

FINAL  
Park County Multi-Jurisdictional  
Hazard Mitigation Plan  
2020 Update

August 2020



Prepared for:



Park County Office  
of Emergency  
Management

Prepared by:



ecology and  
environment, inc.  
Member of WSP

**Park County**  
**Hazard Mitigation Plan Update**

August 2020



**FEMA**

R8-MT

October 9, 2020

Park County Commissioners  
P.O. Box 1373  
Fairplay, Colorado 80424

Dear Park County Commissioners:

We are pleased to announce the approval of the Park County Multi-Jurisdictional Hazard Mitigation Plan as meeting the requirements of the Stafford Act and Title 44 Code of Federal Regulations 201.6 for a local hazard mitigation plan. The plan approval extends to Park County, the Town of Fairplay, and the Districts of Platte Canyon Fire Protection, North-West Fire Protection, Lake George Fire Protection, and the South Park Ambulance District.

The jurisdictions are hereby eligible for FEMA Hazard Mitigation Assistance grant programs. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular programs under which the application is submitted. Approved mitigation plans may be eligible for points under the National Flood Insurance Program Community Rating System.

The plan is approved through October 8, 2025. A local jurisdiction must revise its plan and resubmit it for approval within five years to continue to be eligible for mitigation project grant funding. We have provided recommendations for the next plan update on the enclosed Plan Review Tool.

We wish to thank the jurisdictions for participating in the process and commend your continued commitment to mitigation planning. Please contact Steve Board, State Hazard Mitigation Officer, Colorado Department of Emergency Services, at [steven.board@state.co.us](mailto:steven.board@state.co.us) or (303) 915-6063 with any questions on the plan approval or mitigation grant programs.

Sincerely,

A handwritten signature in cursive script that reads "Jeanine D. Petterson".

Jeanine D. Petterson  
Mitigation Division Director

Enclosure

cc: Steve Board, State Hazard Mitigation Officer, Colorado Department of Homeland Security and Emergency Management

## LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA’s evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan’s strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

<b>Jurisdiction:</b> Park County, CO	<b>Title of Plan:</b> Park County Multi-Jurisdictional Hazard Mitigation Plan, 2020 Update	<b>Date of Plan:</b> June 2020
<b>Local Point of Contact:</b> Brad Golden	<b>Address:</b> 911 Clark Street Fairplay, CO 80440	<b>E-Mail:</b> bgolden@parkco.us
<b>Title:</b> Deputy Director of Emergency Management		
<b>Agency:</b> Park County Office of Emergency Management		
<b>Phone Number:</b> (719) 836-4372		
<b>State Reviewer:</b> Patricia L. Gavelda  Mark W. Thompson	<b>Title:</b> DHSEM Local Hazard Mitigation Planning Program Manager; Mitigation Planning Specialist	<b>Date:</b> 7/7/2020; 8/24/2020

<b>FEMA Reviewer:</b> Logan Sand, IR Nicole Aimone, QC	<b>Title:</b> Community Planner Senior Community Planner	<b>Date:</b> 8/26/2020 8/27/2020
<b>Date Received in FEMA Region VIII</b>	8/24/2020	
<b>Plan Not Approved</b>		
<b>Plan Approvable Pending Adoption</b>	8/27/2020	
<b>Plan Approved</b>	10/9/2020	

**SECTION 1:  
MULTI-JURISDICTION SUMMARY SHEET**

MULTI-JURISDICTION SUMMARY SHEET									
#	Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Email	Requirements Met (Y/N)				
					A. Planning Process	B. HIRA	C. Mitigation Strategy	D. Update Rqmts.	E. Adoption Resolution
1	Park	County	Brad Golden	<a href="mailto:bgolden@parkco.us">bgolden@parkco.us</a>	Y	Y	Y	Y	Y
2	Fairplay	Town	Bo Schlunsen	<a href="mailto:bschlunsen@fairplay.co.us">bschlunsen@fairplay.co.us</a>	Y	Y	Y	Y	Y
3	Platte Canyon	Fire Protection District (FPD)	Joe Burgett	<a href="mailto:pcfpdchief@gmail.com">pcfpdchief@gmail.com</a>	Y	Y	Y	Y	Y
4	North-West	FPD	Nik Varma	<a href="mailto:nvarma@nwfpd.org">nvarma@nwfpd.org</a>	Y	Y	Y	Y	Y
5	Lake George	FPD	Susan Bernstetter	<a href="mailto:susan@lakegeorgefire.com">susan@lakegeorgefire.com</a>	Y	Y	Y	Y	Y
6	South Park	Ambulance District	Paul Mattson	<a href="mailto:chief@southparkambulance.com">chief@southparkambulance.com</a>	Y	Y	Y	Y	Y

**SECTION 2:  
REGULATION CHECKLIST**

<b>REGULATION CHECKLIST</b>		<b>Location in Plan</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>		<b>(section and/or</b>		
<b>ELEMENT A. PLANNING PROCESS</b>				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Basic Plan Sections 2.1 – 2.6; Appendix B; Jurisdictional Annexes Section 1.1		X	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §)	Basic Plan Section 2.5; Appendix B		X	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Basic Plan Section 2.5; Appendix B		X	
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Basic Plan Section 4.13.7		X	
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Basic Plan Section 16.2.5		X	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Basic Plan Sections 16.2.3 and 16.2.4		X	
<b><u>ELEMENT A: REQUIRED REVISIONS:</u></b>				
<b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Basic Plan Chapters 5 – 14; Jurisdictional Annexes Chapter 3		X	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Basic Plan Chapters 5 – 14; Jurisdictional Annexes Chapter 3		X	
B3. Is there a description of each identified hazard’s impact on the community as well as an overall summary of the community’s vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Basic Plan Chapters 5 – 14; Jurisdictional Annexes Chapter 3		X	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Basic Plan Section 4.13.4; Fairplay Jurisdictional Annex Section 4.4		X	

<b>REGULATION CHECKLIST</b>		<b>Location in Plan</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>		<b>(section and/or</b>		
<b>ELEMENT C. MITIGATION STRATEGY</b>				
C1. Does the plan document each jurisdiction’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Basic Plan Sections 4.13.1 – 4.13.3, 4.13.7, 16.2.6; Jurisdictional Annexes Chapter 4		X	
C2. Does the Plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Basic Plan Section 4.13.5; Fairplay Jurisdictional Annex Section 4.4		X	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Basic Plan Section 15.2		X	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Basic Plan Section 15.4; Appendix F; Jurisdictional Annexes Chapter 5		X	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Basic Plan Sections 15.3, 16.2.1 – 16.2.3		X	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Basic Plan Sections 4.13.7 and 16.2.6; Jurisdictional Annexes Section 4.5		X	
<b><u>ELEMENT C: REQUIRED REVISIONS:</u></b>				
<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b>				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Basic Plan Section 4.12; Basic Plan Hazard Profiles; Jurisdictional Annexes Section 3.5		X	
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Basic Plan Section 15.4; Appendix F		X	
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Basic Plan Section 15.2		X	

<b>REGULATION CHECKLIST</b>		<b>Location in Plan</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>		<b>(section and/or</b>		
<b><u>ELEMENT D: REQUIRED REVISIONS</u></b>				
<b>ELEMENT E. PLAN ADOPTION</b>				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))				N/A
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Basic Plan Front Matter; Appendix E; Jurisdictional Annexes Section 1.2		X	
<b><u>ELEMENT E: REQUIRED REVISIONS</u></b>				
<b>OPTIONAL: HIGH HAZARD POTENTIAL DAM RISKS</b>				
HHPD1. Did Element A4 (planning process) describe the incorporation of existing plans, studies, reports, and technical information for high hazard potential dams?	Basic Plan Chapter 10		Y	
HHPD2. Did Element B3 (risk assessment) address HHPDs?	Basic Plan Chapter 10; Fairplay Jurisdictional Annex Section 3.3.5		Y	
HHPD3. Did Element C3 (mitigation goals) include mitigation goals to reduce long-term vulnerabilities from high hazard potential dams that pose an unacceptable risk to the public?	Basic Plan Section 15.2		Y	
HHPD4. Did Element C4-C5 (mitigation actions) address HHPDs prioritize mitigation actions to reduce vulnerabilities from high hazard potential dams that pose an unacceptable risk to the public?	Basic Plan Chapter 15; Table 15-6; Action DF-2		Y	
<b><u>REQUIRED REVISIONS</u></b>				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1.				
F2.				
<b><u>ELEMENT F: REQUIRED REVISIONS</u></b>				

## SECTION 3: PLAN ASSESSMENT

### A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

#### Element A: Planning Process

##### Strengths

**DHSEM:** Park County was one of the first counties in the state to maintain progress with its HMP update as the COVID-19 disaster developed. That is a tribute to the community and its commitment to hazard mitigation and risk reduction. This also meant that Park County was one of the first communities to conduct a significant portion of the process virtually, which created some best practices that DHSEM has shared.

##### FEMA

- FEMA concurs with the State and commends the County and the jurisdictions, especially the new participants of Lake George FPD and the South Park Ambulance District. This was a uniquely impressive planning effort given the evolving challenges of the COVID-19 environment. Great job pivoting to a virtual planning process, and for staying adaptable, flexible, and committed to hazard mitigation and risk reduction.
- The plan included excellent supporting documentation and notes captured from the HMC meetings and workshops, which enriches the plan content. It was interesting to see the consistencies and differences between submitted “Local Mitigation Capabilities Tracker for Local and State Plan Updates” (Appendix B) tables.
- It was great to see 140 respondents participate in the community survey, with a majority them being local residents. The public responses are always helpful to understanding key issues, data, and perspectives, such as the indication that 90% of residents live outside of designated floodplain or flood zone. Residents are also very proactive in taking action to mitigate their own properties/businesses, especially when it comes to wildfire. It was especially noteworthy to see the survey identify 63 mitigation actions from respondents.

##### Opportunities for Improvement

##### FEMA

- It is strongly recommended that the next plan update clearly document *how* existing plans, studies, reports, and technical information is incorporated (Local Mitigation Plan Review Guide, Element A4 (b)). Section 4.13.7 of this plan lists community partners, and the following section 4.13.8 discusses ideas to integrate the mitigation plan into existing plans. However, it is unclear *how* relevant information from these existing plans is incorporated into this mitigation plan. In the next plan update, it may make sense to expand Table 4-14 Existing Plans to include narrative about what information from each document was incorporated into the mitigation plan, and where that information may be generally found.

Also, consider building the table out to include other relevant programs, policies, documents, etc. For example, how and where could the reader find information about municipal codes, or water-efficiency guidelines?

- The next plan update should clearly identify the stakeholders given an opportunity to be involved in the planning process. This includes local/regional entities, agencies that have the authority to regulate development (e.g., administration, building and planning, public works, Town Board, or Board of County Commissioners, etc.), and neighboring communities. Information can be found throughout the supporting materials of Appendix B.; however, it is generally hard to piece together as a holistic picture. In the next plan update, it's strongly encouraged to include this information as a table, list, or narrative within the planning process chapter (i.e., Chapter 2.5 of this plan).
- It is understood that COVID-19 made in-person meetings incredibly hard to conduct, and that there was a mid-planning process pivot for this effort. It was unfortunate, yet understandable under the circumstances that only 3 people from the public participated in the webinar to learn more about the planning process and draft HMP. In addition, no comments were received from members of the public or other plan stakeholders outside of the plan workshops. In the next plan update continue to build on ongoing engagement efforts. Consider leveraging virtual planning commission and/or City/town council meetings to engage residents on the planning process and the draft(s).

## **Element B: Hazard Identification and Risk Assessment**

### **Strengths**

**DHSEM:** This HIRA is admirably succinct and informative. It has enough information to be useful without overwhelming readers with technical information.

### **FEMA**

- The HIRA is concise, insightful, and includes many informative maps and graphics. Supplemental information can also be found in the jurisdictional annexes. This a great place to put specific HIRA information for each participating jurisdiction that can often make the main plan body lengthy.
- Under the evolving public health crisis circumstances, it was impressive to see the capture and inclusion of pandemic information. Moving forward, it may be beneficial to capture some of the fiscal and economic recovery issues in the profile that may impact communities, public services, or mitigation projects.

### **Opportunities for Improvement**

**DHSEM:** The dam failure exposure and vulnerability in this plan is not as detailed as real analysis can be but that is due to information restrictions from dam owners. The Colorado Office of Dam Safety is working to make that information more publicly available and the next plan update should incorporate it.

### **FEMA**

- It was great to see the “Issues” section for each hazard profile (excluding earthquakes). In the future, continue to include, build, and refine the issue/problem statements. For example, one of the drought-related issues states “Identification and development of alternative water supplies”. Is the issue that the County needs to do this, or, is there an actual issue with identifying (e.g., the location, project type and capacity, etc.) and developing new water supplies? Most of the issue/problem statements are very thoughtful and complete, however a few of them just need a little more rounding out to help the reader understand what exactly the issue is.
- In the next plan, within the drought hazard profile consider comparing maps from different times of the year to show and more comprehensive sampling of State/County drought conditions. For example, Figure 5-1 shows Park County in March 2020, with no drought conditions. Virtually all the profile maps depict State and County drought conditions between from February 2020 – May 2020 (May is one of the wettest months of the year). Unfortunately, drought tends to be the most intense from June-September, which also coincides with the most intense months of the wildfire season. Including some maps from other months would further support the drought risk and concerns for the region. The U.S. Drought Monitor has a month comparison feature, found here: <https://droughtmonitor.unl.edu/Maps/CompareTwoWeeks.aspx>

## **Element C: Mitigation Strategy**

### **Strengths**

**DHSEM:** The mitigation strategy in the previous plan wasn’t organized well, was hard to follow, and was cluttered with a lot of non-mitigation actions. This planning process has created a better strategy that focuses on the actions that matter to the community.

### **FEMA**

- Excellent to see the descriptions of mitigation actions were expanded to identify the support of FEMA lifelines and State Resiliency Prioritization Criteria. The lifelines and resiliency prioritization criteria are tools FEMA and the Colorado. Division of Homeland Security and Emergency Management are using to prioritize hazard mitigation projects and ensure that these projects and actions are meeting critical community needs. The overall methodology for evaluating and prioritizing mitigation actions was excellent – well done!

### **Opportunities for Improvement**

### **FEMA**

- It was great to read municipal planning partners are committed to creating a linkage between the HMP and their individual comprehensive plans by identifying a mitigation initiative as such and giving that initiative a high priority. Section 4.13.8 identifies existing plans and some high-level ideas to integrate mitigation content. In addition, section 16.2.6 includes a list of local processes and programs to coordinate mitigation integration with moving forward. It will be great to see the results of integration with these processes, plans, and programs in future updates. In the next plan update, please consider including some tangible intervention points (i.e., points in their respective project timelines) that mitigation can incorporated into project conversations. Are there Town Board/Board of County

Commissioner meetings that would be appropriate to discuss concrete processes to integrate mitigation?

- Great to see additional participation from the South Park Ambulance District. While the South Park Ambulance District did develop a mitigation action, there is an expectation that plan approval-seeking jurisdictions usually have a more robust set of mitigation actions. In the next plan update, it may make more sense for the South Park Ambulance District to actively participate as stakeholder rather than seek plan approval.

## **Element D: Plan Review, Evaluation, and Implementation (Plan Updates Only)**

### **Strengths**

#### **FEMA**

- The Community Profile is comprehensive, yet succinct, and includes helpful visuals to break up text. One small consideration for the next plan update would be to add percentage information for pie charts, either in the legend or chart itself. (see Fig 4-10 as an example).

### **Opportunities for Improvement**

#### **FEMA**

In the next plan update, consider providing some insight into local government fiscal stability and economic outlook. Are sales and property tax collections increasing, or decreasing? What are the implications to local budget planning, and services (e.g., fire districts, schools, etc.) or projects impacted?

## **B. Resources for Implementing Your Approved Plan**

### **FEMA FUNDING SOURCES**

**Hazard Mitigation Grant Program (HMGP).** The HMGP is a post-disaster mitigation program. It is made available to states by FEMA after each Federal disaster declaration. The HMGP can provide up to 75 percent funding for hazard mitigation measures. The HMGP can be used to fund cost-effective projects that will protect public or private property in an area covered by a federal disaster declaration or that will reduce the likely damage from future disasters. Examples of projects include acquisition and demolition of structures in hazard prone areas, flood-proofing or elevation to reduce future damage, minor structural improvements and development of state or local standards. Applicants who are eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that perform essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for the HMGP; a local government must apply on their behalf. Applications are submitted to Montana DES and placed in rank order for available funding and submitted to FEMA for final approval. Eligible projects not selected for funding are placed in an inactive status and may be considered as additional HMGP funding becomes available. More information: <https://www.fema.gov/hazard-mitigation-grant-program>

**Building Resilient Infrastructure and Communities (BRIC) Program.** The BRIC program supports states, local communities, tribes and territories as they undertake hazard mitigation projects,

reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program. The BRIC program guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency:

<https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>

**Flood Mitigation Assistance (FMA) Program.** FMA provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The FMA is funded annually; no federal disaster declaration is required. Only NFIP insured homes and businesses are eligible for mitigation in this program. Funding for FMA is very limited and, as with the HMGP, individuals cannot apply directly for the program. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is 75 percent. At least 25 percent of the total eligible costs must be provided by a non-federal source. Of this 25 percent, no more than half can be provided as in-kind contributions from third parties. FMA funds are distributed from FEMA to the state. Montana DES serves as the grantee and program administrator for FMA. More information: <https://www.fema.gov/flood-mitigation-assistance-grant-program>

**Rehabilitation of High Hazard Potential Dams (HHPD) Grant Program.** This program provides technical, planning, design, and construction assistance in the form of grants for rehabilitation of eligible high hazard potential dams. For more information, please visit:

<https://www.fema.gov/emergency-managers/risk-management/dam-safety/grants#hhpd>

**Fire Management Assistance Grant (FMAG) Program.** The FMAG program provides grants to states, tribal governments and local governments for the mitigation, management and control of any fire burning on publicly (non-federal) or privately owned forest or grassland that threatens such destruction as would constitute a major disaster. The grants are made in the form of cost sharing with the federal share being 75 percent of total eligible costs. Grant approvals are made within 1 to 72 hours from time of request. More information: <http://www.fema.gov/fire-management-assistance-grant-program>

**Fire Prevention and Safety (FP&S) Grants.** FP&S Grants support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal is to target high-risk populations and reduce injury and prevent death. Eligibility includes fire departments, national, regional, state, and local organizations, Native American tribal organizations, and/or community organizations recognized for their experience and expertise in fire prevention and safety programs and activities. Private non-profit and public organizations are also eligible. Interested applicants are advised to check the website periodically for announcements of grant availability:

<https://www.fema.gov/welcome-assistance-firefighters-grant-program>

## **OTHER MITIGATION FUNDING SOURCES**

Grant funding is available from a variety of federal and state agencies for training, equipment, and hazard mitigation activities. Several of these programs are described below.

**Program 15.228: Wildland Urban Interface Community and Rural Fire Assistance.** [This program](#) is designed to implement the National Fire Plan and assist communities at risk from catastrophic wildland fires. The program provides grants, technical assistance, and training for community programs that develop local capability, including: Assessment and planning, mitigation activities, and community and homeowner education and action; hazardous fuels reduction activities, including the training, monitoring or maintenance associated with such hazardous fuels reduction activities, on federal land, or on adjacent nonfederal land for activities that mitigate the threat of catastrophic fire to communities and natural resources in high risk areas; and, enhancement of knowledge and fire protection capability of rural fire districts through assistance in education and training, protective clothing and equipment purchase, and mitigation methods on a cost share basis.

**Secure Rural Schools and Community Self-Determination Act - Title III- County Funds.** The Self-Determination Act has recently been reauthorized and now includes specific language regarding the Firewise Communities program. Counties seeking funding under Title III must use the funds to perform work under the Firewise Communities program. Counties applying for Title III funds to implement Firewise activities can assist in all aspects of a community's recognition process, including conducting or assisting with community assessments, helping the community create an action plan, assisting with an annual Firewise Day, assisting with local wildfire mitigation projects, and communicating with the state liaison and the national program to ensure a smooth application process. Counties that previously used Title III funds for other wildfire preparation activities such as the Fire Safe Councils or similar would be able to carry out many of the same activities as they had before. However, with the new language, counties would be required to show that funds used for these activities were carried out under the Firewise Communities program. More information: [http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9\\_AI8zPwhQoY6BdkOyoCAPkATIA!/?ss=119985&navtype=BROWSEBYSUBJECT&cid=FSE\\_003853&navid=0910000000000000&pnavid=null&position=BROWSEBYSUBJECT&ttype=main&pname=Secure%20Rural%20Schools-%20Home](http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9_AI8zPwhQoY6BdkOyoCAPkATIA!/?ss=119985&navtype=BROWSEBYSUBJECT&cid=FSE_003853&navid=0910000000000000&pnavid=null&position=BROWSEBYSUBJECT&ttype=main&pname=Secure%20Rural%20Schools-%20Home)

**Community Planning Assistance for Wildfire.** Established in 2015 by Headwaters Economics and Wildfire Planning International, Community Planning Assistance for Wildfire (CPAW) works with communities to reduce wildfire risks through improved land use planning. CPAW is a grant-funded program providing communities with professional assistance from foresters, planners, economists and wildfire risk modelers to integrate wildfire mitigation into the development planning process. All services and recommendations are site-specific and come at no cost to the community. More information: <http://planningforwildfire.org/what-we-do/>

**Urban and Community Forestry (UCF) Program.** A cooperative program of the U.S. Forest Service that focuses on the stewardship of urban natural resources. With 80 percent of the nation's population in urban areas, there are strong environmental, social, and economic cases to be made for the conservation of green spaces to guide growth and revitalize city centers and older suburbs. UCF responds to the needs of urban areas by maintaining, restoring, and improving urban forest

ecosystems on more than 70 million acres. Through these efforts the program encourages and promotes the creation of healthier, more livable urban environments across the nation. These grant programs are focused on issues and landscapes of national importance and prioritized through state and regional assessments. Information: <http://www.fs.fed.us/managing-land/urban-forests/ucf>

**Western Wildland Urban Interface Grants.** The National Fire Plan (NFP) is a long-term strategy for reducing the effects of catastrophic wildfires throughout the nation. The Division of Forestry's NFP Program is implemented within the Division's Fire and Aviation Program through the existing USDA Forest Service, State & Private Forestry, State Fire Assistance Program.

Congress has provided increased funding assistance to states through the U.S. Forest Service State and Private Forestry programs since 2001. The focus of much of this additional funding was mitigating risk in WUI areas. In the West, the State Fire Assistance funding is available and awarded through a competitive process with emphasis on hazard fuel reduction, information and education, and community and homeowner action. This portion of the National Fire Plan was developed to assist interface communities manage the unique hazards they find around them. Long-term solutions to interface challenges require informing and educating people who live in these areas about what they and their local organizations can do to mitigate these hazards.

The 10-Year Comprehensive Strategy focuses on assisting people and communities in the WUI to moderate the threat of catastrophic fire through the four broad goals of improving prevention and suppression, reducing hazardous fuels, restoring fire-adapted ecosystems, and promoting community assistance. The Western States Wildland Urban Interface Grant may be used to apply for financial assistance towards hazardous fuels and educational projects within the four goals of: improved prevention, reduction of hazardous fuels, and restoration of fire-adapted ecosystems and promotion of community assistance. More information: <https://www.westernforesters.org/sites/default/files/2017-WUI-Applications-Instructions-and-Criteria-CLEAN-COPY-002b.pdf>

**U.S. Fish & Wildlife Service, Rural Fire Assistance Grants.** Each year, the U.S. Fish & Wildlife Service (FWS) provides Rural Fire Assistance (RFA) grants to neighboring community fire departments to enhance local wildfire protection, purchase equipment, and train volunteer firefighters. Service fire staff also assist directly with community projects. These efforts reduce the risk to human life and better permit FWS firefighters to interact and work with community fire organizations when fighting wildfires. The Department of the Interior (DOI) receives an appropriated budget each year for an RFA grant program. The maximum award per grant is \$20,000. The [DOI assistance program](#) targets rural and volunteer fire departments that routinely help fight fire on or near DOI lands. More information: [http://www.fws.gov/fire/living\\_with\\_fire/rural\\_fire\\_assistance.shtml](http://www.fws.gov/fire/living_with_fire/rural_fire_assistance.shtml)

**U.S. Bureau of Land Management, Community Assistance Program.** BLM provides funds to communities through assistance agreements to complete mitigation projects, education and planning within the WUI. More information: [http://www.blm.gov/nifc/st/en/prog/fire/community\\_assistance.html](http://www.blm.gov/nifc/st/en/prog/fire/community_assistance.html)

**Fire Management Assistance Program.** This program is authorized under Section 420 of the Stafford Act. It allows for the mitigation, management, and control of fires burning on publicly or

privately owned forest or grasslands that threaten destruction that would constitute a major disaster.

**NOAA Office of Education Grants.** The Office of Education supports formal, informal and non-formal education projects and programs through competitively awarded grants and cooperative agreements to a variety of educational institutions and organizations in the United States. More information: <http://www.noaa.gov/office-education/grants>

**NRCS Environmental Quality Incentives Program (EQIP).** The Environmental Quality Incentives Program, administered through the NRCS, is a cost-share program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. Owners of land in agricultural or forest production or persons who are engaged in livestock, agricultural or forest production on eligible land and that have a natural resource concern on that land may apply to participate in EQIP. Eligible land includes cropland, rangeland, pastureland, non-industrial private forestland and other farm or ranch lands. EQUIP is another funding mechanism for landowner fuel reduction projects. More information: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>

**U.S. Department of Agriculture, Community Facilities Loans and Grants.** Provides grants (and loans) to cities, counties, states and other public entities to improve community facilities for essential services to rural residents. Projects can include fire and rescue services; funds have been provided to purchase fire-fighting equipment for rural areas. No match is required. More information: [http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS\\_LOANS](http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS_LOANS)

**General Services Administration, Sale of Federal Surplus Personal Property.** This program sells property no longer needed by the federal government. The program provides individuals, businesses and organizations the opportunity to enter competitive bids for purchase of a wide variety of personal property and equipment. Normally, there are no restrictions on the property purchased. More information: <http://www.gsa.gov/portal/category/21045>

**Hazardous Materials Emergency Preparedness Grants.** Grant funds are passed through to local emergency management offices and HazMat teams having functional and active LEPC groups. More information: <http://www.phmsa.dot.gov/hazmat/grants>

**U.S. Department of Homeland Security.** Enhances the ability of states, local and tribal jurisdictions, and other regional authorities in the preparation, prevention, and response to terrorist attacks and other disasters, by distributing grant funds. Localities can use grants for planning, equipment, training and exercise needs. These grants include, but are not limited to areas of Critical Infrastructure Protection Equipment and Training for First Responders, and [Homeland Security Grants](#). More information: <http://www.dhs.gov/>

**Community Development Block Grants (CDBG).** The U.S. Department of Commerce administers the CDBG program which are intended to provide low and moderate-income households with viable communities, including decent housing, as suitable living environment, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and

infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, planning, and administration. Public improvements may include flood and drainage improvements. In limited instances, and during the times of “urgent need” (e.g. post disaster) as defined by the CDBG National Objectives, CDBG funding may be used to acquire a property located in a floodplain that was severely damaged by a recent flood, demolish a structure severely damaged by an earthquake, or repair a public facility severely damaged by a hazard event. CDBG funds can be used to match FEMA grants. More Information:

<http://www.hud.gov/offices/cpd/communitydevelopment/programs/>

**Volunteer Fire Assistance Program Grants.** The purpose of these grants is to organize, train and equip local firefighters to prevent and suppress wildfires. Communities under 10,000 in population are eligible for the funding. Smaller communities may join together in a group and or county effort to submit an application, even if their combined population is over 10,000. There is no pre-set award amount. Financial assistance on any project, during any fiscal year, requires a non-federal match for project expenditures. More information: <http://dnrc.mt.gov/grants-and-loans>

**Conservation District Grants.** This program provide funds to increase conservation district employee's hours to assist in planning, securing funding, and implementing programs that improve public outreach, improve conservation district administrative capabilities, and implement conservation plans. There is a \$10,000 award amount. More information:

<http://dnrc.mt.gov/grants-and-loans>

**Hazardous Fuel Reduction Grants.** These grants are for hazardous fuel reduction on private lands to protect communities adjacent to National Forest System Lands where prescribed fire activities are planned. Prescribed fire activities must be imminent (to take place within 3 years of the award). Non-profit organizations, conservation districts, county and municipal governments, fire departments are eligible for this funding. Award amounts typically range from \$50,000 to \$100,000 depending upon availability of funding. More information: <http://dnrc.mt.gov/grants-and-loans>

**Renewable Resource Grant Program.** Administered by the Montana DNRC, this program provides both grant and loan funding for public facility and other renewable resource projects. Projects that conserve, manage, develop or protect Montana's renewable resources are eligible for funding. Numerous public facility projects including drinking water, wastewater and solid waste development and improvement projects have received funding through this program. Other projects that have been funded include irrigation rehabilitation, dam repair, soil and water conservation and forest enhancement. More information: <http://dnrc.mt.gov/grants-and-loans>

**Building Blocks for Sustainable Communities.** The EPA Office of Sustainable Communities sometimes offers grants to support activities that improve the quality of development and protect human health and the environment. When these grants are offered, they will always be announced on [www.grants.gov](http://www.grants.gov). More information: <https://www.epa.gov/smartgrowth/building-blocks-sustainable-communities#2016>

## **OTHER RESOURCES**

**FEMA: Grant Application Training.** Each year, FEMA partners with the State on training courses designed to help communities be more successful in their applications for grants. Contact your State Hazard Mitigation Officer for course offering schedules. Example Courses:

- Unified Hazard Mitigation Grant Assistance Application Development Course
- [Benefit Cost Analysis \(BCA\)](#) Course

**FEMA: Community Assistance Visit.** It may be appropriate to set up a Community Assistance Visit with FEMA to provide technical assistance to communities in the review and/or updating of their floodplain ordinances to meet the new model ordinance. Consider contacting your State NFIP Coordinator for more information.

**FEMA: Building Science.** The Building Science branch develops and produces multi-hazard mitigation publications, guidance materials, tools, technical bulletins, and recovery advisories that incorporate the most up-to-date building codes, floodproofing requirements, seismic design standards, and wind design requirements for new construction and the repair of existing buildings. To learn more, visit: <https://www.fema.gov/building-science>

**EPA: Smart Growth in Small Towns and Rural Communities.** EPA has consolidated resources just for small towns and rural communities to help them achieve their goals for growth and development while maintaining their distinctive rural character. To learn more, visit: <https://www.epa.gov/smartgrowth/smart-growth-small-towns-and-rural-communities>

**EPA: Hazard Mitigation for Natural Disasters: A Starter Guide for Water and Wastewater Utilities.** The EPA released guidance on how to mitigate natural disasters specifically for water and wastewater utilities. For more information, visit: <https://www.epa.gov/waterutilityresponse/hazard-mitigation-natural-disasters>

**National Integrated Drought Information System.** The National Drought Resilience Partnership may provide some additional resources and ideas to mitigate drought hazards and increase awareness of droughts. Visit: <https://www.drought.gov/drought/what-nidis/national-drought-resilience-partnership>.

**STAR Community Rating System.** Consider measuring your mitigation success by participating in the STAR Community Rating System. Local leaders can use the STAR Community Rating System to assess how sustainable they are, set goals for moving ahead and measure progress along the way. To get started, go to <http://www.starcommunities.org/get-started>

**Flood Economics.** The Economist Intelligence Unit analyzed case studies and state-level mitigation data in order to gain a better understanding of the economic imperatives for investment in flood mitigation. To learn more, visit: <http://floodeconomics.com/>

**Headwaters Economics.** Headwaters Economics is an independent, nonprofit research group that works to improve community development and land management decisions in the West. To learn more, visit: <https://headwaterseconomics.org/>

# HAZARD MITIGATION PLAN UPDATE

August 2020

*Prepared for:*

Park County Office of Emergency Management  
911 Clark Street  
Fairplay, CO 80440

*Prepared by:*

ECOLOGY AND ENVIRONMENT, INC., MEMBER OF WSP  
5665 Flatiron Parkway, Suite 250  
Boulder, CO 80301



# Hazard Mitigation Plan Update

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>PART 1– THE PLANNING PROCESS</b>	
<b>CHAPTER 1 INTRODUCTION TO THE PLANNING PROCESS .....</b>	<b>1-1</b>
1.1 WHY PREPARE THIS PLAN?.....	1-1
1.1.1 The Big Picture.....	1-1
1.1.2 Regulatory Authority.....	1-2
1.1.3 Purposes for Planning .....	1-2
1.1.4 Why Update?.....	1-2
1.2 WHO WILL BENEFIT FROM THIS PLAN?.....	1-3
1.3 HOW TO USE THIS PLAN .....	1-3
1.4 CHANGES IN THE 2020 UPDATE.....	1-3
<b>CHAPTER 2 PLANNING PROCESS.....</b>	<b>2-1</b>
2.1 PLANNING AREA.....	2-1
2.2 Data Collection and Incorporation of Existing Plans .....	2-1
2.2.1 2015 Park County Hazard Mitigation Plan.....	2-2
2.2.2 Integration of Geographic Information Systems Data.....	2-2
2.3 Coordination with Other Planning Efforts.....	2-2
2.4 Mitigation Planning Committee.....	2-2
2.4.1 HMC Members.....	2-2
2.4.2 HMC Meetings .....	2-2
2.5 Inclusive Outreach and Public Engagement .....	2-4
2.5.1 Inclusive Outreach and Public Engagement Plan.....	2-4
2.6 Plan Development and Review .....	2-8
<b>PART 2 — RISK ASSESSMENT</b>	
<b>CHAPTER 3 IDENTIFIED HAZARDS OF CONCERN AND RISK ASSESSMENT</b>	
<b>METHODOLOGY .....</b>	<b>3-1</b>
3.1 IDENTIFIED HAZARDS OF CONCERN .....	3-1
3.2 CLIMATE CHANGE .....	3-2
3.3 METHODOLOGY .....	3-2
3.4 RISK ASSESSMENT TOOLS .....	3-3
3.4.1 Quantitative Assessment.....	3-3
3.4.2 Qualitative Assessment.....	3-3
3.4.3 Limitations .....	3-3
3.4.4 Hazard Rankings .....	3-4
<b>CHAPTER 4 PARK COUNTY PROFILE .....</b>	<b>4-1</b>
4.1 GEOGRAPHIC FEATURES .....	4-1
4.1.1 Mountain Ranges.....	4-1
4.1.2 Canyons.....	4-3
4.2 JURISDICTIONS AND LAND COVER.....	4-3
4.3 HISTORICAL OVERVIEW.....	4-3
4.4 TRANSPORTATION.....	4-4
4.5 SCHOOLS .....	4-5

4.6 RECREATION..... 4-5

4.7 MAJOR PAST HAZARD EVENTS ..... 4-6

4.8 PHYSICAL SETTING ..... 4-7

4.8.1 Geology ..... 4-7

4.8.2 Climate..... 4-10

4.8.3 Potential Interactions between Pine Beetle Infestations and Other Hazards..... 4-11

4.9 CRITICAL FACILITIES AND INFRASTRUCTURE ..... 4-15

4.10 DEMOGRAPHICS..... 4-16

4.10.1 Population Characteristics..... 4-17

4.10.2 Income and Housing ..... 4-19

4.10.3 Age Distribution ..... 4-20

4.10.4 Race, Ethnicity and Language..... 4-20

4.10.5 Disabled Populations ..... 4-21

4.11 ECONOMY..... 4-21

4.11.1 Industry, Businesses and Institutions ..... 4-21

4.11.2 Employment Trends and Occupations ..... 4-22

4.12 LAND USE DEVELOPMENT..... 4-23

4.13 CAPABILITY ASSESSMENT..... 4-25

4.13.1 Administrative and Technical Resources..... 4-25

4.13.2 Financial Resources ..... 4-26

4.13.3 Planning and Regulatory Resources..... 4-28

4.13.4 Education and Outreach Resources ..... 4-29

4.13.5 National Flood Insurance Program Participation ..... 4-29

4.13.6 FEMA Funded Hazard Mitigation Projects ..... 4-30

4.13.7 Coordination with Community Partners ..... 4-31

4.13.8 Integration of Mitigation into Existing Planning Mechanisms ..... 4-32

**CHAPTER 5 DROUGHT ..... 5-1**

5.1 GENERAL BACKGROUND ..... 5-1

5.2 HAZARD PROFILE..... 5-2

5.2.1 Past Events ..... 5-2

5.2.2 Location ..... 5-2

5.2.3 Frequency..... 5-7

5.2.4 Severity ..... 5-7

5.2.5 Warning Time..... 5-8

5.3 SECONDARY HAZARDS..... 5-8

5.4 CLIMATE CHANGE IMPACTS..... 5-9

5.5 EXPOSURE ..... 5-9

5.6 VULNERABILITY ..... 5-9

5.6.1 Population ..... 5-10

5.6.2 Property..... 5-10

5.6.3 Critical Facilities..... 5-10

5.6.4 Environment..... 5-10

5.6.5 Economic Impact..... 5-10

5.7 FUTURE TRENDS IN DEVELOPMENT ..... 5-10

5.8 ISSUES ..... 5-11

**CHAPTER 6 EARTHQUAKE ..... 6-1**

6.1 GENERAL BACKGROUND ..... 6-1

6.1.1 How Earthquakes Happen ..... 6-1

6.1.2 Earthquake Classifications ..... 6-1

6.1.3 Ground Motion ..... 6-3

6.1.4 Effect of Soil Types ..... 6-3

6.2 HAZARD PROFILE ..... 6-4

6.2.1 Past Events ..... 6-4

6.2.2 Location ..... 6-4

6.2.3 Frequency ..... 6-9

6.2.4 Severity ..... 6-10

6.2.5 Warning Time..... 6-10

6.3 SECONDARY HAZARDS..... 6-10

6.4 CLIMATE CHANGE IMPACTS..... 6-11

6.5 EXPOSURE ..... 6-12

6.5.1 Population ..... 6-12

6.5.2 Property..... 6-12

6.5.3 Critical Facilities and Infrastructure ..... 6-12

6.5.4 Environment..... 6-12

6.6 VULNERABILITY ..... 6-13

6.6.1 Population ..... 6-13

6.6.2 Property..... 6-13

6.6.3 Critical Facilities and Infrastructure ..... 6-13

6.6.4 Environment..... 6-14

6.7 FUTURE TRENDS IN DEVELOPMENT ..... 6-14

**CHAPTER 7 FLOOD ..... 7-1**

7.1 GENERAL BACKGROUND ..... 7-1

7.1.1 Measuring Floods and Floodplains..... 7-2

7.1.2 Floodplain Ecosystems ..... 7-2

7.1.3 Effects of Human Activities..... 7-2

7.1.4 Federal Flood Programs..... 7-4

7.2 HAZARD PROFILE..... 7-4

7.2.1 Principal Flooding Sources ..... 7-6

7.2.2 Past Events ..... 7-16

7.2.3 Frequency..... 7-17

7.2.4 Severity ..... 7-17

7.2.5 Warning Time..... 7-17

7.3 SECONDARY HAZARDS..... 7-18

7.4 CLIMATE CHANGE IMPACTS..... 7-18

7.5 EXPOSURE ..... 7-19

7.5.1 Population and Property..... 7-19

7.5.2 Critical Facilities and Infrastructure ..... 7-19

7.5.3 Environment..... 7-20

7.6 VULNERABILITY ..... 7-20

7.6.1 Population ..... 7-20

7.6.2 Property..... 7-21

7.6.3 Critical Facilities and Infrastructure ..... 7-22

7.6.4 Environment..... 7-22

7.7 FUTURE TRENDS ..... 7-22

7.8 ISSUES ..... 7-22

**CHAPTER 8 SEVERE WINTER WEATHER..... 8-1**

8.1 GENERAL BACKGROUND ..... 8-1

8.1.1 Blizzards and Snowstorms ..... 8-1

8.1.2 Ice Storms ..... 8-2

8.2 HAZARD PROFILE..... 8-2

8.2.1 Past Events ..... 8-2

8.2.2 Location ..... 8-4

8.2.3 Frequency..... 8-4

8.2.4 Severity ..... 8-4

8.2.5 Warning Time..... 8-6

8.3 SECONDARY HAZARDS..... 8-6

8.4 CLIMATE CHANGE IMPACTS..... 8-7

8.5 EXPOSURE ..... 8-7

8.5.1 Population ..... 8-7

8.5.2 Property..... 8-7

8.5.3 Critical Facilities and Infrastructure ..... 8-7

8.5.4 Environment..... 8-7

8.6 VULNERABILITY ..... 8-8

8.6.1 Population ..... 8-8

8.6.2 Property..... 8-8

8.6.3 Critical Facilities and Infrastructure ..... 8-8

8.6.4 Environment..... 8-8

8.7 FUTURE TRENDS IN DEVELOPMENT ..... 8-8

8.8 ISSUES ..... 8-9

**CHAPTER 9 WILDFIRE..... 9-1**

9.1 GENERAL BACKGROUND ..... 9-1

9.2 HAZARD PROFILE..... 9-3

9.2.1 Past Events ..... 9-3

9.2.2 Location ..... 9-5

9.2.3 Frequency..... 9-14

9.2.4 Severity ..... 9-14

9.2.5 Warning Time..... 9-16

9.3 SECONDARY HAZARDS..... 9-17

9.4 CLIMATE CHANGE IMPACTS..... 9-17

9.5 EXPOSURE ..... 9-18

9.5.1 Population ..... 9-18

9.5.2 Property..... 9-18

9.5.3 Critical Facilities and Infrastructure ..... 9-20

9.5.4 Environment..... 9-21

9.6 VULNERABILITY ..... 9-21

9.6.1 Population ..... 9-22

9.6.2 Property..... 9-23

9.6.3 Critical Facilities and Infrastructure ..... 9-23

9.7 FUTURE TRENDS IN DEVELOPMENT ..... 9-23

**CHAPTER 10 DAM FAILURE..... 10-1**

10.1 GENERAL BACKGROUND ..... 10-1

10.1.1 Causes of Dam Failure..... 10-1

10.1.2 Regulatory Oversight..... 10-2

10.2 HAZARD PROFILE..... 10-3

10.2.1 Location ..... 10-3

10.2.2 Frequency..... 10-7

10.2.3 Severity ..... 10-7

10.2.4 Warning Time..... 10-8

10.3 SECONDARY HAZARDS..... 10-9

10.4 CLIMATE CHANGE IMPACTS..... 10-9

10.5 EXPOSURE AND VULNERABILITY ..... 10-9

10.5.1 Population ..... 10-9

10.5.2 Property..... 10-10

10.5.3 Critical Facilities ..... 10-11

10.5.4 Environment..... 10-11

10.6 FUTURE TRENDS IN DEVELOPMENT ..... 10-11

10.7 ISSUES ..... 10-12

**CHAPTER 11 HAZARDOUS MATERIALS ..... 11-1**

11.1 GENERAL BACKGROUND ..... 11-1

11.2 HAZARD PROFILE..... 11-1

11.2.1 Past Events ..... 11-1

11.2.2 Location ..... 11-2

11.2.3 Frequency..... 11-2

11.2.4 Severity ..... 11-2

11.2.5 Warning Time ..... 11-3

11.3 SECONDARY HAZARDS..... 11-3

11.4 CLIMATE CHANGE IMPACTS ..... 11-3

11.5 EXPOSURE AND VULNERABILITY ..... 11-3

11.5.1 Population ..... 11-4

11.5.2 Property..... 11-4

11.5.3 Critical Facilities ..... 11-4

11.5.4 Environment..... 11-4

11.6 FUTURE TRENDS IN DEVELOPMENT ..... 11-4

11.7 ISSUES ..... 11-4

**CHAPTER 12 LANDSLIDE..... 12-1**

12.1 GENERAL BACKGROUND ..... 12-1

12.2 HAZARD PROFILE ..... 12-2

12.2.1 Past Event..... 12-2

12.2.2 Location ..... 12-3

12.2.3 Frequency..... 12-4

12.2.4 Severity ..... 12-4

12.2.5 Warning Time ..... 12-6

12.3 SECONDARY HAZARDS ..... 12-6

12.4 CLIMATE CHANGE IMPACTS ..... 12-7

12.5 EXPOSURE ..... 12-7

12.5.1 Population ..... 12-7

12.5.2 Property ..... 12-7

12.5.3 Critical Facilities and Infrastructure ..... 12-7

12.5.3 Environment ..... 12-8

12.6 VULNERABILITY ..... 12-8

12.6.1 Population ..... 12-8

12.6.2 Property ..... 12-8

12.6.3 Critical Facilities and Infrastructure ..... 12-9

12.6.4 Environment ..... 12-9

12.7 FUTURE TRENDS IN DEVELOPMENT ..... 12-9

12.8 ISSUES ..... 12-9

**CHAPTER 13 SEVERE THUNDERSTORM, HAIL, WIND, AND TORNADO..... 13-1**

13.1 GENERAL BACKGROUND ..... 13-1

13.1.1 Thunderstorms ..... 13-1

13.1.2 Hail Storms ..... 13-2

13.1.3 Damaging Winds ..... 13-3

13.2 HAZARD PROFILE ..... 13-4

13.2.1 Past Events ..... 13-4

13.2.2 Location ..... 13-5

13.2.3 Frequency ..... 13-5

13.2.4 Severity ..... 13-6

13.2.5 Warning Time ..... 13-8

13.3 SECONDARY HAZARDS ..... 13-8

13.4 CLIMATE CHANGE IMPACTS ..... 13-9

13.5 EXPOSURE ..... 13-9

13.5.1 Population ..... 13-9

13.5.2 Property ..... 13-9

13.5.3 Critical Facilities and Infrastructure ..... 13-9

13.5.4 Environment ..... 13-9

13.6 VULNERABILITY ..... 13-10

13.6.1 Population ..... 13-10

13.6.2 Property ..... 13-10

13.6.3 Critical Facilities and Infrastructure ..... 13-12

13.6.4 Environment ..... 13-12

13.7 FUTURE TRENDS IN DEVELOPMENT ..... 13-12

13.8 ISSUES ..... 13-12

**CHAPTER 14 EPIDEMIC/PANDEMIC ..... 14-1**

14.1 General Background ..... 14-1

14.2 Hazard Profile ..... 14-2

14.2.1 Past Events ..... 14-2

14.2.2 Location ..... 14-2

14.2.3 Frequency ..... 14-2

14.2.4 Severity ..... 14-2

14.2.5 Warning Time ..... 14-3

14.3 Secondary Hazards ..... 14-3

14.4 Climate Change Impacts ..... 14-3

14.5 Exposure & Vulnerability ..... 14-3

14.5.1 Population ..... 14-3

14.5.2 Property ..... 14-3

14.5.3 Critical Facilities ..... 14-3

14.5.4 Environment ..... 14-3

14.6 Future Trends in Development ..... 14-4

14.7 Issues ..... 14-4

**PART 3 — MITIGATION STRATEGY**

**CHAPTER 15 MITIGATION STRATEGY ..... 15-1**

15.1 GENERAL ..... 15-1

15.2 MITIGATION GOALS AND OBJECTIVES ..... 15-1

15.3 Development of Mitigation Actions ..... 15-3

15.4 2020 to 2025 Mitigation Implementation Plan ..... 15-7

**CHAPTER 16 IMPLEMENTATION ..... 16-1**

16.1 PLAN ADOPTION ..... 16-1

16.2 PLAN MAINTENANCE STRATEGY ..... 16-1

16.2.1 Plan Implementation ..... 16-1

16.2.2 Hazard Mitigation Committee ..... 16-2

16.2.3 Annual Progress Report ..... 16-2

16.2.4 Plan Update ..... 16-3

16.2.5 Continuing Public Involvement ..... 16-3

16.2.6 Incorporation into Other Planning Mechanisms ..... 16-4

**CHAPTER 17 REFERENCES ..... 17-1**

## Appendices

- Appendix A – Acronyms and Definitions
- Appendix B – Planning Process and Public Outreach
- Appendix C – Example Progress Report
- Appendix D – Maps and Risk Assessment Materials
- Appendix E – Plan Adoption Resolutions from Planning Partners
- Appendix F – Mitigation Actions

## List of Tables

Table 2-1	2020 Park County Multi-Jurisdictional Hazard Mitigation Plan Update Participating Jurisdictions.....	2-3
Table 2-2	Hazard Mitigation Committee Meeting Schedule.....	2-3
Table 2-3	Stakeholder and Public Outreach Activities Schedule.....	2-4
Table 2-4	Park County Hazard Mitigation Plan Update Milestones and Timeline.....	2-8
Table 3-1	Park County Hazard Rankings.....	3-4
Table 4-1	Presidential Disaster Declarations for Hazard Events in the Planning Area.....	4-6
Table 4-2	Climate Data for Park County.....	4-10
Table 4-3	2019 Monthly Temperature and Precipitation for Park County.....	4-11
Table 4-4	Population Growth in Park County – 2010 to 2018.....	4-17
Table 4-5	Annual Population Data.....	4-17
Table 4-6	Population Forecast 2010-2015.....	4-19
Table 4-7	Unemployment in Park County, 2000 to 2018.....	4-22
Table 4-8	Human and Technical Resources Integrated with Hazard Mitigation.....	4-26
Table 4-9	Accessible Financial Resources.....	4-26
Table 4-10	Financial Resources Integrated with Hazard Mitigation.....	4-27
Table 4-11	Planning and Regulatory Resources Integrated with Hazard Mitigation.....	4-28
Table 4-12	Education and Outreach Resources.....	4-29
Table 4-13	Mitigation Plan Requirement for Governments Applying for Certain FEMA Grants.....	4-30
Table 4-14	Existing Plans.....	4-33
Table 6-1	Mercalli Scale and Peak Ground Acceleration Comparison.....	6-3
Table 6-2	NEHRP Soil Classification System.....	6-4
Table 6-3	Number of Earthquakes by State Between 2010 and 2015.....	6-9
Table 6-4	Critical Facilities and Infrastructure Vulnerable to the Earthquake Hazard, 2500-Year Peak Ground Acceleration.....	6-14
Table 7-1	Flooding Events.....	7-16
Table 7-2	Total Number of Parcels Exposed to Flood Hazards within the 100-year Floodplain.....	7-19
Table 7-3	Critical Facilities In The 100-Year Floodplain.....	7-19
Table 7-4	Flood Insurance Statistics.....	7-21
Table 8-1	Past Severe Weather Events Impacting Planning Area.....	8-3
Table 9-1	Wildfires in Park County.....	9-4
Table 9-2	Total Number of Parcels Exposed to Wildfire Hazards.....	9-19
Table 9-3	Critical Facilities and Infrastructure in Wildfire Risk Areas.....	9-20
Table 10-1	Regulated Dams in Park County.....	10-4
Table 10-2	Major Reservoirs.....	10-5
Table 10-3	Corps of Engineers Hazard Potential Classification.....	10-8
Table 10-6	Total Number of Parcels Exposed to Dam Failure Hazards.....	10-10
Table 10-7	Critical Facilities and Infrastructure Within 15 Miles of a Dam.....	10-11
Table 12-1	Total Number of Parcels Exposed to Landslide Hazards in Areas of Landslide Debris.....	12-7
Table 13-1	Tornadoes Recorded in Park County.....	13-4
Table 13-2	Potential Severe Weather Events.....	13-11
Table 15-1	2020 Mitigation Actions by Group.....	15-3
Table 15-2	2020 Mitigation Actions by Hazard.....	15-4
Table 15-3	Summary information for Mitigation Action.....	15-4
Table 15-4	STAPLEE Criteria.....	15-6
Table 15-5	Mitigation Effectiveness Criteria.....	15-6
Table 15-6	2020-2025 Mitigation Implementation Plan.....	15-8

## List of Figures

Figure 2-1	FEMA Recommended Mitigation Planning Tasks .....	2-1
Figure 4-1	Main Features of the Planning Area.....	4-2
Figure 4-2	U.S. Highway 285 Passing Lanes. Photo credit: CDOT .....	4-5
Figure 4-3	Generalized Geographic Regions.....	4-9
Figure 4-4	Park County Average Annual Precipitation, 1981–2010 30-Year Normals.....	4-12
Figure 4-5	Park County Average Minimum Temperature, 1981–2010 .....	4-13
Figure 4-6	Park County Average Maximum Temperature, 1981–2010.....	4-14
Figure 4-7	Park County Population, 1985–2018. Source: DOLA (n.d.[c]).....	4-18
Figure 4-8	Projected Population Growth Source: Colorado Department of Local Affairs, State Demography Office, Population Forecasts.....	4-19
Figure 4-9	Age Distribution Source: 2018 ACS 5-Year Estimates.....	4-20
Figure 4-10	Industry Types in Park County. ....	4-22
Figure 4-11	Park County Subareas .....	4-24
Figure 5-1	Colorado Drought Index and Statistics for Week Ending March 10, 2020.....	5-3
Figure 5-2	Palmer Drought Index (March 2020).....	5-4
Figure 5-3	Palmer Hydrological Drought Index Long-Term Hydrologic Conditions (February 2020).....	5-5
Figure 5-4	24-Month Standardized Precipitation Index (February 2018 – February 2020).....	5-6
Figure 6-1	Locations of Historical Earthquakes and Known or Suspected Geologically Young Faults.....	6-6
Figure 6-2	Park County Cenozoic Fault Lines .....	6-7
Figure 6-3	Park County Earthquakes, 1568 – 2020 .....	6-8
Figure 6-4	2018 Long-term National Seismic Hazard Map. ....	6-9
Figure 6-5	Colorado Area Seismicity and Chance of Damaging Shaking .....	6-11
Figure 7-1	Park County Watersheds .....	7-3
Figure 7-2.	Index Map for Park County FIRM.....	7-5
Figure 7-3	FEMA Flood Hazard Areas in the Town of Alma.....	7-8
Figure 7-4	FEMA Flood Hazard Areas in the Town of Fairplay.....	7-9
Figure 7-5	FEMA Flood Hazard Areas in the Platte Canyon Fire Protection District.....	7-10
Figure 7-6	FEMA Flood Hazard Areas in the North-West Fire Protection District .....	7-11
Figure 7-7	FEMA Flood Hazard Areas in the Southern Park County Fire Protection District .....	7-12
Figure 8-1	GIS Snow Mapping for Winter 2007-2008 .....	8-5
Figure 8-2	Severe Weather Probabilities in Warmer Climates.....	8-7
Figure 9-1	U.S. Annual Acres Burned from Wildfires .....	9-3
Figure 9-2	Nonfederal Fire Ignitions from 2009 to 2017 .....	9-5
Figure 9-3	Park County Wildfire Urban Index .....	9-7
Figure 9-4	Park County Wildfire Urban Index Risk.....	9-8
Figure 9-5	Colorado Wildfire Risk .....	9-9
Figure 9-6	Park County Subdivision Wildfire Risk.....	9-10
Figure 9-7	Park County Wildfire Risk .....	9-11
Figure 9-8	Park County Burn Probability.....	9-12
Figure 9-9	Northwest Fire Protection District Wildfire Risk .....	9-13
Figure 9-10	Fire Occurrence.....	9-15
Figure 12-1	Deep Seated Slide .....	12-3
Figure 12-2	Shallow Colluvial Slide.....	12-3
Figure 12-3	Bench Slide.....	12-3
Figure 12-4	Large Slide.....	12-3
Figure 12-5	Debris and Mudflow Flooding Areas.....	12-5
Figure 13-1	The Thunderstorm Life Cycle.....	13-2

Figure 13-2 Lightning Fatalities in the United States, 2008-2017..... 13-5  
Figure 13-3 Colorado Annual Average Wind Speed at 80 Meters. .... 13-7  
Figure 13-4 Wind Zones in the United States..... 13-8  
Figure 13-5 Severe Weather Probabilities in Warmer Climates..... 13-9  
Figure 15-1 Mitigation Strategy Process..... 15-1

## ACKNOWLEDGMENTS

### ***Project Manager – At Adoption***

Mr. Brad Golden, Deputy Director of Emergency Management  
Park County Office of Emergency Management 911  
Clark Street  
Fairplay, CO 80440  
Phone: 719-836-4372  
Email: [bgolden@parkco.us](mailto:bgolden@parkco.us)

### ***Consultant***

Ecology and Environment, Inc. (Jessica Forbes-Guerrero, Project Manager)

# **EXECUTIVE SUMMARY**

## EXECUTIVE SUMMARY

The Disaster Mitigation Act (DMA) is federal legislation that requires proactive, pre-disaster planning as a prerequisite for some funding available under the Robert T. Stafford Act. The DMA encourages state and local authorities to work together on pre-disaster planning. The planning network called for by the DMA helps local governments articulate accurate needs for mitigation, resulting in faster allocation of funding and more cost-effective risk reduction projects.

Hazard mitigation is the use of long- and short-term strategies to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster. It involves strategies such as planning, policy changes, programs, projects, and other activities that can mitigate the impacts of hazards. It is impossible to predict exactly when and where disasters will occur or the extent to which they will impact an area, but with careful planning and collaboration among public agencies, stakeholders and citizens, it is possible to minimize losses that disasters can cause. The responsibility for hazard mitigation lies with many, including private property owners; business and industry; and local, state and federal government.

Park County and a partnership of local governments within the County have developed and maintained a hazard mitigation plan (HMP) to reduce risks from natural disasters and to comply with the DMA.

### PLAN UPDATE

Federal regulations require monitoring, evaluation and updating of HMPs. An update provides an opportunity to reevaluate recommendations, monitor the impacts of actions that have been accomplished, and determine if there is a need to change the focus of mitigation strategies. A jurisdiction covered by a plan that has expired is no longer in compliance with the DMA.

The planning process for the 2020 HMP update consisted of the following phases:

- **Phase 1, Organize and Review**—A planning team was assembled to provide technical support for the plan update, consisting of key County staff from the Department of Emergency Management and a technical consultant. The first step in developing the plan update was to re-establish a planning partnership. Planning partners participating in the 2020 plan update were the Town of Fairplay, South Park Ambulance District, North-West Fire Protection District (FPD), Lake George FPD, and Platte Canyon FPD in Bailey. A hazard mitigation committee (HMC) was assembled to oversee plan update,

consisting of planning partner staff and community representatives from planning area. Coordination with other county, state, and federal agencies involved in hazard mitigation occurred throughout the plan update process. This phase included a comprehensive review of the existing HMP, the Colorado State HMP, and existing programs that may support or enhance hazard mitigation actions.

- **Phase 2, Update the Risk Assessment**—Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards. This process assesses the vulnerability of people, buildings and infrastructure to natural hazards. All facets of the risk assessment of the plan were re-visited by the planning team and updated with the best available data and technology. The work included the following:
  - Hazard identification and profiling
  - Assessment of the impact of hazards on physical, social and economic assets
  - Vulnerability identification
  - Estimates of the cost of potential damage.
- **Phase 3, Engage the Public**—A public involvement strategy agreed upon by the HMC was implemented by the planning team. A public meeting was held to present the risk assessment as well as the draft plan, and an online survey was distributed to collect public feedback. Participation in the hazard mitigation survey occurred across the county, and a County website included plan updates.
- **Phase 4, Assemble the Updated Plan**—The HMC assembled key information into a document to meet the DMA requirements for all planning partners.
- **Phase 5, Plan Adoption/Implementation**—Once pre-adoption approval has been granted by Colorado’s Office of Emergency Management and FEMA Region VIII, the final adoption phase will begin. Each planning partner will individually adopt the updated plan. The plan maintenance process includes a schedule for monitoring and evaluating the plan’s progress annually and producing a plan revision every five years. Throughout the life of this plan, an HMC representative of the original committee will provide a consistent source of guidance and oversight.

## MITIGATION GUIDING PRINCIPLE, GOALS AND OBJECTIVES

The following guiding principle for this plan update process guided the Committee:

**“Develop and maintain a disaster-resistant community that is more resilient to the economic and physical devastation associated with all hazard events.”**

The goals and objectives for the 2020 HMP update are listed below.

- **Goal 1:** Ensure that hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions’ daily activities, processes, and functions by incorporating them into policy documents and initiatives.
  - **Objective 1A:** Incorporate mitigation principles into all other institutional County plans, documents, and practices.

- **Objective 1B:** Assess current and applicable jurisdictional plans and documents regarding flood management, including inundation from dam failures, to determine what changes and/or additions will be required in future revisions to reduce exposure and increase awareness of flood hazards in and to County property, residents and businesses.
- **Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
  - **Objective 2A:** Continually assess ongoing disaster preparedness programs and activities to implement changes that improve disaster preparedness for Park County.
  - **Objective 2B:** Educate the public about disaster preparedness activities and mitigation goals, allowing each citizen the opportunity to reduce personal risk and increase property protection.
- **Goal 3:** Enhance life safety and public welfare by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
  - **Objective 3A:** Ensure that countywide measures are taken addressing specific risks to public and private facilities and infrastructure and critical facilities and infrastructure.
  - **Objective 3B:** Develop a funding mechanism for mitigation needs for priority infrastructure.
- **Goal 4:** Protect natural resources from the effects of hazards.
  - **Objective 4A:** Protect drinking water supplies and watersheds from the effects of wildfires.
  - **Objective 4B:** Protect resources used by the recreation industry from the effects of all hazards.

## MITIGATION INITIATIVES

Mitigation initiatives presented in this update are activities designed to reduce or eliminate losses resulting from natural hazards. The update process resulted in the identification of approximately 80 mitigation initiatives for implementation by individual planning partners as listed in Chapter 17. For this update, the descriptions of mitigation actions were expanded to identify the FEMA lifelines and Colorado resiliency prioritization criteria. The lifelines and resiliency prioritization criteria are tools FEMA and the Colorado Division of Homeland Security and Emergency Management are using to prioritize hazard mitigation projects and ensure that these projects and actions are meeting critical community needs.

**PART 1–  
THE PLANNING PROCESS**



# CHAPTER 1

## INTRODUCTION TO THE PLANNING PROCESS

### 1.1 WHY PREPARE THIS PLAN?

#### 1.1.1 The Big Picture

Hazard mitigation is defined as a way to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster through long- and short-term strategies. It involves strategies such as planning, policy changes, programs, projects, and other activities that can mitigate the impacts of hazards. The responsibility for hazard mitigation lies with many, including private property owners; business and industry; and local, state, and federal government.

The federal Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390) required state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. Prior to 2000, federal disaster funding focused on disaster relief and recovery, with limited funding for hazard mitigation planning. The DMA increased the emphasis on planning for disasters before they occur.

The DMA encourages state and local authorities to work together on pre-disaster planning, and it promotes sustainability for disaster resistance. “Sustainable hazard mitigation” includes the sound management of natural resources and the recognition that hazards and mitigation must be understood in the largest possible social and economic context. The enhanced planning network called for by the DMA helps local governments articulate accurate needs for mitigation, resulting in faster allocation of funding and more cost-effective risk reduction projects.

The Colorado Division of Homeland Security and Emergency Management (DHSEM), and Region VIII of the Federal Emergency Management Agency (FEMA) would like all communities in Colorado to prepare local hazard mitigation plans (HMPs) to reduce and mitigate future losses from natural or human-caused hazard events. By completing and adopting these plans, communities throughout the State become eligible for grants and other assistance in implementing them. To facilitate development of local plans throughout Colorado, Colorado Division of Homeland Security and Emergency Management (DHSEM) staff are available to provide technical assistance and support to communities throughout the plan development process by both attending and participating in committee meetings as well as conference calls, meetings, etc. Lessons learned from other plan success stories in the state can be used to strengthen the plan development process. In preparing their HMP, Park County and its partners benefited from mitigation planning work lessons learned in Colorado and in other jurisdictions across the country.

The Park County HMP will serve as a useful tool for all community stakeholders by increasing public awareness about local hazards and risks, while at the same time providing information about options and resources available to reduce those risks. Teaching the public about potential hazards and potential strategies for addressing them will help each of the County’s jurisdictions protect themselves against the effects of the hazards, and will enable informed decision making on where to live, purchase property, or locate businesses. The Park County HMP covers all unincorporated areas of Park County and participating jurisdictions, including Fairplay, Platte Canyon Fire Protection District, North-West Fire Protection District, Lake George Fire Protection District, and South Park Ambulance District. It serves as a strategic planning tool for use by those jurisdictions in their efforts to identify and mitigate the future impacts of hazard events.

### 1.1.2 Regulatory Authority

On October 30, 2000, President Clinton signed into law the Disaster Mitigation Act of 2000 (DMA 2000), which established a national disaster hazard mitigation grant program that would help to reduce loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters.

DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act and added a new section to the law, Section 322 Mitigation Planning. Section 322 emphasizes the need for State, local and tribal entities to closely coordinate mitigation planning and implementation efforts. Section 322 requires local governments to prepare and adopt jurisdiction-wide HMPs for disasters declared after November 1, 2003, (subsequently revised to November 1, 2004) as a condition of receiving Hazard Mitigation Grant Program (HMGP) project grants and other forms of non-emergency disaster assistance, and authorizes up to 7 percent of HMGP funds available to a State to be used for development of State, local and tribal mitigation plans. Local governments must review and, if necessary, update their mitigation plan every five years from the original date of the plan to continue program eligibility.

### 1.1.3 Purposes for Planning

The 2020 HMP update identifies resources, information, and strategies for reducing risk from natural hazards. Elements and strategies in the plan were selected because they meet a program requirement and because they best meet the needs of the planning partners and their citizens. One of the benefits of multi-jurisdictional planning is the ability to pool resources and eliminate redundant activities within a planning area that has uniform risk exposure and vulnerabilities. FEMA encourages multi-jurisdictional planning under its guidance for the DMA. The plan will help guide and coordinate mitigation activities throughout the planning area. The plan was developed to meet the following objectives:

- Meet or exceed requirements of the DMA.
- Enable all planning partners to continue using federal grant funding to reduce risk through mitigation.
- Meet the needs of each planning partner as well as state and federal requirements.
- Create a risk assessment that focuses on Park County hazards of concern.
- Create a single planning document that integrates all planning partners into a framework that supports partnerships within the County, and puts all partners on the same planning cycle for future updates.
- Coordinate existing plans and programs so that high-priority initiatives and projects to mitigate possible disaster impacts are funded and implemented.

### 1.1.4 Why Update?

Title 44 of the Code of Federal Regulations (44 CFR) stipulates that HMPs must present a schedule for monitoring, evaluating, and updating the plan. This provides an opportunity to reevaluate recommendations, monitor the impacts of actions that have been accomplished, and determine if there is a need to change the focus of mitigation strategies. A jurisdiction covered by a plan that has expired is not able to pursue elements of federal funding under the Robert T. Stafford Act for which a current HMP is a prerequisite.

## 1.2 WHO WILL BENEFIT FROM THIS PLAN?

All citizens and businesses of Park County are the ultimate beneficiaries of this HMP update. The plan reduces risk for those who live in, work in, and visit the county. It provides a viable planning framework for all foreseeable natural hazards that may impact the County. Participation in development of the plan by key stakeholders in the county helped ensure that outcomes will be mutually beneficial. The resources and background information in the plan are applicable countywide, and the plan's goals and recommendations can lay groundwork for the development and implementation of local mitigation activities and partnerships.

## 1.3 HOW TO USE THIS PLAN

This plan presents all federally required elements of a disaster mitigation plan that apply to the entire planning area. This includes the description of the planning process, public involvement strategy, goals and objectives, countywide hazard risk assessment, countywide mitigation initiatives, and a plan maintenance strategy. It also includes all federally required elements for each participating jurisdiction. All planning partners will adopt the plan in its entirety.

The following appendices include information or explanations to support the main content of the plan:

- Appendix A – Acronyms and Definitions
- Appendix B – Planning Process and Public Outreach
- Appendix C – Example Progress Report
- Appendix D – Maps and Risk Assessment Materials
- Appendix E – Plan Adoption Resolutions from Planning Partners
- Appendix F – Mitigation Actions

## 1.4 CHANGES IN THE 2020 UPDATE



D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))

Representatives of Park County and its partner organizations came together in 2020 to review and update the 2015 HMP. The 2020 planning process brought new partners to the table, including the Lake George Fire Protection District (FPD) and South Park Ambulance District. Key changes made in the 2020 update of the Park County HMP are summarized below:

- Due to the response to the 2019–2020 novel coronavirus (COVID-19) pandemic, which required many local government staff to work remotely and restricted public gatherings of over 10 people starting in March 2020, much of the planning process was completed virtually through webinars and email communications. Materials related to the planning process are included in Appendix B.
- The capabilities assessment (Section 6.13) has been reorganized and streamlined to align with the standards of the DHSEM. The capabilities assessment outlines the tools and resources the County and its partners have available to implement their hazard mitigation programs.
- The risk assessment (Part 2) has been revised to discuss hazard events that occurred between 2015 and 2020 and changing climate, land use, and socioeconomic conditions that have resulted in increased or decreased vulnerability to hazards in Park County.

- Epidemics have been included as a new hazard affecting Park County (see Chapter 15). In March 2020, the global pandemic of COVID-19 began causing widespread impacts in the United States. Chapter 15 discusses exposure and vulnerability to epidemics in Park County.
- With the 2020 plan update, the County and its partners have recognized changes in planning priorities by placing an added emphasis on actionable strategies focused on long-term hazard risk reduction and moving away from including ongoing coordination activities in the mitigation strategy (see Part 3). The HMC revised the plan goals and objectives to reflect this change in priorities.
- The mitigation strategy has been updated to include new mitigation actions and actions carried forward from the 2015 HMP. The mitigation strategy also has been expanded to consider FEMA lifelines and the State’s resiliency prioritization criteria, which are tools that FEMA and the DHSEM are using to prioritize and assess the effectiveness of hazard mitigation actions.
- The 2020 HMP update included creation of jurisdictional annexes for participating jurisdictions, including the Town of Fairplay and the special hazards districts. The jurisdictional annexes provide information on capabilities, risks, and mitigation strategies specific to each participating jurisdiction.

## CHAPTER 2 PLANNING PROCESS

Chapter 2 provides a narrative description of the planning process the County conducted to ensure that the mitigation strategy was informed by input from key departments, community partners, and community members. The process was based on strategies for inclusive engagement and integration with existing planning efforts.

 <b>FEMA</b>	A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for [Park County]? (Requirement §201.6(c)(1))
---	--

FEMA recommends nine tasks for developing or updating local HMPs (see Figure 2-1). Tasks 1 through 3 address the people and process involved in the all-hazards mitigation plan development or update, Tasks 4 through 8 focus on the analytical and decision steps that need to be taken, and Task 9 includes suggestions for plan implementation.



Source: FEMA Local Mitigation Planning Handbook, March 2013

Figure 2-1 FEMA Recommended Mitigation Planning Tasks

### 2.1 PLANNING AREA

The 2020 Park County HMP Update accounts for all areas in Park County, Colorado, including the participating jurisdictions identified in Section 1.1.1. The 2020 update of the HMP has been expanded to include the special districts of the Lake George Fire Protection District (FPD) and South Park Ambulance District, which encompass parts of the unincorporated county. An overview map for the planning area is located in Appendix D, Figure D-1.

See Figure D-1 in Appendix D for a map of the planning area.

### 2.2 DATA COLLECTION AND INCORPORATION OF EXISTING PLANS

 <b>FEMA</b>	A4. Does the Plan document the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))
---	--

Data collection efforts for the Park County HMP focused on documents pertaining to the planning area. The primary source documents for the plan update were the 2015 HMP, the 2018–2023 Colorado HMP, and geographic information system (GIS) data. Additionally, related emergency management plans and plans with relevant hazard mitigation topics were reviewed as part of the data collection efforts.

### **2.2.1 2015 Park County Hazard Mitigation Plan**

As part of the 2020 plan update, the following actions were taken to ensure that the update reflected progress made in the County's mitigation efforts and any changes in priorities:

- Review and refinement of 2015 HMP goals and objectives by the HMC;
- Update of partner mitigation capabilities; and
- Update of the status for all mitigation actions identified in the 2015 HMP.

*Refer to Appendix F for a review of the status of all mitigation actions identified in the 2015 HMP.*

All existing plans that were reviewed as part of this HMP update are listed in Section 4.13.7.

### **2.2.2 Integration of Geographic Information Systems Data**

Efforts were made to ensure that the HMP incorporates the most up-to-date and comprehensive data available. These data were used to develop the maps included in the HMP and develop comprehensive risk assessments that describe exposure to risk in terms of dollar amount and provide property counts (where available).

*Refer to Appendix D for a comprehensive list of all GIS source data.*

## **2.3 COORDINATION WITH OTHER PLANNING EFFORTS**

Recognizing that disasters do not stay within jurisdictional boundaries, Park County has made it a practice to plan for all emergency management activities at the regional level. The 2020 HMP update builds on longstanding regional partnerships between the County, the Town of Fairplay, and the County's special districts through the County's Emergency Services Council and on previous regional plans.

## **2.4 MITIGATION PLANNING COMMITTEE**

The County began preparing for the update of the HMP by completing an application to receive Hazard Mitigation Grant Program – Post Fire funds from FEMA. Funding was received in 2019, which allowed for the planning process to commence with contract support provided by Ecology and Environment, Inc. Park County's Deputy Director of Emergency Management initiated the planning process through pre-planning via communications with members of the HMC.

The HMC convened at the start of the planning process to facilitate input by participating jurisdictions and stakeholders into the HMP update. The HMC aided in the revision of mitigation goals and objectives, determination of hazard risks and vulnerabilities, and the identification and prioritization of mitigation strategies. The planning process focused on improving intergovernmental coordination to ensure that the HMP update met the needs of all participating jurisdictions and community departments.

### **2.4.1 HMC Members**

The HMC was led and organized by the County's Deputy Director of Emergency Management. The members of the HMC who participated in the plan update are listed in Appendix B, with their associated organizations and departments and contact information.

### **2.4.2 HMC Meetings**

The needs of the HMP were discussed and key deliverables were reviewed at the HMC's formal meetings. The HMC convened for a series of six meetings over the course of the project (see Table 2-1), where representatives from participating jurisdictions and other plan stakeholders had the opportunity to provide knowledge and insights regarding hazard risks and local capabilities, engage with the contractor team, and

collaboratively work on the plan’s content. The lead representatives for each of the participating jurisdictions are shown in Table 2-1.

Table 2-1 2020 Park County Multi-Jurisdictional Hazard Mitigation Plan Update Participating Jurisdictions

Planning Partner	Jurisdiction Type	Point of Contact	Mailing Address	Email	Phone
Park County	County	Brad Golden	911 Clark Street P.O. Box 1373 Fairplay, CO 80440	bgolden@parkco.us	719-836-4231
Town of Fairplay	Town	Bo Schlunsen	901 Main Street Fairplay, CO 80440	bschlunsen@fairplay.co.us	719-836-2622 ext. 106
Platte Canyon	Fire Protection District (FPD)	Joe Burgett	P.O. Box 222 Bailey, CO 80421	pcfpdchief@gmail.com	303-838-5853
North-West	FPD	Nik Varma	21455 Highway 285 Fairplay, CO 80440	nvarma@nwfpd.org	719-836-3150
Lake George	FPD	Susan Bernstetter	P.O. Box 281 Lake George, CO 80827	susan@lakegeorgefire.com	719-748-3022
South Park	Ambulance District	Paul Mattson	P.O. Box 417 911 Castello Avenue Fairplay, CO 80440	chief@southparkambulance.com	719-836-2055

The HMC meetings served as the primary mechanism for collecting data and feedback on the plan update. While contract support to develop the plan update was provided by Ecology and Environment, Inc., members of the HMC crafted every concept outlined in the HMP. This included data collection, determination of plan goals and objectives, articulation of specific hazards and risks, and development of a comprehensive mitigation strategy. HMC meeting outputs are referred to throughout the plan and indicated by the “HMC Meeting Deliverable” graphic displayed to the right.



Table 2-2 Hazard Mitigation Committee Meeting Schedule

MPT Meeting	Date	Objectives
Meeting #1: Kickoff Workshop	3/5/2020	Project kickoff, including review of the planning process, ranking of hazards, determination of goals and objectives, and information gathering.
Meeting #2: Mitigation Strategy Workshop	3/18/2020	Development and prioritization of mitigation strategies.

Table 2-2 Hazard Mitigation Committee Meeting Schedule

MPT Meeting	Date	Objectives
Meeting #3: Draft Plan Review	5/13/2020	Draft plan review for the HMC.
Meeting #4: Final Presentation	9/9/2020	Final plan review and HMC approval.

See Appendix B for documentation of all HMC activities.

In addition to the four HMC meetings, members of the HMC were engaged through follow-up emails and requests to provide additional information pertaining to internal capabilities and mitigation strategy development. HMC members unable to attend meetings were consulted after each meeting to ensure that all inputs and perspectives were represented in the final HMP.

## 2.5 INCLUSIVE OUTREACH AND PUBLIC ENGAGEMENT

 <b>FEMA</b>	<p>A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))</p> <p>A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1) and §201.6(c)(1))</p>
---	---

A critical component of the HMP update effort is a robust stakeholder engagement process that provides “an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval” (44 CFR §201.6). While providing an opportunity for public comment on the draft plan is one way to engage with the public regarding hazard concerns, the HMC also wanted to ensure that the public had a meaningful way to participate in the process, as outlined in the following sections.

### 2.5.1 Inclusive Outreach and Public Engagement Plan

Public engagement was initiated soon after the HMP Project Kickoff Workshop (HMC Meeting #1). Table 2-3 provides a summary of outreach and engagement activities.

Table 2-3 Stakeholder and Public Outreach Activities Schedule

Outreach Event	Date	Objectives
Online Survey Outreach	March 6 – April 20, 2020	Online survey developed to solicit input from community members regarding hazards or concerns.
Public Meeting (Webinar)	June 15, 2020	Public presentation dedicated to gathering feedback regarding major plan components, including risk assessment, hazard information, and initial mitigation ideas.
Public Comment Period	June 1 – June 15, 2020	Community member review of draft plan available on County’s website. Surrounding communities, including Chaffee County, Lake County, Teller County, the Town of Alma, and FPDs within Park County were invited to comment on the draft HMP. Correspondence with these stakeholders is included in Appendix

Table 2-3 Stakeholder and Public Outreach Activities Schedule

Outreach Event	Date	Objectives
		B. No comments were received from members of the public or other plan stakeholders outside of the plan workshops.

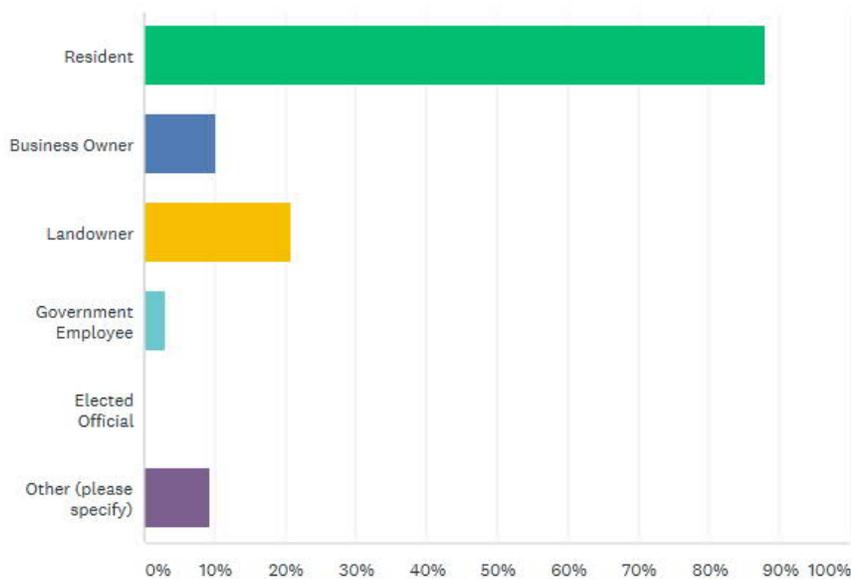
**Online Outreach**

An online survey was developed to learn more about the public’s initial concerns prior to plan development. The initial online survey was distributed through the County’s website beginning on March 6. Over the course of six weeks, more than 140 individuals responded to the survey and provided feedback. The following figures indicate some of the key findings of this initial survey.

*See Appendix B for complete survey results.*

Which of the following best defines your role in the community?

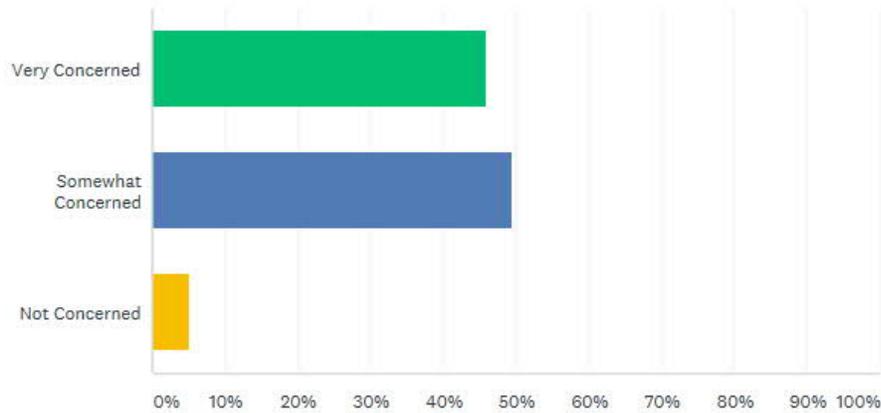
Answered: 140 Skipped: 1



*County residents made up the majority of survey respondents; however, business owners and landowners also participated. Other respondents included multiple part-time residents and vacation property owners.*

## How concerned are you about the impacts of natural disasters in your community?

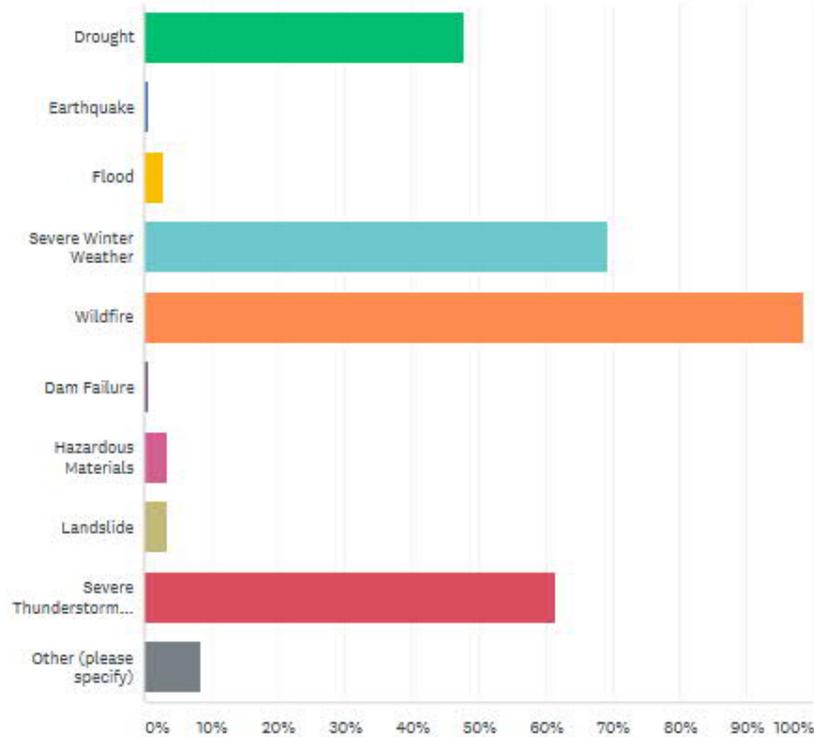
Answered: 140 Skipped: 1



*The majority of survey respondents (almost 50%) indicated they are somewhat concerned about the impacts of natural disasters. Those who are very concerned made up approximately 47% of respondents.*

Please select the top THREE (3) hazards you think are the GREATEST THREAT to your community, considering both frequency of occurrence and potential for severe damage.

Answered: 140 Skipped: 1



*Survey respondents indicated that wildfire; severe winter weather; and severe thunderstorm, hail, and wind are the hazards that pose the greatest threat to the community, which is consistent with the HMC's hazard rankings.*

**Public Meeting**

The County and HMC hosted a public presentation to provide an opportunity for stakeholders and members of the public to learn more about the planning process and draft HMP. Due to concerns surrounding COVID-19 and State and County orders to avoid public gatherings, the public meeting for the 2020 HMP update was held as a webinar on June 15, 2020, from 5:30 to 6:30 p.m. The presentation provided an overview of the planning process and the draft HMP, including hazard risks, plan goals and objectives, and proposed mitigation actions. Three people attended the webinar, which was recorded and provided for public viewing on the County's website.

*See Appendix B for additional public meeting documentation.*

### Plan Review

Community members were provided with the draft HMP from June 1 to June 18, 2020, on the County’s website (<https://www.parkco.us/>). During the public comment period, members of the community were invited to share their thoughts about what hazards concern them most, and how they think the County and its partners should prioritize their activities to reduce hazard risks. No comments on the draft HMP were received during the public meeting or public comment period.

## 2.6 PLAN DEVELOPMENT AND REVIEW

	<p>A6. Does the plan include a description of the method and schedule for keeping the plan current (monitoring, evaluating, and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))</p>
---	--

Development of the HMP was conducted according to the process outlined above and described in detail in FEMA’s Local Mitigation Planning Handbook. The HMC reviewed the previous plan during the Project Kickoff Workshop and identified sections that required revision.

The updated HMP serves as the written record of the comprehensive hazard mitigation planning process. In addition, the HMP reflects the region’s current needs and hazard concerns. Initial development of the HMP update occurred over a three-month period from March 2020 through May 2020. The plan was developed through a series of seven steps, as detailed in Table 2-4, many of which occurred concurrently. Table 2-4 also illustrates the corresponding FEMA local mitigation planning task for each HMP development milestone. The requisite State Hazard Mitigation Officer and FEMA review periods occurred during the draft and final HMP steps.

Table 2-4 Park County Hazard Mitigation Plan Update Milestones and Timeline

Park County HMP Update Development Milestone	Corresponding FEMA Recommended Mitigation Planning Task	Timeline	Updates Made? (Yes/No)
1. Data Collection and Document Review	Task 1 – Determine the Planning Area and Resources Task 5 – Conduct a Risk Assessment	March 2020– April 2020	Yes
2. Mitigation Planning Team Coordination	Task 2 – Build the Planning Team	March 2020– May 2020	Yes
3. Stakeholder Engagement and Outreach	Task 3 – Create an Outreach Strategy	March 2020– May 2020	Yes
4. Hazard Mitigation Strategy Update	Task 4 – Review Capabilities Task 6 – Develop a Mitigation Strategy	March 2020– April 2020	Yes
5. Draft Hazard Mitigation Plan	Written documentation of the planning process (all tasks)	March 2020– May 2020	Yes
6. Final Hazard Mitigation Plan	Written documentation of the planning process (all tasks)	August 2020	Yes
7. Plan Adoption	Task 8 – Review and Adopt the Plan	September – December 2020	Yes

**PART 2 —  
RISK ASSESSMENT**

## CHAPTER 3 IDENTIFIED HAZARDS OF CONCERN AND RISK ASSESSMENT METHODOLOGY

 <b>FEMA</b>	<p>B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect [Park County]? (Requirement §201.6(c)(2)(i))</p> <p>B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for [Park County]? (Requirement §201.6(c)(2)(i))</p> <p>B3. Does the plan include a description of each identified hazard’s impact as well as an overall summary of the vulnerability of the planning area? [44 CFR § 201.6(c)(2)(ii)]</p>
---	--

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards. It allows emergency management personnel to establish early response priorities by identifying potential hazards and vulnerable assets. The process focuses on the following elements:

- Hazard identification – Use all available information to determine what types of disasters may affect a jurisdiction, how often they can occur, and their potential severity.
- Vulnerability identification – Determine the impact of natural hazard events on the people, property, environment, economy and lands of the region.
- Cost evaluation – Estimate the cost of potential damage or cost that can be avoided by mitigation.

The risk assessment for this HMP update evaluates the risk of natural hazards prevalent in the planning area and meets requirements of the DMA (44 CFR, Section 201.6(c)(2)).

### 3.1 IDENTIFIED HAZARDS OF CONCERN

For this plan, the HMC considered the full range of hazards that could impact the planning area and then listed hazards that present the greatest concern. The process incorporated review of state and local hazard planning documents, as well as information on the frequency, magnitude and costs associated with hazards that have impacted or could impact the planning area.

- Wildfires, severe winter weather, drought, and severe thunderstorms/hail storms/high wind events, and drought can cause extensive property and agricultural losses throughout the county.
- Hazardous materials transport incidents are the only human-caused hazard to be given consideration in the planning process. They pose significant risk to life, property and watercourses along the U.S. Highway 285 corridor, the U.S. Highway 24 corridor and the State Highway 9 corridor.
- Landslides are isolated events, for the most part, and therefore have limited effects on the county as a whole. The same is true for dam failures, tornadoes, flooding, avalanches and earthquakes. The effects are usually area-specific and not usually widespread, based on historical occurrences. It should be noted, however, that several of the reservoirs in Park County are quite large. If the dams that contain them were to fail, the impacts of the dam failure flooding would be extensive and widespread.

- Epidemics/pandemics do not occur often, but the experience of the 2019–2020 novel coronavirus (COVID-19) at the time of this plan update has posed a significant risk to life and negative impacts on the global and local economy, impacting the entire county.

## 3.2 CLIMATE CHANGE

Climate includes patterns of temperature, precipitation, humidity, wind and seasons. Climate plays a fundamental role in shaping natural ecosystems, and the human economies and cultures that depend on them. “Climate change” refers to changes over a long period of time. It is generally perceived that climate change will have a measurable impact on the occurrence and severity of natural hazards around the world. Impacts include the following:

- Snow cover losses will continue, and declining snowpack will affect snow-dependent water supplies and stream flow levels around the world.
- As snow cover declines the freeze thaw cycles are affected and in some cases the depth of permafrost is decreasing.
- The risk of drought and the frequency, intensity, and duration of heat waves are expected to increase.
- More extreme precipitation is likely, increasing the risk of flooding.
- The world’s average temperature is expected to increase.

Climate change will affect communities in a variety of ways. Impacts could include an increased risk for extreme events such as drought, storms, flooding, and forest fires; more heat-related stress; and the spread of existing or new vector-borne disease into a community. In many cases, communities are already facing these problems to some degree. Climate change changes the frequency, intensity, extent, and/or magnitude of the problems.

This HMP update addresses climate change as a secondary impact for each identified hazard of concern. Each chapter addressing one of the hazards of concern includes a section with a qualitative discussion on the probable impacts of climate change for that hazard. While many models are currently being developed to assess the potential impacts of climate change, there are currently none available to support hazard mitigation planning. As these models are developed in the future, this risk assessment may be enhanced to better measure these impacts.

## 3.3 METHODOLOGY

The risk assessments in Chapters 5 through 15 describe the risks associated with each identified hazard of concern. Each chapter describes the hazard, the planning area’s vulnerabilities, and probable event scenarios. The following steps were used to define the risk of each hazard:

- Identify and profile each hazard – The following information is given for each hazard:
  - Geographic areas most affected by the hazard
  - Event frequency estimates
  - Severity estimates
  - Warning time likely to be available for response.
- Determine exposure to each hazard – Exposure was determined by overlaying hazard maps with an inventory of parcels and critical facilities to determine which of them would be exposed to each hazard.

- Assess the vulnerability of exposed critical facilities – Vulnerability of exposed facilities was determined by assessing facilities that are exposed to each hazard. GIS was used to perform this assessment for the wildfire, flood, dam failure, earthquake, and landslide hazards.

## **3.4 RISK ASSESSMENT TOOLS**

### **3.4.1 Quantitative Assessment**

Areas and inventory susceptible to some of the hazards of concern were mapped and exposure was evaluated. For other hazards, a qualitative analysis was conducted using the best available data and professional judgment. Locally relevant information was gathered from a variety of sources. Frequency and severity indicators include past events and the expert opinions of geologists, emergency management specialists and others. The initial data source were the Park County and State GIS databases, augmented with federal data sets. Data sources for specific hazards were as follows:

- Landslide— Data on landslide debris areas was provided by DHSEM.
- Severe Weather— Temperature and precipitation data were provided by the Natural Resources Conservation Service, National Water and Climatic Center’s PRISM (Parameter-elevation Regressions on Independent Slopes Model) project, and the National Weather Service. Tornado and hail data provided by the National Oceanic and Atmospheric Administration (NOAA) Storm Prediction Center.
- Wildfire—Information on wildfire hazards areas was provided by the U.S. Forest Service Research Data Archive.
- Drought— Information on drought was provided by NOAA.
- Flood— Data on the 100-year flood zone were provided by DHSEM.
- Dam Failure— Data on dam inundation zones was provided by DHSEM.
- Earthquake—Data on the 2,500 year peak ground acceleration was provided by DHSEM. Historical data were provided by the U.S. Geological Survey (USGS).

### **3.4.2 Qualitative Assessment**

The risk assessment methodologies used for this plan focus on potential damage to structures. Because certain hazards do not impact structures, or structure impact is difficult to quantify, the risk assessment was more limited and qualitative than the assessments for the other hazards of concern. Hazards that focused more on a qualitative assessment include drought, epidemic, severe winter weather, severe weather, and hazardous materials.

### **3.4.3 Limitations**

Loss estimates, exposure assessments and hazard-specific vulnerability evaluations rely on the best available data and methodologies. Uncertainties are inherent in any loss estimation methodology and arise in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from the following:

- Approximations and simplifications necessary to conduct a study.
- Incomplete or outdated inventory, demographic or economic parameter data.
- GIS and Assessor data not integrated.
- The unique nature, geographic extent and severity of each hazard.
- Mitigation measures already employed

- The amount of advance notice residents have to prepare for a specific hazard event.

These factors can affect loss estimates by a factor of two or more. Therefore, potential exposure and loss estimates are approximate. The results do not predict precise results and should be used only to understand relative risk. Over the long term, Park County and its planning partners will collect additional data to assist in estimating potential losses associated with other hazards.

### 3.4.4 Hazard Rankings

The hazards identified in the HMP were initially ranked based on HMC feedback during HMC Meeting #1. The process incorporated review of the Colorado State Enhanced HMP and the 2015 Park County HMP. Participants were asked to rank hazards on a scale of 1 (lowest concern) to 5 (highest concern) based on five key attributes:



- **Probability:** Likelihood of the hazard occurring based on past trends and, when applicable, projected changes based on climate change.
- **Magnitude:** Areas potentially impacted, the overall impacts, and the chance of one hazard triggering another hazard, thus causing a cascading effect.
- **Onset:** The time between recognition of an approaching hazard and when the hazard begins to affect the community.
- **Duration:** The length of time the hazard remains active, the length of time emergency operations continue after the hazard event, and the length of time that recovery will take.
- **Frequency:** How often a hazard has resulted in an emergency or disaster.

Following the individual hazard ranking activity, the results were added up and aggregated to show an average score for all of the HMC members. The aggregate results were shared with the HMC, and the final rankings were adopted as the official rankings for the HMP and are available in Table 3-1.

Table 3-1 Park County Hazard Rankings

	<i>Probability/ Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Wildfire	4.77	4.27	4.23	4.54	4.42	1
Severe Winter Weather	4.62	3.62	3.92	3.85	4.05	2
Severe Thunderstorm, Hail, and Wind	4.31	3.00	4.08	2.69	3.79	3
Flood	3.00	3.15	3.62	3.92	3.26	4
Hazardous Materials	3.12	2.38	3.77	2.46	3.09	5
Dam Failure	1.62	3.62	4.00	3.88	3.08	6
Landslide	2.27	1.85	4.00	3.38	2.71	7
Earthquake	1.15	2.31	4.04	2.85	2.50	8
Drought	3.31	2.08	1.54	4.08	2.31	9

*Note: Epidemic/Pandemic was added as a hazard for Park County following the hazard ranking exercise. Epidemic/Pandemic will be ranked as a hazard in future updates of the plan.*

## CHAPTER 4

# PARK COUNTY PROFILE

Established in 1861, Park County is located in the central part of Colorado, with the unincorporated town of Hartsel as the geographic center of the state (see Figure 4-1). Park County is the 17th largest of Colorado's 64 counties in area. Park County is approximately 40 miles from east to west and 50 miles from north to south, encompassing over 2,200 square miles. The total county population, according to the 2018 release of the American Community Survey (ACS) 5-Year Estimates Data Profiles, is 17,392 persons, most of whom live in unincorporated areas (USCB 2018a). In the past, Park County's economy was based on mining and ranching. Currently, the Park County economy is dependent upon tourism and construction and on residents in the Platte Canyon area around Bailey who commute to work in the Denver metropolitan area and on residents in the Alma/Fairplay Area who commute to work in Summit County.

### 4.1 GEOGRAPHIC FEATURES

The county crosses five watersheds and contains the headwaters of the South Platte River. Dams and reservoirs have been constructed to provide water for Front Range municipalities, and they also serve as fishing and recreation sites for Park County residents and visitors. Five water storage reservoirs (Antero, Eleven Mile, Tarryall, Spinney, and Montgomery) have become important wildlife and aquatic recreation areas, attracting a half-million people to the region each year. Within the county borders are portions of three wilderness areas, two state parks, 12 state wildlife areas, and more territory above 9,000 feet than any other Colorado county. Federal lands comprise 51 percent of Park County's landmass. State-owned lands account for about 8 percent and privately owned land for about 41 percent. Notable features on federal land include:

- 644,000-acre Pike National Forest
- Lost Creek, Mount Evans, and Buffalo Peaks Wilderness Areas
- Eleven Mile Canyon Recreation Area
- Bristlecone Pine Scenic Area
- Wilkerson Pass Visitor Center
- Colorado Trail

#### 4.1.1 Mountain Ranges

Several named mountain ranges define the perimeter of Park County, including the Mosquito Range above Fairplay and Alma. This spectacular range includes four of Colorado's peaks higher than 14,000 feet, as well as 25 named summits above 13,000 feet. Other mountains in the County include:

- Buffalo Peaks west of Hartsel
- Continental Divide north of Jefferson and Como
- Front Range and Kenosha Mountains above Bailey and Grant
- Tarryall Mountains north of Lake George
- Thirty-nine Mile Volcanic Field surrounding the town of Guffey

Within this ring of mountain ranges is South Park, a 900-square-mile park located in the geographic center of Colorado. With an average elevation of 9,000 feet, the shortgrass prairie of South Park supports herds of elk, deer, bighorn sheep, and pronghorn, as well as the beaver, raccoon, bobcat, mountain lion, black bear, and waterfowl. Communities in South Park include Fairplay, Alma, Como, Jefferson, Hartsel, and Tarryall.

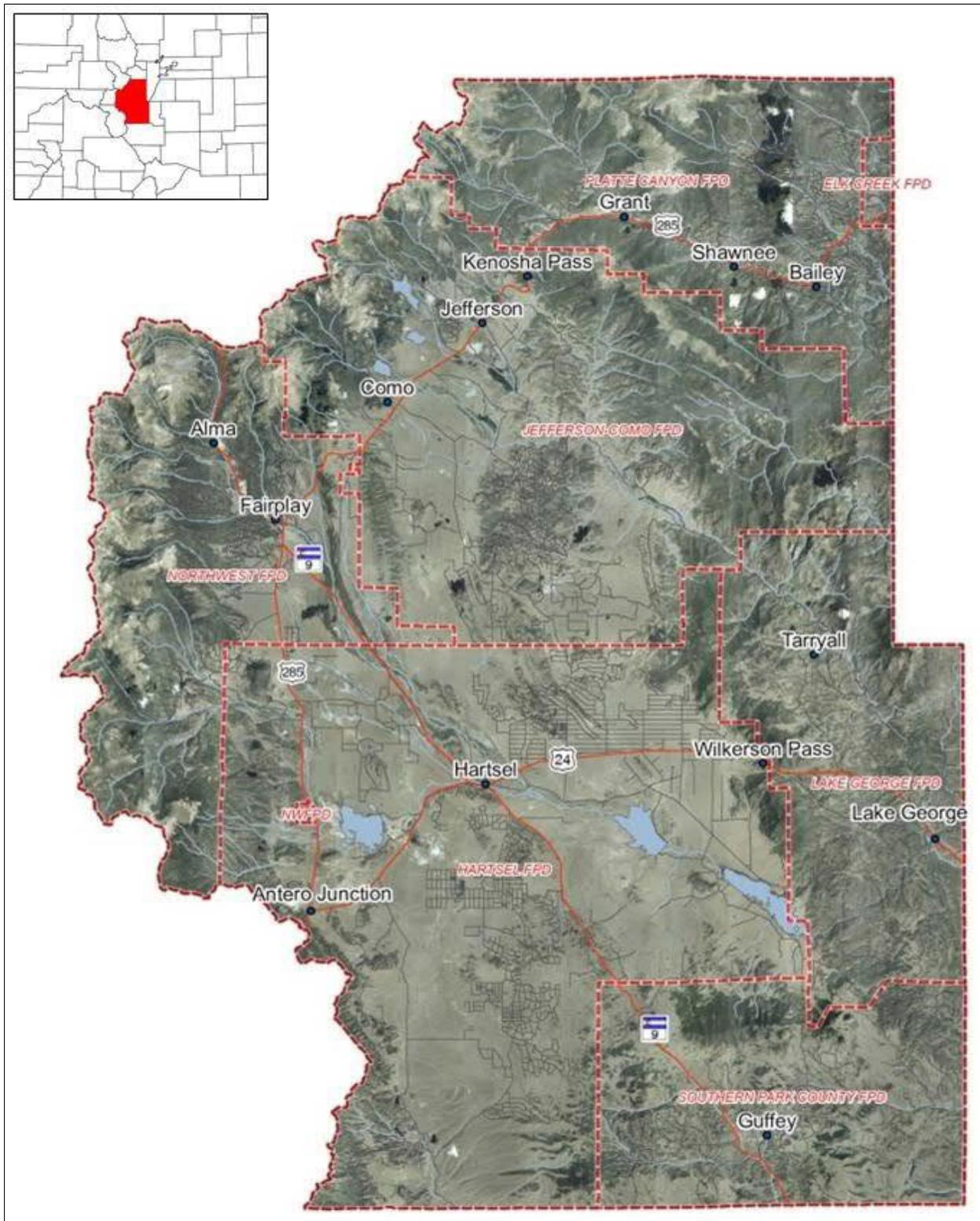


Figure 4-1 Main Features of the Planning Area

### 4.1.2 Canyons

The northeastern third of Park County is known as the Platte Canyon Area. This densely forested area is bisected by the North Fork of the South Platte River that follows U.S. Highway 285 through the communities of Bailey, Shawnee, and Grant. This portion of the county is lower, with an average elevation of 8,300 feet above sea level.

The southern third of Park County includes the communities of Lake George, Hartsel, and Guffey. This area is characterized by rolling prairie and remnant volcanoes. Dramatic landforms such as Eleven Mile Canyon and Tarryall River Canyon have been carved by the South Platte River and its tributaries.

## 4.2 JURISDICTIONS AND LAND COVER

Park County is bordered by Lake County to the west, Summit County to the northwest, Clear Creek County to the north, Jefferson County to the northeast, Teller County to the east, and Fremont County to the southeast and finally, Chaffee County to the southwest. There are two incorporated towns in the county:

- Fairplay—9,957 feet above sea level. Founded in 1867. As the incorporated seat of Park County, Fairplay is the county government seat. According to the State Demographer, about 700 people now reside within the Fairplay town limits. It is estimated that about 2,000 more reside in outlying areas.
- Alma—10,350 feet above sea level. Founded in 1873. Located on State Highway 9, six miles northwest of Fairplay, Alma is the highest incorporated town in North America. The estimated population is 270, with 1,000 residents in nearby subdivisions. Historically, Alma was the center for the local mining industry. With continued development of residential subdivisions around Alma, the area is predominantly a bedroom community for several ski resorts in Summit County, 25-40 miles to the north, beyond Hoosier Pass.

Unincorporated communities in the county include Bailey, Como, Grant, Hartsel, Jefferson, Lake George, Guffey, Pine Junction, Shawnee and Tarryall.

The total land area of Park County is approximately 1,415,040 acres or 2,211 square miles. Federal and State lands comprise 59 percent of the total land. Approximately 41 percent of the land in the county is private, although 78 percent of that private land remains undeveloped. The Town of Fairplay is approximately 704 acres (1.1 square mile) in size, and the Town of Alma is approximately 192 acres (0.36 square miles).

Most of Park County is rangeland and the rest is mountainous, which makes it susceptible to both forest fires and range fires. Dry rangeland is often used as grazing grounds for agricultural animals. According to Park County, as of 2013 there were 283 subdivisions, totaling 234,300 acres, many which overlap the wildland/urban interface.

## 4.3 HISTORICAL OVERVIEW

Park County provides a rich tableau of both human and natural history. Prehistoric geologic processes resulted in the formation of the Rocky Mountains and, together with volcanic activity, created a rich mineral-laden area called the Colorado Mineral belt which extends from the Four Corners area northeast through Breckenridge, Golden and Boulder. Evidence has been found to suggest that Paleo-Indians and other prehistoric peoples lived in Park County as early as 6000 B.C. When Spanish explorers arrived in the 1500s, the nomadic Mountain Ute Indians were well established in the area, finding the area bountiful with plants and animals, and salt from the natural saline springs.

The first official U.S. Government explorer in the region, Lt. Zebulon Pike, arrived at the Eleven Mile Canyon in 1806 with a team of 21 men. He was scouting the newly acquired western land for President Thomas Jefferson. At about the same time, mountain men were expanding into the area to hunt and trap for

the booming fur trade. During the 1850s there were major Mountain Ute camps in the area of Park County and on occasion bands of rival tribes would enter the area causing skirmishes over the hunting grounds.

The first gold to be discovered in the Western United States was found in 1803 near Como. However, it was not until gold was discovered in Tarryall Creek in 1859 that a gold rush began. Soon “Pikes Peak or Bust” was the motive for tens of thousands of gold seekers to come to Colorado – approximately a third of whom settled in Park County. Supporting industries also grew during this time creating opportunities for ranchers and stockmen who eventually displaced the Native Americans.

The Denver, South Park & Pacific Railway blasted through the Platte Canyon in 1878 and ushered in an era of economic growth in the area through mining, logging and ranching communities that thrived along the line. The railroad itself did not fare as well; after declaring bankruptcy, it abandoned the Park County segment of the rail in 1937.

Throughout the early 1900s, Park County was a tourist destination and was promoted as a place to escape the city and enjoy outdoor recreation. Tourists could travel by train to any one of the several resorts throughout Platte Canyon which hosted outdoor activities such as fishing, horseback riding and golfing. For 30 years, the railroad operated ‘fish trains’ bringing fishermen to their favorite fishing locations and thousands of trout were brought in ‘fish cars’ to stock the river each year.

From 1922 to 1952, floating gold recovery plants lined the South Platte River offering a new form of industrial mining. Huge dredges moved forward, separating gold from rock and ejecting the waste into large rock piles that can still be seen today. In 1957, the South Park Historical Foundation was founded and began preserving items of the gold mining era. Together, with local civic groups, the Foundation was instrumental in re-creating an historic mining town on the outskirts of Fairplay. Today, the South Park City Museum provides visitors with an idea of life in a Colorado mining town at the turn of the century and includes 34 buildings and 60,000 artifacts.

In 1997, the Governor designated the region as an official State Heritage Area helping to continue the legacy of Park County as a favorite vacation destination. In addition to breathtaking scenery and abundant outdoor recreational opportunities, the area houses several sites that are listed on the National Register of Historic Places

## **4.4 TRANSPORTATION**

Three highways pass through Park County: U.S. Highway 285, U.S. Highway 24, and State Highway 9. U.S. Highway 285 is considered by the Colorado Department of Transportation (CDOT) as a “Primary Arterial.” It transects the county running east to west through Bailey and then north to south through the county, exiting into Chaffee County. In October 2019, CDOT and its contractor completed an \$11.2 million, seven-month project involving 20-mile resurfacing and 3-mile widening (for passing lanes) north and south of Fairplay to improve road quality and increase safety (see Figure 4-2). According to the CDOT website, additional work is planned at the intersection of U.S. Highway 285 and State Highway 9 to address congestion. Communities have indicated that road work in this area has resulted in new hazards, as traffic is constrained in a canyon area, resulting in potential for stranded passengers in the event of an emergency.

U.S. Highway 24, an east to west highway, travels from Teller County to Lake George and on to Hartsel, continuing from Hartsel to Chaffee County. State Highway 9, a southeast to northwest highway, runs from Fremont County through Guffey and Hartsel to Fairplay and then from Fairplay to Alma and into Summit County and Breckenridge.

County roads provide access to many of the county’s unincorporated areas. Most of the roads in Park County are unpaved and many are not maintained by the County. Numerous National Forest access routes provide automobile access into and through the county. Some of the National Forest routes are suitable for four-wheel drive only.

US 285 Passing Lanes



Figure 4-2 U.S. Highway 285 Passing Lanes. Photo credit: CDOT

Other transportation features in the county are as follows:

- Greyhound Bus Lines serves the County (Fairplay) with limited bus service.
- The Arrow/Black Hills Stage Lines also serve Park County with a stop in Fairplay at the Sinclair Station. Fairplay/Park County does not have a public transportation service.
- Blue River Shuttles provides shuttle service between Alma and Fairplay over to Breckenridge.
- There are no commuter rail lines currently active within Park County.
- The county does not currently have an airstrip or airport. The closest private service airport is available in either Leadville, CO, approximately 17 miles from Fairplay or in Buena Vista at the Buena Vista-Central Colorado Regional Airport, approximately 28 miles away.
- Uber and Lyft are available in the more populated areas of the county.

## 4.5 SCHOOLS

Park County has two school districts, divided between the north and the south portions of the county. RE-1 District – Platte Canyon School District and Schools in Bailey serve the northeastern part of the county from Kenosha Pass to Conifer. Park County School District – RE-2 District Schools serve the entire South Park region from Kenosha Pass south and west to the Chaffee County line, including Alma and Fairplay. There are two charter schools in Park County. One is in Lake George and the other is in Guffey. There are no colleges or technical schools within Park County. The nearest colleges are in Summit County or in Chaffee County.

## 4.6 RECREATION

There are roughly 1,300 square miles (832,000 acres) of recreational land within the county. There are five major water storage reservoirs (Antero, Eleven Mile, Tarryall, Spinney and Montgomery) which have become important wildlife and aquatic recreation areas, attracting over a half-million people to the region each year for boating, hunting, fishing and camping. Additionally, there are 20 + other lakes/reservoirs located across the County offering a variety of recreational opportunities.

Park County features dozens of headwater lakes and streams, many working ranches, and hundreds of historic structures built by miners and settlers. In recent years the area has gained popularity as a high-altitude venue for mountaineers, fly fishermen and off-highway vehicle enthusiasts. The unique opportunity to cross-country ski, hike, view wildlife, visit mining attractions and fish all in the same weekend in Park County’s twelve state wildlife areas, three national wildlife areas, reservoirs, two state parks, and streams with over 50 miles of Gold Medal trout waters draws visitors from around the world.

Thirty-one public campgrounds are distributed throughout the county with recreation trails, fishing waters and historic sites nearby. In addition, there are nine ranch-style guest resorts, three historic hotels and five motels that provide accommodation for area visitors.

The Mosquito Range above Fairplay contains four peaks higher than 14,000 feet. Traversing this range is Mosquito Pass (13,186 feet), the highest automobile pass in North America. Numerous other mountain byways, jeep roads and off-highway vehicle routes throughout the county provide self-guided auto tours to old mining camps, ghost towns and backcountry areas.

Eleven Mile and Spinney Mountain State Parks near Lake George provide facilities (seasonal) for fly and lure fishing, boating, sailing, camping and hunting.

### 4.7 MAJOR PAST HAZARD EVENTS

Presidential disaster declarations are typically issued for hazard events that cause more damage than state and local governments can handle without assistance from the federal government, although no specific dollar loss threshold has been established for these declarations. A presidential disaster declaration puts various federal recovery and hazard mitigation programs into motion to help disaster victims, businesses and public entities. Some of the programs are matched by state programs. The planning area has experienced ten events since 1969 for which presidential disaster declarations were issued and 11 events since 1980 for which State declarations were issued (FEMA 2020; Colorado Department of Public Safety, Division of Homeland Security and Emergency Management 2020). These events are listed in Table 4-1.

Table 4-1 Presidential Disaster Declarations for Hazard Events in the Planning Area

Type of Event	Disaster Declaration # (Federal Declarations)	Incident Date
Wildfire	State declaration	2017
Severe Weather	State declaration	2015
Severe Storms, Tornadoes, Flooding, Landslides, and Mudslides	DR-4229	05/04/2015-06/16/2015
Extreme Weather	State declaration	2014
Flooding	State declaration	2013
Severe Spring Snowstorm	State declaration	2009
Severe Blizzard	State declaration	2009
Wildfire (Nash Ranch Fire)	FM-2778	6/24/2008
Hurricane Katrina Evacuation	DR-3224	8/29/2005
Snow Emergency	State declaration	2003
Severe Winter Weather (Snowstorm)	EM-3185	3/17/2003
Wildfires	State declaration	2002
Drought	State declaration	2002
Wildfire (Hayman Fire)	FM-2421	06/08/2002
Wildfire (Colorado Black Mountain Fire)	FM-2403	5/5/2002

Table 4-1 Presidential Disaster Declarations for Hazard Events in the Planning Area

Type of Event	Disaster Declaration # (Federal Declarations)	Incident Date
Wildfire – Colorado Wildfires	DR-1421	4/23/2002
Wildfire – Snaking Fire	FM-2399	4/23/2002
Wildfires	State declaration	2000
Wildfire – High Meadows Fire	FM-2309	6/12/2000
Buffalo Creek Fire	FM-2178	5/18/1996
Flooding	State declaration	1987
Colorado Severe Storms, Flooding	DR-261	5/19/1969

Review of these events helps identify targets for risk reduction and ways to increase a community's capability to avoid large-scale events in the future. Still, many natural hazard events do not trigger federal disaster declaration protocol but have significant impacts on their communities. These events are also important to consider in establishing recurrence intervals for hazards of concern.

## 4.8 PHYSICAL SETTING

### 4.8.1 Geology

Park County is located in the geographic transition from the foothills of Colorado's Front Range to the high peaks of the Continental Divide and the equally high peaks of the basin divide between the South Platte River Basin headwaters and the Arkansas River Basin headwaters. Several named mountain ranges define the perimeter of Park County, the highest in elevation being the Mosquito Range above Fairplay and Alma. This spectacular range includes four of Colorado's peaks higher than 14,000 feet, as well as 25 named summits above 13,000 feet. Starting in the northeastern quadrant and following a counterclockwise path, the mountain ranges in the county include the Front Range and Kenosha Mountains above the unincorporated communities of Bailey and Grant, the Continental Divide north of Jefferson and Como, the Mosquito Range, (including the Buffalo Peaks west of Hartsel), the Thirtynine Mile Volcanic Area surrounding the town of Guffey, the Puma Hills just west of Lake George (including Wilkerson Pass), and the Tarryall Mountains forming the divide between Tarryall Creek and the South Platte River north of Lake George.

Within this ring of mountain ranges is South Park, a 900-square mile park (large mountain valley) located in the geographic center of Colorado. With an average elevation of 9,000 feet, the short grass prairie of South Park supports herds of elk, deer, pronghorn sheep and antelope, as well as beaver, raccoon, bobcat, mountain lion, black bear and waterfowl. Communities in South Park include Fairplay, Como, Jefferson and Hartsel. South Park forms one of six geographic regions of Park County (see Figure 4-3).

The second region, the northeastern portion of Park County is known as the Platte Canyon Area. This densely forested area is bisected by the North Fork of the South Platte River that follows U.S. Highway 285 through the communities of Bailey, Shawnee and Grant. This area of the county is lower, with an average elevation of 8,300 feet above sea level.

The third and fourth regions are formed by the highest mountains in the county. Immediately south and west of the Platte Canyon Area is the Continental Divide, separating the Colorado River Basin in Summit County from the South Platte River Basin in Park County. To the south of the Continental Divide is the fourth geographic area, the Mosquito Range. This north-south range includes Park County's highest peaks. The Town of Alma is located at the point where these two mountainous regions meet each other and transition into South Park.

The fifth region, the southern region of Park County is the Thirtynine Mile Mountain Volcanic Area. This region extends from the Kaufman Ridge, dividing Park County and Chaffee County, all the way across southern Park County to the Teller County boundary, sloping down southward from South Park toward the Arkansas River valley. It includes the community of Guffey. The entire region is characterized by rolling prairies and remnant volcanoes. The final region is the eastern region of the county, the Front Range, which is east of the Puma Hills and north of the Thirtynine Mile Volcanic Area. It includes the unincorporated communities of Lake George and Tarryall. The South Platte River and its tributaries have carved dramatic landforms such as Eleven Mile and Tarryall River Canyons, providing a rugged, hilly transition from the Thirtynine Mile Mountain Volcanic Area northward to the Platte Canyon Area.

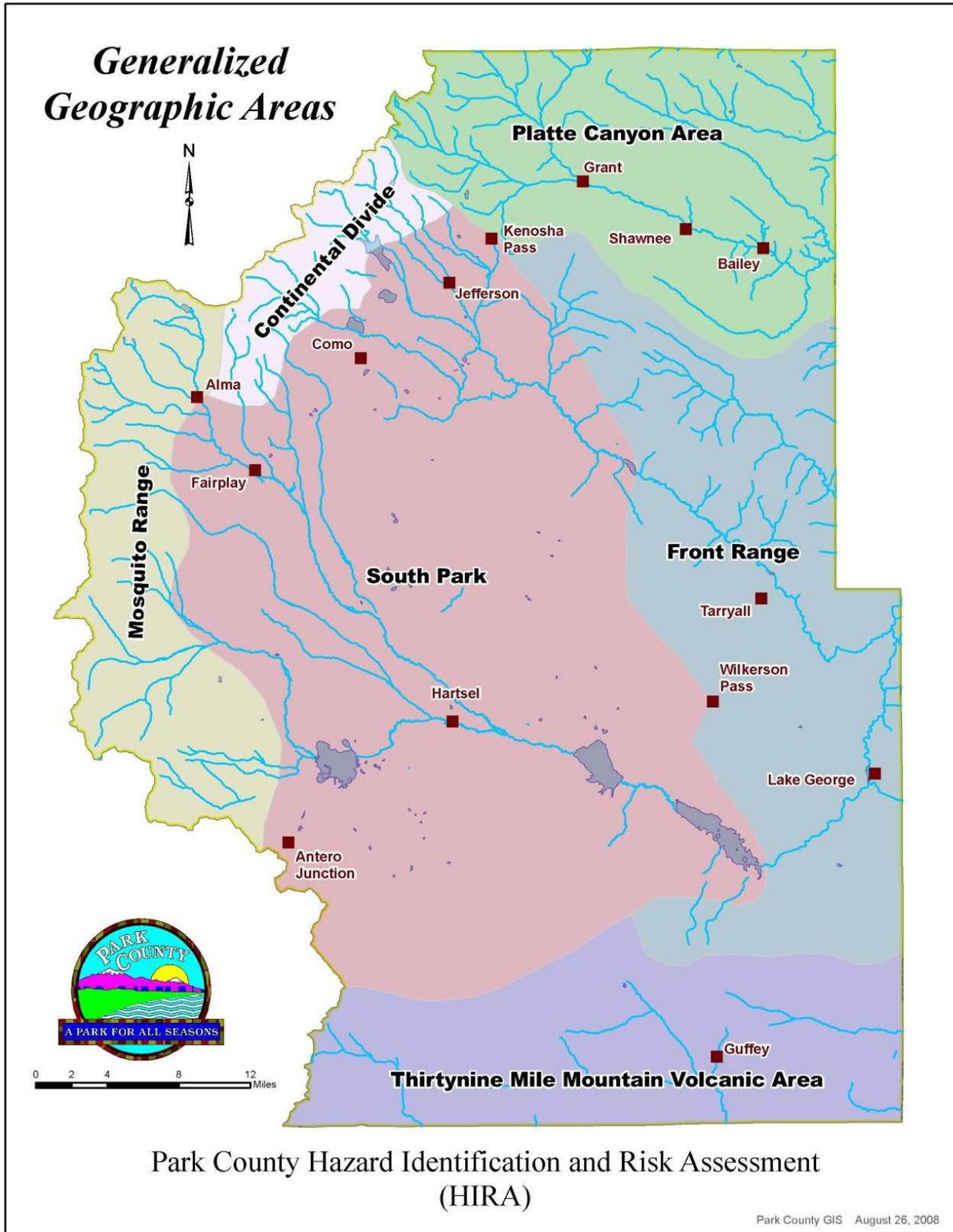


Figure 4-3 Generalized Geographic Regions

The majority of Park County is located within the South Platte River basin. Two forks of the South Platte, the Middle Fork and the South Fork, join near Hartsel to form the South Platte River. Farther downstream, near Lake George, the major tributary of Tarryall Creek joins the South Platte just before it exits Park County. The third fork of the South Platte in Park County, the North Fork, along with its two major tributaries, Elk Creek and Deer Creek, does not meet the South Platte until the community of South Platte, downstream of Park County in Jefferson County. A small part of Park County, in the south and just upstream of Fremont County and Teller County, is formed by three major headwaters tributaries of the Arkansas River. Those tributaries are Badger Creek, Currant Creek, and West Fourmile Creek.

