Teller County
Multi-Hazard Mitigation Plan

August 2008

Woodland Park

TELLER COUNTY 1899 COLORADO

THE CITY OF CRIPPLE CREEK COLORADO

Teller County
Multi-Hazard Mitigation Plan

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Developed by Teller County with professional planning assistance from
AMEC Earth and Environmental, Denver, CO
Hazard Mitigation and Emergency Management Programs

Table of Contents

Chapters

Appendices

1 Introduction

1.1 Purpose

Teller County, including all participating jurisdictions, has prepared this local hazard mitigation plan to guide hazard mitigation planning to better protect the people and property of the County from the effects of hazard events. This plan demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This plan was also developed to make Teller County and participating jurisdictions eligible for certain federal disaster assistance, specifically, the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation program.

1.2 Background and Scope

Each year in the United States, disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated.

Hazard mitigation is defined by FEMA as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of $4 in avoided future losses in addition to saving lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2005).

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are determined, prioritized, and implemented. This plan documents Teller County's hazard mitigation planning process, identifies relevant hazards and risks, and identifies the strategy the County and participating jurisdictions will use to decrease vulnerability and increase resiliency and sustainability.

Teller County's Multi-Hazard Mitigation Plan is a multi-jurisdictional plan that geographically covers everything within Teller County's jurisdictional boundaries. Unincorporated Teller

County and the cities of Cripple Creek and Woodland Park participated in the planning process and are seeking FEMA approval of this plan.

This plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002 (44 CFR §201.6) and finalized on October 31, 2007. (Hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act.) While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that local hazard mitigation plans must meet in order for a local jurisdiction to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288). Because the Teller County planning area is subject to many kinds of hazards, access to these programs is vital.

Information in this plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to the community and its property owners by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption. The Teller County planning area has been affected by hazards in the past and is thus committed to reducing future disaster impacts and maintaining eligibility for federal funding.

1.3 Plan Organization

The Teller County Multi-Hazard Mitigation Plan is organized as follows:

- Chapter 2: Community Profile
- Chapter 3: Planning Process
- Chapter 4: Risk Assessment
- Chapter 5: Mitigation Strategy
- Chapter 6: Plan Adoption
- Chapter 7: Plan Implementation and Maintenance
- Appendices

2 Community Profile

2.1 Geography and Climate

Teller County is located in south-central Colorado with a total area of 559 square miles, ranging in elevation from 8,000 feet at Woodland Park to over 11,000 feet in the high country. The landscape lies in a transition zone between the short grass prairies of the High Plains and the eastern edge of the Rocky Mountain Front Range. The physical geography of Teller County is dominated by the west slopes of Pikes Peak, a 14,000+ feet summit on the eastern edge of the Colorado Front Range. Lower elevations are typified by forested slopes and rugged river gorges. Major river drainages are the Arkansas and Upper South Platte.

Due to its diverse topography, the climate of Teller County is highly varied and conditions can change quickly. There is also a great variation of weather conditions across the seasons. Average temperature tends to decrease with increases in elevation, roughly 4 degrees per 1000 feet, with subzero temperatures common in winter. The majority of snowfall occurs during March and April. Due to the generally high elevation of the County, summers are relatively cool and while precipitation is normally highest in the months of July and August, in certain years the summer months can be very dry. Early fall tends to be temperate and dry. Total annual precipitation is 16 inches coming mostly in spring and summer. Based on information from the National Oceanic and Atmospheric Administration (NOAA), Teller County receives an average of 5,700 cloud to ground lightning strikes per year, the second highest total in the nation (NOAA).

A base map of Teller County is illustrated in Figure 2.1.

2.2 Population

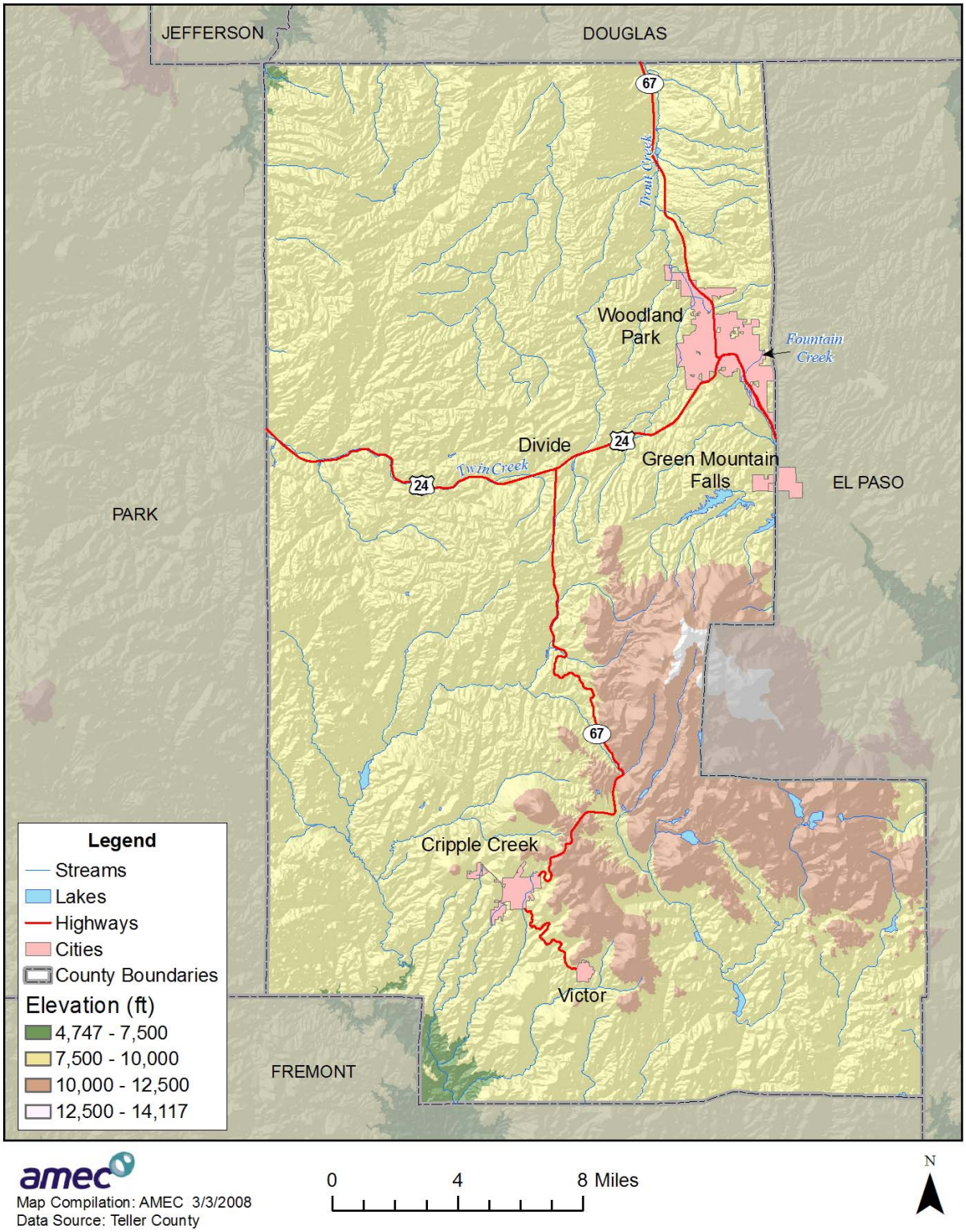
According to information from the Colorado Department of Local Affairs (DOLA), the estimated population of Teller County in 2006 was 22,726. Population increased 10.6 percent for the period of 2000-2006 (DOLA) and 64.9 percent for the period 1990-2000 (U.S. Census). The Cities of Woodland Park and Cripple Creek are the County's principal population centers. Population estimates for the year 2006 for each of the incorporated cities and the unincorporated county are provided in Table 2.1.

Table 2.1. Teller County 2006 Population Estimates

Jurisdiction	April 2000	July 2006
City of Woodland Park	6,515	7,223
City of Cripple Creek	1,115	1,083
Unincorporated Teller County	12,434	13,917
Total Teller County	**20,555**	**22,726**

Source: Colorado Department of Local Affairs, www.dola.colorado.gov/

Figure 2.1 Teller County



Select Census 2000 demographic and social characteristics for Teller County are shown in Table 2.2.

Table 2.2. Teller County Demographic and Social Characteristics

Characteristic	Teller County	City of Woodland Park	City of Cripple Creek
Gender/Age			
Male	50.7 %	50.1%	51.0%
Female	49.3%	49.9%	49.0%
Under 5 years	5.7%	6.2%	5.0%
65 years and over	7,5%	6.5%	8.0%
Race/Ethnicity (one race)			
White	94.9%	94.9%	92.3%
American Indian/Alaska Native	1.0%	0.7%	2.2%
Asian	0.6%	0.9%	0.8
Black or African American	0.5%	0.5%	0.9
Hispanic or Latino (of any race)	3.5%	3.5%	6.0%
Education			
High school graduate or higher	94.0%	97.0%	88.3%

Source: U.S. Census Bureau, 2000, www.census.gov/

2.3 History

Teller County was officially founded in 1899, and is named after Henry M. Teller, one of Colorado's first senators. Prior to 1890 Teller County was a very sparsely populated passage route via the Ute Pass Trail for Native Americans, explorers, prospectors, and cowboys. The first permanent settlement was at the summit of the Ute Trail at what is now the town of Divide.

In 1890, a cowboy and prospector named Bob Womack discovered gold near Cripple Creek and in ten years the population of that section of the County had increased to over 50,000. The value of the gold mined in Teller County is estimated to be greater than that of all other gold mining operations in the U.S. combined. The County's current largest city, Woodland Park, was originally named Manitou Park and was also formed around 1890, as a train stop along the Midland Railroad.

Teller County's ancient history is also on display at Florissant Fossil Beds National Monument. Created in 1969, huge examples of petrified redwood and excellent specimens of fossilized insects and plants attract nearly 60,000 visitors each year.

2.4 Government

Cripple Creek is the county seat for Teller County. The other incorporated communities are the town of Victor and Woodland Park. County government is made up of the offices shown in Table 2.3.

Table 2.3. Teller County Offices and Departments

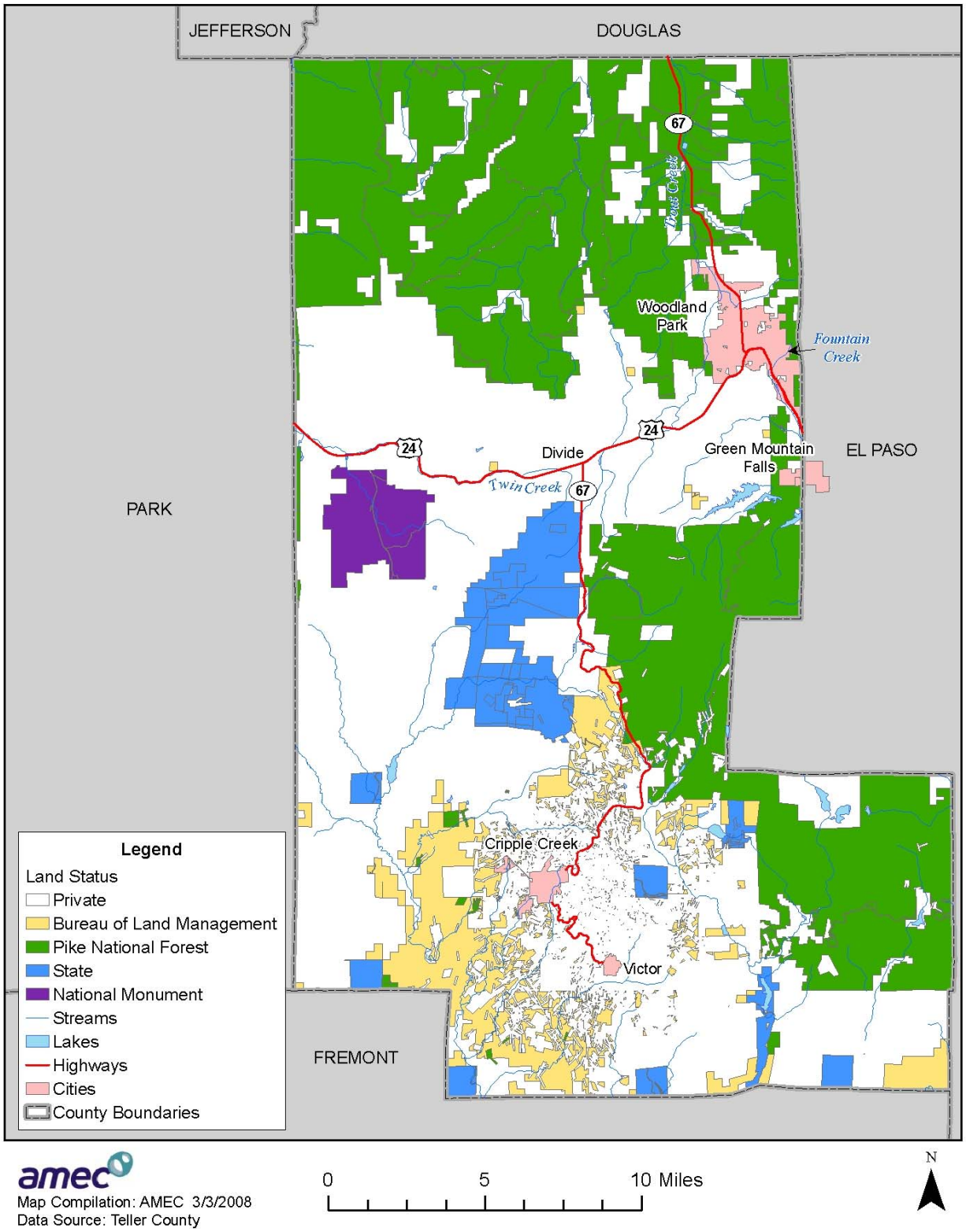
Division	Office/Department Name
Offices	
	Assessor
	Clerk and Recorder
	Commissioners
	Community Development Services Division
	Sheriff
	Treasurer
Departments	
	Administration
	Coroner
	Colorado State University Extension
	Emergency Management
	Finance
	Human Resources
	Information Technology
	Public Health
	Public Works
	Department of Social Services
	Veterans Services

Source: Teller County

There are two unincorporated communities with city governments, Divide and Florissant. The two school districts are Cripple Creek-Victor School District (RE1) and Woodland Park School District (RE2).

Over 170,000 acres of Teller County is public land managed by federal, state and local agencies, most notably the U.S. Forest Service (Pike National Forest), and National Park Service (Florissant Fossil Beds National Monument). The Colorado Department of Outdoor Recreation manages Mueller State Park and Wildlife Area. Land status is shown in figure 2.2.

Figure 2.2 Teller County Land Status



2.5 Economy

According to the 2000 Census, the highest employment sectors by percentage for Teller County are arts, entertainment, recreation, accommodation and food services (16%); educational, health, and social services (14.6 percent); construction (12.1 percent); and retail trade (11.1 percent).

Select economic characteristics for Teller County from the 2000 Census are shown in Table 2.4.

Table 2.4. Teller Economic Characteristics

Characteristic	Teller County	City of Woodland Park	City of Cripple Creek
Families below poverty level, 1999	3.4%	1.8%	4.7%
Individuals below poverty level, 1999	5.4%	3.7%	6.4%
Median home value	$162,000	$165,000	$95,700
Median household income, 1999	$50,165	$52,279	$39,261
Per capita income, 1999	$23,412	$22,780	$19,607
Population in Labor Force	11,493	3,771	702
Population Employed	19,980	3,646	23
Unemployment	2.9%	0.9%	2.6%

Source: U.S. Census Bureau (2000), www.census.gov/

3 Planning Process

Requirements §201.6(b) and §201.6(c)(1): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

1) **An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;**
2) **An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests to be involved in the planning process; and**
3) **Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.**

[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

The planning process and development of this plan was initiated in December of 2007 under the coordination of the Teller County Emergency Manager. Funding was secured through a Flood Mitigation Assistance planning grant from the Colorado Water Conservation Board to enable a consultant to be hired to facilitate the process and develop the plan. AMEC Earth and Environmental (AMEC) of Lakewood, Colorado, contracted with the County to provide professional planning services.

Previous work to develop a hazard mitigation plan for the County began in 2004. The planning process included a community-wide survey that measured the concern of citizens regarding various natural and man-made hazards. An initial version of the Teller County All Hazard Mitigation Plan was submitted to FEMA in 2005. Upon this review it was determined that additional work was needed to meet the Disaster Mitigation Act (DMA) planning regulations. Additional work on the plan was suspended until the County obtained grant funds to acquire consultant assistance in 2007.

3.1 Local Government Participation

The Disaster Mitigation Act (DMA) requires that each local government seeking FEMA approval of their mitigation plan must participate in the planning effort in the following ways:

- Participate in the process as part of the Hazard Mitigation Planning Committee (HMPC),
- Detail areas within the planning area where the risk differs from that facing the entire area,
- Identify specific projects to be eligible for funding, and
- Have the governing board formally adopt the plan.

For the Teller County Multi-Hazard Mitigation Plan's HMPC, "participation" meant:

- Attending and participating in the HMPC meetings,
- Providing available data requested of the HMPC,
- Reviewing and providing comments on the plan drafts,
- Advertising, coordinating, and participating in the public input process, and
- Coordinating the formal adoption of the plan by the governing boards.

Teller County's Multi-Hazard Mitigation Plan is a multi-jurisdictional plan that geographically covers everything within Teller County's jurisdictional boundaries. Unincorporated Teller County, the City of Cripple Creek, and the City of Woodland Park participated in the planning process and are seeking FEMA approval of this plan.

3.2 The 10-Step Planning Process

AMEC established the planning process for Teller County's plan using the DMA planning requirements and FEMA's associated guidance. This guidance is structured around a four-phase process:

1) Organize Resources
2) Assess Risks
3) Develop the Mitigation Plan
4) Implement the Plan and Monitor Progress

Into this four-phase process, AMEC integrated a more detailed 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs. Thus, the modified 10-step process used for this plan meets the requirements of six major programs: FEMA's Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, Community Rating System, Flood Mitigation Assistance Program, Severe Repetitive Loss program, and new flood control projects authorized by the U.S. Army Corps of Engineers.

Table 3.1 shows how the modified 10-step process fits into FEMA's four-phase process.

Table 3.1. FEMA's 4-Phase Process and the 10-Step CRS Process Used to Develop Teller County's Local Hazard Mitigation Plan

FEMA's 4-Phase DMA Process	Modified 10-Step CRS Process
1) Organize Resources	
201.6(c)(1)	1) Organize the Planning Effort
201.6(b)(1)	2) Involve the Public
201.6(b)(2) and (3)	3) Coordinate with Other Departments and Agencies
2) Assess Risks	
201.6(c)(2)(i)	4) Identify the Hazards
201.6(c)(2)(ii)	5) Assess the Risks
3) Develop the Mitigation Plan	
201.6(c)(3)(i)	6) Set Goals
201.6(c)(3)(ii)	7) Review Possible Activities
201.6(c)(3)(iii)	8) Draft an Action Plan
4) Implement the Plan and Monitor Progress	
201.6(c)(5)	9) Adopt the Plan
201.6(c)(4)	10) Implement, Evaluate, and Revise the Plan

3.2.1 Phase 1: Organize Resources

Planning Step 1: Organize the Planning Effort

AMEC worked with Teller County's Emergency Manager to establish the framework and organization for the development of this Plan. AMEC and the Emergency Manager identified the key county, municipal, and other local government and initial stakeholder representatives. Letters were mailed to invite them to participate as a member of the HMPC and to attend a kickoff meeting. Table 3.2 lists the County and municipal departments who participated on the HMPC and assisted in the development of the plan.

Table 3.2. Teller County Hazard Mitigation Planning Committee Framework

Teller County	Municipalities	Districts
Emergency Management	Woodland Park	NE Teller Fire
Sheriff	Cripple Creek	Divide Fire/Memorial Health
Public Works	Victor	
Assessor		
Planning		
Health		
Building		
Administration		
Assessor		
Public Health		
GIS		

A list of specific HMPC representatives is included in Appendix B.

During the planning process, the HMPC communicated with a combination of face-to-face meetings, phone interviews, email correspondence, and an ftp (file transfer protocol) site. Three planning meetings with the HMPC were held during the plan's development between December 2007 and May 2008. The meeting schedule and topics are listed in the following table. All meetings were held at the Northeast Teller County Fire Station #1 in Woodland Park and were approximately 3 hours long. The sign-in sheets and agendas for each of the meetings are on file with the County emergency manager.

Table 3.3. Schedule of HMPC Meetings

HMPC Meeting	Meeting Topic	Meeting Date
1	Introduction to DMA Planning/Kickoff Meeting	December 20th, 2007
2	Risk Assessment Summary/Goals Development	March 26th, 2008
3	Mitigation Strategy Development	April 15, 2008

During the kickoff meeting, the AMEC project manager presented information on the scope and purpose of the plan, participation requirements of HMPC members, and the proposed project work plan and schedule. A plan for public involvement (Step 2) and coordination with other agencies and departments (Step 3) were discussed. AMEC's project manager also introduced preliminary hazard identification information for the county, and HMPC members refined the list of identified hazards. Participants were provided worksheets to facilitate the collection of information needed to support the plan, such as data on historic hazard events, values at risk, and current capabilities.

Planning Step 2: Involve the Public

The planning process was an open one, with the public informed and involved from the very beginning. In 2004 the County developed and distributed a questionnaire to survey public opinion on the threats facing Teller County. Over 6,000 surveys were mailed out, with 2,200 respondents. Wildland fire topped the list as the most considerable threat to the County. The results of this survey, and survey instrument, are provided in Appendix D.

A reporter for the *Pikes Peak Courier View* was present at each of the HMPC meetings. Articles summarizing the meetings were published in the newspaper and made available online.

A public meeting was held as part of the planning process. This was held on May 1st, 2008 at the Divide Fire Department, in conjunction with a regularly scheduled Local Emergency Planning Committee (LEPC) meeting. Advertisements were placed in the local newspaper (*Pikes Peak Courier View*), encouraging residents to attend and share their ideas, stories and concerns regarding the natural hazards that affect Teller County's communities. Present were thirty three persons including members of the public, the AMEC project manager, and the

County emergency manager. Representatives included citizen volunteers, local Citizen Emergency Response Team members, Fire Corp members and local business/industry representatives from the Cripple Creek/Victor Gold Mining Company and Wal Mart. The planning process and risk assessment was introduced by the AMEC project manager, and input was solicited regarding local hazards and specific concerns.

The public was given an opportunity to review and comment on the draft plan. Teller County made it available on their website at www.co.teller.co.us. Hard copies were also made available at the Woodland Park Public and Florissant libraries, the County administration building and city halls for Woodland Park and Cripple Creek. The public was given between July 23rd and August 11th, 2008, to review and provide comments. No public comments were received. Record of public advertisements, the public meeting, and sign-in sheets are on file with the County emergency manager.

Planning Step 3: Coordinate with Other Departments and Agencies

Early in the planning process, the HMPC determined that data collection, mitigation strategy development, and plan approval would be greatly enhanced by inviting state and federal agencies and organizations to participate in the process. Based on their involvement in hazard mitigation planning, their landowner status in the County, and/or their interest as a neighboring jurisdiction, representatives from the following agencies were invited to participate on the HMPC.

- Colorado Division of Emergency Management*
- Colorado State Forest Service
- Colorado State Parks
- NE Teller Fire District*
- Divide Fire/Memorial Health*
- Ute Pass EMS*
- U.S. Bureau of Land Management
- U.S. Forest Service
- U.S. Park Service*
- National Weather Service*
- Coalition for the Upper South Platte
- Downtown Development Authority-Woodland Park

* Participated in HMPC meetings

In addition the development of the plan was advertised and discussed at Fire Chiefs Association meetings and LEPC meetings.

Other Community Planning Efforts and Hazard Mitigation Activities

Coordination with other community planning efforts is also paramount to the success of this plan. Hazard mitigation planning involves identifying existing policies, tools, and actions that

will reduce a community's risk and vulnerability from natural hazards. The jurisdictions that are party to this plan use a variety of comprehensive planning mechanisms, such as master plans and ordinances, to guide growth and development. Integrating existing planning efforts and mitigation policies and action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from the following existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions:

- Teller County Land Use Regulations
- Teller County Community Wildfire Protection Plan
- Colorado Mountain Estates Community Wildfire Protection Plan
- City of Woodland Park Master Plan
- Cripple Creek Master Plan
- Teller County Road Maintenance and Improvement Plan
- Teller County Master Plan for Parks Trails and Open Space

Other documents were reviewed and considered, as appropriate, during the collection of data to support Planning Steps 4 and 5, which include the hazard identification, vulnerability assessment, and capability assessment.

3.2.2 Phase 2: Assess Risks

Planning Steps 4 and 5: Identify the Hazards and Assess the Risks

AMEC led the HMPC in an exhaustive research effort to identify and document all the hazards that have, or could impact the planning area. Data collection worksheets were used in this effort to aid in determining hazards and vulnerabilities and where risk varies across the planning area. Where data permitted, Geographic Information Systems (GIS) were used to display, analyze, and quantify hazards and vulnerabilities. The HMPC also conducted a capability assessment to review and document the planning area's current capabilities to mitigate risk and vulnerability from natural hazards. By collecting information about existing government programs, policies, regulations, ordinances, and emergency plans, the HMPC can assess those activities and measures already in place that contribute to mitigating some of the risks and vulnerabilities identified. A more detailed description of the risk assessment process and the results are included in **Chapter 4 Risk Assessment**.

3.2.3 Phase 3: Develop the Mitigation Plan

Planning Steps 6 and 7: Set Goals and Review Possible Activities

AMEC facilitated brainstorming and discussion sessions with the HMPC that described the purpose and the process of developing planning goals and objectives, a comprehensive range of mitigation alternatives, and a method of selecting and defending recommended mitigation

actions using a series of selection criteria. This process and its results are described in greater detail in **Chapter 5 Mitigation Strategy**.

HMPC members developing and analyzing mitigation actions, April 15 2008.

Planning Step 8: Draft an Action Plan

Based on input from the HMPC regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7, AMEC produced a complete first draft of the plan. This complete draft was posted for HMPC review and comment on the project ftp site. Other agencies were invited to comment on this draft as well. HMPC and agency comments were integrated into the second draft, which was advertised and distributed to collect public input and comments. AMEC integrated comments and issues from the public, as appropriate, along with additional internal review comments and produced a final draft for the Colorado Division of Emergency Management, Colorado Water Conservation Board and FEMA Region VIII to review and approve, contingent upon final adoption by the governing boards of each participating jurisdiction.

3.2.4 Phase 4: Implement the Plan and Monitor Progress

Planning Step 9: Adopt the Plan

In order to secure buy-in and officially implement the plan, the plan was adopted by the governing boards of each participating jurisdiction on the dates included in the adoption resolutions in **Appendix A Plan Adoption**.

Planning Step 10: Implement, Evaluate, and Revise the Plan

The true worth of any mitigation plan is in the effectiveness of its implementation. Up to this point in the planning process, all of the HMPC's efforts have been directed at researching data, coordinating input from participating entities, and developing appropriate mitigation actions. Each recommended action includes key descriptors, such as a lead manager and possible funding sources, to help initiate implementation. An overall implementation strategy is described in **Chapter 7 Plan Implementation and Maintenance**.

Finally, there are numerous organizations within the Teller County planning area whose goals and interests interface with hazard mitigation. Coordination with these other planning efforts, as addressed in Planning Step 3, is paramount to the ongoing success of this plan and mitigation in Teller County and is addressed further in Chapter 7. A plan update and maintenance schedule and a strategy for continued public involvement are also included in Chapter 7.

4 RISK ASSESSMENT

44 CFR Requirement 201.6(c)(2): [The plan shall include] a risk assessment that provides the factual basis for activities proposed in the strategy to reduce the losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

As defined by the Federal Emergency Management Agency (FEMA), risk is a combination of hazard, vulnerability, and exposure. "It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage."

The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards. The process allows for a better understanding of a jurisdiction's potential risk to natural hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

This risk assessment followed the methodology described in the FEMA publication *Understanding Your Risks—Identifying Hazards and Estimating Losses* (2002), which breaks the assessment down to a four-step process:

1) Identify Hazards
2) Profile Hazard Events
3) Inventory Assets
4) Estimate Losses

Data collected through this process has been incorporated into the following sections of this chapter:

- **Section 4.1 Hazard Identification** identifies the hazards that threaten the planning area and describes why some hazards have been omitted from further consideration.
- **Section 4.2 Hazard Profiles** discusses the threat to the planning area and describes previous occurrences of hazard events and the likelihood of future occurrences.
- **Section 4.3 Vulnerability Assessment** assesses the County's total exposure to natural hazards, considering assets at risk, critical facilities, and future development trends.

While not required by FEMA, the Hazard Mitigation Planning Committee (HMPC) also conducted a mitigation capability assessment, which inventoried existing mitigation activities and existing policies, regulations, and plans that pertain to mitigation and can affect net vulnerability. The findings from this undertaking are in **Section 4.4 Mitigation Capabilities Assessment.**

4.1 Hazard Identification

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type…of all natural hazards that can affect the jurisdiction.

The Hazard Mitigation Planning Committee (HMPC) conducted a hazard identification study to determine the hazards that threaten the planning area.

4.1.1 Results and Methodology

Using existing hazards data, plans from participating jurisdictions, and input gained through planning and public meetings, the HMPC agreed upon a list of hazards that could affect Teller County. A public survey on hazards conducted in 2004 (see Appendix D) provided a basis for the hazard identification. Hazards data from FEMA, the Colorado Division of Emergency Management (including the State of Colorado Natural Hazards Mitigation Plan), the National Oceanic and Atmospheric Administration, the Spatial Hazard Events and Losses Database for the United States (SHELDUS), and many other sources were examined to assess the significance of these hazards to the planning area. The hazards evaluated in this plan include those that have occurred historically or have the potential to cause significant human and/or monetary losses in the future.

The following hazards, listed alphabetically, were identified and investigated for the Teller County Multi-Hazard Mitigation Plan:

- Dam Failure
- Drought
- Earthquake
- Extreme Temperatures
- Flood
- Hailstorm
- Hazardous Materials Incident
- Landslide/Mud and Debris Flow/Rockfall
- Lightning
- Pandemic Flu
- Severe Winter Storm
- Soil Erosion
- Tornado
- West Nile Virus
- Wildfire
- Windstorm

Members of the HMPC used a hazards worksheet to identify and rate the significance of a variety of possible hazards. Significance was measured in general terms, focusing on key criteria such as the likelihood of the event, past occurrences, spatial extent, and damage and casualty potential. Table 4.1 shows the results of the hazards worksheet that identifies and rates the hazards included in this plan and is a composite that includes input from all the participating jurisdictions. Only the more significant hazards (high or medium) have a more detailed hazard profile and are analyzed further in Section 4.3 Vulnerability Assessment, to the extent possible based on the nature of the hazard and available data. Note that the significance of the hazard may vary from jurisdiction to jurisdiction. Some modifications were made to the original HMPC input based on the results of this risk assessment.

Table 4.1. Teller County Hazard Identification Worksheet

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Dam Failure	Significant	Occasional	Limited	Medium
Drought	Extensive	Likely	Critical	High
Earthquake	Extensive	Occasional	Critical	Medium*
Extreme Temperatures	Extensive	Likely	Limited	Low
Flood	Significant	Highly Likely	Limited	Medium
Hailstorm	Extensive	Likely	Limited	Medium
Hazardous Materials Incident	Limited	Highly Likely	Limited	Medium
Landslide/Mud and Debris Flow/Rockfall	Limited	Likely	Limited	Medium
Lightning	Extensive	Likely	Limited	Medium
Pandemic Flu	Significant	Occasional**	Critical	Medium
Severe Winter Storm	Extensive	Highly Likely	Catastrophic	High
Soil Erosion	Extensive	Highly Likely	Negligible	Low
Tornado	Limited	Likely	Negligible	Low
West Nile Virus	Limited	Likely	Negligible	Low
Wildfire	Significant	Highly Likely	Catastrophic	High
Windstorm	Significant	Highly Likely	Limited	Low

* Considered High in Cripple Creek and Woodland Park

**Based on occurring anywhere in the United States

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

Other hazards were considered by the HMPC but ultimately not included in this plan. Thunderstorm is not identified as an individual hazard, but is recognized for its role in the flood, lightning, and windstorm hazards. Hazards that were excluded because they are not experienced in Teller County include coastal erosion, coastal storm, expansive soils (Teller County's soils are largely gravelly), hurricane, land subsidence, levee failure (there are no levees in the County), tsunami, and volcano. Although avalanches do occur on Pikes Peak, the hazard was excluded from the plan because people and property are not likely to be affected by these events. Other natural hazards included in the 2004 public survey (see Appendix D) were asteroid impact, urban fire, and contaminated water. Asteroid impacts are not profiled further due to their extremely low probability of occurrence. Urban fire and contaminated water, while considered "some threat" by the public, are addressed to some degree in the wildfire, flood and drought hazard profiles. Man-made hazards in the survey included military accident, multi-car accident, airplane crash, hazardous materials, terrorism, riot, and prison escape. Hazardous materials is the only man-made hazard addressed in this plan. While the HMPC discussed the desire to include the other man-made hazards, it was the general consensus that the initial version of this plan should focus on the natural hazards (which are required by FEMA), and to incorporate man-made hazards in future updates to this plan.

4.1.2 Disaster Declaration History

One method the HMPC used to identify hazards was the researching of past events that triggered federal and/or state emergency or disaster declarations in the planning area. Federal and/or state disaster declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. Should the disaster be so severe that both the local and state governments' capacities are exceeded, a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance.

The federal government may issue a disaster declaration through FEMA, the U.S. Department of Agriculture (USDA), and/or the Small Business Administration (SBA). FEMA also issues emergency declarations, which are more limited in scope and without the long-term federal recovery programs of major disaster declarations. The quantity and types of damage are the determining factors.

A USDA declaration will result in the implementation of the Emergency Loan Program through the Farm Services Agency. This program enables eligible farmers and ranchers in the affected county as well as contiguous counties to apply for low interest loans. A USDA declaration will automatically follow a major disaster declaration for counties designated major disaster areas and those that are contiguous to declared counties, including those that are across state lines. As part of an agreement with the USDA, the SBA offers low interest loans for eligible businesses that suffer economic losses in declared and contiguous counties that have been declared by the USDA. These loans are referred to as Economic Injury Disaster Loans.

Table 4.2 provides information on federal emergencies and disasters declared in Teller County between 1953 and December 2007. The table does not include local declarations, but it was noted by the HMPC that a local declaration occurred in 2006 due to flooding.

Table 4.2. Federal Disaster and Emergency Declarations, 1953-2007

Date Declared	Disaster Name	Declaration Type	Disaster Number	Cost ($)
2/7/2007	Fire	SBA (contiguous)	10799, 10800	
1/31/2007	Snow	Presidential—Emergency Declaration	FEMA-3270-EM	
2006-2007	Below Normal Temperatures, Winter Storms	USDA (contiguous)	N870	
8/8/2006	Excessive Moisture	USDA (contiguous)	S2352	
7/11/2006	Drought, Insects, High Winds, Excessive Heat, Winter Storms	USDA	S2329	
7/10/2006	Drought, Wildfires, High Winds, Excessive Heat	USDA (contiguous)	S2327	
1/4/2006	Hail, High Winds, Excessive Moisture	USDA	S2188b	
1/4/2006	Drought	USDA	S2188a	
4/9/2003	Snow	Presidential—Emergency Declaration	FEMA-3185-EM	9,198,775[1]
2002	Drought	USDA		
6/19/2002	Wildfires	Presidential—Major Disaster Declaration	FEMA-1421-DR	7,131,538[1]
1/29/1977	Drought	Presidential—Emergency Declaration	FEMA-3025-EM	4,624,607[1]
5/23/1973	Heavy Rains, Snowmelt, and Flooding	Presidential—Major Disaster Declaration	FEMA-385-DR	21,643,903[1]
6/19/1965	Tornadoes, Severe Storms, and Flooding	Presidential—Major Disaster Declaration	FEMA-200-DR	91,346,946[1]

Sources: State of Colorado Natural Hazards Mitigation Plan; Public Entity Risk Institute Presidential Disaster Declaration Site, www.peripresdecusa.org/mainframe.htm; USDA Farm Service Agency, www.fsa.usda.gov/Internet/FSA_File/2005_2007eligible_county.xls; FEMA, www.fema.gov; Small Business Administration, www.sba.gov/disasternotices/

[1]Costs are in 2006 dollars and are statewide

4.2 Hazard Profiles

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the…location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

The hazards identified in Section 4.1 Hazard Identification are profiled individually in this section. Much of the profile information came from the same sources used to initially identify the hazards.

4.2.1 Profile Methodology

Each hazard is profiled in a similar format that is described below:

Description

This subsection gives a generic description of the hazard and associated problems, followed by details on the hazard specific to Teller County.

Geographic Extent

This subsection discusses which areas of the County are most likely to be affected by a hazard event.

- **Limited**—Less than 10 percent of planning area
- **Significant**—10-50 percent of planning area
- **Extensive**—50-100 percent of planning area

Previous Occurrences

This subsection contains information on historic incidents, including impacts where known. The extent or location of the hazard within or near the Teller County planning area is also included here. Information provided by the HMPC is included here along with information from other data sources.

Probability of Future Occurrences

The frequency of past events is used in this subsection to gauge the likelihood of future occurrences. Based on historical data, the likelihood of future occurrences is categorized into one of the following classifications:

- **Highly Likely**—Near 100 percent chance of occurrence in next year, or happens every year.

- **Likely**—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less.
- **Occasional**—Between 1 and 10 percent chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
- **Unlikely**—Less than 1 percent chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

The frequency, or chance of occurrence, was calculated where possible based on existing data. Frequency was determined by dividing the number of events observed by the number of years and multiplying by 100. This gives the percent chance of the event happening in any given year. Example: Three droughts over a 30-year period equates to 10 percent chance of that hazard occurring in any given year.

Magnitude/Severity

This subsection summarizes the potential magnitude and severity of a hazard event based largely on previous occurrences and specific aspects of risk as it relates to the planning area. Magnitude and severity is classified in the following manner:

- **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

4.2.2 Dam Failure

Description

Dams are manmade structures built for a variety of uses, including flood protection, power, agriculture, water supply, and recreation. Dams typically are constructed of earth, rock, concrete, or mine tailings.

Dam failures can result in downstream flooding. Water released by a failed dam generates tremendous energy and can cause a flood that is catastrophic to life and property. Two factors that influence the potential severity of a full or partial dam failure are the amount of water impounded and the density, type, and value of downstream development and infrastructure. The speed of onset depends on the type of failure. If the dam is inspected regularly then small leaks allow for adequate warning time. Once a dam is breached, however, failure and resulting flooding occurs rapidly. Dams can fail at any time of year, but the results are most catastrophic

when the dams fail or overtop during spring or early summer when the reservoirs are full from snowmelt runoff.

A catastrophic dam failure could challenge local response capabilities and require evacuations to save lives. Impacts to life safety would depend on the warning time and the resources available to notify and evacuate the public and could include major loss of life and potentially catastrophic damage to roads, bridges, and homes. Associated water quality and health concerns could also be an issue.

Dam failures are often the result of prolonged rainfall and overtopping, but can happen in any conditions due to erosion, piping, structural deficiencies, lack of maintenance and repair, or the gradual weakening of the dam over time. Other factors that can lead to dam failure include earthquakes, landslides, improper operation, rodent activity, vandalism or terrorism.

Geographic Extent

HAZUS-MH contains a database of dams based on the National Inventory of Dams (NID). This database lists 30 dams in the County and classifies dams based on the potential hazard to the downstream area resulting from failure or misoperation of the dam or facilities:

- **High Hazard Potential**—Probable loss of life (one or more)
- **Significant Hazard Potential**—No probable loss of human life but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns; often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure
- **Low Hazard Potential**—No probable loss of human life and low economic and/or environmental losses; losses are principally limited to the owner's property

Based on these classifications, there are 4 high hazard dams and 13 significant hazard dams in or that affect Teller County. These dams are listed in Table 4.3 and illustrated on the map in Figure 4.1.

Figure 4.1. High and Significant Hazard Dams in Teller County

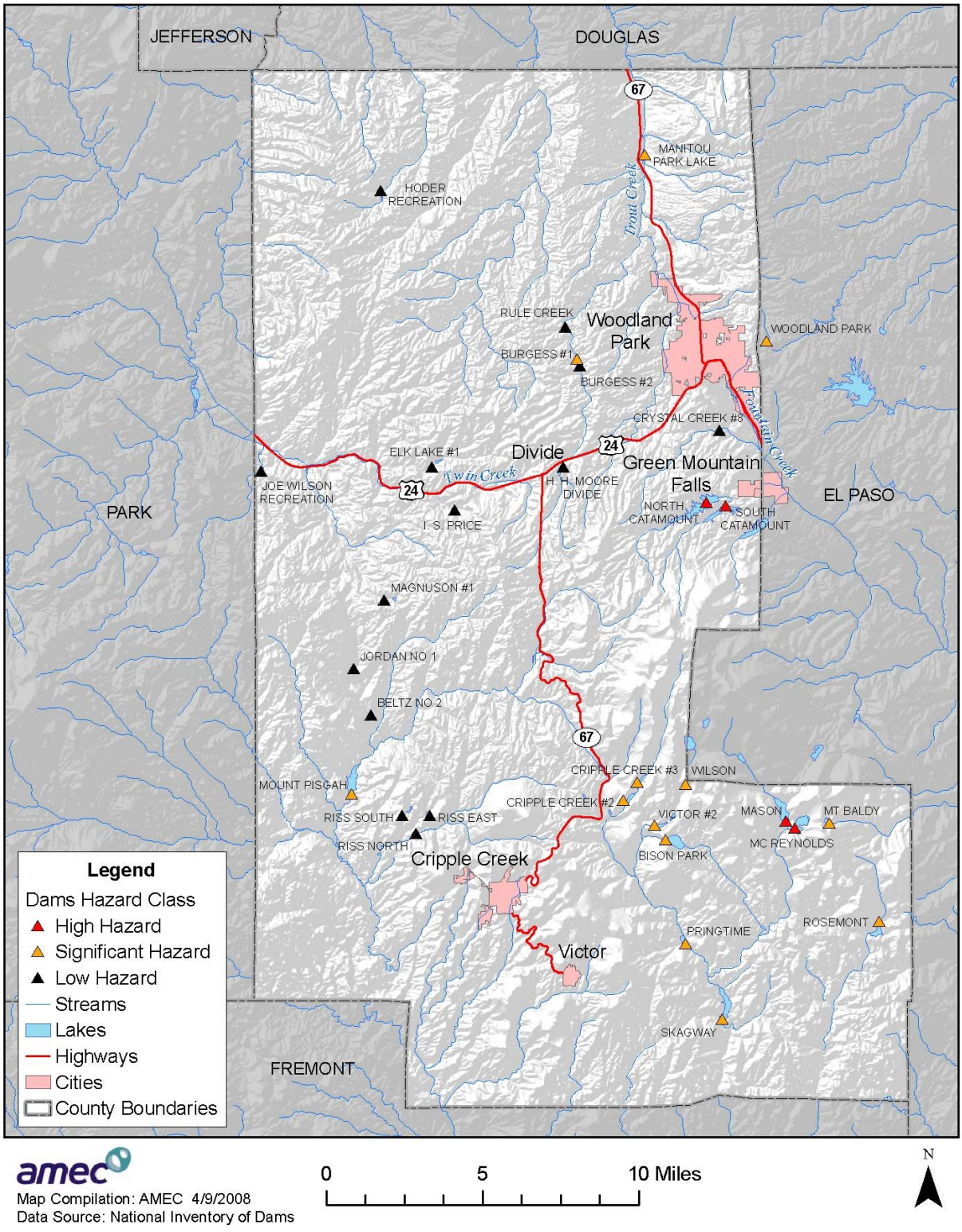


Table 4.3. High and Significant Hazard Dams in Teller County

Name	River	Near City	Max Storage Acre-Feet	NID Hazard Class
Mason	Boehmer Creek	Pueblo	3,375	High
Mc Reynolds	Middle Beaver Creek-Tr	Pueblo	2,639	High
North Catamount	North Catamount Creek	Green Mt Falls	15,050	High
South Catamount	South Catamount Creek	Green Mt Falls	3,975	High
Woodland Park	Loy Gulch	Woodland Park	67	Significant
Bison Park	Bison Creek	Pueblo	1,548	Significant
Burgess #1	Rule Creek	Deckers	408	Significant
Cripple Creek #2	W Fork Of W Beaver Crk	Canon City	530	Significant
Cripple Creek #3	W Fork Of W Beaver Crk	Pueblo	380	Significant
Manitou Park Lake	Trout Creek	Deckers	290	Significant
Mount Pisgah	Four Mile Creek	Canon City	3,540	Significant
Mt Baldy	North Cheyenne Creek	Broadmoor	0	Significant
Pringtime	West Beaver Creek	Pueblo	612	Significant
Rosemont	East Beaver Creek	Pueblo	3,155	Significant
Skagway	West Beaver Creek	Pueblo	3,570	Significant
Victor #2	E Fk W Beaver Creek	Pueblo	361	Significant
Wilson	E Fk W Beaver Creek	Pueblo	909	Significant

Source: HAZUS-MH MR3 National Inventory of Dams

The majority of population and buildings downstream of these dams are outside of Teller County or in neighboring Green Mountain Falls. The Woodland Park Dam, also known as Loy Gulch, just east of Woodland Park (actually within El Paso County) is considered to be a significant hazard dam and could potentially have impacts to property in or near Woodland Park.

There are an uncounted number of 'non-jurisdictional' dams on public and private lands in the County. These are small dams that normally do not store water but may impound water during heavy precipitation events. Because they are not monitored or maintained, there is potential for them to overtop or fail and cause flooding and property damage during a significant rainfall event. The extent and risk associated with these dams is not known. The National Park Service has undergone efforts to identify and remove dams that are potentially hazardous that are located in the Florissant Fossil Bed National Monument.

Previous Occurrences

Colorado has a history of dam failure, with at least 130 known dam failures since 1890 (Source: Flood Hazard Mitigation Plan for Colorado, 2004). The Lawn Lake Disaster of 1982 caused four deaths and over $31 million in property damage when a privately owned dam failed on Forest Service Property above the Town of Estes Park.

The *State Engineer's 22nd Annual Report on Dam Safety to the Colorado General Assembly Fiscal Year 2005-06* identified the following incident in Teller County: Non-Roster

Jurisdictional sized dam in Teller County, Division 1, experienced overtopping during an intense rainfall event. The dam was severely damaged but did not fail.

According to HMPC member input from Cripple Creek a dam failed on the southwest slopes of Pikes Peak in June of 1965 (Skagway Reservoir). One person was killed. One house and a water transmission line to Cripple Creek were damaged. Repairs were made to the dam by the Army Corp of Engineers.

In July 2004 heavy rain and runoff in the Hayman burn area caused six privately owned dams to breach. A six foot wall of water inundated parts of the Turkey Rock subdivision.

Probability of Future Occurrences

Occasional—Between 1 and 10 percent chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years. This is based on two occurrences of dam failure in the past 45 years in the County.

Magnitude/Severity

Overall, dam failure impacts would likely be **limited** in Teller County, with 10-25 percent of the planning area affected. Roads closed due to dam failure floods could result in serious transportation disruptions due to the limited number of roads in the County. The most serious impacts would be outside of the County in neighboring El Paso and Fremont Counties. Due to the low probability of dam failures, and that most of the impacts would be outside of the county, the overall significance is considered medium, with moderate potential impact.

4.2.3 Drought

Description

Drought is a condition of climatic dryness that is severe enough to reduce soil moisture and water below the minimum necessary for sustaining plant, animal, and human life systems Influencing factors include temperature patterns, precipitation patterns, agricultural and domestic water supply needs, and growth. Lack of annual precipitation and poor water conservation practices can result in drought conditions.

Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a multi-year period, and can take years before the consequences are realized. It is often not obvious or easy to quantify when a drought begins and ends. Droughts can be a short-term event over several months or a long-term event that lasts for years or even decades.

Drought is a complex issue involving many factors—it occurs when a normal amount of moisture is not available to satisfy an area's usual water-consuming activities. Drought can often be defined regionally based on its effects:

- **Meteorological** drought is usually defined by a period of below average water supply.
- **Agricultural** drought occurs when there is an inadequate water supply to meet the needs of the state's crops and other agricultural operations such as livestock.
- **Hydrological** drought is defined as deficiencies in surface and subsurface water supplies. It is generally measured as streamflow, snowpack, and as lake, reservoir, and groundwater levels.
- **Socioeconomic** drought occurs when a drought impacts health, well-being, and quality of life or when a drought starts to have an adverse economic impact on a region.

Due to Colorado's semiarid conditions, drought is a natural but unpredictable occurrence in the state. However, because of natural variations in climate and precipitation sources, it is rare for all of Colorado to be deficient in moisture at the same time. Single season droughts over some portion of the state are quite common.

Drought impacts are wide-reaching and may be economic, environmental, and/or societal. The most significant impacts associated with drought in Colorado are those related to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation. An ongoing drought may leave an area more prone to beetle kill and associated wildfires. Drought conditions can also cause soil to compact, increasing an area's susceptibility to flooding, and reduce vegetation cover, which exposes soil to wind and erosion. A reduction of electric power generation and water quality deterioration are also potential problems. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in streams and groundwater decline.

Geographic Extent

The entire County is at risk to drought conditions**.** Drought is one of the few hazards that has the potential to directly or indirectly impact every person in the County as well as adversely affect the local economy.

Previous Occurrences

According to the 2004 Drought and Water Supply Assessment, Colorado has experienced multiple severe droughts. Colorado has experienced drought in 2000-2004, 1996, 1994, 1990, 1989, 1979-1975, 1965-1963, 1957-1951, 1941-1931, and 1905-1893 (Source: Colorado Drought Mitigation and Response Plan, 2001). The most significant of the instrumented period (which began in the late 1800s) are listed in Table 4.4. Although drought conditions can vary across the state, it is likely that Teller County suffered during these dry periods.

Table 4.4. Significant Colorado Drought Periods of the Modern Instrumented Era

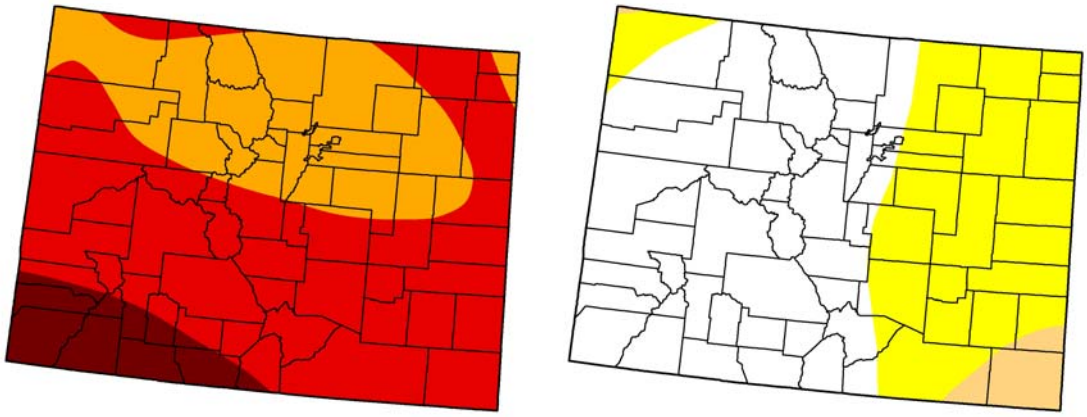
Years	Worst Years	Major State Impact Areas
1890-1894	1890 and 1894	Severe drought east of mountains
1898-1904	1902-1904	Very severe drought over southwestern Colorado
1930-1940	1931-1934, 1939	Widespread, severe, and long lasting drought in Colorado
1950-1956	1950, 1954-1956	Statewide, worse than the 1930s in the Front Range
1974-1978	1976-1977	Statewide, driest winter in recorded history for Colorado's high country and Western Slope
1980-1981	Winter 1980-1981	Mountains and West Slope; stimulated writing of the Colorado Drought Response Plan and the formation of the Water Availability Task Force
2000-2003	2001-2002	Significant multi-year statewide drought, with many areas experiencing most severe conditions in Colorado in instrumented history

Source: Drought and Water Supply Assessment, 2004, http://cwcb.state.co.us/Conservation/Drought/Drought_Water/index_DWSA.html

Beginning in 1998, the Colorado Front Range, including Teller County, experienced below-normal precipitation and unseasonably dry air masses. Drought conditions continued over the next few years and the forests throughout the region became drier with each passing season. Drought conditions worsened in the winter of 2001/2002 and set the stage for the Hayman fire, which burned 138,000 acres in Teller County and is the largest fire in Colorado history to date. Conditions began improving in the second half of 2003. According to the County, effects of this drought included property, crop (Hay), and infrastructure damage (roads). Business/economic impacts resulted.

Figure 4.2 compares the severity of the drought in Colorado in June of 2002 (three days after the start of the Hayman fire) with the severity of the drought in February 2008. The maps illustrate significantly improved conditions in Colorado and Teller County in February 2008.

