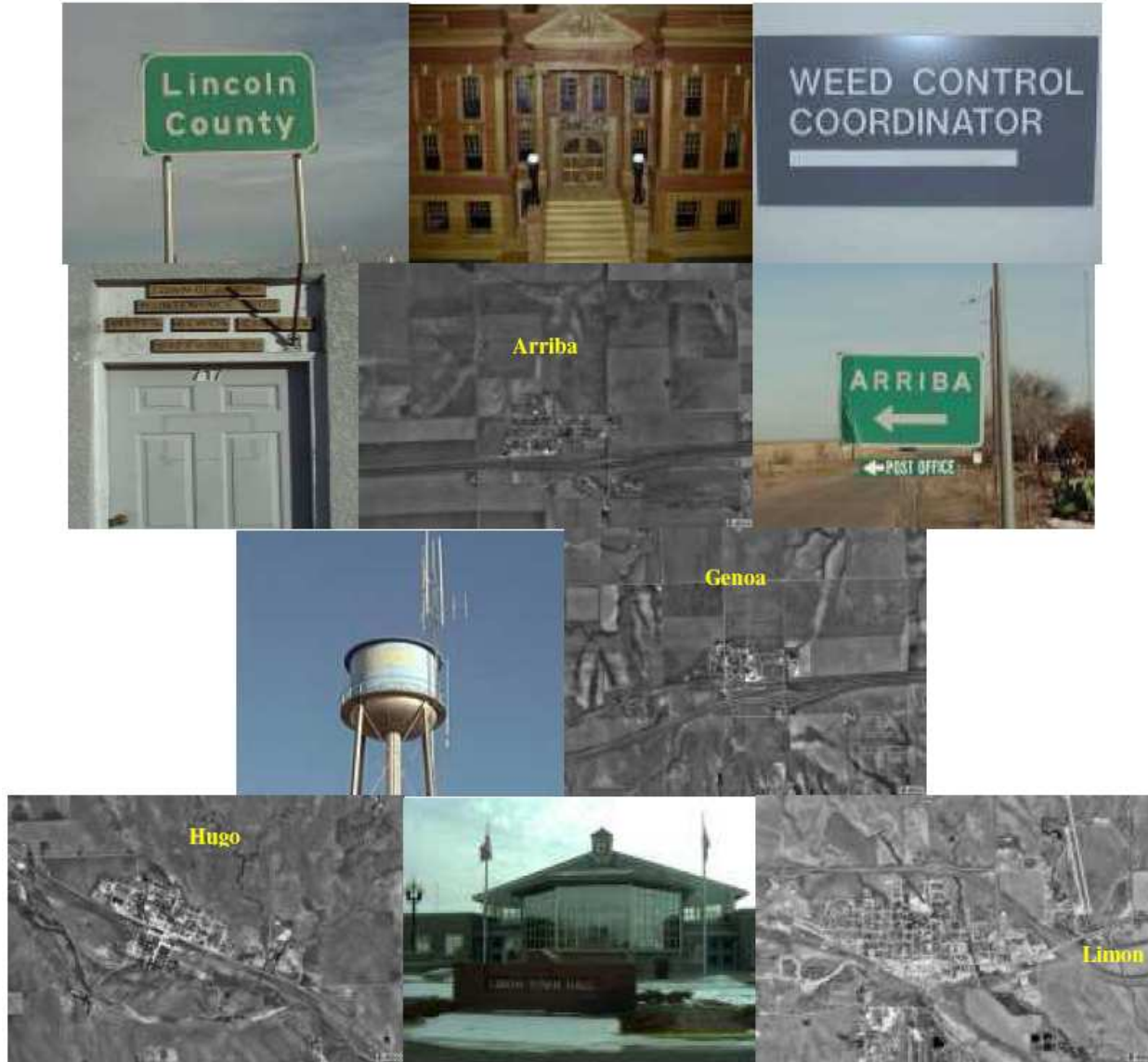


# LINCOLN COUNTY PLANNING ELEMENT



## Lincoln County Planning Subcommittee and General Description

The following entities participated in the DMA planning process through the Lincoln County Planning Subcommittee (CPS). Some local government entities participated through an “authorized representation” that enabled Washington County Emergency Management to participate in meetings on their behalf. These entities are indicated with an ‘\*’ below. CPS membership details are provided in Appendix C. Arickaree Groundwater Management District participated in 2004 but not in 2009.

Participating Jurisdictions	Stakeholders
Lincoln County	K-C Electric Association
Emergency Management/Land Use (lead)	Black Hills Energy
Administration	Mountain View Electric Association**
Clerk and Recorder	Southeast Colorado Power Association
Road and Bridge	Lincoln Community Hospital**
Public Health	Plains Medical Center
Assessor	Colorado State Forest Service**
Town of Arriba*	Colorado Department of Corrections**
Mayors office	Natural Resources Conservation Service**
Town of Genoa	Colorado Division of Wildlife**
Town of Hugo	Lincoln County Extension Service**
Administration	Limon Correctional Facility
Town of Limon	Hugo Volunteer Fire Department*
Ambulance	Verizon Wireless
Northeast Lincoln Fire Protection District*	Viaero Wireless
Karval Area Fire Protection District**	Qwest
Karval School District RE 23*	Eastern Slope Rural Telephone Association
Genoa-Hugo School District C-113	
Limon Area Fire Protection District*	
Limon Public Schools RE 4J	
Upper Big Sandy Groundwater Management District**	

\*\* Stakeholders that attended planning meetings. \*\* New participant in 2009;

## County Profile

Lincoln County lies in the plains of eastern Colorado in an area known as the Arkansas Divide. The land area of Lincoln County area is 2,586 square miles. The incorporated communities are Arriba, Genoa, Hugo and Limon. According to the 2000 U.S. Census, the population for Lincoln County was 6,087. The 2008 Census Population Estimate for the County is 5,286. The estimated average density is 2.04 people per square mile. Lincoln County grew at a rate of 34.4% between 1990 and 2000. From 2000 to the estimated

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population counts at 2008, the County declined 13.2%. According to the 2000 Census, the median age in the County is 37.8. 5.0% of the population is under 5 years of age and 14.3% of the population is age 65 or older. The average household size is 2.44 and the average family size is 3.04. 81.8% of the population (over the age of 25) is a high school graduate or higher and 13.2% of the population holds at least a bachelor's degree. 19.1% of the population report some level of disability, and 6.9% of the population speaks a language other than English at home. 8.1% of families live below the poverty line and 11.7% of individuals do as well. The County is home to the Towns of Arriba, Genoa, Hugo and Limon, while the remainder is predominantly agricultural. According to the 2007 Census of Agriculture, there are 542 farms in the County, with 1,400,242 acres of farmland. This accounts for 84.6% of the County's total land. The average farm size is 2,583 acres. A base map of the County can be referenced in Figure 1.

## **Hazard Identification and Summary**

Lincoln County's planning team identified the hazards that affect the County and summarized their frequency of occurrence, special extent, potential magnitude, and significance specific to Lincoln County. This information is presented in Table 1. A detailed description of each hazard can be found in Section 4.2 Hazard Profiles.

**Table 1. Lincoln County Hazard Summary**

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Biological Hazards				
Pestilence	Extensive	Occasional	Limited	Medium
Plague*	Limited	Likely	Limited	Medium
Blizzards & 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	Significant	High
Fog	Significant	Likely	Negligible	Low
Hailstorms	Extensive	Highly Likely	Limited	Medium
Land Subsidence	Limited	Likely	Negligible	Low
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
Tornados	Extensive	Likely	Critical	High
Wildland & Grassland Fires	Extensive	Highly Likely	Limited	High

\* Some zoonotic hazards have higher or lower ratings than those reflected here, based on individual datasets.

**Geographic Extent**

Limited: Less than 10% of planning area  
 Significant: 10-50% of planning area  
 Extensive: 50-100% of planning area

**Probability of Future Occurrences**

Highly Likely: Near 100% chance of occurrence in next year, or happens every year.  
 Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.  
 Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.  
 Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

**Magnitude/Severity**

Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths  
 Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability  
 Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability  
 Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

**Significance**

Low: minimal potential impact  
 Medium: moderate potential impact  
 High: widespread potential impact

## Lincoln County History of Recorded Natural Hazard Losses

In the 2008 State Hazard Mitigation Plan, the County identified flooding, winter storms and drought as the most frequent hazards.<sup>1</sup> Limon was struck by a tornado on June 6, 1990, resulting in approximately \$25 million dollars in damages. In 1990, a combination of hail and a tornado caused over \$25 million in damages in the County. A summary of the past hazard events are captured in Table 2 and in the text that follows.