### 4.8.2 Climate

Park County’s 2,200 square miles fall within the Southern Rockies Level III eco-region, which encompasses very diverse terrain and experiences very diverse weather. Bailey is in the northeastern part of the county at 7,700 feet above sea level; Lake George is in the southeastern part of the county at 8,000 feet above sea level; and Fairplay is located in the northwestern part of the county, 9,957 feet above sea level (Park County, n.d.). There are 10 sub-regions within the Southern Rockies eco-region. Park County spans the full range of those sub-regions, from the alpine zone to grassland parks.

Park County generally experiences low humidity. Temperatures can fluctuate significantly in the course of a day, and the County indicates that the temperature drops about four degrees for every 1,000 feet of elevation gain. There are approximately 300 sunny days each year, with afternoon rains common in the summer (Park County, n.d.).

Annual and monthly data are provided in the tables below:

Table 4-2 Climate Data for Park County

Area	Average Annual Precipitation	Average Annual Snowfall	Average January Temperature	Average July Temperature
Fairplay	13.6 inches	84 inches	9°F min / 28°F max	41°F min / 69°F max
Bailey	15.7 inches	80 inches	9°F min / 40°F max	44°F min / 80°F max
Lake George	15.1 inches	59 inches	0°F min / 37°F max	41°F min / 76°F max

Source: Party County (n.d.)

Monthly averages are presented in Table 4-3.

Table 4-3 2019 Monthly Temperature and Precipitation for Park County

	Bailey, Colorado Monthly Averages				Lake George, Colorado Monthly Averages			
	Temperature (°F)		Precipitation (inches)		Temperature (°F)		Precipitation (inches)	
	High	Low	Precipitation	Snow	High	Low	Precipitation	Snow
Jan.	35.5	8.5	1.15	17.7	27	-5.7	0.58	16
Feb.	38	9.1	0.97	12.3	33	1	0.6	9.5
Mar.	44.6	16.1	1.89	13	42.4	11.9	0.76	13
Apr.	55	24.8	1.04	8.3	51.4	23	0.41	4.5
May	55.7	28.3	2.46	9	53.6	28.5	1.36	5
June	71.5	36.9	0.75	0	68.3	37.5	0.85	0
July	81.3	45.1	1.72	0	78.2	45.7	1.82	0
Aug.	80.3	44.4	0.63	0	77	45.7	1.44	0
Sep.	77.8	38.3	0.48	0	72.8	40.3	2.32	0
Oct.	53.1	18.8	1.43	18.3	50.5	20.1	0.77	11.1
Nov	45.8	15.3	0.91	11.1	43.1	12.9	0.76	11.5
Dec.	37.3	11.5	0.34	6.7	23	-3.1	0.36	6.5

Source: Colorado State University Colorado Climate Center (n.d.)

Figure 4-4, Figure 4-5, and Figure 4-6 show the distribution over the county of annual average precipitation and minimum and maximum temperatures, respectively.

### 4.8.3 Potential Interactions between Pine Beetle Infestations and Other Hazards

In 2018, Colorado experienced the warmest temperatures on record since 1895 from October 2017 to September 2018. Extreme and severe drought conditions coupled with very warm temperatures, particularly when prolonged, leave trees susceptible to attack from forest pests (Colorado State Forest Service 2019).

Forest infestations can play a significant role in increasing the risks from and potential impacts of other hazards. Dead trees contribute to more fuels for forest fires, though they do decrease the risk of crown fires. Dead trees are subject to blowing over during severe winter weather, severe thunderstorms, or high wind events, raising the potential for downing power lines, blocking roads, and falling on houses, businesses, properties, and recreational trails. Dead trees also increase the risk of debris flows during heavy rain or snowmelt-induced flooding and dam failure events. In addition, dead trees lead to soil instability, exacerbating the risk and impacts of landslides. According to the Colorado State Forest Service 2019 *Insect and Disease Update*, outlined through the 2019 Forest Health Report Story Map ((Colorado State Forest Service 2019), the following insects were of highest concern in Park County: the spruce beetle, which has infested 1.86 million acres in Colorado since 2000; the western spruce budworm, which defoliated 131,000 acres in 2018; and the piñon engraver beetle, which impacts the piñon pine.

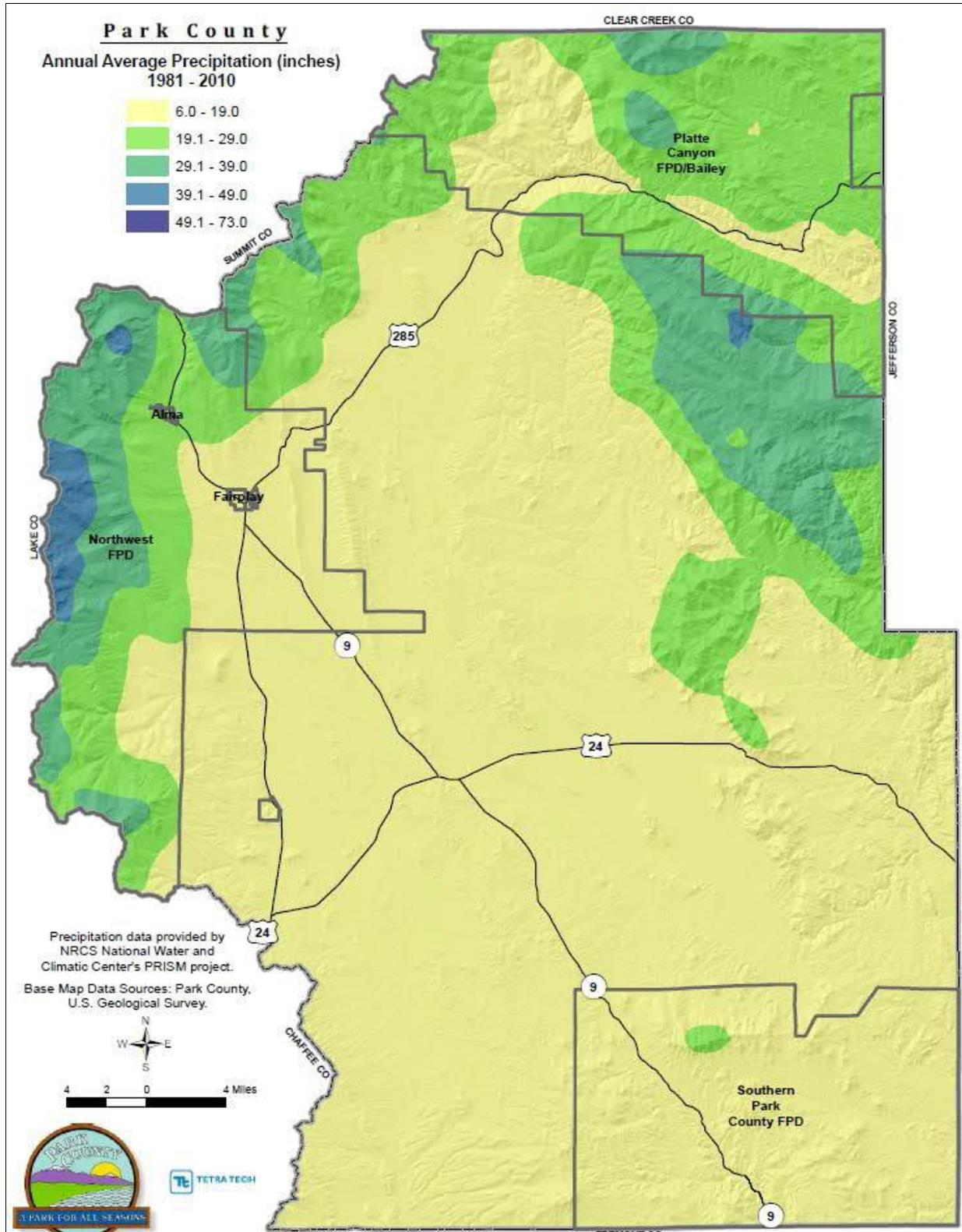
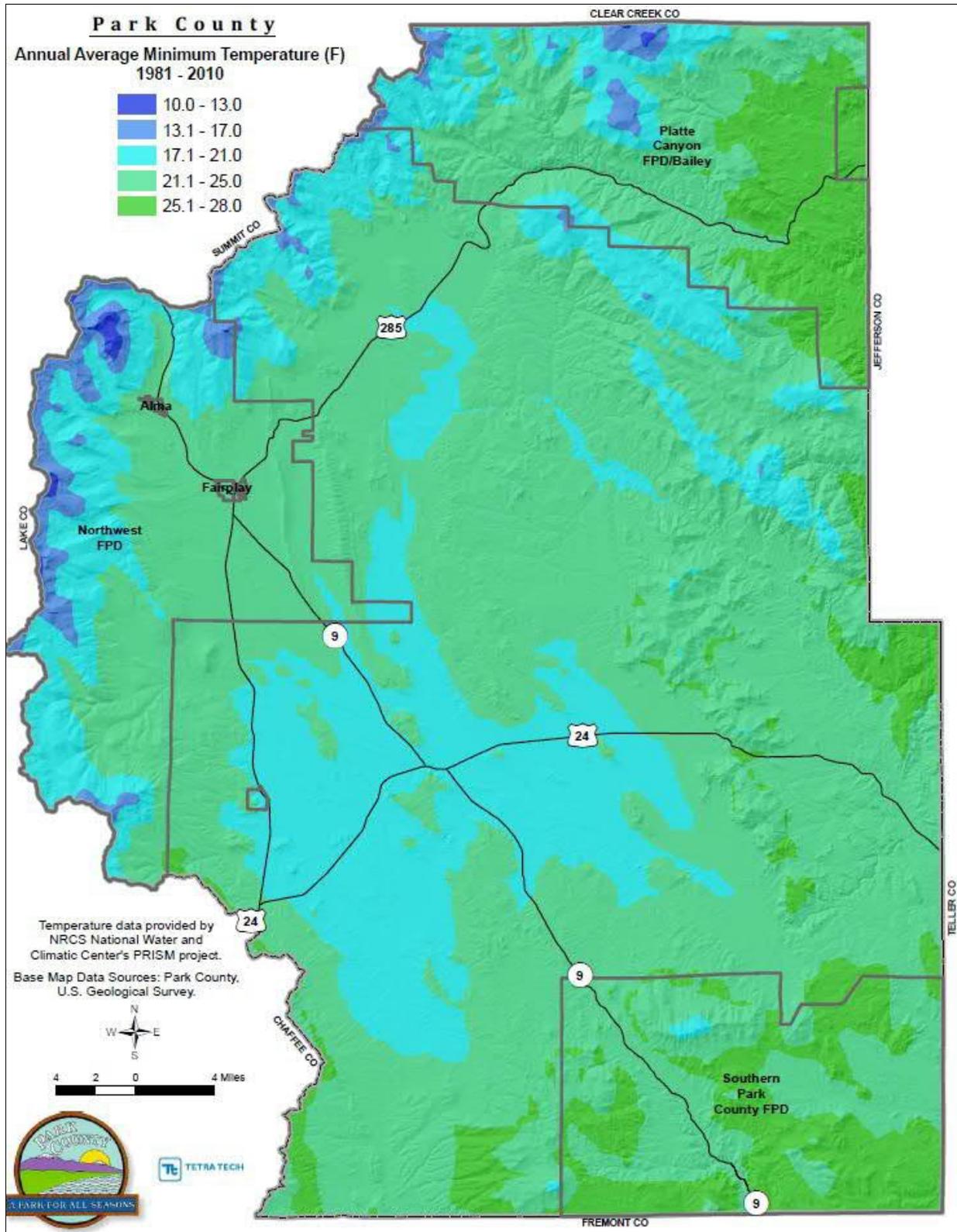


Figure 4-4 Park County Average Annual Precipitation, 1981–2010 30-Year Normals



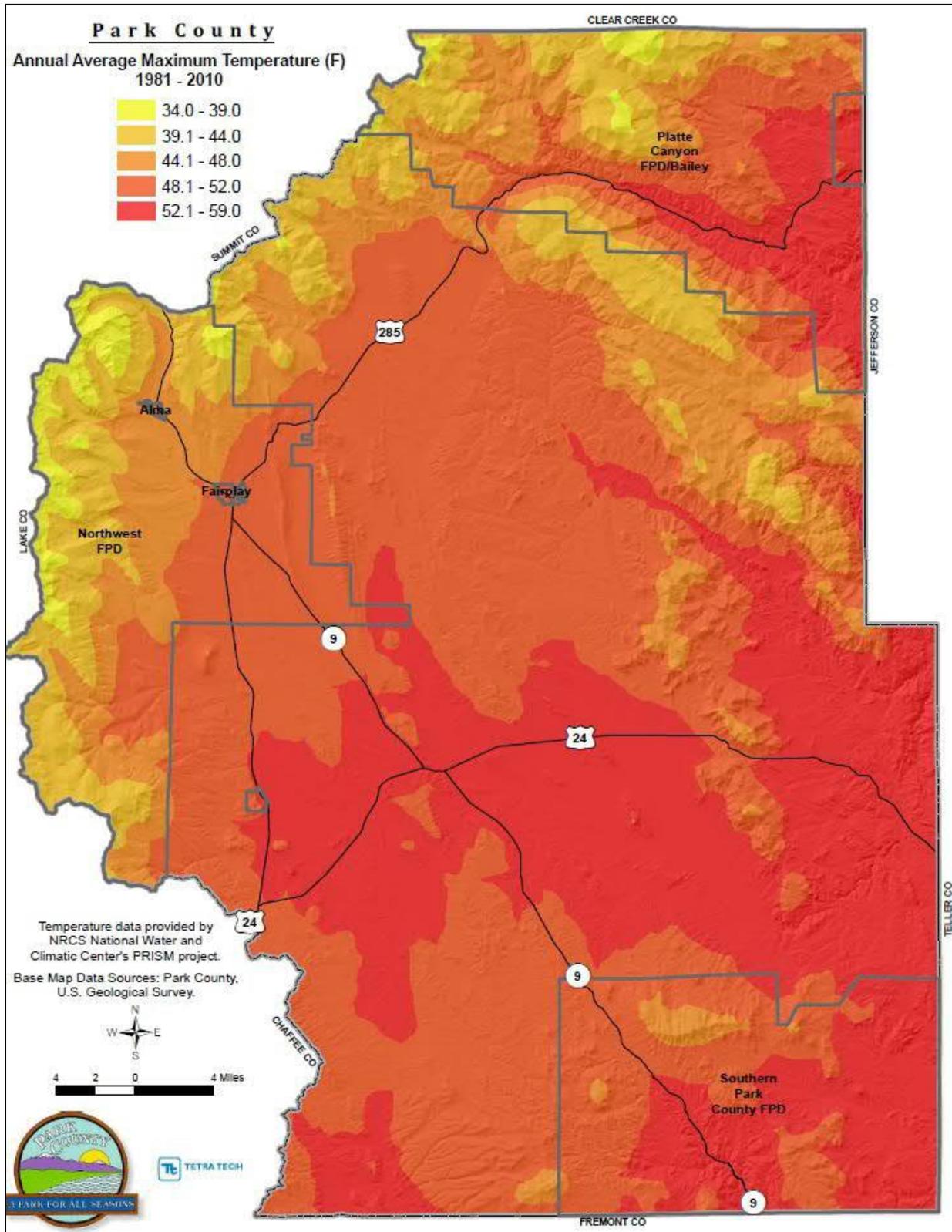


Figure 4-6 Park County Average Maximum Temperature, 1981–2010

## 4.9 CRITICAL FACILITIES AND INFRASTRUCTURE

Critical facilities and infrastructure are those that are essential to the health and welfare of the population. These become especially important after a hazard event. Critical facilities typically include police and fire stations, schools and emergency operations centers. Critical infrastructure can include the roads and bridges that provide ingress and egress and allow emergency vehicles access to those in need, and the utilities that provide water, electricity and communication services to the community. Also included are “Tier II” facilities and railroads, which hold or carry significant amounts of hazardous materials with a potential to impact public health and welfare in a hazard event. As defined for this HMP update, critical facilities include but are not limited to the following:

- Police stations, fire stations, city/county government facilities (including those that house critical information technology and communication infrastructure), vehicle and equipment storage facilities, and emergency operations centers needed for disaster response before, during, and after hazard events.
- Public and private electric generation facilities vital to maintaining or restoring normal services to areas damaged by hazard events. Data were not available as of the time of this plan update for other infrastructure, including water supply and wastewater infrastructure, data and server communication facilities, and transportation facilities.
- Educational facilities, including K-12 and community colleges.
- Hospitals and medical facilities.
- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, and/or water-reactive materials.
- Utilities
  - Water
    - The towns of Fairplay and Alma provide central water systems that store and distribute water to their residents.
    - Several subdivisions have private water treatment plants, while many other residents get potable water from well systems.
  - Sewage Treatment
    - Sewage for Alma and Fairplay is processed by treatment facilities.
    - Sewage treatment from individual sewage disposal systems in Park County, usually consisting of septic tanks and leach fields, is controlled through a permit system that requires soil samples, test holes and the availability of sufficient space. The County’s Environmental Health Office issues septic tank permits to ensure compliance with state guidelines.
  - Electricity
    - IREA and Xcel Energy supply electricity to portions of Park County.
- Police and Fire
  - The Park County Sheriff’s Office patrols unincorporated portions of the county.
  - The Town of Alma and the Town of Fairplay are both served by their own police departments.
  - The Colorado State Patrol enforces traffic law along U.S. Highway 285, U.S. Highway 24, and State Highway 9.

- Figure 4-1 identifies the seven fire protection districts within Park County. These vary from fully volunteer to paid fire districts. The following is a list of the fire protection districts and the areas they serve:
  - Elk Creek FPD– parts of Bailey and Conifer
  - Platte Canyon FPD – Bailey and land up to the top of Kenosha Pass.
  - Jefferson/Como FPD – South of Kenosha Pass through the Town of Como.
  - North-West FPD – East of Hoosier Pass including the Towns of Fairplay and Alma and south to the Chaffee county line.
  - Hartsel FPD – The Town of Hartsel and all surrounding area in the center of Park County.
  - Lake George FPD – East of Wilkerson Pass and the community of Lake George.
  - Guffey (Southern Park County) FPD – The community of Guffey and the southeast corner of Park County.
- Communications
  - Park County is served by one Public Safety Answering Point, which is located in the Town of Fairplay. All responding agencies are dispatched through the Park County Communications Center.
    - Telephone Companies:  
CenturyLink
    - Cellular Companies:  
Verizon Wireless  
T-Mobile  
Cingular / AT&T  
Sprint

There are multiple providers of telecommunication services in Park County who are ready and able to provide Internet, e-mail, inbound 800 numbers, outbound WATTS Systems, and dedicated telephone lines for computer systems.

Figure D-2 in Appendix D shows the location of critical facilities in unincorporated areas of the county. Due to the sensitivity of this information, a detailed list of facilities is not provided. Detailed information on critical facilities is on file with each planning partner. All critical facilities/infrastructure were analyzed using available GIS data to help rank risk and identify mitigation actions. The risk assessment for each hazard qualitatively discusses critical facilities with regard to that hazard.

## 4.10 DEMOGRAPHICS

Some populations are at greater risk from hazard events because of decreased resources or physical abilities. Elderly people, for example, may be more likely to require additional assistance. Research has shown that people living near or below the poverty line, the elderly (especially older single men), the disabled, women, children, ethnic minorities and renters all experience, to some degree, more severe effects from disasters than the general population. These vulnerable populations may vary from the general population in risk perception, living conditions, access to information before, during and after a hazard event, capabilities during an event, and access to resources for post-disaster recovery. Indicators of vulnerability—such as disability, age, poverty, and minority race and ethnicity—often overlap spatially and often in the geographically most vulnerable locations. Detailed spatial analysis to locate areas where there are higher concentrations of vulnerable community members would assist the County in extending focused public outreach and education to these most vulnerable citizens.

### 4.10.1 Population Characteristics

Knowledge of the composition of the population and how it has changed in the past and how it may change in the future is needed for making informed decisions about the future. Information about population is a critical part of planning because it directly relates to land needs such as housing, industry, stores, public facilities and services, and transportation. Park County is the 17th largest of Colorado’s 64 counties by square miles (at 2,209.36 square miles) (NACo 2007). The Colorado Department of Local Affairs estimated the planning area’s population at 16,721 in 2015 and 18,556 in 2018 (DOLA, n.d.[a]). The total county population according to the 2018 release of ACS 5-Year Estimates Data Profiles is 17,392 persons.

Population changes are useful socioeconomic indicators. A growing population generally indicates a growing economy, while a decreasing population signifies economic decline. Between 2010 and 2018, Park County’s population underwent a 1.76 percent annual growth rate (see Table 4-4). The population tripled from 1980 to 2013, though it still has the smallest population as compared to nearby counties (RPI Consulting, LLC 2015).

Table 4-4 Population Growth in Park County – 2010 to 2018

Community	2010	2018	Annual Percentage Growth Rate
Park County	16,262	18,556	1.76%
Unincorporated Park County	15,308	17,430	1.73%
Alma	271	325	2.49%
Fairplay	683	801	2.16%

Table 4-5 shows the population of incorporated municipalities and the combined unincorporated areas in Park County from 2010 to 2018. In 2010, about 94 percent of the planning area’s residents lived outside incorporated areas. This percentage has remained steady and is at 94 percent in 2018, as well. As shown in Table 4-4, annual percentage growth from 2010 to 2018 is 1.76 percent for the county as a whole, with similar numbers for the unincorporated areas and slightly higher percentage growth rates for the communities of Alma and Fairplay, at 2.49 and 2.16 percent, respectively.

Table 4-5 Annual Population Data

	Population			
	Alma	Fairplay	Unincorporated County	Total
2010	271	683	15,308	16,262
2011	270	679	15,092	16,041
2012	271	681	15,081	16,033
2013	275	691	15,205	16,171
2014	281	699	15,389	16,369
2015	289	714	15,718	16,721
2016	301	741	16,312	17,354
2017	312	765	16,829	17,906
2018	325	801	17,430	18,556

Source: DOLA (n.d.[b])

A significant amount of growth can be traced to new residents who commute to Summit, Jefferson, or Denver Counties for employment.

According to the U. S. Bureau of the Census data, 47.3 percent of Park County residents are female, and 52.7 percent are male. The median age is 51 years, up from 40 years at the 2010 U.S. Census. People from the ages of 20 to 64 make up 61.0 percent of the population. Approximately 19.4 percent of the population is below the age of 20, while 19 percent is 65 years or older (USCB 2018a).

Countywide, 6.0 percent of the population self-identifies as Hispanic or Latino, 89.2 percent identifies as White non-Hispanic, 1.6 percent are American Indian only, 0.8 percent are Asian only, and 0.1 percent are Black or African American only.

Regarding languages spoken, 97.2 percent of the population (5 years and older) speaks only English at home, while 2.8 percent speaks a language other than English at home.

Figure 4-7 represents population trends that are tracked by the Colorado Department of Local Affairs. Estimates of the total population at July 1 of each calendar year are prepared by the Demographic Section in cooperation with the U. S. Bureau of the Census, after consultation with each local government. Park County’s population grew at an average annual rate of 5.46 percent from 1985 to 2018, and projections predict continued growth, although at a significantly slower rate than during the 1990s.

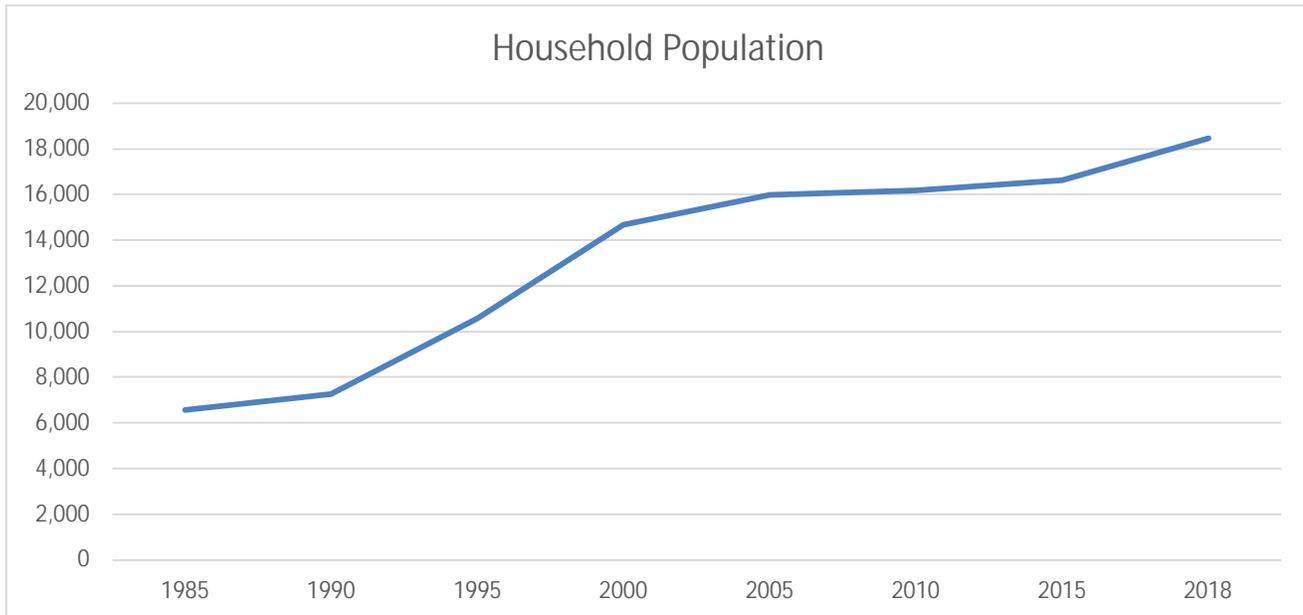


Figure 4-7 Park County Population, 1985–2018. Source: DOLA (n.d.[c])

Population growth in Park County between the year 2000 and 2040 is projected to rise at an average rate of 2.3 percent, with the strongest rate of growth occurring between the years 2010 and 2025 when growth is projected at approximately 4.0 percent. The projected growth rate is greater than the state’s for that same period, which is projected at 1.5 percent with a high of 1.9 percent between 2015 and 2020. Table 4-6 and Figure 4-8 present population projections through 2040 for the county and the state.

Table 4-6 Population Forecast 2010-2015

Years	2010–2015	2015–2020	2020–2025	2025–2030	2030–2035	2035–2040	2040–2045	2045–2050
Colorado	1.6%	1.4%	1.4%	1.3%	1.2%	1.0%	0.8%	0.7%
Park County	0.6%	2.6%	1.2%	1.3%	0.9%	0.3%	-0.2%	-0.4%

Source: DOLA (n.d.[d]).

	Est. July 2010	Est. July 2015	Proj. July 2020	Proj. July 2025	Proj. July 2030	Proj. July 2035	Proj. July 2040	Proj. July 2045	Proj. July 2050
COLORADO	5,050,332	5,454,707	5,842,076	6,252,913	6,686,512	7,092,627	7,460,600	7,774,711	8,049,275
Park	16,262	16,721	19,029	20,230	21,560	22,574	22,900	22,640	22,220

Source: DOLA (n.d.[d]).

Figure 4-8 Projected Population Growth Source: Colorado Department of Local Affairs, State Demography Office, Population Forecasts

### 4.10.2 Income and Housing

In the United States, individual households are typically expected to use private resources to prepare for, respond to and recover from disasters to some extent. This means that households living in poverty are automatically disadvantaged when confronting hazards. Additionally, the poor typically occupy more poorly built and inadequately maintained housing. Mobile or modular homes, for example, are more susceptible to damage in earthquakes and floods than other types of housing. In urban areas, the poor often live in older houses and apartment complexes, which are more likely to be made of un-reinforced masonry, a building type that is particularly susceptible to damage during earthquakes. Furthermore, residents below the poverty level are less likely to have insurance to compensate for losses incurred from natural disasters. This means that residents below the poverty level have a great deal to lose during an event and are the least prepared to deal with potential losses. The events following Hurricane Katrina in 2005 illustrated that personal household economics significantly impact people’s decisions on evacuation. Individuals who cannot afford gas for their cars will likely decide not to evacuate.

According to the 2018 ACS 5-Year Estimates, the median individual income in Park County in the previous 12 months (in 2018 inflation-adjusted dollars) was \$33,832, while the per capita income reached \$35,939. The median household income was \$66,861, with 31.8 percent of households earning \$100,000 or more annually and 23.2 percent earning under \$35,000 annually. The survey reported that within the previous 12 months, 5.5 percent of the population was below 100 percent of the poverty level and 5.4 percent was below the 100 to 149 percent of poverty level.

Park County has a total of 14,449 housing units; of these, 93.4 percent are one-unit, detached housing, but there are also numerous mobile homes (4.0 percent) and an estimated 27 recreational vehicles (0.2 percent). Of the 14,449 housing units, 7,119 were occupied and 7,330 were vacant. Owner-occupied housing units totaled 5,961 (down from the 2010 U.S. Census data of 6,069), while renter-occupied units totaled 1,158. Since 16.2 percent of the county’s occupied housing units are rented, efforts should be made to target both homeowner and renter demographics in future educational and outreach efforts about hazards and disasters. Additionally, the community has expressed that increasingly vacation rental services like Airbnb and VBRO have resulted in an influx of tourists, which requires new strategies for communication regarding emergencies. The 80 percent housing vacancy rate for the census tract containing Tarryall is attributed to housing units used as vacation and seasonal residences (Strategic Master Plan Update, 2015).

The median home value in Park County of owner-occupied units is \$284,800, while the median rent is \$1,106/month (up from \$877/month as reported in the 2010 U.S. Census).

The number of households with broadband internet subscriptions is 82.6 percent.

Regarding education, the ACS 2018 5-Year Estimate estimates that among the population of individuals 25 years and older, 3.0 percent have less than a high school degree, 29.9 percent are high school graduates, 36.9 percent have some college or associate degree, 21.7 percent have a bachelor’s degree, and 8.5 percent have a graduate or professional degree.

### 4.10.3 Age Distribution

As a group, the elderly are more likely to lack the physical and economic resources to respond to hazard events and to suffer health-related consequences making recovery slower. They are more likely to be vision, hearing, and/or mobility impaired, and more likely to experience mental impairment or dementia. Additionally, the elderly are more likely to live in assisted-living facilities where emergency preparedness occurs at the discretion of facility operators. These facilities are typically identified as “critical facilities” by emergency managers because they require extra notice to implement evacuation. Elderly residents living in their own homes may have more difficulty evacuating their homes and could be stranded in dangerous situations. This population group is more likely to need special medical attention, which may not be readily available during natural disasters due to isolation caused by the event. Specific planning attention for the elderly is an important consideration given the current aging of the American population.

Children under 14 are particularly vulnerable to disaster events because of their young age and dependence on others for basic necessities. Very young children may additionally be vulnerable to injury or sickness; this vulnerability can be worsened during a natural disaster because they may not understand the measures that need to be taken to protect themselves from hazards.

The overall age distribution for the planning area is illustrated in Figure 4-9.

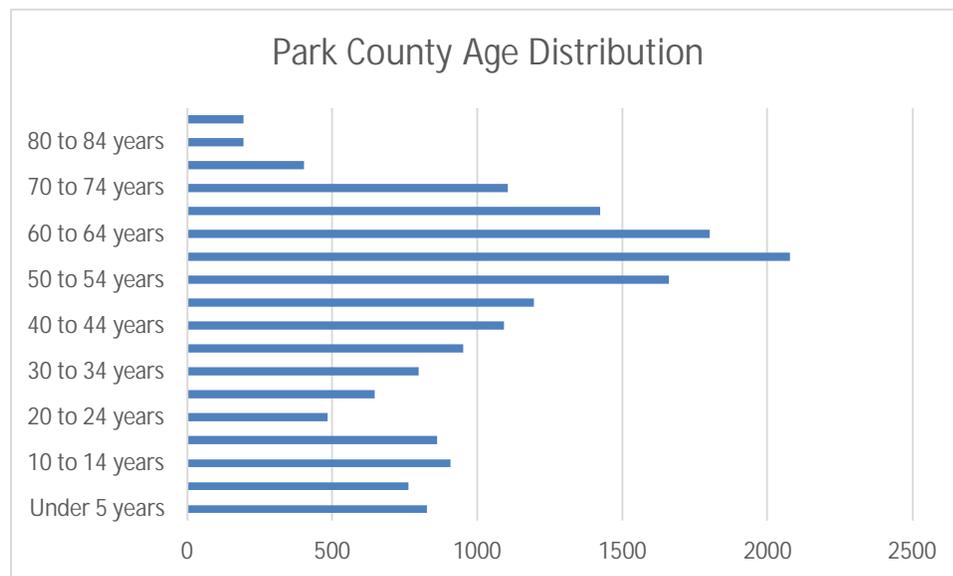


Figure 4-9 Age Distribution Source: 2018 ACS 5-Year Estimates

### 4.10.4 Race, Ethnicity and Language

Research shows that minorities are less likely to be involved in pre-disaster planning and experience higher mortality rates during a disaster event. Post-disaster recovery can be ineffective and is often characterized

by cultural insensitivity. Since higher proportions of ethnic minorities live below the poverty line than the majority white population, poverty can compound vulnerability. According to the U.S. Census, the racial composition of the planning area is predominantly white, at 96.3 percent. The largest minority populations are Hispanic or Latino, at 6.0 percent, and American Indian, at 2.6 percent (USCB 2018a).

An estimated 0.4 percent of the population was born outside the United States. The majority of the population were born in a state outside of Colorado. Other than English, the most commonly spoken language in the planning area is Spanish; 0.3 percent of individuals over 5 years speak English “less than very well.”

#### **4.10.5 Disabled Populations**

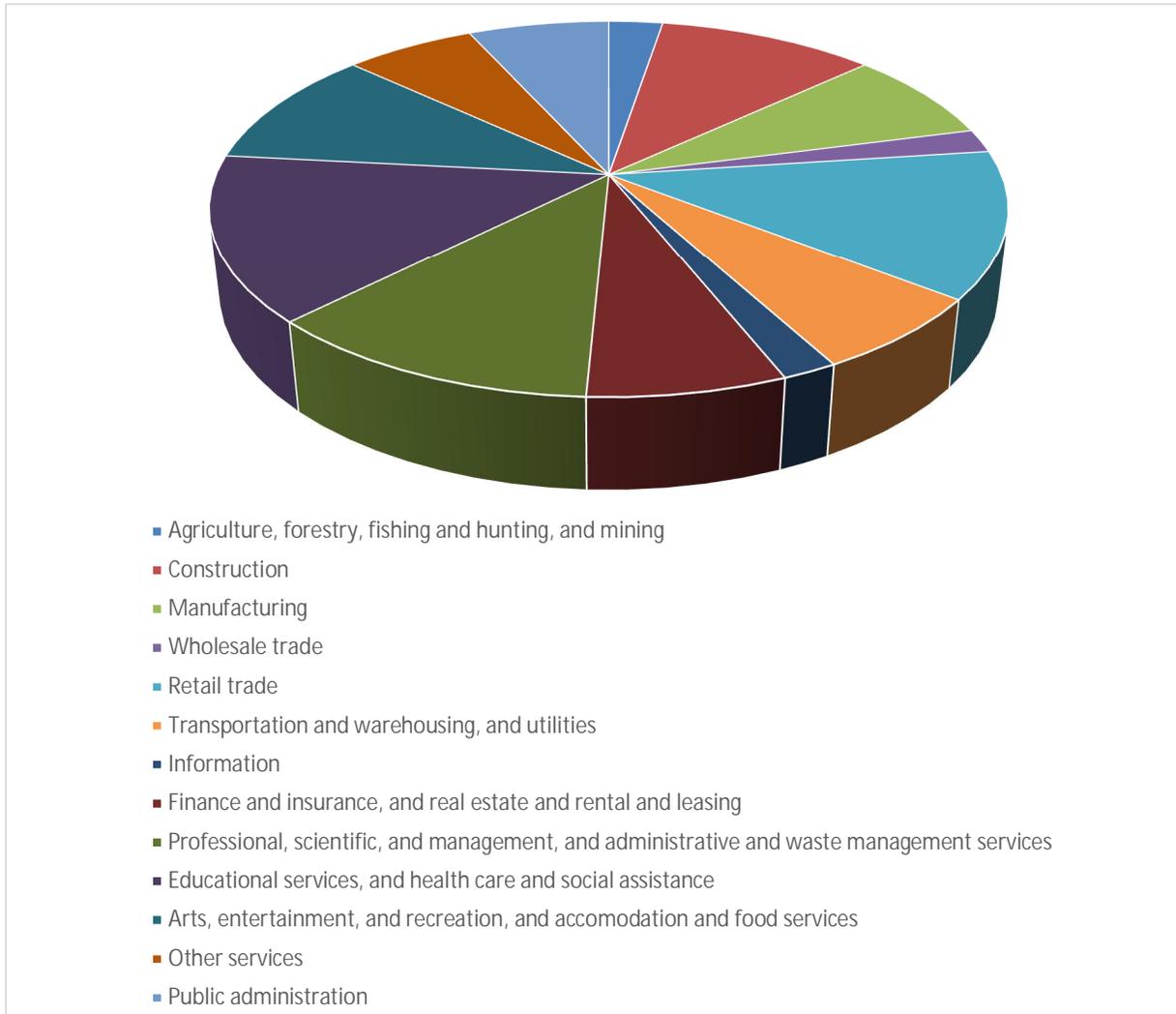
People with disabilities are more likely to have difficulty responding to a hazard event than the general population. Local government is the first level of response to assist these individuals, and coordination of efforts to meet their access and functional needs is paramount to life safety efforts. It is important for emergency managers to distinguish between functional and medical needs in order to plan for incidents that require evacuation and sheltering. Knowing the percentage of population with a disability will allow emergency management personnel and first responders to have personnel available who can provide services needed by those with access and functional needs.

According to the 2018 ACS 5-Year Estimates Data Profiles, approximately 11.6 percent of the population lives with some form of disability; of these, 10.8 percent are between 18 and 64 years, and 23.6 percent are 65 years and older (USCB 2018b).

### **4.11 ECONOMY**

#### **4.11.1 Industry, Businesses and Institutions**

The planning area’s economy is strongly based in the management, business, science, and arts occupations (35.3 percent), followed by sales and related occupations (26.1 percent), and natural resources, construction and maintenance occupations (13.9 percent). Production, transportation, and material moving occupations (9.5 percent) and service occupations (15.2 percent) make up the smallest source of the local economy. Figure 4-10 shows the breakdown of industry types in Park County.



Source: USCB (2018a)

Figure 4-10 Industry Types in Park County.

### 4.11.2 Employment Trends and Occupations

According to the 2018 ACS, about 65 percent of Park County’s population 16 years and older were in the labor force, accounting for 14,699 individuals, including 65.1 percent of women 16 and older.

Unemployment in Park County is on par with that of Colorado as a whole. Park County’s unemployment rate is shown in Table 4-7.

Table 4-7 Unemployment in Park County, 2000 to 2018

Year	Unemployment Rate Park County	Unemployment Rate Colorado
2000	2.6	2.8
2001	3.5	3.8
2002	5.1	5.5
2003	5.4	6
2004	5.3	5.5

Table 4-7 Unemployment in Park County, 2000 to 2018

Year	Unemployment Rate Park County	Unemployment Rate Colorado
2005	4.7	5
2006	3.9	4.3
2007	3.6	3.7
2008	4.8	4.8
2009	7	7.3
2010	8.1	8.7
2011	7.7	8.4
2012	6.9	7.9
2013	6.1	6.9
2014	4.6	5
2015	3.4	3.9
2016	2.7	3.2
2017	2.3	2.7
2018	2.9	3.3

Source: Colorado Information Marketplace (n.d.)

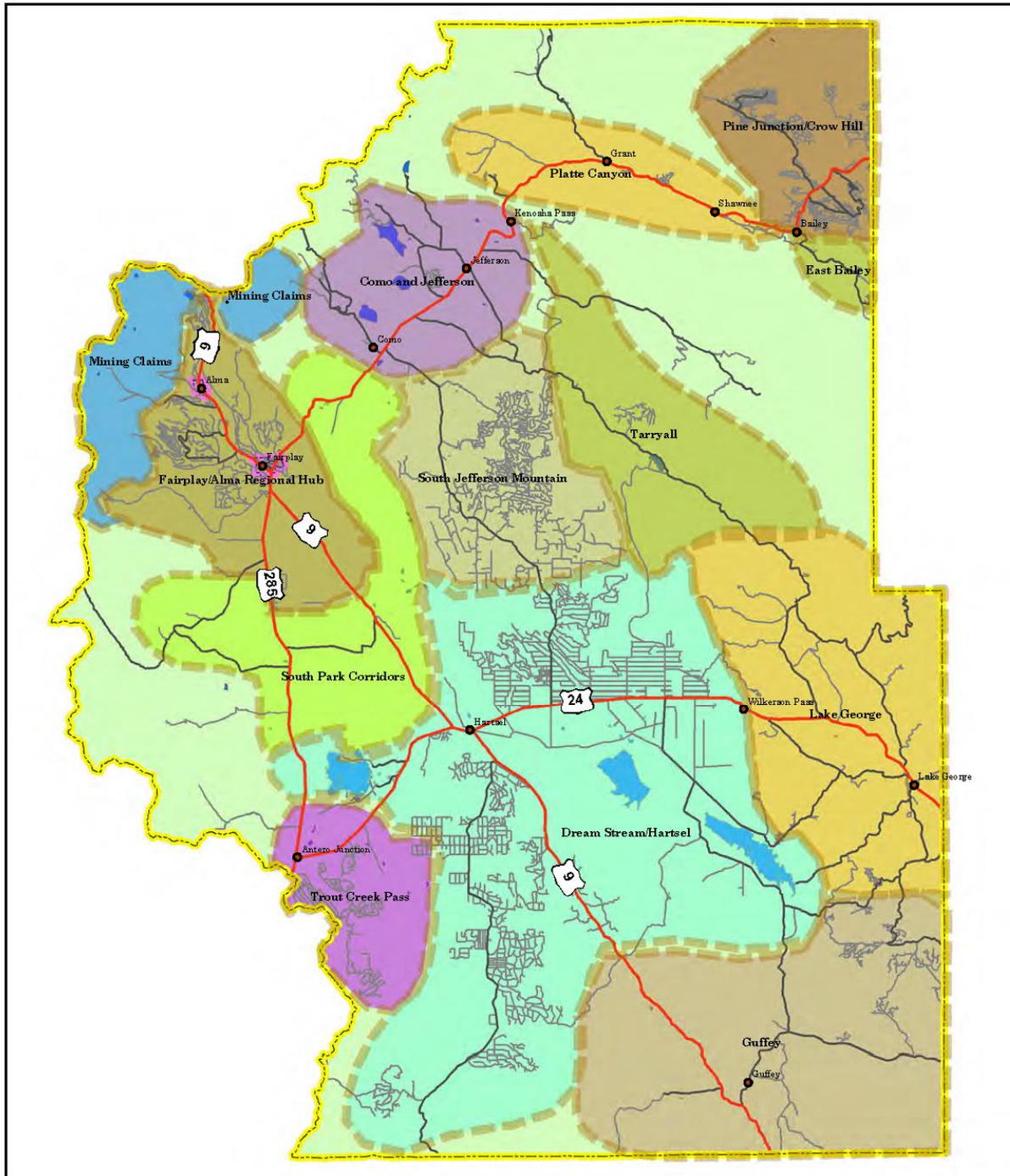
The largest employers in the county are Park County government, local school districts, and some of the seasonal recreation facilities within the county. In its Strategic Master Plan Update, the County indicates that many have moved to Park County because of its proximity to jobs in the Front Range (2015). The 2018 ACS estimates that 72.3 percent of Park County workers commute alone (by car, truck or van) to work, with a mean travel time to work at 38.1 minutes. Only 1.2 percent use public transportation for commuting; 11.8 percent of those employed worked from home.

70.8 percent of workers were private wage/salary workers, 17.8 percent were government workers, and 11.3 percent were self-employed. Of the civilian noninstitutionalized population, 7.3 percent were without health insurance coverage. Compared to nearby counties, Park County has the highest percentage of residents who work outside the county (Strategic Master Plan Update, 2015).

## 4.12 LAND USE DEVELOPMENT

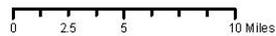
While Park County experienced significant population growth compared to Colorado as a whole during the 1990s and early 2000s, growth has stabilized. Park County has remained largely rural, with its small population dispersed among a large geographic area (Strategic Master Plan Update, 2015). Park County has been undergoing a significant transition in its land use patterns and its economic base. There are still numerous historic mines and many large ranches, but they no longer play as significant a role in the local economy as they once did. The County views the Mining Claims subarea as having the least potential for residential or commercial development due to its rugged alpine terrain (Strategic Master Plan Update, 2015). Fairplay and Alma are seen as primary points of interest for economic development, with the understanding that their increased success will benefit the neighboring rural communities and county as a whole. The County’s Strategic Master Plan also focuses on subarea growth strategies (see Figure 4-11, below) that include commercial, planned unit development and rural center mixed use zoning.

Residential subareas serving commuters to the Front Range and to Summit County and recreational subdivisions serving second-home owners have become an important part of the landscape. Specifically, the Master Plan Update recognizes Tarryall—along with Lake George—as a prime opportunity to cultivate “niche destination recreational industries” in Park County due to its 80 percent housing vacancy rate, which is attributed to vacation and seasonal rental (2015).



**Legend**

- Highway
- Major Road
- Local Road
- Park County Line
- City Limits
- Public Lands and Inholdings
- Subarea Boundary



**Subareas**

Growth Strategy  
Park County, CO

Figure 4-11 Park County Subareas

Park County last updated its Strategic Master Plan in 2015. Recommendations and policies contained in the Master Plan largely reflect preferred development scenarios. The plan seeks to address environmental and cultural preservation—driven by rural character and treasured landscapes—alongside economic development. The community feels that it is its scenic, historic, and recreational assets that present the best opportunity for economic development. It aims to manage any growth so as not to increase vulnerability to hazards. Development in fire-prone areas, wetlands, areas subject to erosion and other geologic hazards, and in floodplains is discouraged. Because many of the areas of the county that are hazard-prone are on land that is publicly owned, the fact that a large percentage of land in Park County is controlled by federal and state agencies serves as an additional constraint to increased vulnerability.

Countywide goals from the 2015 Update are provided below:

#### **Plan Elements That Carry Over from the 2001 Plan**

1. Agricultural Land and Water Conservation
2. Curtailing the Proliferation of Small Lot Residential Development
3. What to Do with 20,000 Vacant Lots
4. Protect the Scenic Quality and Improve the Visual Appeal of Historic Unincorporated Towns and Municipalities
5. Water Supply, Conservation and Stream Corridor Restoration

#### **Plan Elements That Are Unique to This Update**

6. Evolve and Expand Tourism
7. Diversify the Economy
8. Business Support and Training
9. County Core Services, Infrastructure and Assets
10. The Future of Unincorporated Historic Towns
11. Strategic Coordination with Municipalities
12. County Governance

### **4.13 CAPABILITY ASSESSMENT**

This section identifies the County’s existing mitigation capabilities. These are the administrative and technical, financial, and planning and regulatory resources that are currently available to assist in reducing the County’s vulnerability to hazards. This section addresses the capabilities of the Park County government. Capability assessments for each participating jurisdiction are included in the jurisdictional annexes.



#### **4.13.1 Administrative and Technical Resources**

Table 4-8 describes the County’s administrative and technical capabilities to engage in and improve mitigation planning and program implementation.

Table 4-8 Human and Technical Resources Integrated with Hazard Mitigation

Resource	Yes/No
Emergency Manager	Yes
Floodplain Administrator	Yes
Community Planning:	
- Planner/Engineer (Land Development)	Yes
- Planner/Engineer/Scientist (Natural Hazards)	No
- Engineer/Professional (Construction)	Yes
- Resiliency Planner	No
- Transportation Planner	No
Building Official	Yes
GIS Specialist and Capability	Yes
Grant Manager, Writer, or Specialist	No
Warning Systems/Services:	
- General	Yes
- Flood	Yes
- Wildfire	Yes
- Tornado	Yes
- Geological Hazards	Yes
Other	

### 4.13.2 Financial Resources

The County maintains fiscal and financial resources to support its mitigation program. Table 4-9 identifies specific resources that have been used to fund mitigation activities.

Table 4-9 Accessible Financial Resources

Financial Resource	Yes/No
Levy for Specific Purposes with Voter Approval	Yes
Utilities Fees	No
System Development / Impact Development Fee	Yes
General Obligation Bonds to Incur Debt	No
Special Tax Bonds to Incur Debt	No
Withheld Spending in Hazard-Prone Areas	No
Stormwater Service Fees	No
Capital Improvement Project Funding	Yes
Community Development Block Grants	No
Other	-

Table 4-10 identifies current and potential sources of funding to implement identified mitigation actions contained within the HMP. In addition, funding is also available from federal and state agencies and programs.

Table 4-10 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
LOCAL		
General Fund	Board of County Commissioners	Funding available for mitigation efforts supporting government-wide projects and activities
Department Funding	Specific Departments	Funding available for the mitigation efforts of a specific department
FEDERAL		
Building Resilient Infrastructure and Communities (BRIC) Program	Federal Emergency Management Agency (FEMA)/Colorado Division of Homeland Security and Emergency Management (DHSEM)	Authorized by the Disaster Relief and Recovery Act of 2018, the BRIC program is replacing FEMA's Pre-Disaster Mitigation Program. BRIC will support states, local communities, tribes and territories as they undertake projects that mitigate hazard risks and increase community resiliency. Grant awards will prioritize infrastructure projects and projects that support community lifelines: safety and security; food, water, shelter; health and medical; energy; communications; transportation; and hazardous material.
Pre-Disaster Mitigation Program	Colorado Division of Homeland Security and Emergency Management (DHSEM)	Provides funding to develop HMPs and implement mitigation actions contained within.
Hazard Mitigation Grant Program	Colorado Division of Homeland Security and Emergency Management (DHSEM)	Post-disaster funds to hazard reduction projects impacted by recent disasters.
Flood Mitigation Assistance Program	Colorado Division of Homeland Security and Emergency Management (DHSEM)	Provides funding to support development of the flooding hazard portion of state and local mitigation plans and up to 100% of the cost of eligible mitigation activities. This funding is only available to communities participating in the National Flood Insurance Program. Provides funds for flood mitigation on buildings that carry flood insurance and have been damaged by flooding.
Community Development Block Grant Program	U.S. Department of Housing and Urban Development/ Colorado Department of Local Affairs	Funds projects that benefit low- and moderate-income communities, prevent or eliminate slums or blight, or meet urgent community development needs posing a serious and immediate threat to community health or welfare.
Emergency Management Performance Grants Program	Federal Emergency Management Agency (FEMA)/Colorado Division of Homeland Security and Emergency Management (DHSEM)	Provides funding to states for local or tribal planning, operations, acquisition of equipment, training, exercises, and construction and renovation projects.
National Earthquake Hazards Reduction Program (NEHRP)	Colorado Geological Survey (CGS)	Supports enhanced earthquake risk assessments in local HMPs. Provides funding for earthquake modeling and loss estimation, partnership building, planning, and training activities. Provides funding for prevention materials and activities. Provides support for limited post-event inspection and reporting.
State Fire Assistance Program	U.S. Forest Service/ Colorado Division of Homeland Security and Emergency Management (DHSEM)	Provides funding opportunities for local wildland-urban interface planning, prevention, and mitigation projects, including fuels reduction work, education and prevention projects, community planning, and alternative uses of fuels.
National Dam Safety Program State Assistance Grants	Federal Emergency Management Agency (FEMA)/Division of Water Resources (DWR) Dam Safety	Grant assistance to State Dam Safety programs to reduce risks to life and property associated with dams, increase awareness of the benefits and risks related to dams, and advance the state in the practice of dam risk management.

Table 4-10 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Rehabilitation of High Hazard Potential Dams Grant Program	FEMA/DWR Dam Safety	Provides technical, planning, design, and construction assistance in the form of grants for rehabilitation of eligible high hazard potential dams.
Risk Mapping, Assessing, and Planning	FEMA	Provides funding and technical support for hazard studies, flood mapping products, risk assessment tools, mitigation and planning, and outreach and support.
STATE		
Flood Response Fund	Colorado Water Conservation Board (CWCB)	Created and appropriated funding to the Flood Response Fund, administered by CWCB.
Emergency Dam Repair Cash Fund	Colorado Water Conservation Board (CWCB)	Created Emergency Dam Repair Cash Fund. As determined by CWCB, money transferred from CWCB Construction Fund as needed.
Forest Restoration and Wildfire Risk Mitigation Grant	Colorado State Forest Service (CSFS)	Assists with funding community-level actions across the state that are implemented to protect populations and property in the wildland-urban interface and to promote forest health and the utilization of woody material. Includes funding for capacity building.
Rockfall Mitigation Program	Colorado Department of Transportation (CDOT)	Provides internal mitigation design and review for projects funded by rockfall mitigation budget; provides personnel designated as first responders during rockfall related emergencies; installs control devices on rock walls for prevention; posts falling rock signs on highways.
Colorado Wildfire Preparedness Plan and Fund	Division of Fire Prevention & Control (DFPC)	Amended to read Wildfire Emergency Response Fund creation, Wildfire Preparedness Fund creation. DFPC may use the moneys in the Wildfire Preparedness Fund to implement the Wildfire Preparedness Plan.
Conservation Reserve Program	U.S. Department of Agriculture Farm Service Agency and Natural Resource Conservation Service	Retires eligible cropland from agricultural production and plants the land with permanent grass cover to reduce wind erosion and dust hazards.
OTHER		
Community Planning Assistance Teams	American Planners Association Foundation	Provides pro bono technical assistance for planning frameworks or community vision plans for communities needing extra assistance. Local governments are responsible for travel costs.

### 4.13.3 Planning and Regulatory Resources

Table 4-11 summarizes the Park County planning and regulatory capabilities, including plans, policies, and programs that have integrated hazard mitigation principles.

Table 4-11 Planning and Regulatory Resources Integrated with Hazard Mitigation

Planning/Regulatory Resource	Yes/No
Building Codes (Year)	Yes, 2012
Building Code Effectiveness Grading Schedule (BCEGS) Rating	3
Capital Improvements Program or Plan	No
Community Rating System (CRS)	No
Community Wildfire Protection Plan (CWPP)	Yes
Comprehensive, Master, or General Plan	Yes
Economic Development Plan	Yes
Elevation Certificates	Yes
Erosion/Sediment Control Program	Yes
Floodplain Management Plan or Ordinance	Yes

Table 4-11 Planning and Regulatory Resources Integrated with Hazard Mitigation

Planning/Regulatory Resource	Yes/No
Flood Insurance Study	No
Growth Management Ordinance	No
Non-Flood Hazard-Specific Ordinance or Plan (e.g., steep slope, wildfire, snow load)	Yes
National Flood Insurance Program	Yes
Site Plan Review Requirements	Yes
Stormwater Program, Plan, or Ordinance	Yes
Zoning Ordinance	Yes
Other	Yes – Road Maintenance and Improvement Plan

### 4.13.4 Education and Outreach Resources

Table 4-12 summarizes Park County’s education and outreach capabilities, including programs that are used to educate and notify residents, business owners, and other stakeholders regarding hazard risks.

Table 4-12 Education and Outreach Resources

Education / Outreach Resource	Yes/No
Local Citizen Groups that Communicate Hazard Risks	Yes
Firewise	Yes
StormReady	Yes
Other	-

### 4.13.5 National Flood Insurance Program Participation

 <b>FEMA</b>	C2. Does the Plan address [Park County's] participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3))
---	---

Park County participates in the National Flood Insurance Program (NFIP) and has adopted regulations that meet the NFIP requirements. In 2020, the CWCB provided the following information on flooding losses under the NFIP:

Total Losses	Closed Losses	Open Losses	Losses Closed Without Payment	Total Payments
2	2	0	0	\$343

There are no repetitive loss properties or severe repetitive loss properties in Park County or the Town of Fairplay.

Park County voluntarily participates in the NFIP through its adoption and enforcement of floodplain regulations. The County’s Floodplain Protection ordinance (Division 10 of Article VII, Use and Development Standards, of the Park County Ordinances) is intended to minimize loss of life and property, health and safety hazards, disruption of the economy and government services, and expenditures for flood protection and recovery following floods by regulating development in floodplains. This ordinance applies to all Special Flood Hazard Areas and areas removed from the floodplain through a FEMA Letter of Map

Revision Based on Fill in unincorporated Park County. Special Flood Hazard Areas for Park County were identified in FEMA’s 2009 flood insurance study for the county, including incorporated towns.

In order to accomplish the ordinance’s intended purposes, the County relies on the following methods to regulate development in the floodplain in order to minimize flood losses:

- Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;
- Control filling, grading, dredging and other development which may increase flood damage; and
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

The ordinance is enforced through issuance of floodplain development permits.

The Director of Development Services or his/her designee serves as the County’s Floodplain Administrator. The Floodplain Administrator is responsible for administering, implementing, and enforcing the provisions of the Floodplain Protection ordinance and other appropriate sections of 44 CFR (National Flood Insurance Program Regulations) pertaining to floodplain management.

### 4.13.6 FEMA Funded Hazard Mitigation Projects

Park County has received funding for previous hazard mitigation projects, including two public assistance projects for replacement of roads, culverts, and ditches and other emergency measures in response to severe storms, tornadoes, flooding, landslides, and mudslides in 2015 (DR-4229). Table 4-13 outlines potential funding sources available to local jurisdictions with a FEMA-approved HMP.

Table 4-13 Mitigation Plan Requirement for Governments Applying for Certain FEMA Grants

Enabling Legislation	FEMA Assistance Program	Is a Mitigation Plan Required?	
		State Applicant	Local Sub-Applicant
Stafford Act	<a href="#">Individual Assistance (IA)</a>	No	No
	<a href="#">Public Assistance (PA)</a> Categories A and B (e.g., debris removal, emergency protective measures)	No	No
	<a href="#">Public Assistance (PA)</a> Categories C through G (e.g., repairs to damaged infrastructure, publicly owned buildings)	Yes	No
	<a href="#">Fire Mitigation Assistance Grants (FMAG)</a>	Yes	No
	<a href="#">Hazard Mitigation Grant Program (HMGP)</a> planning grant	Yes	No
	<a href="#">Hazard Mitigation Grant Program (HMGP)</a> project grant	Yes	Yes
	<a href="#">Pre-Disaster Mitigation (PDM)</a> planning grant	No	No
	<a href="#">Pre-Disaster Mitigation (PDM)</a> project grant	Yes	Yes
	<a href="#">Building Resilient Infrastructure and Communities (BRIC)</a>	Yes	Yes
	<a href="#">Flood Mitigation Assistance (FMA)</a> planning grant	Yes	No

Table 4-13 Mitigation Plan Requirement for Governments Applying for Certain FEMA Grants

Enabling Legislation	FEMA Assistance Program	Is a Mitigation Plan Required?	
		State Applicant	Local Sub-Applicant
National Flood Insurance Act	<a href="#">Flood Mitigation Assistance (FMA)</a> project grant	Yes	Yes

The Park County Office of Emergency Management is aware of the Disaster Recovery Reform Act of 2018 and has been following proposed program and policy changes such as creation of the Building Resilient Infrastructure and Communities (BRIC) program and changes to the NFIP. Park County will continue to follow updates in program guidance and policies as they are released.

### 4.13.7 Coordination with Community Partners

The Park County Office of Emergency Management recognizes that disasters do not occur within jurisdictional boundaries and takes a regional approach to planning for, mitigating, responding to, and recovering from disasters. The County collaborates with the community partners listed below and members of the public on an ongoing basis.

- **Education**
  - Park County RE-1 School District (Platte Canyon School District)
  - Park County RE-2 School District (South Park School District)
  - Mt. Evans Board of Cooperative Educational Services (BOCES)
  - Mountain BOCES
- **Regional Councils of Government**
  - Upper Arkansas Area Council of Government
  - Pikes Peak Area Council of Government
- **Business and Industry**
  - Platte Canyon Chamber of Commerce
  - South Park Chamber of Commerce
  - Central Mountain Small Business Development Corporation
- **Healthcare**
  - Park County Public Health
  - Health One South Park Healthcare
- **Regional and Private Utilities**
  - Intermountain Rural Electric Association
  - Xcel Energy
  - Local water districts
    - Colorado Parks and Wildlife
    - Denver Water
    - City of Aurora Public Works
    - Bailey Water and Sanitation
    - Town of Fairplay
    - Town of Alma
    - Homeowners associations water districts
  - Colorado Natural Gas

- Colorado Springs Utilities
- Various phone and internet service providers
- **Transportation**
  - Colorado Department of Transportation
  - Summit Stage
  - Denver Water (Eleven Mile Canyon Road)
  - Homeowners associations
- **Community Non-Profit Organizations**
  - Fire Adapted Bailey
  - Senior Alliance of Platte Canyon
  - Coalition for the Upper South Platte
  - South Park Seniors

### 4.13.8 Integration of Mitigation into Existing Planning Mechanisms

 <b>FEMA</b>	C1. Does the plan document [Park County's] existing authorities, policies, programs, and resources, and its ability to expand on or improve these existing policies and programs? (Requirement §201.6(c)(3))
---	--

 <b>FEMA</b>	C6. Does the Plan describe a process by which [Park County] will incorporate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))
---	---

Integration of the principles of mitigation into Park County’s daily operations and ongoing planning activities is a priority of the County’s mitigation program. These activities will support:

- Raising awareness of the importance of hazard mitigation for the whole community;
- Facilitating an understanding that hazard mitigation is not just an “emergency services” function and building ownership of mitigation activities across the organization;
- Reduction in duplication or contradiction across regional plans; and
- Maximization of planning resources through linked or integrated planning efforts.

The County will consider integrating mitigation principles into planning mechanisms, including:

- Budget decision-making;
- Building and zoning ordinances and decision-making;
- Emergency planning mechanisms; and
- Economic development planning and decision-making.

## Existing Plans

The following existing plans (see Table 4-14) provide ongoing opportunities for integration of hazard mitigation, and the County will work with plan owners and stakeholders when these plans are updated to consider hazard mitigation data and principles and ensure that plans align with the HMP.

Table 4-14 Existing Plans

Plan	Description
Strategic Master Plan (2016)	The plan provides direction for County decisions about water and land conservation, economic development, land use and development patterns, infrastructure and services, and coordination between Park County and the municipalities of Fairplay and Alma. The plan supports wildfire hazard mitigation with fuels management and water storage strategy. More strategies can be included for flooding mitigation.
Fleet Maintenance and Replacement Plan (2018)	The goal is to provide an effective, safe and reliable fleet that can effectively respond to the needs of Park County and is the most cost effective, with available funding. Fleet vehicles can be used for mitigation purposes. Future updates can include fleet uses in mitigation.
Road Maintenance and Improvement Plan (2018)	The mission is to provide and maintain professional administrative, technical, and operational support to the essential infrastructure, as well as to Park County citizens, while providing the highest possible level of service and safety and managing use of county resources efficiently. There are no specific mitigation measures included. Future updates can include protocols for flood or wildfire mitigation.
Comprehensive Emergency Operations Plan (2019)	The purpose of the Park County Emergency Operations Plan is to provide general guidelines and principles for planning, managing, and coordinating the overall preparedness, response, recovery, and mitigation activities of Park County departments, districts, and agencies. The plan addresses mitigation activities and the emergency support function and departments and that support them.
Park County Emergency Preparedness Guide	The main purpose of this guide is to save lives, reduce injuries, and protect property. It is designed to present information and guidance on action to take to enhance survival in the event of natural and human-caused disasters. The plan has preparedness actions but no specific mitigation techniques.
Community Wildfire Protection Plan (2015)	The mission is to identify potential wildfire hazards, prioritize those hazards as they relate to public safety and community values, and develop activities and objectives to reduce wildfire risk in the highest priority areas. The plan addresses wildfire mitigation techniques and is due for an update.

Integration of mitigation actions into existing plans and day-to-day operations is also a priority at the local community level. All communities in Park County are encouraged to consider integration into planning mechanisms, such as:

- Operating and capital improvement budgets
- Building and zoning ordinances
- Comprehensive land use plan
- Municipal ordinances
- Emergency response plans
- Local school district projects
- Economic development plans.

# CHAPTER 5 DROUGHT

## 5.1 GENERAL BACKGROUND

Droughts were ranked at a low hazard level by respondents of the Park County community. The hazard ranking aggregate from the SC is shown below:

	<i>Probability /Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Drought	3.31	2.08	1.54	4.08	2.31	9

Drought is a normal phase in the climatic cycle of most geographical regions. According to the National Drought Mitigation Center, drought originates from a deficiency of precipitation over an extended period of time, usually a season or more. This results in a water shortage for some activity, group or environmental sector. Drought is the result of a significant decrease in water supply relative to what is “normal” in a given location. Unlike most disasters, droughts normally occur slowly but last a long time. There are four basic approaches to measuring drought (National Drought Mitigation Center, 2006):

- **Meteorological drought** is an expression of precipitation’s departure from normal over some period of time. Meteorological measurements are the first indicators of drought. Definitions are usually region-specific and based on an understanding of regional climatology. A definition of drought developed in one part of the world may not apply to another, given the wide range of meteorological definitions.
- **Agricultural drought** occurs when there is not enough soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought happens after meteorological drought but before hydrological drought. Agriculture is usually the first economic sector to be affected by drought.
- **Hydrological drought** refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow and as lake, reservoir, and groundwater levels. There is a time lag between lack of rain and less water in streams, rivers, lakes and reservoirs, so hydrological measurements are not the earliest indicators of drought. After precipitation has been reduced or deficient over an extended period of time, this shortage is reflected in declining surface and subsurface water levels. Water supply is controlled not only by precipitation, but also by other factors, including evaporation (which is increased by higher than normal heat and winds), transpiration (the use of water by plants), and human use.
- **Socioeconomic drought** occurs when a physical water shortage starts to affect people, individually and collectively. Most socioeconomic definitions of drought associate it with the supply and demand of an economic good.

**DEFINITIONS**

**Drought**—The cumulative impacts of several dry years on water users. It can include deficiencies in surface and subsurface water supplies and generally impacts health, well-being, and quality of life.

**Hydrological Drought**—Deficiencies in surface and subsurface water supplies.

**Socioeconomic Drought**—Drought impacts on health, well-being, and quality of life.

Defining when drought begins is a function of the impacts of drought on water users, and includes consideration of the supplies available to local water users as well as the stored water they may have available in surface reservoirs or groundwater basins. Different local water agencies have different criteria for defining drought conditions in their jurisdictions. Some agencies issue drought watch or drought warning announcements to their customers. Determinations of regional or statewide drought conditions are usually based on a combination of hydrologic and water supply factors.

## 5.2 HAZARD PROFILE

Droughts originate from a deficiency of precipitation resulting from an unusual weather pattern. If the weather pattern lasts a short time (a few weeks or a couple months), the drought is considered short-term. If the weather pattern becomes entrenched and the precipitation deficits last for several months or years, the drought is considered to be long-term. It is possible for a region to experience a long-term circulation pattern that produces drought, and to have short-term changes in this long-term pattern that result in short-term wet spells. Likewise, it is possible for a long-term wet circulation pattern to be interrupted by short-term weather spells that result in short-term drought.

### 5.2.1 Past Events

A number of significant droughts have been recorded in Colorado since 1900. The most recent droughts occurred from 1998 to 2004, 2011 to 2013, and in 2018. These periods saw rainfall levels well below normal and caused many communities throughout the region to institute water restrictions. Drought conditions have abated in most all the state with the exception of some locations in southeast Colorado. Although meteorologists have attempted to predict long-term changes and trends in weather patterns, the onset of a significant drought cannot be predicted. Extended periods of dry weather have occurred many times from over the past 100 years.

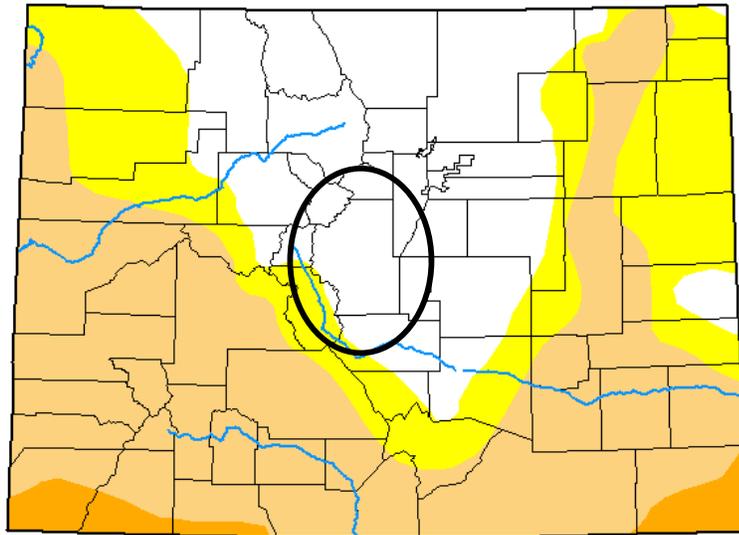
### 5.2.2 Location

Several indices are used to measure drought:

- The *U.S. Drought Monitor* is produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the U.S. Department of Agriculture, and the National Oceanic and Atmospheric Administration (NOAA). It maps current drought conditions weekly. Figure 5-1 shows conditions in Colorado as of March 10, 2020.
- The *Palmer Drought Index (PDI)* measures the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during a given month is dependent on the current weather patterns plus the cumulative patterns of previous months. Weather patterns can change quickly from a long-term drought pattern to a long-term wet pattern, and the PDI can respond fairly rapidly. Figure 5-2 shows this index for March 2020.
- The drought forecast or drought outlook depicts large scale trends The *U. S. Seasonal Drought Outlook* maps shows anticipated long-term trends for drought tendency. On the map, the red/brown shading denotes persistent or intensifying conditions while the green shading indicates areas that are likely to no longer be considered in a drought condition. Figure 5-3 shows this index for February 20, 2020.
- While the PDI indices consider precipitation, evapotranspiration and runoff, the *Standardized Precipitation Index (SPI)* considers only precipitation. In the SPI, an index of zero indicates the median precipitation amount; the index is negative for drought and positive for wet conditions. The SPI is computed for time scales ranging from one month to 24 months. Figure 5-4 shows the 24-month SPI map for February 2018 through February 2020.

# U.S. Drought Monitor Colorado

**March 10, 2020**  
(Released Thursday, Mar. 12, 2020)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	30.09	69.91	46.88	3.30	0.00	0.00
<b>Last Week</b> <i>03-03-2020</i>	30.09	69.91	45.33	3.30	0.00	0.00
<b>3 Months Ago</b> <i>12-10-2019</i>	28.03	71.97	55.82	30.09	0.00	0.00
<b>Start of Calendar Year</b> <i>12-31-2019</i>	31.72	68.28	51.19	20.11	0.00	0.00
<b>Start of Water Year</b> <i>10-01-2019</i>	30.14	69.86	27.53	0.00	0.00	0.00
<b>One Year Ago</b> <i>03-12-2019</i>	17.00	83.00	25.44	6.26	0.58	0.00

**Intensity:**

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

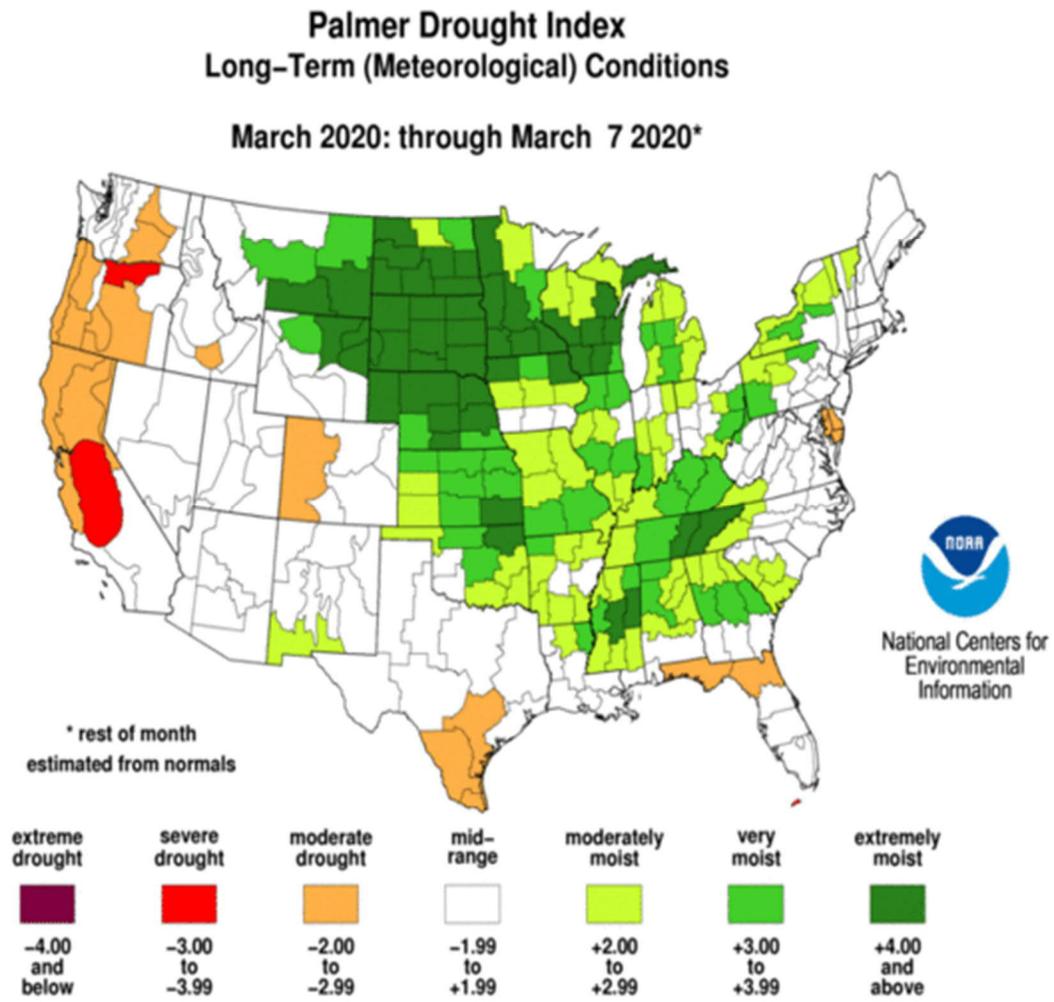
**Author:**

Adam Hartman  
NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Figure 5-1 Colorado Drought Index and Statistics for Week Ending March 10, 2020



★

Figure 5-2 Palmer Drought Index (March 2020)

# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for February 20 - May 31, 2020  
Released February 20

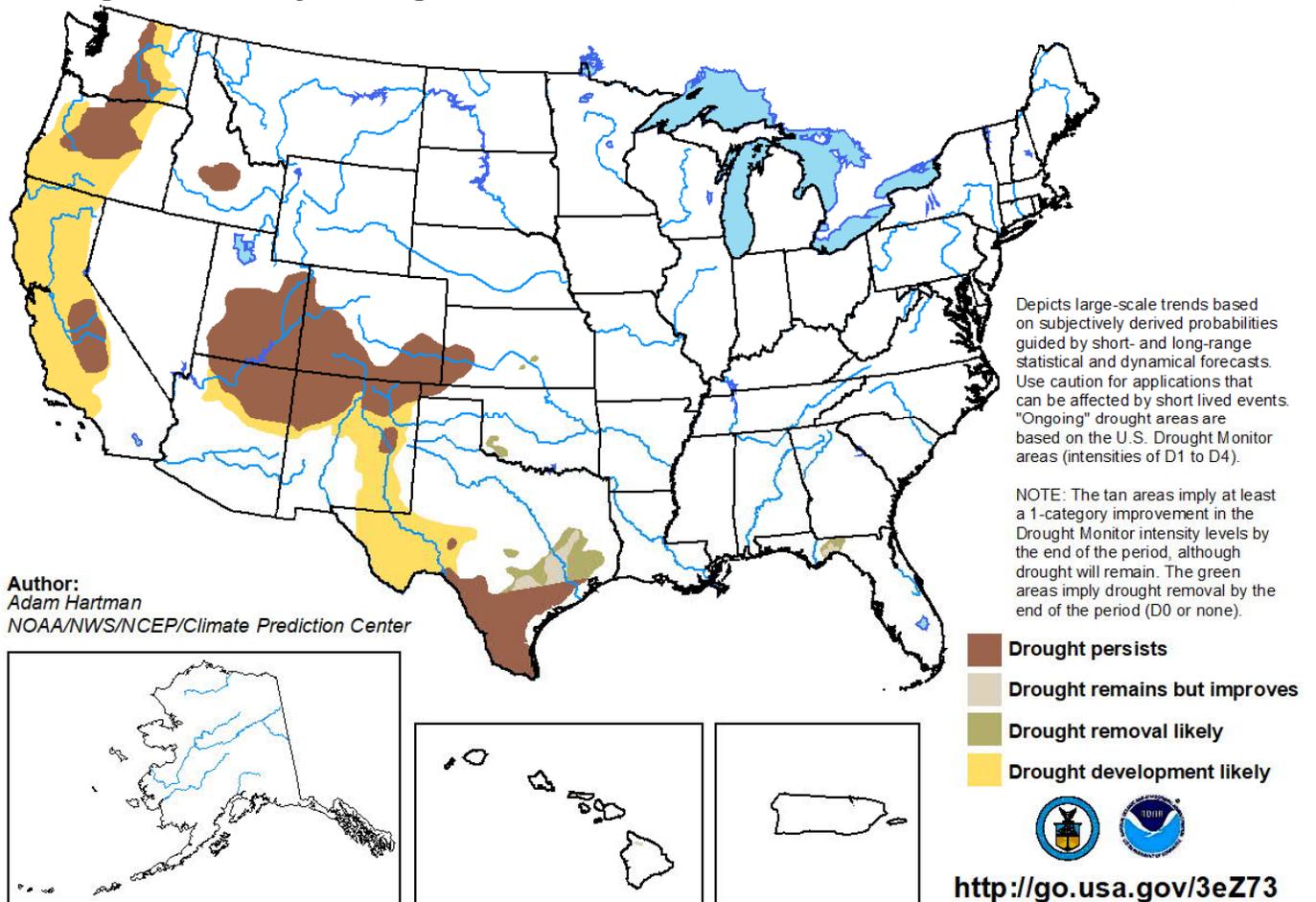


Figure 5-3 Palmer Hydrological Drought Index Long-Term Hydrologic Conditions (February 2020)

### 24-Month Standardized Precipitation Index

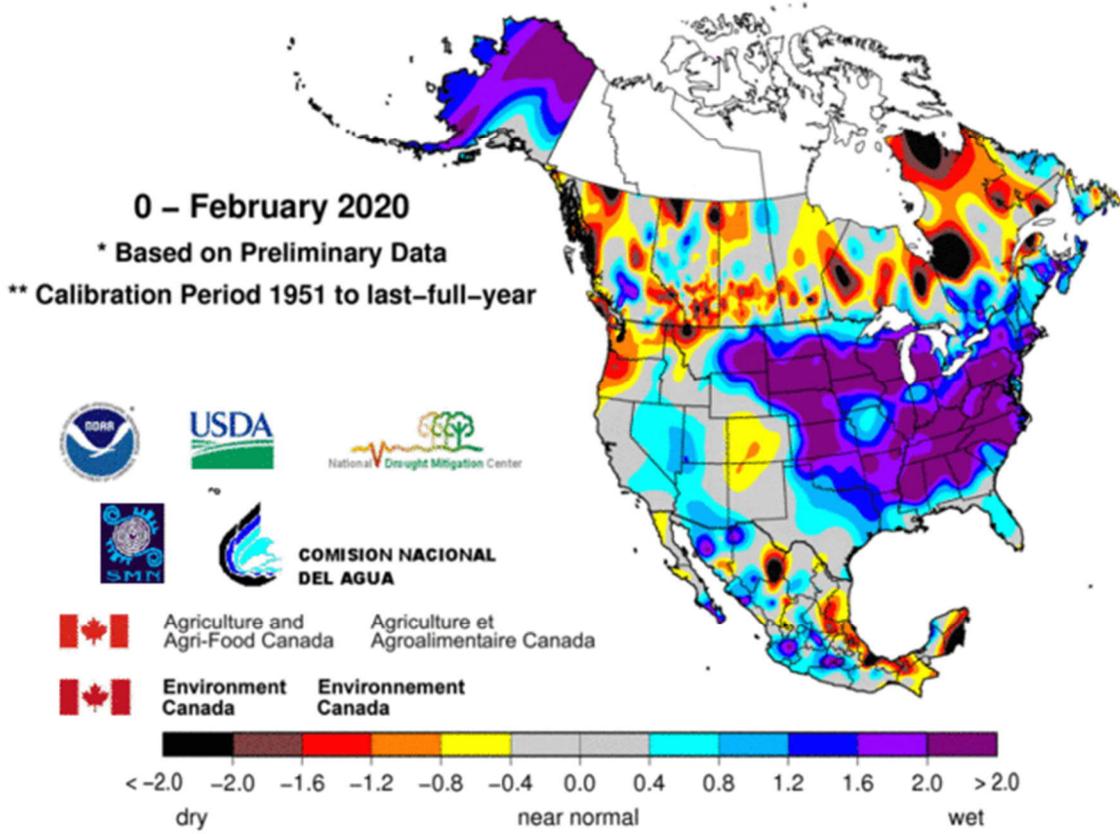


Figure 5-4 24-Month Standardized Precipitation Index (February 2018 – February 2020)

Park County has experienced historical droughts, like the recent ones in 2018, 2012 to 2013, and 1998 to 2004. Snow pack in the Colorado high country in 2012 and 2013 was significantly below normal levels. Conditions were projected to be extreme. There are currently no maps showing which specific portions of the county were affected by historical droughts or by precipitation, stream flow, or temperature conditions which might be precursors to droughts. Likewise, there are currently no maps showing which portions of Park County might be impacted at any point in time by ongoing drought conditions or which portions could potentially be impacted at a future point in time by imminent drought conditions.

At present there is no mapping to display or analyze historical or current drought information or projected drought information for Park County according to the eight major watersheds in the county. No distinctions have been made regarding specific locations within Park County which have a history of more frequent or more severe drought impacts or which specific locations might be more prone to future drought conditions.

### 5.2.3 Frequency

The probability of a future drought in Park County is likely, with between 10 and 100 percent chance of occurrence in any given year, or a recurrence interval of 10 years or less. According to information from the Colorado Drought Mitigation and Response Plan, Colorado was in drought for 53 of the past 127 years (1893-2019). 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.

### 5.2.4 Severity

If a significant drought event were to occur, it could bring extensive economic, social, and environmental impacts to the County. Commonly one of the most significant economic effects to a community is the impact on agriculture. through higher costs of irrigation (energy usage of pumps), lack of water availability for surface water rights holders, lower groundwater tables, the potential for drilling new and/or deepening current wells, potentially accelerated sales of livestock herds and increased costs of livestock feed (especially if the region as a whole is suffering from drought). Significant increases in the prices of essential items such as hay can have a prohibitive effect on ranching operations. Other economic effects could be felt by businesses that rely on adequate water levels for their day-to-day business such as carwashes and laundries.

Environmental drought impacts include both human and animal habitats, and hydrologic units. During periods of drought, the amount of available water decreases in lakes, streams, aquifers, soil, wetlands, springs, and other surface and subsurface water sources. This decrease in water availability can affect water quality such as salinity, bacteria, turbidity, and temperature increase and pH changes. Changes in any of these levels can have a significant effect on the aquatic habitat of a numerous plants and animals found throughout the County. Low water flow can result in decreased sewage flows and subsequent increases in contaminants in the water supply. Decrease in the availability of water also decreases drinking water supply and the food supply as food sources become scarcer. This disruption can work its way up the food chain within a habitat. Loss of biodiversity and increases in mortality can lead to increases in disease and endangered species.

Drought can have a widespread impact on the environment and the economy, depending upon its severity, although it typically does not result in loss of life or damage to property, as do other natural disasters. The National Drought Mitigation Center uses three categories to describe likely drought impacts:

- Agricultural—Drought threatens crops that rely on natural precipitation.
- Water supply—Drought threatens supplies of water for irrigated crops and for communities.
- Fire hazard—Drought increases the threat of wildfires from dry conditions in forest and rangelands.

On average, the nationwide annual impacts of drought are greater than the impacts of any other natural hazard. The annual losses are estimated to be nearly \$9 billion (NOAA, n.d.[a]) and occur primarily in the agriculture, transportation, recreation and tourism, forestry, and energy sectors. Social and environmental impacts are also significant, although it is difficult to put a precise cost on these impacts.

The severity of a drought depends on the degree of moisture deficiency, the duration, and the size and location of the affected area. The longer the duration of the drought and the larger the area impacted, the more severe the potential impacts. Droughts are not usually associated with direct impacts on people or property, but they can have significant impacts on agriculture, which can impact people indirectly.

When measuring the severity of droughts, analysts typically look at economic impacts on a planning area. A drought directly or indirectly impacts all people in affected areas. All people could pay more for water if utilities increase their rates due to shortages. Agricultural impacts can result in loss of work for farm workers and those in related food processing jobs. Other water- or electricity-dependent industries are commonly forced to shut down all or a portion of their facilities, resulting in further layoffs. A drought can harm recreational companies that use water (e.g., swimming pools, water parks, and river rafting companies) as well as landscape and nursery businesses because people will not invest in new plants if water is not available to sustain them.

Extreme drought can affect groundwater sources though generally not as quickly as surface water supplies, but groundwater supplies generally take longer to recover. Reduced precipitation during a drought means that groundwater supplies are not replenished at a normal rate. This can lead to a reduction in groundwater levels and problems such as reduced pumping capacity or wells going dry. Shallow wells are more susceptible than deep wells. Reduced replenishment of groundwater affects streams. Much of the flow in streams comes from groundwater, especially during the summer when there is less precipitation and after snowmelt ends. Reduced groundwater levels mean that even less water will enter streams when stream flows are lowest.

Drought also is often accompanied by extreme heat. When temperatures reach 90°F and above, people are vulnerable to heat stroke, heat cramps and heat exhaustion. Pets and livestock are also vulnerable to heat-related injuries. Crops can be vulnerable as well.

Wildfires have caused millions of board feet of timber to be lost, and in many cases erosion occurred, which caused serious damage to aquatic life, irrigation, and power production due to heavy silting of streams, reservoirs, and rivers.

### **5.2.5 Warning Time**

Droughts are climatic patterns that occur over long periods of time. Only generalized warning can take place due to the numerous variables that scientists have not pieced together well enough to make accurate and precise predictions.

Empirical studies conducted over the past century have shown that meteorological drought is never the result of a single cause. It is the result of many causes, often synergistic in nature; these include global weather patterns that produce persistent, upper-level high-pressure systems along the West Coast with warm, dry air resulting in less precipitation.

Scientists at this time do not know how to predict drought more than a month in advance for most locations. Predicting drought depends on the ability to forecast precipitation and temperature. Anomalies of precipitation and temperature may last from several months to several decades. How long they last depends on interactions between the atmosphere and the oceans, soil moisture and land surface processes, topography, internal dynamics, and the accumulated influence of weather systems on the global scale.

## **5.3 SECONDARY HAZARDS**

The secondary hazard most commonly associated with drought is wildfire. A prolonged lack of precipitation dries out vegetation, which becomes increasingly susceptible to ignition as the duration of the drought extends. Drought conditions can lead to increased susceptibility of wildfires to grow at a more rapid pace

than during periods of normal moisture. Low-flow conditions also decrease the quantity and pressure of water available to firefighters to fight fires. Drought can also create conditions that promote the occurrence of other natural hazards such as wind erosion. The likelihood of flash flooding is increased if a period of severe drought is followed by a period of extreme precipitation.

If a significant drought event occurs, there is a potential for a variety of secondary impacts. The most common secondary effects of drought are impacts to local commerce, including tourism and providers of goods and services to Park County's agricultural community. Droughts lead to diminished stream flows, lower reservoir levels, and in the extreme, dried-up reservoirs, which can all have an adverse effect on water-related recreation. Activities such as fishing can be significantly restricted because of drought. Also there are many places in the forest that cannot be accessed because of the increase in wildfire danger. In addition, wildfires that result from drought conditions can impact tourism and they can impact infrastructure like roads and utilities.

## 5.4 CLIMATE CHANGE IMPACTS

The long-term effects of climate change on regional water resources are unknown, but global water resources are already experiencing the following stresses without climate change:

- Growing populations
- Increased competition for available water
- Poor water quality
- Environmental claims
- Uncertain reserved water rights
- Groundwater overdraft
- Aging urban water infrastructure.

With a warmer climate, droughts could become more frequent, more severe, and longer-lasting. Twenty-six events between 1980 and 2018 resulted in \$244.3 billion in direct damages (NIDIS 2019). This total only includes events resulting in losses over \$1 billion and does not account for numerous drought events with losses under \$1 billion or the indirect impact of drought to the economy. More frequent extreme events such as droughts could end up being more cause for concern than the long-term change in temperature and precipitation averages.

The best advice to water resource managers regarding climate change is to start addressing current stresses on water supplies and build flexibility and robustness into any system. Flexibility helps to ensure a quick response to changing conditions, and robustness helps people prepare for and survive the worst conditions. With this approach to planning, water system managers will be better able to adapt to the impacts of climate change.

## 5.5 EXPOSURE

All people, property and environments in the planning area would be exposed to some degree to the impacts of moderate to extreme drought conditions.

## 5.6 VULNERABILITY

Drought produces a complex web of impacts that spans many sectors of the economy and reaches well beyond the area experiencing physical drought. This complexity exists because water is integral to the ability to produce goods and provide services. Drought can affect a wide range of economic, environmental and social activities. The vulnerability of an activity to the effects of drought usually depends on its water demand, how the demand is met, and what water supplies are available to meet the demand.

### **5.6.1 Population**

The entire population of Park County is vulnerable to drought events. Drought conditions and heat can affect people's health and safety. The planning partnership has the ability to minimize any impacts on residents and water consumers in the county should several consecutive dry years occur. No significant life or health impacts are anticipated as a result of drought within the planning area.

### **5.6.2 Property**

No structures will be directly affected by drought conditions, though some structures may become vulnerable to wildfires, which are more likely following years of drought. Risk to life and property is greatest in wildlife urban interface areas. Droughts can also have significant impacts on landscapes, which could cause a financial burden to property owners. However, these impacts are not considered critical in planning for impacts from the drought hazard.

### **5.6.3 Critical Facilities**

Critical facilities as defined for this plan will continue to be operational during a drought. Critical facility elements such as landscaping may not be maintained due to limited resources, but the risk to the planning area's critical facilities inventory will be largely aesthetic. For example, when water conservation measures are in place, landscaped areas will not be watered and may die. These aesthetic impacts are not considered significant.

### **5.6.4 Environment**

Environmental losses from drought are associated with damage to plants, animals, wildlife habitat, and air and water quality; forest and range fires; degradation of landscape quality; loss of biodiversity; and soil erosion. Some of the effects are short-term and conditions quickly return to normal following the end of the drought. Other environmental effects linger for some time or may even become permanent. Wildlife habitat, for example, may be degraded through the loss of wetlands, lakes and vegetation. However, many species will eventually recover from this temporary aberration. The degradation of landscape quality, including increased soil erosion, may lead to a more permanent loss of biological productivity. Although environmental losses are difficult to quantify, growing public awareness and concern for environmental quality has forced public officials to focus greater attention and resources on these effects.

### **5.6.5 Economic Impact**

Economic impact will be largely associated with industries that use water or depend on water for their business. For example, landscaping businesses were affected in the droughts of the past as the demand for service significantly declined because landscaping was not watered. Agricultural industries will be impacted if water usage is restricted for irrigation. In addition to losses in yields in crop and livestock production, droughts can be associated with increased insect infestation, plant diseases, and wind erosion. The tourism and recreation industry, particularly water-based recreational activity such as trout fishing and rafting, can also be affected if there are sustained drops in water levels in rivers and streams. Eventually, drought can lead to other losses because so many sectors are affected—reduced income, reduced business, possible unemployment, capital shortfalls, and loss of tax revenue.

## **5.7 FUTURE TRENDS IN DEVELOPMENT**

Colorado and Park County's population will continue to grow in the coming years, increasing demands for limited water resources. Several of the planning partners in this effort have established comprehensive plans that include policies directing land use and dealing with issues of water supply and the protection of water resources. These plans provide the capability at the local level to protect future development from the impacts of drought. Deficiencies identified in future plan reviews can be identified as mitigation actions to increase the capability to deal with future trends in development.

## **5.8 ISSUES**

The planning partners have identified the following drought-related issues:

- Identification and development of alternative water supplies
- Utilization of groundwater recharge techniques to stabilize the groundwater supply
- The probability of increased drought frequencies and durations due to climate change
- Regular occurrence of drought or multiyear droughts that may limit the ability to successfully recover from or prepare for more occurrences
- The promotion of active water conservation even during non-drought periods.

# CHAPTER 6 EARTHQUAKE

## 6.1 GENERAL BACKGROUND

As with the previous HMP update, earthquakes were ranked at a low hazard level by respondents of the Park County community. The hazard ranking aggregate from the HMC is shown below:

	<i>Probability/ Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Earthquake	1.15	2.31	4.04	2.85	2.50	8

### 6.1.1 How Earthquakes Happen

An earthquake is the vibration of the earth’s surface following a release of energy in the earth’s crust caused by a dislocation of the crust or by a volcanic eruption. “Seismic waves” are generated when the crust breaks. These waves travel outward from the source of the earthquake at varying speeds.

Earthquakes tend to reoccur along faults, which are zones of weakness in the crust.

Geologists classify faults by their relative hazards.

Active faults, which represent the highest hazard, are those that have ruptured to the ground surface during the Holocene period (about the last 11,000 years). Potentially active faults are those that displaced layers of rock from the Quaternary period (the last 1,800,000 years). Determining if a fault is “active” or “potentially active” depends on geologic evidence, which may not be available for every fault.

### 6.1.2 Earthquake Classifications

Earthquakes are typically classified in one of two ways: by the amount of energy released, measured as **magnitude**; or by the impact on people and structures, measured as **intensity**.

**DEFINITIONS**

**Earthquake**—The shaking of the ground caused by an abrupt shift of rock along a fracture in the earth or a contact zone between tectonic plates.

**Epicenter**—The point on the earth’s surface directly above the hypocenter of an earthquake. The location of an earthquake is commonly described by the geographic position of its epicenter and by its focal depth.

**Fault**—A fracture in the earth’s crust along which two blocks of the crust have slipped with respect to each other.

**Focal Depth**—The depth from the earth’s surface to the hypocenter.

**Hypocenter**—The region underground where an earthquake’s energy originates.

**Liquefaction**—Loosely packed, water-logged sediments losing their strength in response to strong shaking, causing major damage during earthquakes.

## **Magnitude**

Currently, the most commonly used magnitude scale is the moment magnitude ( $M_w$ ) scale, with the following classifications:

- Great— $M_w \geq 8$
- Major— $M_w = 7.0-7.9$
- Strong— $M_w = 6.0-6.9$
- Moderate— $M_w = 5.0-5.9$
- Light— $M_w = 4.0-4.9$
- Minor— $M_w = 3.0-3.9$
- Micro— $M_w < 3$

Estimates of moment magnitude roughly match the local magnitude scale, commonly called the Richter scale. One advantage of the moment magnitude scale is that, unlike other magnitude scales, it does not saturate at the upper end. That is, there is no value beyond which all large earthquakes have about the same magnitude. For this reason, moment magnitude is now the most often used estimate of large earthquake magnitudes.

## **Intensity**

Currently the most commonly used intensity scale is the modified Mercalli intensity scale, with ratings defined as follows (USGS, 1989):

- I. Not felt except by a very few under especially favorable conditions.
- II. Felt only by a few persons at rest, especially on upper floors of buildings.
- III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it is an earthquake. Standing cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
- IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like a heavy truck striking building. Standing cars rocked noticeably.
- V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
- VI. Felt by all; many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
- VII. Damage negligible in buildings of good design and construction; slight in well-built ordinary structures; considerable in poorly built or badly designed structures. Some chimneys broken.
- VIII. Damage slight in specially designed structures; considerable damage in ordinary buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
- IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
- X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

- XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
- XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

### 6.1.3 Ground Motion

Earthquake hazard assessment is also based on expected ground motion. This involves determining the annual probability that certain ground motion accelerations will be exceeded, then summing the annual probabilities over the time period of interest. The most commonly mapped ground motion parameters are the horizontal and vertical peak ground acceleration (PGA) for a given soil or rock type. Instruments called accelerographs record levels of ground motion due to earthquakes at stations throughout a region. These readings are recorded by state and federal agencies that monitor and predict seismic activity.

Maps of PGA values form the basis of seismic zone maps that are included in building codes such as the International Building Code. Building codes that include seismic provisions specify the horizontal force due to lateral acceleration that a building should be able to withstand during an earthquake. PGA values are directly related to these lateral forces that could damage “short period structures” (e.g. single-family dwellings). Longer period response components determine the lateral forces that damage larger structures with longer natural periods (apartment buildings, factories, high-rises, bridges). Table 6-1 lists damage potential and perceived shaking by PGA factors, compared to the Mercalli scale.

Table 6-1 Mercalli Scale and Peak Ground Acceleration Comparison

Modified Mercalli Scale	Perceived Shaking	Potential Structure Damage		Estimated PGA <sup>a</sup> (%g)
		Resistant Buildings	Vulnerable Buildings	
I	Not Felt	None	None	<0.17%
II-III	Weak	None	None	0.17%–1.4%
IV	Light	None	None	1.4%–3.9%
V	Moderate	Very Light	Light	3.9%–9.2%
VI	Strong	Light	Moderate	9.2%–18%
VII	Very Strong	Moderate	Moderate/Heavy	18%–34%
VIII	Severe	Moderate/Heavy	Heavy	34%–65%
IX	Violent	Heavy	Very Heavy	65%–124%
X – XII	Extreme	Very Heavy	Very Heavy	>124%

<sup>a</sup> PGA measured in percent of g, where g is the acceleration of gravity  
 Sources: USGS, 2008; USGS, 2010

### 6.1.4 Effect of Soil Types

The impact of an earthquake on structures and infrastructure is largely a function of ground shaking, distance from the source of the quake, and liquefaction, a secondary effect of an earthquake in which soils lose their shear strength and flow or behave as liquid, thereby damaging structures that derive their support from the soil. Liquefaction generally occurs in soft, unconsolidated sedimentary soils. A program called the National Earthquake Hazard Reduction Program (NEHRP) creates maps based on soil characteristics to help identify locations subject to liquefaction. Table 6-2 summarizes NEHRP soil classifications. NEHRP Soils B and C typically can sustain ground shaking without much effect, dependent on the earthquake magnitude. The areas that are commonly most affected by ground shaking have NEHRP Soils D, E and F. In general, these areas are also most susceptible to liquefaction.

Table 6-2 NEHRP Soil Classification System

NEHRP Soil Type	Description	Mean Shear Velocity to 30 m (m/s)
A	Hard Rock	1,500
B	Firm to Hard Rock	760–1,500
C	Dense Soil/Soft Rock	360–760
D	Stiff Soil	180–360
E	Soft Clays	< 180
F	Special Study Soils (liquefiable soils, sensitive clays, organic soils, soft clays >36 m thick)	

## 6.2 HAZARD PROFILE

Earthquakes can last from a few seconds to over five minutes; they may also occur as a series of tremors over several days. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties generally result from falling objects and debris because the shocks shake, damage, or demolish buildings and other structures. Disruption of communications, electrical power supplies, and gas, sewer, and water lines should be expected. Earthquakes may trigger fires, dam failures, landslides, or releases of hazardous material, compounding their disastrous effects.

Small, local faults produce lower magnitude quakes, but ground shaking can be strong and damage can be significant in areas close to the fault. In contrast, large regional faults can generate earthquakes of great magnitudes but, because of their distance and depth, they may result in only moderate shaking in an area. Known faults in Colorado are shown in Figure 6-1. Figure 6-2 shows the location of faults within Park County. 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 to 130,000 years)
- MLQ—Middle to Late Quaternary (130,000 to 750,000 years)
- Q—Quaternary (approximately past 2 million years)
- LC—Late Cenozoic (approximately past 23.7 million years)

### 6.2.1 Past Events

Colorado Geological Survey provides access to an online platform to view Colorado's earthquake history and see fault lines at <https://cgsarcimage.mines.edu/ON-001/>. Additionally, Figure 6-3 shows the location and magnitude of past earthquakes recorded in Park County. Past events throughout the state are shown on Figure 6-1.

### 6.2.2 Location

Identifying the extent and location of an earthquake is not as simple as it is for other hazards such as flood, landslide or wildfire. The impact of an earthquake is largely a function of the following components:

- Ground shaking (ground motion accelerations)
- Liquefaction (soil instability)
- Distance from the source (both horizontally and vertically).

In the Park County 2019 Comprehensive Emergency Management Plan, the County identifies the following faults:

“The East-Side Chase Gulch fault lies between Schoolmarm Mountain and the Puma Hills on the west side of Eleven Mile Canyon Reservoir. The West-Side Chase Gulch fault is on the west side of Spinney Mountain in South Park Basin. The Eleven Mile fault branches from the East-Side Chase Gulch fault near Eleven Mile Canyon Reservoir. All three faults are within the South Park Basin, which is bounded by the Mosquito Range on the west, the Front Range on the north and east, and the Thirtynine Mile volcanic field on the south” (Park County 2019).

Mapping that shows PGA was used to assess the risk of earthquakes within the planning area (see Figure D-3 in Appendix D). Figure 6-4 (shown above) is an earthquake hazard map showing PGAs with a 2 percent probability of being exceeded in 50 years for a firm rock site. The models take into account the frequency of earthquakes of various magnitudes.

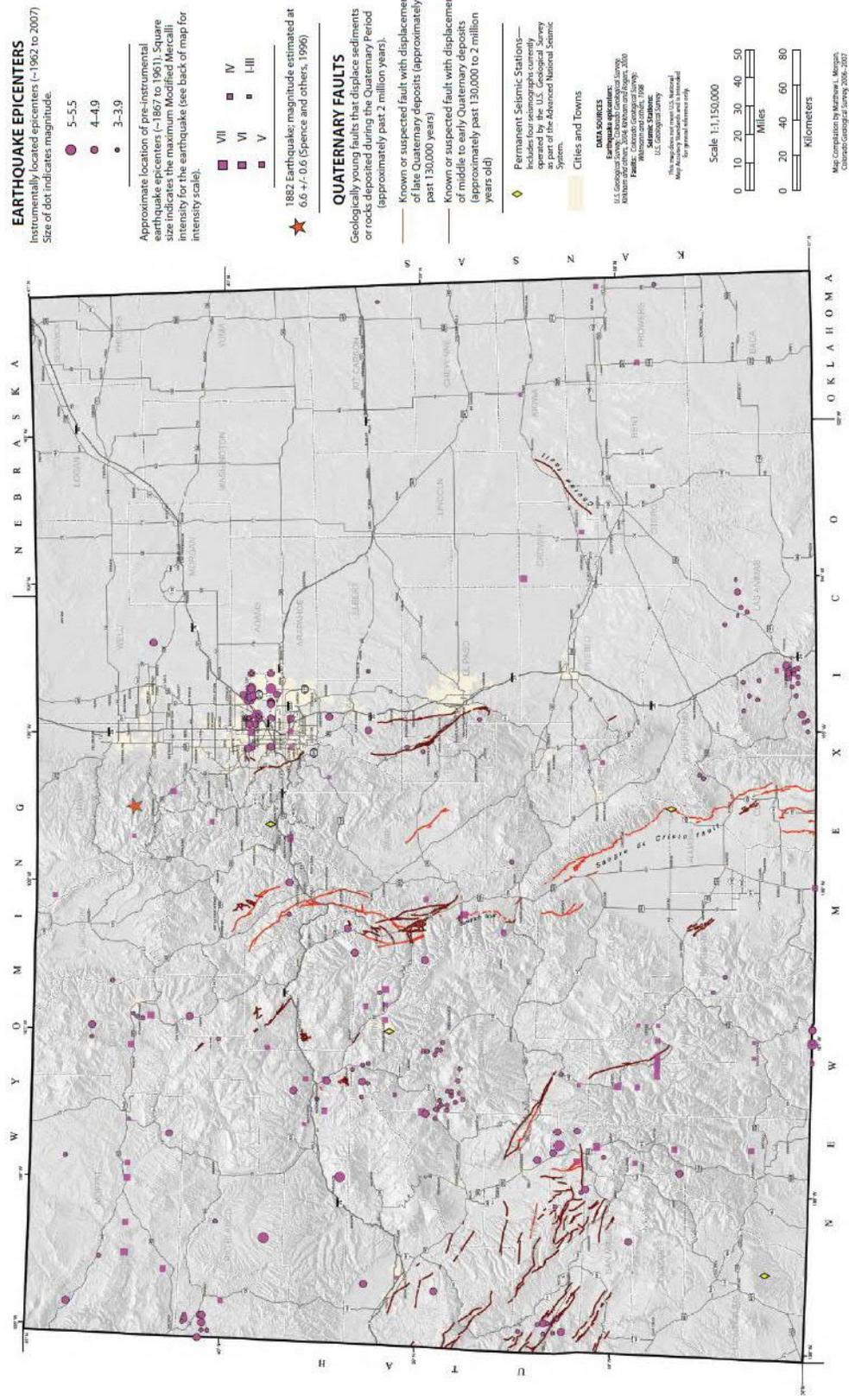


Figure 6-1 Locations of Historical Earthquakes and Known or Suspected Geologically Young Faults

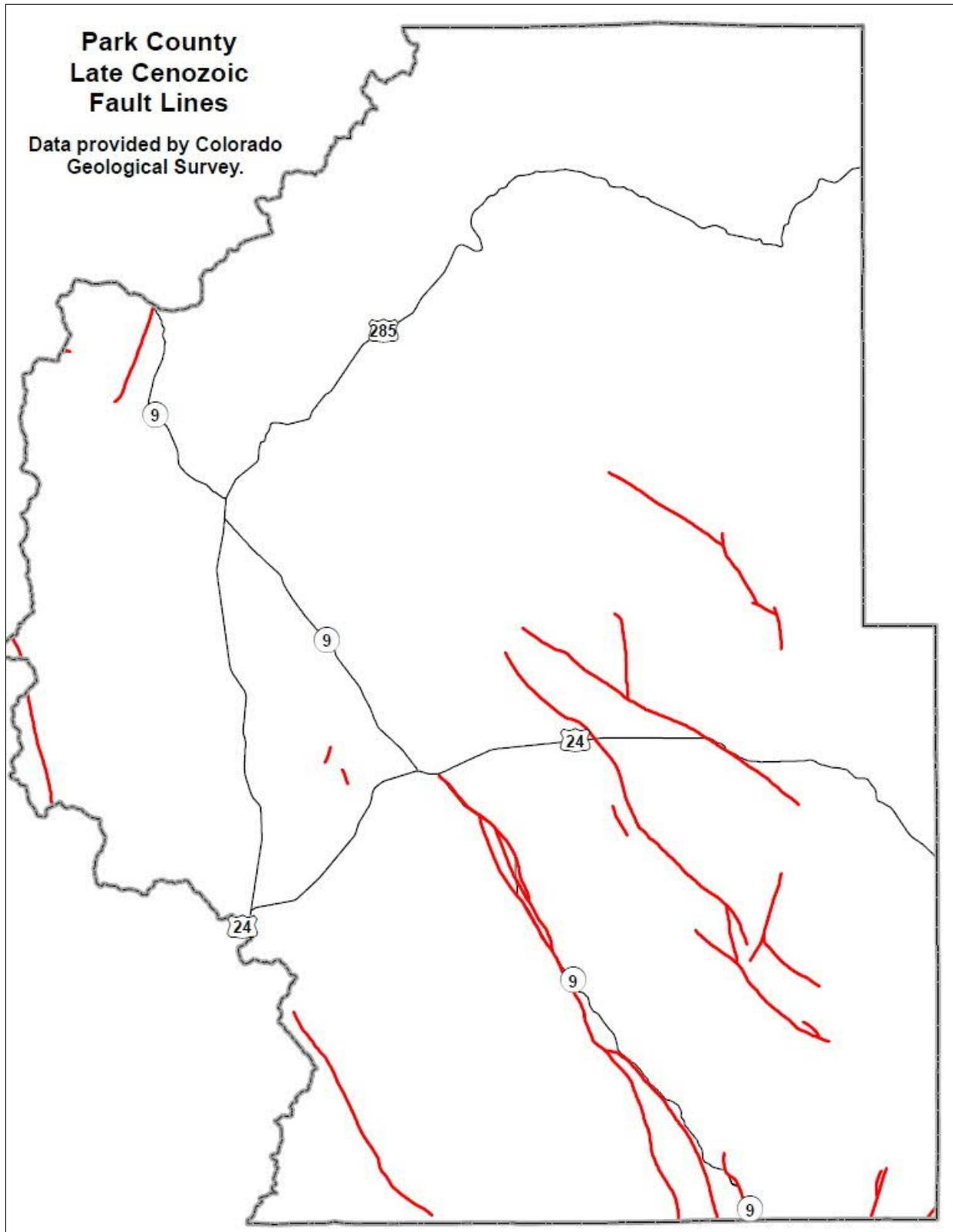


Figure 6-2 Park County Cenozoic Fault Lines

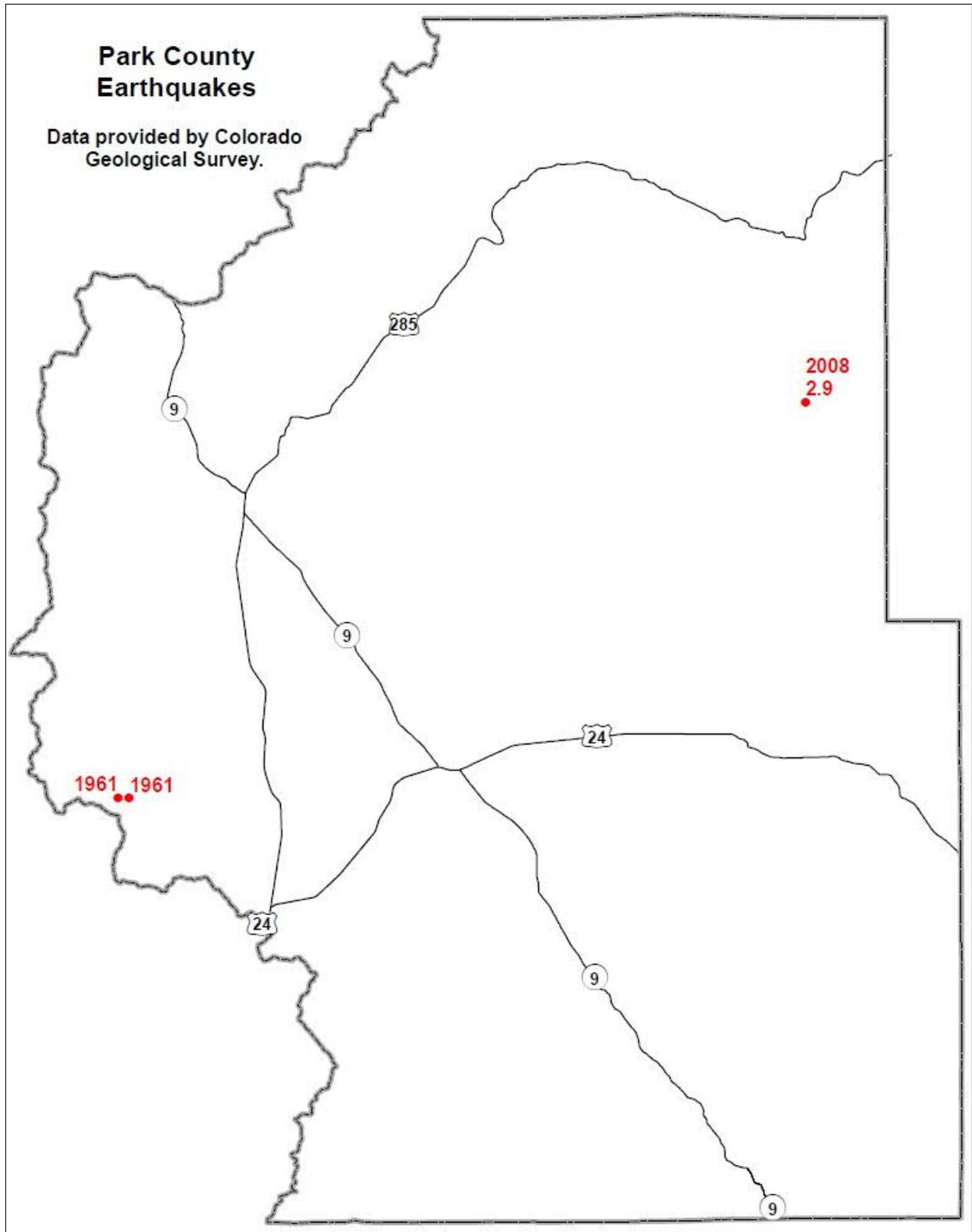
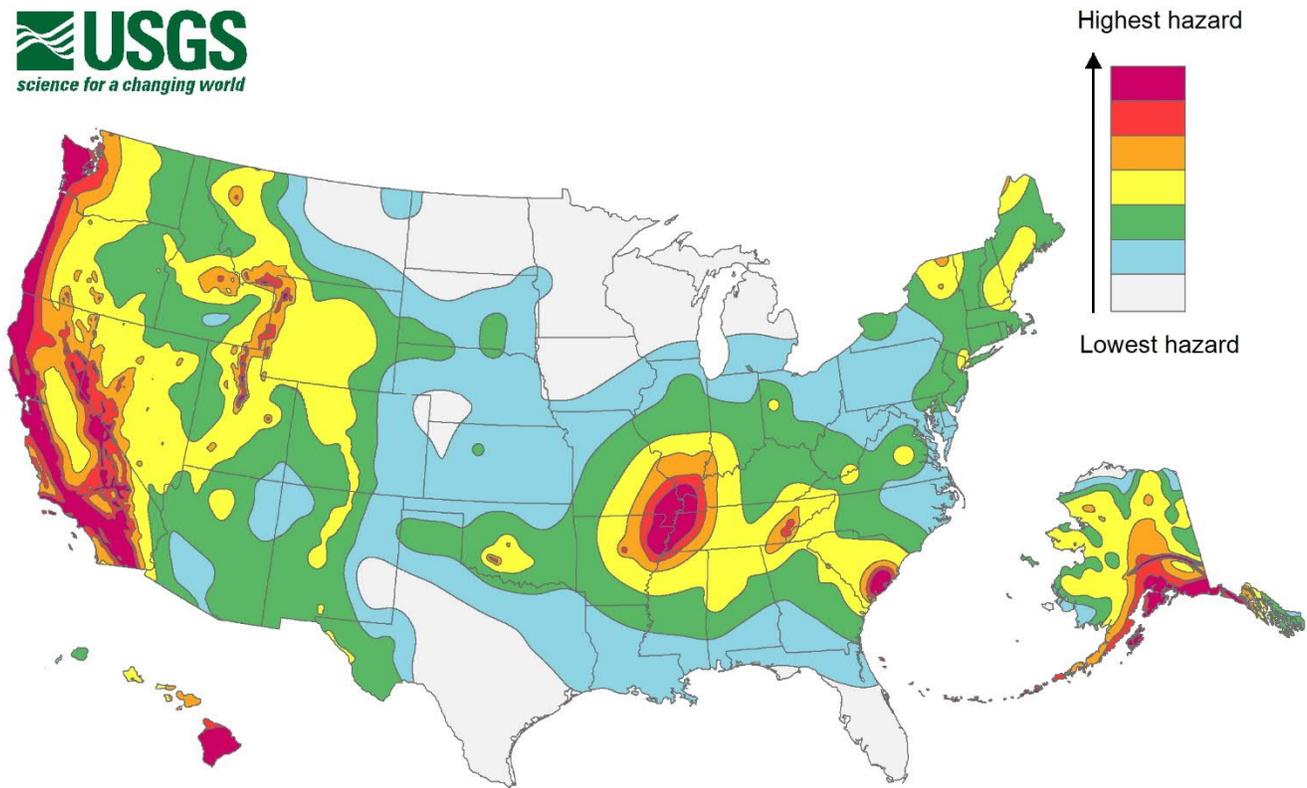


Figure 6-3 Park County Earthquakes, 1568 – 2020



Source: USGS (2018)

Figure 6-4 2018 Long-term National Seismic Hazard Map.

### 6.2.3 Frequency

Table 6-3 shows Colorado’s earthquake count relative to neighboring states between 2010 and 2015 (USGS, n.d.).

Table 6-3 Number of Earthquakes by State Between 2010 and 2015

State	2010	2011	2012	2013	2014	2015
Colorado	4	23	7	2	13	7
Utah	17	16	16	6	10	4
Wyoming	43	6	9	73	179	198
New Mexico	7	7	3	6	3	12
Kansas	0	0	0	2	42	60

Even though the seismic hazard in Colorado is low to moderate, it is likely that future damaging earthquakes will occur. In 2011, for example, a magnitude 5.3 earthquake occurred southwest of Trinidad, Colorado, that resulted in damage to 46 structures (Colorado Department of Public Safety, n.d.). It is prudent to expect future earthquakes as large as magnitude 6.5. Calculations based on the historical earthquake record and geological evidence of recent fault activity suggest that an earthquake of magnitude 6 or greater may be expected somewhere in Colorado every several centuries.