Figure 4.2. U.S. Drought Monitor for Colorado, June 11, 2002 (left) vs. February 19, 2008 (right)



State drought conditions (percent area)

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
02/19/08	59.37	40.64	3.79	0.00	0.00	0.00
06/11/02	0.00	100.00	100.00	100.00	68.13	9.26

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Source: National Drought Mitigation Center

According to SHELDUS, Teller experienced a drought in 1989. This drought caused $1.6 million (2007 dollars) in crop losses statewide. The specific impacts to Teller County are not known.

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from a variety of sources: on-line drought-related news stories and scientific publications, members of the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. The database is being populated beginning with the most recent impacts and working backward in time.

The Drought Impact Reporter contains information on 94 drought impacts from droughts that affected Teller County between 1990 and 2007. The list is not comprehensive. Most of the impacts, 27, were classified as “agriculture.” Other impacts include “social” (13), “fire” (13), “environment” (7), “water/energy” (3), and “other” (34). These categories are described as follows:

- **Agriculture**—Impacts associated with agriculture, farming, and ranching. Examples include damage to crop quality, income loss for farmers due to reduced crop yields, reduced productivity of cropland, insect infestation, plant disease, increased irrigation costs, cost of new or supplemental water resource development, reduced productivity of rangeland, forced reduction of foundation stock, closure/limitation of public lands to grazing, high cost/unavailability of water for livestock, and range fires.
- **Water/Energy**—Impacts associated with surface or subsurface water supplies (i.e., reservoirs or aquifers), stream levels or streamflow, hydropower generation, or navigation. Examples include lower water levels in reservoirs, lakes, and ponds; reduced flow from springs; reduced streamflow; loss of wetlands; estuarine impacts; increased groundwater depletion, land subsidence, reduced recharge; water quality effects; revenue shortfalls and/or windfall profits; cost of water transport or transfer; cost of new or supplemental water resource development; and loss from impaired navigability of streams, rivers, and canals.
- **Environment**—Impacts associated with wildlife, fisheries, forests, and other fauna. Examples include loss of biodiversity of plants or wildlife; loss of trees from urban landscapes, shelterbelts, wooded conservation areas; reduction and degradation of fish and wildlife habitat; lack of feed and drinking water; greater mortality due to increased contact with agricultural producers, as animals seek food from farms and producers are less tolerant of the intrusion; disease; increased vulnerability to predation; migration and concentration; and increased stress to endangered species.
- **Fire**—Impacts associated with forest and range fires that occur during drought events. The relationship between fires and droughts is very complex. Not all fires are caused by droughts and serious fires can result when droughts are not taking place.
- **Social**—Impacts associated with the public, or the recreation/tourism sector. Examples include health-related low-flow problems (e.g., cross-connection contamination, diminished sewage flows, increased pollutant concentrations, reduced fire fighting capability, etc.), loss of human life (e.g., from heat stress, suicides), public safety from forest and range fires, increased respiratory ailments; increased disease caused by wildlife concentrations, population migrations, loss of aesthetic values; reduction or modification of recreational activities, losses to manufacturers and sellers of recreational equipment, and losses related to curtailed activities.
- **Other**—Drought impacts that do not easily fit into any of the above categories.

Probability of Future Occurrences

The probability of a future drought in Teller County is **Likely**—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less. According to information from the Colorado Drought Mitigation and Response Plan, Colorado was in drought for 48 of the past 115 years (1893-2007). Thus, there is a 42 percent chance that a drought will happen in Colorado in any given year, and a drought can be expected somewhere in the state every 2.4 years.

Magnitude/Severity

According to the information in this hazard profile, a drought's impact on the county could be considered 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. Due to the high probability of severe drought, the overall significance is considered medium with moderate potential impact. Drought is considered to have high significance for the City of Cripple Creek according to HMPC input, which is based on the City's limited surface and groundwater supplies and past experiences.

4.2.4 Earthquake

Description

An earthquake is caused by a sudden slip on a fault, which is a plane of weakness in the earth's crust. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake. The amount of energy released during an earthquake is usually expressed as a Richter magnitude and is measured directly from the earthquake as recorded on seismographs. Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking, typically the greatest cause of losses to structures during earthquakes, at any given location on the surface as felt by humans and defined in the Modified Mercalli Intensity Scale. Table 4.5 features abbreviated descriptions of the 12 levels of intensity.

Table 4.5. Modified Mercalli Intensity (MMI) Scale

MMI	Felt Intensity
I	Not felt except by a very few people under special conditions. Detected mostly by instruments.
II	Felt by a few people, especially those on upper floors of buildings. Suspended objects may swing.
III	Felt noticeably indoors. Standing automobiles may rock slightly.
IV	Felt by many people indoors, by a few outdoors. At night, some people are awakened. Dishes, windows, and doors rattle.
V	Felt by nearly everyone. Many people are awakened. Some dishes and windows are broken. Unstable objects are overturned.
VI	Felt by everyone. Many people become frightened and run outdoors. Some heavy furniture is moved. Some plaster falls.
VII	Most people are alarmed and run outside. Damage is negligible in buildings of good construction, considerable in buildings of poor construction.
VIII	Damage is slight in specially designed structures, considerable in ordinary buildings, great in poorly built structures. Heavy furniture is overturned.
IX	Damage is considerable in specially designed buildings. Buildings shift from their foundations and partly collapse. Underground pipes are broken.
X	Some well-built wooden structures are destroyed. Most masonry structures are destroyed. The ground is badly cracked. Considerable landslides occur on steep slopes.
XI	Few, if any, masonry structures remain standing. Rails are bent. Broad fissures appear in the ground.
XII	Virtually total destruction. Waves are seen on the ground surface. Objects are thrown in the air.

Source: Multi-Hazard Identification and Risk Assessment, FEMA 1997

Earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, power, communication, and transportation lines. Damage and life loss can be particularly devastating in communities where buildings were not designed to withstand seismic forces (e.g., historic structures). Other damage-causing effects of earthquakes include surface rupture, fissuring, settlement, and permanent horizontal and vertical shifting of the ground. Secondary impacts can include landslides, rock falls, liquefaction, fires, dam failure and hazardous materials incidents.

Part of what makes earthquakes so destructive is that they generally occur without warning. The main shock of an earthquake can usually be measured in seconds, and rarely lasts for more than a minute. Aftershocks can occur within the days, weeks, and even months following a major earthquake.

By studying the geologic characteristics of faults, geoscientists can often determine when the fault last moved and estimate the magnitude of the earthquake that produced the last movement. Because the occurrence of earthquakes is relatively infrequent in Colorado and the historical earthquake record is short, accurate estimations of magnitude, timing, or location of future dangerous earthquakes in Colorado are difficult to estimate.

Geographic Extent

Geological research indicates that faults capable of producing earthquakes are prevalent in Colorado. There are about 90 potentially active faults in Colorado with documented movement within the last 1.6 million years. The map in Figure 4.3 indicates that potentially active faults exist in the vicinity of Teller County that are capable of producing damaging earthquakes.

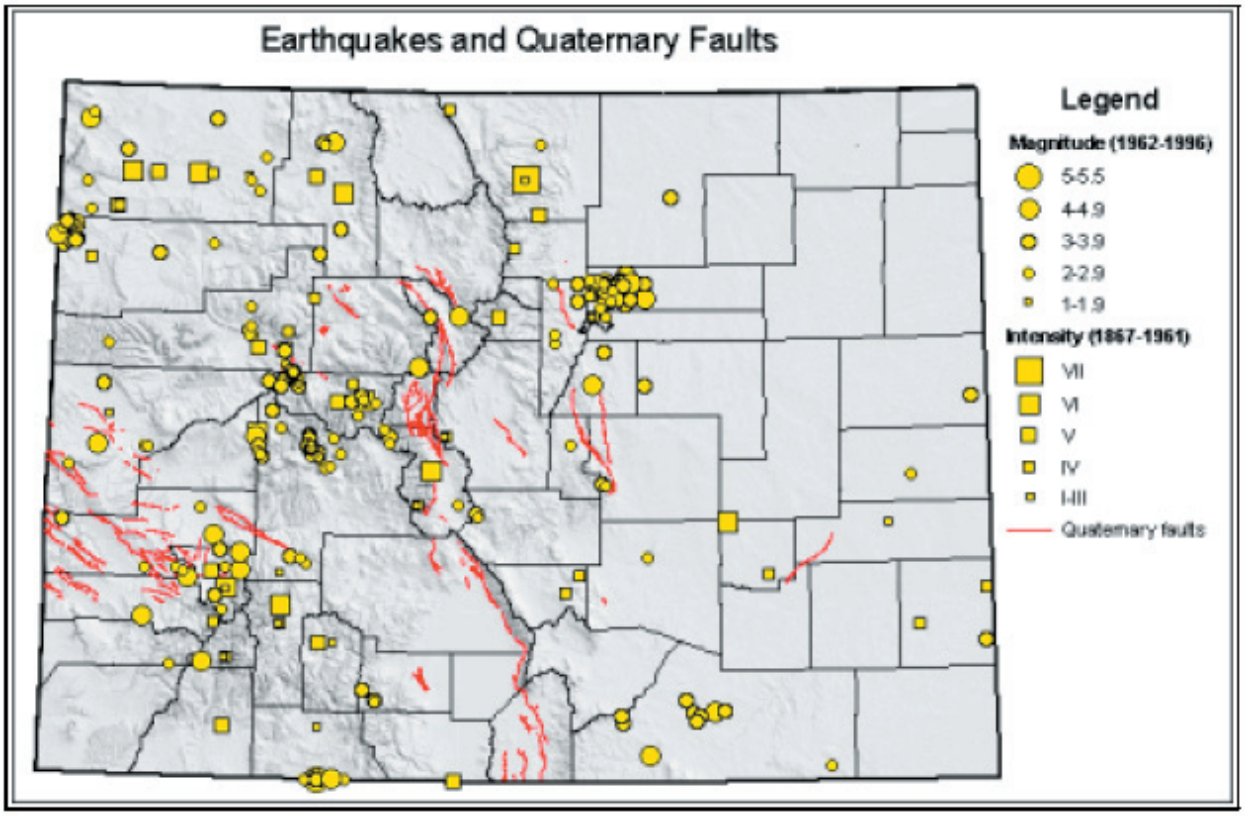
Faults have been classified based on the geologic time frame of their latest suspected movement (in order of activity occurrence, most recent is listed first):

- **H**—Holocene (within past 15,000 years)
- **LQ**—Late Quaternary (15,000-130,000 years)
- **MLQ**—Middle to Late Quaternary (130,000 - 750,000 years)
- **Q**—Quaternary (approximately past 2 million years)
- **LC**- Late Cenozoic (approximately past 23.7 million years)

Known faults in Teller County include the Bare Hills (LC), Colorado Springs Faults (LC), Fourmile Creek (LC), Hay Creek (LC), High Park Fault Zone (LC), Midland (LC), Oil Creek (LC), Raspberry Mountain (LC), and Ute Pass Fault Zone (MLQ). Other faults that could affect Teller County (e.g., other faults that were analyzed by the state for their potential impact on the County) are Chase Gulch (LC), Rampart Range (LQ), N Sangre de Cristo (H), and S Sawatch (H) (See Section 4.x for the results of the state's analysis.) Of the faults that could affect Teller County, Rampart Range and Ute Pass are two of the state's potentially most damaging faults.

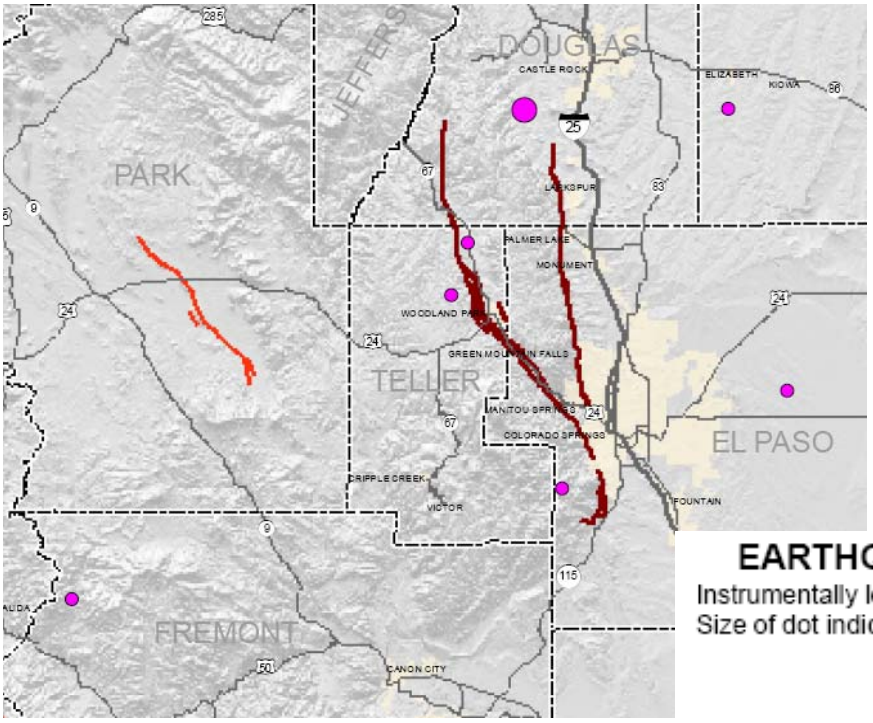
The Ute Pass fault roughly follows Highway 24 to Woodland Park, where it parallels Highway 67 north through the Town and then into the northern portion of Teller County.

Figure 4.3. Colorado Earthquakes and Quaternary Faults



Source: State of Colorado Natural Hazards Mitigation Plan, 2007

Figure 4.4. Earthquake Hazard Map Showing Central Colorado



Source: Colorado Geological Survey

EARTHQUAKE EPICENTERS

Instrumentally located epicenters (~1962 to 2006)
Size of dot indicates magnitude.

- 5-5.5
- 4-4.9
- 3-3.9

Approximate location of pre-instrumental earthquake epicenters (~1867 to 1961). Square size indicates the maximum Modified Mercalli intensity for the earthquake (see back of map for intensity scale).

- VII
- VI
- V
- IV
- I-III

1882 Earthquake; magnitude estimated at 6.6 +/- 0.6 (Spence and others, 1996)

QUATERNARY FAULTS

Geologically young faults that displace sediments or rocks deposited during the Quaternary Period (approximately past 2 million years).

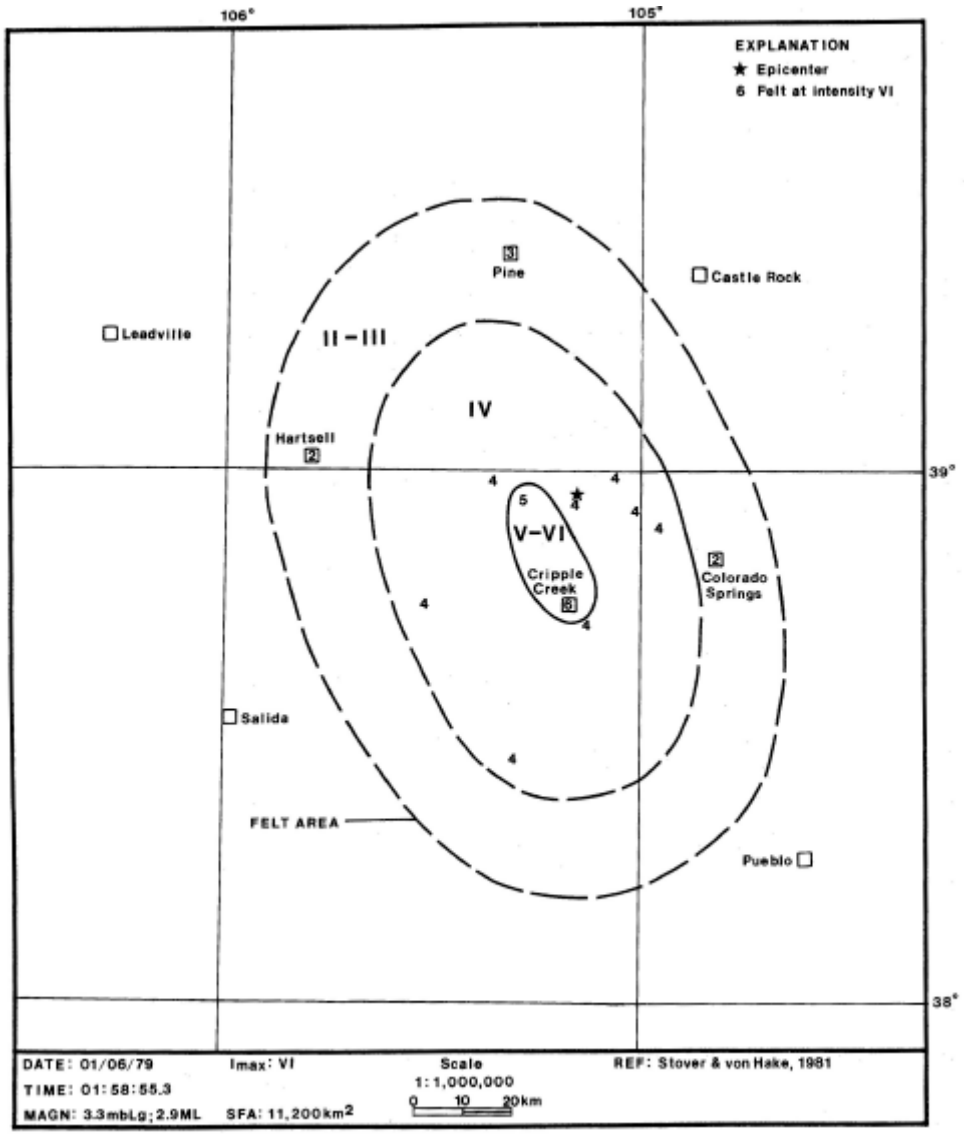
- Known or suspected fault displacement of late Quaternary deposits (approximately past 130,000 years)
- Known or suspected fault displacement of middle to early Quaternary deposits (approximately past 130,000 to 2 million years old)

Previous Occurrences

Although not as frequent or as large as California, Colorado has experienced earthquakes in its relatively short period of historic record. Earthquakes in Teller County have been few and far between and not very intense. There have been several small earthquakes along Ute Pass and in the mining district in recent years. Damage from recorded earthquakes in Teller County has been minimal. Colorado's Earthquake and Fault Map developed by the Colorado Geological Survey in 2007 depicts the location of historic epicenters and potentially active faults in Colorado. Figure 4.4 shows the portion of the map that illustrates activity in the Teller County are

- **February 19, 2003**—Woodland Park, M2.2
- **July 22, 2001**—Woodland Park, M3.1
- **April 18, 1998**—Woodland Park, M2.7
- **January 18-19, 1997**—Woodland Park, M2.7-3.3
- **December 31, 1995**—Manitou Springs, M2.8, intensity of III
- **December 23, 1995**—Manitou Springs, Rampart Range, M3.6, intensity of IV (felt in Victor and Cripple Creek)
- **January 6, 1979**—Divide, M2.9, Cripple Creek experienced intensity VI shaking, during which plaster cracked; reports from Florissant and the surrounding rural area indicate intensity V; may have occurred on or near the Oil Creek Fault (see Figure 4.5.).

Figure 4.5. Intensity Map for the January 6, 1979 Earthquake

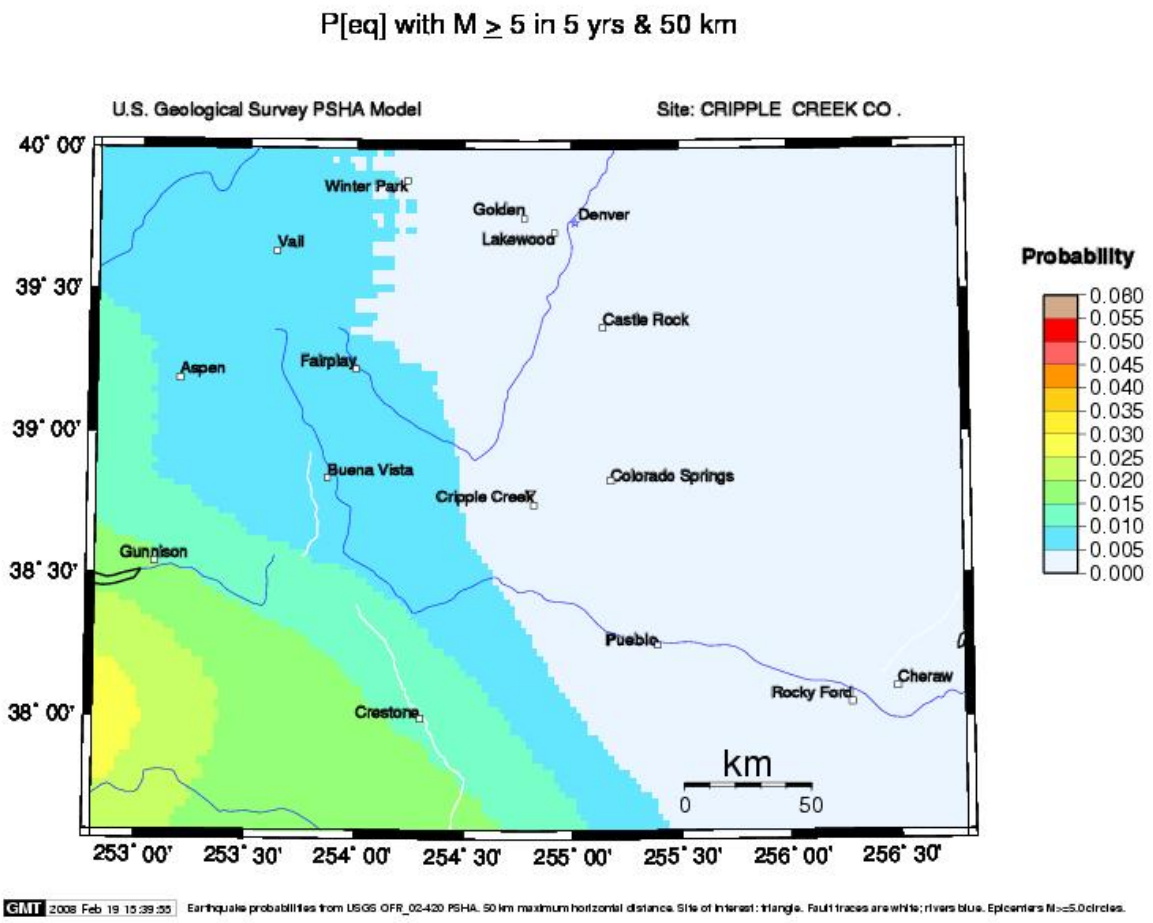


Source: Colorado Earthquake Information, 1867-1996, Colorado Geological Survey

Probability of Future Occurrences

Research based on Colorado's earthquake history suggests that an earthquake of 6.3 or larger has a one percent (1 percent) probability of occurring each year somewhere in Colorado (Charlie, Doehring, Oaks Colorado Earthquake Hazard Reduction Program Open File Report 93-01, 1993). Figure 4.6 from the U.S. Geological Survey shows that the probability that a magnitude 5 or greater earthquake will occur in the next 50 years in Teller County is 0.5 percent or less. Small earthquakes that cause no or little damage are more likely. Overall, the probability of a damaging earthquake somewhere in the county is considered **Occasional—**Between 1 and 10 percent chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.

Figure 4.6. Probability of Magnitude 5 or Greater Earthquake in 50 years



Source: U.S. Geological Survey, http://eqint.cr.usgs.gov/eqprob/2002/index.php

Magnitude/Severity

According to the information in this hazard profile, a large earthquake's impact on the county could be considered **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. Due to the low probability of damaging earthquakes, the overall significance is considered medium, with moderate potential impact. Significance to Woodland Park is high, due to its proximity to the Ute Pass Fault, and Cripple Creek, due to the number and nature of historic buildings in the City.

4.2.5 Extreme Temperatures

Description

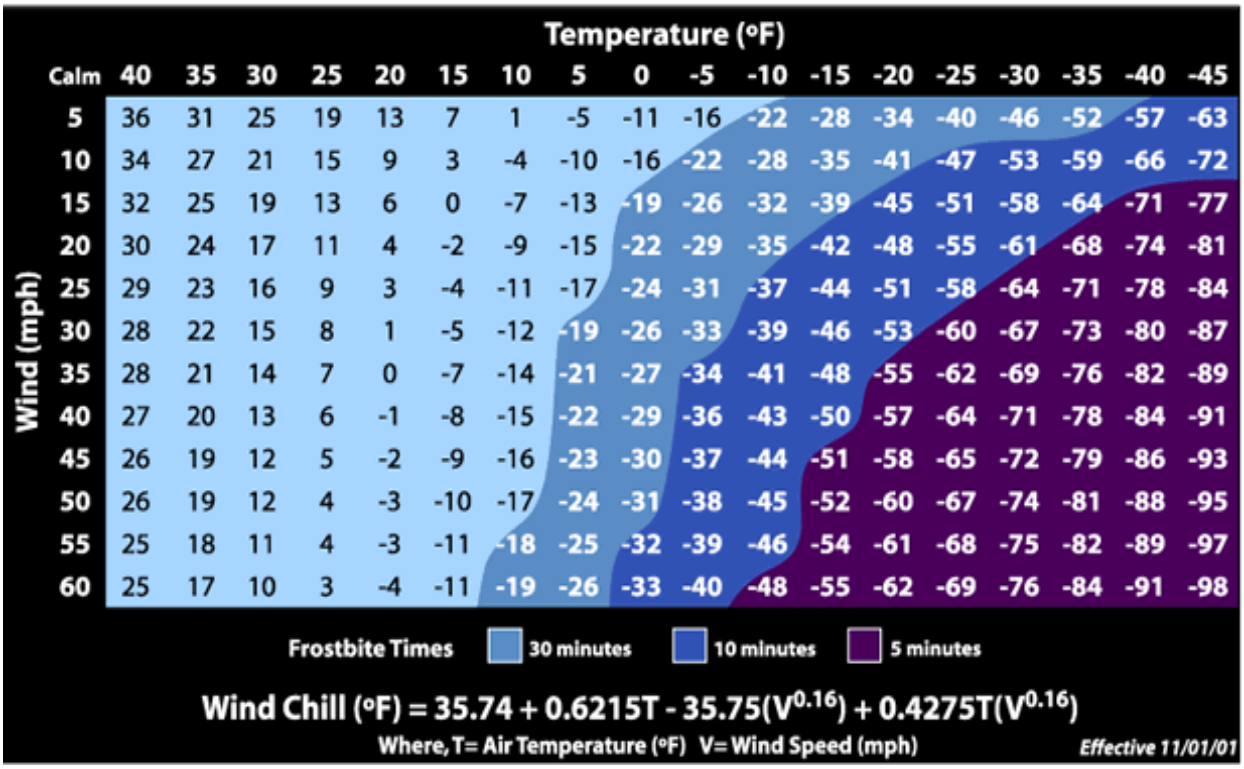
Extreme temperature events, both cold and hot, can have severe impacts on human health and mortality, natural ecosystems, agriculture, and the economy. Extreme temperatures can affect utility capabilities and cause failure which can lead to significant individual and community impacts.

Extreme Cold

Extreme cold often accompanies a winter storm or is left in its wake. It is most likely to occur in the winter months of December, January, and February. Prolonged exposure to the cold can cause frostbite or hypothermia and can become life-threatening. Infants and the elderly are most susceptible. Pipes may freeze and burst in homes or buildings that are poorly insulated or without heat. Extreme cold can disrupt or impair communications facilities.

In 2001, the NWS implemented an updated Wind Chill Temperature index (see Figure 4.7). This index was developed to describe the relative discomfort/danger resulting from the combination of wind and temperature. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

Figure 4.7. National Weather Service Wind Chill Chart



Source: National Weather Service, www.nws.noaa.gov/om/windchill/index.shtml

Teller County is in a mountain zone. The NWS does not issue wind chill advisories for mountain zones. Wind chill warnings are issued when wind chill values are expected to drop to or below -35 degrees in the mountains for a period of time. Winds have to be at least 10 mph.

Extreme Heat

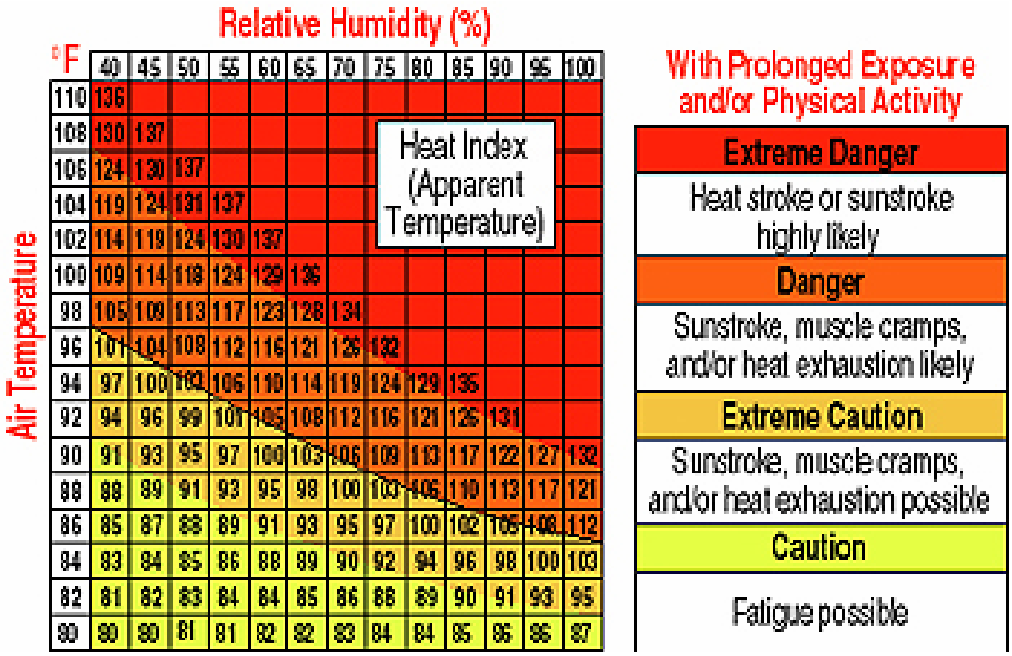
According to information provided by FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Extreme heat is most likely to occur in the summer months of June, July, and August. On average, July is the warmest month.

Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. According to the National Weather Service (NWS), among natural hazards, only the cold of winter—not lightning, hurricanes, tornadoes, floods, or earthquakes—takes a greater toll. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980, more than 1,250 people died.

Heat disorders generally have to do with a reduction or collapse of the body's ability to shed heat by circulatory changes and sweating or a chemical (salt) imbalance caused by too much

sweating. When heat gain exceeds the level the body can remove, or when the body cannot compensate for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise and heat-related illness may develop. Elderly persons, small children, chronic invalids, those on certain medications or drugs, and persons with weight and alcohol problems are particularly susceptible to heat reactions, especially during heat waves in areas where moderate climate usually prevails. Figure 4.8 illustrates the relationship of temperature and humidity to heat disorders.

Figure 4.8. Heat Index: Relationship of Temperature and Humidity to Heat Disorders



Source: National Weather Service, 2004
Note: Since Heat Index values were devised for shady, light wind conditions, exposure to full sunshine can increase HI values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

Since the highest recorded temperature in Teller County was 92°F (see Previous Occurrences section below), the Heat Index in the County is not likely to exceed the level of "extreme caution." But, it should be noted that, when factoring in exposure to full sunshine, the Heat Index may creep into the "danger" level.

Geographic Area Affected

Extreme cold temperatures can impact the entire County. Extreme heat could impact the lower elevations of the County and the municipalities, but with most of the County at elevations of 7,500 feet or higher, it is unlikely that extreme heat will be much of a concern .

Previous Occurrences

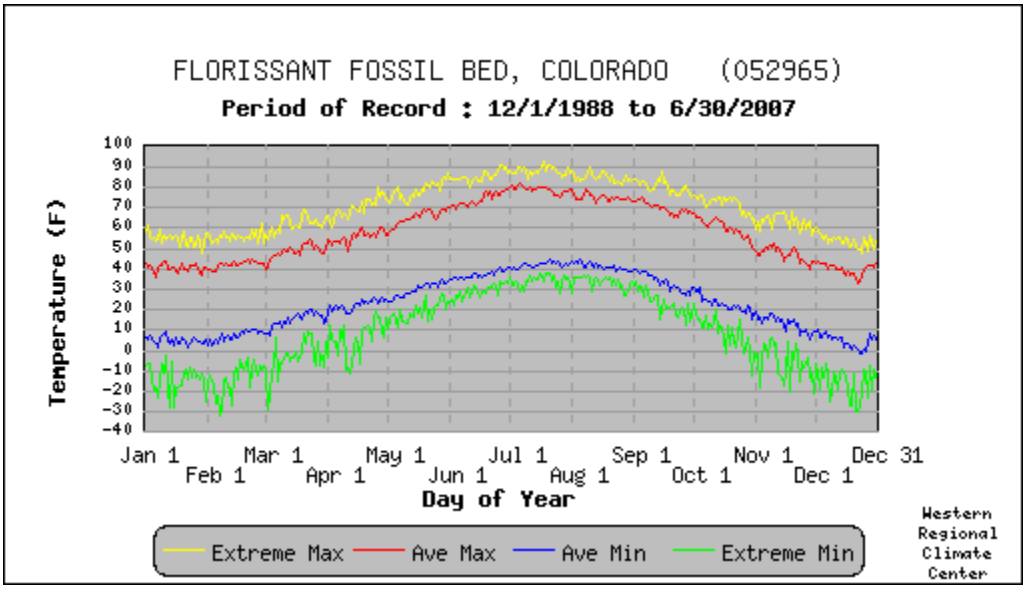
The Western Regional Climate Center reports data from one weather station in Teller County (Florissant Fossil Bed). Table 4.6 contains temperature summaries for the station. Figure 4.9 graphs the daily temperature averages and extremes.

Table 4.6. Teller County Temperature Summaries

Station	Winter[1] Average Minimum Temperature	Winter[1] Mean Temperature	Summer[1] Average Maximum Temperature	Summer[1] Mean Temperature	Maximum Temperature	Minimum Temperature	# Days >90°F	# Days <32°F/ Year
Florissant Fossil Bed[2]	5.1°F	22.5	75.5°F	57.4	92°F July 18, 1994	-32°F February 7, 1989	.3°F	249.1°F

Source: Western Regional Climate Center, www.wrcc.dri.edu/
[1]Winter: December, January, February; Summer: June, July, August
[2]Period of record 12/1/1988 to 6/30/2007

Figure 4.9. Florissant Fossil Bed Station Daily Temperature Averages and Extremes



Source: Western Regional Climate Center, www.wrcc.dri.edu/

According to SHELDUS, there were nine notable instances of cold in Teller County between 1960 and December 2005. These events are captured in Table 4.7.

Table 4.7. Teller County Cold Events, 1960-2005

Date	Details	Total Property and Crop Damage ($)*
2/1/1989	Cold	265,435
9/28/1985	Extreme cold/snow	5,121
1/31/1985	Extreme cold	1,529
1/30/1985	Extreme cold	1,529
9/16/1971	Snow, cold	4,070
10/13/1969	Cold	4,484
10/11/1969	Snow, cold, wind	8,968
4/18/1966	Snow and cold	51,384
1/8/1962	Cold, snow, and wind	54,360
Total		**396,880**

Source: SHELDUS, www.cas.sc.edu/geog/hrl/SHELDUS.html
*2007 dollars, events may have occurred over multiple counties so damage may represent only a fraction of the total event damage and may be not specific to Teller County

The National Climatic Data Center's Storm Events database reports six incidents of extreme wind chill in 1996 and 1997, all in December, January, or February. HMPC members from Woodland Park noted that extreme cold has caused water and sewer line breaks within the Town in the past.

Probability of Future Occurrences

Based on a record of 15 extreme cold events over a 46 year period, extreme cold occurs every 3 years on average, or **Likely**—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less.

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of extreme temperatures is **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. Overall significance is considered low: minimal potential impact.

4.2.6 Flood

Description

Riverine flooding is defined as when a watercourse exceeds its "bank-full" capacity and is usually the most common type of flood event. Riverine flooding generally occurs as a result of prolonged rainfall, or rainfall that is combined with soils already saturated from previous rain events. The area adjacent to a river channel is its floodplain. In its common usage, "floodplain" most often refers to that area that is inundated by the 100-year flood, the flood that has a 1 percent chance in any given year of being equaled or exceeded. Other types of floods include general rain floods, thunderstorm generated flash floods, alluvial fan floods, snowmelt and rain

on snow floods, dam failure floods, and local drainage floods. The 100-year flood is the national standard to which communities regulate their floodplains through the National Flood Insurance Program, but smaller, more frequent events can be damaging as well.

Teller County is susceptible to the following types of flooding:

- Rain in a general storm system
- Rain in a localized intense thunderstorm
- Dam failure
- Urban stormwater drainage
- Rain on fire damaged watersheds

Teller County is at greatest risk from large rain events that produce severe flash flooding. These rain events are most often microbursts, which produce a large amount of rainfall in a short amount of time. Flash floods, by their nature, occur very suddenly but usually dissipate within hours. Despite their sudden nature, the National Weather Service is usually able to issue advisories, watches, and warnings in advance of a flood. In mountainous, rugged terrain, runoff can damage drainage systems or cause them to fail.

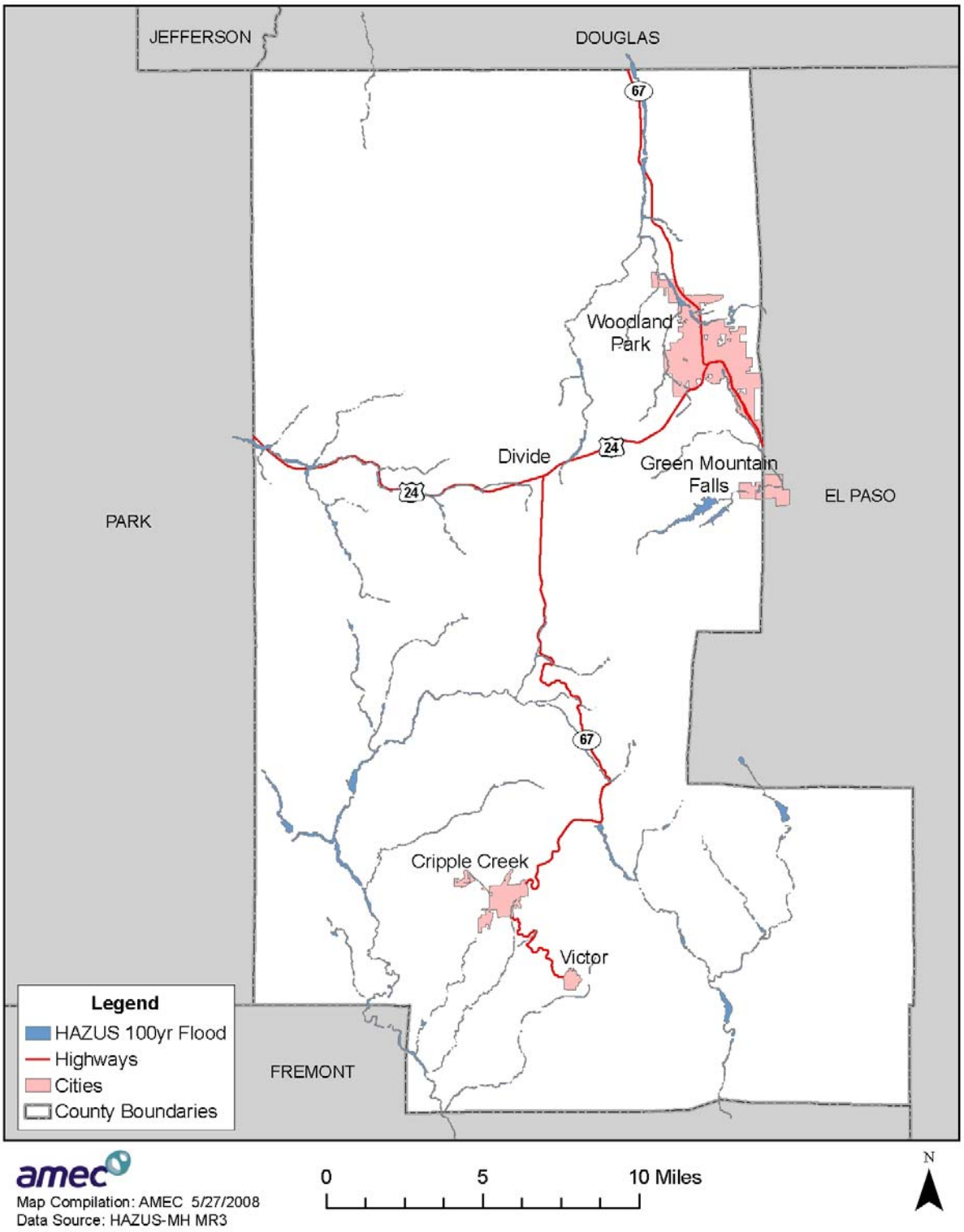
The potential for flooding can change and increase through various land use changes and changes to land surface. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining watersheds or natural drainage channels. These changes are commonly created by human activities (e.g., development). These changes can also be created by other events such as wildfires. Wildfires create hydrophobic soils, a hardening or "glazing" of the earth's surface that prevents rainfall from being absorbed into the ground, thereby increasing runoff, erosion, and downstream sedimentation of channels.

Potential flood impacts include loss of life, injuries, and property damage. Floods can also affect infrastructure (water, gas, sewer, and power utilities), transportation, jobs, tourism, the environment, and ultimately local and regional economies.

Geographic Extent

Teller County is in the South Platte and Arkansas river basins but is generally considered as part of the Arkansas River Basin. Woodland Park straddles the divide between the two basins. Precipitation patterns vary between the basins. Floodplains are generally narrow and affect creeks and gulches across the basins. Sources of floods can include Fountain Creek, West Four Mile drainage, Trout Creek, Turkey Creek, West Creek, Paint Pony Creek and numerous gulches that are typically dry. Fountain Creek in the Arkansas River Basin receives more intense rainfall than Trout Creek in the South Platte River Basin. A relatively small area of the County, including Woodland Park and Green Mountain Falls, is part of the Fountain Creek Watershed, which is located along the central Front Range and drains south into the Arkansas River at Pueblo. Storm flows in this watershed typically occur between May and August.

Figure 4.10. Teller County Flood Hazard



The County, Woodland Park, and Cripple Creek participate in the National Flood Insurance Program and has a Flood Insurance Study (FIS -1988) and Flood Insurance Rate Maps (FIRM) that depict the 100 year flood inundation areas. The County unincorporated areas are covered in nine map panels. A Digital Flood Insurance Rate Map for the County was in production at the time this plan was initially developed. In lieu of a digital flood hazard boundary, a countywide level 1 HAZUS-MH MR3 flood analysis was performed as part of the planning process. A result of the analysis is a flood hazard boundary and depth grid. The extent of the HAZUS-MH floodplains countywide is shown in Figure 4.10. The drainages modeled by HAZUS-MH area approximates the same drainages studied on the FIRMs. HAZUS-MH generated flood maps for Woodland Park and Cripple Creek and the results of the loss estimation can be referenced in Section 4.3.

Creeks that could potentially flood and affect Woodland Park are Fountain Creek, Lovell and Loy gulches. Flooding problems in Woodland Park are to a large degree the result of local drainage problems. The drainage system within most of the developed area of the City was built to handle not more than a five-year event. In many areas, the natural channels have been modified by development and their conveyance capacities diminished. Additionally, highly erodible soils block culverts and local drainage structures and have led to aggradation in several reaches of Fountain Creek (e.g., at the County Road 21 crossing).

The City of Cripple Creek has two small drainages that can be prone to flooding: Cripple Creek and Pony Creek. These drainages generally do not cause problems to structures in the City. The Town of Victor is not prone to 100-year flooding.

The region in and around the Hayman burn area is now more susceptible to flash flooding and will remain prone to flooding until vegetation and topsoil are regenerated through natural and human assisted reforestation efforts. A map showing the burned area can be referenced in the wildfire hazard profile.

Previous Occurrences

According to the 1988 Flood Insurance Study (FIS), no official record of flooding events within the City of Woodland Park exists. Local observations suggest that peak runoff events are generated by thunderstorms. The National Climatic Data Center Storm Events Database includes 15 flash flood events that happened in Teller County between 1993 and August 2007. These incidents and others from the FIS, the Storm Events Database, the National Weather Service at Pueblo, and Teller County are described below:

- **July 25, 2006 (Florissant)**—Heavy thunderstorm rains and subsequent flooding caused damage of roads in the Turkey Creek Basin.
- **July 7, 2006 (Woodland Park)**—Two to three inches of rain fell in a short time west and north of Woodland Park, causing Trail Creek Road above Wildhorn Road to wash out and become completely impassable. Painted Rocks Road (Teller County Road 78) was closed

from West Creek south to the Teller County line and later reopened as a one-lane road for local traffic only. In addition, damage to property in the West Creek area and drainage facilities was reported. Teller County Public Works spent approximately $474,000 in response to flooding in 2006.

- **June 20, 2005 (Woodland Park)**—A slow moving thunderstorm produced flash flooding on some forest roads in the Hayman burn area. Damage consisted of washed out stretches of roads.
- **August 18, 2004 (Woodland Park)**—A slow moving thunderstorm brought very heavy rain and flash flooding to Painted Rocks Road.
- **August 5, 2004 (Woodland Park)**—Very heavy rain from a slow moving thunderstorm brought flash flooding to the southeast portion of the Hayman burn area.
- **July 16, 2004 (Woodland Park)**—Rounds of showers and heavy rain from strong thunderstorms caused numerous flash floods, mainly across the Hayman burn area. Especially hard hit was the road to the Turkey Rock Ranch Estates in far northwest Teller County. Roads affected by the flooding included Forest Road 200 and 360 around Lutheran Valley Retreat and High Road and Shelf Road. Shelf Road, a National Historic Byway between Cripple Creek and Victor, was closed for around one month. At least six privately owned dams broke, and water flowed over another. Teller County officials declared a state of emergency. Damage was estimated at more than 1.5 million. Approximately $1 million (actual expense and in-kind contributions) was expended by the County, State, and Natural Resource Conservation Service in response to the flood. Business/economic impacts also resulted. Cripple Creek also received some flooding, which damaged a few roads (estimated at $50,000) and was exacerbated by lack of storm sewers.
- **July 27, 2003 (Woodland Park)**—Heavy thunderstorm rains closed Highway 67 due to water and debris flowing across portions of the highway.
- **July 19, 2003 (Woodland Park)**—Trail Creek Road was washed out in areas and impassable due to flash flood.
- **May 30, 2003 (Woodland Park)**—Flooding occurred on Stump Road (County Road 33).
  May 25, 2003 (Woodland Park)—Flooding and road washouts occurred near the four corners area of the Hayman burn area.
- **July 10, 2002 (Woodland Park)**— Heavy rain forced incident crews in the Hayman burn area to head for safe spots. Reports of water and debris washing across the roadways were noted.
- **July 4, 2002 (Woodland Park)**—Heavy rainfall over portions of the Hayman burn area in the vicinity of Turkey Creek and West Creek drainages caused firefighters to go to higher ground and washed out some forest roads.
- **July 3, 2002 (Woodland Park)**—Heavy rain over portions of the Hayman burn area caused ash and water to rush across roadways in the Turkey Creek drainage.
- **June 27, 2002 (Divide)—**Rainfall rates of about one inch an hour caused flooding across portions of the freshly burned Hayman burn area. Over 1,000 firefighters were told to seek safety.

- **April-May 1999 Fountain Creek Floods**— During a three-day period, several inches of rain elevated the flood flows peaking at 18,900 cfs at the Pueblo gage. A federal flood disaster was declared for the downstream counties (not Teller) with downed utility lines, washed out bridges, and wastewater system back ups.
- **June 6, 1997 (Woodland Park)**—Thunderstorms banked up against the Rampart Range and produced prolonged rain and heavy rain totals ranging from four to eight inches. There was flooding of Ruxton, Sutherland, Rock, and Fountain Creeks in both El Paso and Teller counties. Around Crystola, on the Teller-El Paso county line, several bridges were washed out on Fountain Creek. In Green Mountain Falls, people were evacuated from a motel when an eight-foot portion of foundation washed into Fountain Creek. There were several rock and mud slides in Ute Pass on U.S. 24 and other roads.
- **1994**—Localized flooding in Crystola Canyon caused property and infrastructure damage (culverts, roads, new bridge) and had business/economic impacts.
- **1985**—Flooding in the West Four Mile drainage in Lakemoor caused property, crop (hay), and infrastructure damage (six bridges, washed out roads). Roads were closed and business/economic impacts were felt.
- **July 29, 1984**—A very localized thunderstorm dropped 2.75 inches of rain in 30 minutes on Fountain Creek. The resultant flooding washed out a six-foot diameter culvert at the confluence of Fountain and Crystola creeks. The recurrence interval of this event was estimated at two years or less.
- **June 1973**—A thunderstorm caused flooding and damage to local drainage structures in Woodland Park.
- **July 15, 1923**—Thunderstorms and heavy rainfall caused flooding in Cripple Creek and Cripple Creek canyon. Damage was estimated at $30,000 in Cripple Creek alone.
- **1902**—A thunderstorm over Woodland Park destroyed all the bridges along a 12-mile stretch of Fountain Creek between the City and Manitou Springs. The recurrence interval of this event was estimated at 50 years.

Between August 2, 2002, and December 31, 2005, Teller County Public Works spent approximately $43,500 on labor and equipment to respond to ongoing flash flooding problems in the Hayman burn area.

Probability of Future Occurrences

Floods are considered to be **Highly Likely** to recur—Near 100 percent chance of occurrence in next year, or happens every year. This probability is based on the 15 event events over 15 years reported in the Storm Events Database. It should be noted, however, that a majority of the events were related to the Hayman burn area, and as conditions slowly improve over time, this probability may go down.

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of flooding is 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. Overall significance is considered medium: moderate potential impact.

4.2.7 Hailstorm

Description

Hail is associated with thunderstorms that can also bring high winds and tornadoes. It forms when updrafts carry raindrops into extremely cold areas of the atmosphere where they freeze into balls of ice. Hail falls when it becomes heavy enough to overcome the strength of the updraft and is pulled by gravity towards the earth. Hailstones are usually less than two inches in diameter and can fall at speeds of 120 mph.

Severe hailstorms can be quite destructive. In the United States, hail causes more than $1 billion in damage to property and crops each year. In 2005, hail and wind damage made up 45 percent of homeowners insurance losses. Much of the damage inflicted by hail is to crops. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are the other things most commonly damaged by hail. Hail has been known to cause injury to humans and occasionally has been fatal.

Geographic Extent

The entire extent of Teller County is exposed to the hailstorm hazard.

Previous Occurrences

According to the National Climatic Data Center's Storm Events Database and the County, there were 30 hail events, where hail was at least one inch, between 1955 and October 2007. These events are noted in Table 4.8 and some are described in more detail in the text that follows. Smaller diameter hail events occur much more frequently but typically do not cause damage.

Table 4.8. Hail Events in Teller County, 1955-October 2007

Location or County	Date	Size
Divide	7/2/2007	1.75 in.
Divide	6/16/2007	1.00 in.
Cripple Creek	6/2/2007	1.00 in.
Divide	7/10/2006	1.50 in.
Woodland Park	6/11/2006	1.00 in.
Florissant	7/27/2005	1.25 in.
Woodland Park	6/15/2005	1.00 in.
Woodland Park	9/28/2004	1.00 in.

Location or County	Date	Size
Cripple Creek	8/11/2004	1.00 in.
Woodland Park	7/28/2004	1.00 in.
Cripple Creek	7/14/2004	1.50 in.
Woodland Park	7/9/2004	1.25 in.
Divide	6/7/2001	1.00 in.
Victor	5/30/2001	1.25 in.
Cripple Creek	6/29/1998	1.00 in.
Woodland Park	8/29/1996	1.00 in.
Woodland Park	7/12/1996	1.00 in.
Divide	7/12/1996	1.00 in.
Woodland Park	9/5/1993	1.00 in.
Turkey Rock	8/12/1993	1.00 in.
Woodland Park	8/1/1993	1.25 in.
Teller	7/26/1988	1.75 in.
Teller	7/8/1988	1.75 in.
Teller	7/1/1987	1.75 in.
Teller	8/2/1986	1.00 in.
Teller	7/31/1986	1.50 in.
Teller	5/31/1986	1.00 in.
Teller	7/30/1979	1.75 in.
Teller	7/14/1979	2.00 in.
Teller	6/17/1977	1.00 in.
Teller	7/28/1971	1.50 in.

Source: National Climatic Data Center Storm Events Database, www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms

- **July 12, 1996**—Hail fell in Woodland Park and Divide. Accumulations of three inches were reported on local roadways in Divide, which created slippery conditions and minor ponding of water due to accompanying heavy rain. Property and crop damage as well as business/economic impacts resulted.
- **September 5, 1993**—Severe thunderstorms dumped quarter size hail in Woodland Park. There were reports of marble-size hail four inches deep just north of Woodland Park. Several vehicles slid off the roadway due to the hail and sustained minor damage. Snow plows were used to remove the hail from the road.
- **August 1, 1993**—Half dollar-sized hail was reported in Woodland Park.

The County identified an additional noteworthy storm on June 1, 2006, that caused property, crop, and infrastructure damage and had local business/economic impacts. Damage to vehicles approximated $70,000.