**Table 2. Historic Hazard Events**

Date	Event	Location	Damages	Other Info	Data Source
1930's	Drought	Dust Bowl	Farms abandoned		Planning Team
11/1946	Blizzard				Planning Team
6/6/1951	Tornado	200 yards x 5 miles	\$25K	F2, 1 injury	NCDC
6/15/1955	Hail			2"	NCDC
7/18/1956	Hail			2"	NCDC
7/12/1959	Hail			2.75"	NCDC
5/23/1965	Tornado		\$25K	F2	NCDC
5/12/1975	Tornado		\$25K	F1	NCDC
3/1977	Snow/ice		\$337K replacing poles	KC Electric	REA
2/1978	Snow/ice		\$278K replacing poles \$395K replacing poles	Mountain View Elec KC Electric	REA
3/1979	Snow/ice		\$338K replacing poles	KC Electric	REA
6/1/1982	Hail			2"	NCDC
Winter 1983-1984	Snow/Ice	Limon		Interstate 70 was closed at least 13 times at Limon; eleven straight weekends after January 1, 1984. Limon received approximately 160 inches of snow that winter	Planning Team
6/3/1985	Hail			2.75"	NCDC

<sup>1</sup> 2008 State Hazard Mitigation Plan.

Date	Event	Location	Damages	Other Info	Data Source
8/25/1985	Hail			2"	NCDC
7/31/1986	Hail			2.75"	NCDC
11/1986	Snow/ice		\$137K replacing poles	KC Electric	REA
1987	Wildfire???			State Dec?	?
6/6/1990	Tornado/Hail		\$25M: 762 homes 47 destroyed; 44 businesses affected 23 destroyed \$217K replacing poles	F3; 2.5", 14 injuries State provided \$13,057,325 \$2.1M Ag. Loss Mountain View Elec.	NCDC CO-OEM CO-DOLA
5/2/1991	Tornado		\$250K	F1	NCDC
8/1993	Tornado?		\$111K replacing poles	KC Electric	REA
7/19/1992	Hail			2.75"	NCDC
6/9/1994	Hail	Genoa	\$1K property; 50K crops	2.5"	NCDC
7/31/1996	Hail	Genoa		2.75"	NCDC
6/6/1997	Flood Fed Dec #1186		\$69,522 FEMA pd \$42,268	9,228 acres of wheat/millet	FEMA, CWCB & CO-OEM
6/13/1997	Hail	Karval		2.75"	NCDC
10/24/1997	Blizzard			2 deaths	NCDC
5/24/1998	Hail	Karval		2.5"	NCDC
7/28/1998	Flash Flood	Hugo	Several streets/bldgs. flooded		NCDC
5/28/1999	Hail	Hugo		2"	NCDC
5/31/1999	Tornado	Genoa	\$4M	F2/F3	NCDC
7/21/2000	Hail	Genoa		2.75"	NCDC
8/18/2000	T-Storm/Wind	Limon	Semis blown over on I-70	51 Knots; 2 injuries	NCDC
5/10/2001	Lightning	Limon		1 injury	NCDC
2000	Drought		(USDA Dec)	Contiguous County	USDA
April 2001	Winter Storms Fed #1374		Ice damage \$519K replacing Poles	Mountain View Elec.	REA
9/8/2002	Flash Flood	Limon & North Central county	Highway 71 washed out Limon School flooded School sewage back-up		Planning Team NCDC

Date	Event	Location	Damages	Other Info	Data Source
8/10/2004	Hail	Boyero		2"	NCDC
6/2/2005	Hail	Arriba		2.75"	
7/2/2008	Flood	Shaw	\$10K	State Highway 71, north of Limon, was covered in 2 to 3 feet of water; and several county roads were flooded.	NCDC
7/18/2008	Flood	Karval	\$20K	County Road T eventually washed out due to a blocked culvert; forcing its closure about 2 miles east of the highway.	NCDC
1/09/09	Wind Event	East of Genoa	Dust storm caused multiple Vehicle accident with fire	2 fatalities; 6 injuries	Lincoln County OEM
1/09/09	Wind Event	Karval	Wildfire burned 1883 acres – caused by carelessness	No structure burned	Lincoln County OEM
1/19/09	Dust Storm	I-70	Caused fatal accident on I-70, 2 deaths, 13 vehicles involved, 8 injured people transported to LCHNH along with 35 first responders (wash out eyes.)		Planning Team
6/15/2009	Hail	Limon	6-8 inches of hail. Damage to homes and vehicles.	1.25 to 1.5"	Lincoln County OEM
7/29/2009	Hail	South of Limon	2" hail, strong winds, heavy rains, county road flooding, some power poles blown down. Damages to residences and crops	2.5 to 4.6 " of rain	Lincoln County OEM
8/17/2009	Hail	North & East of Punkin Center	1.25" to 2.25" hail; strong winds; heavy rain; flash floods; county road closures. Damages to crops, residences, and vehicles.	2 foot of hail on SH 94	Lincoln County OEM

(NCDC Filters Applied: Tornadoes ≥ F1; Hail ≥ 2"; Wind ≥ 75 MPH)

## Hazard History in Lincoln County From 1950-2008 (58 years):

### Dams:

- 1 Class I (High Hazard) Dam

- 
- 2 Class II (Significant Hazard) Dams
  - Known Failures: None
  - All Class I hazard dams in Colorado have emergency action plans in place.

**Drought Incidents:** 6 (regional occurrence)

**Dust storms:** 1\*

**Earthquake:** Cheraw Fault in nearby Kiowa County has potential for M7.0, 0 estimated fatalities, \$10.4 Million (-0.6%)<sup>2</sup>

**Extreme Temperatures:**

- Highest Recorded Temperature in County: 103°F
- Lowest Recorded Temperature in County: -28°F
- Severe Cold Incidents: 3

**Floods and Flash Floods:** 10

**Hailstorms:** 24

**Landslide:** suspected potential (USGS national landslide map)

**Lightning:** Averages 18,100 strikes per year (the highest in the planning area) with 0 reported injuries and 1 reported death from 1980-2005

**Severe Windstorms:** 69

**Severe Winter Weather:** 12

**Tornadoes:** (F1 and higher) 28 (any size) 81

**Wildfires:** Karval Fire on January 19, 2009

**West Nile Virus:** 11 human illnesses, 2 human fatalities as of 2008

**Total reported injuries:** 19 + 11 West Nile cases

**Total reported fatalities:** 3 + 2 West Nile cases

\* There were dirt storms in the middle 50's but dates/numbers are unavailable.

## Lincoln County Vulnerability Assessment

The intent of this section is to assess Lincoln County's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

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<sup>2 2</sup> CGS. Earthquake Evaluation Report. See Earthquake Section in Hazard Identification Chapter for further explanation of risk.



## Assets at Risk

This section identifies Lincoln County’s assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends. Two data sources are used: assessed valuations, as available, and HAZUS-MR3 databases. The HAZUS building exposure (includes building counts, value of building structure and contents) is shown in Table 5.

### Total Values at Risk from Hazards: 2007 Assessor’s Data

**Table 3. County Parcel Exposure**

Type	Parcel Count	Value	Improved Parcel Count	Improved Value	Total Value
Residential	357	\$1,000,757	1,570	\$8,025,046	\$9,025,803
Commercial	67	\$441,684	232	\$11,990,191	\$12,431,875
Industrial	1	\$1,421	5	\$45,443	\$46,864
Agricultural	1,474,825 acres	\$12,498,671	569*	\$5,167,552	\$17,666,223
Government		\$851,679 (1)		\$22,094,600 (2)	\$22,946,279
Education		\$16,425,205(1)		\$54,158,228 (2)	\$70,583,433
<b>Total Value</b>	<b>n/a</b>	<b>\$31,219,417</b>	<b>2,376</b>	<b>\$101,481,060</b>	<b>\$132,700,477</b>

\*Parcels, buildings, other improvements, etc  
 Unimproved or vacant land  
 Improved including oil and gas and state assessed

**Table 4. Jurisdiction Parcel Exposure:**

Type of Valuation	Arriba	Genoa	Hugo	Limon	Total Value
Vacant Land	44,691	24,051	82,075	870,077	820,894
Residential	373,119	260,503	1,795,337	5,065,133	7,494,092*
Commercial	198,272	61,686	703,087	11,643,657	12,606,702*
Industrial	26,122	0	0	320,048	346,170*
Agricultural	22,034	8,667	0	84	30,785
Natural Resources	0	0	0	0	0

Type of Valuation	Arriba	Genoa	Hugo	Limon	Total Value
Oil and Gas	0	0	0	0	0
State Assessed	54,822	86,982	410,236	1,095,596	1,647,636*
<b>Jurisdiction Total :</b>	<b>719,080</b>	<b>441,889</b>	<b>2,990,735</b>	<b>18,794,595</b>	<b>22,946,279</b>

\* Improved

**Table 5. Building Exposure**

City	Population	Building Count	Building Exposure (\$)	Building Content (\$)	Total Exposure (\$)
Arriba	244	202	16,686,000	10,524,000	27,210,000
Genoa	211	131	13,568,000	9,683,000	23,251,000
Hugo	885	582	68,813,000	44,974,000	113,787,000
Limon	2,065	1,282	130,480,000	84,221,000	214,701,000
Unincorporated	2,682	1,702	118,634,000	75,335,000	193,969,000
<b>Total</b>	<b>6,087</b>	<b>3,899</b>	<b>348,181,000</b>	<b>224,737,000</b>	<b>572,918,000</b>

Source: HAZUS MH MR3

### Critical Facilities and Infrastructure

An inventory of critical facilities in Lincoln County is provided below in Table 6. The table includes data from available statewide GIS resources (locations are illustrated in Figure 1) supplemented with information from the Lincoln County CPS.