## 6.2.4 Severity

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.

The severity of an earthquake can be expressed in terms of intensity or magnitude. Intensity represents the observed effects of ground shaking on people, buildings, and natural features. In simplistic terms, the severity of an earthquake event can be measured in the following terms:

- How hard did the ground shake?
- How did the ground move? (horizontally or vertically)
- How stable was the soil?
- What is the fragility of the built environment in the area of impact?

Figure 6-5 shows the chance of damaging shaking from earthquakes historically in Colorado. In Park County, the chance of damage from an earthquake event was estimated in 2017 at under 1 percent.

Some slightly elevated hazards may be experienced in those areas subjected to deep mining. The presence of mine portals and shafts in the sub terrain provide the rock strata with a void in which to settle following a seismic event. The settlement of earth into these voids can cause fissures or sinkholes on the surface, which could cause significant damage to buildings and other infrastructure on the surface, even following a minor seismic event.

The primary effects of an earthquake can range from toppled chimneys and broken windows, to cracked walls and roadways, to complete collapse of structures and bridges. Depending on the magnitude and location of the earthquake the overall effects on the community can range from minimal to catastrophic. In larger events loss of life and injuries can be extensive and the cost of damages can be massive.

## 6.2.5 Warning Time

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.

## 6.3 SECONDARY HAZARDS

Earthquakes can cause large and sometimes disastrous landslides and mudslides. River valleys are vulnerable to slope failure, often as a result of loss of cohesion in clay-rich soils. Soil liquefaction occurs when water-saturated sands, silts or gravelly soils are shaken so violently that the individual grains lose contact with one another and float freely in the water, turning the ground into a pudding-like liquid. Building and road foundations lose load-bearing strength and may sink into what was previously solid ground. Unless properly secured, hazardous materials can be released, causing significant damage to the environment and people. Earthen dams and levees are highly susceptible to seismic events and the impacts of their eventual failures can be considered secondary risks for earthquakes.

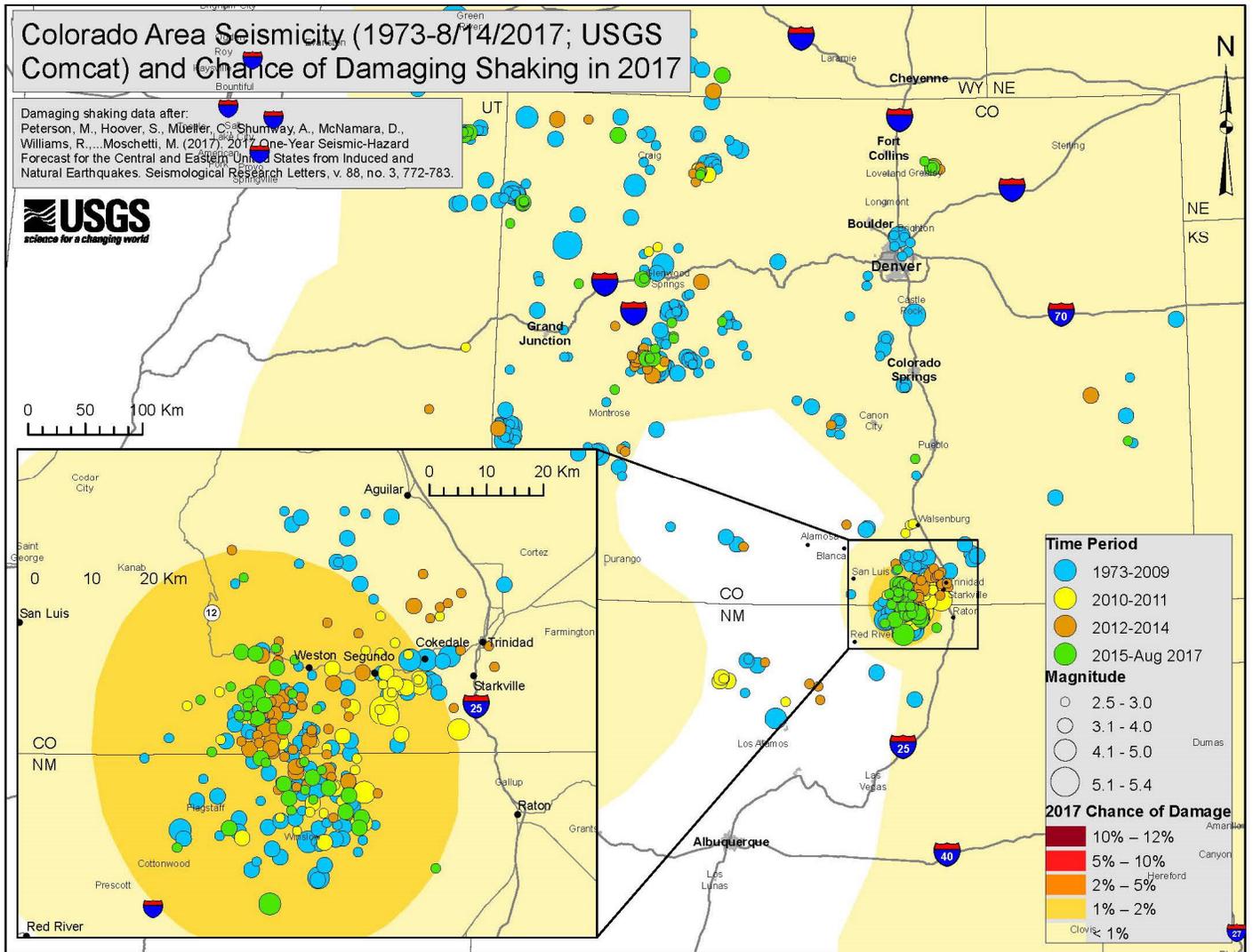


Figure 6-5 Colorado Area Seismicity and Chance of Damaging Shaking

In some cases, the secondary effects from an earthquake can be as damaging and disruptive to a community and its citizens as the initial event. The most significant potential secondary effect of an earthquake to the County is the potential for landslides. Ground shaking during an earthquake can cause previously weakened steep slopes to fail, as well as otherwise stable slopes. The specific impacts of landslides are discussed further in other sections of this Plan.

In addition to landslides other secondary effects can include disruption of critical services such as water, electrical, and telephone services. Damage to police stations, fire stations, and other emergency service facilities can weaken a community’s ability to respond in the crucial hours and days following an event.

### 6.4 CLIMATE CHANGE IMPACTS

The impacts of global climate change on earthquake probability are at this point still unknown (Buis 2019). Secondary impacts of earthquakes, however, could be magnified by climate change. Soils saturated by repetitive storms could experience liquefaction during seismic activity due to the increased saturation. Dams storing increased volumes of water due to changes in the hydrograph could fail during seismic events. There are currently no models available to estimate these impacts.

## **6.5 EXPOSURE**

Because of the large area affected by most earthquakes, as well as the vast diversity of the locations and intensities of historical earthquakes that have and can affect Colorado, no specific areas of Park County can be identified as a higher risk of being affected by an earthquake. However, this same distinction also indicates that the entire County is at a similar risk to earthquake. If an earthquake epicenter were in the middle of the county, the western portion of the county would experience higher PGA that would the eastern portion of the county, resulting in higher risk of damage and exposure.

### **6.5.1 Population**

The entire population of Park County is potentially exposed to direct and indirect impacts from earthquakes. The degree of exposure is dependent on many factors, including the age and construction type of the structures people live in, the soil type their homes are constructed on, their proximity to fault location, etc. Whether directly impacted or indirectly impact, the entire population will have to deal with the consequences of earthquakes to some degree. Business interruption could keep people from working, road closures could isolate populations, and loss of functions of utilities could impact populations that suffered no direct damage from an event itself.

### **6.5.2 Property**

All structures in the planning area are susceptible to earthquake impacts to varying degrees. A majority of the buildings are residential.

The total number of parcels impacted by an earthquake in the county is 39,712. Land types include agricultural, commercial, exempt, industrial, mixed use – commercial, mixed use – agricultural residential, mobile home, residential, mining, and vacant land.

### **6.5.3 Critical Facilities and Infrastructure**

All critical facilities in the planning area are exposed to the earthquake hazard. Hazardous materials releases can occur during an earthquake from fixed facilities or transportation-related incidents. Transportation corridors can be disrupted during an earthquake, leading to the release of materials to the surrounding environment. Facilities holding hazardous materials are of particular concern because of possible isolation of neighborhoods surrounding them. During an earthquake, structures storing these materials could rupture and leak into the surrounding area or an adjacent waterway, having a disastrous effect on the environment.

The 2019 Emergency Operations Plan indicates that the Spinney Mountain Dam is at risk of potential dam failure from an earthquake at a 5 on the Richter Scale; this dam is in close proximity to the East-Side and West-Side Chase Gulch faults and the Eleven Mile fault.

### **6.5.4 Environment**

Secondary hazards associated with earthquakes will likely have some of the most damaging effects on the environment. Earthquake-induced landslides can significantly impact surrounding habitat. It is also possible for streams to be rerouted after an earthquake. This can change the water quality, possibly damaging habitat and feeding areas. There is a possibility of streams fed by groundwater drying up because of changes in underlying geology.

## 6.6 VULNERABILITY

Earthquake vulnerability data were generated using a data from various federal, state, and local sources.

### 6.6.1 Population

#### *Linguistically Isolated Populations*

Problems arise when there is an urgent need to inform non-English-speaking residents of an earthquake event. They are vulnerable because of difficulties in understanding hazard-related information from predominantly English-speaking media and government agencies.

#### *Population Below Poverty Level*

Households below the poverty level may lack the financial resources to improve their homes to prevent or mitigate earthquake damage. Poorer residents are also less likely to have insurance to compensate for losses in earthquakes.

#### *Population Over 65 Years Old*

This population group is vulnerable because they are more likely to need special medical attention, which may not be available due to isolation caused by earthquakes. Elderly residents also have more difficulty leaving their homes during earthquake events and could be stranded in dangerous situations.

### 6.6.2 Property

The County and the two municipalities within Park County have adopted the 2012 International Building Code (IBC). The Code requires varying levels of seismic design, which depend on an importance factor determined by the structures use and nature of occupancy. The seismic provisions of the 2012 IBC are based on the American Society of Civil Engineers Standard Reference Number 7: *Minimum Design Loads for Buildings and Other Structures*. The higher levels of seismic design are assigned to those structures where the risk of injury or loss of life is highest, or those whose function is most critical to the community should an event occur. Examples of these structures include schools, health care facilities, power-generating facilities, water and wastewater treatment facilities, police stations, and fire stations. Although these structures are required to be designed to resist higher levels of seismic activity, they also represent the highest vulnerability to earthquake losses within the County.

The Colorado Geological Survey performs subdivision development reviews to ensure that potential geologic problems have been identified, and if so, adequately addressed. These reviews are required to be submitted by County planning departments for new subdivisions (voluntary for cities or towns) as required by Senate Bill 35 (1972). School sites must be submitted by school districts as directed by House Bill 1045 (1984). Other proposed uses including airports, landfills, water treatment plants, utility rights of way, highway rights of way, as well as the effects of large developments such as mines and ski areas are required to be reviewed under House Bill 1041 (1974).

### 6.6.3 Critical Facilities and Infrastructure

The critical facilities in the county that would be vulnerable to PGA hazards during an earthquake are listed in Table 6-4 and in Appendix D. For analysis, the maximum considered event was used: an earthquake that is expected to occur once in approximately 2,500 years. It has a 2 percent probability of being exceeded in 50 years. PGA is defined by the U.S. Geological Survey as the largest increase in velocity recorded by a particular station during an earthquake. It is expressed as a fraction of standard gravity. For example, 0.8 would be associated with the Hayward Fault in California, while the highest number in Park County is 0.162.

Table 6-4 Critical Facilities and Infrastructure Vulnerable to the Earthquake Hazard, 2500-Year Peak Ground Acceleration

Category	
Bridge	56
Communication Tower	96
Dam	20
Electric Substation	11
Emergency Operations Center	1
Emergency Shelter	15
Fire Station	28
Hazardous Materials Facility	13
Hydroelectric Plant	1
Law Enforcement	9
Medical	1
School	3
Total	254

### 6.6.4 Environment

The environment vulnerable to earthquakes includes areas of steep slopes, unstable soils, and water resources. Earthquakes can cause landslides in landslide-prone areas (those of steep slopes and unstable soils), significantly damaging surrounding habitat. It is also possible for streams to be rerouted after an earthquake. Rerouting can change water quality, resulting in damaged habitat and feeding areas. There is a possibility that streams fed by groundwater wells can dry up because of changes in underlying geology.

### 6.7 FUTURE TRENDS IN DEVELOPMENT

Land use in the planning area will be directed by the Strategic Master Plan adopted in Park County. The growth strategy in this plan establishes standards and plans for the protection of the community from hazards. The information in this plan provides the participating partners a tool to ensure that there is no increase in exposure in areas of high hazard risk. Development in the planning area will be regulated through building standards and performance measures so that the degree of risk will be reduced. The IBC establishes provisions to address seismic risk. There will be no change in vulnerability based on development trends in the county.

# CHAPTER 7 FLOOD

## 7.1 GENERAL BACKGROUND

The hazard of flooding was as a medium hazard level by respondents of the Park County community. The hazard ranking aggregate is shown below:

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Flood	3.00	3.15	3.62	3.92	3.26	4

Floods are one of the most common hazards in the United States. They can develop over a period of days or occur rapidly without warning. A floodplain is the land adjacent to a river, stream, creek, or lake that becomes inundated during a flood. Floodplains may be broad, as when a river crosses an extensive flat landscape, or narrow, as when a river is confined in a canyon. The extent to which a floodplain becomes inundated during a flood depends partly on the magnitude of the flood and partly on the surrounding landscape.

When floodwaters recede after a flood event, they leave behind layers of rock and mud. These gradually build up to create a new floor of the floodplain. Floodplains generally contain unconsolidated sediments (accumulations of sand, gravel, loam, silt, and/or clay), often extending below the bed of the stream. These sediments provide a natural filtering system, with water percolating back into the ground and replenishing groundwater. These are often important aquifers, the water drawn from them being filtered compared to the water in the stream. Fertile, flat reclaimed floodplain lands are commonly used for agriculture, commerce and residential development.

Connections between a river and its floodplain are most apparent during and after major flood events. These areas form a complex physical and biological system that not only supports a variety of natural resources but also provides natural flood and erosion control. When a river is separated from its floodplain with levees and other flood control facilities, natural, built-in benefits can be lost, altered, or significantly reduced.

### DEFINITIONS

**Flood**—The inundation of normally dry land resulting from the rising and overflowing of a body of water.

**Floodplain**—The land area along the sides of a river that becomes inundated with water during a flood.

**100-Year Floodplain**—The area flooded by a flood that has a 1-percent chance of being equaled or exceeded each year. This is a statistical average only; a 100-year flood can occur more than once in a short period of time. The 1-percent annual chance flood is the standard used by most federal and state agencies.

**500-Year Floodplain** —Also known as the 0.2-percent annual chance flood. The area inundated by floodwaters that has a 0.2-percent chance of being equaled or exceeded each year.

**Return Period**—The average number of years between occurrences of a hazard (equal to the inverse of the annual likelihood of occurrence).

**Riparian Zone**—The area along the banks of a natural watercourse.

While there is no official record of major damaging flooding events in Park County, the county always faces significant potential for flooding hazards. The county is surrounded by mountains, with steep ridges and pronounced valleys and includes the headwaters of one of Colorado's most significant watersheds, the South Platte River, as well as two other significant watercourses. The county includes Front Range foothills in the northeast, mountains as high as more than 14,000 feet in and adjacent to the Continental Divide in the north and west. Flooding can be caused either by severe rainstorms or mountain snowmelt. Figure 7-1 shows the major watersheds within Park County.

### **7.1.1 Measuring Floods and Floodplains**

The frequency and severity of flooding are measured using a discharge probability, which is the probability that a certain river discharge (flow) level will be equaled or exceeded in a given year. Flood studies use historical records to determine the probability of occurrence for the different discharge levels. The flood frequency equals 100 divided by the discharge probability. For example, the 100-year discharge has a 1-percent chance of being equaled or exceeded in any given year. The "annual flood" is the greatest flood event expected to occur in a typical year. These measurements reflect statistical averages only; it is possible for two or more floods with a 100-year or higher recurrence interval to occur in a short time period. The same flood can have different recurrence intervals at different points on a river.

The extent of flooding associated with a 1-percent annual probability of occurrence (the base flood or 100-year flood) is used as the regulatory boundary by many agencies. Also referred to as the special flood hazard area, this boundary is a convenient tool for assessing vulnerability and risk in flood-prone communities. Many communities have maps that show the extent and likely depth of flooding for the base flood. Corresponding water-surface elevations describe the elevation of water that will result from a given discharge level, which is one of the most important factors used in estimating flood damage.

### **7.1.2 Floodplain Ecosystems**

Floodplains can support ecosystems that are rich in plant and animal species. A floodplain can contain 100 or even 1,000 times as many species as a river. Wetting of the floodplain soil releases an immediate surge of nutrients: those left over from the last flood, and those that result from the rapid decomposition of organic matter that has accumulated since then. Microscopic organisms thrive and larger species enter a rapid breeding cycle. Opportunistic feeders (particularly birds) move in to take advantage. The production of nutrients peaks and falls away quickly, but the surge of new growth endures for some time. This makes floodplains valuable for agriculture. Species growing in floodplains are markedly different from those that grow outside floodplains. For instance, riparian trees (trees that grow in floodplains) tend to be very tolerant of root disturbance and very quick-growing compared to non-riparian trees.

### **7.1.3 Effects of Human Activities**

Because they border water bodies, floodplains have historically been popular sites to establish settlements. Human activities tend to concentrate in floodplains for a number of reasons: water is readily available; land is fertile and suitable for farming; transportation by water is easily accessible; and land is flatter and easier to develop. But human activity in floodplains frequently interferes with the natural function of floodplains. It can affect the distribution and timing of drainage, thereby increasing flood problems. Human development can create local flooding problems by altering or confining drainage channels. This increases flood potential in two ways: it reduces the stream's capacity to contain flows, and it increases flow rates or velocities downstream during all stages of a flood event. Human activities can interface effectively with a floodplain as long as steps are taken to mitigate the activities' adverse impacts on floodplain functions.

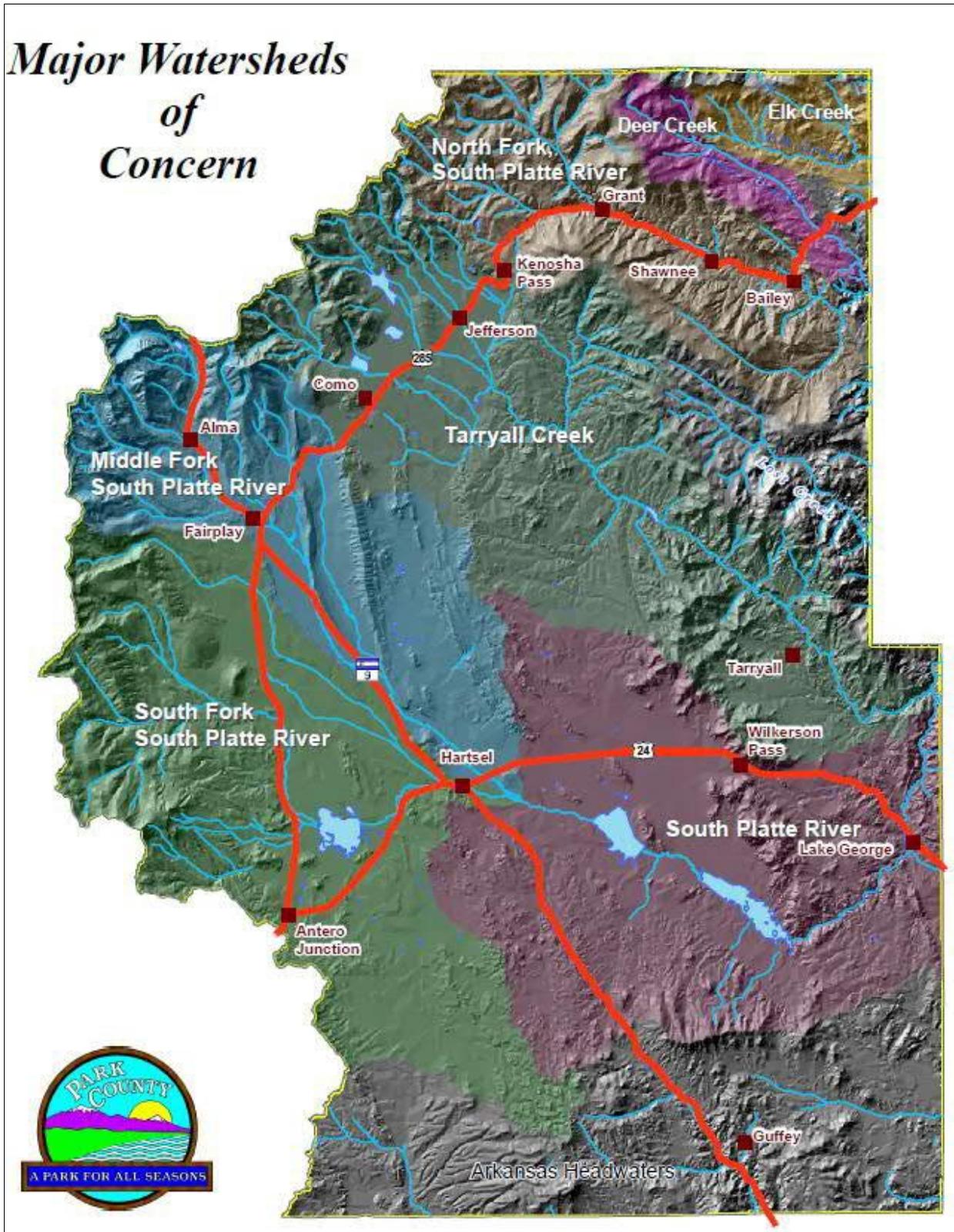


Figure 7-1 Park County Watersheds

## 7.1.4 Federal Flood Programs

### ***National Flood Insurance Program***

The NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in participating communities. For most participating communities, FEMA has prepared a detailed Flood Insurance Study. The study presents water surface elevations for floods of various magnitudes, including the 1-percent annual chance flood and the 0.2-percent annual chance flood (the 500-year flood). Base flood elevations and the boundaries of the 100- and 500-year floodplains are shown on Flood Insurance Rate Maps (FIRMs), which are the principle tool for identifying the extent and location of the flood hazard. FIRMs are the most detailed and consistent data source available, and for many communities they represent the minimum area of oversight under their floodplain management program.

Participants in the NFIP must, at a minimum, regulate development in floodplain areas in accordance with NFIP criteria. Before issuing a permit to build in a floodplain, participating jurisdictions must ensure that three criteria are met:

- New buildings and those undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain development must not aggravate existing flood problems or increase damage to other properties.
- New floodplain development must exercise a reasonable and prudent effort to reduce its adverse impacts on threatened salmonid species.

Park County entered the NFIP on July 16, 1987. Structures permitted or built in the county before then are called “pre-FIRM” structures, and structures built afterwards are called “post-FIRM.” The insurance rate is different for the two types of structures. The effective date for the current countywide FIRM is December 18, 2009.

The FEMA maps for Park County and for the Town of Fairplay were developed through mapping techniques that are not based on engineering analysis. The index map for the Park County FIRMs, showing the layout of the individual map panels from 1987, has been digitized and the Park County watershed boundaries have been superimposed on that index map, shown in Figure 7-2.

## 7.2 HAZARD PROFILE

Flooding in the planning area is typically caused by high-intensity, short-duration (1 to 3 hours) storms concentrated on a stream reach with already saturated soil. Two types of flooding are typical:

- Flash floods that occur suddenly after a brief but intense downpour. They move rapidly, end suddenly, and can occur in areas not generally associated with flooding (such as subdivisions not adjacent to a water body and areas serviced by underground drainage systems). Although the duration of these events is usually brief, the damage they cause can be severe. Flash floods cannot be predicted accurately and happen whenever there are heavy storms.
- Riverine floods described in terms of their extent (including the horizontal area affected and the vertical depth of floodwater) and the related probability of occurrence (expressed as the percentage chance that a flood of a specific extent will occur in any given year).

Flooding is predominantly confined within traditional riverine valleys. Locally, some natural or human made levees separate channels from floodplains and cause independent overland flow paths. Occasionally, railroad, highway, or canal embankments form barriers, resulting in ponding or diversion of the flow. Some localized flooding not associated with stream overflow can occur where there are no drainage facilities to control flows or when runoff volumes exceed the design capacity of drainage facilities. Mapped FEMA flood zones in Park County are shown on Figure D-4 in Appendix D.

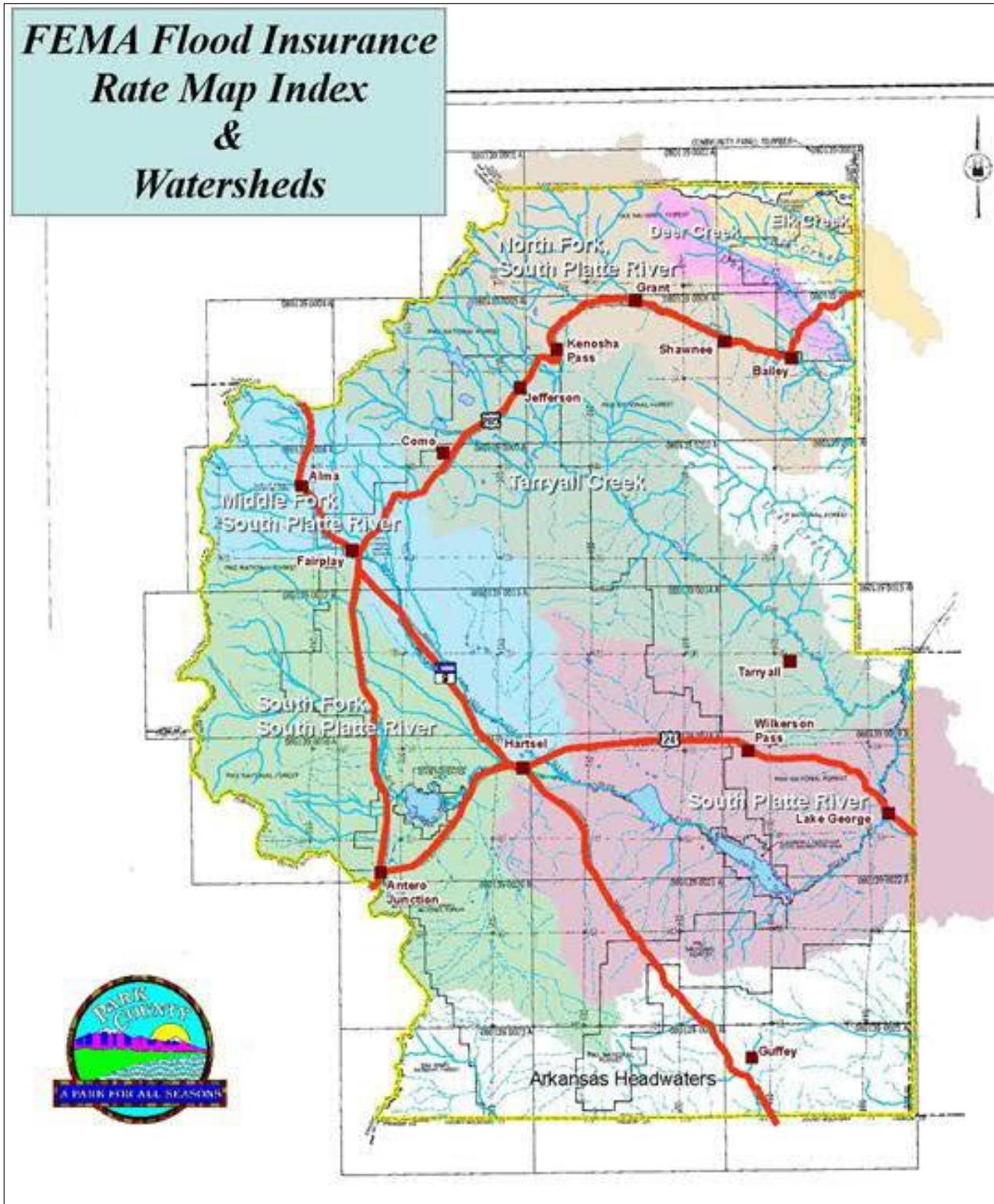


Figure 7-2. Index Map for Park County FIRM

## 7.2.1 Principal Flooding Sources

The portions of the county most susceptible to flooding are those directly adjacent to the area's major drainage ways and selected smaller tributaries throughout the area. Due to the mountainous terrain in much of the county and the associated steep slopes, a great deal of development in the county is located in the valleys along these streams. Development generally consists of residential uses, with commercial districts primarily limited to the two incorporated towns, Fairplay and Alma.

### ***Town of Alma***

The Middle Fork of the South Platte River passes along the eastern side of Alma as it flows south towards Fairplay. Buckskin Creek, a major tributary to the Middle Fork, originates in the Mosquito Range, flows from west to east through Alma and crosses State Highway 9 in the center of town. It joins the Middle Fork of the South Platte on the east side of Alma. Both waterways are susceptible to flooding, which may affect residential and commercial development in Alma. Mapped FEMA flood zones in the Town of Alma are shown on Figure 7-3.

### ***Town of Fairplay***

The Middle Fork flows along the west side of Fairplay in an incised valley well below most urban development. Beaver Creek is east of Fairplay and joins the Middle Fork south of town. The primary flooding risk in Fairplay from the Middle Fork and Beaver Creek is to U.S. Highway 285 and State Highway 9. Dry gulches in town could also pose a flood threat in the event of heavy precipitation. After the Middle Fork crosses U.S. Highway 285, it continues to the southeast and eventually has its confluence with the South Fork of the South Platte River upstream of Hartsel to form the South Platte River. Mapped FEMA flood zones in the Town of Fairplay are shown on Figure 7-4.

### ***Platte Canyon Fire Protection District***

Mapped FEMA flood zones in the Platte Canyon FPD are shown on Figure 7-5. The North Fork of the South Platte River basin is the major drainage way for northern Park County. A major portion of the headwaters of the North Fork of the South Platte River is located on the Continental Divide near Webster Pass along the county's border with Summit County. There are also headwater streams on the southwestern flanks of Mt. Evans in Clear Creek County. One of the North Fork's primary tributary watersheds, the Geneva Creek watershed, originates near Guanella Pass in Clear Creek County. Geneva Creek joins the North Fork at Grant. Another tributary to the North Fork, Kenosha Gulch flows down from Kenosha Pass and joins the North Fork in Webster. Immediately upstream of Grant, the Roberts Tunnel, a Denver Water diversion facility, empties into the North Fork and substantially alters the hydrology of the watershed.

The North Fork flows along U.S. Highway 285 between Webster and Bailey. It poses a threat to infrastructure and property in the Platte Canyon portion of the county, including the Bailey area. Downstream of Bailey, the river continues in a generally eastward direction, crossing into Jefferson County roughly four to five miles south of Pine Junction. Due to steep mountainous terrain in the headwaters of the river's drainage area, the potential for rapid flooding following a moderate to significant rain event or spring snowmelt is high. Selected sections of the North Fork between Grant and Bailey may need to be considered for a Map Modernization project in conjunction with the CWCB.

As mentioned above, a significant hydrologic feature in the North Fork of the South Platte watershed comes from Dillon Reservoir, through the Roberts Tunnel, which conveys water by gravity from Dillon Reservoir into Park County. The Denver Water Board operates Dillon Reservoir and the Roberts Tunnel. Thousands of cubic-feet-per-second are added to the North Fork, dramatically altering the North Fork's channel and the hydrology of the entire watershed below Grant.

The North Fork of the South Platte River watershed was impacted by the Hayman, Snaking and Hi Meadow fires. Wildfires substantially increase the risk of flooding and debris flows. Post-wildfire floods and debris have occurred in nearby burn areas. Perhaps the closest such event occurred in Buffalo Creek (in adjoining

Jefferson County), in 1995, resulting in two fatalities and substantial property and infrastructure damage. Burn scars also contributed to the severity of widespread flooding across Front Range counties in 2013.

Elk Creek is a major tributary to the North Fork of the South Platte. The headwaters of Elk Creek are located in the Mt. Evans Wilderness Area. The creek flows through the northeast corner of the county from west-northwest to east-southeast, crossing into Jefferson County about halfway between Pine Junction and the boundary between Park County and Clear Creek County. Numerous subdivisions near Pine Junction and Bailey, including Harris Park, are located along or near Elk Creek and its tributaries. Due to the number of properties in the proximity of these streams, and the potential threat to property and life that they could pose during a flood event, they warrant significant planning considerations as well as considerations for a CWCB Map Modernization project.

Deer Creek is another major tributary to the North Fork of the South Platte River. The headwaters of Deer Creek and its tributaries are located in the Mt. Evans Wilderness Area. The Deer Creek watershed is parallel and just south of the Elk Creek watershed. Deer Creek and its tributaries pass through several subdivisions, including Highland Park. Deer Creek crosses U.S. Highway 285 about halfway between Pine Junction and Bailey and continues to the east/southeast, joining the North Fork of the South Platte River approximately at the Park County-Jefferson County boundary, roughly 4 to 5 miles south of Pine Junction. As is the case with Elk Creek, the large number of properties in the proximity of Deer Creek and its tributaries merit significant planning considerations as well as considerations for a Map Modernization project with the CWCB.

### ***North-West Fire Protection District***

Mapped FEMA flood zones in the North-West FPD are shown on Figure 7-6. The Tarryall Creek basin's headwaters are located in the mountains of the Continental Divide, which is the county's border with Summit County. The mainstream of Tarryall Creek begins near Boreas Pass, while several major tributaries begin near Georgia Pass. Tarryall Creek flows east/southeast, crossing U.S. Highway 285 between Jefferson and Como, and eventually joining the South Platte River roughly 6 miles downstream of Lake George. Tarryall Reservoir, a Division of Wildlife facility, is located between Jefferson and Tarryall Creek's confluence with the South Platte River. Some of the primary tributaries to Tarryall Creek are Jefferson Creek and Michigan Creek. Jefferson Lake, a storage reservoir owned by the City of Aurora, lies upstream of Jefferson on the Jefferson Lake Fork of Jefferson Creek. The Tarryall Creek watershed, including the mainstream of the creek, was impacted by the Hayman Fire. This watershed has an elevated risk to post-wildfire flash flooding and debris flows.

The headwaters of the Middle Fork of the South Platte River are located along the Continental Divide near Hoosier Pass and the Mosquito Range. The Mosquito Range serves as the boundary between the South Platte Basin and the Arkansas Basin. Colorado Springs Utility's Montgomery Reservoir stores water that flows down from the Divide in the northern portion of this watershed. The river then flows south toward the town of Alma.

### ***Guffey (Southern Park County) Fire Protection District***

Mapped FEMA flood zones in the Southern Park County FPD are shown on Figure 7-7. The headwaters of the South Fork of the South Platte River are in the Mosquito Range and the mountains south of the Mosquito Range on the County's border with Lake County and Chaffee County. From its headwaters, the South Fork flows toward the southeast and into the Denver Water Board's Antero Reservoir. Downstream of Antero Reservoir, the river flows northeast before joining the Middle Fork of the South Platte River upstream of Hartsel to form the South Platte River.

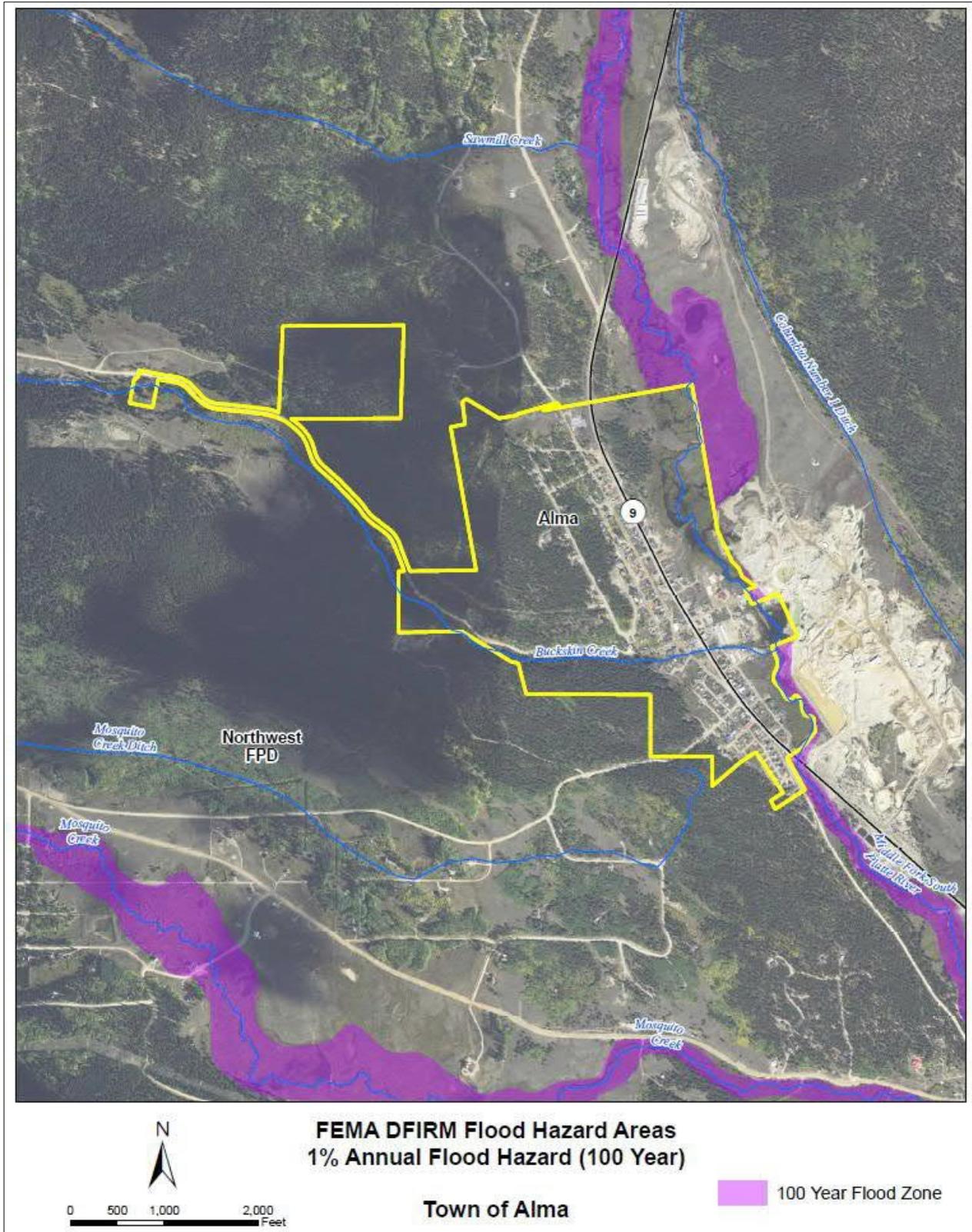


Figure 7-3 FEMA Flood Hazard Areas in the Town of Alma

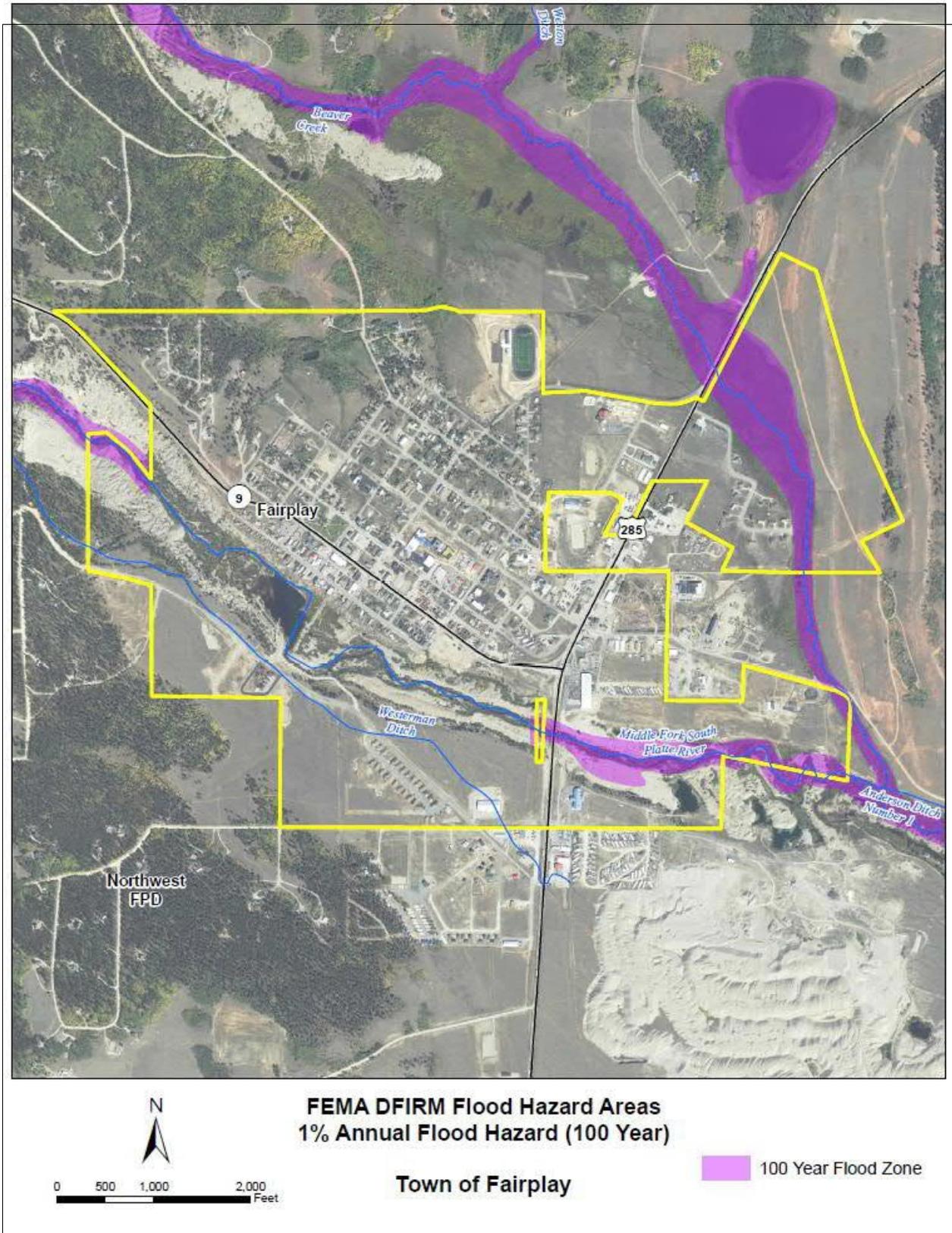


Figure 7-4 FEMA Flood Hazard Areas in the Town of Fairplay

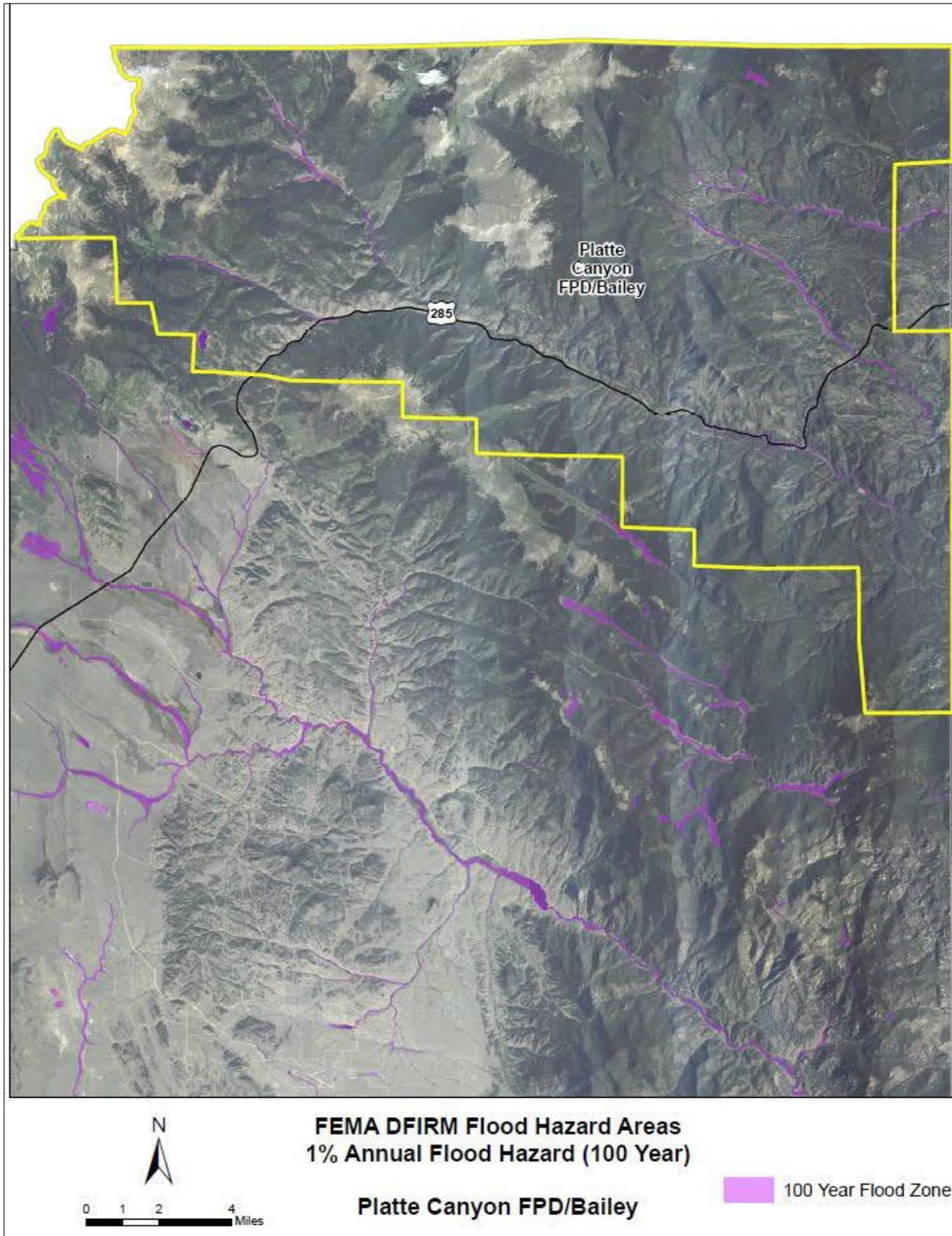


Figure 7-5 FEMA Flood Hazard Areas in the Platte Canyon Fire Protection District

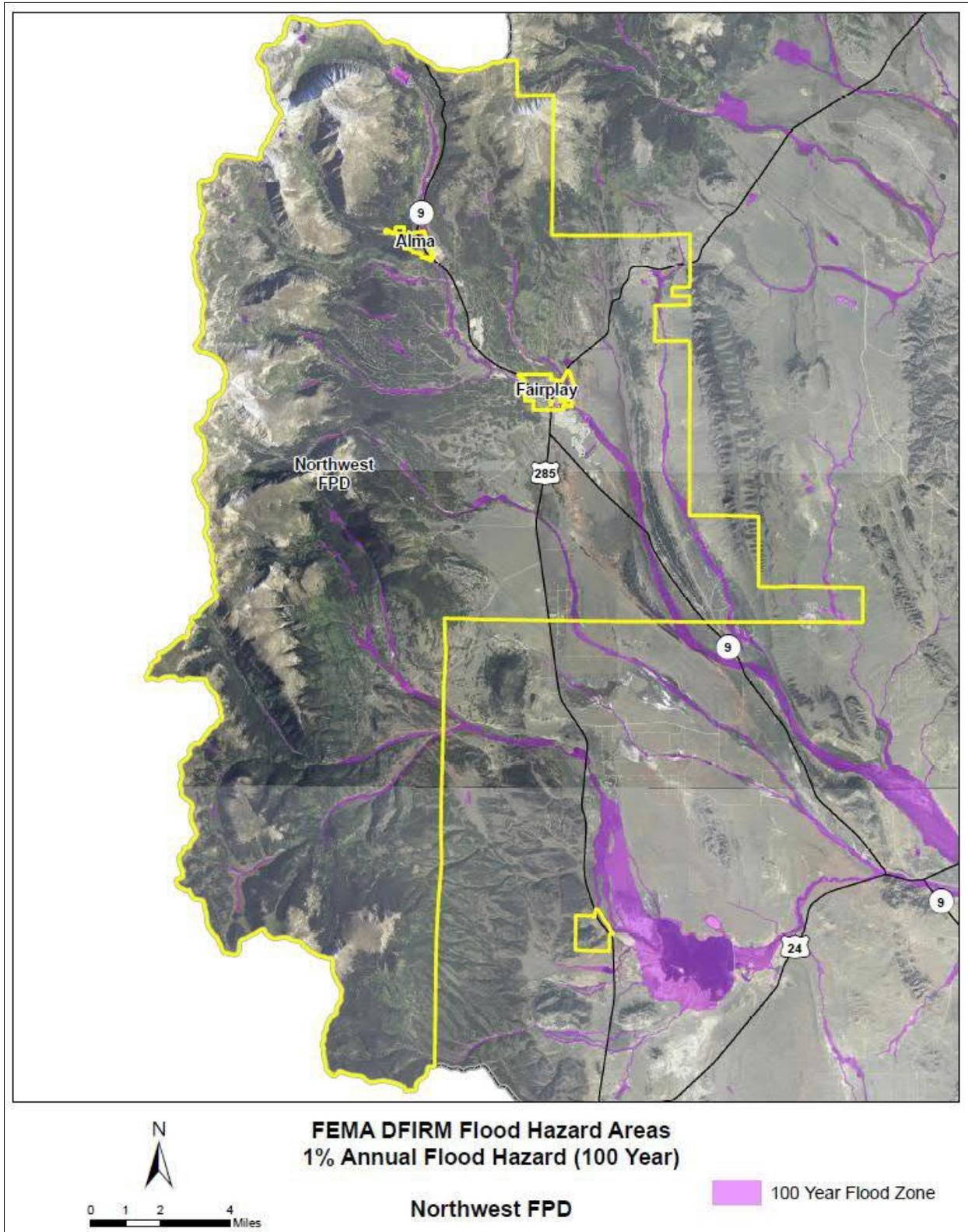


Figure 7-6 FEMA Flood Hazard Areas in the North-West Fire Protection District

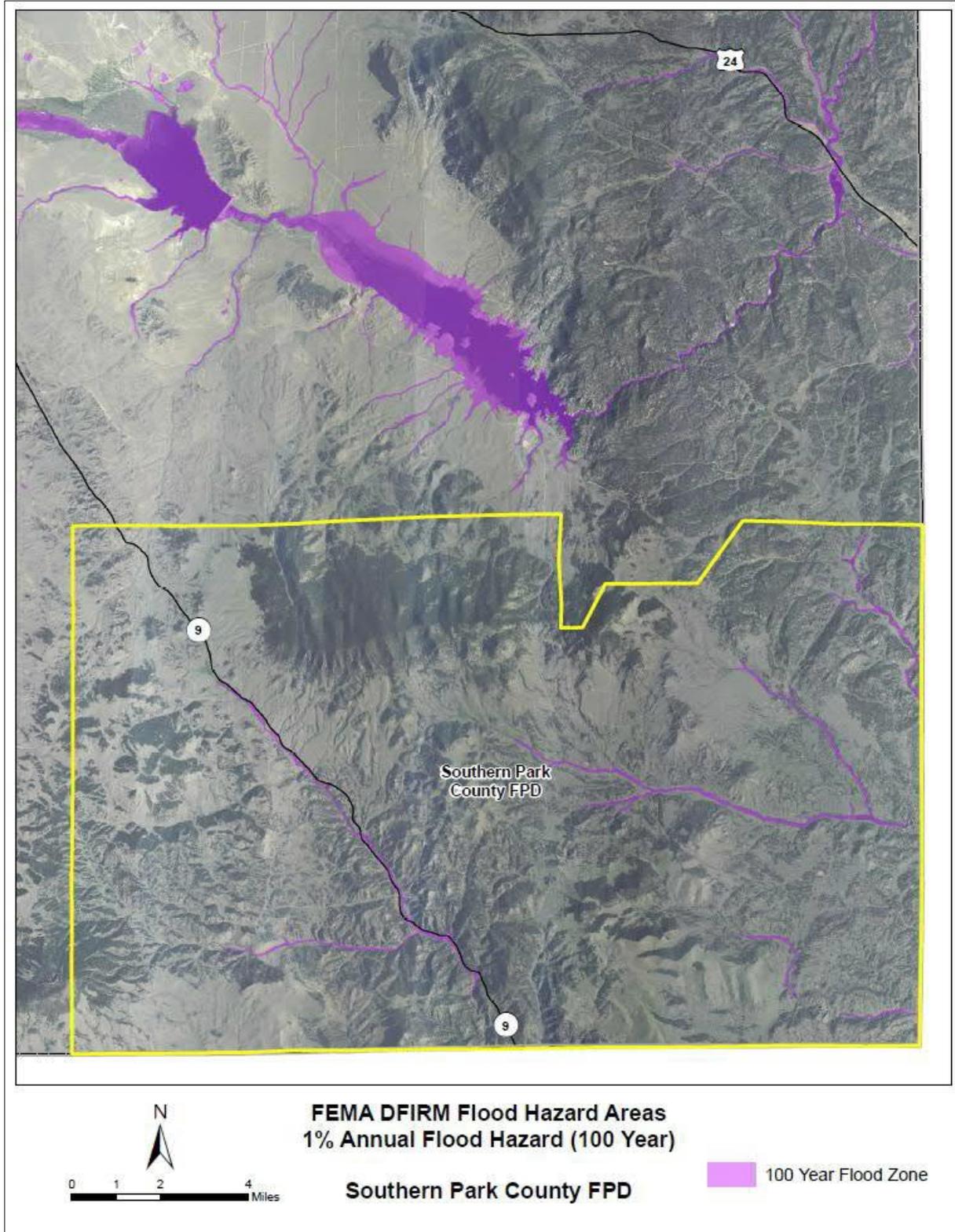


Figure 7-7 FEMA Flood Hazard Areas in the Southern Park County Fire Protection District

The Middle Fork enters the area just upstream of Hartsel from the north/northwest, while the South Fork enters the area just upstream of Hartsel from due west. When the Middle Fork and the South Fork of the South Platte River join upstream of Hartsel, they form the South Platte River. The Middle Fork, the South Fork, and the South Platte all pose a potential flooding threat to buildings and infrastructure, including U.S. Highway 24 and State Highway 9, in and around Hartsel. Consideration may need to be given to a Map Modernization project in conjunction with the CWCB for the Hartsel area.

Downstream of Hartsel, the river flows southeast into the City of Aurora's Spinney Mountain Reservoir. Shortly thereafter, the river enters Eleven Mile Canyon and flows into the Denver Water Board's Eleven Mile Reservoir. Eleven Mile Reservoir is the largest reservoir in the county with 3,405 surface acres and a capacity of 97,779 acre-feet when full. From the outlet of Eleven Mile Reservoir, the river turns to the northeast and eventually flows through the community of Lake George. It continues in a northeasterly direction before flowing briefly through Teller County, and then becoming the boundary between Jefferson and Douglas Counties.

### ***Elk Creek Basin***

The section of Elk Creek and its tributaries that is most susceptible to flooding is between the Mt. Evans Wilderness and Harris Park. There is residential development along the main stem of Elk Creek and several of its tributaries. The Elk Creek Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the Elk Creek Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding, rainfall flooding, post-wildfire flooding and debris flows.

No 100-year flood events have been officially recorded in the Elk Creek Basin. This does not preclude the occurrence of a 100-year event in the future. Given the significant population in the Elk Creek Basin, the high rate of population growth, the existing infrastructure at risk to flooding and the fact that the watershed has experienced a wildfire in the past five years, Park County may want to consider a Map Modernization project in this basin.

### ***Deer Creek Basin***

The section of Deer Creek and its tributaries that is most susceptible to flooding extends from Highland Park, beyond U.S. Highway 285, all the way to the confluence of Deer Creek with the North Fork of the South Platte River near the Park County-Jefferson county line. There is residential development along the main stem of Deer Creek and several of its tributaries. The Deer Creek Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the Deer Creek Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding, rainfall flooding, post-wildfire flooding and debris flows.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the Deer Creek Basin. This does not preclude the occurrence of a 100-year event in the future. Given the significant population in the Deer Creek Basin, the high rate of population growth, the existing infrastructure at risk to flooding and the fact that the watershed has experienced a wildfire in the past ten years, Park County may want to consider a Map Modernization project in this basin.

### ***North Fork South Platte Basin***

The section of the North Fork of the South Platte and its tributaries that is most susceptible to flooding is in the corridor between Grant and Bailey along U.S. Highway 285. There is residential and commercial development along the main stem of the North Fork and several of its tributaries. The North Fork Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the North Fork Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding, rainfall flooding, post-wildfire flooding and debris flows.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the North Fork Basin. This does not preclude the occurrence of a 100-year event in the future. Given the significant population in the North Fork Basin, the high rate of population growth, the existing infrastructure at risk to flooding and the fact that the watershed has experienced a wildfire in the past five years, Park County may want to consider a Map Modernization project in this basin.

### ***Tarryall Creek Basin***

The section of Tarryall Creek and its tributaries that is most susceptible to flooding is in the corridor between the developments just north of U.S. Highway 285 in the vicinity of Jefferson and Como all the way to Tarryall Reservoir. There is development along the main stem of the Tarryall Creek and several of its tributaries. The Tarryall Creek Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the Tarryall Creek Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding on larger streams, rainfall flooding on smaller streams, post-wildfire flooding and debris flows.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the Tarryall Creek Basin. This does not preclude the occurrence of a 100-year event in the future. Given the moderate population in the Tarryall Creek Basin, the low rate of population growth, the existing infrastructure at risk to flooding, it does not appear that Park County will need to consider a significant Map Modernization project in this basin, even though the watershed experienced a wildfire within the past five years.

### ***Middle Fork South Platte Basin***

The two municipalities in Park County, the Town of Alma and the Town of Fairplay, are both entirely contained within the Middle Fork of the South Platte Basin. The Hazard Areas description for this basin has been split into three sections, one for unincorporated Park County, and one each for the two towns.

#### ***Middle Fork South Platte River (Unincorporated Park County)***

The section of the Middle Fork of the South Platte and its tributaries within unincorporated Park County that is most susceptible to flooding is in the corridor between Hoosier Pass and the Town of Fairplay along State Highway 9 and several county roads. There is residential and commercial development along the main stem of the Middle Fork and several of its tributaries. The Middle Fork Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the Middle Fork Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding on large streams and rainfall flooding on smaller streams.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the Middle Fork Basin. This does not preclude the occurrence of a 100-year event in the future. Given the moderate population in the unincorporated portion of the Middle Fork Basin, the low rate of population growth, and the existing infrastructure at risk to flooding, it does not appear that Park County will need to consider a significant Map Modernization project in the unincorporated section of the basin.

#### ***Middle Fork South Platte River (Alma)***

The Middle Fork of the South Platte and Buckskin Creek within the Town of Alma are susceptible to flooding. There is residential and commercial development along the main stem of the Middle Fork and Buckskin Creek. The Middle Fork Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the Middle Fork Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding on large streams and rainfall flooding on smaller streams.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the Middle Fork Basin. This does not preclude the occurrence of a 100-year event in the future. Given the moderate population in the Town of Alma, the moderate rate of population growth, and the existing infrastructure at risk to flooding, it appears that the Town of Alma may want to consider a Map Modernization project in the incorporated section of the basin and collaboration with the county to simultaneously map unincorporated areas adjacent to the town, as appropriate.

### ***Middle Fork South Platte River (Fairplay)***

The Middle Fork of the South Platte and various dry gulches within the Town of Fairplay are susceptible to flooding. There is residential and commercial development along the main stem of the Middle Fork and various dry gulches. The Middle Fork Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the Middle Fork Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding on large streams and rainfall flooding on smaller streams.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the Middle Fork Basin. This does not preclude the occurrence of a 100-year event in the future. Given the significant population in the Town of Fairplay, the moderate rate of population growth, and the existing infrastructure at risk to flooding, it appears that the Town of Fairplay may want to consider a Map Modernization project in the incorporated section of the basin and collaboration with the county to simultaneously map unincorporated areas adjacent to the town, as appropriate.

### ***South Fork South Platte Basin***

The sections of the South Fork of the South Platte River and its tributaries which are most susceptible to flooding are in the corridor between the U.S. Forest Service's boundary with private property and State Highway 9 and the corridor between Antero Reservoir and Hartsel. There is a moderate amount of development along the main stem of the South Fork and some of its tributaries. The South Fork Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the South Fork Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding on large streams and rainfall flooding on smaller streams.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the South Fork Basin. This does not preclude the occurrence of a 100-year event in the future. Given the low population in the South Fork Basin, the low rate of population growth, and the existing infrastructure at risk to flooding, it does not appear that Park County will need to consider a significant Map Modernization project in this basin.

### ***South Platte River Basin***

The sections of the South Platte River and its tributaries that are most susceptible to flooding are the Hartsel area and the Lake George area. There is a moderate amount of development along the main stem of the South Platte and some of its tributaries. The South Platte Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the South Platte Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to snowmelt flooding on large streams, rainfall flooding on smaller streams, post-wildfire flooding and debris flows.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the South Platte Basin. This does not preclude the occurrence of a 100-year event in the future. Given the moderate

population in the South Platte Basin, the moderate rate of population growth, the existing infrastructure at risk to flooding and the fact that the watershed has experienced a wildfire in the past five years, Park County may want to consider a Map Modernization project in this basin.

### **Arkansas River Headwaters Basin**

The section of the Arkansas River Headwaters Basin and tributaries that is most susceptible to flooding is the Guffey area. There is a small amount of development along the main stems of two of the major tributaries, Badger Creek and Currant Creek and tributaries to those streams and to Four Mile Creek. The Arkansas Headwaters Basin has not been studied in detail as part of a FEMA Flood Insurance Study, and BFEs have not been determined for the 100-year flood. The lack of engineering analysis currently available for the Arkansas Headwaters Basin makes it difficult to estimate the number of properties in the 100-year floodplain.

This watershed is subject to rainfall flooding, post-wildfire flooding and debris flows.

As noted in the hazard history section, no 100-year flood events have been officially recorded in the Arkansas Headwaters Basin. This does not preclude the occurrence of a 100-year event in the future. Given the low population in the Arkansas Headwaters Basin, the low rate of population growth, the existing infrastructure at risk to flooding and the fact that the watershed has experienced a wildfire in the past five years, it does not appear that Park County will need to consider a significant Map Modernization project in this basin.

## **7.2.2 Past Events**

Since the documented history of flood events in Park County is so limited, area/community-specific flood history has been provided to accompany the basin descriptions.

Floods are the most common and widespread of all natural hazards. Some floods develop slowly, but flash floods can happen in just minutes. Flood prone areas have been identified in 267 cities and towns and in all of the 64 counties in Colorado.

Documented history of flood events in Park County is minimal. A summary of recorded flood events in Park County was compiled from the NOAA Storm Events Database, as summarized in Table 7-1.

Table 7-1 Flooding Events

Date/Location	Hazard Type	Injuries/Deaths	Property Damage	Crop Damage
08/05/2002 Bailey	Flash Flood	0	-	-
07/28/2003 East Central Portion	Flash Flood	0	-	-
06/28/2004 East Central Portion	Flash Flood	0	-	-
07/16/2004 East Central Portion	Flash Flood	0	-	-
07/23/2004 East Central Portion	Flash Flood	0	-	-
08/02/2007 Bailey	Flash Flood	0	\$1000	-
09/12/2013 Grant	Flash Flood	0	-	-
06/16/2015 Tarryall	Flood	0	\$15,000	\$10,000
07/16/2018 Garo Park	Flash Flood	0	\$10,000	\$5,000

### 7.2.3 Frequency

Park County is subject both to the flash flooding that occurs following a period of intense or sustained rainfall and to snowmelt flooding during the spring/summer runoff. The highly mountainous terrain and associated steep slopes cause rainwater and snowmelt to runoff rapidly, quickly filling streambeds following an event. Snowmelt typically occurs in May or June. Flood producing rainstorms can occur throughout the year. Historically the most common months for significant flooding have been May through September. These months, along with March and April, have the highest average precipitation and the highest frequency of intense rain events. Occasionally, rainstorms can occur during snowmelt runoff, resulting in rain-on-snow flooding.

### 7.2.4 Severity

Because of the mountainous terrain of the drainage area, flooding occurs rapidly. When the flood event is a result of a rainstorm, flooding often occurs before the rain event has passed, and flow passes very quickly through the smaller tributaries of the area into the larger streams. Both with snowmelt flooding and rainfall flooding, the combined effect of these smaller tributaries can create extremely fast-moving floodwaters that greatly exceed the capacity of the larger streams. These fast-moving floodwaters allow little time for residents in the floodplain to evacuate themselves or protect their property, and the force of such rapidly flowing waters increase the potential of damage and loss of life. The duration of these flood events vary depending on the specific characteristics of that particular snowmelt season, or if the cause is rain, the characteristics of that specific rain event. Depending on the magnitude of the snowpack and the thermal input from the sun, snowmelt floods can last from a few days to one or two weeks. In the case of a rain event, floodwaters generally recede rapidly once the rain event has ended but can last from a few hours to a few days.

### 7.2.5 Warning Time

Due to the sequential pattern of meteorological conditions needed to cause serious flooding, it is unusual for a flood to occur without warning. Warning times for floods can be between 24 and 48 hours. Flash flooding can be less predictable, but potential hazard areas can be warned in advance of potential flash flooding danger.

Because flash floods occur rapidly and allow very little warning time, the only potential warning to an upcoming flood event comes through the ability to forecast a heavy rain event prior to its occurrence. The National Weather Service (NWS) issues flood watches and warnings when heavy rains or severe storms threaten the area. These warnings are carried to local residents through local media outlets such as television and radio stations. In addition, the NWS, in conjunction with the National Oceanic and Atmospheric Administration (NOAA), operates the NOAA Weather Radio System; which is a nationwide network of radio transmitters that broadcasts severe weather data to relatively inexpensive special receivers that can be purchased by the public. When a severe weather alert is issued, the transmitter will switch to alert mode, notifying residents of the potential risk. Although not extensive, the measures provide residents and citizens located in a flood prone area, some warning time to prepare for a potential flood.

Water and snow levels are monitored prior to spring thaw. Those levels are reviewed and if it is determined that high water may occur with the spring run-off the following steps are taken:

- Public Awareness.
- Evaluation of waterways to see where trouble spots may be so they may be mitigated. Special attention to those spots with history of problems.
- Ensure the storage of adequate numbers of sandbags.
- Ensure evacuation points are ready.

- Alert property owners to the need of flood insurance in advance.
- Alert private property owners of need for safe storage of valuables, stocking up on necessities, notification lists, etc.

### 7.3 SECONDARY HAZARDS

The most problematic secondary hazard for flooding is bank erosion and rapid channel migration, which in some cases can be more harmful than actual flooding. This is especially true in the upper courses of rivers with steep gradients, where floodwaters may pass quickly and without much damage, but scour the banks, edging properties closer to the floodplain or causing them to fall in. Flooding is also responsible for hazards such as landslides when high flows over-saturate soils on steep slopes, causing them to fail. Hazardous materials spills are also a secondary hazard of flooding if storage tanks rupture and spill into streams, rivers or storm sewers.

If a significant flood event occurs, there is a potential for a variety of secondary impacts. Some of the most common secondary effects of flooding are impacts to infrastructure and utilities such as roadways, water service, and wastewater treatment, and impacts to local commerce, including tourism. Many of the roadways in the County are vulnerable to damage due to floodwaters. The effect of flood damages to roadways can limit access to areas, cutting off some residents from emergency services and other essential services, as well as hampering outsiders visiting the County or traveling through on their way to other destinations.

Since a major heating source in the area is propane gas, there may be many properties in floodplains with above-ground fuel storage tanks. It is likely that tanks in the floodplain are not secured or strapped down. If these tanks were to be damaged or dislodged during a flood event, the resulting gas leaks could present serious explosion risks. Tanks can also become floating projectiles in quickly moving floodwaters, causing serious damage to property and danger to individuals in their path.

### 7.4 CLIMATE CHANGE IMPACTS

Use of historical hydrologic data has long been the standard of practice for designing and operating water supply and flood protection projects. For example, historical data are used for flood forecasting models and to forecast snowmelt runoff for water supply. This method of forecasting assumes that the climate of the future will be similar to that of the period of historical record. However, the hydrologic record cannot be used to predict changes in frequency and severity of extreme climate events such as floods. Going forward, model calibration or statistical relation development must happen more frequently, new forecast-based tools must be developed, and a standard of practice that explicitly considers climate change must be adopted. Climate change is already impacting water resources, and resource managers have observed the following:

- Historical hydrologic patterns can no longer be solely relied upon to forecast the water future.
- Precipitation and runoff patterns are changing, increasing the uncertainty for water supply and quality, flood management and ecosystem functions.
- Extreme climatic events will become more frequent, necessitating improvement in flood protection, drought preparedness and emergency response.

The amount of snow is critical for water supply and environmental needs, but so is the timing of snowmelt runoff into rivers and streams. Rising snowlines caused by climate change will allow more mountain area to contribute to peak storm runoff. High frequency flood events (e.g. 10 -year floods) in particular will likely increase with a changing climate. Along with reductions in the amount of the snowpack and accelerated snowmelt, scientists project greater storm intensity, resulting in more direct runoff and flooding. Changes in watershed vegetation and soil moisture conditions will likewise change runoff and recharge patterns. As stream flows and velocities change, erosion patterns will also change, altering channel shapes and depths, possibly increasing sedimentation behind dams, and affecting habitat and water quality. With potential increases in the frequency and intensity of wildfires due to climate change, there is potential for more floods following fire, which increase sediment loads and water quality impacts.

As hydrology changes, what is currently considered a 100-year flood may strike more often, leaving many communities at greater risk. Planners will need to factor a new level of safety into the design, operation, and regulation of flood protection facilities such as dams, floodways, bypass channels and levees, as well as the design of local sewers and storm drains.

## 7.5 EXPOSURE

Flood exposure was analyzed using local GIS data from county, state, and federal sources.

### 7.5.1 Population and Property

Using GIS, it was estimated that 2,383 parcels in the county are exposed to flood hazards within the 100-year floodplain (see Table 7-2). The parcels shown in Table 7-2 are outside of the town of Fairplay. Parcels in Fairplay that are within the 100-year floodplain are included in Section 3.4 of the Town of Fairplay Jurisdiction-Specific Annex.

Table 7-2 Total Number of Parcels Exposed to Flood Hazards within the 100-year Floodplain

Land Type	Land Type Count	Sum of Land Value
Not Designated	41	\$0.00
Agricultural	462	\$6,314,279.21
Commercial	34	\$2,019,454.92
Exempt	228	\$314,525,334.03
Mining	29	\$652,029.64
Mixed Use- Commercial	21	\$5,041,081.16
Mixed Use-Agricultural Residential	117	\$5,796,036.01
Mobile Home	13	\$816,250.72
Nat. Resources	8	\$8,343,245.23
Residential	646	\$64,406,788.08
Vacant Land	784	\$37,245,052.35
Grand Total	2,383	\$445,159,551.33

According to the Colorado State Demography Office, average household size in Park County in 2018 was 2.25 people (Colorado State Demography Office 2020). Based on this estimate and the number of residential and mobile home parcels exposed, an estimated residential population of 1,483 people is exposed to flood hazards in the 100-year floodplain. This estimate assumes each residential parcel in the county contains one household.

### 7.5.2 Critical Facilities and Infrastructure

Table 7-3 summarizes the critical facilities and infrastructure in the 100-year floodplain of the planning area. Details are provided in the following sections.

Table 7-3 Critical Facilities In The 100-Year Floodplain

	Bridge	Dam	Electric Substation	Fire Station	Schools	Other	Total
Total	36	12	1	1	0	0	50

## ***Utilities and Infrastructure***

It is important to determine who may be at risk if infrastructure is damaged by flooding. Roads or railroads that are blocked or damaged can isolate residents and can prevent access throughout the county, including for emergency service providers needing to get to vulnerable populations or to make repairs. Bridges washed out or blocked by floods or debris also can cause isolation. Water and sewer systems can be flooded or backed up, causing health problems. Underground utilities can be damaged. Dikes can fail or be overtopped, inundating the land that they protect. The following sections describe specific types of critical infrastructure.

### ***Roads***

The following major roads in the planning area pass through the 100-year floodplain and thus are exposed to flooding: U.S. Highway 24, U.S. Highway 285 and Colorado State Highway 9. Some of these roads are built above the flood level, and others function as levees to prevent flooding. Still, in severe flood events these roads can be blocked or damaged, preventing access to some areas.

### ***Bridges***

Flooding events can significantly impact road bridges. These are important because often they provide the only ingress and egress to some neighborhoods. GIS analysis showed that there are 36 bridges that are in or cross over the 100-year floodplain.

### ***Water and Sewer Infrastructure***

Water and sewer systems can be affected by flooding. Floodwaters can back up drainage systems, causing localized flooding. Culverts can be blocked by debris from flood events, also causing localized urban flooding. Floodwaters can get into drinking water supplies, causing contamination. Sewer systems can be backed up, causing wastewater to spill into homes, neighborhoods, rivers and streams.

### ***Levees***

Levees have historically been used to control flooding in portions of the planning area. The county has over 156.44 miles of earthen levees and revetments managed by Park County Flood Control District as well as the reclamation districts in the county. There are also levees on many smaller rivers, streams and creeks that protect small areas of land. Many of the levees are older and were built under earlier flood management goals. Many of these older levees are exposed to scouring and failure due to old age and construction methods.

## **7.5.3 Environment**

Flooding is a natural event, and floodplains provide many natural and beneficial functions. Nonetheless, with human development factored in, flooding can impact the environment in negative ways. Migrating fish can wash into roads or over dikes into flooded fields, with no possibility of escape. Pollution from roads, such as oil, and hazardous materials can wash into rivers and streams. During floods, these can settle onto normally dry soils, polluting them for agricultural uses. Human development such as bridge abutments and levees, and logjams from timber harvesting can increase stream bank erosion, causing rivers and streams to migrate into non-natural courses.

## **7.6 VULNERABILITY**

Many of the areas exposed to flooding may not experience serious flooding or flood damage. This section describes vulnerabilities in terms of population, property, infrastructure and environment.

### **7.6.1 Population**

As shown above, all people living on the parcels that are exposed to the 100-year floodplain are vulnerable to the impacts of flooding.

### 7.6.2 Property

All parcels that are exposed in Table 7-2 are vulnerable to flood hazards.

#### National Flood Insurance Program

Table 7-4 lists flood insurance statistics that help identify vulnerability in the planning area. Currently, Fairplay participates in the National Flood Insurance Program as does the County, with 35 total flood insurance policies. According to FEMA statistics, two (2) claims have been filed, with \$343,000 paid in the recent past.

Table 7-4 Flood Insurance Statistics

Jurisdiction	Current Effective FIRM Date	# of Flood Insurance Policies as of 6/30/2019	Total Population	# of Letter of Map Correction	Claims, 11/1978 to 6/30/2019	Value of Claims paid, 11/1978 to 6/30/2019
Fairplay	12/18/2009	1	726	0	0	0
Unincorporated	12/18/2009	34	18,845	11	2	\$343,000
Countywide	12/18/2009	35	14,009	11	2	\$343,000

Source: FEMA (n.d.)

Properties constructed after a FIRM has been adopted are eligible for reduced flood insurance rates. Such structures are less vulnerable to flooding since they were constructed after regulations and codes were adopted to decrease vulnerability. Properties built before a FIRM is adopted may be more vulnerable to flooding if they do not meet code or are located in hazardous areas. The first FIRMs in Park County were available in 1978. The most current FIRM is dated December 18, 2009.

The use of flood insurance in the planning area is well below the national average. A nominal percent of insurable buildings in the county are covered by flood insurance. According to an NFIP study, less than 1 percent of single-family homes in special flood hazard areas are covered by flood insurance nationwide.

#### Repetitive Loss

A repetitive loss property is defined by FEMA as an NFIP-insured property that has experienced any of the following since 1978, regardless of any changes in ownership:

- Four or more paid losses in excess of \$1,000
- Two paid losses in excess of \$1,000 within any rolling 10-year period
- Three or more paid losses that equal or exceed the current value of the insured property.

Repetitive loss properties make up only 1 to 2 percent of flood insurance policies in force nationally, yet they account for 40 percent of the nation’s flood insurance claim payments. The government has instituted programs encouraging communities to identify and mitigate the causes of repetitive losses. A recent report on repetitive losses by the National Wildlife Federation found that 20 percent of these properties are outside any mapped 100-year floodplain. The key identifiers for repetitive loss properties are the existence of flood insurance policies and claims paid by the policies.

FEMA-sponsored programs, such as the CRS, require participating communities to identify repetitive loss areas. A repetitive loss area is the portion of a floodplain holding structures that FEMA has identified as meeting the definition of repetitive loss. Identifying repetitive loss areas helps to identify structures that are at risk but are not on FEMA’s list of repetitive loss structures because no flood insurance policy was in force at the time of loss. Park County and the Town of Fairplay do not participate in the CRS.

### 7.6.3 Critical Facilities and Infrastructure

All critical facilities and infrastructure that are shown above to be exposed (Table 7-3) are vulnerable to flood hazards.

### 7.6.4 Environment

The environment vulnerable to flooding is the same as the environment exposed to the hazard. Loss estimation platforms such as HAZUS-MH are not currently equipped to measure environmental impacts of flood hazards. The best gauge of vulnerability of the environment would be a review of damage from past flood events. Loss data that segregates damage to the environment was not available at the time of this plan. Capturing this data from future events could be beneficial in measuring the vulnerability of the environment for future updates.

Additionally, while the vulnerability assessment typically focuses on human vulnerability to flood events, the opposite is also worth noting. Floodplains have many natural and beneficial functions; however, because of the negative impacts of floods, many structural and other measures have been devised to limit how far a floodplain can extend. Disruption of natural systems can have long-term consequences for entire regions; however, this potential impact has only recently been noted. Some well-known, water-related functions of floodplains (noted by FEMA) include:

- Natural flood and erosion control
- Provide flood storage and conveyance
- Reduce flood velocities
- Reduce flood peaks
- Reduce sedimentation
- Surface water quality maintenance
- Filter nutrients and impurities from runoff
- Process organic wastes
- Moderate temperatures of water
- Groundwater recharge
- Promote infiltration and aquifer recharge
- Reduce frequency and duration of low surface flows

## 7.7 FUTURE TRENDS

The county has experienced moderate growth over the past 10 years. The County and its planning partners are equipped to handle future growth within flood hazard areas.

## 7.8 ISSUES

The planning partners have identified the following flood-related potential issues relevant to the planning area:

- The accuracy of the existing flood hazard mapping produced by FEMA in reflecting the true flood risk within the planning area is challenging. Not all of the areas protected by levees are accredited by the FEMA mapping process.
- The extent of the flood-protection currently provided by flood control facilities (dams, dikes and levees) is not known due to the lack of an established national policy on flood protection standards.
- Older levees are subject to failure or do not meet current building practices for flood protection.
- The risk associated with flood hazards overlaps the risk associated with other hazards such as earthquake and landslide. This provides an opportunity to seek mitigation alternatives with multiple objectives that can reduce risk for multiple hazards.

- There is little consistency of land-use practices and regulatory floodplain management scope within the planning area.
- FIRMs and DFIRMs do not provide accurate estimates of future risk due to climate change.
- More information is needed on flood risk to support the concept of risk-based analysis of capital projects.
- There needs to be a sustained effort to gather historical damage data, such as high water marks on structures and damage reports, to measure the cost-effectiveness of future mitigation projects.
- Ongoing flood hazard mitigation will require funding from multiple sources.
- Floodplain residents need to continue to be educated about flood preparedness and the resources available during and after floods.
- The concept of residual risk should be considered in the design of future capital flood control projects and should be communicated with residents living in the floodplain.
- The promotion of flood insurance as a means of protecting private property owners from the economic impacts of frequent flood events should continue.
- Existing floodplain-compatible uses such as agricultural and open space need to be maintained. There is constant pressure to convert these existing uses to more intense uses within the planning area during times of moderate to high growth.
- The economy affects a jurisdiction's ability to manage its floodplains. Budget cuts and personnel losses can strain resources needed to support floodplain management.

## CHAPTER 8 SEVERE WINTER WEATHER

### 8.1 GENERAL BACKGROUND

The severe winter weather hazard is the most common cause for a State declaration. This hazard was ranked at a high hazard level by respondents. The hazard ranking aggregate is shown below:

	<i>Probability /Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Severe Winter Weather	4.62	3.62	3.92	3.85	4.05	2

Severe winter storms and blizzards are extra-tropical cyclones that originate as mid-latitude depressions. Snowstorms, blizzards, and ice storms are the most common examples. These storms can bring heavy snowfall, high winds, ice, and extreme cold with them. Historically, winter storms in south central Colorado have produced significant snowfall and high winds often causing blizzard or whiteout conditions.

#### 8.1.1 Blizzards and Snowstorms

The National Weather Service defines a winter storm as having significant snowfall, ice and/or freezing rain; the quantity of precipitation varies by elevation. Heavy snowfall in mountainous areas is 12 inches or more in a 12-hour period or 18 inches or more in a 24-hour period. There are three key ingredients to a severe winter storm:

- **Cold Air**—Below-freezing temperatures in the clouds and near the ground are necessary to make snow and/or ice.
- **Moisture**—Moisture is required in order to form clouds and precipitation. Air blowing across a body of water, such as a large lake or the ocean, is an excellent source of moisture.
- **Lift**—Lift is required in order to raise the moist air to form the clouds and cause precipitation. An example of lift is warm air colliding with cold air and being forced to rise over the cold dome. The boundary between the warm and cold air masses is called a front. Another example of lift is air flowing up a mountain side.

Heavy snow can immobilize a region and paralyze a city, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse buildings and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and

**DEFINITIONS**

**Freezing Rain**—The result of rain occurring when the temperature is below the freezing point. The rain freezes on impact, resulting in a layer of glaze ice up to an inch thick. In a severe ice storm, an evergreen tree 60 feet high and 30 feet wide can be burdened with up to six tons of ice, creating a threat to power and telephone lines and transportation routes.

**Winter Storm**—A storm having significant snowfall, ice, and/or freezing rain; the quantity of precipitation varies by elevation.

unprotected livestock may be lost. In the mountains, heavy snow can lead to avalanches. The cost of snow removal, repairing damages, and loss of business can have large economic impacts on cities and towns.

Areas most vulnerable to winter storms are those affected by convergence of dry, cold air from the interior of the North American continent, and warm, moist air off the Pacific Ocean. Typically, significant winter storms occur during the transition between cold and warm periods.

### **8.1.2 Ice Storms**

In addition to snow, winter storms can also bring sleet and freezing rain to the area. Sleet is generally described as frozen water particles that fall in the form of ice, while freezing rain falls as super cooled water which can freeze on impact with the ground, trees, or roadways. In its most severe form, freezing rain can fall as part of an ice storm that can coat the area with a layer of ice up to 2 inches thick. Ice storms can cause significant damage by snapping tree limbs and bending trees to the ground. These fallen limbs and trees can completely block roadways, cut access to certain areas of the county for days, and interfere with and destroy overhead utility lines. The county is also prone to winter ground blizzards in which wind and snow combine to cause drifting, “whiteout” visibility conditions, dangerous or impassible driving conditions, and hazards to the safety of humans and livestock.

Ice storms occur when rain falls from a warm, moist, layer of atmosphere into a below freezing, drier layer near the ground. The rain freezes on contact with the cold ground and exposed surfaces causing damage to trees, utility wires, and structures.

## **8.2 HAZARD PROFILE**

### **8.2.1 Past Events**

Table 8-1 summarizes severe weather events in the planning area since 1970, as recorded by the National Oceanic and Atmospheric Administration (NOAA). Severe winter storms, including late spring snowstorms are common in Colorado. From January 1 to January 6, 1949, one of the most severe blizzards of record occurred in the Great Basin, middle Rockies, and northwestern Great Plains. In Colorado, other heavy snow/blizzards occurred on November 11, 1975; December 23, 1982; March 14, 1983; February 8, 1995; March 17, 2003 and December 28, 2006 (SHELDUS). During the 2019 winter, several closures of Highway 285 and State Highway 9 caused stranded motorists to be rescued and emergency shelters to be opened. One event required housing around 1000 travelers. This weather stranding doubled the population of Fairplay, overwhelming the response ability for sheltering and resulted in a humanitarian crisis.

The winters of 2006–2007 and 2007–2008 were particularly harsh in Park County. On December 20, 2006, an upslope snowstorm moved into Colorado’s plains-foothills-mountains interface from the east and dropped more than a foot of snow (in some areas more than 2 feet) on the Interstate 25 Front Range corridor, and on mountain areas of the state, including parts of Park County. On December 28 and 29, 2006, another powerful front moved through Colorado, depositing more snow on the Front Range and the central mountains. The combination of heavy snowfall and high winds left residents in some portions of Park County stranded and unable get supplies such as food, essential medications and propane. Livestock was also affected as residents could not access some of their herds and get them food.

With the development of a La Niña in the fall of 2007, forecasters predicted a moderate to dry winter in 2007 to 2008 for the Southwestern United States, including Colorado. La Niña is a system of cool water in the tropics of the Pacific Ocean, which influences weather in other places, including North America. The forecasters were relying on historical climate data that has examined the correlation between the existence of a La Niña and climate conditions in Colorado. Colorado’s climate history showed that generally the state experiences drier than normal winters during a La Niña. For example, during the La Niña in the winter of 2000–2001, snowpack in Park County was well below normal. Snowpack was roughly 70 percent of normal in the South Platte Basin in 2000 to 2001 and 81 percent of normal in the Arkansas River Basin. Snowpack in most of the state that year was below 85 percent of normal. However, instead of the predicted “moderate

to dry winter,” in the winter of 2007 to 2008, snowfall levels throughout the state were significantly above normal. Throughout January and February 2008, Park County was subject to frequent heavy snowfall, coupled with hurricane force winds, sometimes in excess of 110 miles per hour.

Table 8-1 Past Severe Weather Events Impacting Planning Area

Date	Type	Deaths or Injuries	Property Damage
10/29/2019	Severe Winter Weather	1	\$0
01/08/2012	Blizzard	0	\$0
12/28/2006	Severe Winter Weather	0	\$108.00
3/17/2003	Severe Winter Weather	0	\$3,100,000
2/8/1995	Severe Winter Weather	0	\$40,698
3/2-9/1992	Severe Winter Weather	0	\$1087.00
3/4/1990	Severe Winter Weather	1	\$254.00
2/17/1989	Severe Winter Weather	0	\$79,365
10/15/1984	Severe Winter Weather	0	\$11,111.11
6/6/1984	Severe Winter Weather	0	\$4,166.67
5/16/1983	High Wind & Severe Winter Weather	0	\$26,315.79
12/23/1982	Severe Winter Weather / Blizzard	.1	\$793,651.00
3/10/1977	High Wind & Severe Winter Weather	0.03	\$172,413.80
11/17/1975	High Wind & Severe Winter Weather	0.02	\$11,363.64

Because of the constant inclement weather, the county did not have sufficient equipment and manpower to plow all of its roads and provide access to stranded residents and motorists. On Monday, February 11, 2008, after a third activation of the emergency operations center to deal with stranded motorists and residents, the Park County Emergency Manager, in conjunction with emergency responders and other county officials, declared a state of emergency.

By February 11, more than 600 miles of road were buried. Roads that Park County Road and Bridge plowed would quickly be rendered inaccessible due to the sustained winds. Snowdrifts were reported as high as 24 feet in the Como area, and were between 8 and 12 feet in the Town of Fairplay. Some drifts were 25 feet wide and the sustained winds rendered some of them so hard that the county’s equipment had difficulty plowing the snow/ice mixture. Many residents found themselves trapped in their homes, unable to get food, medication, propane and other essential items. A few residents were unable to get to their homes and needed emergency shelter. 911 dispatch informed the Emergency Manager that they were receiving 40 to 60 calls daily from stranded residents. After declaring a state of emergency, the county opened a phone bank to reach stranded citizens. It was quickly determined that nearly 250 residents were trapped in their homes.

To address the overwhelming needs, Park County requested aid from other counties in the immediate area and around the state, as well as from state agencies, including the Colorado Department of Transportation and the Colorado Department of Corrections. The Colorado Division of Emergency Management provided more comprehensive communications equipment to accommodate the added manpower and the large operation area. Two simultaneous operations took place; one to get food, medication and propane to stranded residents through search and rescue teams using snowmobiles, and the other to plow roads as quickly as possible. On February 15, feeding operations for stranded livestock took place.

That day, wireless and landline telephone service malfunctioned due to a failure at a Qwest facility. Crews requested help from the Civil Air Patrol to determine locations of livestock in need of food. Despite the communications failure, the county was able to begin demobilizing some crews on February 15, as most

priority areas had been addressed. Several crews stayed through February 17 to continue road and bridge operations. When the state of emergency was lifted on February 19, crews had cleared more than 90 percent of the 600 miles of roads. Even with the donations of equipment and manpower, the initial cost to the county was around \$225,000.

## 8.2.2 Location

To date, some preliminary distinctions have been made regarding which areas of Park County may have a history of more frequent or more significant severe winter weather impacts or be more prone to future severe winter weather impacts. During and after the severe winter of 2007 to 2008, the Park County GIS department mapped road segments and other locations where drifting of snow was significant enough to require a major allocation of resources just to provide basic access for people and, in some cases, livestock. This mapping, shown in Figure 8-1, provides a starting point for exploring the possibility of making distinctions about the impacts of severe winter weather in Park County. A number of factors contribute to an area's vulnerability to damage, and some of these factors could be the subjects of further historical research, making use of geographic data from the past two winters as a start. Aside from this initial mapping, there are currently no maps showing which specific portions of the county were affected by historical severe winter weather events in other years. Likewise, there are currently no detailed maps showing which portions of Park County could be impacted by severe winter weather in the future.

Certain characteristics of an area or of a structure increase its resistance to damage from severe winter weather. Many of these characteristics are unique to the location or the structure in question. Continuing to document specific historical events would further the process of determining whether certain locations in Park County are inherently more prone to the impacts of severe winter weather than other locations.

## 8.2.3 Frequency

The State of Colorado experiences severe winter storms each year and the mountainous areas of the state regularly experience several severe snowstorms each year. These storms can produce between 4 and 12 inches (or more) of snow from each event. Total average annual snowfall within the County varies from month to month and from region to region.

## 8.2.4 Severity

The most common problems associated with severe storms are immobility and loss of utilities. Fatalities are uncommon but can occur. Roads may become impassable due to downed trees, ice or snow, or a landslide. Power lines may be downed due to high winds or ice accumulation, and services such as water or phone may not be able to operate without power.

Winter storms can disrupt lives for periods of a few hours or up to several days, depending upon the severity of the storm. Transportation systems are usually among the first and hardest hit sectors of a community. Snow and ice can block primary and secondary roads, and treacherous conditions make driving difficult; some motorists may be stranded during a storm, and emergency vehicles may not be able to access all areas. The steep slopes found throughout the County exacerbate the situation, making some of the secondary roads impassable during even a minor winter weather event. Ground blizzards present significant risk to drivers, ranchers and their livestock and others trying to negotiate the dangerous conditions.

Utility infrastructure can also be adversely affected by winter storms. Heavy snow and ice can cause power lines to snap, leaving citizens without power and, in some cases, heat for hours or even days. Likewise, telephone lines can also snap, disabling communication within portions of a community. Frozen water pipes can rupture in people's homes, and water and sewer mains can also freeze and leak or rupture if not properly maintained. These ruptures can lead to flooding and property damage.

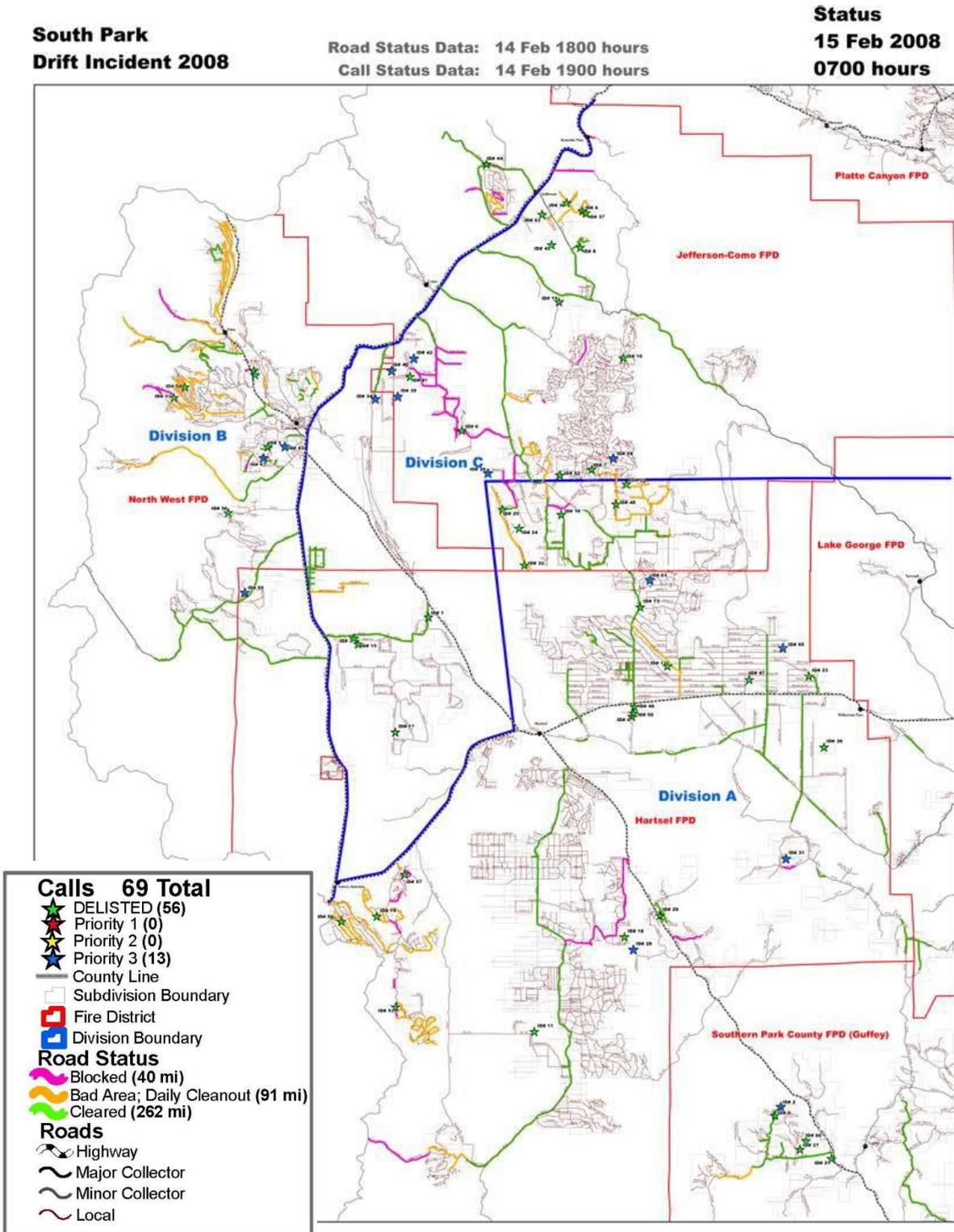


Figure 8-1 GIS Snow Mapping for Winter 2007-2008

People's health can also be adversely affected by severe winter weather. People who lose heat in their homes and do not seek alternate shelter, people who get stuck in snowdrifts while driving, or people working and playing outdoors can suffer from hypothermia and frostbite. Since winter weather hazards generally affect the entire County and vary in intensity and form, it is not possible to quantify primary effects or specific damages.

Ranchers in particular have suffered severe economic consequences during severe winter weather events. Following the severe winter storms of 2006-2007 and 2007-2008, ranchers reported significant livestock losses, in part due to the extreme cold that came with the snow. Furthermore, some ranchers reported that costs of hay nearly tripled in the wake of these storms.

### **8.2.5 Warning Time**

Meteorologists can often predict the likelihood of a severe storm. This can give several days of warning time. However, meteorologists cannot predict the exact time of onset or severity of the storm. Some storms may come on more quickly and have only a few hours of warning time.

The National Weather Service tracks winter storms by radar. Based on this radar information, as well as models, the National Weather Service provides up-to-date weather information and issues winter storm watches to indicate when conditions are favorable for a winter storm and winter storm warnings if a storm is actually occurring or detected by radar. On average, south central Colorado will experience between one and two severe winter storms in a given year. Snowfalls amounts for these storms can vary from a few inches to more than a foot of snow in some cases. The higher elevations of the County can experience several feet of snow in a severe winter storm.

Longer-term forecasting of severe winter weather in Colorado has proven to be challenging. The correlation between La Niña conditions and other ocean temperature conditions and winter weather in Colorado is a complicated matter and scientific research will need to continue. While long range forecasting should not be abandoned, it should be performed carefully and its findings should be utilized with appropriate awareness of its limitations and complications.

## **8.3 SECONDARY HAZARDS**

The most significant secondary hazards associated with severe winter storms are falling and downed trees, downed power lines, and potentially flooding and landslides if heavy snowfall is followed by rain or rapid melting. Rapidly melting snow combined with heavy rain can overwhelm both natural and man-made drainage systems, causing overflow and property destruction. Landslides occur when the soil on slopes becomes oversaturated and fails.

Secondary effects of winter storms are broad. Treacherous driving conditions can result in automobile accidents in which passengers may be injured and property damages may occur. Impassible roads can delay deliveries of heating fuel. Impassable roads can also result in schools being closed because buses are not able to access their routes and bring children to school. The costs of salting and sanding roads and of snow removal can be staggering to communities both large and small. The costs to repair roads after spring thaws can also be significant. Furthermore, first responders such as the fire department are frequently called upon to deliver essential items such as medications to populations that cannot navigate roads during inclement weather.

The local economy can also suffer if businesses close due to inclement winter weather. The impact could be significant in a larger event. In addition, disabled transportation systems may mean that shipments of goods and services are delayed, which may result in decreased inventory for retailers and increased inventory for industrial and commercial suppliers.

## 8.4 CLIMATE CHANGE IMPACTS

Climate change presents a significant challenge for risk management associated with severe weather. The frequency of severe weather events has increased steadily over the last century. The number of weather-related disasters during the 1990s was four times that of the 1950s, and cost 14 times as much in economic losses. Historical data shows that the probability for severe weather events increases in a warmer climate (see Figure 8-2). The changing hydrograph caused by climate change could have a significant impact on the intensity, duration and frequency of storm events. All of these impacts could have significant economic consequences.

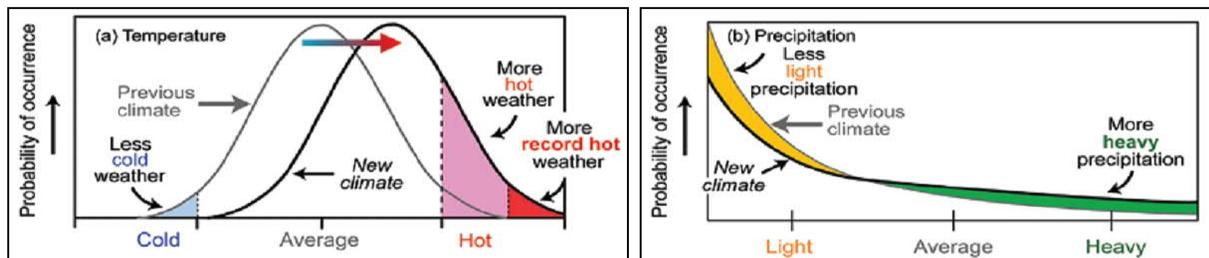


Figure 8-2 Severe Weather Probabilities in Warmer Climates

## 8.5 EXPOSURE

### 8.5.1 Population

It can be assumed that the entire planning area is exposed to some extent to severe weather events. Certain areas are more exposed due to geographic location and local weather patterns. Populations living at higher elevations with large stands of trees or power lines may be more susceptible to wind damage and black out, while populations in low-lying areas are at risk for possible flooding.

### 8.5.2 Property

Most developed parcels in the planning area are residential. It is estimated that 20 percent of residential structures in the county were built without the influence of a structure building code with provisions for wind loads. All of these buildings are considered to be exposed to the severe weather hazard, but structures in poor condition or in particularly vulnerable locations (located on hilltops or exposed open areas) may risk the most damage. The frequency and degree of damage will depend on specific locations.

### 8.5.3 Critical Facilities and Infrastructure

All critical facilities exposed to flooding (Chapter 9) are also likely exposed to severe weather. Additional facilities on higher ground may also be exposed to wind damage or damage from falling trees. The most common problems associated with severe weather are loss of utilities. Downed power lines can cause blackouts, leaving large areas isolated. Phone, water and sewer systems may not function. Roads may become impassable due to ice or snow or from secondary hazards such as landslides.

### 8.5.4 Environment

The environment is highly exposed to severe weather events. Natural habitats such as streams and trees are exposed to the elements during a severe storm and risk major damage and destruction. Prolonged rains can saturate soils and lead to slope failure. Flooding events caused by severe weather or snowmelt can produce river channel migration or damage riparian habitat. Storm surges can erode beachfront bluffs and redistribute sediment loads.

## **8.6 VULNERABILITY**

### **8.6.1 Population**

Vulnerable populations are the elderly, low income or linguistically isolated populations, people with life-threatening illnesses, and residents living in areas that are isolated from major roads. Power outages can be life threatening to those dependent on electricity for life support. Isolation of these populations is a significant concern. These populations face isolation and exposure during severe weather events and could suffer more secondary effects of the hazard.

### **8.6.2 Property**

All property is vulnerable during severe weather events, but properties in poor condition or in particularly vulnerable locations may risk the most damage. Those in higher elevations and on ridges may be more prone to wind damage. Those that are located under or near overhead lines or near large trees may be vulnerable to falling ice or may be damaged in the event of a collapse.

### **8.6.3 Critical Facilities and Infrastructure**

Incapacity and loss of roads are the primary transportation failures resulting from severe weather, mostly associated with secondary hazards. Landslides caused by heavy prolonged rains can block roads. High winds can cause significant damage to trees and power lines, blocking roads with debris, incapacitating transportation, isolating population, and disrupting ingress and egress. Snowstorms in higher elevations can significantly impact the transportation system and the availability of public safety services. Of particular concern are roads providing access to isolated areas and to the elderly.

Prolonged obstruction of major routes due to landslides, snow, debris or floodwaters can disrupt the shipment of goods and other commerce. Large, prolonged storms can have negative economic impacts for an entire region.

Severe windstorms, downed trees, and ice can create serious impacts on power and above-ground communication lines. Freezing of power and communication lines can cause them to break, disrupting electricity and communication. Loss of electricity and phone connection would leave certain populations isolated because residents would be unable to call for assistance.

### **8.6.4 Environment**

The vulnerability of the environment to severe weather is the same as the exposure.

## **8.7 FUTURE TRENDS IN DEVELOPMENT**

All future development will be affected by severe storms. The ability to withstand impacts lies in sound land use practices and consistent enforcement of codes and regulations for new construction. The planning partners have adopted the International Building Code. This code is equipped to deal with the impacts of severe weather events. Land use policies identified in general plans within the planning area also address many of the secondary impacts (flood and landslide) of the severe weather hazard. With these tools, the planning partnership is well equipped to deal with future growth and the associated impacts of severe weather.

## **8.8 ISSUES**

Important issues associated with a severe weather in the planning area include the following:

- Older building stock in the planning area is built to low code standards or none at all. These structures could be highly vulnerable to severe weather events such as windstorms.
- Redundancy of power supply must be evaluated.
- The capacity for backup power generation is limited.
- Isolated population centers.

# CHAPTER 9 WILDFIRE

## 9.1 GENERAL BACKGROUND

In its hazard assessment the Park County community ranked wildfire as its highest local hazard. The hazard ranking aggregate is shown below:

	<i>Probability /Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Wildfire	4.77	4.27	4.23	4.54	4.42	1

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by lightning or by human activity such as smoking, campfires, equipment use, and arson. Most fires in Park County have been started by lightning. However, historically many of the worst fires in Park County have been human caused.

**Ignition Risk** is the likelihood of a fire actually starting in a given area; it can be broken into two categories of factors, natural and human-caused.

- Natural Factors
  - Weather factors – These include drought conditions and the likelihood of a thunderstorm occurring. Wildfire ignition risk increases significantly in times of drought.
  - Vegetation types and conditions – Vegetation types and conditions such as forest infestation from beetle kill or other diseases influence ignition risk.
- Human-Caused Factors
  - Population density - As population increases, more opportunities for wildfire ignition exist. There has been an in-

### **DEFINITIONS**

**Conflagration**—A fire that grows beyond its original source area to engulf adjoining regions. Wind, extremely dry or hazardous weather conditions, excessive fuel buildup and explosions are usually the elements behind a wildfire conflagration.

**Firestorm**—A fire that expands to cover a large area, often more than a square mile. A firestorm usually occurs when many individual fires grow together into one. The involved area becomes so hot that all combustible materials ignite, even if they are not exposed to direct flame. Temperatures may exceed 1000°C. Superheated air and hot gases of combustion rise over the fire zone, drawing surface winds in from all sides, often at velocities approaching 50 miles per hour. Although firestorms seldom spread because of the inward direction of the winds, once started there is no known way of stopping them. Within the area of the fire, lethal concentrations of carbon monoxide are present; combined with the intense heat, this poses a serious life threat to responding fire forces. In very large events, the rising column of heated air and combustion gases carries enough soot and particulate matter into the upper atmosphere to cause cloud nucleation, creating a locally intense thunderstorm and the hazard of lightning strikes.

**Wildland-Urban Interface Area**—An area susceptible to wildfires and where wildland vegetation and urban or suburban development occur together. An example would be smaller urban areas and dispersed rural housing in forested areas.

**Wildfire**—Fires that result in uncontrolled destruction of forests, brush, field crops, grasslands, and real and personal property in non-urban areas. Because of their distance from firefighting resources, they can be difficult to contain and can cause a great deal of destruction.

- crease in people living in the wildland- urban interface, as well as an increase in use of the forest for recreational purposes, due to population growth in Colorado.
- Human Behavior – These actions include smoking, campfires, arson, or careless use of equipment. It also includes electrical equipment of utility companies, which has been attributed as a potential cause of the destructive 2018 Camp Fire in California.
  - Distance to Roads – Travel corridors increase the probability of human presence, which in turn can result in increased potential for wildfire ignition. Hence, areas of the county that are in close proximity to roadways have a higher probability of wildfire.
  - Railroad Buffer – Railroad operations can produce sparks that may ignite a wildfire.

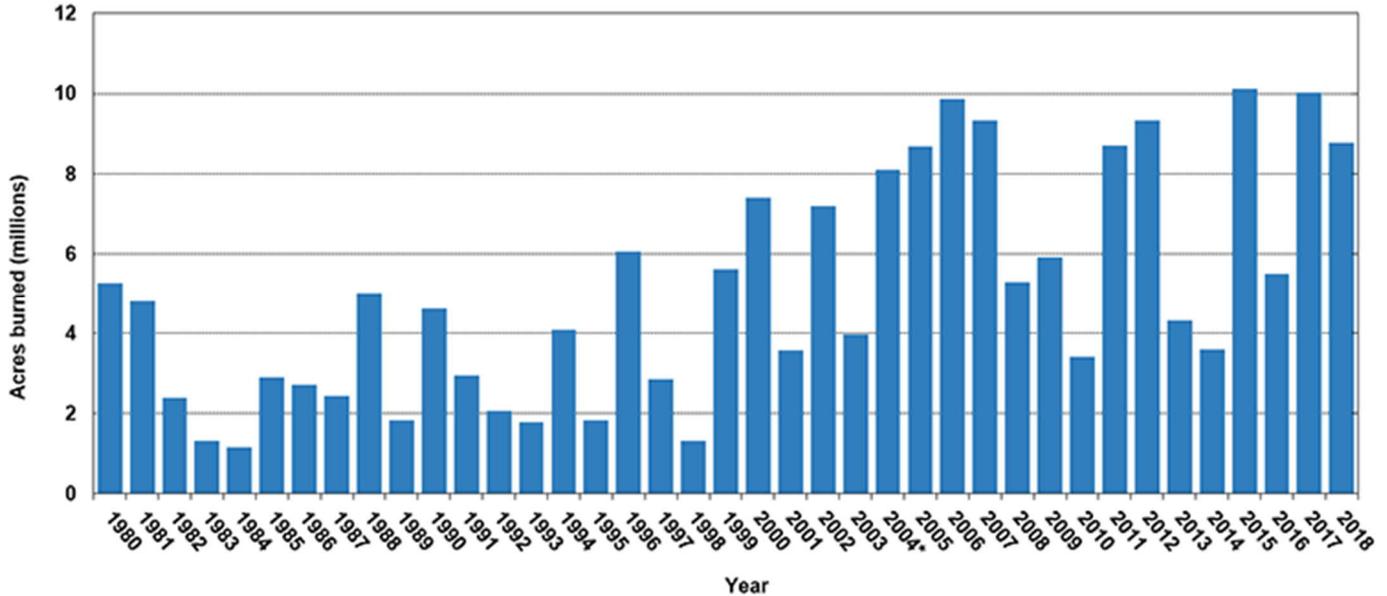
**Fuels Hazard** is based on the type of fire behavior that could result if a fire occurs and spreads in the vegetation type or “fuel bed” that exists at a given location. The primary characteristics that define fire behavior are flame lengths (fire intensity), rate of spread (how fast it moves), and what type of general fire behavior (surface fire only, surface fire with torching, or crown fire). Fire behavior is affected by a number of attributes of area being burned and conditions at the time of the fire.

- Land Cover – The potential fuels covering the land at risk (e.g. grasses, crops, forest, urban development, etc.) determine the ease of ignition, as well as the burn intensity and advancement opportunities.
- Vegetative Conditions – The health of the forest and the specific mixture of species will have an effect on how the fire burns and how rapidly it spreads. Alterations in vegetation composition and structure caused by fire suppression, land use changes, long duration droughts, and insect and disease epidemics generally create a greater risk of high intensity and damaging fires.
- Topography – Through convective pre-heating, wildfires generally advance uphill. In general, the steeper the slope, the greater the ease of wildfire advancement. The mountainous terrain (i.e. steep slopes) of the County is conducive to the advancement of wildfires.
- Slope Orientation – Slopes that generally face south receive more direct sunlight, thereby drying fuels and creating conditions more conducive to wildfire ignition.
- Weather Conditions – Wildfire risk increases significantly in times of drought. In the case of a wet spring followed by a dry summer, dense, dry forest undergrowth can contribute to increased fire intensity as well. Temperature, wind, atmospheric humidity and precipitation conditions greatly influence fire behavior.
- Triangle Factors - Wildfires require three components to ignite and burn; fuel to burn, oxygen and heat to bring any fuel up to an ignition temperature. The fire triangle is the combination of these three factors. The basis for effective fire-fighting consists of eliminating one or more of these factors.

## 9.2 HAZARD PROFILE

### 9.2.1 Past Events

Wildfires are becoming increasingly prevalent nationally, as shown in Figure 9-1 below.



Source: Insurance Information Institute (n.d.[a])

Figure 9-1 U.S. Annual Acres Burned from Wildfires

Wildfires are also increasingly prevalent in Colorado. The number, intensity, and complexity of wildfires has grown exponentially since the 1990s. In an average Colorado fire season, there are over 4,500 fires on non-federal lands burning 101,000 acres, with large State Responsibility Fires also occurring (Colorado Division of Fire Prevention and Control 2019).

In 2019, Colorado experienced only 857 wildfires that accounted for 40,392 acres burned (Insurance Information Institute, n.d.[b]). 2018 was a significant wildfire year in Colorado, with 18 incidents that became State Responsibility Fires, and resulted in costs of over \$40 million to the State. More than 6,000 wildland fires were reported on both state and private lands for a total of over 250,000 burned acres. Of Colorado’s largest 20 wildfires in history, 5—or 25 percent—occurred in 2018 (Colorado Division of Fire Prevention and Control 2019). According to the Division of Fire Prevention and Control Annual Wildfire Outlook (2019) these include:

- Spring Creek: 108,045 acres
- 416: 544,129 acres
- MM 117: 42,795 acres
- Badger Hole+: 33,421 acres
- Bull Draw: 25,190 acres

The Weston Pass Fire burned near Granite, burning a total of 13,023 acres. This fire was started by a lightning strike on the morning of June 28, 2018. This event also produced a rare high elevation tornado on the edge of the fire.

2012 and 2013 were also notable for their wildfire impact. The Waldo Canyon fire started approximately 4 miles northwest of Colorado Springs on June 23, 2012. It was declared 100-percent contained on July 10, 2012 after no smoke plumes were visible on a small portion of the containment line on Blodgett Peak. While not located in Park County, the fire was active in the nearby Pike National Forest and adjoining areas, covering a total of 18,247 acres (29 square miles). The fire caused the evacuation of over 32,000 residents of Colorado Springs, Manitou Springs and Woodland Park, several small mountain communities along the southwestern side of Highway 24, and partial evacuation of the United States Air Force Academy. Approximately 346 homes were destroyed by the fire. U.S. Highway 24, a major east-west road, was closed in both directions. Insurance claims totaled more than \$453.7 million. While the Waldo Canyon fire predominantly burned away from Park County, impacts were felt within the county. Transportation routes, community resources, safe ingress/egress and quality of life were directly impacted.

The Black Forest fire was a forest fire that began near Highway 83 and Shoup Road in Black Forest, Colorado (El Paso County) around 1:00 p.m. on June 11, 2013. As of June 20, 2013, the fire was 100 percent contained, 14,280 acres were burned, at least 509 homes were said to be destroyed, and two people had died (KKTV 2013). Most of the Waldo Canyon blaze actually was in the city limits, while Black Forest is to the north of the city. The evacuation area covered 94,000 acres, 13,000 homes and 38,000 people.

One of the worst wildfires in Colorado history, the Hayman Fire, ignited in eastern Park County and burned nearly 138,000 acres from June 8 – 28, 2002, (including 60,000 acres on June 9<sup>th</sup> alone) in Park, Teller, Jefferson and Douglas Counties. It thrived in dry forests that had become overpopulated with trees and undergrowth. Some of the greatest challenges in fighting this particular fire were the acute drought conditions existing in 2002, extreme weather events at the beginning of the fire, (winds of 20-50 mph coupled with 5 percent relative humidity) and the prevalence of crown fire and long-range spotting. These factors led to numerous breaches of firebreaks and treatments during the Hayman Fire. Table 9-1 below lists other notable fires that may have impacted the county from 200-20012. Figure 9-2 illustrates nonfederal fire ignitions from 2009 to 2017.

Table 9-1 Wildfires in Park County

Name of Fire	Ignition Date	Location	Total Acres Burned
Weston Pass Fire	June 28, 2018	Granite	13,0233
Lake George	June 10, 2012	Lake George	40
Springer Fire	June 2012	Pike National Forest (3.5 miles from Lake George)	1,145
Nash Ranch Fire	June 24, 2008	East of Guffey and Jefferson County	1,000
Camel Fire	July 8, 2003	Guffey	510
Multiple Fires	April - June 2002	Various	137,760
High Meadow Fire	June 12, 2000	Bailey	4,000
Snaking Fire	April 23, 2002	Behind Platte Canyon High School	2,590
Black Mountain Fire	May 5, 2002	Northeast corner of Park County	345
Campbell Fire	July 8, 2003	15 miles northeast of Guffey	505
Hayman Fire	June 8, 2002	Ignited 4 miles northwest of Lake George (in Park County), burned in Park, Teller, Douglas and Jefferson Counties	137,760

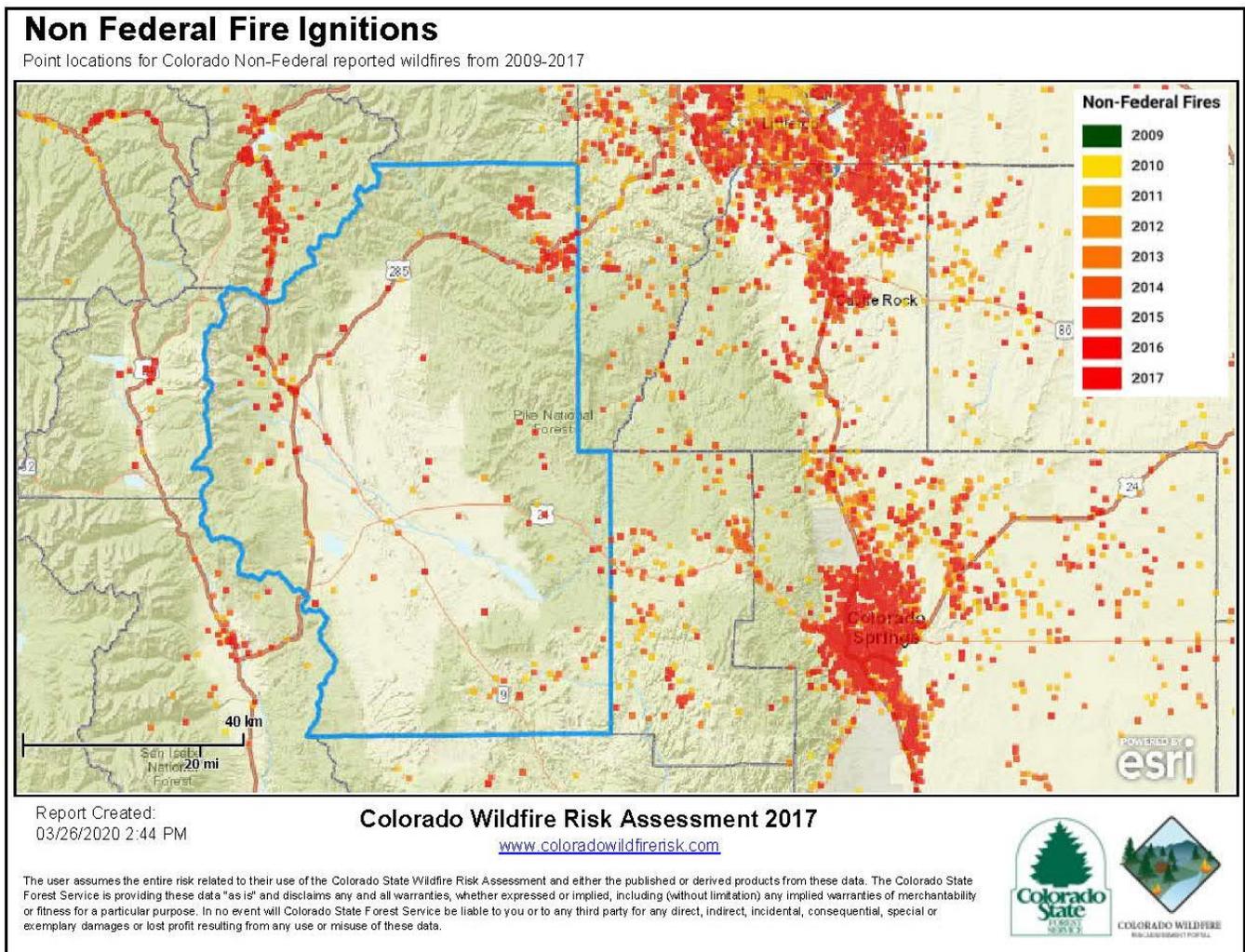


Figure 9-2 Nonfederal Fire Ignitions from 2009 to 2017

### 9.2.2 Location

Colorado overall is one of the fastest growing states in the nation. Much of this growth, including growth in Park County, is occurring outside urban boundaries. This increase in growth is occurring in the wildland-urban interface (WUI) area. The WUI is defined as the area where structures and other human improvements meet and mix with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfires. The 2017 Colorado Risk Assessment Summary Report for Park County—produced in March 2020 using the Colorado Wildfire Risk Assessment Portal (CO-WRAP) estimates that 99.5 percent of the County population live within the WUI and are at risk from wildfire.

