
Lincoln Theater	245 E Ave., Limon	2004
Martin Homestead	57920 CR 30, Genoa	1997
Walks Camp Park	63551 CR 27, Limon Vicinity	1998
World's Wonder View Tower	30121 Frontage Rd., Genoa	1995

Source: Directory of Colorado State Register Properties

Growth and Development Trends

According to the State Demography Office, the population of Lincoln County is forecast to reach 5,718 by 2020 and 7,245 by 2040. Overall, the growth rate for Lincoln County is expected to increase between 2020 and 2040. Between 2010 and 2020 the forecast growth rate was 0.4 percent, between 2020 and 2030 the forecast growth rate is 1.4 percent, while the forecast growth rate between 2030 and 2040 is 1.0 percent. The change is due in part to population aging and changes in the proportion of the population in childbearing ages.

Table 4.8 Population Change, 2010-2017

Jurisdiction	2010 Population	2017 Population	Percent Change
Lincoln County	5,467	5,520	0.97
Town of Hugo	730	669	-8.36
Town of Limon	1,880	1,256	-33.59

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Vulnerability to High Priority Hazards in Lincoln County

The entire population of Lincoln County is more or less equally vulnerable to the high priority natural hazards identified in this plan, with the exception of the flood hazard, which is limited to the areas described in the section below on vulnerability to flooding. The vulnerability of community assets in Lincoln County to high priority hazards is summarized in the following discussion.

Biological Hazards: Pandemic

Older adults and individuals with serious chronic health conditions are most at risk for becoming very ill or dying from a serious respiratory virus like COVID-19 and other novel virus infections. In eastern and northeastern Colorado, the population skews to the older side of the state average (approximately 2-8 years older per capita, depending on the county) and residents with underlying health problems have less access to the health care services they need.

With fewer people and wide-open spaces, rural Colorado provides a natural social-distancing environment. However, rural residents still tend to congregate in common places where diseases can be passed from person-to-person, including schools, churches, grocery stores and post offices. Communities located along interstate highways may be more susceptible to exposure from the traveling public, including truck drivers from all parts of the country. Large rural employers, including packing plants, feedlots, grain elevators, and confined livestock operations as well as prisons, can also be prime locations for rapid virus transmission, as was experienced during the COVID-19 crisis at the Cargill meatpacking plant in Morgan County and the Sterling Correctional Facility in Logan County. Sadly, nursing home and assisted living facility residents have been the most vulnerable citizens to the highly contagious COVID-19 virus, due to their age, underlying health issues and congregate living setting.

Although most individuals who contract COVID-19 do not become seriously ill, persons with mild symptoms and asymptomatic COVID-19 illness can still place other vulnerable members of the public at significant risk. A large surge in the number of persons with serious infections can overwhelm local hospitals and clinics and compromise the ability of the health care system to deliver necessary health care to the public.¹ Most rural hospitals are not as equipped as larger hospital systems and many face significant health care workforce shortages on a normal basis, meaning patients in a pandemic may need to be transferred to larger hospitals or cared for in an unconventional, alternate setting. Other challenges to small town hospitals posed by a pandemic include limited inpatient and intensive care beds, disadvantages in competing for critical equipment and supplies, and loss of revenue from cancellation of elective procedures.

The drawn-out nature of a pandemic also places additional strain on EMS, fire and other response resources that rely heavily on volunteers, who together with their families already face greater exposure to the virus and a higher risk of infection. Every community in eastern and northeastern Colorado depends on volunteers to provide fire, EMS and ambulance services.

In addition to the loss of life and human suffering caused by COVID-19, the pandemic is expected to have an extensive negative effect on the global economy for years to come, with substantial drops in Gross Domestic Product (GDP) accompanied by extraordinary increases in unemployment in the U.S. and around the world.

¹ Colorado Department of Public Health and Environment, [covid19.colorado.gov](https://www.covid19.colorado.gov).