Probability of Future Occurrences

Based on a record of 30 hailstorm events over a 53 year period, hail of one inch or greater diameter occurs every 2 years on average, or **Likely**—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of hailstorms are 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. Overall significance is considered medium: moderate potential impact.

4.2.8 Hazardous Materials Incident

Description

Teller County is susceptible to accidents involving hazardous materials on roads, highways, and at fixed facilities that manufacture, use, or store dangerous chemical substances. A hazardous materials incident may occur at any time during routine business operations or as a result of a natural disaster. The release of hazardous materials can threaten people and natural resources in the immediate vicinity of the accident. Air releases can prompt large-scale population evacuations and spills into water or onto the ground can adversely affect public water and sewer systems.

A transportation incident refers to accidental and uncontrolled releases of chemicals or other hazardous materials during transport (i.e., highways, pipelines, and airways).

A fixed-facility incident is an uncontrolled release of chemicals or other potentially hazardous materials from a facility. Fixed facilities include companies that store hazardous waste at their facility and also all hazardous waste sites. Teller County has a number of fixed facilities that store hazardous chemicals for mining and industrial usage.

Geographic Extent

State Highway 24 is a major artery that runs east-west through Teller County, and large amounts of hazardous chemicals are transported on a daily basis. Highway 67 runs north-south through the County. Since Teller County is surrounded by mountains and diverse terrain, transportation of hazardous materials is more dangerous on high mountain passes with severe weather conditions and ice, wildlife, and debris on the roadways. South of Highway 24, Highway 67 to Victor is a major mountainous road, and travel is often difficult even under normal weather conditions.

In regard to potential fixed facility incidents, there are numerous potential sites around the County. The primary facility of concern, which has been releasing/disposing of more hazardous materials than the established threshold quantities, is the Cripple Creek and Victor Gold Mining Company on Highway 67 in Victor (see past occurrences below). Residences can be the source of fixed facility incidents, including meth lab fires, propane and methane leaks.

Previous Occurrences

Statistics from the National Response Center (www.nrc.uscg.mil/nrchp.html), which serves as the sole national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories, indicate that between 1990 and the end of 2007, 16 incidents were reported in Teller County. Of the incidents, 50 percent were mobile (transportation on land), 38 percent were fixed, and 13 percent were continuous. Although injuries were associated with some of the mobile events, they were not associated with the hazardous material released. None of the incidents had recorded impacts on the environment or the community.

Input from one fire protection district suggests that hazardous materials incidents in Teller County have been more frequent. Data from the Divide Fire Protection District (one of 6 in the County and the third largest) collected between 1998 and 2007 indicate 125 responses to hazardous materials incidents, averaging 12.5 per year. The incidents are further analyzed below:

Material

Propane/Methane	63.6%
Carbon Monoxide	14.0%
Gasoline/Diesel	12.4%
Other	10.0%

Type

Fixed Facility	81.6%
Transportation	18.4%

Medium Affected

Air	81.2%
Land	18.8%

In 2004 there was a change from propane to methane incidents, many related to underground gas lines being struck by digging equipment. This is the year Colorado Natural Gas started extending their lines to residential subdivisions in the Divide area.

HMPC member input suggests that the most significant hazmat call in recent years was in January 1999 when a propane truck rolled over on Highway 67. The estimated impact/expense of this one call was over $150,000. The call lasted 18 hours and required closing Highway 67, evacuating the Rainbow valley subdivision, and closing access to others. It had a significant impact on the gaming industry in Cripple Creek for the day. Local, State, and Federal assets were involved.

Propane spill January 1999, courtesy Bill Mayfield

Table 4.9. Hazardous Materials Incidents in Teller County, 1990-2007

Date	Description of Incident	Type of Incident	Nearest City	Suspected Responsible Company	Medium Affected	Material
10/3/2007	Caller reported that 35 gallons of diesel fuel released from the saddle tank of a tractor trailer onto the highway due to driver going around a curve too fast; HWY 24 and HWY 67 were closed	Mobile	Divide	Yetter Trucking Inc.	Land	Oil, fuel: no. 2-d
6/29/2007	Caller is reporting that a concrete company has been dumping concrete and construction debris into Fountain Creek that is by their facility	Fixed	Woodland Park	Ute Pass Concrete Batch Plant	Water	Concrete
8/27/2006	Caller reports while hiking her and her husband discovered a clear cloudy gel substance coming up from the ground; there are two active mining facilities on either side of the hiking trail and caller is concerned about her two-year child who touched the unknown substance	Fixed	Cripple Creek		Land	Unknown clear gel material
8/24/2005	Caller stated that an individual stored garbage, trash, and vehicle on his property and oil is releasing onto the ground and into a creek	Mobile	Cripple Creek		Water	Oil, misc. motor

Date	Description of Incident	Type of Incident	Nearest City	Suspected Responsible Company	Medium Affected	Material
5/20/2004	An unknown chemical was found in the ground when a sidewalk was being put in; origin of the chemical is unknown; W. Masonic Ave. was closed, 3 people were hospitalized, and people were evacuated from the area	Fixed	Cripple Creek		Land	Unknown material
12/12/2002	Caller reports a release of material due to a tractor trailer's brakes failing and it rolled onto its side rupturing its passenger saddle tank	Mobile	Cripple Creek	All Purpose Paving	Land	Oil, fuel: no. 2-d
2/11/2002	A tanker truck carrying diesel fuel overturned causing the diesel to spill from the tanker onto a soil surface; HWY 67 was closed	Mobile	Victor	Fleischci Oil Company	Land	Oil: diesel
7/10/2000	Suspected responsible party is dumping material from llama farm into stream behind his property	Fixed	Florissant	Stagestop Llamas	Water	Sewage
3/27/2000	Truck struck high area in alleyway striking valve on fuel tank cause a release of diesel fuel	Mobile	Cripple Creek	Alliant Food Service	Land	Oil: diesel
7/1/1999	Continuous release type - initial	Continuous	Victor	Cripple Creek and Victor Gold		Hydrogen cyanide
1/19/1999	Propane transport vehicle/material spilled due to a single vehicle accident; HWY 67 was closed and the immediate area was evacuated	Mobile	Divide	SW Express	Air	Propane
9/13/1997	Tank truck/truck was forced off the road by an oncoming car and spilled some material out of cargo tank	Mobile	Cripple Creek	Bora Transport Inc	Land	Oil, fuel: no. 2-d
10/13/1996	Pet cox on a fuel tank on truck/valve was damaged by high spot in road	Mobile	Cripple Creek	Alliant Food Service	Land	Oil: diesel
10/9/1996	Storage tank/a valve broke off	Fixed	Cripple Creek	Ferrell Gas	Air	Propane
4/30/1995	Caller states some trespassers stumbled upon some buried drums of hazmat and played in it	Fixed	Woodland Park		Land	Hydrocarbons
1/3/1992	Continuous release type - initial	Continuous	Victor	Cripple Creek and Victor Gold		

Source: National Response Center, www.nrc.uscg.mil/

Implemented in 1988, the Toxics Release Inventory (TRI) is a federal program established by the U.S. Environmental Protection Agency that contains information on releases of nearly 650 chemicals and chemical categories from industries including manufacturing, metal and coal mining, electric utilities, and commercial hazardous waste treatment, among others. TRI facilities are required to file reports of their disposal or other environmental releases as well as other waste management quantities of regulated chemicals if they manufacture, process, or otherwise use more than the established threshold quantities of these chemicals. According to the TRI, Cripple Creek and Victor Gold Mining Company released or disposed of 3,297,311 pounds of six types of hazardous materials in Teller County in 2006: lead compounds (3,279,371 pounds), manganese compounds (9,634 pounds), hydrogen cyanide (4,704 pounds), mercury compounds (1,903 pounds), ammonia (1,687 pounds), and cyanide compounds (12 pounds). This number has fluctuated from 3 to 3.5 million between 2002 and 2006. These numbers are significantly down from 2001's record high of 16,866,009. Since 1998, Cripple Creek and Victor Gold Mining Company has been the only facility in Teller County that exceeded reporting threshold levels and thus was required to report.

Note: The data does not reflect whether (or to what degree) the public has been exposed to any of the TRI chemicals. Both the toxicity of a chemical and exposure considerations should be taken into account when examining the data. The TRI does not cover all toxic chemicals that have the potential to adversely affect human health or the environment. The data does not include emissions from mobile sources nor releases of pesticides, volatile organic compounds, or fertilizers from many non-industrial sources.

Probability of Future Occurrences

Hazardous materials incidents in Teller County are **Highly Likely:** Near 100% chance of occurrence in next year, or happens every year.

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of hazardous materials incidents is 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. Overall significance is considered medium (moderate potential impact) due to the potential human and environmental impacts.

4.2.9 Landslide/Mud and Debris Flow/Rockfall

Landslide

A landslide is a general term for a variety of mass-movement processes that generate a downslope movement of soil, rock, and vegetation under gravitational influence. Some of the natural causes of ground instability are stream and lakeshore erosion, heavy rainfall, and poor quality natural materials. In addition, many human activities tend to make the earth materials less

stable and, thus, increase the chance of ground failure. Human activities contribute to soil instability through grading of steep slopes or overloading them with artificial fill, by extensive irrigation, construction of impermeable surfaces, excessive groundwater withdrawal, and removal of stabilizing vegetation. Landslides typically have a slower onset and can be predicted to some extent by monitoring soil moisture levels and ground cracking or slumping in areas of previous landslide activity.

Mud and Debris Flow

According to the Colorado Geological Survey, a mudslide is a mass of water and fine-grained earth materials that flows down a stream, ravine, canyon, arroyo or gulch. If more than half of the solids in the mass are larger than sand grains-rocks, stones, boulders—the event is called a debris flow. A debris fan is a conical landform produced by successive mud and debris flow deposits, and the likely spot for a future event.

The mud and debris flow problem can be exacerbated by wildfires that remove vegetation that serves to stabilize soil from erosion. Heavy rains on the denuded landscape can lead to rapid development of destructive mudflows.

Rockfall

A rockfall is the falling of a detached mass of rock from a cliff or down a very steep slope. Weathering and decomposition of geological materials produce conditions favorable to rockfalls. Rockfalls are caused by the loss of support from underneath through erosion or triggered by ice wedging, root growth, or ground shaking. Changes to an area or slope such as cutting and filling activities can also increase the risk of a rockfall. Rocks in a rockfall can be of any dimension, from the size of baseballs to houses. Rockfall occurs most frequently in mountains or other steep areas during the early spring when there is abundant moisture and repeated freezing and thawing. Rockfalls are a serious geological hazard that can threaten human life, impact transportation corridors and communication systems and result in other property damage.

Spring is typically the landslide/rockfall season in Colorado as snow melts and saturates soils and temperatures enter into freeze/thaw cycles. Rockfall and landslides are influenced by seasonal patterns, precipitation and temperature patterns. Earthquakes could trigger rockfalls and landslides too.

Geographic Extent

The topography of Teller County is very diverse. The County's elevation ranges from 8,000 feet in Woodland Park to over 14,000 feet on the west side of Pikes Peak. Thus most of the county includes areas of steep slopes, rock outcrops, and/or wildfire burn areas that could be susceptible to landslides, debris flows and rockfalls.

The 2002 update to the 1988 Colorado Landslide Mitigation Plan identifies "recent wildfire burn areas in forest or brush lands, debris flows, statewide," including the Hayman burn area, as Tier

One Debris Flow Areas. Tier One listings are serious cases needing immediate or ongoing action or attention because of the severity of potential impacts. A map of the Hayman burn can be referenced in the wildfire hazard profile.

Debris flow in the Hayman burn vicinity, 2002

According to the 2002 update to the 1988 Colorado Landslide Mitigation Plan there are no landslide/rockfall priority areas in Teller County. Nevertheless, according to the Colorado Geological Survey, just because a hilly area does not currently have landslides does not mean that it is not susceptible to landslides. There are many documented instances where human activities have activated new landslides. A detailed, statewide susceptibility study remains to be conducted. Rock outcrops of the Pikes Peak Granite, which are common throughout the County, could be sources of rockfall problems to roads or residential development beneath them.

The Hayman burn area is particularly susceptible to debris flows. Based on past occurrences (see discussion below), Highway 24 is susceptible to rockfall. Much of this activity occurs across the county line in El Paso County, southeast of Woodland Park. Since this is a major transportation route between Teller County/Woodland Park and Colorado Springs, rockfall on this highway could impact commuters, travelers and commercial hauling both into and out of the County. The HMPC noted that Highway 67 has also been closed several times due to debris flows.

Previous Occurrences

The following information came from the National Climatic Data Center Storm Events Database and the National Weather Service in Pueblo.

- **June 6-7, 1997**—Thunderstorms with heavy rain and hail caused four mud/rockslides that closed Highway 24 along Ute Pass. There were several rock and mud slides on other roads, too.
- **May 18, 1995**—Heavy rain caused a landslide and closed Highway 24 along Ute Pass.
- **May 15, 1949**—Heavy afternoon thunderstorms and rainfall caused a landslide in Ute Pass, sending about 400 tons of rock and mud down on Highway 24.

The following mud and debris flows in the Hayman burn area were reported to the National Climatic Data Center.

- **July 27, 2003**—Heavy thunderstorm rains closed Highway 67 due to water and debris flowing across portions of the highway.
- **July 10, 2002**— Heavy rain forced incident crews in the Hayman burn area to head for safe spots. Reports of water and debris washing across the roadways were noted.

Probability of Future Occurrences

Based on the previous occurrences noted above, the probability of landslide/debris flow/rockfall events are **Likely**—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less.

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of landslide/debris flow/rockfall is 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. Overall significance is considered medium: moderate potential impact.

4.2.10 Lightning

Description

Lightning is an electrical discharge between positive and negative regions of a thunderstorm. A lightning flash is composed of a series of strokes with an average of about four. The length and duration of each lightning stroke vary, but typically average about 30 microseconds.

Lightning is one of the more dangerous weather hazards in the United States and in Colorado. Each year, lightning is responsible for deaths, injuries, and millions of dollars in property damage, including damage to buildings, communications systems, power lines, and electrical systems. Lightning also causes forest and brush fires and deaths and injuries to livestock and other animals. According to the National Lightning Safety Institute, lightning causes more than 26,000 fires in the United States each year. The institute estimates property damage, increased operating costs, production delays, and lost revenue from lightning and secondary effects to be in

excess of $6 billion per year. Impacts can be direct or indirect. People or objects can be directly struck, or damage can occur indirectly when the current passes through or near it.

Intracloud lightning is the most common type of discharge. This occurs between oppositely charged centers within the same cloud. Usually it takes place inside the cloud and looks from the outside of the cloud like a diffuse brightening that flickers. However, the flash may exit the boundary of the cloud, and a bright channel can be visible for many miles.

Although not as common, cloud-to-ground lightning is the most damaging and dangerous form of lightning. Most flashes originate near the lower-negative charge center and deliver negative charge to earth. However, a large minority of flashes carry positive charge to earth. These positive flashes often occur during the dissipating stage of a thunderstorm's life. Positive flashes are also more common as a percentage of total ground strikes during the winter months. This type of lightning is particularly dangerous for several reasons. It frequently strikes away from the rain core, either ahead or behind the thunderstorm. It can strike as far as 5 or 10 miles from the storm in areas that most people do not consider to be a threat. Positive lightning also has a longer duration, so fires are more easily ignited. And, when positive lightning strikes, it usually carries a high peak electrical current, potentially resulting in greater damage.

The ratio of cloud-to-ground and intracloud lightning can vary significantly from storm to storm. Depending upon cloud height above ground and changes in electric field strength between cloud and earth, the discharge stays within the cloud or makes direct contact with the earth. If the field strength is highest in the lower regions of the cloud, a downward flash may occur from cloud to earth. Using a network of lightning detection systems, the United States monitors an average of 25 million strokes of lightning from the cloud-to-ground every year.

U.S. lightning statistics compiled by the National Oceanic and Atmospheric Administration between 1959 and 1994 indicate that most lightning incidents occur during the summer months of June, July, and August and during the afternoon hours from between 2 and 6 p.m.

Geographic Extent

The entire extent of Teller County is exposed to some degree of lightning hazard, though exposed points of high elevation have significantly higher frequency of occurrence.

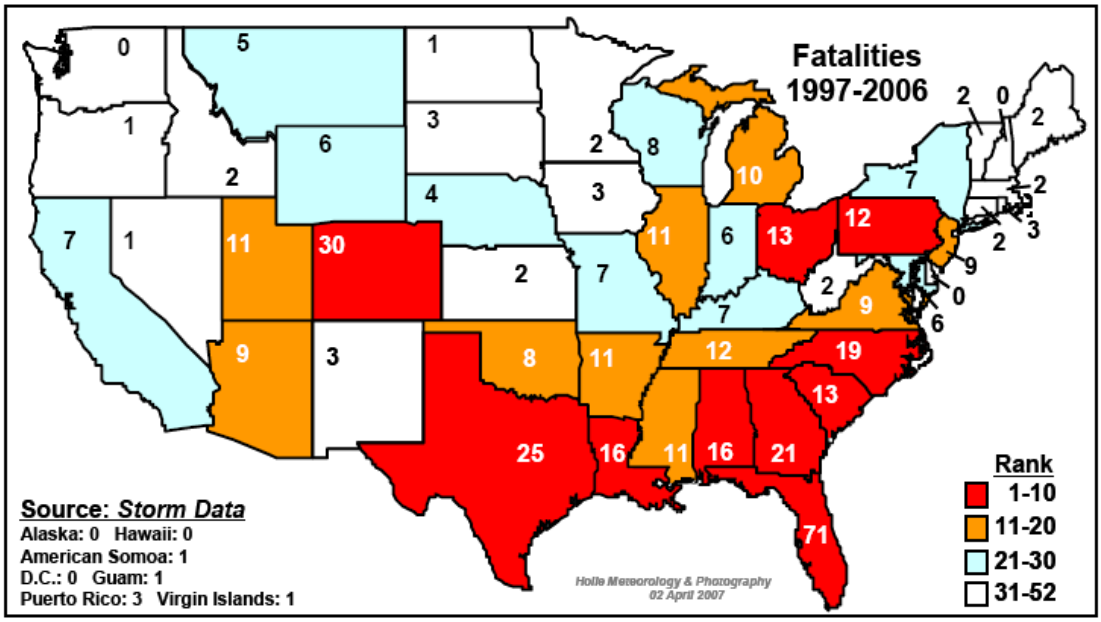
Previous Occurrences

Data from the National Lightning Detection Network ranks Colorado 31st in the nation (excluding Alaska and Hawaii) with respect to the number of cloud-to-ground lightning flashes with an average number of 517,217 flashes per year (based on data collected between 1996 and 2005). Teller County has an average of 5,700 flashes per year.

Figure 4.11 shows state-by-state lightning deaths between 1997 and 2006. Colorado ranks second for the number of deaths at 30. Only Florida, with 71 deaths, had more. Texas followed

Colorado with 25 deaths. In 2006, there were 5 lightning deaths and 15 reported lightning injuries in Colorado. Three deaths and four injuries were in Teller County. In an average year in Colorado, 3 people are killed and 13 are injured.

Figure 4.11. Lightning Fatalities in the United States, 1997-2006



Source: National Weather Service, www.lightningsafety.noaa.gov/

According to the National Climatic Data Center Storm Events Database, there were seven notable lightning events in Teller County between 1993 and October 2007. These incidents are noted in Table 4.10 and described in more detail in the text that follows.

Table 4.10. Notable Lightning Events in Teller County, 1993—October 2007.

Location	Date	Deaths	Injuries	Damage (2007 $)
Cripple Creek	7/27/2006	0	2	0
Woodland Park	7/19/2006	1	0	0
Cripple Creek	7/27/2004	0	0	0
Woodland Park	8/11/2003	0	1	0
Woodland Park	8/8/1998	1	1	0
Cripple Creek	7/16/1994	1	0	0
Woodland Park	9/5/1993	0	0	1,435

Source: National Climatic Data Center Storm Events Database, www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms

- **July 27, 2006**—Two teenage boys were hospitalized after a lightning strike occurred near them on Teller County Road 1 near Cripple Creek. Neither was seriously injured.
- **July 19, 2006**—A young man playing soccer was struck and killed by lightning.
- **July 27, 2004**—A lightning strike caused a four-hour power outage to most of Cripple Creek. The outage shut down casinos and other businesses and residences that did not have

emergency generators. Lightning struck the Teller County Sheriff's Office in Divide, knocking out emergency communications systems and damaging control systems at the jail. Backup systems were effective in both cases (Gazette newspaper article).

- **August 11, 2003**—Lightning struck a power pole outside a house, and a 19-year old male talking on the telephone was affected by the current. He was taken to the hospital; no injuries were found.
- **August 8, 1998**—Two young boys holding hands took shelter under a tree when a storm hit during a family hike at the Rampart Reservoir. Lightning apparently struck their umbrella, and traveled through one boy to the other. One died; the other received burns to his hands.
- **July 16, 1994**—A 39-year-old man was struck and killed by lightning as he was fishing at a reservoir near Cripple Creek.
- **September 5, 1993**—Lightning struck a transformer in Woodland Park, causing a brief power outage.

HMPC members suggest that the number of reported injuries is likely to be low and that County infrastructure losses equate to tens of thousands of dollars each year. The Cripple Creek water treatment plant and pumping plant is frequently struck by lightning. The relationship of lighting to wildfire ignitions in the County increases the significance of this hazard.

Probability of Future Occurrences

Based on 7 events in 15 years, a damaging lightning strike occurs every two years on average in Teller County and is considered **Likely**—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less.

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of flooding is 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. Overall significance is considered medium (moderate potential impact) due to risk to life safety, power outages, and fire ignitions.

4.2.11 Pandemic Flu

Description

A pandemic is a global disease outbreak. A pandemic flu is a virulent human flu that causes a global outbreak, or pandemic, of serious illness. A flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity, and for which there is no vaccine. This disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in very short time. The U.S. Centers for Disease Control and Prevention has been working closely with other countries and the World Health Organization to

strengthen systems to detect outbreaks of influenza that might cause a pandemic and to assist with pandemic planning and preparation.

Most recently, health professionals are concerned by the possibility of an avian (or bird) flu pandemic associated with a highly pathogenic avian H5N1 virus. Since 2003, avian influenza has been spreading through Asia. A growing number of human H5N1 cases contracted directly from handling infected poultry have been reported in Asia, Europe, and Africa, and more than half the infected people have died. There has been no sustained human-to-human transmission of the disease, but the concern is that H5N1 will evolve into a virus capable of human-to-human transmission.

An especially severe influenza pandemic could lead to high levels of illness, death, social disruption, and economic loss. Impacts could range from school and business closings to the interruption of basic services such as public transportation, health care, and the delivery of food and essential medicines. Pandemic outbreaks have on average a 45% mortality rate.

Geographic Extent

The entire County and population could potentially be affected by a pandemic flu outbreak.

Previous Occurrences

There have been three acknowledged pandemics in the twentieth century. The extent of these pandemics impacts on Teller County is not known, but it is likely that they affected residents of the County at the time. Pandemic outbreaks are noted below:

- **1900-1901** Smallpox outbreak affected Victor.
- **1918-19 Spanish flu (H1N1)**—This flu is estimated to have sickened 20-40 percent of the world's population. Over 20 million people lost their lives. Between September 1918 and April 1919, 500,000 Americans died. The flu spread rapidly; many died within a few days of infection, others from secondary complications. The attack rate and mortality was highest among adults 20-50 years old; the reasons for this are uncertain.

  In Colorado, influenza was first spotted among military recruits reporting for duty at the University of Colorado. By late October 1918, the disease had spread throughout the state and was especially severe in the more mountainous regions of the state. Death rates among miners was very high as their lungs were already in weakened states.
- **1957-58 Asian flu (H2N2)**—This virus was quickly identified due to advances in technology, and a vaccine was produced. Infection rates were highest among school children, young adults, and pregnant women. The elderly had the highest rates of death. A second wave developed in 1958. In total, there were about 70,000 deaths in the United States. Worldwide deaths were estimated between 1 and 2 million.
- **1968-69 Hong Kong flu (H3N2)**—This strain caused approximately 34,000 deaths in the United States and more than 700,000 deaths worldwide. It was first detected in Hong Kong

in early 1968 and spread to the United States later that year. Those over age 65 were most likely to die. This virus returned in 1970 and 1972 and still circulates today.

Probability of Future Occurrences

Based on three worldwide outbreaks in the past years that affected the United States between 1918 and 2007, an 89 year period, a pandemic outbreak occurs on average about every 30 years. Based on the worldwide outbreaks a pandemic flu occurrence is considered **Occasional**—Between 1 and 10 percent chance of occurrence in next 100 years, or has a recurrence interval of 11 to 100 years.

Magnitude/Severity

Based on geographic extent and previous occurrences, the potential magnitude of this hazard in Teller County is **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. Overall significance is considered medium (moderate potential impact) due to risk to life safety.

4.2.12 Severe Winter Storm

Description

Winter storms can include heavy snow, ice, and blizzard conditions. Heavy snow can immobilize a region, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse roofs and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. The cost of snow removal, damage repair, and business losses can have a tremendous impact on cities and towns.

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days until damage can be repaired. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

Some winter storms are accompanied by strong winds, creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chills. Strong winds with these intense storms and cold fronts can knock down trees, utility poles, and power lines. Blowing snow can reduce visibilities to only a few feet in areas where there are no trees or buildings. Serious vehicle accidents can result with injuries and deaths.

Winter storms in Teller County, including strong winds and blizzard conditions, can result in property damage, localized power and phone outages and closures of streets, highways, schools, businesses, and nonessential government operations. People can also become isolated from essential services in their homes and vehicles. A winter storm can escalate, creating life

threatening situations when emergency response is limited by severe winter conditions. Other issues associated with severe winter weather include hypothermia and the threat of physical overexertion that may lead to heart attacks or strokes. Snow removal costs can also impact budgets significantly. Heavy snowfall during winter can also lead to flooding or landslides during the spring if the area snowpack melts too quickly.

Geographic Extent

The entire County is susceptible to severe winter storms.

Previous Occurrences

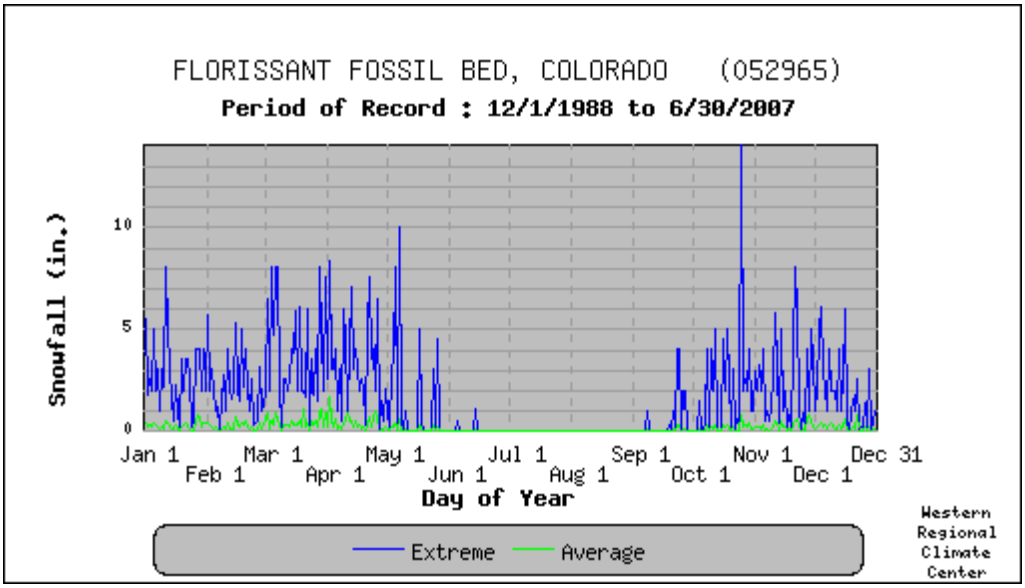
The Western Regional Climate Center reports data from a weather station in Teller County: Florissant Fossil Bed. Table 4.11 contains snowfall and snowdepth summaries for the station. Figures 4.12 and 4.13 show daily snowfall and snowdepth averages and extremes.

Table 4.11. Teller County Snowfall and Snowdepth Summaries[1]

Station	Average Annual Snowfall	Snowiest Month/Average Snowfall	Highest Daily Snowfall	Highest Monthly Snowfall	Highest Seasonal Snowfall	Average Snow Depth
Florissant Fossil Bed[2]	56.8	March/12.7	14.00 October 25, 1997	27.50 April 1995	84.80 1997-1998	1

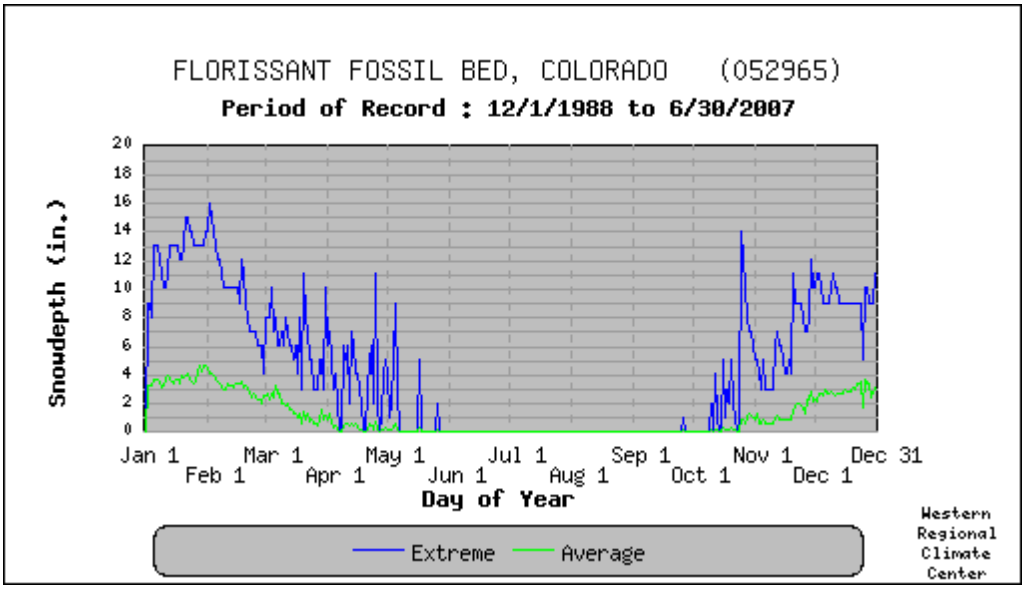
Source: Western Regional Climate Center, www.wrcc.dri.edu/
[1]All snowfall and snowdepths are reported in inches
[2]Period of record: 12/1/1988 to 6/30/2007

Figure 4.12. Florissant Fossil Bed Station Snowfall Average and Extreme



Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4.13. Florissant Fossil Bed Station Snowdepth Average and Extreme



Source: Western Regional Climate Center, www.wrcc.dri.edu/

Historical data from SHELDUS, the National Climatic Data Center Storm Events Database, and the National Weather Service in Pueblo was combined to determine that there were roughly 93 recorded winter storm events in Teller County between 1960 and October 2007.

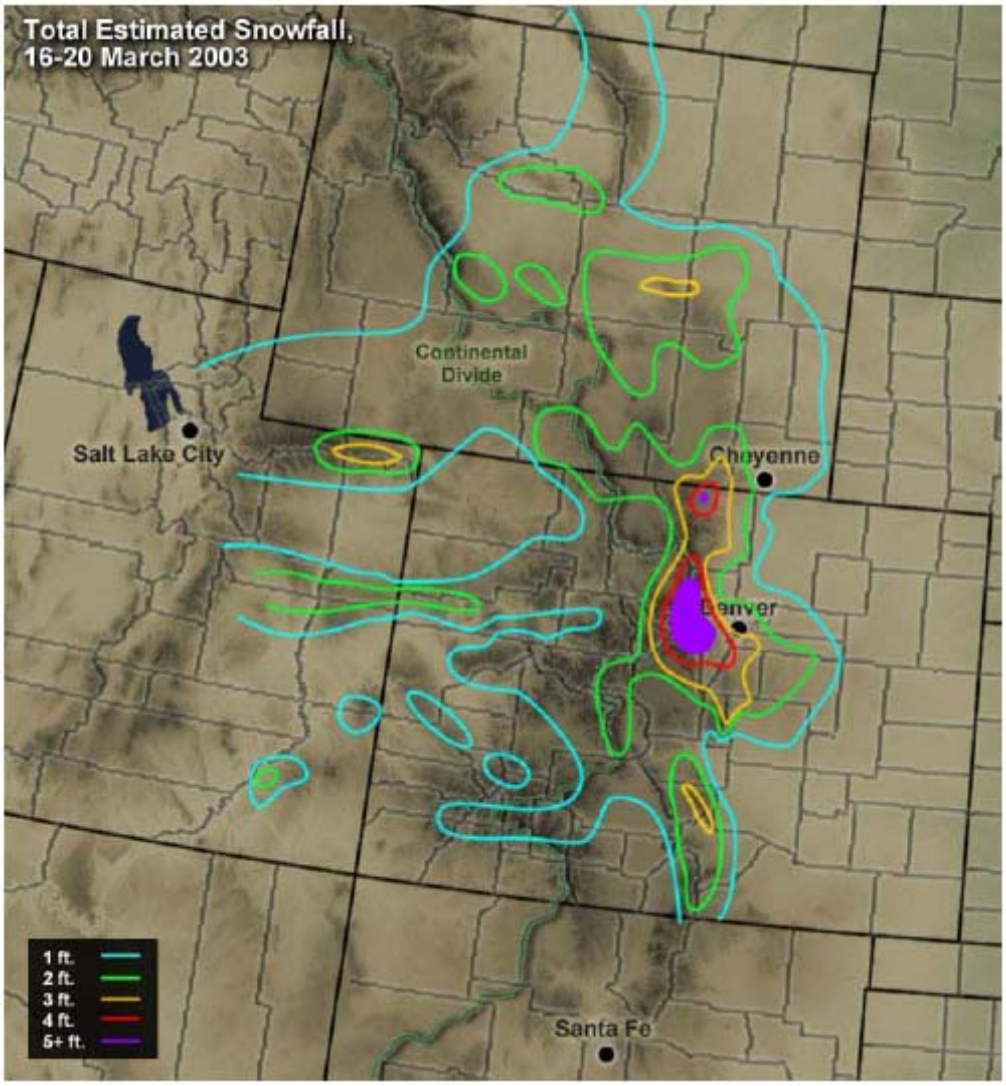
Data limitations: Some events may have been missed due to limitations in the manner in which events that occurred over multiple forecast zones are reported. Dollar figures are total damages for all counties associated with an event. Specific Teller County losses are not available.

Descriptions of some of the events from the National Climatic Data Center Storm Events Database, the National Weather Service in Pueblo, and the County are included below:

- **April 24, 2007**—An intense low pressure system moving along the Colorado/New Mexico border generated significant snow accumulations over the region. The heavy wet snow combined with high winds caused numerous power outages, downed power lines, and road closures. 12 to 14 inches of snow were reported in Woodland Park.
- **December 28, 2006**—Heavy snow and blizzard conditions impacted much of southern Colorado. 17 to 20 inches of snow were reported in and around Woodland Park.
- **December 19, 2006**—Heavy snow and blizzard conditions occurred over much of southern Colorado. 10 to 15 inches of snow were reported in Cripple Creek and Florissant, and around two feet was reported in Woodland Park. Teller County received a presidential emergency declaration for this event (FEMA-3270-EM). Snow removal and cleanup costs for the two big December storms approximated $106,000.
- **October 26, 2006**—28 inches of snow fell in some parts of the County. Winds caused drifts of five feet in some areas.

- **December 1, 2005**—A strong weather disturbance produced some heavy snow amounts over portions of southern Colorado. Isolated heavy amounts of 6 to 9 inches occurred around Cripple Creek and Woodland Park.
- **October 10, 2005**—A slow moving winter storm produced heavy snow along with strong gusty winds, which produced difficult driving conditions over many parts of southern Colorado. 6 to 8 inches of snow were reported in Cripple Creek, and 10 to 13 inches were reported in Woodland Park.
- **April 10, 2005**—A powerful early spring blizzard caused snow drifts up to eight feet and closed schools, businesses, and roads. 12 to 14 inches of snow were reported in Divide and Woodland Park.
- **March 30, 2005**—An intense storm system produced heavy wet snow and high winds over southern Colorado, causing downed power lines and numerous isolated power outages. 5 to 10 inches of snow were reported in Woodland Park, and 19 to 20 inches were reported in Divide.
- **March 21, 2005**—Isolated heavy snow was noted over Teller County with 8 inches in a period of eight hours at Divide and 12 inches at Woodland Park.
- **January 28, 2005**—A slow moving winter storm deposited substantial amounts of heavy wet snow over portions of southern Colorado. 14 inches of snow were reported near Woodland Park.
- **November 1, 2004**—A winter storm system produced some impressive snow amounts over southern Colorado. Eight inches of snow were reported in the Woodland Park area, and one foot was reported in Divide.
- **April 22, 2004**—A strong early spring storm brought 6 to 10 inches of snow to the Florissant area, 12 to 18 inches to Divide and Woodland Park.
- **February 1, 2004**—A winter storm system brought 8 to 9 inches of snow to Cripple Creek and 11 to 13 inches to Victor.
- **January 2, 2004**—A strong winter storm in southern Colorado caused areas of heavy snow. 10 inches of snow were reported in Divide.
- **March 17, 2003**—This storm dumped over three feet of snow and paralyzed the region. Teller was included in a presidential emergency declaration (FEMA-3185-EM). Costs exceeded $9 million (2006 dollars) statewide. The County experienced business/economic impacts; road, school, and other closures; equipment failures; and mud and drainage problems. Injuries were reported. Teller County Public Works spent approximately $126,000 in labor and equipment for snow removal and cleanup. Figure 4.14 shows total estimated snowfall for this storm.

Figure 4.14. Total Estimated Snowfall, March 16-20, 2003



Source: University Corporation for Atmospheric Research, www.crh.noaa.gov/images/gjt/papers/Large_Snowfall_Variation_2004.pdf

- **February 5, 2003**—An upper level disturbance produced widespread snow across the region. Nine inches of snow were reported around Victor.
- **October 29, 2002**—11 inches of snow were reported in the Turkey Creek Ranch, 6 inches were noted at Cripple Creek, 7 inches fell in Victor, and 12 inches occurred at Skaguay Reservoir four miles east of Victor.
- **January 26, 2000**—An intense storm system brought heavy snow to southern Colorado. Woodland Park received 8 inches of snow while Divide measured 10 inches.
- **December 3, 1999**—An intense winter storm brought 20 inches of snow to Woodland Park and 9 inches to Divide.

- **November 21, 1999**—An evening snowstorm dumped 17 inches of snow in Green Mountain Falls.
- **November 29, 1997**—Blizzard conditions brought 19 inches of snow to Divide, 18 to Cripple Creek, and 12 to Woodland Park. Infrastructure damage, business/economic impacts, and road, school, and other closures were reported.
- **October 24, 1997**—While blizzards are not uncommon in Colorado, the widespread area extent of this blizzard was. It was perhaps a one in 50 year event. The governor declared a State of Emergency. Emergency traffic only was allowed on eastern Colorado roadways. The combination of high wind and heavy snow caused power lines to come down. Power outages occurred (and lasted up to two days) in many parts of the area. Hundreds of businesses and stores were closed throughout much of the weekend, and temporary sales and production loses were in the millions of dollars. Many school districts were closed for a part, or all, of the following week. Costs were estimated at $1 million statewide. Extra costs for snow removal in both the private and public sector from overtime wages certainly ran into the millions of dollars areawide. Generally between one and two feet fell from the Rampart Range and southern Colorado Springs, south through Pueblo, down to Trinidad, and throughout the southeast plains.
- **February 23, 1997**—An upper level low pressure system over southern Utah pumped moisture into southern Colorado. This abundant moisture, in conjunction with a strong cold front over southeastern Colorado, produced widespread snow across south-central and southeast Colorado. The mountains and higher terrain received between one and three feet of new snow, the foothills around 12 inches, and the rest of the area between 5 and 10 inches.
- **May 18, 1995**—Eighteen inches of snow fell in Woodland Park
- **April 21, 1995**—A third in a series of moist, spring storm systems dropped between 4 to 12 inches over the southeast plains and 12 to 15 inches in the central and southern mountains, and southern foothills.
- **January 26, 1994**—The combination of an upper level storm system and moist upslope winds brought heavy snow and cold temperatures to much of eastern Colorado. Snowfall amounts averaged 10 inches at Woodland Park.
- **March 1-April 30, 1973**—The Divide area was plagued with seven weeks of snow and wind with little relief. Road, school, and other closures as well as business/economic impacts resulted.

Probability of Future Occurrences

Severe winter storms happen nearly every year in Teller County and are thus considered **Highly Likely**—Near 100 percent chance of occurrence in next year, or happens every year

Magnitude/Severity

Based on the information in this hazard profile, and the widespread impacts, the magnitude/severity of severe winter storms is considered catastrophic. Overall significance of the hazard is considered high: widespread potential impact.

4.2.13 Soil Erosion

Description

Soil erosion and the associated sedimentation have proven to be problems in Teller County. The Colorado Geological Survey defines erosion as "the removal and simultaneous transportation of earth materials from one location to another by water, wind, waves, or moving ice" and sedimentation (deposition) as "the placing of the eroded material in a new location. All material that is eroded is later deposited in another location."

While these are natural watershed processes that occur during all rates of streamflow, human activities greatly influence the rate and extent of erosion and sedimentation. Examples of these activities include removal of vegetation, alteration of natural drainages, and actions that rearrange the earth, such as subdivision development, highway construction, and modification of drainage channels.

Grus soils form as a result of weathering of granites with abundant feldspar, such as the Pikes Peak Granite in Teller County. The result is similar to 'kitty litter', which can easily be eroded and transported by wind and rain. Problems result from both erosion and deposition of these soils, particularly in areas burned by recent wildfires. Generally, land underlain by grus is gently rolling.

According to the Fountain Creek Watershed Plan, erosion in an uncontrolled or unmanaged system can lead to exacerbated stream bank deterioration; channel instability; loss of agricultural, residential, industrial or private property; loss of infrastructure; and increased sediment loads to downstream reaches. Similarly, sedimentation in an uncontrolled or unmanaged system can lead to loss of channel and reservoir capacity, habitat, and fisheries; decreased channel stability; increased floodplain widths; more variable channel meander patterns; plugging of stormwater outlets; loss of agricultural, residential, industrial, or private property; and increased probabilities of flooding. Undercutting caused by erosion can lead to landslides and rockfalls.

These processes can have negative impacts on communities and the environment. Resultant economic losses may include damage to property and infrastructure, lost recreational or development opportunities, and reduced tax revenues (e.g., sales and property).

Geographic Extent

According to the U.S. Geological Survey Generalized Surficial Geologic Map of the Pueblo 1x2 degree Quadrangle (2002), a large majority of the surficial geology of Teller County is "Grus, crystalline-clast colluvium, alluvium, and rock outcrop." The area of greatest concern for soil erosion problems is within the area burned by the Hayman fire in 2002 in northern Teller County (see map in wildfire profile).

Fountain Creek Watershed

Soils in the region of Teller County associated with the Fountain Creek watershed are summarized by the U.S. Department of Agriculture, Natural Resources Conservation Service, and El Paso County Service Center staff as follows:

- Soil characteristics: Shallow gravelly soils derived from Pikes Peak granite
- Soil description: Shallow and poorly developed
- Erosion susceptibility: High
- Runoff susceptibility: Rapid
- Elevation: 7,000-14,000 feet
- Slope: 25-90 percent
- Average precipitation: 22 inches
- Geographic extent: Present in the quadrant extending from the confluence of Fountain Creek and Monument Creek north and west approximating along creek boundaries.

According to the Fountain Creek Watershed Plan, Teller County's primary problems associated with Fountain Creek are erosion and sedimentation. Erosion is more common in upland source areas and headwater stream channels where there may be erosion over large areas, channel downcutting or incising, or channel head migration upslope. According to a study conducted by the U.S. Geological Survey between 1998 and 2001, about 4.5 times more sediment was transported in Fountain Creek during stormflow than during normal flow.

The erosion problems in the main channel through Woodland Park have been addressed with channel improvements and installation of hard erosion control measures. Sediment inflows come from tributaries entering the main channel just east of Woodland Park.

Erosion has been a problem in the stream banks upstream of the Old Crystola Road. This may be caused by confining the channel to the southwest side of the valley and straightening the channel to make more use of the valley floor for a wastewater treatment plant that is no longer in use. Sedimentation is a problem further downstream at the Old Crystola Road Bridge where the channel is filled with sediment.

In the stream reaches of Fountain Creek immediately downstream of Woodland Park, loss of channel conveyance capacity due to sedimentation becomes a problem. These problems are alleviated after the creek becomes confined in bedrock a few miles downstream and passes through small onstream reservoirs. Nevertheless, on occasion minor problems are experienced along this reach.

Previous Occurrences

As soil erosion is an ongoing geological process, it is not as easy to discern or document specific erosion events. Many of the descriptions associated with the flood and debris flow hazards

include episodes of excessive erosion or deposition. Since the Hayman fire in 2002 erosion and sedimentation has been in ongoing problem in the northwestern part of the County.

Probability of Future Occurrences

Significant soil erosion happens nearly every year in Teller County and is thus considered **Highly Likely**—Near 100 percent chance of occurrence in next year, or happens every year

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of soil erosion is negligible— less than 10 percent of property severely damaged; shutdown of facilities for less than a 24 hours. Overall significance is considered low: minimal potential impact.

4.2.14 Tornado

Description

Tornadoes are rotating columns of air marked by a funnel-shaped downward extension of a cumulonimbus cloud whirling at destructive speeds of up to 300 mph, usually accompanying a thunderstorm. Tornadoes are the most powerful storms that exist. They can have the same pressure differential that fuels 300-mile-wide hurricanes across a path only 300-yards wide or less. Tornadoes form when cool, dry air sits on top of warm, moist air. Tornadoes in Teller County are typically associated with supercell thunderstorms with deep rotating updrafts.

Tornadoes can cause damage to property and loss of life. While most tornado damage is caused by violent winds, most injuries and deaths result from flying debris. Property damage can include damage to buildings, fallen trees and power lines, broken gas lines, broken sewer and water mains, and the outbreak of fires. Agricultural crops and industries may also be damaged or destroyed. Access roads and streets may be blocked by debris, delaying necessary emergency response.

Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita scale. Both scales are sets of wind estimates (not measurements) based on damage. The new scale provides more damage indicators (28) and associated degrees of damage, allowing for more detailed analysis, better correlation between damage and wind speed. It is also more precise because it takes into account the materials affected and the construction of structures damaged by a tornado. Table 4.12 shows the wind speeds associated with the original Fujita scale ratings and the damage that could result at different levels of intensity. Table 4.13 shows the wind speeds associated with the Enhanced Fujita Scale ratings. The Enhanced Fujita Scale's damage indicators and degrees of damage can be found online at www.spc.noaa.gov/efscale/ef-scale.html.

Table 4.12. Original Fujita Scale

Fujita (F) Scale	Fujita Scale Wind Estimate (mph)	Typical Damage
F0	< 73	Light damage. Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113-157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158-206	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5	261-318	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur.

Source: National Oceanic and Atmospheric Administration Storm Prediction Center, www.spc.noaa.gov/faq/tornado/f-scale.html

Table 4.13. Enhanced Fujita Scale

Enhanced Fujita (EF) Scale	Enhanced Fujita Scale Wind Estimate (mph)
EF0	65-85
EF1	86-110
EF2	111-135
EF3	136-165
EF4	166-200
EF5	Over 200

Source: National Oceanic and Atmospheric Administration Storm Prediction Center, www.spc.noaa.gov/faq/tornado/ef-scale.html

Geographic Extent

While it is unusual to have tornadoes in the foothills and higher elevations that comprise Teller County, they have occurred, as described in the next section. The entire county can be considered as potentially vulnerable to tornadoes.

Previous Occurrences

Historical data from the National Climatic Data Center Storm Events Database and the National Weather Service in Pueblo indicates that there five tornadoes in Teller County between 1955 and October 2007 (see Table 4.14). All five of these events occurred in June or July. Fortunately these tornadoes did not hit populated areas, but environmental damage to forested areas did result.

Table 4.14. Tornadoes in Teller County, 1955-2007

Location	Date	Magnitude	Damage (2007$)	Comments
Woodland Park	6/27/2007	F1	-	Tornado knocked down dozens of trees near Forest Service Road 357 and County Road 78
Divide	7/12/1996	F1	-	Tornado touched down just north of Cedar Mountain Road in the Pike National Forest, uprooting or snapping 80 to 100 acres of spruce, pine, and aspen trees as it crossed Cedar Mountain Road moving south-southwest
Teller	6/28/1983	F1	-	
Teller	7/25/1979	F1	-	
Teller	7/3/1968	F0	17,874	

Source: National Climatic Data Center Storm Events Database, www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms

Probability of Future Occurrences

Based on the past occurrences listed above, the probability of future tornadoes in Teller County is **Likely**—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less.

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of tornadoes is considered **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. This could vary depending on where a tornado hits. The overall significance of tornadoes is low: minimal potential impact.

4.2.15 West Nile Virus

Description

The impact to human health that wildlife, and more notably, insects, can have on an area can be substantial. Mosquitoes transmit the potentially deadly West Nile virus to livestock and humans alike. West Nile virus first struck the western hemisphere in Queens, New York, in 1999 and killed four people. Since then, the disease has spread across the United States. In 2003, West Nile virus activity occurred in 46 states and caused illness in over 9,800 people.

Most humans infected by the virus have no symptoms. A small proportion develops mild symptoms that include fever, headache, body aches, skin rash, and swollen lymph glands. Less than 1 percent of those infected develop more severe illness such as meningitis or encephalitis, symptoms of which include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. Of the few people who develop encephalitis, fewer than 1 out of 1,000 infections die as a result.

There is no specific treatment for the infection or a vaccine to prevent it. Treatment of severe illness includes hospitalization, use of intravenous fluids and nutrition, respiratory support, prevention of secondary infections, and good nursing care. Medical care should be sought as soon as possible for persons who have symptoms suggesting severe illness. People over 50 years of age appear to be at high risk for the severe aspects of the disease.

The Culex species is the most common mosquito to carry West Nile virus. While these mosquitoes can live as high as 10,000 feet in elevation, the mostly inhabit the lower, warmer elevations and are most active in the evenings and early mornings.

Geographic Extent

The geographic extent of this hazard in Teller County is in the lower elevations of the County, near open water sources. With most of the county in the 7,500-10,000 foot elevation range it is not likely that the Culex mosquito will be very predominant at that altitude. There is also a limited amount of open water in the County.

Previous Occurrences

Information from the U.S. Geological Survey (USGS) indicated that West Nile virus was first detected in Colorado in 2002. The virus was first reported in the County in 2003. Since then it has had one report of the virus in birds. There have not been any reported human cases in the County. Table 4.15 summarizes historical West Nile virus information in Colorado and Teller County. As of 2007 there have been no human infections and only one bird infected in the county.

Table 4.15. Summary of West Nile Virus Cases in Colorado and Teller County 2001- 2007*

	Humans		Birds		Mosquitoes		Veterinary		Sentinel Flock	
Year	CO	Teller	CO	Teller	CO	Teller	CO	Teller	CO	Teller
2001	0	0	0	0	0	0	0	0	0	0
2002	14	0	137	0	15	0	380	0	3	0
2003	2,947 (63)	0	766	1	639	0	393	0	213	0
2004	291	0	55	0	168	0	30	0	0	0
2005	106	0	40	0	122	0	0	0	0	0
2006	345 (7)	0	50	0	419	0	7	0	0	0
2007*	576 (6)	0	46	1	618	0	29	0	0	0

Source: U.S. Geological Survey, http://diseasemaps.usgs.gov/; Colorado Department of Public Health and Environment, www.cdphe.state.co.us/dc/zoonosis/

Notes:

*As of February 5, 2008

Numbers in parentheses indicate deaths.

Probability of Future Occurrences

Likely—Between 10 and 100 percent chance of occurrence in next year, or has a recurrence interval of 10 years or less.

Magnitude/Severity

Based on the information in this profile, West Nile virus impacts to Teller County could be negligible, with less than 10 percent of the planning area's population affected. Overall significance of this hazard is considered low.

4.2.16 Wildfire

Description

Fire conditions arise from a combination of hot weather, an accumulation of vegetation, and low moisture content in air and fuel. These conditions, especially when combined with high winds and years of drought, increase the potential for wildfire to occur. The wildfire risk is predominantly associated with wildland-urban interface areas, where development is interspersed or adjacent to landscapes that support wildfire. A fire along this wildland-urban interface can result in major losses of property and structures.

Wildfires can start suddenly due to lightning or human causes linked to activities such as smoking, campfires, equipment use, arson, accidents, and controlled burns. Generally, there are three major factors that sustain wildfires and enable forecasters to predict a given area's potential to burn. These factors include fuel, topography, and weather:

- **Fuel**—Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and by volume. Fuel sources are diverse and include everything from dead tree needles and leaves, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. Also to be considered as a fuel source, are manmade structures and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Light fuels such as grasses burn quickly and serve as a catalyst for fire spread. The volume of available fuel is described in terms of fuel loading.
- **Topography**—An area's terrain and land slopes affect its susceptibility to wildfire spread. Fire intensities and rates of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The natural arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.
- **Weather**—Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out the fuels that feed the wildfire creating a situation where fuel will more readily ignite and burn more intensely. Wind is the most treacherous weather factor. The greater a wind, the faster a fire will spread, and the more intense it will be. Winds can be significant at times in Teller County, though the highest winds usually occur during the winter and spring, not during the summer fire season. In addition to high winds, wind shifts can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. Related to weather is the issue of recent drought conditions contributing to

concerns about wildfire vulnerability. During periods of drought, the threat of wildfire increases.