**Table 6. Critical Facilities Inventory**

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
<b>Essential Infrastructure</b>				
Airports (paved)	1	\$2.2 M		
Communications Towers	2	\$200,000		Karval, ESTRA
Correctional Facilities	2		1000/40	Limon Correctional Facility, Lincoln County Jail

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Electrical Generation/Distribution	3	\$250,000		Replacement value is for Southeast Electric transmission lines and poles
Media Outlets	3			"Limon Leader," "Eastern Colorado Plainsman," Radio station in Limon
National Guard	0			
Public Safety Communications Centers	4	\$4.501 Million		
Public Safety Facilities				
Police Stations	3			
EMS/Ambulance Stations	4			
Fire Stations	5			Genoa: 1, \$100K
EOCs	1			
Town/City Halls	4			Genoa: 2, \$75K, 20 occ.
Wastewater Treatment	4			Genoa: 1, \$500K
Water Utilities/Treatment	5			Karval: 1, \$450K Genoa: 3, \$560K
Childcare Centers	1			Limon Child Care Center
Schools	3			Limon: 1, \$18M, 700 occ. Karval, 1, \$5M, 150 occ.
Shelters				
Hospitals	1	\$30.M	15 bed acute	\$\$ Includes attached nursing home for LCHNC.
Clinics	2	\$1.35 M	125	Bld 1 is clinic: \$1.2 M, 95 people Bld 2 is Admin: \$150 K, 30 people
Nursing Homes/Assisted Living Centers	4			Carla's Cluster Care: \$2.6 M, 30 beds. LCHNH: 35 beds Bee Hive – Hugo – 16 beds, \$750k Tender Care Village: \$1.5 m, 25 beds
<b>Natural, Cultural and Historic Resources</b>				
Community Centers	4			Karval: \$180K, 70 occ.

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Historic Properties	10			Genoa: 6, \$80K
<b>Hazardous Materials</b>				
Extremely Hazardous Substances				
Hazardous Chemicals storage				

## Natural and Historic Assets

### Historic Sites in Lincoln County:

- Martin Homestead, Genoa
- World's Wonder View Tower, Genoa
- Hedlund House, Hugo
- Hugo Union Pacific Railroad Roundhouse
- Limon Railroad Depot (Limon Heritage Museum)
- Walk's Camp Park, CR27

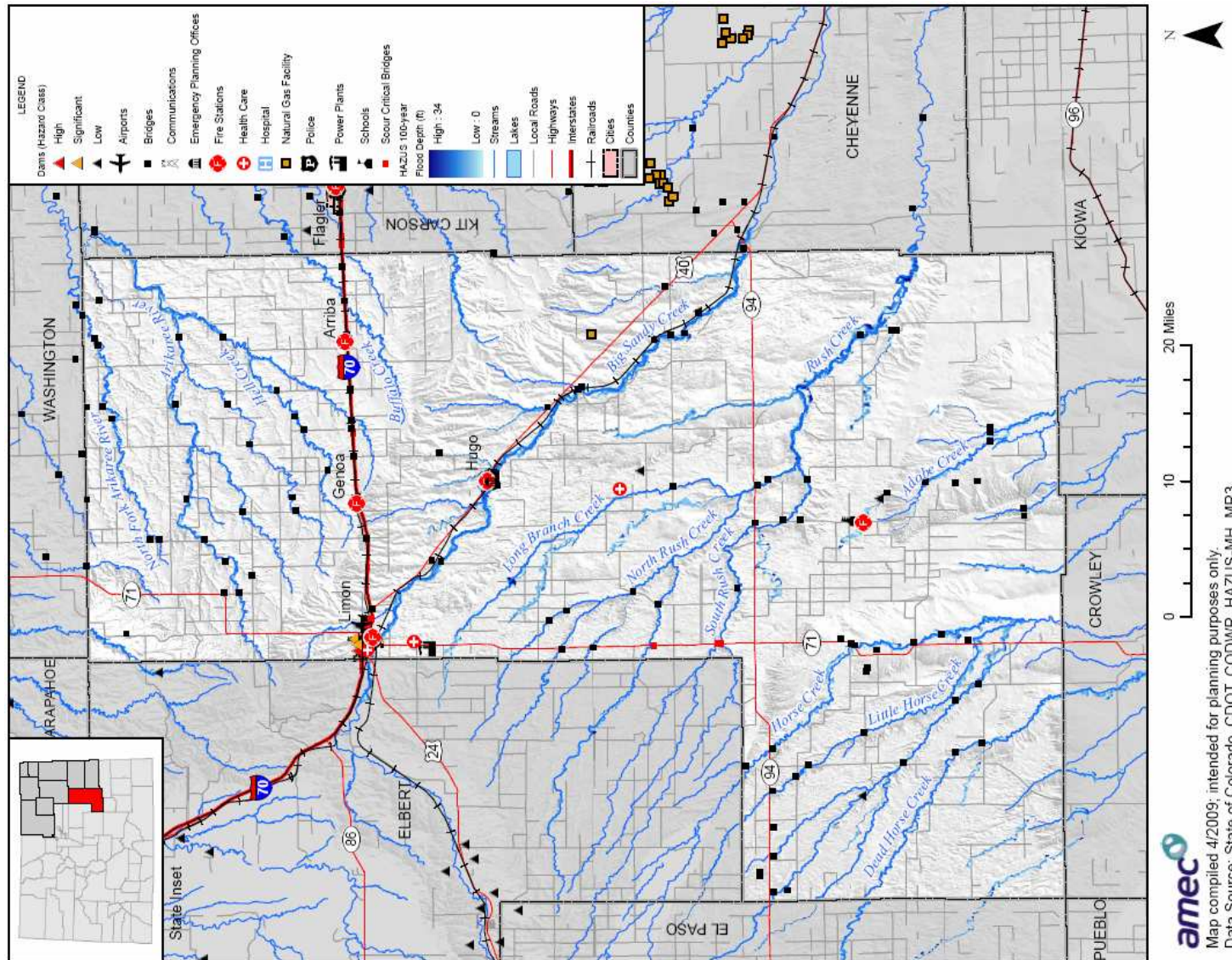
### Development Trends in Lincoln County:

Lower part of the county, the "L" is growing steadily. Highway 94 provides a direct route to Colorado Springs within 30/45 minutes. 98% of this growth is manufactured housing. The high growth rate, countywide, however, is attributed to the State Department of Corrections prison.