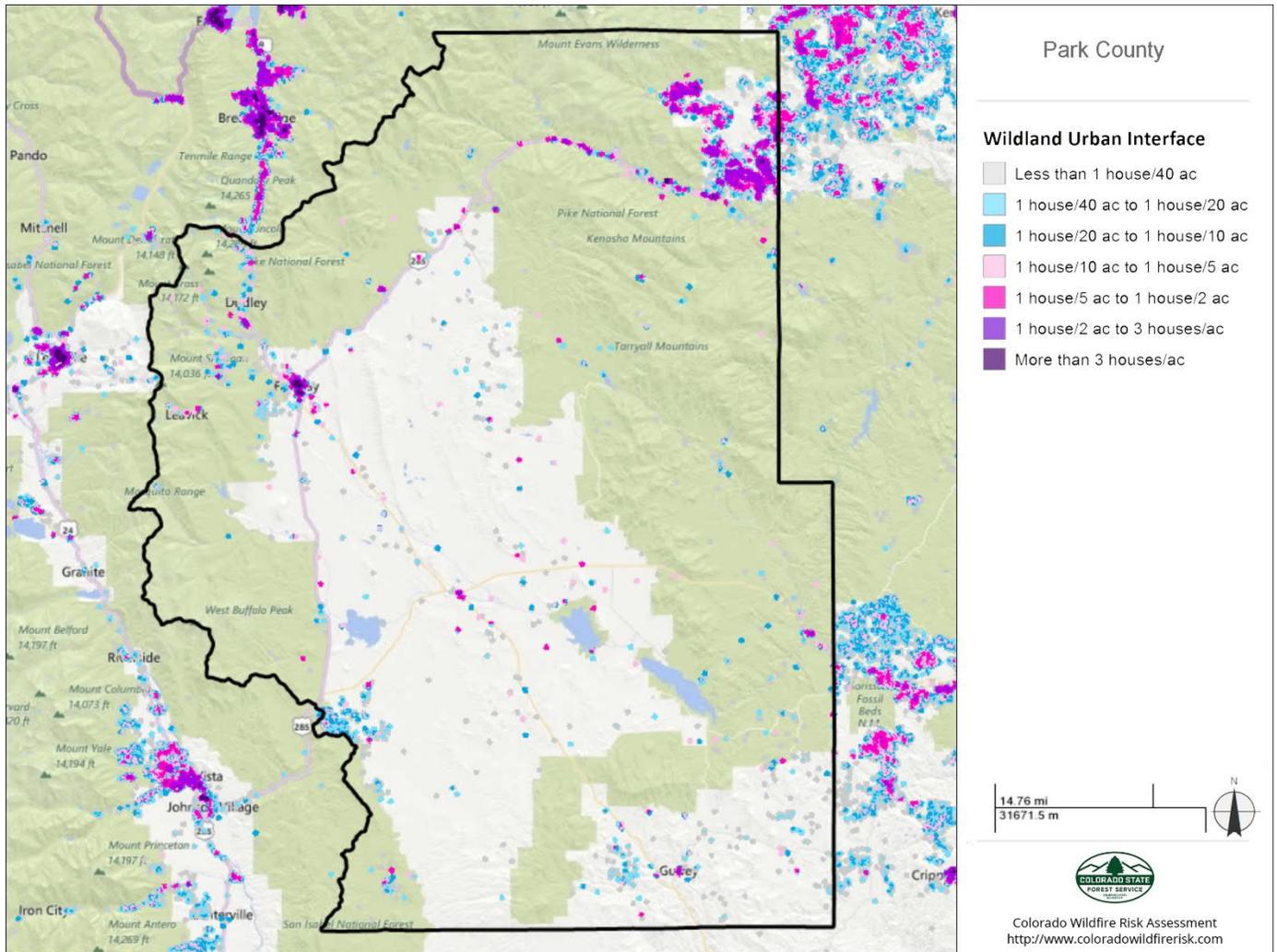
Much of Park County is mountainous and wooded, leaving a large part of the county at risk to wildfire. Areas of steep terrain with forested mountain vegetation (ponderosa pine and Douglas fir) are at the greatest risk. Further exacerbating the problem is the lack of easy access to many of the county’s heavily forested areas. Park County also has numerous potential WUI areas prone to wildfire. The most densely populated area in the county, the Platte Canyon area in the northeast, is at considerable risk for such events. Wildfire risk is significant in the area along U.S. 285 south of Kenosha Pass, the towns of Alma and Fairplay, and the Antero Junction area.

The 2007 County Wildfire Protection Plan (CWPP) (the current CWPP) similarly indicates that many areas in the county’s eastern side face significant wildfire risk and found the Platte Canyon district to have the greatest risk of wildfire of any area in Park County (Park County 2007). Figure 9-2 from the CWPP identifies a total of 270 subdivisions identified in Park County in the CWPP, spread across the county with varying degrees of exposure to wildfire. It points out “very high” risks to subdivisions near Alma, Fairplay, and Guffey and “moderate” to “high” risk to areas in the Platte Canyon district, south of Como along U.S. Highway 285, and near Antero Junction. The only areas that are not at risk are those areas where there is no vegetation or the vegetation is not capable of supporting a fire no matter what the conditions.

Areas of Park County at high risk for wildfire include rural areas with greater fuel load (e.g., treed areas near Platte Canyon, Tarryall, Lake George, and Guffey), more heavily populated areas, and wildlife-urban interface areas. The county also has many areas with few permanent residents that are attractive to tourists for recreation, including hiking, camping and boating in the county’s reservoirs. The result is a threat to human life and property as well as the potential for negative economic impacts on the county from a loss of tourism.

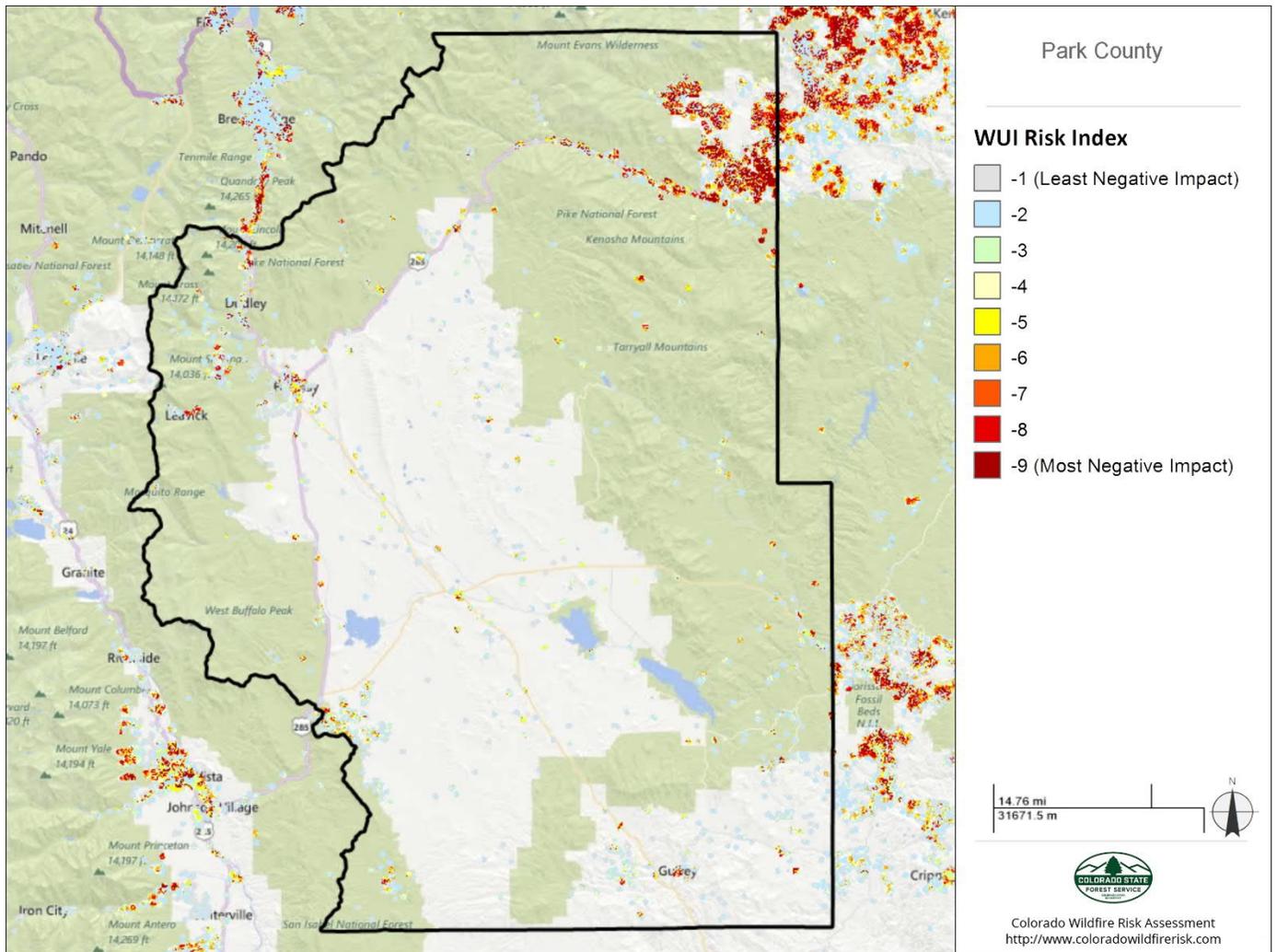
Figure 9-3 identifies the wildfire risk across Colorado as prepared for the 2017 Colorado Wildfire Risk Assessment Update Final Report. Figures 9-4 through 9-8 provide details views of risks in Park County and Figure 9-9 provides greater insight into the Northwest Fire Protection District, which includes Fairplay and Alma. Wildfire risk represents the possibility of loss or harm occurring from a wildfire. Risk is derived by combining the assessment outputs for wildfire threat and the fire effects. It identifies areas with the greatest potential impacts from a wildfire (i.e. those areas most at risk) considering all values and assets combined together.

Wildfire risk combines the likelihood of a fire occurring (threat), with those areas of most concern that are adversely impacted by fire (fire effects), to derive a single overall measure of wildfire risk. Since all areas in Colorado have risk calculated consistently, it allows for comparison and ordination of areas across the entire state. Fire effects are a key component of wildfire risk. The purpose of fire effects is to identify areas that have important values or assets that would be adversely impacted by a wildfire. Fire effects inputs include wildland urban interface, forest assets, riparian assets and drinking water importance areas (watersheds). Refer to the values-impacted rating for more information about fire effects. To aid in the use of wildfire risk for planning activities, the output values are categorized into five classes. These are given general descriptions from lowest to highest risk. Wildfire risk in the county is shown in Figure D-5 in Appendix D.



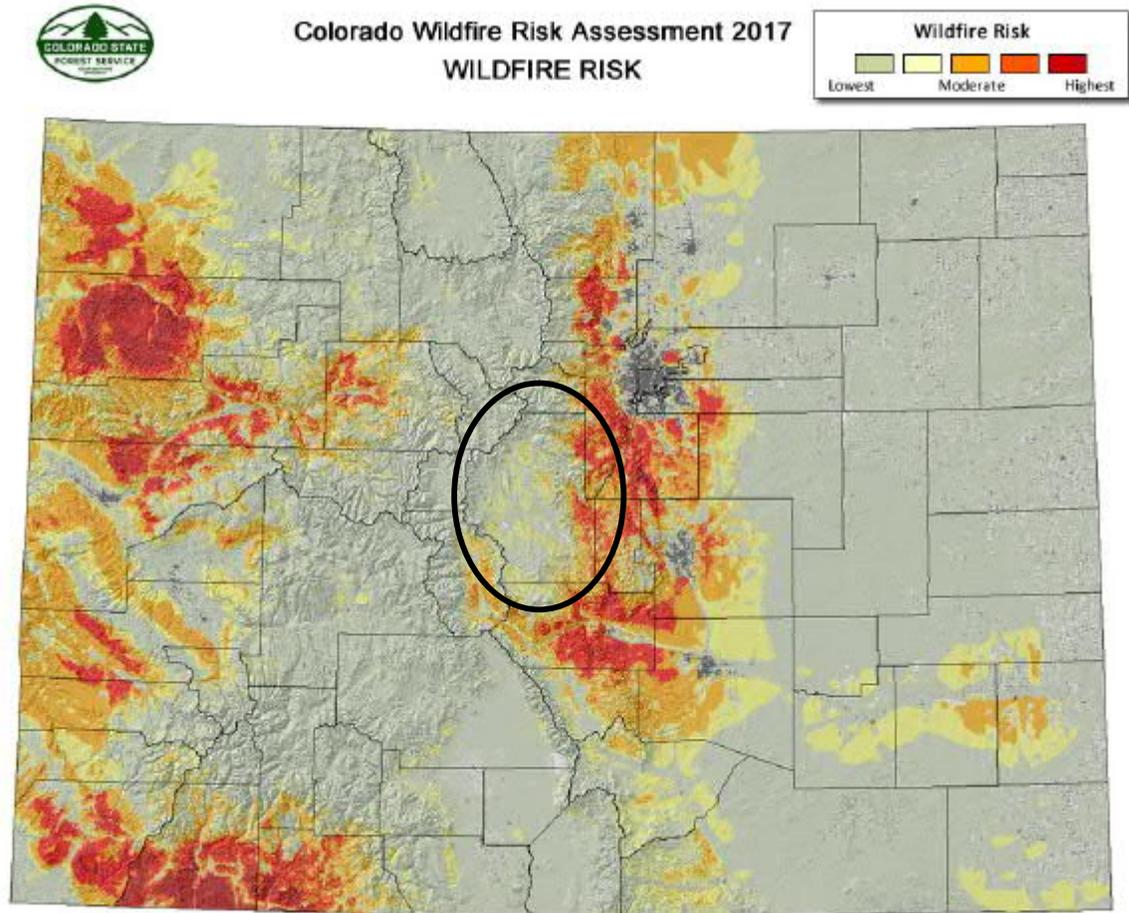
Source: Colorado State Forest Service (2017)

Figure 9-3 Park County Wildfire Urban Index



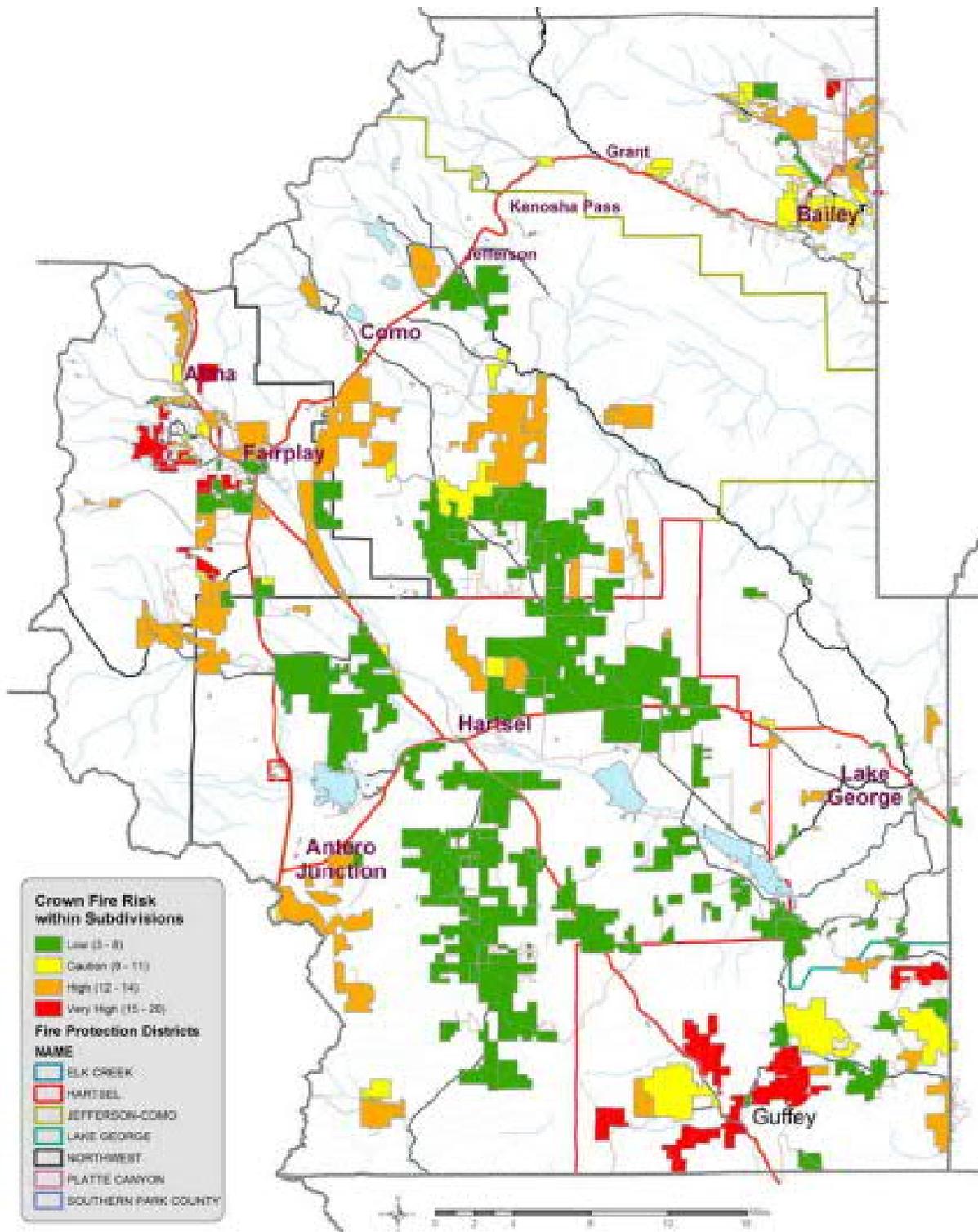
Source: Colorado State Forest Service (2017)

Figure 9-4 Park County Wildfire Urban Index Risk



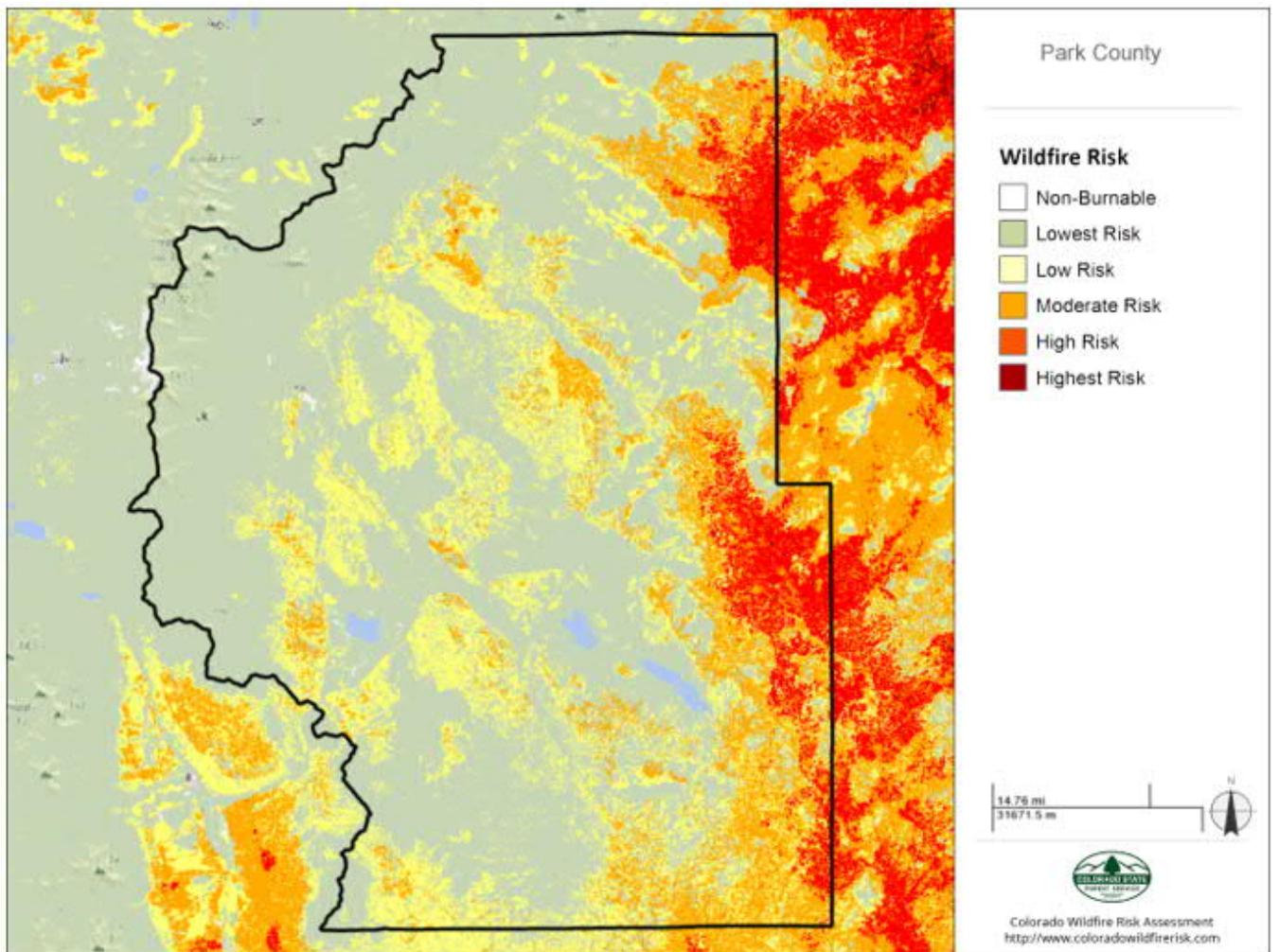
Source: Colorado State Forest Service (2017)

Figure 9-5 Colorado Wildfire Risk



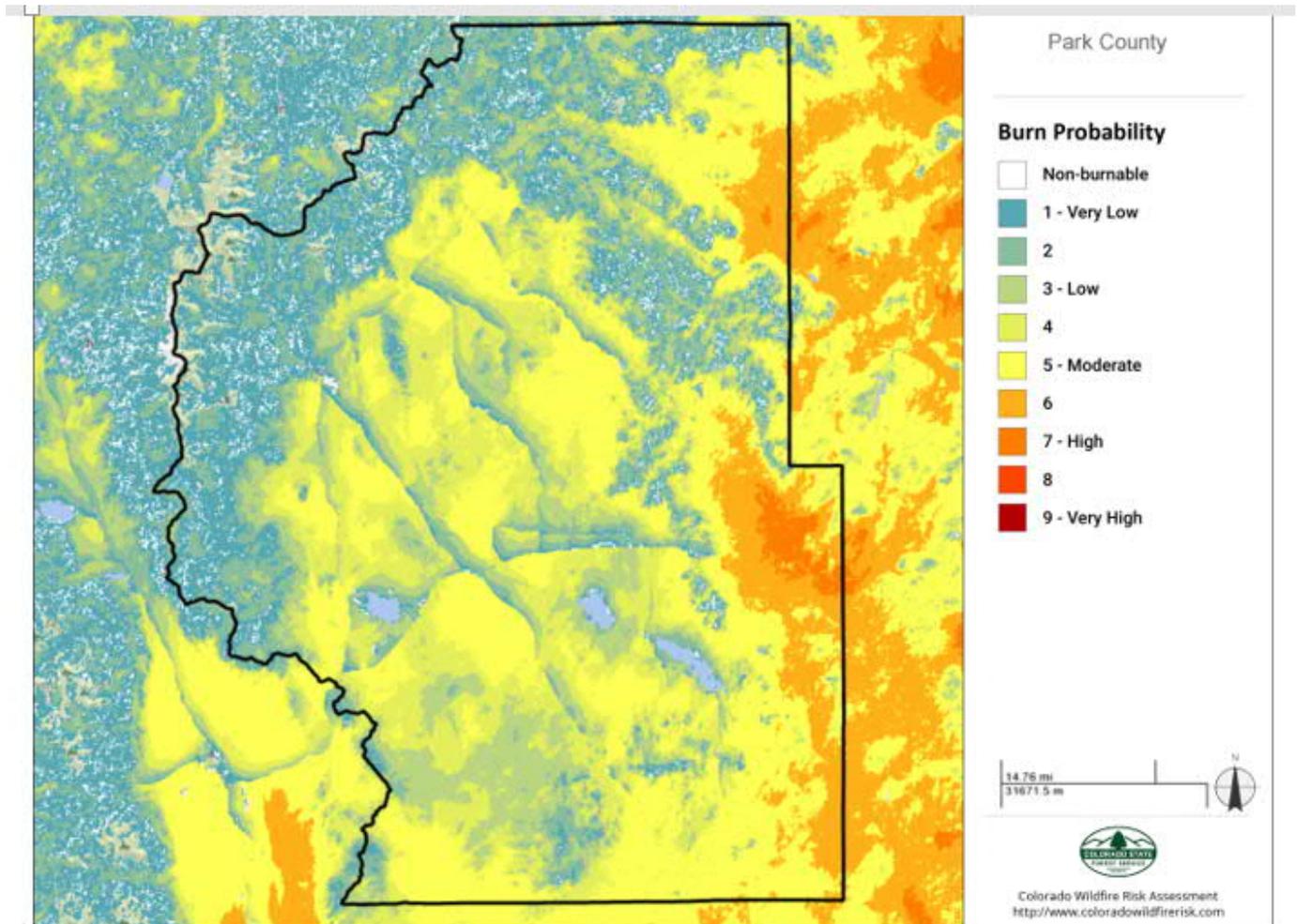
Source: Park County (2007)

Figure 9-6 Park County Subdivision Wildfire Risk



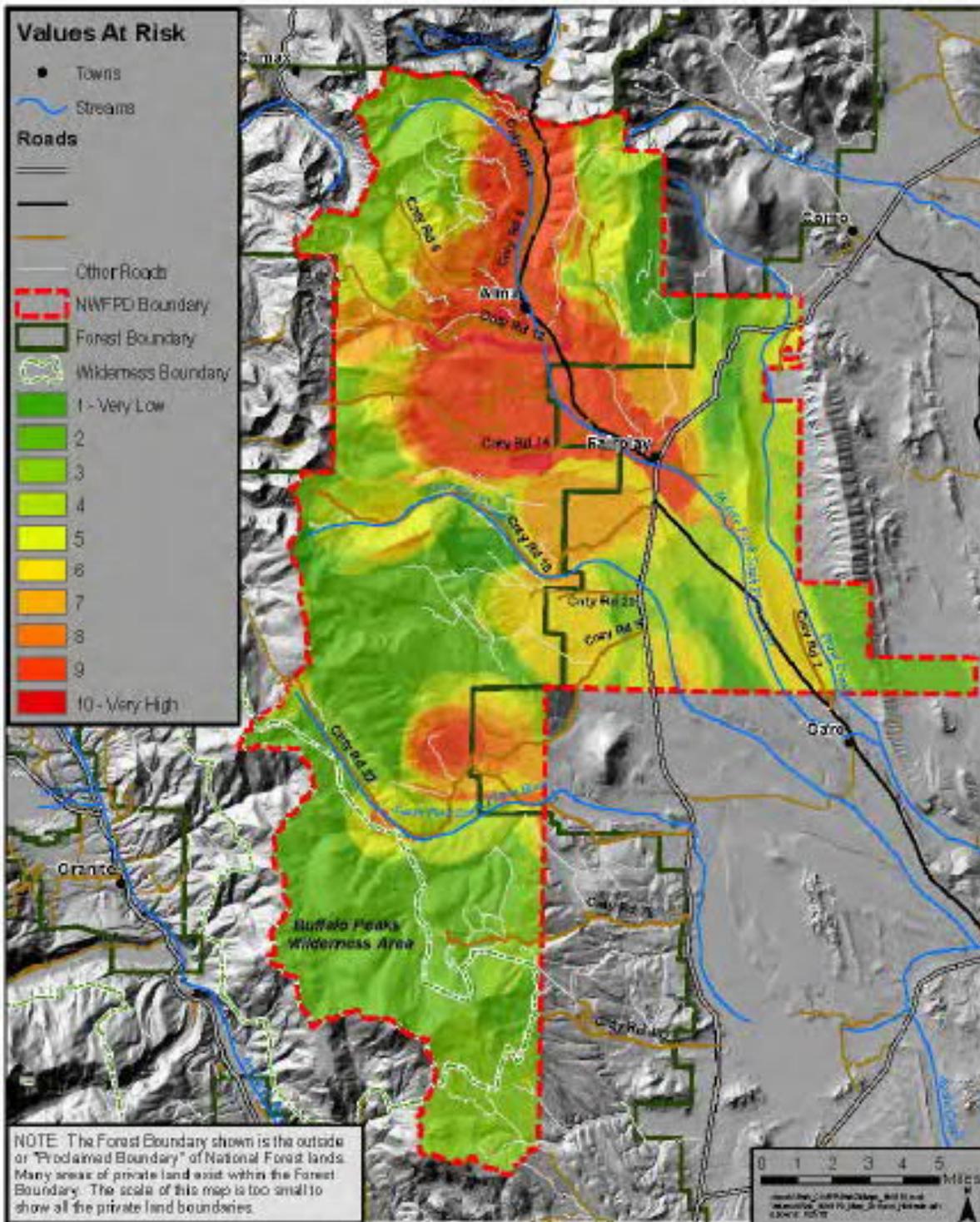
Source: Colorado State Forest Service (2017)

Figure 9-7 Park County Wildfire Risk



Source: Colorado State Forest Service (2017)

Figure 9-8 Park County Burn Probability



Source: North-West Fire Protection District Community Wildfire Protection Plan

Figure 9-9 Northwest Fire Protection District Wildfire Risk

### 9.2.3 Frequency

The Colorado wildfire season is highly variable depending on elevation. Low elevation grasslands, western valleys, and Front Range plains can have fires year round. The wildfire risk in the higher elevation areas that are forested is primarily driven by summer monsoons. Those areas tend to have a split fire season. High fire danger can occur in the spring and early summer ahead of the monsoon, and then again in the fall as the summer rains end. The spring and fall also typically have the windiest conditions.

The highest elevations, such as those found in northwestern Park County, generally have a minimal fire season. The forest does not have time to dry out between snowmelt and the monsoons. It normally takes a drought year with limited snowpack or a late or minimal monsoon to create high fire dangers at these elevations.

As fire activity fluctuates during the year from month to month, it also varies from year to year. Historically extended periods of drought and hot weather can increase the risk of wildfire. During years with adequate rain and snowfall amounts fire occurrences are generally low; during other years, when there are extended periods of warm, dry, windy days, increased fire activity is exhibited. Wet years can grow extensive amounts of grass fuels that can increase fire hazard later in the same year or during the next year.

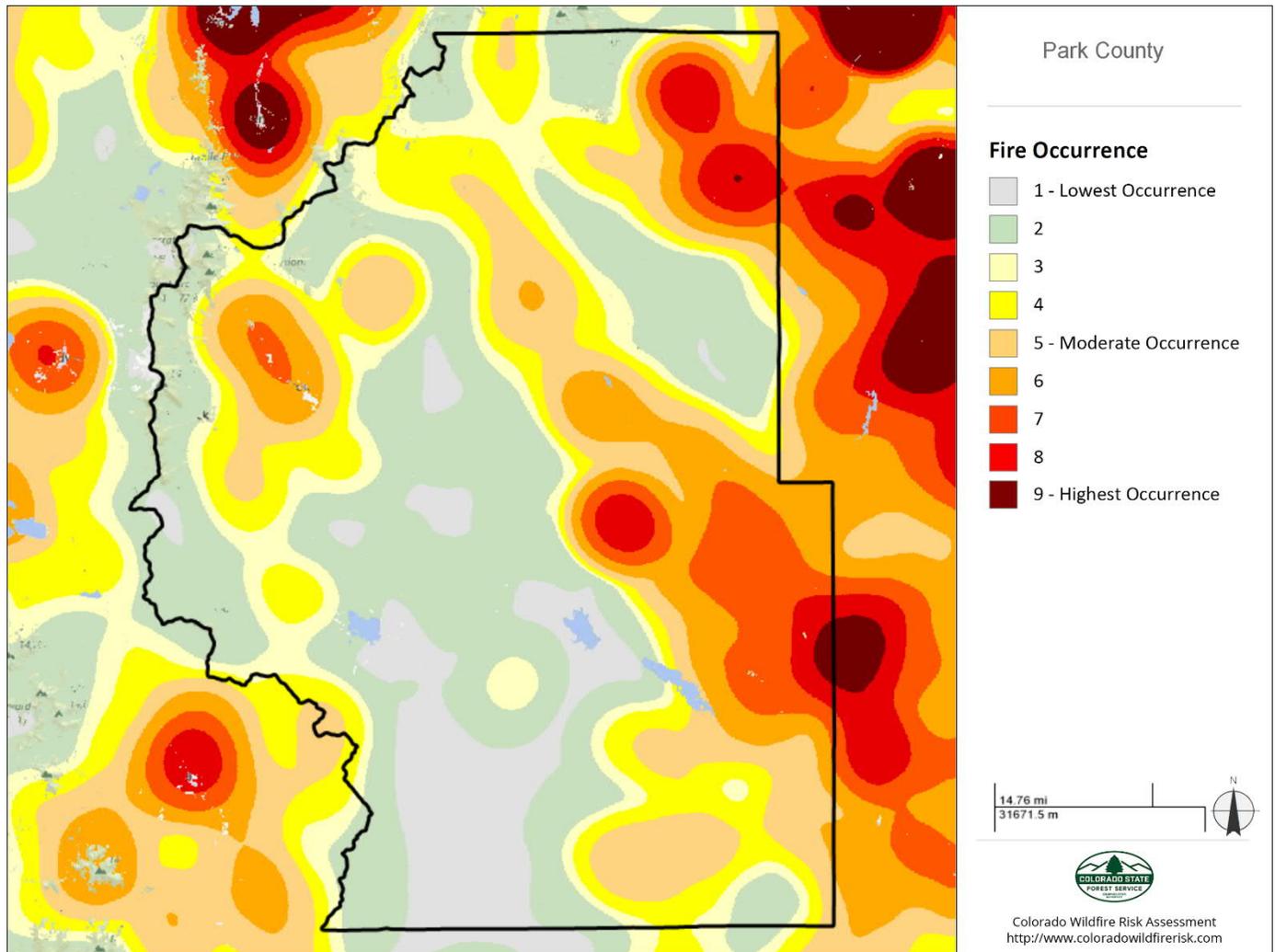
Long-term climate trends as well as short-term weather patterns play a major role in the risk of wildfires occurring. Long-term droughts create conditions conducive to significant fires at the higher elevations and exacerbate conditions at lower elevations in the county. They make overall fire occurrence more likely, larger fires more likely, and make it more difficult to control and suppress fires. Short-term heat waves along with periods of low humidity can also increase the risk of fire, while high winds directed at a fire can cause it to spread rapidly. Particularly in the lower elevations, extended periods of hot, dry, windy weather can create the potential for problem fires. Some ongoing wildfire research has tried to establish a link between climate change and increased wildfire risk.

Figure 9-10 displays the fire occurrence data. It is an ignition density that represents the likelihood of a wildfire starting based on historical ignition patterns. These statistics are useful for prevention and mitigation planning. They can be used to quantify the level of fire business, determine the time of year most fires typically occur and develop a fire prevention campaign aimed at reducing a specific fire cause.

### 9.2.4 Severity

Direct impacts from wildfires can include the loss of structures and infrastructure, injuries or loss of life to firefighters and to the public, health impacts from smoke, the immediate costs of fighting the fire, closure of public lands, highways, or other locations, temporary loss of business, and community disruptions, such as evacuation. Longer-term impacts include impacts on tourism and recreation, loss of jobs or businesses, loss of community water supplies and/or storage/purification facilities, devaluation of property or businesses, and other long-term disruptions to the communities.

Fire hazards present a considerable risk to vegetation and wildlife habitats. Short-term loss caused by a wildfire can include the destruction of timber, wildlife habitat, scenic vistas, and watersheds. Long-term effects include smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural and economic resources and community infrastructure. Vulnerability to flooding increases due to the destruction of watersheds. The potential for significant damage to life and property exists in WUI areas, where development is adjacent to densely vegetated areas.



Source: 2017 Colorado Wildfire Risk Assessment Summary Report

Figure 9-10 Fire Occurrence

Given the immediate response times to reported fires, the likelihood of injuries and casualties is minimal. Smoke and air pollution from wildfires can be a health hazard, especially for sensitive populations including children, the elderly and those with respiratory and cardiovascular diseases. Wildfire may also threaten the health and safety of those fighting the fires. First responders are exposed to the dangers from the initial incident and after-effects from smoke inhalation and heat stroke. In addition, wildfire can lead to ancillary impacts such as landslides in steep ravine areas and flooding due to the impacts of silt in local watersheds.

## 9.2.5 Warning Time

Wildfires are often caused by humans, intentionally or accidentally. There is no way to predict when one might break out. Since fireworks often cause brush fires, extra diligence is warranted around the Fourth of July when the use of fireworks is highest. Dry seasons and droughts are factors that greatly increase fire likelihood. Dry lightning may trigger wildfires. Severe weather can be predicted, so special attention can be paid during weather events that may include lightning. Reliable National Weather Service lightning warnings are available on average 24 to 48 hours prior to a significant electrical storm.

If a fire does break out and spread rapidly, residents may need to evacuate within days or hours. A fire's peak burning period generally is between 1 p.m. and 6 p.m. Once a fire has started, fire alerting is reasonably rapid in most cases. The rapid spread of cellular and two-way radio communications in recent years has further contributed to a significant improvement in warning time.

Extreme drought conditions monitored and the following steps taken:

- Alerts to both private and public entities.
- Literature on defensible space and other protective measures.
- Burn Bans.
- Wildfire orientation meetings with all assisting agencies with resources checked.

The following Park County communities participate in the Firewise USA program sponsored by the USDA Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters, which provides access to education, wildfire experts, homeowner insurance discounts, and access to funding and assistance (NFPA, n.d.).

- Deer Creek Valley Ranchos, Bailey, Park County
- Elk Creek Highlands & Meadows POA, Bailey, Park County
- Elk Falls Ranch, Pine, Park County
- Indian Mountain, Como, Park County
- KZ Ranch Mountain Community HOA, Bailey, Park County
- Stagestop, Jefferson, Park County
- Wildwood Recreational Village HOA, Lake George, Park County
- Woodside Park, Pine, Park County

Park County utilizes the CodeRED public emergency notification system (<https://parkco.us/97/CodeRED>) to keep citizens informed in wildfire and other emergency situations. Additionally, Park County provided an update to its 2007 CWPP and developed a public-facing mailer that provides residents and homeowners with resources for preparation: [http://cusp.ws/wp-content/uploads/2018/09/Park-County-CWPP-for-Residents\\_2015.compressed.pdf](http://cusp.ws/wp-content/uploads/2018/09/Park-County-CWPP-for-Residents_2015.compressed.pdf)

Park County has seven fire protection districts (see map here: <http://www.parkco.us/DocumentCenter/View/155>) that support wildland fire response and mitigation, including:

- Elk Creek FPD
- Hartsel FPD
- Jefferson / Como FPD
- Lake George FPD
- North-West FPD
- Platte Canyon FPD
- Southern Park County FPD

Additionally, the Colorado Division of Homeland Security and Emergency Management (DHSEM) maintains an interactive Geographic Information System (GIS) map of current fires burning in Colorado: <http://www.coemergency.com/p/maps.html>.

### 9.3 SECONDARY HAZARDS

Wildfires can generate a range of secondary effects, which in some cases may cause more widespread and prolonged damage than the fire itself. Fires can cause direct economic losses in the reduction of harvestable timber and indirect economic losses in reduced tourism. Wildfires cause the contamination of reservoirs, destroy transmission lines and contribute to flooding. They strip slopes of vegetation, exposing them to greater amounts of runoff. This in turn can weaken soils and cause failures on slopes. Major landslides can occur several years after a wildfire. Most wildfires burn hot and for long durations that can bake soils, especially those high in clay content, thus increasing the imperviousness of the ground. This increases the runoff generated by storm events, thus increasing the chance of flooding.

There are numerous secondary effects of wildfires that could impact Park County. These include impacts on tourism, and thus the local economy, through activities such as camping, hiking, hunting, and fishing. The impacts can include physical losses, such as heavily burned landscapes, or degraded property values and loss of tourism due to a perception that an event inflicted more widespread damage than it actually caused. Additional secondary impacts due to wildfire include a degradation of air and water quality, as well as a threat to wildlife habitat including endangered species.

The risk of flooding increases significantly following any fire event. Fires cause problems with soil impermeability and increased potential for debris flows. Flash floods have been often documented in the wake of wildfires, in general in the western United States and specifically in Colorado. Most notably, in nearby Jefferson County, the Buffalo Creek Flood killed two people and destroyed 4 homes and the town of Buffalo Creek's fire station less than two months after a wildfire burned 11,900 acres in the same area in May of 1995. Flooding in multiple Front Range counties in 2013 was more severe in areas downstream of burn scars, such as the area affected by the High Park fire in Larimer County. Post-wildfire flooding also occurred in the portion of Park County within the Hayman fire burn area, including the Sportsman's Paradise subdivision near Lake George.

There are significant costs of long-term rehabilitation of the fire area. Often, the greatest costs or impacts to communities and people occur after the fire is out. Costs range from long-term forest rehabilitation to the rebuilding of infrastructure lost in the event.

### 9.4 CLIMATE CHANGE IMPACTS

Fire in western ecosystems is determined by climate variability, local topography, and human intervention. Climate change has the potential to affect multiple elements of the wildfire system: fire behavior, ignitions,

fire management, and vegetation fuels. Hot dry spells create the highest fire risk. Increased temperatures may intensify wildfire danger by warming and drying out vegetation. When climate alters fuel loads and fuel moisture, forest susceptibility to wildfires changes. Climate change also may increase winds that spread fires. Faster fires are harder to contain, and thus are more likely to expand into residential neighborhoods.

Historically, drought patterns in the West are related to large-scale climate patterns in the Pacific and Atlantic oceans. The El Niño–Southern Oscillation in the Pacific varies on a 5- to 7-year cycle, the Pacific Decadal Oscillation varies on a 20- to 30-year cycle, and the Atlantic Multidecadal Oscillation varies on a 65- to 80-year cycle. As these large-scale ocean climate patterns vary in relation to each other, drought conditions in the U.S. shift from region to region.

Climate projections indicate the Intermountain West will warm by +2°F to +6.5°F by mid-century, relative to the 1971 to 2000 baseline (Western Water Assessment, n.d.). They also project warming temperatures and increasing temperatures shifting upslope and northwards. Such conditions would exacerbate summer drought and further promote high-elevation wildfires, releasing stores of carbon and further contributing to the buildup of greenhouse gases. Forest response to increased atmospheric carbon dioxide—the so-called “fertilization effect”—could also contribute to more tree growth and thus more fuel for fires, but the effects of carbon dioxide on mature forests are still largely unknown.

## 9.5 EXPOSURE

**Values-at-risk** is an assessment of which items that are important to people and communities, as well as natural resources, could be lost or negatively impacted by a wildfire. These include many items, such as homes, businesses, and other developments, infrastructure, air sheds, watersheds, recreation areas, utilities, wildlife habitat, etc. The more of these values there are, and the greater their importance to people and communities, the more the potential risk.

- Infrastructure – This includes roads, utility lines, and railroads
- Property – This includes homes, private land, livestock and agriculture holdings.
- Critical Facilities – This includes important government facilities including hospitals, police and fire facilities, schools, and any other facilities deemed essential by the County
- Watersheds – Wildfires can affect water quality and will significantly increase the risk of flooding and debris flows in the wake of a wildfire event.

### 9.5.1 Population

The population exposed to wildfire hazards in the county was estimated based on the Colorado State Demography Office estimate of average household size in Park County in 2018 (2.25 people) and the number of residential parcels (including residential and mobile home) exposed to wildfire hazards. Based on this data, an estimated 396 people live in very high risk zones, and 2,077 people live in high risk zones. An estimated 1,582 people live in medium risk zones, 6,775 people in low risk zones, and 17,627 people in very low risk zones. These estimates assume that there is one household on each residential parcel and, therefore, are conservative estimates.

### 9.5.2 Property

Property damage from wildfires can be severe and can significantly alter entire communities. Exposure values in the various wildfire hazard zones in the planning area are shown in Table 9-2, based on GIS data. The numbers are total parcels in Park County outside of the town of Fairplay impacted by wildfire. Categories are very high risk, high risk, medium risk, low risk, and very low risk. Parcels in Fairplay that are exposed to wildfire hazards are included in Section 3.4 of the Town of Fairplay Jurisdiction-Specific Annex.

Table 9-2 Total Number of Parcels Exposed to Wildfire Hazards

Land Type	Land Type Count	Sum of Land Value
Very High	278	\$16,310,304.34
Not Designated	2	\$0.00
Agricultural	24	\$96,393.54
Commercial	2	\$200,930.92
Exempt	2	\$1,664,514.46
Mining	1	\$46,302.41
Mixed Use- Com	1	\$214,475.20
Mixed Use-AgRes	5	\$92,617.04
Mobile Home	3	\$168,634.28
Residential	173	\$10,985,316.43
Vacant Land	65	\$2,841,120.06
High	1039	\$92,001,733.00
Not Designated	2	\$0.00
Agricultural	43	\$238,579.43
Commercial	15	\$2,121,458.51
Exempt	32	\$34,981,646.19
Mining	6	\$2,164,362.88
Mixed Use- Com	15	\$443,286.47
Mixed Use-AgRes	3	\$122,162.27
Mobile Home	701	\$43,138,956.17
Residential	222	\$8,791,281.08
Vacant Land	1039	\$92,001,733.00
Medium	1091	\$91,408,673.99
Not Designated	18	\$0.00
Agricultural	48	\$214,449.54
Commercial	2	\$205,087.23
Exempt	20	\$28,263,347.21
Mixed Use- Com	3	\$1,207,340.31
Mixed Use-AgRes	27	\$936,864.20
Mobile Home	6	\$221,542.47
Residential	697	\$45,864,461.94
Vacant Land	270	\$14,495,581.09
Low	5144	\$369,131,150.88
Not Designated	61	\$0.00
Agricultural	251	\$1,759,324.35
Commercial	49	\$4,724,491.92
Exempt	120	\$138,871,164.09
Industrial	1	\$147,193.91
Mining	15	\$596,827.97
Mixed Use- Com	22	\$3,660,228.75
Mixed Use-AgRes	88	\$2,324,190.85
Mobile Home	44	\$1,762,601.07
Residential	2967	\$172,561,938.50
Vacant Land	1526	\$42,723,189.47
Very Low	32,763	\$1,452,422,167.88

Table 9-2 Total Number of Parcels Exposed to Wildfire Hazards

Land Type	Land Type Count	Sum of Land Value
Not Designated	490	\$0.00
Agricultural	1,982	\$10,218,148.16
Commercial	135	\$11,337,937.76
Exempt	1,017	\$714,009,261.38
Mining	1,505	\$11,105,482.47
Mixed Use- Com	55	\$6,357,982.37
Mixed Use-AgRes	290	\$9,701,896.24
Mobile Home	160	\$3,918,701.42
Nat. Resources	13	\$9,396,751.23
Residential	7,674	\$338,526,369.94
Vacant Land	19,442	\$337,849,636.91
GRAND TOTAL	40,315	\$2,021,374,457.11

### 9.5.3 Critical Facilities and Infrastructure

Table 9-3 identifies critical facilities exposed to the wildfire hazard in the county. Thirteen hazardous materials facilities have been identified in wildfire risk zones. During a wildfire event, hazardous materials storage facilities or containers could rupture due to excessive heat and act as fuel for the fire, causing rapid spreading and escalating the fire to unmanageable levels. In addition, they could leak into surrounding areas, saturating soils and seeping into surface waters, and have a disastrous effect on the environment.

In the event of wildfire, there would likely be little damage to the majority of infrastructure. Most road and railroads would be without damage except in the worst scenarios. Power lines are the most at risk to wildfire because most are made of wood and susceptible to burning. In the event of a wildfire, pipelines could provide a source of fuel and lead to a catastrophic explosion.

Table 9-3 Critical Facilities and Infrastructure in Wildfire Risk Areas

	Number of Critical Facilities in Hazard Zone				
	Lowest Risk	Low Risk	Moderate Risk	High Risk	Highest Risk
Bridges	47	6		1	2
Communications	40	56			
Dam	16	3	1		
Electric Substation	7	1	1	1	1
Emergency Operations Center	1				
Emergency Shelter	10	5			
Fire Station	21	6	1		
Hazardous Material Facility	11	1	1		
Hydroelectric Plant	1				
Law Enforcement	9	1			
Medical	1				
School	2	1			
Total	165	80	4	2	3

## 9.5.4 Environment

Fire is a natural and critical ecosystem process in most terrestrial ecosystems, dictating in part the types, structure, and spatial extent of native vegetation. However, wildfires can cause severe environmental impacts:

- **Damaged Fisheries**—Critical fisheries can suffer from increased water temperatures, sedimentation, and changes in water quality.
- **Soil Erosion**—The protective covering provided by foliage and dead organic matter is removed, leaving the soil fully exposed to wind and water erosion. Accelerated soil erosion occurs, causing landslides and threatening aquatic habitats.
- **Spread of Invasive Plant Species**—Non-native woody plant species frequently invade burned areas. When weeds become established, they can dominate the plant cover over broad landscapes, and become difficult and costly to control.
- **Disease and Insect Infestations**—Unless diseased or insect-infested trees are swiftly removed, infestations and disease can spread to healthy forests and private lands. Timely active management actions are needed to remove diseased or infested trees.
- **Destroyed Endangered Species Habitat**—Catastrophic fires can have devastating consequences for endangered species.
- **Soil Sterilization**—Topsoil exposed to extreme heat can become water repellent, and soil nutrients may be lost. It can take decades or even centuries for ecosystems to recover from a fire. Some fires burn so hot that they can sterilize the soil.

Many ecosystems are adapted to historical patterns of fire occurrence. These patterns, called “fire regimes,” include temporal attributes (e.g., frequency and seasonality), spatial attributes (e.g., size and spatial complexity), and magnitude attributes (e.g., intensity and severity), each of which have ranges of natural variability. Ecosystem stability is threatened when any of the attributes for a given fire regime diverge from its range of natural variability.

## 9.6 VULNERABILITY

Structures, above-ground infrastructure, critical facilities and natural environments are all vulnerable to the wildfire hazard. There is currently no validated damage function available to support wildfire mitigation planning. Except as discussed in this section, vulnerable populations, property, infrastructure and environment are assumed to be the same as described in the section on exposure.

**Likelihood of Values at Risk Being Affected by Wildfire** – Given that a fire has started, that it is behaving dangerously, that there are values at risk, it is possible to determine the likelihood that those values will actually be affected by the fire. Characteristics such as local firefighting capacity, response times, accessibility to subdivisions or other values, structure design, defensible space, fuel treatments, etc. define this likelihood.

- **Availability of Suppression Resources** – Suppression resources include manpower, hand equipment, vehicles, and aircraft with fire retardant or water.
- **Response Times** – How quickly people and equipment can get to a fire. Wind and precipitation conditions can affect the ability to combat fires with air tankers and helicopters.
- **Construction Materials** – The flammability of the materials used to build any values at risk will determine its risk of being affected by a wildfire.
- **Water Sources** – Helicopters, air tankers and tanker trucks depend on water sources such as streams, lakes and ponds.

- Accessibility to Values at Risk - Steep slopes are a detriment to firefighting efforts because of the difficulty in accessing and transporting firefighting equipment to wildfire sites. A road's driving condition, its width, its grade and the radius of turns will all affect accessibility of vehicles to combat a fire.

Wildfires can be described as either a wildland fire or a WUI fire. The former involves situations where wildfire occurs in an area that is mostly undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A wildland-urban interface fire is a wildfire that impacts an area that includes structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "...the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildlands or vegetative fuels."

Over the years, many of Colorado's forests, primarily in the mid-elevation zones populated by ponderosa pine and Douglas Fir, have become denser, making them more susceptible to insect and disease infection and crown fires. In many locations they have also accumulated significantly greater levels of surface fuels.

Historically, these types of forests burned on a relatively short interval (10 to 40 years), with low to moderate intensities. Fire suppression has been the primary tool in combating past wildfires in Park County. As a result, forests have seen relatively unfettered growth of trees and underbrush. This has resulted in significant increases in fuels for fire. Fire suppression, historical logging and grazing practices, as well as many other changes in land use since the turn of the 19<sup>th</sup> century, have created conditions where there is a much greater potential for larger and higher intensity fires.

Drought conditions greatly increase the risk for wildfire in the arid Inter-Mountain West and specifically in Park County. A prolonged period of higher temperatures and decreased precipitation leads to adversely dry trees and forest undergrowth. Drought also exacerbates other problems like changing fuel conditions, beetle kill and other diseases. Oftentimes in years of drought, snowpack will melt away earlier than normal and leave forests dry and vulnerable for a longer period of time. Such conditions led to 2002 being one of the worst fire seasons in Park County and across Colorado on record. Such conditions will affect even the County's highest elevation areas that normally see low wildfire risk.

Another emerging risk for forests is pine-beetle. Many areas in Colorado, including the Arkansas Valley, as well as Jackson, Grand, Routt, Eagle and Summit Counties, have experienced mountain pine beetle epidemics. Other insect or diseases are also occurring in many locations in Colorado. Though Park County has not seen beetle infestations to the same degree as the aforementioned areas, some beetle kill has begun to spread over the continental divide from Summit County as well as areas in and around Bailey. Trees killed by pine beetle are particularly susceptible to crown fires and add to surface fuel loading as they fall.

## 9.6.1 Population

There are no recorded incidents of loss of life from wildfires within the planning area. Given the immediate response times to reported fires, the likelihood of injuries and casualties is minimal; therefore, injuries and casualties were not estimated for the wildfire hazard.

Smoke and air pollution from wildfires can be a severe health hazard, especially for sensitive populations, including children, the elderly and those with respiratory and cardiovascular diseases. Smoke generated by wildfire consists of visible and invisible emissions that contain particulate matter (soot, tar, water vapor, and minerals), gases (carbon monoxide, carbon dioxide, nitrogen oxides), and toxics (formaldehyde, benzene). Emissions from wildfires depend on the type of fuel, the moisture content of the fuel, the efficiency (or temperature) of combustion, and the weather. Public health impacts associated with wildfire include difficulty in breathing, odor, and reduction in visibility.

Wildfire may also threaten the health and safety of those fighting the fires. First responders are exposed to the dangers from the initial incident and after-effects from smoke inhalation and heat stroke.

### **9.6.2 Property**

All property exposed to wildfires is vulnerable to wildfire damage.

### **9.6.3 Critical Facilities and Infrastructure**

Critical facilities of wood frame construction are especially vulnerable during wildfire events. In the event of wildfire, there would likely be little damage to most infrastructure. Most roads and railroads would be without damage except in the worst scenarios. Power lines are the most at risk from wildfire because most poles are made of wood and susceptible to burning. Fires can create conditions that block or prevent access and can isolate residents and emergency service providers. Wildfire typically does not have a major direct impact on bridges, but it can create conditions in which bridges are obstructed. Many bridges in areas of high to moderate fire risk are important because they provide the only ingress and egress to large areas and in some cases to isolated neighborhoods.

## **9.7 FUTURE TRENDS IN DEVELOPMENT**

The county has experienced moderate growth over the past 10 years. Colorado has been increasing in population, including vacation and rental properties and transient residents. Increased nonprimary residences/vacation homes pose a higher risk of damage to wildfires due to irregular fuels maintenance. Transient residents may be parking RVs or other mobile homes in areas at risk for fires due to availability of space and land.

The highly urbanized portions of the planning area have little or no wildfire risk exposure. Urbanization tends to alter the natural fire regime and can create the potential for the expansion of urbanized areas into wildland areas. The expansion of the wildland urban interface can be managed with strong land use and building codes. The planning area is well equipped with these tools and this planning process has asked each planning partner to assess its capabilities with regards to the tools.

Small towns in the eastern portion of the county are at a high wildfire risk, and this is unlikely to change with future growth and expansion. The risk of wildfire in the county is increasing due to climate change, and it can reasonably be expected that the wildfire hazard will increase in future trends in development.

# CHAPTER 10 DAM FAILURE

## 10.1 GENERAL BACKGROUND

Dam failure hazard was ranked as medium across the county. The hazard ranking aggregate is shown below:

	<i>Probability /Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Dam Failure	1.62	3.62	4.00	3.88	3.08	6

### 10.1.1 Causes of Dam Failure

Dam failures in the United States typically occur in one of four ways:

- Overtopping of the primary dam structure, which accounts for 34 percent of all dam failures, can occur due to inadequate spillway design, settlement of the dam crest, blockage of spillways, and other factors.
- Foundation defects due to differential settlement, slides, slope instability, uplift pressures, and foundation seepage can also cause dam failure. These account for 30 percent of all dam failures.
- Failure due to piping and seepage accounts for 20 percent of all failures. These are caused by internal erosion due to piping and seepage, erosion along hydraulic structures such as spillways, erosion due to animal burrows, and cracks in the dam structure.
- Failure due to problems with conduits and valves, typically caused by the piping of embankment material into conduits through joints or cracks, constitutes 10 percent of all failures.

The remaining 6 percent of U.S. dam failures are due to miscellaneous causes. Many dam failures in the United States have been secondary results of other disasters. The prominent causes are earthquakes, landslides, extreme storms, massive snowmelt, equipment malfunction, structural damage, foundation failures, and sabotage.

Poor construction, lack of maintenance and repair, and deficient operational procedures are preventable or correctable by a program of regular inspections. Terrorism

#### **DEFINITIONS**

**Dam**—Any artificial barrier and/or any controlling works, together with appurtenant works, that can or does impound or divert water.

**Dam Failure**—An uncontrolled release of impounded water due to structural deficiencies in dam.

**Emergency Action Plan**—A document that identifies potential emergency conditions at a dam and specifies actions to be followed to minimize property damage and loss of life. The plan specifies actions the dam owner should take to alleviate problems at a dam. It contains procedures and information to assist the dam owner in issuing early warning and notification messages to responsible downstream emergency management authorities of the emergency situation. It also contains inundation maps to show emergency management authorities the critical areas for action in case of an emergency. (FEMA 64)

**High Hazard Dam**—Dams where failure or operational error will probably cause loss of human life. (FEMA 333)

**Significant Hazard Dam**—Dams where failure or operational error will result in no probable loss of human life but can cause economic loss, environmental damage or disruption of lifeline facilities, or can impact other concerns. Significant hazard dams are often located in rural or agricultural areas but could be located in areas with population and significant infrastructure. (FEMA 333)

and vandalism are serious concerns that all operators of public facilities must plan for; these threats are under continuous review by public safety agencies.

### **10.1.2 Regulatory Oversight**

The potential for catastrophic flooding due to dam failures led to passage of the National Dam Safety Act (Public Law 92-367). The National Dam Safety Program requires a periodic engineering analysis of every major dam in the country. The goal of this effort is to identify and mitigate the risk of dam failure so as to protect the lives and property of the public.

#### ***U.S. Army Corps of Engineers Dam Safety Program***

The U.S. Army Corps of Engineers is responsible for safety inspections of some federal and non-federal dams in the United States that meet the size and storage limitations specified in the National Dam Safety Act. The Corps has inventoried dams; surveyed each state and federal agency's capabilities, practices and regulations regarding design, construction, operation and maintenance of the dams; and developed guidelines for inspection and evaluation of dam safety (U.S. Army Corps of Engineers, 1997).

#### ***Federal Energy Regulatory Commission Dam Safety Program***

The Federal Energy Regulatory Commission (FERC) cooperates with a large number of federal and state agencies to ensure and promote dam safety. More than 3,000 dams are part of regulated hydroelectric projects in the FERC program. Two-thirds of these are more than 50 years old. As dams age, concern about their safety and integrity grows, so oversight and regular inspection are important. FERC inspects hydroelectric projects on an unscheduled basis to investigate the following:

- Potential dam safety problems
- Complaints about constructing and operating a project
- Safety concerns related to natural disasters
- Issues concerning compliance with the terms and conditions of a license.

Every five years, an independent engineer approved by the FERC must inspect and evaluate projects with dams higher than 32.8 feet (10 meters), or with a total storage capacity of more than 2,000 acre-feet.

FERC monitors and evaluates seismic research and applies it in investigating and performing structural analyses of hydroelectric projects. FERC also evaluates the effects of potential and actual large floods on the safety of dams. During and following floods, FERC visits dams and licensed projects, determines the extent of damage, if any, and directs any necessary studies or remedial measures the licensee must undertake. The FERC publication *Engineering Guidelines for the Evaluation of Hydropower Projects* guides the FERC engineering staff and licensees in evaluating dam safety. The publication is frequently revised to reflect current information and methodologies.

FERC requires licensees to prepare emergency action plans and conducts training sessions on how to develop and test these plans. The plans outline an early warning system if there is an actual or potential sudden release of water from a dam due to failure. The plans include operational procedures that may be used, such as reducing reservoir levels and reducing downstream flows, as well as procedures for notifying affected residents and agencies responsible for emergency management. These plans are frequently updated and tested to ensure that everyone knows what to do in emergency situations.

#### ***Colorado Dam Safety Program***

Per the Colorado Division of Water Resources:

The Colorado Dam Safety Program is administered by the State Division of Water Resources, Dam Safety Branch. The program is managed by a Chief Engineer, who develops program goals and objectives and is responsible for deciding the kind and extent of engineering programs

needed to accomplish the objectives, and to assure they are being met. The branch carries out two principle duties of the State Engineer:

- To determine the safe storage level of the reservoir dams in the state; and
- To approve the plans and specifications for the construction and repair of Jurisdictional dams.

Program engineers strive to work with dam owners and their engineers to provide for robust dam inspections and efficient and effective designs for new dams and repairs to existing ones. The program also carries out important emergency action planning activities, including coordinating with state and local emergency managers (Colorado Division of Water Resources n.d.).

## 10.2 HAZARD PROFILE

### 10.2.1 Location

Dam failure inundation maps have been prepared for the 23 dams in Park County that are regulated by the Colorado Division of Water Resources. A 24th dam, Altura (Duck Lake) Dam, which is one mile north of Park County in Clear Creek County, is included in this risk assessment because it drains directly into Park County and would affect Park County if it failed. Any low-lying areas below these dams that have been identified in the dam failure inundation maps are at potential risk for a dam failure flood. The dam failure inundation maps are on file at the Dam Safety Branch of the Division of Water Resources. For security reasons access to these maps is strictly controlled.

Table 10-1 lists all regulated dams affecting Park County. The 23 dams in Park County that are regulated by the Colorado Division of Water Resources are in various locations within six of the eight major watersheds in the county. A 24th dam, Altura (Duck Lake) Dam, located a mile north of Park County on Guanella Pass Road in Clear Creek County, is included since it drains directly into Park County and its failure would affect Park County more than Clear Creek County. The six major reservoirs in Park County that are owned or operated by outside entities warrant more significant planning consideration and a vulnerability analysis. The size and location of these reservoirs means that they present the greatest risk to communities or infrastructure in the case of a dam failure. Table 10-2 denotes the location, and ownership status of each of the six reservoirs.

The portions of Park County most susceptible to dam failure flooding are areas downstream of the 23 regulated dams that are directly adjacent to the county's major drainage ways and selected smaller tributaries. The dam failure flooding hazards in each of the major watersheds are as follows:

- **Elk Creek Basin**—The section of Elk Creek and its tributaries that is most susceptible to flooding is between the Mt. Evans Wilderness and Harris Park. There is residential development along the main stem of Elk Creek and several of its tributaries. None of the six major reservoirs is located within this basin and none has the potential to impact the basin directly.
- **Deer Creek Basin**—The section of Deer Creek and its tributaries that is most susceptible to flooding extends from Highland Park, beyond U.S. Highway 285, all the way to the confluence of Deer Creek with the North Fork of the South Platte River near the Park County-Jefferson County line. There is residential development along the main stem of Deer Creek and several of its tributaries. None of the twenty-four regulated dams is located within the Deer Creek Basin and none has the potential to impact the basin directly. None of the six major reservoirs is located within this basin and none has the potential to impact the basin directly.
- **North Fork South Platte Basin**—The section of the North Fork of the South Platte and its tributaries that is most susceptible to flooding is in the corridor between Grant and Bailey along

U.S. Highway 285. There is residential and commercial development along the main stem of the North Fork and several of its tributaries. None of the six major reservoirs is located within this basin and none has the potential to impact the basin directly.

- **Tarryall Creek Basin**—The section of Tarryall Creek and its tributaries that is most susceptible to flooding is in the corridor between the developments just north of U.S. Highway 285 in the vicinity of Jefferson and Como all the way to Tarryall Reservoir. There is development along the main stem of the Tarryall Creek and several of its tributaries. Two of the six major reservoirs are located within the Tarryall Creek Basin. Dam failure flooding would cause adverse impacts in portions of the basin directly downstream of these reservoirs. The section of Tarryall Creek and its tributaries that is most susceptible to flooding is in the corridor between the developments just north of U.S. Highway 285 in the vicinity of Jefferson and Como all the way to Tarryall Reservoir. There is development along the main stem of the Tarryall Creek and several of its tributaries. In addition, dam failure flooding in the Tarryall Creek Basin could cause flooding downstream of the confluence of Tarryall Creek with the South Platte River, within the South Platte River Basin.

Table 10-1 Regulated Dams in Park County

Dam	Watershed	Major Reservoir
Antero Dam	South Fork South Platte River	Yes
Altura (Duck Lake) Dam*	North Fork South Platte River	
Baker Dam	Tarryall Creek	
Bayou Salado Dam	Tarryall Creek	
Buffalo Creek Dam	South Fork South Platte River	
Camp Alexander Dam	South Fork South Platte River	
Cline Dam	Tarryall Creek	
Eleven Mile Canyon Dam	South Platte River	Yes
Estates Number 1 Dam	Elk Creek	
Jefferson Lake Dam	Tarryall Creek	Yes
Joe Wilson Recreation Dam	South Platte River	
Lake George Dam	South Platte River	
Lining Lake Dam	North Fork South Platte River	
Lower Michigan Dam	Tarryall Creek	
Montgomery Dam	Middle Fork South Platte River	Yes
OYE Dam	South Fork South Platte River	
Spinney Mountain Dam	South Platte River	Yes
Tarryall Dam	Tarryall Creek	Yes
Tarryall Ranch Reservoir Number 1 Dam	Tarryall Creek	
Upper Michigan Dam	Tarryall Creek	
Wagon Tongue Dam	South Platte River	
Wagon Tongue Number 2 Dam	South Platte River	

Table 10-1 Regulated Dams in Park County

Dam	Watershed	Major Reservoir
Whiteford Lake Dam	North Fork South Platte River	

Source: <http://www.hometownlocator.com/DisplayCountyFeatures.cfm?FeatureType=dam&SCFIPS=08093>

\* Duck Lake is in Clear Creek County, 1 mile north of the Park County line. This reservoir drains into Park County.

Table 10-2 Major Reservoirs

Reservoir	Watershed Where Reservoir Is Located	Other Watersheds Potentially Affected	Owner/ Operator	Downstream Communities and Infrastructure
Antero Reservoir	South Fork South Platte River	South Platte River	Denver Water	Hartsel, Lake George, Spinney Mountain Reservoir, Eleven Mile Reservoir, U.S. 24
Eleven Mile Reservoir	South Platte River		Denver Water	Lake George, U.S. 24
Jefferson Lake	Tarryall Creek	South Platte River	City of Aurora	Jefferson, Tarryall Reservoir, U.S. 285
Montgomery Reservoir	Middle Fork South Platte River	South Platte River	Colorado Springs Utilities	Town of Alma, Town of Fairplay, Hartsel, Lake George, Spinney Mountain Reservoir, Eleven Mile Reservoir, State Highway 9, U.S. 285, U.S. 24
Spinney Mountain Reservoir	South Platte River		City of Aurora	Lake George, Eleven Mile Reservoir, U.S. 24
Tarryall Reservoir	Tarryall Creek	South Platte River	Colorado Parks and Wildlife	Tarryall, Private subdivisions near Lake George

- **Middle Fork South Platte Basin:**

- **Middle Fork South Platte River (unincorporated Park County)**—The section of the Middle Fork of the South Platte and its tributaries within unincorporated Park County that is most susceptible to flooding is in the corridor between Hoosier Pass and the Town of Fairplay along State Highway 9 and several county roads. There is residential and commercial development along the main stem of the Middle Fork and several of its tributaries. One of the six major reservoirs is located within the Middle Fork South Platte River Basin. Dam failure flooding would cause adverse impacts in portions of the basin directly downstream of this reservoir that is within unincorporated Park County. The section of the Middle Fork of the South Platte and its tributaries within unincorporated Park County that is most susceptible to flooding is in the corridor between Hoosier Pass and the Town of Fairplay along State Highway 9 and several county roads. There is residential and commercial development along the main stem of the Middle Fork and several of its tributaries. In addition, dam failure flooding in the Middle Fork South Platte River Basin could cause flooding downstream of the confluence of the Middle Fork of the South Platte River with the South Fork of the South Platte River, within the South Platte River Basin.
- **Middle Fork South Platte River (Alma)**—The Middle Fork of the South Platte and Buckskin Creek within the Town of Alma are susceptible to flooding. There is residential and commercial development along the main stem of the Middle Fork and Buckskin Creek.

- One of the six major reservoirs is located within the Middle Fork South Platte River Basin. Dam failure flooding would cause adverse impacts in portions of the basin directly downstream of this reservoir that is within the Town of Alma. The Middle Fork of the South Platte and Buckskin Creek within the Town of Alma are susceptible to flooding. There is residential and commercial development along the main stem of the Middle Fork and Buckskin Creek. In addition, dam failure flooding in the Middle Fork South Platte River Basin could cause flooding downstream of the confluence of the Middle Fork of the South Platte River with the South Fork of the South Platte River, within the South Platte River Basin.
- **Middle Fork South Platte River (Fairplay)**—The Middle Fork of the South Platte and various dry gulches within the Town of Fairplay are susceptible to flooding. There is residential and commercial development along the main stem of the Middle Fork and various dry gulches. One of the six major reservoirs is located within the Middle Fork South Platte River Basin. Dam failure flooding would cause adverse impacts in portions of the basin directly downstream of this reservoir that is within the Town of Fairplay. The Middle Fork of the South Platte and various dry gulches within the Town of Fairplay are susceptible to flooding. There is residential and commercial development along the main stem of the Middle Fork and various dry gulches. In addition, dam failure flooding in the Middle Fork South Platte River Basin could cause flooding downstream of the confluence of the Middle Fork of the South Platte River with the South Fork of the South Platte River, within the South Platte River Basin.
  - **South Fork South Platte Basin**—The sections of the South Fork of the South Platte River and its tributaries which are most susceptible to flooding are in the corridor between the U.S. Forest Service’s boundary with private property and State Highway 9 and the corridor between Antero Reservoir and Hartsel. There is a moderate amount of development along the main stem of the South Fork and some of its tributaries. One of the six major reservoirs is located within the South Fork South Platte River Basin. Dam failure flooding would cause adverse impacts in portions of the basin directly downstream of this reservoir. The sections of the South Fork of the South Platte River and its tributaries which are most susceptible to flooding are in the corridor between the U.S. Forest Service’s boundary with private property and State Highway 9 and the corridor between Antero Reservoir and Hartsel. There is a moderate amount of development along the main stem of the South Fork and some of its tributaries. In addition, dam failure flooding in the South Fork South Platte River Basin could cause flooding downstream of the confluence of the South Fork of the South Platte River with the Middle Fork of the South Platte River, within the South Platte River Basin.
  - **South Platte River Basin**—The sections of the South Platte River and its tributaries that are most susceptible to flooding are the Hartsel area and the Lake George area. There is a moderate amount of development along the main stem of the South Platte and some of its tributaries. Two of the six major reservoirs are located within the South Platte River Basin and the other four major reservoirs have the potential to impact the basin directly. The sections of the South Platte River and its tributaries that are most susceptible to flooding are the Hartsel area and the Lake George area. There is a moderate amount of development along the main stem of the South Platte and some of its tributaries.
  - **Arkansas River Headwaters Basin**—The section of the Arkansas River Headwaters Basin and tributaries that is most susceptible to flooding is the Guffey area. There is a small amount of development along the main stems of two of the major tributaries, Badger Creek and Currant Creek and tributaries to those streams and to Four Mile Creek. None of the 24 regulated dams is located within the Arkansas River Headwaters Basin and none has the potential to impact the basin directly.

Dam failure inundation maps have been prepared for all 24 dams in or immediately adjacent to Park County that are regulated by the Colorado Division of Water Resources, including the six reservoirs deemed in the Vulnerability Analysis to be “major reservoirs”. While all 24 reservoirs pose some risk to Park County, the size and location of the six major reservoirs means that they present the greatest risk to communities or infrastructure in the case of a dam failure. The dam failure inundation maps are on file at the Dam Safety Branch of the Division of Water Resources. For security reasons access to these maps is, and must continue to be, strictly controlled. A map of dam locations in the county is located in Figure D-6 in Appendix D.

### 10.2.2 Frequency

Dam failure events are infrequent and usually coincide with events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a “residual risk” associated with dams. Residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of any type of dam failure is low in today’s regulatory and dam safety oversight environment.

### 10.2.3 Severity

According to the Association of State Dam Safety Officials, the hazard potential classification for a dam is intended to rank dams in terms of potential losses to downstream interests if the dam should fail for any reason. The classification is based on the incremental adverse consequences (after vs. before) of failure or improper operation of the dam, and has no relationship to the current structural integrity, operational status, flood routing capability, or safety condition of the dam or its appurtenances. The hazard potential classification is based on potential adverse impacts/losses in four categories: environmental, life line, economic, and/or human life.

FEMA Publication No. 333 has adopted three hazard potential classification categories for dams as follows: LOW, SIGNIFICANT, and HIGH HAZARD POTENTIAL, listed in order of increasing incremental adverse consequences. When loss of one or more human lives is probable, High Potential Hazard classification is required. Some regulators use numbers or letters in lieu of these titles and may have more than three hazard potential classifications based on legislative requirements or agency history.

The selection of a hazard potential classification for a dam should be made using a phased approach utilizing three levels of effort: presumptive, incremental hazard assessment (dam break studies), and risk based assessment. It is intended that the engineer making the classification determination will proceed from the simplest method (presumptive) using existing data and field reconnaissance, to the most complex (risk based assessment) in a step sequence. In most cases, all three methods will not be required.

The hazard potential classification for a dam may change over time. New downstream development, raising of a dam to increase storage, the finding of an endangered or threatened species (plant or animal), revisions to National Weather Service Hydrometeorological Reports, or downstream land use changes could warrant changing the hazard potential classification of the dam. Thus, it will be necessary to periodically review and update the classification of each dam based on the prior documented classification. It is recommended that the hazard potential classification review cycle for each dam correspond to the inspection frequency adopted by the regulatory agency.

For projects with several independent elements (dams, spillways, powerhouse, low level outlet, etc.), the overall Project hazard potential classification will be that assigned to the highest rated project element.

Size classification is based on either structural height or reservoir storage capacity, whichever gives the higher classification. Size classifications (Table 10-3) are SMALL, INTERMEDIATE, or LARGE. Height and/or storage capacity are used by many states to legislatively define State Dam Safety office jurisdictional or non-jurisdictional dams. In some states, very high or large storage dams are automatically assigned High Hazard Potential. The size classification is also used to define dams listed in the U.S. Army Corps of Engineers National Inventory of Dams.

Table 10-3 Corps of Engineers Hazard Potential Classification

Hazard Category <sup>a</sup>	Direct Loss of Life <sup>b</sup>	Lifeline Losses <sup>c</sup>	Property Losses <sup>d</sup>	Environmental Losses <sup>e</sup>
Low	None (rural location, no permanent structures for human habitation)	No disruption of services (cosmetic or rapidly repairable damage)	Private agricultural lands, equipment, and isolated buildings	Minimal incremental damage
Significant	Rural location, only transient or day-use facilities	Disruption of essential facilities and access	Major public and private facilities	Major mitigation required
High	Certain (one or more) extensive residential, commercial, or industrial development	Disruption of essential facilities and access	Extensive public and private facilities	Extensive mitigation cost or impossible to mitigate

- a. Categories are assigned to overall projects, not individual structures at a project.
- b. Loss of life potential based on inundation mapping of area downstream of the project. Analyses of loss of life potential should take into account the population at risk, time of flood wave travel, and warning time.
- c. Indirect threats to life caused by the interruption of lifeline services due to project failure or operational disruption; for example, loss of critical medical facilities or access to them.
- d. Damage to project facilities and downstream property and indirect impact due to loss of project services, such as impact due to loss of a dam and navigation pool, or impact due to loss of water or power supply.
- e. Environmental impact downstream caused by the incremental flood wave produced by the project failure, beyond what would normally be expected for the magnitude flood event under which the failure occurs.

Source: U.S. Army Corps of Engineers, 1995

The hazard potential and size classifications of a project depend on the legislative authority, rules, and regulations of the project regulatory authority, and can vary significantly between state and federal agencies.

The aftermath of a dam failure can range from moderate to severe. It is likely that the failure of major dams will cause widespread loss of life downstream to humans and animals, as well as extreme environmental stress along the flood path. Water supplies upstream could be left completely dry, while water supplies downstream are overrun or contaminated with debris from the ensuing flood.

### 10.2.4 Warning Time

Warning time for dam failure varies depending on the cause of the failure. In events of extreme precipitation or massive snowmelt, evacuations can be planned with sufficient time. In the event of a structural failure due to earthquake, there may be no warning time. A dam’s structural type also affects warning time. Earthen dams do not tend to fail completely or instantaneously. Once a breach is initiated, discharging water erodes the breach until either the reservoir water is depleted or the breach resists further erosion. Concrete gravity dams also tend to have a partial breach as one or more monolith sections are forced apart by escaping water. The time of breach formation ranges from a few minutes to a few hours (U.S. Army Corps of Engineers, 1997).

Park County and its planning partners have established protocols for flood warning and response to imminent dam failure in the flood warning portion of its adopted emergency operations plan. These protocols are tied to the emergency action plans created by the dam owners.

All of the dams in the county meet regulatory standards; none of them pose an immediate threat of failing. However, if one were to fail, the potential effects from dam failures could be varied depending on the scope and location of such a failure. For example, a failure of the Montgomery Dam could have catastrophic effects on the towns of Alma and Fairplay, as well as to infrastructure such as State Highway 9 and U.S. 285, and possibly to dams downstream on the South Platte. It could also have severe environmental impacts

along the Middle Fork of the South Platte and the South Platte. A failure of Antero Dam could have a domino effect, triggering the failure of Spinney Mountain Dam and Eleven Mile Dam downstream. Similarly, a failure of Spinney Mountain Dam could trigger the failure of Eleven Mile Dam downstream. The effects of such a domino scenario would include flooding of Lake George, U.S. 24, numerous private subdivisions and eventually infrastructure in downstream counties, including Cheesman Reservoir. Any dam failure could pose severe to catastrophic effects on downstream areas, as well as severe to catastrophic economic effects on the county.

### **10.3 SECONDARY HAZARDS**

Dam failure can cause severe downstream flooding, depending on the magnitude of the failure. Other potential secondary hazards of dam failure are landslides around the reservoir perimeter, bank erosion on the rivers, and destruction of downstream habitat.

If a significant flood event occurs, there is a potential for a variety of secondary impacts. Some of the most common secondary effects of flooding are impacts to infrastructure and utilities such as roadways, water service, and wastewater treatment, and impacts to local commerce, including tourism. Many of the roadways in the County are vulnerable to damage due to floodwaters. The effect of flood damages to roadways can limit access to areas, cutting off some residents from emergency services as well as other essential services, as well as hampering outsiders visiting the County or traveling through on their way to other destinations.

Since a major heating source in the area is propane gas, there may be many properties in floodplains with above-ground fuel storage tanks. It is likely that the majority of tanks in the floodplain are not secured or strapped down. If these tanks were to be damaged or dislodged during a flood event, the resulting gas leaks could present serious explosion risks. Tanks can also become floating projectiles in quickly moving floodwaters, causing serious damage to property and danger to individuals in their path.

### **10.4 CLIMATE CHANGE IMPACTS**

Dams are designed partly based on assumptions about a river's flow behavior, expressed as hydrographs. Changes in weather patterns can have significant effects on the hydrograph used for the design of a dam. If the hydrograph changes, it is conceivable that the dam can lose some or all of its designed margin of safety, also known as freeboard. If freeboard is reduced, dam operators may be forced to release increased volumes earlier in a storm cycle in order to maintain the required margins of safety. Such early releases of increased volumes can increase flood potential downstream. Throughout the west, communities downstream of dams are already seeing earlier releases and increased discharge volumes from dams.

Dams are constructed with safety features known as "spillways." Spillways are put in place on dams as a safety measure in the event of the reservoir filling too quickly. Spillway overflow events, often referred to as "design failures," result in increased discharges downstream and increased flooding potential. Although climate change will not increase the probability of catastrophic dam failure, it may increase the probability of design failures.

### **10.5 EXPOSURE AND VULNERABILITY**

#### **10.5.1 Population**

Vulnerable populations are all populations downstream from dam failures that are incapable of escaping the area within the allowable time frame. This population includes the elderly and young who may be unable to get themselves out of the inundation area. The vulnerable population also includes those who would not have adequate warning from a television or radio emergency warning system.

## 10.5.2 Property

Vulnerable properties are those closest to the dam inundation area. These properties would experience the largest, most destructive surge of water. Low-lying areas are also vulnerable since they are where the dam waters would collect. Transportation routes are vulnerable to dam inundation and have the potential to be wiped out, creating isolation issues. This includes all roads, railroads and bridges in the path of the dam inundation. Those that are most vulnerable are those that are already in poor condition and would not be able to withstand a large water surge. Utilities such as overhead power lines, cable and phone lines could also be vulnerable. Loss of these utilities could create additional isolation issues for the inundation areas. Table 10-6 shows the total parcels of county land that are within 1,000 feet of a dam, with high, significant, and low inundation chances.

Table 10-6 Total Number of Parcels Exposed to Dam Failure Hazards

Row Labels	Total Value	Total Parcels
High	\$6,594,434.53	12
Not Designated	\$0.00	1
Agricultural	\$185,565.26	2
Exempt	\$6,228,077.61	4
Mining	\$42,250.29	3
Mixed Use-AgRes	\$72,865.62	1
Vacant Land	\$65,675.75	1
Low	\$32,657,666.10	318
Not Designated	\$0.00	2
Agricultural	\$24,355.72	2
Commercial	\$0.00	12
Exempt	\$23,722,701.43	11
Mixed Use-AgRes	\$25,236.41	1
Mobile Home	\$25,833.18	4
Nat. Resources	\$1,168,155.11	1
Residential	\$5,496,297.42	143
Vacant Land	\$2,195,086.83	142
Significant	\$3,539,938.20	52
Agricultural	\$5,890.00	2
Exempt	\$2,624,352.98	3
Mixed Use-AgRes	\$105,550.97	2
Residential	\$502,554.47	27
Vacant Land	\$301,589.78	18
All Parcels	\$42,792,038.83	382

Key:

AgRes – Agricultural Residential

### 10.5.3 Critical Facilities

There are 234 critical facilities and infrastructure that are located within 15 miles of a dam in Park County. All critical facilities within dam inundation areas are vulnerable to the dam failure hazard. Transportation routes—including all roads, railroads, and bridges in the path of a dam inundation—are vulnerable and could be wiped out, creating isolation issues. Critical facilities most vulnerable are those already in poor condition and thus not able to withstand a large water surge. Utilities such as overhead power lines, cable, and phone lines could also be vulnerable. Loss of these utilities could create additional isolation issues within the inundation areas.

Table 10-7 Critical Facilities and Infrastructure Within 15 Miles of a Dam

Bridges	56
Communications	96
Electric Substation	11
Emergency Operations Center	1
Emergency Shelter	15
Fire Station	28
Hazardous Material Facility	13
Hydroelectric Plant	1
Law Enforcement	9
Medical	1
School	3
Total	234

### 10.5.4 Environment

Reservoirs held behind dams affect many ecological aspects of a river. River topography and dynamics depend on a wide range of flows, but rivers below dams often experience long periods of very stable flow conditions or saw-tooth flow patterns caused by releases followed by no releases. Water releases from dams usually contain very little suspended sediment; this can lead to scouring of river beds and banks.

The environment would be exposed to a number of risks in the event of dam failure. The inundation could introduce many foreign elements into local waterways. This could result in destruction of downstream habitat and could have detrimental effects on many species of animals, especially endangered species such as salmon.

## 10.6 FUTURE TRENDS IN DEVELOPMENT

Land use in the planning area will be directed by general plans adopted under state law. The safety elements of the general plans establish standards and plans for the protection of the community from hazards. Dam failure is currently not addressed as a standalone hazard in the safety elements, but flooding is. The municipal planning partners have established comprehensive policies regarding sound land use in identified flood hazard areas. Most of the areas vulnerable to the more severe impacts from dam failure intersect the mapped flood hazard areas. Flood-related policies in the general plans will help to reduce the risk associated with the dam failure hazard for all future development in the planning area.

## 10.7 ISSUES

Keeping the need for security in mind, Park County could pursue the possibility of a GIS project with the Dam Safety Branch to provide authorized officials from Park County, Alma, and Fairplay with appropriate GIS mapping of dam failure risks. Such a project could initially focus just on the six major reservoirs. Once Park County and the CWCB complete digital floodplain mapping, there might be some value in overlaying a secure dam failure inundation zone GIS layer onto that floodplain mapping. Eventually such GIS information could be made available, in a strictly controlled manner, to those local agencies with an emergency response role in the event of dam failure flooding.

The most significant issue associated with dam failure involves the properties and populations in the inundation zones. Flooding as a result of a dam failure would significantly impact these areas. There is often limited warning time for dam failure. These events are frequently associated with other natural hazard events such as earthquakes, landslides or severe weather, which limits their predictability and compounds the hazard. Important issues associated with dam failure hazards include the following:

- Federally regulated dams have an adequate level of oversight and sophistication in the development of emergency action plans for public notification in the unlikely event of failure. However, the protocol for notification of downstream citizens of imminent failure needs to be tied to local emergency response planning.
- Mapping for federally regulated dams is already required and available; however, mapping for non-federal-regulated dams that estimates inundation depths is needed to better assess the risk associated with dam failure from these facilities.
- Most dam failure mapping required at federal levels requires determination of the probable maximum flood. While the probable maximum flood represents a worst-case scenario, it is generally the event with the lowest probability of occurrence. For non-federal-regulated dams, mapping of dam failure scenarios that are less extreme than the probable maximum flood but have a higher probability of occurrence can be valuable to emergency managers and community officials downstream of these facilities. This type of mapping can illustrate areas potentially impacted by more frequent events to support emergency response and preparedness.
- The concept of residual risk associated with structural flood control projects should be considered in the design of capital projects and the application of land use regulations.
- Addressing security concerns and the need to inform the public of the risk associated with dam failure is a challenge for public officials.
- Due to security issues, dam inundation maps are not typically available for use in analysis.

# CHAPTER 11 HAZARDOUS MATERIALS

## 11.1 GENERAL BACKGROUND

Hazardous Materials (HAZMAT) incidents were ranked as a medium hazard level. The hazard ranking aggregate is shown below:

	<i>Probability /Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Hazardous Materials	3.12	2.38	3.77	2.46	3.09	5

A hazardous material may cause damage to people, property, or the environment when released to soil, water, or air. Hazardous materials are substances or materials that pose an unreasonable risk to health, safety, and property, and include hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, and others. Hazardous materials are used and stored in homes and businesses. Products are shipped daily on highways, railroads, waterways, and pipelines.

Damage from HAZMAT can occur from the material’s flammability, toxicity, corrosiveness, chemical instability, and/or combustibility. Material releases seep through the soil and eventually into the groundwater, making water supplies unsafe to drink. Vapors from spilled materials can collect in houses and businesses, sometimes in low-lying areas, creating fire, explosion, and toxic inhalation hazards. Public health impacts of a release can vary from temporary skin irritation to death. Exposure can pose short- and long-term toxicological threats to humans, terrestrial and aquatic plants, and to land and marine wildlife.

### DEFINITIONS

**Hazardous Substance** – Those substances listed in Appendix A of 49 CFR §172.101; does not include petroleum, natural gas, liquefied natural gas, or fuel.

**Hazardous waste** – Materials subject to 40 CFR §262.

**Marine pollutant** – Materials listed in Appendix B of 49 CFR §172.101.

**Elevated temperature material** – Materials which are in a liquid phase at a temperature at or above 212°F; or is in a liquid phase with a flash point at or above 100°F; or is in a solid phase at a temperature at or above 464°F.

**PHMSA** – Pipeline and Hazardous Materials Safety Administration

## 11.2 HAZARD PROFILE

### 11.2.1 Past Events

Accidental releases of petroleum, toxic chemicals, gases, and other hazardous materials occur infrequently throughout Park County. No HAZMAT incidents had been reported to the National Response Center (NRC) in 2017, 2018, 2019, and at the time of this plan update, March 30, 2020 (NRC n.d.).

Even with infrequent occurrences, the county remains constantly vulnerable to hazardous materials releases. The most recent event recorded by the National Response Center occurred in April 2016. Law enforcement

officers discovered 2,000 butane cylinders in Bailey, Colorado, and requested assistance from the US EPA for proper cleanup and disposal.

According to PHMSA (n.d.) other major HAZMAT incidents include:

- A gas/diesel tanker rollover on March 31, 2011, on State Highway 77. Approximately 8,000 gallons spilled into wetlands and Denver's water supply. The EPA responded and extensive cleanup occurred.
- On August 16, 2010, an open top truck carrying low-grade radioactive waste rolled over on U.S. 285 just south of Jefferson. A remediation contractor was required to complete cleanup of the incident.
- A tanker truck accident on May 20, 2004, on U.S. Highway 285 near Bailey. Nearly 8,500 gallons of petroleum product discharged onto the highway and ignited, closing both directions of 285 for a significant period of time. No waterways were affected in this incident, but the highway's proximity to the North Fork of the South Platte River means that similar incidents on that stretch of highway could have much more severe consequences.

### 11.2.2 Location

The Park County Office of Emergency Management has identified the U.S. Highway 285 Corridor, the U.S. Highway 24 Corridor and the State Highway 9 Corridor as the HAZMAT Corridors of concern in the county.

The North Fork of the South Platte River is also at risk for contamination from a HAZMAT release between Bailey and Grant. All communities along these corridors could be affected by such an incident.

According to the United States Department of Transportation, on average highway incidents are typically responsible for greater than 85 percent of the total United States HAZMAT releases. Park County does not have any industrial chemical facilities meaning that most HAZMAT incidents would occur on the county's highways and in homes and businesses storing HAZMAT. There are 258 EPA Facility Registry Service regulated facilities in Park County.

HAZMAT Corridors of concern and HAZMAT facilities in the county are shown on Figure D-7 in Appendix D.

### 11.2.3 Frequency

Hazardous material incidents in Park County are highly likely, with nearly a 100 percent chance of occurrence in any given year. HAZMAT incidents occur often in the county, but most are small and result in little environmental, personal, or property damage. Federal, state, and local rules and regulations continue to become more stringent and lower the chances for an incident. With an increased utilization of HAZMAT and increasing transportation along major transportation routes, the chances for a large hazardous material incident in the county remains a risk.

### 11.2.4 Severity

Severity regarding a HAZMAT release varies greatly depending on the material and the amount released. The extent of a hazardous substance release depends on (1) whether the substance is released from a fixed or mobile source, (2) the size of the impacted area, (3) the toxicity and properties of the substance, (4) the duration of the release, and (5) environmental conditions. Air, water, and soils can become contaminated resulting in injuries or death. Exacerbating conditions magnifying effects of a release include weather conditions, micro-meteorological effects of buildings and terrain, and maintenance failures.

Solid state releases are typically the easiest to clean up and control, followed by liquid and gaseous state releases. Liquid state releases require rapid response if they are to be contained, and if they infiltrate a

watershed, steps must be taken to monitor the influence downstream. Gaseous state releases are almost impossible to contain, and depending on the volume, usually require evacuations downwind. The duration of the event can last for hours or even days. Explosion and/or fire may be subsequent. In addition, contamination may be carried out of the incident area by persons, vehicles, water, and wind.

Other factors that determine the severity of a potential incident include quick and solid decision-making by emergency officials, evacuation and shelter-in-place needs and communication, public health concerns, and relevant economic considerations. While most incidents are generally brief, the resulting recovery and cleanup may take time and money.

Park County contains three major highways, the north-south U.S. Highway 285, which is considered the county's primary arterial, U.S. Highway 24, and State Highway 9. U.S. Highway 285 and State Highway 9 are often used as an alternate route to Interstate 70 for HAZMAT transports. U.S. Highway 24 is the primary route from Colorado Springs into the Central Mountains of Colorado. Incidents occurring in urban locations, such as Fairplay or downtown Bailey could have significant human consequences. Park County emergency services professionals have indicated that many hazardous materials pass through the county. Any number of hazardous materials, if released, could threaten people's health or lives and would likely force evacuations.

### **11.2.5 Warning Time**

HAZMAT incidents usually offer little to no warning time before the incident occurs. People in the immediate vicinity have the least amount of warning and response time. Surrounding community members will usually have more time to shelter-in-place or evacuate the area. The initial identification of specific HAZMAT types can increase response capabilities and timeliness.

## **11.3 SECONDARY HAZARDS**

HAZMAT incidents can result in the contamination of air, water, including reservoirs and groundwater aquifers, and soils, leaving lasting long-term exposure and negative impacts on plants, animals, and even humans. Large-scale incidents can require long-term health and environmental monitoring costs to monitor impacts on humans and the environment. With certain materials, there is a chance for fire, which can result in an urban fire or wildfire. Long-term environmental impacts can in turn cause negative economic impacts to tourism, through activities such as camping, hiking, hunting, and fishing.

Because water, soil, and vegetation can be affected by HAZMAT incidents, toxins may be carried out of the area by wildlife and fish that come into contact with the contaminated water, soil, and/or vegetation.

## **11.4 CLIMATE CHANGE IMPACTS**

Non-natural incidents such as hazardous substance incidents are not typically considered to be vulnerable to climate change. Climate change and its impacts on HAZMAT sites, particularly waste sites, is a growing concern. Hazardous waste sites near rivers and other waters are tentatively at highest risk because extreme storms and higher water levels could release pollution into the environment. Many of these sites were built in locations believed to be removed from potential contamination or exposure to increasing factors. However, development, floodplain boundary change, and an increase in extreme events from climate change are increasing the possibility that water may reach hazardous material and waste sites. Increased severe weather events can increase the chances of a hazardous materials incident as a secondary hazard.

## **11.5 EXPOSURE AND VULNERABILITY**

Exposure and vulnerability due to HAZMAT incidents are difficult to quantify due to many variables and human elements.

### **11.5.1 Population**

The entire population of Park County is exposed and vulnerable to a HAZMAT incident due to widespread use and storage throughout communities. Although the vulnerability is low, populations are more at risk because of higher utilization and transportation of HAZMAT. Communities along major transportation highway and rail transportation routes are at a higher risk for an incident. The general population may be exposed to a hazardous material release through inhalation, ingestion, or dermal exposure.

Vulnerable populations are all populations that may be exposed to an incident and are incapable of escaping the area within the allowable timeframe. This population includes those who may not have adequate warning, such as linguistically isolated people.

### **11.5.2 Property**

Some HAZMAT pose a reactivity, fire, or explosion risk. Materials improperly stored in buildings have the potential to mix with incompatible substances which can result in polymerization, the production of heat, combustion, or fire, and even an explosion.

It is difficult to determine potential losses and vulnerabilities to properties due to the variable nature and amount of hazmat being stored. HAZMAT incidents can pose a serious long-term threat to property.

### **11.5.3 Critical Facilities**

Multiple critical facilities in Park County are vulnerable to a HAZMAT incident. It is difficult to quantify losses of critical facilities due to an incident. Potential losses may include inaccessibility, loss of service, contamination, and/or potential structural and content loss if an explosion occurs. Cost of clean-up and potential future monitoring can put extra strain on the facility and may contribute to bankruptcy.

Most critical facilities store HAZMAT, increasing vulnerability and likelihood of an incident. Transportation infrastructure are used to transport HAZMAT and thus are vulnerable to potential disruption in the event of a materials release.

### **11.5.4 Environment**

Environmental damage resulting from a HAZMAT incident can be on a scale from limited to disastrous. Released materials can end up in the air, soil, and water. Some materials contribute to the destruction of the ozone. As materials soak into the soil, they can kill microorganisms and nutrients that contribute to the livelihood of plants and animals. HAZMAT can eventually reach the groundwater, potentially toxifying community drinking water systems. Materials that end up in bodies of water can kill off aquatic plants and animals and strain an ecosystem.

## **11.6 FUTURE TRENDS IN DEVELOPMENT**

The number and types of hazardous chemicals stored in and transported through the county will likely continue to increase. As population grows, the number of people vulnerable to the impacts of hazardous materials incidents will increase. Population and business growth along major transportation corridors increases the vulnerability to transportation HAZMAT spills.

## **11.7 ISSUES**

Park County has a hazardous materials team which is hosted by the North-West FPD but relies on mutual aid from teams based in Jefferson, Teller, and Summit Counties. FPDs within the County are the second line of defense in a HAZMAT response situation. Data relating to the number of vehicles transporting hazardous materials or the types of materials that they transport is limited. The Mitigation Advisory Committee may want to consider expanding data.

The major issues for hazardous materials incidents include the following:

- Continue all facets of emergency preparedness training for police, fire, public works, and public information staff in order to respond quickly.
- Work proactively with hazardous materials facilities to follow best management practices:
  - Placards and labeling of containers
  - Emergency plans and coordination
  - Standardized response procedures
  - Notification of the types of materials being transported through the planning area
  - Random inspections of transporters
  - Routine hazard communication initiatives
  - Consideration of using safer alternative products
- Work with the private sector to enhance and create Business Continuity Plans in the event of an emergency.
- Maintain a regional emergency services information line that the public can contact 24 hours a day during an emergency incident.
- Coordinate with planning area school districts to ensure that their emergency preparedness plan includes preparation for hazardous material releases.

# CHAPTER 12 LANDSLIDE

## 12.1 GENERAL BACKGROUND

Landslides were ranked a low hazard level by respondents of the Park County community. The hazard ranking aggregate is shown below:

	<i>Probability /Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Landslide	2.27	1.85	4.00	3.38	2.71	7

A **landslide** is a mass of rock, earth or debris moving down a slope. Landslides may be minor or very large, and can move at slow to very high speeds. They can be initiated by storms, earthquakes, fires, volcanic eruptions or human modification of the land.

**Mudslides** (or mudflows or debris flows) are rivers of rock, earth, organic matter and other soil materials saturated with water. They develop in the soil overlying bedrock on sloping surfaces when water rapidly accumulates in the ground, such as during heavy rainfall or rapid snowmelt. Water pressure in the pore spaces of the material increases to the point that the internal strength of the soil is drastically weakened. The soil's reduced resistance can then easily be overcome by gravity, changing the earth into a flowing river of mud or "slurry." A **debris flow** or **mudflow** can move rapidly down slopes or through channels and can strike with little or no warning at avalanche speeds. The slurry can travel miles from its source, growing as it descends, picking up trees, boulders, cars and anything else in its path. Although these slides behave as fluids, they pack many times the hydraulic force of water due to the mass of included material. Locally, they can be some of the most destructive events in nature.

All mass movements are caused by a combination of geological and climate conditions, as well as the encroaching influence of urbanization. Vulnerable natural conditions are affected by human residential, agricultural, commercial, and industrial development and the infrastructure that supports it.

### **DEFINITIONS**

**Landslide**—The sliding movement of masses of loosened rock and soil down a hillside or slope. Such failures occur when the strength of the soils forming the slope is exceeded by the pressure, such as weight or saturation, acting upon them.

**Mass Movement**—A collective term for landslides, debris flows, falls and sinkholes.

**Mudslide (or Mudflow or Debris Flow)**—A river of rock, earth, organic matter and other materials saturated with water.

## 12.2 HAZARD PROFILE

Landslides are caused by one or a combination of the following factors:

- Change in slope of the terrain
- Increased load on the land
- Shocks and vibrations
- Change in water content
- Groundwater movement
- Frost action
- Weathering of rocks
- Removing or changing the type of vegetation covering slopes

In general, landslide hazard areas are where the land has characteristics that contribute to the risk of the downhill movement of material, such as the following:

- A slope greater than 33 percent
- A history of landslide activity or movement during the last 10,000 years
- Stream or wave activity, which has caused erosion, undercut a bank or cut into a bank to cause the surrounding land to be unstable
- The presence or potential for snow avalanches
- The presence of an alluvial fan, indicating vulnerability to the flow of debris or sediments
- The presence of impermeable soils, such as silt or clay, which are mixed with granular soils such as sand and gravel.

Flows and slides are commonly categorized by the form of initial ground failure. Figure 12-1 through Figure 12-4 show common types of slides. The most common is the shallow colluvial slide, occurring particularly in response to intense, short-duration storms. The largest and most destructive are deep-seated slides, although they are less common than other types.

Slides and earth flows can pose serious hazard to property in hillside terrain. They tend to move slowly and thus rarely threaten life directly. When they move—in response to such changes as increased water content, earthquake shaking, addition of load, or removal of downslope support—they deform and tilt the ground surface. The result can be destruction of foundations, offset of roads, breaking of underground pipes, or overriding of downslope property and structures.

### 12.2.1 Past Event

According to the Park County 2019 Comprehensive Emergency Operations Plan, losses from debris flows and landslides have been extremely high in recent years in areas that have been devastated by wildfires (Park County Office of Emergency Management 2019). Search through the Spatial Hazard Events and Losses Database for the United States (SHELDUS) database for the 2015 Park County HMP effort uncovered two recorded landslide events in the planning area since 1960 on April 6, 2006 and January 1, 1997. Both coincided with presidential disaster declarations for severe storms and flooding. The combined estimated damage for these two events exceeded \$20 million. While there are no County records of fatalities attributed to mass movement, it should be noted that deaths have occurred across the west coast as a result of slides and slope collapses.

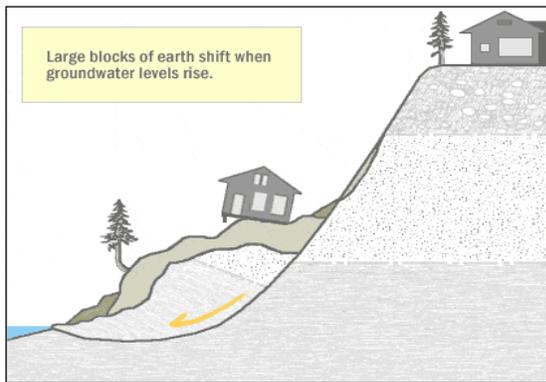


Figure 12-1 Deep Seated Slide

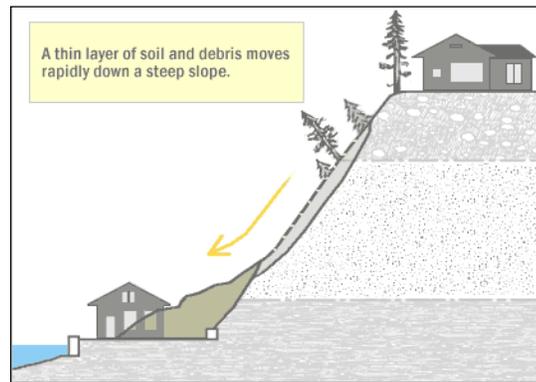


Figure 12-2 Shallow Colluvial Slide

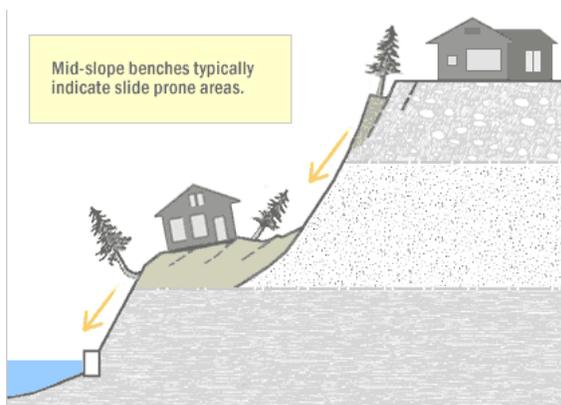


Figure 12-3 Bench Slide

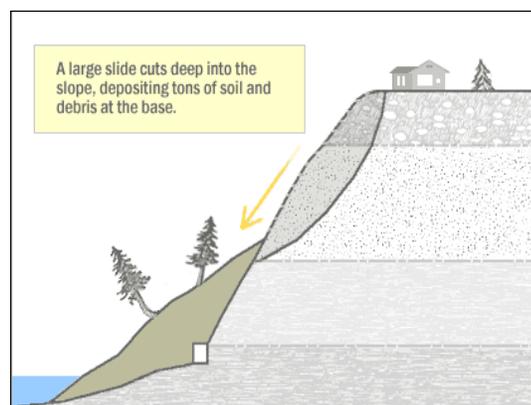


Figure 12-4 Large Slide

## 12.2.2 Location

Due to its abundance of steep terrain, Colorado experiences many landslides annually, with landslides occurring in many remote areas that are difficult to monitor. According to the Colorado Geological Survey, most occur west of the Front Range to the Western Slope. Historically, landslides have occurred throughout the mountainous areas of Park County. In some cases, slide locations are still visibly apparent; unfortunately, detailed historical records of the location and extent of landslides have not been kept.

The 2019 Park County Comprehensive Emergency Management Plan identifies the Lake George area as higher risk than the rest of the county due to recent large wildfires that have created mudslides and flooding in the area. Alma was also identified as a landslide concern area. The plan indicated that U.S. Highway 285 between Bailey and Fairplay is of higher likelihood to experience a landslide, which is of particular concern as a landslide or rockslide here would cut off all east-west traffic (2019).

When the base of a slope is eroded or undercut, the strength of the entire slope can be compromised. In mountainous regions of Park County, this commonly occurs along existing roadways, or during the construction of new roadways. Slope loading can also increase the potential for landslides. The construction of structures or roadways on a steep slope can increase the strain on the material, thus increasing the potential of a slide. The amount of ground cover and vegetation on a slope also can play a role in a slope's susceptibility to landslides, as dense cover can secure an otherwise unstable slope.

The best available predictor of where movement of slides and earth flows might occur is the location of past movements. Past landslides can be recognized by their distinctive topographic shapes, which can remain in place for thousands of years. Most landslides recognizable in this fashion range from a few acres to several square miles. Most show no evidence of recent movement and are not currently active. A small proportion of them may become active in any given year, with movements concentrated within all or part of the landslide masses or around their edges. The locations of debris fields from previous landslides in Park County are shown on Figure D-8 in Appendix D.

The recognition of ancient dormant mass movement sites is important in the identification of areas susceptible to flows and slides because they can be reactivated by earthquakes or by exceptionally wet weather. Also, because they consist of broken materials and frequently involve disruption of groundwater flow, these dormant sites are vulnerable to construction-triggered sliding.

Figure 12-5 below shows debris flow and mudflow areas for Park County.

### **12.2.3 Frequency**

Landslides are often triggered by other natural hazards such as earthquakes, heavy rain, floods or wildfires, so landslide frequency is often related to the frequency of these other hazards. In Park County, landslides typically occur during and after major storms, so the potential for landslides largely coincides with the potential for sequential severe storms that saturate steep, vulnerable soils. The Park County Comprehensive Emergency Operations Plan ranks probability of a landslide in Park County as once or more each year (2019).

### **12.2.4 Severity**

Landslides destroy property and infrastructure and can take the lives of people. Slope failures in the United States result in an average of 25 lives lost per year and an annual cost to society of about \$1.5 billion. According to SHELDUS data accessed for the 2015 HMP, the 2006 and 1997 storms caused in excess of \$20 million in property damage due to landslides, mudslides and debris flows. This was about half of all damage caused by the storm. The landslides caused by the storm also caused tens of millions of dollars of damage to road infrastructure.

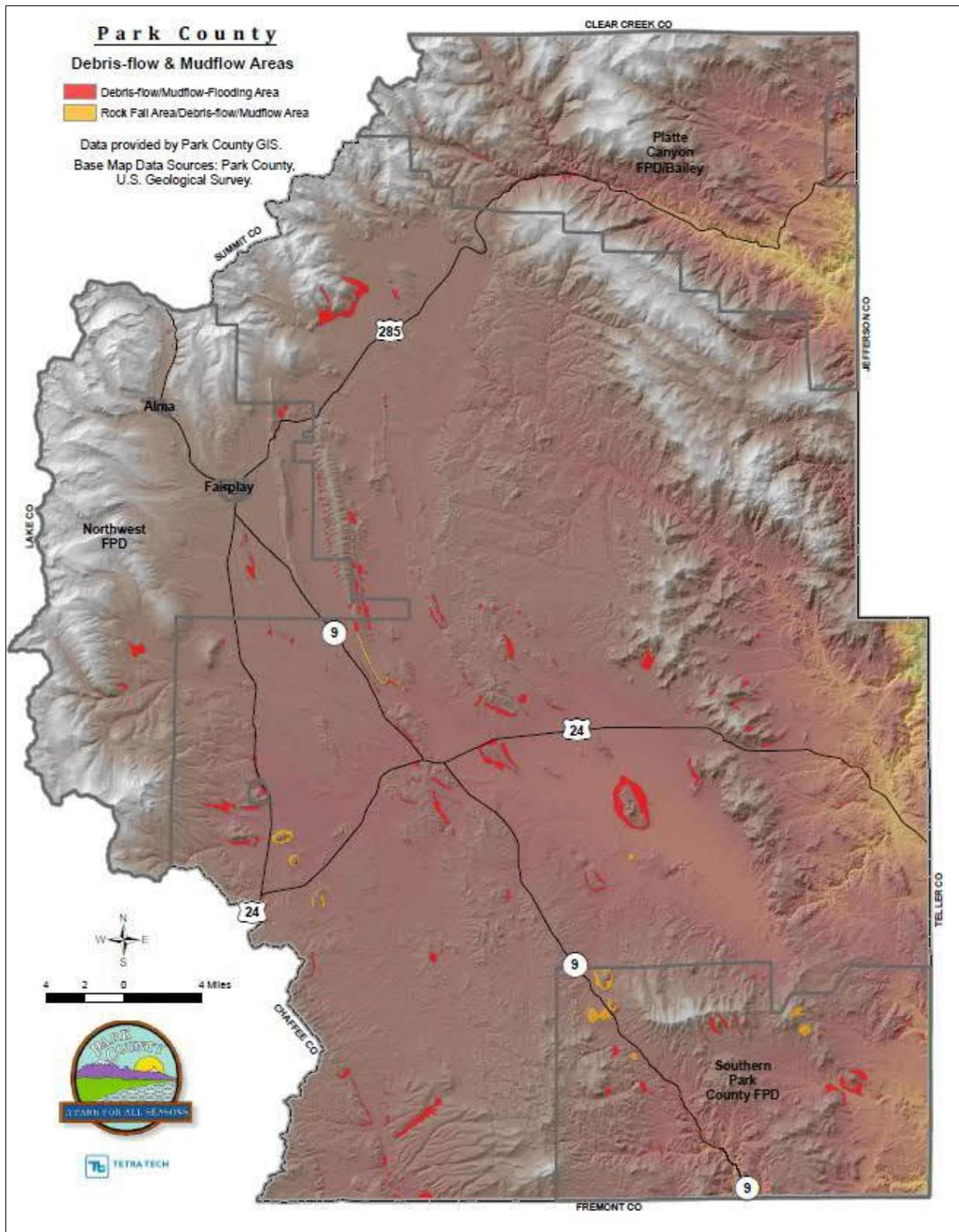


Figure 12-5 Debris and Mudflow Flooding Areas

## 12.2.5 Warning Time

Mass movements can occur suddenly or slowly. The velocity of movement may range from a slow creep of inches per year to many feet per second, depending on slope angle, material and water content. Some methods used to monitor mass movements can provide an idea of the type of movement and the amount of time prior to failure. It is also possible to determine what areas are at risk during general time periods. Assessing the geology, vegetation and amount of predicted precipitation for an area can help in these predictions. However, there is no practical warning system for individual landslides. The current standard operating procedure is to monitor situations on a case-by-case basis, and respond after the event has occurred. Generally accepted warning signs for landslide activity include:

- Springs, seeps, or saturated ground in areas that have not typically been wet before
- New cracks or unusual bulges in the ground, street pavements or sidewalks
- Soil moving away from foundations
- Ancillary structures such as decks and patios tilting and/or moving relative to the main house
- Tilting or cracking of concrete floors and foundations
- Broken water lines and other underground utilities
- Leaning telephone poles, trees, retaining walls or fences
- Offset fence lines
- Sunken or down-dropped road beds
- Rapid increase in creek water levels, possibly accompanied by increased turbidity (soil content)
- Sudden decrease in creek water levels though rain is still falling or just recently stopped
- Sticking doors and windows, and open spaces indicating jambs and frames out of plumb
- A faint rumbling sound that increases in volume as the landslide nears
- Unusual sounds, such as trees cracking or boulders knocking together.

## 12.3 SECONDARY HAZARDS

Common secondary effects of landslides are access limitations due to impassable roads and disruption of critical services due to landslide damage to power lines, telephone lines or water lines. In the case of damage to roads, the community may feel more significant economic and safety impacts due to the loss of function of the roadways, in addition to the damage to roads themselves. Many of the roadways throughout the County provide the only direct access from one community to another, or potentially the only access to certain remote areas. This reduction in access can increase the response time of emergency vehicles, creating a potentially serious threat to public safety in these areas. Damage to police stations, fire stations, and other emergency service facilities can weaken a community's ability to respond in the crucial hours and days following an event. Additional secondary effects include impacts on tourism, and thus the local economy, through activities such as camping, hiking, hunting, and fishing. Landslide debris can also partially or fully block rivers, in which case the potential for significant flooding exists.

Landslides can cause several types of secondary effects, such as blocking access to roads, which can isolate residents and businesses and delay commercial, public and private transportation. This could result in economic losses for businesses. Other potential problems resulting from landslides are power and communication failures. Vegetation or poles on slopes can be knocked over, resulting in possible losses to power and communication lines. Landslides also have the potential of destabilizing the foundation of structures, which may result in monetary loss for residents. They also can damage rivers or streams, potentially harming water quality, fisheries and spawning habitat.

## 12.4 CLIMATE CHANGE IMPACTS

Climate change may impact storm patterns, increasing the probability of more frequent, intense storms with varying duration. Increase in global temperature could affect the snowpack and its ability to hold and store water. Warming temperatures also could increase the occurrence and duration of droughts, which would increase the probability of wildfire, reducing the vegetation that helps to support steep slopes. Additionally, warming temperatures may contribute to insect infestations that adversely impact forest health and make forests more susceptible to wildfire. All of these factors would increase the probability for landslide occurrences.

## 12.5 EXPOSURE

### 12.5.1 Population

The population exposed to landslide hazards in the county was estimated based on the Colorado State Demography Office estimate of average household size in Park County in 2018 (2.25 people) and the number of residential parcels (including residential and mobile home) within areas of past landslide debris. Based on this data, an estimated 538 people live in areas of past landslide debris. This estimate assumes there is one household on each residential parcel.

### 12.5.2 Property

Shown in Table 12-1 are all of the parcels in the county that are exposed to landslide hazards in areas of past landslide debris. No parcels in the town of Fairplay are in areas of past landslide debris.

Table 12-1 Total Number of Parcels Exposed to Landslide Hazards in Areas of Landslide Debris

Land Type	Land Type Count	Sum of Land Value
Not Designated	38	\$0.00
Agricultural	86	\$862,790.41
Exempt	95	\$197,663,286.22
Mining	216	\$2,477,403.24
Mixed Use-Commercial	2	\$512,585.40
Mixed Use-Agricultural Residential	22	\$1,392,555.35
Mobile Home	3	\$228,482.72
Residential	236	\$17,945,722.04
Vacant Land	560	\$16,062,332.13
Grand Total	1258	\$237,145,157.51

### 12.5.3 Critical Facilities and Infrastructure

No critical facilities in the county have been identified in landslide debris areas. However, critical facilities and infrastructure in areas vulnerable to landslides such as steep slopes or near wildfire burn scars would be at a higher risk from mass movements. A significant amount of infrastructure can be exposed to mass movements:

- **Roads**—Access to major roads is crucial to life-safety after a disaster event and to response and recovery operations. Landslides can block egress and ingress on roads, causing isolation

for neighborhoods, traffic problems and delays for public and private transportation. This can result in economic losses for businesses.

- **Bridges**—Landslides can significantly impact road bridges. Mass movements can knock out bridge abutments or weaken the soil supporting them, making them hazardous for use.
- **Power Lines**—Power lines are generally elevated above steep slopes; but towers supporting them can be subject to landslides. A landslide could trigger failure of the soil underneath a tower, causing it to collapse and ripping down the lines. Power and communication failures due to landslides can create problems for vulnerable populations and businesses.

### 12.5.3 Environment

Environmental problems as a result of mass movements can be numerous. Landslides that fall into streams may significantly impact fish and wildlife habitat, as well as affecting water quality. Hillsides that provide wildlife habitat can be lost for prolonged periods of time due to landslides.

## 12.6 VULNERABILITY

Because the conditions that cause a landslide are extremely site specific, the impacts of an individual landslide can vary greatly. Landslides can damage or potentially destroy anything in the path of the slide including homes, businesses, roads, and utilities. The precise impacts of a landslide will depend on the specific characteristics of the slide, as well as the level of development in the slide area.

Due to the extreme steep slopes in the mountainous areas of Park County, virtually all of the development in the area is at moderate risk to the effects of landslides. The vulnerability of specific structures and assets can only be determined by a detailed investigation of the site characteristics, primarily the proximity to at-risk slopes. A majority of the unincorporated areas throughout the County have extremely steep slopes. The potential for landslide damage to structures in these areas could be moderate. Areas affected by wildfires also have seen increased activity and risk of landslides. In particular, areas around Bailey and Lake George have seen increased landslide risk due to soil instability and from sediment and debris left by wildfires. These landslides have the potential to affect both infrastructure and private property in those particular areas.