Small fires can grow rapidly when adequate fuels coincide with weather and topography favorable to fire. Wildfires can last from several hours to several months. Generally, the fire season extends from early spring to late fall.

Potential losses from wildfire include human life; structures and other improvements; natural and cultural resources; the quality and quantity of the water supply; assets such as timber, range and crop land, and recreational opportunities; and economic losses. Smoke and air pollution from wildfires can be a severe health hazard. In addition, catastrophic wildfire can lead to secondary impacts or losses such as future flooding and landslides and erosion during heavy rains.

Wildfires are of significant concern throughout Colorado. According to the Colorado State Forest Service, vegetation fires occur on an annual basis; most are controlled and contained early with limited damage. For those ignitions that are not readily contained and become wildfires, damage can be extensive. According to the State of Colorado Natural Hazards Mitigation Plan, a century of aggressive fire suppression combined with cycles of drought and changing land management practices has left many of Colorado's forests, including those in Teller County, unnaturally dense and ready to burn. Further, the threat of wildfire and potential losses are constantly increasing as human development and population increases and the wildland-urban interface expands. Another contributing factor to fuel loads in the forest are standing trees killed by pine bark beetles, which have been affecting the forests of Colorado since 2002, becoming more widespread and a serious concern in 2006 and 2007. According to a Teller County All-Hazards Public Opinion Survey conducted in 2004 (see Appendix D), Teller County residents believe that wildfire is the greatest threat to their safety.

Geographic Extent

According to the Teller County Community Wildfire Protection Plan (CWPP), the County is heavily forested (primarily ponderosa pine and grasslands at lower elevations and spruce and fir at higher elevations) and nearly half is public land, much of which is dense forest. Additionally, the County is experiencing rapid growth, with much of the new housing growth taking place in the wildland-urban interface. The Colorado State Forest Service and Colorado Division of Emergency Management created a major statewide wildfire risk assessment in 1999, known as the Mid-Level Assessment. It found that 114,670 acres (32.06 percent of the total) in Teller County were at moderate to high risk to wildfire. Thus, Forest Service assessments show large portions of Teller County to be in the "red zone."

The commission that drafted the County Community Wildfire Protection Plan identified two priority areas for treatment. Priority Zone 1 is on the east boundary of the Pike National Forest and is about ½ mile wide and about 7 miles long. Priority Zone 2 is contiguous with Zone 1 and extends west of Zone 1 to the U.S. Forest Service boundary with the Indian Creek subdivision. Teller County has over 220 subdivisions that have been rated both for catastrophic fire risk and

preparedness in the County CWPP. The wildland and wildland-urban interface areas are of most concern and are shown in the risk maps in the wildfire vulnerability discussion in Section 4.3.

Previous Occurrences

Wildfires occur every year in Teller County, but the 2002 wildfire season in Colorado was the worst on record. It began in April and continued until early fall, with the peak activity in June and July when several large and damaging fires burned simultaneously across the state.

An April 2002 fire north of Florissant burned 130 acres, destroyed one home, and threatened seven others. Every firefighting agency in the County, staffed mostly with volunteers, was busy on the fire for a week.

The largest fire on record to impact Teller County, and the state, was the Hayman fire in June 2002, which resulted in a FEMA presidential disaster declaration. The fire began June 8th by human causes and burned till July 2nd. This fire devastated Teller County environmentally, economically, and socially. The fire burned 137,760 acres, caused 5 deaths, and 16 injuries, 600 structures $38.7 million in insured losses (from state plan). The County lost 85 homes (133 homes and 466 outbuildings total were burned) and the government lost a combined $201,000 in property tax revenue for 2002 and 2003 alone. The fire burned in Teller, Douglas, and Jefferson counties north of Woodland Park. Firefighting and rehabilitation costs were in excess of $80 million, while indirect economic loss and long-term rehabilitation is estimated to cost $160 million, including loss of tourism business due to public and private land closures. Costs to Teller County Public Works in labor and equipment exceeded $70,000. State Highway 67 and assorted County and Forest Service roads were closed and several power lines were burned. Subsequent damage included severe watershed damage leading to floods, erosion, and debris flows. The fire coincided with a severe statewide drought.

Scenes from the Hayman Fire 2002

According to the Federal Wildland Fire Occurrence Data website (which reports official fire occurrence data collected from five federal agencies), there were 199 wildland fires in Teller

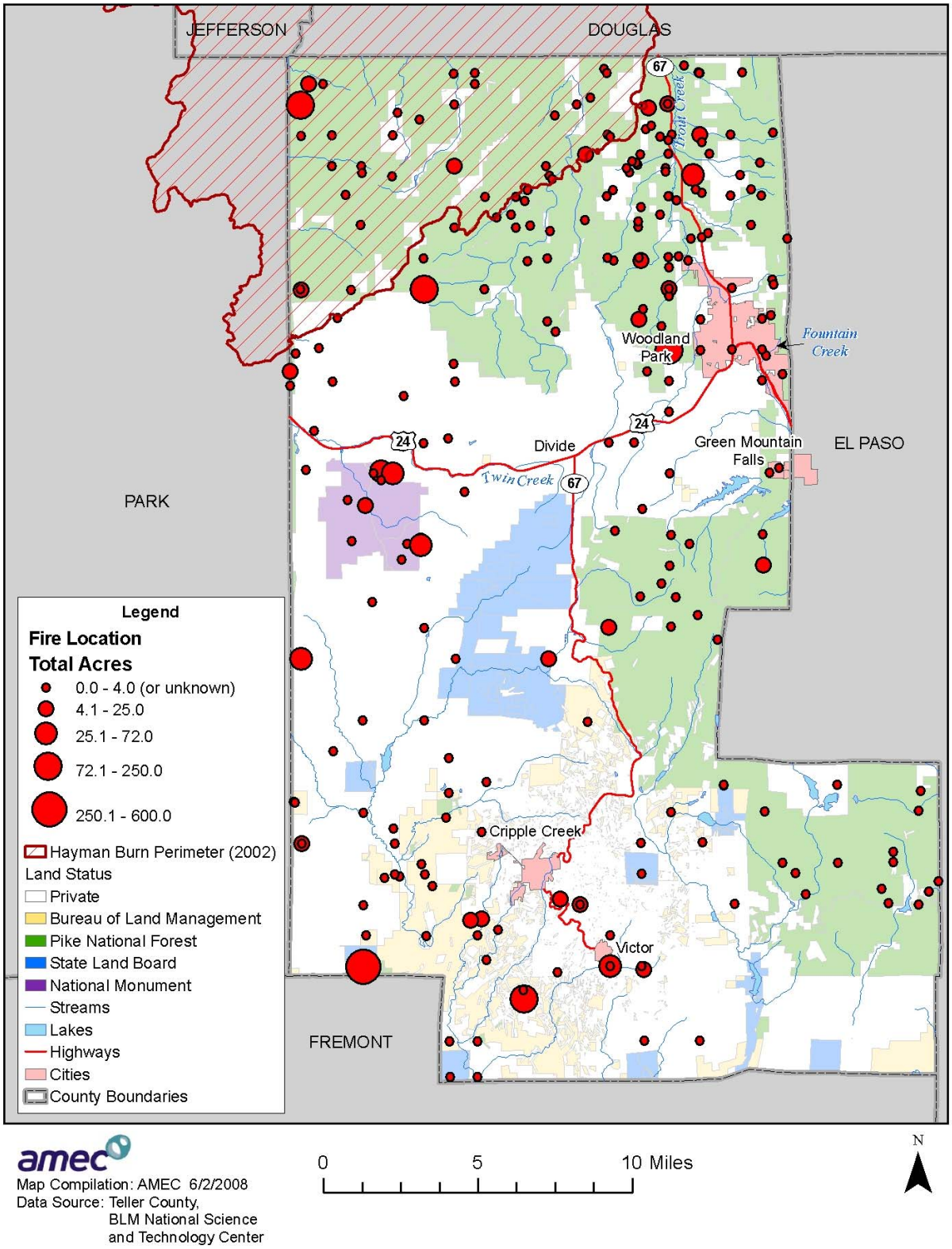
County between 1980 and 2006. Of these fires, 92 percent burned on five acres or less. 61.7 percent of the wildfires were caused by nature (i.e., lightning) and the remaining 38.3 percent were human-caused (e.g., smoking, power lines, trash burning, warming fires, ignition devices, etc.). Table 4.16 summarizes the wildfires that burned more than five acres between 1980 and 2006. Figure 4.15 is a map of the locations of these and smaller fires.

Table 4.16. Wildfires in Teller County, 1980-2006 (greater than five acres)

Fire Name	Date	Acres Burned	Cause
Hayman	June 2002	137,760	Human
Cedar Mountain	April 2002	140.0	Power line
Grouse	May 2006	106.0	Lighting
Florissant	January 2004	65.0	Human
No Name	March 1986	50.0	Lightning
FLFO2	February 2003	33.2	Human
Manitou	March 1999	25.0	Other/unknown
Saw Mill	April 1981	22.0	Human
Cripple Creek	October 1983	20.0	Human
Oil Creek	March 2004	20.0	Human
Teller 1	May 1998	12.0	Human
Pony Gulch	June 2001	9.0	Lightning
Waldo Canyon	August 2000	8.0	Lightning
4-Forty	May 1988	7.2	Human
Paradise	July 1997	7.0	Lightning
Tranquil	June 2002	6.0	Other/unknown

Source: Federal Wildland Fire Occurrence Data, http://wildfire.cr.usgs.gov/firehistory/data.html

Figure 4.15. Teller County Fire History 1980-2006



Probability of Future Occurrences

Highly Likely—Near 100 percent chance of occurrence in next year, or happens every year.

According to the Federal Wildland Fire Occurrence Data website, there were 199 wildland fires in Teller County between 1980 and 2006. Thus, there is a 100 percent chance that at least one wildfire will occur each year in Teller County. It is worth noting that the majority (92 percent) of these fires burned five acres or less. Nevertheless, given the conditions described above and the pine beetle problem, a small fire could easily become a big one.

Magnitude/Severity

Based on the information in this hazard profile, and the widespread impacts, the magnitude/severity of severe wildfires is considered **Catastrophic**—more than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths. Overall significance of the hazard is considered high: widespread potential impact.

4.2.17 Windstorm

Description

High winds, often accompanying severe thunderstorms, can cause significant property and crop damage, threaten public safety, and have adverse economic impacts from business closures and power loss. Windstorms in Teller County are typically straight-line winds. Straight-line winds are generally any thunderstorm wind that is not associated with rotation (i.e., is not a tornado). It is these winds, which can exceed 100 mph, that represent the most common type of severe weather and are responsible for most wind damage related to thunderstorms. The National Weather Service will issue a severe wind warning when winds are expected to exceed 75 miles per hour.

Wind storms in Teller County are rarely life threatening, but do disrupt daily activities, cause damage to buildings, and structures, and increase the potential for other hazards, such as wildfire. Winter winds can also cause damage, close highways (blowing snow), and induce avalanches (see Section 4.x Severe Winter Storm). Winds can also cause trees to fall, particularly those killed by pine beetles or wildfire, creating a hazard to property or those outdoors. Due to the higher elevations of Teller County, the wind is less dense, and thus less damaging than comparable winds at sea level.

Geographic Extent

Windstorms could occur anywhere in Teller County. Higher elevations (near Pike's Peak) could experience the most significant wind speeds, but these areas are generally not developed or populated.

Previous Occurrences

Historical data from SHELDUS and the National Climatic Data Center Storm Events Database were combined to determine that there were roughly 73 recorded wind events (excluding tornadoes and funnel clouds) in Teller County between 1955 and October 2007.

Data limitations: Some events may have been missed due to limitations in the manner in which events that occurred over multiple forecast zones are reported, but the number of missed events is likely insignificant. Dollar figures reported for wind events in both SHELDUS and the National Climatic Data Center Storm Events database are total damages for all counties associated with an event. Specific Teller County losses are not available.

Descriptions of some of these events from the National Climatic Data Center Storm Events Database are included below:

- **November 3, 2005**—Strong winds aloft came to the surface, causing a relatively significant wind event over sections of southeast Colorado. High winds shattered hundreds of vehicle windows (mainly in El Paso County). Fences and weak structures were also damaged or destroyed. Total damage was estimated at $200,000.
- **May 21, 2002**— A strong cold front from the west generated high winds across the region. Many reports of spotty power outages across southeast Colorado were received. Some structures, such as outbuildings, fences, and shelters were also damaged or destroyed. Total damage was estimated at $60,000.
- **April 11, 2001**—An intense low pressure system moving from southeast Colorado into northern Kansas produced damaging winds across the southeast Colorado plains. Hundreds of power poles were taken down. Damage to signs, roofs, buildings, and vehicles occurred. Total damage was estimated at $6.1 million.
- **April 8, 1999**—A widespread high wind event extended from northern Colorado into the south. Total damage was estimated at $33,000.

Probability of Future Occurrences

Windstorms happen nearly every year in Teller County and are thus considered **Highly Likely**—Near 100 percent chance of occurrence in next year, or happens every year

Magnitude/Severity

Based on the information in this hazard profile the magnitude/severity of severe winter storms considered limited. Overall significance of the hazard is considered low: minimal potential impact.

4.3 Vulnerability Assessment

Requirement §201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

With Teller County's hazards identified and profiled, the HMPC conducted a vulnerability assessment to describe the impact that the significant hazards would have on the County. The vulnerability assessment quantifies, to the extent feasible, assets at risk to natural hazards and estimates potential losses.

This vulnerability assessment followed the methodology described in the FEMA publication *Understanding Your Risks—Identifying Hazards and Estimating Losses*. The vulnerability assessment first describes the total vulnerability and values at risk and then discusses vulnerability by hazard.

4.3.1 Methodology

The vulnerability assessment was conducted based on the significance of the hazard utilizing best available data. This assessment is an attempt to quantify assets at risk, by jurisdiction where possible, to further define populations, buildings, and infrastructure at risk to natural hazards. Note that this assessment was limited to the hazards that were considered medium or high in planning significance, based on HMPC input and the hazard profiles. This assessment is also limited by the data available for the high or moderate ranked hazards. The methods of analysis vary by hazard type and data available.

The following hazards and the reasons they are omitted from this vulnerability assessment are listed in Table 4.17. Generally these hazards were omitted because they were low significance, research did not discover noteworthy damage in the past, or very low probability. Vulnerability for these hazards are discussed in qualitative terms where possible.

Table 4.17. Hazards Omitted from Vulnerability Assessment

Hazard	Rationale
Extreme Temperatures	Low significance and research in the hazard profile did not result in significant loss information for this hazard.
Hailstorm	Significant loss information not available, insurance typically covers losses.
Hazardous Materials	Manmade hazard and limited potential impacts based on hazard profile.
Windstorm	Research in the hazard profile did not result in significant loss information for this hazard.
West Nile Virus	Research in the hazard profile did not result in significant loss information for this hazard.

Data to support the vulnerability assessment was collected and compiled from the following sources:

- County GIS data (hazards, base layers, critical facilities and assessor's data);
- FEMA's HAZUS-MH MR 3 GIS-based inventory data (January 2005);
- Written descriptions of inventory and risks provided by participating jurisdictions;
- Existing plans and studies; and
- Personal interviews with planning team members, hazard experts, and County and City staff.

The scope of the vulnerability assessment is to describe the risks to the County as a whole. The vulnerability assessment first describes the assets in Teller County, including the total exposure of people and property; critical facilities and infrastructure; natural, historic, and cultural resources; and economic assets. Development trends, including population growth and land status, are analyzed in relation to hazard-prone areas. Next, where data was available, hazards of high and medium significance are evaluated in more detail and potential losses are estimated. Data from each jurisdiction was also evaluated and is integrated here and noted where the risk varies for a particular jurisdiction from the rest of the planning area.

4.3.2 Assets Exposed

This section assesses the population, structures, critical facilities and infrastructure, and other important assets in Teller County at risk to hazards identified in this plan. It begins with an inventory of people and buildings (total exposure) in the County to provide a baseline for evaluating vulnerability by hazard.

Total Exposure of Population and Structures

Table 4.18 shows the total population, number of housing units, and percent change for each jurisdiction between 2000 and 2006. Green Mountain Falls and Victor are listed but were not participating jurisdictions in the 2008 development of this plan. Green Mountain Falls is primarily located in El Paso County, but the table reflects the portion of annexed land located in Teller County.

Table 4.18. Maximum Population and Housing Unit Exposure by Jurisdiction

Jurisdiction	2006 Population Estimate	2000 Population	# Change	% Change	2006 Housing Units Estimate	2000 Housing Units	# Change	% Change
Cripple Creek	1,083	1,115	-32	-2.87	754	737	+17	+2.31
Green Mountain Falls	50	46	+4	+8.70	44	38	+6	+15.79
Victor	453	445	+8	+1.80	387	360	+27	+7.50
Woodland Park	7,223	6,515	+708	+10.87	3,093	2,642	+451	+17.07
Unincorporated Area	13,917	12,434	+1,483	+11.93	7,765	6,585	+1,180	+17.92
Total County	**22,726**	**20,555**	**+2,171**	**+10.56**	**12,043**	**10,362**	**+1,681**	**+16.22**

Source: Colorado Department of Local Affairs Demography Section, www.dola.colorado.gov/dlg/demog/

Assessments in this plan are based on two building inventories: one from Teller County's Assessor's Office and the other from FEMA's HAZUS-MH MR3. Tables 4.19 – 4.24 show the value of the buildings from the Assessor's Office (2007). Tables 4.25 - 4.30 show the value of the buildings in Teller County from the inventory included with FEMA's HAZUS-MH MR3 (which is dated based on 2002 building inventory data by Census block, inflated to 2005 values). According to the assessor's data, the sum of the actual value improvements in the County is $2,283,490,034 (total building exposure). This is significantly higher than the HAZUS-MH estimate, which is $1,731,011,000.

Land values from the Assessor's Office are provided in the tables but not included in loss estimations, because land remains following disasters, and subsequent market devaluations are frequently short-term and difficult to quantify. Additionally, state and federal disaster assistance programs generally do not address loss of land or its associated value.

Table 4.19. Building Exposure for Teller County

Property Type	Parcels	Improved Parcels Count	Total Improved Value ($)	Total Improved Land Value ($)	Total Improved Actual Value ($)	Total Land Value ($)	Total Actual Value ($)
Agricultural	2,070	332	70,994,582	711,639	71,706,221	1,963,985	72,705,719
Commercial Vacant	322	2	2,035	157,097	159,132	30,487,768	30,489,803
Commercial	548	500	237,433,935	101,087,680	338,521,615	106,576,189	345,297,067
Exempt	826	138	69,028,151	27,447,381	96,475,532	70,225,353	137,634,765
Industrial	12	10	2,556,236	1,087,218	3,643,454	1,102,195	3,658,431
Mineral	1,557	2	269,824	77,935	347,759	9,769,015	10,038,839
Mobile Home	1,252	537	29,192,021	11,823,991	41,016,012	21,152,616	51,373,961
Possessory	32	-	-	-	-	263,509	263,509
Producing Mine	1	1	11,053,341	17,380,034	28,433,375	17,380,034	28,426,613
Residential	10,812	10,388	1,861,444,500	472,996,642	2,334,441,142	484,422,677	2,345,422,276

Vacant Land	10,000	210	1,515,409	7,745,478	9,260,887	245,715,342	247,237,734
Total	**27,432**	**12,120**	**2,283,490,034**	**640,515,095**	**2,924,005,129**	**989,058,683**	**3,272,548,717**

Source: Teller County Assessor's Office

Table 4.20. Building Exposure for the City of Cripple Creek

Property Type	Improved Parcels Count	Total Improved Value ($)	Total Improved Land Value ($)	Total Improved Actual Value ($)
Commercial Vacant	1	1,785	154,716	156,501
Commercial	105	95,614,628	53,201,452	148,816,080
Exempt	19	11,335,128	3,586,749	14,921,877
Industrial	1	260,656	172,706	433,362
Mobile Home	33	1,126,355	169,111	1,295,466
Residential	537	53,961,670	8,540,833	62,502,503
Vacant Land	20	85,718	472,127	557,845
Total	**716**	**162,385,940**	**66,297,694**	**228,683,634**

Source: Teller County Assessor's Office

Table 4.21. Building Exposure for the Town of Green Mountain Falls

Property Type	Improved Parcels Count	Total Improved Value ($)	Total Improved Land Value ($)	Total Improved Actual Value ($)
Residential	30	3,886,491	1,264,535	5,151,026
Total	**30**	**3,886,491**	**1,264,535**	**5,151,026**

Source: Teller County Assessor's Office

Table 4.22. Building Exposure for Unincorporated Teller County

Property Type	Improved Parcels Count	Total Improved Value ($)	Total Improved Land Value ($)	Total Improved Actual Value ($)
Agricultural	331	69,535,318	710,481	70,245,799
Commercial	132	30,657,677	15,278,728	45,936,405
Exempt	67	32,242,804	15,945,031	48,187,835
Industrial	6	1,055,709	438,461	1,494,170
Mineral	2	269,824	77,935	347,759
Mobile Home	474	25,751,435	11,010,404	36,761,839
Residential	6,552	1,171,932,936	314,359,368	1,486,292,304
Vacant Land	154	1,278,072	6,873,418	8,151,490
Total	**7,718**	**1,332,723,775**	**364,693,826**	**1,697,417,601**

Source: Teller County Assessor's Office

Table 4.23. Building Exposure for the City of Victor

Property Type	Improved Parcels Count	Total Improved Value ($)	Total Improved Land Value ($)	Total Improved Actual Value ($)
Commercial Vacant	1	250	2,381	2,631
Commercial	41	5,010,661	280,538	5,291,199
Exempt	7	1,711,856	94,491	1,806,347
Mobile Home	14	376,726	29,473	406,199

Residential	299	22,319,369	1,323,787	23,643,156
Vacant Land	27	90,143	107,634	197,777
Total	**389**	**29,509,005**	**1,838,304**	**31,347,309**

Source: Teller County Assessor's Office

Table 4.24. Building Exposure for the City of Woodland Park

Property Type	Improved Parcels Count	Total Improved Value ($)	Total Improved Land Value ($)	Total Improved Actual Value ($)
Agricultural	1	1,459,264	1,158	1,460,422
Commercial	219	106,077,553	32,326,962	138,404,515
Exempt	40	21,803,422	7,656,709	29,460,131
Industrial	2	1,226,219	476,051	1,702,270
Mobile Home	11	1,637,646	576,162	2,213,808
Residential	2,931	604,647,551	146,631,208	751,278,759
Vacant Land	6	55,542	292,299	347,841
Total	**3,210**	**736,907,197**	**187,960,549**	**924,867,746**

Source: Teller County Assessor's Office

Table 4.25. Building Exposure by Jurisdiction (HAZUS-MH)

Jurisdiction	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure($)
City of Cripple Creek	985	88,298,000	50,125,000	138,423,000
Town of Green Mountain Falls	44	6,881,000	3,444,000	10,325,000
Town of Victor	513	52,611,000	43,399,000	96,010,000
City of Woodland Park	3,229	565,938,000	370,271,000	936,209,000
Unincorporated Areas	7,460	1,017,283,000	581,369,000	1,598,652,000
Total County	**12,231**	**1,731,011,000**	**1,048,608,000**	**2,779,619,000**

Source: HAZUS-MH MR3

Table 4.26. Building Inventory Valuations by Property Type—City of Cripple Creek (HAZUS-MH)

Property Type	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
Residential	951	77,258,000	38,737,000	115,995,000
Commercial	23	5,856,000	5,856,000	11,712,000
Industrial	4	610,000	668,000	1,278,000
Agriculture	0	0	0	0
Religion	2	937,000	937,000	1,874,000
Government	4	2,488,000	2,778,000	5,266,000
Education	1	1,149,000	1,149,000	2,298,000
Totals	**985**	**88,298,000**	**50,125,000**	**138,423,000**

Source: HAZUS-MH MR3

Table 4.27. Building Inventory Valuations by Property Type—Town of Green Mountain Falls (HAZUS-MH)

Property Type	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
Residential	44	6,881,000	3,444,000	10,325,000
Commercial	0	0	0	0
Industrial	0	0	0	0
Agriculture	0	0	0	0
Religion	0	0	0	0
Government	0	0	0	0
Education	0	0	0	0
Totals	**44**	**6,881,000**	**3,444,000**	**10,325,000**

Source: HAZUS-MH MR3

Table 4.28. Building Inventory Valuations by Property Type—Town of Victor (HAZUS-MH)

Property Type	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
Residential	494	33,685,000	16,900,000	50,585,000
Commercial	10	2,357,000	2,357,000	4,714,000
Industrial	5	15,582,000	23,155,000	38,737,000
Agriculture	1	59,000	59,000	118,000
Religion	1	615,000	615,000	1,230,000
Government	1	162,000	162,000	324,000
Education	1	151,000	151,000	302,000
Totals	**513**	**52,611,000**	**43,399,000**	**96,010,000**

Source: HAZUS-MH MR3

Table 4.29. Building Inventory Valuations by Property Type—City of Woodland Park (HAZUS-MH)

Property Type	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
Residential	2,862	408,663,000	204,457,000	613,120,000
Commercial	245	115,192,000	118,261,000	233,453,000
Industrial	76	17,346,000	22,244,000	39,590,000
Agriculture	12	1,633,000	1,633,000	3,266,000
Religion	18	12,339,000	12,339,000	24,678,000
Government	6	2,222,000	2,794,000	5,016,000
Education	10	8,543,000	8,543,000	17,086,000
Totals	**3,229**	**565,938,000**	**370,271,000**	**936,209,000**

Source: HAZUS-MH MR3

Table 4.30. Building Inventory Valuations by Property Type—Unincorporated Teller County (HAZUS-MH)

Property Type	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
Residential	7,011	890,364,000	445,576,000	1,335,940,000
Commercial	266	80,921,000	82,395,000	163,316,000
Industrial	120	19,801,000	23,438,000	43,239,000
Agriculture	24	2,909,000	2,909,000	5,818,000
Religion	18	10,319,000	10,319,000	20,638,000
Government	12	9,363,000	13,126,000	22,489,000
Education	9	3,606,000	3,606,000	7,212,000
Totals	**7,460**	**1,017,283,000**	**581,369,000**	**1,598,652,000**

Source: HAZUS-MH MR3

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. Essential facilities are those that if damaged would have devastating impacts on disaster response and/or recovery. High potential loss facilities are those that would have a high loss or impact on the community. Transportation and lifeline facilities are a third category of critical assets. Examples of each are provided below.

Essential Facilities

- Hospitals and other medical facilities
- Police stations
- Fire stations
- Emergency Operations Centers

High Potential Loss Facilities

- Power plants
- Dams and levees
- Military installations
- Hazardous material sites
- Schools
- Shelters
- Day care centers
- Nursing homes
- Main government buildings

Transportation and Lifelines

- Highways, bridges, and tunnels
- Railroads and facilities
- Airports
- Water treatment facilities
- Natural gas and oil facilities and pipelines
- Communications facilities

A fourth category called Other Assets has been added to capture items that do not fit the above categories. HMPC members were asked to identify the assets in their respective jurisdictions that they considered to be critical facilities or of particular importance/value. Tables 4.31-4.33 display the inventory of these assets in Teller, by jurisdiction, as provided by the HMPC. Replacement values and occupancy values, where known, are noted as provided by the HMPC. Specific hazards that threaten the asset, where known, have been noted by the HMPC. This has been supplemented with GIS-based critical facility data from the County GIS that was developed during the development of the County's Community Wildfire Protection Plan. The GIS data overlaps with some of the assets inventoried below, but a complete GIS inventory of the assets does not currently exist. Critical facilities are summarized in Tables 4.34 and 4.35 and shown in Figure 4.16.

Table 4.31. Teller County Asset Inventory

Name of Asset	Type	Replacement Value ($)	Occupancy/ Capacity #	Hazard Specific Info.
Essential Facilities				
Court House	Public	4 million	125	N/A
Centennial Building	Public	4 million	100	N/A
Sheriff's Office	Public	4 million	36	Lightning
Cripple Creek Road & Bridge	Public	2 million	30	Flooding
Victor Road & Bridge	Public	80,000	15	N/A
Four Mile Fire Protection District CCME Station	Public		12	
Four Mile Fire Protection District Station #1	Public		25	
Florissant Fire Protection District CME Station	Public		12	Wildfire
Florissant Fire Protection District Indian Creek	Public		12	Wildfire
Florissant Fire Protection District Station #1	Public		50	
Divide Fire Protection District Rainbow Valley	Public		20	Wildfire
Divide Fire Protection District Station #1	Public		50	Lightning, Wind
NETCO Fire Protection District Station #1	Public		50	N/A
NETCO Fire Protection District Station #2	Public		5	Wildfire
NETCO Fire Protection District Station #3	Public		30	
High Potential Loss				
IREA Florissant Substation	Private			Wildfire, Wind

Name of Asset	Type	Replacement Value ($)	Occupancy/ Capacity #	Hazard Specific Info.
IREA Divide Substation	Private			Wind, Lightning
Aquila Gas & Electric	Private			
Teller County Jail	Public	9 million	160	Lightning
Teller County Public Health	Public	500,000	20	N/A
Divide Road and Bridge	Public	4 million	55	Wind, Lightning
Summit Elementary	Public	6 million	300	Snow, Wind
Transportation and Lifelines				
Gold Camp Road/Tunnel	Public	1 million	6	Landslide, Rockfall
Tenderfoot I & II Repeater Site	Public	750,000	1	Wildfire, Wind, Lightning
Pisgah Mountain Repeater Site	Private	250,000	1	Wildfire, Wind, Lightning
Tranquil Acres Repeater Site	Private	500,000	1	Wildfire, Wind, Lightning
Almagre Mountain Repeater Site	Private	500,000	1	Wind, Lightning
Gold Hill Repeater Site	Private	500,000	1	Wildfire, Wind, Lightning
Divide Tower	Public	500,000	1	Lightning, Wind
Wastewater Treatment Plant	Public	3 million	1	Flooding, Earthquake
Other Assets				
Cripple Creek & Victor Gold Mine	Private		300	Rockslide, Earthquake, Hazardous materials
Fairgrounds	Public	1.5 million	250	N/A
Florissant Fossil Bed National Park	Public		150	Wildfire, Flooding
Mueller State Park	Public		350	Wildfire, Lightning
Divide Venture Foods	Private			N/A

Table 4.32. City of Woodland Park Asset Inventory

Name of Asset	Type	Replacement Value ($)	Occupancy/ Capacity #	Hazard Specific Info.
Essential Facilities				
City Hall	Public			
Police Department/Operations Center	Public			
Hospital	Private			
High Potential Loss				
Public Works Storage and Maintenance Facility	Public			
High School	School			
Middle School	School			
Elementary School	School			
Senior Center	Public			
City Water Supply Reservoir Dam	Public			
Transportation and Lifelines				
U.S. Highway 24	Highway			

Name of Asset	Type	Replacement Value ($)	Occupancy/ Capacity #	Hazard Specific Info.
State Highway 67	Highway			
Gold Hill Antennas				
Water Treatment Plant	Public			
W/W Treatment Plant	Public			
Other Assets				
Wal-Mart	Private			
Safeway	Private			
City Market	Private			

Table 4.33. City of Cripple Creek Asset Inventory

Name of Asset	Type	Replacement Value ($)	Occupancy/ Capacity #	Hazard Specific Info.
Essential Facilities				
Cripple Creek High School		29 M	425	
Cresson Elementary School		29 M	400	
Public Works Facility	Metal	851,500	12	Fuel, Oxygen,
Aquila Sub Station	Electrical	3.2 M		High Voltage
Police Station		2.3 M	9	
Fire Station		2.9 M	7	
Cripple Creek Medical Plaza		1.1 M	10	
High Potential Loss				
City Hall		2.2 M	20	Diesel Fuel
Gold King Pump Station	Wood	400,000		Diesel Fuel
Water Treatment Plant		1.3 M	2	Chlorine Gas
Waste Water Treatment Plant		1.2 M	3	Chlorine Gas
Cripple Creek #3 Reservoir	Earthen	1.4 M		
Cripple Creek #2 Reservoir	Earthen	1.6 M		
Gillette Well Field	3 Pumps	900,000		Electrical
Cripple Creek Wellness & Rehab	Nursing	1.4 M	60	Oxygen
Cripple Creek High School		29 M	425	
Cripple Creek Day Care		240,000	15	
Transportation and Lifelines				
Aspen Mine Center	Social Services	2.7 M	150	
District Museum	Historic			
Jail Museum	Historic	833,000	12	
Other Assets				
Pikes Peak Heritage Center		2.4 M	80	
Park & Rec Facility		1.4 M	42	
Welcome Center		110,300	2	
#3 Fire Station Museum	Historic	250,000		

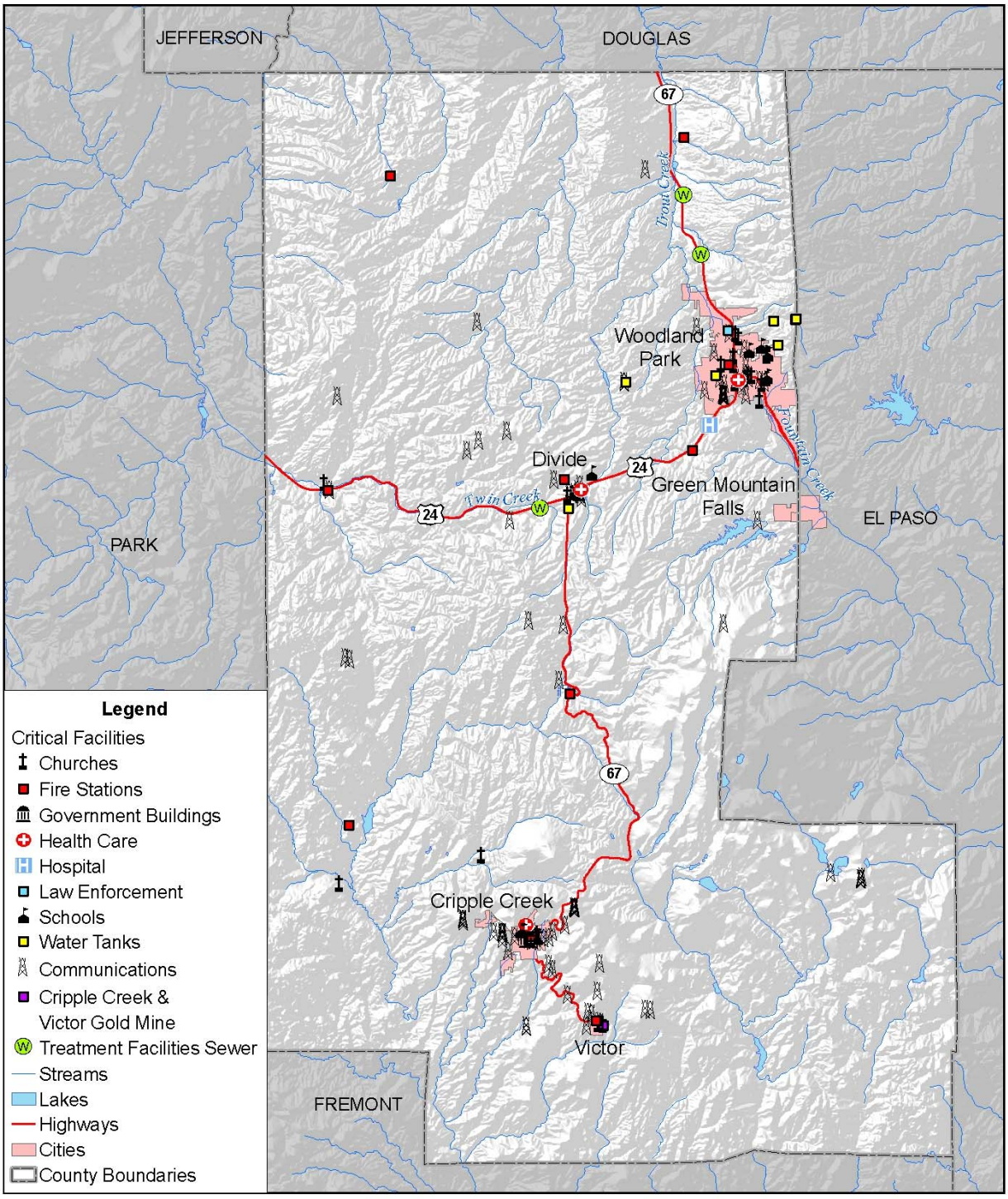
Table 4.34. Teller County Critical Facilities in GIS databases

GIS Layer	Number of features in database
Churches	23
Communications	163
Fire Stations	10
Government Buildings	2
Health Care	3
Hospital	1
Law Enforcement	5
Schools	9
Water Tanks	7

Table 4.35. Teller County Critical Facilities from HAZUS-MH GIS Databases

GIS Layer	Number of features in database
Bridges	23
Dams	163
Hazardous Materials facilities	10
Treatment Facilities Sewer	2

Figure 4.16. Teller County Critical Facilities



Natural, Historic, and Cultural Assets

Assessing the vulnerability of Teller County to disaster also involves inventorying the natural, historical, and cultural assets of the area. This step is important for the following reasons:

- The community may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- If these resources are impacted by a disaster, knowing so ahead of time allows for more prudent care in the immediate aftermath, when the potential for additional impacts are higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- Natural resources can have beneficial functions that reduce the impacts of natural hazards, such as wetlands and riparian habitat, which help absorb and attenuate floodwaters.

Natural Assets

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands areas protects sensitive habitat as well as attenuates and stores floodwaters.

A number of natural resources exist in Teller County. This includes wetlands, endangered species, and imperiled plant communities.

Wetlands

Wetlands are a valuable natural resource for communities, due to their benefits to water quality, wildlife protection, recreation, and education, and play an important role in hazard mitigation. Wetlands reduce flood peaks and slowly release floodwaters to downstream areas. When surface runoff is dampened, the erosive powers of the water are greatly diminished. Furthermore, the reduction in the velocity of inflowing water as it passes through a wetland helps remove sediment being transported by the water. They also provide drought relief in water-scarce areas where the relationship between water storage and streamflow regulation are vital.

Endangered Species

To further understand natural resources that may be particularly vulnerable to a hazard event, as well as those that need consideration when implementing mitigation activities, it is important to identify at-risk species (i.e., endangered species) in the planning area. An endangered species is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or most of its range. A threatened species is a species that is likely to become an endangered species within

the foreseeable future throughout all or a significant portion of its range. Both endangered and threatened species are protected by law and any future hazard mitigation projects are subject to these laws. Candidate species are plants and animals that have been proposed as endangered or threatened but are not currently listed.

According to the U.S. Fish and Wildlife Service, as of February 2008, there were eight federal endangered, threatened, or candidate species in Teller County. These species are listed in Table 4.36 along with state listed species. State special concern is not a statutory category, but suggests a species may be in danger. (If available, location information is indicated in the "Quad Map" column, which corresponds to Figure 4.17).

Table 4.36. Select List of Important Species Found in Teller County

Common Name	Scientific Name	Type of Species	Status	Quad Map
Bald Eagle	Haliaeetus Leucocephalus	Bird	State Threatened	
Gunnison's Prairie Dog	*Cynomys Gunnisoni*	Mammal	Federal Candidate	
Least Tern (Interior Population)▲	*Sternula Antillarum*	Bird	Federal Endangered	
Mexican Spotted Owl	*Strix Occidentalis Lucida*	Bird	Federal Threatened	
Midget Faded Rattlesnake	Crotalus Viridis Concolor	Reptile	State Special Concern	
Northern Leopard Frog	Rana Pipiens	Amphibian	State Special Concern	
Northern Pocket Gopher	Thomomys Talpoides	Mammal	State Special Concern	
Pallid Sturgeon▲	*Scaphirhynchus Albus*	Fish	Federal Endangered	
Pawnee Montane Skipper	*Hesperia Leonardus Montana*	Insect	Federal Threatened	Hackett Mountain
Piping Plover▲	*Charadrius Melodus*	Bird	Federal Threatened	
Plains Sharp-Tailed Grouse	Tympanuchus Phasianellus Jamesii	Bird	State Endangered	Big Bull Mountain
Preble's Meadow Jumping Mouse©	*Zapus Hudsonius Preblei*	Mammal	Federal Threatened	
Southwestern Willow Flycatcher	Empidonax Traillii Extimus	Bird	State Endangered	
Townsend's Big-Eared Bat	Plecotus Townsendii	Mammal	State Special Concern	Cripple Creek South, Manitou Springs
Whooping Crane▲	*Grus Americana*	Bird	Federal Endangered	

Source: Endangered, Threatened, Proposed, and Candidate Species Colorado Counties (February 2008), U.S. Fish and Wildlife Service Mountain-Prairie Region, www.fws.gov/mountain-prairie/endspp/; Natural Diversity Information Source of the Colorado Division of Wildlife, http://ndis.nrel.colostate.edu/

▲ Water depletions in the South Platte River may affect the species and/or critical habitat in downstream reaches in other states.

© There is designated critical habitat for the species within the county.

Note: State status information is from the NDIS, which does not track county occurrence of fish or insects at this time.

Imperiled Natural Plant Communities

According to the Colorado Natural Heritage Program, there are a number of natural plant communities in Teller County that have been identified as critically imperiled, imperiled, or rare/uncommon. These communities are listed in Table 4.37 along with the quad map location that corresponds to Figure 4.17.

Table 4.37. Imperiled Natural Plant Communities in Teller County

Plant Community	State Status	Quad Map
Foothills Riparian Shrubland	Imperiled	Cripple Creek North, Hackett Mountain
Foothills Riparian Woodland	Imperiled	Cripple Creek South, High Creek
Geyer's Willow-Rocky Mountain Willow/Mesic Forb	Rare or Uncommon	Big Bull Mountain, Cripple Creek North
Montane Grasslands (Festuca Arizonica - Muhlenbergia Montana)	Imperiled	Mount Deception
Montane Grasslands (Danthonia Parryi)	Rare or Uncommon	Divide, Woodland Park
Montane Grasslands (Festuca Arizonica - Muhlenbergia Filiculmis)	Rare or Uncommon	Divide, Hackett Mountain, High Park, Lake George, Wrights Reservoir
Montane Riparian Forest (Populus Angustifolia - Pseudotsuga Menziesii)	Imperiled	High Park
Montane Riparian Forest (Pseudotsuga Menziesii/ Betula Occidentalis)	Rare or Uncommon	Hackett Mountain, Manitou Springs
Montane Riparian Shrubland	Rare or Uncommon	Cripple Creek North, Wrights Reservoir
Montane Woodlands	Rare or Uncommon	Big Bull Mountain
Two-Needle Piñyon/Scribner's Needle Grass	Imperiled	Cripple Creek South, Mount Big Chief
Upper Montane Woodlands	Imperiled	Manitou Springs

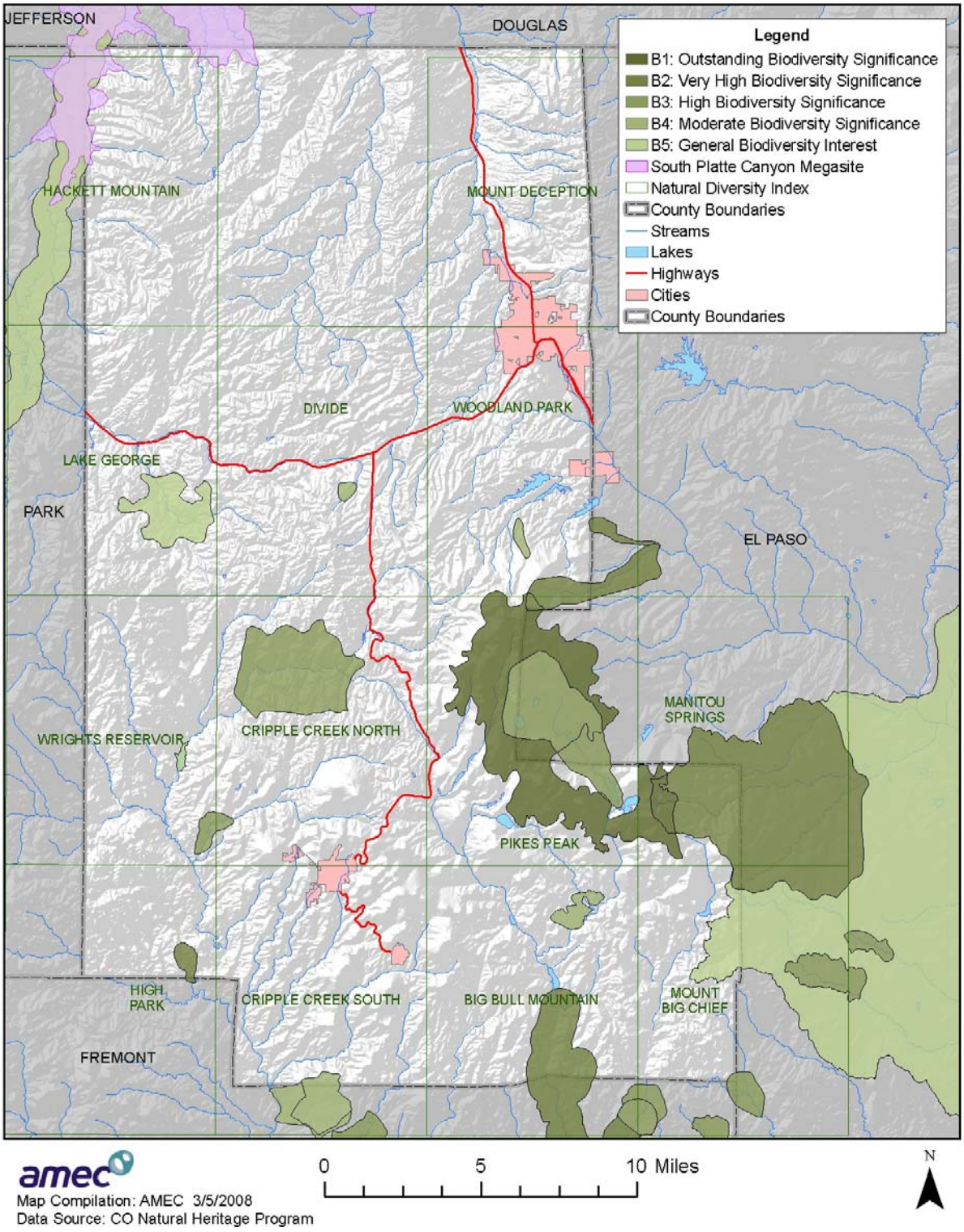
Source: Colorado Natural Heritage Program, www.cnhp.colostate.edu/

Ecologically Sensitive Areas

Figure 4.17 is a map of ecologically sensitive areas that displays the areas where threatened and endangered species and imperiled natural plant communities are most likely to be found in Teller County. The map shows statewide potential conservation areas identified by the Colorado Natural Heritage Program. These are best estimates of the primary areas required to support the long-term survival of targeted species or natural communities. Each conservation area is given a biodiversity rank of B1 (most significant) through B5 (general interest) based on observed occurrences in the area. None of the cities in Teller County have a biodiversity significance. However, there is an area of outstanding biodiversity significance in the Pikes Peak quad.

The map also shows statewide network of conservation areas (NCA) identified by the Colorado Natural Heritage Program that are located in Teller County. An NCA may represent a landscape area that encompasses potential conservation areas that share similar species or natural communities and ecological processes. It may also represent a mostly intact, lightly fragmented landscape that supports wide-ranging species and large scale disturbances and include unoccupied or unsurveyed areas that demonstrate the connectivity of the landscape. The only currently designated NCA in Teller County is the South Platte Canyon Megasite. This area was burned by the Hayman fire in 2002.

Figure 4.17 Teller County Sensitive Areas



Historic and Cultural Assets

There are many important historic resources within Teller County and in particular the City of Cripple Creek. By definition, a historic property not only includes buildings or other types of structures, such as bridges and dams, but also includes prehistoric or Native American sites, roads, byways, historic landscapes, and many other features. Given the history of the County, these types of historic properties exist; some are inventoried and listed in this plan.

Information about historic assets in Teller County came from local sources as well as two historic inventories:

- The **National Register of Historic Places** is the Nation's official list of cultural resources worthy of preservation. The National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. Properties listed include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior.
- The **Colorado State Register of Historic Properties** is a listing of the state's significant cultural resources worthy of preservation for the future education and enjoyment of Colorado's residents and visitors. Properties listed in the Colorado State Register include individual buildings, structures, objects, districts, and historic and archaeological sites. The Colorado State Register program is administered by the Office of Archaeology and Historic Preservation within the Colorado Historical Society. Properties listed in the National Register of Historic Places are automatically placed in the Colorado State Register.

Table 4.38 lists the properties and districts in Teller County that are on the Colorado State Register of Historic Properties. Those properties that are also on the National Register of Historic Places are indicated with an asterisk.

Table 4.38. Teller County Historic Properties/Districts in State and National Registers

Property	Jurisdiction	Address	Date Listed
Colorado Springs and Cripple Creek District Railway--Corley Mountain Highway	Colorado Springs/ Goldfield vicinity	U.S. Forest Service Road 370	3/25/1999
Cripple Creek Historic District*	Cripple Creek	Route 67	10/15/1966
Florissant School*	Florissant	2009 County Road 31	10/1/1990
Four Mile Community Building	Florissant vicinity	High Park Road (County Road 111)	3/09/1994
Glen Cove Lodge	Woodland Park vicinity	Pikes Peak Highway	3/10/1999
Goldfield City Hall and Fire Station*	Goldfield	Victor Avenue and 9th Street	5/17/1984
Hornbek House*	Florissant	County Road 1	12/8/1981
Manitou Experimental Forest Station*	Woodland Park	232 County Road 79	8/28/1998

Property	Jurisdiction	Address	Date Listed
Midland Terminal Railroad Depot*	Victor	230 North 4th Street	5/17/1984
Stratton's Independence Mine and Mill*	Victor	Junction of Rangeview Road and County Road 67	3/4/1993
Twin Creek Ranch*	Florissant	1465 Teller County Road 31	2/7/1997
Victor Downtown Historic District*	Victor	Roughly bounded by Diamond Avenue Second, Portland, and 5th Streets	7/3/1985
Victor Hotel*	Victor	4th Street and Victor Avenue	4/10/1980

Sources: Directory of Colorado State Register Properties, www.coloradohistory-oahp.org/programareas/register/1503/; National Register Information System, www.nr.nps.gov/
*On both the Colorado State Register of Historic Properties and the National Register of Historic Places
n=national

In addition, Shelf Road, a dirt road between Cripple Creek and Canon City, is part of the National Historic Byway and is used by tourists, recreational buffs and motorists. It is the main thoroughfare through the south end of the County. This road was closed for over a month following flooding and severe weather in July 2004.

It is noted that as defined by the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register. Thus, in the event that the property is to be altered, or has been altered, as the result of a major federal action, the property must be evaluated under the guidelines set forth by NEPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

Within the City limits of Woodland Park approximately 250 structures have been identified that are at least 50 years old and older. Of those historic structures the City has completed 39 resource inventory surveys (OAHP Form 1403), which are on file with the Woodland Park Planning Department.

In 1994 the City adopted Ordinance #607, which established local historical preservation protection, and landmark designation program. Since that time the City has locally landmarked seven structures. These are listed below.

- Brazenhead building- 720 W Highway 24
- Ute Pass Cultural Center
- Parks and Recreation Cabin- 230 E. Midland Avenue
- Cabin at 122 Laurel
- Three buildings in History Park on Midland Avenue
- Maytag House – 301 W Gunnison Ave
- Carroll Family Cabin – 202 N. West St

Economic Assets

Much of Teller County's economy is based on tourism (in particular the City of Cripple Creek) due to Teller County's location near Pikes Peak and the foothills of the Rocky Mountains. Much of the tourism is in the summer months, which coincides with the wildfire, flood and debris flow season. Two major economic engines in the County and Cripple Creek are the casino industry and the Cripple Creek/Victor Gold Mining Corporation.

Future Land Use and Development

Based on information from the Teller County Strategic Plan, Table 4.18 indicates that growth in population and housing units has been steady in the past six years. This trend has slowed somewhat but in general is expected to continue. The Teller County Strategic Housing Plan (2006) identifies current and future housing needs for residents and local employees in Teller County and the cities of Woodland Park, Cripple Creek and Victor. This document establishes a series of recommendations to address the housing needs in Teller County and each of the cities. County jobs are expected to increase 41% between 2005 and 2015. To meet existing housing needs for local employees, an estimated 440 housing units in the County, 228 in Woodland Park, and 20 in Cripple Creek/Victor are needed. To keep up with the proposed increase in jobs through 2015, additional housing units needed are: 1,830 in Teller County; 870 to 1,050 in Woodland Park; and 525 to 700 in Cripple Creek/Victor.