COVID-19 presents a number of challenges for farmers and ranchers in Colorado, including (1) uncertain impacts on markets and farm prices, (2) supply chain shortages and slowdowns, (3) health impacts to the farm-ranch workforce, and (4) potential shortages of safety gear such as protective gloves and N-95 masks due to their critical need by health care workers.² If large hog-packing plants in Oklahoma, Kansas or Texas had to shut down due to the spread of a virus through their workforce, agricultural COOPs and commercial hog farms in northeastern Colorado could be affected by the supply chain disruptions that would be created. In a worst-case scenario, local hog farms would have to depopulate animals because there would be no place to ship them for processing.

The Centers for Disease Control and Prevention (CDC) recommends community mitigation strategies such as social distancing measures to limit spread of the virus. A community mitigation strategy is a set of actions that individuals and communities can take to help slow the spread of respiratory virus infections. Community mitigation is especially important before a vaccine or drug becomes widely available. Community mitigation aims to slow the spread of a novel influenza virus and protect health care and critical infrastructure workers through the use of nonpharmaceutical interventions (NPIs). NPIs are readily available actions and response measures that people can take including staying at home, covering coughs and sneezes, frequent handwashing and routine cleaning of frequently touched surfaces.

Community-level NPIs help reduce social contacts between people in schools, workplaces, and other community settings by dismissing schools temporarily, providing telework options, postponing large gatherings and issuing public health orders. A community mitigation strategy outlines recommended actions that can be taken by individuals/families at home, schools and childcare facilities, assisted living facilities, workplaces, health care facilities, and community- and faith-based organizations.³

Blizzards and Severe Winter Storms

Winter storms will continue to occur with high frequency throughout Lincoln County and occasionally cause widespread impacts. The greatest risk is to the safety of the public, including travelers on the county's highways and roads and citizens with medical conditions or other special needs that may become isolated. Highway closures and power outages can present a need to open and manage public shelters and provide mass care services. Winter storms can occasionally lead to school and business closures, road closures, and extraordinary requirements to remove snow and maintain critical emergency services.

Drought

The most significant impacts from drought are related to water-intensive activities, such as agriculture (both crops and livestock), wildfire protection, municipal usage, commerce, recreation, and wildlife preservation, as well as a reduction of electric power generation and water quality deterioration. Secondary impacts of drought are wildfires, wind erosion, and soil compaction that can make an area more susceptible to flooding. Drought impacts increase with the length of a drought.

² Colorado Farm Bureau, coloradofarmbureau.com.

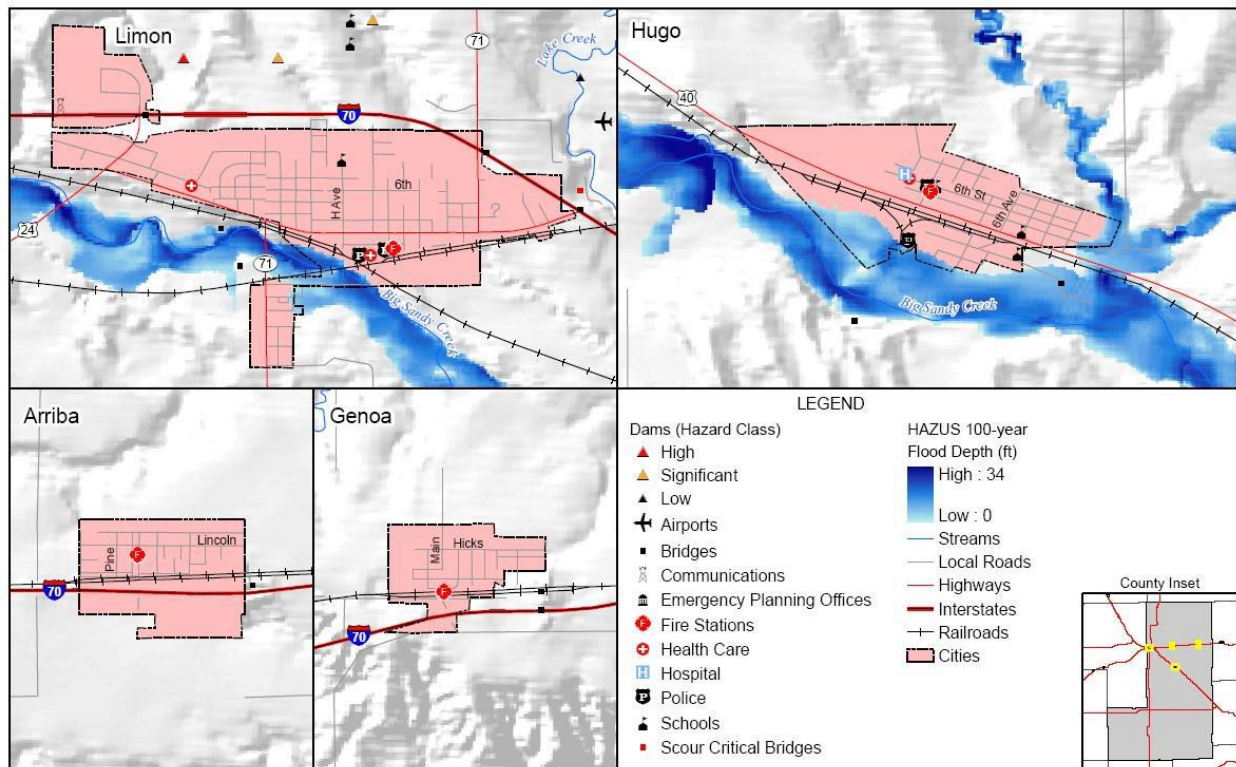
³ *Implementation of Mitigation Strategies for Communities with Local COVID-19 Transmission*. March 12, 2020. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, www.cdc.gov/COVID19.