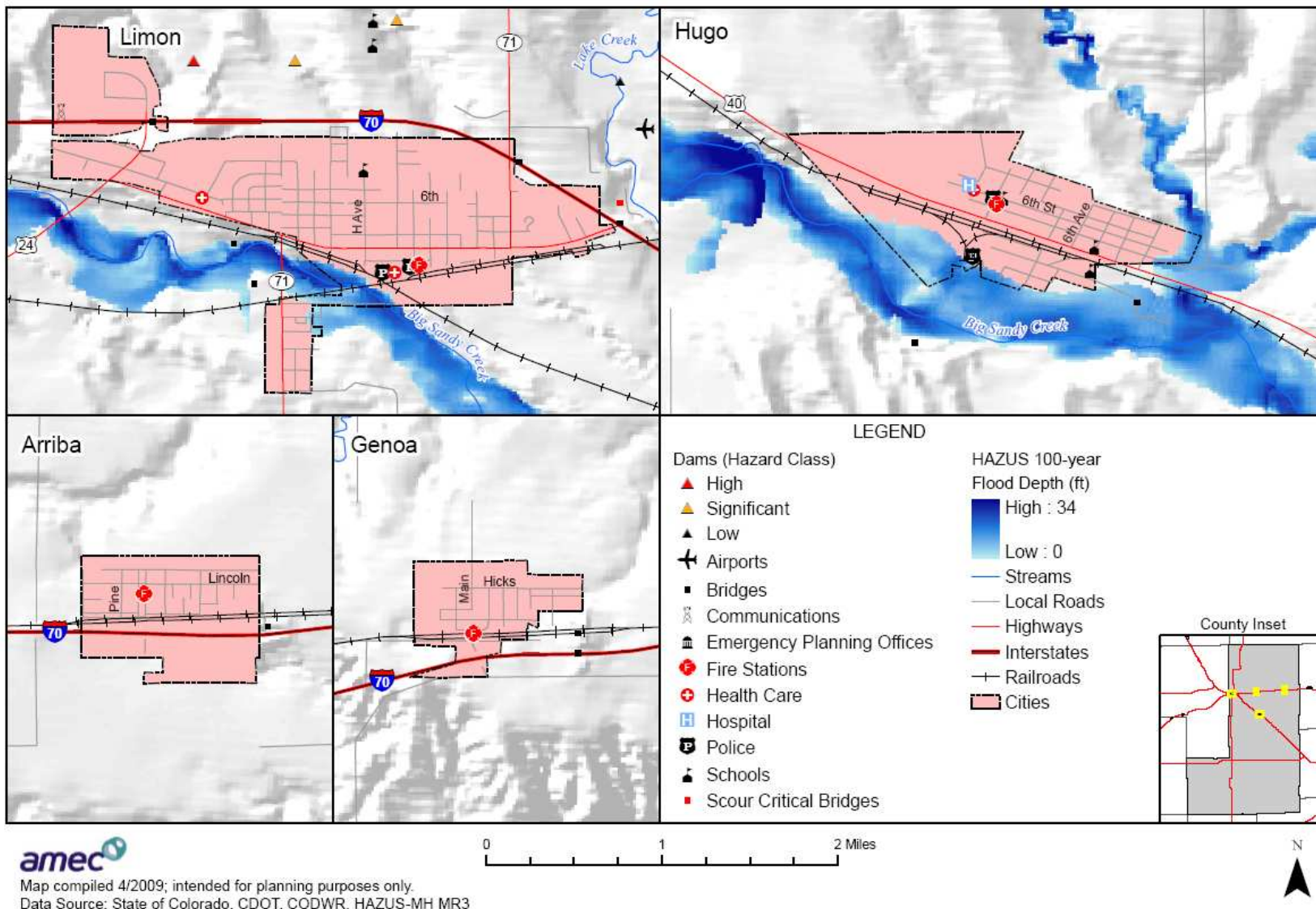
## Floodplain Vulnerability Assessment

The best available flood data for Lincoln County was generated by HAZUS-MH MR3, FEMA's software program for estimating potential losses from disasters. See the base plan for a description of the HAZUS methodology. The 100-year floodplain generated with HAZUS-MH is shown countywide in Figure 1 and at municipal scales in Figure 2. Both maps indicate the location of critical facilities as well.

Figure 1 Lincoln County HAZUS 100-year Floodplain and Critical Facilities Map



**Figure 2 Lincoln County Cities HAZUS 100-year Floodplain and Critical Facilities Map**



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

HAZUS-MH estimates the potential for almost \$9 million in flood losses from a 100-year flood in the County. To estimate the monetary loss for each city, the flooded census blocks were extracted, and the damage costs were totaled using GIS. This was done for each city and unincorporated area to illustrate how the risk varies across the planning area, with the results summarized in Table 7. According to HAZUS-MH, the Town of Hugo has the majority of the damage with \$5,174,000 followed by the Town of Limon with damage of \$190,000. The map in Figure 3 displays the distribution of the flood loss by Census Block across the County. According to the map in Figure 1 the majority of flood impacts in the unincorporated County are located on Big Sandy Creek which goes by the Towns of Hugo and Limon. According to the current FEMA FIRMs there are not any levees in the Towns of Hugo and Limon. The Town of Arriba and Lincoln County do not have any FEMA FIRMs.

The following is a risk assessment according to a 2004 floodplain inventory in the Town of Limon:

- 67 unprotected structures in the floodplain:
- 55 residential structures valued at \$2.894M,
- 12 commercial structures valued at \$1.624M.
- 3 buildings have been built in the floodplain since joining the program and are elevated appropriately.
- **TOTAL VALUE AT RISK** (not including elevated buildings) = **\$4.52 million.**
- A 2-foot flood would equate to a 1% average annual risk of \$900,000 in damage (20%)

**Table 7. Estimated Economic Losses from Flooding**

Jurisdiction	Cost Building Damage (\$)	Cost Contents Damage (\$)	Inventory Loss (\$)	Relocation Loss (\$)	Capital Related Loss (\$)	Rental Income Loss (\$)	Wage Loss (\$)	Total Loss (\$)	Percent of Total Loss	Loss Ratio
Arriba	-	-	-	-	-	-	-	-	-	-
Genoa	-	-	-	-	-	-	-	-	-	-
Hugo	1,398,000	3,153,000	19,000	9,000	5,000	2,000	588,000	5,174,000	58%	2.0%
Limon	75,000	99,000	14,000	-	1,000	-	1,000	190,000	2%	0.1%
Unincorporated	1,463,000	1,925,000	74,000	1,000	-	1,000	92,000	3,556,000	40%	1.2%
<b>Total</b>	<b>2,936,000</b>	<b>5,177,000</b>	<b>107,000</b>	<b>10,000</b>	<b>6,000</b>	<b>3,000</b>	<b>681,000</b>	<b>8,920,000</b>	<b>100%</b>	<b>0.8%</b>

Source: HAZUS MR3

The building damage loss ratio shown in Table 7 is an indication of the community's ability to recover after an event. Building Damage Loss Ratio percent is calculated by taking the Building Structural Damage divided by Building Structural Value and then

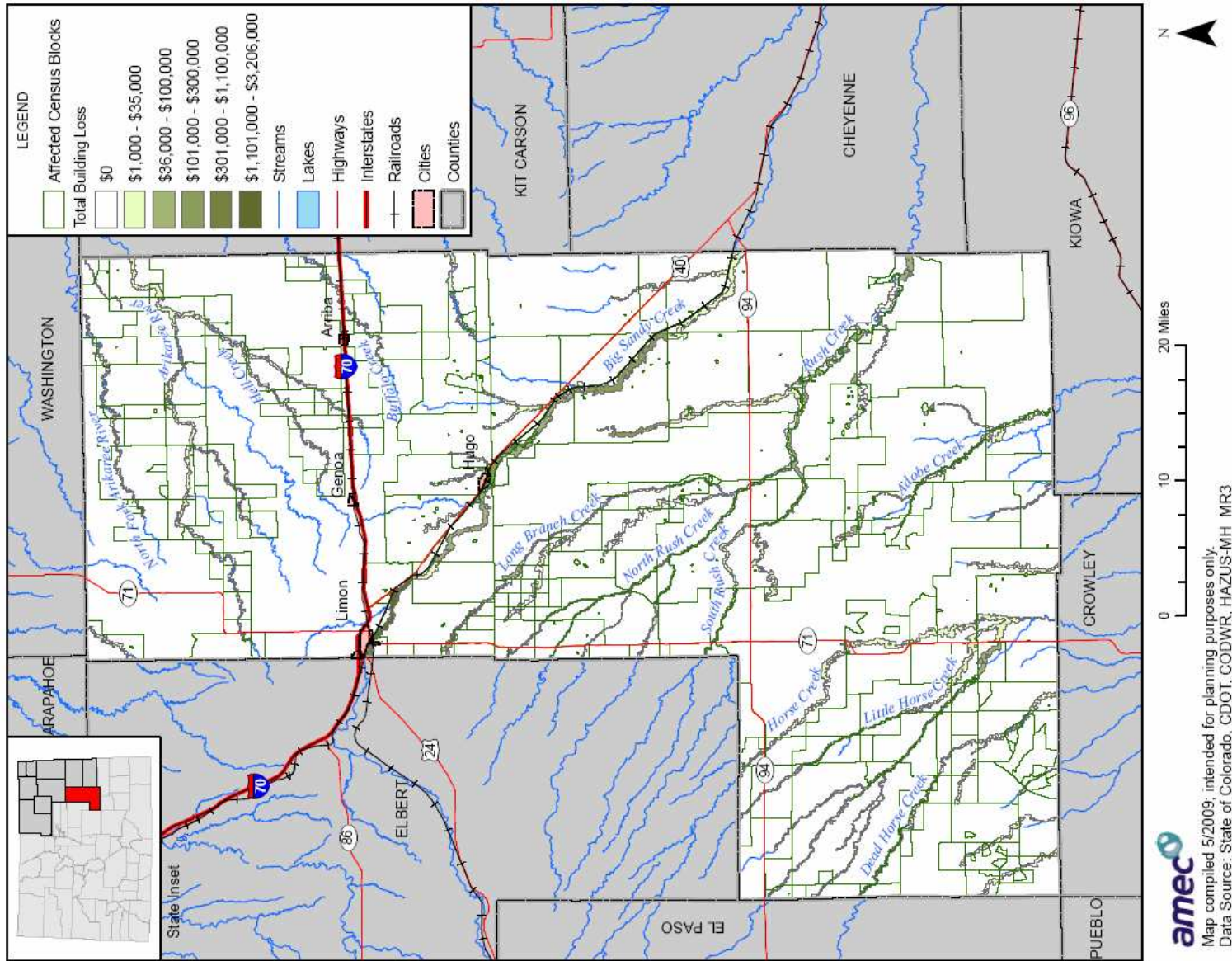
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multiplying by 100. Loss ratio exceeding 10% are considered significant by FEMA. Hugo has the highest loss ratio of 2% with a potential building damage loss of \$1,398,000. Limon has the second highest loss ratio of 0.1% with a potential building damage loss of \$75,000.