The Teller County Growth Management Plan expects growth in four areas: Woodland Park, Divide, Florissant and Cripple Creek/Victor. All of these areas are served by fire protection and ambulance districts. Because of the lower land costs in the County adjacent to the City of Cripple Creek, it is anticipated that new growth of significant magnitude could occur in these areas. Annexation of the nearby areas is possible since the water and sewer services would need to be provided by the City.

Concerns about hazards and future development are addressed by hazard in the following section.

4.3.3 Estimating Potential Losses

Dam Failure

Existing Development

Based on the information in the hazard profile in section 4.2, the greatest impacts to existing development from a dam failure in Teller County would be outside of the County. Because of this no loss estimation was performed. Specific inundation maps and risk information is included with specific dam emergency action plans with the Teller County Sheriff's Office. Due to the sensitive nature of this information, it is not included in this plan. What is not known is

the risk from "non-jurisdictional" dams in the county, which are small enough to have inspection and maintenance requirements. These dams have failed and led to property damage in the past.

Future Development

It is important that the County keeps the dam failure hazard in mind when permitting new development, particularly downstream of the 4 high and 13 significant hazard dams present in the County. There are currently 13 low hazard dams in the county. These could become significant or high hazard dams if development occurs below or downstream of them.

Drought

Existing Development

Based on Teller County's recent multi-year droughts and Colorado's drought history, it is evident that all of Teller County is vulnerable to drought. However, the impacts of future droughts will vary by region. The agricultural industry of the County will experience hardships, including agricultural losses, and livestock feeding expenses and deaths. The County will see an increase in dry fuels, beetle kill, and associated wildfires and some loss of tourism revenue. Water supply issues for domestic needs will be a concern for the entire County during droughts. Most of Teller County's and Woodland Park's water comes from a combination of reservoir storage and groundwater sources. Cripple Creek's water source is from two lakes on the southwest side of Pikes Peak and three wells at Gillette and is considered to be vulnerable to drought conditions, thus drought's significance is considered high for the town, but medium for the rest of the County and Woodland Park.

While widespread, the losses associated with drought are often the most difficult to track or quantify. While FEMA requires the potential losses to structures to be analyzed, drought does not normally have a structural impact. The most significant impacts are to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, and wildlife preservation. It is the relationship to the wildfire hazard that makes drought a legitimate concern in Teller County. Severe drought set the stage for the Hayman fire in 2002.

Future Development

Drought vulnerability will increase with future development as there will be increased demands for limited water resources. Future growth in the unincorporated areas will mean more wells and more demands on groundwater resources.

Earthquake

Earthquakes represent a low probability, high consequence hazard for Teller County. Colorado has a relatively short historic record of earthquakes, which makes for a limited data set when making assumptions based on past events. A lot of unknowns remain about the earthquake potential in Teller County and Colorado in general.

Existing Development

Based on the fact that there have been earthquake epicenters as well as potentially active faults inside the County boundaries, as well as in neighboring counties, earthquakes will likely occur in the future. Based on historic events, these will likely be in the range of Magnitude 5.5 or lower, which is strong enough to be felt and potentially cause damage. According to the USGS, damage usually occurs with earthquakes in the Magnitude 4-5 range, but many variables affect damage such as building age, soil type, distance from the epicenter, etc. With the historic building stock in Cripple Creek and Victor there is potential for a moderate sized event to do some structural damage, but most impacts would likely be to non-structural items within the buildings such as light fixtures, toppling of shelves, cracked walls and chimneys. Falling items within buildings will likely pose the greatest risk to life safety.

The Colorado Geological Survey (CGS) has used HAZUS-MH, FEMA's earthquake, flood, and hurricane loss estimation software, to model earthquake risk from various faults in every county in the state. This information is included as an earthquake evaluation report annex to the 2007 Colorado Natural Hazards Mitigation Plan. The fault, magnitude, fatalities and losses for each HAZUS-MH scenario modeled for Teller County are listed below. The possibility for a Magnitude 7.0 earthquake on the Ute Pass Fault in Teller County near Woodland Park does exist, as well as a Magnitude 7.0 on the Rampart Range Fault in nearby El Paso County. The results of the HAZUS-MH runs are extremely detailed and only the summaries are presented here. The loss ratio (the percentage of the total value of the building stock damaged) is in parentheses. The higher this ratio, the more difficult it is to restore a community to viability. Loss ratios 10 percent or greater are considered by FEMA to be critical.

- Faults analyzed for County: Chase Gulch (LQ), Rampart Range (MLQ), N Sangre de Cristo (H), S Sawatch (H), Ute Pass (MLQ)
- County HAZUS-MH Inventory (HAZUS-MH 2000): $2,074.2 M
- HAZUS-MH Risk:
  - Chase Gulch: M6.75 – 0 fatal, $19 Million (-0.9%)
  - Rampart: M7.0 – 5 fatal, $160 Million (-7.7%)
  - M6.5 – 2 fatal, $86 Million (-4.1%)
  - M6.0 – 0 fatal, $33.5 Million (-1.6%)
  - M5.5 – 0 fatal, $11.6 Million (-0.6%)
  - N Sangre: M7.5 – 0 fatal, $11.8 Million (-0.6%)
  - S Sawatch: M7.25 – 0 fatal, $4.1 Million (-0.2%)
  - Ute Pass: M7.0 – 21 fatal, $418.3 Million (-20.2%)
  - M5.5 – 0 fatal, $25.4 Million (-1.2%)

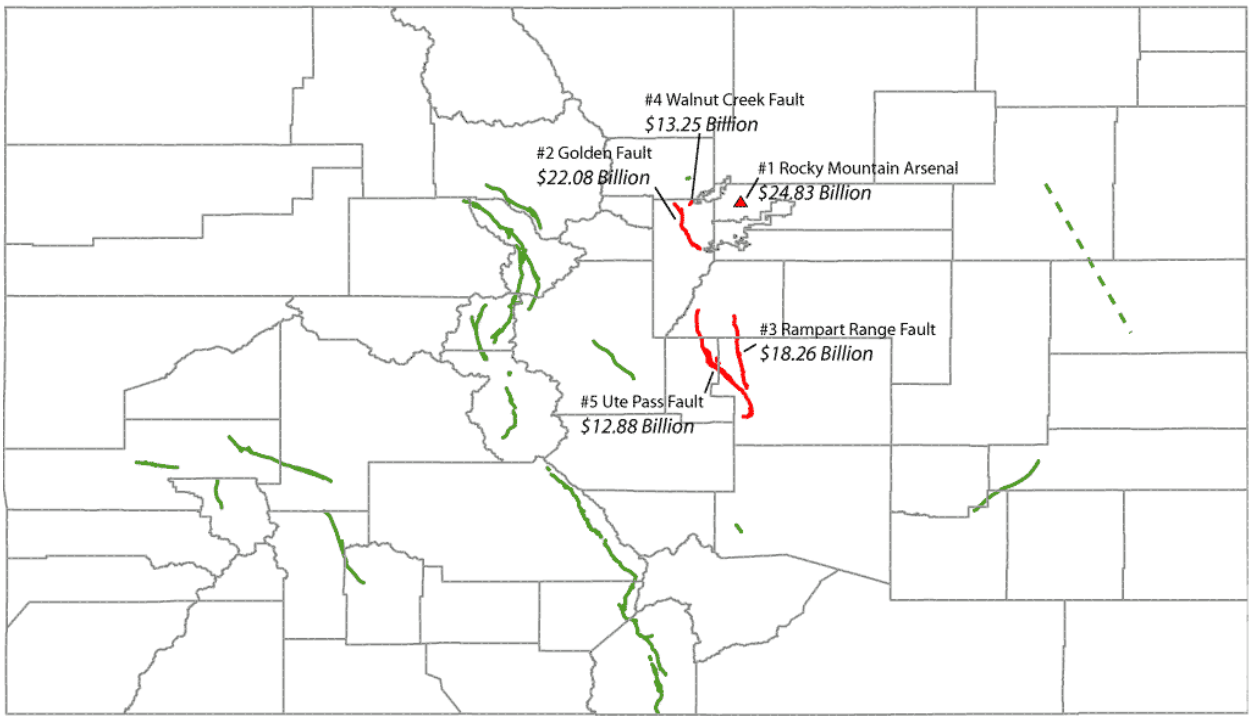
Based on these analyses, a large earthquake on the Ute Pass fault has the potential to do considerable damage. The Rampart Range fault could cause moderate to heavy damage as well. According to the state's Earthquake Evaluation Report, neighboring El Paso County would have

severe consequences (high monetary loss, casualties, and loss ratios) from an earthquake on either of these faults. The probability of these earthquakes occurring is low.

Based on HAZUS-MH analyses across the state, the Rampart Range and Ute Pass faults fall into the top five potentially most damaging faults in Colorado, as listed here:

1) Rocky Mountain Arsenal
2) Golden
3) Rampart Range
4) Ute Pass
5) Walnut Creek

Figure 4.18 Total Direct Economic Loss from Top 5 Most Damaging Faults



During the development of this plan in 2008, a HAZUS-MH probabilistic earthquake scenario was run with the latest version of HAZUS-MH (MR3, released October 2007). The methodology includes probabilistic seismic hazard contour maps developed by the USGS for the 2002 update of the National Seismic Hazard Maps that are included with HAZUS-MH. The USGS maps provide estimates of potential ground acceleration and spectral acceleration at periods of 0.3 second and 1.0 second, respectively. The 2,500-year return period analyzes ground shaking estimates with a 2 percent probability of being exceeded in 50 years, from the various seismic sources in the area. The International Building Code uses this level of ground shaking for building design in seismic areas. The CGS believes that the USGS probabilistic shaking maps likely underestimate the hazard due to the limited studies of the earthquake hazard in the state to

base the shaking maps on. Table 4.39. summarizes the results of the 2,500-year HAZUS-MH scenario. Total economic losses could exceed $64 million, with a loss ratio of 2.4 percent.

Table 4.39. HAZUS-MH Earthquake Loss Estimation 2,500-Year Scenario Results

Type of Impact	Impacts to County
Total Buildings Damaged	Slight: 1,733 Moderate: 935 Extensive: 218 Complete: 14
Building and Income Related Losses	$64.75 million 64% of damage related to residential structures 18% of loss due to business interruption
Total Economic Losses (includes building, income and lifeline losses)	$80.09 million
Casualties (based on 2 a.m. time of occurrence)	Without requiring hospitalization: 14 Requiring hospitalization: 2 Life threatening: 0 Fatalities: 0
Casualties (based on 2 p.m. time of occurrence)	Without requiring hospitalization: 16 Requiring hospitalization: 3 Life threatening: 0 Fatalities: 1
Casualties (based on 5 p.m. time of occurrence)	Without requiring hospitalization: 14 Requiring hospitalization: 2 Life threatening: 0 Fatalities: 0
Damage to Transportation and Utility Systems and essential facilities	Some pipeline damage, No damage shown to essential facilities
Displaced Households	18
Shelter Requirements	10

Source: HAZUS-MH MR3

Future Development

Future development built to modern building codes should withstand earthquake forces. New construction built to code in the County should generally be able to withstand earthquakes, but the potential for non-structural damage will increase with new development. Continued growth of population in the County could potentially expose more persons to earthquakes and the related hazards.

Flood

Existing Development

In lieu of other digital floodplains, HAZUS-MH was used to produce a flood polygon and flood-depth grid that represents the 100-year flood in Teller County. While potentially not as accurate as official flood maps, such as digital flood insurance rate maps, these floodplain boundaries are suitable for use in GIS-based loss estimation.

HAZUS-MH provides reports on the number of buildings impacted, estimates of the building repair costs, and the associated loss of building contents and business inventory. Building

damage can cause additional losses to a community as a whole by restricting the building's ability to function properly. Income loss data accounts for business interruption and rental income losses as well as the resources associated with damage repair and job and housing losses. These losses are calculated by HAZUS-MH using a methodology based on the building damage estimates. Flood damage is directly related to the depth of flooding. HAZUS-MH uses depth to damage relationships to estimate losses to buildings, based on an average depth of flooding modeled at each census block. For example, a two-foot flood generally results in about 20 percent damage to the structure (which translates to 20 percent of the structure's replacement value). The results are shown in Table 4.40.

Table 4.40. HAZUS-MH Flood Loss Estimate Results—100-Year Flood

Building Loss ($)	Contents Loss ($)	Inventory Loss ($)	Relocation Loss ($)	Capital Related Loss ($)	Wages Loss ($)	Rental Income Loss ($)	Total Loss ($)
7,930,000	7,852,000	139,000	7,000	19,000	62,000	0	$16,009,000

The HAZUS-MH model predicts that 19 buildings will be damaged countywide from the 100-year flood. Residential impacts make up 64% of the loss. HAZUS-MH analyzes additional impacts, including shelter requirements and displaced people. The model predicts that in a 100-year flood 53 people will need shelter and 291 will be displaced countywide.

The HAZUS-MH results in general indicate a moderate potential for damage from floods. HAZUS-MH does not break out damage by jurisdiction. In observing the results of the HAZUS-MH flood there were concentrations of damaged buildings near the northern border of Woodland Park.

Default HAZUS-MH inventory data was used to develop the loss estimates. Thus, the potential losses derived from HAZUS-MH may contain some inaccuracies. The building valuations used in HAZUS-MH MR3 are updated to R.S. Means 2006 and commercial data is updated to Dun & Bradstreet 2006. There could also be errors and inadequacies associated with the hydrologic and hydraulic modeling of the HAZUS-MH model. The damaged building counts generated by HAZUS-MH are susceptible to rounding errors and are likely the weakest output of the model due to the use of census blocks for analysis.

Figure 4.19. City of Woodland Park Flood Hazard

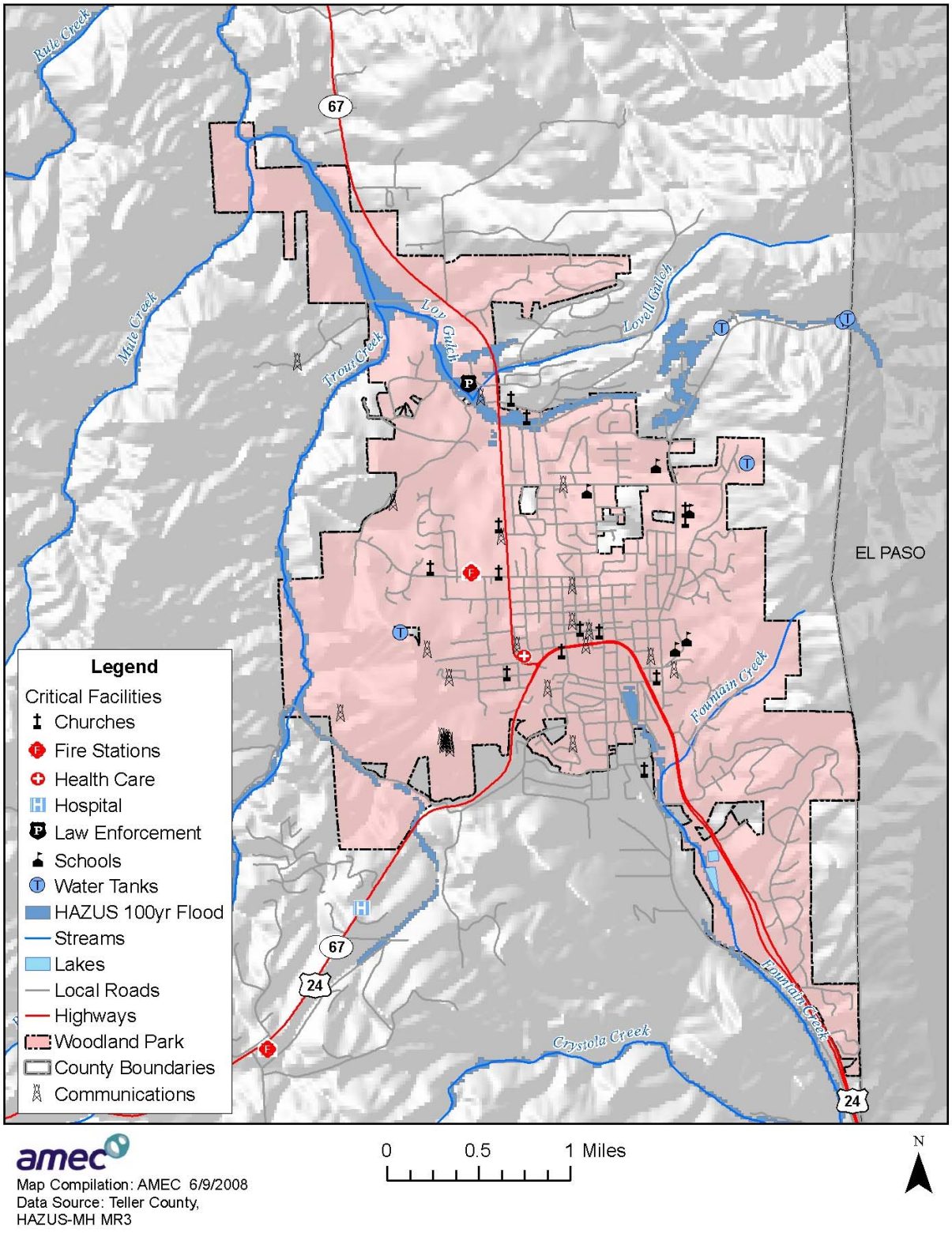
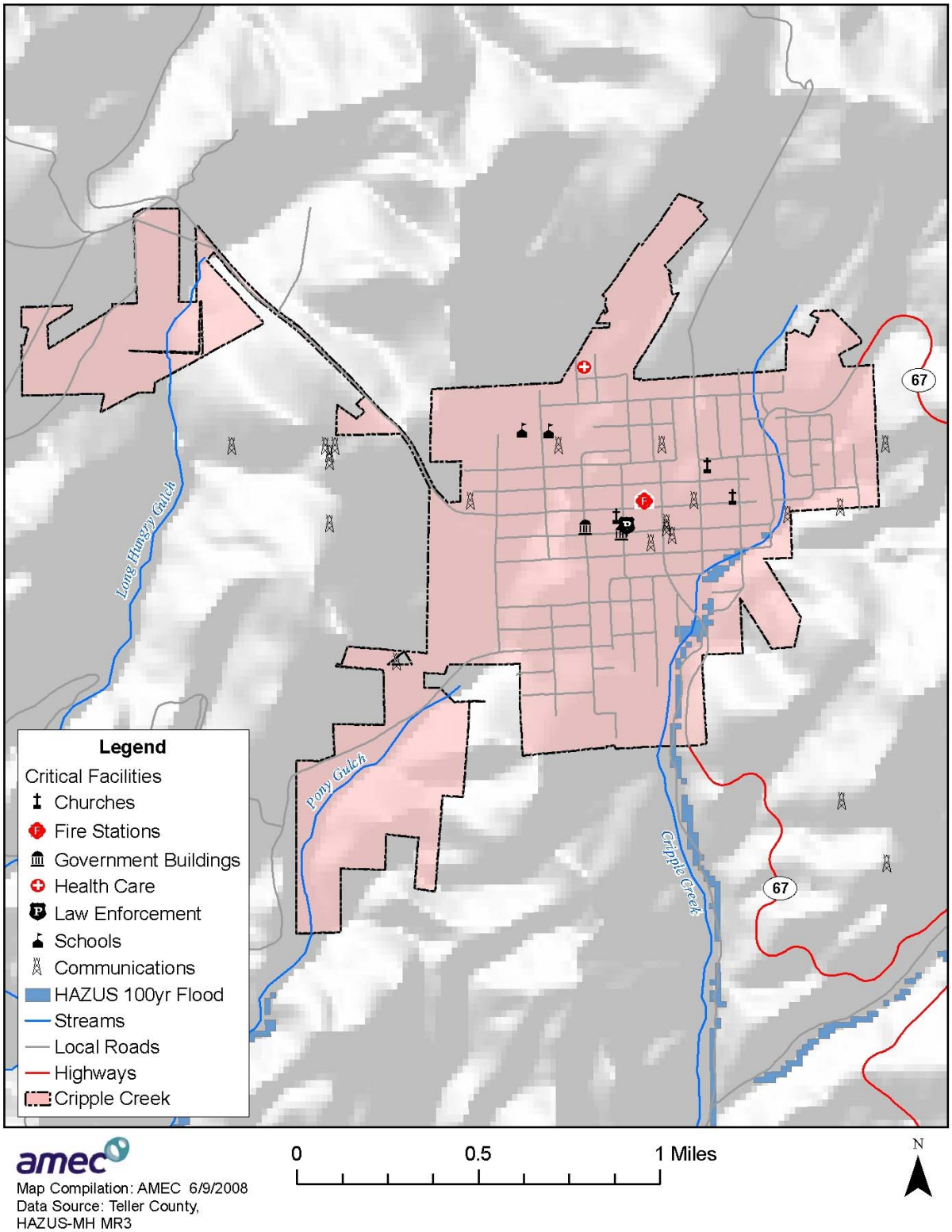


Figure 4.20. City of Cripple Creek Flood Hazard

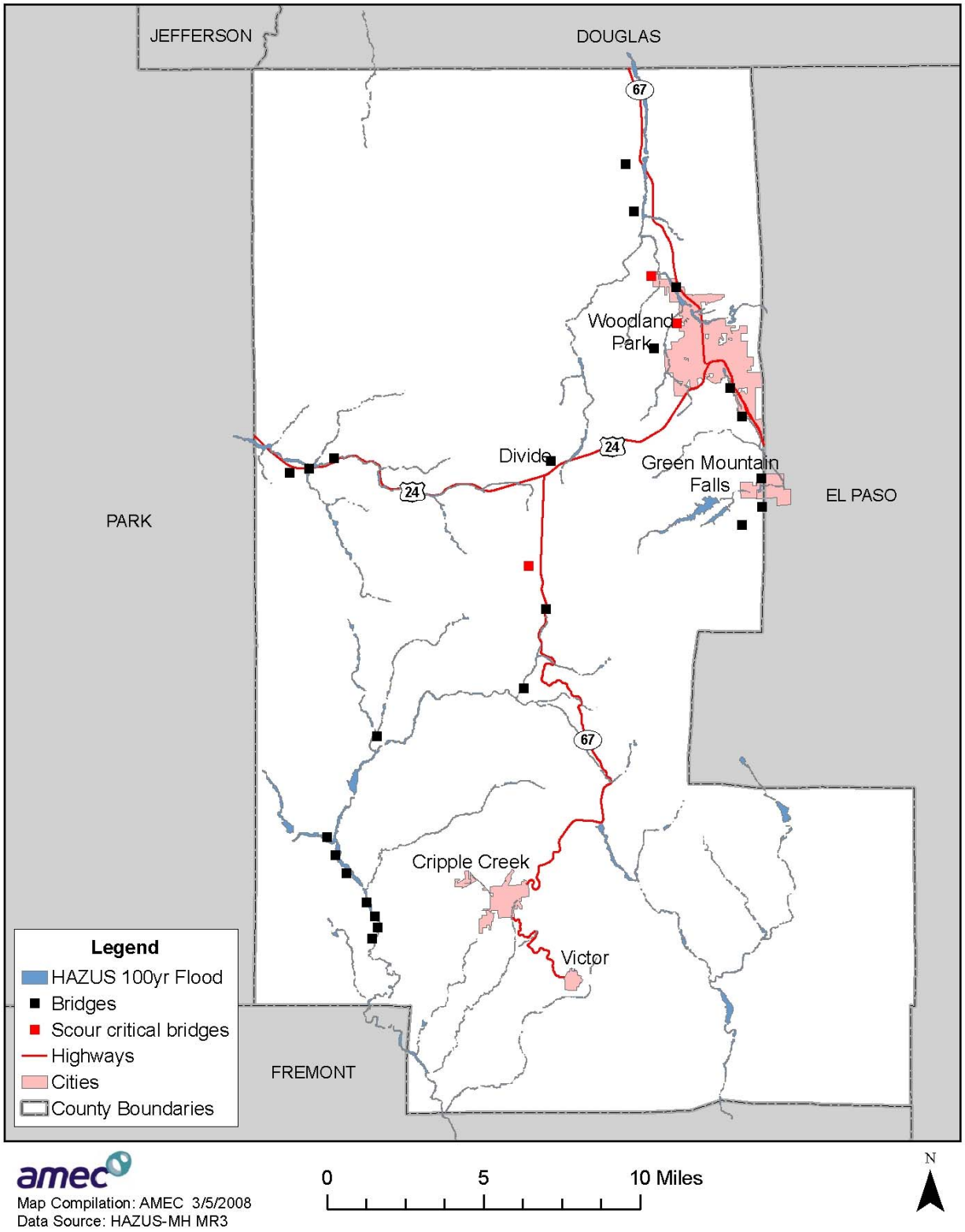


Critical Facilities

A GIS overlay analysis of the HAZUS-MH flood boundaries on the county's critical facilities showed three water tanks in the floodplain near Woodland Park (Loy Gulch). Two communication towers were also shown to be in a flood hazard area. An HMPC member noted that a water treatment facility is also in the floodplain of Loy Gulch near Woodland Park.

Bridges on the following map are from the National Inventory of Bridges database that comes with HAZUS-MH. One of the database items includes a "scour index" that is used to quantify the vulnerability of bridges to scour during a flood. Bridges with a 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. Three bridges on Highway 67 meet the "scour critical" definition. Two of those are near Woodland Park and are shown in Figure 4.21.

Figure 4.21. Teller County HAZUS-MH Flood Hazard and Bridges



Future Development

Any new construction in mapped flood hazard areas built in accordance with local floodplain management ordinances should be elevated to the 100-year flood, at a minimum. Thus vulnerability to flooding is not considered to be increasing with development. However, there are areas that are not mapped that could still be flood prone. Flooding risk in the northwestern county areas has increased due to the loss of ground cover from the Hayman Fire. Development accesses have been flooded and washed out as a result. Sedimentation and siltation of streambeds as well as ponds and reservoirs has accordingly increased, and thus are more prone to overtopping and flooding during high rainfall events.

Flood Insurance Coverage and Claims Paid

Table 4.41 provides detailed information on National Flood Insurance Program (NFIP) policies and claims in participating jurisdictions in Teller County.

Table 4.41. National Flood Insurance Program Policy Data

Jurisdiction	Date Joined	Effective FIRM Date	Policies in Force	Insurance in Force ($)	Number of Claims	Claims Totals ($)
City of Cripple Creek	12/18/1985	9/30/1988	1	1,000,000	0	0
City of Woodland Park	9/30/1988	9/30/1988	16	4,288,800	1	1,749
Unincorporated Areas	9/30/1988	9/30/1988	17	4,953,400	1	679

Source: National Flood Insurance Program, February 29, 2009

As of February 29, 2008, there were 16 policies in force in the City of Woodland Park. Of these policies, 15 were for single family residences and 1 nonresidential. Seven of the policies were for structures in A zones, and nine were for structures in B, C, or X zones. The only policy in force in Cripple Creek was a nonresidential structure in a B, C, or X zone. There were 17 polices in force in unincorporated areas of Teller County. Of these policies, 15 were for single family residences, and two were nonresidential. Six of the policies were for structures in A zones, and 11 were for structures in B, C, or X zones. There were no repetitive losses anywhere in Teller County at the time of the development of this plan.

Landslide/Debris Flow/Rockfall

Existing Development

Research in the hazard profile suggests that the State Highways and county road infrastructure could suffer the greatest impacts from landslides/debris flow and rockfall. Direct economic losses can result, though data is lacking to quantify these losses further. Indirect economic losses are associated with road closures and associated detours. Traffic counts and detour mileage would be needed to quantify the value of economic losses due to road closures.

Future Development

New critical facilities, roads and housing developments should be sited to avoid impacts from these hazards, in accordance with the County Land Use regulations.

Lightning

Existing Development

Lightning risk to humans and existing development is serious in Teller County due to the high elevations and high number of cloud-to-ground strikes each year. Persons recreating or working outdoors during the months of April through September will be most at risk to lightning strikes. It is difficult to quantify future deaths and injuries due to lightning.

Critical facilities and infrastructure will have the greatest consequences if damaged by a lightning strike. Anecdotal input from HMPC members suggest that County infrastructure losses equate to tens of thousands of dollars each year. Backup power sources have helped to mitigate some of the losses associated with loss of function. The Cripple Creek water treatment plant and pumping plant is frequently struck by lightning. The greatest losses from lightning could result from secondary hazards, such as wildfire.

Future Development

New critical facilities such as communications towers should be built with lightning protection measures.

Pandemic Flu

Existing Development

Pandemic flu could result in serious human and economic losses. The total County population of 22,726 (2006 estimate) could potentially be exposed to a pandemic flu outbreak. According to the Colorado Department of Public Health and Environment's Internal Emergency Response Implementation Plan, susceptibility to the pandemic influenza virus strain will be universal, and the disease could affect approximately 30 percent of the state's overall population. Illness rates will be highest among school-age children (about 40 percent) and decline with age. Among working adults, an average of 20 percent will become ill during a community outbreak. In a severe pandemic, it is expected that absenteeism may reach 40 percent due to illness, the need to care for ill family members, and fear of infection. Government operations could be reduced to 30 to 40 percent of normal, due to the illness significantly reducing the workforce.

The number of hospitalizations and deaths will depend on the virulence of the virus. Risk groups cannot be predicted with certainty. During the annual influenza season, infants, the elderly, the chronically ill, and pregnant women are usually at higher risk. But, in contrast, in the 1918 pandemic, most deaths occurred among young, previously healthy adults.

If a pandemic event affected 30 percent of the Teller population, approximately 6,800 people in the County could become ill. Assuming a mortality rate of 45%, which has been associated with past pandemic outbreaks, deaths could be as high as 2,000. It is difficult to quantify economic losses further.

Future Development

As population trends continue to increase, more persons will be exposed to the pandemic flu hazard, therefore increasing risk as well as pressure on local medical and emergency services.

Severe Winter Storms

Existing Development

The threat to public safety is typically the greatest concern when it comes to impacts of winter storms. But these storms can also impact the local economy by disrupting transportation and commercial activities. Winter storms are occasionally severe enough to overwhelm snow removal efforts, transportation, livestock management, and business and commercial activities. Travelers on highways in Teller County, particularly along remote stretches of road, can become stranded, requiring search and rescue assistance and shelter provisions. The County can experience high winds and drifting snow during winter storms that can occasionally isolate individuals and entire communities and lead to serious damage to livestock populations and crops. Winter storms contribute directly to other hazards in this plan: extreme temperatures (cold).

Research presented in Section 4.2.12 Severe Winter Storm did not yield significant loss information for this hazard, largely due to a lack of records capturing losses from past events. Structural losses to buildings are possible and structural damage from winter storms in Colorado has resulted from severe snow loads on rooftops. Older buildings are more at risk, as are buildings with large flat rooftops (often found in public buildings such as schools). With the historic structures in Cripple Creek the potential for damage exists, but information to quantify the amount and extent is currently not available. An inventory of the buildings with flat roofs includes:

- Court House and Annex
- Police Department
- High School and Elementary School
- Emergency Services
- City Hall
- Cripple Creek Wellness and Rehab
- Aspen Mine Center
- Cripple Creek Elks
- Casinos with flat roofs
- Gold Rush

- Gold Diggers
- Bronco Billy's – 5 buildings
- Virgin Mule
- Imperial hotel & Casino
- Double Eagle
- Colorado Grande
- Midnight Rose – 4 buildings
- Womacks – 3 buildings
- Many other unoccupied buildings

The County's elderly population is a potentially vulnerable demographic during severe winter storms. The commuting population, particularly those that commute to the Colorado Springs metropolitan area, is another demographic potentially at risk during winter storm events.

Future Development

Future residential or commercial buildings built to code should be able to withstand snow loads from severe winter storms. Population and commercial growth in the county will increase the potential for complications with traffic and commerce interruptions associated winter storms.

As building and population trends continue to increase, more persons will be exposed to the winter storm hazard, therefore increasing pressure on local government snow removal and emergency services.

Wildfire

Existing Development

Wildfire has the potential to cause widespread damage and loss of life in Teller County. Efforts to evaluate the risk began with a detailed wildfire risk analysis conducted as part of the countywide Community Wildfire Protection Plan (CWPP) completed in May of 2005. The results of that analysis are presented in the map in Figure 4.22. That document contains more detail on the catastrophic fire hazard and potential for property loss by subdivision. Property loss ratings included an evaluation of ingress/egress, lot size, response time, defensible space, hydrants and other factors for each subdivision.

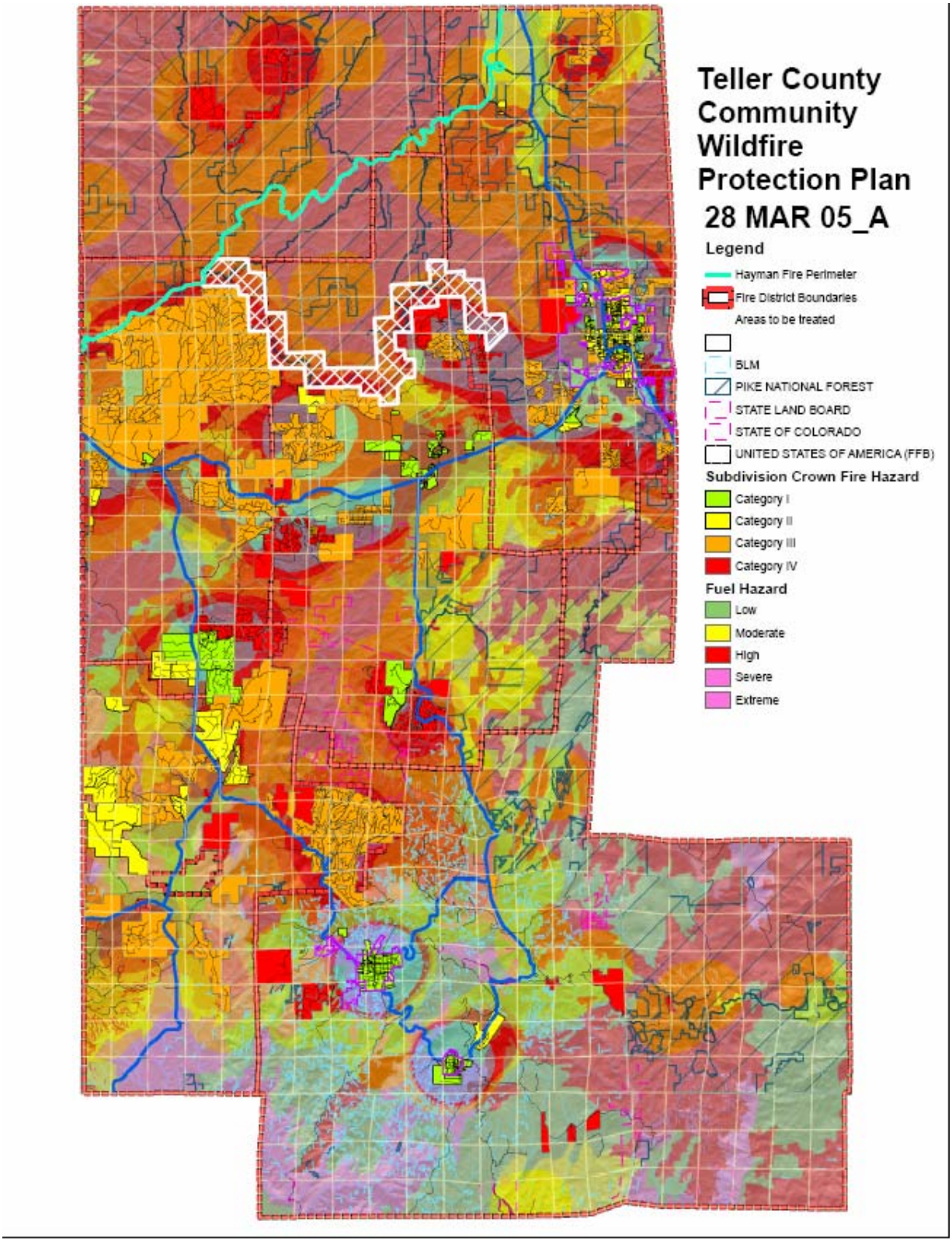
For the purposes of this mitigation plan the data developed for the CWPP was analyzed with 2007 assessor's data to further refine the risk, both to populations and structures, by jurisdiction and by subdivision. During the process of the CWPP development the subdivisions had been categorized into an average wildfire hazard rating. It is important to point out that these ratings are for the subdivision as a whole. Specific areas within the subdivision may differ from the overall subdivision rating. The catastrophic fire hazard rating categories are described in Table 4.42. The subdivisions and their average ratings are portrayed in the maps in Figures 4.23 through 4.27, shown by fire protection district.

Table 4.42. Catastrophic Fire Hazard Range Categories

Category	Description
Low	Low fuels, moderate terrain
Moderate	Moderate fuels accumulation with steeper slopes. Has a likely opportunity for significant improvement
High	Heavy fuels accumulation and steeper slopes. Clear need for improvement.
Severe	Severe fuels hazards combined with steep slopes.
Extreme	Extreme fuels hazards combined with steep slopes. High priority mitigation is essential for safety

Teller County Community Wildfire Protection Plan 2005

Figure 4.22 Teller County Wildfire Risk Map



Teller County Community Wildfire Protection Plan 2005

Figure 4.23. Teller County Subdivisions Wildfire Hazard & Fire Protection Districts

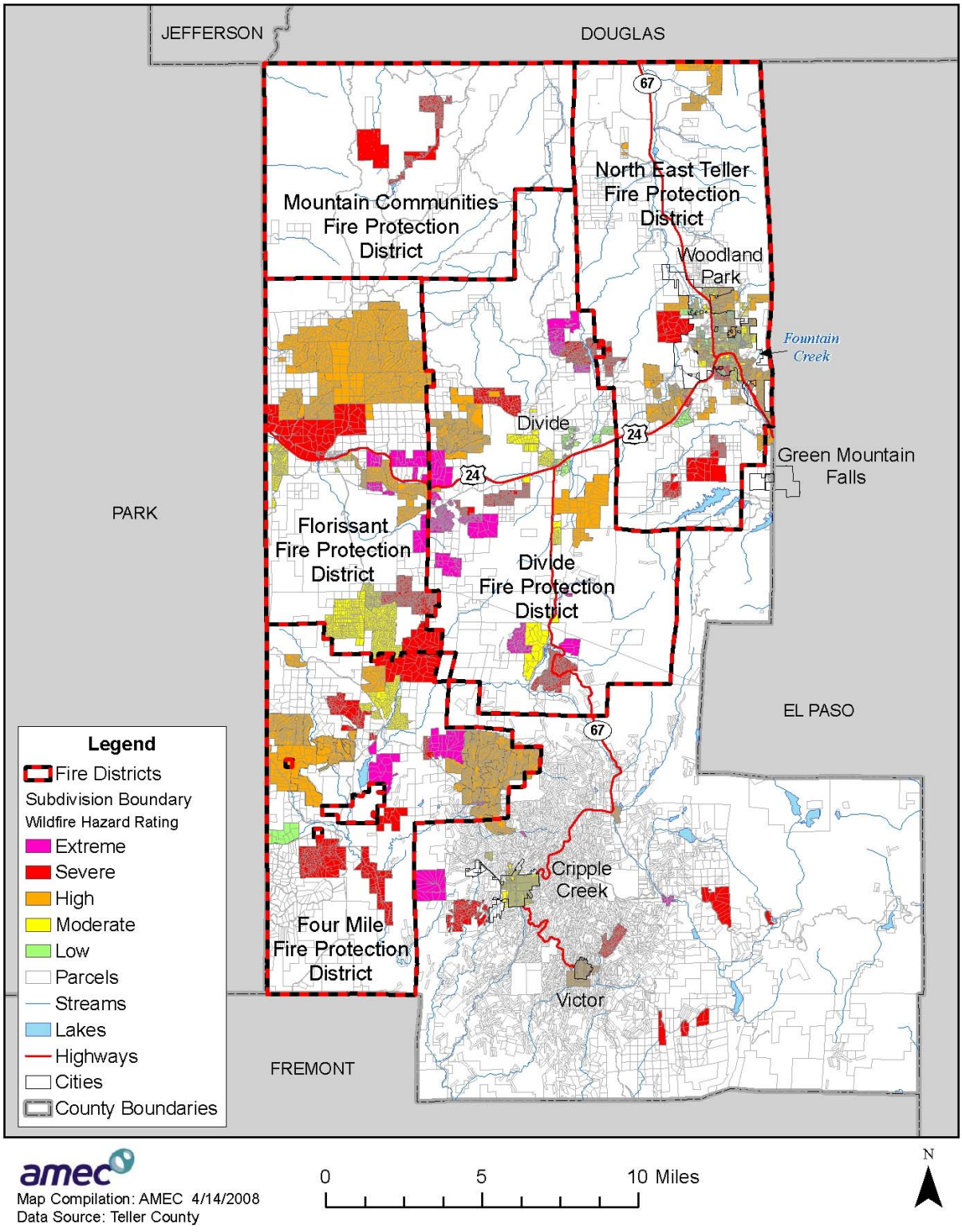


Figure 4.24. Woodland Park Subdivisions Wildfire Hazard & North East Teller Fire Protection District

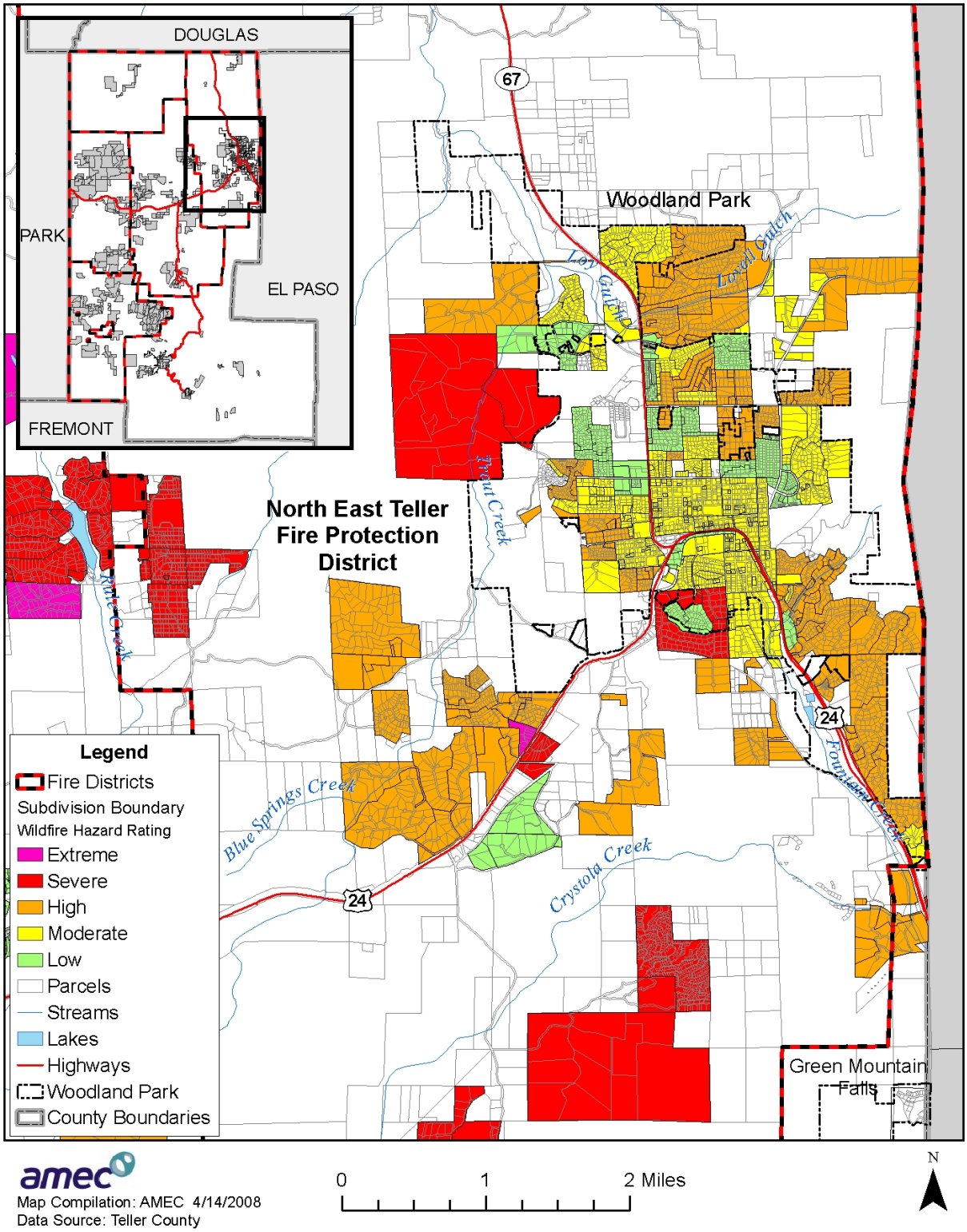


Figure 4.25. Teller Subdivisions Wildfire Hazard & Florissant Fire Protection District

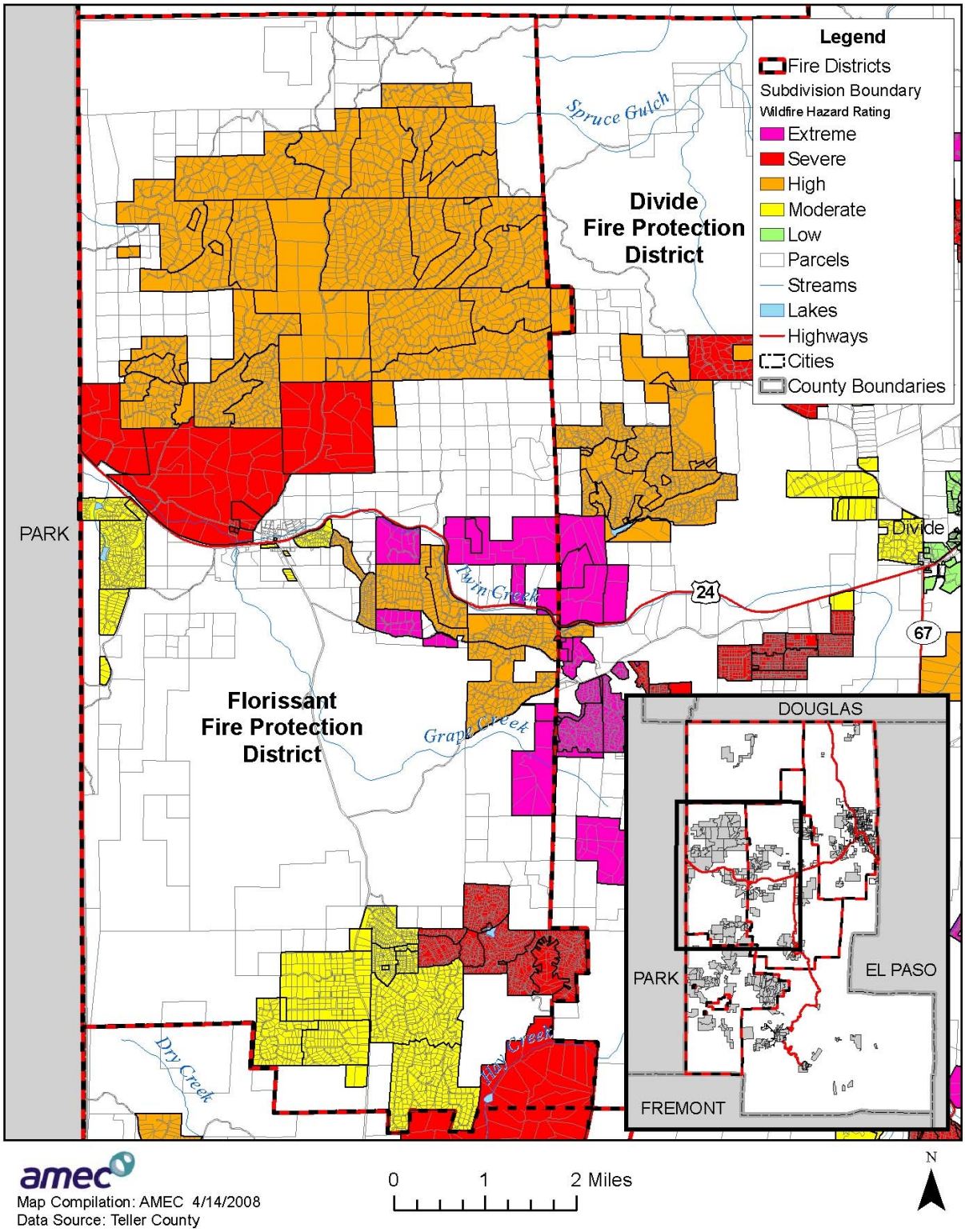


Figure 4.26. Teller Subdivisions Wildfire Hazard & Divide Fire Protection District

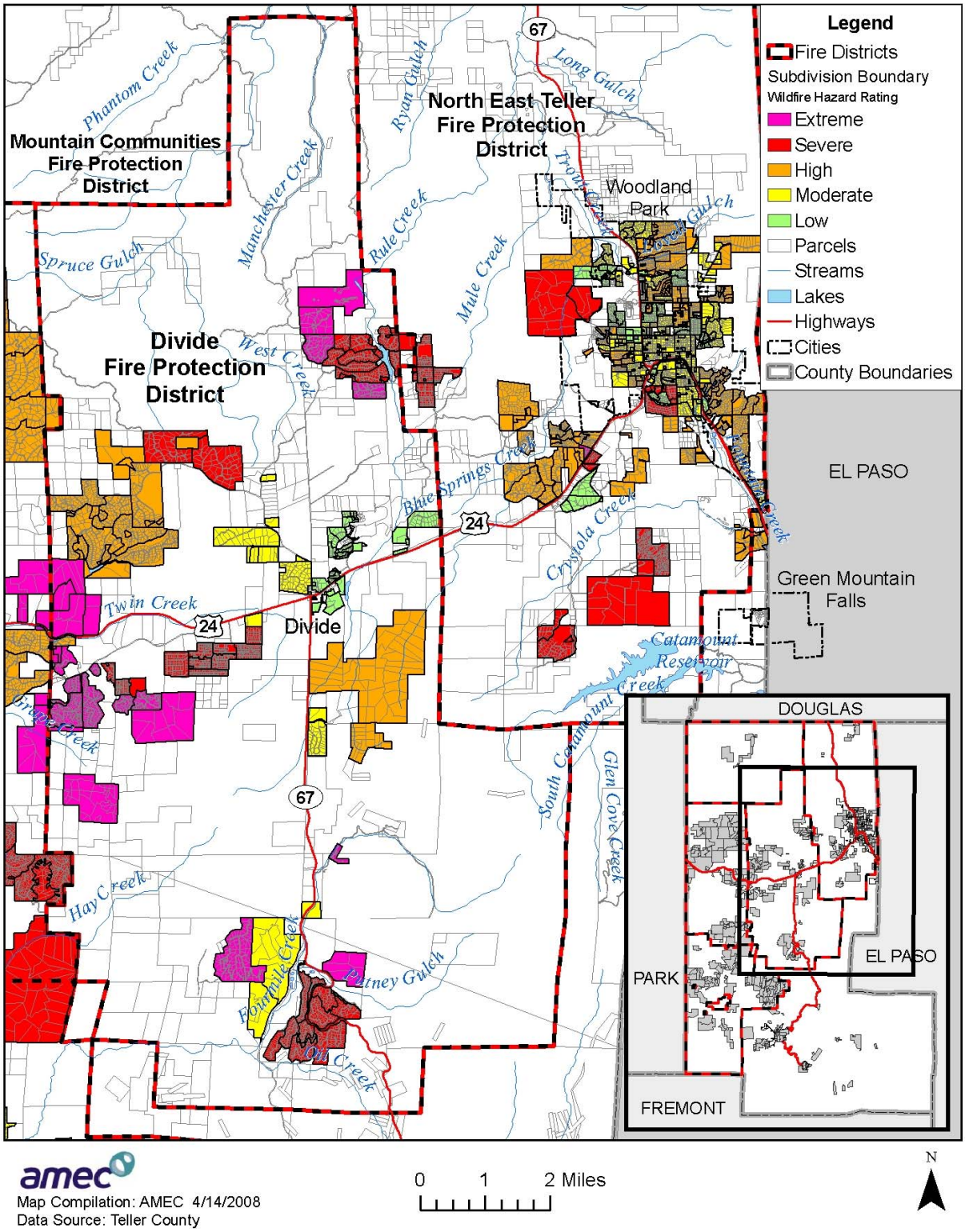
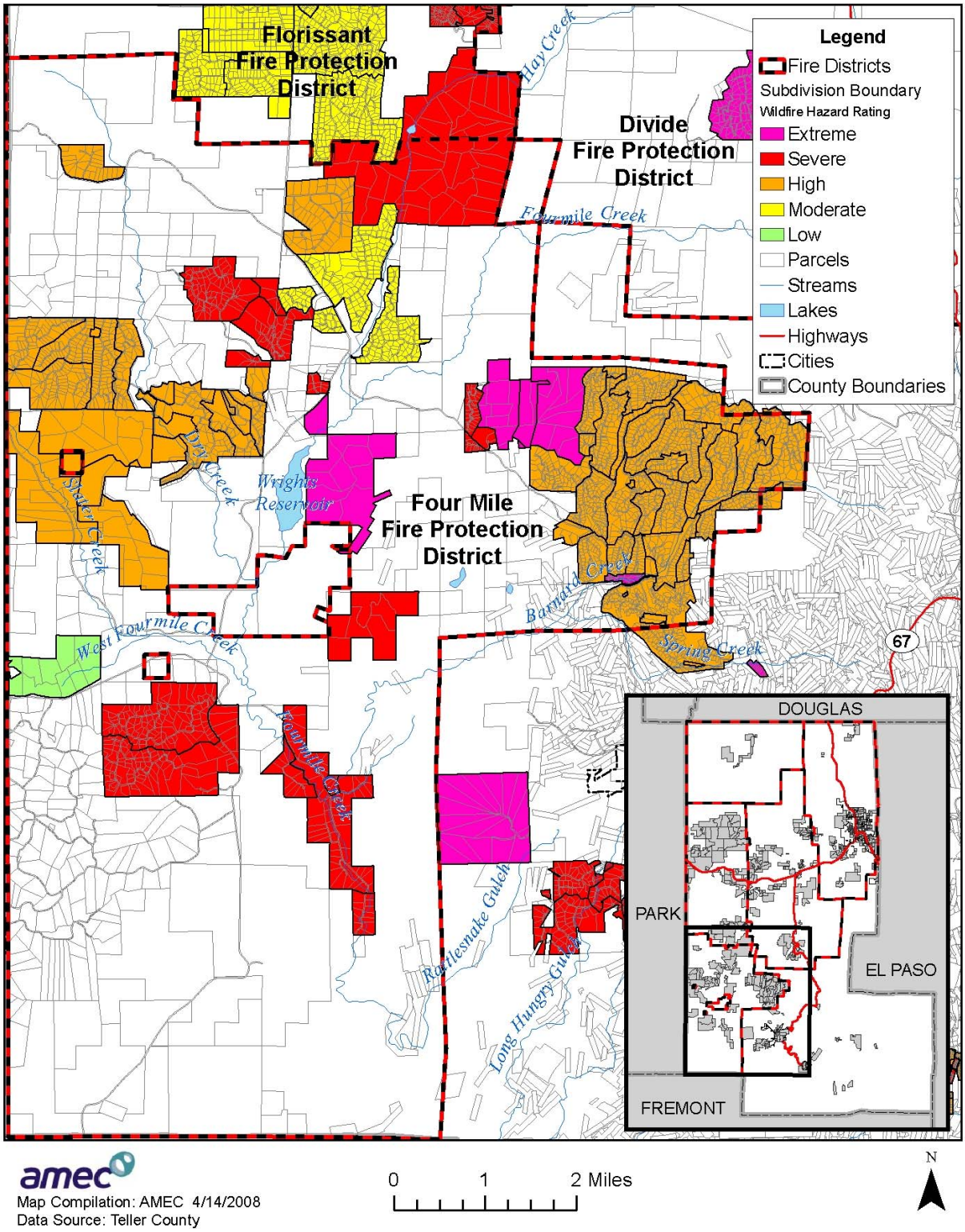


Figure 4.27. Teller Subdivisions Wildfire Hazard & Four Mile Fire Protection District



The County's parcel layer was used as the basis for the inventory of developed parcels. GIS was used to create a centroid, or point, representing the center of each parcel polygon, which was overlayed on a subdivision polygon layer which has wildfire hazard ratings within its attributes. For the purposes of this analysis, the subdivision that intersected the centroid was assigned with the wildfire zone rating for the entire parcel.