Drought does not usually present life safety issues or directly impact critical infrastructures such as roads, bridges, utilities, communications systems, or public safety resources. However, drought presents ongoing challenges for all communities in Northeast Colorado and the Eastern Plains, requiring sustained planning and conservation efforts to ensure a reliable water supply to meet current and future needs.

Flooding

The flood hazard in Lincoln County is considered a **High Priority** for planning and mitigation. Bridges are the most vulnerable type of critical facility to the flood hazard in Lincoln County, but other critical facilities that are potentially vulnerable to flooding include wastewater treatment plants, railroad tracks and electrical power substations. High-intensity summer rainstorms can occasionally result in agricultural losses, including damage to cropland, meadow lands, fences and other farm/ranch facilities.

During the 2009 update of this plan, HAZUS-MH MR3 was used to generate the best available flood data for estimating potential losses from flood disasters. The 100-year floodplain maps generated with HAZUS-MH are provided in the figure below.



amec
 Map compiled 4/2009; intended for planning purposes only.
 Data Source: State of Colorado, CDOT, CODWR, HAZUS-MH MR3

The primary flood hazard in Lincoln County is on Big Sandy Creek in parts of Hugo, Limon and unincorporated Lincoln County. Additional flood hazard areas include Cemetery Creek in and around Hugo and tributaries to Big Sandy Creek within the Town of Limon. FEMA has not completed a study to identify flood hazard areas in unincorporated Lincoln County, so there are

no mapped floodplains of unincorporated areas. No flood hazard areas have been identified for the communities of Arriba, Genoa and Karval.

Lincoln County and the Town of Limon are participants in the National Flood Insurance Program (NFIP). The current effective map date for the Town of Limon is November 1, 1984. There are seven policies in effect in Limon as of July 31, 2019. The Lincoln County Board of County Commissioners adopted floodplain regulations in 2014 and Lincoln County joined the NFIP Emergency Phase on April 14, 2014.

FEMA's Hazus-MH 4.0 loss-estimation software can be used to delineate the 100-year floodplain boundary and perform building and population risk assessments at the county and municipal levels. The Hazus-generated flood analysis produces a variety of results, including the number of buildings damaged, the volume of debris generated, the number of households displaced, and total economic losses. Economic losses include loss of contents, loss of inventory, relocation costs, rental income losses, and wages lost. Loss estimates are related to depth of flooding and based on 2010 census data. The one-percent annual chance floodplain produced using Hazus is not as accurate as the official FEMA floodplain, but is useful for planning applications for communities that have not been mapped under the National Flood Insurance Program.

