

CHEYENNE COUNTY PLANNING ELEMENT



Cheyenne County Planning Subcommittee

The following entities participated in the DMA planning process through the Cheyenne County Planning Subcommittee (CPS) both in 2004 and in 2009. More details on the planning process followed and how the County, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. Additional details on what local government departments participated and who represented them are listed in Appendix C. The Town of Wild Horse participated in 2004 but did not in 2009.

Participating Jurisdictions	Stakeholders
Cheyenne County Emergency Management (CPS lead) Sheriff's Office Public Health Commissioners	Plains-to-Peaks Regional Emergency Trauma Advisory Council (RETAC)* Keefe Memorial Hospital* Colorado State Forest Service Colorado Division of Emergency Management
Town of Cheyenne Wells Fire Department	USDA NRCS Duke Energy
Town of Kit Carson	Shell Pipeline Union Pacific Railroad
West Cheyenne Fire Protection District	
Cheyenne County #1 Fire Protection District	
Cheyenne County School District RE-5**	
Kit Carson R-1 School District**	

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

County Profile

Cheyenne County is located along the east central border of the State and has a low population density. It includes the incorporated towns of Cheyenne Wells and Kit Carson. The land area of Cheyenne County is 1,782 square miles. According to the 2000 U.S. Census, the population for Cheyenne County was 2,231. The 2008 population estimate from the Census is 1,906. The estimated average density for the County is 1.07 people per square mile. Cheyenne County lost population by 6.9% between 1990-2000. The population declined by 14.6% between 2000 and 2008, and the population is expected to continue declining.¹ There are 1,144 housing units in the County, for an average density of .64 housing units per square mile.² As of the 2000 Census, the median age in

¹ 2009 Community Profile Information Guide for Cheyenne County

² U.S. Census Bureau: State and County QuickFacts, as documented on the Cheyenne County Emergency Management Webpage at <http://readynortheast.org/Cheyenne.html>

the County is 37.9 years. 6.4% of the population is under the age of 5 and 16.6% of the population is over the age of 65. The average household size is 2.5, and the average family size is 3.12. 85.1% of the population over the age of 25 holds at least a high school degree and 14.2% hold a bachelors level degree or higher. 16.1% of the population (over age 5) holds disability status, and 7.6% of the population (over age 5) speaks a language other than English in the home. 8.7% of all families live below the poverty level, and 11.1% of individuals live below poverty level.³ The County is predominantly agricultural. The 2007 Census of Agriculture reports 380 farms in the County with 899,567 total acres of farmland, which accounts for 78.8% of the County's total area. The average farm size is 2,367 acres. A base map of the County can be referenced in Figure 1.

Hazard Identification and Summary

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

³ U.S. Census Bureau: Cheyenne County, Colorado – Fact Sheet 0 American FactFinder. www.factfinder.census.gov

Table 1. Cheyenne 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	Unlikely	Negligible	Low
Drought	Extensive	Likely	Critical	High
Earthquake	Limited	Occasional	Limited	Low
Flooding	Significant	Likely	Limited	Medium
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

Cheyenne County History of Recorded Natural Hazard Losses

In the 2008 State Hazard Mitigation Plan, Cheyenne County identified winter and summer storm exposure as the greatest risks to the County.⁴ The County was one of the first southeastern counties to be included in the disaster declaration for the back-to-back blizzards of December 2006 and January 2007.⁵ 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
Unknown	Fire	Kit Carson		Town torched by fire 5 times, one started by train	Colorado Tourism Office, Planning Team
1887	Blizzard				<i>History of Cheyenne County</i>
1912	Blizzard			Burned cow chips Trains out for 3 weeks	<i>History of Cheyenne County</i>
1919	Flu Pandemic			2 deaths in SE County	<i>History of Cheyenne County</i>
3/26/1931	Blizzard			Burned corn cobs 25' drifts,	NCDC
8/4/1933	Flood	Arapahoe	5 bridges washed out on US 40	10 hour downpour Approx 26"	NCDC
1930's	Drought	Dust Bowl	Farms abandoned	47 day dust storm/1935	Planning Team
1945	Fire	Wild Horse		Burned from Hugo to Tribune, followed ditch, started by cow kicking over lantern	Planning Team
1952-1958	Drought				<i>History of Cheyenne County</i>
March 1957	Blizzard				
7/20/1958	Tornado		\$25K	F2, 5 injuries	NCDC
June 1965	Flood	Big Sandy R. & Wild Horse Creek	Homes damaged in KC	Debris blocked RR bridge @ 40-287	NCDC, CWCB, SCS
5/10/1975	Tornado			F2	NCDC

⁴ 2008 State Hazard Mitigation Plan.