Another assumption with this model is that every parcel with an improved value greater than 0 was assumed to be developed in some way. Only improved parcels, and the value of those improvements, were analyzed and aggregated by property type and wildfire zone. Population was estimated by applying the 2000 Census average household size of 2.56 to each improved parcel. The parcels were segregated and analyzed based on the summarized number of structures and population estimate by subdivision as well as unincorporated and incorporated areas. The results are summarized in Tables 4.43 through 4.44. Table 4.45 groups the subdivisions by hazard rating, in order of estimated structures and population, for those subdivisions with a population of 100 or more. Appendix E contains the results for all subdivisions.

Based on this analysis, the Teller County Planning Area (including unincorporated county and all cities) has significant assets at risk to wildfire. 545 improved parcels are within the Extreme hazard zone, a total value of $85,878,856. 2,183 parcels are within the Severe hazard zone, a total value of $339,210,191. 4,159 parcels are within the High hazard zone, a total value of $756,541,864. The unincorporated areas of the county contain the subdivision with the highest risk, but Woodland Park has potential for significant wildfire losses as well. Based on observations in wildland-urban interface fires, structures and contents are often completely destroyed, thus the estimated total value also represents potential dollar losses, not including content losses. Content losses could be estimated by adding an additional 50% of the structure value. Note: a wildfire is not likely to burn all the wildland-urban interface areas in Teller County at once.

The population estimates by subdivision assumes complete occupancy. This should be considered 'worst case,' as many properties, possibly as much as 25%, are either second homes or vacation retreats that sit unoccupied during much of the year. The high occupancy times typically coincide with the wildfire season. The wildfire hazard by subdivision ratings may not reflect improvements, such as defensible space, that may have been made since 2005.

Note that assessed values were separated out from the total assessed value so that losses to structures could be quantified. However, land value can decline following a large wildfire. This reduction in property value results in lower property taxes collected, and can significantly impact the County's tax revenue.

Table 4.43. Improved Parcels by Jurisdiction and Wildfire Hazard Rating

Jurisdiction	Data	Wildfire Hazard Rating						
		Extreme	Severe	High	Moderate	Low	Not Rated	Totals
Cripple Creek	# of Structures				742		4	746
	Improved Value ($)				168,495,942		3,668,010	172,163,952
Green Mountain Falls	# of Structures						30	30
	Improved Value ($)						3,886,491	3,886,491
Victor	# of Structures		42	362				404
	Improved Value ($)		2,592,444	27,839,384				30,431,828
Woodland Park	# of Structures		72	1,144	1,413	833	77	3,539
	Improved Value ($)		15,940,723	271,412,976	303,350,292	171,284,131	65,665,041	827,653,163
Unincorporated	# of Structures	545	2,069	2,653	685	194	1,508	7,654
	Improved Value ($)	85,878,856	320,677,024	457,289,504	106,665,868	39,300,592	299,092,337	1,308,904,181
Total Number of Structures		545	2,183	4,159	2,840	1,027	1,619	12,373
Total Improved Value		85,878,856	339,210,191	756,541,864	578,512,102	210,584,723	372,311,879	2,343,039,615

Source: Analysis based on Teller County GIS and Assessor's data

Table 4.44. Population Estimates by Jurisdiction and Wildfire Hazard Rating

Jurisdiction	Wildfire Hazard Rating						
	Extreme	Severe	High	Moderate	Low	NR	Totals
Cripple Creek				1,900		10	1,910
Green Mountain Falls						77	77
Victor		108	927				1,034
Woodland Park		184	2,929	3,617	2,132	197	9,060
Unincorporated	1,395	5,297	6,792	1,754	497	3,860	19,594
Grand Total	1,395	5,588	10,647	7,270	2,629	4,145	31,675

Source: Analysis based on Teller County GIS and Assessor's data

Table 4.45. Subdivision Wildfire Risk by Hazard Rating (Population 100 or More)

Hazard Rating	Subdivision Name	Number of Structures	City Name	Improved Value	Actual Value	Population Estimate
Extreme	Trout Haven Subdivision	146	Unincorporated	$21,319,404	$24,047,434	374
Extreme	Arabian Acres	134	Unincorporated	$20,255,116	$23,041,727	343
Extreme	Ute Lakes Club	41	Unincorporated	$2,620,857	$3,301,688	105
Extreme Total		321		$44,195,377	$50,390,849	822
Severe	Colorado Mountain Estates	454	Unincorporated	$72,584,591	$79,127,613	1,162
Severe	Sherwood Forest Estates	239	Unincorporated	$31,085,508	$33,974,771	612
Severe	Spring Valley Subdivision	215	Unincorporated	$38,590,918	$46,180,185	550
Severe	Tranquil Acres			$15,720,041	$17,951,315	530
Severe	Rainbow Valley	139	Unincorporated	$21,442,579	$23,177,628	356
Severe	Navajo Mountain Mesa	94	Unincorporated	$9,728,748	$11,649,877	241

Hazard Rating	Subdivision Name	Number of Structures	City Name	Improved Value	Actual Value	Population Estimate
Severe	Turkey Rock Ranch Estates	90	Unincorporated	$11,118,041	$13,463,577	230
Severe	Ranch Estates Subdivision	75	Unincorporated	$12,286,510	$12,898,441	192
Severe	Goldfield	61	Unincorporated	$3,287,385	$3,810,752	156
Severe	Holiday Hills	53	Unincorporated	$12,140,281	$15,137,049	136
Severe	Sunny Slope Acres Filing No. 1	52	Unincorporated	$10,376,602	$14,068,966	133
Severe	None	45	Woodland Park	$10,844,552	$15,047,631	115
Severe	Aspen Village Subdivision	40	Unincorporated	$9,412,084	$13,962,764	102
Severe	Lakemoor West	40	Unincorporated	$6,139,087	$8,263,873	102
Severe Total		1,804		$264,756,927	$308,714,442	4,618
High	Indian Creek	601	Unincorporated	$75,275,428	$94,328,053	1,539
High	Highland Lakes Subdivision	347	Unincorporated	$69,549,662	$79,205,919	888
High	Cripple Creek Mountain Estates	309	Unincorporated	$46,631,510	$50,880,866	791
High	Victor	249	Victor	$18,607,140	$19,717,906	637
High	Sunnywood Manor	234	Woodland Park	$54,398,125	$67,676,365	599
High	Paradise Estates	209	Woodland Park	$52,523,893	$72,512,646	535
High	Westwood Lakes	137	Unincorporated	$26,638,727	$32,470,562	351
High	Florissant Heights	125	Unincorporated	$17,150,699	$19,851,969	320
High	Woodland West	117	Unincorporated	$22,815,406	$37,915,614	300
High	Paint Pony Ranch Club	108	Woodland Park	$21,761,259	$26,254,552	276
High	Morning Sun Solar Community	100	Woodland Park	$27,075,182	$37,513,398	256
High	Evergreen Heights	88	Woodland Park	$23,083,213	$28,088,363	225
High	Ridgewood Subdivision	85	Unincorporated	$20,432,002	$27,476,252	218
High	Druid Hills Subdivision	75	Unincorporated	$15,832,850	$18,323,666	192
High	Palmer Village Subdivision	74	Unincorporated	$16,810,671	$19,857,415	189
High	Country Ridge Estates	61	Woodland Park	$16,228,895	$19,228,423	156
High	Golden Bell Nazarene Ranch	56	Unincorporated	$7,289,110	$8,910,931	143
High	Crystal Peak Estates	54	Unincorporated	$7,052,603	$7,907,307	138
High	Spicer Addition	54	Victor	$5,278,655	$5,523,787	138
High	Twin Rocks Subdivision	51	Unincorporated	$7,675,440	$9,340,272	131
High	Paradise Pines Townhomes	49	Woodland Park	$6,335,710	$6,891,373	125

Hazard Rating	Subdivision Name	Number of Structures	City Name	Improved Value	Actual Value	Population Estimate
High	Aspen Hills	48	Unincorporated	$9,438,339	$12,439,950	123
High	Rosewood Hills	48	Unincorporated	$9,330,552	$11,691,862	123
High	Valley - Hi Mountain Estates	46	Unincorporated	$7,079,201	$8,905,644	118
High Total		3,325		$584,294,272	$722,913,095	8,512
Medium	Lake Addition	198	Woodland Park	$28,666,769	$38,348,288	507
Medium	Freemont Addition	193	Cripple Creek	$96,370,026	$148,758,321	494
Medium	Hayden Placer	186	Cripple Creek	$26,024,432	$32,689,928	476
Medium	Forest Edge Park	127	Woodland Park	$26,754,353	$31,770,632	325
Medium	Freeman Placer Addition	125	Cripple Creek	$11,225,971	$13,624,517	320
Medium	Foster's Addition	117	Woodland Park	$15,614,892	$23,212,216	300
Medium	Wilson Lake Estates	111	Unincorporated	$12,166,474	$13,868,615	284
Medium	Reserve At Tamarac	94	Woodland Park	$35,391,293	$44,101,190	241
Medium	La Montana Mesa	93	Unincorporated	$18,673,054	$21,515,741	238
Medium	Ranch Resorts Of Colorado	85	Unincorporated	$15,853,440	$18,140,471	218
Medium	Steffa's Addition	85	Woodland Park	$22,364,263	$28,298,951	218
Medium	Las Brisas Ranchettes	81	Unincorporated	$9,480,997	$12,527,247	207
Medium	Green's Addition	65	Woodland Park	$8,661,048	$12,319,016	166
Medium	Dewell Addition	62	Woodland Park	$8,351,778	$10,421,092	159
Medium	Burro Ranch Condominiums	58	Cripple Creek	$4,178,863	$4,178,863	148
Medium	Park View Estates	57	Woodland Park	$13,059,603	$15,192,680	146
Medium	Fairway Pines	53	Woodland Park	$20,279,176	$24,429,324	136
Medium	Grand View Estates Subdivision	51	Unincorporated	$9,320,384	$10,785,576	131
Medium	Forest Glen Sports Association	48	Unincorporated	$3,542,304	$4,116,147	123
Medium	Tierra Del Sol 2nd Addition	45	Woodland Park	$8,476,971	$10,212,005	115
Medium	First Addition To Freemont	42	Cripple Creek	$6,617,247	$9,210,865	108
Medium Total		1,976		$401,073,338	$527,721,685	5,059
Low	Northwoods Subdivision	129	Woodland Park	$22,663,159	$27,072,875	330
Low	Fullview Subdivision	80	Woodland Park	$11,905,259	$13,952,243	205
Low	Crestwood Park	76	Woodland Park	$19,960,496	$22,522,249	195
Low	Arrowhead Estates	66	Woodland Park	$11,225,754	$13,828,132	169

Hazard Rating	Subdivision Name	Number of Structures	City Name	Improved Value	Actual Value	Population Estimate
Low	Sunny Glen	44	Woodland Park	$14,580,127	$19,727,213	113
Low	Gray Horse Ranch	41	Woodland Park	$11,836,713	$13,507,742	105
Low Total		436		$92,171,508	$110,610,454	1,116
Grand Total		7,862		$1,386,491,422	$1,720,350,525	20,127

Critical facilities

A GIS-based analysis of wildfire impacts to critical facilities was not possible, due to the unfortunate loss of a key wildfire hazard layer from the original CWPP process when a computer hard drive failed. Wildfire risk to certain critical facilities was noted in the tables of community assets (see Section 4.3.2 Assets Exposed), based on input from HMPC members. Fire stations and repeater stations located in the wildland urban interface zones are some examples of facilities potentially at risk.

Future Development

Growth in the wildland urban interface has been significant in the past ten years in Teller County. While this growth has recently slowed, there still remains potential for development of primary and secondary residences in wildfire hazard areas in the unincorporated County. Results of the subdivision population and improved parcel analysis show that many subdivisions with moderate or higher wildfire hazard rating have little or no development (see Appendix E). Wildfire risk future development in these subdivisions will be tempered by the County's land use regulations. County Emergency Management reviews subdivision permits for public safety concerns, including wildfire, before approval. Subdivisions with high or greater wildfire hazard rating should be given special consideration when development permits are submitted for these areas.

4.4 Mitigation Capabilities Assessment

Thus far, the planning process has identified the natural hazards posing a threat to Teller County and described, in general, the vulnerability of the County to these risks. The next step is to assess what loss prevention mechanisms are already in place. This part of the planning process is the mitigation capability assessment. Combining the risk assessment with the mitigation capability assessment results in "net vulnerability" to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan.

The HMPC used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the HMPC conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

4.4.1 Teller County Mitigation Capabilities

This section presents Teller County's mitigation capabilities as well as the capabilities of the Cities of Cripple Creek and Woodland Park and discusses select state and regional capabilities that are applicable to the planning area. This assessment describes existing capabilities: programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. It addresses regulatory mitigation capabilities, administrative and technical mitigation capabilities, financial mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts for each of the participating jurisdictions.

Teller County Regulatory Mitigation Capabilities

Table 4.46 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Teller County. Excerpts from applicable policies, regulations, and plans and program descriptions follow to provide more detail on existing mitigation capabilities.

Table 4.46. Teller County Regulatory Mitigation Capabilities Matrix

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General plan	Yes	Teller County Growth Management Plan (Teller County Master Plan), 1990; additionally are five (5) "sub-area" plans: Florissant, Divide, Woodland Park, Four-Mile and Southeast Teller. Plan is outdated but fundamental concepts are still functional. It is time to revisit Florissant and Woodland Park as well as the countywide one.
Zoning ordinance	Yes	Teller County Land Use Regulations, 2008, in place since 1974
Subdivision ordinance	Yes	Teller County Land Use Regulations, 2008, in place since 1972
Growth management	Yes	Growth management is accomplished through compliance with Zoning and Subdivision Regulations. Teller County Growth Management Plan (Teller County Master Plan), 1990 is advisory document, needs updating.
Floodplain ordinance		Teller County Land Use Regulations, 2008; Teller County Local Flood Hazard Mitigation Plan, 2005
Other special purpose ordinance (stormwater, steep slope, wildfire)		Teller County Land Use Regulations, 2008, mostly for new development, pertaining to geologic and wildfire hazard areas, grading, drainage, and erosion and sediment control, driveway and access control, control of external effects, landscaping, lighting, open space, parking and loading, signage, tree retention and thinning and visual impacts. Teller County has also adopted Roadway Design & Construction Standards.
Building code	Yes	International Building Code, 2003; Teller County Building Code, 2007, originally adopted in 1973, adopts by reference and amends, the 2003 IRC, IBC, IPC, IMC, IFGC, the National Manufactured Housing Construction and Safety Standards Act of 1974, the 2005 National Electrical Code, the 1994 Uniform Fire Code, 2003 Energy Conservation Code, 2004 ASME Safety Code for Elevator and Escalators, 2003 ICC/ANSI A117.1 for Accessible and Usable Buildings and Facilities, 2003

		Existing Building Code, and 1997 Uniform Code for the Abatement of Dangerous Buildings
Fire department ISO rating	N/A	Varies across fire protection districts in County, 10 outside of districts
Erosion or sediment control program	Yes	Teller County Land Use Regulations, 2008 – new construction
Stormwater management	Yes	2008 Teller County Land Use Regulations – new construction
Site plan review requirements	Yes	Teller County Growth Management Plan (Teller County Master Plan), 1990Teller County Land Use Regulations, 2008
Capital improvements plan	No	
Economic development plan	No	
Local emergency operations plan	Yes	
Other special plans	Yes	Teller County Community Wildfire Protection Plan, 2005; Fountain Creek Watershed Plan
Flood insurance study or other engineering study for streams	Yes	Flood Insurance Study, September 30, 1988, U.S. Army Corps Fountain Creek Study
Elevation certificates	Yes	As well as "No-Rise" certificates
Other	Yes	Teller County Community Wildfire Protection Plan, 2005

As indicated in the table above, Teller County has several plans and programs that guide the County's mitigation of development of hazard-prone areas. Some of these are described in more detail below.

Teller County Growth Management Plan (Teller County Master Plan), 1990

The intent of the Teller County Growth Management Plan is to provide for planned and orderly development within the County and cooperating cities, towns, and areas, while balancing basic human needs of a changing population and maintaining a healthy environment for future generations. The plan identifies and defines three areas for growth:

- Community centers and surrounding mixed land use activity areas
- Older established neighborhoods, existing and approved activity areas
- Potential development activity areas

The plan also identifies and defines three limited growth areas where development is discouraged:

- Fringe protection areas
- Resource, environmentally sensitive/significant protection areas
- Rural life-style protection areas

Some of the goals, objectives, and polices that directly or indirectly mitigate hazards identified in this plan are included below:

Goal 1: Provide for planned and orderly use of the land and the environment in a manner consistent with constitutional rights.
Objective 1A: To identify regulatory and other techniques for the use of land so as to provide for the orderly use of

Goal 1: Provide for planned and orderly use of the land and the environment in a manner consistent with constitutional rights.
land and the protection of the environment.
Policy Statement 1A-3: Encourage the monitoring of development to ensure a quality environment.
Policy Statement 1A-4: Encourage the full utilization of the environmental review mechanisms of the County, regional, state, and federal agencies to ensure that all public and private development will not exceed the carrying capacity of the land or resource, degrade lands, or threaten the availability of the resource.
Policy Statement 1A-5: Encourage the identification and mapping of planning areas into planning "parcels" that are defined by manmade and natural features such as present residential and commercial developments, highways, streets and roads, parks, land uses, forest service boundaries, topography, steep slopes, floodplains and drainage basins, ridges and scenic views, natural wildlife habitats and ecosystems, geologic hazards, and wildfire areas.
Policy Statement 1A-7: Encourage the protection of limited growth areas by the use of the appropriate zoning district classifications within them.
Policy Statement1A-8: Encourage, within limited growth areas, investigation of the feasibility of applying down zoning, subdivision vacation, and other methods to decrease development opportunities in these areas.
Policy Statement 1A-12: Encourage the review by appropriate technical personnel of proposals for development of environmentally sensitive land.
Policy Statement 1A-13/5-5: Encourage development requirements based on proof of stable environmental conditions for the proposed use and site, including: – Suitable soil characteristics for the desired use; – Site is not prone to flooding; – Depth to bedrock is not a factor; – Adequate drainage is or can be provided for; – Adequate protection of groundwater and surface water can be provided; – Site can be developed to not increase soil erosion from the site during and after construction; – Site can be developed to minimize the disruption of its natural character and the area; and – Site can be developed to minimize disruption to environmentally significant lands.
Policy Statement 1A-23/29: Encourage the establishment of development and subdivision guidelines based upon the physical and engineering constraints of the land.
Policy Statement 1A-24: Encourage the creation of strong environmental standards for new development.
Policy Statement 1A-27: Encourage the formulation of design techniques and construction guidelines for development in proximity to water resources and floodplains.
Policy Statement 1A-28: Encourage the monitoring and enforcement of regulations relating to alterations and/or improvements to drainage ways.
Policy Statement 1A-30: Encourage site planning techniques and design standards that are compatible with natural topographic conditions.
Policy Statement 1A-32: Encourage the creation, based upon environmental characteristics, of provisions, and apply appropriate development requirements.
Policy Statement 1A-36: Encourage all fire support systems, especially water and water delivery systems, to comply with the standards of the Uniform Fire Code.
Policy Statement 1A-37: Encourage the permitting of grading, cutting, and filling only for specific development purposes and prescribe appropriate performance standards.
Policy Statement 1A-38: Encourage the continued use of the Uniform Building Code, and other construction codes, to ensure safe, healthy, livable residential structures.
Policy Statement 1A-39: Encourage the continuation of providing controls over the minimal quality of new housing through the revision and updating of the building codes.

Goal 2: Regulate the use of the land on the basis of the impact on the County and its communities.
Objective 2A: To protect the health, safety, and welfare of the public by preventing inappropriate land use, requiring developers to mitigate identifiable impacts, and by implementing methods that eliminate the cost of growth from the taxpayer.
Policy Statement 2A-2: Encourage efficient land use development that will minimize public costs, conserve natural and manmade resources, and promote fiscal stability.
Policy Statement 2A-3: Encourage protection of the health, safety, and general welfare of individuals and the County by ensuring that project reviews consider the site's characteristics, performance standards, and appropriate conditions.
Policy Statement 2A-4: Encourage that the examination of environmental concerns be required for all major developments, projects, and activities without necessarily going to the extent of state or federal environmental impact

Goal 2: Regulate the use of the land on the basis of the impact on the County and its communities.
statements.
Policy Statement 2A-5: Encourage anticipation and control of the environmental impact of growth.
Policy Statement 2A-6: Encourage the reduction of environmental impact of activities which are directly, or indirectly, related to new development.
Policy Statement 2A-7: Encourage the provision and utilization of the environmental information found by reference in this Plan, Section III, and the Flood Hazard Study to enable adequate evaluation of proposed development.
Policy Statement 2A-9: Encourage the prohibition of land uses which would have a negative environmental impact that cannot be mitigated.
Policy Statement 2A-10: Encourage the design and enforcement of standards which would require new major developments to meet specific environmental impact criteria.
Policy Statement 2A-11: Encourage the development of standards which require new major developments to mitigate specific environmental impacts.
Policy Statement 2A-16: Encourage developers to use land planning that incorporates a maximum use of natural vegetation and natural land forms and that preserves and maintains as much of the natural environment as is safely possible.
Policy Statement 2A-19: Encourage that impact analysis of development activities include the effects of construction required to provide utility, services, and facilities.

Goal 5: Regulate development and activities in hazardous areas.
Objective 5: To identify environmentally sensitive land and hazardous areas including floodplains, steep slopes, wildfire lands, and geologic hazards, and restrict incompatible development and activities in their vicinity.
Policy Statement 5-1: Encourage recognition of the natural process of land, as it undergoes change for man's use, by identifying and maintaining the functions of the land which provide important public benefits, then designing appropriate methods to protect those functions.
Policy Statement 5-2: Encourage recognition of the special advantages granted, and limitations imposed, by natural systems and provide for natural resource information and analysis for land use planning and decision-making.
Policy Statement 5-3: Encourage the allowing of growth and development only if it is in harmony with the natural and manmade resources of the area and compatible with the natural environment.
Policy Statement 5-4: Encourage the recognition of public benefits generated by protection of the natural functions of land, which include: – Protection of public safety by avoiding or reducing the risks of natural hazards; – Protection of public water resources and its quality in our streams, lakes, rivers, and aquifers; – Protection of public and private capital from increased expenditures and loss of property value due to lack of appropriate knowledge or environmental degradation; and – Protection and preservation of important productive lands and renewable resources.
Policy Statement 5-6: Encourage the review of proposed environmentally sensitive land development to be based upon the following: – The demonstrated need to locate in such area; – The function/value of the area; – The limitation of density and sensitivity; – The impact on the County and surrounding area; – The degree of sensitivity and the limitations on uses imposed by such lands; and – The beneficial impact on such lands and the environment from letting such functions naturally occur or not occur.
Policy Statement 5-7: Encourage the establishment of development suitability guidelines and standards based upon the function and physical constraints of the land and soil for new development.
Policy Statement 5-8: Encourage all new development to give priority consideration to the natural environment.
Policy Statement 5-9: Encourage recognition of the sensitivity of development to environmental features and factors.
Policy Statement 5-10: Encourage the availability and utilization of environmental information and inventory found in the Plan (Section III), the soil survey, and the Flood Hazard Study to enable adequate evaluation of proposed development.
Policy Statement 5-11: Encourage the preparation of an environmental constraints map, floodplain ordinances, hillside development ordinances, and historic places and building map, a manmade hazard map, and a vegetation plan and ordinance.
Policy Statement 5-12: Encourage the purchase of land, or easements, by local governments or foundations to protect lands deemed as environmentally sensitive, or the direction of growth in a manner deemed appropriate with community or neighborhood plans.

Goal 5: Regulate development and activities in hazardous areas.
Policy Statement 5-15: Encourage the preservation of unique areas and protection of environmentally sensitive areas from the effects of developments.
Policy Statement 5-16: Encourage the identification of environmentally sensitive lands and their functions.
Policy Statement 5-17/6-16: Encourage the establishment of an Environmentally Sensitive Overlay Zoning District Classification based upon the features of the land where substantial evidence indicates that uncontrolled or incompatible development could result in damage to the environment, life, or property and application of appropriate standards to the land and use.
Policy Statement 5-18: Encourage developments that may be subject to damage, or that could result in loss of life, not be located in sensitive areas without appropriate safeguards.
Policy Statement 5-19: Encourage developers and users of environmentally sensitive lands to take precautions to protect such lands from degradation.
Policy Statement 5-20: Encourage the County to develop an Environmental Constraints Map that identifies natural hazard areas.
Policy Statement 5-21: Encourage identification of manmade hazards and discourage development in these areas until the hazards are removed or mitigated.
Policy Statement 5-22: Encourage that high or moderate densities not be allowed in severe geologic hazard areas, unless a report by a qualified engineer or geologist states that the development is not in a geologic hazard area or has demonstrated acceptable methods for mitigating the hazard.
Policy Statement 5-23: Encourage development on the steep sloped areas be defined and controlled by hillside ordinances.
Policy Statement 5-24: Encourage the protection of floodplains and waterways from development.
Policy Statement 5-25: Encourage development in areas identified as flood hazard areas to comply with adopted ordinances concerning same.
Policy Statement 5-26: Encourage the support of local programs in response to flooding, and floodplain development problems, and continuation of local programs with a deliberate reasoned approach giving attention to preserving future choices.
Policy Statement 5-27: Encourage low density, nonstructural open space uses that are least subject to loss of life and property damage in flood hazard areas.
Policy Statement 5-28: Encourage the monitoring and the enforcement of regulations relating to alterations to drainage ways.

Goal 6: Protect lands from activities that would cause immediate or foreseeable material danger to significant wildlife habitat and would endanger wildlife species.
Objective 6A: To identify and protect environmentally significant land, including wildlife habitats and scenic and highly valued landscapes, and restrict incompatible development and activities in their vicinity.
Policy Statement 6-23: Encourage that major drainage gulches and draws be maintained to carry stormwater, manage runoff, control erosion, provide habitats for small mammals and birds, and to provide open spaces, natural areas, and pedestrian corridors.
Note: A number of the policy statements associated with this goal are identical to those associated with Goal 5 or have the same intent. They are not repeated here. To see the specific policy statements, see the Teller County Action Plan section of the growth management plan.

Goal 8: Provide for the necessary intergovernmental cooperation required for planning and regulating the use of the land.
Objective 8A: To promote the cooperation in the development of the growth management plan between Teller County and other local, regional, state, and federal governments.
Note: Many of the policy statements associated with this goal are not directly related to mitigation, but it is important to recognize the critical role that intergovernmental cooperation plays in hazard mitigation and growth management. Some of these statements reiterate the need to protect environmentally sensitive areas as discussed in Goal 5 and Goal 6. To see the specific policy statements, see the Teller County Action Plan section of the growth management plan.

Teller County Land Use Regulations, 2008

The general purpose of the Teller County Land Use Regulations is to promote the health, safety, convenience, order, prosperity, aesthetics, and general welfare of the present and future inhabitants of Teller County. This includes managing land use (e.g., discouraging growth in conservation areas), protecting the environment, respecting critical areas, which are those portions of the County where natural hazards exist or where important natural, cultural, or historical resources are located, and minimizing impacts of land use.

Zoning

Provisions of the land use regulations apply within the unincorporated territory of Teller County, which is divided into 16 land use zones. Standards are set for each zone, which address issues such as minimum lot size, maximum density, maximum impervious coverage, setbacks, and building height.

Site Development

Among other things, this chapter of the land use regulations sets standards for grading, drainage, and erosion and sediment control. In particular, it states that the natural features of the land, such as drainageways, rock formations, soil, vegetation, and topography shall, at all times, be preserved as much as possible. It sets the standards for preliminary drainage studies, drainage studies and reports, and erosion and sediment control plans. The latter two are required if the proposed development would increase the amount of drainage onto adjoining and/or adjacent properties or roadways above the historic runoff.

Critical Areas

The purposes of this chapter of the land use regulations are to help ensure that development on potentially hazardous lands is accomplished in a manner that protects the safety of inhabitants and minimizes environmental and aesthetic impacts; to help provide for the protection of the County's wildlife and riparian areas, and other natural, historical, or cultural resources; and to help preserve ambient air quality and water quality and quantity. Teller County has identified and designated certain areas of the County as Critical Areas of environmental or cultural and historical concern:

Flood Hazard Areas

These regulations were adapted from the model Flood Damage Prevention Ordinance (Version D) prepared by FEMA to comply with the requirements of the National Flood Insurance Program. The purpose of these regulations is to:

- Help protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

- Minimize prolonged business interruptions;
- Minimize damage to public infrastructure, facilities, and utilities including water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- Help ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- Help ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

These regulations apply to all areas of special flood hazards within the jurisdiction of Teller County identified in FEMA's September 30, 1988, flood insurance study and accompanying maps. Teller County has participated in the National Flood Insurance Program (NFIP) since 1988, by administering floodplain management regulations that meet the minimum requirements of the NFIP. Specifically, Teller County relies on the following methods:

- Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities.
- Requiring that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction.
- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters.
- Controlling filling, grading, dredging, and other development which may increase flood damage.
- Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

The County planning director or the planning director's designee administers and implements these regulations. Duties are related to permit review (a Floodplain Development Permit is required before beginning any type of construction or development in any special flood hazard area), obtaining and maintaining relevant information (e.g., elevations, substantially improved structures, floodproofing, etc.), alteration of watercourses, and interpretation of flood insurance rate map boundaries.

Provisions for flood hazard reduction include the following:

- General standards (anchoring, construction materials and methods, utility design and location, subdivision proposals)
- Specific standards for residential and nonresidential construction (elevation, floodproofing, structural components)
- Specific standards for manufactured homes and recreation vehicles (anchoring, elevation)

- Special standards for floodways, areas of shallow flooding, and extensive alteration of the floodway fringe.

Geologic Hazard Areas

Geologic hazard areas include steep slopes, rockfall and avalanche hazard areas, landslide areas, debris fans, talus slopes, flood-prone areas, areas susceptible to ground subsidence or soil settlement, lands containing expansive soils and rocks, and areas with corrosive or erodible soils and rock. These regulations are intended to help ensure that development is placed to avoid geologic hazard areas whenever possible. When it is not possible, mitigation techniques shall be used to reduce or minimize the potential impacts of these hazards. Standards are set that must be met in order for development in geologic hazard areas to be permitted.

Wildfire Hazard Areas

These regulations are intended to help ensure that development avoids Wildfire Hazard Areas whenever possible. When it is not possible to avoid these areas, these regulations provide standards to minimize the potential impacts of these hazards on the occupants of the property and, as applicable, the occupants of adjoining and/or adjacent properties. These standards address minimization of the hazard (defensible space, design, construction materials, siting), adequate roads and firebreaks, adequate water supply and facilities for fire suppression, referral agencies, and disclosure (wildfire hazard information on plats).

Subdivision

The purpose of these regulations is to establish the minimum standards for the division of land and improvement of that land in unincorporated Teller County. Objectives related to hazard mitigation include the following:

- Guide future growth and development consistent with the purposes, goals, objectives, and policies of all applicable legislatively adopted Teller County master plan(s) or map(s) and land use regulations.
- Conserve and manage natural resources and help minimize the impacts of development on the land.
- Maintain or improve safety from fire, flood and other potential disasters.

Teller County Community Wildfire Protection Plan

In May of 2004, the Teller County Board of Commissioners passed a resolution establishing the Teller County Community Wildfire Protection Plan Commission to prepare and implement the Teller County Community Wildfire Protection Plan (CWPP). The mission of the commission is to help reduce the risk of personal safety and property value by producing a CWPP and helping to ensure proper use of the plan by the responsible federal agencies, County government, property owners, and organizations. The CWPP was written with the intent that it would be integrated into this Teller County Multi-Hazard Mitigation Plan.

Colorado Mountain Estates Community Wildfire Protection Plan

The Colorado Mountain Estates Wildfire Protection Group in consultation with local fire officials, County, state, and federal agencies and other interested parties collaborated to develop the Colorado Mountain Estates Community Wildfire Protection Plan. The plan assists the Colorado Mountain Estates community in the identification of subdivision and surrounding private and public lands at risk from severe wildfire. It identifies strategies for reducing wildfire fuels while improving forest health, supporting the local economy, and improving firefighting response capabilities.

Teller County Administrative and Technical Mitigation Capabilities

Table 4.47 identifies the County personnel responsible for activities related to mitigation and loss prevention in Teller County.

Table 4.47. Teller County Administrative/Technical Mitigation Capabilities Matrix

Personnel Resources	Yes/No	Department/Position	Comments
Planner/engineer with knowledge of land development/land management practices	Yes	Community Development Services Division (CDSD)	
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Public Works, CDSD-Building	
Planner/engineer/scientist with an understanding of natural hazards	Yes	Public Works, CDSD – Planning and Environmental Health	
Personnel skilled in GIS	Yes	GIS	
Full-time building official	Yes	CDSD - Building	
Floodplain manager	Yes	CDSD - Planning	Planning Director – Certified Floodplain Manager
Emergency manager	Yes	Sheriff's Office - Office of Emergency Management	
Grant writer	Yes	Public Works	
Other personnel	Yes	CDSD – Environmental Health	Zoonotic disease, food born illness, water quality, hazmat
GIS data: Hazard areas	Yes	Wildfire	
GIS data: Critical facilities	Yes		
GIS data: Building footprints	No	Address points being mapped	
GIS data: Land use	Yes		
GIS data: Links to Assessor's data	Yes		
Warning systems/services (Reverse callback, cable override, outdoor warning signals)	Yes	911 based emergency phone notification, EAS,	
Other		El Paso County Flood Warning system overlap, Douglas County monitors flows in West Creek	

Teller County Office of Emergency Management

The Office of Emergency Management coordinates with all County fire and EMS services, as well as the Sheriff's Office, to prepare and plan for emergencies in Teller County. In addition, communication is maintained with state and federal agencies for coordination in the event of large disasters, natural or manmade.

Teller County Community Development Services Division

The mission of the Community Development Services Division is to develop and apply land use, building, and environmental health regulations that safeguard the natural resources, fiscal integrity, and other interests of Teller County. The department includes the planning and building departments:

- The **Planning Department** is responsible for developing and administering land use plans and regulations for the purpose of directing growth in an orderly manner. It is assisted by two volunteer boards appointed by the Board of County Commissioners (BOCC): the Planning Commission and Board of Adjustment. The Planning Commission considers requests for Conditional Use Permits and Variances and makes recommendations to the BOCC concerning subdivisions, rezoning requests, mining requests, and regulation amendments.
- The **Building Department** is responsible for regulating building activities to ensure that residential and commercial structures comply with applicable building codes. The Board of Review assists the Building Department by issuing contractors licenses, reviewing complaints against contractors, considering requests for variances to the Universal Building Code, and mediating disputes between contractors, citizens, and the Building Department.

Teller County Public Health

The mission of Teller County Public Health is to prevent disease and to protect and promote the health of Teller County citizens by assuring quality preventative health programs and services.

Teller County Public Works

The Public Works department provides oversight and support services for several County departments, including the Department of Transportation and Facilities:

- The **Department of Transportation** maintains and improves the County's transportation systems.
- The **Facilities Department** supports the Parks Division, building and building systems maintenance, grounds and parking lot maintenance, construction project management, and more.

Local Emergency Planning Committee

The Local Emergency Planning Committee (LEPC) includes Teller County officials (county commissioners, fire, police, emergency management, health, social services, etc.), professional services (physicians, nurses, EMS/EMTs, etc.), and volunteers (organizations and individuals).

The purpose of the LEPC is to ensure that the county is unified and prepared to respond to any future emergency. It will serve as a coordination body for all official, commercial, and volunteer groups within the country that deal with protection and safety of citizens. By federal regulation, the LEPC is also responsible for administration of the federal Emergency Planning and Community Right-to-Know Act (EPCRA) within Teller County. The LEPC is working on a Pandemic Event Plan that will address the threat and the County can best prepare and respond.

Teller County Citizen Corps

Citizen Corps is a network of volunteer organizations that utilize the skills and abilities of citizens to prepare the community for the threats of terrorism, crime, and disasters. Citizen Corps is administered by FEMA.

Teller County Financial Mitigation Capabilities

Table 4.48 identifies financial tools or resources that Teller County could potentially use to help fund mitigation activities.

Table 4.48. Teller County Financial Mitigation Capabilities Matrix

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants		
Capital improvements project funding	Yes	Road Maintenance and Improvement Plan
Authority to levy taxes for specific purposes	Yes	Roads and bridges
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development		
Incur debt through general obligation bonds		
Incur debt through special tax bonds		
Incur debt through private activities		
Withhold spending in hazard prone areas		
Other	Yes	State Historical Fund grants for roads and bridges

Teller County Mitigation Outreach and Partnerships

Teller County has been involved in fuels treatment efforts/partnerships in the following areas: Majestic Parkway, Sanborn Ranches, Lone Ranger Road, Trout West, and Skeleton Ridge.

Rural Realities, a Guide to Life in Teller County

Accessible from the County website, this guide educates new residents about the challenges of living in a rural area, including natural hazards such as lightning, wildfire, and flooding.

4.4.2 Cripple Creek Mitigation Capabilities

Cripple Creek Regulatory Mitigation Capabilities

Table 4.49 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Cripple Creek. Excerpts from applicable policies, regulations, and plans and program descriptions follow to provide more detail on existing mitigation capabilities.

Table 4.49. Cripple Creek Regulatory Mitigation Capabilities Matrix

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General plan	Yes	Cripple Creek Master Plan, 2002
Zoning ordinance	Yes	City of Cripple Creek Zoning Ordinance, 2003
Subdivision ordinance	Yes	City of Cripple Creek Subdivision Regulations, 2006
Growth management ordinance	No	
Floodplain ordinance	Yes	
Site plan review requirements	Yes	
Other special purpose ordinance (stormwater, steep slope, wildfire)	Yes	Watershed, historic
Building code	Yes	Version: 2003 International Building Code
Fire department ISO rating	Yes	Rating: 5 (8 outside City limits)
Erosion or sediment control program	Yes	Subdivision Regulations, 2006
Stormwater management program	Yes	
Capital improvements plan	Yes	
Economic development plan	Yes	
Local emergency operations plan	No	In process
Other special plans	Yes	
Flood insurance study or other engineering study for streams	Yes	Flood Insurance Study, September 30, 1988
Elevation certificates		

As indicated in the table above, Cripple Creek has several plans and programs that guide the City's mitigation of development in hazard-prone areas. Some of these are described in more detail below.

Cripple Creek Master Plan, 2002

The Cripple Creek Master Plan was drafted in 2002 in abbreviated form to provide a basis for decision making about Cripple Creek's near-term development. The plan remains a work in progress but is anticipated to be updated by February of 2009. The plan's Drainage Element addresses the surface run-off control and the 100-year floodplain in Cripple Creek. The plan will also incorporate the Cripple Creek Land Use Plan as an appendix.

Cripple Creek Subdivision Regulations, 2006

The Cripple Creek Subdivision Regulations were enacted to promote the health, safety, convenience, and general welfare of the citizens of the City. The following purposes of the regulations are related to hazard mitigation:

- Establish standards of subdivision design which will encourage the development of sound, economical, and stable neighborhoods; to insure a healthy living environment; and to protect the natural environment.
- Insure the desirable development of the community through the adherence to accepted principles of land use, intensity of development, distribution of growth, preservation of natural amenities, and other elements of the City's development plans.
- Prevent flood damage to persons and properties and minimize expenditures for flood control.
- Restrict building on flood lands, shorelands, wetlands, areas covered by poor soils, or in areas otherwise poorly suited for building or construction.
- Prevent loss or injury from landslides, expansive soils, and other geological hazards.

Cripple Creek Zoning Ordinance, 2003

The Cripple Creek Zoning Ordinance is designed to encourage the most appropriate use of land throughout the City. This includes ensuring a logical growth of the various physical elements of the City, facilitating adequate provisions for water, protecting against flood conditions and poor geologic conditions, and in general promoting health, safety, and general welfare. The ordinance created an overlay zone, the Floodplain District, to secure safety from flood; to prevent the loss of life; to prevent property damages and all other related damages; to promote the public health and general welfare by regulating and restricting areas in floodplains of water courses in the City that are subject to pending flooding; and to preserve and enhance the location, character and extent of natural drainage courses. The ordinance requires developers to build drainage systems that are adequate to convey the 100 year flood.

City of Cripple Creek Master Drainage Plan

The city has storm sewer improvements that are outlined in the Master Drainage Plan. The system is not designed to convey a 100-year flood, due to cost and technical reasons. The 1965 flood was a one hundred year event and had little impact on the City.

Cripple Creek Administrative and Technical Mitigation Capabilities

Table 4.50 identifies the City personnel responsible for activities related to mitigation and loss prevention in Cripple Creek. All department heads have National Incident Management System certifications.

Table 4.50. Cripple Creek Administrative/Technical Mitigation Capabilities Matrix

Personnel Resources	Yes/No	Department/Position	Comments
Planner/engineer with knowledge of land development/land management practices	Yes	Development director	
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Contracted	
Planner/engineer/scientist with an understanding of natural hazards	Yes	Contracted	
Personnel skilled in GIS	Yes	Engineer and design manager	
Full-time building official	No	Contracted	
Floodplain manager	Yes	Development director	
Emergency manager	Yes	Fire chief	
Grant writer	Yes	Economic development director	
GIS data: Hazard areas	N		
GIS data: Critical facilities	N		
GIS data: Building footprints	N		
GIS data: Land use	N		
GIS data: Links to Assessor's data	Y	County	
Warning systems/services (Reverse callback, cable override, outdoor warning signals)	Yes		
Other	Yes	Local television channel	

Community Planning and Development Department

The Community Planning and Development Department offers assistance in land development activities and ensures that regulations are met and that the quality of life and heritage of the community are retained. The director of this department has floodplain management responsibilities. The City joined the NFIP in 1985.

Building and Code Enforcement Project Management Department

The mission of the Building and Code Enforcement/Project Management Department is to promote positive growth and development in the City by enforcing City codes that provide minimum standards to safeguard life, limb, health, property, and public welfare by regulating and controlling design, construction, quality of materials, use and occupancy, location, and maintenance of all structures.

Emergency Communications Department

The Emergency Communications Department oversees communications related to public safety and emergency management in Cripple Creek and supports neighboring jurisdictions.

Fire and Emergency Services Department

The Fire and Emergency Services Department protects the community and provides fire, rescue, and emergency medical services to protect life and property in the City threatened by fire,

medical emergencies, hazardous materials, severe weather conditions, and other natural and manmade catastrophes. Among the department's goals and objectives, the following are related to mitigation:

- Improve the City's ISO rating and achieve a class 4/9 designation.
- Improve the fire prevention/inspection program.
- Ensure public safety by mitigating hazards within the community.
- Continue positive community relations through fire awareness programs.
- Increase service to the City with outside resources; continuing to develop a citywide disaster and emergency action plan.
- Encourage, support, and increase the size of the Volunteer Department.
- Participate in countywide and regional organizations to mitigate wildfire threats.

Public Works Department

The Public Works Department maintains City roads. It implements safety improvements to enhance vehicle and pedestrian safety, paves streets, and performs preventive maintenance on existing paved streets. One of its objectives is to develop stormwater control infrastructure that is adequate for 10-year storm events and that prevents excessive erosion. Another objective, pave all unpaved streets within the City limits, may cause surface run-off problems and should be approached with this in mind and properly engineered to avoid such problems.

Water and Wastewater Department

It is the role of the Water and Wastewater Department to acquire and supply Cripple Creek with potable water to meet current and future demands as well as fire protection requirements. Objectives include replacing old, thin, undersized, and shallow water mains; replacing old, inoperable, and shallow fire hydrants, and securing additional water rights to provide ample supply for growth.

Cripple Creek Financial Mitigation Capabilities

Table 4.51 identifies financial tools or resources that Cripple Creek could potentially use to help fund mitigation activities.

Table 4.51. Cripple Creek Financial Mitigation Capabilities Matrix

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	
Capital improvements project funding	Yes	
Authority to levy taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	No	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Incur debt through private activities	No	
Withhold spending in hazard prone areas	Yes	

4.4.3 The City of Woodland Park Mitigation Capabilities

The City of Woodland Park Regulatory Mitigation Capabilities

Table 4.52 lists regulatory and planning tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Woodland Park. Excerpts from applicable policies, regulations, and plans and program descriptions follow to provide more detail on existing mitigation capabilities.

Table 4.52. Woodland Park Regulatory Mitigation Capabilities Matrix

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General plan	Yes	Woodland Park Master Plan, 1999
Zoning ordinance	Yes	
Subdivision ordinance	Yes	
Growth management ordinance	Yes	Water Tap Management Plan
Floodplain ordinance	Yes	
Other special purpose ordinance (stormwater, steep slope, wildfire)	Yes	Stormwater Management, Control of Beetles
Building code	Yes	Version: 2003 International Building Code (Teller County Building Code)
Fire department ISO rating	Yes	Rating: 5/9
Erosion or sediment control program	Yes	
Stormwater management program	Yes	
Site plan review requirements	Yes	
Capital improvements plan	No	
Economic development plan	No	
Local emergency operations plan	Yes	
Other special plans	No	Fountain Creek Watershed Plan
Flood insurance study or other engineering study for streams	Yes	Flood Insurance Study, September 30, 1988, U.S. Army Corps Fountain Creek Study
Elevation certificates	Yes	

As indicated in the previous table, Woodland Park has several plans and programs that guide the City's mitigation of development in hazard-prone areas. Some of these are described in more detail below.

Woodland Park Master Plan, 1999

The City of Woodland Park Master Plan addresses the future character and vision for the City of Woodland Park and the surrounding area. It focuses on the issues of land use and growth management within the City's current boundaries as well as adjoining County lands. The primary purpose of the plan is to provide a guide to land use decision making by public officials, residents, and property owners in a manner that results in a high quality of life for residents of the community.

Some of the goals and objectives that directly or indirectly mitigate hazards identified in this plan are included below:

Utilities

Goal: Provide and maintain public utilities infrastructure services and expansion to accommodate planned growth and development.
Objective 1: Identify water resource limitations as they relate to future growth and development.
Objective 4: Emphasize the importance of water conservation.
Objective 7: Continue to develop, maintain and execute a comprehensive storm water and drainage master plan.

Land Use

Goal: Establish land use opportunities that are compatible with the character and needs of the community.
Objective 1: Identify land uses to make the most efficient use of existing land and community resources/facilities.
Objective 3: While providing adequate safeguards to minimize the impacts of intense land use activities on roads, adjacent land uses and the environment, continue to allow adequate areas for commercial/retail, and/or industrial activities.

Growth Management

Goal: Provide opportunities for growth and development, while preserving community and environmental quality.
Objective 2: Within the City and growth management boundary, consider development options that control the impacts of growth and development (i.e., fiscal/budgetary constraints, road congestion, overcrowded schools, environmental degradation, crime, etc.).
Objective 3: Prohibit urban and/or suburban sprawl by discouraging the extension of water and sewer utilities outside the recognized growth management boundary.
Objective 4: Work in a regional context with surrounding local governments to ensure consistency when establishing long-range planning priorities.

Environmental Quality

Goal: Support the protection and preservation of the natural resources and features throughout the community.
Objective 1: Continue to encourage conservation of woodlots and forest areas.
Objective 2: Restrict the development of steep slope areas throughout the community.
Objective 3: Restrict development and land use within floodplain areas, including associated waterways.
Objective 6: Establish a development pattern throughout the community that is compatible with existing natural resources and/or features.

Public Safety

Goal: Provide coordinated police, fire and emergency medical services that are consistent with the growth and development needs of the community.
Objective 2: Provide a high and efficient level of fire protection service.
Objective 5: Encourage public participation and education concerning public safety plans and programs.

Parks, Recreation, and Tourism

Goal: Implement The Parks, Trails, and Open Space (PTOS) Master Plan and provide recreation programs that meet the needs of the community and enhance healthy lifestyles.
Objective 3: Expand Chapter V of the PTOS Master Plan and implement an open space plan to protect natural resources, wildlife, wetlands, slopes, ridgelines, views, and cultural sites.

Woodland Park Municipal Code

Some of the chapters in the Woodland Park Municipal Code have provisions related, directly or indirectly, to hazard mitigation. These provisions are discussed below:

Title 8 Health and Safety

- **Control of Beetles**—This chapter includes actions that must be taken by public and private property owners to control the impacts of mountain pine and Douglas fir pine beetles.
- **Drainage Culverts**—This chapter calls on the City manager to draw up specifications designing culvert sizes and drainage ditch locations for all City streets. It then tasks property owners who obtain access to or from their property over city ditches to install or have installed culverts in accordance with such specifications.

Title 9 Public Peace, Morals, and Welfare

- **Outdoor Fire Uses and Emergency Fire Safety Regulations**—This chapter specifies when it is lawful to use, build, or burn a fire outdoors and includes a provision allowing the City manager to issue more stringent regulations when special fire danger exits, including total ban of any outdoor use of fire.

Title 12 Streets and Sidewalks

- **Soil Erosion Prevention**—This chapter establishes that it is unlawful for any person, firm, corporation, or association who owns real property within the City to allow or permit soil erosion to occur from such real property onto any street, road, alley, public way, right-of-way, easement, or any other real property owned, leased, or occupied by the City.

Title 13 Utilities

- **Water—General Provisions**—This chapter allows the City manager to restrict water usage in the event of a water shortage or community emergency as evidenced by a resolution passed by City Council.

- **Drought and Non-Drought Watering Restrictions and Extending a Modified Open Burning Ban**—This chapter bans open fires within the incorporated area of Woodland Park. In addition, it establishes three levels of water restrictions.
- **Water Conservation**—This chapter expresses the City's awareness of limited water availability (although the City has historically had a very low per capita water need). It suggests that the City's future water needs will best be met through a combination of limited water development, water conservation, and water wise decisions made by the City and its citizens. Additionally, it calls for the City to promote reductions in water use that do not detract from its citizens quality of life.
- **Stormwater Management**—This chapter addresses stormwater capital fees, for significant proposed developments within the City (as defined in the chapter), and stormwater monthly user charges. It establishes that collected fees and charges can only be used for stormwater management activities.