Based on past occurrences, the most vulnerable assets located within Park County are its roadways. Many of the roads in the area traverse steep slopes increasing the vulnerability to damage. The damage to a roadway affected by a landslide can vary from partial blockage to total destruction.

### 12.6.1 Population

Due to the nature of census block group data, it is difficult to determine demographics of populations vulnerable to mass movements. In general, all persons exposed to higher risk landslide areas are considered to be vulnerable. Increasing population and the fact that many homes are built on view property atop or below bluffs and on steep slopes subject to mass movement, increases the number of lives endangered by this hazard.

### 12.6.2 Property

Although complete historical documentation of the landslide threat in the planning area is lacking, the landslides of 1997 and 2006 suggest a significant vulnerability to such hazards. The millions of dollars in damage countywide attributable to mass movement during those storms affected private property and public infrastructure and facilities.

### 12.6.3 Critical Facilities and Infrastructure

A more in-depth analysis of the mitigation measures taken by these facilities to prevent damage from mass movements should be done to determine if they could withstand impacts of a mass movement. Several types of infrastructure are exposed to mass movements, including transportation, water and sewer and power infrastructure. Highly susceptible areas of the county include mountain roads and transportation infrastructure. At this time all infrastructure and transportation corridors identified as exposed to the landslide hazard are considered vulnerable until more information becomes available.

### 12.6.4 Environment

The environment vulnerable to landslide hazard is the same as the environment exposed to the hazard.

## 12.7 FUTURE TRENDS IN DEVELOPMENT

The County and its planning partners are equipped to handle future growth within landslide hazard areas. Landslides are addressed in the Park County Land Use Regulations and the Aquatic Habitat Assessment and Enhancement Plan.

The County has adopted the International Building Code (IBC). The IBC includes provisions for geotechnical analyses in steep slope areas that have soil types considered susceptible to landslide hazards. These provisions assure that new construction is built to standards that reduce the vulnerability to landslide risk.

## 12.8 ISSUES

Further information regarding landslide hazards in Colorado is available in the Colorado Landslide HMP, published in 1988 as Colorado Geologic Survey Bulletin 48. While none of the 49 specific locations identified in the plan as posing the most serious landslide threats in Colorado are in Park County, the plan includes useful background information which may be helpful to officials in Park County and Alma. That background information includes guidance on the evaluation and communication of landslide hazards, descriptions of specific mitigation concepts, and recommendations for implementation of mitigation by the State of Colorado, local governments, and private entities. Downloadable versions of the 1988 plan and a 2002 update to that plan are available at the website of the Colorado Division of Emergency Management.

The Colorado Geological Survey performs subdivision development reviews to ensure that potential geologic problems have been identified, and if so, adequately addressed. These reviews are required to be submitted by County planning departments for new subdivisions (voluntary for cities or towns) as required by Senate Bill 35 (1972). School sites must be submitted by school districts as directed by House Bill 1045 (1984). Other proposed uses including airports, landfills, water treatment plants, utility rights of way, highway rights of way, as well as the effects of large developments such as mines and ski areas are required to be reviewed under House Bill 1041 (1974).

Important issues associated with landslides in the planning area include the following:

- There are homes in landslide risk areas throughout the County. The degree of vulnerability of these structures depends on the codes and standards the structures were constructed to. Information to this level of detail is not currently available.
- Future development could lead to more homes in landslide risk areas.
- Mapping and assessment of landslide hazards are constantly evolving. As new data and science become available, assessments of landslide risk should be reevaluated.
- The impact of climate change on landslides is uncertain. If climate change impacts atmospheric conditions, then exposure to landslide risks is likely to increase.

- Landslides may cause negative environmental consequences, including water quality degradation.
- The risk associated with the landslide hazard overlaps the risk associated with other hazards such as earthquake, flood and wildfire. This provides an opportunity to seek mitigation alternatives with multiple objectives that can reduce risk for multiple hazards.

# CHAPTER 13 SEVERE THUNDERSTORM, HAIL, WIND, AND TORNADO

## 13.1 GENERAL BACKGROUND

The threat and impact of severe thunderstorm, hail, and high winds was ranked high by respondents of the Park County community. The hazard ranking aggregate is shown below:

	<i>Probability / Frequency</i> (1=lowest, 5=highest)	<i>Magnitude</i> (1=lowest, 5=highest)	<i>Onset</i> (1=slowest, 5=fastest)	<i>Duration</i> (1=shortest, 5=longest)	<i>Average</i>	<i>Rank</i>
Severe Thunderstorm, Hail, and Wind	4.31	3.00	4.08	2.69	3.79	3

Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. It includes thunderstorms, downbursts, tornadoes, waterspouts, and dust storms.

Severe weather can be categorized into two groups: systems that form over wide geographic areas are classified as general severe weather; those with a more limited geographic area are classified as localized severe weather. Severe weather, technically, is not the same as extreme weather, which refers to unusual weather events at the extremes of the historical distribution for a given area.

### 13.1.1 Thunderstorms

A thunderstorm is a rain event that includes thunder and lightning. A thunderstorm is classified as “severe” when it contains one or more of the following: hail with a diameter of three-quarter inch or greater, winds gusting in excess of 50 knots (57.5 mph), or tornado.

Three factors cause thunderstorms to form: moisture, rising unstable air (air that keeps rising when disturbed), and a lifting mechanism to provide the disturbance. The sun heats the surface of the earth, which warms the air above it. If this warm surface air is forced to rise (hills or mountains can cause rising motion, as can the interaction of warm air and cold air or wet air and dry air) it will continue to rise as long as it weighs less and stays warmer than the air around it. As the air rises, it transfers heat from the surface of the earth to the upper levels of the

**DEFINITIONS**

**Severe Local Storm**—Small-scale atmospheric systems, including tornadoes, thunderstorms, windstorms, ice storms and snowstorms. These storms may cause a great deal of destruction and even death, but their impact is generally confined to a small area. Typical impacts are on transportation infrastructure and utilities.

**Thunderstorm**—A storm featuring heavy rains, strong winds, thunder and lightning, typically about 15 miles in diameter and lasting about 30 minutes. Hail and tornadoes are also dangers associated with thunderstorms. Lightning is a serious threat to human life. Heavy rains over a small area in a short time can lead to flash flooding.

**Tornado**—Funnel clouds that generate winds up to 500 miles per hour. They can affect an area up to three-quarters of a mile wide, with a path of varying length. Tornadoes can come from lines of cumulonimbus clouds or from a single storm cloud. They are measured using the Fujita Scale, ranging from F0 to F5.

**Windstorm**—A storm featuring violent winds. Southwesterly winds are associated with strong storms moving onto the coast from the Pacific Ocean. Southern winds parallel to the coastal mountains are the strongest and most destructive winds. Windstorms tend to damage ridgelines that face into the winds.

atmosphere (the process of convection). The water vapor it contains begins to cool and it condenses into a cloud. The cloud eventually grows upward into areas where the temperature is below freezing. Some of the water vapor turns to ice and some of it turns into water droplets. Both have electrical charges. Ice particles usually have positive charges, and rain droplets usually have negative charges. When the charges build up enough, they are discharged in a bolt of lightning, which causes the sound waves we hear as thunder. Thunderstorms have three stages (see Figure 13-1):

- The *developing stage* of a thunderstorm is marked by a cumulus cloud that is being pushed upward by a rising column of air (updraft). There is little to no rain during this stage but occasional lightning. The developing stage lasts about 10 minutes.
- The *mature stage* is the most likely time for hail, heavy rain, frequent lightning, strong winds, and tornadoes.
- Eventually, a large amount of precipitation is produced and the updraft is overcome by the downdraft beginning the *dissipating stage*. At the ground, the gust front moves out a long distance from the storm and cuts off the warm moist air that was feeding the thunderstorm. Rainfall decreases in intensity, but lightning remains a danger.

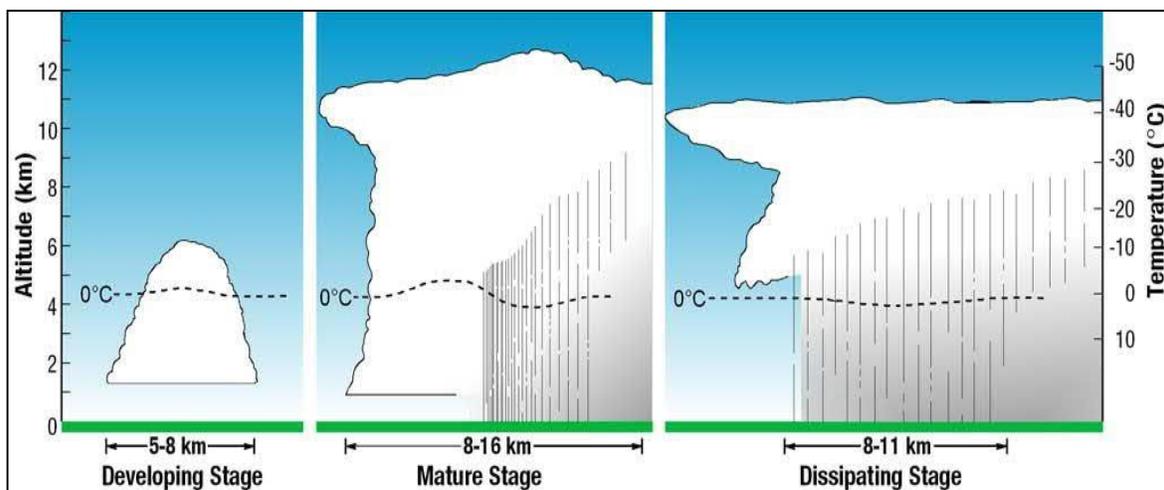


Figure 13-1 The Thunderstorm Life Cycle

The National Weather Service (NWS) considers a thunderstorm severe if it produces hail at least three-quarters of an inch in diameter, has winds of 58 miles per hour or higher, or produces a tornado. Severe thunderstorms are distinguished by stronger winds and heavier rain than the normal thunderstorm. These severe storms have the potential to produce damaging hail, spawn tornadoes, and initiate flash flooding. Thunderstorms may occur singly, in clusters, or in lines. Some of the most severe weather occurs when a single thunderstorm affects one location for an extended time.

### 13.1.2 Hail Storms

Hail occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere where they freeze into ice.

Hailstones grow by wet growth or dry growth. In wet growth, a tiny piece of ice is in an area where the air temperature is below freezing, but not super cold. When the tiny piece of ice collides with a super-cooled drop, the water does not freeze on the ice immediately. Instead, liquid water spreads across tumbling hailstones and slowly freezes. Since the process is slow, air bubbles can escape, resulting in a layer of clear ice. Dry growth hailstones grow when the air temperature is well below freezing and the water droplet freezes immediately as it collides with the ice particle. The air bubbles are “frozen” in place, leaving cloudy ice.

Hailstones can have layers like an onion if they travel up and down in an updraft, or they can have few or no layers if they are “balanced” in an updraft. One can tell how many times a hailstone traveled to the top of the storm by counting its layers. Hailstones can begin to melt and then re-freeze together, forming large and very irregularly shaped hail.

The land area affected by individual hailstorms is not much smaller than that of a parent thunderstorm, an average of 15 miles in diameter around the center of a storm.

### 13.1.3 Damaging Winds

Damaging winds are classified as those exceeding 60 mph. Damage from such winds accounts for half of all severe weather reports in the lower 48 states and is more common than damage from tornadoes. Wind speeds can reach up to 100 mph and can produce a damage path extending for hundreds of miles. There are seven types of damaging winds:

- **Straight-line winds**—Any thunderstorm wind that is not associated with rotation; this term is used mainly to differentiate from tornado winds. Most thunderstorms produce some straight-line winds as a result of outflow generated by the thunderstorm downdraft.
- **Downdrafts**—A small-scale column of air that rapidly sinks toward the ground.
- **Downbursts**—A strong downdraft with horizontal dimensions larger than 2.5 miles resulting in an outward burst or damaging winds on or near the ground. Downburst winds may begin as a microburst and spread out over a wider area, sometimes producing damage similar to a strong tornado. Although usually associated with thunderstorms, downbursts can occur with showers too weak to produce thunder.
- **Microbursts**—A small concentrated downburst that produces an outward burst of damaging winds at the surface. Microbursts are generally less than 2.5 miles across and short-lived, lasting only 5 to 10 minutes, with maximum wind speeds up to 168 mph. There are two kinds of microbursts: wet and dry. A wet microburst is accompanied by heavy precipitation at the surface. Dry microbursts, common in places like the high plains and the intermountain west, occur with little or no precipitation reaching the ground.
- **Gust front**—A gust front is the leading edge of rain-cooled air that clashes with warmer thunderstorm inflow. Gust fronts are characterized by a wind shift, temperature drop, and gusty winds out ahead of a thunderstorm. Sometimes the winds push up air above them, forming a shelf cloud or detached roll cloud.
- **Derecho**—A derecho is a widespread thunderstorm wind caused when new thunderstorms form along the leading edge of an outflow boundary (the boundary formed by horizontal spreading of thunderstorm-cooled air). The word “derecho” is of Spanish origin and means “straight ahead.” Thunderstorms feed on the boundary and continue to reproduce. Derechos typically occur in summer when complexes of thunderstorms form over plains, producing heavy rain and severe wind. The damaging winds can last a long time and cover a large area.
- **Bow Echo**—A bow echo is a linear wind front bent outward in a bow shape. Damaging straight-line winds often occur near the center of a bow echo. Bow echoes can be 200 miles long, last for several hours, and produce extensive wind damage at the ground.

Wind can be one of the most destructive forces of nature. Strong winds can erode mountains and shorelines, and topple trees and buildings. The extent and degree of damages from a high wind event are primarily related to the intensity of the event, measured in terms of wind speed. Sustained high winds can be the most damaging, although a concentrated gust also can cause significant damage. As wind speeds increase, the extent of damage varies depending on a number of site-specific characteristics that will be discussed later in this chapter.

## 13.2 HAZARD PROFILE

### 13.2.1 Past Events

Park County's largest event in recent history was a FEMA Disaster Declaration declared in July 15, 2015, for an incident period of May 04, 2015, through June 16, 2015, that included 14 counties in the declaration and involved severe storms, tornadoes, flooding, landslides, and mudslides. It ultimately resulted in \$26,103,962 in public assistance grants (FEMA 2015).

Additionally, Park County was impacted by the following storm events from 2005 through 2019 (NOAA, n.d.[b]):

- 16 hail events (7 since 2016) including one 2.75 magnitude hail event in Lake George June 19, 2018.
- 74 high wind or thunderstorm wind events
- Three lightning events (Guffey in 2008, Fairplay in 2010, and Lake George in 2018)
- One heavy rain event in Lake George in September 2019
  - Multiple tornadoes (listed in Table 13-1)

Table 13-1 Tornadoes Recorded in Park County

Starting Location	Date	Description
HARTSEL	7/23/2018	A tornado touched down briefly in open country near Hartsel. Severe thunderstorms in Aurora produced estimated wind gusts up to 70 miles per hour (mph) that downed a tree that damaged a house. Hail the size of nickels was reported in Douglas County. Thunderstorms produced heavy rain and localized street flooding in North Denver.
ANTERO JCT	7/5/2018	Isolated severe thunderstorms developed in Douglas and Park counties. A tornado touched down briefly in Park County, but no damage was reported.
FAIRPLAY	6/8/2014	An upper level weather disturbance and its associated cold front moved across northern Colorado during the late morning and afternoon; spawning several tornadoes, damaging wind, large hail, very heavy rainfall. Nine tornadoes touched down across northeast Colorado. Three of the tornadoes occurred in Park County, at elevations of 8,000–10,000 feet. The first tornado occurred 8 miles south-southwest of Fairplay; it damaged the roof of a residence and was assigned a rating of EF-1. The second tornado developed 6 miles southeast of Fairplay in open country. The third tornado developed 4 miles west of Lake George; it was given a rating of EF-2. The last tornado caused damage to some homes and overturned several recreational vehicles at an RV park. Several power lines were also downed and some buildings in the town of Lake George were damaged, and trees were also snapped from their bases. This tornado then passed into Teller County.
FAIRPLAY	6/8/2014	
LAKE GEORGE	6/8/2014	
LAKE GEORGE	8/18/2009	A tornado touched down in Park County near Lake George. In spite of its nearly 10-mile storm track, the damage associated with the tornado was relatively minor.
LAKE GEORGE	8/23/2008	In Park County at Eleven Mile Reservoir, a waterspout caused damage when it transitioned into a landspout. Five vehicles were damaged, including a motor home and a pickup truck with a camper that overturned. One camp trailer was completely destroyed. Several people suffered superficial injuries which consisted of minor cuts and scrapes. In Douglas County near Westcreek, another landspout touched down. One man was seriously injured when he tried to escape several falling trees in his ATV. One of the trees struck his back and broke two vertebrae. Another camper narrowly escaped injury. Seconds after he backed up his truck, a tree came down where his vehicle had been parked.

Colorado ranks among the top 10 states for lightning fatalities. Figure 13-2 shows lightning deaths by state between 2008-2017. Most lightning fatalities nationwide occur from leisure activities, like fishing, camping, and boating (Jensenius 2019).

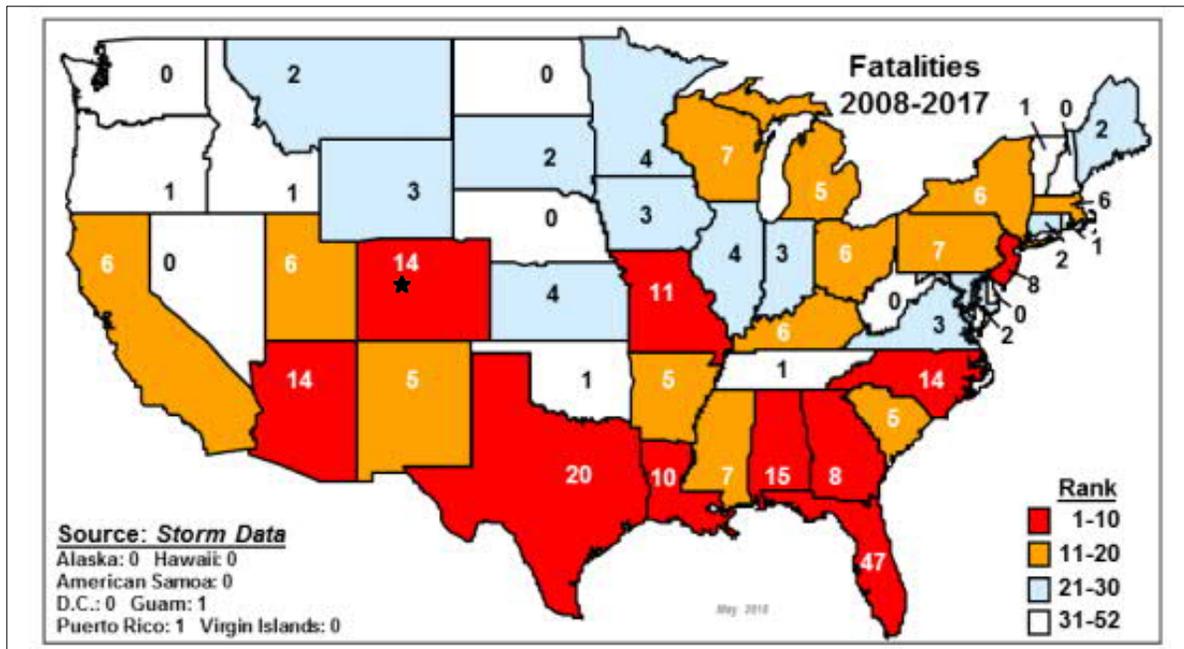


Figure 13-2 Lightning Fatalities in the United States, 2008-2017

Source: National Weather Service, [www.lightningsafety.noaa.gov/](http://www.lightningsafety.noaa.gov/)

### 13.2.2 Location

Severe weather events have the potential to happen anywhere in the planning area. Communities in low-lying areas next to streams or lakes are more susceptible to flooding. Wind events are most damaging to areas that are heavily wooded.

Severe thunderstorms have affected every portion of Park County. There are no proven indicators to predict where a thunderstorm may occur and they can often be expansive enough to affect the entire area. While Park County has experienced historical thunderstorms, hail storms, and wind events, there are currently no maps showing which specific portions of the county were affected by historical storm events. Likewise, there are currently no maps showing which portions of Park County could potentially be impacted at a future point in time by thunderstorms, hail storms, or wind events. Therefore, it is not possible to identify specific sections of Park County where thunderstorms are more likely to occur. However, very specific and localized geography can contribute to potential damages caused by these events, such as flooding, lightning-induced forest fires and winds in excess of 100 miles per hour. The entire County is considered to have an equal risk of being impacted by a thunderstorm event.

It should be noted that a natural lightning belt runs through a portion of Park County on the east side, from Cheesman Reservoir through Lake George and up into the Lost Park Wilderness Area. Within the Cheesman Lightning Belt there is a high risk of lightning strikes and fires resulting from those strikes within Park County.

### 13.2.3 Frequency

As indicated by the frequency of storm events in Section 13.2.1, Park County can expect to experience exposure to some type of severe weather event at least annually.

Severe thunderstorms, for example, can occur throughout the year, although historical records indicate that in Park County the majority occur between April and October. Effects from severe thunderstorms can be high winds, heavy rain (possibly causing flooding), potentially life-threatening lightning, and hail.

Hailstorms occur more frequently in the late spring and throughout the summer. The hail season in Colorado is March through October, with June having the highest frequency of storms producing hail. The majority of hailstorms occur along the Front Range to the eastern plains. However, records indicate that Park County has endured damaging hail storms on a regular basis since records began being kept.

### 13.2.4 Severity

The most common problems associated with severe storms are immobility and loss of utilities. Fatalities are uncommon, but they can occur. Roads may become impassable due to flooding, downed trees, or a landslide. Power lines may be downed due to high winds or downed trees or branches, and services such as water or phone may not be able to operate without power. Lightning can cause severe damage and injury.

Large hail, and the glass it may break, can injure people and animals. Hail can be smaller than a pea, or as large as a softball, and can be very destructive to automobiles, glass surfaces (e.g., skylights and windows), roofs, plants, and crops. The size of hailstones is a direct function of the severity and size of the storm.

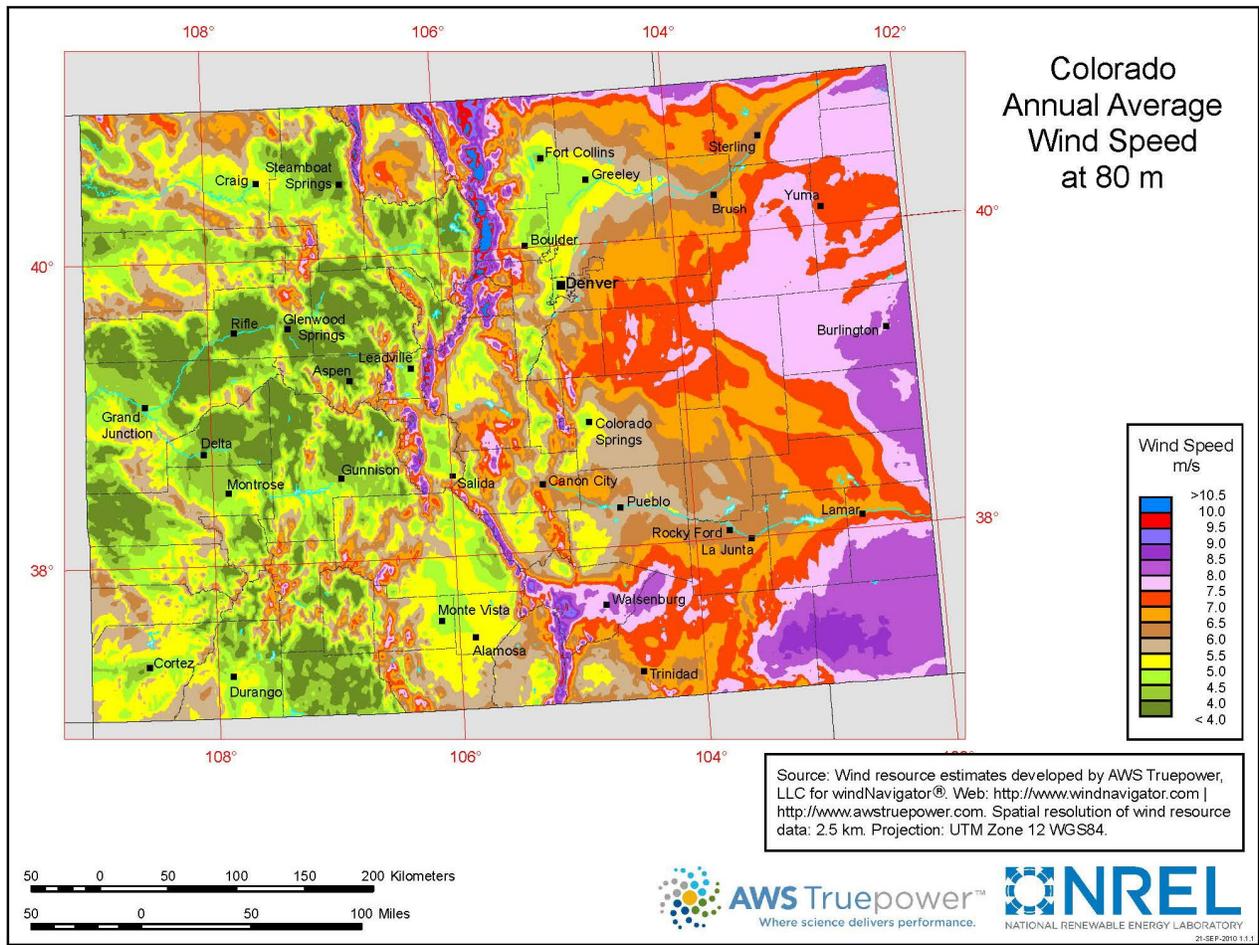
Windstorms can be a frequent problem in the planning area and have been known to cause damage to utilities. The predicted wind speed given in wind warnings issued by the National Weather Service is for a one-minute average; gusts may be 25 to 30 percent higher.

Damaging wind events in Park County typically occur in the form of straight-line wind events which often accompany severe thunderstorms. Depending on the type of wind event, the damage sustained can range from extremely localized to widespread and from moderate to devastating. The potential impacts of a severe wind event depend on the specific characteristics but can include broken tree branches and uprooted trees; snapped power, cable, and telephone lines; damaged radio, television, and communication towers; damaged and torn off roofs; blown out walls and garage doors; overturned vehicles; totally destroyed homes and businesses; and serious injury and loss of life. Downed trees and power lines can fall across roadways and block key access routes, as well as cause extended power outages.

Central Colorado is classified as an area with a higher than average base wind speed nationally. According to the American Society of Civil Engineers *Minimum Design Loads for Buildings and other Structures* (ASCE 7-98), the design wind speed for Park County is 110 mph (Park County 2012). This threshold is intended to represent the potential base wind event, not winds associated with a tornado. Wind power classifications across Colorado are shown on Figure 13-3. Figure 13-4 shows wind zones across the United States.

Tornadoes are potentially the most dangerous of local storms, but they are not common in the planning area. If a major tornado were to strike within the populated areas of the county, damage could be widespread. Businesses could be forced to close for an extended period or permanently, fatalities could be high, many people could be homeless for an extended period, and routine services such as telephone or power could be disrupted. Buildings may be damaged or destroyed. Park County has no reported deaths from tornadoes.

Lightning is very unpredictable, which increases the risk to individuals and property. In the United States, 75 to 100 people are killed each year by lightning, although most lightning victims do survive. Persons struck by lightning often report a variety of long-term, debilitating symptoms, including memory loss, attention deficits, sleep disorders, numbness, dizziness, stiffness in joints, irritability, fatigue, weakness, muscle spasms, depression, and an inability to sit for long periods. It is a myth that lightning never strikes the same place twice. In fact, lightning will strike several times in the same place in the course of one discharge.



Source: United States Department of Energy (n.d.)

Figure 13-3 Colorado Annual Average Wind Speed at 80 Meters.

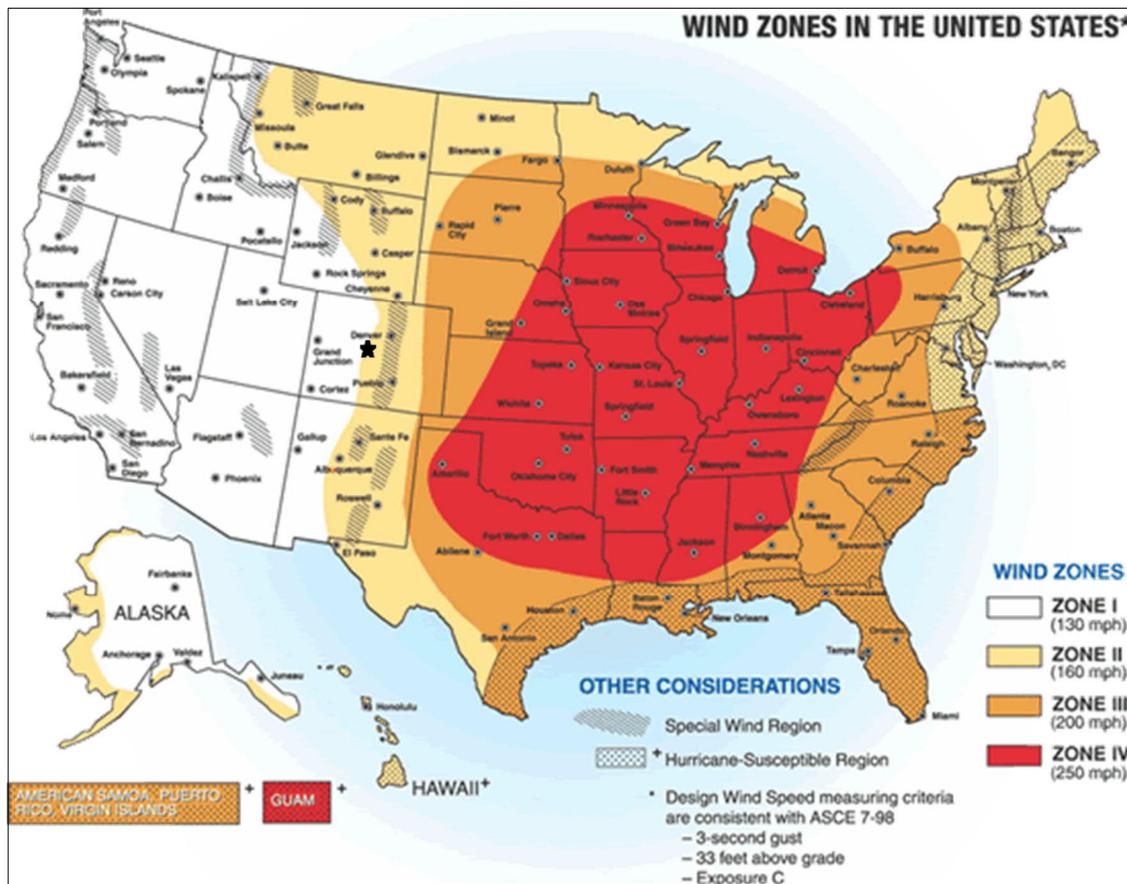


Figure 13-4 Wind Zones in the United States

### 13.2.5 Warning Time

Meteorologists can often predict the likelihood of a severe storm. This can give several days of warning time. However, meteorologists cannot predict the exact time of onset or severity of the storm. Some storms may come on more quickly and have only a few hours of warning time.

### 13.3 SECONDARY HAZARDS

The most significant secondary hazards associated with severe local storms are floods, falling and downed trees, landslides and downed power lines. Rapidly melting snow combined with heavy rain can overwhelm both natural and man-made drainage systems, causing overflow and property destruction. Landslides occur when the soil on slopes becomes oversaturated and fails.

Because severe thunderstorms can include high winds, heavy rain, lightning, and hail, there is a potential for a variety of secondary effects. Some common secondary effects of severe thunderstorms are downed trees and power lines, wind damage to buildings and vehicles, flooding impacts to infrastructure and utilities, wildfires and building fires ignited by lightning, and hail damage to buildings, vehicles and crops. The specific impacts of flooding and wildfires are discussed further in other sections of this Plan. Other secondary effects of severe thunderstorms can include disruption of critical services such as water, electrical, and telephone services. Damage to police stations, fire stations, and other emergency service facilities can weaken a community’s ability to respond in the crucial hours and days following an event. Additional secondary effects include impacts on tourism, and thus the local economy, through activities

such as camping, hiking, hunting, and fishing. Secondary effects of high winds include falling trees that are standing dead. When beetle infestation problems worsen in Park County, the effects of these winds will be exacerbated.

## 13.4 CLIMATE CHANGE IMPACTS

Climate change presents a significant challenge for risk management associated with severe weather. The frequency of severe weather events has increased steadily over the last century. Historical data shows that the probability for severe weather events increases in a warmer climate (see Figure 13-5). The changing hydrograph caused by climate change could have a significant impact on the intensity, duration and frequency of storm events. All of these impacts could have significant economic consequences.

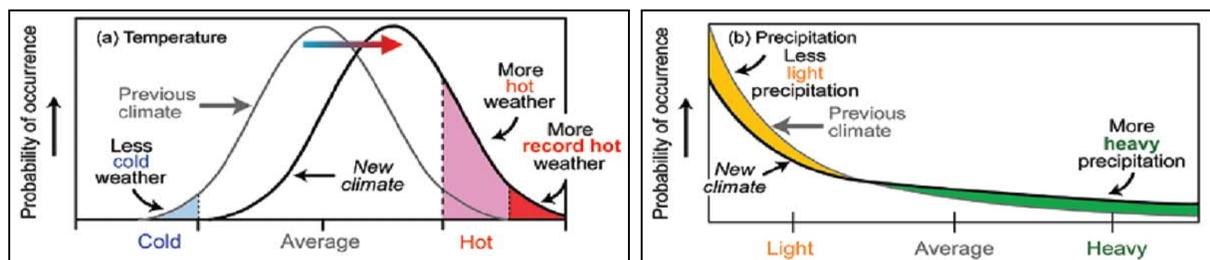


Figure 13-5 Severe Weather Probabilities in Warmer Climates

## 13.5 EXPOSURE

### 13.5.1 Population

A lack of data separating severe weather damage from flooding and landslide damage prevented a detailed analysis for exposure and vulnerability. However, it can be assumed that the entire planning area is exposed to some extent to severe weather events. Certain areas are more exposed due to geographic location and local weather patterns. Populations living at higher elevations with large stands of trees or power lines may be more susceptible to wind damage and black out, while populations in low-lying areas are at risk for possible flooding.

### 13.5.2 Property

The predominant building type in Park County is residential. It is estimated that 20 percent of the residential structures in the county were built without the influence of a structure building code with provisions for wind loads. All of these buildings are considered to be exposed to the severe weather hazard, but structures in poor condition or in particularly vulnerable locations (located on hilltops or exposed open areas) may risk the most damage. The frequency and degree of damage will depend on specific locations.

### 13.5.3 Critical Facilities and Infrastructure

All critical facilities exposed to flooding (Chapter 9) are also likely exposed to severe weather. Additional facilities on higher ground may also be exposed to wind damage or damage from falling trees. The most common problems associated with severe weather are loss of utilities. Downed power lines can cause blackouts, leaving large areas isolated. Phone, water and sewer systems may not function. Roads may become impassable due to ice or snow or from secondary hazards such as landslides.

### 13.5.4 Environment

The environment is highly exposed to severe weather events. Natural habitats such as streams and trees are exposed to the elements during a severe storm and risk major damage and destruction. Prolonged rains can saturate soils and lead to slope failure. Flooding events caused by severe weather or snowmelt can produce

river channel migration or damage riparian habitat. Storm surges can erode beachfront bluffs and redistribute sediment loads.

## 13.6 VULNERABILITY

### 13.6.1 Population

Vulnerable populations are the elderly, low income or linguistically isolated populations, people with life-threatening illnesses, and residents living in areas that are isolated from major roads. Power outages can be life threatening to those dependent on electricity for life support. Isolation of these populations is a significant concern. These populations face isolation and exposure during severe weather events and could suffer more secondary effects of the hazard.

Population density is an important factor when analyzing vulnerability to high wind events. The highest potential for damages, injuries, and loss of life is where the highest concentration of development exists. The population density in Park County varies, however, and areas of higher density are present. Therefore, these have a higher potential vulnerability to damage and loss of life in a high wind event.

### 13.6.2 Property

All property is vulnerable during severe weather events, but properties in poor condition or in particularly vulnerable locations may risk the most damage. Those in higher elevations and on ridges may be more prone to wind damage. Those that are located under or near overhead lines or near large trees may be vulnerable to falling ice or may be damaged in the event of a collapse.

#### ***Design Wind Pressures***

Buildings must be designed to withstand both external and internal wind pressures on the structural framing and exterior elements. The level to which these structures are designed, as expected, directly correlates with its ability to resist damages due to high winds. The community's building code dictates to what design wind speed a structure must be designed to; as noted previously, the design wind speed for Park County is 110 mph (Park County 2012). The County does have an adopted building code. For some building types, those structures constructed subsequent to the adoption of the building code are the most likely to be the most resistant to damages from wind. However, no comprehensive data on the date built for these structures exists for Park County.

#### ***Building Type***

The type of building construction will have a significant impact on potential damages from high wind events. A summary of basic building types – listed in order of decreasing vulnerability (from most to least vulnerable) – is provided below.

- **Mobile:** This is typically a light steel frame structure that is attached to a chassis and remains on wheels during occupancy. Park County allows mobile homes only in mobile home parks.
- **HUD:** This category of structure is built to HUD standards, not IRC standards, and therefore may not meet location-specific wind and snow load criteria. Some HUDs also qualify as Mobile, as they can remain on wheels. HUDs can also be set on permanent foundations.
- **Non-Engineered Structures:** Currently all structures in Park County must be engineered except for agricultural structures and single-story residential accessory structures. These structures, along with structures built prior to the engineering requirement, may not be sufficient for the wind and snow loads to which they are subjected.

- **Manufactured and Modular:** These building types include off-site manufactured buildings that are produced in large numbers. Park County requires that they meet IRC or IBC standards. They are state-regulated and not necessarily inspected throughout construction at the off-site location.
- **Fully Engineered:** Except as noted above, Park County requires that residential and commercial structures be engineered to ensure they meet the site wind and snow load criteria. They are also required to meet IRC or IBC standards. They are inspected at milestones throughout the construction process.

Park County includes a variety of building types. Residential construction is primarily wood framed, varying from single story to multiple stories, although some masonry residential properties are present as well. Commercial construction is most commonly steel structure, although there has been an increase in steel residential structures. Engineered structures are least vulnerable to wind damage.

Other building related factors include height, shape, and the integrity of the building envelope. Taller buildings and those with complex shapes and complicated roofs are subject to higher wind pressures than those with simple configurations. The building envelope is composed of exterior building components and cladding elements including doors and windows, exterior siding, roof coverings, and roof sheathing. Any failure or breach of the building envelope can lead to increased pressures on the interior of the structure, further damage to contents and framing, and possible collapse.

**Estimating Losses**

Potential damages due to a wind event can be estimated based on specific characteristics of a structure and a potential wind speed. The FEMA Benefit Cost module, used for estimating the benefits of potential wind mitigation projects, contains a wind damage function based on building type, and potential wind speed. This wind damage function expresses the potential damage to a building as a percentage of the buildings replacement value, and potential damages to a building’s contents as a percentage of the value of its contents. For use in this module, FEMA separates structures according to the building types described in the Vulnerability Analysis.

Using these building types, and the potential wind speeds for Park County, potential damages can be expressed in terms of a percentage of the building and content values. ASCE 7-98 categorizes the South Central Colorado area as a 90-mph wind zone, based on a 50-year recurrence interval. Based on ASCE 7, the potential wind speed for an event with a 100-year recurrence interval was estimated to be 107 percent of the 50-year wind speed, or 96.3 mph. Table 13-2 includes estimates of potential damage of the specific building types in Park County for the 50- and 100-year interval wind event. It should be noted that the 100-year wind speed assumed corresponds with an F1 category tornado on the Fujita scale. Damages from the impact of a tornado stronger than an F1 could greatly exceed these estimates.

Table 13-2 Potential Severe Weather Events

Building Type	50-Year Event (90 mph)		100-Year Event (96.3 mph)	
	Building Damage	Contents Damage	Building Damage	Contents Damage
Light Engineered	5%	2.5%	15%	15%
Non-engineered wood	7.5%	5%	20%	20%
Non-engineered masonry	5%	2.5%	15%	15%
Fully Engineered	2.5%	2.5%	5%	15%
Manufactured Homes	25%	40%	50%	100%

Loss estimations for the severe weather hazard are not based on damage functions, because no such damage functions have been generated. Instead, loss estimates were developed representing 10 percent, 30 percent

and 50 percent of the assessed value of exposed structures. This allows emergency managers to select a range of potential economic impact based on an estimate of the percent of damage to the general building stock. Damage in excess of 50 percent is considered to be substantial by most building codes and typically requires total reconstruction of the structure.

### **13.6.3 Critical Facilities and Infrastructure**

Incapacity and loss of roads are the primary transportation failures resulting from severe weather, mostly associated with secondary hazards. Landslides caused by heavy prolonged rains can block roads. High winds can cause significant damage to trees and power lines, blocking roads with debris, incapacitating transportation, isolating population, and disrupting ingress and egress. Of particular concern are roads providing access to isolated areas and to the elderly.

Prolonged obstruction of major routes due to landslides, debris or floodwaters can disrupt the shipment of goods and other commerce. Large, prolonged storms can have negative economic impacts for an entire region.

Severe windstorms and downed trees can create serious impacts on power and above-ground communication lines. Loss of electricity and phone connection would leave certain populations isolated because residents would be unable to call for assistance.

### **13.6.4 Environment**

The vulnerability of the environment to severe weather is the same as the exposure.

## **13.7 FUTURE TRENDS IN DEVELOPMENT**

All future development will be affected by severe storms. The ability to withstand impacts lies in sound land use practices and consistent enforcement of codes and regulations for new construction. The planning partners have adopted the International Building Code. This code is equipped to deal with the impacts of severe weather events. Land use policies identified in general plans within the planning area also address many of the secondary impacts (flood and landslide) of the severe weather hazard. With these tools, the planning partnership is well equipped to deal with future growth and the associated impacts of severe weather.

## **13.8 ISSUES**

Important issues associated with a severe weather in the planning area include the following:

- Older building stock in the planning area is built to low code standards or none at all. These structures could be highly vulnerable to severe weather events such as windstorms.
- RVs and mobile homes also would be highly vulnerable to damage and potentially being tipped over, which increases the possibility for injuries to people.
- Redundancy of power supply must be evaluated.
- The capacity for backup power generation is limited.
- Isolated population centers.

## CHAPTER 14 EPIDEMIC/PANDEMIC

### 14.1 General Background

The epidemic/pandemic hazard was not ranked for the update process. Due to the emerging pandemic of Coronavirus Disease 2019 (COVID-19), the HMC determined later in the planning process that epidemic/pandemic should be addressed as a hazard in this plan update.

Epidemics of infectious diseases are occurring more often, spreading faster and further all over the world. Diseases that are occurring are both newly-discovered and re-emerging (WHO 2018). For example, Severe Acute Respiratory Syndrome (SARS) was unheard of before 2003, and an outbreak of the plague occurred in Madagascar in 2017 (WHO 2018). Diseases very rarely disappear and new ones are constantly being discovered (WHO 2018). Magnifying vulnerability to both newly-discovered and re-emerging diseases are new strains of pathogens and anti-vaccination movements.

Outbreaks may occur on a periodic basis (e.g., influenza), may be rare but result in a severe disease (e.g., meningococcal meningitis), occur after a disaster (e.g., cholera), or occur due to an intentional release of an agent (e.g., bioterrorism). Agents causing outbreaks can be viruses, bacteria, parasites, fungi, or toxins, and can be spread by people, contaminated food or water, healthcare procedures, animals, insects and other arthropods, or directly from the environment. An individual may be exposed by breathing, eating, drinking, or having direct contact. Some agents have multiple means of spreading, while others are only spread person to person.

Epidemics can spread more widely and quickly than before, potentially affecting ever-greater numbers of people, having a significant impact of the economy of the affected community and spilling over into the global economy, disrupting travel, trade and livelihoods (WHO 2018). Local outbreaks can overwhelm medical facilities, and a pandemic could jeopardize essential community services by causing critical positions to go unfilled.

Basic public services such as health care, law enforcement, fire and emergency response, communications, transportation, and utilities could be disrupted or severely reduced. The length of the epidemic or pandemic would stress societal systems and local and outside resources.

#### **DEFINITIONS**

**Cluster** – An aggregation of cases grouped in place and time that are suspected to be greater than the number expected.

**Endemic** – Refers to the constant presence and/or usual prevalence of a disease or infectious agent in a population within a geographic area.

**Epidemic** – An increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area.

**Hyperendemic** – Persistent, high levels of disease occurrence.

**Outbreak** – The same definition of epidemic, but is often used for a more limited geographic area, jurisdiction, or group of people.

**Pandemic** – An epidemic that has spread over several countries or continents, usually affecting many people.

**Sporadic** – Refers to a disease that occurs infrequently or irregularly.

**Medical Countermeasures** – Life-saving medicines and medical supplies that can be used to diagnose, prevent, protect from, or treat conditions associated with chemical, biological, radiological, or nuclear threats, emerging infectious disease, or natural disaster.

## 14.2 Hazard Profile

Park County has a higher rate of student vaccine exemptions when compared to the State of Colorado. Data for the 2018 to 2019 school year from the Department of Public Health and Environment shows an average fully immunized rate of 90 percent for all 590 students (CDPHE 2019a). The two most exempted vaccines are the measles, mumps, and rubella and Varicella vaccines, both at a 9 percent exemption rate. These high exemption rates contributing to low immunization coverage rates are below the recommended immunization percentages necessary to allow for herd immunity in the community.

Imported foods have been linked to Salmonella outbreaks; warmer-than-usual water and air can cause more bacterial growth in ocean waters, contaminating shellfish and increasing chances to an infectious outbreak. Epidemics and outbreaks don't need to start in the county to affect it; because the county is close to the Denver metropolitan area and is a tourist destination, there is a higher probability for a spread of an infectious disease from a visitor or tourist.

Disease outbreaks could also be associated with bioterrorism. Bioterrorism is the intentional release of viruses, bacteria, or other germs that can sicken or kill people, livestock, or crops. These types of attacks are identified as high importance. These events could result in high mortality rates. Six potential agents could pose the greatest threat to the area including: anthrax, botulism, plague, smallpox, tularemia, and viral hemorrhagic fevers.

### 14.2.1 Past Events

The highly contagious measles virus, which was declared eliminated in 2000, has reemerged throughout the United States with cases confirmed in 31 states, including Colorado. There were over 1,200 new cases of the measles virus in 2019 compared to 375 new cases in 2018 (CDC 2019). Colorado only experienced one case of measles in 2019 (CDPHE 2019b).

During the time of this plan update, the world was grappling with the COVID-19, a respiratory illness that can spread from person to person. On March 26<sup>th</sup>, 2020, the Governor ordered all Coloradans to stay home until mid-April. As of March 29<sup>th</sup>, 2020, there were 3 confirmed cases of COVID-19 in Park County (Park County 2020). As the pandemic is an ongoing event and the situation is still evolving, the full consequences of the COVID-19 pandemic will be reviewed during the next HMP update.

### 14.2.2 Location

All of Park County is susceptible to human health hazards and epidemics. Communicable diseases can cause exposure to the county from outside the local region. Local residents who travel or commute can become exposed and bring diseases back into the county. It is difficult to map the extent of an outbreak or epidemic.

### 14.2.3 Frequency

Due to increased air travel, commuters and population growth, the probability of an epidemic or outbreak occurring is growing. The frequency of epidemics is difficult to establish, depending largely on unique circumstances surrounding the outbreak and expansion into epidemics and eventually pandemics.

### 14.2.4 Severity

The severity of a disease or epidemic varies from individual to individual. Typically, vulnerable populations (specifically young children and elderly adults) are more susceptible to acquiring communicable diseases due to immune system challenges and capabilities. In general, severity depends on the pathology of the disease, the health of the individual, vaccinations, and availability of treatments for symptoms or curing the disease.

An infectious disease outbreak in Park County could bring economic, medical, social, and developmental burdens.

### **14.2.5 Warning Time**

Warning time for public health risks varies from a few hours or days to a few months, depending on the illness and outbreak.

## **14.3 Secondary Hazards**

The largest secondary impact caused by an epidemic or outbreak would be economic. The reduction in workforce and labor hours would cause businesses and agencies to be greatly impacted. With a reduced workforce, there may be transportation route closures or supply chain disruptions, resulting in a lack of food, water, or medical resources. Another large and costly secondary impact would be fear or stigmatization, which may result in isolation or social unrest.

Hospitals and public health facilities may be inundated with individuals, including those with the disease and concerned about having contracted it. Additionally, medical workers will become sick and staffing shortages of professional medical personnel can occur. There is a potential for shortages and increased competition for medical supplies; this may lead to a controlled system where all supplies are monitored closely and prioritized. Finally, the disease may mutate, rendering cures and research unusable and contributing to the previously identified secondary impacts.

## **14.4 Climate Change Impacts**

Future climate conditions and continued improvement of the ability to travel will contribute to the development and spread of diseases. Overall warmer temperatures and changes (typically increase) in rainfall can contribute to the spread of some diseases. In warmer temperatures, disease-carrying mosquitos survive longer, transmitting viruses more efficiently. The Zika virus happened during the warmest year on record at the time. Waterborne diseases, such as cholera and biriosis, are becoming more common as the world's waters get warmer. Blooms of toxic algae are occurring more often.

## **14.5 Exposure & Vulnerability**

### **14.5.1 Population**

All residents and visitors in the county could be susceptible to the effects and exposed to infectious disease. A large outbreak or epidemic could have devastating effects on the population. Those with compromised immune systems, children, individuals that are socioeconomic or health disadvantaged, and individuals with access and functional needs are considered some of the most vulnerable to diseases.

### **14.5.2 Property**

Epidemics and diseases would not have a significant measurable impact on property in the county.

### **14.5.3 Critical Facilities**

Health care facilities may reach capacity and become inundated with people. Early identification of shelters, alternate treatment facilities, isolation capacity, and methods to expand resources can help health care facilities and governments cope with an epidemic. However, epidemics and diseases would not have significant measurable impact on the physical condition of critical facilities or infrastructure of the county.

### **14.5.4 Environment**

Epidemics and diseases would not have a significant measurable impact on the environment in the county.

## 14.6 Future Trends in Development

The potential for an epidemic or outbreak is likely to slow expected growth in the county. The possibility of restricting travel and access to and within the county can strain or temporarily negatively affect the tourism industry, which can lead to small businesses closing. Travel restrictions related to epidemics or pandemics could have economic consequences that last longer than the restriction, slowing growth until tourism and the economy recover.

## 14.7 Issues

Important issues associated with epidemics and outbreaks include:

- Providing culturally appropriate preventative health care to changing demographic and aging population, including vaccination and education to help reduce the impacts.
- Overusing and misusing antibiotics, contributing to antibiotic resistance.
- Integrating response efforts by medical and emergency response personnel to provide care when needed.
- Training and supplying medical and response personnel.
- Communicating a clear message to the public with facts about the disease, actions to reduce personal risk, and care options.
- Managing surge capacity for health agencies and to adapt to the rising number and needs of the area.

*Park County Hazard Mitigation Plan Update*

**PART 3 —  
MITIGATION STRATEGY**

# CHAPTER 15 MITIGATION STRATEGY

## 15.1 GENERAL

Chapter 15 describes the County’s mitigation strategy, which is the primary focus of the County’s mitigation planning efforts. This strategy represents the blueprint for the approaches chosen by the County to reduce or prevent losses caused by the hazards identified in Chapters 4 through 15.

The strategy is comprised of three main required components: mitigation goals and objectives, mitigation actions, and a mitigation action plan for implementation (see Figure 15-1). These components provide the framework to identify, prioritize, and implement actions to reduce risk from hazards.



Figure 15-1 Mitigation Strategy Process

## 15.2 MITIGATION GOALS AND OBJECTIVES

 <b>FEMA</b>	C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))
---	--

Park County and its partners established a guiding principle, a set of goals, and specific objectives for hazard mitigation in the 2015 HMP. The guiding principle provides an overarching vision for community resiliency. Mitigation goals are intended to represent what the County and its partners seek to achieve through mitigation plan implementation. The goals are general guidelines and provide a framework for identifying more detailed objectives and actions. The HMC reviewed the goals and objectives from the 2015 HMP and determined that they needed to significantly reframe the goals from the previous plan to reflect the scope of the mitigation phase of emergency management and mitigation priorities. The HMC revised the objectives for goals that were carried forward from the 2015 plan as needed and developed new objectives for the goals that were added in the 2020 plan update.



## **Guiding Principle**

The guiding principle for the plan encompasses the range of objectives and actions to be considered. The guiding principle for the Park County HMP is below.

**“Develop and maintain a disaster resistant community  
that is more resilient to the economic and physical devastation associated  
with all hazard events.”**

## **Goals and Objectives**

The goals and objectives for the 2020 HMP update are listed below.

- **Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions’ daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
  - **Objective 1A:** Incorporate mitigation principles into all other institutional County plans, documents, and practices.
  - **Objective 1B:** Assess current and applicable jurisdictional plans and documents regarding flood management, including inundation from dam failures, to determine what changes and/or additions will be required in future revisions in order to reduce exposure and increase awareness of flood hazards in and to county property, residents and businesses.
- **Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
  - **Objective 2A:** Continually assess ongoing disaster preparedness programs and activities to implement changes that improve disaster preparedness for Park County.
  - **Objective 2B:** Educate the public about disaster preparedness activities and mitigation goals, allowing each citizen the opportunity to reduce personal risk and increase property protection.
- **Goal 3:** Enhance life safety and public welfare by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
  - **Objective 3A:** Ensure that countywide measures are taken to address specific risks to public and private facilities and infrastructure and critical facilities and infrastructure.
  - **Objective 3B:** Develop a funding mechanism for mitigation needs for priority infrastructure.
- **Goal 4:** Protect natural resources from the effects of hazards.
  - **Objective 4A:** Protect drinking water supplies and watersheds from the effects of wildfires.
  - **Objective 4B:** Protect resources used by the recreation industry from the effects of all hazards.

### 15.3 Development of Mitigation Actions

 <b>FEMA</b>	C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for [Park County] being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii) and §201.6(c)(3)(iv))
---	---

A mitigation action is a specific action, project, activity, or process taken to reduce or eliminate long-term risk to people and property from hazards and their impacts. Implementation of mitigation actions helps achieve the region’s mitigation goals and reduce vulnerability to the threats and hazards identified in the plan. Mitigation plan regulations require the County and its partners to identify and analyze a comprehensive range of specific mitigation actions and projects to reduce the impacts identified in the County’s risk assessment.

#### Review of 2015 Hazard Mitigation Actions

As part of the mitigation strategy update, members of the HMC evaluated all mitigation actions identified in the 2015 plan to determine the status of the action and whether any ongoing or incomplete actions should be included as mitigation actions in the 2020 plan update. Members of the HMC worked through each 2015 action following HMC Meeting #2 to document the status of the action. See Appendix F for an overview of the status of all actions from the 2015 plan update.



#### Identification and Analysis of Mitigation Actions

In order to achieve the mitigation goals identified above, the County and its partners have identified a comprehensive range of mitigation objectives and supporting actions that are focused on reducing vulnerability and maximizing loss reduction. The actions can typically be broken out into the following types of activities, as indicated in Table 15-1:

- **Local Plans and Regulations:** Regulatory actions or planning processes that reduce vulnerability to hazards.
- **Structure and Infrastructure Projects:** Actions that involve modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area.
- **Natural Systems Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems.
- **Education and Awareness Programs:** Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them.

Mitigation actions developed by the County and its planning partners are addressed in the mitigation implementation plan provided in Section 15-4. The actions include both short- and long-term strategies for reducing vulnerabilities to hazards and are characterized as such in the “life of action” column of Table 15-6.

Table 15-1 2020 Mitigation Actions by Group

Mitigation Group	Related Mitigation Actions
Local Plans and Regulations	MH-2, DT-1 – DT-3, EQ-1, EQ-2, FL-1, WW-1, WF-3, WF-6, WF-8, DF-1, EP-1, EP-2, MH-6, WF-9, WF-11, WF-12
Structure and Infrastructure Projects	MH-1, MH-3, FL-3, FL-4, DF-2, WF-1, WF-2, SW-1, MH-4, MH-5, WF-12

Table 15-1 2020 Mitigation Actions by Group

Mitigation Group	Related Mitigation Actions
Natural Systems Protection	DT-3, FL-2, WF-2, WF-4, WF-5, WF-7, LS-1, WF-13
Education and Awareness Programs	FL-2, SW-2, FL-5, HM-1, WF-10, MH-7, WF-13, SW-3

### 2020 Mitigation Actions by Hazard

All mitigation actions identified in the plan address at least one of the hazards profiled in Chapters 4 through 14. Table 15-2 indicates which mitigation actions address which hazards.

Table 15-2 2020 Mitigation Actions by Hazard

Hazard	Related Mitigation Actions
Multiple Hazards	MH-1 – MH-7
Drought	DT-1 – DT-3
Earthquake	EQ-1, EQ-2
Flood	FL-1 – FL-5
Severe Winter Weather	WW-1
Wildfire	WF-1 – WF-13
Dam Failure	DF-1, DF-2
Hazardous Materials	HM-1
Landslide	LS-1
Severe Thunderstorm, Hail, and Wind	SW-1 – SW-3
Epidemic/Pandemic	EP-1, EP-2

### Evaluating and Prioritizing Mitigation Actions

During and following HMC Meeting #2, members of the HMC completed a worksheet for each new 2020 mitigation action that included the following summary information shown in Table 15-3. For the 2020 plan update, the descriptions of mitigation actions were expanded to identify the FEMA lifelines and Colorado resiliency prioritization criteria that each action would support. The lifelines and resiliency prioritization criteria are tools FEMA and the Colorado Division of Homeland Security and Emergency Management are using to prioritize hazard mitigation projects and ensure these projects and actions are meeting critical community needs.



Table 15-3 Summary information for Mitigation Action

<i>Description of the Action</i>	<p><i>Specific</i> – Target a specific area for improvement.</p> <p><i>Measurable</i> – Quantify or at least suggest an indicator of progress.</p> <p><i>Assignable</i> – Specify who will do it.</p> <p><i>Realistic</i> – State what results can be achieved realistically, given available resources.</p> <p><i>Time-related</i> – Specify when the result(s) can be achieved.</p>
<i>Action Status</i>	<p><i>New</i> – The action is new and will be included for the first time in the 2020 plan update.</p> <p><i>Existing</i> – The action was implemented prior to the 2020 plan update but is ongoing and additional or ongoing action is required for completion.</p> <p><i>Complete</i> – The action has been completed.</p>

Table 15-3 Summary information for Mitigation Action

<i>Type of Action</i>	<i>Local Plans and Regulations</i> <i>Structure and Infrastructure Projects</i> <i>Natural Systems Protection</i> <i>Education and Awareness Programs</i>
<i>Lead and supporting departments</i>	<i>Local or County agencies</i> <i>Other Partners</i>
<i>Timeline for Implementation and Expected Life of the Action</i>	<i>Less than 1 year</i> <i>1 to 3 years</i> <i>3 to 5 years</i>
<i>FEMA Lifelines Supported by the Action</i>	Safety and Security Food, Water, Shelter Health and Medical Energy (Power and Fuel) Communications Transportation Hazardous Materials
<i>Colorado Resiliency Prioritization Criteria Supported by the Action</i>	Co-Benefits High Risk and Vulnerability Economic Benefit-Cost Social Equity Technical Soundness Innovation Adaptive Capacity Harmonize with Existing Activity Long-term and Lasting Impact
<i>Other</i>	Hazards Addressed by the Action Anticipated Cost and Funding Source Mitigation Goals Supported by the Action

A complete mitigation implementation plan is provided in Table 15-6 at the end of this chapter. Status updates for the mitigation actions included in the 2015 HMP and worksheets for new 2020 mitigation actions are included in Appendix F.

### **Maximizing Loss Reduction**

The County’s mitigation strategy is directed by the mitigation goals identified in Section 15.2. However, equally important, the County and its partners seek to prioritize actions that lead to the greatest return on investment. The ultimate goal of this plan is to maximize loss reduction, and this perspective is incorporated into the mitigation strategy.

### **STAPLEE Analysis**

Each new mitigation action in the 2020 plan update was self-evaluated using STAPLEE criteria, as described in Table 15-4. Members of the HMC were asked to rate each STAPLEE criteria to produce a total score that determined the relative priority of each action.

Table 15-4 STAPLEE Criteria

STAPLEE Criteria	Evaluation Rating
S: Is it Socially acceptable?	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	
P: Is it Politically acceptable?	
L: Is there Legal authority to implement?	
E: Is it Economically beneficial?	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	

### Mitigation Effectiveness Analysis

In addition to the STAPLEE analysis, members of the HMC were asked to rate the effectiveness of each new action developed during the 2020 planning process as described in Table 15-5.

Table 15-5 Mitigation Effectiveness Criteria

Mitigation Effectiveness Criteria	Evaluation Rating
Will the implemented action result in lives saved?	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	High = 5 Medium = 3 Low = 1

STAPLEE scores can range from a low of 0 to a high of 21. Mitigation effectiveness scores can run from a low of 2 to a high of 10. When these scores are combined, mitigation actions can score within a range of 2 to 31 points. The combined STAPLEE and mitigation effectiveness scores for each new mitigation action identified in this plan will serve as one of the tools the County and its partners use in prioritizing the mitigation actions they wish to pursue during the next planning cycle. Of course, actions may also be prioritized based on available funding, emerging hazards, or because they align with priorities identified in other planning efforts.

All mitigation actions are prioritized based on the benefit to the community as high, medium, or low. Existing mitigation actions' benefit to the community determination was carried over. For new mitigation actions, the combined mitigation effectiveness and STAPLEE scores were used to determine the high, medium, or low status:

- If a new mitigation action scored between 2 and 12, it was ranked low.
- If the score was 13 to 22, the action was ranked medium.
- If the score was 23 or above, the action was ranked high.

FEMA regulations do not require a formal cost-benefit analysis for HMPs; however, a formal cost-benefit analysis of mitigation measures is required for an applicant to be approved for Hazard Mitigation Assistance

grant funding. Therefore, a more formal cost-benefit analysis will be conducted as a component of any future mitigation grant applications.

### 15.4 2020 to 2025 Mitigation Implementation Plan

 <b>FEMA</b>	C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by [Park County]? (Requirement §201.6(c)(3)(iii))
---	---

The mitigation implementation plan (Table 15-6) lays the groundwork for how mitigation actions will be prioritized, implemented, and administered by the County and its partners. The implementation plan includes both short-term actions that focus on planning and assessment activities and long-term actions that will result in ongoing capability or structural projects that reduce vulnerability to hazards. Status updates for the mitigation actions included in the 2015 HMP and worksheets for new 2020 mitigation actions are included in Appendix F. Several new mitigation actions were developed during the draft plan phase via telephone conversations with participating jurisdictions. Worksheets were not developed for these actions. The County and its planning partners have indicated that they intend to focus on implementing actions from the 2015 plan that have not yet been completed during the 2020 to 2025 planning period.

Table 15-6 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action (Action Status)	Type of Action	Goals Supported (Objectives)	FEMA Lifeline Supported	State Resiliency Prioritization Criteria Supported	Lead and Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	Benefit to Community
County and All Jurisdictions												
MH-1	Acquire generators to support South Park and Guffey. (Existing)	Structure and Infrastructure Projects	3 (3A)	Safety and security, food water & shelter, Energy, Communications	Co-Benefits, High Risk and Vulnerability, Social Equity, Technical Soundness, Adaptive Capacity	County OEM, Southern Park County FPD	1-3 Years	All	Medium	Anticipated	FPD budget, FEMA, other grants	Medium
MH-2	As funding becomes available, develop detailed risk profiles for each identified critical facility, especially those critical during an emergency response, keeping in mind security needs and hazard vulnerabilities in order to mitigate against hazards. (Existing)	Local Plans and Regulations	1 (1A), (1B), 2 (2A), 3 (3A), 4 (4B)	Safety and Security, Food, Water, Shelter, Energy, Health and Medical, Communications, Transportation, Hazardous Materials	Co-Benefits High Risk and Vulnerability Economic Benefit-Cost Social Equity Technical Soundness Adaptive Capacity Harmonize with Existing Activity Long-term and Lasting Impact	County OEM	3-5 Years	All	High	Anticipated	Staff time, general fund, and grants	High
MH-3	Install dead end road signs at dead end roads for warning and evacuation purposes. (New)	Structure and Infrastructure Projects	3 (3A)	Safety and Security, Transportation	Co-Benefits, Social Equity, Technical Soundness	Public Works, County OEM	1-3 years	Multiple	Low	No	General Fund	Medium
DT-1	As climate change continues to affect the region, it will be important to identify alternative water supplies for time of drought. Consider the development of mutual aid agreements with alternative suppliers. Additionally, look at obtaining additional water rights. (Existing)	Local Plans and Regulations	2 (2A), 3 (3A), 4 (4B)	Safety and Security, Food, Water, Shelter	Economic Benefit-Cost, Social Equity, Adaptive Capacity, Harmonize with Existing Activity, Long-Term and Lasting Impact	Water Service Providers, County OEM	>5 Years	Drought	High	No	General Fund	High
DT-2	Continue to identify those unincorporated communities in Park County most at risk due to drought, develop Community Water Conservation Plans, and alternate water supply locations for those communities, and implement those plans. (Existing)	Local Plans and Regulations	2 (2A), 2 (2B), 3 (3A), 4 (4B)	Safety and Security, Food, Water, Shelter,	Co-Benefits High Risk and Vulnerability Economic Benefit-Cost Social Equity Harmonize with Existing Activity	County OEM	>5 Years	Drought	Medium	Anticipated	Staff time, general fund, and grants	Medium
DT-3	Identify specific locations and specific parameters for a long- term drought monitoring program and implement the monitoring program. Obtain assistance and technical recommendations from the Natural Resources Conservation Service for an improved program of drought preparedness and drought response. (Existing)	Local Plans and Regulations, Natural Systems Protection	1 (1A), 2 (2A) 3 (3A), 4 (4B)	Safety and Security, Food, Water, Shelter	Co-Benefits Economic Benefit-Cost Social Equity	County OEM	3-5 Years	Drought	Medium	Anticipated	Staff time, general fund, and grants	Medium
EQ-1	Adopt zoning and subdivision regulations for proposed development in or adjacent to areas of high seismic risk. (Existing)	Local Plans and Regulations	1 (1A), 2 (2A), 3 (3A), 4 (4B)	Safety and Security, Energy, Food, water, Shelter	Co-Benefits, High Risk and Vulnerability, Economic Benefit-Cost, Technical Soundness, Harmonize with Existing Activity, Long-Term and Lasting Impacts	Development Services	1-3 Year	Earthquakes	Low	Yes	Staff time	Low

Table 15-6 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action (Action Status)	Type of Action	Goals Supported (Objectives)	FEMA Lifeline Supported	State Resiliency Prioritization Criteria Supported	Lead and Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	Benefit to Community
EQ-2	With the assistance of CGS and USGS, map highest priority locations for detailed seismic risk studies and other geologic hazards in Park County and identify bridges and other infrastructure subject to the greatest seismic risk. (Existing)	Local Plans and Regulations	2 (2A), 3 (3A)	Safety and Security, Food, Water, Shelter, Health and Medical, Energy, Communications, Transportation, Hazardous Materials	Co-Benefits High Risk and Vulnerability Economic Benefit-Cost Social Equity Technical Soundness Adaptive Capacity Harmonize with Existing Activity Long-term and Lasting Impact Innovation	County OEM, GIS Mapping, Public Works	3-5 Years	Earthquakes	High	Anticipated	Staff time, general fund, and grants	Low
FL-1	Complete GIS and other automated inventories for storm-water, problem drainage areas, DFIRMs, and other community assets. (Existing)	Local Plans and Regulations	1 (1B), 2 (2A) 3 (3A)	Safety and Security	Co-Benefits, Economic Benefit-Cost, Adaptive Capacity, Harmonize with Existing Activity	GIS Mapping, Development Services	>5 Years	Flood	High	Anticipated	General fund	Medium
FL-2	Identify stream reaches that do not meet water quality standards, specifically those with sediment buildup and provide technical information to local officials from Park County jurisdictions about the significance and consequences of sediment buildup in local streams. (Existing)	Natural Systems Protection, Education and Awareness	2 (2A), 3 (3A), 4 (4B)	Safety and Security, Food, Water, Shelter	Co-Benefits, Economic Benefit-Cost, Adaptive Capacity, Harmonize with Existing Activity, Long-term and Lasting Impact	Environmental Health	3-5 Years	Flood	Low	Yes	Staff time/ general fund	Medium
FL-3	Continue to identify those areas of Park County most in need of flood hazard reduction plans with detailed engineering analyses. Identify specific drainage "hot spots" in the Park County jurisdictions, develop engineering plans to improve bridges, culverts, channels and other infrastructure in those areas, fund the projects and complete them to lessen the likelihood that future floods will cause harm to existing and future buildings. (Existing)	Structure and Infrastructure Projects	1 (1B), 3 (3A), 4 (4A), 4 (4B)	Safety and Security, Food, Water, Shelter, Health and Medical, Energy, Communications, Transportation, Hazardous Materials	Co-Benefits High Risk and Vulnerability Economic Benefit-Cost Social Equity Technical Soundness Adaptive Capacity Harmonize with Existing Activity Long-term and Lasting Impact Innovation	Public Works	3-5 Years	Flood	Medium	Anticipated	Staff time, general fund, and grants	Medium
FL-4	Mitigate Jefferson-Como FPD Station 3 by relocating/rebuilding the station outside of mapped flood zones. Consider other hazard risks in site selection and design of a new facility. (New)	Structure and Infrastructure Projects	3 (3A)	Safety and Security	Co-Benefits, Long-term and Lasting Impact	Jefferson-Como FPD, County Development Services	1-3 Years	Flood	Low-Medium	No	General Fund	High
WW-1	Ensure development and enforcement of building codes for roof snow loads. (New)	Local Plans and Regulations	3 (3A)	Safety and Security, Hazardous Materials	Co-Benefits, Economic Benefit-Cost, Social Equity, Long-term and Lasting Impact	Development Services	<1 year	Severe Winter Weather	Low	Yes	No/minimal cost	Medium
WF-1	As funding becomes available, harden infrastructure at greatest risk from wildfire. Develop infrastructure protection strategies and implement those strategies. (Existing)	Structure and Infrastructure Projects	1 (1A), 3 (3A), 4(4B)	Safety and security, Energy, Communications	Co-Benefits, High Risk and Vulnerability, Economic Benefit-Cost, Adaptive Capacity, Long-term and Lasting Impact	County OEM and local emergency services	>5 years	Wildfire	High	Anticipated	Staff time, general fund, and grants	High
WF-2	Fund proposed wildfire mitigation projects included in CWPPs based on risk and hazard severity to reduce the frequency and intensity of wildfires within the county. All of these projects would benefit from funding in order to proceed. (Existing)	Structure and Infrastructure Projects, Natural Systems Protection	3 (3A), (3B), 4 (4A), (4B)	Safety and Security, Energy, Communications, Transportation, Hazardous Materials, Food, Water, Shelter	High Risk and Vulnerability, Economic Benefit-Cost, Long-term and Lasting Impact, Technical Soundness	FPDs, Towns, County OEM, U.S. Forest Service, homeowner associations	3-5 Years	Wildfire	Medium	No	Grants with soft, in-kind matches	High
WF-3	Fire districts will regularly review and update their CWPPs. (New)	Local Plans and Regulations	1 (1A), 2 (2A)	Safety and Security	Economic Benefit-Cost, Technical Soundness	FPDs, Towns, County OEM	3-5 Years	Wildfire	Medium	No	FEMA & CSFS grants, etc.	High

Table 15-6 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action (Action Status)	Type of Action	Goals Supported (Objectives)	FEMA Lifeline Supported	State Resiliency Prioritization Criteria Supported	Lead and Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	Benefit to Community
WF-4	Continue to address fuels treatment / reduction and implementation of defensible space around structures in the wildland / urban interface area. Actively addressing this issue will provide increased protection to life and property. (Existing)	Natural Systems Protection	3 (3A), 4 (4B)	Safety and Security	Co-Benefits, High Risk and Vulnerability, Economic Benefit-Cost, Technical Soundness, Harmonize with Existing Activity	FPDs, County OEM	1-3 Years	Wildfire	Medium	No	FEMA & CSFS grants, etc.	High
WF-5	Research the availability and make grant applications for wildfire mitigation actions in the areas identified as the highest risk areas in local CWPPs. (Existing)	Natural Systems Protection	3 (3A)	Safety and security	High Risk and Vulnerability, Social Equity, Harmonize with Existing Activity, Long-Term and Lasting Impact	FPDs	3-5 Years	Wildfire	Low	No	FEMA & CSFS grants, etc.	High
WF-6	Adopt land and building standards for future development in the county's mapped areas of high wildfire risk. (Existing)	Local Plans and Regulations	1 (1A)	Safety and Security, Food, Water, Shelter	Co-Benefits High Risk and Vulnerability Economic Benefit-Cost, Social Equity Technical Soundness, Harmonize with Existing Activity	Park County Development Services with County OEM assistance	1-3 Years	Wildfire	Low	Yes	Staff Time	High
WF-7	Identify the priority areas for high wildfire risk that have not burned in the last five years. Encourage and assist neighborhoods and homeowner associations in developing local wildfire plans, allowing for mitigation project development in the high hazard areas and technical input to future land use decisions. (Existing)	Natural Systems Protection	1 (1A), 2 (2A), 4 (4B)	Safety and Security	High Risk and Vulnerability, Economic Benefit Cost, Social Equity, Technical Soundness, Harmonize With Existing Activity	Park County OEM and FPDs	3-5 Years	Wildfire	Low	Yes	Staff time	High
WF-8	Coordinate fire mitigation associated with new development between fire districts and based on actual risk. (New)	Local Plans and Regulations	1 (1A), 2 (2A), 3 (3A)	Safety and Security, Food, Water, Shelter	Co-Benefits, High Risk and Vulnerability, Social Equity, Technical Soundness, Economic Benefit-Cost, Innovation, Adaptive Capacity, Harmonize with Existing Activity, Long-Term and Lasting Impact	Park County Development Services, Fire Districts	1-3 years	Wildfire	High	Yes	Developer's cost to mitigate, fire district mitigation fees, development fees (new impact fee if needed).	Medium
DF-1	Work with the Division of Water Resources to rank high priority dams within Park County and for installation of dam failure warning systems and plans. (Existing)	Local Plans and Regulations	1 (1A), 2 (2A), 3 (3A), 4 (4B)	Safety and Security, Energy, Food, Water, Shelter	Co-Benefits, High Risk and Vulnerability, Economic Benefit-Cost, Technical Soundness, Harmonize with Existing Activity, Long-Term and Lasting Impacts	County OEM	>1 Year	Dam Failure	High	No	Grants	Medium
DF-2	Coordinate with Colorado Parks and Wildlife (CPW) to identify and design actions to restore Tarryall Dam to a Satisfactory condition. (New)	Structure and Infrastructure Projects	3 (3A), 4 (4B)	Safety and Security, Energy (Power and Fuel), Communications, Transportation	High Risk and Vulnerability, Technical Soundness, Long-term and Lasting Impact	CPW, County OEM, DHSEM, and Colorado Dam Safety Program	1 - 3 Years	Dam Failure	High	Anticipated	National Dam Safety Program State Assistance Grants, Rehabilitation of High Hazard Potential Dams Grant Program	High
LS-1	Assess burn scars following severe wildfires to determine landslide risks and implement temporary or permanent measures to stabilize slopes and loose soils such as spreading straw to protect soils and revegetation, creating check dams along drainages using straw bales, or felling dead trees to slow water runoff after rainfall. (New)	Natural Systems Protection	3 (3A)	Transportation	Co-Benefits, Technical Soundness	County OEM, FPDs, U.S. Forest Service, BLM	< 1 year	Landslide	Low	Yes	No/minimal cost	Medium

Table 15-6 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action (Action Status)	Type of Action	Goals Supported (Objectives)	FEMA Lifeline Supported	State Resiliency Prioritization Criteria Supported	Lead and Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	Benefit to Community
SW-1	Continue to install and upgrade lightning rods on public structures as needed. (Existing)	Structure and Infrastructure Projects	3 (3A)	Safety and Security	Economic Benefit-Cost, Technical Soundness, Harmonize with Existing Activity	County Manager	1-3 Years	Severe Thunderstorm, Hail, Wind, and Tornado	Medium	Yes	General fund/ water/sewer	Medium
SW-2	Develop a program to better receive, coordinate, and distribute information about likely thunderstorms, with assistance from NOAA and NWS. (Existing)	Education and Awareness Programs	2 (2A, 2B)	Safety and Security	High Risk and Vulnerability, Technical Soundness	County OEM	1-3 Years	Severe Thunderstorm, Hail, Wind, and Tornado	Medium	No	Staff time and grants	Medium
EP-1	Park County Public Health should contribute to the after-action report for the COVID-19 pandemic to identify critical actions that need to be completed to reduce risks to the community from future pandemics. These recommendations should be included in future updates of the HMP. (New)	Local Plans and Regulations	1 (1A), 2 (2A, 2B)	Safety and Security, Health and Medical	High Risk and Vulnerability, Social Equity	Park County Public Health and County OEM	< 1 year	Epidemic/ Pandemic	Low	Yes	No/minimal cost	Medium
EP-2	Develop public messaging and a list of resources for small businesses and other community members in the event of a pandemic or other disaster that affects the local economy. Coordinate these efforts with regional councils of government, DOLA, and the Central Mountain Small Business Development Corporation. These response resources should be institutionalized in County emergency response and recovery plans. (New)	Local Plans and Regulations	1 (1A), 2 (2A, 2B)	Safety and Security, Health and Medical	Co-Benefits, Economic Benefit-Cost, Social Equity	Park County Public Health, County OEM, County Manager	< 1 year	Epidemic/ Pandemic	Low	Yes	No/minimal cost	Medium
Fairplay												
MH-4	Acquire generators for RE-2 (South Park) School District, including Deer Creek Elementary School. (New)	Structure and Infrastructure Projects	3 (3A)	Safety and Security, Energy, Food, Water and Shelter	Co-Benefits, High Risk and Vulnerability, Social Equity, Technical Soundness, Adaptive Capacity	RE-1 School District, RE-2 School District	1-3 Years	All	Medium	Anticipated	Town budget, FEMA, other grants	Medium
MH-5	Install aboveground, gravity-fed fuel tanks for back-up power and fuel or make arrangements to share with County shops. (New)	Structure and Infrastructure Projects	1 (1A)	Energy (Power & Fuel)	Adaptive Capacity	Fairplay Police Department and Public Works	< 1 year	Flood, Severe Winter Weather	Low	Yes	General fund	Medium
MH-6	Coordinate with electric power providers to identify electric infrastructure at risk of outages during various hazard events and develop a prioritized list of actions to address these risks. Include these actions in the next update of the HMP. (New)	Local Plans and Regulations	3 (3A)	Energy	Technical Soundness, Long-term and Lasting Impact	Fairplay Police and Public Works Departments	1-3 Years	Severe Winter Weather, Wildfire, Severe Thunderstorm, Hail and Wind	Low	Yes	General Fund	High
FL-5	Public Works will undertake an assessment of Fairplay's current drainage system. Based on the results, the town will strive to install new culverts as indicated and needed. Additionally, PW's will create a maintenance plan to repair and maintain drainage culverts in the Town's higher flood areas (Existing)	Education and Awareness Programs	1 (1A), 1 (1B), 2 (2A), 3 (3A), 3B	Safety and Security, Food, water, shelter	Co-Benefits, Economic Benefit-Cost, Technical Soundness, Harmonize with Existing Activity	Fairplay Department of Public Works	1-3 Years	Flooding	High	Anticipated	General Fund	Medium

Table 15-6 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action (Action Status)	Type of Action	Goals Supported (Objectives)	FEMA Lifeline Supported	State Resiliency Prioritization Criteria Supported	Lead and Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	Benefit to Community
HM-1	All Police and Public Works employees will attend a HAZMAT Awareness Program in the next year. (Existing)	Education and Awareness Programs	2 (2A)	Safety and Security, Hazardous Materials, Transportation	Co-Benefits, Economic Benefit-Cost, Harmonize with Existing Activity, Long-term and Lasting Impact	Fairplay Police and Public Works Departments	>1 Year (ongoing)	Hazmat	Medium	Anticipated	General fund and DHS grants	Medium
North-West FPD												
WF-9	Assess and enhance NWFPD onsite water requirements for existing and new development. (New)	Local Plans and Regulations	1 (1A), 3 (3A)	Safety and Security	Co-benefits, Economic Benefit-Cost, Harmonize with Existing Activity	NWFPD	1-3 Years	Wildfire	Low	Yes	No/minimal cost	Medium
WF-10	Educate the public of the benefits of controlled burns on "natural areas" certified by professional foresters. (New)	Education and Awareness Programs	2 (2A, 2B)	Safety and Security	Co-Benefits, Economic Benefit-Cost, Harmonize with Existing Activity	NWFPD	1-3 Years	Wildfire	Low	Anticipated	Budget Appropriations	Medium
WF-11	Investigate actions that can be completed to improve the ISO rating from 10. (New)	Local Plans and Regulations	3 (3A)	Safety and Security	Co-Benefits, Harmonize with Existing Activity	NWFPD	3-5 Years	Wildfire	Medium	No	Budget Appropriations, Grant Funding	High
Platte Canyon FPD												
WF-12	Remove rights-of-way fuels along critical roadway segments. Identify and develop existing and new temporary areas of refuge for residents that can't evacuate to U.S. Highway 285. Develop new emergency roadway exits for CR43 and Burland residents. Hire a consultant to help develop a comprehensive community wide evacuation plan. (New)	Structure and Infrastructure Projects, Local Plans and Regulations	3 (3A)	Safety and Security, Food, Water Shelter, Transportation	High Risk and Vulnerability, Adaptive Capacity, Long-Term and Lasting Impact	PCFPD, BOCC, PCSO Fire Adapted Bailey	1-3 years	Wildfire	Medium	Anticipated	Budget Appropriations; Community Donations (Fire Adapted Bailey)	Medium
MH-7	Educate the public on safety using and storing necessary flammable materials, including machine fuels. Approved safety cans should be used for storing gasoline, oily rags, and other flammable materials. (New)	Education and Awareness Programs	2 (2A)	Safety and Security	Co-Benefits, Social Equity, Technical Soundness	Platte Canyon FPD, Lake George FPD, CUSP	1-3 Years	Multiple	Low	Yes	Budget Appropriations; Community Donations (Fire Adapted Bailey)	Medium
Lake George FPD												
WF-13	Conduct a fuels management program for residents on the weekends, supported by continued fundraising. Better educate members of the public on the need to manage fuels and provide defensible space on their properties. (New)	Education and Awareness Programs, Natural Systems Protection	2 (2A, 2B), 3 (3A)	Safety and Security, Food, Water, Shelter, Energy	Co-Benefits, High Risk and Vulnerability, Social Equity, Technical Soundness	Lake George FPD, CUSP	3-5 years	Wildfire	18,000 annually	No	Grant	Medium
MH-7	Educate the public on safety using and storing necessary flammable materials, including machine fuels. Approved safety cans should be used for storing gasoline, oily rags, and other flammable materials. (New)	Education and Awareness Programs	2 (2A)	Safety and Security	Co-Benefits, Social Equity, Technical Soundness	Platte Canyon FPD, Lake George FPD, CUSP	1-3 Years	Multiple	Low	Anticipated	Budget Appropriations	Medium
South Park Ambulance District												
SW-3	Educate members of the community regarding the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur. (New)	Education and Awareness Programs	2 (2A)	Safety and Security, Food, Water, Shelter	Co-Benefits, High Risk and Vulnerability, Social Equity	South Park Ambulance District	1-3 Years	Severe Weather	Low	Yes	Existing Budget	Medium

## CHAPTER 16 IMPLEMENTATION

### 16.1 PLAN ADOPTION

 <b>FEMA</b>	E2. Does the Plan include documentation that the plan has been formally adopted by the [Park County Board of Commissioners]? (Requirement §201.6(c)(5))
---	---

An HMP must document that it has been formally adopted by the governing body of the jurisdiction requesting federal approval of the plan (44 CFR Section 201.6(c)(5)). For multi-jurisdictional plans, each jurisdiction requesting approval must document that it has been formally adopted. This plan will be submitted for a pre-adoption review to the Colorado Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency prior to adoption. Once pre-adoption approval has been provided, all planning partners will formally adopt the plan. All partners understand that DMA compliance and its benefits cannot be achieved until the plan is adopted. Copies of the resolutions adopting this plan for all planning partners can be found in Appendix E of this plan.

### 16.2 PLAN MAINTENANCE STRATEGY

 <b>FEMA</b>	C7. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(ii))
--	--

A hazard mitigation plan must present a plan maintenance process that includes the following (44 CFR Section 201.6(c)(4)):

- A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan over a 5-year cycle
- A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate
- A discussion on how the community will continue public participation in the plan maintenance process.

This chapter details the formal process that will ensure that the Park County HMP remains an active and relevant document and that the planning partners maintain their eligibility for applicable funding sources. The plan maintenance process includes a schedule for monitoring and evaluating the plan annually and producing an updated plan every five years. This chapter also describes how public participation will be integrated throughout the plan maintenance and implementation process. It also explains how the mitigation strategies outlined in this plan will be incorporated into existing planning mechanisms and programs, such as comprehensive land-use planning processes, capital improvement planning, and building code enforcement and implementation. The HMP’s format allows sections to be reviewed and updated when new data become available, resulting in a plan that will remain current and relevant.

#### 16.2.1 Plan Implementation

The effectiveness of the HMP depends on its implementation and incorporation of its action items into partner jurisdictions’ existing plans, policies and programs. Together, the action items in the plan provide a framework for activities that the Partnership can implement over the next 5 years. The planning team and

the HMC have established goals and objectives and have prioritized mitigation actions that will be implemented through existing plans, policies, and programs.

Park County Office of Emergency Management will have lead responsibility for overseeing the plan implementation and maintenance strategy. Plan implementation and evaluation will be a shared responsibility among all planning partners.

### **16.2.2 Hazard Mitigation Committee**

The HMC is a total volunteer body that oversaw the development of the plan and made recommendations on key elements of the plan, including the maintenance strategy. The HMC will continue to have an active role in the plan maintenance strategy and will include representation from the planning partners, as well as other stakeholders in the planning area.

The principal role of the HMC in plan maintenance will be to review the annual progress report and provide input to the Park County Office of Emergency Management on progress and possible enhancements to be considered at the next update. Following adoption of the plan and annexes, the HMC will meet for its first review of the annual progress report in October 2021. Future plan updates will be overseen by a committee similar to the one that participated in this plan development process, so keeping an interim HMC intact will provide a head start on future updates. Completion of the progress report will be led by the County Office of Emergency Management with participation by each planning partner. The County Office of Emergency Management will serve as the lead planning agency for the HMC and as the convener and coordinator of any HMC meetings during the plan maintenance period.

### **16.2.3 Annual Progress Report**

The minimum task of each planning partner will be the evaluation of the progress of its individual action plan during a 12-month performance period. This review will include the following:

- Summary of any hazard events that occurred during the performance period and the impact these events had on the planning area
- Review of mitigation success stories
- Review of continuing public involvement
- Brief discussion about why targeted strategies were not completed
- Re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended (such as changing a long-term project to a short-term one because of new funding)
- Recommendations for new projects
- Changes in or potential for new funding options (grant opportunities)
- Impact of any other planning programs or initiatives that involve hazard mitigation.

A template to guide the planning partners in preparing an annual progress report is included in Appendix C. The annual progress report should be used as follows:

- Posted on the Park County Office of Emergency Management website page dedicated to the HMP
- Provided to the local media through a press release
- Presented to planning partner governing bodies to inform them of the progress of actions implemented during the reporting period

Uses of the annual progress report will be at the discretion of each planning partner. Annual progress reporting is not a requirement specified under 44 CFR. However, it may enhance the planning partnership's

opportunities for funding. While failure to implement this component of the plan maintenance strategy will not jeopardize a planning partner's compliance under the DMA, it may jeopardize its opportunity to partner and leverage funding opportunities with the other partners.

### 16.2.4 Plan Update

Local HMPs must be reviewed, revised if appropriate, and resubmitted for approval in order to remain eligible for benefits under the DMA (44 CFR, Section 201.6(d)(3)). The Park County partnership intends to update the HMP on a 5-year cycle from the date of initial plan adoption. This cycle may be accelerated to less than 5 years based on the following triggers:

- A Presidential Disaster Declaration that impacts the planning area
- A hazard event that causes loss of life
- A comprehensive update of the County or participating municipality's comprehensive plan

It will not be the intent of future updates to develop a complete new HMP for the planning area. The update will, at a minimum, include the following elements:

- The update process will be convened through an HMC including representatives for all the planning partners.
- The hazard risk assessment will be reviewed and, if necessary, updated using best available information and technologies.
- The action plans will be reviewed and revised to account for any initiatives completed, dropped, or changed and to account for changes in the risk assessment or new partnership policies identified under other planning mechanisms (such as the comprehensive plan).
- The draft update will be sent to appropriate agencies and organizations for comment.
- The public will be given an opportunity to comment on the update prior to adoption.
- The partnership governing bodies will adopt their respective portions of the updated plan.

### 16.2.5 Continuing Public Involvement



A5. Is there discussion of how [Park County] will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))

The public will continue to be apprised of the plan's progress through the County Office of Emergency Management website. Each planning partner will provide links to the County HMP website on their individual jurisdictional websites to increase avenues of public access to the plan. The Park County Office of Emergency Management has agreed to maintain the HMP website. This site will not only house the final plan, it will become the one-stop shop for information regarding the plan, the partnership and plan implementation. Copies of the plan will be distributed to the Park County Library system. Upon initiation of future update processes, a new public involvement strategy will be initiated based on guidance from a new HMC. This strategy will be based on the needs and capabilities of the planning partnership at the time of the update. At a minimum, this strategy will include the use of the County website and social media channels.

The County and its planning partners will continue ongoing efforts to create materials and resources to educate members of the community, including:

- Continuing community outreach and workshops to educate property owners at risk from wildfire about specific maintenance strategies to reduce their risk from wildfire.

- Developing a list of the components of a homeowner’s wildfire emergency evacuation kit and communicating the need for such kits.
- Creating an education program regarding winter weather preparedness for citizens, including specific strategies for protecting livestock and pets from severe winter weather events.
- Updating and expanding the County’s winter disaster preparedness booklet to cover all hazards. This will be distributed to all county residents through a mass mailing or through community organizations and fire districts.
- Educating the public about ways to lessen the effects of drought and the need to be water wise.
- Educating the public about thunderstorm awareness and safety precautions.
- Supporting programs, such as a “tree watch” program, that encourage residents to proactively manage vegetative problem areas through tree removal, replacement, or other methods.

### **16.2.6 Incorporation into Other Planning Mechanisms**

The information on hazard, risk, vulnerability, and mitigation contained in this plan is based on the best science and technology available at the time this plan was prepared. The Park County Comprehensive Plan and the comprehensive plans of the partner cities are considered to be integral parts of this plan. The County and partner cities, through adoption of comprehensive plans and zoning ordinances, have planned for the impact of natural hazards. The plan development process provided the County and the municipalities with the opportunity to review and expand on policies contained within these planning mechanisms. The planning partners used their comprehensive plans and the HMP as complementary documents that work together to achieve the goal of reducing risk exposure to the citizens of the planning area. An update to a comprehensive plan could also trigger an update to the HMP.

All municipal planning partners are committed to creating a linkage between the HMP and their individual comprehensive plans by identifying a mitigation initiative as such and giving that initiative a high priority. Other planning processes and programs to be coordinated with the recommendations of the HMP include the following:

- Partners’ emergency response plans
- Capital improvement programs and strategic plans
- Municipal codes
- Community design guidelines
- Water-efficient landscape design guidelines
- Stormwater management programs
- Water system vulnerability assessments
- Community wildfire protection plans.

Some action items do not need to be implemented through regulation. Instead, these items can be implemented through the creation of new educational programs, continued interagency coordination, or improved public participation. As information becomes available from other planning mechanisms that can enhance this plan, that information will be incorporated via the update process.

## CHAPTER 17 REFERENCES

- Buis, Alan. 2019. "Can Climate Affect Earthquakes, Or Are the Connections Shaky?" National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory. Accessed March 24, 2020. <https://climate.nasa.gov/news/2926/can-climate-affect-earthquakes-or-are-the-connections-shaky/>.
- Centers for Disease Control and Prevention (CDC). 2019. *Measles Cases and Outbreaks*. Retrieved from <https://www.cdc.gov/measle/cases-outbreaks.html>
- Colorado Division of Water Resources. No date. Colorado Dam Safety (brochure). Accessed August 13, 2020. [https://dnrftp.state.co.us/DWR/DamSafety/CO\\_DAM\\_SAFETY\\_brochure.pdf](https://dnrftp.state.co.us/DWR/DamSafety/CO_DAM_SAFETY_brochure.pdf).
- Colorado Department of Local Affairs (DOLA). Not dated (a). "County Data Lookup." State Demography Office. Accessed March 10, 2020. <https://demography.dola.colorado.gov/population/data/county-data-lookup/>.
- Colorado Department of Local Affairs (DOLA). Not dated (b). "Population and Housing Time Series." State Demography Office. Accessed March 10, 2020. <https://demography.dola.colorado.gov/population/data/muni-pop-housing/>
- Colorado Department of Local Affairs (DOLA). Not dated (c). "Demographic Profiles – County." State Demography Office. Accessed March 10, 2020. <https://demography.dola.colorado.gov/population/data/county-data-lookup/>.
- Colorado Department of Local Affairs (DOLA). Not dated (d). "Population Totals for Colorado Counties." Accessed March 11, 2020. <https://demography.dola.colorado.gov/population/population-totals-counties/#population-totals-for-colorado-counties>.
- Colorado Department of Public Health and Environment (CDPHE). 2019a. "School and Child Care Immunization Data 2018–2019 Information for Partners." Accessed March 31, 2019. <https://www.cohealthdata.dphe.state.co.us/Data/Details/899902>.
- Colorado Department of Public Health and Environment (CDPHE). 2019b. "Measles." Accessed March 31, 2020. <https://www.colorado.gov/pacific/cdphe/measles>.
- Colorado Department of Public Safety. Not dated. "Earthquake." Accessed March 24, 2020. <https://www.colorado.gov/pacific/dhsem/earthquake>.
- Colorado Department of Public Safety, Division of Homeland Security and Emergency Management. 2020. 2018 – 2023 Colorado Hazard Mitigation Plan. Accessed July 28, 2020. <https://www.colorado.gov/pacific/mars/enhanced-state-hazard-mitigation-plan-e-shmp>.
- Colorado Information Marketplace. Not dated. "Labor force and unemployment estimates by month and county and Metropolitan Statistical Area, from Colorado Department of Labor and Employment (CDLE), since 1990." *Unemployment Estimates in Colorado*. Accessed April 20, 2020. <https://data.colorado.gov/Labor-and-Employment/Unemployment-Estimates-in-Colorado/4e3w-qire/data>.
- Colorado Parks and Wildlife. Not dated. "Tarryall Reservoir SWA." Accessed April 14, 2020. <https://cpw.state.co.us/swa/Tarryall%20Reservoir%20SWA>.

- Colorado State Demography Office. 2020. Housing Unit and Household Estimates. Accessed July 29, 2020. <https://demography.dola.colorado.gov/housing-and-households/counties-and-municipalities/#counties-and-municipalities>.
- Colorado State Forest Service. 2010. "Community Wildfire Protection Plan North-West Fire Protection District." Colorado State University. Accessed May 5, 2020. <https://static.colostate.edu/client-files/csfs/documents/NorthwestFPDCWPP.pdf>.
- Colorado State Forest Service. 2017. "2017 Colorado Wildfire Risk Assessment Summary Report: Fairplay Center Plus 4-mile Buffer." Colorado State University. Accessed April 7, 2020. <https://www.ColoradoWildfireRisk.com>.
- Colorado State Forest Service. 2019. "Forest Health Report Story Map." Accessed March 12, 2020. <https://csfs.colostate.edu/forest-management/2019-forest-health-report-story-map/>.
- Colorado State University. Not dated. "Colorado Climate Center–Data." Accessed March 12, 2020. [https://climate.colostate.edu/data\\_access.html](https://climate.colostate.edu/data_access.html).
- Denver Water. Not dated. "Eleven Mile Canyon Reservoir." Accessed April 14, 2020. <https://www.denverwater.org/recreation/eleven-mile-canyon-resevoir>.
- Dillon, Gregory K. 2018. *Wildfire Hazard Potential (WHP) for the Conterminous United States (270-m GRID)*. Second Edition. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2015-0047-2>.
- Division of Fire Prevention and Control. 2019. "Governor's Annual Wildfire Outlook Briefing 2019." Accessed March 25, 2020. <https://drive.google.com/file/d/1shcK603aksiwa0GYVczqjJoOSchBkRO1/view>.
- Federal Emergency Management Agency (FEMA). 2001. Understanding Your Risks; Identifying Hazards and Determining your Risks. FEMA (386-2). August 2001.
- Federal Emergency Management Agency (FEMA). 2002. Getting Started; Building support for Mitigation Planning; FEMA (386-1). September 2002.
- Federal Emergency Management Agency (FEMA). 2003. Developing the Mitigation Plan; Identifying Mitigation Actions and Implementing Strategies. FEMA (386-3). April 2003.
- Federal Emergency Management Agency (FEMA). 2004. Using HAZUS-MH for Risk Assessment, How to Guide, FEMA (433). August 2004.
- Federal Emergency Management Agency (FEMA). 2007. FEMA, National Flood Insurance Program, Community Rating System; CRS Coordinator's Manual FIA-15/2007 OMB No. 1660-0022.
- Federal Emergency Management Agency (FEMA). 2009. National Flood Insurance Program. "Flood Insurance Study for Park County."
- Federal Emergency Management Agency (FEMA). 2010. <http://www.fema.gov>. Website accessed 2009,2010, 2011.
- Federal Emergency Management Agency (FEMA). 2015. "Colorado Severe Storms, Tornadoes, Flooding, Landslides, and Mudslides." Accessed April 7, 2020. <https://www.fema.gov/disaster/4229>.
- Federal Emergency Management Agency (FEMA). 2020. "Data Visualization: Disaster Declarations for States and Counties." Accessed March 10, 2020. <https://www.fema.gov/data-visualization-disaster-declarations-states-and-counties>.

- Federal Emergency Management Agency (FEMA). Not dated. "Policy and Claim Statistics for Flood Insurance." Last modified April 16, 2020, 9:31. Accessed April 23, 2020. <https://www.fema.gov/policy-claim-statistics-flood-insurance>.
- Finley, Bruce. 2017. "Human-caused wildfire burns near homes west of Lake George in Park County." *Denver Post*. Accessed April 14, 2020. <https://www.denverpost.com/2017/05/14/wildfire-lake-george-park-county>.
- Forest Stewards Guild. 2020. *Platte Canyon Fire Protection District Community Wildfire Protection Plan*. Accessed April 14, 2020. [https://static1.squarespace.com/static/5cf8113323b30100013d680f/t/5e500fc8b635fb550500b5a6/1582305314354/PlatteCanyon\\_CWPP.pdf](https://static1.squarespace.com/static/5cf8113323b30100013d680f/t/5e500fc8b635fb550500b5a6/1582305314354/PlatteCanyon_CWPP.pdf).
- Forster, Liz. 2018. "Flash Flooding in Weston Pass Fire Perimeter Closes U.S. 285." *The Gazette*. Accessed April 14, 2020. [https://gazette.com/news/flash-flooding-in-weston-pass-fire-perimeter-closes-u-s/article\\_edb2ad48-8a90-11e8-a2f1-6ffbf2d43816.html](https://gazette.com/news/flash-flooding-in-weston-pass-fire-perimeter-closes-u-s/article_edb2ad48-8a90-11e8-a2f1-6ffbf2d43816.html).
- GeoStat.org. Not dated. "Fairplay, Colorado — Dams." Accessed April 7, 2020. <https://www.geostat.org/data/fairplay-co/dams>.
- Insurance Information Institute. Not dated (a). "Annual Number of Acres Burned in Wildland Fires, 1980–2019." National Interagency Fire Center. Accessed March 25, 2020. <https://www.iii.org/graph-archive/96433>.
- Insurance Information Institute. Not dated (b). "Facts + Statistics: Wildfires." Accessed March 25, 2020. <https://www.iii.org/fact-statistic/facts-statistics-wildfires#Wildfires%20By%20State,%202019>.
- International Strategy for Disaster Reduction. 2008. "Disaster Risk Reduction Strategies and Risk Management Practices: Critical Elements for Adaptation to Climate Change."
- Jensenius, John S., Jr. 2019. "A Detailed Analysis of Lightning Deaths in the United States from 2006 through 2018." National Lightning Safety Council. Accessed March 26, 2020. <https://www.weather.gov/media/safety/Analysis06-18.pdf>.
- KKTV. 2013. "Black Forest Fire 100% Contained." *KKTV 11 News*. Accessed April 21, 2020. <https://www.kktv.com/home/headlines/Fire-Reported-East-of-83-211063511.html>.
- National Aeronautics and Space Administration (NASA). 2004. <http://earthobservatory.nasa.gov/Newsroom/view.php?id=25145> NASA Earth Observatory News Web Site Item, dated August 2, 2004.
- National Association of Counties (NACo). 2007. "NACo – Find a County." Archived from the original. Accessed April 30, 2008. [http://www.naco.org/Template.cfm?Section=Find\\_a\\_County&Template=%2Fcffiles%2Fcounties%2Fstate.cfm&state.cfm&statecode=CO](http://www.naco.org/Template.cfm?Section=Find_a_County&Template=%2Fcffiles%2Fcounties%2Fstate.cfm&state.cfm&statecode=CO) (page discontinued).
- National Fire Protection Association (NFPA). Not dated. "Firewise USA Sites – State Listing of Participants." Accessed March 26, 2020. <https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA/Firewise-USA-Resources/Firewise-USA-sites/State-listing-of-participants>.
- National Integrated Drought Information System (NIDIS). 2019. "Year in Review: A look Back at Drought Across the United States in 2018." U.S. Drought Portal. Accessed March 13, 2020. <https://www.drought.gov/drought/news/year-review-look-back-drought-across-united-states-2018>.
- National Oceanic and Atmospheric Administration (NOAA). 2010. <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms>. NOAA, National Climatic Data Center website, accessed 2010.

- National Oceanic and Atmospheric Administration (NOAA). Not dated (a). “Drought: Monitoring Economic, Environmental, and Social Impacts.” National Centers for Environmental Information. Accessed March 13, 2020. <https://www.ncdc.noaa.gov/news/drought-monitoring-economic-environmental-and-social-impacts>.
- National Oceanic and Atmospheric Administration (NOAA). Not dated (b). “Storm Events Database.” Accessed March 26, 2020. <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=8%2CCOLORADO>.
- North-West Fire Protection District. 2020. *North-West Fire Protection District*. Accessed April 14, 2020. <http://nwfpd.org>.
- Office of Technology Assessment (OTA). 1993. *Preparing for an Uncertain Climate*, Vol. I. OTA–O–567. U.S. Government Printing Office, Washington, D.C.
- Park County Office of Emergency Management. 2019. Comprehensive Emergency Operations Plan. Accessed March 31, 2020. <https://parkco.us/DocumentCenter/View/4080/Emergency-Operations-Plan?bidId=>.
- Park County Wildfire Coalition. 2015. *Community Wildfire Protection Plan 2015 Update*.
- Park County. 2007. *County Wildfire Protection Plan*. Accessed March 25, 2020. <https://static.colostate.edu/client-files/csfs/documents/ParkcountyCWPP.pdf>.
- Park County. 2012. Park County Local Amendments 2012 Building Code. Accessed April 22, 2020. <https://parkco.us/DocumentCenter/View/2730/Local-Amendments>. Park County. 2020. “COVID-19.” Accessed March 31, 2020. <https://parkco.us/755/Coronavirus-Disease-2019-COVID-19>.
- Park County. Not dated. “Climate.” Accessed March 12, 2020. <https://parkco.us/282/Climate>.
- Pipeline and Hazardous Materials Safety Administration (PHMSA). Not dated. PHMSA Portal. Accessed March 30, 2020. [https://portal.phmsa.dot.gov/phmsapub/faces/PHMSAHome?req=1415628026662998671&attempt=0&afrLoop=88315283334881&afrWindowMode=0&afrWindowId=jtg98fknf&adf.ctrl-state=p8nay35v4\\_45](https://portal.phmsa.dot.gov/phmsapub/faces/PHMSAHome?req=1415628026662998671&attempt=0&afrLoop=88315283334881&afrWindowMode=0&afrWindowId=jtg98fknf&adf.ctrl-state=p8nay35v4_45).
- Platte Canyon Fire Protection District. Not dated. “District Overview.” Accessed April 14, 2020. <https://www.plattecanyonfire.com/volunteer-info>.
- RPI Consulting LLC. “Park County Demographic, Economic and Fiscal Background Report.” *Strategic Master Plan Update*. November 2015. Accessed March 12, 2020. <https://www.parkco.us/DocumentCenter/View/2615/Appendix-E-Economic-Demographic-and-Fiscal-Information?bidId=>.
- Sopris Land Use, LLC. 2016. *Comprehensive Plan*. Accessed April 14, 2020. <http://fairplayco.us/docsforms/ZoningMap2016-02-08Final.pdf>.
- South Park Ambulance District. Not dated. “About.” Accessed April 14, 2020. <http://southparkambulance.com/about/district-facts/>.
- Southern Park County Fire Protection District. 2013. *Yearly Incident Summaries*. Accessed April 14, 2020. [http://www.guffeyfire.net/notices\\_incidents.php](http://www.guffeyfire.net/notices_incidents.php).
- Southern Park County Fire Protection District. Not dated. “Southern Park County Fire Protection District.” Accessed April 14, 2020. <http://www.guffeyfire.net/>.
- Spatial Hazard Events and Losses Database for the United States maintained by the University of South Carolina’s (USC) Hazard Research Lab.
- State of Colorado. 2019. *Wildfire Preparedness Plan*. Accessed March 25, 2020. <https://www.colorado.gov/pacific/dfpc/2019-plan>.

- U.S. Department of Housing and Urban Development. 2020. “Affordable Housing.” Accessed April 14, 2020. [https://www.hud.gov/program\\_offices/comm\\_planning/affordablehousing/](https://www.hud.gov/program_offices/comm_planning/affordablehousing/).
- United States Census Bureau (USCB). 2000. Data from 2000 U.S. Census. U.S. Census Bureau. - [http://factfinder.census.gov/servlet/ACSSAFFacts?\\_event=Search&geo\\_id=01000US&geoContext=01000US%7C04000US06%7C16000US0662938&\\_street=&\\_county=Ada+County&\\_cityTown=Ada+County&\\_state=04000US16&\\_zip=&\\_lang=en&\\_sse=on&ActiveGeoDiv=geoSelect&\\_useEV=&\\_pctxt=fp](http://factfinder.census.gov/servlet/ACSSAFFacts?_event=Search&geo_id=01000US&geoContext=01000US%7C04000US06%7C16000US0662938&_street=&_county=Ada+County&_cityTown=Ada+County&_state=04000US16&_zip=&_lang=en&_sse=on&ActiveGeoDiv=geoSelect&_useEV=&_pctxt=fp).
- United States Census Bureau (USCB). 2018a. “ACS Demographic and Housing Estimates.” 2018: ACS 5-Year Estimates Data Profiles. Accessed March 10, 2020. [https://data.census.gov/cedsci/table?q=park%20county,%20colorado&g=0500000US08093&hidePreview=false&tid=ACSDP5Y2018.DP05&vintage=2018&cid=DP05\\_0001E&layer=county](https://data.census.gov/cedsci/table?q=park%20county,%20colorado&g=0500000US08093&hidePreview=false&tid=ACSDP5Y2018.DP05&vintage=2018&cid=DP05_0001E&layer=county).
- United States Census Bureau (USCB). 2018b. “Selected Social Characteristics in the United States.” 2018: ACS 5-Year Estimates Data Profiles. Accessed March 10, 2020. [https://data.census.gov/cedsci/table?g=0500000US08093&hidePreview=false&tid=ACSDP5Y2018.DP02&vintage=2018&cid=DP05\\_0001E&layer=county&d=ACS%205-Year%20Estimates%20Data%20Profiles](https://data.census.gov/cedsci/table?g=0500000US08093&hidePreview=false&tid=ACSDP5Y2018.DP02&vintage=2018&cid=DP05_0001E&layer=county&d=ACS%205-Year%20Estimates%20Data%20Profiles).
- United States Census Bureau (USCB). 2018c. “ACS Community Survey 2018: ACS Demographic and Housing Estimates – ‘Fairplay, Colorado’.” Accessed April 13, 2020. [https://data.census.gov/cedsci/table?q=fairplay,%20colorado&g=1600000US0825610&hidePreview=false&tid=ACSDP5Y2018.DP05&vintage=2018&layer=VT\\_2018\\_160\\_00\\_PY\\_D1&cid=DP05\\_0001E](https://data.census.gov/cedsci/table?q=fairplay,%20colorado&g=1600000US0825610&hidePreview=false&tid=ACSDP5Y2018.DP05&vintage=2018&layer=VT_2018_160_00_PY_D1&cid=DP05_0001E)
- United States Coast Guard National Response Center (NRC). Not dated. Reports from 2017, 2018, 2019, and 2020. Accessed March 30, 2020. <https://nrc.uscg.mil/>.
- United States Department of Energy. Not dated. “Colorado 80-Meter Wind Resource Map.” WINDEXchange. Accessed March 26, 2020. <https://windexchange.energy.gov/maps-data/15>
- United States Geological Survey (USGS). 1989. The Severity of an Earthquake. U.S. Government Printing Office: 1989-288-913. Accessed online at: [http://pubs.usgs.gov/gip/earthq4/severity\\_text.html](http://pubs.usgs.gov/gip/earthq4/severity_text.html).
- United States Geological Survey (USGS). 2008. An Atlas of ShakeMaps for Selected Global Earthquakes. U.S. Geological Survey Open- File Report 2008-1236. Prepared by Allen, T.I., Wald, D.J., Hotovec, A.J., Lin, K., Earle, P.S. and Marano, K.D.
- United States Geological Survey (USGS). 2010. PAGER—Rapid Assessment of an Earthquake’s Impact. U.S. Geological Survey Fact Sheet 2010-3036. September 2010.
- United States Geological Survey (USGS). 2018. 2018 Long-term National Seismic Hazard Map. Accessed April 21, 2020. <https://www.usgs.gov/media/images/2018-long-term-national-seismic-hazard-map>.
- United States Geological Survey (USGS). Not dated. “New Earthquake Hazards Program.” Accessed March 24, 2020. <https://www.usgs.gov/natural-hazards/earthquake-hazards/lists-maps-and-statistics>.
- Western Slope Consulting, LLC., Sopris Land Use, LLC., Lamont Planning Services, and RRC Associates. 2013. *Town of Fairplay Comprehensive Plan*.
- Western Water Assessment. Not dated. “Climate Change and Projections. Accessed March 25, 2020. <https://wwa.colorado.edu/climate/change.html>.

World Health Organization (WHO). 2018. *Managing Epidemics: Key Facts About Major Deadly Diseases*. Retrieved from <https://www.who.int/emergencies/diseases/managing-epidemics-interactive.pdf>.

---

Town of Fairplay Jurisdiction-Specific Annex –  
Park County Multi-Jurisdictional Hazard Mitigation  
Plan



**FINAL** – 2020 Plan Update



THIS PAGE LEFT INTENTIONALLY BLANK

---

---

**TABLE OF CONTENTS**

---

1. Introduction.....	1-1
1.1 Town of Fairplay Hazard Mitigation Program.....	1-1
1.2 Plan Adoption.....	1-1
2. Community Profile .....	2-1
3. Hazard Profiles and Vulnerability Assessments.....	3-1
3.1 General.....	3-1
3.2 Hazard Ranking Methodology .....	3-2
3.3 Hazard-Specific Profiles and Risk Assessments.....	3-2
3.3.1 Flood.....	3-4
Location.....	3-4
Past Occurrences/History.....	3-4
Extent and Probability.....	3-4
Vulnerability.....	3-5
3.3.2 Severe Winter Weather.....	3-5
Location.....	3-5
Past Occurrences/History.....	3-5
Extent and Probability.....	3-7
Vulnerability.....	3-7
3.3.3 Hazardous Materials .....	3-7
Location.....	3-7
Past Occurrences/History.....	3-8
Extent and Probability.....	3-8
Vulnerability.....	3-8
3.3.4 Severe Thunderstorm, Hail, and Wind .....	3-9
Location.....	3-9
Past Occurrences/History.....	3-9
Extent and Probability.....	3-10
Vulnerability.....	3-10
3.3.5 Dam Failure.....	3-10
Location.....	3-10

---

---

Past Occurrences/History.....	3-11
Extent and Probability.....	3-11
Future Probability Trend - .....	3-11
Vulnerability.....	3-11
3.3.6 Wildfire.....	3-12
Location.....	3-12
Past Occurrences/History.....	3-13
Extent and Probability.....	3-13
Vulnerability.....	3-14
3.4 Vulnerability Assessment .....	3-15
3.4.1 Asset Inventory .....	3-15
3.4.2 Repetitive Loss Properties.....	3-15
3.4.3 Exposure Assessment.....	3-15
3.5 Land Use and Development Trends .....	3-19
4. Capability Assessment.....	4-1
4.1 Administrative and Technical Resources.....	4-1
4.2 Financial Resources.....	4-1
4.3 Planning and Regulatory Resources.....	4-4
4.4 Education and Outreach Resources .....	4-2
4.5 National Flood Insurance Program Participation.....	4-2
4.6 Integration of Mitigation into Existing Planning Mechanisms.....	4-3
4.6.1 Existing Plans .....	4-4
5. Mitigation Strategy .....	5-1
5.1 Review of 2015 Hazard Mitigation Actions .....	5-1
5.2 2020-2025 Mitigation Implementation Plan .....	5-1
6. References.....	6-1

---

---

## 1. INTRODUCTION

---

### 1.1 Town of Fairplay Hazard Mitigation Program

Throughout the 2020 update process, the following Hazard Mitigation Plan (HMP) participation roles were recorded:

Name	Position	Role in Hazard Mitigation
Bo Schlunsen	Police Sergeant, Town of Fairplay Police Department	Mitigation Program Lead
Marcus Woodward	Police Chief, Town of Fairplay	SME
Jim Brown	Public Works Director	SME

### 1.2 Plan Adoption

44 CFR §201.6(c)(5) requires that the HMP be formally adopted by elected officials from each participating jurisdiction. The Board of Trustees formally adopted the 2020 update of the Park County HMP on September 21, 2020.

This HMP was approved by FEMA Region IX on October 9, 2020. A copy of the Town's adoption resolution is included in Appendix E of the Basic Plan.

---

## 2. COMMUNITY PROFILE

---

The Town of Fairplay is the most populous municipality of Park County and the county seat. Located at an elevation of nearly 10,000 feet in the northwestern corner of Park County, just south and east of the Mosquito Mountain Range, Fairplay is a small commercial center for a significantly rural county. The Town's policymaking legislative body is the Board of Trustees, consisting of a mayor and four board members elected at large who each serve a four-year term. The local government includes the following departments:

- Administration – Town Administrator, Town Clerk, and Finance
- Building and Planning
- Municipal Court
- Police
- Public Works

In part because of its elevation, the Town of Fairplay's summers are cool and have significant temperature changes, with average highs ranging from the lower 60s to lower 70s and average lows in the low to upper 30s. Winters range from the mid to lower 30s to single digits, with snowfall occurring from September through May, and most significantly in November through April. Recreational tourism plays a significant role in the economy. Winter sports like skiing and snowboarding are popular in the area, as well as activities like hiking and fly-fishing. The town website marks Fairplay as the "Fly-Fishing Capital of Colorado." These activities support local businesses within the town.

The population is under 900 individuals. According to 2018 data, per capita income for the community is \$50,255. While the poverty rate is just 5.2 percent, 57 percent of occupied housing units (101 units of 399 total) expend over 30 percent of their household income on rent, which HUD considers a cost burden, making it difficult to afford other expenses (U.S. Department of Housing and Urban Development 2020). The percentage of households with broadband internet is 72.4.

About 20 percent of housing units are vacant, which can be attributed significantly to use as vacation rentals.

According to its Comprehensive Plan, Fairplay values its small town character, and prioritizes locally owned and operated businesses, pedestrian and cyclist safety, easy access to parks and open spaces, as well as a well-defined town center, historic buildings, community events, spaces for community interaction, and its physically compact setting (Western Slope Consulting et al. 2013). Physical design is encouraged to model the historic look of the town, particularly on Main and Front Streets. Major roads through Fairplay include U.S. Highway 285, which ultimately reaches Denver, and State Highway 9, which extends north toward Breckenridge and south toward Hartsel.

Table 2-1 American Community Survey 2018 5-year Census Data

	Town of Fairplay	State of Colorado
Population by Age		
Under 10 years	55	690,598
10–19 years	214	713,964
20–59 years	486	3,054,776
60 years and older	110	1,071,803
Women	259	2,135,260
Race/Ethnicity		
White*	803	4,655,584
Black*	9	227,938
American Indian, Alaskan Native	0	54,483
Asian, Native Hawaiian, other Pacific Islander	0	180,991
Hispanic or Latino, any race	49	1,184,794
Percent in Poverty	5.2%	10.9%

\*One race

Source: USCB (2018c)

Table 2-2 Town of Fairplay Change in Population

2000 Population	2010 Population	2018 American Community Survey Estimate	Estimated Percent Change 2000–2018
610	679	865	41.8%

Source: USCB (2018c)

3. HAZARD PROFILES AND VULNERABILITY ASSESSMENTS

Chapter 3 contains hazard profiles and vulnerability assessments to determine the potential impact of hazards to the people, economy, and built and natural environments of the Town of Fairplay. They have been streamlined to increase the effectiveness and usability of the jurisdictional annex. Additional details are provided in Part 2 of the Basic Plan.

	<p>B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect the [Town of Fairplay]? (Requirement §201.6(c)(2)(i))</p> <p>B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for the [Town of Fairplay]? (Requirement §201.6(c)(2)(i))</p> <p>B3. Does the plan include a description of each identified hazard’s impact on the community as well as an overall summary of the community’s vulnerability for each jurisdiction? (Requirement 44 Code of Federal Regulations § 201.6(c)(2)(ii))</p>
---	--

3.1 General

Park County has experienced several major disaster declarations that may have affected the Town of Fairplay. In total, the county has experienced 10 federal disaster declarations since 1953. Table 3-1 identifies the declarations since 2010 that may have affected the Town of Fairplay. There were no federal disaster declarations in Park County between 2015 and 2020.