⁵ Cheyenne County Data Collection Guide 2009

Date	Event	Location	Damages	Other Info	Data Source
11/18/1975	Blizzard			Livestock killed	Planning Team
7/31/1976	Lightning			1 death	NCDC
2/23/1977	Dust Storm	Cheyenne Wells	Homes filled with dirt	Tumbleweeds galore!	Planning Team
3/17/1977	Blizzard		5,500 poles lost Ice damage	Power/phones out 5 days, 21 days in SE County Large cattle/calves loss	REA
6/17/1977	Hail			2"	NCDC
2/1978	Ice storm				<i>History of Cheyenne County</i>
6/16/1979	Tornado		\$2.5M	F2, 200 yards x 3 miles	NCDC
1980	Blizzard			State Dec	CO-OEM
1981	Grasshoppers			State Dec	CO-OEM
6/13/1986	Hail			2"	NCDC
1987	Wildfire	NE corner of County		State Dec	CO-OEM
5/21/1989	Hail			2.75"	NCDC
6/29/1989	Hail			4.5"	NCDC
5/28/1991	Hail			2.75"	NCDC
5/22/1993	Hail	Cheyenne Wells		2.5"	NCDC
5/16/1995	Tornado	Kit Carson	\$3K		NCDC
7/20/1995	Hail	Arapahoe		2.75"	NCDC
10/29/1997	Blizzard				Planning Team
3/26/1998	Severe Storm	Arapahoe	\$1K		NCDC
6/29/1998	Hail	Arapahoe		2"	NCDC
7/13/1998	Microburst	Cheyenne Wells Kit Carson	\$6K \$3K		NCDC
5/22/1999	T-storm/Wind	Arapahoe	\$2K	89 MPH	NCDC
2000	Drought		(USDA Dec)		CO-OEM
April 2001	Winter Storms Fed #1374		Ice damage	REA's damaged: KC only rec'd State Dec	CO-OEM
6/15/2002	Hail	Kit Carson		2.75"	NCDC
6/24/2002	Hail	Cheyenne Wells		2.5"	NCDC

Date	Event	Location	Damages	Other Info	Data Source
2002	Grass Fire		11-17,000 acres	Slurry drops used	Planning Team
2003	West Nile Virus	County-wide		4 cases in humans reported	CDPHE
7/4/2005	Hail	Cheyenne Wells		2.75	NCDC
6/16/2006	Hail	Arapahoe		2" – 5 inch hail depth on roads with larger drifts in some locations	NCDC
Dec 2006	Blizzard	Entire County	N/A	State Dec	Planning Team
Jan. 2007	Blizzard	Entire County	N/A	State Dec	Planning Team
5/22/2007	T-storm/Wind	Entire County	\$15K		NCDC

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

Hazard Summary in Cheyenne County from 1950-2008 (58 years):

Dams:

- 0 Class I (High Hazard) Dams
- 0 Class II (Significant Hazard) Dams;
- 0 Known Failures

Drought Incidents: 6 (regional occurrence)

Dust Storm: 1

Earthquake: Cheraw Fault exposure, M7.0 CEUS- 0 fatal, \$4.5 Million (-0.3%)⁶

Extreme Temperature:

- Highest Recorded Temperature in County, 108°F
- Lowest Recorded Temperature in County, -30°F
- Severe Cold Incidents: 3

Floods and Flash Floods: 16

Hailstorms: 17

Landslide Risk: Medium suspected risk per OEM map, does not cross pipelines

Lightning: Averages 7,800 strikes per year, no reported injuries or deaths 1980-2005.

Severe Windstorms: 88

Severe Winter Weather: 34

⁶ CGS, Earthquake Evaluation Report. See Earthquake Section in Hazard Identification Chapter for further explanation of risk.

Tornadoes: (F1 or greater) 18. (Any size) 56

Wildfires: First View (burned down once, train fire), Wild Horse burned down twice (1930's), and Kit Carson has burned down as many as five times.

West Nile: 6 illnesses, 0 fatalities in humans through 2008.

Total Reported Injuries: 5

Total Reported Fatalities: 2 + 6 West Nile Virus cases

Cheyenne County Vulnerability Assessment

The intent of this section is to assess Cheyenne 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.

Assets at Risk

This section identifies Cheyenne County's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends.

TOTAL VALUES AT RISK FROM HAZARDS:

Table 3. Building Exposure

City	Population	Building Count	Building Exposure (\$)	Building Content (\$)	Total Exposure (\$)
Cheyenne Wells	1,010	766	68,627,000	48,327,000	116,954,000
Kit Carson	253	214	20,855,000	13,131,000	33,986,000
Unincorporated	968	942	60,361,000	43,339,000	103,700,000
Total	2,231	1,922	149,843,000	104,797,000	254,640,000

Source: HAZUS MH MR3

Table 4. County Parcel Exposure

Type	Parcel Count	Value	Improved Parcel Count	Improved Value	Total Value
Residential	830	573,479	737	32,243,932	32,817,411
Commercial	173	223,055	138	11,694,517	11,917,572
Industrial	32	67,700	25	5,223,841	5,291,541
Agricultural	4,024	44,894,682	818	17,508,700	62,403,383
Government	128	1,365,658	9	2,927,000	4,292,658
Education	50	467,544	7	3,406,938	3,874,482
Total Value	5,237	47,592,118	1734	73,004,928	87,779,669

Source: Cheyenne County Assessor, 2008.

- ***Cheyenne Wells:*** \$3.657M in Assessed Value
- ***Kit Carson:*** \$1.066M in Assessed Value

Critical Facilities and Infrastructure

An inventory of critical facilities in Cheyenne County is provided below in Table 5. The table includes data from available statewide GIS resources (locations are illustrated in Figure 1) supplemented with information from the Cheyenne County CPS.

Table 5. Critical Facilities Inventory

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Essential Infrastructure				
Airports (paved)	0			
Communications Towers	2			
Correctional Facilities	1			
Electrical Generation/Distribution	0			
Media Outlets	0			
National Guard	0			

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Public Safety Communications Centers	1			
Public Safety Facilities	1			
Police Stations	1			
EMS/Ambulance Stations	2			
Fire Stations	2			
EOCs	1			
Town/City Halls	2			
Wastewater Treatment	2			
Water Utilities/Treatment	2			
Childcare Centers	Private			
Schools	3			
Shelters	4			
Hospitals	1			
Clinics	2			
Nursing Homes/Assisted Living Centers	2			
Natural, Cultural and Historic Resources	5			
Community Centers	2			
Historic Properties	5			
Hazardous Materials				See Tier II
Extremely Hazardous Substances	3			
Hazardous Chemicals storage	3			

Natural and Historic Assets

Historic Sites in Cheyenne County:

- Cheyenne County Courthouse, Cheyenne Wells

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- Cheyenne County Jail, Cheyenne Wells
 - Mountain States Telephone & Telegraph Building, Cheyenne Wells
 - Kit Carson Pool Hall
 - Union Pacific Pumphouse, Kit Carson
 - Kit Carson Museum/(UPRR Depot, currently being restored)
 - Wild Horse Mercantile
 - Wild Horse School
 - Blue Star monument at state line (CO/KS)
 - Monument at Smoky Hill Trail/ 6 miles W of Cheyenne Wells
 - And 11 miles N of KC/Smoky Hill Trail

Development Trends in Cheyenne County:

The County continues to lose population, a trend documented in the 2004 Planning Process. There are wind farms being planned in the northern portion of County.