According to Hazus-MH 4.0 data from the 2018 Colorado Hazard Mitigation Plan, the 100-year modeled event in Lincoln County would result in an estimated six (6) buildings with moderate damage, zero (0) buildings destroyed, 571 tons of flood-generated debris, 128 displaced households, and total economic losses of \$7,250,000. The majority of these impacts would occur in the Town of Hugo and in unincorporated Lincoln County.

NFIP records indicate there are no Repetitive Loss or Severe Repetitive Loss Properties in Lincoln County. A *repetitive loss property* is one for which two or more claims of at least \$1,000 have been paid by the NFIP within any 10-year period for flood losses since 1978. A *severe repetitive loss property* is a property that has had four or more claims of more than \$5,000, or 2-3 claims that cumulatively exceed the value of the property.

According to the State Engineer's Office, the condition of all dams in Lincoln County is rated Satisfactory or Conditionally Satisfactory, with the exception of the Karval Dam, which was rated in Unsatisfactory condition following inspection on July 25, 2019 due to seepage problems. Storage in the Karval Dam is restricted.

Tables 4.9 and 4.10 Lincoln County Dams

Dam Name	Hazard Class	Year Built	Stream	Downstream Community	Miles*
Amy R. Foote	Low	1906	Buffalo Creek	St. Francis, KS	50
Brett Gray	NPH	1939	Steels Fork	Las Animas	58
Clingingsmith #2	NPH	1955	Rush Creek	Holly	90
Fred Pauls Detention #1	NPH	1974	Middle Rush Creek	Holly	100
Karval	Low	1955	Adobe Creek	Las Animas	47
Lake Creek	Low	1964	Lake Creek	Limon	2
L. G. Kinney	Low	1939	Rush Creek	Holly	50
Limon Watershed L-1	High	1964	Big Sandy Creek	Limon	2
Limon Watershed L-2	Significant	1964	Big Sandy Creek	Limon	2

Limon Watershed L-3	Significant	1965	Big Sandy Creek	Limon	2
McCallum	NPH		S. Fork Republican R.	Hale	75
Schafer Reservoir	Low	1973	Big Sandy Creek	Aroya	7

Source: Colorado Division of Water Resources

* Distance to nearest downstream community

NPH = No Public Hazard

Dam Name	EAP	Storage (Acre Feet)	Owner
Amy R. Foote	NR	340	Parker Ranch and Cattle
Brett Gray	NR	264	Smith Ranch Co.
Clingingsmith #2	NR	18	
Fred Pauls Detention #1	NR	44	Neil Allen
Karval	NR	305	Colorado Parks and Wildlife
Lake Creek	NR	79	Town of Limon
L. G. Kinney	NR	40	Colorado Parks and Wildlife
Limon Watershed L-1	2018	1,200	Town of Limon
Limon Watershed L-2	2018	344	Town of Limon
Limon Watershed L-3	2018	315	Town of Limon
McCallum	NR	0	Thomas Taylor
Schafer Reservoir	NR	225	Robert Schafer

Source: Colorado Division of Water Resources

EAP = Emergency Action Plan

NR = Not Required

Tornadoes and Straight-Line Winds

According to the National Storm Events Database, there have been 103 confirmed tornado events in Lincoln County since 1950. Most of these tornadoes were small (Fo/EFo) and occurred over open country; however, five of the tornadoes were F2-scale and two F3 tornadoes caused extensive property damage. The June 6, 1990 F3 tornado destroyed most of downtown Limon caused an estimated \$20 million in damages and a F3 tornado north of Genoa on May 31, 1999 caused an estimated \$4 million in damages to homes, farms and utility poles, including two mobile homes that were destroyed. Although no fatalities have occurred as a result of tornadoes in Lincoln County, the hazard poses the greatest threat to people and property of all of the natural hazards.

During blizzards, straight-line winds magnify the dangerous effects of cold temperatures and impede safe travel by reducing visibility. Prolonged power outages can result when power lines are brought down by a combination ice buildup on the lines and strong winds. During dry periods, high winds can contribute to rapid fire growth in open spaces and other areas where natural grasses can grow tall and ultimately cure. High winds can also damage roofs and structures and cause secondary damages as a result of flying debris.