Table 3-1 Park County FEMA Disaster Declarations

Disaster ID	Date of Declaration	Disaster Name/Type	Incident Period
DR-4229	July 16, 2015	Colorado Severe Storms, Tornadoes, Flooding, Landslides, and Mudslides	May 04, 2015 - June 16, 2015

Source: FEMA (2020)

The hazard profiles and vulnerability assessments contained in this annex represent a considerable amount of work performed by the Hazard Mitigation Committee (HMC). HMC members ranked hazards using several key considerations, followed up by activities to validate hazard analysis results and identify specific areas of risk. Table 3-2 includes the high-priority hazards that Town of Fairplay representatives to the HMC selected for further assessment.

Table 3-2 Hazards Addressed in the Plan

Hazard Type	Hazard Name
Natural Hazards	Flooding Severe Winter Weather Severe Thunderstorm, Hail, and Wind Wildfire
Human-Caused Hazards	Hazardous Materials
Technological Hazards	Dam Failure

### 3.2 Hazard Ranking Methodology

The hazards identified in the HMP were initially ranked based on feedback from members of the HMC during HMC Meeting #1. The hazard rankings by the mitigation program lead for the Town of Fairplay are shown in Table 3-3

### 3.3 Hazard-Specific Profiles and Risk Assessments

The following sections profile and assess the risks associated with hazards that are high planning priorities for the Town of Fairplay, which are hazards that were scored an average of 3.00 or higher during the hazard ranking activity. Each profile and risk assessment considers the following attributes:

- Location: An indication of geographic areas that are most likely to experience the hazard.
- Past Occurrences/History: Similar to location, a chronological highlight of recent occurrences of the hazard accompanied by an extent or damage cost, if available.
- Extent/Probability: A description of the potential magnitude of the hazard, accompanied by the likelihood of the hazard occurring (or a timeframe of recurrence, if available).
- Vulnerability: A description of the potential magnitude of losses associated with the hazard. Vulnerability may be expressed in quantitative or qualitative values depending upon available data. Identifies development trends impact on the City's vulnerability to each hazard since the 2012 plan development (increased, decreased, or unchanged).

*Note: Hazard Descriptions, Potential Impacts from Future Climate Conditions, and Cascading Impacts can be found in Part 2 of the HMP Basic Plan, as these are not place-specific.*

Table 3-3 Town of Fairplay Hazard Rankings

Town of Fairplay – Local Hazards						
	<i>Probability/ Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Flood	4.00	5.00	5.00	5.00	4.67	1
Severe Winter Weather	5.00	4.00	4.00	4.00	4.33	2
Hazardous Materials	3.50	3.50	5.00	3.00	4.00	3
Severe Thunderstorm, Hail, and Wind	4.00	3.50	4.00	2.00	3.83	4
Dam Failure	2.00	5.00	4.00	5.00	3.67	5
Wildfire	3.00	2.50	4.00	5.00	3.17	6
Earthquake	1.00	2.00	4.50	5.00	2.50	7
Landslide	1.50	2.00	4.00	5.00	2.50	7
Drought	1.00	1.00	1.00	4.00	1.00	9

## 3.3.1 Flood

Probability/Frequency	Magnitude	Onset	Duration	Average	Rank
4.00	5.00	5.00	5.00	4.67	1

*Location*

While there is no official record of major flooding events in Fairplay, the town does face significant potential for flooding hazards. Fairplay is bordered by mountains with steep ridges and pronounced valleys. The headwaters of the South Platte River—a significant watershed—are located in the Mosquito Range west of South Park, where Fairplay is located. Fairplay’s two main roads are both susceptible to impacts of flooding from mountain snowmelt and runoff into canyons and swelling rivers, like the Middle Fork South Platte River, which runs through the town. Numerous rivers flow down from the Mosquito Mountain Range between Fairplay and Antero Junction, 22 miles away, including the Fourmile Creek and South Fork South Platte River.

The Middle Fork flows along the west side of Fairplay in an incised valley well below most urban development. Beaver Creek is east of Fairplay and joins the Middle Fork south of town. The primary flooding risk in Fairplay from the Middle Fork and Beaver Creek is to U.S. Highway 285 and State Highway 9. Dry gulches in town could also pose a flood threat in the event of heavy precipitation. After the Middle Fork crosses U.S. Highway 285, it continues to the southeast and eventually has its confluence with the South Fork of the South Platte River upstream of Hartsel to form the South Platte River. Mapped FEMA flood zones in the Town of Fairplay are shown on Figure 7-4 in the Basic Plan.

*Past Occurrences/History*

There have been numerous instances of flooding that have resulted in closures of U.S. Highway 285, the main highway in and out of Fairplay, frequently between Fairplay and Antero Junction. For example, in July 2018 flash flooding in the burn area of the June 2018 Weston Pass Fire—which burned over 13,000 acres near Granite, Colorado—resulted in closure of U.S. Highway 285 between Fairplay and Antero Junction for nonresidents (Forster 2018). However, no 100-year flood events have been officially recorded in the Middle Fork Basin. See Figure D-4 in Appendix D for the FEMA Flood Hazard Area for Fairplay.

*Extent and Probability*

Hazard exposure has been thus far limited to flash flooding. More significant flooding is predominantly confined within riverine valleys.

*Future Probability Trend*

While no 100-year flood events have been officially recorded in the Middle Fork Basin, it does not preclude the occurrence of a 100-year event in the future. Given the increased likelihood for more intense rain and snow events associated with climate change, the future probability of a flood event will

increase. Given the town's proximity to steep mountainous slopes and location within the South Platte River watershed, flash flooding will continue to occur.

#### *Vulnerability*

Fairplay's assets within the 100-year floodplain will be vulnerable to a potential future 100-year flood event. There are no critical facilities and infrastructure in the 100- and 500- year floodplains of the planning area.

#### Recent Development Trends

- Economic: Fairplay's economic trends are tied to the tourism industry. Most of Fairplay's retail business occurs in the summer, when there is a lesser likelihood for a major flood event that would disrupt services (no change in vulnerability).
- Land Use: The town has an increasing number of vacation rentals, resulting in an increased tourist population that would be unfamiliar with any emergency management procedures (increased vulnerability).

#### 3.3.2 Severe Winter Weather

Probability/Frequency	Magnitude	Onset	Duration	Average	Rank
5.00	4.00	4.00	4.00	4.33	2

#### *Location*

Severe winter weather is the most common cause for a State disaster declaration. Fairplay's high elevation and location on the edge of the intermountain South Park grassland basin results in temperatures favorable to ice and snow accumulation. Fairplay averages 84 inches of snowfall annually and 13.6 inches of precipitation (Park County, n.d.).

#### *Past Occurrences/History*

The following table relays information from the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information Storm Events Database on numerous Winter Weather, Winter Storm, and Heavy Snow events in or near Fairplay since 2010 (NOAA, n.d.[b]).

Table 3-4 Fairplay Severe Winter Weather Events

Date	Event Number	Event Type	Description
11/29/2019	865224, 865227	Winter Weather	A powerful winter storm moved out of the southwest and across the Central Rockies, bringing a period of high winds and blowing snow to much of the area. Significant travel impacts occurred due to a combination of snow, high winds, and blowing snow. In the mountains and foothills, peak wind gusts ranged from 75 to 110 miles per hour (mph). Across the northeast plains, peak gusts ranged from 59 to 69 mph. In the mountains, foothills, and adjacent areas west of I-25, the more powerful gusts included: 110 mph at Comstock mine, 4 miles north of Eldora, 107 mph at the top of Eldora, 100 mph on Niwot Ridge, 94 mph at Floyd Hill, 87 mph atop Peak 8 in Breckenridge Ski Area and near Georgetown, 86 mph at Nederland, 85 mph at Evergreen, 84 mph at Loveland, 81 mph near Dumont and Lawson, and 80 mph near Central City. U.S. Highway 285 was closed between Kenosha Pass and Fairplay, with numerous accidents due to a ground blizzard and zero visibility. An estimated 300 travelers and 100 vehicles were stranded as snow cats were ordered from Jefferson and Park Counties to aid the rescue. Across the northeast plains, peak wind reports included 69 mph, 8 miles south of Holyoke; 68 mph at Akron Municipal Airport; 61 miles, 15 miles west-northwest of Sterling; 60 mph, 5 miles north of Pawnee Pass; 59 mph, 7 miles south-southwest of Burdett. Other road closures included U.S. Highway 285 from Fairplay to Grant.
10/9/2019	849899, 849902	Winter Weather	A vigorous winter-like storm system brought intense northerly winds, and the cold front blasted through the urban corridor. Peak wind gusts ranged from 50 to 60 mph with the front. Bands of moderate to heavy snow brought 2 to 6 inches of snow in the Front Range Mountains, foothills, and urban corridor. The morning commute was especially hazardous as falling temperatures froze wet roads. Multiple crashes occurred, including I-25 in Denver, I-70 from Denver west to the Eisenhower Tunnel, and U.S. Highway 285 to Fairplay. Over 300 crashes were reported in Denver and Aurora alone. After reaching a maximum temperature of 83 degrees on the afternoon of the ninth, the temperature plummeted to 13 degrees on the 10th. A temperature change of 70 degrees, the second largest two-day swing for the month of October in Denver weather history.
4/26/2015	563245, 563246	Winter Storm	A spring storm produced heavy snow in parts of the north central mountains as well as the higher elevations of South Park. Storm totals included 18 inches just north of Fairplay, 14 inches in Alma, 12.5 inches just southeast of Breckenridge, and 10.5 inches in the town of Fairplay.
4/12/2014	512903, 512901	Heavy Snow	A storm system brought heavy snow to the mountains and foothills of the Front Range. Storm totals included 14 inches, 2 miles south-southeast of Breckenridge and Williams Fork Dam; 13 inches, 4 miles west-northwest of Conifer; 12.5 inches, 1 mile southeast of Breckenridge and 5 miles northeast of Ward; 11.5 inches, 4 miles east-northeast of Nederland; 10 inches, 2 miles east of Allenspark, Fairplay, 3 miles southwest of Golden and Gold Hill; 9 inches at Strontia Springs Dam; and 8.5 inches at Roxborough State Park.
3/15/2010	211592, 211591, 211590	Winter Weather	A storm system produced a brief period of moderate to heavy snow over portions of Clear Creek, Jefferson, and Park Counties. Storm totals included 12.5 inches, 3 miles north of Alma; 9.5 inches, 3 miles west-northwest of Fairplay; 8.5 inches at Cabin Creek, 8 inches, 5 miles east-southeast of Aspen Park; 7 inches near Chatfield and Lake George and 6 inches, 4 miles southeast of Conifer.

*Extent and Probability*

Generally, Colorado inhabitants experience severe winter storms each year and the mountainous areas of the state regularly experience several severe snowstorms each year. These storms can produce between 4 and 12 inches (or more) of snow from each event. Northwest Park County is no different, and its high elevation and proximity to the mountains increase the likelihood of winter storm events. Considering a worst-case scenario, a severe storm event could require federal level support, could impact critical facilities, and disrupt services for more than 20 days, and could have statewide economic impacts.

**Future Probability Trend**

Ongoing climate change is expected to have a significant impact on the intensity, duration, and frequency of storm events, increasing the probability of future severe winter storm events.

*Vulnerability*

As demonstrated by the events outlined in Table 3-2, Fairplay’s population is vulnerable to road closures from winter storm events, which presents added vulnerability given that the county is predominantly rural, with few major routes for evacuation in the case of an emergency. Additionally, secondary roads can be too steep to be passable during a storm, which could result in stranded vehicles in challenging terrain. This can be further exacerbated by any associated power outages experienced from severe winter storms.

**Recent Development Trends**

- **Economic:** While the economy may suffer immediately from a severe winter storm due to associated transportation challenges, Fairplay has been growing in winter tourism associated with skiing and snowboarding, which could mitigate some economic impact (no change in vulnerability).
- **Land Use:** The addition of residential and commercial development planned south of the Fairplay Beach Recreation Area on the Middle Fork and adjacent to U.S. Highway 285 will result in additional properties at risk from a severe storm event, which adds pressure to the limited response teams (increased vulnerability).

3.3.3 Hazardous Materials

Probability/Frequency	Magnitude	Onset	Duration	Average	Rank
3.50	3.50	5.00	3.00	4.00	3

*Location*

A hazardous material may cause damage to people, property, or the environment when released to soil, water, or air. Hazardous materials are used and stored in homes and businesses. Products are shipped daily on highways, railroads, waterways, and pipelines. The major routes through Fairplay—U.S. Highway 285 and State Highway 9—are the major methods of transport for hazardous materials in

proximity to Fairplay. The Park County Office of Emergency Management identified the U.S. Highway 285 Corridor, the U.S. Highway 24 Corridor, and the State Highway 9 Corridor as the HAZMAT Corridors of concern in the county.

Incidents occurring in urban locations, such as Fairplay, could have significant human consequences. Park County emergency services professionals indicated that many hazardous materials pass through the county. Any number of hazardous materials, if released into the air by fire, wind, or both, could threaten the health or lives of residents, and would likely force evacuations.

#### *Past Occurrences/History*

No HAZMAT incidents had been reported to the National Response Center (NRC) in 2017, 2018, 2019, and at the time of this plan update, March 30, 2020. Historically, there was a tanker truck accident on May 20, 2004, on U.S. Highway 285 near Bailey. Nearly 8,500 gallons of petroleum product discharged onto the highway and ignited, closing both directions of U.S. Highway 285 for a significant period of time. No waterways were affected in this incident, but the highway's proximity to the North Fork of the South Platte River means that similar incidents on that stretch of highway could have much more severe consequences.

#### *Extent and Probability*

There have been few instances of hazardous materials incidents in the county or in Fairplay. However, while probability is low, it still represents a risk. While it is not a large city by acreage, Fairplay has over eight sites identified as hazardous materials facilities as seen in Figure D-7 in Appendix D. Residential and commercial properties near these facilities would face higher risk of impact from a hazardous materials incident. Additionally, those areas within Fairplay located on or near State Highway 9 or U.S. Highway 285 would be at a higher risk of impact.

#### **Future Probability Trend**

No changes in future probability are expected. Changes in economic conditions that either decrease or increase the amount or change the type of hazardous materials transported on regional roadways may affect the probability of a hazardous materials incident.

#### *Vulnerability*

The vulnerability to hazardous materials incidents at fixed facilities includes either the potential for an explosive release or insidious leaking of materials into the ground or groundwater. Fairplay has over eight hazardous materials sites in the Fairplay vicinity. Growth in areas of the town near these facilities will result in greater potential exposure and vulnerability of assets to hazardous materials. The impact of an accident and spill during roadway transport depends largely on the spill location relative to population centers and waterways.

#### **Recent Development Trends**

- Economic: If Fairplay's economy were to grow, new community assets may be at risk of impact from hazardous materials. State Highway 9 becomes Main Street in the Town of Fairplay, in an

area known as the Town Center. It is both the community hub and the area of commerce, making these assets at risk from both a hazardous materials incident from vehicle traffic, as well as stationary events from nearby hazardous materials facilities (increased vulnerability).

- Land Use: In Fairplay's light industrial spaces are primarily found behind commercial areas along U.S. Highway 285, creating a buffer for residents to mitigate risk. However, Fairplay's zoning map (Sopris Land Use LLC 2016) sets the stage for additional commercial and urban development along U.S. Highway 285, providing additional risk to residents and businesses located along this major route (increased vulnerability).

3.3.4 Severe Thunderstorm, Hail, and Wind

Probability/Frequency	Magnitude	Onset	Duration
4.00	3.50	4.00	2.00

Average	Rank
3.83	4

*Location*

Severe weather events have the potential to happen anywhere in the county, including Fairplay. The entire county is considered to have an equal risk of being impacted by a thunderstorm event. Severe thunderstorms, for example, can occur throughout the year, although historical records indicate that in Park County the majority occur between April and October. Effects from severe thunderstorms can be high winds, heavy rain (possibly causing flooding), potentially life-threatening lightning, and hail.

*Past Occurrences/History*

In June 2014, Fairplay experienced several tornadoes. NOAA National Centers for Environmental Information Storm Events Database reported the following:

An upper level weather disturbance and its associated cold front moved across northern Colorado during the late morning and afternoon; spawning several tornadoes, damaging wind, large hail, very heavy rainfall. Nine tornadoes touched down across northeast Colorado. Three of the tornadoes occurred in Park County, at elevations of 8,000-10,000 feet. The first tornado occurred 8 miles south-southwest of Fairplay; it damaged the roof of a residence and was assigned a rating of EF-1. The second tornado developed 6 miles southeast of Fairplay in open country. The third tornado developed 4 miles west of Lake George; it was given a rating of EF-2. The last tornado caused damage to some homes and overturned several recreational vehicles at an RV park. Several power lines were also downed and some buildings in the town of Lake George were damaged, and trees were also snapped from their bases. This tornado then passed into Teller County. (NOAA, n.d. [b])

Park County's largest severe weather event in recent history was a Federal Disaster Declaration declared in July 15, 2015 for an incident period of May 04, 2015 through June 16, 2015 that included 14 counties in the declaration and involved severe storms, tornadoes, flooding, landslides, and mudslides. It ultimately resulted in \$26,103,962 in total state public assistance grants (FEMA 2015).

Fairplay has also experienced the following since 2010 (NOAA, n.d.[b]):

- Four high wind incidents (11/20/2019, 10/11/2013, 12/31/2011, 11/12/2011)
- One thunderstorm wind incident (8/16/2011), which resulted in wind gusts of 71 mph near Fairplay
- One lightning event in June 2010 that resulted in a 45-minute power outage

*Extent and Probability*

Severe weather events have the potential to happen anywhere in the planning area.

**Future Probability Trend**

Ongoing climate change is expected to have a significant impact on the intensity, duration, and frequency of storm events, increasing the probability of future severe storm events.

*Vulnerability*

Vulnerable populations are the elderly and residents living in areas that are isolated from major roads. Power outages can be life threatening to those dependent on electricity for life support. All property is vulnerable during severe weather events, but properties in poor condition or in particularly vulnerable locations may risk the most damage. Severe windstorms, downed trees, and ice can create serious impacts on power and above-ground communication lines.

**Recent Development Trends**

- Economic: Any growth will result in an increased risk, as new residences and businesses will be at the same risk of power outage from a major storm event (increased vulnerability).
- Land Use: Fairplay does not have any land use changes proposed that would alter its vulnerability to severe storms (no change in vulnerability).

3.3.5 Dam Failure

Probability/Frequency	Magnitude	Onset	Duration	Average	Rank
2.00	5.00	4.00	5.00	3.67	5

*Location*

Fairplay has numerous nearby dams as indicated in Table 3-5 below. Montgomery Dam holds a major reservoir and is located just over 9 miles upstream of Fairplay. Dam failure flooding would cause adverse impacts in portions of the basin directly downstream of this reservoir that is within the Town of Fairplay.

The Middle Fork of the South Platte and various dry gulches within the Town of Fairplay are susceptible to flooding. There is residential and commercial development along the main stem of the Middle Fork and various dry gulches. In addition, dam failure flooding in the Middle Fork South Platte River Basin could cause flooding downstream of the confluence of the Middle Fork of the South Platte River with the South Fork of the South Platte River, within the South Platte River Basin.

Table 3-5 Dam Distances to the Town of Fairplay

Dam	Distance to Fairplay (miles)
Cline Dam	8.8
Tarryall Ranch Reservoir Number 1 Dam	9.5
Montgomery Dam	9.6
Evans Gulch Number 2 Dam	11.7
Black Cloud Tailing Pond Dam	11.8
Upper Blue Dam	13.3
Lower Michigan Dam	15.1
Upper Michigan Dam	15.2
Clinton Gulch Dam	15.9

Source: GeoStat.org (n.d.)

#### *Past Occurrences/History*

There have been no past occurrences of dam failures affecting the town of Fairplay.

#### *Extent and Probability*

Dam failure events are infrequent and usually coincide with events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a “residual risk” associated with dams. Residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of any type of dam failure is low in today’s regulatory and dam safety oversight environment.

During HMC Workshop #3, representatives for the Town of Fairplay noted that developed areas of the town are outside of the expected inundation area in the event of a dam failure. Land use policies and regulations are in place to prohibit new development in the flood zone.

#### *Future Probability Trend -*

The future probability of dam failure is low.

#### *Vulnerability*

Downstream communities and infrastructure from Montgomery Reservoir include areas of the Town of Fairplay adjacent to the Middle Fork of the South Platte River, Lake George, Spinney Mountain Reservoir, Eleven Mile Reservoir, State Highway 9, U.S. Highway 285, and U.S. Highway 24. These areas are all at risk from failure of Montgomery Dam. Land in Fairplay adjacent to the river is mostly undeveloped and used for recreation; residential and commercial properties near the river are outside of the area that would be expected to be inundated in the event of a dam failure.

#### *Recent Development Trends*

- Economic: In its Zoning Map, Fairplay has slated an area west of U.S. Highway 285 and east of the Beach as commercial. While currently vacant, should this land be developed—given

proximity to the Middle Fork South Platte River and the Beach—risk of downstream flooding from dam failure would increase (increased vulnerability).

- Land Use: Land use policies and zoning regulations in Fairplay restrict most new development in mapped flood zones adjacent to the river, which lowers the risk of developed properties being inundated in the event of a dam failure. Existing land uses are outside of the area that would be expected to be inundated in the event of a dam failure (no change in vulnerability).

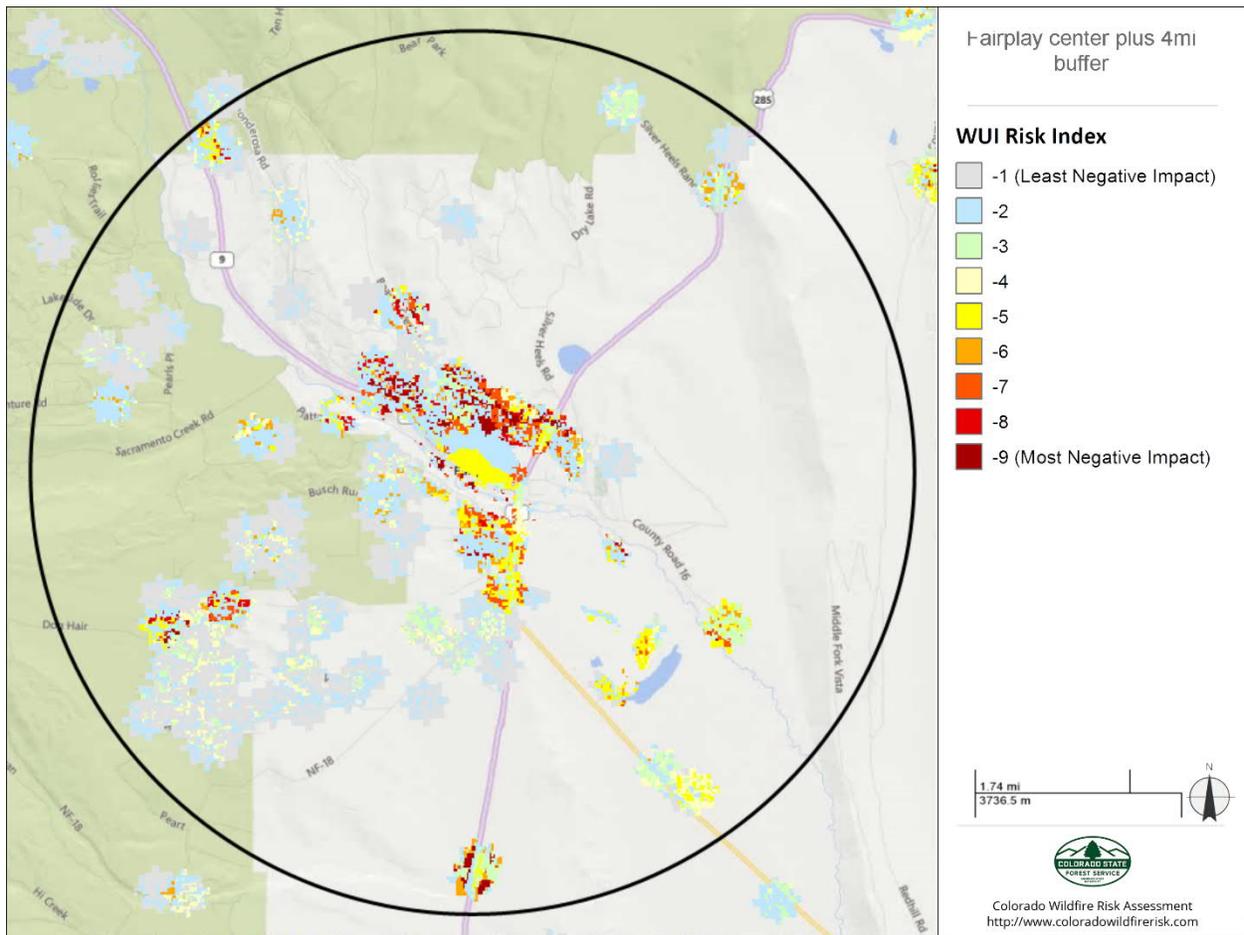
### 3.3.6 Wildfire

Probability/Frequency	Magnitude	Onset	Duration	Average	Rank
3.00	2.50	4.00	5.00	3.17	6

#### *Location*

Much of Park County is mountainous and wooded, leaving a large part of the county at risk from wildfire. Areas of steep terrain with forested mountain vegetation (ponderosa pine and Douglas fir) are at the greatest risk. Further exacerbating the problem is the lack of easy access to many of the county's heavily forested areas. Park County also has numerous potential wildland-urban interface (WUI) areas prone to wildfire. The 2007 County Wildfire Protection Plan marks Fairplay subdivisions at "very high" risk (Park County 2007). Using a 4-mile buffer from the center of Fairplay, the Colorado Wildfire Risk Assessment Portal indicates 97.9 percent of the population live within the WUI (Colorado State Forest Service 2017). Figure 3-1 indicates WUI Risk levels. However, data provided from Gregory Dillon's Wildfire Hazard Potential for the conterminous United States indicates that generally wildland fire potential is low to medium (Dillon 2018). Fairplay is located within the North-West Fire Protection District Area.

Figure 3-1 WUI Risk Index within 4 miles of the center of Fairplay



Source: Colorado State Forest Service (2017)

*Past Occurrences/History*

In 2018, the Weston Pass Fire burned 13,023 acres southwest of Fairplay. The fire was sparked by lightning and resulted in evacuations for the Campground of the Rockies Association and Black Mountain subdivisions.

*Extent and Probability*

Wildfires are increasingly prevalent in Colorado, with controlled and uncontrolled fires burning annually. The number, intensity, and complexity of wildfires has grown exponentially since the 1990s. Of Colorado's largest 20 wildfires in history, five—or 25 percent—occurred in 2018 (State of Colorado 2019). On average, Colorado will experience 4,472 wildfires within a year, burning over 160,000 acres (Colorado State Forest Service 2019). However, compared to other regions of the state and Park County, Fairplay faces a low wildfire fire potential, as demonstrated in Figure D-5 in Appendix D.

### Future Probability Trend

Given the increasing number of wildfires in Colorado, it is likely the community will face future wildfires. Ongoing climate change is expected to result in increased temperatures, risk of drought, and risk of pest infestations, like the mountain pine beetle, resulting in forests that are less resilient to wildfire.

### *Vulnerability*

Fairplay has numerous assets devoted to support wildfire response. North-West Fire Protection District has one station in Fairplay and one in Alma and various wildfire response equipment like fire engines, water tenders, wildland engines, and a ladder truck (North-West Fire Protection District 2020).

Communities on the outskirts of Fairplay—at a greater distance from the fire station—will be at risk of longer response time in the event of a wildfire. While at low to medium risk of experience a wildfire, damage from a wildfire event could range from minor odor and stain from wildfire smoke to loss of property and life.

### Recent Development Trends

- Economic: Development within and adjacent to Fairplay is within the WUI, resulting in increased vulnerability to wildfire risk (increased vulnerability).
- Land Use: The Town's Comprehensive Plan calls out wildland fire mitigation as important to Fairplay and out-of-town residents. One goal outlined in the plan is work with Park County, Colorado State Forest Service, and the US Forest Service to address health of nearby forests for better resilience to insect and disease (reduced vulnerability).

### 3.4 Vulnerability Assessment

#### 3.4.1 Asset Inventory

Local assets that may be affected by hazards include residents, properties, and utilities and infrastructure. GIS data from the State of Colorado and U.S. Geological Survey was used to inform the vulnerability assessment and identify critical infrastructure. Chapter 3 and Appendix D, both of the Basic Plan, discuss the sources and types of data used in the HMP. Data collection for the vulnerability assessment was complicated by the fact that the County and its partners have never comprehensively identified critical infrastructure; therefore, the list of critical infrastructure in the town of Fairplay may be incomplete. Valuation data is provided in Table 3-6 below by land use parcel data. As no assets were located within 1,000 feet of a dam, valuation data is not included for this hazard. Similarly, no parcels within Fairplay are located within a landslide debris area. Park County and its partners are committed to building on the list of critical infrastructures over the next five years to improve the data provided in the next plan update.

#### 3.4.2 Repetitive Loss Properties

There are no repetitive loss properties in the Town of Fairplay.

#### 3.4.3 Exposure Assessment

Table 3-7 shows exposure of Fairplay's identified critical facilities to natural hazards that are able to be mapped.

Table 3-6 Vulnerability to Hazards by Land Use Values

Hazard	Agricultural	Commercial	Exempt	Mining	Mixed Use-Com	Mixed Use-Ag Res	Mobile Home	Nat. Resources	Residential	Vacant Land	Total Parcel count	Residential Population Exposed <sup>2</sup>	Total Value
Wildfire <sup>1</sup>	\$9,096.30	\$5,349,328.38	\$4,106,724.75		\$1,257,928.57		\$134,543.94		\$6,374,328.48	\$1,643,323.37	670	737	\$18,875,273.79
Flood – 100-year flood zone		\$1,081,579.19	\$206,938.89							\$135,646.19	23	0	
PGA at 0.131	\$9,096.30	\$1,239,667.86	\$2,172,496.61				\$99,958.80		\$4,719,982.78	\$1,350,245.86	346	463	\$9,591,448.21
PGA at 0.132		\$4,109,660.52	\$1,934,228.14		\$1,257,928.57		\$34,585.14		\$1,654,345.70	\$293,077.51	324	275	\$9,283,825.58

<sup>1</sup>All parcels characterized in the assessment are in the “very low” wildfire risk category.

<sup>2</sup>Residential population estimates are based on the average household size in the town of 2.29 people in 2018 (Colorado State Demography Office 2020), multiplied by the number of residential parcels (mobile home and residential) in each hazard area. The number of residential parcels in each hazard area is shown in Appendix D of the HMP.

Key:

AgRes = Agricultural Residential

PGA = Peak Ground Acceleration

Table 3-7 Exposure Assessment

Type	Name	Flood Zone	Earthquake Hazard, Peak Ground Acceleration, 2,500 year	Wildfire Hazard	Landslide Debris Area	Distance to Dam (miles)
Bridge	H-13-A	--	0.132	Very Low	--	2.29
Com Tower	Qwest Corporation: Com Tower	--	0.131	Very Low	--	1.55
Com Tower	Qwest Corporation: Com Tower	--	0.131	Very Low	--	1.55
Com Tower	Park, County Of: Com Tower	--	0.132	Very Low	--	1.80
Com Tower	Park, County Of: Com Tower	--	0.132	Very Low	--	1.80
Com Tower	State of Colorado: Com Tower	--	0.132	Very Low	--	2.05
Com Tower	State of Colorado: Com Tower	--	0.132	Very Low	--	2.05
Com Tower	Cellular Inc. Network Corporation: Com Tower	--	0.132	Very Low	--	1.52
Com Tower	Cellular Inc. Network Corporation: Com Tower	--	0.132	Very Low	--	1.52
Electric Substation	Fairplay	--	0.132	Very Low	--	2.51
Emergency Operations Center	Park County Emergency Operations Center	--	0.132	Very Low	--	1.61
Emergency Shelter	Fairplay Community Center	--	0.131	Very Low	--	1.99
Emergency Shelter	South Park High School	--	0.132	Very Low	--	1.80
Hazardous Materials Facility	Fairplay Pharmacy	--	0.132	Very Low	--	1.57
Law Enforcement	Fairplay Police Department	--	0.132	Very Low	--	1.49
Law Enforcement	Park County Sheriff's Office	--	0.132	Very Low	--	2.48

Table 3-7 Exposure Assessment

Type	Name	Flood Zone	Earthquake Hazard, Peak Ground Acceleration, 2,500 year	Wildfire Hazard	Landslide Debris Area	Distance to Dam (miles)
Law Enforcement	Fairplay Police Department	--	0.132	Very Low	--	2.04
Law Enforcement	Park County Jail	--	0.132	Very Low	--	2.47
Law Enforcement	Colorado State Patrol Fairplay Post 3	--	0.132	Very Low	--	2.47
Medical	South Park Ambulance District	--	0.132	Very Low	--	2.12

3.5 Land Use and Development Trends

 <b>FEMA</b>	D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))
---	--

Fairplay population is slowly growing, with primarily residential development expanding outward from the town center to areas southwest of the beach and adjacent to U.S. Highway 285. As the growing is relatively minor, the development pressures do not result in a significant increase in risk exposure to hazards including flooding, severe storms, dam failure, or wildfire. The significant increase in summertime population due to tourism, driven by outdoor recreation opportunities, avoids the higher risk time of year for flood and winter weather. However, tourism is beginning to increase during winter months for winter recreational activities. The vulnerability subsection of each hazard profile in Section 3.3 above outlines recent development trends to illustrate ways in which vulnerability may have changed over the past five years. Vulnerability changes have been measured for economic interests and land use trends. Each measure has been identified as having an increased, decreased, or unchanged vulnerability. Table 3-8 provides a snapshot of how vulnerability has changed since development of the 2015 HMP.

Table 3-8 Recent Development Trends

Hazard	Economic	Land Use
Flood	=	+
Severe Winter Weather	=	+
Hazardous Materials	+	+
Severe Thunderstorm, Hail, and Wind	+	=
Dam Failure	+	=
Wildfire	+	-

Key:  
 + Increased vulnerability  
 - Decreased vulnerability  
 = Unchanged vulnerability

4. CAPABILITY ASSESSMENT

 <b>FEMA</b>	C1. Does the plan document Fairplay's existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))
---	--

4.1 Administrative and Technical Resources

Table 4-1 describes Fairplay's administrative and technical capabilities to engage in and improve mitigation planning and program implementation.

Table 4-1 Human and Technical Resources Integrated with Hazard Mitigation

Resource	Yes/No
Emergency Manager	Yes
Floodplain Administrator	Yes
Community Planning:	
- Planner/Engineer (Land Development)	Yes
- Planner/Engineer/Scientist (Natural Hazards)	Yes
- Engineer/Professional (Construction)	Yes
- Resiliency Planner	No
- Transportation Planner	No
Building Official	Yes
GIS Specialist and Capability	No
Grant Manager, Writer, or Specialist	Yes
Warning Systems/Services:	
- General	Yes
- Flood	No
- Wildfire	No
- Tornado	No
- Geological Hazards	No
Other	None

4.2 Financial Resources

Fairplay maintains fiscal and financial resources to support its mitigation program. Table 4-2 identifies specific resources that have been used to fund mitigation activities.

Table 4-2 Accessible Financial Resources

Financial Resource	Yes/No
Levy for Specific Purposes with Voter Approval	No
Utilities Fees	No
System Development / Impact Development Fee	No
General Obligation Bonds to Incur Debt	No
Special Tax Bonds to Incur Debt	No
Withheld Spending in Hazard-Prone Areas	No
Stormwater Service Fees	No
Capital Improvement Project Funding	No
Community Development Block Grants	No
Other	No

Table 4-3 identifies current and potential sources of funding to implement identified mitigation actions contained within the HMP. In addition, funding is also available from federal and state agencies and programs.

Table 4-3 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Local		
General Fund	Board of Trustees	Funding available for mitigation efforts supporting government-wide projects and activities
Federal		
Building Resilient Infrastructure and Communities (BRIC) Program	Federal Emergency Management Agency (FEMA)/Colorado Division of Homeland Security and Emergency Management (DHSEM)	Authorized by the Disaster Relief and Recovery Act of 2018, the BRIC program is replacing FEMA's Pre-Disaster Mitigation Program. BRIC will support states, local communities, tribes, and territories to undertake projects that mitigate hazard risks and increase community resiliency. Grant awards will prioritize infrastructure projects and projects that support community lifelines: safety and security; food, water, shelter; health and medical; energy; communications; transportation; and hazardous material.
Pre-Disaster Mitigation Program	DHSEM	Provides funding to develop hazard mitigation plans and implement mitigation actions contained within.
Hazard Mitigation Grant Program	DHSEM	Post-disaster funds to hazard reduction projects impacted by recent disasters.
Flood Mitigation Assistance Program	DHSEM	Provides funds for flood mitigation on buildings that carry flood insurance and have been damaged by flooding.
Community Development Block Grant Program	U.S. Department of Housing and Urban Development/ Colorado Department of Local Affairs	Funds projects that benefit low- and moderate-income communities, prevent or eliminate slums or blight, or meet urgent community development needs posing a serious and immediate threat to community health or welfare.

Table 4-3 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Emergency Management Performance Grants Program	FEMA/DHSEM	Provides funding to states for local or tribal planning, operations, acquisition of equipment, training, exercises, and construction and renovation projects.
Flood Mitigation Assistance	DHSEM	Provides funding to support development of the flooding hazard portion of state and local mitigation plans and up to 100% of the cost of eligible mitigation activities. This funding is only available to communities participating in the National Flood Insurance Program.
NEHRP	CGS	Supports enhanced earthquake risk assessments in local hazard mitigation plans. Provides funding for earthquake modeling and loss estimation, partnership building, planning, and training activities. Provides funding for prevention materials and activities. Provides support for limited post-event inspection and reporting.
State Fire Assistance Program	U.S. Forest Service/ DHSEM	Provides funding opportunities for local wildland-urban interface planning, prevention, and mitigation projects, including fuels reduction work, education and prevention projects, community planning, and alternative uses of fuels.
National Dam Safety Program State Assistance Grants	FEMA/DWR Dam Safety	Grant assistance to State Dam Safety programs to reduce risks to life and property associated with dams, increase awareness of the benefits and risks related to dams, and advance the state in the practice of dam risk management.
Risk Mapping, Assessing, and Planning	FEMA	Provides funding and technical support for hazard studies, flood mapping products, risk assessment tools, mitigation and planning, and outreach and support.
State		
Flood Response Fund	CWCB	Created and appropriated funding to the Flood Response Fund, administered by CWCB.
Emergency Dam Repair Cash Fund	CWCB	Created Emergency Dam Repair Cash Fund. As determined by CWCB, money transferred from CWCB Construction Fund as needed.
Forest Restoration and Wildfire Risk Mitigation Grant	CSFS	Assists with funding community-level actions across the state that are implemented to protect populations and property in the wildland-urban interface and to promote forest health and the utilization of woody material. Includes funding for capacity building.
Rockfall Mitigation Program	CDOT	Provides internal mitigation design and review for projects funded by rockfall mitigation budget; provides personnel designated as first responders during rockfall related emergencies; installs control devices on rock walls for prevention; posts falling rock signs on highways
Colorado Wildfire Preparedness Plan and Fund	DFPC	Amended to read Wildfire Emergency Response Fund creation, Wildfire Preparedness Fund creation. DFPC may use the moneys in the Wildfire Preparedness Fund to implement the Wildfire Preparedness Plan.
Conservation Reserve Program	U.S. Department of Agriculture Farm Service Agency and Natural Resource Conservation Service	Retires eligible cropland from agricultural production and plants the land with permanent grass cover to reduce wind erosion and dust hazards.
Other		

Table 4-3 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Community Planning Assistance Teams	American Planners Association Foundation	Provides pro bono technical assistance for planning frameworks or community vision plans for communities needing extra assistance. Local governments are responsible for travel costs.

Key:

CDOT = Colorado Department of Transportation

DHSEM = Colorado Division of Homeland Security and  
Emergency Management

CGS = Colorado Geological Survey

DWR = Division of Water Resources

CWCB = Colorado Water Conservation Board

FEMA = Federal Emergency Management Agency

DFPC = Division of Fire Prevention and Control

### 4.3 Planning and Regulatory Resources

Table 4-4 describes the Town of Fairplay's planning and regulatory capabilities, including plans, policies, and programs that have integrated hazard mitigation principles.

Table 4-4 Planning and Regulatory Resources Integrated with Hazard Mitigation

Planning / Regulatory Resource	Yes/No
Building Codes (Year)	Yes, 2012
Building Code Effectiveness Grading Schedule Rating	None
Capital Improvements Program or Plan	Yes
Community Rating System	No
Community Wildfire Protection Plan	No
Comprehensive, Master, or General Plan	Yes
Economic Development Plan	No
Elevation Certificates	Yes
Erosion / Sediment Control Program	Yes
Floodplain Management Plan or Ordinance	Yes
Flood Insurance Study	No
Growth Management Ordinance	No
Non-Flood Hazard-Specific Ordinance or Plan (e.g., steep slope, wildfire, snow load)	No
NFIP	Yes
Site Plan Review Requirements	Yes
Stormwater Program, Plan, or Ordinance	Yes
Zoning Ordinance	Yes
Other	None

#### 4.4 Education and Outreach Resources

Table 4-5 summarizes Fairplay’s education and outreach capabilities, including programs that are used to educate and notify residents, business owners, and other stakeholders regarding hazard risks.

Table 4-5 Education and Outreach Resources

Education / Outreach Resource	Yes/No
Local Citizen Groups that Communicate Hazard Risks	Yes
Firewise	Yes
StormReady	Yes
Other	None

#### 4.5 National Flood Insurance Program Participation



C2. Does the Plan address [the Town of Fairplay’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3))

The Town of Fairplay participates in the National Flood Insurance Program (NFIP). In 2020, the CWCB provided the following information on flooding losses:

Total Losses	Closed Losses	Open Losses	Losses Closed Without Payment	Total Payments
0	0	0	0	0

There are no repetitive loss properties or severe repetitive loss properties in the Town of Fairplay.

The Town of Fairplay voluntarily participates in the NFIP through its adoption and enforcement of floodplain regulations. Article XI, Flood Damage Prevention, of the Town’s Building Regulations (Chapter 18 of the Municipal Code) is intended to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions. This ordinance applies to all Special Flood Hazard Areas and areas removed from the floodplain through a FEMA Letter of Map Revision Based on Fill within the jurisdiction of the Town. Special Flood Hazard Areas in Fairplay were identified in FEMA’s 2009 flood insurance study for Park County, including incorporated towns.

In order to accomplish the ordinance’s intended purposes, the Town relies on the following methods to regulate development in the floodplain in order to minimize flood losses:

- Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

- Control the alteration of natural floodplains, stream channels and natural protective barriers, which are involved in the accommodation of floodwaters;
- Control filling, grading, dredging and other development which may increase flood damage; and
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

The ordinance is enforced through issuance of floodplain development permits.

The Chief Building Official serves as the Town's Floodplain Administrator. The Floodplain Administrator is responsible for administering, implementing, and enforcing the provisions of the Floodplain Protection ordinance and other appropriate sections of 44 CFR (National Flood Insurance Program Regulations) pertaining to floodplain management.

Policies established in the Town's Comprehensive Plan further support regulation of development in floodplains. The Comprehensive Plan identifies the 100-year floodplain as a natural hazard area where development should be avoided. Goal E-4, Policy A, in the plan states that floodplains and wetland areas should be protected from adverse impacts through use of setbacks, open space designations, and similar methods (Western Slope Consulting, LLC., Sopris Land Use, LLC., Lamont Planning Services, and RRC Associates 2013).

#### 4.6 Integration of Mitigation into Existing Planning Mechanisms

Integration of the principles of mitigation into the Town of Fairplay's daily operations and ongoing planning activities is a priority of the Town of Fairplay's mitigation program. These activities will support:

- Raising awareness of the importance of hazard mitigation for the whole community;
- Facilitating an understanding that hazard mitigation is not just an 'emergency services' function and building ownership of mitigation activities across the organization;
- Reduction in duplication or contradiction between plans; and
- Maximization of planning resources through linked or integrated planning efforts.

The town is encouraged to consider integration actions into planning mechanisms, including:

- Budget decision-making;
- Building and zoning ordinances and decision-making;
- Emergency planning mechanisms; and
- Economic developing planning and decision-making.

## 4.6.1 Existing Plans

 <b>FEMA</b>	<p>C6. Does the Plan describe a process by which [the Town of Fairplay will incorporate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))</p>
---	--

The following existing plans provide an ongoing opportunity for integration of hazard mitigation and department leadership will work with plan owners and stakeholders when these plans are updated to consider hazard mitigation data and principles and ensure plans align with the HMP.

The Town of Fairplay Comprehensive Plan focuses on maintaining Fairplay’s goal of preserving its small-town historic appeal and environmental protection while simultaneously balancing these values with economic vitality, adequate housing, solid infrastructure, and future growth. Wildland fire mitigation is of utmost importance. Below are the specific goals and policies that support mitigation:

- Goal E-4 - Avoid development in natural hazard areas.
  - Policy A: Protect floodplains and wetland areas from adverse impacts through the use of setbacks, open space designations and similar methods.
  - Policy B: Buffer or avoid natural hazard areas to prevent adverse community impacts from flooding, slope failure, debris flows or similar hazards.
  - Policy C: Development will conduct site-specific hazard studies on potential natural hazard areas and propose effective mitigation actions.

5. MITIGATION STRATEGY

 <p><b>FEMA</b></p>	<p>C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for the Town of Fairplay being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))</p>
--	--

5.1 Review of 2015 Hazard Mitigation Actions

As part of the mitigation strategy update, all mitigation actions identified in the 2015 plan were evaluated to determine what the status of the action was and whether any ongoing or incomplete actions should be included as actions in the 2020 plan update. Members of the HMC worked through each previous action following HMC Meeting #2 to document steps taken to fulfill the action.

*See Appendix F of the Basic Plan for an overview of the status of all actions from the 2015 plan update.*

5.2 2020-2025 Mitigation Implementation Plan

 <p><b>FEMA</b></p>	<p>C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by [the Town of Fairplay]? (Requirement §201.6(c)(3)(iii))</p>
--	---

The mitigation implementation plan lays the groundwork for how the mitigation plan will be incorporated into existing planning mechanisms and how the mitigation actions will be prioritized, implemented, and administered by the Town of Fairplay. The implementation plan includes both short-term strategies that focus on planning and assessment activities, and long-term strategies that will result in ongoing capability or structural projects to reduce vulnerability to hazards. The Town has indicated its intent to focus on implementing actions from the 2015 plan that have not yet been completed during the 2020 to 2025 planning period.

*See Appendix F of the Basic Plan for Mitigation Action Worksheet instructions and completed Mitigation Action Worksheets for each new action listed in Table 5-1.*

Table 5-1 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action (Action Status)	Type of Action	Goals Supported (Objectives)	FEMA Lifeline Supported	State Resiliency Prioritization Criteria Supported	Lead and Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	Benefit to Community
MH-4	Acquire generators for RE-2 (South Park) School District, including Deer Creek Elementary School. (New)	Structure and Infrastructure Projects	3 (3A)	Safety and security, Energy, food water & shelter	Co-Benefits, High Risk and Vulnerability, Social Equity, Technical Soundness, Adaptive Capacity	RE-1 School District, RE-2 School District	1-3 Years	All	Medium	Anticipated	Town budget, FEMA, other grants	Medium
MH-5	Install aboveground, gravity-fed fuel tanks for back-up power and fuel or make arrangements to share with County shops. (New)	Structure and Infrastructure Projects	1 (1A)	Energy (Power & Fuel)	Adaptive Capacity	Fairplay Police Department and Public Works	< 1 year	Flood, Severe Winter Weather	Low	Yes	General fund	Medium
MH-6	Coordinate with electric power providers to identify electric infrastructure at risk of outages during various hazard events and develop a prioritized list of actions to address these risks. Include these actions in the next update of the HMP. (New)	Local Plans and Regulations	3 (3A)	Energy	Technical Soundness, Long-term and Lasting Impact	Fairplay Police and Public Works Departments	1-3 Years	Severe Winter Weather, Wildfire, Severe Thunderstorm, Hail and Wind	Low	Yes	General fund	High
FL-5	Public Works will undertake an assessment of Fairplay's current drainage system. Based on the results, the town will strive to install new culverts as indicated and needed. Additionally, PW's will create a maintenance plan to repair and maintain drainage culverts in the Town's higher flood areas (Existing)	Education and Awareness Programs	1 (1A), 1 (1B), 2 (2A), 3 (3A), 3B	Safety and Security, Food, water, shelter	Co-benefits, Economic Benefit-Cost, Technical Soundness, Harmonize with Existing Activity	Fairplay Department of Public Works	1-3 Years	Flooding	High	Anticipated	General fund	Medium
HM-1	All Police and Public Works employees will attend a HAZMAT Awareness Program in the next year. (Existing)	Education and Awareness Programs	2 (2A)	Safety and Security, Hazardous Materials, Transportation	Co-Benefits, Economic Benefit-Cost, Harmonize with Existing Activity, Long-Term and Lasting Impact	Fairplay Police and Public Works Departments	>1 Year (ongoing)	Hazmat	Medium	Anticipated	General fund and DHS grants	Medium

---

## 6. REFERENCES

---

- Colorado State Demography Office. 2020. Housing Unit and Household Estimates. Accessed July 29, 2020. <https://demography.dola.colorado.gov/housing-and-households/counties-and-municipalities/#counties-and-municipalities>.
- Colorado State Forest Service. 2017. "2017 Colorado Wildfire Risk Assessment Summary Report: Fairplay Center Plus 4-mile Buffer." Colorado State University. Accessed April 7, 2020. <https://www.ColoradoWildfireRisk.com>.
- Colorado State Forest Service. 2019. "Forest Health Report Story Map." Accessed March 12, 2020. <https://csfs.colostate.edu/forest-management/2019-forest-health-report-story-map/>.
- Dillon, Gregory K. 2018. *Wildfire Hazard Potential (WHP) for the Conterminous United States (270-m GRID)*. Second Edition. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2015-0047-2>.
- Federal Emergency Management Agency (FEMA). 2015. "Colorado Severe Storms, Tornadoes, Flooding, Landslides, and Mudslides." Accessed April 7, 2020. <https://www.fema.gov/disaster/4229>.
- Federal Emergency Management Agency (FEMA). 2020. "Data Visualization: Disaster Declarations for States and Counties." Accessed March 10, 2020. <https://www.fema.gov/data-visualization-disaster-declarations-states-and-counties>.
- Forster, Liz. 2018. "Flash Flooding in Weston Pass Fire Perimeter Closes U.S. 285." *The Gazette*. Accessed April 14, 2020. [https://gazette.com/news/flash-flooding-in-weston-pass-fire-perimeter-closes-u-s/article\\_edb2ad48-8a90-11e8-a2f1-6ffbf2d43816.html](https://gazette.com/news/flash-flooding-in-weston-pass-fire-perimeter-closes-u-s/article_edb2ad48-8a90-11e8-a2f1-6ffbf2d43816.html).
- GeoStat.org. Not dated. "Fairplay, Colorado — Dams." Accessed April 7, 2020. <https://www.geostat.org/data/fairplay-co/dams>.
- National Oceanic and Atmospheric Administration (NOAA). Not dated (b). "Storm Events Database." Accessed March 26, 2020. <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=8%2CCOLORADO>.
- North-West Fire Protection District. 2020. *North-West Fire Protection District*. Accessed April 14, 2020. <http://nwfpd.org>.
- Park County. 2007. *County Wildfire Protection Plan*. Accessed March 25, 2020. <https://static.colostate.edu/client-files/csfs/documents/ParkcountyCWPP.pdf>.
- Park County. Not dated. "Climate." Accessed March 12, 2020. <https://parkco.us/282/Climate>.
- U.S. Department of Housing and Urban Development. 2020. "Affordable Housing." Accessed April 14, 2020. [https://www.hud.gov/program\\_offices/comm\\_planning/affordablehousing/](https://www.hud.gov/program_offices/comm_planning/affordablehousing/).

United States Census Bureau (USCB). 2018c. "ACS Community Survey 2018: ACS Demographic and Housing Estimates – 'Fairplay, Colorado'." Accessed April 13, 2020.  
[https://data.census.gov/cedsci/table?q=fairplay,%20colorado&g=1600000US0825610&hidePreview=false&tid=ACSDP5Y2018.DP05&vintage=2018&layer=VT\\_2018\\_160\\_00\\_PY\\_D1&cid=DP05\\_0001E](https://data.census.gov/cedsci/table?q=fairplay,%20colorado&g=1600000US0825610&hidePreview=false&tid=ACSDP5Y2018.DP05&vintage=2018&layer=VT_2018_160_00_PY_D1&cid=DP05_0001E)

Western Slope Consulting, LLC., Sopris Land Use, LLC., Lamont Planning Services, and RRC Associates. 2013. *Town of Fairplay Comprehensive Plan*.

---

**LIST OF TABLES AND FIGURES**


---

**Tables**

Table 2-1	American Community Survey 2018 5-year Census Data .....	2-2
Table 2-2	Town of Fairplay Change in Population.....	2-2
Table 3-1	Park County FEMA Disaster Declarations .....	3-1
Table 3-2	Hazards Addressed in the Plan.....	3-1
Table 3-3	Town of Fairplay Hazard Rankings .....	3-3
Table 3-4	Fairplay Severe Winter Weather Events.....	3-6
Table 3-5	Dam Distances to the Town of Fairplay.....	3-11
Table 3-7	Exposure Assessment .....	3-17
Table 3-8	Recent Development Trends .....	3-19
Table 4-1	Human and Technical Resources Integrated with Hazard Mitigation.....	4-1
Table 4-2	Accessible Financial Resources .....	4-2
Table 4-3	Financial Resources Integrated with Hazard Mitigation.....	4-2
Table 4-4	Planning and Regulatory Resources Integrated with Hazard Mitigation .....	4-4
Table 4-5	Education and Outreach Resources .....	4-2
Table 5-1	2020-2025 Mitigation Implementation Plan .....	5-2

**Figures**

Figure 3-1	WUI Risk Index within 4 miles of the center of Fairplay .....	3-13
------------	---	------

---

ACRONYMS AND ABBREVIATIONS

---

HMP	Hazard Mitigation Plan
mph	miles per hour
NOAA	National Oceanic and Atmospheric Administration
NFIP	National Flood Insurance Program
WUI	Wildland-Urban Interface

---

# Special Hazards Districts Annex – Park County Multi-Jurisdictional Hazard Mitigation Plan



**FINAL – 2020 Plan Update**

---

THIS PAGE LEFT INTENTIONALLY BLANK

---

---

**TABLE OF CONTENTS**

---

1. Introduction.....	1-1
1.1 Park County Special Hazard Districts Involved in Mitigation.....	1-1
1.2 Plan Adoption.....	1-1
2. DISTRICT Profiles.....	2-1
3. Hazard Profiles and Vulnerability Assessments.....	3-1
3.1 General.....	3-1
3.2 Hazard Ranking Methodology.....	3-2
3.3 Hazard-Specific Profiles and Risk Assessments.....	3-2
3.3.1 Wildfire.....	3-3
Location.....	3-3
Past Occurrences/History.....	3-6
Extent and Probability.....	3-8
Vulnerability.....	3-8
3.3.2 Flood.....	3-9
Location.....	3-9
Vulnerability.....	3-9
3.3.3 Dam Failure.....	3-9
Location.....	3-9
Past Occurrences/History.....	3-10
Extent and Probability.....	3-10
Vulnerability.....	3-11
3.4 Vulnerability Assessment.....	3-11
3.4.1 Asset Inventory.....	3-11
3.4.2 Repetitive Loss Properties.....	3-12
3.4.3 Exposure Assessment.....	3-12
3.5 Land Use and Development Trends.....	3-16
4. Capability Assessment.....	4-1
4.1 Administrative and Technical Resources.....	4-1
4.2 Financial Resources.....	4-2
4.3 Planning and Regulatory Resources.....	4-4

---

---

4.4	National Flood Insurance Program Participation.....	4-5
4.5	Integration of Mitigation into Existing Planning Mechanisms.....	4-5
4.5.1	Existing Plans .....	4-6
5.	Mitigation Strategy .....	5-1
5.1	Review of 2015 Hazard Mitigation Actions .....	5-1
5.2	2020-2025 Mitigation Implementation Plan .....	5-1
6.	References.....	6-1

---

## 1. INTRODUCTION

### 1.1 Park County Special Hazard Districts Involved in Mitigation

Several special hazard districts participated in the planning process for the 2020 Hazard Mitigation Plan (HMP) update, including Lake George Fire Protection District (FPD), North-West FPD, Platte Canyon FPD, Southern Park County FPD, and South Park Ambulance District. Of these, the Lake George FPD, North-West FPD, Platte Canyon FPD, and South Park Ambulance District are participating jurisdictions in the plan. Throughout the 2020 update process, the following Hazard Mitigation Plan (HMP) participation roles were recorded:

Name	Position	District	Role in Hazard Mitigation
Susan Bernstetter	Fire Chief	Lake George	Mitigation Program Lead
Nik Varma	Fire Fighter	North-west	Mitigation Program Lead
Trent Smith	Captain	North-west	Subject Matter Expert
Joe Burgett	Fire Chief	Platte Canyon	Mitigation Program Lead
Paul Mattson	Chief	South Park Ambulance District	Mitigation Program Lead
Eugene Farmer	Fire Chief	Southern Park County	Mitigation Program Lead

### 1.2 Plan Adoption

44 CFR §201.6(c)(5) requires that the HMP be formally adopted by elected officials from each participating jurisdiction. The dates on which the special hazard districts adopted the HMP are listed below:

- Lake George FPD: October 6, 2020
- North-West FPD: September 26, 2020
- Platte Canyon FPD: September 22, 2020
- South Park Ambulance District: September 15, 2020

This HMP was approved by FEMA Region IX on October 9, 2020. A copy of each special hazard district's adoption resolution is included in Appendix E of the Basic Plan.



Lake George FPD is located approximately 40 miles west of Colorado Springs, in the southeast corner of Park County. The District covers 250 square miles, the majority of which is in Pike National Forest. Most of Pike National Forest is undeveloped and largely used for recreation.

Staff includes the Chief and an administrative assistant, as well as over 20 volunteers. Stations are at the following locations:

- Station 1 (at U.S. Highway 24) - 8951 County Road 90
- Station 2 (Wagon Tongue) - 5897 County Road 98
- Station 3 (11 Mile) - 6160 County Road 92
- Station 4 (Tarryall) - 29468 County Road 77
- Additional equipment stored at Wilkerson Pass

North-West FPD serves areas of the county east of Hoosier Pass, including the Towns of Fairplay and Alma and south to the Chaffee County line. It protects an area of 289.02 square miles at elevations over 9,000 feet and encompasses some land within Pike National Forest. The district experiences a 100 percent increase in population during the summer months due to second home population and events held within the district. There are several large subdivisions with Wildland Urban Interface risks that adjoin the forest boundaries. Major highways include U.S. Highway 285, which is a designated military route (North-West Fire Protection District 2020)

Platte Canyon Fire Protection District serves Bailey and land to the top of Kenosha Pass, covering an area of 271 square miles in the Rockies. Three primary highways run near the district that are major hazardous materials routes. The FPD is a full-service fire agency with approximately 13 career firefighter/medics, 22 volunteer firefighters, 10 wildland fire crew members (six seasonal). The FPD responds to medical emergencies, structure and wildland fires, traffic accidents, swift water and ice rescues, hazardous materials incidents, and more. The district also helps protect fundamental water sources, including Roberts Tunnel and 20 miles of the North Fork of the South Platte River. The area population is roughly 10,500, with an increase of 25 percent in summer months due to tourism, which significantly increases call volume (Platte Canyon Fire Protection District, n.d.).

Stations include:

- Station 1 – Downtown Bailey: 60298 U.S. Highway 285, Bailey, Colorado, 80421
- Station 2 – District Office at Crow Hill: 153 Delwood Drive, Bailey, Colorado, 80421
- Station 3 – Grant: 49798 U.S. Highway 285, Grant, Colorado, 80448
- Station 4 – Harris Park: 157 Neal Road, Bailey, Colorado, 80421

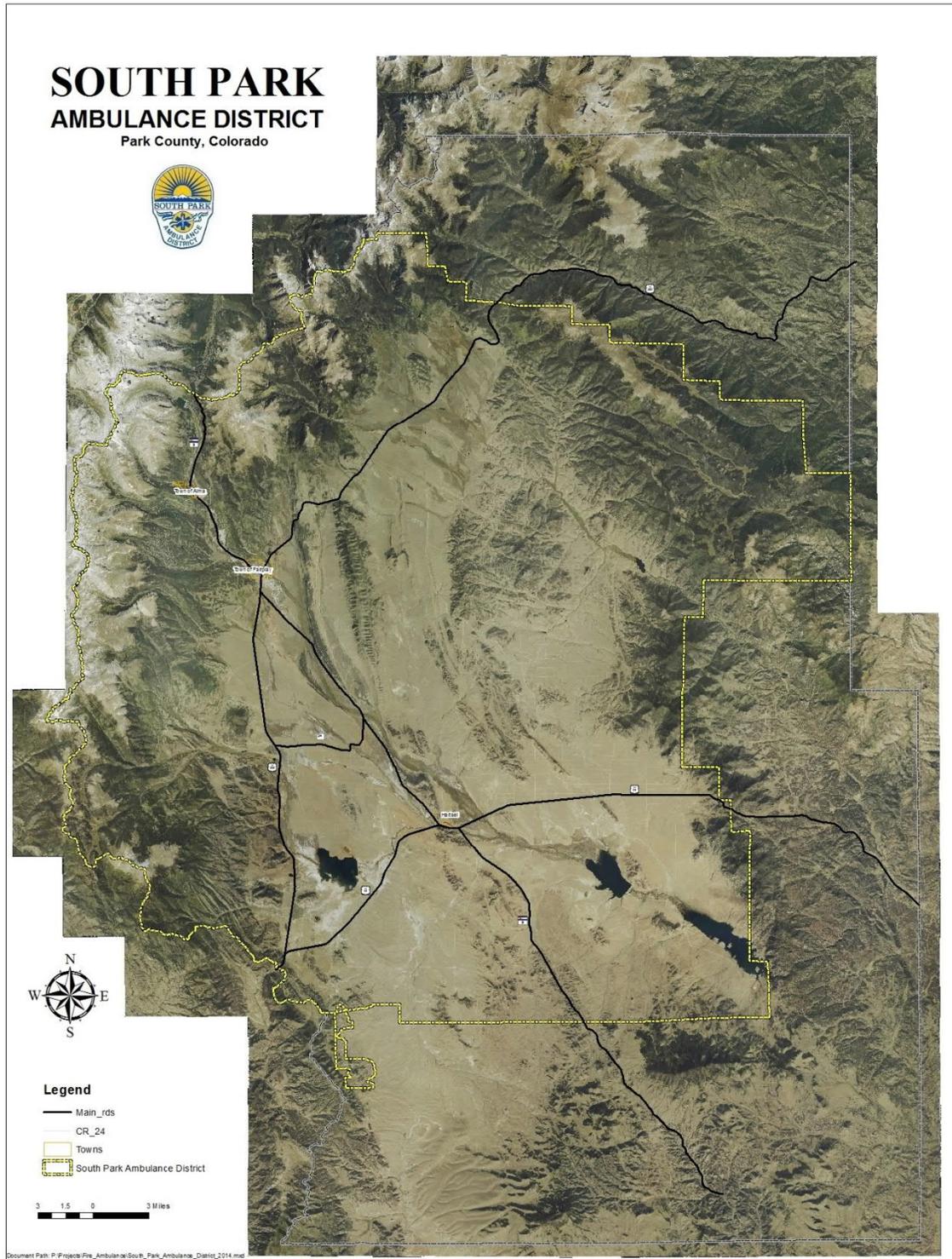
Southern Park County Fire Protection District serves the community of Guffey and the southeast corner of Park County. It protects 242 square miles of sparsely populated mountainous countryside. The district has paid and volunteer crew to combat structure fires, wildland fires, and for rescue and ambulance service. Its three fire stations include:

- Station 1 on the north end of the town of Guffey

- Station 2 at mile 8 of State Highway 102
- Station 2 at mile 2 on State Highway 88 (Southern Park County Fire Protection District, n.d.).

South Park Ambulance District covers nearly 2,200 square miles of Park County and includes Hartsel and the Towns of Alma and Fairplay, as shown in Figure 2-2 below. The terrain has an average elevation of 9,000 feet (ft). It is a mountainous, glacial valley on the Eastern slope of the Central Colorado Rocky Mountains. Four 14,000-ft and numerous 13,000-ft peaks of the Mosquito Range delineate the western boundary of the district. The district is a 911 response agency and provides emergency medical services. There are two paid paramedic-level crews that staff the district 24/7. Three fire protection districts are within the ambulance district and co-respond on emergency incidents. According to its website, the ambulance district receives over 1,000 requests for emergency assistance annually, with 60 percent resulting in the ambulance arriving on scene within 15 minutes from the Fairplay headquarters. Other areas are up to 45 minutes. Two major highways (U.S. Highway 285 and U.S. Highway 24) and one state highway (State Highway 9) cross the service area. Due to tourism, peak summer days might see population increases by as much as 50,000 people. In the winter months traffic crashes make up a significant component of response (South Park Ambulance District, n.d.).

Figure 2-2 South Park Ambulance District



3. HAZARD PROFILES AND VULNERABILITY ASSESSMENTS

Chapter 3 contains hazard profiles and vulnerability assessments to determine the potential impact of hazard to the people, economy, and built and natural environments within the jurisdictions of special hazards districts. They have been streamlined to increase the effectiveness and usability of the HMP. Additional details are provided in Part 2 of the Basic Plan.

	<p>B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect [the special hazards districts]? (Requirement §201.6(c)(2)(i))</p> <p>B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for [the special hazards districts]? (Requirement §201.6(c)(2)(i))</p> <p>B3. Does the plan include a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement 44 Code of Federal Regulations § 201.6(c)(2)(ii))</p>
---	--

3.1 General

Park County has experienced several major disaster declarations that may have affected the special hazards district. In total, the County has experienced 10 federal disaster declarations since 1953. Table 3-1 identifies the declarations since 2010 that may have affected all Park County fire protection and ambulance districts. There were no federal disaster declarations in Park County between 2015 and 2020.

Table 3-1 Park County FEMA Disaster Declarations

Disaster ID	Date of Declaration	Disaster Name/Type	Incident Period
DR-4229	July 16, 2015	Colorado Severe Storms, Tornadoes, Flooding, Landslides, and Mudslides	May 04, 2015–June 16, 2015

Source: FEMA (2020)

The hazard profiles and vulnerability assessments contained in this annex represent a considerable amount of work performed by the Hazard Mitigation Committee (HMC). HMC members ranked hazards using several key considerations, followed up by activities to validate hazard analysis results and identify specific areas of risk. Table 3-2 includes the high priority hazards for the special hazards districts that were selected for further assessment. Hazards profiled in this annex include those hazards that may affect the facilities of the special hazard districts based on the vulnerability assessment.

Table 3-2 Hazards Addressed in the Plan

Hazard Type	Hazard Name
Natural Hazard	Wildfire Flood
Technological Hazard	Dam Failure

### 3.2 Hazard Ranking Methodology

The hazards identified in the HMP were initially ranked based on HMC feedback during HMC Meeting #1. The aggregated hazard rankings are shown in Table 3-1 in Section 3.4.4 of the HMP. Following the individual hazard ranking activity, fire station locations were identified and analyzed against the following data to determine hazard exposure:

- Flood data from the State of Colorado HMP provided by the Colorado Division of Homeland Security and Emergency Management (DHSEM).
- Earthquake data from the State of Colorado HMP provided by DHSEM.
- Wildfire data retrieved from the Wildfire Hazard Potential for the Conterminous United States (Dillon 2018).
- Landslide data from the State of Colorado HMP provided by DHSEM.
- Dam data from the State of Colorado HMP provided by DHSEM.

Based on analysis of these data, hazard profiles have been provided for those hazards that have the potential to impact fire stations. Because data regarding ambulance facilities for the South Park Ambulance District were unavailable, broad analysis was applied to the entire ambulance district, and noted in each hazard section.

Tables that show hazards ranked by each District are provided in Appendix D.

### 3.3 Hazard-Specific Profiles and Risk Assessments

The following sections profile and assess the risks associated with hazards that are high planning priorities for special hazards districts. Each risk assessment considers the following attributes:

- Location: An indication of geographic areas that are most likely to experience the hazard.
- Past Occurrences/History: Similar to location, a chronological highlight of recent occurrences of the hazard accompanied by an extent or damage cost, if available.
- Extent/Probability: A description of the potential magnitude of the hazard, accompanied by the likelihood of the hazard occurring (or a timeframe of recurrence, if available).
- Vulnerability: A description of the potential magnitude of losses associated with the hazard. Vulnerability may be expressed in quantitative or qualitative values depending upon available data. Identifies development trends impact on community vulnerability to each hazard since the 2015 plan development (increased, decreased, or unchanged).

*Note: Hazard Descriptions, Potential Impacts from Future Climate Conditions, and Cascading Impacts can be found in Part 2 of the HMP Basic Plan, as these are not place-specific.*

### 3.3.1 Wildfire

#### *Location*

The combination of hazard rankings produced by HMP update participants ranked wildfire as the number one hazard facing Park County. The 2017 Colorado Risk Assessment Summary Report for Park County—produced in March 2020 using the Colorado Wildfire Risk Assessment Portal estimates that 99.5 percent of the County population live within the Wildland-Urban Interface (WUI), where risks from fires are highest. Figure D-5 in Appendix D, *Wildfire Risk in Park County*, demonstrates that the jurisdictions of the Platte Canyon FPD and Lake George FPD—as well as the eastern portion of Jefferson-Como FPD—are of highest risk of wildfire, followed by Southern Park County FPD. The remaining FPDs and the South Park Ambulance District jurisdiction are primarily very low to medium risk areas.

Platte Canyon FPD jurisdiction was marked as the highest priority for wildfire risk in the county because of increasing population (due to proximity to the Denver urban center, just 45 minutes away) and associated development, as well as its heavily forested lands (including large swaths of National Forest lands) filled with lodgepole pine and ponderosa pine (Park County Wildfire Coalition 2015). Figures 3-1 and 3-2 portray the WUI—encompassing all homes in the area—and the fuel load from national forest land, as provided by the Platte Canyon FPD 2020 Community Wildfire Protection Plan.

The Lake George area was rated as the number two priority for addressing wildfire risk due to development in the WUI, predominantly in Tarryall and Lake George, as well as its swaths of forested lands, including Pike National Forest. The Guffey/Southeastern Park County area under the Southern Park County FPD was ranked as the number three priority level and is characterized by moderate to high fuel hazards. The area is noted as being the driest within the county and is expected to experience population growth, as well (Park County Wildfire Coalition 2015). Figure 3-3 demonstrates Guffey Area Wildfire Hazards.

Figure 3-1 Platte Canyon Fire Protection District Wildland Urban Interface

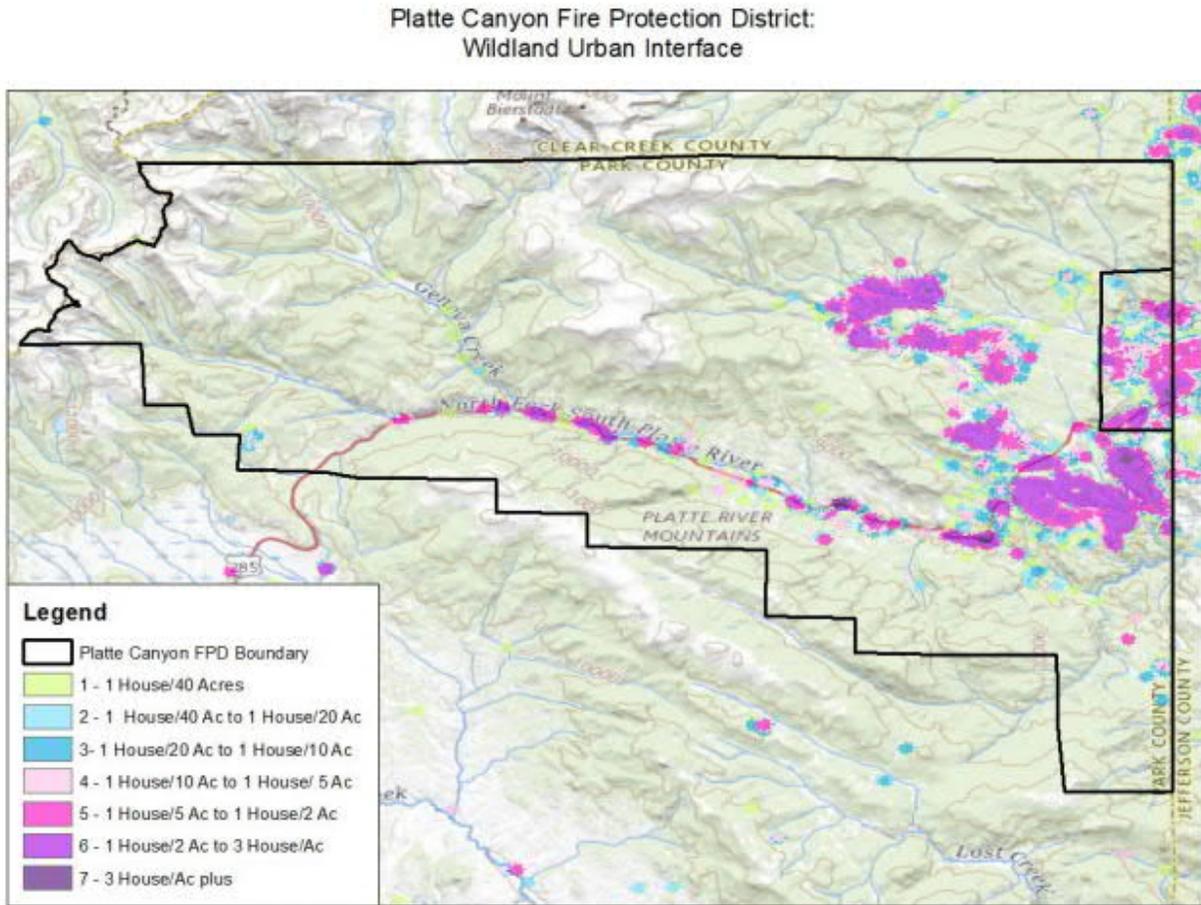


Figure 3-2 Platte Canyon Fire Protection District

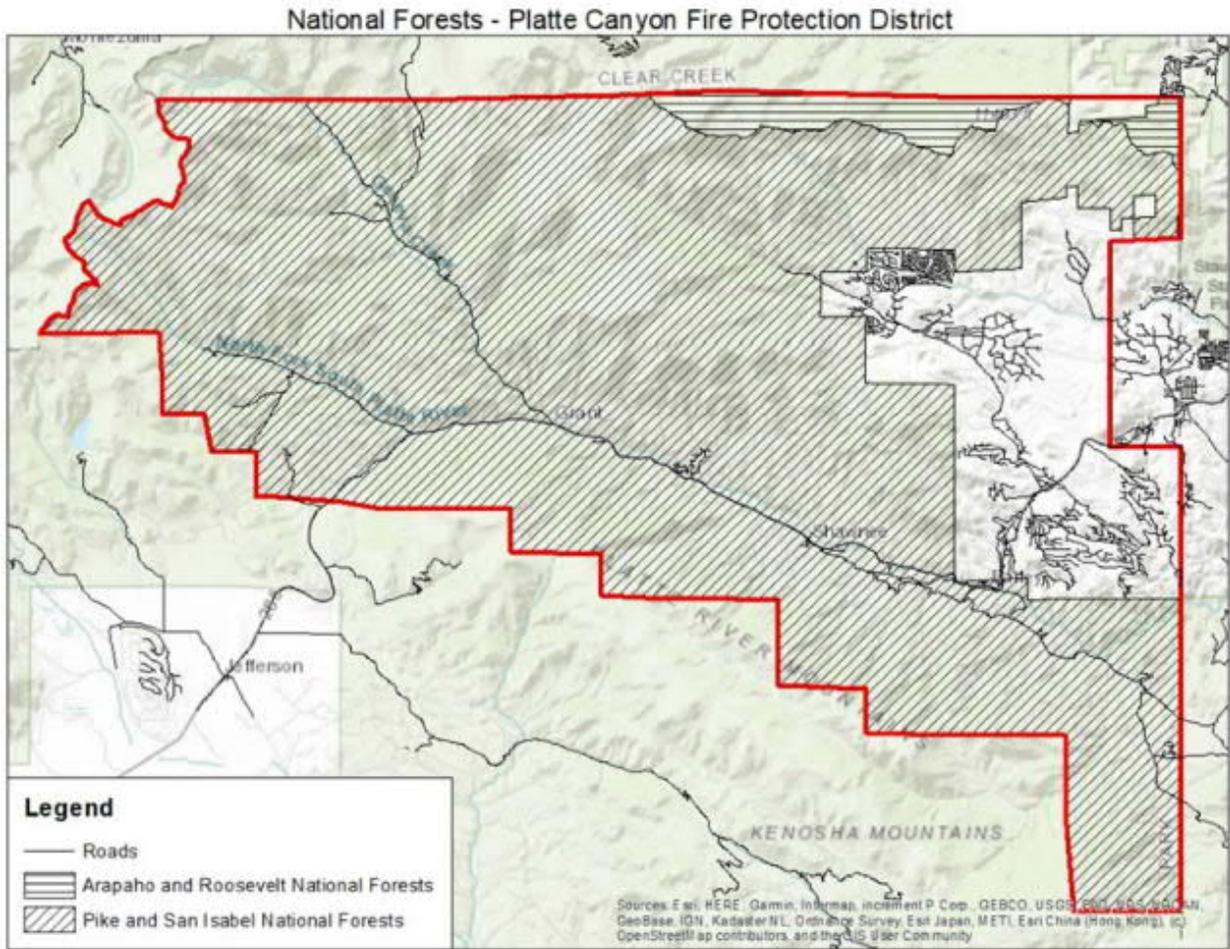
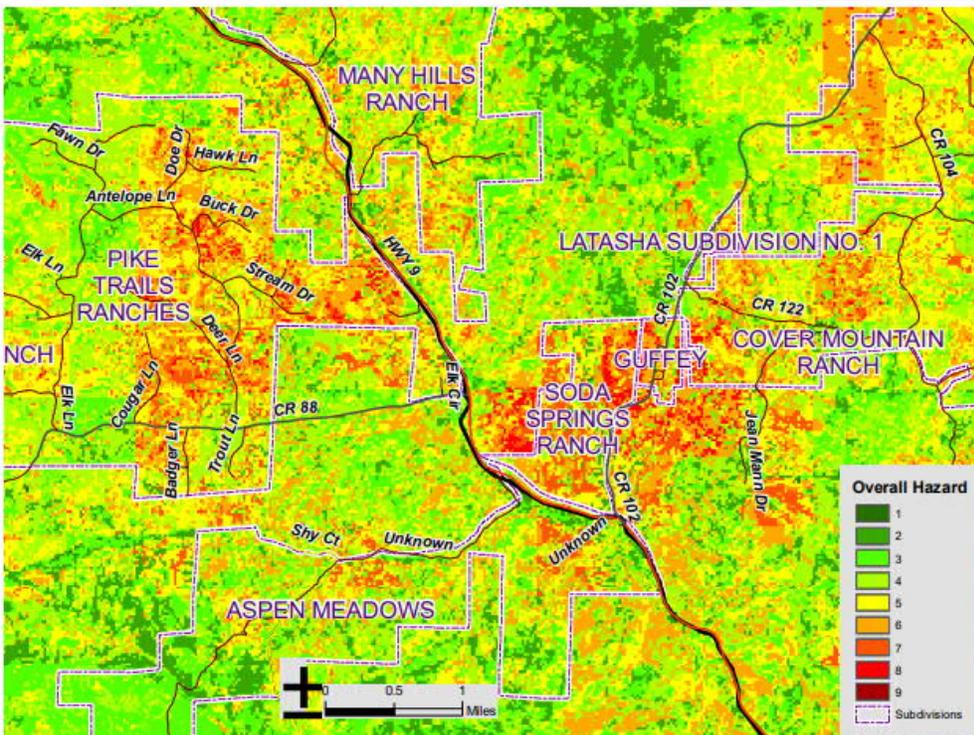


Figure 3-3 Guffey Area Wildfire Hazards



Source: Park County Community Wildfire Protection Plan (2015)

#### *Past Occurrences/History*

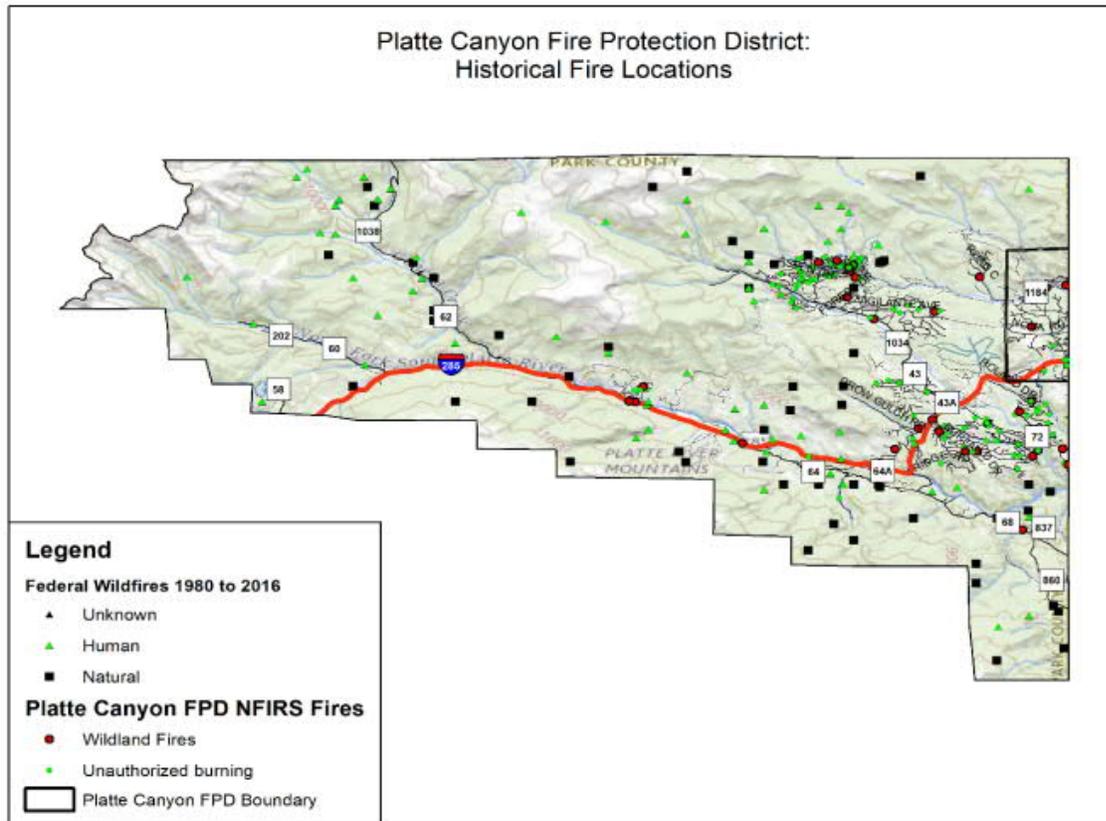
Wildfires along the entirety of the Front Range have been increasing in size and frequency over the last few decades. In the jurisdictions of North-west FPD and South Park Ambulance District, 2018 saw the Weston Pass Fire, which burned 13,023 acres southwest of Fairplay. The fire was sparked by lightning and resulted in evacuations for subdivisions of Campground of the Rockies Association and Black Mountain.

Fires near the PCFPD of similar elevation zones and vegetation types include the following—all started from human activity:

- Buffalo Creek Fire in the Pike National Forest (May 1996)
- Hi Meadow Fire in Pine, Colorado – \$15 million in damage (June 2000)
- Hayman Fire – \$42 million in damage (June 2002) (Forest Stewards Guild 2020)

Figure 3-4 provides historical fire information specific to Platte Canyon FPD.

Figure 3-4 Platte Canyon Historical Fire Locations



Those near Lake George FPD include:

- The 2002 Hayman Fire, which caused \$42 million in damage (Forest Stewards Guild 2020).
- In 2017, the Puma fire burned 44 acres 6 miles west of Lake George on Forest Service land. The fire was human caused (Finley 2017).
- The 25-acre, September 2018 Wilkerson Fire, west of Lake George in Wilkerson Pass in Pike National Forest.

Southern Park County FPD has the following information provided as part of its Incident Summaries, available 2008-2013 (Table 3-3).

Table 3-3 Wildfire Occurrence History – Southern Park County Fire Protection District Incident Summaries

Year	Wildfires
2013	3
2012	9
2011	20
2010	8
2009	8
2008	2

Source: Southern Park County Fire Protection District (2013)

#### *Extent and Probability*

Wildfire is a reality of this region and districts will have to prepare. Wildfire risk will always be an issue in Park County, and there are fires—both planned and unplanned—that occur annually. Everyone who lives and works in the WUI should plan for risk. Communities and assets in the high-fuel areas adjacent to and within forests are at greatest risk, in particular the PCFPD neighborhoods of Deer Creek Valley Ranchos, Friendship, Burland Ranchettes, and Roland Valley. Denser communities of Lake George and Tarryall would be similarly at risk. Fires occur most frequently in summer and fall months, which is when the districts see an influx in short-term and long-term vacation rentals, as well as second home residents.

#### *Future Probability Trend*

Wildfire activity and acreage per wildfire is expected to increase in the future due to extreme weather brought on by climate change, as well as decreases in annual snowpack. Impact to forest health from insect infestations can also lead to larger fires. High winds and low humidity exacerbate wildfires. These elements increase the threat of wildfire for FPD and Ambulance District jurisdictions and assets.

#### *Vulnerability*

Any development within FPD districts can result in potential challenges in meeting goals for response times. Placement of fire stations provides some mitigation to risk. Regional tourism growth has also resulted in an influx of new residents who may not be used to living with wildland fire hazards and may be more vulnerable to this hazard. Property owners play an important role in mitigating fire risks, and regional FPDs are one source of valuable information and strategies for property owners to reduce their vulnerability.

Some vulnerability is mitigated by additional support structures. Platte Canyon FPD, for example, gets support from Fire Adapted Bailey and six active Firewise groups that provide education and home mitigation services (Forest Stewards Guild 2020).

Property: Of all district fire stations, only Lake George's Station 3 is in a medium risk zone. All other stations are situated on either very low or low wildfire hazard lands. The jurisdiction of the South Park Ambulance District and its assets are in the very low to medium risk category.

### Recent Development Trends

- Economic: The majority of Park County is within the WUI. Increases in business and residential assets within the WUI, along with increased future risk of wildfires results in increased vulnerability (increased vulnerability).
- Land Use: Colorado's rapid growth along the Front Range means increasing interest in residential and commercial development in the Platte Canyon area. Increased density within the WUI is problematic due to the increased fuel load and potential for home ignition (Forest Stewards Guild 2020). In other jurisdictions, like North-West FPD, Lake George FPD, and Southern Park County FPD, services like vacation rentals and influx of summer tourism from growing Colorado urban centers have resulted in additional resources and assets devoted to tourism in areas that have some wildfire risk (increased vulnerability).

#### 3.3.2 Flood

##### *Location*

Flood zones have been mapped along Park County's major drainage ways and affect existing development and land uses in these areas. A full profile of flood hazards in the County is included in Chapter 7 of the basic plan. One fire station, Jefferson-Como FPD Station 3 Stagemop is located within a mapped 100-year flood zone; therefore, a short discussion of the flood hazard specific to this station has been included in this section.

##### *Vulnerability*

A flood that affects Jefferson-Como FPD Station 3 could result in damage to this critical facility and its equipment and potentially result in delayed response times for portions of the Jefferson-Como FPD during the immediate flood response and recovery.

Property: Jefferson-Como FPD Station 3 is the only fire station located within a mapped 100-year flood zone. Therefore, the overall vulnerability of the County's fire protection districts to flood hazards is low.

### Recent Development Trends

- Economic: The county has experienced moderate growth over the past 10 years. The County and its planning partners are equipped to handle future growth within flood hazard areas (no change in vulnerability).
- Land Use: Construction of new fire stations or ambulance facilities is not planned within mapped flood zones. The County has land use policies and regulations in place to prevent most development in mapped flood zones (no change in vulnerability).

#### 3.3.3 Dam Failure

##### *Location*

District assets located downstream of major reservoirs are at greatest risk of flooding impact from dam failure. Major reservoirs include Antero Reservoir, Eleven Mile Reservoir, Jefferson Lake, Montgomery

Reservoir, Spinney Mountain Reservoir, and Tarryall Reservoir. Figure D-6 in Appendix D marks dams across the county as high, significant, or low dam failure hazards based on State hazard data.

The North-West FPD's Alma station is 5.5 miles downstream of Montgomery Reservoir. Because of its positioning and volume of water, it is marked as a high dam failure hazard. The Fairplay station is 2.7 miles from the small Lower Sacramento Creek Reservoir #1—which poses little threat—and nearly 12 miles downstream of Montgomery Reservoir. Similarly, the South Park Ambulance District location on Castello Ave in Fairplay would be downstream of these dams.

Lake George District is downstream from the Antero, Eleven Mile, Spinney Mountain, and Tarryall Reservoir Reservoirs. Lake George FPD Station 4 is two miles downstream from the Bayou Salado Reservoir, which is rated a low risk, as well as around 12 miles downstream of the high-risk Tarryall reservoir, which contains 711 land acres and 175 water acres (Colorado Parks and Wildlife, n.d.). Station 2 is under one mile from the nearest low-risk reservoir. However, it could also be impacted by failure of the high-risk Eleven Mile Canyon Reservoir, which has a 97,779 acre-foot capacity and is one of the largest bodies of water east of the Continental Divide (Denver Water, n.d.). Most at risk is Station 1, which is located half a mile from the medium-risk Lake George Reservoir, and is roughly 8 miles from the Eleven Mile Canyon Reservoir dam.

Platte Canyon FPD Station #4 Harris Park is located near the Harris Park Estates #1 and #2 dams. However, the station is upstream of both dams and would not experience a risk of inundation from failure of these dams.

Southern Park County FPD assets are not at risk of dam failure.

#### *Past Occurrences/History*

There is no history of dam failure in Park County.

#### *Extent and Probability*

Dam failure is generally an isolated event, with site-specific impact limited to downstream assets. The highest potential impact would occur from assets adjacent to dam failure at large reservoir sites. Dam failure events are infrequent and usually coincide with events that cause them, such as earthquakes, landslides, excessive rainfall, and snowmelt. There is a "residual risk" associated with dams. Residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand.

#### *Future Probability Trend*

The probability of any type of dam failure is low in today's regulatory and dam safety oversight environment.

*Vulnerability*

Vulnerable assets are those closest to the dam inundation area. These properties would experience the largest, most destructive surge of water. Transportation routes are vulnerable to dam inundation and—if wiped out—would significantly reduce the ability of FPDs and the Ambulance Protection District to perform their duties. Utilities such as overhead power lines, cable, and phone lines could also be vulnerable, and reduce operational effectiveness of the districts. Loss of these utilities could create additional isolation issues for the inundation areas.

**Recent Development Trends**

- Economic: The FPDs have not added any assets to areas at high risk of threat from dam failure (no change in vulnerability).
- Land Use: As additional residential and commercial assets are sited on lands downstream from major reservoirs, there will be an increased vulnerability within the districts, increasing performance pressure on district staff and resources. However, risk to existing fire stations and ambulance district infrastructure will not change unless additional resources are built and placed in areas of risk (no change in vulnerability).

**3.4 Vulnerability Assessment****3.4.1 Asset Inventory**

Local assets that may be affected by hazards include residents, properties, and utilities and infrastructure. GIS data from the State of Colorado and the U.S. Geological Survey was used to inform the vulnerability assessment and identify critical infrastructure. Chapter 3 and Appendix D, both of the Basic Plan, discuss the sources and types of data used in the HMP. Data collection for the vulnerability assessment was complicated by the fact that the County and its partners have never comprehensively identified critical infrastructure; therefore, the list of critical infrastructure in the special hazard districts may be incomplete. Valuation data is provided in Tables 3-4 and 3-5 below by land use parcel data. No parcels within the fire district facilities are located within a landslide debris area. Park County and its partners are committed to building on the list of critical infrastructure over the next five years to improve the data provided in the next plan update.

Table 3-4 Vulnerability to Hazards by Land Use Values

Hazard	Exempt	Residential	Total Parcel count	Total Value
Low Wildfire Risk	\$8,284,864.07	\$33,518.80	7	\$8,318,382.87
Very Low Wildfire Risk	\$531,341.24	\$113,334.03	17	\$644,675.27
100-year Floodzone	\$8,076,304.83	\$33,518.80	3	\$8,109,823.63
Dam Failure – Low Risk	\$8,050,551.47		1	\$8,050,551.47

Table 3-5 Vulnerability to Earthquake Hazards by Land Use Values

PGA rating	Exempt	Residential	Total Parcel Count	Total Value
0.118	\$61,646.30		1	\$61,646.30
0.119	\$138,969.58		2	\$138,969.58
0.12	\$38,650.36		2	\$38,650.36
0.121	\$23,920.80		1	\$23,920.80
0.122	\$8,050,551.47		1	\$8,050,551.47
0.123	\$9,775.92	\$146,852.83	3	\$156,628.75
0.124	\$172,249.63		2	\$172,249.63
0.126	\$61,072.83		4	\$61,072.83
0.128	\$21,161.73		1	\$21,161.73
0.129	\$8,367.70		1	\$8,367.70
0.132	\$42,105.25		2	\$42,105.25
0.135	\$146,150.00		1	\$146,150.00
0.136	\$35,492.00		1	\$35,492.00
0.138	\$6,091.74		1	\$6,091.74
TOTALS			24	\$8,963,058.14

#### 3.4.2 Repetitive Loss Properties

For repetitive loss properties, please refer to the County data in Chapter 4 of the Basic Plan.

#### 3.4.3 Exposure Assessment

Table 3-6 shows exposure of the identified critical facilities to natural hazards that are able to be mapped.

Table 3-6 Exposure Assessment

Type	Name	Flood Zone	Earthquake Hazard, Peak Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	Distance to dam (miles)
Fire Station	Southern Park County Fire Protection District Station 3 Pike Trails	--	0.126	Very Low	--	8.45
Fire Station	Southern Park County Fire Protection District Station 1 Guffey	--	0.124	Very Low	--	12.77
Fire Station	Southern Park County Fire Protection District Station 2	--	0.123	Low	--	11.32
Fire Station	Platte Canyon Fire Protection District Station 2	--	0.119	Low	--	4.35
Fire Station	Elk Creek Fire / Rescue Station 2	--	0.118	Low	--	6.95
Fire Station	Platte Canyon Fire Protection District Station 3	--	0.123	Very Low	--	9.82
Fire Station	Platte Canyon Fire Protection District Station 1	--	0.12	Very Low	--	2.54
Fire Station	North-West Fire Protection District Station 2	--	0.132	Very Low	--	2.68
Fire Station	Hartsel Fire Protection District Station 1	--	0.13	Very Low	--	7.55
Fire Station	Hartsel Fire Protection District Station 4	--	0.128	Very Low	--	7.48
Fire Station	Lake George Fire Protection District Station 3	--	0.123	Medium	--	3.09
Fire Station	Jefferson-Como Fire Protection District Station 5 Elkhorn Road	--	0.128	Very Low	--	0.85
Fire Station	North-West Fire Protection District Station 1 Alma	--	0.132	Very Low	--	5.49

Table 3-6 Exposure Assessment

Type	Name	Flood Zone	Earthquake Hazard, Peak Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	Distance to dam (miles)
Fire Station	Hartsel Fire Protection District Station 5	--	0.136	Very Low	--	9.71
Fire Station	Jefferson - Como Fire Protection District Station 4 Buffalo	--	0.126	Very Low	--	9.23
Fire Station	Hartsel Fire Protection District Station 3	--	0.135	Very Low	--	5.35
Fire Station	Hartsel Fire Protection District Station 7 Badger Creek Ranch	--	0.138	Very Low	--	15.51
Fire Station	Lake George Fire Protection District Station 4	--	0.121	Low	--	1.76
Fire Station	Jefferson-Como Fire Protection District Station 6 Lost Park	--	0.124	Low	--	4.11
Fire Station	Jefferson-Como Fire Protection District Station 2 Como	--	0.129	Very Low	--	4.46
Fire Station	Jefferson-Como Fire Protection District Station 1	--	0.126	Very Low	--	2.64
Fire Station	Lake George Fire Protection District Station 2	--	0.121	Very Low	--	0.53
Fire Station	Lake George Fire Protection District Station 1	--	0.119	Very Low	--	0.65
Fire Station	Hartsel Fire Protection District Station 2	--	0.126	Very Low	--	11.69
Fire Station	Jefferson-Como Fire Protection District Station 3 Stagesop	Within 100yr Flood-zone	0.125	Very Low	--	7.88
Fire Station	Platte Canyon Fire Protection District Station 4 Harris Park	--	0.12	Very Low	--	0.57

Table 3-6 Exposure Assessment

Type	Name	Flood Zone	Earthquake Hazard, Peak Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	Distance to dam (miles)
Fire Station	Elk Creek Fire Protection District - Station 2	--	0.118	Low	--	6.95
Fire Station	Jefferson-Como Fire Protection District Station 7 Indian Mountain	--	0.126	Very Low	--	5.51
Medical	South Park Ambulance District	--	0.132	Very Low	--	2.12

3.5 Land Use and Development Trends

 <b>FEMA</b>	D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))
---	--

As the threat of wildfire increases, so too will the threat to fire stations and ambulance district assets—particularly those in the areas of the county at higher risk of wildfire, like in Platte Canyon and Lake George. Generally, Colorado’s rapid growth along the Front Range means increasing interest in residential and commercial development in the Platte Canyon area. In other jurisdictions, like North-West FPD, Lake George FPD, Southern Park County FPD, and the South Park Ambulance District, services like vacation rentals and influx of summer tourism from growing Colorado urban centers have resulted in additional resources and assets devoted to tourism in areas that have some wildfire risk. Both factors increase strain on FPD and Ambulance district assets. Dam failure is of lesser concern, but would result in adverse impact on any jurisdictional asset downstream of a dam failure, and significant impact for those immediately downstream to dam’s that contain high-volume reservoirs.

The vulnerability subsection of each hazard profile in Section 3.3 outlines recent development trends to illustrate ways in which vulnerability may have changed over the past five years. Vulnerability changes have been measured for economic interests and land use trends. Each measure has been identified as having an increased, decreased, or unchanged vulnerability. Table 3-7 provides a snapshot of how vulnerability has changed since development of the 2015 HMP.

Table 3-7 Recent Development Trends

Hazard	Economic	Land Use
Wildfire	+	+
Flood	=	=
Dam Failure	=	=
Key: + Increased vulnerability - Decreased vulnerability = Unchanged vulnerability		

4. CAPABILITY ASSESSMENT

 <b>FEMA</b>	C1. Does the plan document [the special hazard districts] existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))
---	--

4.1 Administrative and Technical Resources

Table 4-1 describes the special hazard district administrative and technical capabilities to engage in and improve mitigation planning and program implementation.

Table 4-1 Human and Technical Resources Integrated with Hazard Mitigation

Resource	Lake George FPD	North-West FPD	Platte Canyon FPD	South Park Ambulance District	Southern Park County FPD
Emergency Manager	Yes	Yes	Yes	No	No
Floodplain Administrator	Yes	No	No	No	No
Community Planning:					
Planner/Engineer (Land Development)	No	No	Yes	No	No
Planner/Engineer/Scientist (Natural Hazards)	No	No	No	No	No
Engineer/Professional (Construction)	No	No	No	No	No
Resiliency Planner	No	No	No	No	No
Transportation Planner	No	No	No	No	No
Building Official	Yes	Yes	Yes	No	No
GIS Specialist and Capability	Yes	Yes	Yes	No	No
Grant Manager, Writer, or Specialist	Yes	No	No	No	No
Warning Systems/Services:					
General	No	Yes	Yes	Yes	Yes
Flood	No	No	Yes	Yes	Yes
Wildfire	No	Yes	Yes	Yes	Yes
Tornado	No	No	Yes	Yes	Yes
Geological Hazards	No	No	Yes	Yes	Yes
Other	None	None	None	None	None

Key:  
 FPD = Fire protection district  
 GIS = Geographic Information Systems

4.2 Financial Resources

The special hazard districts’ maintain fiscal and financial resources to support their mitigation programs. Table 4-2 identifies specific resources that have been used to fund mitigation activities.

Table 4-2 Accessible Financial Resources

Financial Resource	LGFPD	NWFPD	PCFPD	South Park Ambulance District	SPCFPD
Levy for Specific Purposes with Voter Approval	Yes	Yes	Yes	Yes	Yes
Utilities Fees	No	No	No	No	No
System Development / Impact Development Fee	No	No	No	No	No
General Obligation Bonds to Incur Debt	No	No	No	No	No
Special Tax Bonds to Incur Debt	No	No	No	No	No
Withheld Spending in Hazard-Prone Areas	No	No	No	No	No
Stormwater Service Fees	No	No	No	No	No
Capital Improvement Project Funding	Yes	No	No	No	No
Community Development Block Grants	No	No	No	No	No
Other	None	None	Service Fees	Service Fees	None

Table 4-3 identifies current and potential sources of funding to implement identified mitigation actions contained within the HMP. In addition, funding is also available from federal and state agencies and programs.

Table 4-3 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Local		
General Obligation	Board of Directors	Funding available for mitigation efforts supporting government-wide projects and activities
Federal		
Building Resilient Infrastructure and Communities (BRIC) Program	Federal Emergency Management Agency (FEMA)/Colorado Division of Homeland Security and Emergency Management (DHSEM)	Authorized by the Disaster Relief and Recovery Act of 2018, the BRIC program is replacing FEMA's Pre-Disaster Mitigation Program. BRIC will support states, local communities, tribes, and territories to undertake projects that mitigate hazard risks and increase community resiliency. Grant awards will prioritize infrastructure projects and projects that support community lifelines: safety and security; food, water, shelter; health and medical; energy; communications; transportation; and hazardous material.
Pre-Disaster Mitigation Program	DHSEM	Provides funding to develop hazard mitigation plans and implement mitigation actions contained within.
Hazard Mitigation Grant Program	DHSEM	Post-disaster funds to hazard reduction projects impacted by recent disasters.
Flood Mitigation Assistance Program	DHSEM	Provides funds for flood mitigation on buildings that carry flood insurance and have been damaged by flooding.

Funding Source	Fund Administrator	Description
Community Development Block Grant Program	U.S. Department of Housing and Urban Development/ Colorado Department of Local Affairs	Funds projects that benefit low- and moderate-income communities, prevent or eliminate slums or blight, or meet urgent community development needs posing a serious and immediate threat to community health or welfare.
Emergency Management Performance Grants Program	FEMA and DHSEM	Provides funding to states for local or tribal planning, operations, acquisition of equipment, training, exercises, and construction and renovation projects.
Flood Mitigation Assistance	DHSEM	Provides funding to support development of the flooding hazard portion of state and local mitigation plans and up to 100% of the cost of eligible mitigation activities. This funding is only available to communities participating in the National Flood Insurance Program.
National Earthquake Hazards Reduction Program (NEHRP)	Colorado Geological Survey (CGS)	Supports enhanced earthquake risk assessments in local hazard mitigation plans. Provides funding for earthquake modeling and loss estimation, partnership building, planning, and training activities. Provides funding for prevention materials and activities. Provides support for limited post-event inspection and reporting.
State Fire Assistance Program	U.S. Forest Service/ Colorado Division of Homeland Security and Emergency Management (DHSEM)	Provides funding opportunities for local wildland-urban interface planning, prevention, and mitigation projects, including fuels reduction work, education and prevention projects, community planning, and alternative uses of fuels.
National Dam Safety Program State Assistance Grants	FEMA/ Division of Water Resources (DWR) Dam Safety	Grant assistance to State Dam Safety programs to reduce risks to life and property associated with dams, increase awareness of the benefits and risks related to dams, and advance the state in the practice of dam risk management.
Risk Mapping, Assessing, and Planning	FEMA	Provides funding and technical support for hazard studies, flood mapping products, risk assessment tools, mitigation and planning, and outreach and support.
State		
Flood Response Fund	Colorado Water Control Board (CWCB)	Created and appropriated funding to the Flood Response Fund, administered by CWCB.
Emergency Dam Repair Cash Fund	CWCB	Created Emergency Dam Repair Cash Fund. As determined by CWCB, money transferred from CWCB Construction Fund as needed.
Forest Restoration and Wildfire Risk Mitigation Grant	Colorado State Forest Service (CSFS)	Assists with funding community-level actions across the state that are implemented to protect populations and property in the WUI and to promote forest health and the utilization of woody material. Includes funding for capacity building.
Rockfall Mitigation Program	Colorado Department of Transportation (CDOT)	Provides internal mitigation design and review for projects funded by rockfall mitigation budget; provides personnel designated as first responders during rockfall related emergencies; installs control devices on rock walls for prevention; posts falling rock signs on highways

Funding Source	Fund Administrator	Description
Colorado Wildfire Preparedness Plan and Fund	Division of Fire Prevention and Control (DFPC)	Amended to read Wildfire Emergency Response Fund creation, Wildfire Preparedness Fund creation. DFPC may use the moneys in the Wildfire Preparedness Fund to implement the Wildfire Preparedness Plan.
Conservation Reserve Program	U.S. Department of Agriculture Farm Service Agency and Natural Resource Conservation Service	Retires eligible cropland from agricultural production and plants the land with permanent grass cover to reduce wind erosion and dust hazards.
Other		
Community Planning Assistance Teams	American Planners Association Foundation	Provides pro bono technical assistance for planning frameworks or community vision plans for communities needing extra assistance. Local governments are responsible for travel costs.

Key:

- CDOT = Colorado Department of Transportation
- CGS = Colorado Geological Survey
- CSFS = Colorado State Forest Service
- CWCB = Colorado Water Conservation Board
- DFPC = Division of Fire and Prevention Control
- DHSEM = Colorado Division of Homeland Security and Emergency Management
- DWR = Division of Water Resources
- FEMA = Federal Emergency Management Agency
- WUI = Wildland-Urban Interface

### 4.3 Planning and Regulatory Resources

Table 4-4 describes the special hazard district planning and regulatory capabilities, including plans, policies, and programs that have integrated hazard mitigation principles.

Table 4-4 Planning and Regulatory Resources Integrated with Hazard Mitigation

Planning / Regulatory Resource	LGFPD	NWFPD	PCFPD	South Park Ambulance District	SPCFPD
Building Codes (Year)	Yes	Yes, 2012	Yes, 2012	No	No
Building Code Effectiveness Grading Schedule (BCEGS) Rating	None	None	None	None	None
Capital Improvements Program or Plan	Yes	Yes	No	No	No
Community Rating System (CRS)	No	No	No	No	No
Community Wildfire Protection Plan (CWPP)	Yes	Yes	Yes	No	No
Comprehensive, Master, or General Plan	N/A	Yes	Yes	No	No
Economic Development Plan	N/A	Yes	No	No	No
Elevation Certificates	Yes	No	No	No	No
Erosion / Sediment Control Program	Yes	No	No	No	No
Floodplain Management Plan or Ordinance	Yes	Yes	No	No	No
Flood Insurance Study	N/A	No	No	No	No
Growth Management Ordinance	No	Yes	No	No	No

Non-Flood Hazard-Specific Ordinance or Plan (e.g. steep slope, wildfire, snow load)	Yes	Yes	No	No	No
NFIP	N/A	No	No	No	No
Site Plan Review Requirements	Yes	Yes	Yes	No	No
Stormwater Program, Plan, or Ordinance	N/A	No	No	No	No
Zoning Ordinance	Yes	Yes	Yes	No	No
Other	None	None	None	None	None

#### 4.4 Education and Outreach Resources

Table 4-5 summarizes the special hazard districts’ education and outreach capabilities, including programs that are used to educate and notify residents, business owners, and other stakeholders regarding hazard risks.

Table 4-5 Education and Outreach Resources

Education / Outreach Resource	LGFPD	NWFPD	PCFPD	South Park Ambulance District	SPCFPD
Local Citizen Groups that Communicate Hazard Risks	Yes	No	Yes	No	No
Firewise	Yes	No	Yes	No	No
StormReady	No	No	No	No	No
Other	Yes – fire mitigation education campaigns with homeowners associations	None	None	Yes – CPR and first aid instruction	None

#### 4.5 National Flood Insurance Program Participation

 <b>FEMA</b>	C2. Does the Plan address [the special hazard districts’] participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3))
---	---

The special hazard districts do not participate in the National Flood Insurance Program.

#### 4.6 Integration of Mitigation into Existing Planning Mechanisms

Integration of the principles of mitigation into the special district’s daily operations and ongoing planning activities is a priority of the county’s mitigation program. These activities will support the following:

- Raising awareness of the importance of hazard mitigation for the whole community;
- Facilitating an understanding that hazard mitigation is not just an ‘emergency services’ function and building ownership of mitigation activities across the organization;
- Reduction in duplication or contradiction between plans; and

- Maximization of planning resources through linked or integrated planning efforts.
- Maintaining FireWise Community Status

The jurisdictions are encouraged to consider integration actions into planning mechanisms, including:

- Budget decision-making;
- Emergency planning mechanisms; and
- Economic developing planning and decision-making.

#### 4.6.1 Existing Plans

 <b>FEMA</b>	<p>C6. Does the Plan describe a process by which [the special hazard districts] will incorporate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))</p>
---	---

The following existing plans and policies provide an ongoing opportunity for integration of hazard mitigation and department leadership will work with plan owners and stakeholders when these are updated to consider hazard mitigation data and principles and ensure plans align with the county HMP.

- Burn restrictions, bans and permitting requirements
- School Programs for Fire Safety
- FireWise Program

## 5. MITIGATION STRATEGY

 <b>FEMA</b>	<p>C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for the [special hazard districts] being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))</p>
---	--

### 5.1 Review of 2015 Hazard Mitigation Actions

As part of the mitigation strategy update, all mitigation actions identified in the 2015 plan were evaluated to determine what the status of the action was and whether any ongoing or incomplete actions should be included as actions in the 2020 plan update. Members of the HMC worked through each previous action following HMC Meeting #2 to document steps taken to fulfill the action.

*See Appendix F of the Basic Plan for an overview of the status of all actions from the 2015 plan update.*

### 5.2 2020-2025 Mitigation Implementation Plan

 <b>FEMA</b>	<p>C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by [the special hazard districts]? (Requirement §201.6(c)(3)(iii))</p>
---	---

The mitigation implementation plan lays the groundwork for how the mitigation plan will be incorporated into existing planning mechanisms and how the mitigation actions will be prioritized, implemented, and administered by the special hazard districts. The implementation plan includes both short-term strategies that focus on planning and assessment activities, and long-term strategies that will result in ongoing capability or structural projects to reduce vulnerability to hazards. The special hazard districts have indicated their intent to focus on implementing actions from the 2015 plan that have not yet been completed during the 2020 to 2025 planning period, including countywide actions.

*See Appendix F of the Basic Plan for Mitigation Action Worksheet instructions and completed Mitigation Action Worksheets for each new action listed in Table 5-1.*

Table 5-1 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action (Action Status)	Type of Action	Goals Supported (Objectives)	FEMA Lifeline Supported	State Resiliency Prioritization Criteria Supported	Lead and Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	Benefit to Community
<b>North-West FPD</b>												
WF-9	Assess and enhance NWFPD onsite water requirements for existing and new development. (New)	Local Plans and Regulations	1 (1A), 3 (3A)	Safety and Security	Co-benefits, Economic Benefit-Cost, Harmonize with Existing Activity	NWFPD	1-3 Years	Wildfire	Low	Yes	No/minimal cost	Medium
WF-10	Educate the public of the benefits of controlled burns on "natural areas" certified by professional foresters. (New)	Education and Awareness Programs	2 (2A, 2B)	Safety and Security	Co-Benefits, Economic Benefit-Cost, Harmonize with Existing Activity	NWFPD	1-3 Years	Wildfire	Low	Anticipated	Budget Appropriations	Medium
WF-11	Investigate actions that can be completed to improve the ISO rating from 10. (New)	Local Plans and Regulations	3 (3A)	Safety and Security	Co-Benefits, Harmonize with Existing Activity	NWFPD	3-5 Years	Wildfire	Medium	No	Budget Appropriations, Grant Funding	High
<b>Platte Canyon FPD</b>												
WF-12	Remove rights-of-way fuels along critical roadway segments. Identify and develop existing and new temporary areas of refuge for residents that can't evacuate to U.S. Highway 285. Develop new emergency roadway exits for CR43 and Burland residents. Hire a consultant to help develop a comprehensive community wide evacuation plan. (New)	Structure and Infrastructure Projects, Local Plans and Regulations	3 (3A)	Safety and Security, Food, Water Shelter, Transportation	High Risk and Vulnerability, Adaptive Capacity, Long-Term and Lasting Impact	PCFPD, BOCC, PCSO Fire Adapted Bailey	1-3 years	Wildfire	Medium	Anticipated	Budget Appropriations; Community Donations (Fire Adapted Bailey)	Medium
MH-7	Educate the public on safety using and storing necessary flammable materials, including machine fuels. Approved safety cans should be used for storing gasoline, oily rags, and other flammable materials. (New)	Education and Awareness Programs	2 (2A)	Safety and Security	Co-Benefits, Social Equity, Technical Soundness	Platte Canyon FPD, Lake George FPD, CUSP	1-3 Years	Multiple	Low	Yes	Budget Appropriations; Community Donations (Fire Adapted Bailey)	Medium
<b>Lake George FPD</b>												
WF-13	Conduct a fuels management program for residents on the weekends, supported by continued fundraising. Better educate members of the public on the need to manage fuels and provide defensible space on their properties. (New)	Education and Awareness Programs, Natural Systems Protection	2 (2A, 2B), 3 (3A)	Safety and Security, Food, Water, Shelter, Energy	Co-Benefits, High Risk and Vulnerability, Social Equity, Technical Soundness	Lake George FPD, CUSP	3-5 years	Wildfire	18,000 annually	No	Grant	Medium
MH-7	Educate the public on safety using and storing necessary flammable materials, including machine fuels. Approved safety cans should be used for storing gasoline, oily rags, and other flammable materials. (New)	Education and Awareness Programs	2 (2A)	Safety and Security	Co-Benefits, Social Equity, Technical Soundness	Platte Canyon FPD, Lake George FPD, CUSP	1-3 Years	Multiple	Low	Anticipated	Budget Appropriations	Medium
<b>South Park Ambulance District</b>												
SW-3	Educate members of the community regarding the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur. (New)	Education and Awareness Programs	2 (2A)	Safety and Security, Food, Water, Shelter	Co-Benefits, High Risk and Vulnerability, Social Equity	South Park Ambulance District	1-3 Years	Severe Weather	Low	Yes	Existing Budget	Medium

Key:  
 BOCC = Board of County Commissioners  
 CWCB = Colorado Water Conservation Board  
 FEMA = Federal Emergency Management Agency  
 FPD = Fire Protection District  
 NOAA = National Oceanic and Atmospheric Administration  
 NWS = National Weather Service  
 OEM = Office of Emergency Management  
 PCSO = Park County Sheriff's Office

---

## 6. REFERENCES

---

- Colorado Parks and Wildlife. Not dated. "Tarryall Reservoir SWA." Accessed April 14, 2020. <https://cpw.state.co.us/swa/Tarryall%20Reservoir%20SWA>.
- Denver Water. Not dated. "Eleven Mile Canyon Reservoir." Accessed April 14, 2020. <https://www.denverwater.org/recreation/eleven-mile-canyon-resevoir>.
- Dillon, Gregory K. 2018. *Wildfire Hazard Potential (WHP) for the Conterminous United States (270-m GRID)*. Second Edition. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2015-0047-2>.
- Federal Emergency Management Agency (FEMA). 2020. "Data Visualization: Disaster Declarations for States and Counties." Accessed March 10, 2020. <https://www.fema.gov/data-visualization-disaster-declarations-states-and-counties>.
- Finley, Bruce. 2017. "Human-caused wildfire burns near homes west of Lake George in Park County." *Denver Post*. Accessed April 14, 2020. <https://www.denverpost.com/2017/05/14/wildfire-lake-george-park-county>.
- Forest Stewards Guild. 2020. *Platte Canyon Fire Protection District Community Wildfire Protection Plan*. Accessed April 14, 2020. [https://static1.squarespace.com/static/5cf8113323b30100013d680f/t/5e500fc8b635fb550500b5a6/1582305314354/PlatteCanyon\\_CWPP.pdf](https://static1.squarespace.com/static/5cf8113323b30100013d680f/t/5e500fc8b635fb550500b5a6/1582305314354/PlatteCanyon_CWPP.pdf).
- North-West Fire Protection District. 2020. *North-West Fire Protection District*. Accessed April 14, 2020. <http://nwfpd.org>.
- Park County Wildfire Coalition. 2015. *Community Wildfire Protection Plan 2015 Update*.
- Platte Canyon Fire Protection District. Not dated. "District Overview." Accessed April 14, 2020. <https://www.plattecanyonfire.com/volunteer-info>.
- South Park Ambulance District. Not dated. "About." Accessed April 14, 2020. <http://southparkambulance.com/about/district-facts/>.
- Southern Park County Fire Protection District. 2013. *Yearly Incident Summaries*. Accessed April 14, 2020. [http://www.guffeyfire.net/notices\\_incidents.php](http://www.guffeyfire.net/notices_incidents.php).
- Southern Park County Fire Protection District. Not dated. "Southern Park County Fire Protection District." Accessed April 14, 2020. <http://www.guffeyfire.net/>.