When comparing the HAZUS model results with the current FEMA FIRMs, it was observed that HAZUS does not represent flooding for tributaries within the Town of Limon as well as Cemetery Creek in Hugo. The reason these streams were not calculated within the model is due to the fact that these streams do not have 10 square mile drainage areas, which was a parameter limit set within the HAZUS procedure. If the model did account for these streams there could be even more damage as they go straight through the middle of these towns. The other community and the unincorporated county cannot be compared since there are not any effective flood maps for them.



**Figure 3 Lincoln County Building Loss in the 100-year Floodplain**



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## Floodplain Population Information

The 2008 State Hazard Mitigation Plan estimates that there are 279 people, 135 1-4 family structures, and 37 other types of structures in the county floodplains. Lincoln County was identified in the State flood risk assessment as **Low/Moderate Risk**, based upon the floodplain population, the number of structures at risk, and the number of dams. The displaced population and shelter needs estimated by HAZUS are shown in Table 8.

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**Table 8. Population Displaced by Flooding**

Jurisdiction	Displaced Population	Population Needing Shelter
Arriba	-	-
Genoa	-	-
Hugo	87	38
Limon	14	-
Lincoln County	211	120
Total	312	158

## Critical Facilities

Critical facilities in the floodplain were determined using GIS, by selecting all critical facilities that fell within the floodplain. These are listed in Table 9 and shown on the map in Figure 2. In addition the planning team noted the following critical facilities in the floodplain:

- Hugo: Sewage Treatment Plant
- Limon: Sewage Treatment Plant, (protected by elevation), Water Supply Wellheads, (protected by elevation)
- County: 2 Power Substations (owned by Mountain View Electric)

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**Table 9. Critical Facilities Table**

Facility Type	Facility Count
Bridges	38
Dams	1
<b>Total</b>	<b>39</b>

### Lincoln County Scour Critical Bridges

Included with HAZUS-MH is a database of bridges called the National Bridge Inventory developed by the Federal Highway Administration. One of the database items is a “scour index,” which is used to quantify the vulnerability of a bridge to scour during a flood. Bridges with scour index between 1 and 3 are considered “scour critical,” or a bridge with a foundation element determined to be unstable for the observed or evaluated scour condition.

There are 5 scour critical bridges in Lincoln County. They are all located on the highways that travel through Lincoln County. Two scour critical bridges are located east of Limon, one is on Interstate 70 Westbound at the intersection of Lake Creek the other bridge is on US 24 at Lake Creek. Three are located south of Limon on State Highway 71 between Limon and Highway 94. They are at the intersections of Middle Rush Creek, Mustang Creek and South Rush Creek.

The location of these bridges is shown in Figure 1, and described in detail in Table 10.

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**Table 10. Scour Critical Bridges**

Name	Road Type	Stream	Near City
I 70 Westbound	Interstate	Lake Creek	Limon
US 24	Local Road	Lake Creek	Limon
State Highway 71	Rural Highway	Middle Rush Creek	Limon
State Highway 71	Rural Highway	Mustang Creek	Limon
State Highway 71	Rural Highway	South Rush Creek	Limon

## NFIP Claims Analysis

There are 19 policies in force in Lincoln County. All of the policies in the County are in the Town of Limon. Detail is shown in Table 11. The majority of policy holders are in the 100-year floodplain (A-Zone).

**Table 11. Policies and Claims Information:**

CID	Community Name	Total Premium	Z-Zone	A-Zone	No. Policies	Total Coverage	Total Claims since 1978	Total Paid since 1978
80109	Limon, Town of	\$14,414	0	15	19	\$2,496,000	5	\$4,362

**Repetitive Loss Properties:** There are no repetitive loss properties in Lincoln County.

## Dam Failure Vulnerability Assessment

According to HAZUS, there is one high, and two significant class dams. Table 12 indicates how dam failure risk varies among communities in Lincoln County. The location of these dams is shown in Figure 1. Limon does maintain 4 dams, 1 that is a class 1, 2 are class 2 and 1 that is a class 3. L-1 is the class 1, L-2 and L-3 are class 2 and Lake Creek is a class 3. (Limon CAP guide)

**Table 12. Hazardous Dams in Lincoln County**

Dam Name	County	Max Storage (acre ft)	Normal Storage (acre ft)	Dam Hazard	Downstream Community	Miles to Community	Relative Downstream Impacts
Limon Watershed L-1	Lincoln	2,144	1,104	High	Limon	0.5	Limited
Limon Watershed L-2	Lincoln	601	355	Significant	Limon	0.5	Limited
Limon Watershed L-3	Lincoln	579	319	Significant	Limon	0.5	Limited

Source: HAZUS MR3

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## Wildfire Vulnerability Assessment

### Lincoln County Wildland Urban Interface

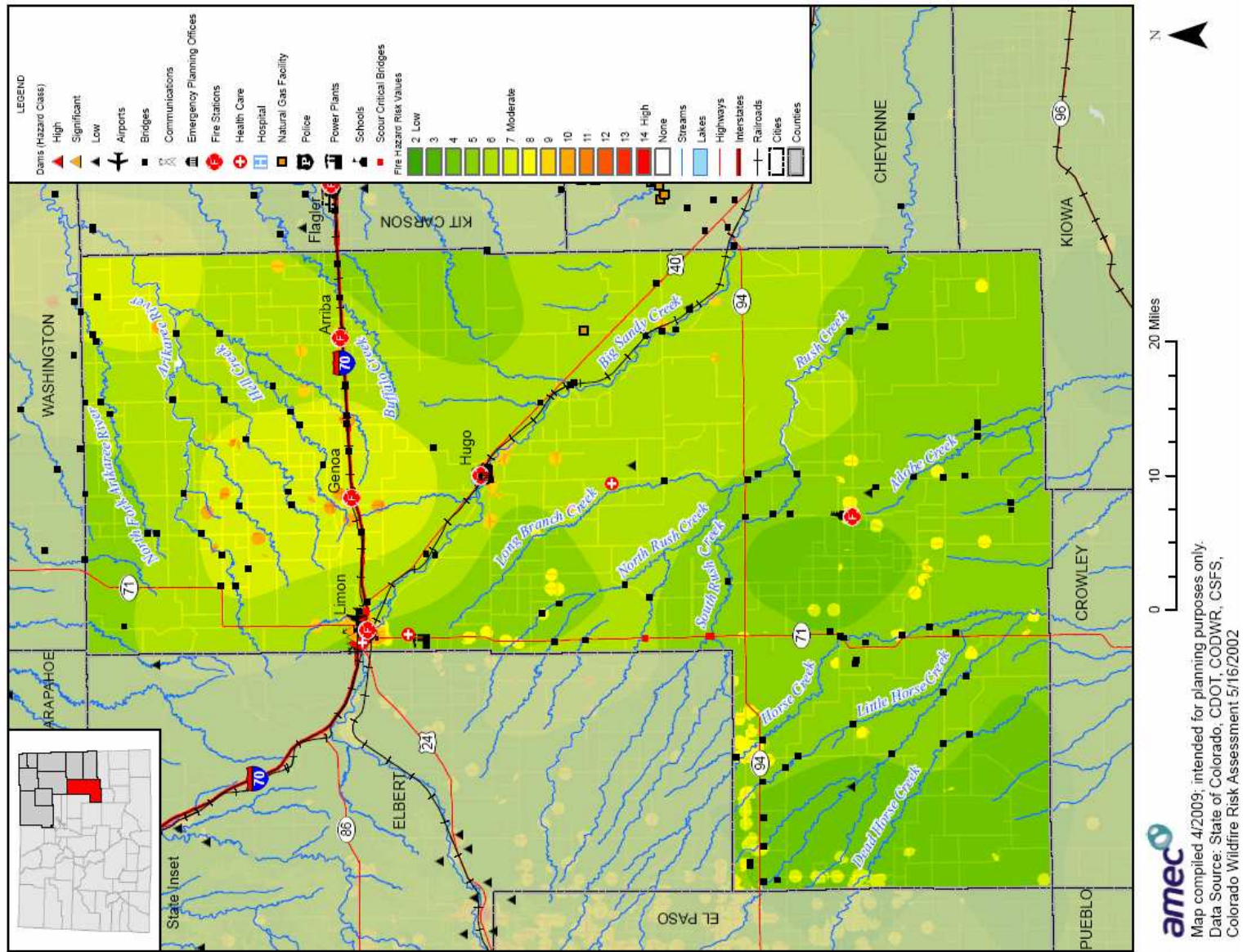
The Wildland Urban Interface in Figure 4 for Lincoln County shows low to high fire hazard risk values. The majority of the county has low values with the higher values around the communities of Arriba, Genoa, Hugo and Limon. Genoa has the highest fire risk in the county with the highest values within the city limits. Arriba and Hugo are surrounded by moderate fire risk values with moderate values within the city limits. Limon has the lowest risk with low to moderate values within the city limits however the city is surrounded by moderate to high values.