Title 16 Mobile Homes

- **Location and Land Area**—This chapter requires that mobile home parks be located on well-drained sites, in areas free from marshes, swamps, or other potential breeding places for insects or rodents, and on sites that are not be subject to flooding, fire, or safety hazards.

Title 17 Subdivisions

The purposes of these regulations are to, among other things, protect and provide for the public health, safety, and general welfare of the City; guide the future growth and development of the City in accordance with the comprehensive plan and other City plans; secure safety from fire, flood, and other danger; assure the adequacy of drainage facilities; safeguard the water table, and encourage the wise use and management of natural resources throughout the City.

- **Design Standards**—In establishing standards for the planning, layout, and design of subdivisions, this chapter prohibits subdivision or development of land that the City deems unsuitable due to flooding, improper drainage, steep slopes, rock formations, adverse earth formations or topography, or other features that may be harmful to the safety, health, and general welfare of the present or future inhabitants of the subdivision and/or its surrounding areas (unless the developer can mitigate the problems).
- **Stormwater Easement—Drainage Right-of-Way**—This chapter requires stormwater easements or drainage rights-of-way for flood control measures where subdivisions are traversed by a watercourse, drainage way, channel, or stream, there shall be provided a conforming substantially with the lines of such watercourse and such further width as may be required.

Title 18 Zoning

The provisions of this title are the City's minimum requirements for the promotion of the public safety, health, convenience, comfort, prosperity, or general welfare.

- **Soil Erosion and Sedimentation**—This chapter sets forth regulations for land-disturbing activities, including mandatory standards (i.e., buffer zone, graded slopes and fills, ground cover, and prior plan approval). It also sets design and performance standards for erosion and sedimentation control measures, structures, and devices; requires permanent downstream protection of stream banks and channels; and protects lakes and natural watercourses directly affected by land-disturbing activities.
- **Grading Regulations**—The purposes of this chapter are to:
  - Protect life and property from all potentially hazardous conditions particular to hillsides, such as rock falls, stormwater runoff, and mass movements;
  - Preserve and enhance the scenic and environmental resources of the landscape by encouraging the maximum retention of prominent natural topographic features, such as drainage swales, streams, slopes, ridgelines, rock outcroppings, vistas, natural plant formations, and trees;
  - Encourage innovative design and planning in order that the development adapts to the natural terrain and is harmonious with the character of the area;
  - Minimize grading and cut and fill operations in order to retain the natural character of the hillside;
  - Minimize stormwater runoff and erosion problems incurred by the development on and off the lot;
  - Preserve, where possible, the natural streams, ponds, and associated riparian vegetation; and
  - Reduce the elimination of trees and other vegetation that stabilize steep hillsides, retains moisture, prevents erosion and enhances the natural scenic beauty.

It includes planning requirements and grading standards.

Title 20 Flood Damage Prevention Regulations

The purpose of this title is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas. The regulation provisions are designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- Ensure that potential buyers are notified that property is in an area of special flood hazard; and

- Ensure that those who occupy areas of special flood hazards assume responsibility for their occupancy of a hazardous area.

These regulations apply to all areas of special flood hazards within the jurisdiction of the City; and all areas and/or lots immediately adjacent to the areas of special flood hazards that were identified in FEMA's September 30, 1988, flood insurance study and accompanying maps. The City of Woodland Park has participated in the National Flood Insurance Program (NFIP) since 1988, by administering floodplain management regulations that meet the minimum requirements of the NFIP. Specifically, the City relies on the following methods:

- Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- Controlling filling, grading, dredging, and other development which may increase flood damage; and
- Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Administration—The City manager or a designee administers and implements these regulations. Duties are related to permit review (flood hazard development permits are required prior to construction or development in any area of special flood hazard), obtaining and maintaining relevant information (e.g., elevations, substantially improved structures, floodproofing, etc.), alteration of watercourses, and interpretation of flood insurance rate map boundaries.

Provisions for Flood Hazard Reduction—This chapter includes the following standards related to special flood hazard areas.

- General standards (anchoring, construction materials and methods, utility design and location, subdivision proposals)
- Specific standards for residential and nonresidential construction (elevation, floodproofing, structural components, soil erosion control and landscaping plans)
- Specific standards for manufactured homes and recreation vehicles (anchoring, elevation)
- Special standards for floodways.
- Special standards for Areas adjacent to the areas of special flood hazards.

City of Woodland Park Stormwater Master Plan

The City has a stormwater master plan that is in need of an update (see related project in appendix C).

Woodland Park Administrative and Technical Mitigation Capabilities

Table 4.53 identifies the City personnel responsible for activities related to mitigation and loss prevention in The City of Woodland Park.

Table 4.53. Woodland Park Administrative/Technical Mitigation Capabilities Matrix

Personnel Resources	Yes/No	Department/Position	Comments
Planner/engineer with knowledge of land development/land management practices	Yes	Public Works and Planning	
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Public Works and Utilities	
Planner/engineer/scientist with an understanding of natural hazards	Yes	Public Works	
Personnel skilled in GIS	Yes	Utilities	
Full-time building official	No		Teller County responsibility
Floodplain manager	Yes	Planning	
Emergency manager	No		Teller County responsibility
Grant writer	Yes	Parks and Recreation and Planning	
Other personnel			
GIS data: Hazard areas	No		
GIS data: Critical facilities	No		
GIS data: Building footprints	No		
GIS data: Land use	Yes		Zoning Only
GIS data: Links to Assessor's data	Yes		Data Sharing
Warning systems/services (Reverse callback, cable override, outdoor warning signals)	Yes		See County table

Woodland Park Planning Department

The Planning Department's mission is to serve the citizens and businesses of Woodland Park with information with regard to land use, zoning, and orderly community development. The department provides assistance in a variety of areas, such as zoning regulations and land use questions, zoning development permits for all new construction, new development process and requirements (residential and commercial), subdivision of unplatted land or replats of existing subdivided property, annexation requests and process of contiguous property, flood damage prevention, code enforcement issues, and historic preservation landmarking.

Woodland Park Public Works Department

The goal of the Public Works Department, which is comprised of Streets, Fleet Maintenance, Engineering Services, Parks, Buildings and Grounds, and Capital Projects, is to provide and maintain infrastructure and recreational facilities that are safe, functional, and aesthetically pleasing.

Woodland Park Utilities Department

The Utilities Department mission is to provide the community with a reliable supply of high quality drinking water.

Woodland Park Financial Mitigation Capabilities

Table 4.54 identifies financial tools or resources that Woodland Park could potentially use to help fund mitigation activities.

Table 4.54. Woodland Park Financial Mitigation Capabilities Matrix

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	
Capital improvements project funding	Yes	
Authority to levy taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	Yes	Park, transportation, and stormwater capital fees plus tap fees
Incur debt through general obligation bonds	Yes	With voter approval
Incur debt through special tax bonds	Yes	With voter approval
Incur debt through private activities	No	
Withhold spending in hazard prone areas		

Woodland Park Mitigation Outreach and Partnerships

A "water wise" conservation program was implemented in Woodland Park in 2002. Components of this program included a public education campaign to use water wisely especially as it relates to outdoor use. Water Wise notices were included on the water billings and yard signs were distributed to customers. Also City Council established a spray irrigation schedule with restrictions on frequency of watering by residents and businesses. The public has strongly supported the water wise program and reduced their consumption dramatically in the City after experiencing the effects of drought and wildfires.

The City of Woodland Park has been proactive since the mid-1980's to mitigate the infestation of Mountain Pine Beetle. The municipal code calls for an annual inspection for bark beetle infestation and requires the abatement of the infestations prior to the maturity of new beetle generations. In addition to the annual survey the City has partnered with the Colorado State Forest and US Forest Service to host an educational program for the general public, free of charge, on an annual basis.

Fire mitigation programs have been hosted by the Northeast Teller Fire Protection District and Coalition for the Upper South Platte non-profit organization. Fire Wise fairs have been held in

Woodland Park during the past several years to help educate the residents on Firewise techniques. Members of the Community Wildfire Protection Plan committee have also provided presentations to the City Council.

4.5.5 State and Regional Agencies with Programs Related to Hazards Management

Colorado Water Conservation Board

The Colorado Water Conservation Board (CWCB) is an agency of the State of Colorado. The CWCB Flood Protection Program is directed to review and approve statewide floodplain studies and designations prior to adoption by local governments. The CWCB is also responsible for the coordination of the National Flood Insurance Program (NFIP) in Colorado and for providing assistance to local communities in meeting NFIP requirements. This includes CWCB prepared or partnered local floodplain studies.

Colorado Division of Emergency Management

The Colorado Division of Emergency Management (CDEM) is responsible for the state's comprehensive emergency management program, which supports local and state agencies. Activities and services cover all aspects of emergency management. Assistance to local governments includes financial and technical assistance as well as training and exercise support. Services are made available through local emergency managers supported by CDEM Field Managers assigned to Emergency Management Regions within the state.

Colorado Geological Survey

The Colorado Geological Survey is a state government agency within the Colorado Department of Natural Resources whose mission is to help reduce the impact of geologic hazards on the citizens of Colorado, to promote responsible economic development of mineral and energy resources, provide geologic insight into water resources, provide avalanche safety training and forecasting, and to provide geologic advice and information to a variety of constituencies. The Colorado Avalanche Information Center is housed in the Colorado Geological Survey.

Colorado State Forest Service

The mission of the Colorado State Forest Service is to provide for the stewardship of forest resources and to reduce related risks to life, property, and the environment for the benefit of present and future generations. Its fire preparedness and response strategic priority is to provide leadership in wildland fire protection for state and private lands in Colorado and reduce wildfire-related loss of life, property, and critical resources.

Pikes Peak Council of Governments

The Pikes Peak Area Council of Governments (PPACG) is a voluntary organization of municipal and county governments in Park, Teller, and El Paso counties. The PPACG offers participating communities a forum to discuss issues that cross their political boundaries, identify shared opportunities and challenges, and develop collaborative strategies for action. One of the basic activities of PPACG is planning. PPACG assists local elected officials in making coordinated decisions affecting the development of all geographic areas of the Pikes Peak region. The PPACG's role in mitigation is primarily through its environmental program's involvement in the multi-jurisdictional Fountain Creek Watershed Plan.

Coalition for the Upper South Platte

The Coalition for the Upper South Platte (CUSP) was formed in 1998 and seeks to improve the Upper South Platte watershed in a variety of ways including forest restoration, fire rehabilitation, river/riparian restoration, environmental education, and conservation easements. CUSP includes support from public and private entities such as Teller County, Denver Water, US Forest Service, Colorado State Forest Service, Trout Unlimited, Home Depot, and others. One of the sponsored activities is a slash collection site/mulch program, where homeowners can turn slash into mulch for a nominal fee.

5 MITIGATION STRATEGY

Requirement §201.6(c)(3): [The plan shall include] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section describes the mitigation strategy process and mitigation action plan for the Teller County Multi-Hazard Mitigation Plan. This section describes how the County accomplished Phase 3 of FEMA's 4-phase guidance—Develop the Mitigation Plan—and includes the following from the 10-step planning process:

- Planning Step 6: Set Goals
- Planning Step 7: Review Possible Activities
- Planning Step 8: Draft an Action Plan

5.1 Goals and Objectives

Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Up to this point in the planning process, the Hazard Mitigation Planning Committee (HMPC) has organized resources, assessed natural hazards and risks, and documented mitigation capabilities. A profile of the County's vulnerability to natural hazards resulted from this effort, which is documented in the preceding chapter. The resulting goals, objectives, and mitigation actions were developed based on this profile. The HMPC developed this aspect of the plan based on a series of meetings and worksheets designed to achieve a collaborative mitigation planning effort as described further in this section.

The goals development process was introduced by the AMEC project manager to the HMPC at the end of the meeting on the risk assessment. This analysis of the risk assessment identified areas where improvements could be made and provided the framework for the HMPC to formulate planning goals and objectives and the ultimate mitigation strategy for Teller County.

Goals were defined for the purpose of this mitigation plan as broad-based public policy statements that:

- Represent basic desires of the community;
- Encompass all aspects of community, public and private;
- Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;
- Are future-oriented, in that they are achievable in the future; and

- Are time-independent, in that they are not scheduled events.

Goals are stated without regard for implementation, that is, implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that the goals are not dependent on the means of achievement. Goal statements form the basis for objectives and actions that will be used as means to achieve the goals. Objectives define strategies to attain the goals and are more specific and measurable.

At the end of the risk assessment meeting, team members were given a list of sample goals to consider, including the goals of the Colorado Hazard Mitigation Plan. The HMPC was instructed that they could use, combine, or revise the statements they were provided or develop new ones on their own, keeping the risk assessment in mind. The HMPC preferred to align the goals of their plan with those of the Colorado Hazard Mitigation Plan, but simplified them into 3 goals instead of 5. Team members were provided a worksheet and asked to write 2 or 3 related objectives to meet each goal. These objective statements were collected by the AMEC project manager by email and grouped into similar themes in a handout for discussion at the beginning of the mitigation strategy meeting. The new goals and objectives that represented the team's input were presented and consensus was formed amongst the team.

Based upon the risk assessment review and goal setting process, the HMPC developed the following goals:

Goal 1: Reduce the loss of life and personal injuries from hazard events

Goal 2: **Reduce hazard impacts to public and private property, and the local economy**

Goal 3: Reduce hazard impacts to critical facilities, infrastructure, and other community assets, including natural and historic resources

5.2 Identification and Analysis of Mitigation Actions

Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

In order to identify and select mitigation measures to support the mitigation goals, each hazard identified in Section 4.1: Identifying Hazards was evaluated. Only those hazards that pose a significant threat to the community were considered further in the development of hazard specific mitigation measures.

Once it was determined which hazards warranted the development of specific mitigation measures, the HMPC analyzed a set of viable mitigation alternatives that would support

identified goals and objectives. Each HMPC member was provided with the following list of categories of mitigation measures, which originate from the NFIP Community Rating System:

- Prevention
- Property Protection
- Structural Projects
- Natural Resource Protection
- Emergency Services
- Public Information

The HMPC members were also provided with several lists of alternative multi-hazard mitigation actions for each of the above categories. A facilitated discussion then took place to examine and analyze the alternatives. With an understanding of the alternatives, a brainstorming session was conducted to generate a list of preferred mitigation actions. HMPC members wrote project ideas on large sticky notes. These were posted on flip charts labeled with the goals. The result was a number of project ideas with the intent of meeting the identified goals.

5.3 Mitigation Action Plan

Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

This section outlines the development of the final mitigation action plan. The action plan consists of the specific projects, or actions, designed to meet the plan's goals. Over time the implementation of these projects will be tracked as a measure of demonstrated progress on meeting the plan's goals.

5.3.1 Prioritization Process

Once the mitigation actions were identified, the HMPC members were provided with several sets of decision-making tools, including FEMA's recommended criteria, STAPLE/E (which considers social, technical, administrative, political, legal, economic, and environmental constraints and benefits).

- Social: Does the measure treat people fairly?
- Technical: Will it work? (Does it solve the problem? Is it feasible?)
- Administrative: Is there capacity to implement and manage the project?
- Political: Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support the project?

- Legal: Does your organization have the authority to implement? Is it legal? Are there liability implications?
- Economic: Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development? Does it reduce direct property losses or indirect economic losses?
- Environmental: Does it comply with environmental regulations or have adverse environmental impacts?

In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining project priority for the identified actions (the 'economic' factor of STAPLE/E). Other criteria used to recommend what actions might be more important, more effective, or more likely to be implemented than another included:

- Does the action protect lives?
- Does the action address hazards or areas with the highest risk?
- Does the action protect critical facilities, infrastructure or community assets?
- Does the action meet multiple objectives (Multiple Objective Management)?

With these criteria in mind, team members were given a set of ten green sticky-dots. The team was asked to use the dots to prioritize each action item with the above criteria in mind, essentially voting on the projects. Actions with the most dots became the higher priority projects. This process provided both consensus and priority for the recommendations.

The results of the action item identification and prioritization exercise are included below and Appendix C, where the responsible departments, existing and potential resources and estimated timeframe for completion of each action are also outlined. These goals and objectives provide the direction for reducing future hazard-related losses within Teller County. Associated mitigation projects are also included and are marked with their level of priority: H=high, M=medium, and L=low.

Goal 1: Reduce the loss of life and personal injuries from hazard events.

Objectives

- Increase safety and disaster resilience in Teller County communities by training local residents to be self-sufficient for the initial 72 hours of a disaster.
  - Conduct a public education campaign (H)
- Maintain essential services, facilities and infrastructures during disasters.
- Identify populations with special needs or those who may be more vulnerable to the impacts of disasters or hazard events.
- Further develop emergency warning systems.
  - Improve NOAA All Hazards radio communication (M)
  - Obtain Storm Ready Recognition (L)
- Reduce the impacts of hazardous materials incidents
  - Develop a hazardous materials mitigation plan (L)

Goal 2: Reduce hazard impacts to public and private property, and the local economy

Objectives

- Reduce the vulnerability of structures, homes, businesses located in flood hazard areas to damage from flooding.
  - Continue to reduce flood losses through compliance with the National Flood Insurance Program and the implementation of floodplain management (H)
  - Update and the Woodland Park Stormwater Management Plan (M)
  - Inventory and study the potential impacts of non-jurisdictional dams (L)
- Encourage businesses to reduce their vulnerability to a potentially disastrous event.
- Reduce winter storm impacts
  - Strategic Snow Stockpiling for Cripple Creek (M)
- Reduce wildfire impacts
  - Update the County Community Wildfire Protection Plan and wildfire hazard mapping (H)
  - Continue wildfire fuel reduction projects (M)

Goal 3: Reduce hazard impacts to critical facilities, infrastructure, and other community assets, including natural and historic resources

Objectives

- Strengthen and support countywide disaster and emergency response efforts.
  - Review/update emergency operations/continuity of operations/evacuation plans (H)
- Protect and maintain critical facilities, infrastructures and services essential to emergency service and disaster response activities.
  - Conduct a detailed earthquake vulnerability analysis for Woodland Park (M)
  - Develop lightning protection for critical infrastructure (L)
- Reduce the disruption to transportation infrastructure from hazard events, by reducing the vulnerability of transportation infrastructure to hazard events.
  - Utilize County road right of ways as firebreaks and snow storage (H)
- Minimize utility service disruption from hazard events by reducing the vulnerability of utility production and distribution systems.
- Reduce impacts of hazards to the road and bridge infrastructure, community assets, and natural resources
  - Improve drainage of roadways in flashflood areas (M)
  - Update the Teller County Growth Management Plan (M)
- Continue erosion control efforts in areas burned by wildfire

6 PLAN ADOPTION

Requirement §201.6(c)(5): [The local hazard mitigation plan shall include] documentation that the plan has been formally approved by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, county commissioner, Tribal Council).

The purpose of formally adopting this plan is to secure buy-in from Teller County and participating jurisdictions, raise awareness of the plan, and formalize the plan's implementation. The adoption of this plan completes Planning Step 9 of the 10-step planning process: Adopt the Plan. The governing board for each participating jurisdiction has adopted this local hazard mitigation plan by passing a resolution. Records of adoption are included in Appendix A. The dates each jurisdiction adopted the plan are listed below.

DRAFT PLAN NOTE: This plan will be formally adopted following FEMA, Colorado Division of Emergency Management and Colorado Water Conservation Board review and approval of plan.

Teller County Board of County Commissioners	Adopted DATE
Cripple Creek City Council	Adopted DATE
Woodland Park City Council	Adopted DATE

7 PLAN IMPLEMENTATION AND MAINTENANCE

Requirement §201.6(c)(4): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This is Planning Step 10 of the 10-step planning process, and phase 4 of FEMA's 4 phase process. This chapter outlines how this plan will be implemented and updated.

7.1 Implementation

Once adopted, the plan faces the truest test of its worth: implementation. While this plan contains many worthwhile projects, the HMPC will need to decide which action(s) to undertake first. Two factors will help with making that decision: the priority assigned the actions in the planning process and funding availability. Low or no-cost projects most easily demonstrate progress toward successful plan implementation.

Implementation will be accomplished by adhering to the schedules identified for each action (see Appendix C) and through constant, pervasive, and energetic efforts to network and highlight the multi-objective, win-win benefits of each project to the Teller community and its stakeholders. These efforts include the routine actions of monitoring agendas, attending meetings, and promoting a safe, sustainable community. The three main components of implementation are:

- IMPLEMENT the action plan recommendations of this plan;
- UTILIZE existing rules, regulations, policies and procedures already in existence; and
- COMMUNICATE the hazard information collected and analyzed through this planning process so that the community better understands what can happen where, and what they can do themselves to be better prepared. Also, publicize the "success stories" that are achieved through the HMPC's ongoing efforts.

Simultaneous to these efforts, the HMPC will constantly monitor funding opportunities that could be leveraged to implement some of the more costly actions. This will include creating and maintaining a bank of ideas on how to meet required local match or participation requirements. When funding does become available, the HMPC will be in a position to capitalize on the opportunity. Funding opportunities to be monitored include special pre- and post-disaster funds, special district budgeted funds, state and federal earmarked funds, and other grant programs, including those that can serve or support multi-objective applications.

7.1.1 Role of Hazard Mitigation Planning Committee in Implementation and Maintenance

With adoption of this plan, the Hazard Mitigation Planning Committee (HMPC) will be tasked with plan implementation and maintenance. The HMPC will be led by the Teller County Office of Emergency Management, with support from the Public Works Director. The HMPC will act as an advisory body. Its primary duty is to see the plan successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities. The HMPC agrees to:

- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high-priority, low/no-cost recommended actions;
- Keep the concept of mitigation in the forefront of community decision making by identifying plan recommendations when other community goals, plans, and activities overlap, influence, or directly affect increased community vulnerability to disasters;
- Maintain a vigilant monitoring of multi-objective cost-share opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Report on plan progress and recommended changes to Teller Board of County Commissioners; and
- Inform and solicit input from the public.

Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the County website and local newspapers.

7.2 Maintenance

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as required or as progress, roadblocks, or changing circumstances are recognized.

7.2.1 Maintenance Schedule

In order to track progress and update the mitigation strategies identified in the action plan, the HMPC will revisit this plan annually or after a significant hazard event or disaster declaration. The County emergency manager is responsible for initiating this review and convening members of the HMPC on a once yearly basis, or more frequently as needed. The annual review will take place in the month of February.

This plan will be updated every five years as required by the Disaster Mitigation Act of 2000. Efforts to begin the update should begin no later than June 2012. The County will submit a Pre-Disaster Mitigation planning grant application to the Colorado Division of Emergency Management (CDEM)/FEMA for funds to assist with the update. This grant should be submitted in 2010, as there is a three year-performance period to expend the funds, plus there is no guarantee that the grant will be awarded the when initially submitted. This allows time to resubmit the grant in 2011 or 2012 if needed. Updates to this plan will follow the most current FEMA and CDEM planning guidance. The first plan update is anticipated to be completed and reapproved by CDEM and FEMA Region VIII by September 2013.

7.2.2 Maintenance Evaluation Process

Updates to this plan will follow the latest FEMA and CDEM planning guidance. Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions,
- Increased vulnerability as a result of failed or ineffective mitigation actions, and/or
- Increased vulnerability as a result of new development (and/or annexation).

The HMPC will use the following process to evaluate progress and any changes in vulnerability as a result of plan implementation:

- A representative from the responsible entity identified in each mitigation measure will be responsible for tracking and reporting on an annual basis to the HMPC on project status and provide input on whether the project as implemented meets the defined objectives and is likely to be successful in reducing vulnerabilities.
- If the project does not meet identified objectives, the HMPC will determine what alternate projects may be implemented
- New projects identified will require an individual assigned to be responsible for defining the project scope, implementing the project, monitoring success of the project.
- Projects that were not ranked high priority but were identified as potential mitigation strategies will be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation.
- Changes will be made to the plan to accommodate for projects that have failed or are not considered feasible after a review for their consistency with established criteria, the time frame, priorities, and/or funding resources.

Updates to this plan will:

- Consider changes in vulnerability due to project implementation,
- Document success stories where mitigation efforts have proven effective,
- Document areas where mitigation actions were not effective,

- Document any new hazards that may arise or were previously overlooked,
- Document hazard events and impacts that occurred within the five year period
- Incorporate new data or studies on hazards and risks,
- Incorporate new capabilities or changes in capabilities,
- Incorporate documentation of continued public involvement
- Incorporate documentation to update the planning process that may include new or additional stakeholder involvement
- Incorporate growth and development-related changes to building inventories, and
- Incorporate new project recommendations or changes in project prioritization.
- Include a public involvement process to receive public comment on the updated plan prior to submitting the updated plan to CDEM/FEMA,
- Include re-adoption by all participating entities following CDEM/FEMA approval within the required 5-year timeframe.

7.2.3 Incorporation into Existing Planning Mechanisms

Another important implementation mechanism that is highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other jurisdictional plans and mechanisms. Mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. As stated in Section 7.1 of this plan, implementation through existing plans and/or programs is recommended, where possible. This point is re-emphasized here. Based on this plan's capability assessment, the participating jurisdictions have and continue to implement policies and programs to reduce losses to life and property from natural hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing projects, where possible, through these other program mechanisms. These existing mechanisms include:

- Teller County Growth Management Plan, 1990
- Teller County Land Use Regulations, 2008
- Teller County Building Code, 2007
- Teller County Local Flood Hazard Mitigation Plan, 2005
- Teller County Community Wildfire Protection Plan, 2005
- Cripple Creek Master Plan, 2002
- City of Cripple Creek Zoning Ordinance, 2003
- City of Cripple Creek Subdivision Regulations, 2006
- Woodland Park Master Plan, 1999
- Woodland Park Stormwater Management Plan
- Woodland Park Water Tap Management Plan

HMPC members involved in the updates to these mechanisms will be responsible for integrating the findings and recommendations of this plan with these other plans, as appropriate. An example would be using the risk assessment information to update the hazard analysis in the County Emergency Operations Plan. An update of the County Growth Management Plan should also consider the information in this plan's risk assessment and mitigation strategy.

7.2.4 Continued Public Involvement

Continued public involvement is also imperative to the overall success of the plan's implementation. The update process provides an opportunity to publicize success stories from the plan implementation and seek additional public comment. A public hearing(s) to receive public comment on plan maintenance and updating will be held during the update period. When the HMPC reconvenes for the update, they will coordinate with all stakeholders participating in the planning process—including those that joined the committee since the planning process began—to update and revise the plan. The plan maintenance and update process will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, and press releases to local media. The Local Emergency Planning Committee, which meets on a regular basis, will continue to be used in the future for public reporting and feedback. A success of the initial planning process was the involvement of local news media at the HMPC meetings. This will be encouraged for future meetings on this plan.

APPENDIX A: PLAN ADOPTION

Placeholder for records of adoption

APPENDIX B: HAZARD MITIGATION PLANNING COMMITTEE

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APPENDIX C: MITIGATION ACTIONS

Teller County or Multi-Jurisdictional Mitigation Actions

The following appendix provides project specifics and implementation details. They are grouped by jurisdiction, beginning with County or multi-jurisdictional actions, followed by actions specific to the municipalities.

Conduct a public education campaign

Hazards Addressed: All

Issue/Background: Currently Teller County has multiple community information programs and printed material to handout, which educates the residents for preparing for disasters. Resources are limited to one person in the Office of Emergency Management and time is limited for promoting community resilience's. With a growing population and residents moving from a metropolitan area and into a more rural environment, there is a continued need for community outreach programs and awareness. This project would entail placing disaster preparedness brochures throughout the county and make them readily available, where the public can self-educate themselves and hiring additional personnel assigned to the Office of Emergency Management to support the effort.

Other Alternatives: No action

Responsible Office: Teller County Office of Emergency Management

Priority (High, Medium, Low): High

Cost Estimate: $65,000

Potential Funding: County General Fund

Benefits (Avoided Losses): Self-resilient community

Schedule: Ongoing

Improve NOAA All Hazards radio communication

Hazards Addressed: All

Issue/Background: The present NOAA All Hazards radio coverage is limited. NOAA All Hazards radio provides tone alert messages on all hazards, and could be useful to provide advance warning of hazardous weather conditions. Need to procure funding for transmitter and

to locate a tower with available space, in the northern part of the county. A phone line is needed from Colorado Springs.

Other Alternatives: Canon City NOAA Weather Radio All Hazards covers most of southern Teller County. Hazards could be tone alerted..

Responsible Office: Teller County Office of Emergency Management and the National Weather Service.

Priority (High, Medium, Low): Medium

Cost Estimate: $30,000-$35,000.

Potential Funding: Department of Homeland Security, local funding (no NWS funding available at the present time.)

Benefits (Avoided Losses): Provides lead time for people to take shelter, and provides information for other hazards (natural and man-made).

Schedule: 6 months, if funding is found.

Obtain Storm Ready Recognition

Hazards Addressed: Hailstorm, Lightning, Tornado, other Severe Weather

Issue/Background: StormReady is a National Weather Service program. The county/community must have multiple ways of receiving and disseminating hazardous information (mainly weather) throughout the area and must have an EOP. County/community must have 24 hr dispatch/warning and have public safety meetings regarding weather hazards. Teller County already has many of these capabilities in place, thus this would be a low cost, easy to implement project.

Other Alternatives: No action.

Responsible Office: National Weather Service, Teller County OEM

Priority (High, Medium, Low): Low

Cost Estimate: Visit to NWS office in Pueblo.

Potential Funding: County

Benefits (Avoided Losses): Points from NFIP. Potential savings from mitigation of life and property loss

Schedule: three months

Develop a hazardous materials mitigation plan

Hazards Addressed: Hazardous materials

Issue/Background: This project involves the following components:

1. Organizing resources to facilitate more accurate and timely Tier II reporting in Teller County. This effort should utilize up-to-date software (Tier 2 Submit software 2007 or higher) which is compatible with CDPHE reporting requirements.

2. Develop a hazardous materials risk assessment program to include onsite surveys and pre-plans as needed.

3. Develop recommendations and programs, including public information and education, for common hazardous materials mitigation techniques to include containment for above ground fuel storage and domestic chemical safety/disposal.

4. Develop an enhanced hazardous substance release reporting process for Teller County.

5. Develop a defined reporting/input process with the LEPC to meet EPCRA requirements**.**

Other Alternatives: No action

Responsible Office: Teller County HazMat Team, Teller County Sheriff's Office/OEM

Priority (High, Medium, Low): Low

Cost Estimate: $42,000 to $50,000

Potential Funding: County General Fund

Benefits (Avoided Losses): Catastrophic human life and environmental losses eliminated or minimized. Potential cost recovery for County General Fund. Compliance with Federal mandates.

Schedule: Ongoing

Continue to reduce flood losses through compliance with the National Flood Insurance Program and the implementation of floodplain management

Hazards Addressed: Flood, debris flow

Issue/Background: The County, Woodland Park and Cripple Creek all participate in the National Flood Insurance Program. This project restate's these entities commitment to the implementation of sound floodplain management practices, as stated in each entity's flood damage prevention ordinance. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in

Special Flood Hazard Areas and ensuring that this development is elevated to or above the base flood elevation. This project also includes periodic reviews of the floodplain ordinance to ensure that it is clear and up to date. Floodplain managers will remain current on NFIP policies, and are encouraged to attend appropriate training and consider achieving Certified Floodplain Manager (CFM) status.

Other Alternatives: N/A

Responsible Office: Teller County Planning Department, Woodland Park/Planning/Building Departments, Cripple Creek Building Department

Priority (High, Medium, Low): High

Cost Estimate: Low

Potential Funding: Covered in existing local budgets

Benefits (avoided losses): Reduced property loss from flood and debris flows, continued availability of flood insurance for residents.

Schedule: Ongoing

Update the County Community Wildfire Protection Plan and wildfire hazard mapping

Hazards Addressed: Wildfire

Issue/Background: Through the hazard identification process wildfire was the most likely and most serious hazard to occur. The County has a Community Wildfire Protection Plan which is out dated and in need of review and revision. The committee who created the initial plan needs to be reconvened with greater involvement from stake holders. Projects identified in the original plan have been completed and a systematic review needs completed to continue the fuels mitigation projects and establish priorities. In addition, the wildfire hazard mapping data used for the 2004 Community Wildfire Protection Plan no longer exits due to a hard drive failure. Updated GIS based mapping is needed that will reflect current fuel loads, past fires and treatment efforts. This layer can also be used to better quantify the risk to critical facilities.

Other Alternatives: Use recent mapping from Colorado State Forest Service

Responsible Office: Teller County Community Wildfire Protection Planning Commission, Teller County GIS, Teller OEM

Priority (High, Medium, Low): High

Cost Estimate: $40,000±

Benefits (Avoided Losses): Tracking mitigation efforts, updates to risk assessments in the CWPP and hazard mitigation plan, continue to educate the community and reduce property losses from wildfire and the consequences as a result of catastrophic wildfires

Potential Funding: Teller County, CSFS

Schedule: within 6-9 months of securing funding

Continue wildfire fuel reduction projects

Hazards Addressed: Wildfire

Issue/Background: Wildfire fuel reduction projects have been ongoing in the County since the development of the 2004 County Community Wildfire Protection Plan. Some of these projects have been completed, some remain, and additional high risk areas have been identified in this plan. This project would require coordination with stakeholders, such as the fire districts, Colorado State Forest Service, National Park Service, and Coalition for the Upper South Platte, on existing fuels reduction efforts and ensure that additional efforts address high-risk areas identified in this plan.

Other Alternatives: No action

Responsible Office: Teller County Community Wildfire Protection Planning Commission, fire districts, Colorado State Forest Service, National Park Service, and Coalition for the Upper South Platte, Teller OEM

Priority (High, Medium, Low): Medium

Cost Estimate: Accomplished within existing agency budgets

Benefits (Avoided Losses): Reduced property losses from wildfire; reduced impacts to firefighters and other responders; reduced severity of burns, enhancing the ability of the environment to recover from a wildfire; minimized potential for post-fire soil erosion, flooding and debris flows.

Potential Funding: Existing budgets, CSFS

Schedule: Ongoing

Review/update emergency operations/COOP/evacuation plans

Hazards Addressed: All

Issue/Background: Teller County last updated the EOP plan in 2004 and has not revised it to reflect the Federal Guidance in addressing the 15 Emergency Support Functions. It has not been updated to adopting the National Incident Management standards. Teller County has not

developed a Continuity of Operations Plan (COOP) plan for ongoing operations during a significant event. As well, there is not a comprehensive evacuation plan for the county. This project would entail updating the EOP, in conjunction with COOP and evacuation plan development.

Other Alternatives: No action

Responsible Office: Office of Emergency Management

Priority (High, Medium, Low): High

Cost Estimate: All cost associated with this project would be administrative and personnel.

Benefits (Avoided Losses): Reduce losses to life and property through coordinated response activities; Continued government services during disasters; required to continue to receive Federal funding.

Potential Funding: County general fund or unknown Federal funding.

Schedule: 1Year

Update the Teller County Growth Management Plan

Hazards Addressed: all

Issue/Background: The Teller County Growth Management Plan was originally prepared and adopted in 1990. It was a good plan but it has vastly outlived its usefulness and relevancy. Such a plan is mostly advisory but should also guide issues and directions in the regulatory environment. It should guide land use development and conservation decision-making. It should identify present and future needs and resources; prevent inappropriate land use and techniques to minimize pollution. It should provide a guide to evaluate activities and development which could result in significant changes in population density and reduce wastes of physical, financial or human resources which might result from excessive congestion or sprawl. It should identify environmentally sensitive land such as wildlife habitat and scenic landscapes as well as hazardous areas including flood plains, steep slopes, wildfire and geologically sensitive lands presently identified and profiled in the Hazard Mitigation Plan. It will also be coordinated with the goals of the Hazard Mitigation Plan.

Other Alternatives: no action

Responsible Office: CDSD

Priority (High, Medium, Low): Medium

Cost Estimate: $100,000

Benefits (Avoided Losses): Further growth management in relation to hazard areas. To promote cooperation between Teller County and all other local, regional, state and federal governments. To coordinate the phased, logical extension of the county's, cities and towns and areas boundaries and growth areas. To enhance and maintain a sense of community. To promote appropriate design and arrangement of development compatible on a countywide, area and neighborhood basis. To promote affordability of quality housing, well-diversified economy.

Potential Funding: General budget, Gaming, DOLA

Schedule: 2009

Develop lightning protection for critical infrastructure

Hazards Addressed: Lightning

Issue/Background: Teller County has experienced damage to critical facilities including IT, communications and video equipment as a result of lightning strikes annually. Facilities at risk include: Teller Sheriff's office, Jail, Fleet/Transportation complex, courthouse, Tenderfoot Repeater, Pisgah repeater, Divide repeater, centennial building and wastewater and water treatment plants. Given the frequency of lightning strikes in Teller County and historical data this hazard is always present and many of our facilities are susceptible to this hazard.

Other Alternatives: Continue to repair damage and reactive retrofitting. Ensure that new facilities in lightning prone areas require or are built with the proper lightning protection.

Responsible Office: Agency responsible for facility

Priority (High, Medium, Low): Low

Cost Estimate: Very preliminary cost estimates average $70,000 per facility for UL approved lightning protection.

Benefits (Avoided Losses): Life safety, Reduction in Property Loss

Potential Funding: Capital improvements program

Schedule: Within 3 years

Utilize county road ROW as firebreaks and snow storage

Hazards Addressed: Lightning

Issue/Background: Teller County has 600 miles of road right of way (ROW), usually 66 feet wide, that is heavily treed and not entirely utilized (average width of roads is 40 feet). The identified ROW in this project primarily encompasses the main roads within the subdivisions throughout the county. If the entire right of way were developed, issues such as substandard

drainage, snow storage and firebreaks would be addressed. Additionally, clearing and development of the road right of ways would provide a degree of forest fuels mitigation.

Other Alternatives: Teller County currently improves roads in compliance with its Road Maintenance and Improvement Plan. The average length of roadway that receives an improvement project annually is 2.5 miles.

Responsible Office: Teller County Public Works

Priority (High, Medium, Low): High

Cost Estimate: Approximately $12,000 per mile.

Benefits (Avoided Losses): Life Safety, infrastructure protection, flood mitigation and property losses.

Potential Funding: CIP, LID, RMIP

Schedule: Start within 3 years and accomplish approximately 15 miles plus per year.

Improve drainage of roadways in flashflood areas

Hazards Addressed: Floods

Issue/Background: Teller County has experienced damage to critical road infrastructure due to heavy spring runoff. Two specific areas of concern include the culvert crossing at Stone's corner on Teller 1 and Creekside Drive approaching Crystola Canyon. Historical flooding events have compromised these areas in the past and the current drainage culverts are inadequate based on a 100-year flood event. Stone's corner would benefit from the installation of a CBC or Bridge and the Crystola Road project would benefit from the installation of a bridge and bank protection. Both areas are susceptible to a 50-year flood event.

Other Alternatives: No action.

Responsible Office: Teller County Public Works

Priority (High, Medium, Low): Medium

Cost Estimate: Very preliminary cost estimates average $1.8 million considering bridge installation and bank protection.

Benefits (Avoided Losses): Life safety, reduction in property loss, infrastructure protection.

Potential Funding: Capital Improvements Program

Schedule: Stone's corner is expected to be completed in 2008. The Creekside Drive area should be completed within 5 years

Inventory and study the potential impacts of non-jurisdictional dams

Hazards Addressed: dam failure

Issue/Background: Many dams exist in Teller County that do not meet the definition of a jurisdictional dam, and thus are not monitored by the State Engineer's office. Many of these dams were built following the dust bowl era by the CCC. These small dams can be prone to overtopping or failure during significant rainfall events, leading to property damage and possibly life safety impacts downstream. Failure of 6 non-jurisdictional dams occurred in Teller County during a July 2004 rain event, inundating homes near the Turkey Rock subdivision.

This project would entail inventorying the location of non-jurisdictional dams within the County and determining those that have the highest potential for downstream losses, should they fail. The project would support the development of future mitigation projects related to the identified dams of concern. A similar project was recently implemented on federal lands in the vicinity of the Florissant Fossil beds, where potentially dangerous dams were removed (5 of 40 identified). The Florissant project applied a rating system to rank the dams most likely for mitigation. This process could be applied elsewhere in the County. GIS and air photo interpretation methods would be used to identify the location of dams and the associated land ownership. GIS methods can also be used to quantify potential downstream impacts.

Other Alternatives: No action

Responsible Office: Teller County Office of Emergency Management with support from IT and possibly consultant assistance. This would require coordination with federal and state land managers and the State Engineer's Office.

Priority (High, Medium, Low): Low

Cost Estimate: $35,000 - $45,000

Potential Funding: State CDEM SHMP funding, FEMA PDM planning grant funding, partnering federal agencies (USFS, BLM)

Benefits (Avoided Losses): Knowledge of where potential problems exist. Support for hazard mitigation project identification and prioritization, ultimately avoiding losses to people and property.

Schedule: 2009

Woodland Park Mitigation Actions

Update and revise Woodland Park Stormwater Management Plan

Hazards Addressed: Flood

Issue/Background: The current plan is dated and does not include all routes of the city/jurisdiction. Land use and hydrology (methods) have changed. The new plan needs to consider both peak flow and volume mitigation. This will result in project identification to reduce & mitigate stormwater runoff.

Other Alternatives: Do nothing

Responsible Office: City of Woodland Park Public Works

Priority (High, Medium, Low): Medium

Cost Estimate: $150,000 to $200,000

Benefits (Avoided Losses): Reduced volume and intensity of runoff, reduced erosion and sediment aggradations in streams, reduced impact to channels and floodplains and reduced incision of streams and detachment of floodplains from channels.

Potential Funding: City general fund.

Schedule: 2009

Conduct a detailed earthquake vulnerability analysis for Woodland Park

Hazards Addressed: Earthquake

Issue/Background: Teller County could be affected by 2 of the top 5 most damaging faults in the state. Potential fatalities could range from 5-21, with economic losses as high as $418 million. This project would assess earthquake vulnerability of key facilities and assess landslide potential. Key facilities include: Police Dept, City Hall, Schools, Hospital. Structural and non-structural elements of each facility will be inspected and assessed.

Other Alternatives: Depend/rely on studies by others (e.g. Colorado Springs Utilities?)
Do nothing

Responsible Office: City of Woodland Park

Priority (High, Medium, Low): Medium

Cost Estimate: $100K

Benefits (Avoided Losses): Increased awareness of leaders and officials, increased public awareness, identify probability of hazard

Potential Funding: Colorado Geological Survey, State Hazard Mitigation Program grants.

Schedule: When funding is secured, begin seeking funding in 2008.

Cripple Creek Mitigation Actions

Strategic Snow Stockpiling for Cripple Creek

Hazards Addressed: Severe winter storm, drought

Issue/Background: This project involves identifying areas for stockpiling snow during the winter months so that it could potentially be used to augment the City's water supply in times of drought.

Other Alternatives: No action

Responsible Office: Cripple Creek Public Works Department

Priority (High, Medium, Low): Medium

Cost Estimate: Identification of strategic areas can be accomplished within existing budgets. Stockpiling cost will depend on amount of snow and length of event.

Benefits (Avoided Losses): Provides water for lakes and aquifers.

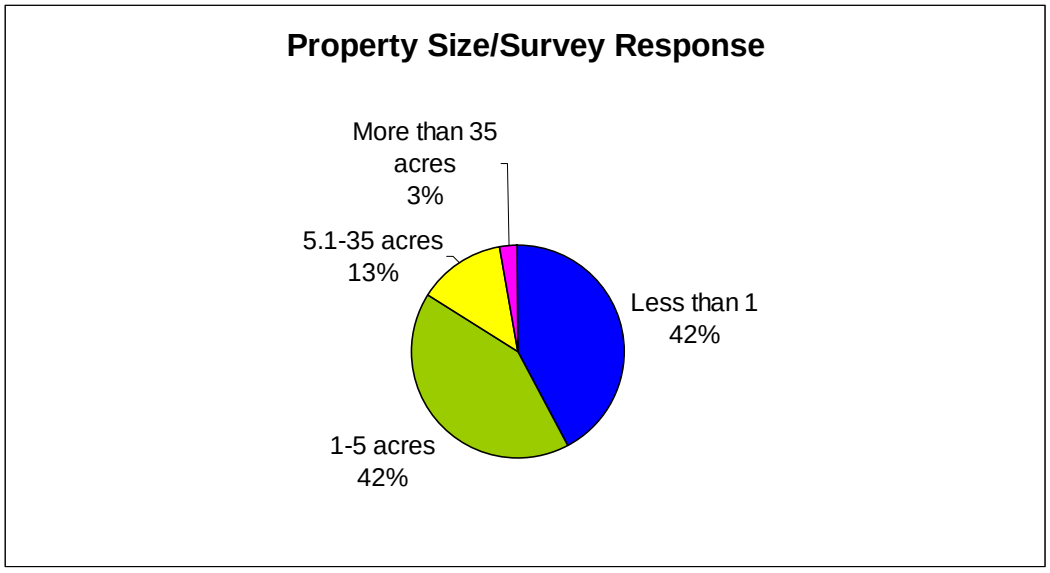
Potential Funding: Local budget

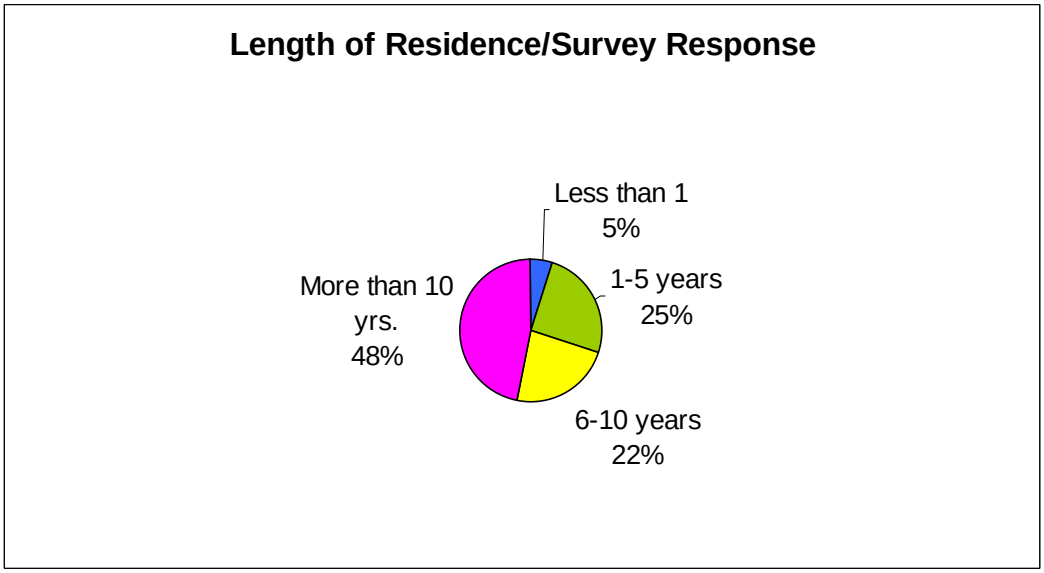
Schedule: Ongoing

APPENDIX D: PUBLIC SURVEY

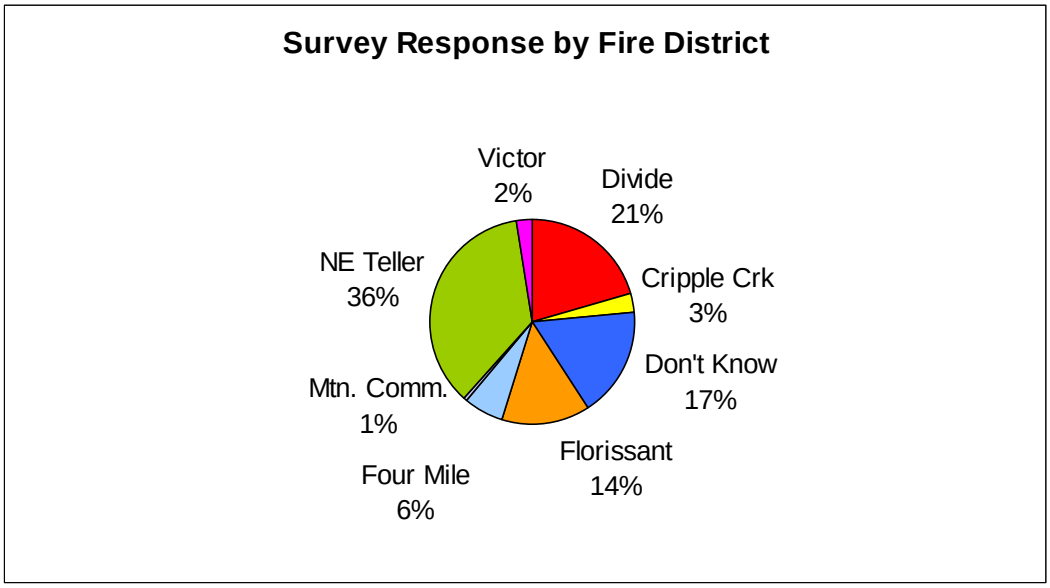
2004 Teller County All Hazard Survey Results

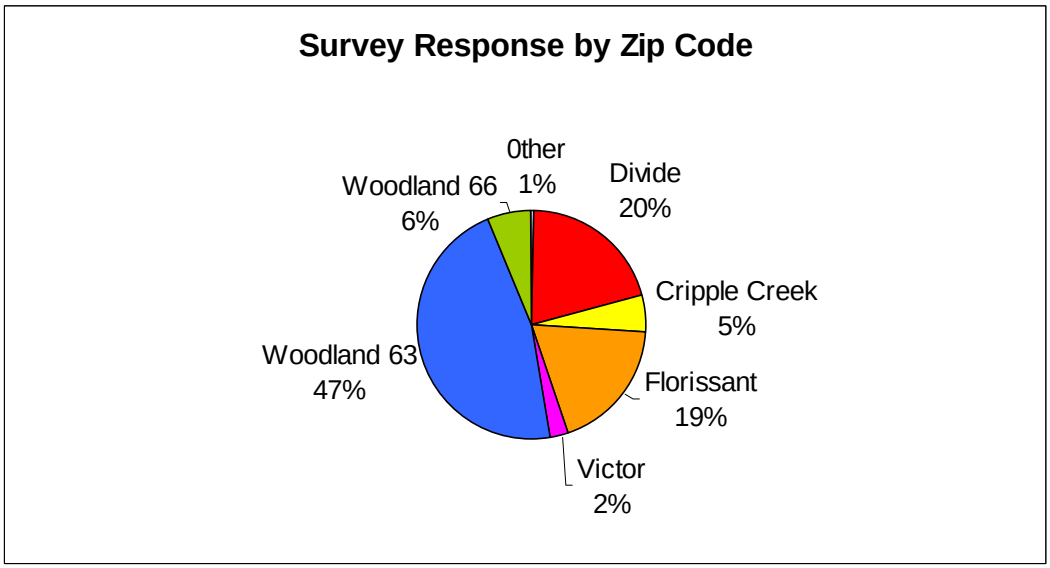
6,000 surveys were mailed to random property owners in Teller County in December 2004. Over 37% of those surveys were completed and returned. The results are illustrated here.



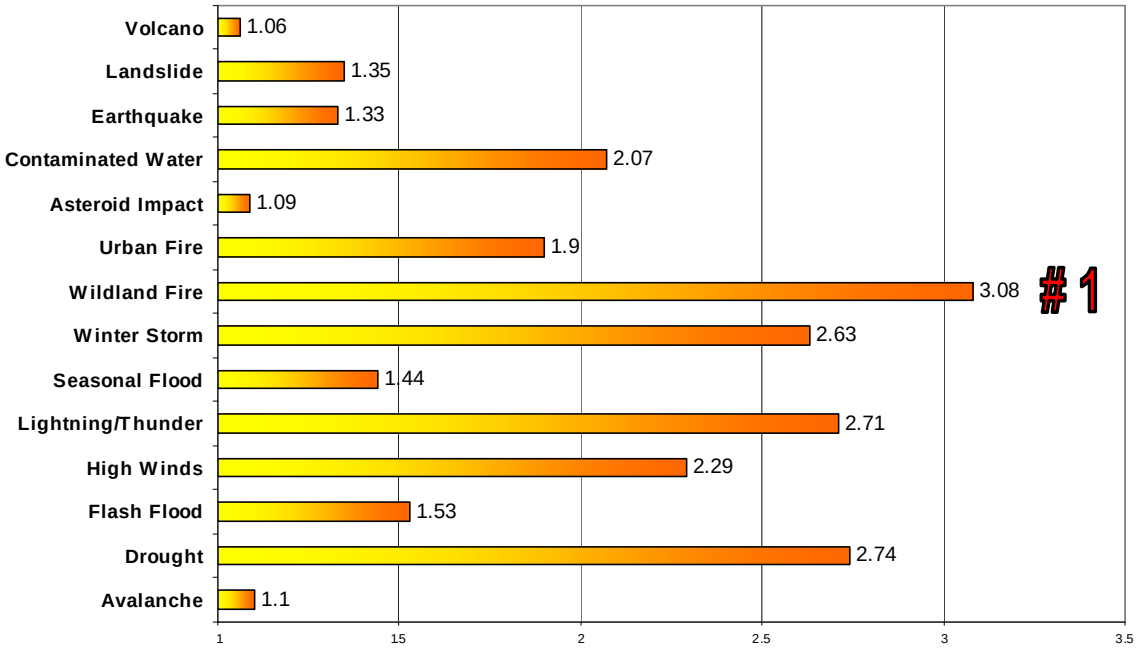


- 12.6% (281 properties) share a boundary with public lands.
- 34% (762) are employed in Teller County.
- 5.9% (134) indicated they are emergency responders.