Floodplain Vulnerability Assessment

The best available flood data for Cheyenne County was generated by HAZUS-MH MR3, FEMA's software program for estimating potential losses from disasters. See the base plan vulnerability assessment for a description of 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 Cheyenne County HAZUS 100-year Floodplain and Critical Facilities Map

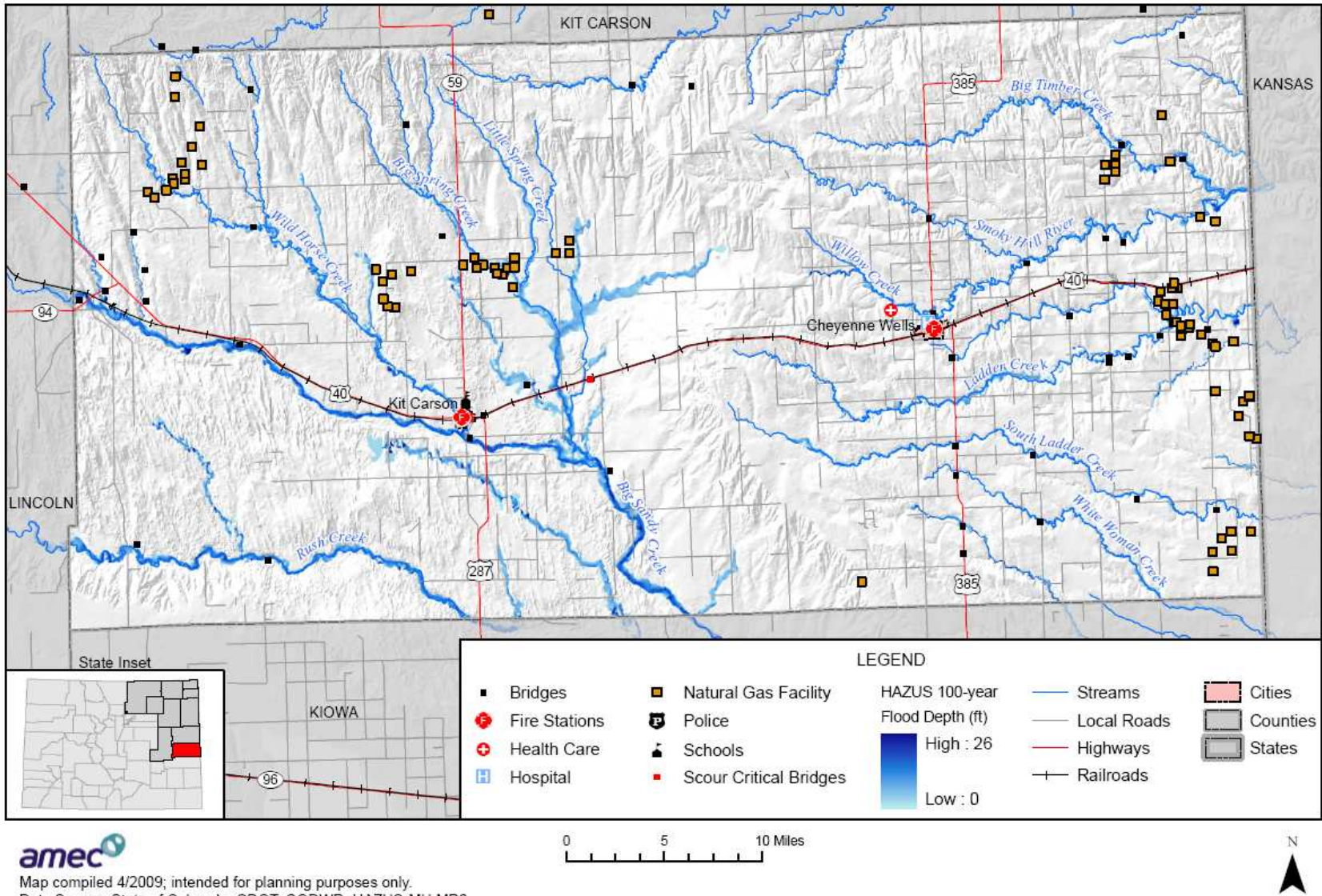
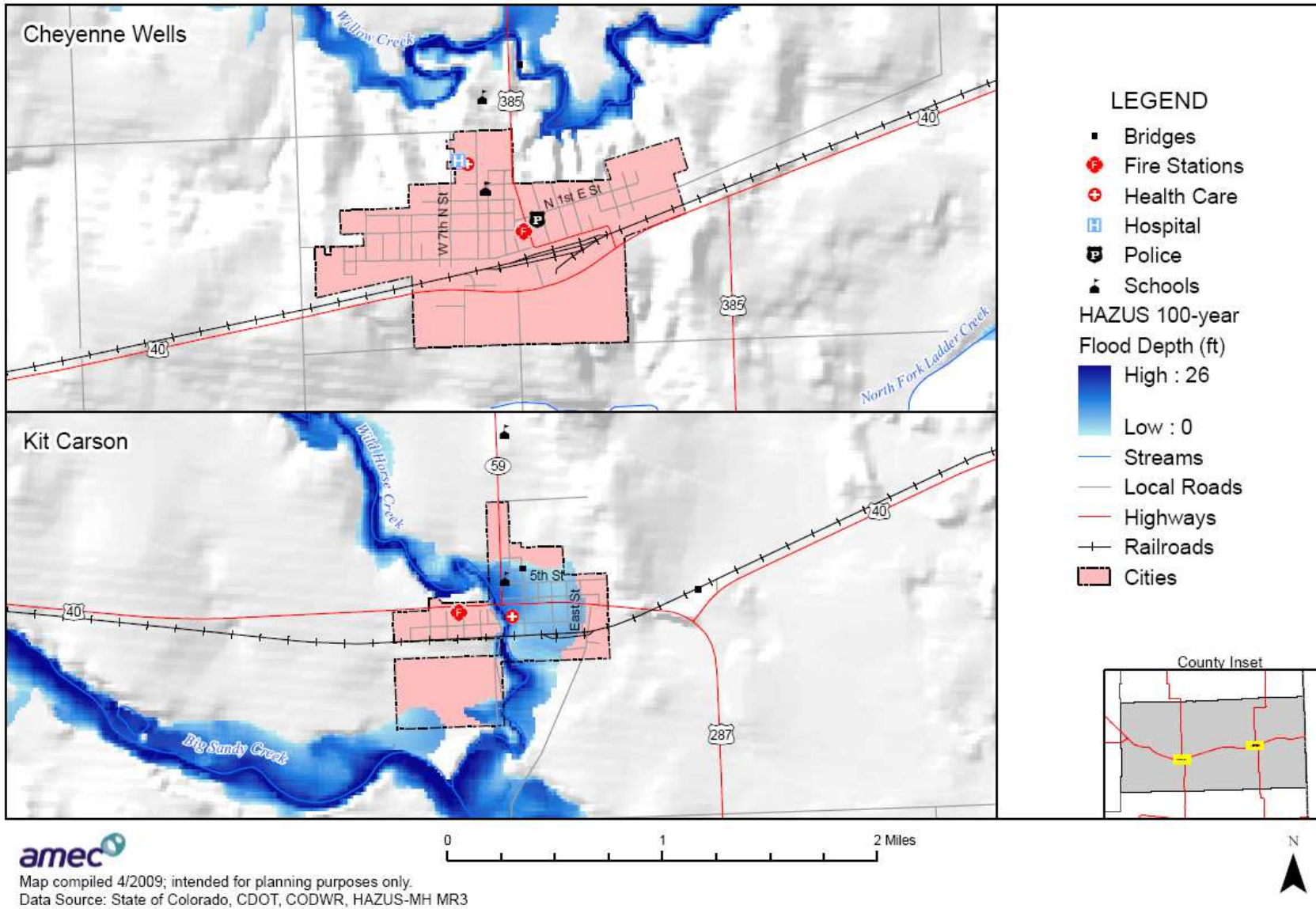