The Karval Fire, which burned on January 19, 2009 in Lincoln County, was caused by carelessness. The fire burned more than 1,883 acres of prairie and croplands and burned for seven miles. 9 fire departments responded to the scene. No structures were lost and there were no reported injuries or fatalities. Damage and cost estimates are not currently available.<sup>3</sup>

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<sup>3</sup> Lincoln County Emergency Manager, *2009 Community Profile Information Guide*.

Figure 4 Lincoln County Wildland Urban Interface



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## Critical Facilities

A GIS overlay was used to identify certain facilities in the moderate to high fire risk areas. The facilities identified within a moderate to high wildfire risk area are summarized in Table 13. The following narrative describes the community and potentially at risk critical facilities.

There are 111 Critical Facilities in a moderate to high fire hazard in Lincoln County. Arriba has one facility in the fire hazard: one fire station. Genoa has one fire station in the moderate to high fire hazard. Hugo has thirteen facilities in the fire hazard: one emergency planning office, one fire station, five health care, one hospital, two police and three schools. Limon has eight facilities in a fire hazard: two bridges, one fire station, two health care, two police stations and one school. The unincorporated county has eighty eight critical facilities in a moderate to high fire hazard: one airport, seventy seven bridges, three scour critical bridges, two dams, one fire station and four schools.

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**Table 13. Critical Facilities Subject to Fire Hazard (by type)**

Facility Type	Facility Count
Airports	1
Bridges	79
Dams	2
Emergency Planning Offices	1
Fire Stations	5
Health Care	7
Hospital	1
Police	4
Schools	8
Scour Critical Bridges	3
<b>Total</b>	<b>111</b>

## Agricultural Vulnerability Assessment

Agriculture is an important aspect of the County’s economy. The following discussion analyzes the potential losses from floods using HAZUS and multiple hazards from federal crop insurance records.

### HAZUS Methodology for Agriculture Economic Losses

The agriculture component of the HAZUS Flood Model estimated a range of losses to barley, corn, corn silage, oats and wheat. These crops were the only crops identified by the HAZUS model to have loss within the region of study. The model assumes a short duration and slow rise flood when estimating losses and does not account for high velocity flash floods. Loss estimates are based on United States Army Corp of Engineers (USACE) damage modifiers. The HAZUS-MH impact analysis predicts a loss estimate value by crop for flow time intervals. The first is a loss estimate for the day of the fixed event; the remaining three are for 3, 7 and 14 days following the event.

The agricultural products in Lincoln County that show economic losses are to corn, corn silage, and wheat. Corn’s total loss is \$765,026, corn silage’s total loss is \$2,274,900 and wheat’s total loss is \$5,141,317. The total loss of all of these products is \$8,181,242. More detail is given in Table 14.

**Table 14. Lincoln County Direct Economic Loss for Agriculture Products**

Agriculture Product	Crop Loss Day 0 (\$)	Crop Loss Day 3 (\$)	Crop Loss Day 7 (\$)	Crop Loss Day 14 (\$)	Total Loss (\$)
Corn	0	208,643	278,191	278,191	765,026
Corn Silage	0	620,427	827,236	827,236	2,274,900
Wheat	0	1,402,177	1,869,570	1,869,570	5,141,317
<b>Total</b>	<b>0</b>	<b>2,231,248</b>	<b>2,974,997</b>	<b>2,974,997</b>	<b>8,181,242</b>

Source: HAZUS-MH MR3

### Crop Insurance Analysis

Federal Crop Insurance Data represents losses from multiple hazards that could include: biological hazards, flooding, drought, hailstorms, noxious weeds, temperature extremes, tornados, wildfires and straight-line winds. Average annual claims payout amount to \$1.2 million in the County. More details are provided in Table 15 and 16.



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**Table 15. Lincoln County Premium and Loss Data for Federal Crop Insurance from 1980 through 2007**

Liability(Amount of Coverage)	Total Premium	Federal Premium Subsidy	Farmer-paid Premium	Amount Paid in Claims	Average Amt. Paid Annually in Claims
163,580,310	30,172,770	16,716,145	13,456,625	35,128,523	1,254,590

Source: Federal Crop Insurance Services

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**Table 16. 2008 Lincoln County Provisional Data (claim data unavailable as 2008 claims are not fully reported)**

Liability(Amount of Coverage)	Total Premium	Federal Premium Subsidy	Farmer-paid Premium
24,746,258	7,002,980	4,066,585	2,936,395

Source: Federal Crop Insurance Services

## Lincoln County Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The regulatory mitigation capabilities for the County and its municipalities are summarized in Table 17. Refer to the Introduction to the County Elements for an explanation of the capability assessment matrix.

**Table 17. Regulatory Mitigation Capabilities**

	LINCOLN	Arriba	Genoa	Hugo	Limon
Comp Plan	Y - 06/2000	N	N	N	Y
Land Use Plan	Y	N	N	Y	Y
Subdivision Ord	Y – 04/2003	N	N	N	Y
Zoning Ord	Y – 04/2002	N	N	Y	Y
NFIP/FPM Ord	N	N	N	<b>N/SUSPENDED</b>	Y
- Map Date	Never Mapped	Never Mapped	Never Mapped	10/15/85-FIRM	11/1/1984, LOMR, 2/23/99
- Sub.Damage?	N	N/A	N/A	N/A	Y
- Administrator?	N	N	N	N	Y
- # of FP Bldgs?	5-10	0	0	Unknown	67
- # of policies	Unknown	0	0	0	12-A; 7-X; 19 current
- # of RL's?	N/A	N/A	N/A	N/A	0
CRS Rating	N	N/A	N/A	N/A	N/A
Stormwater Prgm	N	N	N	N	Y
Building Code	Y-UBC '97	N	Y: Dangerous Buildings Ordinance	N	Y
Building Official.	Y	N	N	N	Y
- Inspections?	Y	N	Y, per contract as needed	Y-Limited	Y
BCEGS Rating	N	N	N	N	In progress
LEOP	Y	C	N	C	C
HM Plan	Y	C	N	C	C
Warning	Y	Y	Y	Y	Y
Storm Ready?	N County is working to become Storm Ready.		N		
Weather Radio? K-C Electric provides	Y	Y	Y	Y	Y
Sirens?	Y	Y-1	Y	Y-3	Y-4, Need 2 more

	LINCOLN	Arriba	Genoa	Hugo	Limon
Emergency Warning Notification?	Y	C	N	C	C
Other?	Reverse 911, S.O. Contacts	Cable Override	N	N	Cable Override
GIS System	N	N	N	N	N
Structural Projects	N	N	N	N	3 Dams, RR culvert, & Fish Pond (for floods)
Property Protection	N	N	N	N	N
Crit.Fac.Protection	N	N	N	N	Y
Natural Res. Inv.	Y: Comp. Plan	N	N	N	Y
Cultural Res. Inv.	Y: Comp/Mit Plans	Y	N	Y	Y
Erosion Control	N	N	N	N	N
Sediment Control	N	N	N	N	N
Pub. Info Prgm	Y: Website, newspapers, radios	Billing "Stuffers"	N	N	Y
Env. Ed Prgm	N	N	N	N	N

**NFIP Mapping information:**

- *Arriba*, Never Mapped
- *Genoa*, Never Mapped
- *Hugo*, Mapped, but does not participate in the NFIP. No inventory conducted: Hugo is ineligible for FEMA PDM/FMA and HMGP funding for floods. Flood insurance is unavailable through the NFIP, though some people have obtained it from other sources.
- *Limon*, Panel # 080109, 11/1/84, revised to reflect LOMR 2/23/99

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## Lincoln County Recommendations

**Action Item #1:** *County should work to become certified as “Storm Ready” by National Weather Service.*

**Issue Statement:** Lincoln County, while not Storm Ready, has made advances in recent years in severe weather warning capabilities. However, there are possible gaps in that capability and becoming Storm Ready will assist the county in identifying and correcting them and allow for protection of our citizens, which is a high priority.