---

**LIST OF TABLES AND FIGURES**


---

**Tables**

Table 3-1	Park County FEMA Disaster Declarations .....	3-1
Table 3-2	Hazards Addressed in the Plan.....	3-1
Table 3-3	Wildfire Occurrence History – Southern Park County Fire Protection District Incident Summaries .....	3-8
Table 3-4	Vulnerability to Hazards by Land Use Values.....	3-11
Table 3-5	Vulnerability to Earthquake Hazards by Land Use Values .....	3-12
Table 3-6	Exposure Assessment .....	3-13
Table 3-7	Recent Development Trends .....	3-16
Table 4-1	Human and Technical Resources Integrated with Hazard Mitigation .....	4-1
Table 4-2	Accessible Financial Resources .....	4-2
Table 4-3	Financial Resources Integrated with Hazard Mitigation.....	4-2
Table 4-4	Planning and Regulatory Resources Integrated with Hazard Mitigation .....	4-4
Table 5-1	2020-2025 Mitigation Implementation Plan .....	5-2

**Figures**

Figure 2-1	Fire and Ambulance Districts .....	2-1
Figure 2-2	South Park Ambulance District .....	2-4
Figure 3-1	Platte Canyon Fire Protection District Wildland Urban Interface .....	3-4
Figure 3-2	Platte Canyon Fire Protection District .....	3-5
Figure 3-3	Guffey Area Wildfire Hazards .....	3-6
Figure 3-4	Platte Canyon Historical Fire Locations .....	3-7

---

## ACRONYMS AND ABBREVIATIONS

---

BOCC	Board of County Commissioners
CDOT	Colorado Department of Transportation
CGS	Colorado Geological Survey
CSFS	Colorado State Forest Service
CWCB	Colorado Water Control Board
CWPP	Community Wildfire Protection Plan
DFPC	Division of Fire Prevention and Control
DHSEM	Division of Homeland Security and Emergency Management
DWR	Division of Water Resources
FEMA	Federal Emergency Management Agency
FPD	Fire Protection District
GIS	Geographic Information Systems
HMC	Hazard Mitigation Committee
HMP	Hazard Mitigation Plan
LGFPD	Lake George Fire Protection District
NOAA	National Oceanic and Atmospheric Administration
NWFPD	North-West Fire Protection District
NWS	National Weather Service
OEM	Office of Emergency Management
PCFPD	Platte Canyon Fire Protection District
PCSO	Park County Sheriff's Office
SPCFPD	South Park County Fire Protection District
WUI	Wildland-Urban Interface

---

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX A.**  
**ACRONYMS AND DEFINITIONS**

---

## **APPENDIX A. ACRONYMS AND DEFINITIONS**

### **ACRONYMS**

44 CFR—44 Code of Federal Regulations  
ACS—American Community Survey  
ASCE—American Society of Civil Engineers BFE—Base flood elevation  
CDEM— Colorado Division of Emergency Management CDOT—Colorado Department of Transportation  
CIP—Capital Improvement Plan  
CO-WRAP - Colorado Wildfire Risk Assessment Portal CO-WRAP CRS—Community Rating System  
CWCB— Colorado Water Conservation Board  
CWPP— County Wildfire Protection Plan  
DFIRM—Digital Flood Insurance Rate Maps  
DHS—Department of Homeland Security  
DHSEM—Colorado Division of Homeland Security and Emergency Management  
DMA —Disaster Mitigation Act  
EOC—Emergency Operations Center  
EPA—U.S. Environmental Protection Agency  
ESA—Endangered Species Act  
FEMA—Federal Emergency Management Agency FERC—Federal Energy Regulatory Commission  
FIRM—Flood Insurance Rate Map  
FPD—Fire Protection District  
GIS—Geographic Information System  
HAZUS-MH—Hazards, United States-Multi Hazard  
HMC—Hazard Mitigation Committee  
HMGP—Hazard Mitigation Grant Program  
HMP—Hazard Mitigation Plan  
IBC—International Building Code  
IRC—International Residential Code  
MM—Modified Mercalli Scale  
NEHRP—National Earthquake Hazards Reduction Program NFIP—National Flood Insurance Program  
NAO— North Atlantic Oscillation  
NOAA—National Oceanic and Atmospheric Administration NRCS— Natural Resources Conservation Service  
NWS—National Weather Service  
PDM—Pre-Disaster Mitigation Grant Program PDI—Palmer Drought Index  
PGA—Peak Ground Acceleration  
SHELDUS—Special Hazard Events and Losses Database for the U.S. SPI—Standardized Precipitation Index  
USGS—U.S. Geological Survey WRA— Wildfire Risk Assessment WUI—Wildland-urban interface

## DEFINITIONS

**100-Year Flood:** The term “100-year flood” can be misleading. The 100-year flood does not necessarily occur once every 100 years. Rather, it is the flood that has a 1 percent chance of being equaled or exceeded in any given year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The Federal Emergency Management Agency (FEMA) defines it as the 1 percent annual chance flood, which is now the standard definition used by most federal and state agencies and by the National Flood Insurance Program (NFIP).

**100-Year Floodplain:** The area flooded by a flood that has a 1-percent chance of being equaled or exceeded each year. This is a statistical average only; a 100-year flood can occur more than once in a short period of time. The 1-percent annual chance flood is the standard used by most federal and state agencies.

**500-Year Floodplain:** Also known as the 0.2-percent annual chance flood. The area inundated by floodwaters that has a 0.2-percent chance of being equaled or exceeded each year.

**Acre-foot:** An acre-foot is the amount of water it takes to cover 1 acre to a depth of 1 foot. This measure is used to describe the quantity of storage in a water reservoir. An acre-foot is a unit of volume. One acre foot equals 7,758 barrels; 325,829 gallons; or 43,560 cubic feet. An average household of four will use approximately 1 acre-foot of water per year.

**Asset:** An asset is any man-made or natural feature that has value, including, but not limited to, people; buildings; infrastructure, such as bridges, roads, sewers, and water systems; lifelines, such as electricity and communication resources; and environmental, cultural, or recreational features such as parks, wetlands, and landmarks.

**Base Flood:** The flood having a 1% chance of being equaled or exceeded in any given year, also known as the “100-year” or “1% chance” flood. The base flood is a statistical concept used to ensure that all properties subject to the NFIP are protected to the same degree against flooding.

**Basin:** A basin is the area within which all surface water—whether from rainfall, snowmelt, springs, or other sources—flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains, and ridges. Basins are also referred to as “watersheds” and “drainage basins.”

**Benefit:** A benefit is a net project outcome and is usually defined in monetary terms. Benefits may include direct and indirect effects. For the purposes of benefit-cost analysis of proposed mitigation measures, benefits are limited to specific, measurable, risk reduction factors, including reduction in expected property losses (buildings, contents, and functions) and protection of human life.

**Benefit/Cost Analysis:** A benefit/cost analysis is a systematic, quantitative method of comparing projected benefits to projected costs of a project or policy. It is used as a measure of cost effectiveness.

**Building:** A building is defined as a structure that is walled and roofed, principally aboveground, and permanently fixed to a site. The term includes manufactured homes on permanent foundations on which the wheels and axles carry no weight.

**Building Resilient Infrastructure and Communities (BRIC) Program:** Authorized by the Disaster Relief and Recovery Act of 2018, the BRIC program is replacing FEMA’s Pre-Disaster Mitigation Program. BRIC will support states, local communities, tribes and territories as they undertake projects that mitigate hazard risks and increase community resiliency. Grant awards will prioritize infrastructure projects and projects that support community lifelines: safety and security; food, water, shelter; health and medical; energy; communications; transportation; and hazardous material.

**Capability Assessment:** A capability assessment provides a description and analysis of a community's current capacity to address threats associated with hazards. The assessment includes two components: an inventory of an agency's mission, programs, and policies, and an analysis of its capacity to carry them out. A capability assessment is an integral part of the planning process in which a community's actions to reduce losses are identified, reviewed, and analyzed, and the framework for implementation is identified. The following capabilities were reviewed under this assessment:

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education and outreach capability

**Cluster:** An aggregation of cases grouped in place and time that are suspected to be greater than the number expected.

**Community Rating System (CRS):** The CRS is a voluntary program under the NFIP that rewards participating communities (provides incentives) for exceeding the minimum requirements of the NFIP and completing activities that reduce flood hazard risk by providing flood insurance premium discounts.

**Conflagration:** A fire that grows beyond its original source area to engulf adjoining regions. Wind, extremely dry or hazardous weather conditions, excessive fuel buildup and explosions are usually the elements behind a wildfire conflagration.

**Critical Area:** An area defined by state or local regulations as deserving special protection because of unique natural features or its value as habitat for a wide range of species of flora and fauna. A sensitive/critical area is usually subject to more restrictive development regulations.

**Critical Facility:** Facilities and infrastructure that are critical to the health and welfare of the population. These become especially important after any hazard event occurs. For the purposes of this plan, critical facilities include:

- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water reactive materials;
- Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a hazard event.
- Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for disaster response before, during, and after hazard events, and
- Public and private utilities, facilities and infrastructure that are vital to maintaining or restoring normal services to areas damaged by hazard events.
- Government facilities.

**Dam:** Any artificial barrier or controlling mechanism that can or does impound 10 acre-feet or more of water.

**Dam Failure:** Dam failure refers to a partial or complete breach in a dam (or levee) that impacts its integrity. Dam failures occur for a number of reasons, such as flash flooding, inadequate spillway size, mechanical failure of valves or other equipment, freezing and thawing cycles, earthquakes, and intentional destruction.

**Debris Avalanche:** Volcanoes are prone to debris and mountain rock avalanches that can approach speeds of 100 mph.

**Debris Flow:** Dense mixtures of water-saturated debris that move down-valley; looking and behaving much like flowing concrete. They form when loose masses of unconsolidated material are saturated, become unstable, and move down slope. The source of water varies but includes rainfall, melting snow or ice, and glacial outburst floods.

**Debris Slide:** Debris slides consist of unconsolidated rock or soil that has moved rapidly down slope. They occur on slopes greater than 65 percent.

**Disaster Mitigation Act of 2000 (DMA);** The DMA is Public Law 106-390 and is the latest federal legislation enacted to encourage and promote proactive, pre-disaster planning as a condition of receiving financial assistance under the Robert T. Stafford Act. The DMA emphasizes planning for disasters before they occur. Under the DMA, a pre-disaster hazard mitigation program and new requirements for the national post-disaster hazard mitigation grant program (HMGP) were established.

**Drainage Basin:** A basin is the area within which all surface water- whether from rainfall, snowmelt, springs or other sources- flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains and ridges. Drainage basins are also referred to as **watersheds** or **basins**.

**Drought:** Drought is a period of time without substantial rainfall or snowfall from one year to the next. Drought can also be defined as the cumulative impacts of several dry years or a deficiency of precipitation over an extended period of time, which in turn results in water shortages for some activity, group, or environmental function. A hydrological drought is caused by deficiencies in surface and subsurface water supplies. A socioeconomic drought impacts the health, well-being, and quality of life or starts to have an adverse impact on a region. Drought is a normal, recurrent feature of climate and occurs almost everywhere.

**Earthquake:** The shaking of the ground caused by an abrupt shift of rock along a fracture in the earth or a contact zone between tectonic plates.

**Elevated temperature material:** Materials which are in a liquid phase at a temperature at or above 212°F; or is in a liquid phase with a flash point at or above 100°F; or is in a solid phase at a temperature at or above 464°F.

**Emergency Action Plan:** A document that identifies potential emergency conditions at a dam and specifies actions to be followed to minimize property damage and loss of life. The plan specifies actions the dam owner should take to alleviate problems at a dam. It contains procedures and information to assist the dam owner in issuing early warning and notification messages to responsible downstream emergency management authorities of the emergency situation. It also contains inundation maps to show emergency management authorities the critical areas for action in case of an emergency (FEMA 64).

**Endemic:** Refers to the constant presence and/or usual prevalence of a disease or infectious agent in a population within a geographic area.

**Epicenter:** The point on the earth's surface directly above the hypocenter of an earthquake. The location of an earthquake is commonly described by the geographic position of its epicenter and by its focal depth.

**Epidemic:** An increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area.

**Exposure:** Exposure is defined as the number and dollar value of assets considered to be at risk during the occurrence of a specific hazard.

**Extent:** The extent is the size of an area affected by a hazard.

**Fault:** A fracture in the earth's crust along which two blocks of the crust have slipped with respect to each other.

**Fire Behavior:** Fire behavior refers to the physical characteristics of a fire and is a function of the interaction between the fuel characteristics (such as type of vegetation and structures that could burn), topography, and weather. Variables that affect fire behavior include the rate of spread, intensity, fuel consumption, and fire type (such as underbrush versus crown fire).

**Fire Frequency:** Fire frequency is the broad measure of the rate of fire occurrence in a particular area. An estimate of the areas most likely to burn is based on past fire history or fire rotation in the area, fuel conditions, weather, ignition sources (such as human or lightning), fire suppression response, and other factors.

**Firestorm:** A fire that expands to cover a large area, often more than a square mile. A firestorm usually occurs when many individual fires grow together into one. The involved area becomes so hot that all combustible materials ignite, even if they are not exposed to direct flame. Temperatures may exceed 1000°C. Superheated air and hot gases of combustion rise over the fire zone, drawing surface winds in from all sides, often at velocities approaching 50 miles per hour. Although firestorms seldom spread because of the inward direction of the winds, once started there is no known way of stopping them. Within the area of the fire, lethal concentrations of carbon monoxide are present; combined with the intense heat, this poses a serious life threat to responding fire forces. In very large events, the rising column of heated air and combustion gases carries enough soot and particulate matter into the upper atmosphere to cause cloud nucleation, creating a locally intense thunderstorm and the hazard of lightning strikes.

**Flash Flood:** A flash flood occurs with little or no warning when water levels rise at an extremely fast rate

**Flood:** The inundation of normally dry land resulting from the rising and overflowing of a body of water.

**Flood Insurance Rate Map (FIRM):** FIRMs are the official maps on which the Federal Emergency Management Agency (FEMA) has delineated the Special Flood Hazard Area.

**Flood Insurance Study:** A report published by the Federal Insurance and Mitigation Administration for a community in conjunction with the community's Flood Insurance rate Map. The study contains such background data as the base flood discharges and water surface elevations that were used to prepare the FIRM. In most cases, a community FIRM with detailed mapping will have a corresponding flood insurance study.

**Flood Mitigation Assistance (FMA) Program:** FEMA's FMA grant program provides funding to states, local communities, federally-recognized tribes, and territories for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.

**Floodplain:** Any land area susceptible to being inundated by flood waters from any source. A flood insurance rate map identifies most, but not necessarily all, of a community's floodplain as the Special Flood Hazard Area.

**Floodway:** Floodways are areas within a floodplain that are reserved for the purpose of conveying flood discharge without increasing the base flood elevation more than 1 foot. Generally speaking, no development is allowed in floodways, as any structures located there would block the flow of floodwaters.

**Floodway Fringe:** Floodway fringe areas are located in the floodplain but outside of the floodway. Some development is generally allowed in these areas, with a variety of restrictions. On maps that have identified and delineated a floodway, this would be the area beyond the floodway boundary that can be subject to different regulations.

**Focal Depth:** The depth from the earth's surface to the hypocenter of an earthquake.

**Fog:** Fog refers to a cloud (or condensed water droplets) near the ground. Fog forms when air close to the ground can no longer hold all the moisture it contains. Fog occurs either when air is cooled to its dew point or the amount of moisture in the air increases. Heavy fog is particularly hazardous because it can restrict surface visibility. Severe fog incidents can close roads, cause vehicle accidents, cause airport delays, and impair the effectiveness of emergency response. Financial losses associated with transportation delays caused by fog have not been calculated in the United States but are known to be substantial.

**Freeboard:** Freeboard is the margin of safety added to the base flood elevation.

**Freezing Rain:** The result of rain occurring when the temperature is below the freezing point. The rain freezes on impact, resulting in a layer of glaze ice up to an inch thick. In a severe ice storm, an evergreen tree 60 feet high and 30 feet wide can be burdened with up to six tons of ice, creating a threat to power and telephone lines and transportation routes.

**Frequency:** For the purposes of this plan, frequency refers to how often a hazard of specific magnitude, duration, and/or extent is expected to occur on average. Statistically, a hazard with a 100-year frequency is expected to occur about once every 100 years on average and has a 1 percent chance of occurring any given year. Frequency reliability varies depending on the type of hazard considered.

**Fujita Scale of Tornado Intensity:** Tornado wind speeds are sometimes estimated on the basis of wind speed and damage sustained using the Fujita Scale. The scale rates the intensity or severity of tornado events using numeric values from F0 to F5 based on tornado wind speed and damage. An F0 tornado (wind speed less than 73 miles per hour (mph)) indicates minimal damage (such as broken tree limbs), and an F5 tornado (wind speeds of 261 to 318 mph) indicates severe damage.

**Goal:** A goal is a general guideline that explains what is to be achieved. Goals are usually broad-based, long-term, policy-type statements and represent global visions. Goals help define the benefits that a plan is trying to achieve. The success of a hazard mitigation plan is measured by the degree to which its goals have been met (that is, by the actual benefits in terms of actual hazard mitigation).

**Geographic Information System (GIS):** GIS is a computer software application that relates data regarding physical and other features on the earth to a database for mapping and analysis.

**Hazard:** A hazard is a source of potential danger or adverse condition that could harm people and/or cause property damage.

**Hazard Mitigation Grant Program (HMGP):** Authorized under Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster

**High Hazard Dam:** Dams where failure or operational error will probably cause loss of human life (FEMA 333).

**Hazards U.S. Multi-Hazard (HAZUS-MH) Loss Estimation Program:** HAZUS-MH is a GIS-based program used to support the development of risk assessments as required under the DMA. The HAZUS-MH software program assesses risk in a quantitative manner to estimate damages and losses associated with natural hazards. HAZUS-MH is FEMA's nationally applicable, standardized methodology and software program and contains modules for estimating potential losses from earthquakes, floods, and wind hazards.

HAZUS-MH has also been used to assess vulnerability (exposure) for other hazards.

**Hazardous substance:** Those substances listed in Appendix A of 49 CFR §172.101; does not include petroleum, natural gas, liquefied natural gas, or fuel.

**Hazardous waste:** Materials subject to 40 CFR §262.

**Hydraulics:** Hydraulics is the branch of science or engineering that addresses fluids (especially water) in motion in rivers or canals, works and machinery for conducting or raising water, the use of water as a prime mover, and other fluid-related areas.

**Hydrology:** Hydrology is the analysis of waters of the earth. For example, a flood discharge estimate is developed by conducting a hydrologic study.

**Hydrological Drought:** Deficiencies in surface and subsurface water supplies.

**Hyperendemic:** Persistent, high levels of disease occurrence.

**Hypocenter:** The region underground where an earthquake's energy originates.

**Intensity:** For the purposes of this plan, intensity refers to the measure of the effects of a hazard.

**Inventory:** The assets identified in a study region comprise an inventory. Inventories include assets that could be lost when a disaster occurs and community resources are at risk. Assets include people, buildings, transportation, and other valued community resources.

**Landslide:** The sliding movement of masses of loosened rock and soil down a hillside or slope. Such failures occur when the strength of the soils forming the slope is exceeded by the pressure, such as weight or saturation, acting upon them.

**Lightning:** Lightning is an electrical discharge resulting from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt," usually within or between clouds and the ground. A bolt of lightning instantaneously reaches temperatures approaching 50,000°F. The rapid heating and cooling of air near lightning causes thunder. Lightning is a major threat during thunderstorms. In the United States, 75 to 100 Americans are struck and killed by lightning each year (see <http://www.fema.gov/hazard/thunderstorms/thunder.shtm>).

**Liquefaction:** Loosely packed, water-logged sediments losing their strength in response to strong shaking, causing major damage during earthquakes.

**Local Government:** Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

**Magnitude:** Magnitude is the measure of the strength of an earthquake, and is typically measured by the Richter scale. As an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

**Marine pollutant:** Materials listed in Appendix B of 49 CFR §172.101.

**Mass movement:** A collective term for landslides, mudflows, debris flows, sinkholes and lahars.

**Medical Countermeasures:** Life-saving medicines and medical supplies that can be used to diagnose, prevent, protect from, or treat conditions associated with chemical, biological, radiological, or nuclear threats, emerging infectious disease, or natural disaster.

**Mitigation:** A preventive action that can be taken in advance of an event that will reduce or eliminate the risk to life or property.

**Mitigation Actions:** Mitigation actions are specific actions to achieve goals and objectives that minimize the effects from a disaster and reduce the loss of life and property.

**Mudslide (or Mudflow or Debris Flow):** A river of rock, earth, organic matter and other materials saturated with water.

**Objective:** For the purposes of this plan, an objective is defined as a short-term aim that, when combined with other objectives, forms a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

**Outbreak:** The same definition of epidemic, but is often used for a more limited geographic area, jurisdiction, or group of people.

**Pandemic:** An epidemic that has spread over several countries or continents, usually affecting many people.

**Peak Ground Acceleration:** Peak Ground Acceleration (PGA) is a measure of the highest amplitude of ground shaking that accompanies an earthquake, based on a percentage of the force of gravity.

**Preparedness:** Preparedness refers to actions that strengthen the capability of government, citizens, and communities to respond to disasters.

**Presidential Disaster Declaration:** These declarations are typically made for events that cause more damage than state and local governments and resources can handle without federal government assistance. Generally, no specific dollar loss threshold has been established for such declarations. A Presidential Disaster Declaration puts into motion long-term federal recovery programs, some of which are matched by state programs, designed to help disaster victims, businesses, and public entities.

**Probability of Occurrence:** The probability of occurrence is a statistical measure or estimate of the likelihood that a hazard will occur. This probability is generally based on past hazard events in the area and a forecast of events that could occur in the future. A probability factor based on yearly values of occurrence is used to estimate probability of occurrence.

**Repetitive Loss Property:** Any NFIP-insured property that, since 1978 and regardless of any changes of ownership during that period, has experienced:

- Four or more paid flood losses in excess of \$1000.00; or
- Two paid flood losses in excess of \$1000.00 within any 10-year period since 1978 or
- Three or more paid losses that equal or exceed the current value of the insured property.

**Return Period (or Mean Return Period):** This term refers to the average period of time in years between occurrences of a particular hazard (equal to the inverse of the annual frequency of occurrence).

**Riparian Zone:** The area along the banks of a natural watercourse.**Risk:** Risk is the estimated impact that a hazard would have on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

**Risk Assessment:** Risk assessment is the process of measuring potential loss of life, personal injury, economic injury, and property damage resulting from hazards. This process assesses the vulnerability of people, buildings, and infrastructure to hazards and focuses on (1) hazard identification; (2) impacts of hazards on physical, social, and economic assets; (3) vulnerability identification; and (4) estimates of the cost of damage or costs that could be avoided through mitigation.

**Risk Ranking:** This ranking serves two purposes, first to describe the probability that a hazard will occur, and second to describe the impact a hazard will have on people, property, and the economy. Risk

estimates for the City are based on the methodology that the City used to prepare the risk assessment for this plan. The following equation shows the risk ranking calculation:

$$\text{Risk Ranking} = \text{Probability} + \text{Impact (people + property + economy)}$$

**Riverine:** Of or produced by a river. Riverine floodplains have readily identifiable channels. Floodway maps can only be prepared for riverine floodplains.

**Robert T. Stafford Act:** The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 100-107, was signed into law on November 23, 1988. This law amended the Disaster Relief Act of 1974, Public Law 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.

**Severe Local Storm:** Small-scale atmospheric systems, including tornadoes, thunderstorms, windstorms, ice storms and snowstorms. These storms may cause a great deal of destruction and even death, but their impact is generally confined to a small area. Typical impacts are on transportation infrastructure and utilities.

**Significant Hazard Dam:** Dams where failure or operational error will result in no probable loss of human life but can cause economic loss, environmental damage or disruption of lifeline facilities, or can impact other concerns. Significant hazard dams are often located in rural or agricultural areas but could be located in areas with population and significant infrastructure (FEMA 333).

**Sinkhole:** A collapse depression in the ground with no visible outlet. Its drainage is subterranean. It is commonly vertical-sided or funnel-shaped.

**Socioeconomic Drought:** Drought impacts on health, well-being, and quality of life.

**Special Flood Hazard Area:** The base floodplain delineated on a Flood Insurance Rate Map. The special flood hazard area is mapped as a Zone A in riverine situations and zone V in coastal situations. The special flood hazard area may or may not encompass all of a community's flood problems.

**Sporadic:** Refers to a disease that occurs infrequently or irregularly.

**Stakeholder:** Business leaders, civic groups, academia, non-profit organizations, major employers, managers of critical facilities, farmers, developers, special purpose districts, and others whose actions could impact hazard mitigation.

**Stream Bank Erosion:** Stream bank erosion is common along rivers, streams and drains where banks have been eroded, sloughed or undercut. However, it is important to remember that a stream is a dynamic and constantly changing system. It is natural for a stream to want to meander, so not all eroding banks are "bad" and in need of repair. Generally, stream bank erosion becomes a problem where development has limited the meandering nature of streams, where streams have been channelized, or where stream bank structures (like bridges, culverts, etc.) are located in places where they can actually cause damage to downstream areas. Stabilizing these areas can help protect watercourses from continued sedimentation, damage to adjacent land uses, control unwanted meander, and improvement of habitat for fish and wildlife.

**Steep Slope:** Different communities and agencies define it differently, depending on what it is being applied to, but generally a steep slope is a slope in which the percent slope equals or exceeds 25%. For this study, steep slope is defined as slopes greater than 33%.

**Sustainable Hazard Mitigation:** This concept includes the sound management of natural resources, local economic and social resiliency, and the recognition that hazards and mitigation must be understood in the largest possible social and economic context.

**Thunderstorm:** A storm featuring heavy rains, strong winds, thunder and lightning, typically about 15 miles in diameter and lasting about 30 minutes. Hail and tornadoes are also dangers associated with

thunderstorms. Lightning is a serious threat to human life. Heavy rains over a small area in a short time can lead to flash flooding.

**Tornado:** Funnel clouds that generate winds up to 500 miles per hour. They can affect an area up to three-quarters of a mile wide, with a path of varying length. Tornadoes can come from lines of cumulonimbus clouds or from a single storm cloud. They are measured using the Fujita Scale, ranging from F0 to F5.

**Vulnerability:** Vulnerability describes how exposed or susceptible an asset is to damage. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power. Flooding of an electric substation would affect not only the substation itself but businesses as well. Often, indirect effects can be much more widespread and damaging than direct effects.

**Watershed:** A watershed is an area that drains downgradient from areas of higher land to areas of lower land to the lowest point, a common drainage basin.

**Wildfire:** Fires that result in uncontrolled destruction of forests, brush, field crops, grasslands, and real and personal property in non-urban areas. Because of their distance from firefighting resources, they can be difficult to contain and can cause a great deal of destruction.

**Wildland-Urban Interface Area:** An area susceptible to wildfires and where wildland vegetation and urban or suburban development occur together. An example would be smaller urban areas and dispersed rural housing in forested areas.

**Windstorm:** A storm featuring violent winds. Southwesterly winds are associated with strong storms moving onto the coast from the Pacific Ocean. Southern winds parallel to the coastal mountains are the strongest and most destructive winds. Windstorms tend to damage ridgelines that face into the winds.

**Winter Storm:** A storm having significant snowfall, ice, and/or freezing rain; the quantity of precipitation varies by elevation.

**Windstorm:** Windstorms are generally short-duration events involving straight-line winds or gusts exceeding 50 mph. These gusts can produce winds of sufficient strength to cause property damage. Windstorms are especially dangerous in areas with significant tree stands, exposed property, poorly constructed buildings, mobile homes (manufactured housing units), major infrastructure, and aboveground utility lines. A windstorm can topple trees and power lines; cause damage to residential, commercial, critical facilities; and leave tons of debris in its wake.

**Zoning Ordinance:** The zoning ordinance designates allowable land use and intensities for a local jurisdiction. Zoning ordinances consist of two components: a zoning text and a zoning map.

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX B.**  
**PLANNING PROCESS AND PUBLIC OUTREACH**

---



Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX B1.**  
**HMC Workshop 1 - Kickoff**

---

---

**Park County Hazard Mitigation Plan Update**

**KICKOFF WORKSHOP**

---

**DATE:** Thursday, March 5, 2020  
**TIME:** 9:00 a.m. - 12:00 p.m.  
**LOCATION:** County Emergency Operations Center, 911 Clark Street, Fairplay, CO 80440

Thank you for participating in the Hazard Mitigation Committee Meeting #1 for the **Park County Hazard Mitigation Plan (HMP) Update**.

**MEETING PURPOSE:**

The County is required by law to update the HMP once every five years to be eligible for mitigation funding and your participation in the planning process is critical to ensure that the HMP is informed by the latest information regarding local capabilities and that the mitigation actions identified in the plan reflect your community's priorities.

The County has engaged Ecology and Environment, Inc. (E & E) to facilitate the HMP update process including facilitation of this workshop. The kickoff will be a three-hour meeting that will focus on providing partners with an overview of the planning process and outputs, an interactive discussion to discuss what has changed since the last update, and establishment of concrete action items to move forward.

**AGENDA:**

1. Welcome and Introductions (15 minutes)
2. Overview of the Planning Process (15 minutes)
3. Hazard Ranking and Risk Assessments (35 minutes)
4. Break (15 mins)
5. Assessing Vulnerabilities / Workshop Exercise (35 minutes)
6. Review of Capability Assessment (20 minutes)
7. HMP Goals (35 minutes)
8. Next Steps (10 minutes)

**NEXT STEPS:**

Please return the completed Hazard Ranking Worksheet and Capability Assessment Worksheet to Jessica Forbes-Guerrero by March 12, 2020.

Jessica Forbes-Guerrero, Ecology and Environment, Inc.  
(o) 303-443-3282 | [JForbes-Guerrero@ene.com](mailto:JForbes-Guerrero@ene.com)



# Park County 2020 Hazard Mitigation Plan Update

## Meeting #1 – Kickoff Workshop

Thursday, March 5 | 9 a.m. -12 p.m. | Park County Emergency Operations Center



# Welcome and Introductions

- Name
- Organization/Department
- Did you participate in the last update of the Hazard Mitigation Plan?
  - What is keeping you up at night?



## Meet the E & E Team



Jon McClurg  
Project Director



Nicki Hurley  
GIS Analyst



Jessica Forbes-  
Guerrero  
Project Manager



Sam Fisher  
Emergency Planner



Alyssa Russell  
Deputy PM

# Meeting Objectives

- Overview of the Planning Process
- Hazard Ranking
- Assessing Vulnerability
- Local Capabilities
- Goals and Objectives
- Next Steps and Action Items



# Talking Hazards

# 2015 Hazards of Concern

- Drought
- Earthquake
- Flood
- Severe Winter Weather
- Wildfire
- Dam Failure
- Hazardous Materials
- Landslide
- Severe Thunderstorm, Hail, and Wind

# Ranking Hazards

- **Probability/Frequency** - Likelihood of the hazard occurring and how often the hazard has resulted in an emergency or disaster.
- **Magnitude** – The extent or scale of the area potentially impacted, the overall impacts, and the chance of one hazard triggering another hazard, thus causing a cascading effect.
- **Onset** - The time between recognition of an approaching hazard and when the hazard begins to affect the community.
- **Duration** - The length of time the hazard remains active, the length of time emergency operations continue after the hazard event, and the length of time that recovery will take.

# Measuring Risk

Rating	Probability/ Frequency	Magnitude	Onset	Duration
1	Highly unlikely (less than every 25 years)	No injuries or deaths expected, minimal property damage	Greater than 30 days of warning	Only brief moments
2	Fairly unlikely (10-25 years)	Between 1 and 5 injuries or deaths, minor property damage	5-30 days of warning	1-24 hours
3	Moderate (5-10 years)	Between 5 and 25 injuries or deaths, moderate property damage	1-5 days of warning	Days to weeks
4	Likely (1-5 years)	Between 25 and 50 injuries or deaths, severe property damage	1-10 hours of warning	Weeks to months
5	Highly likely (once per year)	Greater than 50 injuries or deaths, catastrophic property damage	No warning	Months to years

# The Planning Output

## Example Hazard Ranking Results

<i>Hazard Type</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Frequency (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Average</i>	<i>Rank</i>
Wildland Fire	3.71	4.43	4.29	4.14	4.14	1
Earthquake	4.29	2.86	4.86	3.57	3.89	2
Hazardous Materials Event	3.00	3.14	4.86	3.43	3.61	3
Flood	3.43	3.71	3.86	3.14	3.54	4
Severe Weather (Snow, Ice, Wind, Hail)	3.00	3.86	3.29	3.29	3.36	5
Terrorism	3.71	1.43	5.00	3.14	3.32	6
Caving Ground (Mine Collapse)	3.00	2.14	5.00	2.71	3.21	7
Drought	2.00	4.00	2.00	4.43	3.11	8
Epidemic	2.86	1.86	3.29	3.29	2.82	9
Avalanche	2.14	1.57	4.14	1.86	2.43	10

# Assessing Vulnerability

# Workshop Exercise

- Think about what your department's news headlines related to hazards from the past 5 years would be
  - What are past events of importance?
  - What areas of your jurisdiction have been affected?
  - What populations have been impacted?
- Have vulnerabilities changed?
- Have priorities changed?
  - What are recent development trends?
  - Who are new partners to engage and support?



# Capabilities Assessment

# Identifying Capabilities

- What hazards are you most concerned about that would impact your ability to provide essential functions?
- What would you consider your biggest vulnerability to those hazards?
- What would you consider your biggest strength is in being resilient to hazard events?

# Identifying Capabilities

- What **plans and policies** do you have in place to support risk reduction?

Plans and Policies	
Plans	Policies and Regulations
<ul style="list-style-type: none"><li>➤ Department Hazard Mitigation Plan or Hazard Analysis</li><li>➤ Department Emergency Operations or Emergency Response Plan</li><li>➤ Floodplain Management Plan</li><li>➤ Land Use Plan</li><li>➤ Stormwater Management Plan</li><li>➤ Continuity of Operations Plan or Business Continuity Plan</li><li>➤ Capital Improvements Plan</li></ul>	<ul style="list-style-type: none"><li>➤ Zoning Ordinance</li><li>➤ Flood Damage Prevention Ordinance</li><li>➤ Mutual Aid or Other Mutual Assistance Agreements</li><li>➤ National Flood Insurance Program</li><li>➤ Community Rating System</li><li>➤ Building Code</li><li>➤ Fire Code</li></ul>

# Identifying Capabilities

- What staff and equipment do you have in place to support risk reduction?

Staff and Equipment Capability	
Staff	Equipment
<ul style="list-style-type: none"> <li>➤ Planners with knowledge of land development and land management practices</li> <li>➤ Engineers or professionals trained in construction practices related to buildings and/or infrastructure</li> <li>➤ Planners or engineers with an understanding of natural and/or human-caused hazards</li> <li>➤ Emergency manager</li> <li>➤ Floodplain manager</li> <li>➤ Scientist familiar with hazards of the area</li> <li>➤ Staff with education or expertise to assess vulnerability to hazards</li> <li>➤ Personnel skilled in Geographic Information Systems (GIS)</li> <li>➤ Resource development staff or grant writers</li> </ul>	<ul style="list-style-type: none"> <li>➤ Damage assessment tool</li> <li>➤ Sandbagging machine</li> <li>➤ Snow plows</li> <li>➤ Generators</li> <li>➤ Communication devices</li> <li>➤ Personal Protective Equipment (PPE), such as hearing protective devices (earplugs, muffs), hard hats, respirators, gloves, eye protective devices (goggles), full body suits</li> <li>➤ Shelters</li> <li>➤ Utility fleet</li> </ul>

# Identifying Capabilities

- What **fiscal mechanisms** do you have in place to support risk reduction?

## Fiscal Capability

- Capital Improvement Program
- Community Development Block Grants (CDBG)
- Special Purpose Taxes (or taxing districts)
- Utility Fees
- Development Impact Fees
- General Obligation, Revenue, and/or Special Tax Bonds
- Partnering arrangements or intergovernmental agreements

# Review of Mitigation Goals

# 2015 HMP Goals

- **Overarching Goal:** Develop and maintain a disaster-resistant community that is more resilient to the economic and physical devastation associated with all hazard events.
- **Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes and functions, by incorporating them into policy documents and initiatives.
- **Goal 2:** Increase the county jurisdictions' floodplain management activities and participation in the National Flood Insurance Program.
- **Goal 3:** Develop support for mitigation among local jurisdictions and local officials.
- **Goal 4:** Enhance countywide understanding and awareness of community preparedness needs.

# 2015 HMP Goals Continued

- **Goal 5:** Conduct exercises and training regarding the prevention and mitigation of Park County hazards.
- **Goal 6:** Explore diverse public notification systems for impending hazards.
- **Goal 7:** Enhance the safety of residents and businesses by protecting public and private infrastructure and critical facilities from the effects of natural and human-caused hazards.
- **Goal 8:** Improve emergency service capabilities.
- **Goal 9:** Enhance interagency collaboration throughout the County and with adjacent neighbors.

# Setting 2020 HMP Goals

- What does hazard mitigation look like in Park County? What does the community value?
- Do any of the 2015 HMP goals address 2020 risks?
- Have priorities shifted that necessitate new goals?
- What goals are most critical for the upcoming 5-year planning period to further risk reduction?
- Consider developing goals through an all-hazards lens.



# Next Steps and Action Items

# Key Dates and Data Gathering

- Provide completed worksheets (risk assessment, capability assessment, and data request) by **March 12, 2020**
- Mitigation Strategy Workshop on **March 18, 2020**
- Draft Plan released in **April 2020**
- Draft Plan Workshop in **April 2020**
- Final Plan and Presentation in **May 2020**

**Public survey:**

<https://www.surveymonkey.com/r/ParkHMP>

## What Can I Do?

- Submit worksheets
- Review draft plan once available
- Share information on the planning process
- Participate in upcoming workshops

# Contact Information

## County Project Lead

Brad Golden

719-836-4231

[bgolden@parkco.us](mailto:bgolden@parkco.us)

## E & E Project Manager

Jessica Forbes-Guerrero

303-443-3282

[JForbes-Guerrero@ene.com](mailto:JForbes-Guerrero@ene.com)

**Park County 2020 HMP Update  
Meeting # 1 - Kickoff Workshop  
Sign In Sheet**

NAME	TITLE	DEPARTMENT/AGENCY	PHONE	EMAIL
1. <i>Mark Thompson</i>	<i>Planning Specialist</i>	<i>DPS/EM</i>	<i>(820)630-0770</i>	<i>mark.thompson@state.co.us</i>
2. <del><i>Gary Stanley</i></del>	<i>Park OEM</i>	<i>Park Co.</i>	<i>719-836-4370</i>	<i>gstanley@parkco.us</i>
3. <i>John Van Doren</i>	<i>Fire Adapted</i>	<i>Barley</i>	<i>3-877-1447</i>	<i>john@KITHA.NET</i>
4. <i>MAREVS WOODWARD</i>	<i>POLICE CHIEF FAIRPLAY TOWN</i>	<i>TOWN OF FAIRPLAY</i>	<i>719-839-1047</i>	<i>MWOODWARD@FAIRPLAYCO.US</i>
5. <i>Susan Bernstetter</i>	<i>Fire Chief</i>	<i>Lake George Fire PD</i>	<i>719 839 1985</i>	<i>susan@lakegeorgefire.com</i>
6. <i>Trent Smith</i>	<i>Captain</i>	<i>North-West Fire PD</i>	<i>719 836-3150</i>	<i>Tsmith@nwfpd.org</i>
7. <i>Nik Varma</i>	<i>FF</i>	<i>NWFPD</i>	<i>719 836-3150</i>	<i>nvarma@nwfpd.org</i>
8. <i>MARK DAHLSTEN</i>	<i>SGT</i>	<i>PARK CO. S.O.</i>	<i>719 836 2494</i>	<i>MDAHLSTEN@PARKCO.US</i>
9. <i>David Kintz</i>	<i>Commander</i>	<i>Park CO. Coronet</i>	<i>719-839-0440</i>	<i>pccoroner@parkco.us</i>
<i>PAUL MATTSON</i>	<i>CHIEF</i>	<i>SOUTH PARK AMBULANCE</i>	<i>719-836-2055 x1</i>	<i>chief@southparkambulance.com</i>

NAME	TITLE	DEPARTMENT/AGENCY	PHONE	EMAIL
10. JOCELYN		PUBLIC HEALTH		
11. Eugene Farmer	Fire chief	Gorley Fire & EMS	719 639-9479	
12. MARIA MITCHELL	Director	911 Park County	719 836 4115	mmitchelle@parkco.us
13. JOE BURGESS	FIRE CHIEF	PLATTE CANYON FIRE	303-838-5853	pcfpdchief@gmail.com
14.				
15.				
16.				
17.				
18.				
19.				

at  
store

## **Park County Hazard Mitigation Plan Update Kickoff Workshop**

County Emergency Operations Center, 911 Clark Street, Fairplay, CO 80440

3/5/2020, 9AM-12PM

### **Attendees**

*See attachment.*

Discussion points from each section of the workshop are summarized below.

### **Overview of the Planning Process**

- Only three people participated three years ago at the hazard mitigation workshop
- Long term risk reduction, need to do maintenance.
- Incorporate hazardous mitigation into daily lives.
- Benefits-you bring the community together, update shared strategy over the long term
- A local HMP allows eligibility for FEMA grant funding
- Pre-disaster mitigation-program will be replaced soon, but it's not known what this new program will be, larger scale community level projects, and funding will dramatically increase
- Flood Mitigation assistance
- HMGP-you need to have a disaster to get these funds, and it's the largest pot
- New dam program-High Hazard Potential Dam, HMP need to address dams to qualify
- HMP examples, if it has wheels, it's response not mitigation
- Mitigation Financial Benefits-consistent with commercial businesses, need to close if there is a disaster. Attendee Comment- The tax base isn't there to rebuild homes and businesses in Fairplay. Only 8 out of 25 homes rebuilt since fire in 2002
- Why is the wildland-urban fire ratio so low-FEMA doesn't track it, and mitigation doesn't happen with the actual home materials, county commissioners reluctant to add regulations, uncomfortable conversations around new codes. Permanent hit to residential home values from the fire (in the burn scar).
- If you exceed 2015 codes you will see cost savings
- Since 2011, Department of Public Safety has done 136 HMP projects completed and funding given. Attendee Comment-CWPP-highest priority emergency roadway evacuations. FEMA wouldn't fund working in a ROW roadway. (Mark)-They need several million dollars for road work. It is difficult to pursue that money from FEMA. Fire versus fuel break. Fire breaks not funded, but fuel reduction rates are funded by FEMA. FEMA doesn't fund a second way out for road evacuation.
- Keep participating for the next couple of months for the planning process, rather than coming in after the plan is done. You will need to redo the entire process if you come in afterwards.

### **Hazard Ranking and Risk Assessments**

- Participants ranked hazards that occur in the region according to variables such as extent, probability, and duration

- Worksheet-Changes in risks over the last 5 years? One attendee responded that there have been more tornadoes. More severe winter weather, high water events, changing weather patterns in snow/melt. Climate change.
- E & E will compile responses and get an average of risks.

### **Assessing Vulnerability / Workshop Exercise**

- Participants used the Headlines worksheet to discuss factors that have affected community vulnerability to hazards.
- Large group of people with mobile homes. They buy a piece of land and increase fire danger (partially transient). Airbnb, VRBO, is now occupied by different people, increased challenges with new people coming in, with respect to evacuations, medically, fire, regulations, etc. How do these rentals get code red, and what is the best communicate with these tourists. New hazard-Road closures and influx of stranded people, with no way to shelter those people. Increased population to front-range. Expansion of use of 285 is a problem as parts of the road are constrained in a canyon. Visitors get stranded on 285 during severe winter storms. The local school doesn't have a back-up generator for sheltering people, with a loss of power.
- Feel good story-the Park County Emergency Services council, people are working well together now, where they were fighting, multiple track vehicle, chippers, good positive impacts to citizens and transient population.
- Formalize the Park County ESC in the HMP
- Identifying Capabilities-FEMA and state requires that these capabilities are discussed. Will play into development of strategies. (Mark)-the State plan is different than the local plan. If you are doing the plan and you come back and say you don't have the capability, FEMA will ask you what has changed, if you now have the capability. You may identify a missing capability that you want to develop (example-building code). Financial is different for Mark's department than the worksheet.

### **HMP Goals**

- Participants reviewed the goals included in the 2015 plan and updated them based on changes in priorities. Updated goals have been included in the 2020 HMP update.

### **Next Steps**

- Participants were asked to complete the worksheets provided during the meeting by March 12. Next steps were discussed, including public involvement over the course of the planning process.



**HEADLINES**

**What headlines would your jurisdiction/organization have over the past five years, related to hazards?**

**Name:** \_\_\_\_\_

**Dept./Organization:** \_\_\_\_\_

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)



**Local Mitigation Capabilities Tracker for Local and State Plan Updates**

Planning and Regulatory	Yes/No
Building Codes	
Building Codes Year	
BCEGS Rating	
Capital Improvements Program (CIP) or Plan	
Community Rating System (CRS)	
Community Wildfire Protection Plan (CWPP)	
Comprehensive, Master, or General Plan	
Economic Development Plan	
Elevation Certificates	
Erosion/Sediment Control Program	
Floodplain Management Plan or Ordinance	
Flood Insurance Study	
Growth Management Ordinance	
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	
NFIP	
Site Plan Review Requirements	
Stormwater Program, Plan, or Ordinance	
Zoning Ordinance	
Other	

Administrative and Technical	Yes/No
Emergency Manager	
Floodplain Administrator	
Community Planning:	
- Planner/Engineer (Land Devel)	
- Planner/Engineer/Scientist (Natural Hazards)	
- Engineer/Professional (Construction)	
- Resiliency Planner	
- Transportation Planner	
Building Official	
GIS Specialist and Capability	
Grant Manager, Writer, or Specialist	
Warning Systems/Services:	
- General	
- Flood	
- Wildfire	
- Tornado	
- Geological Hazards	
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	
- Levy for Specific Purposes with Voter Approval	
- Utilities Fees	
- System Development / Impact Development Fee	
- General Obligation Bonds to Incur Debt	
- Special Tax Bonds to Incur Debt	
- Withheld Spending in Hazard-Prone Areas	
- Stormwater Service Fees	
- Capital Improvement Project Funding	
- Community Development Block Grants	
- Other	

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks	
Firewise	
StormReady	
Other	

## CAPABILITY ASSESSMENT WORKSHEET INSTRUCTIONS

1. **Think about hazard mitigation in the context of your departmental/organizational mission and essential functions.** Not all hazards impact your operations in the same way and you may be uniquely vulnerable to certain hazards (e.g., facilities known to be in a hazard zone), or uniquely prepared for others (e.g., backup generators during a power disruption). You also might have functions that are specific to a particular hazard (e.g., public health's responsibility during a disease outbreak, or the fire department's role in fire prevention and suppression). This analysis also creates an important link between your department/organization's approach to hazard mitigation (how we reduce our risk) and continuity of operations (how we maintain our essential functions during a disruption). Based on this exercise, answer the following two questions for your department/organization:
  - a. What hazards are you most concerned about that would impact your ability to provide your essential functions?
  - b. What would you consider your **biggest vulnerability** to those hazards?
  - c. What would you consider your **biggest strength** is in being resilient to hazard events?
2. **Think about what capabilities do you have to create a more resilient department organization to hazards and threats.** All partners in the community's hazard mitigation have a role in reducing vulnerability to hazards. That may come in the form of *policies* (e.g., policies restricting development in hazard zones), *plans* (e.g., strategies or operational plans to address hazards and threats), specialized *staff* (e.g., engineers, geospatial professionals), specialized *equipment or systems* (e.g., damage assessment tool, sandbagging machine), and *fiscal mechanisms* to support risk reduction (e.g., fees, grants). Based on this exercise answer the following questions for your department/organization:
  - a. What **plans and policies** do you have in place to support community risk reduction?
  - b. What **staff and equipment** do you have in place to support community risk reduction?
  - c. What **fiscal mechanisms** to you have in place to support risk reduction?
  - d. What **actions have you taken in the last 5 years** (since the last plan update) to build these capabilities?

*Table 1 provides examples of plans and policies, staff and equipment, and fiscal mechanisms to support risk reduction. This list is not intended to be all-inclusive—please provide feedback on any asset or capability you think is appropriate.*

3. **Think about your answers to the first two exercises—what strategies or actions might you propose to build on your existing capabilities and reduce both your department/organization's and the community's risks to hazards and threats.** A successful hazard mitigation strategy proposes actions that build on existing strengths and fill known gaps in capability. Based on this exercise, answer the following question:
  - a. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction?

**Table 1      Capability Element Examples**

<b>Plans and Policies</b>	
<b>Plans</b>	<b>Policies and Regulations</b>
<ul style="list-style-type: none"> <li>➤ Department Hazard Mitigation Plan or Hazard Analysis</li> <li>➤ Department Emergency Operations or Emergency Response Plan</li> <li>➤ Floodplain Management Plan</li> <li>➤ Land Use Plan</li> <li>➤ Stormwater Management Plan</li> <li>➤ Continuity of Operations Plan or Business Continuity Plan</li> <li>➤ Capital Improvements Plan</li> </ul>	<ul style="list-style-type: none"> <li>➤ Zoning Ordinance</li> <li>➤ Flood Damage Prevention Ordinance</li> <li>➤ Mutual Aid or Other Mutual Assistance Agreements</li> <li>➤ National Flood Insurance Program</li> <li>➤ Community Rating System</li> <li>➤ Building Code</li> <li>➤ Fire Code</li> </ul>
<b>Staff and Equipment Capability</b>	
<b>Staff</b>	<b>Equipment</b>
<ul style="list-style-type: none"> <li>➤ Planners with knowledge of land development and land management practices</li> <li>➤ Engineers or professionals trained in construction practices related to buildings and/or infrastructure</li> <li>➤ Planners or engineers with an understanding of natural and/or human-caused hazards</li> <li>➤ Emergency manager</li> <li>➤ Floodplain manager</li> <li>➤ Scientist familiar with hazards of the area</li> <li>➤ Staff with education or expertise to assess vulnerability to hazards</li> <li>➤ Personnel skilled in Geographic Information Systems (GIS)</li> <li>➤ Resource development staff or grant writers</li> </ul>	<ul style="list-style-type: none"> <li>➤ Damage assessment tool</li> <li>➤ Sandbagging machine</li> <li>➤ Snow plows</li> <li>➤ Generators</li> <li>➤ Communication devices</li> <li>➤ Personal Protective Equipment (PPE), such as hearing protective devices (earplugs, muffs), hard hats, respirators, gloves, eye protective devices (goggles), full body suits</li> <li>➤ Shelters</li> <li>➤ Utility fleet</li> </ul>
<b>Fiscal Capability</b>	
<ul style="list-style-type: none"> <li>➤ Capital Improvement Program</li> <li>➤ Community Development Block Grants (CDBG)</li> <li>➤ Special Purpose Taxes (or taxing districts)</li> <li>➤ Utility Fees</li> <li>➤ Development Impact Fees</li> <li>➤ General Obligation, Revenue, and/or Special Tax Bonds</li> <li>➤ Partnering arrangements or intergovernmental agreements</li> </ul>	

## CAPABILITY ASSESSMENT WORKSHEET

**Contact Information:**

<b>Name:</b>	<b>Department/Organization:</b>	<b>Title:</b>
<b>Phone:</b>	<b>E-Mail:</b>	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?


2. What would you consider your **biggest vulnerability** to those hazards?


3. What would you consider your **biggest strength** is in being resilient to hazard events?


**Park County 2020 Hazard Mitigation Plan Update**  
**Capability Assessment Worksheet**

---

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet.** Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes

7. What **actions** have you taken in the last 5 years (since the last plan update) to build these capabilities?


8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)








### Park County - 2020 Hazard Rankings

Agency/Organization:

*Park Co. S.O.*

Name:

*MARK DAHLSTEN*

	Probability/ Frequency (1=lowest, 5=highest)	Magnitude (1=lowest, 5=highest)	Onset (1=slowest, 5=fastest)	Duration (1=shortest, 5=longest)	Change in Risk (↑, ↓, ↔ since 2015)	Notes
Drought	4	1	1	5		
Earthquake	1	1	5	5		
Flood	1	2	4	5		
Severe Winter Weather	4	2	3	4		
Wildfire	5	2-4	5	5		
Dam Failure	1	5	5	5		
Hazardous Materials	2	3-4	5	3		
Landslide	1	1	5	5		
Severe Thunderstorm, Hail, and Wind	4	2-3	4	3		

*WASNT  
HERE  
5 YRS AGO*























## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: Sheila Cross, Director

Dept./Organization: Development Services

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
<b>Tornado Damage Spans 40 Miles</b>	tornado	A tornado hit, first in Black Mountain south of Fairplay, and last in Lake George. A dozen homes, power lines, and trees were damaged. It was important because tornados are not common in the area, do not typically travel this far, and happen very fast.
<b>Weston and High Creek Fires Stretch Resources</b>	2 fires	Two separate fires occurred simultaneously, at opposite ends of the county. Hundreds of people were evacuated. It was difficult in the EOC to keep each fire's information separate and up to date.
<b>Winter Storm Leaves Travelers, Residents Stranded</b>	storm	(This has happened a couple of times. I'll focus on the recent event.) A storm over a holiday weekend resulted in undrivable conditions. Meanwhile, I-70 closed and some travelers were routed over Hoosier pass to blizzard conditions on Hwy 285. Many ended up having to be rescued from their vehicles and placed in shelters. Meanwhile, many residents were also bound by the conditions.



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: Gene Stanley

Dept./Organization: Park Co OEM

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
Weston Pass Wildfire	Fire	13,000 acres of forest, some in wilderness area. Fire caused loss of homes. Fire caused area evacuations. Fire caused activation of Type I I.M.O.T.
Numerous winter wind events + road closures	Blizzards	Throughout this winter, numerous closures of Hwys. #285 & State Hwy. #9 were closed in the South Park area causing stranded motorists to be rescued & emergency shelters to be opened. one event required housing ~1000 Traveler.



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: David Kintz

Dept./Organization: Park County coroner

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
weather strands double fairplay population	SNOW wind	765 people stranded in fairplay all non residents. Humanitarian crisis. This overwhelmed the response ability for sheltering.
mass fatality training	mass fatality	Full scale county-wide mass fatality Exercises to better prepare for mass fatality incidents
Transient Rus Illegal residents	weather, fire, flood	A large population of people living in campers and sheds with health problems, poor living conditions, no utilities. Large problem with weather, evacuation, medical, law enforcement.



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: Susan Bernstetter

Dept./Organization: Lake George Fire Protection District

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
Tornadoes	Hail, Wind Power Lines Down Roads Blocked	Tornado hit a stretch covering approx 7 miles. Destroyed several homes, live power lines down. larger area without power. Lines & trees down across roads, Hail & mud make responding delayed.
<del>High</del> high water levels	Flooding	2015 high snow pack & days of rain brought high water levels on the south platte coming from 11 mile dam & Tarryall reservoirs 11 mile canyon road was closed. Boy Scout camp had 500 scouts who couldn't get in & out. Sportsman's Paradise subdivision was cut off because CR 112 was damaged & closed. Tarryall River Bend & Tarryall River Estates Entrance washed out. 11 mile canyon closure effected USFS campsites & paid tourists for fishing - This normally brings 1000 during summer each day.
Projected high water levels or Dam failure	Flooding 2019	Worked with 11 mile Dam Supervisor & Denverwater for better communication worked with Boy Scout Camp in 11 mile canyon for preplanning for food storage & with backroad out - they are working w/ USFS on that worked with PC Road & Bridge for closing off CR 112 & for alternate way out for Sportsman Paradise evacuation. worked w/ PESO, Denverwater, USFS for evacuation plans

Notes:

Badger Mtn Communication Towers Threatened - wildland fire - 2018 fire at the base of

Badger mtn threatened all comms on top of mtn.

If fire hadn't been stopped - All towers would have been taken out

Increased challenges with significant increase in tourists in USFS lands & airbnb's

## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: Joe B.

Dept./Organization: PLATE CANYON FIRE

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
Community Evac Drills	LIFE SAFETY OF COMMUNITY	ANNUAL SUB DIVISION EVACUATIONS TO HELP DEVELOP EMERGENCY PLANS FOR CITIZENS
UPDATED CWPP	WILDLAND FIRE	IDENTIFIED AREAS OF RISK, AREAS OF OPPORTUNITIES FOR MITIGATION & INFORMED US & CITIZENS OF EVACUATION ROUTE LIMITATIONS
TOMAHAWK FUELS TREATMENT	WILDLAND FIRE EVAC ROUTE	REDUCED FUELS NEAR DEER CREEK ELEMENTARY SCHOOL WITHIN MIL IRON D SUBDIVISION AND TOMAHAWK GIRL SCOUT PARK, <del>AND</del> UPDATED PINCH POINTS ON PC ROAD 43 EVACUATION ROUTE.



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: Maui Mitchell

Dept./Organization: 911 Center/Dispatch

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
gibberly gorge	injury when landing	all events in Park County involve & impact the 911 center.
fatal accident shooting of deputies		
Blizzard/Wind event 2019 Thanksgiving	Wind snow	
Wildfire, manx times Weston Pass fire in 2017 type I fire		



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: MARCUS WOODWARD

Dept./Organization: TOWN OF FAIRPLAY

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
TAKE HIGH GROUND HIGH RUN-OFF FLOODING	TOWN OF FAIRPLAY BEACH DAM BREACH	TOWN BEACH LAKE REACHED MAX WATER CAPACITY AND THREATENED ACCESS FOR PUBLIC ROADWAYS NEEDING REPAIRED + REINFORCED CREATED MAJOR DOWNSTREAM FLOODING POTENTIAL FOR RV CAMPGROUNDS
MAJOR HWY CLOSURE DUE TO EXTREME SNOW + BLOWING SNOWS	750 STRANDED TRAVELING MOTORISTS	INTERSTATE I-70 + STATE HWY 285 CLOSURES RESULTING IN 750 STRANDED FOR 2 NIGHTS IN TOWN OF FAIRPLAY. FUEL SHORTAGES, FOOD SUPPLIES BLOCKED ROADWAYS, NO LOADING



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: Trent Smith

Dept./Organization: North-west Fire P.D.

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
Weston pass Fire	Flooding erosion	2018 Weston Pass Hartsel Fire PD and North-west Fire Lost of 2 Structures 17,000 Acres.
<del>Valley of The Sun</del> → Valley of The Sun Fire	Fire Drought	Major Loss of Structures and Possible Life, Causing Flooding, erosion,
Severe weather	Heavy Snow High winds	2008-2020 Adverse Hwy conditions, People stranded, unable to get medical condition, Food, supplies, county has built a track vehicle with a 2nd in Planning.
Aur-B3B / Vrbo.	Increased Population	Increased Traffic, medical calls and CO Alarms. Park County has 1600 Plus short term rentals. with that number growing



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: John Van Doren

Dept./Organization: Bayley

Fire Adopted

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
New CWFP	Wild Fire	EVAC BECOME #1 PRIORITY - ROADWAY <del>MITIGATION</del> MITIGATION - COMMUNICATION - CODE RED, cell bandwidth - Areas of Refuge - Education Evac Workshops - EVAC Plan for Community - Clearance Times



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: Eugene Farmer

Dept./Organization: Guffey Fire (Southern Park County, CAD)

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
Chateau Fire Teller County	Wildland Fire	Fire in a community, Teller County, (less than 1/4 mile from Park County line) wide evacuation in Park County, lost several homes,
Good Guffey Charter School	School Safety	Under pressure from Fire, EMS and Sheriff's Office school locks doors while school is in session.
Good Guffey Fire	Fire	Guffey Fire Station #1 installs 1 <sup>st</sup> Fire hydrant. decreasing water fill time, water source in town.



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: MARK JAKKSTEN

Dept./Organization: PARK CO. S.O.

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
WILDFIRES	WILDFIRES	2019 SEASON. 8 PARK COUNTY WILDFIRES - DOCUMENTED COUNTY-WIDE 100's OF ACRES BURNED
THE NEVERENDING WINTER OF '18-'19	POOR ROAD CONDITIONS	SEVERAL DRIVING-RELATED FATALITIES DUE TO BLACK ICE, LIMITED VISIBILITY, SNOW-COVERED ROADS



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: David Kintz

Dept./Organization: South Park ambulance

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
Vacation rentals	un prepared tourists	Hundreds at any one time. all unprepared for altitude causing health problems. unprepared for Evacuation from both winter weather and wild fire.



## HEADLINES

What headlines would your jurisdiction/organization have over the past five years, related to hazards?

Name: BRAD GOURDEN

Dept./Organization: EM / PARK COUNTY

Headline	Hazard	Tell us the details! (What happened? Where and when? Who was affected? Why was it important?)
SEVERE WEATHER STAYS DOWN HAYS STRANDED MOTORIST	WINTER STORM	WINTER STORM STRANDED OVER 700 PEOPLE
MELT OFF COULD CAUSE FLOODING	FLOOD	HIGH SNOWPACK PERCENTAGES TO FLOOD REVERES IMPACT RESIDENTS & TRAVELERS
WILDFIRES HITTING PARK COUNTY	WILDFIRE	VARIOUS WILDFIRES DUE TO COUNTY SURROUNDED BY NAT FOREST
TORNADOES IN PARK CO	THUNDERSTORMS	2 STORMS HAVE GENERATED TORNADOES IN PARK COUNTY



**Local Mitigation Capabilities Tracker for Local and State Plan Updates**

Planning and Regulatory	Yes/No
Building Codes	yes
Building Codes Year	
BCEGS Rating	yes
Capital Improvements Program (CIP) or Plan	yes
Community Rating System (CRS)	yes
Community Wildfire Protection Plan (CWPP)	yes
Comprehensive, Master, or General Plan	n/a
Economic Development Plan	na
Elevation Certificates	yes
Erosion/Sediment Control Program	yes
Floodplain Management Plan or Ordinance	yes
Flood Insurance Study	n/a
Growth Management Ordinance	no
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	yes
NFIP	n/a
Site Plan Review Requirements	yes
Stormwater Program, Plan, or Ordinance	n/a
Zoning Ordinance	yes
Other	

Administrative and Technical	Yes/No
Emergency Manager	yes
Floodplain Administrator	yes
Community Planning:	no
- Planner/Engineer (Land Devel)	
- Planner/Engineer/Scientist (Natural Hazards)	
- Engineer/Professional (Construction)	
- Resiliency Planner	
- Transportation Planner	
Building Official	yes
GIS Specialist and Capability	yes
Grant Manager, Writer, or Specialist	yes
Warning Systems/Services:	no
- General	
- Flood	
- Wildfire	
- Tornado	
- Geological Hazards	
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	
- Levy for Specific Purposes with Voter Approval	yes
- Utilities Fees	no
- System Development / Impact Development Fee	no
- General Obligation Bonds to Incur Debt	no
- Special Tax Bonds to Incur Debt	no
- Withheld Spending in Hazard-Prone Areas	no
- Stormwater Service Fees	no
- Capital Improvement Project Funding	yes
- Community Development Block Grants	no
- Other	

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks	yes
Firewise	yes
StormReady	
Other	yes

**Local Mitigation Capabilities Tracker for Local and State Plan Updates**

Planning and Regulatory	Yes/No
Building Codes	Yes
Building Codes Year	2012
BCEGS Rating	3
Capital Improvements Program (CIP) or Plan	
Community Rating System (CRS)	
Community Wildfire Protection Plan (CWPP)	Yes
Comprehensive, Master, or General Plan	Yes
Economic Development Plan	
Elevation Certificates	Yes
Erosion/Sediment Control Program	Yes
Floodplain Management Plan or Ordinance	Yes
Flood Insurance Study	
Growth Management Ordinance	
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	
NFIP	
Site Plan Review Requirements	Yes
Stormwater Program, Plan, or Ordinance	Yes
Zoning Ordinance	Yes
Other	

Administrative and Technical	Yes/No
Emergency Manager	Yes
Floodplain Administrator	Yes
Community Planning:	
- Planner/Engineer (Land Devel)	Yes
- Planner/Engineer/Scientist (Natural Hazards)	
- Engineer/Professional (Construction)	Yes
- Resiliency Planner	
- Transportation Planner	
Building Official	Yes
GIS Specialist and Capability	Yes
Grant Manager, Writer, or Specialist	
Warning Systems/Services:	
- General	
- Flood	
- Wildfire	
- Tornado	
- Geological Hazards	
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	
- Levy for Specific Purposes with Voter Approval	
- Utilities Fees	
- System Development / Impact Development Fee	Yes
- General Obligation Bonds to Incur Debt	
- Special Tax Bonds to Incur Debt	
- Withheld Spending in Hazard-Prone Areas	
- Stormwater Service Fees	
- Capital Improvement Project Funding	
- Community Development Block Grants	
- Other	

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks	
Firewise	
StormReady	
Other	

## Fire Adapted Bailey Self-Assessment

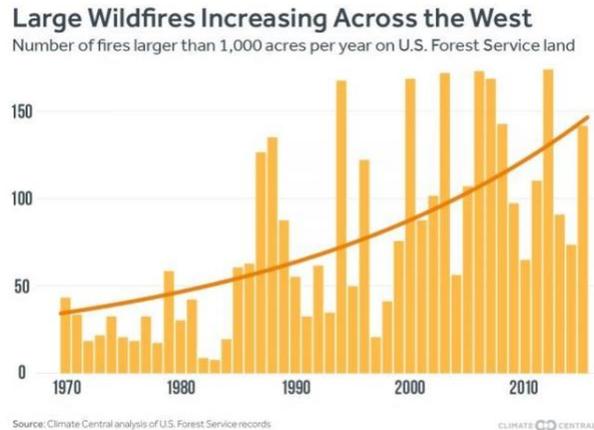
### **Introduction to the Fire Adapted Communities Self-Assessment Tool**

The Fire Adapted Communities Self-Assessment Tool (FAC SAT) helps communities assess their level of fire adaptation and track their capacity to live safely with fire over time. FAC SAT is designed to help participants:

- Identify their community's values at risk;
- Identify their community's capacity to implement FAC activities;
- Assess any gaps or limitations in funding, resources, partnerships, and workforce/volunteers;
- Prioritize future fire adaptation activities;
- Complement other work plans; and
- Increase understanding of long-term community fire adaptation needs.

### **Method/Strategy**

To save time and accommodate busy schedules, a small Self-Assessment **working group** and a FAC coordinator will gather data and complete questions before meeting with other stakeholders. During the larger stakeholder meeting, discussions can then focus on assessment results, prioritization and actions. The results will then be used as a public engagement tool by sharing the assessment with members of the public.



<sup>1</sup> This Self-assessment template was provided by the Fire Adapted Learning Network (FALN)

## Fire Adapted Bailey Self-Assessment

### **STEP 1: Determine General Information**

1. List the names of people and entities participating in the FAC SAT. Note affiliations, contact information, and any specific roles in the self-assessment process (e.g., convener, facilitator, data gatherer, recorder). Add more lines as necessary.

<b>Name</b>	<b>Contact Info</b>	<b>Affiliation</b>	<b>Role</b>
Joe Burgett	303 548-0854 mobile	PCFPD <b>Working Group</b>	Convener, Lead
Gail Judge	303 838-5853	PCFPD <b>Working Group</b>	Participant, data provider RETIRED
Jacob Ware	303 816-9385	ECFPD	Participant, data provider
John Van Doren	303 877-1447 mobile	Fire Adapted Bailey <b>Working Group</b>	Facilitator, Coordinator
Kathy Lower	303 815-0184 mobile	Fire Adapted Bailey <b>Working Group</b>	Participant, data provider
Gene Stanley	719 839-1602 mobile	Park County Emergency Management	Participant, data provider
Shelby Edwards	303 815-8145	PCFPD Wildland Fire Module	Participant
Jeff Ravage		CUSP	Participant

2. Describe the “community” being assessed, including: Name of community: Type of community (e.g., neighborhood, fire protection district, town/municipality, county): Land area/ size: Community boundaries (e.g., county lines, fire protection district): Population (specify both full-time and seasonal, if applicable):

**Fire Adapted Bailey (FAB)** is geographically defined by the same footprint as the Platte Canyon School District, basically North Park County from Kenosha Pass to Pine Junction. We live in heavily forested lands with a high fire occurrence history. FAB lies entirely within the Wildland Urban Interface (WUI) and according to the Colorado State Forest Service, over two thirds of the Bailey area is

## Fire Adapted Bailey Self-Assessment

within the “Red Zone” of the WUI. In addition, we have over a billion dollars of real estate and infrastructure at risk and are on the National Registry of communities at high risk of a wildfire.

FAB by the numbers:

- 311.6 square miles total, 21.1% Private, 78.9% Public (see Figure 1)
- 9,526 residents<sup>2</sup>
- 5,405 housing units (5552 residential parcels)
- 3,571 owner occupied housing units
- 68 sub-divisions<sup>3</sup>
- 32 sub-divisions (1405 or 25% of our residential parcels) at High or Very High risk of a crown fire<sup>4</sup>
- 5 Active Firewise communities comprising 41% of all residential parcels
- 2 Fire Protection Districts, Platte Canyon & Elk Creek
- 1 mutual aid agreement between the Platte Canyon & Elk Creek FPDs
- 1 (12) person PCFPD Wildland Fire Module trained for wildland fire operations
- 3 slash chipping services – PCFPD, ECFPD & CUSP
- 1 permanent slash disposal site – operated by CUSP

Some background material:

1. Why wildfires have gotten worse. [TED talk](#) by Paul Hessburg PhD
2. Your Home Can Survive a Wildfire. YouTube [Video](#) by Jack Cohen PhD

<sup>2</sup> American Community Survey

<sup>3</sup> Park County GIS

<sup>4</sup> A forest fire that spreads along tree tops, often at great speeds.

# Fire Adapted Bailey Self-Assessment

## Park County Platte Canyon School District Public and Private Lands

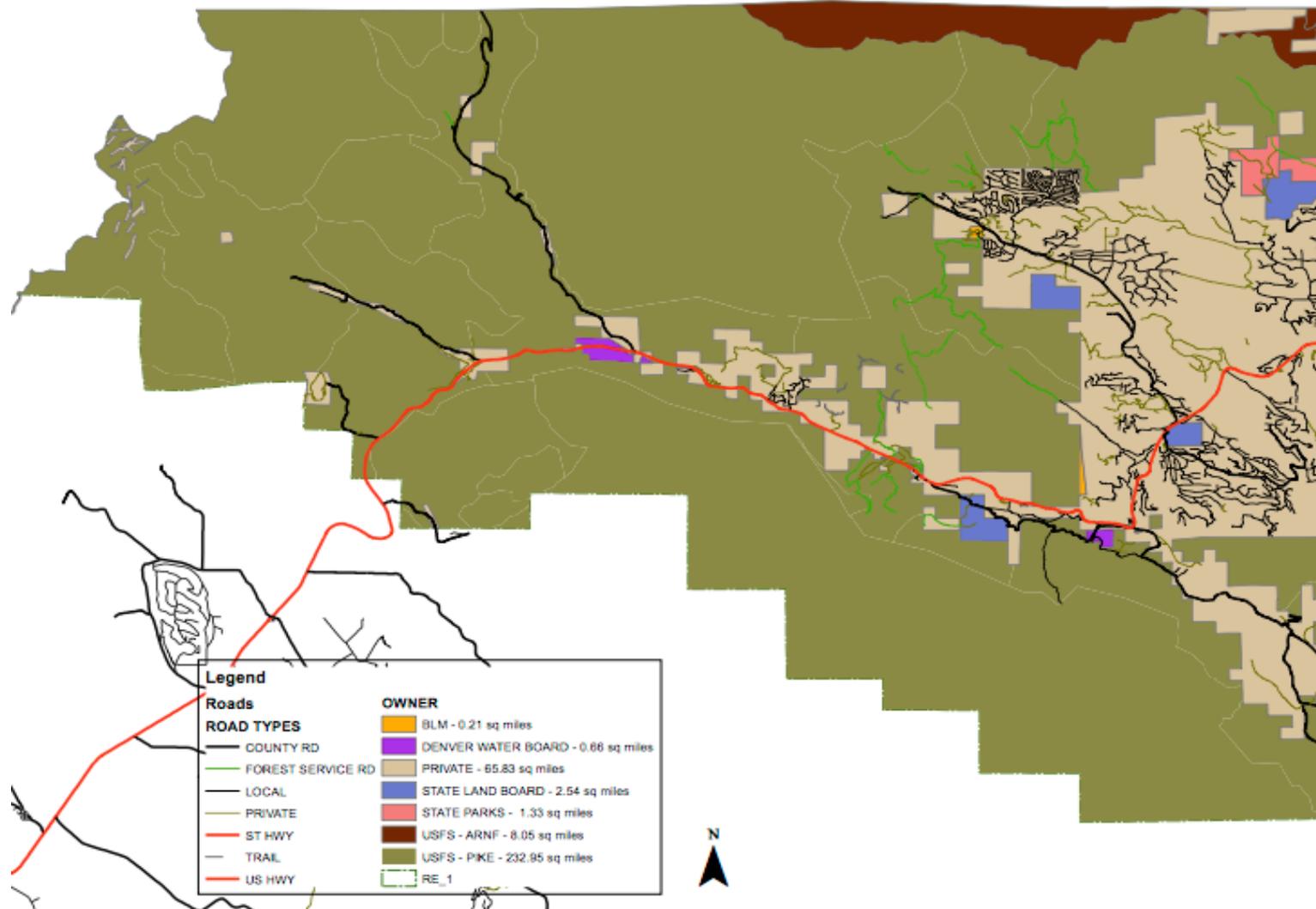


Figure 1. Fire Adapted Bailey – Public and Private Lands

**Fire Adapted Bailey  
Self-Assessment**

**STEP 2: Complete the Fire Adapted Communities Self-Assessment**

Fill out each section in the following table. Each subsection has a summary question at the end, which gives you the opportunity to rate your community on different aspects of fire adaptation and preparedness.

	<b>1.A. Wildfire Hazard and Response Capability</b>	<b>Response</b>
<b>1</b>	List those wildfires that have had significant impacts on the community (positive and negative). Include information such as when they occurred, size, and any social/ economic/ environmental impacts (if known).	<p><b><u>High Meadow Fire</u></b> June 2000 – 11,476 acres (42% private) Negatives: 39 Homes Lost Positives: Temporarily increased wildfire awareness and created large fuel break in the burn area to our south.</p> <p><b><u>Snaking Fire</u></b> April 2002 – 2,312 acres Negatives: Threatened the town of Bailey, Platte Canyon HS, and Friendship Ranch subdivision. Positives: No homes lost, temporarily increased wildfire awareness and created large fuel break in the burn area.</p>
<b>2</b>	Does your community have unique features that increase the wildfire threat (e.g., wind patterns, steep terrain, etc.)?	<p>According to the Park County CWPP, “the Bailey area is largest area of high risk, in that it contains the largest population and amount of development in Park County. It is located within and adjacent to heavily forested lands with a high fire occurrence history, including several large fires. It has high values at risk, generally high fuels risk, and high ignition risk.”</p> <p>Our community development pattern is confined to a band of private land on either side of State HWY 285 (see Figure 1). As a result, many of our subdivisions</p>

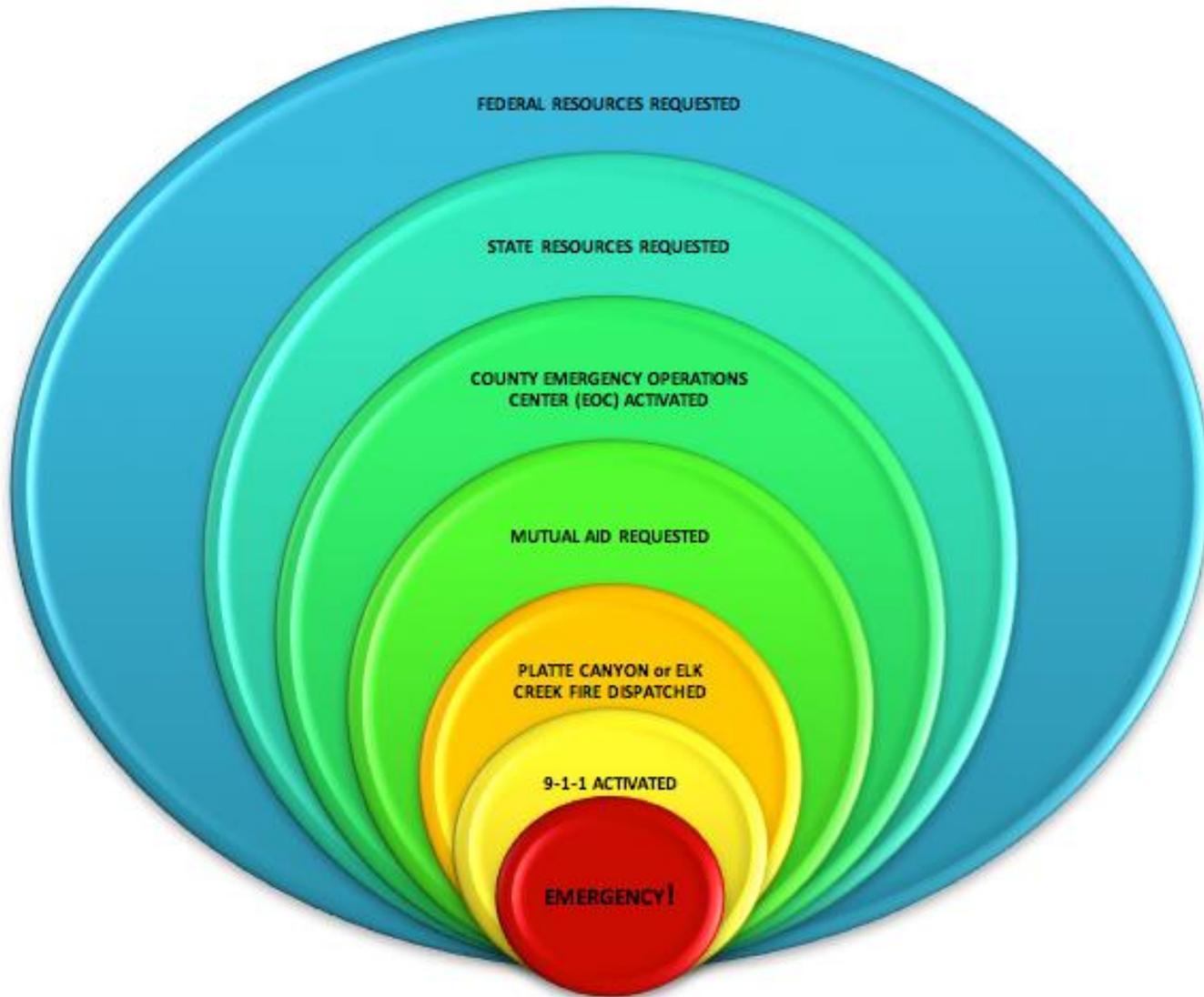
**Fire Adapted Bailey  
Self-Assessment**

		are served by one way in, one way out county roads that can become blocked during a wildfire event.
3	The following questions address your community's wildfire response capabilities. How many fire departments serve your community?	Two. Platte Canyon Fire Protection District and Elk Creek Fire Protection District with a mutual aid agreement in place.
3a	What type(s) of departments are they (e.g., volunteer, combination, career)?	Combination volunteer and career. PCFPD also has a 12 person Wildland Fire Module and is self-funded via contract wildfire suppression and in-district mitigation work.
3b	How many of your fire departments are trained for wildland fire operations?	Training: PCFPD: Annual RT130 refresher training including 45lb/3mile pack test, Deputy Chief is member of a Type I Incidence Team, we also support a (12) person Wildland Fire Module ECFPD: All members (volunteer & career) have wildland PPE and meet the NWCG standards for at least Firefighter 2. Many members have higher qualifications
3c	How many of your fire departments are equipped for wildland fire operations?	Equipment: PCFPD: (6) Type 2 engines, (4) Type 3 engines, (4) Type 1 combined structure/wildfire engines, (4) 2500 gallon tenders, all nomex gear and wildfire packs meet NWCG specifications ECFPD: (2) type 1 engines, (2) Type 3 Urban Interface Engines, (1) type 3 wildland engine, (2) type 1 tactical tenders (2K gallons), (2) support tenders(3K gallons), (1) type 6 engine
3d	Have you identified gaps in wildfire response coverage and equipment, and if so, how is your community currently addressing gaps in wildfire response coverage and equipment?	PCFPD Gaps: For our size, we are very well prepared for an initial response, coverage and resources beyond an initial response would escalate to the State and beyond that to the Federal Government. ECFPD Gaps: Our gaps in coverage involve personnel. We are currently seeking grants (Denver Water) to staff a 12-person fire module focused on fire mitigation and forestry work when not assigned to fire suppression.

**Fire Adapted Bailey  
Self-Assessment**

3e	How much knowledge and experience does your community have with the Incident Command System (county, etc.)?	ICS knowledge: PCFPD-High Level of Experience, FEMA I700, NIMS courses IS 700 & 800. Deputy Chief is member of Type 1 Incidence Command Team ECFPD-All members are well versed in the ICS System, but our community has little or no understanding of ICS and how larger incidents are managed.
3f	What mutual aid or protection/response agreements are in place, and are they effective?	Mutual aid: Yes, this is part of our annual Operating Plans
3g	What is the relationship between the local fire departments and the state and federal cooperators?	Relationships of both districts is strong and the ECFPD Deputy Chief is on the Wildland Advisory Committee for the State of Colorado
4	Describe any local crews that are cross-trained to do wildfire response and prescribed fire and other integrated forest management activities?	PCFPD operates a 12-person Wildland Fire Module that is cross-trained for wildfire suppression response and wildland fire mitigation work. ECFPD currently has 3 career firefighters on per shift as well as 2 seasonal wildland firefighters that work Thursday-Sunday. All members are trained in wildland fire suppression.
5	Are neighborhoods and communities aware of who will be responding to a wildfire in their local area?	Public awareness of response: No, this is a gap in our community outreach and education program (see Resource Activation Flow Chart below)

# Fire Adapted Bailey Self-Assessment



## Fire Adapted Bailey Self-Assessment

### Summary: Wildfire Response Capabilities

Based on your responses above, what is your community's overall response capability relative to its wildfire risk? (Highlight the response below that best fits your community):

VERY HIGH – Response capability for our community is in excellent shape. We understand our community's fire history and unique features, our fire departments are highly trained and prepared specifically for WUI fires, we've addressed any gaps in our response coverage and equipment needs, we are knowledgeable about ICS, mutual aid agreements are effective, and local crews are capable of performing other forest management activities.

**HIGH** – Response capability for our community is in pretty good shape but there are a few areas that require improvement to maximize our response before the next wildfire. These could include one or two of the following: increasing our level of WUI response training, meeting additional equipment needs, improving knowledge of ICS, implementing additional mutual aid agreements, increasing cross-training of local crews, and/or improving relationships between fire departments and local cooperators.

MEDIUM – Response capability is in fair shape. Some significant improvements are needed before the next wildfire, including addressing at least three of the following topics: increasing our level of WUI response training, meeting additional equipment needs, improving knowledge of ICS, implementing additional mutual aid agreements, increasing cross-training of local crews, and/or improving relationships between fire departments and local cooperators.

LOW – Response capability is low relative to our community's wildfire risk. We need to make a lot of improvements before the next wildfire. This means addressing at least four of the following topics: increasing our level of WUI response training, meeting additional equipment needs, improving knowledge of ICS, implementing additional mutual aid agreements, increasing cross-training of local crews, and/or improving relationships between fire departments and local cooperators.

VERY LOW – We have numerous and unknown gaps in our response coverage, capability and training. Significant improvements are required in order to prepare for the next wildfire in our community. Our next step is to gather additional information so we can come up with a better plan to address our wildfire hazard and response.

Additional Notes/Comments:

**Fire Adapted Bailey  
Self-Assessment**

	<b>1.B. Community Values at Risk</b>	<b>Response</b>
<b>6</b>	<p>There are many community values at risk that can be affected by wildfire. These values include both “tangible values” (i.e., those with measurable impacts from wildfire) and intangible values. Examples of both include disruption to communications and utilities, impacts to water quality, air quality, recreational areas, cultural sites, critical infrastructure, view sheds and tourist sites, loss of security, fear of loss in property values and privacy, and the resulting economic impacts for these values. Excluding residential and commercial properties (which are addressed in the section below), list the community values at risk which need to be considered in your community’s wildfire planning.</p>	<p>List community values at risk:</p> <ul style="list-style-type: none"> <li>▪ Loss of view sheds</li> <li>▪ Temporary loss of road access</li> <li>▪ Damage to watersheds</li> <li>▪ Lower water tables (due to watershed damage) in a community dependent on well water</li> <li>▪ Tourism disruption</li> <li>▪ Clean, pristine air</li> <li>▪ Disruption to phone, cell &amp; electrical utilities</li> <li>▪ Loss of access to well water due to power outages</li> <li>▪ Loss of access to water for toilet flushing</li> <li>▪ Potential longterm loss in property values for properties rebuilt in the burn scar</li> </ul>
<b>7</b>	<p>For each community value listed above, indicate what action, if any, is being taken to better assess and mitigate the wildfire risk to that value.</p>	<p>Assessment and mitigation actions taken for community values at risk:</p> <ol style="list-style-type: none"> <li>1. IREA Right of Way mitigation</li> <li>2. Individual homeowner mitigation</li> <li>3. Individual homeowner mitigation mandated by new construction building code or LUR’s</li> <li>4. Homeowner mitigation in Firewise recognized communities</li> <li>5. Large landowner mitigation</li> </ol>

**Fire Adapted Bailey  
Self-Assessment**

			<ul style="list-style-type: none"> <li>6. PCFPD residential and large landowner mitigation via federal and state grants using Wildland Fire Module</li> <li>7. ECFPD residential chipping program (at no cost to homeowners)</li> <li>8. USFS Fuels Management Project</li> </ul>

**Summary: Community Values at Risk**

Based on your responses above, what is your community’s overall mitigation level regarding the identification and actions to address community values at risk (excluding residential values at risk, which are addressed below)? (Highlight the response below that best fits your community):

VERY HIGH – Risks to all of our community’s values at risk have been identified and are being appropriately mitigated through current actions and plans, meaning that our community assets are generally very well prepared for the next wildfire and we anticipate minimal impacts.

HIGH – Risks to most of our community values at risk have been identified. Most will be addressed through current or future actions and plans as time and resources allow, meaning that our community assets are somewhat or very prepared for the next wildfire but there is still the potential for modest impacts with short-term consequences.

MEDIUM – Some community values at risk have been identified but we think more could be done to address these. Mitigation is likely needed but not always prioritized. Some planning is in place but more needs to occur to ensure mitigation takes place, meaning that our community assets are somewhat prepared for the next wildfire and we expect there will be some significant impacts with long-term consequences.

**LOW** – Many community values are at risk and require significant mitigation, or many community values at risk still require identification. Some planning is in place but much more needs to occur before mitigation can move forward, meaning that our community assets are not prepared for the next wildfire and we know there will be significant impacts with long-term consequences.

**Fire Adapted Bailey  
Self-Assessment**

VERY LOW – Much more information is required before we can start identifying and addressing values at risk. We are not doing any mitigation on these values at risk, meaning that our community assets are not prepared for the next wildfire and we know there will be significant impacts with long-term consequences.

Additional Notes/Comments:

Lead by the mitigation actions of the USFS and ECFPD & PCFPD our community has made an excellent start. However, significant work remains to be done on the road to wildfire resilience. The most important and perhaps the most challenging effort will be at the homeowner and subdivision level. We still have 32 subdivisions with high to very high risk of a crown fire. These subdivisions represent 25% of our residential parcels. Fire Adapted Bailey comprises 42,000 acres of private lands and we will need to dramatically increase the scale of our mitigation efforts.

	<b>1.C Residential and Commercial Properties at Risk</b>	<b>Response</b>
8	To help identify the number of people and structures at risk to wildfire, has your community performed an assessment that identifies the type and extent of wildfire risk to residential and commercial properties?	<p>Nearly YES. The PCFPD and Park County CWPP's come close but do not identify the total number of people and structures at risk. However, this self-assessment will close whatever gap remains.</p> <p>For example, according to the latest version (2013) of the Park County Hazard Mitigation Plan the wildfire exposed value of property for the PCFPD is \$1.1 billion. This does not include property within the ECFPD.</p>
8a	If yes to Q8, is there a means of tracking this information to determine the type and level of ongoing mitigation on individual properties at risk (e.g., vegetation management, structural hardening such as roof replacements and other repairs or upgrades)?	<p>On the way to YES. There is no tracking in place, so we have no compiled record of what's been done to date. This will be done as part of this self-assessment.</p> <p>PCFPD is currently implementing an Emergency Report System</p>

**Fire Adapted Bailey  
Self-Assessment**

8b	If yes to Q8, how many properties are considered at risk to wildfire (including exposure to embers)?	<p>Number of properties at risk:</p> <ul style="list-style-type: none"> <li>• There are ~5,400 housing units at risk.</li> <li>• There are 13 School District buildings at risk, including 9 portable buildings.</li> <li>• There are an estimated 200+ commercial buildings at risk between Kenosha Pass and Pine Junction</li> </ul>
8c	If yes to Q8, of those properties at risk to wildfire, what percentage of property owners are actively engaged in wildfire risk reduction/ mitigation activities (e.g., vegetation management, roof replacement, and other repairs or upgrades)?	<p>Highlight the approximate percentage range below:</p> <p>75-100%</p> <p>50-74%</p> <p>25-49%</p> <p>0-24%</p> <p>Less than 25% of residential properties have actually been mitigated</p>
9	Different development factors may influence the type of wildland-urban interface fires that the community potentially faces. These factors include development densities, lot size, setbacks, proximity of development to slopes, and other topographical features. Has your community performed an analysis or assessment of the type of wildland-urban interface conditions to determine the type of fire threats (e.g. urban conflagrations)?	<p>If yes, describe in more detail:</p> <p>Many of these factors have been considered in both the Park County and PCFPD CWPP's. However, one glaring omission is the mitigation of our many county ingress and egress roads. Our most critical egress roads are:</p> <ul style="list-style-type: none"> <li>• CR43 - 2578 parcels served</li> <li>• CR72/Rosalie Road/Roland Valley Drive – 1415 parcels served</li> <li>• Hidden Valley &amp; Mt. Evans Blvd – 426 parcels served</li> </ul>

## Fire Adapted Bailey Self-Assessment

### **Summary: Residential and Commercial Properties at Risk**

Based on your responses above, what is the overall mitigation level for properties considered at risk? (Highlight the response below that best fits your community):

VERY HIGH – more than 75% of our at-risk properties have implemented effective mitigation practices, such as vegetation management and roof replacements, meaning that nearly all applicable property owners are somewhat or very prepared for the next wildfire.

HIGH – about 50-75% of our at-risk properties have and maintain effective mitigation practices, meaning that a majority of applicable property owners are somewhat or very prepared for the next wildfire.

MEDIUM – somewhere around 50% of our at-risk properties, or less, have some level of mitigation in place, meaning that only about half or less than half of all applicable property owners are somewhat or very prepared for the next wildfire.

**LOW** – somewhere around 25% of our at-risk properties, **or less**, have some level of mitigation in place, meaning that only a small portion of applicable property owners are somewhat or very prepared for the next wildfire.

VERY LOW – only a small percentage of our properties, if known, have any mitigation in place, meaning that a very small number of our residential WUI areas (at best) have any level of preparation for the next wildfire.

Additional Notes/Comments:

**Fire Adapted Bailey  
Self-Assessment**

**SECTION 2: Mitigation Plans, Activities & Resources**

	<b>2.A. Community Plans and Regulations</b>	<b>Response</b>
10	There are many local and state plans that could include the topic of wildfire – both its potential ecological benefits as well as negative impacts on communities and ecosystems. Ensuring that wildfire is appropriately addressed in different plans can further a community’s wildfire risk reduction goals, potentially help access additional funding for mitigation, and ensure policies support other wildfire and forest management objectives. In the following list, determine if wildfire is adequately addressed in your community’s planning documents.	<ol style="list-style-type: none"> <li>1. 2009 Park County CWPP, updated 2015</li> <li>2. PCFPD CWPP, needs updating ~15 years old</li> <li>3. Park County Emergency Management Plan, updated 2013</li> <li>4. Park County Emergency Operations Plan, updated 2016</li> <li>5. Park County Strategic Plan, updated 2016</li> <li>6. Elk Creek Fire Protection District CWPP 2011, with Woodside Park Firewise USA Community Assessment 2013 update as to Woodside Park</li> </ol> <p>Park County DOES NOT have a comprehensive Disaster Recovery Plan</p>
10a	Does your community have a system in place for practitioners and the public to easily access information about local plans?	<p>Highlight one: <b>yes</b> no If yes, describe in more detail:</p> <p>Park County plans are available online with the exception of the Emergency Operations Plan. The PCFPD CWPP is available for viewing at the Delwood station. The ECFPD CWPP is available online and is available for viewing at the ECFPD Station 1 at Richmond Hill. The Woodside Park Firewise Community Assessment is available online and through the Woodside Park Firewise Committee.</p>
11	Does your community use any zoning ordinances, building codes, regulations or	List type of code(s), if any and note level of perceived effectiveness in addressing wildfire risk reduction:

**Fire Adapted Bailey  
Self-Assessment**

	local rules (including HOA CC&Rs) to support/ foster wildfire risk reduction?	<p>Park County has adopted the 2012 International Residential Code. The county requires all new roofs to be rated Class A and that new construction or significant remodels be mitigated to create Defensible Space. Mitigation permits are administered through the Platte Canyon Fire Protection district via an Intergovernmental Agreement with Park County.</p> <p>There are no additional WUI building codes in place such as the requirement for dual pane tempered glass or non-combustible materials for exterior siding or decks.</p> <p>Park County Land Use Regulations do limit construction on slopes over 20% and on ridge lines. They do not include provisions for egress in the event of a wildfire.</p>
11a	If so, are these ordinances or codes enforced? If not, what are the enforcement limitations?	<p>Explain enforcement and limitations: These requirements are enforced.</p>
11b	Are any of these ordinances or codes in conflict with other local codes and requirements (e.g., tree preservation ordinance)?	<p>Explain any known code conflicts: None</p>
<b>12</b>	Is wildfire risk addressed or considered in future community growth planning?	<p>Highlight the response below that best fits your community:</p> <p>Our community has useful and strategic discussions within our land use, zoning, building, fire and other relevant departments to determine wildfire risk when approving new development.</p> <p><b>Our community has some, or limited, consideration for wildfire risk when approving new development.</b></p>

**Fire Adapted Bailey  
Self-Assessment**

			Our community does not consider wildfire risk as part of its growth planning.
<b>13</b>	Is post-wildfire recovery addressed or considered in any of community plans? If so, which ones and how?		List how wildfire recovery is addressed in which plans: This a <b>GAP</b> in our planning. Park County’s Emergency Operation Plan does touch on recovery, but we DO NOT have a comprehensive disaster recovery plan.

**Summary: Community Plans and Regulations**

Based on your responses above, to what extent is wildfire addressed in community plans and regulations? (Highlight the response below that best fits your community):

VERY HIGH – Wildfire is a key component and significantly addressed in all of our community’s emergency, wildfire and land use plans; our community is also very satisfied with the use and enforcement of regulations, if applicable; only minor improvements may be necessary.

HIGH – Wildfire is addressed in most, but not all, of our community’s emergency, wildfire and land use plans; we are generally satisfied with the use and enforcement of regulations, if applicable; we could benefit from some improvement in certain plans and/or regulations, and in the long-term this will be necessary.

**MEDIUM** – Wildfire could be addressed more thoroughly in our community’s emergency, wildfire and land use plans, and regulations, if applicable; improvements to our plans and/or regulations are needed.

LOW – Wildfire is poorly identified or inadequately represented in our community’s emergency, wildfire and land use plans, and regulations, if applicable; improvement is definitely needed to better address wildfire in our plans and/or regulations.

## Fire Adapted Bailey Self-Assessment

VERY LOW – We don't know or we think that wildfire is absent from most or all of our community's emergency, wildfire and land use plans; and our community is not satisfied with the way in which regulations are (or are not) being used as a means to address wildfire risk; better understanding and a lot of improvement is critical to ensure wildfire is included in future plans and/or regulations.

### Additional Notes/Comments:

We do not have a comprehensive Disaster Recovery Plan. What happens if we lose one or two hundred homes? What happens if we lose power for several weeks? Who is responsible for restoring our watersheds? It can take years for a community to even begin to return to normal after a large disaster. People often focus on the first six months post-disaster but don't typically realize that recovery is often still underway one to two years following an incident. For example, many people are just starting to rebuild homes after 18 months or more. Three years after the Black Forest Fire, many homeowners have just started to rebuild and of the 500+ homes lost it looks like only 300+ homeowners will actually rebuild. Acknowledging that timeline and discerning how to keep people in a town that is still in recovery mode are important, difficult processes.

In addition, according to FEMA, **Forty percent** of businesses do not reopen after a disaster, and another **25 percent** fail within one year.

### Additional Resources:

1. Catastrophic Times: Leadership, When Everyone is Down, [Stanford Social Innovation Review Dec 2017](#)
2. Douglas County Disaster Recovery Plan, [PDF](#)
3. Communities and spontaneous volunteers are the first line of response in the wake of natural disasters. [The Rescue Impulse](#), Sep 2017
4. Black Forest Together [website](#)

**Fire Adapted Bailey  
Self-Assessment**

	<b>2.B. Wildfire Mitigation/ Risk Reduction Programs</b>	<b>Response</b>
14	How many and what types of programs are utilized locally to reduce wildfire risk (e.g., Ready, Set, Go! Firewise, Fire Safe Councils, other local initiatives)?	<p>List of wildfire risk reduction programs: (See Table 1 below)</p> <ul style="list-style-type: none"> <li>• Firewise community education &amp; mitigation programs</li> <li>• Large property owner self- mitigation</li> <li>• PCFPD mitigation via state and federal grants</li> <li>• PCFPD &amp; ECFPD chipping programs</li> <li>• CUSP slash disposal site</li> <li>• Ready-Set-Go</li> <li>• Fire Safe Council [Fire Adapted Bailey]</li> </ul>
14a	For each program listed above, what does each of these programs target and achieve (e.g., number of chipping days each year, if match is required, whether homeowner- or business-oriented, etc.)?	Program targets, goals, and achievements: (See Table 1 below)
14b	For each program listed above, who manages and promotes these programs?	Program management and promotion: (See Table 1 below)
15	What other types of activities are being undertaken to reduce wildfire risk within and adjacent to the community (e.g., controlled burning, mechanical thinning, creation of fuel buffers, designation of internal safety zones, implementing collaborative forest and fire restoration plans), and are these projects being maintained?	<p>List any and all types of other wildfire risk reduction activities (not captured above):</p> <p>USFS is creating a fuel buffer in an arc to our North and West via a long-term Fuels Management project.</p>

**Fire Adapted Bailey  
Self-Assessment**

15a	Is the amount and location of controlled burning in your area appropriate and effective from a fuel reduction standpoint? Why or why not?	<p>Describe controlled burning activities in more detail: Controlled burns have been limited to burning slash piles created by mitigation efforts. Given our high fuel loads, and level of development controlled burns have not been used on our community's private lands.</p> <p>Controlled (Prescribed) burns used for maintenance will become a better option on public and larger ranch lands that have received fuels management treatment.</p>

<b>Program Name</b>	<b>Description</b>	<b>Targets &amp; Goals</b>	<b>Achievements</b>	<b>Management</b>
<b>Firewise USA</b>	National recognition program for wildfire education and mitigation	Ongoing annual measurable efforts to increase resilience via individual and common property mitigation. Challenge is to engage subdivisions without any formal HOA, POA, or Metro District.	We have five active Firewise USA communities presenting 40% of our residential parcels. KZ HOA has mitigated 76% of properties and 79% of the community's total acreage.	HOA/POA/Subdivision Firewise Committee's
<b>Large property owner self-mitigation</b>	Our ranches have been mitigating either in conjunction with the PCFPD or independently	Romer Ranch is actively planning on mitigating ~1,000 acres using masticator including a fuel break on Crooked Top	Dozier Ranch (180ac), Tomahawk Ranch,	Large property owners (ranches, girl scouts). Sometimes in conjunction with the PCFPD
<b>PCFPD mitigation via state and federal grants</b>	Mitigation on private lands using the PCFPD Wildland Fire Module	Ongoing effort with strong track record of successful grant completion with both FEMA and the CSFS	Over \$2 million in awarded State/Federal grants and >3,000 acres have been treated	PCFPD
<b>PCFPD &amp; ECFPD chipping programs</b>	Chipping programs in support of individual property owners, or HOA mitigation. PCFPD	Ongoing support effort	No compiled records	PCFPD & ECFPD

**Fire Adapted Bailey  
Self-Assessment**

	charges a nominal fee, ECFPD chipping is done at no charge			
<b>CUSP permanent slash disposal site</b>	CUSP has established a slash dump site on State Land Trust Property in the community	The <a href="#">site</a> is open Fri-Sun and provides an April to October site for slash disposal	CUSP also runs a research project on site using native mushroom cultures to rapidly decompose chips	CUSP
<b>Ready-Set-Go</b>	Education and Wildfire Preparedness Program	?	?	PCFPD & ECFPD
<b>Fire Adapted Bailey</b>	The FAB is engaged in improving community wildfire education/awareness, growing our Firewise footprint, and improving community Fire Adaption.	-increase Firewise footprint -improve wildfire education & awareness -facilitate community fire adaption -fund ROW mitigation -facilitate this assessment	Firewise community footprint has grown from 15% to over 40% of residential properties	FAB Board

**Table 1. Wildfire Mitigation/Risk Reduction Programs** (Questions 14, 14a, 14b)

**Summary: Wildfire Mitigation/ Risk Reduction Programs**

Based on your responses above, what is your community’s overall approach regarding program implementation and effectiveness to reduce wildfire risk through mitigation? (Highlight the response below that best fits your community):

VERY HIGH – Our community effectively uses a good mix of programs that engage multiple audiences to take part in reducing wildfire risk at all scales (lot, neighborhood, community-wide, landscape); programs have specific goals, targets and reporting to ensure risk reduction is occurring; no improvement is necessary.

## Fire Adapted Bailey Self-Assessment

HIGH – Our community effectively uses a good mix of programs that engage multiple audiences to take part in reducing wildfire risk and address most scales; most programs have specific goals and targets that are being met but we could benefit from improvement in certain program areas.

**MEDIUM** – Our community uses some programs with limited effectiveness to reduce wildfire risk; programs have some goals, targets and reporting more on an ad hoc basis); some improvement would definitely be helpful.

LOW – Our community uses few programs with limited effectiveness or no known results; we have few means of tracking results; improvement is definitely needed.

VERY LOW – Our community does not use, or know about, any programs to reduce wildfire risk; we do not track efforts on a regular basis; better understanding and a lot of improvement is critical.

Additional Notes/Comments:

**Fire Adapted Bailey  
Self-Assessment**

	<b>2.C. Resources and Funding</b>	<b>Responses</b>
16	How many personnel (volunteer or paid staff) are dedicated to implementing wildfire mitigation plans and programs?	List or approximate the number of personnel engaged in wildfire mitigation plans and programs (if applicable to your scale, distinguish between part-time, full-time, and/or volunteer or paid staff):  PCFPD: 14 PT paid ECFPD: 3 career per shift plus 2 seasonal FSC: 5 PT volunteer
16a	Is the current work force associated with wildfire mitigation plans and programs sufficient to accomplish community fire adaptation? If not, where are the shortfalls?	Work force capacity for fire adapted community activities: No, at least one part-time paid position devoted to education, coordination, and mitigation is required.
17	What/who are your current funding sources for fire adapted community activities?	List funding sources: <ol style="list-style-type: none"> <li>1. FEMA</li> <li>2. Colorado State Forest Service (CSFS)</li> <li>3. Colorado Department of Natural Resources (DNR)</li> <li>4. USFS (on public land)</li> <li>5. Denver Water (private &amp; public water shed lands)</li> <li>6. SRS Title III</li> <li>7. Individual home and land owners</li> </ol>
17a	How predictable is each funding source, and what, if any, limitations exist?	Level of predictability: Relatively high level of predictability for FEMA and CSFS funds. PCFPD has been very successful in submitting grant applications and attracting funding,

**Fire Adapted Bailey  
Self-Assessment**

		however the funding level from all sources is nowhere sufficient to sufficiently and effectively prepare FAB
17b	How much do current wildfire mitigation program activities rely on these funding sources?	Level of reliance: Heavy reliance on state and federal funding sources
17c	How might you improve funding sources for future development of fire adaptation programs?	Funding improvement strategies: <ol style="list-style-type: none"> <li>1. SRS Title III funds has NOT been tapped for mitigation efforts in our Firewise communities. This source will be critical as we grow our Firewise USA footprint and focus mitigation at the individual homeowner and subdivision level. Update: FAB received \$1,500 in Title III funds in late 2018</li> <li>2. Crowdfunding for specific projects</li> <li>3. A Fire Mitigation Tax District (see below)</li> </ol>

**Notes on the Financial Scale of our Challenge:**

Our private lands comprise 42,000 acres of our footprint.

At a mitigation cost of \$2,000 per acre we have a \$84.1mm challenge.

If we assume that 20% of our challenge is meadow land or has already been mitigated then the challenge is \$67.3mm

If we assume that 20% of our land owners will never agree to mitigate then the challenge is \$53.9mm

If we assume a 25/75 cost share with landowners then the challenge is \$40.3mm

If we assume a 20-year project timeframe we would need funding of \$2mm/year! More than we have ever spent!

So, how do we fund at scale to meet the challenge? How do we avoid a 500-home event costly 100's of millions?

Consider a Special Wildland Fire Mitigation Improvement District funded by taxes within the Red Zone of FAB

Consider a strategic mitigation plan for that district based on the best fire science.

Consider using our county roads as fire breaks and creating shaded fuel breaks that divide our new district into a healthy patchwork of no more than 100 homes.

Consider funding this project with a constant flow of tax revenue of \$500,000 per year.

Additional funding would come from traditional sources (FEMA, Denver Water, CSFS, SRS Title III)

## Fire Adapted Bailey Self-Assessment

### Summary: Resources and Funding

Based on your responses above, how well resourced are your fire adapted community efforts? (Circle the response below that best fits your community):

**VERY HIGH** – Our programs have dedicated personnel and predictable funding streams, with designated additional or separate emergency funding to support our mitigation efforts, should our current funding go away.

**HIGH** – Our programs have part-time or limited personnel, and most of our funding is reliable but we would benefit from increased staff and/or funding sources to support current and future mitigation activities.

**MEDIUM** – Our programs have part-time or limited personnel, with somewhat reliable funding streams; we need more staff and/or funding sources to support current and future mitigation activities.

**LOW** – We have very limited personnel and funding to support our programs; in addition, our mitigation activities would immediately end if we lost our current funding sources.

**VERY LOW** – We have no personnel or volunteers to support our mitigation activities; we have been unsuccessful in identifying funding to do our community's planned mitigation activities.

Additional Notes/Comments:

**Fire Adapted Bailey  
Self-Assessment**

**SECTION 3: Public Engagement & Partnerships**

	<b>3.A. Public Outreach and Input</b>	<b>Responses</b>
18	How well do community members understand the area’s wildfire risk (in terms of wildfire history, what causes risk, etc.)?	<p>Highlight the best answer:            VERY HIGH – Based on current outreach and engagement efforts, we are confident that our community members understand the area’s wildfire risk and history.</p> <p>HIGH – we have done frequent surveys or other information gathering and are fairly confident that most community members understand the local fire history and risk (even if they aren’t engaged in mitigation).</p> <p>MEDIUM – we seem to have an engaged public but we aren’t certain how many people really understand the risk.</p> <p><b>LOW</b> – a few groups may understand our area’s fire risk, but over-all we have not spent enough time with the community to ensure that the public knows this information.</p> <p>VERY LOW – community members either don’t understand the risk or we don’t know this information.</p>
19	How well do community members understand fire’s natural role, including cultural and ecological benefits?	<p>Highlight the best answer:            VERY HIGH – Based on community interactions, public engagement, awareness and education campaigns, and more we are confident that our community members understand the natural role of fire in our local ecosystems.</p>

**Fire Adapted Bailey  
Self-Assessment**

		<p>HIGH – we have done frequent surveys or other information gathering and are fairly confident that most community members generally understand the natural role of fire in our ecosystems.</p> <p>MEDIUM – we seem to have an educated public but we aren’t certain how many people really understand fire’s natural role in our ecosystems.</p> <p><b>LOW</b> – a few groups may understand fire’s natural role, but over-all we have not spent enough time with the community to ensure that the public knows this information.</p> <p>VERY LOW – community members either don’t understand fire’s natural role or we don’t know this information.</p>
20	<p>What kind of public outreach is being undertaken, and how interactive are these efforts (e.g., PSAs, public meetings, learning demonstration sites)?</p>	<p>List and describe public outreach efforts, noting their level of interactivity and engagement with public (e.g., how much comment, feedback and discussion is part of the outreach):</p> <p>Brochures/ Information Packets:</p> <ul style="list-style-type: none"> <li>• Ready-Set-Go packets</li> </ul> <p>Public Meetings:</p> <ul style="list-style-type: none"> <li>• Wildfire awareness day presentation at the HS</li> <li>• PCFPD &amp; FSC information booths at annual Bailey Day</li> </ul> <p>Learning Demonstration Sites:</p> <ul style="list-style-type: none"> <li>• Wildfire Safety Workshop and Snaking Fire burn site trek annually with 8<sup>th</sup> graders</li> </ul> <p>Other:</p>

**Fire Adapted Bailey  
Self-Assessment**

		<ul style="list-style-type: none"> <li>• FSC outreach presentations to HOAs to educate members about wildfire risk, preparation, and the value of becoming a Firewise community.</li> <li>• PCFPD D-Space consultations with individual homeowners</li> </ul>
20a	Is there a formal outreach plan in place, and if so is it up-to-date? Are you using it to measure effectiveness?	<p>We have a formal outreach plan: yes <b>no</b> Was it collaboratively developed?</p> <p>Who provided comment and feedback on the plan?          Who manages plan?          When has it been last updated?          How are outcomes measured?</p>
21	What was/is the level of public input provided for your Community Wildfire Protection Plan (and other applicable local wildfire plans)?	<p>Describe the level of public input:          None at the PCFPD level, minimal at the County level</p>
22	How many residential organizations, such as Homeowners Associations (HOAs), Property Owners Associations or Firewise USA Communities, are engaged in wildfire mitigation efforts?	<p>List the number of organized neighborhood associations engaged in wildfire efforts:          We currently have five active Firewise communities representing 40% of the community’s residential parcels.</p> <ol style="list-style-type: none"> <li>1. Burland Ranchettes</li> <li>2. Deer Creek Valley Ranchos</li> <li>3. Elk Creek Meadows/Highlands</li> <li>4. KZ Ranch Mountain Community</li> <li>5. Woodside Estates</li> </ol>
23	What is your ability and capacity to communicate with the public (Twitter, etc.) - before, during and after a wildfire?	<p>List and describe communications:</p> <ol style="list-style-type: none"> <li>1. Code Red – a reverse 911 system to notify residents about emergency situations including evacuation notices. Suffers from low subscriber rate.</li> </ol>

**Fire Adapted Bailey  
Self-Assessment**

		<ol style="list-style-type: none"> <li>2. USFS_Pike&amp;San Isabel@PSICC_NF – a twitter feed about the Pike and Isabel National Forests including updates on active fires. Existence of feed is not widely known.</li> <li>3. PCFPD Facebook Page</li> <li>4. coemergency.com</li> <li>5. CodeRed app</li> </ol>
23a	Is there an emergency hotline for the public to call with questions or concerns about wildfire?	<p>Highlight one: <b>yes</b> no</p> <p>State level hotline is: ?</p> <p>County level hotline is planned but not operational:</p>
24	What types of connections exist between your community and neighboring communities or the larger region to help support your community’s ability to <b>plan, respond and recover</b> from wildfire?	<p>List and describe connections:</p> <ol style="list-style-type: none"> <li>1. FACO-plan</li> <li>2. FANL-plan &amp; recover</li> <li>3. Douglas County-recover</li> <li>4. Black Forest Together-recover</li> <li>5. Mutual Aid with other Fire Protection Districts-respond</li> </ol>
25	Are there specific vulnerable populations in the area (e.g., elderly, businesses dependent on tourism) or any that might be hard to reach (non-English speakers, off the grid) that may require additional consideration during planning, response and recovery phases?	<p>List and describe vulnerable populations:</p> <ol style="list-style-type: none"> <li>1. Elderly, disabled, and poor</li> <li>2. Latch key kids caught alone at home during an incident</li> <li>3. Tourists engaged in outdoor recreation activities during an incident</li> </ol>

## Fire Adapted Bailey Self-Assessment

### **Summary: Public Outreach and Input**

Based on your responses above, what is your overall ability to engage the public in community fire adaptation work? (Circle the response below that best fits your community):

**VERY HIGH** – We engage all populations using interactive, hands-on approaches; the public has a high level of input and engagement in CWPP development and implementation, including ongoing contact regarding current issues and projects; communications are excellent during all disaster phases.

**HIGH** – We engage most populations in interactive approaches; public input and engagement is high; communications are effective; but we see a few areas that could be improved to take us to the next level.

**MEDIUM** – We could be doing more to engage with the public, including all populations; the public was somewhat engaged in CWPP development and implementation; our communications are not as effective as they could be during disaster phases.

**LOW** – We have identified some, but not many, vulnerable populations; we have had a few public meetings but turnout has been relatively poor; there are a few other types of input opportunities; our communications during a disaster have not yet been fully explored; overall there is significant room for improvement.

**VERY LOW** – We have not yet identified or done outreach with our vulnerable populations; we have few public meetings and/or the public does not show up; we have not explored other types of input from the public; we have not yet considered a process for communicating with the public during disaster phases.

Additional Notes/Comments:

**Fire Adapted Bailey  
Self-Assessment**

	<b>3.B. Landowners and Other Stakeholders</b>	<b>Responses</b>
26	Landowner and stakeholder engagement is essential to fire adapted community efforts. List all public and private landowners or land managers (other than homeowners) contributing to your community’s wildfire risk who are currently and actively engaged in wildfire mitigation activities.	<p>List of engaged landowners:</p> <ol style="list-style-type: none"> <li>1. Romer Ranch</li> <li>2. Dozier Ranch</li> <li>3. Glen Isle</li> <li>4. Girl Scouts (Tomahawk Ranch)</li> <li>5. School District</li> <li>6. Fire Adapted Bailey</li> <li>7. Santa Maria</li> <li>8. CUSP</li> <li>9. Deer Creek Valley Ranch Association</li> <li>10. Wellington Lake (Hickenlooper)</li> </ol>
26a	List all public and private landowners or land managers (other than homeowners) contributing to your community’s wildfire risk within 5 miles who are NOT currently engaged in wildfire mitigation activities but NEED to be involved.	<p>List of non-engaged landowners:</p> <ol style="list-style-type: none"> <li>1. Subdivisions without leadership touch points</li> <li>2. North Fork Ranch</li> <li>3. Hickles Ranch</li> <li>4. Boxwood Canyon Fishing Ranch</li> <li>5. Longmeadow Ranch</li> <li>6. Tumbling River Ranch</li> </ol>
27	List any other non-landowning stakeholders who could be affected by a wildfire in your community but are not currently engaged in wildfire mitigation efforts (e.g., non-governmental organizations, environmental groups, business owners, community and	<p>List of stakeholders (and key values of concern):</p> <ol style="list-style-type: none"> <li>1. Chamber of Commerce – Risk to commercial properties. Disruption to business. Post event recovery.</li> <li>2. Churches – Risk to their congregation. Post event recovery.</li> <li>3. Service Organizations – risk to the community. Post event recovery.</li> </ol>

**Fire Adapted Bailey  
Self-Assessment**

	volunteer groups). If known, also list what particular value(s) may be of most concern to each stakeholder.		
--	---	--	--

**Summary: Landowners and Other Stakeholders**

Based on your responses above, what is the level of engagement from landowners, land managers and other stakeholders? (Circle the response below that best fits your community):

**VERY HIGH** – All of our landowners are engaged, they understand wildfire risk, and mitigation is occurring; all other stakeholders have been identified and their concerns are being included in the planning process.

**HIGH** – Most landowners are engaged, they understand wildfire risk, and mitigation is occurring; most other stakeholders are identified and their concerns are being included in the planning process.

**MEDIUM** – Some, but not all, of our landowners and stakeholders are engaged in wildfire planning and mitigation; more could be done to understand their risk and concerns.

**LOW** – Only a few of our landowners and stakeholders are engaged in wildfire planning and mitigation; a lot more could be done to understand their risk and concerns.

**VERY LOW** – Very few, if any, landowners and stakeholders are known, and wildfire risk is not understood and/or minimal mitigation is occurring.

Additional Notes/Comments:

**Fire Adapted Bailey  
Self-Assessment**

	<b>3.C. Additional FAB Partners</b>	<b>Responses</b>
28	In addition to those stakeholders that were the focus of previous assessment questions, who else is involved in fire adapted community activities (e.g., through existing collaboratives, pilot projects, FAC programs)?	<p>List and describe each additional FAB partner role:</p> <ol style="list-style-type: none"> <li>1. CUSP – The Coalition for the Upper South Platte operates a permanent slash disposal site in the community and is a member of FACO</li> <li>2. FAB – FAB is engaged in improving community wildfire education/awareness, growing our Firewise footprint, and improving community Fire Adaption. The FAB is a affiliate member of FALN and FACO.</li> <li>3. FACO – Fire Adapted Colorado</li> <li>4. FALN – The Fire Adapted Learning Network provided the template for this self-assessment and can become a source of collaboration and shared lessons learned going forward.</li> </ol>
29	Characterize the strength of relationships among public agencies and the community in terms of level of trust, type of engagement and interactions, effectiveness of decision-making and track record for accomplishments?	<p>List and describe relationships: High level of trust and respect between the community and PCFPD as evidenced by the recent voter approved mil levy increase</p>
30	How does your community celebrate its FAB successes and share lessons learned with other organizations and communities (e.g., participation in a regional or national FAC network, conference attendance, contributions to journals)?	<p>Describe how FAB success and lessons learned are shared: We have many unshared successes. Communication with the public and other agencies is a weakness.</p>

## Fire Adapted Bailey Self-Assessment

--	--	--	--

### **Summary: Additional FAC Partners**

Based on your responses above, do you have the right mix of partners and are they working together effectively? (Circle the response below that best fits your community):

**VERY HIGH** – We engage all types of partners at all levels, and have strong connections and benefit from a high level of trust during the planning process; we belong and are active participants in a FAC learning network.

**HIGH** – We engage with most partners at various levels, and have a high level of trust but see some opportunities for improvement; we share our lessons learned and FAC successes when funds and capacity exist.

**MEDIUM** – We engage some, but not all, of the potential partners during the planning process; our level of trust could be higher; we encourage participation in opportunities to share and learn with others.

**LOW** – We have not yet identified all of our partners, or we do not have good enough relationships with partners to work together on mutual outcomes and wildfire risk reduction efforts; we don't yet have the capacity to share lessons learned or FAC successes.

**VERY LOW** – We have not yet identified our partners, or have had unproductive relationships in the past that has resulted in mistrust and a process at odds with finding mutually beneficial outcomes.

Additional Notes/Comments:

## Fire Adapted Bailey Self-Assessment

### STEP 3: Prioritize Community Fire Adaptation Needs

Fill out the following table to help you identify priority community fire adaptation actions. See User and Facilitator’s Guide for additional information and strategies.

1. Summary Rating: Copy your responses from each summary question above.
2. Trending: Circle which direction this section is trending: maintaining, improving or declining.
3. Prioritization: Discuss each rating and trend. Prioritize your FAC efforts through either a numerical or simple ranking system.
4. Additional Notes: Add additional notes to help you prioritize or consider other aspects of the rating for future needs.

#### 1: Wildfire Hazard & Values at Risk

	Summary Rating	Trending	Prioritization (Rate 1 to 5, 5 being highest)	Notes (highlights from the Self-Assessment)
<b>1.A: Wildfire Hazard and Response Capability</b>	Very High <b>High</b> Medium Low Very Low	<b>Maintaining</b> Improving Declining	<b>4.0</b>	Public awareness of response: No, this is a gap in our community outreach and education program
<b>1.B: Community Values at Risk</b>	Very High High Medium <b>Low</b> Very Low	<b>Maintaining</b> Improving Declining	<b>4.25</b>	Many <b>community values are at risk and require significant mitigation</b> , or many community values at risk still require identification. Some planning is in place but much more needs to occur before mitigation can move forward, meaning that our <b>community assets are not prepared for the next wildfire and we know there will be significant impacts with long-term consequences.</b>
<b>1.C: Residential and Commercial Properties at Risk</b>	Very High High Medium	<b>Maintaining</b> Improving Declining	<b>4.5</b>	There is <b>no tracking in place</b> , so we have no compiled record of what’s (mitigation work) been done to date.