Figure 2 Cheyenne County Cities HAZUS 100-year Floodplain and Critical Facilities Map



HAZUS-MH estimates the potential for over \$6 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 6. According to HAZUS-MH, the City of Kit Carson has the greatest flood risk and majority of the damage with \$4,893,000. 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 Wildhorse Creek which goes through the City of Kit Carson. The HAZUS model does not account for levee protection that may exist. According to the current FEMA FIRMs there are not any levees in Cheyenne County.

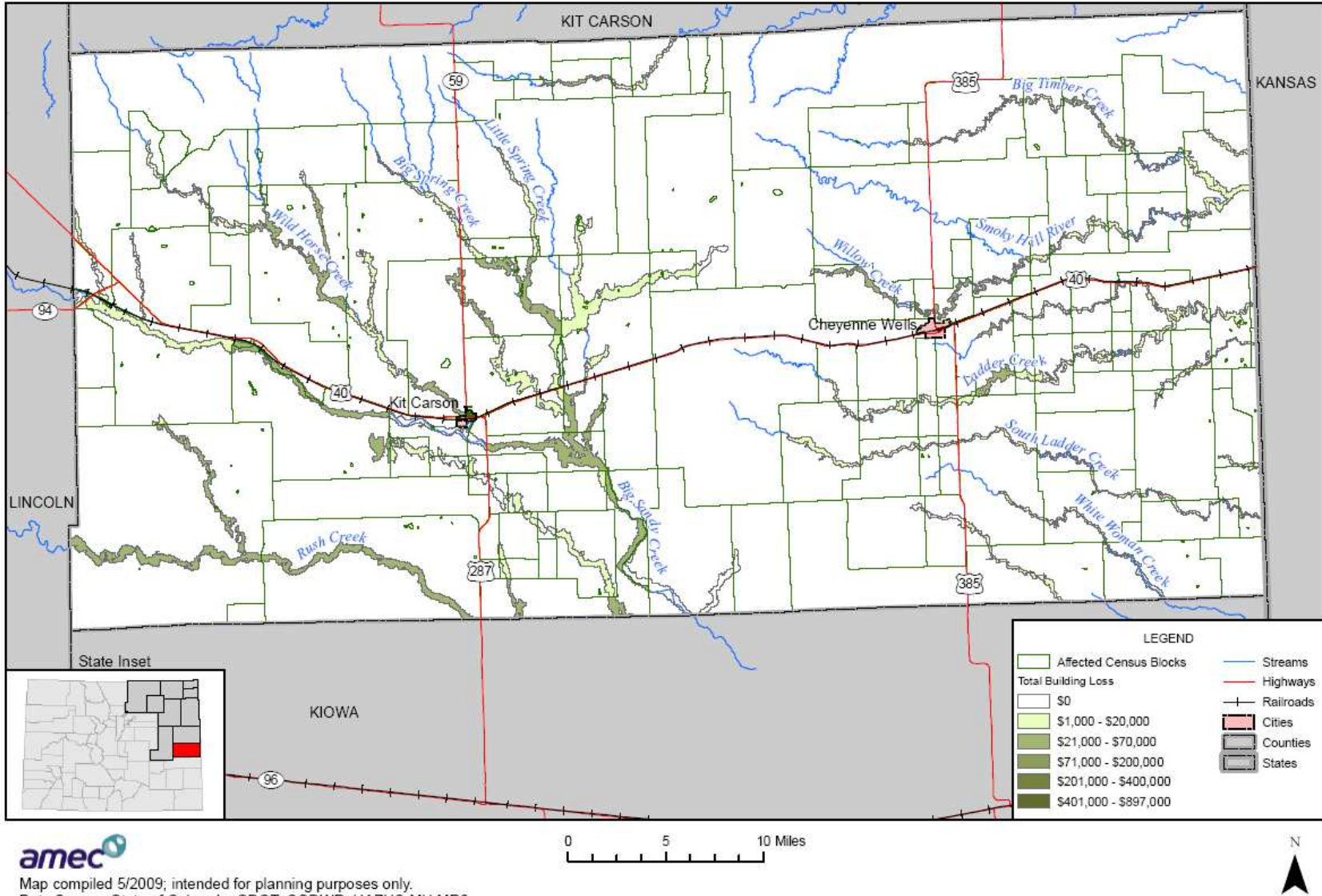
Table 6. Estimated Economic Losses from Flooding