A primary goal of the Northeast Colorado Emergency Managers Association multi-jurisdictional DMA Hazard Mitigation Plan is for each county to become “Storm Ready” certified within the next three years. “Storm Ready” certification is an indication that the community has prepared for adverse weather conditions, trained officials and citizens to recognize and report adverse weather conditions, and has established and regularly tested a system for receiving and disseminating severe weather information and warnings to the public. As a part of this project Lincoln County OEM will make presentations in the schools on severe weather and how to mitigate its potential dangers.

**Implementation Manager and strategy:** OEM, Lincoln County Sheriff, Town Managers of Arriba, Genoa, Hugo, Limon, the Karval School District, Genoa-Hugo School District, and Limon Public Schools RE 4J. In coordination with NWS, determine areas in Lincoln County not covered by NOAA Weather Radio repeaters and identify other Storm Ready requirements, then upgrade and/or obtain equipment if necessary. The target date for being Storm Ready is now 2010.

**Priority:** High

**Cost Estimate:** Cost is unknown due to possible deficiencies not being identified at this time. A potential source of funding would be PDM grants, with match from the county and possibly the towns.

**Cost-Effectiveness Explanation:** The potential for saving just one life, and providing time for individuals and businesses to take effective actions to protect property, far outweighs the potential cost of the warning system and equipment. This goal and recommended action was selected by the MCPC due to its return on investment and relative ease in achieving. It may be the single most effective action the county and the entire Planning Area can undertake to reduce future disaster losses

This will be a coordinated effort by local agencies and the NWS, which should open up grant sources, if necessary, and lessen the need for local dollars. It’s possible that while in the process of identifying and complying with Storm Ready requirements that

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Lincoln County may discover that it has minimal items to add or correct to do so, which will make notification to our citizens of severe weather relatively inexpensive.

**2009 Update:** Lincoln County has not achieved “Storm Ready” certification. The county has continued to close any gaps that prevent them from earning this status. Weather alert radios have been placed in all the schools, extended care facilities, town offices, libraries, etc. Weather Spotter training classes are continuing to be sponsored. One warning siren still needs to be replaced in the Town of Limon. The timeframe is dependent due to cost unknowns, but the high priority of the action indicates that it will be executed as expediently as possible.

**Action Item #2: Continue Participation in the NFIP in Limon and encourage participation and the purchase of flood insurance in the County and Hugo.**

**Issue Statement:** Lincoln County is not mapped, and while there has been some discussion of having this done, funding has not been available to assist and the project is beyond the county’s financial capability. Hugo is mapped, but not participating in the NFIP. However, there is some residential development occurring in areas of Hugo identified as being in the floodplain. Limon is also mapped and in the process of being remapped. There are 70 structures in the current floodplain, 3 of which are elevated above the expected elevation of the 100-year flood. While Limon is a participant in the NFIP, there are only 19 flood insurance policies. Citizens need to be informed, or reminded, that their structure is in a floodplain and that it’s advisable to purchase flood insurance. As part of continued compliance with the NFIP Limon will periodically update its ordinance and continue to enforce the ordinance regarding proposed development in the floodplain.

**Implementation Manager and strategy:** OEM, Board of County Commissioners, Lincoln County Land Use, Hugo and Limon Town Managers and/or their Planning Department. Work with CWCB to provide current and appropriate information.

**Priority:** Medium

**Cost Estimate:** The cost estimate is \$1,500 for Hugo and Limon to notify citizens if they’re located in a floodplain and to encourage the purchase of flood insurance and to have Hugo begin participation in the NFIP. The cost to have Lincoln County mapped is unknown and grant funding will have to be obtained in order for this to be done.

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**Cost-Effectiveness Explanation:** The cost to participate in the NFIP program is apparently minimal, with the end result being very beneficial to citizens. Notification to citizens to encourage the purchase of flood insurance could be accomplished through mailers enclosed with water bills, etc. or articles in local newspapers, thus making the cost relatively small.

**2009 Update:** Limon is still the only entity that participates in NFIP in Lincoln County. A project was done in East Limon to mitigate the floodplains but they still exist. The funding to map the rest of the county is still not available and especially now. Priority is still medium. The City of Limon notes that people who own structures within the floodplain are primarily the policy holders. There has not been significant action to inform others of the need for flood insurance. Timeframe on the action is ongoing and linked to the public education process. Hugo has investigated the possibility of joining the NFIP but has chosen not to do so due to lack of resources to implement a floodplain management ordinance, and concerns over liability associated with that.

**Action Item #3: Obtain a siren for Karval, an additional two for Limon, and generators for new and existing sirens in all towns..**

**Issue Statement:** The unincorporated town of Karval does not have a siren. While the population is around 60, there is a school in Karval and when it is in session the population doubles. Karval has an Emergency Warning Notification, but a siren is needed as another means of warning. The town of Limon has four sirens, but two more are needed to provide complete coverage (to be placed at previous Town Hall site). They will be placed in various locations. The towns that have sirens do not have generators, except for Arriba and theirs is not working, to operate the sirens if power is lost. Since sirens are such an effective means of providing warning, obtaining generators to insure that they will be functional at all times is necessary.

**Implementation Manager and strategy:** OEM, Town Managers and Patrick Leonard. Monitor available grant programs for equipment, look for private sector partners, and provide labor for installation as part of the “local match.” The target date for the new sirens, as well as generators, is 2004 and generators for existing sirens is 2005.

**Priority:** High

**Cost Estimate:** The sirens will cost between \$8,000 and \$10,000. The cost for the generators could not be determined at this time. A battery or solar charging unit may be another alternative to generators.

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**Cost-Effectiveness Explanation:** Sirens can communicate warning to significant numbers of people immediately. Spread over the life of a siren, the cost of purchase and maintenance is minimal in relation to the number of citizens affected. A more cost effective measure than having standby generators available might be having back-up battery power that would be recharged by solar panels.

**2009 Update:** Additional weather radios have been obtained and dispensed. The County notes that Limon still needs the fifth siren at the old town hall site. Limon inputs that two additional locations are required: the town hall site continues to need a siren, and with new development occurring north of I-70, an additional siren needs to be located in this area. Limon notes that sirens are not always cost effective and is curious about solar powered sirens, or other new technology.

**Action Item #4:** *Obtain generators for the schools in the county and the events building at the fairgrounds.*

**Issue Statement:** If sheltering for large numbers of people was needed, the schools and the events building at the fairgrounds would be the likely facilities used in Lincoln County. If the power were out for an extended period of time, a source of backup power would be needed in order to provide safe, adequate shelter. Purchasing generators for these facilities would allow Lincoln County to do this.

**Implementation Manager and strategy:** OEM, Board of County Commissioners and School Superintendents

**Priority:** Low

**Cost Estimate:** The cost of the generators could not be determined at this time. PDM grant funding would be a potential source, with match from the county and the schools.

**Cost-Effectiveness Explanation:** If sheltering in Lincoln County was needed the buildings with the largest capacity would be used, so purchasing generators for the 3 schools and the events building at the fairgrounds would maximize the people benefiting with a minimum purchase of generators.

**2009 Update:** The County notes that this action was never completed as the cost of the required generators is prohibitive. While the goal is important to maintain, the priority is not high and, as such, the timeframe is extended and indefinite.

**Action Item #5:** Have an annual Awareness Week, in conjunction with the county fair, where citizens are informed of hazards, losses, mitigation efforts and planning in Lincoln County. The date for the first of these events will be August 2004.

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**Issue Statement:** An Awareness campaign has never been done before in Lincoln County. Awareness will hopefully make people contribute ideas if something needs to be mitigated or improved or encourage them to take the necessary measures to protect themselves, whether by purchasing flood insurance or building safe rooms.

**Implementation Manager and strategy:** OEM

**Priority:** Medium

**Cost Estimate:** \$1,000. The source of funding for this project would come from the county, the towns and the utility companies.

**Cost-Effectiveness Explanation:** Spreading the cost of this project out over various agencies and companies and doing it during the county fair will allow the maximum amount of people to be reached for very little cost. This item also ensures that all participating elements of the planning area can directly contribute to an action item.