Wildland/Grassland Fires

All areas of Lincoln County are subject to the risk of wildfire, including non-irrigated pastureland, harvested dry land crop areas (corn stalks and wheat stubble) and natural grassland areas (e.g., land enrolled in the Conservation Reserve Program, or CRP). Wildfires in these areas are typically caused by severe weather events (lightning) and tend to spread rapidly.

The greatest risk exists during severe weather season (spring/summer months), when cloud-to-ground lightning is common. Fall is also considered a high-risk time as crops have matured and are drying out in the fields and harvesting is in progress. Most controlled burns by property owners are conducted in the Spring.

Section Five – Mitigation Strategy

This section describes the **Mitigation Strategy** developed by Lincoln County, based on the assessment of risks and vulnerable community assets that was updated at the planning workshop and through survey feedback and interviews with local officials. The Mitigation Strategy includes Mitigation Actions for reducing local risks and accomplishing the following goals:

1. Reduce Loss of Life, Property Damages, and Economic Impacts Caused by Natural Hazard Events
2. Improve County-Level Capabilities to Reduce Disaster Losses
3. Increase Public Awareness of Potential Hazard Impacts
4. Improve preparedness for future pandemic events by collaborating with government, business, education, medical and public health partners on plans that address identified lessons learned from the COVID-19 public health disaster on a local, region and state level
5. Maintain FEMA Eligibility and Qualify Participating Communities for Federal Mitigation Funding.

At the planning workshop, participants reviewed the status of 2015 projects and determined which incomplete actions to retain in the updated plan. Table 5.1 below provides a report on the status of Mitigation Actions identified in the previous 2015 version of this plan.

Table 5.1 Status of 2015 Mitigation Actions

Lincoln County			
#	2015 Mitigation Actions	Responsible Agency	Status
1	Obtain <i>StormReady</i> certification from National Weather Service.	OEM	Completed and recertified in 2019.
2	Continue the Town of Limon's participation in the National Flood Insurance Program (NFIP) and encourage NFIP participation by Lincoln County and the Town of Hugo.	Commissioners, OEM, Land Use, Hugo Town Clerk	Town of Limon is a NFIP participant in good standing.
3	Obtain a siren for Karval, two additional sirens for Limon, and generators for new and existing sirens in all communities.	OEM, Town Managers	Project to obtain and install sirens in Limon and Karval is complete/back-up generator feasibility evaluation pending.
4	Obtain generators for schools in the county and for the events building at the fairgrounds.	Commissioners, OEM, Schools	Incomplete/Ongoing
5	Conduct an annual Awareness Week in conjunction with the County Fair to educate citizens about natural hazards and current planning/mitigation efforts in Lincoln County.	OEM	Combine with #10 into single mitigation action for 2020.
6	Identify locations in all Lincoln County communities that are suitable for severe	OEM, Town Managers	Incomplete/Ongoing

	weather shelters or temporary evacuation centers and easy to access.		
7	Improve the delivery of Red Flag Warnings by the National Weather Service to fire departments and districts in Lincoln County.	Sheriff, OEM	The project is complete due to paging/notification system improvements and the use of social media.
8	Obtain backup generators for communications centers, the hospital and designated shelters.	OEM, Towns, Schools	Project complete for hospital and communications center; backup power for shelters considered under #6.
9	Prepare a Community Wildfire Protection Plan, in cooperation with Colorado State Forest Service (CSFS)	Sheriff, OEM, Fire Protection Districts, CSFS	County Commissioners decided to postpone this project and shift focus to improving communications interoperability and fire response through MACs (see #4, Table 5.2).
10	Continue hazard awareness and outreach efforts to educate the public about natural hazards.	OEM, Public Health, Schools	Combine with #5 into single mitigation action for 2020.
11	Improve regional communications and public notification.	Sheriff, OEM, Towns, Cheyenne County	Public notification system improvements complete; regional communications improvements ongoing (see #5, Table 5.2).
12	Obtain a Class A pumper for Northeast Lincoln Fire Protection District.	NELFPD, Town of Arriba	Response initiative (not a mitigation action/do not retain for 2020).