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
Cheyenne Wells	-	-	-	-	-	-	-	-	-	-
Kit Carson	1,809,000	2,980,000	24,000	6,000	9,000	-	65,000	4,893,000	80%	8.7%
Unincorporated	626,000	593,000	39,000	-	-	-	-	1,258,000	20%	1%
Total	2,435,000	3,573,000	63,000	6,000	9,000	-	65,000	6,151,000	100%	1.6%

The building damage loss ratio shown in Table 6 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 multiplying by 100. Loss ratio exceeding 10% are considered significant by FEMA. The city with the highest building damage loss ratio is Kit Carson. Kit Carson has the highest loss ratio of 8.7% with a potential building damage loss of \$1,809,000.

When comparing the HAZUS model results with the current FEMA FIRMs, it was observed that the HAZUS model represents similar flooding to the FIRM within the town of Kit Carson. Cheyenne Wells and Cheyenne County can not be compared since there are not any effective flood maps for them at this time.

Figure 3 Cheyenne County Building Loss in the 100-year Floodplain



Floodplain Population Information

The 2008 State Plan estimates that there are 55 people in the County floodplains. Cheyenne County was identified in the State flood risk assessment as **Low 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 7.

Table 7. Population Displaced by Flooding

Jurisdiction	Displaced Population	Population Needing Shelter
Kit Carson	126	28
Cheyenne County	42	-
Total	168	28

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 8 and shown on the map in Figure 2. In addition, Kit Carson has a sewage lift station that is a critical facility in the floodplain, but is not mapped.

Table 8. Critical Facilities in the Floodplain

Flooded Critical Facility	Name	Near City
Health Care	Kit Carson Clinic	Kit Carson
Natural Gas Facility	Union Pacific Res CO Arapahoe Unit 163	Cheyenne Wells
Natural Gas Facility	Union Pacific Res CO MPU 11x 34 Site	Kit Carson
Natural Gas Facility	Union Pacific Res CO MPU 22 35 Site	Kit Carson
Natural Gas Facility	Union Pacific Res CO MPU 42-33	Kit Carson
Natural Gas Facility	Union Pacific Res CO MPU 44 25 Site	Kit Carson
Natural Gas Facility	Union Pacific Res CO Roth 1 41 27	Cheyenne Wells
Natural Gas Facility	Union Pacific Res CO Williams 6 42-11	Kit Carson

Flooded Critical Facility	Name	Near City
Natural Gas Facility	Union Pacific Res CO MPU 42 35 Site	Kit Carson
School	Kit Carson Elementary School	Kit Carson

Cheyenne 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 is 1 scour critical bridge in Cheyenne County that is located on US 40 at the intersection of Eureka Creek. The location of this bridge is shown in Figure 1, and detail is given in Table 9.

Table 9. Scour Critical Bridges

Name	Road Type	Stream	Near City
US 40	Rural Regional Highway	Eureka Creek	Kit Carson

NFIP Claims Analysis

Policies and Claims Information:

As of 12/31/2008, Cheyenne County does not participate in the NFIP program. There are no policies or claims information for this County. The Town of Kit Carson recently passed an ordinance to join the NFIP program in 2009.

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

Dam Failure Vulnerability Assessment

There are no high or significant hazard dams in Cheyenne County.