**2009 Update:** This task has been completed. Information is made available at the fair and at the libraries in the county. The task should be continued, as more information should be provided and the information should be bi-lingual. Timeframe for production of new materials is yearly.

**Action Item #6:** *Determine shelter locations in Lincoln County, Arriba, Genoa, Hugo and Limon, and identify them for easy access. These would be utilized during severe weather and temporary evacuation situations.*

**Issue Statement:** Major highways come through Lincoln County. During severe weather, especially tornados, the traveling public will stop and ask where there is shelter. Public shelters in these situations have not been identified and management and staff at businesses cannot direct the traveling public to a safe location. Further, there are new citizens to the county who may not know where to seek shelter. Also, if temporary evacuation of citizens in any of the towns in Lincoln County would become necessary shelters have not been identified for this purpose. The safety of our citizens and those traveling through our county is paramount and shelters in both of these situations need to be identified.

In 2009 the Town of Arriba indicated that a tornado shelter is desired, possibly as part of a community building, in the town.

**Implementation Manager and strategy:** OEM and Town Managers. Target date is 2004.



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**Priority:** High

**Cost Estimate:** \$1,000. The funding source for this project would come from Lincoln County and the towns. If necessary, PDM grant funds would be applied for to obtain signage for the shelters.

**Cost-Effectiveness Explanation:** Once shelters are determined they can be marked with signage and business management and staff can be provided lists of the locations. This project, while possibly providing safe locations for hundreds of people, can be accomplished with relatively little cost by the county and the towns, with most of it being in-kind.

**2009 Update:** Possible shelter locations have been already identified. However, the signage to denote the locations has not been purchased or erected. The goal should be continued in the updated plan and acted on. Timeframes for implementation of the action is currently unknown but is considered a priority for the County and should be executed within 12 months if possible. Funding may impact this timeline.

## **New 2009 Objectives**

### **Action Item #7: *Increase Red Flag Warning distribution***

**Issue/Background:** The Fire Departments and Fire Districts in Lincoln County do not receive all the Red Flag Warnings issued by the National Weather Service. The warnings are either not received or are delayed. Red Flag Warnings come to the Sheriff's Office by teletype or over their computer from C.I.C. Then a group page from the Sheriff's Office relays them.

**Other Alternatives:** Reverse 911.

**Responsible Office:** Lincoln County Sheriff's Office, Lincoln County OEM

**Priority (High, Medium, Low):** Low

**Cost Estimate:** Compiling a data base of telephone numbers or cellular phone numbers to Fire department personnel would be relatively inexpensive.

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**Benefits (Avoided Losses):** Red Flag Warnings allow local fire departments and districts to be better prepared to respond to wild land fires. They can put their personnel on heightened alert levels and insure that their equipment is not out of service for maintenance during these warning periods.

**Potential Funding:** Grants with local match

**Schedule:** Policies have been implemented in 2009, also severe weather warning.

**Action Item #8: *Backup Generators for Communication Centers, the hospital, and shelters.***

**Issue/Background:** During natural or man made disasters the potential exists that electrical power could be lost for extended periods of time in critical facilities in Lincoln County. The hospital and the communications center at the Sheriff's Office are equipped with emergency generators at the present time.

For the shelter desired by Arriba (see previous Action Item #6) a 3 phase 220V generator located centrally to provide power to the new subterranean community building and town hall and the fire department building would be desired.

**Other Alternatives:** No real viable alternatives exist at this time.

**Responsible Office:** Lincoln County Office of Emergency Management, Town Officials, School Boards and Administration

**Priority (High, Medium, Low):** low

**Cost Estimate:** Cost estimates would vary based on the number and size of generators required. Minimum costs would run from 2 or 3 thousand dollars to many thousands.

**Benefits (Avoided Losses):** The major benefit is the continuation of services in critical facilities in Lincoln County; especially communication, law enforcement and the care of people who are in shelters or are at risk due to age or health issues. The Town of Limon has back-up generators at their water and wastewater treatment plants at the present time. Both Lincoln County and the Town of Limon have numerous small portable generators that could be utilized in emergencies.

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**Potential Funding:** Grants with local match, gifts or donations are potential funding sources.

**Schedule:** This schedule would be several years long due to the number of sites needed.

**Action Item #9: *Finalize Community Wildfire Protection Plan***

**Issue/Background:** In 2009 the Colorado legislature passed and the governor signed a law requiring that each county and the Colorado State Forest Service develop a Wildfire Protection Plan for every county in Colorado. This plan will cover the entire County and involve the fire protection districts and local fire departments.

**Other Alternatives:** NONE

**Responsible Office:** Lincoln County Office of Emergency Management, Lincoln County Sheriff and the Regional Forester of the Colorado State Forest Service, Karval Area FPD, Limon Area FPD, and Northeast Lincoln FPD. This project will also involve the Upper Big Sandy Groundwater Management District.

**Priority (High, Medium, Low):** Medium

**Cost Estimate:** The costs of developing such a plan in Lincoln County is quite difficult to calculate as the work would all be done in house from templates.

**Benefits (Avoided Losses):** The potential to protect life, property and the environment from losses due to wildfire cannot be directly figured but is a huge benefit to Lincoln County residents.

**Potential Funding:** Not Applicable.

**Schedule:** December 2009

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**Action Item #10: *Continue hazards awareness outreach and public education.***

**Issue/Background:** Due to the increased threats of severe weather, hazardous materials shipments through the county, the increased potential for wildfires and the recent outbreaks of the H1N1 flu virus public awareness of their steps to prepare for these threats needs to be increased. This can be done through public outreach at schools, county fairs, senior center meetings, articles in the local newspapers and other public gatherings. This outreach should be done in both English and Spanish.

**Other Alternatives:** Few alternatives exist. But regional and national news coverage does help reinforce the need to be adequately prepared.

**Responsible Office:** Lincoln County OEM and Lincoln County Public Health, towns of Arriba, Genoa, Hugo, Limon the Karval School District, Genoa-Hugo School District, and Limon Public Schools RE 4J

**Priority (High, Medium, Low):** Medium

**Cost Estimate:** Obtaining the necessary procures would cost at most several hundred dollars. The newspapers print the articles as a public service. The time spent to discuss the required steps to be prepared is part of the job descriptions of those involved. Utilizing the tornado safe from Morgan County would only cost the time and fuel needed to bring it to Lincoln County.

**Benefits (Avoided Losses):** The amount of money in avoided losses from this outreach effort would be extremely difficult to quantify. But the potential to save a life through these efforts is what all preparedness strives to achieve.

**Potential Funding:** Lincoln County's Office of Emergency Management and Public Health's Annual Budget both of which are partially funded through grants.

**Schedule:** This public outreach is an ongoing effort that is never really completed.

**Action Item #11: *Regional Communications /Public Notification Improvements***

**Issue/Background:** The increased number of people who do not have land line phone service but utilize only cell phones does not allow for the use of Reverse 9-1-1.

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**Other Alternatives:** Door to door notification and warning sirens (only in the urban areas.)

**Responsible Office:** Lincoln County Sheriff's Office, Lincoln County OEM, towns of Arriba, Genoa, Hugo, Limon, Kit Carson and Cheyenne County emergency management

**Priority (High, Medium, Low):** High

**Cost Estimate:** Compiling a data base of cell phone numbers would be relatively easy; an information form could be set up on the counties web site at Ready Northeast, this same form could be available at the county fair for completion by interested individuals and the form could also be made available at the local public libraries. The form must have a statement guaranteeing the privacy of the cell phone numbers. The only costs involved would be developing the form, compiling the data and programming the numbers and names into the computer.

**Benefits (Avoided Losses):** Quantifying an amount of avoided losses is again quite difficult but the potential exists to save lives and decrease property damage.

**Potential Funding:** Local Office of Emergency Management and Sheriff's office budgets.

**Schedule:** Completion in the winter of 2010

In addition to the above the Town of Limon indicated that drainage channel improvements are needed (medium priority), but the project will be dependent on mitigation or grant funding and is not likely to be addressed until three or four years.

### **Regional Actions (tri-county Cheyenne, Kit Carson and Lincoln sub- region)**

- Utilize the tornado safe room demonstration developed by Morgan County at County fairs and other public events.

### **2009 Wildfire Mitigation actions**

The following actions are wildfire mitigation actions written for the 9 county region that the County will undertake or participate in (See appendix C for details). Some of these may be part of the CWPP updated noted in Action Item #4. All the fire departments and

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districts, including Karval Area FPD, Limon Area FPD, and Northeast Lincoln FPD will be active participants in the previously identified CWPP project and will be asked to sponsor a Fire Wise Presentation by the Colorado State Forest Service.

- Update wildfire risk assessment
- Develop Wildfire pre-attack plans
- Develop County Annual Operating Plans for wildfire
- Host Firewise presentations