Mitigation Achievements

Since 2015, significant progress has been made with implementation of the Mitigation Actions recommended in the previous plan, including the following achievements:

1. Certification of Lincoln County as a **StormReady** community by the National Weather Service was achieved and recertified in 2019;
2. Project to obtain and install **emergency warning sirens** in Limon and Karval was completed;
3. The project to improve the **delivery of Red Flag Warnings** to fire departments and districts in Lincoln County was accomplished through paging/notification system improvements and the use of social media;
4. The project to obtain **backup generators** for Communications Center and Lincoln Community Hospital was completed; and
5. Improvements to the **public notification system** were completed.

2020-2025 Mitigation Actions

The evaluation and prioritization of proposed 2020 Mitigation Actions were based on the updated risk assessment (i.e., probability and magnitude of impacts for each hazard), significant events from the last five years, and the informed judgement of local officials who weighed the pros and cons of proposed actions based on their subject matter expertise and experience with local hazards. The STAPLEE evaluation tool was considered as an additional method for evaluating the effectiveness of each action item. STAPLEE considers social, technical, administrative, political, legal, economic, and environmental constraints and benefits of each proposed activity.

Mitigation Actions 1-9 in the table below are new and ongoing initiatives that address the vulnerability of communities and critical facilities to the types of severe hazard events experienced in Lincoln County in the last five years. Most of these proposed actions are intended to address all of the high priority natural hazards identified in this County Planning Element. Mitigation Action 10 is intended to explore possible solutions to a growing hazard in Lincoln County that is associated with long-term drought: tumbleweeds. Mitigation Actions 11-12 are intended to help Lincoln County and its local partners reduce the impacts to public health from future pandemic events like the 2020 COVID-19 crisis.

Ongoing actions from the 2015 plan and proposed new mitigation actions were rated as High or Medium priority (actions considered low priority are not included in the update of this plan). The results of this effort are summarized in the table below, including a description of each mitigation action, timeframe for completion, estimated cost, priority, and the entity or entities responsible for implementing the action.

Table 5.2 Mitigation Actions 2020-2025

Lincoln County					
#	Proposed Mitigation Actions	Timeframe	Estimated Cost	Responsible Agency	Priority
1	Obtain generators for schools in the county and for the events building at the fairgrounds.	Next 5 Years	\$15,000-25,000 each	Lincoln County Commissioners, Lincoln County OEM, Schools	High
2	Continue hazard awareness and outreach efforts to educate the public about natural hazards; conduct an annual Awareness Week in conjunction with the County Fair to inform citizens about current preparedness and mitigation efforts in Lincoln County.	Ongoing	Staff Time	Lincoln County OEM, Public Health, Schools	Medium
3	Evaluate feasibility and requirements for installing back-up generator power for new and existing sirens in all communities.	Next 5 Years	Staff Time	Lincoln County OEM, Town Managers	High
4	Improve communications interoperability and emergency fire response by supporting existing and expanded Multi-Agency Coordination (MAC) Group operations.	Next 5 Years	Staff Time	Lincoln County Sheriff, Lincoln County OEM, Fire Protection Districts	Medium
5	Improve regional communications and public notification by increasing 911 capabilities through CenturyLink, integrating the use of Text-to-911, and expanding use of the Integrated Public Alert & Warning System (IPAWS).	Next 5 Years	TBD	Lincoln County Sheriff, Lincoln County OEM, Towns	High
6	Conduct a public awareness and education campaign to promote the installation of tornado safe rooms in new and existing construction. Provide educational materials and construction specifications through multiple media about the life-saving benefits of safe rooms.	Next 5 Years	Staff Time	Lincoln County OEM	Medium
7	Reduce repetitive minor flood events in the Town of Hugo: (1) evaluate the effectiveness of ongoing efforts to improve stormwater runoff in the	Next 5 Years	Staff Time and Local	Hugo Town Clerk, Public	High