Wildfire Vulnerability Assessment

Cheyenne County Wildland Urban Interface

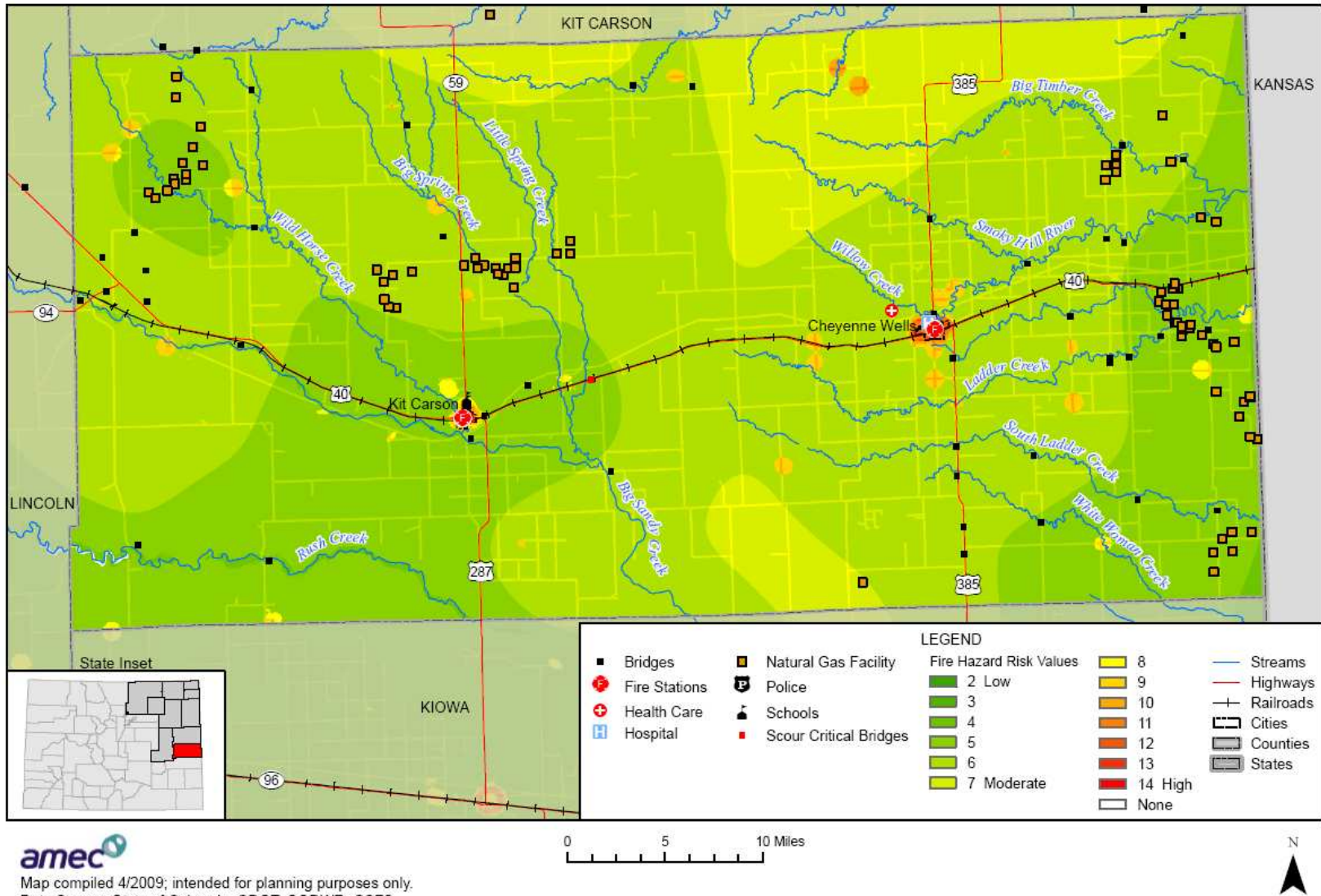
The Wildland Urban Interface in Figure 4 for Cheyenne County shows low to moderate fire hazard risk values throughout the County. The majority of the County has lower values with the higher values around the communities of Cheyenne Wells and Kit Carson. Cheyenne Wells has the highest fire risk in the County with values between moderate and high. Kit Carson's risk values are in the low to moderate range.

Kit Carson and Cheyenne Counties reported the following events:⁷

- February 11, 2005: Kenny Becker Grassland fire, mutual aid with Arriba Fire, location between Rd 2W and Rd 47. Burned approximately 3.5 by 5 mile area, caused by truck fire. Damage and cost estimates are not available.
- July 7, 2005: Large grassland fire, mutual aid with Vona Fire, burned 11 miles north and 2 miles east of Vona. Fire started by lightning. Loss and cost estimates are not currently available.
- July 24, 2005: Grassland fire, mutual aid with Arriba Fire. Location at Rd 48 and 3Y, fire burned approximately 200 acres of CRP grassland. The fire was started by lightning. No loss or cost estimates are currently available.
- June 6, 2006: Large grassfire south of Seibert, mutual aid assistance with Seibert Fire. Cause, cost, and loss estimates are unknown.

⁷ Cheyenne County and Kit Carson County Emergency Manager, 2009 *Community Profile Information Guide*

Figure 4 Cheyenne County Wildland Urban Interface



Map compiled 4/2009; intended for planning purposes only.
 Data Source: State of Colorado; CDOT, CODWR, CSFS,
 Colorado Wildfire Risk Assessment 5/16/2002

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 10. The following narrative describes the community and potentially at risk critical facilities.

There are thirty two Critical Facilities in a moderate to high fire hazard in Cheyenne County. The town of Cheyenne Wells has seven facilities: one fire station, two health care, one hospital, one police station and two schools. The town of Kit Carson has four facilities: one bridge, one fire station, one health care and one school. The unincorporated county has 21 critical facilities in a moderate to high fire hazard: fourteen bridges, four natural gas facilities and three schools.

Table 10. Critical Facilities Subject to Fire Hazard (by type)

Facility Type	Facility Count
Bridges	15
Fire Stations	2
Health Care	3
Hospital	1
Natural Gas Facility	4
Police	1
Schools	6
Total	32

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 corn 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 Cheyenne County that show economic loss are corn and wheat. Corn's total loss is \$1,192,126 and wheat's total loss is \$4,319,851 with a total loss of \$5,511,977. More detail is provided in Table 11.