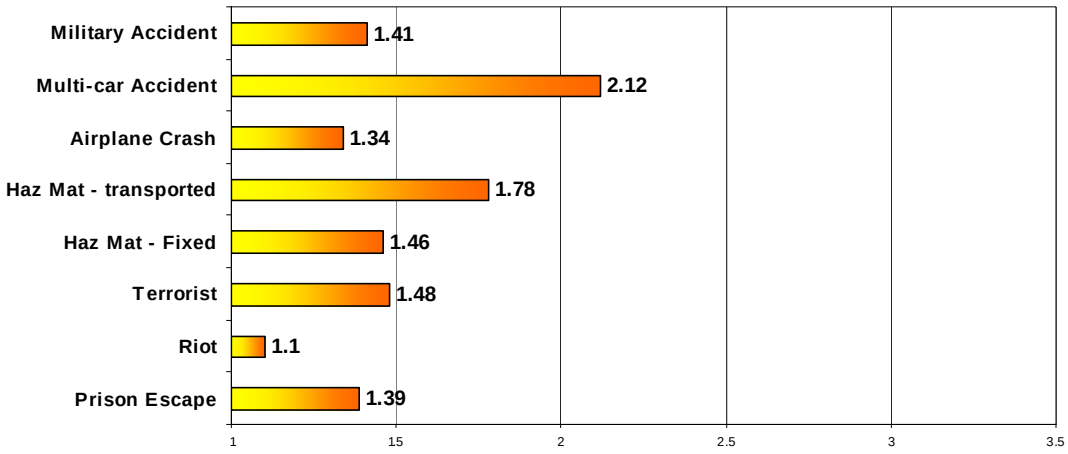

Survey Response by Fire District
Victor
2%
Divide
21%
NE Teller
36%
Cripple Crk
3%
Don't Know
17%
Mtn. Comm.
1%
Florissant
14%
Four Mile
6%


Survey Response by Zip Code
0ther
1%
Woodland 66
6%
Divide
20%
Cripple Creek
5%
Woodland 63
47%
Florissant
19%
Victor
2%

Natural Hazard Survey Response
1=Little or no threat 2= Some threat 3= Considerable threat 4= Extreme threat



Man-Made Hazard Response
1= Little or no threat 2= Some threat 3= Considerable threat 4= Extreme threat



Teller County Hazard Risk Assessment

Hazard Priority Public Opinion Survey: The Teller County Office of Emergency Management is preparing a countywide Hazard Risk Assessment and Pre-Disaster Mitigation Plan (PDM Plan). One step in this process is to identify and prioritize the hazards that this community finds most threatening. As a Teller County resident your input is needed to help determine the priority of each hazard. All replies will be anonymous. The summarized results from this survey will help determine the priorties for future hazard mitigation projects and will be included in the PDM Plan that is submitted to the Federal Emergency Managemment Agency. Theses results will be available to the public for inspection and will be used for future grant applications.

Please rate each of the following potential hazards to indicate your opinion about the threat to life, health and property in our community. Use the following scale:

1 = Little or no threat **2 = Some threat** **3 = Considerable threat** **4 = Extreme threat**

NATURAL HAZARDS

My Rating **Weather Related Hazards**

_____ Flash Flood
_____ Seasonal Flood
_____ High Winds
_____ Lightning/Thunder
_____ Avalanche
_____ Winter Storm
_____ Drought

My Rating **Fire Related Hazards**

_____ Wildland Fire
_____ Urban Fire

My rating **Other Natural Hazards**

_____ Asteroid or Comet Impact
_____ Contaminated Water Supply
_____ Earthquake
_____ Landslide
_____ Volcano Eruption

MAN-MADE HAZARDS

My rating **Civil Disturbance**

_____ Prison Escape
_____ Riot
_____ Terrorist Attack

My rating **Hazardous Material**

_____ Fixed Site
_____ Tansported

My rating **Transportation Related**

_____ Airplane Crash
_____ Multi-car Accident
_____ Military Accident

My rating **Other Hazards of Concern**

_____ _____
_____ _____
_____ _____
_____ _____

Please Continue on Other Side

DEMOGRAPHIC INFORMATION (*PLEASE CIRCLE YOUR ANSWER)*

What size is your property?

Less than 1 acre, □ 1-5 acres □□ 5.1-35 acres □ □ More than 35 Acres

Does your property share a boundary with Public Lands? □YES □ NO
(Federal, State or County)

How long have you lived in Teller County?

Less than 1 year□ □ 1-5 years□ □ 6-10 years□ □ Over 10 years

Are you employed in Teller County? □ YES□□ NO

Are you an emergency responder?□□ YES□□ NO

In which fire protection district do you live?

Cripple Creek□ □ Divide□ □ Florissant□ □ Four Mile

Mtn. Communities□□ NE Teller□ □ Victor□ □ Don'tknow/Not sure

What is your postal zip code? _____

□ □ □ □ □ □ ***THANK YOU!***

□ Please refold this page so the address below is visible, **tape closed**, *do not staple*
□ □ □ and **mail within 7 days.** No postage is necessary.

APPENDIX E: SUBDIVISION WILDFIRE RISK

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
TROUT HAVEN SUBDIVISION	146	UNINCORPORATED	E	$21,319,404	$24,047,434	374
ARABIAN ACRES	134	UNINCORPORATED	E	$20,255,116	$23,041,727	343
UTE LAKES CLUB	41	UNINCORPORATED	E	$2,620,857	$3,301,688	105
WOODROCK SUBDIVISION	38	UNINCORPORATED	E	$10,492,691	$12,569,256	97
ASPEN MOORS	32	UNINCORPORATED	E	$5,282,218	$7,004,569	82
SHADOW LAKE	28	UNINCORPORATED	E	$3,955,799	$4,464,760	72
SKYCREST SUB (Unplatted)	19	UNINCORPORATED	E	$2,558,942	$3,905,723	49
MOUNTAIN VIEW SUBDIVISION	17	UNINCORPORATED	E	$2,792,132	$3,572,175	44
BEAVER VALLEY VILLAGE	11	UNINCORPORATED	E	$1,266,175	$1,420,610	28
PIERSON'S UNPLATTED	10	UNINCORPORATED	E	$624,603	$1,161,986	26
YOUNG'S ADDITION	9	UNINCORPORATED	E	$1,536,269	$2,212,573	23
BILLUPS & BARNS SUBDIVISION	8	UNINCORPORATED	E	$801,551	$1,274,849	20
COLORADO WOODLAND ESTATES (UNPLATTED)	7	UNINCORPORATED	E	$2,195,920	$3,858,769	18
MIDLAND TERMINAL SUMMER HOME GROUP	7	UNINCORPORATED	E	$371,530	$371,530	18
PARADISE VALLEY RANCH	6	UNINCORPORATED	E	$1,294,776	$2,104,357	15
CRIPPLE CREEK TIMBERS	5	UNINCORPORATED	E	$1,083,457	$1,131,079	13
COLE SUBDIVISION	4	UNINCORPORATED	E	$650,985	$797,306	10
COUGAR CANYON ESTATES	4	UNINCORPORATED	E	$2,000,057	$2,463,717	10
LOST CANYON RANCH NO. 1	3	UNINCORPORATED	E	$947,077	$1,411,192	8
SPRING CANYON RANCH SUBDIVISION (UNPLATTED)	3	UNINCORPORATED	E	$419,406	$569,692	8
CONANT SUBDIVISION	2	UNINCORPORATED	E	$158,752	$363,484	5
KONGS/MCINTOSH SUBDVISION	2	UNINCORPORATED	E	$776,352	$776,851	5
LAKEVIEW FOREST ESTATES	2	UNINCORPORATED	E	$592,416	$593,014	5
SPRUCE RIDGE SUBDIVISION	2	UNINCORPORATED	E	$746,912	$1,091,305	5
ASPENWILDE - (UNPLATTED)	1	UNINCORPORATED	E	$120,965	$121,163	3
B & L SUBDIVISION	1	UNINCORPORATED	E	$215,593	$309,276	3
HIDDEN FOREST RANCH #2 - REVISED	1	UNINCORPORATED	E	$445,078	$592,389	3
LUCAS SUBDIVISION	1	UNINCORPORATED	E	$151,331	$199,321	3

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
STANTON, KNETSCH, FOWLER SUBDIVISION	1	UNINCORPORATED	E	$202,492	$220,989	3
	545		**E Total**	$85,878,856	$104,952,784	1395
COLORADO MOUNTAIN ESTATES	454	UNINCORPORATED	S	$72,584,591	$79,127,613	1162
SHERWOOD FOREST ESTATES	239	UNINCORPORATED	S	$31,085,508	$33,974,771	612
SPRING VALLEY SUBDIVISION	215	UNINCORPORATED	S	$38,590,918	$46,180,185	550
TRANQUIL ACRES	207	UNINCORPORATED	S	$15,720,041	$17,951,315	530
RAINBOW VALLEY	139	UNINCORPORATED	S	$21,442,579	$23,177,628	356
NAVAJO MOUNTAIN MESA	94	UNINCORPORATED	S	$9,728,748	$11,649,877	241
TURKEY ROCK RANCH ESTATES	90	UNINCORPORATED	S	$11,118,041	$13,463,577	230
RANCH ESTATES SUBDIVISION	75	UNINCORPORATED	S	$12,286,510	$12,898,441	192
GOLDFIELD	61	UNINCORPORATED	S	$3,287,385	$3,810,752	156
HOLIDAY HILLS	53	UNINCORPORATED	S	$12,140,281	$15,137,049	136
SUNNY SLOPE ACRES FILING NO. 1	52	UNINCORPORATED	S	$10,376,602	$14,068,966	133
NONE	45	WOODLAND PARK	S	$10,844,552	$15,047,631	115
ASPEN VILLAGE SUBDIVISION	40	UNINCORPORATED	S	$9,412,084	$13,962,764	102
LAKEMOOR WEST	40	UNINCORPORATED	S	$6,139,087	$8,263,873	102
BROKEN WHEEL VILLAGE	37	UNINCORPORATED	S	$7,311,142	$11,013,450	95
WHISPERING PINES SUBDIVISION	34	UNINCORPORATED	S	$4,237,588	$4,653,556	87
HIGHLAND MEADOWS	31	UNINCORPORATED	S	$6,388,115	$7,417,489	79
CRYSTAL PEAK RANCHES	26	UNINCORPORATED	S	$6,730,459	$8,888,305	67
B LAZY M RANCH	22	UNINCORPORATED	S	$5,989,497	$6,050,803	56
LUTHERAN VALLEY RANCH	20	UNINCORPORATED	S	$726,243	$726,243	51
SUNNY SLOPE ACRES FILING NO. 2	18	WOODLAND PARK	S	$3,401,314	$4,874,753	46
CRIPPLE CREEK RANCHES OF COLORADO	17	UNINCORPORATED	S	$3,169,570	$3,571,000	44
ALPINE VALE	13	UNINCORPORATED	S	$1,346,597	$1,647,574	33
BLUEBIRD HILL	13	UNINCORPORATED	S	$2,520,408	$3,041,412	33
CRYSTAL PEAK RANCHES #1 (UNPLATTED)	13	UNINCORPORATED	S	$3,839,819	$5,740,036	33
LITTLE MONTANA ADDITION	13	VICTOR	S	$866,829	$944,995	33
CITY VIEW ADDITION	12	VICTOR	S	$901,952	$1,000,034	31
MAJESTIC PARK SUBDIVISION	11	UNINCORPORATED	S	$9,240,227	$12,517,406	28
MC KINNIES ADDITION	9	VICTOR	S	$424,618	$451,569	23
BROOKVILLE ADDITION	8	VICTOR	S	$399,045	$435,102	20
OUTLOOK ON GOLDCAMP - UNPLATTED	8	UNINCORPORATED	S	$2,131,442	$2,474,102	20
WILDHORN SUBDIVISION	8	UNINCORPORATED	S	$1,162,442	$1,238,287	20
CRYSTAL SPRINGS RANCH UNIT 1	7	UNINCORPORATED	S	$1,387,291	$1,833,992	18

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
CATAMOUNT LTD PROPERTIES (UNPLATTED)	6	UNINCORPORATED	S	$2,412,676	$3,365,100	15
LOST VALLEY SUB.	6	UNINCORPORATED	S	$622,863	$728,667	15
FLORISSANT ORIGINAL	5	UNINCORPORATED	S	$1,100,816	$1,313,981	13
PARK VALLEY ESTATES	5	WOODLAND PARK	S	$1,107,085	$1,486,103	13
KELLY'S CORNER	4	UNINCORPORATED	S	$587,720	$628,923	10
HALL'S RANCHETTES	3	UNINCORPORATED	S	$1,074,670	$1,281,654	8
MCAFEE SUBDIVISION	3	UNINCORPORATED	S	$1,284,027	$1,736,562	8
MELODY ACRES	3	UNINCORPORATED	S	$170,855	$226,504	8
RIDLEY'S SUBDIVISION	3	UNINCORPORATED	S	$677,925	$947,809	8
SENTINEL	3	UNINCORPORATED	S	$1,008,775	$1,095,757	8
WESTERN HILLS RANCH ESTATES	3	UNINCORPORATED	S	$436,103	$533,511	8
BISHOP'S REPLAT	2	UNINCORPORATED	S	$104,087	$122,484	5
HAGGETT SUBDIVISION	2	UNINCORPORATED	S	$171,859	$395,825	5
HEAVEN-SENT SUBDIVISION	2	WOODLAND PARK	S	$328,582	$535,956	5
SOUTH WEST STREET SUBDIVISION	2	WOODLAND PARK	S	$259,190	$341,373	5
CATHEDRAL PARK ESTATES	1	UNINCORPORATED	S	$149,107	$149,269	3
EVANS-BONNER SUBDIVISION	1	UNINCORPORATED	S	$150,227	$166,877	3
HOLBERT SUBDIVISION	1	UNINCORPORATED	S	$580	$1,972	3
RUSSELL VACATION	1	UNINCORPORATED	S	$146,967	$166,044	3
SHILOH RANCH SUBDIVISION	1	UNINCORPORATED	S	$294,164	$444,634	3
WEST FLORISSANT	1	UNINCORPORATED	S	$107,126	$125,044	3
WEST VICTOR	1	UNINCORPORATED	S	$83,262	$93,555	3
	2183		**S Total**	$339,210,191	$403,122,154	5588
INDIAN CREEK	601	UNINCORPORATED	H	$75,275,428	$94,328,053	1539
HIGHLAND LAKES SUBDIVISION	347	UNINCORPORATED	H	$69,549,662	$79,205,919	888
CRIPPLE CREEK MOUNTAIN ESTATES	309	UNINCORPORATED	H	$46,631,510	$50,880,866	791
VICTOR	249	VICTOR	H	$18,607,140	$19,717,906	637
SUNNYWOOD MANOR	234	WOODLAND PARK	H	$54,398,125	$67,676,365	599
PARADISE ESTATES	209	WOODLAND PARK	H	$52,523,893	$72,512,646	535
WESTWOOD LAKES	137	UNINCORPORATED	H	$26,638,727	$32,470,562	351
FLORISSANT HEIGHTS	125	UNINCORPORATED	H	$17,150,699	$19,851,969	320
WOODLAND WEST	117	UNINCORPORATED	H	$22,815,406	$37,915,614	300
PAINT PONY RANCH CLUB	108	WOODLAND PARK	H	$21,761,259	$26,254,552	276
MORNING SUN SOLAR COMMUNITY	100	WOODLAND PARK	H	$27,075,182	$37,513,398	256
EVERGREEN HEIGHTS	88	WOODLAND PARK	H	$23,083,213	$28,088,363	225
RIDGEWOOD SUBDIVISION	85	UNINCORPORATED	H	$20,432,002	$27,476,252	218
DRUID HILLS SUBDIVISION	75	UNINCORPORATED	H	$15,832,850	$18,323,666	192
PALMER VILLAGE SUBDIVISION	74	UNINCORPORATED	H	$16,810,671	$19,857,415	189

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
COUNTRY RIDGE ESTATES	61	WOODLAND PARK	H	$16,228,895	$19,228,423	156
GOLDEN BELL NAZARENE RANCH	56	UNINCORPORATED	H	$7,289,110	$8,910,931	143
CRYSTAL PEAK ESTATES	54	UNINCORPORATED	H	$7,052,603	$7,907,307	138
SPICER ADDITION	54	VICTOR	H	$5,278,655	$5,523,787	138
TWIN ROCKS SUBDIVISION	51	UNINCORPORATED	H	$7,675,440	$9,340,272	131
PARADISE PINES TOWNHOMES	49	WOODLAND PARK	H	$6,335,710	$6,891,373	125
ASPEN HILLS	48	UNINCORPORATED	H	$9,438,339	$12,439,950	123
ROSEWOOD HILLS	48	UNINCORPORATED	H	$9,330,552	$11,691,862	123
VALLEY - HI MOUNTAIN ESTATES	46	UNINCORPORATED	H	$7,079,201	$8,905,644	118
HIGHLAND HILLS	36	WOODLAND PARK	H	$6,823,189	$7,870,524	92
EVERGREEN SUBDIVISION	32	WOODLAND PARK	H	$5,548,110	$6,827,820	82
DEER MOUNTAIN RANCH	29	UNINCORPORATED	H	$6,189,319	$7,650,803	74
THUNDERBIRD ESTATES FILING NO. 1	29	WOODLAND PARK	H	$7,794,832	$10,811,139	74
EAGLECREST OF COLO.	28	UNINCORPORATED	H	$4,047,031	$4,849,309	72
FLYING CLOUD ESTATES	28	UNINCORPORATED	H	$6,774,623	$13,191,957	72
SUMMER HAVEN ADDITION	25	UNINCORPORATED	H	$3,307,442	$4,813,511	64
CUMMINS TRACTS	24	WOODLAND PARK	H	$3,719,747	$5,161,540	61
INDIAN CREEK EAST	24	UNINCORPORATED	H	$3,509,615	$4,481,837	61
CUNNINGHAM ADDITION	23	UNINCORPORATED	H	$1,139,587	$1,291,626	59
HIGH CHATEAU RANCHES	23	UNINCORPORATED	H	$4,779,376	$5,422,793	59
WOODLAND VALLEY SUBDIVISION	22	UNINCORPORATED	H	$4,705,324	$6,480,815	56
ELK VALLEY ESTATES	20	UNINCORPORATED	H	$10,127,185	$14,005,932	51
PARADISE HOMES FILING NO. 1	18	WOODLAND PARK	H	$5,035,548	$6,436,212	46
CRYSTOLA PINES SUBDIVISION	17	UNINCORPORATED	H	$5,231,396	$6,825,458	44
J-D-K SUB.	17	UNINCORPORATED	H	$2,649,576	$3,213,942	44
GOLCONDA ADDITION	16	VICTOR	H	$1,119,570	$1,206,519	41
ALPENHEIM SUBDIVSION	15	WOODLAND PARK	H	$2,957,365	$3,651,738	38
DOME ROCK RANCH	15	UNINCORPORATED	H	$2,646,185	$3,212,897	38
SPRUCE RIDGE PROPERTIES SUBDIVISION	15	WOODLAND PARK	H	$4,951,778	$6,118,808	38
CHATEAU WEST	13	UNINCORPORATED	H	$1,657,369	$1,935,833	33
KELLEY'S RESERVED TRACTS	13	WOODLAND PARK	H	$2,698,930	$3,645,599	33
BROKEN WAGON ESTATES	12	UNINCORPORATED	H	$1,042,207	$3,853,310	31
COLONIAL VILLAGE	11	WOODLAND PARK	H	$2,244,995	$2,586,556	28
KELLEY'S SUBDIVISION	11	WOODLAND PARK	H	$2,556,551	$3,314,084	28
PANORAMAS UNLIMITED	10	UNINCORPORATED	H	$1,799,902	$2,259,901	26
RASPBERRY MOUNTAIN	10	UNINCORPORATED	H	$2,088,651	$2,771,927	26
SWISS CHALET SUBDIVISION	10	WOODLAND PARK	H	$2,500,461	$2,980,617	26

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
SUNNYSIDE ADDITION	9	UNINCORPORATED	H	$658,791	$697,183	23
CUMMINS ADDITION	8	WOODLAND PARK	H	$1,546,094	$1,995,557	20
FIRST ADDITION	8	VICTOR	H	$554,344	$606,040	20
GLOVER'S SUBDIVISION	8	WOODLAND PARK	H	$1,199,315	$1,516,659	20
HARTFORD ADDITION	8	VICTOR	H	$345,426	$383,212	20
HIDDEN ACRES SUBDIVISION	8	UNINCORPORATED	H	$1,163,715	$1,627,828	20
HIGH CHATEAU RANCHES SUBDIVISION NO. 2	8	UNINCORPORATED	H	$2,638,255	$2,982,870	20
PINEWOOD PARK ESTATES	8	UNINCORPORATED	H	$1,352,143	$2,364,338	20
PROVIDENCE ADDITION	8	VICTOR	H	$552,116	$630,242	20
EVERGREEN ACRES	7	UNINCORPORATED	H	$587,298	$1,933,498	18
REFILING OF RIDGEWOOD FILING NO. 6	7	UNINCORPORATED	H	$3,127,353	$4,551,864	18
SUNRISE RIDGE RANCH	7	UNINCORPORATED	H	$1,669,376	$2,936,795	18
ASPEN ACRES	6	WOODLAND PARK	H	$996,163	$2,094,883	15
HIDDEN FOREST ESTATES	6	WOODLAND PARK	H	$1,699,357	$2,119,901	15
MIDLAND PINES SUBDIVSION	6	WOODLAND PARK	H	$1,453,925	$2,018,551	15
NEW ADDITION	6	VICTOR	H	$347,298	$446,452	15
PAINT PONY SUBDIVISION	6	UNINCORPORATED	H	$852,722	$1,285,383	15
SUN FOREST SUB	5	UNINCORPORATED	H	$1,100,907	$1,400,219	13
THE LIVING FOREST ESTATES	5	UNINCORPORATED	H	$3,543,814	$4,135,278	13
CEDAR MOUNTAIN RANCH	4	UNINCORPORATED	H	$714,234	$1,158,395	10
CONEJOS ADDITION	4	VICTOR	H	$266,095	$282,006	10
HARTMAN'S SUBDIVISION	4	WOODLAND PARK	H	$1,056,796	$1,421,375	10
HOEMAN'S SUBDIVISION	4	WOODLAND PARK	H	$574,134	$728,159	10
RAMPART RANGE MINI-RANCH EST.	4	UNINCORPORATED	H	$892,813	$1,375,934	10
TOWN OF LAWRENCE	4	UNINCORPORATED	H	$314,360	$468,984	10
BRIDLEWOOD	3	UNINCORPORATED	H	$1,212,524	$1,596,391	8
CAMCO SUBDIVISION	3	WOODLAND PARK	H	$1,108,425	$1,391,888	8
CENTERVIEW SUBDIVSION 1	3	UNINCORPORATED	H	$832,922	$1,090,788	8
COLUMBINE ESTATES	3	UNINCORPORATED	H	$1,014,709	$1,800,248	8
COURIER SUBDIVISION	3	WOODLAND PARK	H	$679,725	$1,035,421	8
DOME ROCK RANCHETTES	3	UNINCORPORATED	H	$695,560	$919,431	8
FLYING DUTCHMAN RANCH	3	UNINCORPORATED	H	$809,840	$1,089,381	8
GOLD CAMP SUBDIVISION NO. 2	3	UNINCORPORATED	H	$529,257	$624,499	8
GOLDEN BELL REPLAT	3	UNINCORPORATED	H	$344,646	$430,614	8
MANITOU PARK RANCH	3	UNINCORPORATED	H	$438,733	$667,014	8
MATTHEWS SUBDIVISION	3	WOODLAND PARK	H	$1,121,305	$1,722,327	8

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
MORNING SUN BUSINESS PARK	3	WOODLAND PARK	H	$2,252,198	$2,839,745	8
MURPHY SUBDIVISION	3	WOODLAND PARK	H	$878,410	$1,001,471	8
PAUL'S SUBDIVISION	3	WOODLAND PARK	H	$517,604	$669,117	8
SCHULTZ SUBDIVISION	3	WOODLAND PARK	H	$288,856	$425,576	8
BASSETT SUBDIVISION FILING NO 1	2	WOODLAND PARK	H	$782,835	$870,502	5
BASSICK SUBDIVISION	2	VICTOR	H	$169,809	$186,751	5
BAUER MILLS	2	UNINCORPORATED	H	$330,693	$418,101	5
BLANKENSHIP - ROBY SUBDIVISION	2	UNINCORPORATED	H	$125,546	$155,317	5
BYERS-TRIMBLE SUBDIVISION	2	UNINCORPORATED	H	$314,584	$398,141	5
CIRCLE TOWNHOMES SUBDIVSION	2	WOODLAND PARK	H	$458,876	$513,649	5
COLUMBINE ADDITION	2	VICTOR	H	$124,202	$138,073	5
CRANDALL SUBDIVISION	2	WOODLAND PARK	H	$429,779	$535,517	5
CUTHBERTSON PEET SUBDIVISION	2	UNINCORPORATED	H	$497,942	$570,831	5
DIAMOND ADDITION	2	VICTOR	H	$228,571	$235,891	5
GILLETTE	2	UNINCORPORATED	H	$61,420	$67,670	5
GOLD HILL ADDITION	2	VICTOR	H	$189,206	$196,320	5
HATHAWAY SUBDIVISION	2	UNINCORPORATED	H	$532,852	$806,650	5
HILL SHEFFIELD SUB	2	UNINCORPORATED	H	$591,345	$1,045,943	5
JOHNSON MCMAHON SUB	2	UNINCORPORATED	H	$841,060	$1,154,818	5
JOHNSON'S SUBDIVISION	2	UNINCORPORATED	H	$699,489	$906,054	5
KUNKEL'S SUBDIVISION	2	UNINCORPORATED	H	$538,519	$788,069	5
LENIHAN WILLIAMS SUBDIVISION	2	UNINCORPORATED	H	$419,123	$464,991	5
LOEHNDORF SUBDIVISION	2	UNINCORPORATED	H	$559,717	$560,235	5
MORIN SUBDIVISION	2	UNINCORPORATED	H	$586,231	$728,306	5
O'CONNER-ROLFES SUB	2	UNINCORPORATED	H	$203,258	$273,147	5
PENMAN SUBDIVISION	2	UNINCORPORATED	H	$512,706	$594,814	5
RANCHES AT SLATER CREEK	2	UNINCORPORATED	H	$348,286	$351,916	5
RAWSON'S SUB FILING NO. 1	2	UNINCORPORATED	H	$884,860	$1,124,284	5
ROCHETTE SUBDIVISION	2	UNINCORPORATED	H	$342,088	$511,294	5
ROEHRMAN SUBDIVISION	2	WOODLAND PARK	H	$481,787	$638,910	5
ROLFES WILDHORN PROPERTIES (UNPLATTED)	2	UNINCORPORATED	H	$257,705	$415,411	5
SERENITY - SOLOMON SUB	2	UNINCORPORATED	H	$159,566	$248,489	5
SHULL'S SUBDIVISION	2	UNINCORPORATED	H	$188,458	$295,363	5
STERNBERG SUBDIVISION	2	WOODLAND PARK	H	$402,325	$471,699	5
STICKLER-HANSEN SUB	2	UNINCORPORATED	H	$335,364	$429,370	5
SUNNYWOOD HAVEN FILING NO. 1	2	WOODLAND PARK	H	$528,854	$699,851	5
THE BAKER TRACTS	2	UNINCORPORATED	H	$534,681	$748,089	5

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
UNRUH - PARK SUBDIVISION	2	UNINCORPORATED	H	$394,799	$625,746	5
VIDMAR-PRICE SUBDIVISION EXEMPTION	2	UNINCORPORATED	H	$236,574	$469,906	5
WILD ACRES	2	UNINCORPORATED	H	$203,913	$264,944	5
WOODY'S SUBDIVISION	2	WOODLAND PARK	H	$427,680	$528,581	5
ARMSTRONG SUBDIVISION	1	WOODLAND PARK	H	$428,553	$525,112	3
BISWAS SUBDIVISION	1	UNINCORPORATED	H	$84,661	$157,360	3
BRIDLE MANOR SUBDIVISION	1	UNINCORPORATED	H	$25,779	$426,746	3
GRAHAM-RENNIE SUBDIVISION	1	UNINCORPORATED	H	$283,677	$429,415	3
GRANITE ADDITION	1	VICTOR	H	$56,952	$58,839	3
HIGHLAND LAKES UNDEVELOPED ACRES	1	UNINCORPORATED	H	$299,536	$372,344	3
KOEHN SUBDIVISION	1	UNINCORPORATED	H	$274,242	$313,226	3
MINOR SUBDIVISION	1	UNINCORPORATED	H	$429,870	$467,191	3
MORNING SUN DRIVE SUBDIVISION	1	WOODLAND PARK	H	$2,376,271	$2,666,344	3
PARADISE OFFICE PARK FILING NO. 1	1	WOODLAND PARK	H	$1,340,341	$1,654,447	3
WEST CORNING SUBDIVISION	1	WOODLAND PARK	H	$145,585	$382,058	3
	4159		**H Total**	$756,541,864	$955,138,344	10647
LAKE ADDITION	198	WOODLAND PARK	M	$28,666,769	$38,348,288	507
FREEMONT ADDITION	193	CRIPPLE CREEK	M	$96,370,026	$148,758,321	494
HAYDEN PLACER	186	CRIPPLE CREEK	M	$26,024,432	$32,689,928	476
FOREST EDGE PARK	127	WOODLAND PARK	M	$26,754,353	$31,770,632	325
FREEMAN PLACER ADDITION	125	CRIPPLE CREEK	M	$11,225,971	$13,624,517	320
FOSTER'S ADDITION	117	WOODLAND PARK	M	$15,614,892	$23,212,216	300
WILSON LAKE ESTATES	111	UNINCORPORATED	M	$12,166,474	$13,868,615	284
RESERVE AT TAMARAC	94	WOODLAND PARK	M	$35,391,293	$44,101,190	241
LA MONTANA MESA	93	UNINCORPORATED	M	$18,673,054	$21,515,741	238
RANCH RESORTS OF COLORADO	85	UNINCORPORATED	M	$15,853,440	$18,140,471	218
STEFFA'S ADDITION	85	WOODLAND PARK	M	$22,364,263	$28,298,951	218
LAS BRISAS RANCHETTES	81	UNINCORPORATED	M	$9,480,997	$12,527,247	207
GREEN'S ADDITION	65	WOODLAND PARK	M	$8,661,048	$12,319,016	166
DEWELL ADDITION	62	WOODLAND PARK	M	$8,351,778	$10,421,092	159
BURRO RANCH CONDOMINUMS	58	CRIPPLE CREEK	M	$4,178,863	$4,178,863	148
PARK VIEW ESTATES	57	WOODLAND PARK	M	$13,059,603	$15,192,680	146
FAIRWAY PINES	53	WOODLAND PARK	M	$20,279,176	$24,429,324	136
GRAND VIEW ESTATES SUBDIVISION	51	UNINCORPORATED	M	$9,320,384	$10,785,576	131
FOREST GLEN SPORTS ASSOCIATION	48	UNINCORPORATED	M	$3,542,304	$4,116,147	123
TIERRA DEL SOL 2ND ADDITION	45	WOODLAND PARK	M	$8,476,971	$10,212,005	115
FIRST ADDITION TO FREEMONT	42	CRIPPLE CREEK	M	$6,617,247	$9,210,865	108

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
CD WEAVERS ADDITION	35	WOODLAND PARK	M	$6,300,045	$9,252,439	90
HUNT'S ADDITION	34	WOODLAND PARK	M	$5,799,218	$6,900,023	87
WOODLAND HILLS	33	WOODLAND PARK	M	$6,205,708	$7,527,260	84
FLORISSANT ESTATES FILING NO 1	32	UNINCORPORATED	M	$4,274,791	$4,700,457	82
GOLD VALLEY ADDITION	32	CRIPPLE CREEK	M	$2,679,767	$3,369,700	82
DIVIDE SOUTH	28	UNINCORPORATED	M	$5,795,823	$7,437,645	72
STEWART PLACE SUBDIVISION	27	WOODLAND PARK	M	$10,294,514	$11,262,146	69
BORNMANS SUBDIVISION	26	UNINCORPORATED	M	$3,193,903	$4,531,450	67
WOODLAND PARK ORIGINAL	25	WOODLAND PARK	M	$4,312,469	$6,710,123	64
LAZY M ESTATES	24	UNINCORPORATED	M	$4,319,256	$6,706,242	61
BLUE MOUNTAIN ESTATES	22	UNINCORPORATED	M	$2,934,570	$3,556,767	56
DAVID'S SUBDIVISION	18	WOODLAND PARK	M	$2,908,667	$3,495,997	46
LOG HAVEN ADDITION	17	WOODLAND PARK	M	$2,458,971	$2,813,394	44
M. NUEMANS ADDITION	17	CRIPPLE CREEK	M	$1,028,164	$1,223,400	44
HACKMAN'S ADDITION	16	WOODLAND PARK	M	$1,621,950	$2,467,997	41
PARK FOREST SUBDIVISION	16	WOODLAND PARK	M	$3,117,758	$3,324,004	41
WHISPERING WINDS SUBDIVISION	16	WOODLAND PARK	M	$3,427,073	$4,154,060	41
DAMON PLACER	15	CRIPPLE CREEK	M	$1,670,384	$2,002,475	38
PIKES PEAK ADDITION	15	CRIPPLE CREEK	M	$6,805,824	$7,515,948	38
LOFT VILLAGE SUBDIVISION	14	WOODLAND PARK	M	$1,490,372	$1,592,180	36
WOODLAND PARK PLAZA	14	WOODLAND PARK	M	$8,524,953	$11,081,443	36
GOLD FLATS ADDITION	13	CRIPPLE CREEK	M	$1,040,272	$1,317,467	33
PIKE'S PEAK RANCH ESTATES NO. 1	13	UNINCORPORATED	M	$2,580,651	$2,997,460	33
THE PINES SUBDIVISION	13	WOODLAND PARK	M	$3,155,028	$3,823,177	33
TIERRA DEL SOL	12	WOODLAND PARK	M	$2,237,733	$2,664,691	31
MIDLAND AVENUE TOWNHOMES	11	WOODLAND PARK	M	$1,638,128	$1,789,056	28
THE LOGS SUBDIVISION	11	WOODLAND PARK	M	$1,982,459	$2,341,408	28
CAPITOL HILL ADDITION	10	CRIPPLE CREEK	M	$834,432	$1,028,066	26
CONIFER COURT SUBDIVISION	9	WOODLAND PARK	M	$2,505,509	$2,988,902	23
RAINBOW VALLEY RANCH	9	UNINCORPORATED	M	$1,747,628	$3,118,616	23
CRIPPLE CREEK VILLAS SUBDIVISION	8	CRIPPLE CREEK	M	$2,110,407	$2,295,445	20
WOODED GLEN SUBDIVISION	8	WOODLAND PARK	M	$1,528,817	$1,699,227	20
ARCADIA HEIGHTS	7	CRIPPLE CREEK	M	$173,331	$270,353	18
JENNIE LIND ADDITION	7	CRIPPLE CREEK	M	$81,998	$707,445	18
OFFICE PARK CONDOS NO. 1	7	WOODLAND PARK	M	$498,686	$498,686	18
COLORADO RANCH SUBDIVISION	6	UNINCORPORATED	M	$1,192,021	$1,973,492	15
HANCOCK SUBDIVISION	6	WOODLAND PARK	M	$1,334,031	$1,565,971	15
MONTROSE ADDITION	6	CRIPPLE CREEK	M	$3,973,462	$4,436,181	15
WARREN TOWNHOMES	6	WOODLAND PARK	M	$581,807	$663,956	15

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
ELM HEIGHTS SUBDIVISION	5	WOODLAND PARK	M	$746,278	$924,424	13
HELLAND SUBDIVISION	5	WOODLAND PARK	M	$1,262,004	$1,504,791	13
STEVENSON'S SUBDIVISION	5	UNINCORPORATED	M	$1,370,817	$1,556,078	13
SUNNY GLEN RETREAT SUBDIVISION	5	WOODLAND PARK	M	$1,794,744	$2,424,540	13
VISTA DE LA PACIENCIA	5	WOODLAND PARK	M	$837,289	$1,035,488	13
CARTER SUBDIVISION NO. 1	4	WOODLAND PARK	M	$346,362	$615,522	10
CEDARWOOD TOWNHOMES SUBDIVISION	4	WOODLAND PARK	M	$310,200	$360,000	10
DAVIS SUBDIVISION	4	WOODLAND PARK	M	$981,155	$1,412,590	10
FOREST EDGE ESTATES	4	WOODLAND PARK	M	$3,176,452	$4,692,302	10
FREDELL SUBDIVISION	4	WOODLAND PARK	M	$814,634	$905,008	10
HACKMAN'S SUBDIVISION	4	WOODLAND PARK	M	$2,855,626	$3,616,083	10
HIGHLAND GROVE INDUSTRIAL PARK	4	UNINCORPORATED	M	$477,629	$1,039,201	10
LEANING TREE SUBDIVISION	4	UNINCORPORATED	M	$837,802	$1,107,503	10
LIGHTNING HILL ESTATES	4	UNINCORPORATED	M	$356,569	$490,091	10
PONDEROSA LODGE	4	WOODLAND PARK	M	$640,134	$840,598	10
SPRUCE HAVEN	4	WOODLAND PARK	M	$338,918	$570,562	10
STATION BLOCK SQUARE	4	UNINCORPORATED	M	$606,607	$988,631	10
SUMMIT VIEW TOWNHOMES SUBDIVISION	4	WOODLAND PARK	M	$454,290	$526,290	10
WOODLAND CREEK SUBDIVISION	4	WOODLAND PARK	M	$349,777	$507,057	10
CEDAR LAKE SUBDIVISION	3	WOODLAND PARK	M	$386,877	$493,432	8
CUNNINGHAM'S SUBDIVISION	3	WOODLAND PARK	M	$339,334	$438,001	8
ORIOLE ADDITION	3	UNINCORPORATED	M	$274,860	$336,124	8
OXFORD SQUARE SUBDIVISION	3	WOODLAND PARK	M	$408,875	$516,708	8
REPLAT BLK 9 BERGSTROM ADD	3	WOODLAND PARK	M	$695,851	$953,776	8
ROBERTS RANCH MINOR SUBDIVISION	3	WOODLAND PARK	M	$999,330	$1,236,501	8
TAMARAC TECH PARK	3	WOODLAND PARK	M	$3,856,009	$5,004,476	8
WORKMAN'S SUBDIVISION	3	WOODLAND PARK	M	$574,178	$743,718	8
BEAUMONT SUBDIVISION REPLAT	2	WOODLAND PARK	M	$257,364	$301,272	5
BIG HORN SUBDIVISION	2	UNINCORPORATED	M	$354,928	$395,685	5
BLACK'S SUBDIVISION	2	UNINCORPORATED	M	$529,050	$592,354	5
BOWMAN SUBDIVISION	2	WOODLAND PARK	M	$257,021	$319,825	5
BRADEN SUBDIVISION	2	WOODLAND PARK	M	$300,163	$385,956	5
BREITENFELD SUBDIVISION	2	WOODLAND PARK	M	$377,676	$438,476	5
BROWN'S SUBDIVISION	2	WOODLAND PARK	M	$254,120	$291,576	5
BURMEISTER SUBDIVISION	2	WOODLAND PARK	M	$283,899	$382,109	5

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
CDC SUBDIVISION	2	WOODLAND PARK	M	$251,091	$313,895	5
CENTENNIAL TRAIL SUB NO 1	2	WOODLAND PARK	M	$224,486	$382,183	5
COCOMISE SUBDIVISION	2	UNINCORPORATED	M	$908,949	$997,172	5
COLEMAN'S SUBDIVISION	2	WOODLAND PARK	M	$168,120	$231,042	5
CORNING SUBDIVISION	2	WOODLAND PARK	M	$111,945	$186,422	5
DEATON SUBDIVISION	2	WOODLAND PARK	M	$255,701	$331,949	5
FISCH - GUERNSEY SUBDIVISION	2	UNINCORPORATED	M	$316,004	$527,070	5
FLETCHER'S SUBDIVISION	2	WOODLAND PARK	M	$378,873	$439,141	5
FOSTER-FAIRVIEW SUBDIVISION	2	WOODLAND PARK	M	$221,466	$351,934	5
GOLDEN EAGLE RIDGE	2	WOODLAND PARK	M	$627,035	$861,369	5
GRACE SUBDIVISION	2	WOODLAND PARK	M	$209,937	$277,932	5
HAVNAER'S SUBDIVISION	2	WOODLAND PARK	M	$590,189	$666,588	5
HEINZE' MINOR SUBDIVISION	2	UNINCORPORATED	M	$503,802	$615,225	5
HENRIETTA SUBDIVISION	2	WOODLAND PARK	M	$305,907	$378,614	5
HIVELY-VON JENEF SUBDIVISION	2	WOODLAND PARK	M	$365,585	$434,834	5
HOOKER SUBDIVISION	2	WOODLAND PARK	M	$401,900	$466,324	5
JACKSON SUBDIVISION	2	WOODLAND PARK	M	$329,405	$446,510	5
JOE DANDY ADDITION	2	CRIPPLE CREEK	M	$142,318	$193,680	5
KINCADE SUBDIVISION	2	UNINCORPORATED	M	$201,790	$464,480	5
L CLIFFORD ADDITION	2	WOODLAND PARK	M	$399,021	$508,451	5
LAUREL SUBDIVISION	2	WOODLAND PARK	M	$287,809	$362,111	5
LAZY AG RANCH	2	UNINCORPORATED	M	$473,995	$603,400	5
LOFTHOUSE WEST	2	WOODLAND PARK	M	$398,383	$472,646	5
MCGILVRAY SUBDIVISION	2	UNINCORPORATED	M	$877,027	$1,015,722	5
MERCER'S SUBDIVISION	2	WOODLAND PARK	M	$253,286	$296,408	5
PONTASKI SUBDIVISION	2	UNINCORPORATED	M	$508,743	$587,392	5
QUICK'S SUBDIVISION	2	WOODLAND PARK	M	$203,095	$288,903	5
RACKLEY SUBDIVISION	2	WOODLAND PARK	M	$264,830	$350,757	5
SMITH-TUBB'S SUBDIVISION	2	WOODLAND PARK	M	$217,090	$294,498	5
SNYDER/DESIANO SUBDIVISION	2	WOODLAND PARK	M	$332,961	$375,613	5
SOUIX TRAIL SUBDIVISION	2	UNINCORPORATED	M	$420,754	$572,165	5
TREECE SUBDIVISION	2	UNINCORPORATED	M	$405,891	$511,347	5
TUBB'S SUBDIVISION	2	WOODLAND PARK	M	$285,610	$368,780	5
VENMAN SUBDIVISION	2	WOODLAND PARK	M	$262,501	$331,933	5
VISTA SUBDIVISION	2	WOODLAND PARK	M	$660,862	$849,836	5
WALNUT SUBDIVISION	2	WOODLAND PARK	M	$344,126	$406,596	5
WATSON SUBDIVISION	2	WOODLAND PARK	M	$650,866	$824,810	5
WEAVER'S SUBDIVISION	2	WOODLAND PARK	M	$207,225	$279,081	5
WOODLAND PARK CHRISTIAN CHURCH SUBDIVISION	2	WOODLAND PARK	M	$852,935	$1,399,034	5
ASPEN GARDEN WAY SUBDIVISION	1	UNINCORPORATED	M	$277,813	$800,293	3

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
CEMETARY	1	WOODLAND PARK	M	$796	$649,805	3
CLARA Y ADDITION	1	CRIPPLE CREEK	M	$67,454	$83,503	3
COUNTRY INN AT TAMARAC CENTER NO. 1	1	WOODLAND PARK	M	$2,278,307	$2,669,405	3
CRYSTOLA STATION INDUSTRIAL PARK	1	UNINCORPORATED	M	$34,317	$258,951	3
DIDIER'S SUBDIVISION	1	WOODLAND PARK	M	$158,201	$189,662	3
ELDORADO SUBDIVISION	1	WOODLAND PARK	M	$119,995	$215,253	3
FAIRVIEW SUBDIVISION	1	WOODLAND PARK	M	$223,004	$249,455	3
FULTON SUBDIVISION	1	UNINCORPORATED	M	$80,324	$101,953	3
GOLDEN TOUCH SUBDIVISION	1	CRIPPLE CREEK	M	$1,944,049	$2,003,057	3
HARBOUR SUBDIVISION	1	WOODLAND PARK	M	$436,380	$530,764	3
HEMMINGS SUBDIVISION	1	WOODLAND PARK	M	$104,875	$278,528	3
IREA - HOLMES SUBDIVISION	1	UNINCORPORATED	M	$158,721	$288,758	3
LORNA LEE SUBDIVISION	1	UNINCORPORATED	M	$389,027	$449,947	3
MD & LK ARRICK SUB	1	CRIPPLE CREEK	M	$103,575	$134,646	3
MILLS SUBDIVISION	1	UNINCORPORATED	M	$181,101	$230,501	3
PARK STATE BANK & TRUST SUBDIVISION	1	WOODLAND PARK	M	$3,086,054	$3,535,507	3
PISGAH PARK	1	UNINCORPORATED	M	$105,446	$122,484	3
RC COMMERCIAL SUBDIVISION	1	WOODLAND PARK	M	$447,101	$687,150	3
RED BIRD ADDITION	1	UNINCORPORATED	M	$265,538	$303,749	3
ROSEBERRY ADDITION	1	CRIPPLE CREEK	M	$91,495	$122,566	3
RULE CREEK SUBDIVISION	1	UNINCORPORATED	M	$330,371	$412,775	3
SHILOH SUBDIVISION	1	CRIPPLE CREEK	M	$146,330	$179,717	3
SILL'S SUBDIVISION	1	UNINCORPORATED	M	$342,697	$376,636	3
TAMARAC RESEARCH & DEVELOPMENT	1	WOODLAND PARK	M	$1,923,634	$2,555,289	3
TAMARAC USPS	1	WOODLAND PARK	M	$1,067,103	$1,322,113	3
TELLER COUNTY ANNEX	1	CRIPPLE CREEK	M	$1,186,141	$1,230,380	3
	2840		**M Total**	$578,512,102	$752,721,876	7270
NORTHWOODS SUBDIVISION	129	WOODLAND PARK	L	$22,663,159	$27,072,875	330
FULLVIEW SUBDIVISION	80	WOODLAND PARK	L	$11,905,259	$13,952,243	205
CRESTWOOD PARK	76	WOODLAND PARK	L	$19,960,496	$22,522,249	195
ARROWHEAD ESTATES	66	WOODLAND PARK	L	$11,225,754	$13,828,132	169
SUNNY GLEN	44	WOODLAND PARK	L	$14,580,127	$19,727,213	113
GRAY HORSE RANCH	41	WOODLAND PARK	L	$11,836,713	$13,507,742	105
COLUMBINE VILLAGE TOWNHOMES FILING NO. 1	36	WOODLAND PARK	L	$4,718,971	$4,924,351	92
ROLLING PARK SUBDIVISION	34	WOODLAND PARK	L	$6,338,342	$7,696,535	87
COLUMBINE VALLEY	33	WOODLAND PARK	L	$5,277,030	$5,766,659	84
ASPENWOOD SUBDIVISION	32	WOODLAND PARK	L	$4,523,178	$5,000,338	82
WOODLAND VALLEY RANCH	30	WOODLAND PARK	L	$10,399,753	$12,387,692	77
TARA VISTA ESTATES	28	WOODLAND PARK	L	$4,294,810	$4,556,190	72

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
MOUNTAIN VIEW PARK	26	WOODLAND PARK	L	$5,713,002	$6,558,367	67
PINE BLUFF ESTATES	25	UNINCORPORATED	L	$4,007,481	$6,343,099	64
UTE PASS TRADING POST	25	UNINCORPORATED	L	$1,443,983	$1,589,494	64
FOREST EDGE TOWNHOMES SUBDIVISION	24	WOODLAND PARK	L	$2,682,274	$2,850,250	61
ALPINE VILLAGE TOWNHOMES	22	WOODLAND PARK	L	$2,479,047	$2,916,436	56
WESTWOOD TOWNHOMES	22	WOODLAND PARK	L	$4,645,600	$4,861,136	56
SUNCREST AT MEADOW PARK	20	UNINCORPORATED	L	$5,643,767	$6,774,651	51
PARADISE LODGE SUBDIVISION	19	WOODLAND PARK	L	$1,817,575	$2,304,558	49
THE VILLAGES AT PARK PLACE FILING NO. 1	18	UNINCORPORATED	L	$1,493,454	$1,505,574	46
DIVIDE RANCHES	17	UNINCORPORATED	L	$4,931,612	$6,269,107	44
EAGLE PINES FILING NO. 1	16	WOODLAND PARK	L	$6,098,182	$7,324,098	41
COLUMBINE RANCH	14	UNINCORPORATED	L	$1,819,677	$2,634,963	36
SCHUTTE'S SUBDIVISION	12	WOODLAND PARK	L	$2,551,857	$3,126,420	31
VALLEY PEAK VILLAGE TOWNHOMES	12	UNINCORPORATED	L	$1,143,144	$1,599,144	31
PINE RIDGE AT MEADOW PARK	11	UNINCORPORATED	L	$3,312,209	$4,593,638	28
SUGAR PINE HEIGHTS	10	UNINCORPORATED	L	$1,916,699	$2,591,015	26
LINDA VISTA SUBDIVISION	9	WOODLAND PARK	L	$1,608,113	$1,902,055	23
APACHE VILLAGE	8	UNINCORPORATED	L	$1,286,269	$1,342,245	20
GOLD NUGGET ADDITION	8	WOODLAND PARK	L	$1,349,882	$1,607,904	20
PACESETTER P.U.D. SUBDIVISION	8	WOODLAND PARK	L	$1,581,488	$1,781,103	20
PAGE'S SUBDIVISION	8	WOODLAND PARK	L	$5,390,792	$7,078,326	20
BERGSTROM ADDTION	7	WOODLAND PARK	L	$1,308,692	$1,963,972	18
RED MOUNTAIN SUBDIVISION	7	WOODLAND PARK	L	$2,449,761	$2,745,307	18
OLD BUFFALO SUBDIVISION	6	UNINCORPORATED	L	$2,513,335	$4,217,934	15
FAIRWOOD SUBDIVISION	5	WOODLAND PARK	L	$663,139	$761,977	13
SPRUCE RIDGE AT MEADOW PARK FILING NO. 1	5	UNINCORPORATED	L	$653,072	$746,372	13
JAMESTOWN SQUARE	4	WOODLAND PARK	L	$430,366	$459,174	10
APACHE TRAIL SUBDIVISION	3	UNINCORPORATED	L	$1,740,974	$1,893,522	8
CAREY SUBDIVISION	3	WOODLAND PARK	L	$1,643,979	$2,185,027	8
CREEKSIDE ESTATES	3	UNINCORPORATED	L	$1,087,948	$1,100,460	8
GREENWAY SUBDIVISION	3	WOODLAND PARK	L	$633,393	$723,958	8
GROSS ADDITION TO DIVIDE	3	UNINCORPORATED	L	$472,529	$845,178	8
CROW'S SUBDIVISION	2	UNINCORPORATED	L	$395,522	$562,360	5
HAROLD SMITH'S SUBDIVISION	2	UNINCORPORATED	L	$333,122	$416,963	5
TREGO'S SUBDIVISION	2	UNINCORPORATED	L	$448,074	$644,382	5

Subdivision	Number of Structures	City Name	Hazard Rating*	Improved Value	Actual Value	Population Estimate
CLARK & MIDDLETON SUBDIVISION	1	UNINCORPORATED	L	$80,569	$243,479	3
DIVIDE REGIONAL PARK	1	UNINCORPORATED	L	$58,177	$151,172	3
HIGHLAND OF DIVIDE NO. 2	1	UNINCORPORATED	L	$279,770	$435,628	3
LASLEY'S SUBDIVISION	1	UNINCORPORATED	L	$67,571	$423,511	3
PARK PLACE AT MEADOW PARK FILING NO. 1	1	UNINCORPORATED	L	$135,004	$318,740	3
PEAK SUBDIVISION	1	WOODLAND PARK	L	$513,397	$564,545	3
TELLER COUNTY JAIL	1	UNINCORPORATED	L	$3,914,800	$4,448,602	3
WHISTLE STOP SUBDIVISION	1	UNINCORPORATED	L	$50,421	$282,923	3
ZENOBIA CENTER	1	UNINCORPORATED	L	$71,409	$93,797	3
Unnamed/Not Rated 4	1508	UNINCORPORATED		$299,092,337	$434,219,231	3860
Unnamed/Not Rated 3	77	WOODLAND PARK		$65,665,041	$79,688,600	197
Unnamed/Not Rated 2	30	GREEN MOUNTAIN		$3,886,491	$5,151,026	77
Unnamed/Not Rated 1	4	CRIPPLE CREEK		$3,668,010	$4,004,498	10
	2646		**L Total**	$582,896,602	$777,788,140	6774
	12373		**Grand Total**	$2,343,039,615	$2,993,723,298	31675

* E= Extreme, S= Severe, H= High, M= Moderate, L=Low

APPENDIX F: REFERENCES

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