	drainage ditch that runs through town (including previous sediment control efforts), (2) remove sediment that has collected between 5 th St. and 6 th St. from 7 th Ave. to 10 th Ave., and (3) develop a long-term strategy for addressing any remaining stormwater management issues.		Public Works Budget	Works, Chief Marshal	
8	Continue to participate in the National Flood Insurance Program (NFIP) by enforcing local floodplain regulations and implementing or improving upon effective floodplain and stormwater management practices.	Ongoing	Staff Time	Lincoln County, Town of Limon	High
9	Develop a Community Wildfire Protection Plan (CWPP), to include an assessment of wildfire risks throughout Lincoln County and recommendations for reducing fuel loads, coordinating open burns and creating defensible spaces.	Next 5 Years	Staff Time (Multiple Agencies)	OEM with local Fire Protection Districts and CO Division of Fire Prevention and Control	High
10	In cooperation with agriculture experts and practitioners, evaluate strategies and mitigation measures that can be established to address risks created by the movement and accumulation of tumbleweeds along transportation routes and around improved property (i.e., buffers, keeping current plants from producing seed, removing tumbleweeds from fence lines and other measures to decrease the spread of seeds).	Next 5 Years	Staff Time (Multiple Agencies)	OEM with CSU Extension Services	Medium
11	Develop a plan for acquiring, maintaining and refreshing a local stockpile of vaccines, medicines (including antibiotics and antivirals), and equipment (such as masks, gowns, and ventilators) and identify reliable vendors and other external sources to supplement local stockpiles.	Next 5 Years	Staff Time (Multiple Agencies)	OEM with EMS, Public Health and Medical Services Partners	High
12	Develop public education guidelines for communicating with the public during a pandemic that: (1) ensures information is timely, accurate and coordinated, (2) addresses the needs of non-English speaking residents, and (3) includes provisions for addressing rumors, misinformation and public perceptions of risk.	Next 5 Years	Staff Time (Multiple Agencies)	OEM with EMS, Public Health and Medical Services Partners	High

Table 5.3 Mitigation Actions that Address High Priority Hazards

The table below identifies the potential mitigation benefits of new mitigation actions with respect to the **high priority hazards** identified in this County Plan Element.

Lincoln County			
#	New Mitigation Actions (2020-2025)	High Priority Hazards Addressed	Potential Benefits of New Mitigation Actions
1	Obtain generators for schools in the county and for the events building at the fairgrounds.	Blizzards/severe winter storms; flooding; tornadoes/straight-line	Emergency backup power for critical facilities to enable use of structures as public shelters.

		winds; wildland/grassland fires	
2	Continue hazard awareness and outreach efforts to educate the public about natural hazards; conduct an annual Awareness Week in conjunction with the County Fair to inform citizens about current preparedness and mitigation efforts in Lincoln County.	All	Improved public awareness of local natural hazards and corresponding protective measures.
3	Evaluate feasibility and requirements for installing back-up generator power for new and existing sirens in all communities.	Tornadoes/straight-line winds	Project will ensure capability to warn citizens about tornadoes and other severe weather events is not interrupted by electrical power outages.
4	Improve communications interoperability and emergency fire response by supporting existing and expanded Multi-Agency Coordination (MAC) Group operations.	Wildland/grassland fires	Improved capability for containing and managing grassland fire events that require interagency coordination of efforts.
5	Improve regional communications and public notification by increasing 911 capabilities through CenturyLink, integrating the use of Text-to-911, and expanding use of the Integrated Public Alert & Warning System (IPAWS).	Blizzards/severe winter storms; flooding; tornadoes/straight-line winds; wildland/grassland fires	Enhanced capability to notify the public about natural hazard events and other emergencies.
6	Conduct a public awareness and education campaign to promote the installation of tornado safe rooms in new and existing construction.	Tornadoes/straight-line winds	Marketing campaign to provide educational materials and construction specifications through multiple media about the life-saving benefits of safe rooms.
7	Reduce repetitive minor flood events in the Town of Hugo.	Flooding	Intent of flood mitigation project is to improve stormwater runoff, remove collection of sediment, and assess/address remaining stormwater management issues.
8	Continue to participate in the National Flood Insurance Program (NFIP).	Flooding	Ongoing NFIP compliance through continued enforcement of local floodplain regulations and implementation of effective floodplain and stormwater management practices.
9	Develop a Community Wildfire Protection Plan (CWPP).	Wildland/grassland fires	An assessment of wildfire risks throughout Lincoln County and recommendations for reducing fuel loads, coordinating open burns and creating defensible spaces.
10	In cooperation with agriculture experts and practitioners, evaluate strategies and mitigation measures that can be established to address	N/A	Project will assess potential measures for mitigating problems associated with tumbleweeds, in cooperation with CSU Extension Services (i.e., buffers,