Table 11. Cheyenne 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	325,125	433,500	433,500	1,192,126
Wheat	0	1,178,141	11,570,855	1,570,855	4,319,851
Total	0	1,503,266	12,004,355	2,004,355	5,511,977

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 \$3.2 million in the County. More details are provided in Table 12 and 13.

Table 12. Cheyenne County Premium and Crop 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
283,261,174	67,423,980	30,923,607	26,500,373	91,295,402	3,260,550

Source: Federal Crop Insurance Services

Table 13. 2008 Cheyenne 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
32,821,054	9,932,091	5,895,552	4,036,539

Source: Federal Crop Insurance Services

Cheyenne 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 capabilities assessment is divided two sections: regulatory mitigation capabilities and additional mitigation projects and capabilities. The regulatory mitigation capabilities for the County and its municipalities are summarized in Table 14. Refer to the Introduction to the County Elements for an explanation of the capability assessment matrix.

Table 14. Regulatory Mitigation Capabilities

	CHEYENNE	Cheyenne Wells	Kit Carson
Comp Plan	Y	Y	Y
Land Use Plan	Y	C	C
Subdivision Ord	N	Y	Y
Zoning Ord	Y	Y	Y
NFIP/FPM Ord	N	N	Y
- Map Date	Not Mapped	Not Mapped	Y-FHMB-12/74
- Sub.Damage?	N/A	N/A	N/A
- Administrator?	N/A	N/A	N/A
- # of FP Bldgs?	0	0	UNKNOWN
- # of policies	0	0	0
- # of RL's?	0	0	0
CRS Rating	N/A	N/A	N/A
Stormwater Prgrm	N	N	N
Building Code	N	N	Everyone requires minimum State Plumbing & Electrical standards
Building Official.	N	N	N
- Inspections?	State P&E	State P&E	Everyone uses same State Plumbing & Electrical inspector
BCEGS Rating	N/A	N/A	N/A
LEOP	Y	C	C
HM Plan	Y-In Progress	Y-In Progress	Y-In Progress

	CHEYENNE	Cheyenne Wells	Kit Carson
Warning	Y	Y	Y
Storm Ready?	Y	C	C
Weather Radio?	Y	Y	Y - Dead Spot @ Wild Horse: Needs repeater
Sirens?	N	Y-1	Y-1
Emergency Warning Notification?	Y	Y	Y
Other?	Y-EAS	Cable over-ride	Cable over-ride
GIS System	N	N	N
Structural Projects	Y-Spread dam	N	N
Property Protection	N	N	N
Crit.Fac.Protection	Y	N	N
Natural Res. Inv.	Y	N	N
Cultural Res. Inv.	Y	Y	Y
Erosion Control	N	N	N
Sediment Control	N	N	N
Pub. Info Prgrm	Y	Y	Y
Env. Ed Prgrm	Y	N	N

Capabilities in Cheyenne County:

The 2009 Data Collection Guide identified the following additional capabilities:

- The Cheyenne Wells school Gymnasium has been built to FEMA community shelter standards, funded with an HMGP grant.
- Shared Communications Project underway
- Surge Hospital is complete
- Shelter programs being implemented with the Red Cross
- The Town of Kit Carson passed an ordinance to monitor and restrict growth in the flood-prone areas of the community. Residents are now NFIP eligible.
- Implementing CERT and MRC programs

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- Community education is ongoing with CERT/MRC programs and Continuity of Operations (COOP) planning.

Additional Vulnerabilities in Cheyenne County:

The 2009 Data Collection Guide identified the following additional vulnerabilities or trends:

- The County continues to experience dry conditions that put the jurisdictions at risk for large grass fire events.
- Crop losses due to dry conditions persist.

Cheyenne County Mitigation Goals and Recommendations

Goal: Improve Cheyenne County Capability to Reduce Disaster Losses

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

Issue Statement: 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. Tornadoes are frequent in Cheyenne County and there are gaps in the warning capability throughout the County. Radio “Repeaters,” siren upgrades, and NOAA Weather Radios are needed. Among the known deficiencies are:

- The need for NOAA Weather Radio “Repeaters” to provide coverage in known “dead spots” (e.g., Wild Horse)
- A siren is needed for Arapahoe. Currently, notification is provided by the Sheriff driving out to Arapahoe, which is not timely.
- NOAA Weather radios are needed in schools, hospital, Post Office, Municipal buildings, and Farm Service Agency (FSA).

Implementation Manager and strategy: Cheyenne County Commissioner, District 3. The County Emergency Manager will contact the National Weather Service, the Communities and the Fire Districts to determine what Cheyenne County needs to accomplish, and then help those entities seek funding through grants to make the necessary improvements. Monitor funding opportunities and potential “partners” in order to obtain the required equipment.

Priority: High

Cost Estimate: \$11,000.

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.

2009 Update: The County has received and distributed NOAA Weather Radios to all government buildings, and is now a NWS Storm Ready community.

Action Item #2: *Cheyenne County should pursue the development of a combined Emergency Operations Center/Communications Center/Shelter for Cheyenne and Kit Carson counties.*

Issue Statement: Currently the Cheyenne County communications is spread out and in unsheltered areas. Co-locating the EOCs with a Communications Center will improve the capabilities of all operations. This activity also provides a step forward towards Storm Ready certification by the NWS. The end goal is for each county to have its own underground communications center, with one serving as the back-up to the other during any type of disaster event.

Implementation Manager and strategy: Elected Officials of Cheyenne and Kit Carson Counties.

Priority: High

Cost Estimate: Approximately \$500,000. Funding can be obtained through bonds, grants, and E-911 fees.

Cost-Effectiveness Explanation: This would provide a long-term solution to the lack of a cohesive and coordinated communications system and Emergency Management facility. The proposed Center would serve 4,200 square miles, and serve as a shelter, as well.

2009 Update: The County is migrating to 800 MHz system with Kit Carson County. This is still in progress while infrastructure issues are worked out. The timeframe is dependent on the resolution of the infrastructure concerns, but the high priority indicates that the duration of implementation will be accelerated to the greatest extent possible.

Action Item #3: *Purchase and install 20 Heartland Underground shelters, 10 in Cheyenne County and 10 in Kit Carson County.*

Issue Statement: On average, both counties have experienced more than one tornado each year. While damage has been minimal to date, it is merely a matter of time before a more serious event occurs. There are few places for people to take shelter throughout the county, and several locations within the county where the need is more critical due to the number of people in the vicinity, or the inability of those in these areas to find safe shelter quickly in an alternate location. Among the known locations where shelters would be most useful, are area parks, ballparks, and tourist locations.

Implementation Manager and strategy: County Emergency Manager, in conjunction with the communities of Cheyenne Wells, Kit Carson, Kit Carson School District, Cheyenne County School District, special needs facilities, and NWS, CO-OEM and FEMA.

Priority: High

Cost Estimate: \$160,000, or \$8,500 each. In kind labor is available through the communities to help defray the construction costs and meet the “match” requirements of most grants. In addition, some existing buildings may have areas suitable for providing protection, such as basements in the city center.

Cost-Effectiveness Explanation: Preventing one loss of life or serious injury from wind or other hazards would be worth the expense. Tornado hazards are very frequent.

2009 Update: There is currently no money for this program, but it is still being encouraged. Until funding can be procured, no realistic timeframe can be established.

Action Item #4: *The Town of Kit Carson should reconsider joining the NFIP.*

Issue Statement: Due to their lack of participation in the NFIP, people in Kit Carson cannot obtain flood insurance, even if they wanted to. Not participating in the NFIP also makes Kit Carson ineligible for PDM, FMA and some HMGP \$ from FEMA.

Implementation Manager and Strategy: The Town of Kit Carson through their Town Council or Manager should invite the CWCB to explain the “pros and cons” of joining the NFIP to the City Council. Council will then make a decision regarding joining the NFIP.

Priority: Medium

Cost Estimate: No new expenses. Someone will need to verify that new construction in floodplain is properly constructed. The easiest method of implementation would be to not allow new buildings, or substantial improvements to existing buildings, within the mapped floodplain of Kit Carson.

Cost-Effectiveness Explanation: There is no increased cost to the Town. The benefits are to building owners who choose to insure against flood losses, and to taxpayers who no longer would have to subsidize those losses.

2009 Update: The project is completed. The Town of Kit Carson passed an ordinance to monitor and restrict growth in the flood-prone areas of the community. Residents are now NFIP eligible.

Action Item #5: *Implement a Countywide Emergency Management Public Education Program.*

Issue Statement: The Cheyenne County CPS identified two areas of concern that can be effectively addressed through an Emergency Management Public Education program. The information that needs to be disseminated includes:

- Promoting continued crop insurance coverage. The largest hazard losses each year in Cheyenne County are agricultural. Crop insurance claims have returned more than 4-to-1 to those that chose to invest in it. The agricultural community would have an interest in these statistics.
- An explanation to purchasers of in-line phone “zappers” that these devices will not allow Emergency Warning Notification systems to reach them while they perform their function of blocking any computer generated call to get their telephone.
- Encourage community preparedness and coordinate with public health and the school districts
- Provide County health information in Spanish
- Involve PH link

Implementation Manager and strategy: County Emergency Manager, in conjunction with the FSA (for promoting Crop Insurance) and electronic device dealers in the Cheyenne County area, and the communities of Cheyenne Wells, Kit Carson, Kit Carson School District, and Cheyenne County School District,

Priority: Medium

Cost Estimate: \$2,000 to pay for producing and mailing posters, “flyers,” handouts, and envelope “inserts.”

Cost-Effectiveness Explanation: Public Education programs are generally inexpensive and are one of the more effective means of communicating useful information to people so that they may take effective actions to protect themselves from loss of property or harmful injuries in emergency and disaster events. There are FEMA funds available through CO-OEM following presidentially declared disaster areas that can be utilized for such efforts without requiring a cost/benefit analysis. In addition, this ensures that all participating jurisdictions in the County, as well as unincorporated portions of the county, have at least one action item in the plan in which they may directly participate.

2009 Update: There is an ongoing annual program with Public Health. The County is completely covered with NOAA Weather Radios, including government offices and special needs individuals. Cheyenne Wells bought and provided radios at a discount with a State Hazard Mitigation Program Grant. The timeframe is ongoing and indefinite, as public education is a continuous effort.

Other actions being considered by the County:

- Utilize the tornado safe room demonstration developed by Morgan County at County fairs and other public events.
- Develop Continuity of Operations/Continuity of Government Plans (high priority, funding through SHMP)
- Develop a mass care annex for the emergency operations plan (ESF 6)

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

- Create regional communication/public notification improvements (see description in Lincoln County Planning Element)
 - Reverse 911 directories in the three county area
 - Schools
 - Digital conversion issues

Wildfire actions (tri-county region) – all High priority

The following actions are wildfire mitigation actions written for the 9 county region that the County, West Cheyenne Fire Protection District and Cheyenne County #1 Fire Protection District will undertake or participate in (See appendix C for details).

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