	risks created by the movement and accumulation of tumbleweeds along transportation routes and around improved property.		keeping current plants from producing seed, removing tumbleweeds from fence lines and other measures to decrease the spread of seeds).
11	Develop a plan for acquiring, maintaining and refreshing a local stockpile of vaccines, medicines (including antibiotics and antivirals), and equipment (such as masks, gowns, and ventilators).	Pandemic	Improved capacity for obtaining timely deliveries of critical supplies from state/federal sources, reliable vendors, and other external sources to supplement local stockpiles.
12	Develop public education guidelines for communicating with the public during a pandemic.	Pandemic	Improved capacity for ensuring public information is timely, accurate and coordinated; addresses the needs of non-English speaking residents; and includes provisions for addressing rumors, misinformation and public perceptions of risk.

The Lincoln County Hazard Mitigation Planning Committee reviewed and discussed all available, cost-effective possible actions for mitigating high priority hazards in the process of developing this mitigation strategy. For the current update of this plan, mitigation actions that specifically target drought were not identified or included due to lack of sufficient information about viable and appropriate hazard mitigation projects for inclusion in this updated plan.

During annual reviews of the Lincoln County Plan Element, the Hazard Mitigation Planning Committee will discuss new initiatives that come to light or other opportunities for implementing the mitigation actions identified in this plan. Potential resources that can be leveraged in the future to support mitigation actions that address all high priority hazards include government grants, tax incentives, private donations, volunteer resources, new university/scientific research applications, and new information about best hazard mitigation practices.

Section Six – Maintaining and Updating the County Plan Element

Formal Plan Adoption

In accordance with protocols established by the Colorado Division of Homeland Security & Emergency Management (CDHSEM), the final draft of this updated plan is submitted to CDHSEM for state-level review and recommended changes prior to FEMA review. FEMA then reviews the plan and, pending any required changes, issues a notice that the plan is Approvable Pending Adoption (APA) by the governing body of each participating jurisdiction. According to CDSHEM requirements, the plan must be formally adopted by participating jurisdictions within eight months of receiving notice of FEMA APA status.

Plan Maintenance

Regular maintenance of this plan will help maintain a focus on hazards that pose the greatest risks and on the recommended measures for reducing future potential hazard losses. The Lincoln County Emergency Manager will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and update this plan. Participating jurisdictions

and individual departments are responsible for implementing their specific mitigation actions and reporting on the status of these actions to the Emergency Manager.

Plan maintenance involves an ongoing effort to monitor and evaluate the implementation of identified action items in the plan, and to update the plan as progress, opportunities, obstacles, or changing circumstances are encountered. At least once a year, the Emergency Manager will convene a meeting to review new hazards data or studies, discuss new capabilities or changes in capabilities, consider any input received from the public, evaluate the effectiveness of existing mitigation actions, and modify or add mitigation actions. In order to ensure transparency in the planning process and promote continued public involvement, these meetings will be open to the public with advance notice provided through relevant websites, social media or news releases.

Incorporation of Mitigation Strategy into Other Plans and Programs

Mitigation is most successful when it is incorporated within the day-to-day operations of land use planning, road and bridge/public works, public health and other mainstream functions of local government. Multi-objective projects that mutually benefit partners and stakeholders are usually more cost-effective and more-broadly supported. Many other local plans present opportunities to address hazard mitigation in a way that can support multiple community objectives.

Ideally, identified mitigation actions should be implemented through existing plans and policies, which already have support from the community and policy makers. The incorporation of elements of this plan into existing planning mechanisms requires coordination between the Emergency Manager and the staff of each department responsible for implementing specific mitigation actions. The Emergency Manager, with support and guidance from Participating Jurisdictions, will work with the responsible agencies to incorporate this County Plan Element into existing planning mechanisms.