**Fire Adapted Bailey  
Self-Assessment**

	<b>Low</b> Very Low			<p>Number of properties at risk:</p> <ul style="list-style-type: none"> <li>• There are ~5,400 housing units at risk.</li> <li>• There are 13 School District buildings at risk, including 9 portable buildings.</li> <li>• There are an estimated 200+ commercial buildings at risk between Kenosha Pass and Pine Junction</li> </ul> <p><b>...one glaring omission is the mitigation of our many county ingress and egress roads.</b> Our most critical egress roads are:</p> <ul style="list-style-type: none"> <li>• CR43 - 2578 parcels served</li> <li>• CR72/Rosalie Road/Roland Vly Dr – 1415 parcels served</li> <li>• Hidden Valley &amp; Mt. Evans Blvd – 426 parcels served</li> </ul> <p><b>Less than 10-25%</b> of our at-risk properties have some level of mitigation in place, meaning that <b>only a small portion of property owners are somewhat or well prepared for the next wildfire.</b></p>
--	------------------------	--	--	--

**2: Mitigation Plans, Activities & Resources**

	Summary Rating	Trending	Prioritization (Rate 1 to 5, 5 being highest)	Notes (highlights from the Self-Assessment)
<b>2.A: Community Plans and Regulations</b>	Very High High <b>Medium</b> Low	Maintaining <b>Improving</b> Declining	<b>3.25</b>	PCFPD CWPP, needs updating

**Fire Adapted Bailey  
Self-Assessment**

	Very Low			<p>Park County’s Emergency Operation Plan does touch on recovery, but we DO NOT have a comprehensive disaster recovery plan. See Black Forest Together <a href="#">website</a></p> <p>We require Class A roofs and D-space for new construction, but there are not WUI building codes in place such as the requirement for dual pane tempered glass or non-combustible materials for exterior siding or decks.</p> <p>Our community has limited, consideration for wildfire risk when approving new development.</p> <p>Wildfire could be addressed more thoroughly in our community’s emergency, wildfire and land use plans, and improvements to our plans and/or regulations are needed.</p>
<b>2.B: Wildfire Mitigation / Risk Reduction Programs</b>	Very High High <b>Medium</b> Low Very Low	Maintaining <b>Improving</b> Declining	<b>3.75</b>	<p>Our community uses some programs with limited effectiveness to reduce wildfire risk; programs have some goals, targets and reporting more on an ad hoc basis); some improvement would definitely be helpful.</p>
<b>2.C: Resources and Funding</b>	Very High High Medium <b>Low</b> Very Low	<b>Maintaining</b> Improving Declining	<b>4.5</b>	<p>PCFPD has been very successful in submitting grant applications and attracting funding, however the funding level from all sources is nowhere sufficient to sufficiently and effectively prepare FAB</p> <p>We have very limited personnel and funding to support our programs; in addition, our mitigation activities would be decimated if we lost our current funding sources</p> <ul style="list-style-type: none"> <li>• Our private lands comprise 42,000 acres of our footprint.</li> </ul>

**Fire Adapted Bailey  
Self-Assessment**

				<ul style="list-style-type: none"> <li>• At a mitigation cost of \$2,000 per acre we have a \$84.1mm challenge.</li> <li>• If we assume that 20% of our challenge is meadow land or has already been mitigated then the challenge is \$67.3mm</li> <li>• If we assume that 20% of our land owners will never agree to mitigate then the challenge is \$53.9mm</li> <li>• If we assume a 25/75 cost share with landowners then the challenge is \$40.3mm</li> <li>• If we assume a 20-year project timeframe we would need funding of \$2mm/year! More than we have ever spent!</li> <li>• So, how do we fund at scale to meet the challenge? How do we avoid a 500-home event costly 100's of millions?</li> <li>• Consider a Special Wildland Fire Mitigation Improvement District funded by taxes within the Red Zone of FAB</li> <li>• Consider a strategic mitigation plan for that district based on the best fire science.</li> <li>• Consider using our county roads as fire breaks and creating shaded fuel breaks that divide our new district into a healthy patchwork of no more than 100 homes.</li> <li>• Consider funding this project with a constant flow of tax revenue of \$500,000 per year.</li> </ul> <p>Additional funding would come from traditional sources (FEMA, Denver Water, CSFS, SRS Title III)</p>
--	--	--	--	--

**Fire Adapted Bailey  
Self-Assessment**

**3: Public Engagement & Partnerships**

	Summary Rating	Trending	Priority	Notes
<b>3.A: Public Outreach and Input</b>	Very High High Medium <b>Low</b> Very Low	Maintaining <b>Improving</b> Declining	<b>4.75</b>	<p>A few groups may understand our area’s fire risk, but over-all we have not spent enough time with the community to ensure that the public knows this information.</p> <p>A few groups may understand fire’s natural role, but over-all we have not spent enough time with the community to ensure that the public knows this information.</p> <p><b>We DO NOT have a formal outreach plan</b> We currently have five active Firewise communities representing 40% of the community’s residential parcels.</p> <ol style="list-style-type: none"> <li>1. Burland Ranchettes</li> <li>2. Deer Creek Valley Ranchos</li> <li>3. Elk Creek Meadows/Highlands</li> <li>4. KZ Ranch Mountain Community</li> <li>5. Woodside Estates</li> </ol> <p>Code Red – a reverse 911 system to notify residents about emergency situations including evacuation notices. <b>Suffers from low subscriber rate.</b></p> <p>Support to Plan, Respond, and Recover:</p> <ol style="list-style-type: none"> <li>6. <b>FACO</b>-plan</li> <li>7. <b>FANL</b>-plan &amp; recover</li> </ol>

**Fire Adapted Bailey  
Self-Assessment**

				<p>8. Douglas County-recover            9. <b>Black Forest Together</b>-recover            10. Mutual Aid with other Fire Protection Districts-respond</p> <p>List and describe vulnerable populations:</p> <p>4. Elderly, disabled, and poor            5. Latch key kids caught alone at home during an incident            6. Tourists engaged in outdoor recreation activities during an incident</p> <p>We have identified some, but not many, vulnerable populations; we have had a few public meetings but turnout has been relatively poor; there are a few other types of input opportunities; our communications during a disaster have not yet been fully explored; overall there is significant room for improvement.</p>
<b>3. B: Landowners and Stakeholders</b>	Very High High Medium <b>Low</b> Very Low	<b>Maintaining</b> Improving Declining	<b>3.75</b>	<p>List of stakeholders (and key values of concern):</p> <p>1. Chamber of Commerce – Risk to commercial properties. Disruption to business. Post event recovery.            2. Churches – Risk to their congregation. Post event recovery.            3. Service Organizations – risk to the community. Post event recovery.</p> <p>Only a few of our landowners and stakeholders are engaged in wildfire planning and mitigation; a lot more could be done to understand their risk and concerns.</p>
<b>3. B: Additional FAC Partners</b>	Very High High <b>Medium</b>	<b>Maintaining</b> Improving Declining	<b>3.0</b>	List and describe each additional FAB partner role:

**Fire Adapted Bailey  
Self-Assessment**

	<p>Low Very Low</p>			<ol style="list-style-type: none"> <li>1. CUSP – The Coalition for the Upper South Platte operates a permanent slash disposal site in the community and is a member of FACO</li> <li>2. FSC – The North Park County Fire Safe Council is engaged in improving community wildfire education/awareness, growing our Firewise footprint, and improving community Fire Adaption. The FSC is a affiliate member of FALN and FACO. The FSC will rebrand as Fire Adapted Bailey</li> <li>3. FACO – Fire Adapted Colorado</li> <li>4. FALN – The Fire Adapted Learning Network provided the template for this self-assessment and can become a source of collaboration and shared lessons learned going forward.</li> </ol> <p>We have many unshared successes. Communication with the public and other agencies is a weakness.</p> <p>We engage some, but not all, of the potential partners during the planning process; our level of trust could be higher; we encourage participation in opportunities to share and learn with others.</p>
--	-------------------------	--	--	--

## Fire Adapted Bailey Self-Assessment

### **STEP 4: Create a Community Fire Adaptation Action Plan**

Congratulations! If you've made it to this step you are already well on your way to increasing community fire adaptation. This table ensures actions, partners and resources are in place to move forward. Fill out the following table as follows:

1. Priority: Copy the summary rating and priority from the table in Step 3 (for easy reference).
2. Actions: Determine specific actions that your community could take to address this topic, both in the short- and long-term.
3. Assigned To: List who is responsible for implementing each action.
4. Partners/Resources: List potential partners and resources to support each action.
5. Progress: Add notes, updates and other information to help track progress on each action.

Section	Priority	Actions	Assigned to:	Additional Partners & Resources	Progress
<b>1.A: Wildfire Hazard Response Capability</b>	<b>4.0</b>				
<b>1.B: Community Values at Risk</b>	<b>4.25</b>	1. Major county road ROW's are currently a death trap. They need to be mitigated and in many cases that mitigation needs to extend into adjacent private property.	1. Joe B & John V		1. We have a signed MOU from the County allowing PCFPD to do the mitigation work. Currently working on selling all Platte Fire decision makers on the program. Once Signed, FAB will lead the fundraising effort.
<b>1.C: Residential &amp; Commercial Properties at Risk</b>	<b>4.5</b>	1. Create APP in iAuditor to support Home and Property Wildfire Readiness Evaluations.	1. Jeff R & John V		1. Two APP's created. CUSP APP's use is currently limited due to Federal contract limitations. FAB APP is available for use

**Fire Adapted Bailey  
Self-Assessment**

		Train evaluator(s) in each subdivision to use the APP			now and is being used for homeowners that signed up for an evaluation at the Black Forest Together presentation.
<b>2.A: Community Plans &amp; Regulations</b>	<b>3.25</b>				
<b>2.B: Wildfire Mitigation &amp; Risk Reduction Programs</b>	<b>3.75</b>				
<b>2.C: Resources &amp; Funding</b>	<b>4.5</b>	<ol style="list-style-type: none"> <li>1. Special PCFPD mill levy for mitigation work only. Would double the size of the Wildfire Module, require a full-time project manager and make Module personnel always available during fire season.</li> <li>2. Have county require D-space mitigation when a property changes hands</li> <li>3. Need a science based solution to prioritize mitigation dollars and reduce the potential scale of the challenge.</li> <li>4. Consider Crowdfund for county road ROW mitigation</li> <li>5. Add a surcharge for license plate renewal based on</li> </ol>	<ol style="list-style-type: none"> <li>1. Kathy L</li> <li>2. Kathy L</li> <li>3. John V &amp; Joe B</li> <li>4. John V</li> <li>5. Kathy L</li> </ol>	<ol style="list-style-type: none"> <li>1. Kathy L will discuss options with County attorney</li> <li>2. Kathy L will discuss options with County attorney</li> <li>3. investigating options</li> <li>4. Open</li> <li>5. Kathy L will discuss options with County attorney</li> </ol>	

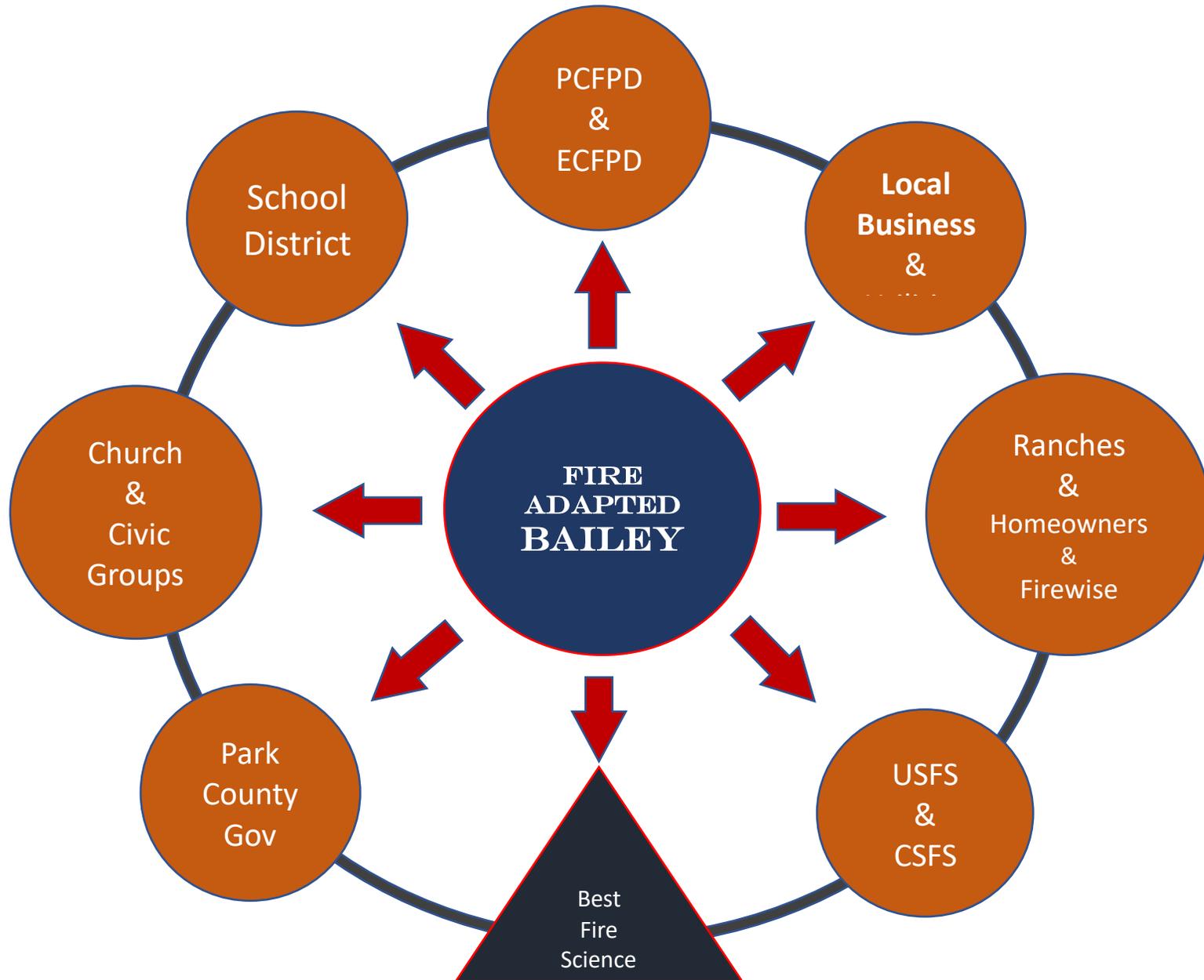
## Fire Adapted Bailey Self-Assessment

		residence within the CSFS Red Zone map			
<b>3.A: Public Outreach &amp; Input</b>	<b>4.75</b>	<ol style="list-style-type: none"> <li>1. Reach out to church community. Communicate their potential role before, after, and during a wildfire event. Use them as a channel to reach and help our at-risk homeowner population.</li> <li>2. Reach out to Chamber of Commerce with presentation focused on and tailored to the small business community.</li> <li>3. Reach out to Realtors, insurance agents, and home inspectors to help disseminate information and pitch home &amp; property evals</li> <li>4. Name change to Fire Adapted Bailey. Update website with new URL. Create Facebook page and Twitter account. Start amplifying groups collective social media presences</li> <li>5. Create an Adobe Spark presentation introducing FAB to the community</li> <li>6. Create an email tree for emergency</li> </ol>	<ol style="list-style-type: none"> <li>1. John V &amp; Joe B</li> <li>2. John V &amp; Joe B</li> <li>3. TBD</li> <li>4. Kathy L</li> <li>5. John V</li> <li>6. TBD</li> <li>7. John V</li> </ol>		<ol style="list-style-type: none"> <li>1. Meeting scheduled with John V &amp; Terry Rogers on May 3 to discuss church outreach strategy</li> <li>2. Chamber of Commerce Presentation scheduled for May 8, John V &amp; Joe B</li> <li>3. Open</li> <li>4. Website updated and ported over to <a href="http://www.fireadaptedbailey.org">www.fireadaptedbailey.org</a></li> <li>5. In process</li> <li>6. Open</li> </ol>

**Fire Adapted Bailey  
Self-Assessment**

		<p>communication. Include HOA's, School District, Chamber, churches, businesses, etc.</p> <p>7. Bailey specific Evacuation Plan Template</p>			
<b>3.B: Landowners &amp; Stakeholders</b>	<b>3.75</b>				
<b>3.C: Additional FAB Partners</b>	<b>3.0</b>				

# Fire Adapted Bailey Self-Assessment



**Local Mitigation Capabilities Tracker for Local and State Plan Updates**

Planning and Regulatory	Yes/No
Building Codes	yes
Building Codes Year	2012
BCEGS Rating	?
Capital Improvements Program (CIP) or Plan	?
Community Rating System (CRS) (Rapid Risk Assessment for all homes in process)	yes
Community Wildfire Protection Plan (CWPP)	yes
Comprehensive, Master, or General Plan	yes
Economic Development Plan	?
Elevation Certificates	?
Erosion/Sediment Control Program	?
Floodplain Management Plan or Ordinance	?
Flood Insurance Study	?
Growth Management Ordinance	?
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	?
NFIP	?
Site Plan Review Requirements (D-Space requirement in PCFPD for new construction & additions)	yes
Stormwater Program, Plan, or Ordinance	?
Zoning Ordinance	yes
Other	no

Administrative and Technical	Yes/No
Emergency Manager	yes
Floodplain Administrator	?
Community Planning:	
- Planner/Engineer (Land Devel)	yes
- Planner/Engineer/Scientist (Natural Hazards)	?
- Engineer/Professional (Construction)	?
- Resiliency Planner	?
- Transportation Planner	?
Building Official	yes
GIS Specialist and Capability	yes
Grant Manager, Writer, or Specialist	no
Warning Systems/Services:	
- General_CODE RED (Note: low subscription rate cause loss of life in an emergency)	yes
- Flood	yes
- Wildfire	yes
- Tornado	yes
- Geological Hazards	yes
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	
- Levy for Specific Purposes with Voter Approval (dedicated wildfire mitigation ML in discussion)	no
- Utilities Fees	no
- System Development / Impact Development Fee	no
- General Obligation Bonds to Incur Debt	no
- Special Tax Bonds to Incur Debt	no
- Withheld Spending in Hazard-Prone Areas	no
- Stormwater Service Fees	no
- Capital Improvement Project Funding	no
- Community Development Block Grants	no
- Other (FAB Crowdfunding for evacuation roadway fuels treatment)	yes

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks (Fire Adapted Bailey, Seneca)	yes
Firewise	yes
StormReady	no
Other	

## CAPABILITY ASSESSMENT WORKSHEET

**Contact Information:**

<b>Name: Trent Smith</b>	<b>Department/Organization: NWFPD</b>	<b>Title: Captain</b>
<b>Phone: 719-836-3150</b>	<b>E-Mail: tsmith@nwfpd.org</b>	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

<b>Severe Weather</b>
<b>Large Wildfire</b>
<b>Large Hazmat/Traffic Incident</b>

2. What would you consider your **biggest vulnerability** to those hazards?

<b>Lack of personnel</b>
<b>Response Time</b>
<b>Resources to Mitigate Threat</b>

3. What would you consider your **biggest strength** is in being resilient to hazard events?

<b>Training</b>
<b>Communications w/ public</b>
<b>Mutual Aid Agreements</b>

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet.** Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
CWPP	
Ready, Set, Go Wildfire Plan	
2012 Building and Fire Codes	
Adopted NFPA 1141, 1142, 1144	

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
Chipper Program	Aid in Mitigation efforts
Type 3 and Type 6 purchases to respond to Wildland needs	Gain Access and Deploy Wildland specific strategy
Fire Marshall	Code Enforcement
Tracks Vehicle	Severe Weather rescue
Regional Hazmat Truck & 3 Hazmat Techs	

6. What **fiscal mechanisms** to you have in place to support risk reduction?

Plan/Policy	Notes

7. What **actions** have you taken in the last 5 years (since the last plan update) to build these capabilities?

<b>Provided Personnel for Chipper Program</b>
<b>Purchase Type 3 and Type 6 for Wildland</b>
<b>Maintained Hazmat equipment and personnel</b>
<b>Added additional personnel</b>
<b>Increased preplans &amp; code enforcement</b>
<b>Continued outreach to educate HOA and community members</b>

8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

<b>Updating Building and Fire codes from 2012 to 2015</b>
<b>Continue to develop CWPP</b>
<b>Staff Station 1 to reduce response times</b>
<b>Staging Tracks vehicle at Station 2</b>
<b>Continued maintenance and training of Haz Mat Program</b>
<b>Construction of Training Center for North-West and surrounding agencies</b>

**Local Mitigation Capabilities Tracker for Local and State Plan Updates**

Planning and Regulatory	Yes/No
Building Codes	Yes
Building Codes Year	2012
BCEGS Rating	
Capital Improvements Program (CIP) or Plan	Yes
Community Rating System (CRS)	Yes
Community Wildfire Protection Plan (CWPP)	Yes
Comprehensive, Master, or General Plan	Yes
Economic Development Plan	Yes
Elevation Certificates	
Erosion/Sediment Control Program	
Floodplain Management Plan or Ordinance	Yes
Flood Insurance Study	
Growth Management Ordinance	Yes
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	Yes
NFIP	
Site Plan Review Requirements	Yes
Stormwater Program, Plan, or Ordinance	
Zoning Ordinance	Yes
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	
- Levy for Specific Purposes with Voter Approval	Yes
- Utilities Fees	No
- System Development / Impact Development Fee	No
- General Obligation Bonds to Incur Debt	No
- Special Tax Bonds to Incur Debt	No
- Withheld Spending in Hazard-Prone Areas	No
- Stormwater Service Fees	No
- Capital Improvement Project Funding	
- Community Development Block Grants	No
- Other	

Administrative and Technical	Yes/No
Emergency Manager	Yes
Floodplain Administrator	
Community Planning:	
- Planner/Engineer (Land Devel)	No
- Planner/Engineer/Scientist (Natural Hazards)	No
- Engineer/Professional (Construction)	No
- Resiliency Planner	No
- Transportation Planner	No
Building Official	Yes
GIS Specialist and Capability	Yes
Grant Manager, Writer, or Specialist	No
Warning Systems/Services:	
- General	Yes
- Flood	No
- Wildfire	Yes
- Tornado	No
- Geological Hazards	No
Other	

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks	No
Firewise	No
StormReady	No
Other	

### CAPABILITY ASSESSMENT WORKSHEET

**Contact Information:**

<b>Name:</b> David E Kintz Jr	<b>Department/Organization:</b> Coroner	<b>Title:</b> Coroner
<b>Phone:</b> 719-836-4340	<b>E-Mail:</b> <del>dkintz@parkco.us</del> dkintz@parkco.us	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

Mass fatality - Wildfire or Winter weather

2. What would you consider your **biggest vulnerability** to those hazards?

Lack of Personnel and isolation for delivery of Equipment we have MOU's for.

3. What would you consider your **biggest strength** is in being resilient to hazard events?

We have a robust plan and well stocked mass fatality deployment trailer with portable morgue.

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet. Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.**

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
<i>Education</i>	<i>Public meeting</i>

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
<i>mass fatality trailer</i>	<i>Equipment for handling MF and providing education</i>

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

7. What **actions** have you taken in the last 5 years (since the last plan update) to build these capabilities?

Mass fatality trainings and training on
risks we face.

8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

Further Public Education and
county wide training

## Local Mitigation Capabilities Tracker for Local and State Plan Updates

Planning and Regulatory	Yes/No
Building Codes	
Building Codes Year	
BCEGS Rating	
Capital Improvements Program (CIP) or Plan	
Community Rating System (CRS)	
Community Wildfire Protection Plan (CWPP)	
Comprehensive, Master, or General Plan	
Economic Development Plan	
Elevation Certificates	
Erosion/Sediment Control Program	
Floodplain Management Plan or Ordinance	
Flood Insurance Study	
Growth Management Ordinance	
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	
NFIP	
Site Plan Review Requirements	
Stormwater Program, Plan, or Ordinance	
Zoning Ordinance	
Other	

Administrative and Technical	Yes/No
Emergency Manager	Y
Floodplain Administrator	N
Community Planning:	Y
- Planner/Engineer (Land Devel)	Y
- Planner/Engineer/Scientist (Natural Hazards)	Y
- Engineer/Professional (Construction)	Y
- Resiliency Planner	Y
- Transportation Planner	Y
Building Official	Y
GIS Specialist and Capability	Y
Grant Manager, Writer, or Specialist	Y
Warning Systems/Services:	Y
- General	Y
- Flood	Y
- Wildfire	Y
- Tornado	Y
- Geological Hazards	Y
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	
- Levy for Specific Purposes with Voter Approval	
- Utilities Fees	
- System Development / Impact Development Fee	
- General Obligation Bonds to Incur Debt	
- Special Tax Bonds to Incur Debt	
- Withheld Spending in Hazard-Prone Areas	
- Stormwater Service Fees	
- Capital Improvement Project Funding	
- Community Development Block Grants	
- Other	

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks	Y
Firewise	N
StormReady	N
Other <i>Public Outreach meetings</i>	Y

CAPABILITY ASSESSMENT WORKSHEET

Contact Information:

<b>Name:</b> Eugene Farmer	<b>Department/Organization:</b> Guffey Fire (SPCFPD)	<b>Title:</b> Fire Chief
<b>Phone:</b> 719 689-9479	<b>E-Mail:</b> chief@guffeyfire.net	

Responses:

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

big wild fire
BLM recreation site, (extended rescue & tech aspect)

2. What would you consider your **biggest vulnerability** to those hazards?

not enough personnel & equipment.

3. What would you consider your **biggest strength** is in being resilient to hazard events?

ability for quick response, keeping same lines
same.

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet. Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.**

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
None	rewriting/reviewing local fire policy

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
Volunteer staff, local	

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes
None	

7. What actions have you taken in the last 5 years (since the last plan update) to build these capabilities?

installing 80kw backup generator at fire station in
Guffey, installed 30,000 gallon water storage.
- Part of ES (emergency services) with 2 new chippers for
slash

8. What future investments in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

funding for chipper crew.
repairing and replacing stations and equipment -
by a increasing mil levy to support 5 year
Capital Improvement Plan

## Local Mitigation Capabilities Tracker for Local and State Plan Updates

Planning and Regulatory	Yes/No
Building Codes	Yes
Building Codes Year	2012
BCEGS Rating	NO
Capital Improvements Program (CIP) or Plan	Yes
Community Rating System (CRS)	NO
Community Wildfire Protection Plan (CWPP)	NO
Comprehensive, Master, or General Plan - County	Yes
Economic Development Plan	NO
Elevation Certificates	NO
Erosion/Sediment Control Program	NO
Floodplain Management Plan or Ordinance	NO
Flood Insurance Study	NO
Growth Management Ordinance	NO
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	Yes
NFIP	NO
Site Plan Review Requirements	Yes - NO
Stormwater Program, Plan, or Ordinance	NO
Zoning Ordinance	Yes NO
Other	

Administrative and Technical	Yes/No
Emergency Manager	Yes
Floodplain Administrator	NO
Community Planning:	
- Planner/Engineer (Land Devel)	NO
- Planner/Engineer/Scientist (Natural Hazards)	NO
- Engineer/Professional (Construction)	NO
- Resiliency Planner	NO
- Transportation Planner	NO
Building Official	Yes
GIS Specialist and Capability	Yes
Grant Manager, Writer, or Specialist	NO
Warning Systems/Services:	Yes
- General	Yes
- Flood	Yes
- Wildfire	Yes
- Tornado	Yes
- Geological Hazards	Yes
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	NO
- Levy for Specific Purposes with Voter Approval	NO
- Utilities Fees	NO
- System Development / Impact Development Fee	NO
- General Obligation Bonds to Incur Debt	NO
- Special Tax Bonds to Incur Debt	NO
- Withheld Spending in Hazard-Prone Areas	NO
- Stormwater Service Fees	NO
- Capital Improvement Project Funding	Yes
- Community Development Block Grants	NO
- Other	

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks	NO
Firewise	NO
StormReady	NO
Other	NO

**CAPABILITY ASSESSMENT WORKSHEET**

**Contact Information:**

<b>Name:</b> John Van Doren	<b>Department/Organization:</b> Fire Adapted Bailey (FAB)	<b>Title:</b> President
<b>Phone:</b> 303-877-1447	<b>E-Mail:</b> john@kzhoa.net	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

<b>Wildfire</b>

2. What would you consider your **biggest vulnerability** to those hazards?

<b>Evacuation – high percentage of roadways are not survivable due to adjacent fuel loads and one way in one way evacuation roadways will at the same time be congested and force residents to seek refuge areas or shelter in place.</b>

3. What would you consider your **biggest strength** is in being resilient to hazard events?

<b>Number of recognized Firewise communities</b>

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet.** Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
PCFPD CWPP	
Fire Adapted Community Self-Assessment	

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
Volunteers & Firewise Community Leaders	

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes
Crowdfunding	Raised \$52K for evacuation roadway fuels treatment

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

--	--

7. What **actions** have you taken in the last 5 years (since the last plan update) to build these capabilities?

<b>Formed Fire Adapted Bailey</b>
<b>Grew Firewise community footprint to over 40% of residential parcel count</b>
<b>Helped (BCA, scope of work) PCFPD obtain PDM grant for Fuels Treatment for 150 acres on and around around elementary school</b>
<b>Multiple wildfire education events</b>
<b>Evacuation Workshops for seniors, parents, and general public</b>
<b>Brokered agreement between BOCC and PCFPD to allow PCFPD to do fuels treatment in county road rights of way</b>

8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

<b>Arranging for an outside consultant to facilitate the creation of a comprehensive community wide evacuation plan. Players to include PCFPD, ECFPD, PCSO, PC Communications, PC EM, Jeffco SO, PCSD, Seniors Alliance, and FAB</b>
<b>Extensive roadway fuels treatment (note: FEMA grant funding does NOT currently support this, and it our most critical life safety issue and priority!)</b>
<b>Park County has adopted the 2012 International Residential Code and also requires class A roof materials for all new construction and replacement roofs. However, this is NOT adequate for PCFPD in which EVERY home is subject to short range wildfire ember cast. We need a WUI building code adopted for our community.</b>
<b>40% of our PCFPD ponds do not have water rights and we are having to invest in augmentation to protect these critical fire suppression water assets. The root cause this situation was the historical lack of any requirement for adequate water resources for fire suppression in our LUR's. Our LUR's are still silent on this subject. We need a complete review of current resources and a plan to improve those resources going forward. We</b>

---

<b>also need to revise our county LUR's to address to need for fire suppression water resources.</b>

## CAPABILITY ASSESSMENT WORKSHEET

**Contact Information:**

<b>Name:</b> Lynn Ramey	<b>Department/Organization:</b> Public Health	<b>Title:</b> Director
<b>Phone:</b> 719-836-4149	<b>E-Mail:</b> lramey@parkco.us	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

<b>Fire- Disruption of facilities</b>
<b>Pandemic- halts all other essential PH functions</b>
<b>Winter weather- access to facilities</b>

2. What would you consider your **biggest vulnerability** to those hazards?

<b>Lack of security measures if facilities disrupted</b>

3. What would you consider your **biggest strength** is in being resilient to hazard events?

<b>Planning and exercise routinely</b>

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet.** Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
PHEOP and supporting annexes	
Public Health HVA	

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
All staff	
POD supplies	
All EPR supplies	

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes
County policies	

7. What **actions** have you taken in the last 5 years (since the last plan update) to build these capabilities?

<b>Training , exercise and planning public health HVA</b>

8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

<b>We use HVA to help drive our plans. <span style="color: red;">Pandemics needs to be identified as hazard.</span></b>

## CAPABILITY ASSESSMENT WORKSHEET

**Contact Information:**

<b>Name:</b> Susan Bernstetter	<b>Department/Organization:</b> Lake George Fire Protection District	<b>Title:</b> Fire Chief
<b>Phone:</b> 719-748-3022	<b>E-Mail:</b> susan@lakegeorgefire.com	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

<b>Wildland fires, flooding, dam failures, public health disease outbreaks</b>

2. What would you consider your **biggest vulnerability** to those hazards?

<b>Lack of funding and manpower</b>

3. What would you consider your **biggest strength** is in being resilient to hazard events?

<b>Interagency and intergovernmental agreements and mutual aid arrangements</b>

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet.** Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
EAP for 11-mile dam	Both high flow and dam failure
EAP for Tarryall dam	Both high flow and dam failure
Building Codes	
Mutual Aid Agreements	
Intergovernmental MOUs	
Burn restrictions, bans and permitting requirements	
School Programs for Fire Safety	

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
Emergency Manager	
Fire Marshall (Sheriff)	
GIS staff	Working to improve mapping, road name redundancy and correct property numbering
Wood Chipper	For fuels reduction
Generators	
PPE	Added new standards and items since COVID19

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes
General Obligation/ Tax Revenues	

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**


7. What **actions have you taken in the last 5 years** (since the last plan update) to build these capabilities?

<p><b>Updated the EAP's for Eleven Mile Dam and Tarryall Dam. Worked with those agency and government entities involved to have better communication and plans in place.</b></p> <p><b>Worked with two geographical areas that have 1 way in and out issues to gain a second access.</b></p> <p><b>Increased the standards and inventories of PPE for Public Health Response.</b></p> <p><b>Met with HOA's to discuss fire mitigation.</b></p>

8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

<p><b>Work more aggressively with individual homeowners and associations to implement Firewise time programs and community fire mitigation.</b></p> <p><b>Establish an IGA with County Building Department for future building and fire code, access requirements and inspections.</b></p> <p><b>Using GIS, collect more data regarding risk assessment for subdivisions and individual</b></p>
---



## CAPABILITY ASSESSMENT WORKSHEET

**Contact Information:**

<b>Name:</b> Sheila Cross	<b>Department/Organization:</b> Development Services	<b>Title:</b> Director
<b>Phone:</b> 719.836.4272	<b>E-Mail:</b> scross@parkco.us	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

**1) Anything that would cause wide-spread power and communication outages – fire, flood, etc.; and 2) anything that would threaten human lives, i.e., active shooter situation.**

2. What would you consider your **biggest vulnerability** to those hazards?

**1) Employees working in rural areas with no power and communication redundancy, unknown redundancy at county offices; and 2) constant access to the public, some of which are angry.**

3. What would you consider your **biggest strength** is in being resilient to hazard events?

**All divisions – Building, Planning, Environmental & Code Compliance, Building and GIS – have substantial access to necessary information from any virtual work station.**

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

**Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet.** Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.

**(I do not see a Local Mitigation Capabilities Tracker...?)**

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
Hazard Mitigation Plan	
COOP Plan	
Land Use Regulations	
Building Codes	
OWTS Regulations	
State Statutes	

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
Computers and internet access	
Building inspectors and permit techs	
Engineer	
Code & Environmental Compliance Techs	
GIS Analyst and Tech	
Planner and Planning Techs	

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes
Operating budget	
Emergency funds (assumed)	

7. What **actions have you taken in the last 5 years** (since the last plan update) to build these capabilities?

**Continual IT upgrades, ongoing training and certifications, staffing and budget requests.**

8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

**Strategic Master Plan update, continual Land Use Regulation and Building Code updates, ongoing training and certifications, and budget and staffing requests.**

**Park County 2020 Regional Hazard Mitigation Plan Update  
Data Request Form**

**Park County 2020 Regional Hazard Mitigation Plan Update**

**DATA REQUEST FORM**

Thank you for participating in the kickoff workshop for the **update of the Park County Multi-Jurisdictional Hazard Mitigation Plan (HMP)**. The HMP is the document that guides the County and its partners in reducing risks and lessening the impact of disasters. The County has engaged Ecology and Environment, Inc. (E & E) to facilitate the HMP update process including facilitation of this workshop.

This data request is designed to gather existing information to inform plan development and ensure that it reflects the most current information available. **Please provide available information by March 12, 2020** to Jessica Forbes-Guerrero at [jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com). As a customer service, we have provided a secure FTP site (see page 2 of this data request) to serve as a one stop location for posting of project files, particularly files too large to send via email. We would prefer to receive documents in electronic versions (Microsoft Word for planning documents is preferred), but documents can also be sent in hard copy to Ecology and Environment, Inc., 5665 Flatiron Parkway, Suite 250, Boulder, CO 80301.

**Project Points of Contact.** Please identify key staff/partners from your organization that should be included in project communications or can provide feedback on recent damage assessment efforts.

Name	Title/Department	Email	Phone
TINA LARRAH	TOWN ADMINISTRATOR	TLARRAH@FAIRPLAY.CO.US	719-836-2622
JIM BROWN	PUBLIC WORKS DIR.	JBROWN@FAIRPLAY.CO.US	719-836-2445
KIM WITTBRODT	TOWN TREASURER	KWITTBRODT@FAIRPLAY.CO.US	719-836-2422
MARCUS WOODWARD	CHIEF OF POLICE	MWOODWARD@FAIRPLAY.CO.US	719-836-2848

**Plans and Procedures.** Please provide key plans and documentation related to the risk assessment.

- Historic damage reports from your jurisdiction
- List of critical facilities and infrastructure
- Recent risk studies and analyses
- County/town master plans
- County/town/organizational strategic plans
- County/town watershed plans

**GIS Data.** To the extent possible, E & E would like to visually depict information in the risk assessment. Please provide the following GIS layers, if available:

- Parcels and building footprints (preferably with assessed property values)
- Hazard layers (floodplains, wildland urban interface, earthquake, etc.)
- Land use data layers
- Critical facilities and infrastructure
- Emergency transportation routes
- Historical and cultural resource locations
- Any available damage assessments

**Park County 2020 Regional Hazard Mitigation Plan Update  
Data Request Form**

**GIS Contact:**

Name	Title/Department	Email	Phone
CINDY JONES	PARK COUNTY MAPPING	CJONES@PARKCO.US	719-836-4287

**SECURE FTP SITE**

A password-protected shared FTP site is available for transferring large files. Please use the information below to log in. The login credentials for both sites are identical, and connection info is listed below:

Via Web Browser:

URL: <http://its.ene.com>

Username: ene

Password: sharedftp

Via FTP Client Program (FileZilla):

Host: ftp.ene.com

Username: ene

Password: sharedftp

Please save files you upload to the FTP site in a folder named "Park County" and email Jessica Forbes-Guerrero (contact info below) when the files are available.

*Note: The Web Browser method of using the FTP site has a physical limitation of 256MB per file uploaded. You must use an FTP client program (such as FileZilla) when uploading individual files larger than 256MB.*

**CONTACT INFORMATION:**

Brad Golden, Park County  
(o) 719-836-4231 | (c) 719-839-1214  
[stanley@parkco.us](mailto:stanley@parkco.us)

Jessica Forbes-Guerrero, E & E Project Manager  
(o) 303-443-3282 | (c) 757-816-7762  
[jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com)

**THANK YOU FOR YOUR PARTICIPATION!**

### CAPABILITY ASSESSMENT WORKSHEET

**Contact Information:**

<b>Name:</b> MARLUS WOODWARD	<b>Department/Organization:</b> TOWN OF FAIRPLAY	<b>Title:</b> CHIEF OF POLICE
<b>Phone:</b> 719-836-2622 <sup>OR</sup> 719-836-2840	<b>E-Mail:</b> MWOODWARD@FAIRPLAY.CO.US	

**Responses:**

1. What hazards are you most concerned about that would impact your ability to provide your essential functions?

STRUCTURE FIRES, WILDLAND FIRES, FLOODING, WINTER STORMS, HAZ-MAT SPILLS, ROAD CLOSURES
--

2. What would you consider your **biggest vulnerability** to those hazards?

WATER + SEWAGE SYSTEMS, NATURAL + PROPANE SOURCES, ELECTRICAL TRANSFER STATIONS
--

3. What would you consider your **biggest strength** is in being resilient to hazard events?

INTERAGENCY AGREEMENTS + UNIFIED SUPPORT
PREPARED DISASTER PLANS CURRENTLY IN PLACE.

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

Before responding to questions 4, 5, and 6, please fill out the Local Mitigation Capabilities Tracker attached at the end of this worksheet. Use the fields under questions 4, 5, and 6 to record any additional capabilities in your jurisdiction.

4. What **plans and policies** do you have in place to support community risk reduction?

Plan/Policy	Notes
COUNTY DISASTER PLAN +	
FAIRPLAY POLICE DEPARTMENT POLICY	

5. What **staff and equipment** do you have in place to support community risk reduction?

Staff/Equipment	Notes
PUBLIC WORKS	CONT. SP AMBULANCE
POLICE DEPARTMENT	
COUNTY + STATE LAW ENFORCEMENT	
COLD DEPARTMENT OF TRANSPORTATION	
LOCAL FIRE PROTECTION DISTRICT	
COUNTY ROAD + BRIDGE	

6. What **fiscal mechanisms** do you have in place to support risk reduction?

Plan/Policy	Notes
INTER AGENCY AGREEMENTS	
EMERGENCY MANAGEMENT/SERVICES	

**Park County 2020 Hazard Mitigation Plan Update  
Capability Assessment Worksheet**

7. What **actions** have you taken in the last 5 years (since the last plan update) to build these capabilities?

INTER AGENCY AGREEMENT BETWEEN LAW ENFORCEMENT
NOTING MEMBER ON COUNTY EMERGENCY SERVICE COUNCIL
INTEGRATED ALL RADIO COMMUNICATIONS WITH ALL EMERGENCY SERVICES + JOINT LE RECORDS MANAGEMENT SYSTEM
FAIRPLAY RECREATIONAL BEACH DAM RESTRUCTURE FOR FLOODING REDUCTION + PREVENTION, AUTOMATED WATER + SEWER ALARMS

8. What **future investments** in any of these program elements do you foresee in the next 5 years to support risk reduction? (Note: FEMA has emphasized the importance of incorporating hazard mitigation principles in other community plans. Please note here what opportunities you see to incorporate hazard mitigation into other planning processes and plans.)

DEVELOP + CONTINUE ANY TABLETOP EXERCISES RELATED TO NATURAL DISASTERS, CONTINUE EMERGENCY SERVICES COUNCIL PARTICIPATION
IMPLEMENT ANNUAL REVIEW OF EMERGENCY MANAGEMENT DISASTER + MITIGATION POLICIES, MAINTAIN + CREATE ADDITIONAL IGA'S WITH PARK COUNTY PARTNERS.

## Local Mitigation Capabilities Tracker for Local and State Plan Updates

Planning and Regulatory	Yes/No
Building Codes	YES
Building Codes Year	2012
BCEGS Rating	
Capital Improvements Program (CIP) or Plan	YES
Community Rating System (CRS)	NO
Community Wildfire Protection Plan (CWPP)	YES
Comprehensive, Master, or General Plan	YES
Economic Development Plan	YES
Elevation Certificates	
Erosion/Sediment Control Program	N/A
Floodplain Management Plan or Ordinance	YES
Flood Insurance Study	
Growth Management Ordinance	YES
Non-Flood Hazard-Specific Ordinance or Plan (e.g.- Steep Slope, Wildfire, Snow Load)	YES
NFIP	YES
Site Plan Review Requirements	YES
Stormwater Program, Plan, or Ordinance	YES
Zoning Ordinance	YES
Other	

Administrative and Technical	Yes/No
Emergency Manager	YES
Floodplain Administrator	YES
Community Planning:	
- Planner/Engineer (Land Devel)	YES
- Planner/Engineer/Scientist (Natural Hazards)	YES
- Engineer/Professional (Construction)	YES
- Resiliency Planner	
- Transportation Planner	
Building Official	YES
GIS Specialist and Capability	YES
Grant Manager, Writer, or Specialist	YES
Warning Systems/Services:	YES
- General	YES
- Flood	
- Wildfire	
- Tornado	
- Geological Hazards	
Other	

Financial	Yes/No
Has community used any of the following to fund mitigation activities:	
- Levy for Specific Purposes with Voter Approval	
- Utilities Fees	YES
- System Development / Impact Development Fee	YES
- General Obligation Bonds to Incur Debt	
- Special Tax Bonds to Incur Debt	
- Withheld Spending in Hazard-Prone Areas	
- Stormwater Service Fees	
- Capital Improvement Project Funding	YES
- Community Development Block Grants	
- Other	

Education & Outreach	Yes/No
Local Citizen Groups That Communicate Hazard Risks	YES
Firewise	YES
StormReady	YES
Other	

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX B2.**  
**HMC Workshop 2 – Mitigation Strategies**

---

---

**Park County 2020 Hazard Mitigation Plan Update  
Meeting #2 – Mitigation Strategies Workshop**

---

**Park County Hazard Mitigation Plan Update  
MITIGATION STRATEGIES WORKSHOP**

---

**DATE:** Wednesday, March 18, 2020  
**TIME:** 9:00 a.m. – 11:30 a.m.  
**LOCATION:** Webinar (Microsoft Teams)

Thank you for participating in Hazard Mitigation Committee Meeting #2 for the **update of the Park County Hazard Mitigation Plan (HMP)**.

**MEETING PURPOSE:**

This meeting builds on the concepts we discussed in the kickoff workshop. We will take our discussions on mitigation goals and risk assessments and begin the process of developing mitigation actions to reduce risks to community members and their property. Participants will be provided with example mitigation actions and will work together and individually to build out additional actions.

**AGENDA:**

1. Welcome and Introductions (5 minutes)
2. Review of HMP Goals (10 minutes)
3. Review of Risk Assessments (15 minutes)
4. Review of Mitigation Action Worksheet (15 minutes)
5. Mitigation Action Case Studies (30 minutes)
6. Mitigation Action Workshop (45 minutes)
7. Next Steps (15 minutes)

**CONTACT INFORMATION:**

Brad Golden, Deputy Director of  
Emergency Management  
Park County, Colorado  
(o) 719-836-4231  
[bgolden@parkco.us](mailto:bgolden@parkco.us)

Jessica Forbes-Guerrero, E & E Project Manager  
(o) 303-443-3282  
[jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com)



# Park County 2020 Hazard Mitigation Plan Update

## Meeting #2 – Mitigation Strategies

Wednesday, March 18 | 9 a.m. – 11:30 a.m. | Webinar



# Welcome and Introductions

- Name
- Organization/Department



## Meet the E & E Team



Jon McClurg  
Project Director



Nicki Hurley  
GIS Analyst



Jessica Forbes-  
Guerrero  
Project Manager



Sam Fisher  
Emergency Planner



Alyssa Russell  
Deputy PM

# Meeting Objectives

- Project Update
- Review of HMP Goals
- Review of Mitigation Action Worksheet
- Mitigation Action Workshop
- Next Steps and Action Items



# What Have We Been Up To?

- Project Kickoff Workshop (Meeting #1)
- Hazard Ranking and Profiles
- Data Collection and Mapping
- Plan Development
- Process Documentation

# Review of Mitigation Goals

# Updated HMP Goals

- **Overarching Goal:** Develop and maintain a more disaster-resistant community that is resilient to the economic and physical devastation associated with all hazard events.
- **Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- **Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- **Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- **Goal 4:** Protect natural resources from the effects of hazards.

# HMP Objectives

- **Objective 1A:** Be proactive in incorporating emergency management plans into all other institutional County plans, documents, and practices.
- **Objective 2A:** Assess current and applicable jurisdictional plans and documents regarding flood management to determine what changes and/or additions will be required in future revisions in order to reduce exposure and increase awareness of flood hazards in and to county property, residents and businesses.
- **Objective 3A:** Continually assess ongoing disaster preparedness programs and activities to implement changes that improve disaster preparedness for Park County.
- **Objective 4A:** Educate the public about preparedness activities and mitigation goals, allowing each citizen the opportunity to reduce personal risk and to increase property protection.
- ⊖ ~~**Objective 6A:** Ensure that the public has more than one means of obtaining information about emergencies and disasters in the county through development of redundant notification systems.~~

# HMP Objectives

- **Objective 7A:** Ensure that countywide measures are taken addressing specific risks to infrastructure posed by identified hazards and the resultant critical infrastructure needs and develop a funding mechanism for the priority areas.
- ⊖ ~~**Objective 8A:** Enhance interagency operations by strengthening the emergency operations center capabilities across jurisdictional boundaries.~~
- ⊖ ~~**Objective 9A:** Continue to work with the Emergency Services Council in Park County to address emergency and disaster-related issues and concerns.~~
- ⊖ ~~**Objective 9B:** Continue to work with area partners through mutual aid agreements and long-term planning efforts.~~

# Framing Through Risk

# Hazard Rankings

Park County - Local Hazards							
	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>		<i>Average</i>	<i>Rank</i>
<b>Drought</b>	3.31	2.08	1.54	4.08		2.31	9
<b>Earthquake</b>	1.15	2.31	4.04	2.85		2.50	8
<b>Flood</b>	3.00	3.15	3.62	3.92		3.26	4
<b>Severe Winter Weather</b>	4.62	3.62	3.92	3.85		4.05	2
<b>Wildfire</b>	4.77	4.27	4.23	4.54		4.42	1
<b>Dam Failure</b>	1.62	3.62	4.00	3.88		3.08	6
<b>Hazardous Materials</b>	3.12	2.38	3.77	2.46		3.09	5
<b>Landslide</b>	2.27	1.85	4.00	3.38		2.71	7
<b>Severe Thunderstorm, Hail, and Wind</b>	4.31	3.00	4.08	2.69		3.79	3



# Linking Strategies to Risk

- Start with a problem statement – what are we trying to fix?
- How does your strategy address our plan goals and prioritized hazards?
- Do specific properties need strategies developed for them?

# Mitigation Action Planning

# Looking Back at 2015

- What is our status?
  - Completed, ongoing, carryover, cancelled
- Amendments needed?
- Resource and information gaps?

\*Refer to 2015 Mitigation Actions



# Developing Effective Strategies

## SMART actions!

- *Specific* – target a specific area for improvement
- *Measurable* – quantify or at least suggest an indicator of progress
- *Assignable* – specify who will do it
- *Realistic* – state what results can be achieved realistically, given available resources
- *Time-related* – specify when the result(s) can be achieved

# Mitigation Actions

## 1. IDENTIFY THE PROBLEM

## 2. IDENTIFY THE MITIGATION ACTION AND/OR ALTERNATIVES

## 3. ACTION STATUS

- **New** – The action is new and will be included for the first time in the 2019 plan update.
- **Existing** – The action was implemented prior to the 2019 plan update, but is ongoing and additional or ongoing action is required for completion.
- **Complete** – The action has been completed.

# Mitigation Actions

## 4. TYPE OF ACTION

- ***Plans and Regulations*** – Regulatory actions or planning processes that reduce vulnerability to hazards
- ***Infrastructure/Capital Project*** – Actions that involve modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area
- ***Natural Systems Protection*** – Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems
- ***Education and Awareness*** – Actions to inform and educate residents, elected officials, and property owners about hazards and potential ways to mitigate them.
- ***Preparedness and Response*** – Actions that protect people and property during and immediately after a hazard or hazard event.

# Example Strategies

## ○ Plans and Regulations

- Develop/update land use requirements or building codes for new development
- Identify updated floodplains
- Map cell towers in the area

## ○ Infrastructure/Capital Project

- Build updated and enhanced culvert/bridge/road
- Assess and retrofit acclimation pond

## ○ Natural Systems Protection

- Restrict development in sensitive habitats
- Restore damaged/degraded natural systems

# Example Strategies (cont.)

## ○ Education and Awareness

- Develop a continuous public education program
- Identify opportunities to integrate community partners into the County's mitigation program
- Strengthen awareness of health systems/disease prevention

## ○ Preparedness and Response

- Preposition supplies needed for utility restoration efforts
- Conduct an earthquake damage repair planning exercise
- Prepare for water supply and utility system threats resulting from drought

# Mitigation Actions

## 5. GOALS SUPPORTED

### 5a/b. LEAD/SUPPORT DEPARTMENT ORGANIZATION

- Government agencies
- Regional agencies
- Others?

# Mitigation Actions

## 6a. TIMELINE FOR IMPLEMENTATION

- >1 Year
- 1-3 Years
- 3-5 Years

## 6b. LIFE OF ACTION

- Temporary
- Short-Term
- Long-Term

# Mitigation Actions

## 7. HAZARDS ADDRESSED



# Mitigation Actions

## 8. ANTICIPATED COST/FUNDING AVAILABILITY/FUNDING SOURCE



# Mitigation Actions

## 9. FEMA COMMUNITY LIFELINES SUPPORTED?



# Mitigation Actions

## 10. COLORADO RESILIENCY PRIORITIZATION CRITERIA SUPPORTED?

Criteria	Definition
<b>Co-Benefits</b>	Provide solutions that address problems across multiple sectors creating maximum benefits.
<b>Innovation</b>	Advance new approaches and techniques that will encourage continual improvement and advancement of best practices serving as models for others in Colorado and beyond.
<b>High Risk and Vulnerability</b>	Ensure that strategies directly address the reduction of risk to human well-being, physical infrastructure, and natural systems.
<b>Adaptive Capacity</b>	Include flexible and adaptable measures that consider future unknowns of changing climate, economic, and social conditions.

# Mitigation Actions

## 10. COLORADO RESILIENCY PRIORITIZATION CRITERIA SUPPORTED?

Criteria	Definition
<b>Economic Benefit-Cost</b>	Make good financial investments that have the potential for economic benefit to the investor and the broader community through both direct and indirect returns.
<b>Harmonize with Existing Activity</b>	Expand, enhance, or leverage work being done to build on existing efforts.
<b>Social Equity</b>	Provide solutions that are inclusive with consideration to populations that are often most fragile and vulnerable to sudden impacts due to their continual state of stress.
<b>Long-Term and Lasting Impact</b>	Create long-term gains to the community with solutions that are replicable and sustainable, creating benefit for present and future generations.
<b>Technical Soundness</b>	Identify solutions that reflect best practices that have been tested and proven to work in similar regional context.

# Mitigation Actions

## 11-12. SCORING

### STAPLEE:

- Is it **Socially** acceptable?
- Is it **Technically** feasible and potentially successful?
- Does the responsible agency/department have the **Administrative** capacity to execute this action?
- Is it **Politically** acceptable?
- Is there **Legal** authority to implement?
- Is it **Economically** beneficial?
- Will the project have either a neutral or positive impact on the natural **Environment**?

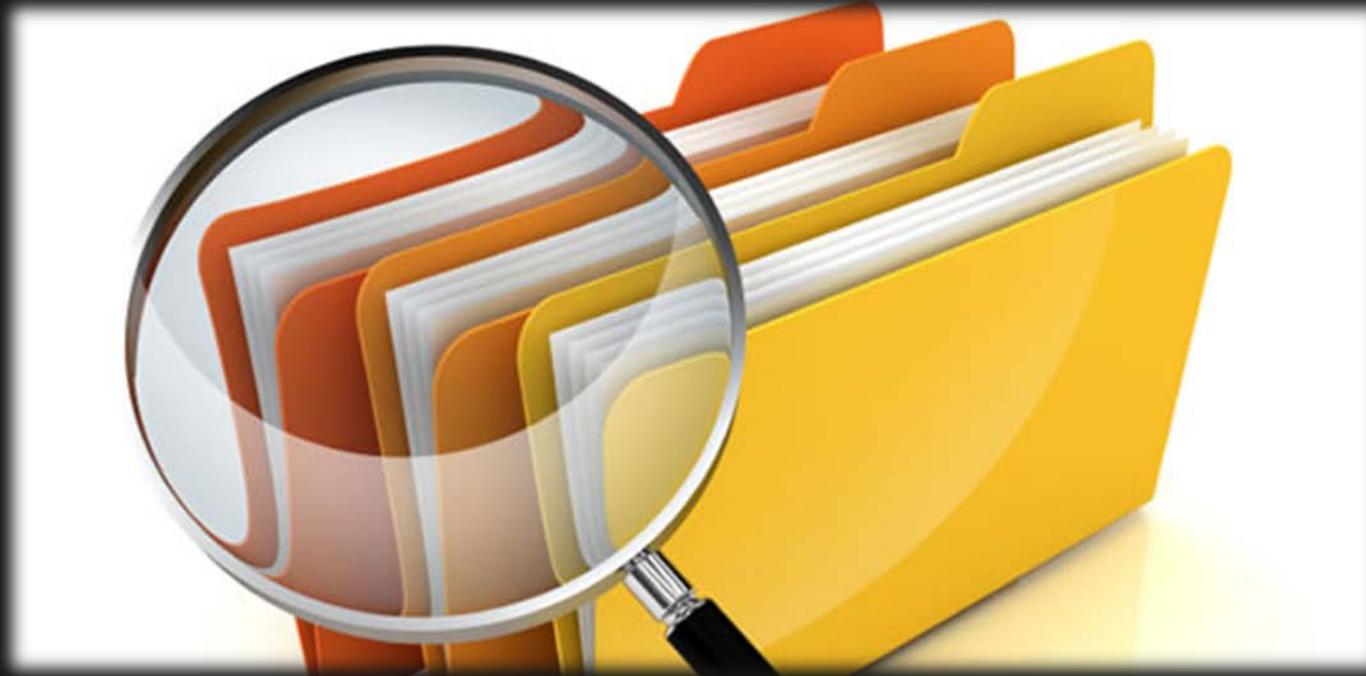
# Mitigation Actions

## 11-12. SCORING

### Mitigation Effectiveness Criteria:

- Will the implemented action result in **lives saved**?
- Will the implemented action result in a **reduction of disaster damage**?

# Worksheet Case Study



# Mitigation Action Workshop

# Activity Logistics

- Group Discussion

As a group, we'll walk through worksheets for two to three potential mitigation actions addressing the county's highest priority hazards: **wildfire, severe weather, and flood.**

# Next Steps and Wrap Up

# Key Dates and Data Gathering

- Provide completed mitigation action worksheets by **March 25, 2020**
- Public outreach event **TBD**
- Draft Plan released in **April 2020**
- Draft Plan Workshop in **April 2020**
- Final Plan and Presentation in **May 2020**

**Public survey:**

<https://www.surveymonkey.com/r/ParkHMP>

## What Can I Do?

- Submit worksheets
- Review draft plan once available
- Share information on the planning process
- Participate in upcoming workshops

# Contact Information

## County Project Lead

Brad Golden

719-836-4231

[bgolden@parkco.us](mailto:bgolden@parkco.us)

## E & E Project Manager

Jessica Forbes-Guerrero

303-443-3282

[JForbes-Guerrero@ene.com](mailto:JForbes-Guerrero@ene.com)

---

**Park County 2020 Hazard Mitigation Plan Update  
Meeting #2 – Mitigation Strategies Workshop**

---

**Park County 2020 Hazard Mitigation Plan Update**

---

**MITIGATION STRATEGIES WORKSHOP**

---

**DATE:** Wednesday, March 18, 2020  
**TIME:** 9:00 a.m. – 11:30 a.m.  
**LOCATION:** Webinar (Microsoft Teams)

**ATTENDEES:**

Steve Spodyak – Park County Sheriff’s Office  
Susan Benrstetter – Lake George FPD  
Denise Pauley – Park County Public Works  
Brad Golden – Park County Emergency Management  
Cindy Jones – GIS Park County  
Patricia Gavelda – DHSEM  
Gene Stanely – Director of Emergency Management Park County  
Paul Mattson – South Park Ambulance District  
Ron Hyer – Park County Public Works  
Sheila Cross – Park County Development Services  
Jim Brown – Fairplay  
Bo Schlunsen - Fairplay  
Marcus Woodward – Fairplay Police

**ATTACHMENTS:**

1. PowerPoint Presentation
2. 2015 Mitigation Actions Status Table
3. 2020 Mitigation Action Worksheet
4. Mitigation Action Worksheet Instructions
5. Example Mitigation Action Worksheet
6. Meeting Attendees

**Summary:**

The Hazard Mitigation Planning Team (HMPT) hosted the second of four HMPT meetings on March 18<sup>th</sup>, 2020. This HMPT consisted of confirming the updated goals, reviewing and modifying objectives, reviewing 2015 mitigation actions, and identifying mitigation actions the County intends to take within the next five years to decrease the risk of hazards. Ecology and Environment, Inc. (E & E) facilitated stakeholders through the webinar workshop.

---

## Park County 2020 Hazard Mitigation Plan Update Meeting #2 – Mitigation Strategies Workshop

### Project Update:

Jessica Forbes-Guerrero with E & E introduced the purpose of this workshop, which was to identify and begin the process of framing mitigation actions that will reduce hazard risks.

E & E provided a status update on the project. The project team has been building out the risk assessment and hazard profile sections of the plan based on information the planning team provided in the kickoff meeting. Also, E & E has been working to collect data from the state and county to begin developing hazard maps. The entire plan process is being documented as meetings and plan updates are occurring.

### Review of Mitigation Goals and Objectives:

The planning team reviewed the goals that were changed during the project kickoff meeting. The goals for the 2020 HMP are:

- **Overarching Goal:** Develop and maintain a more disaster-resistant community that is resilient to the economic and physical devastation associated with all hazard events.
- **Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- **Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- **Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- **Goal 4:** Protect natural resources from the effects of hazards.

After a questions and comments period, it was determined that no further changes needed to be made to these goals. Objectives reviewed include:

- **Objective 1A:** Be proactive in incorporating emergency management plans into all other institutional County plans, documents, and practices.
- **Objective 2A:** Assess current and applicable jurisdictional plans and documents regarding flood management to determine what changes and/or additions will be required in future revisions in order to reduce exposure and increase awareness of flood hazards in and to county property, residents and businesses.
- **Objective 3A:** Continually assess ongoing disaster preparedness programs and activities to implement changes that improve disaster preparedness for Park County.
- **Objective 4A:** Educate the public about preparedness activities and mitigation goals, allowing each citizen the opportunity to reduce personal risk and to increase property protection.
- **Objective 7A:** Ensure that countywide measures are taken addressing specific risks to infrastructure posed by identified hazards and the resultant critical infrastructure needs and develop a funding mechanism for the priority areas.

During the discussion, it was agreed upon to change the wording in objective 1A, add dam failure language to objective 2A, and split objective 7A into two. Additionally, two objectives were added to support goal 4. No changes were needed for objectives 3A and 4A. The changes are listed below:

**Park County 2020 Hazard Mitigation Plan Update**  
**Meeting #2 – Mitigation Strategies Workshop**

- **Objective 1A:** Incorporate emergency management plans into all other institutional County plans, documents, and practices.
- **Objective 2A:** Assess current and applicable jurisdictional plans and documents regarding flood management, including dam failure, to determine what changes and/or additions will be required in future revisions in order to reduce exposure and increase awareness of flood hazards in and to county property, residents and businesses.
- **Objective 7A:** Ensure that countywide measures are taken addressing specific risks to public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- **Objective 7B:** Develop a funding mechanism to address mitigation needs for priority infrastructure.
- **Objective 10A:** Protect watersheds and drinking sources from the effects of wildfires.
- **Objective 10B:** Protect resources used by the recreation industry.

**Hazard Rankings:**

E & E compiled all hazard ranking worksheets turned in by stakeholders to create a hazard rankings table. The results were:

<b>Park County - Local Hazards</b>							
	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>		<i>Average</i>	<i>Rank</i>
<b>Drought</b>	3.31	2.08	1.54	4.08		2.31	9
<b>Earthquake</b>	1.15	2.31	4.04	2.85		2.50	8
<b>Flood</b>	3.00	3.15	3.62	3.92		3.26	4
<b>Severe Winter Weather</b>	4.62	3.62	3.92	3.85		4.05	2
<b>Wildfire</b>	4.77	4.27	4.23	4.54		4.42	1
<b>Dam Failure</b>	1.62	3.62	4.00	3.88		3.08	6
<b>Hazardous Materials</b>	3.12	2.38	3.77	2.46		3.09	5
<b>Landslide</b>	2.27	1.85	4.00	3.38		2.71	7
<b>Severe Thunderstorm, Hail, and Wind</b>	4.31	3.00	4.08	2.69		3.79	3

During the hazard rankings discussion, the planning team agreed to add the ‘Pandemic’ hazard to the plan.

**Mitigation Action Planning:**

HMP updates require that previous HMP actions be reviewed. All jurisdictions that previously participated in the 2015 HMP and are participating in this update will need to review the status of their 2015 mitigation action items. Part of this process will be determining if actions should be carried over

---

## Park County 2020 Hazard Mitigation Plan Update Meeting #2 – Mitigation Strategies Workshop

into the 2020 plan. Jurisdictions will mark the project as incomplete, complete, ongoing, or cancelled and details to support the status.

E & E then discussed the process of developing mitigation actions, including the use of SMART criteria (Specific, Measurable, Assignable, Realistic, and Time-related). Ideally, strategies should be able to reach significant milestones within five years, so that they can be revisited and adjusted during the next plan update. For the development of actions, a worksheet was provided, including sections to identify:

- The problem
- Mitigation action and/or alternatives
- Action Status (new, existing, complete)
- Type of actions (Plans and Regulations, Infrastructure/Capital Project, Natural Systems Protection, Education and Awareness, and Preparedness and Response)
- Goals supported
- Lead/Support Department/Organization
- Timeline for Implementation
- Life of Action
- Hazards Addressed
- Anticipated Cost/funding availability/funding source
- FEMA community lifelines supported
- Colorado resiliency prioritization criteria supported
- STAPLEE Criteria scoring
- Mitigation Effectiveness Criteria scoring

After a review of these 12 sections, E & E reviewed a completed worksheet before working with the planning team to complete an example worksheet in an open discussion. The example completed is included in Attachment 5. After the workshop, E & E provided the planning team with Attachments 2 – 5 to complete and return by Wednesday, March 25<sup>th</sup>.

### **Next Steps and Key Action Items**

- ✓ If not yet completed and turned in, submit a completed hazard ranking worksheet ASAP.
- ✓ Complete the Status of 2015 Mitigation Actions Table and return to E & E by Wednesday, March 25<sup>th</sup>.
- ✓ Complete at least one Mitigation Action Worksheet; one worksheet is needed for every action in the 2020 HMP. Return by Wednesday, March 25<sup>th</sup>.
- ✓ Determine the possibility for a webinar public meeting in the next few weeks.
- ✓ The next planning team meeting is scheduled for April.
- ✓ The final planning team meeting is scheduled for May.
- ✓ E & E continues to receive responses to the online community survey and requests for jurisdictions to continue to promote the survey.

---

**Park County 2020 Hazard Mitigation Plan Update  
Meeting #2 – Mitigation Strategies Workshop**

**CONTACT INFORMATION:**

Brad Golden, Deputy Director of  
Emergency Management  
Park County, Colorado  
(o) 719-836-4231  
[bgolden@parkco.us](mailto:bgolden@parkco.us)

Jessica Forbes-Guerrero, E & E Project Manager  
(o) 303-443-3282  
[jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com)

# Welcome and Introductions

- Name
- Organization/Department

### Meet the E & E Team

	<b>Jon McClurg</b> Project Director		<b>Nicki Hurley</b> GIS Analyst
	<b>Jessica Forbes-Guerrero</b> Project Manager		<b>Sam Fisher</b> Emergency Planner
	<b>Alyssa Russell</b> Deputy PM		



Meeting controls: Mute, Video, Screen Share, Chat, Participants, Request control, End Meeting



## People

Invite someone

Currently in this meeting (9)

Mute all

- SF** Fisher, Samantha
- B** Brad Guest
- C** Cindy - GIS Park County Guest
- DP** Denise Pauley Guest
- DP** Denise Pauley Guest
- JF** Forbes-Guerrero, Jessica Organizer
- P** pgavelda Guest
- SS** Steve Spodyak Guest
- SB** Susan Benrstetter Guest

# Developing Effective Strategies

## SMART actions!

- **Specific** – target a specific area for improvement
- **Measurable** – quantify or at least suggest an indicator of progress
- **Assignable** – specify who will do it
- **Realistic** – state what results can be achieved realistically, given available resources
- **Time-related** – specify when the result(s) can be achieved



Forbes-Guerrero, Jessica



Forbes-Guerrero, Jes...

## People



Invite someone



Cindy - GIS Park County  
Guest



Denise Pauley  
Guest



Denise Pauley  
Guest



Forbes-Guerrero, Jessica  
Organizer



Paul Mattson  
Guest



pgavelda  
Guest



Ron Hyer  
Guest



Sheila  
Guest



Steve Spodyak  
Guest



Susan Benrstetter  
Guest



## Park County Hazard Mitigation Plan

Park County and its partners continue to work on updating the Hazard Mitigation Plan under the leadership of the County's contractor Ecology & Environment Inc. Please find attached the **"Park County 2020 HMP Update Mitigation Action Worksheet"** to be completed by members of the Hazard Mitigation Committee.

### Instructions:

- While completing the form please use SMART criteria (Specific, Measurable, Actionable, Realistic, and Time-related). Ideally, strategies should be able to reach significant milestones within five years, so that they can be revisited and adjusted during the next plan update.
- Identify alternatives where possible. In some cases a "no action" alternative will be the most realistic.
- For Question #5, please check off any of the four plan goals that support your #4 selection.
- For Question #10, identify the State resiliency prioritization criteria that the action would support. Descriptions of the criteria are provided in the Colorado Resiliency Prioritization Criteria attachment.

Thank you in advance for your input! Please complete all pages of the form and return to Jessica Forbes-Guerrero ([jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com)) by **Thursday, March 26**.

## Mitigation Action Worksheet

### Contact Information:

Name:	Phone:	Email:
-------	--------	--------

### 1. Identify the Problem


### 2. Mitigation Action and Alternatives


### 3. Action Status:

- New    Existing    Complete

### 4. Type of Action:

- Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

### 5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

**5a. Lead Department/Organization:**


**5b. Supporting Departments/Organizations:**


**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input type="checkbox"/> Wildfire              | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:


**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Safety and Security  | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical   |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Co-Benefits                 | <input type="checkbox"/> Social Equity       | <input type="checkbox"/> Adaptive Capacity                |
| <input type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity |
| <input type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation          | <input type="checkbox"/> Long-Term and Lasting Impact     |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?		Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?		
A: Does the responsible agency/department have the Administrative capacity to execute this action?		
P: Is it Politically acceptable?		
L: Is there Legal authority to implement?		
E: Is it Economically beneficial?		
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)		

**12. Please score the action against the mitigation effectiveness criteria using the evaluation ratings below.**

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?		High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?		High = 5 Medium = 3 Low = 1

# Colorado Resiliency Prioritization Criteria (2015)

---

## Co-Benefits:

Provide solutions that address problems across multiple sectors creating maximum benefit.

*Cross-sector Strategy:* Develop a statewide guide and online resource on how to assess, analyze, and integrate all hazards data into local government land use planning.

*Project Example:* Develop model codes.

---

## High Risk and Vulnerability:

Ensure that strategies directly address the reduction of risk to human well-being, physical infrastructure, and natural systems.

*Cross-sector Strategy:* Encourage local governments to develop floodplain standards that prohibit future development in flood plains through a public/private partnership between state agencies and associated private or non-profit partners.

*Project Example:* Create a statewide risk and vulnerability assessment tool.

---

## Economic Benefit-Cost:

Make good financial investments that have the potential for economic benefit to the investor and the broader community both through direct and indirect returns.

*Cross-sector Strategy:* Incorporate risk and resiliency analyses into funding decisions, including state grant programs.

*Project Example:* Develop resiliency design standards and incentivize their application in projects utilizing public funds.

---

## Social Equity:

Provide solutions that are inclusive with consideration to populations that are often most fragile and vulnerable to sudden impacts due to their continual state of stress.

*Cross-sector Strategy:* Promote and educate decision makers and program managers about the value of and the opportunities for using the Community Inclusion mapping project.

*Project Example:* Integrate Community Inclusion map analysis into planning and funding decisions.

---

## Technical Soundness:

Identify solutions that reflect best practices that have been tested and proven to work in similar regional context.

*Cross-sector Strategy:* Develop guidance and share best practices to help communities plan for the potential impacts of changing risks and hazards and incorporate this information into policies and actions in comprehensive and other plans.

*Project Example:* Develop resiliency design and policy guides and a case study database.

---

---

## Innovation:

Advance new approaches and techniques that will encourage continual improvement and advancement of best practices serving as models for others in Colorado and beyond.

*Cross-sector Strategy:* Explore the use of captured biogas produced in the natural wastewater treatment process from wastewater treatment plants as a continual (though limited) and emergency backup energy supply.

*Project Example:* Conduct research, then design and build a model plant using biogas as an alternative fuel and backup.

---

## Adaptive Capacity:

Include flexible and adaptable measures that consider future unknowns of changing climate, economic, and social conditions.

*Cross-sector Strategy:* Work with local planners, residents, and builders to incorporate water and energy-efficiency measures into existing and new homes.

*Project Example:* Adopt performance-based energy and water building codes for all new housing, and provide labeling for all existing housing for renters and buyers.

---

## Harmonize with Existing Activity:

Expand, enhance, or leverage work being done to build on existing efforts.

*Cross-sector Strategy:* Continue to engage community stakeholders to determine resiliency needs and priorities in watersheds.

*Project Example:* Expand on the current watershed-wide collaborative focus of 75 watershed groups to include a focus on all hazards.

---

## Long-Term and Lasting Impact:

Create long-term gains to the community with solutions that are replicable and sustainable, creating benefit for present and future generations.

*Cross-sector Strategy:* Establish a new resiliency funding bank to support lapses in current funding opportunities.

*Project Example:* Create the Colorado Community Resiliency Partnership Fund.

---

Washoe County Hazard Mitigation Plan – 2019 Mitigation Action Worksheet

Contact Information:

--	--	--

1. Identify the Problem

<p>Overgrowth of vegetation and dried and dead vegetation on large private development properties present a wildfire hazard to existing and new neighboring properties located within the Wildland Urban Interface.</p>

2. Mitigation Action and Alternatives

<p>Identify the moderate to high risk areas and develop Community Wildfire Protection Plans or Fire Adapted Communities for each community through the Home Owner Associations.</p>
<p>Provide free or low cost resources to private property responsible as an incentive to maintain defensible space on their own properties. Examples include free weekend use of a dump trailers supplied by the Fire Department or free dump day drops.</p>
<p>Enforce State adopted Wildland Urban Interface (WUI) code on new developments building within the WUI and monitor and enforce required vegetation management plans.</p>

3. Action Status:

New    Existing    Complete

4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

Goal 1    Goal 2    Goal 3    Goal 4    Goal 5    Goal 6

5a. Lead Department/Organization:

<p>Reno Fire Department</p>
-----------------------------

## Washoe County Regional Hazard Mitigation Plan Update


### 5b. Supporting Departments/Organizations:

<b>Community Development, Parks and Rec, Nevada Cooperative Extension (Living With Fire), State of Nevada Fire Marshal Office</b>

6a. Timeline:  Immediate  < 1 year  1 – 3 years  3 – 5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

### 7. Hazards Addressed (Check all that apply):

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> All Hazards                 | <input type="checkbox"/> Floods           | <input type="checkbox"/> Water Shortages     |
| <input type="checkbox"/> Active Assailant            | <input type="checkbox"/> HazMat Incidents | <input type="checkbox"/> Windstorm           |
| <input type="checkbox"/> Emerging Infectious Disease | <input type="checkbox"/> Landslides       | <input type="checkbox"/> Drought             |
| <input type="checkbox"/> Earthquakes                 | <input type="checkbox"/> Utility Failure  | <input checked="" type="checkbox"/> Wildfire |
| <input type="checkbox"/> Excessive Heat              | <input type="checkbox"/> Winter Storm     |  |

8a. Anticipated Cost (if known): **Varies**

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

<b>Some alternatives such as Code enforcement on new development and case reviews are included in existing budget for normal plan review and new construction inspection.</b>
<b>Purchasing of equipment such as dump trailers and labor associated with delivering and picking up dump trailers and for organizing and developing Community Wildfire Protection Plans would require additional funding.</b>

### Mitigation Action Worksheet

Contact Information:

<b>Name:</b> Susan Bernstetter	<b>Phone:</b>	<b>Email:</b>
-----------------------------------	---------------	---------------

1. Identify the Problem

<b>Additional staffing needed for the Lake George FPD’s fuels management program for private properties (providing wood chipping). Mitigation helps elderly residents to clean up their properties.</b>
---

2. Mitigation Action and Alternatives

<b>Obtain funding to compensate volunteers to run the fuels management program (provide wood chipping services) for residents on the weekends.</b>
<b>Better educate members of the public on the need to manage fuels and provide defensible space on their properties.</b>

3. Action Status:

New    Existing    Complete

4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions’ daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

Lake George FPD

5b. Supporting Departments/Organizations:

CUSP (Coalition for the Upper South Platte)

6a. Timeline:  Immediate  < 1 year  1 – 3 years  3 – 5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

7. Hazards Addressed (Check all that apply):

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |

8a. Anticipated Cost (if known): **\$18,000 (annually)**

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Firewise?
Educational component would be low/minimal cost (printing) and could be funded with existing budget

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Safety and Security  | <input checked="" type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input checked="" type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications                   | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical              |   |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Co-Benefits                 | <input checked="" type="checkbox"/> Social Equity       | <input type="checkbox"/> Adaptive Capacity                |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input checked="" type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity |
| <input type="checkbox"/> Economic Benefit-Cost                  | <input type="checkbox"/> Innovation                     | <input type="checkbox"/> Long-Term and Lasting Impact     |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	2	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	3	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	3	

**12. Please score the action against the mitigation effectiveness criteria using the evaluation ratings below.**

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	5	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX B3.**  
**HMC Workshop 3 – Draft Plan Review**

---

---

**Park County 2020 Hazard Mitigation Plan Update  
HMC Workshop #3 – Draft Plan Review Workshop**

---

**Park County Hazard Mitigation Plan Update**

---

**DRAFT PLAN REVIEW WORKSHOP**

---

**DATE:** Wednesday, May 13, 2020

**TIME:** 1:00 p.m. – 3:00 p.m.

**LOCATION:** Microsoft Teams

Thank you for participating in the Hazard Mitigation Committee Workshop #3 for the **update of the Park County Hazard Mitigation Plan (HMP)**.

**MEETING PURPOSE:**

Workshop #3 provides an opportunity for the group to discuss comments on the Draft HMP and annexes. This meeting will be largely discussion based, so please come prepared with your comments.

**AGENDA:**

1. Welcome and Introductions (10 minutes)
2. Overview of Draft HMP (20 minutes)
3. Discussion of Data Gaps and Comments/Plan Review (60 minutes)
4. Next Steps (15 minutes)

**CONTACT INFORMATION:**

Brad Golden, Deputy Director of  
Emergency Management  
Park County, Colorado  
(o) 719-836-4231  
[bgolden@parkco.us](mailto:bgolden@parkco.us)

Jessica Forbes-Guerrero, E & E Project Manager  
(o) 303-443-3282  
[jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com)



# Park County 2020 Hazard Mitigation Plan Update

## Workshop #3 – Draft Plan Review

Wednesday, May 13 | 1 p.m. – 3 p.m. | Webinar



# Welcome and Introductions

- Name
- Organization/Department



## Meet the E & E Team



Jon McClurg  
Project Director



Nicki Hurley  
GIS Analyst



Jessica Forbes-  
Guerrero  
Project Manager



Sam Fisher  
Emergency Planner



Alyssa Russell  
Deputy PM

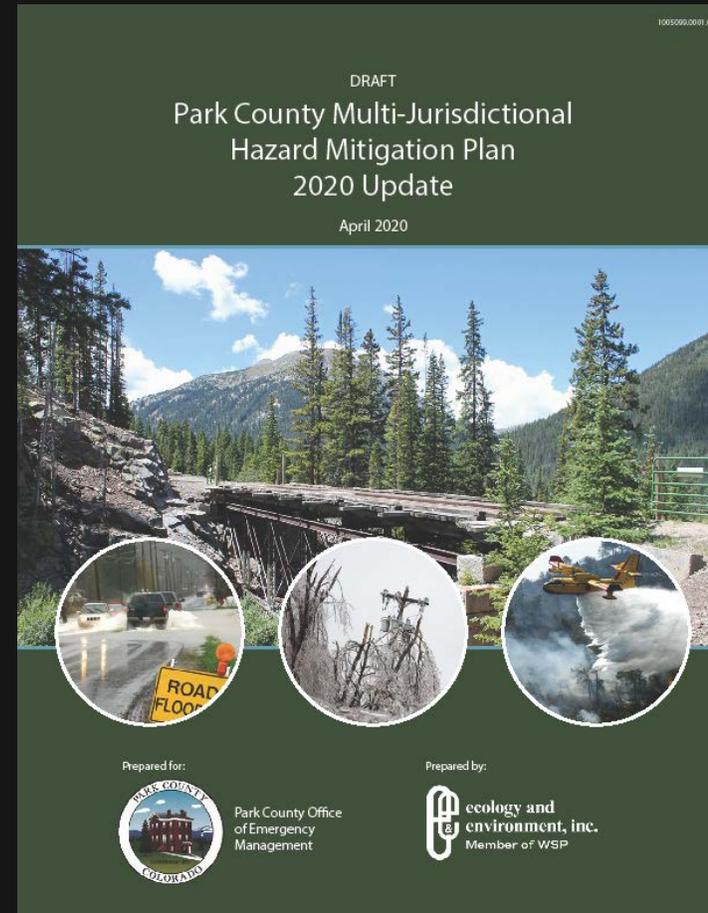
# Meeting Objectives

- Project Update
- Overview of the Draft HMP
- Discussion of Data Gaps and Comments
- Next Steps



# What Have We Been Up To?

- Plan Development
- Mitigation Strategy Development
- Process Documentation



# Overview of the Draft HMP

# Chapters

## Part 1: The Planning Process

- Introduction
- Planning Process

## Part 2: Risk Assessment

- Methodology
- Park County Profile
- Hazard Profiles

## Part 3: Mitigation Strategy

- Mitigation Strategy
- Implementation

# Appendices

- **Appendix A:** Acronyms and Definitions
- **Appendix B:** Planning Process and Public Outreach
- **Appendix C:** Example Progress Report
- **Appendix D:** Maps and Hazard Assessment Data
- **Appendix E:** Plan Adoption Resolutions from Planning Partners



# Key Changes

Key changes in the 2020 HMP update include:

- Reorganized **capabilities assessment** to meet DHSEM standards
- Revised **risk assessment** to discuss recent hazard events and changing conditions that have resulted in increased or decreased vulnerability
- Added **epidemic/pandemic** as a hazard
- Revised **plan goals and objectives** with emphasis on actionable mitigation strategies
- Expanded **mitigation strategy** to consider FEMA lifelines and State resiliency prioritization criteria
- Added **jurisdictional annexes** for Town of Fairplay and districts

# Data Gaps and Comments

# Key Data Gaps

Plan	Data Gaps
Basic Plan	<ul style="list-style-type: none"><li><input type="checkbox"/> Capability assessment – County financial resources</li><li><input type="checkbox"/> Capability assessment – FEMA funded hazard mitigation projects?</li><li><input type="checkbox"/> Capability assessment – other partners?</li><li><input type="checkbox"/> Mitigation strategy – actions addressing landslide and epidemic/pandemic</li><li><input type="checkbox"/> Mitigation strategy – 2015 action status updates</li><li><input type="checkbox"/> Mitigation strategy – Alma actions</li></ul>
Jurisdiction Annexes	<ul style="list-style-type: none"><li><input type="checkbox"/> Capability assessment – Financial resources</li><li><input type="checkbox"/> Fairplay – actions addressing severe weather and dam failure</li><li><input type="checkbox"/> Districts – actions addressing dam failure, earthquake, flooding (JCFPD)</li></ul>

# Draft HMP Review

- Features of the plan
- Data gaps
- Questions or comments?

*Boreas Pass*

*Photo credit: Gary Nichols (parkco.us)*



Next Steps

# Next Steps

- Additional data incorporation
- Draft comments and edits
- Public review of Revised Draft Plan
- Public meeting (webinar)
- Submittal to the State and FEMA

## What Can I Do?

- Review draft plan and submit comments and edits
- Review plan appendices
- Facilitate plan adoption

# Upcoming Milestones

Milestone	Date
Comments on Draft Plan Due	May 20
Revised Draft Plan Submittal, including appendices	May 29
Public Review Period	June 1 – June 15
Final Plan Submittal to DHSEM	By June 19
Final Plan Presentation	TBD (August)
Final Plan Submittal to FEMA	TBD (August)
Plan Adoption by all Jurisdictions	October

# Contact Information

## County Project Lead

Brad Golden

719-836-4231

[bgolden@parkco.us](mailto:bgolden@parkco.us)

## E & E Deputy Project Manager

Jessica Forbes-Guerrero

303-443-3282

[jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com)

# Any Questions?



---

**Park County 2020 Hazard Mitigation Plan Update  
HMC Workshop #3 – Draft Plan Review Workshop**

---

**Park County 2020 Hazard Mitigation Plan Update**

---

**DRAFT PLAN REVIEW WORKSHOP**

---

**DATE:** Wednesday, May 13, 2020  
**TIME:** 1:00 p.m. – 3:00 p.m.  
**LOCATION:** Webinar (Microsoft Teams)

**ATTENDEES:**

Gene Stanley – Director of Emergency Management Park County

Brad Golden - Park County Emergency Management

John Van Doren – Fire Adapted Bailey

Kristy Olme - NWFPD

Paul Mattson – South Park Ambulance District

Mark Thompson – DHSEM

Susan Bernstetter - Lake George Fire Protection District

Sheila cross – Park County Development Services

Mike McHargue – DHSEM/SCRFM

Denise Pauley – Park County Public Works

Cindy – GIS Park County

Jim Brown – Public Works Fairplay

Bo Schlunsen – Fairplay

Trent Smith – Jefferson Como Fire

John Kzhoa - Fire Adapted Bailey

**ATTACHMENTS:**

1. PowerPoint Presentation
2. Webinar Attendee Screenshot

**Summary:**

The Hazard Mitigation Planning Team (HMPT) hosted the third of four HMPT meetings on May 13<sup>th</sup>, 2020. This HMPT consisted of reviewing the draft updated HMP, identifying missing information, and filling in data gaps. Ecology and Environment, Inc. (E & E) facilitated stakeholders through the webinar workshop.

**Project Update:**

**Park County 2020 Hazard Mitigation Plan Update  
HMC Workshop #3 – Draft Plan Review Workshop**

Jessica Forbes-Guerrero with E & E introduced the purpose of this workshop, review updates made to the 2015 HMP, discuss data gaps for the 2020 HMP, and gather comments on the plan and missing information.

E & E provided a status update on the project. The project team has finished the draft version of the 2020 HMP. Also, E & E has been working on developing mitigation strategies for inclusion in the plan. The entire plan process is being documented as meetings and plan updates are occurring.

**Overview of the Draft HMP:**

E & E conducted a broad overview of the draft HMP. The plan was divided into three parts: Part 1: The Planning Process, Part 2: Risk Assessment, and Part 3: Mitigation Strategy. Key changes in the 2020 HMP update include:

- Reorganization of capabilities assessment to meet CO DHSEM standards
- Revised risk assessment to discuss recent hazard events and changing conditions that have resulted in increased or decreased vulnerability
- Added epidemic/pandemic as a hazard
- Revised plan goals and objectives with emphasis on actionable mitigation strategies
- Expanded mitigation strategy to consider FEMA Lifelines and State Resiliency Prioritization criteria
- Added jurisdictional annexes for Town of Fairplay and all special districts

**Data Gaps and Comments:**

While completing the draft plan, E & E identified data gaps that need to be addressed for the final version of the plan.

Plan	Data Gaps
Basic Plan	<ul style="list-style-type: none"> <li><input type="checkbox"/> Capability assessment – County financial resources</li> <li><input type="checkbox"/> Capability assessment – FEMA funded hazard mitigation projects?</li> <li><input type="checkbox"/> Capability assessment – other partners?</li> <li><input type="checkbox"/> Mitigation strategy – actions addressing landslide and epidemic/pandemic</li> <li><input type="checkbox"/> Mitigation strategy – 2015 action status updates</li> <li><input type="checkbox"/> Mitigation strategy – Alma actions</li> </ul>
Jurisdiction Annexes	<ul style="list-style-type: none"> <li><input type="checkbox"/> Capability assessment – Financial resources</li> <li><input type="checkbox"/> Fairplay – actions addressing severe weather and dam failure</li> <li><input type="checkbox"/> Districts – actions addressing dam failure, earthquake, flooding (JCFPD)</li> </ul>

---

## Park County 2020 Hazard Mitigation Plan Update HMC Workshop #3 – Draft Plan Review Workshop

During the review of the plan, HMC members were able to comment on the data gaps and the plan as a whole. Comments included:

- Capability Assessment Partners: Include Central Mountain Small Business Development Corporation, Upper Arkansas Area Council of Government, Pikes Peak Area Council of Government, Health One South Park Health Care, Colorado Natural Gas, Colorado Springs Utilities, Colorado Parks and Wildlife, City Of Aurora Public Works, Homeowners Association Water Districts, Bailey Water and Sanitation, the Town of Fairplay, the Town of Alma, Summit Stage, Denver Water (Elevenmile Canyon Road), HOAs, Fire Adapted Bailey, Senior Alliance of Platte Canyon, Coalition For The Upper South Platte, and South Park Seniors.
- Addressing two different mitigation action types for epidemics/pandemics: containing an outbreak that starts in Park County and preventing an epidemic/pandemic from getting into the county. The County is currently reviewing two mitigation actions for epidemics/pandemics for inclusion in the final plan.
- Identifying the need for a landslide hazard mitigation action. The County is reviewing a landslide mitigation action for inclusion in the final plan.
- Because the Town of Alma did not participate in this update, their mitigation action items were revisited as countywide action items.
- During review of the Fairplay jurisdiction annex, it was determined that the dam failure hazard rankings were too high and needed to be changed. Also, county action item WW-4 will be included in the Fairplay mitigation action items.
- During review of the Special Districts jurisdiction annex, it was decided that the annex should include a short flood and wildfire profile.

### Next Steps and Key Action Items

- ✓ Gather missing data identified during the draft plan review.
- ✓ Review the draft plan and appendices and provide comments and edits. Comments are due May 20<sup>th</sup>. Revised draft plan submittal will be May 29<sup>th</sup>.
- ✓ Plan for the most effective and efficient way to conduct a public review period of the Revised Draft Plan. Public review period will be June 1<sup>st</sup> – June 15<sup>th</sup>.
- ✓ Consider public meeting webinar options and dates.
- ✓ Submittal of the final plan to the State (July 19<sup>th</sup>) and FEMA.

### CONTACT INFORMATION:

Brad Golden, Deputy Director of  
Emergency Management  
Park County, Colorado  
(o) 719-836-4231  
[bgolden@parkco.us](mailto:bgolden@parkco.us)

Jessica Forbes-Guerrero, E & E Project Manager  
(o) 303-443-3282  
[jforbes-guerrero@ene.com](mailto:jforbes-guerrero@ene.com)



Activity



Chat



Teams



Calendar



Calls



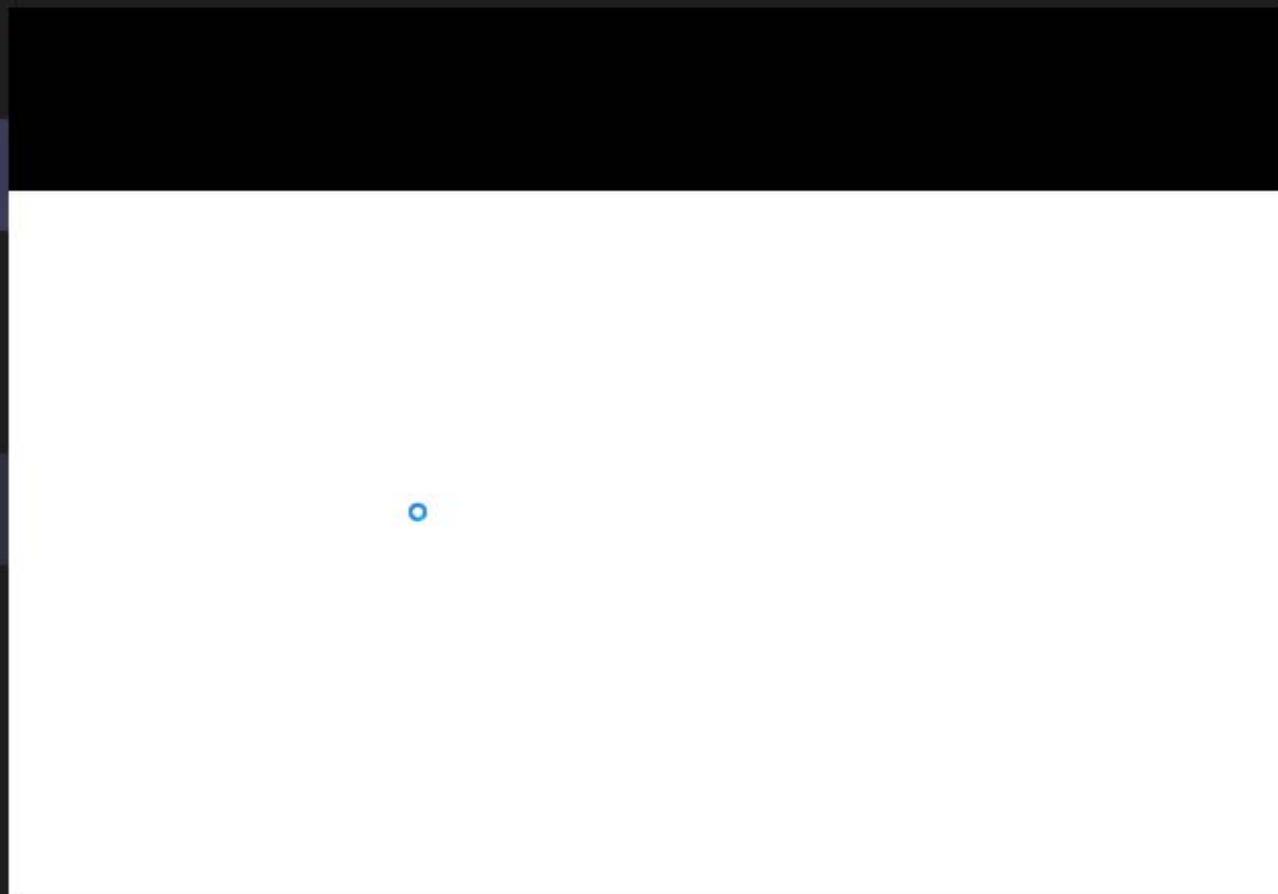
Files



Apps



Help



### People



Invite someone



Currently in this meeting (9) Mute all

-  Fisher, Samantha 
-  B-Rad  
Guest 
-  Forbes-Guerrero, Jessica  
Organizer 
-  John Van Doren  
Outside your organization 
-  Kristy Olme NWFPD  
Guest 
-  Mark Thompson  
Guest 
-  Mike McHargue - DHSEM\S...  
Guest 
-  Paul Mattson  
Guest 
-  Sheila  
Guest 



- Activity
- Chat
- Teams
- Calendar
- Calls
- Files
- ...
- Apps
- Help



### People

- Invite someone
- SF Fisher, Samantha
- B B-Rad Guest
- DP Denise Pauley Guest
- JF Forbes-Guerrero, Jessica Organizer
- JD John Van Doren Outside your organization
- KN Kristy Olme NWFPD Guest
- MT Mark Thompson Guest
- MM Mike McHargue - DHSEM\S... Guest
- PM Paul Mattson Guest
- S Sheila Guest
- TS Trent Smith Guest

- Activity
- Chat
- Teams
- Calendar
- Calls
- Files

# Park County 2020 Hazard Mitigation Plan Update

## Workshop #3 – Draft Plan Review

Wednesday, May 13 | 1 p.m. – 3 p.m. | Webinar



27:02 [Mute] [Unmute] [Share] [More] [Chat] [Participants] [Request control] [End call]

Forbes-Guerrero, Jessica

+8 PM B JF JD

Forbes-Guerrero, Jes... John Van Doren

### People

Invite someone

- B Rad Guest
- C Cindy - GIS Park County Guest
- DP Denise Pauley Guest
- JF Forbes-Guerrero, Jessica Organizer
- JD John Van Doren Outside your organization
- KN Kristy Olme NWFPD Guest
- MT Mark Thompson Guest
- MM Mike McHargue - DHSEM\S... Guest
- PM Paul Mattson Guest
- S Sheila Guest
- SB Susan Benrstetter Guest
- TS Trent Smith

- Apps
- Help

---

**Park County 2020 Hazard Mitigation Plan Update  
Meeting Summary**

---

**Park County 2020 Hazard Mitigation Plan Update  
Meeting Summary**

---

**DATE:** Tuesday, June 16, 2020  
**TIME:** 9:30 a.m. – 10:00 a.m.  
**LOCATION:** Webinar (Microsoft Teams)

**ATTENDEES:**

Joe Burgett – Platte Canyon Fire Protection District

Jessica Forbes-Guerrero – E & E

**Summary:**

Jessica met with Joe Burgett to get feedback and comments on the Special Hazards District Annex and mitigation actions from the Platte Canyon FPD. During the meeting, Jessica reviewed portions of the annex specific to the FPD, including the risk assessment, capabilities assessment, and mitigation actions. Jessica made the changes suggested by Joe directly in the annex, including adjusting several of the proposed mitigation actions for the district to better reflect the district's goals, timeframes, and available funding sources. The district's exposure to dam failure hazards was also corrected; none of the district's stations are located downstream of dams identified in the county.

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX B4.**  
**Public Outreach**

---

## Emergency Management

---

Posted on: March 9, 2020

### Multi-Jurisdictional Hazard Mitigation Plan (HMP)

The HMP will assess hazard risks in the County and outline strategies and actions to mitigate, or reduce, the risks these hazards pose to our communities. We welcome your input in the planning process! Please take a few minutes to fill out our web survey and tell us how hazards affect you: [HMP Survey](#)



#### Tools

[RSS](#)

[Notify Me](#)

[View Archived](#)

---

#### Categories

- [All Categories](#)
- [Public Health](#)
- [Clerk & Recorder Notices](#)
- [Emergency Management](#)
- [Home](#)
- [Coroner](#)
- [Public Works](#)

## Q1 In what town or community do you live?

Answered: 140 Skipped: 1

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

#	RESPONSES	DATE
1	Hartsel	3/22/2020 9:31 PM
2	Como	3/19/2020 8:31 PM
3	Bailey	3/19/2020 7:56 PM
4	Jefferson	3/19/2020 1:27 PM
5	Redhill	3/19/2020 1:23 PM
6	Bailey	3/19/2020 11:50 AM
7	Hartsel	3/18/2020 5:17 PM
8	Bailey	3/14/2020 1:29 PM
9	Bailey	3/14/2020 12:54 PM
10	Bailey	3/14/2020 11:52 AM
11	Deer Creek Ranchos	3/14/2020 9:55 AM
12	Bailey	3/14/2020 7:07 AM
13	Bailey	3/13/2020 8:20 AM
14	Bailey	3/12/2020 4:54 PM
15	Burland Ranchettes, Bailey, CO	3/12/2020 1:37 PM
16	Grant	3/11/2020 11:51 PM
17	Bailey	3/11/2020 8:52 PM
18	Bailey, CO Burland Ranchettes	3/11/2020 7:01 PM
19	Bailey	3/11/2020 1:36 PM
20	Bailey	3/11/2020 1:35 PM
21	BAILEY COLO.	3/11/2020 12:44 PM
22	Bailey	3/11/2020 11:52 AM
23	Bailey	3/11/2020 11:24 AM
24	KZ Bailey	3/11/2020 11:00 AM
25	fairplay	3/11/2020 10:53 AM
26	lost park ranch	3/11/2020 9:27 AM
27	BAILEY	3/11/2020 5:46 AM
28	Ranch of the Rockies	3/10/2020 9:05 PM
29	Bailey	3/10/2020 7:55 PM
30	Bailey	3/10/2020 7:41 PM
31	Bailet	3/10/2020 5:06 PM
32	Elk Creek Highlands	3/10/2020 4:45 PM
33	Bailey	3/10/2020 3:52 PM
34	Bailey (Elk Creek Meadows)	3/10/2020 3:18 PM
35	Bailey	3/10/2020 2:47 PM
36	Fairplay	3/10/2020 2:22 PM
37	BAILEY	3/10/2020 1:40 PM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

38	11 mile estates	3/10/2020 12:28 PM
39	Bailey	3/10/2020 12:16 PM
40	Pine Junction Wood Side	3/10/2020 12:08 PM
41	Alma	3/10/2020 11:27 AM
42	bailey	3/10/2020 11:18 AM
43	Bailey	3/10/2020 10:38 AM
44	Guffey	3/10/2020 10:27 AM
45	Bailey	3/10/2020 9:58 AM
46	BAILEY	3/10/2020 9:50 AM
47	Guffey	3/10/2020 8:50 AM
48	Stagestop	3/10/2020 8:42 AM
49	Bailey	3/10/2020 8:29 AM
50	Ranch of the Rockies	3/10/2020 8:19 AM
51	Lake George	3/10/2020 6:30 AM
52	Bailey	3/10/2020 5:38 AM
53	Bailey Co	3/9/2020 8:48 PM
54	Como, CO	3/9/2020 8:22 PM
55	Bailey	3/9/2020 8:21 PM
56	Hartsel (RORA)	3/9/2020 7:29 PM
57	Hartsel	3/9/2020 7:27 PM
58	Friendship Ranch, Bailey	3/9/2020 6:11 PM
59	Bailey	3/9/2020 5:19 PM
60	Bailey	3/9/2020 4:10 PM
61	Bailey	3/9/2020 3:51 PM
62	Bailey	3/9/2020 3:44 PM
63	Bailey	3/9/2020 3:31 PM
64	Lake George	3/9/2020 3:27 PM
65	saddle mountain	3/9/2020 3:22 PM
66	Pine, Woodside	3/9/2020 3:20 PM
67	Lake George	3/9/2020 3:03 PM
68	Guffey	3/9/2020 3:01 PM
69	Ranch of the Rockies	3/9/2020 2:51 PM
70	Indian Mountain	3/9/2020 2:43 PM
71	BAILEY	3/9/2020 2:40 PM
72	Pine Junction	3/9/2020 2:27 PM
73	Bailey	3/9/2020 2:24 PM
74	Bailey	3/9/2020 2:18 PM
75	Bailey	3/9/2020 2:14 PM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

76	Lake George	3/9/2020 1:56 PM
77	Hartsel	3/9/2020 1:56 PM
78	Pine	3/9/2020 1:51 PM
79	Bailey	3/9/2020 1:49 PM
80	Bailey	3/9/2020 1:47 PM
81	Fairplay	3/9/2020 1:43 PM
82	Bailey	3/9/2020 1:29 PM
83	Bailey	3/9/2020 1:24 PM
84	FairPlay	3/9/2020 1:22 PM
85	bailey	3/9/2020 1:20 PM
86	Bailey	3/9/2020 1:04 PM
87	Bailey	3/9/2020 1:02 PM
88	Jefferson	3/9/2020 1:00 PM
89	Indian Mountain	3/9/2020 12:55 PM
90	Lake George	3/9/2020 12:49 PM
91	Bailey	3/9/2020 12:45 PM
92	bailey	3/9/2020 12:42 PM
93	Bailey	3/9/2020 12:40 PM
94	grant	3/9/2020 12:35 PM
95	Denver	3/9/2020 12:33 PM
96	Bailey	3/9/2020 12:30 PM
97	Indian Mountain, Como	3/9/2020 12:23 PM
98	Hartsel.....Ranch of the Rockies	3/9/2020 12:21 PM
99	Lake George	3/9/2020 12:20 PM
100	Bailey	3/9/2020 12:08 PM
101	Bailey	3/9/2020 12:07 PM
102	Pine	3/9/2020 12:07 PM
103	Bailey	3/9/2020 12:01 PM
104	Town of Fairplay - Fairplay Police Department	3/9/2020 11:56 AM
105	Bailey	3/9/2020 11:53 AM
106	Bailey	3/9/2020 11:47 AM
107	wandcrest park, pine	3/9/2020 11:38 AM
108	Fairplay	3/9/2020 11:37 AM
109	Fairplay	3/9/2020 11:37 AM
110	Arvada / Jefferson	3/9/2020 11:34 AM
111	ALMA	3/9/2020 11:22 AM
112	Bailey	3/9/2020 11:18 AM
113	Fairplay	3/9/2020 11:17 AM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

114	Fairplay /Alma	3/9/2020 11:14 AM
115	lake george area	3/9/2020 11:12 AM
116	Bailey	3/9/2020 11:11 AM
117	Harris Park	3/9/2020 11:07 AM
118	Jefferson	3/9/2020 11:06 AM
119	Bailey	3/9/2020 11:06 AM
120	Fairplay	3/9/2020 11:00 AM
121	Rural	3/9/2020 10:58 AM
122	hartsel	3/9/2020 10:56 AM
123	Near Alma	3/9/2020 10:56 AM
124	BAILEY	3/9/2020 10:55 AM
125	Pine Junction	3/9/2020 10:53 AM
126	Indian Mountain, Jefferson, CO	3/9/2020 10:52 AM
127	Fairplay	3/9/2020 10:51 AM
128	Bailey	3/9/2020 10:51 AM
129	Fairplay	3/9/2020 10:50 AM
130	foxtail pines	3/9/2020 10:50 AM
131	LOST PARK RANCHES	3/9/2020 10:50 AM
132	Four Mile Fishing Club, Fairplay	3/9/2020 10:49 AM
133	Lost Park Ranch	3/9/2020 10:49 AM
134	Fairplay	3/9/2020 10:49 AM
135	Hartsel	3/9/2020 10:48 AM
136	Indian Mountain	3/9/2020 10:47 AM
137	Indian mountain	3/9/2020 10:47 AM
138	Lake George	3/9/2020 10:46 AM
139	Bailey	3/9/2020 10:45 AM
140	Hartsel	3/9/2020 10:45 AM

## Q2 In what zip code do you live?

Answered: 139 Skipped: 2

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

#	RESPONSES	DATE
1	80449	3/22/2020 9:31 PM
2	80432	3/19/2020 8:31 PM
3	80421	3/19/2020 7:56 PM
4	80456	3/19/2020 1:27 PM
5	Redhill	3/19/2020 1:23 PM
6	80421	3/19/2020 11:50 AM
7	80449	3/18/2020 5:17 PM
8	80440	3/16/2020 9:40 AM
9	80421	3/14/2020 1:29 PM
10	80421	3/14/2020 12:54 PM
11	80421	3/14/2020 11:52 AM
12	80421	3/14/2020 9:55 AM
13	80421	3/14/2020 7:07 AM
14	80421	3/13/2020 8:20 AM
15	80421	3/12/2020 4:54 PM
16	80421	3/12/2020 1:37 PM
17	80448	3/11/2020 11:51 PM
18	80421	3/11/2020 8:52 PM
19	80421	3/11/2020 7:01 PM
20	80421	3/11/2020 1:36 PM
21	80421	3/11/2020 1:35 PM
22	80421	3/11/2020 12:44 PM
23	80421	3/11/2020 11:52 AM
24	80421	3/11/2020 11:24 AM
25	80421	3/11/2020 11:00 AM
26	80440	3/11/2020 10:53 AM
27	80456	3/11/2020 9:27 AM
28	80421	3/11/2020 5:46 AM
29	80449	3/10/2020 9:05 PM
30	80421	3/10/2020 7:55 PM
31	80421	3/10/2020 5:06 PM
32	80421	3/10/2020 3:52 PM
33	80421	3/10/2020 3:18 PM
34	80421	3/10/2020 2:47 PM
35	80440	3/10/2020 2:22 PM
36	80421	3/10/2020 1:40 PM
37	80827	3/10/2020 12:28 PM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

38	80421	3/10/2020 12:16 PM
39	80470	3/10/2020 12:08 PM
40	80420	3/10/2020 11:27 AM
41	80421	3/10/2020 11:18 AM
42	80421	3/10/2020 10:38 AM
43	80820	3/10/2020 10:27 AM
44	80421	3/10/2020 9:58 AM
45	80421-1022	3/10/2020 9:50 AM
46	80820	3/10/2020 8:50 AM
47	80456	3/10/2020 8:42 AM
48	80421	3/10/2020 8:29 AM
49	80449	3/10/2020 8:19 AM
50	80827	3/10/2020 6:30 AM
51	80421	3/10/2020 5:38 AM
52	80421	3/9/2020 8:48 PM
53	80432	3/9/2020 8:22 PM
54	80421	3/9/2020 8:21 PM
55	80449	3/9/2020 7:29 PM
56	80449	3/9/2020 7:27 PM
57	80421	3/9/2020 6:11 PM
58	80421	3/9/2020 5:19 PM
59	80421	3/9/2020 4:10 PM
60	80421	3/9/2020 3:51 PM
61	80421-1009	3/9/2020 3:44 PM
62	80421	3/9/2020 3:31 PM
63	80816	3/9/2020 3:27 PM
64	80816	3/9/2020 3:22 PM
65	80470-9676	3/9/2020 3:20 PM
66	80827	3/9/2020 3:03 PM
67	80820	3/9/2020 3:01 PM
68	80449	3/9/2020 2:51 PM
69	80432	3/9/2020 2:43 PM
70	80421	3/9/2020 2:40 PM
71	80470	3/9/2020 2:27 PM
72	80421	3/9/2020 2:24 PM
73	80421	3/9/2020 2:18 PM
74	80421	3/9/2020 2:14 PM
75	80827	3/9/2020 1:56 PM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

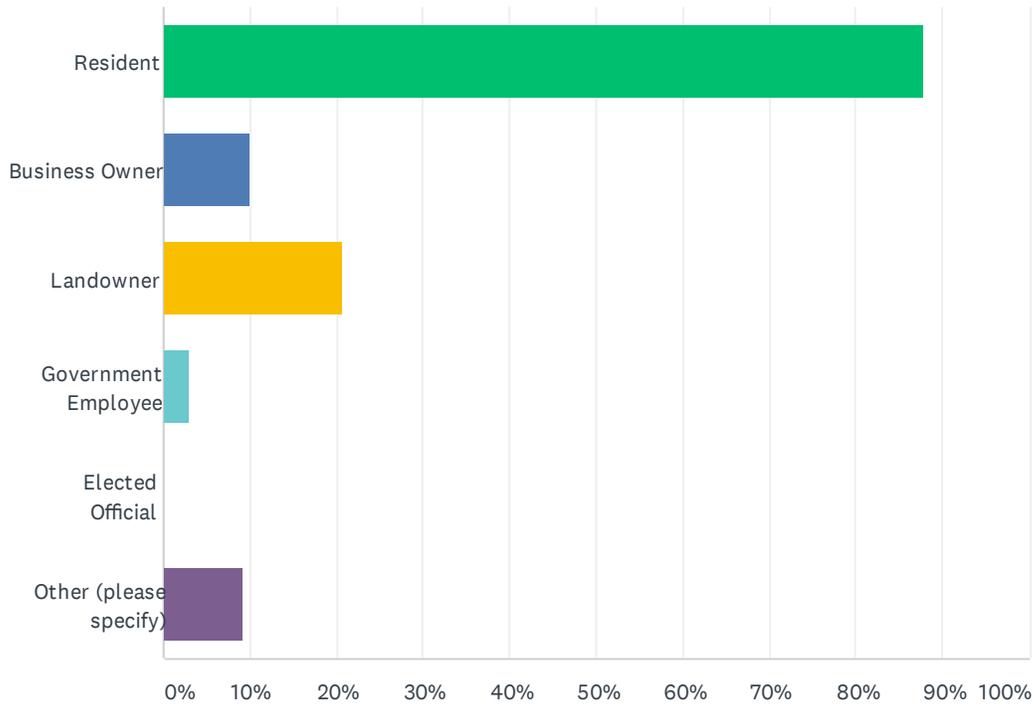
76	80449	3/9/2020 1:56 PM
77	80470	3/9/2020 1:51 PM
78	80421	3/9/2020 1:49 PM
79	80421	3/9/2020 1:47 PM
80	80440	3/9/2020 1:43 PM
81	80421	3/9/2020 1:29 PM
82	80421	3/9/2020 1:24 PM
83	80440	3/9/2020 1:22 PM
84	80421	3/9/2020 1:20 PM
85	80421	3/9/2020 1:04 PM
86	80421	3/9/2020 1:02 PM
87	80456	3/9/2020 1:00 PM
88	80456	3/9/2020 12:55 PM
89	80827	3/9/2020 12:49 PM
90	80421	3/9/2020 12:45 PM
91	80421	3/9/2020 12:42 PM
92	80421	3/9/2020 12:40 PM
93	80448	3/9/2020 12:35 PM
94	80219	3/9/2020 12:33 PM
95	80421	3/9/2020 12:30 PM
96	80432	3/9/2020 12:23 PM
97	80449	3/9/2020 12:21 PM
98	80827	3/9/2020 12:20 PM
99	80421	3/9/2020 12:08 PM
100	80470	3/9/2020 12:07 PM
101	80470	3/9/2020 12:07 PM
102	80421	3/9/2020 12:01 PM
103	80440	3/9/2020 11:56 AM
104	80421	3/9/2020 11:53 AM
105	80421	3/9/2020 11:47 AM
106	80470	3/9/2020 11:38 AM
107	80440	3/9/2020 11:37 AM
108	80440	3/9/2020 11:37 AM
109	80456 / 80003	3/9/2020 11:34 AM
110	80420	3/9/2020 11:22 AM
111	80421	3/9/2020 11:18 AM
112	80440	3/9/2020 11:17 AM
113	80420	3/9/2020 11:14 AM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

114	80816	3/9/2020 11:12 AM
115	80421	3/9/2020 11:11 AM
116	80421	3/9/2020 11:07 AM
117	80456	3/9/2020 11:06 AM
118	80421	3/9/2020 11:06 AM
119	80440	3/9/2020 11:00 AM
120	80816	3/9/2020 10:58 AM
121	80449	3/9/2020 10:56 AM
122	80420	3/9/2020 10:56 AM
123	80421	3/9/2020 10:55 AM
124	80470	3/9/2020 10:53 AM
125	80456	3/9/2020 10:52 AM
126	80440	3/9/2020 10:51 AM
127	80421	3/9/2020 10:51 AM
128	80440	3/9/2020 10:50 AM
129	80440	3/9/2020 10:50 AM
130	80456	3/9/2020 10:50 AM
131	89440	3/9/2020 10:49 AM
132	80456	3/9/2020 10:49 AM
133	80440	3/9/2020 10:49 AM
134	80449	3/9/2020 10:48 AM
135	80432	3/9/2020 10:47 AM
136	80432	3/9/2020 10:47 AM
137	80827	3/9/2020 10:46 AM
138	80421	3/9/2020 10:45 AM
139	80449	3/9/2020 10:45 AM

### Q3 Which of the following best defines your role in the community?

Answered: 140 Skipped: 1



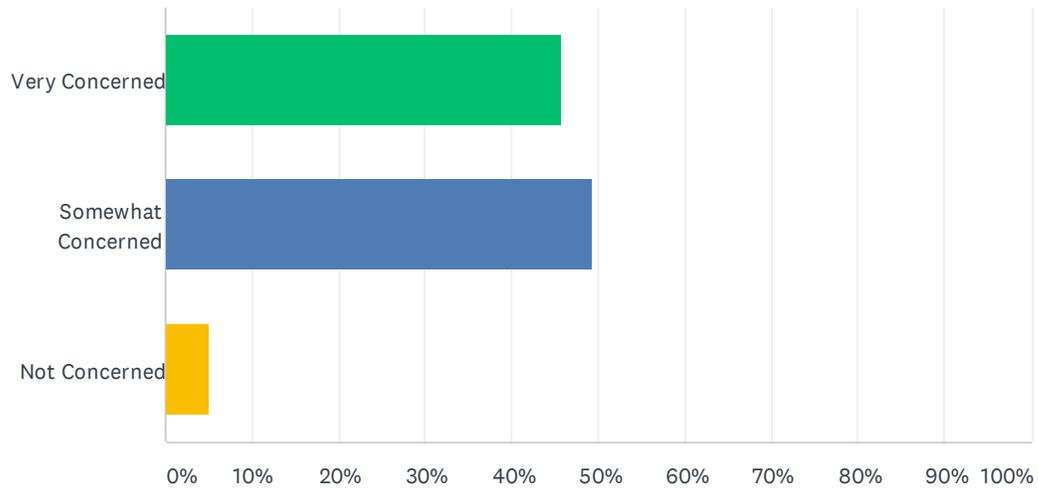
ANSWER CHOICES	RESPONSES	
Resident	87.86%	123
Business Owner	10.00%	14
Landowner	20.71%	29
Government Employee	2.86%	4
Elected Official	0.00%	0
Other (please specify)	9.29%	13
Total Respondents: 140		

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

#	OTHER (PLEASE SPECIFY)	DATE
1	Part time resident	3/19/2020 1:23 PM
2	Former Business Owner, retired	3/12/2020 1:37 PM
3	Part-time resident	3/11/2020 11:51 PM
4	property owner	3/9/2020 3:22 PM
5	Burland Ranchettes HOA Director, Seniors Alliance of Platte County Director	3/9/2020 2:14 PM
6	Part time resident	3/9/2020 12:55 PM
7	Retired	3/9/2020 12:40 PM
8	Hartsel land owner	3/9/2020 12:33 PM
9	Resident, homeowner, and active community member	3/9/2020 11:37 AM
10	agriculture	3/9/2020 10:56 AM
11	vacation home	3/9/2020 10:50 AM
12	Part-time resident, cabin/land owner	3/9/2020 10:49 AM
13	Lot owner at CORA	3/9/2020 10:48 AM

## Q4 How concerned are you about the impacts of natural disasters in your community?

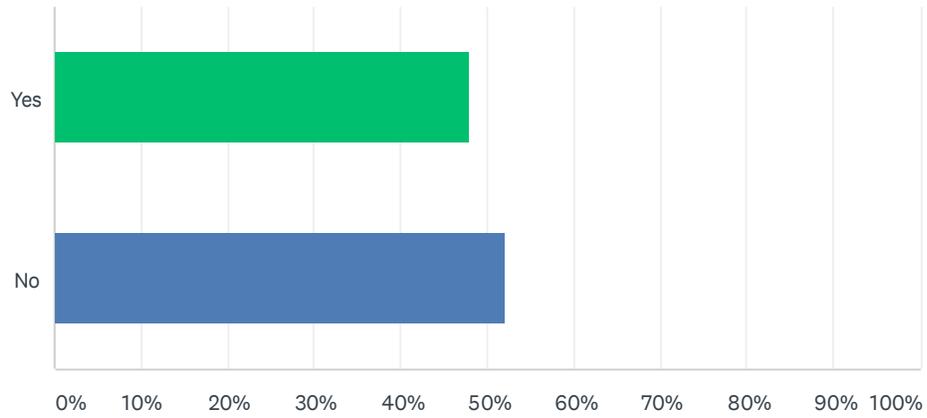
Answered: 140 Skipped: 1



ANSWER CHOICES	RESPONSES	
Very Concerned	45.71%	64
Somewhat Concerned	49.29%	69
Not Concerned	5.00%	7
TOTAL		140

### Q5 Have you been impacted by a natural disaster in your community?

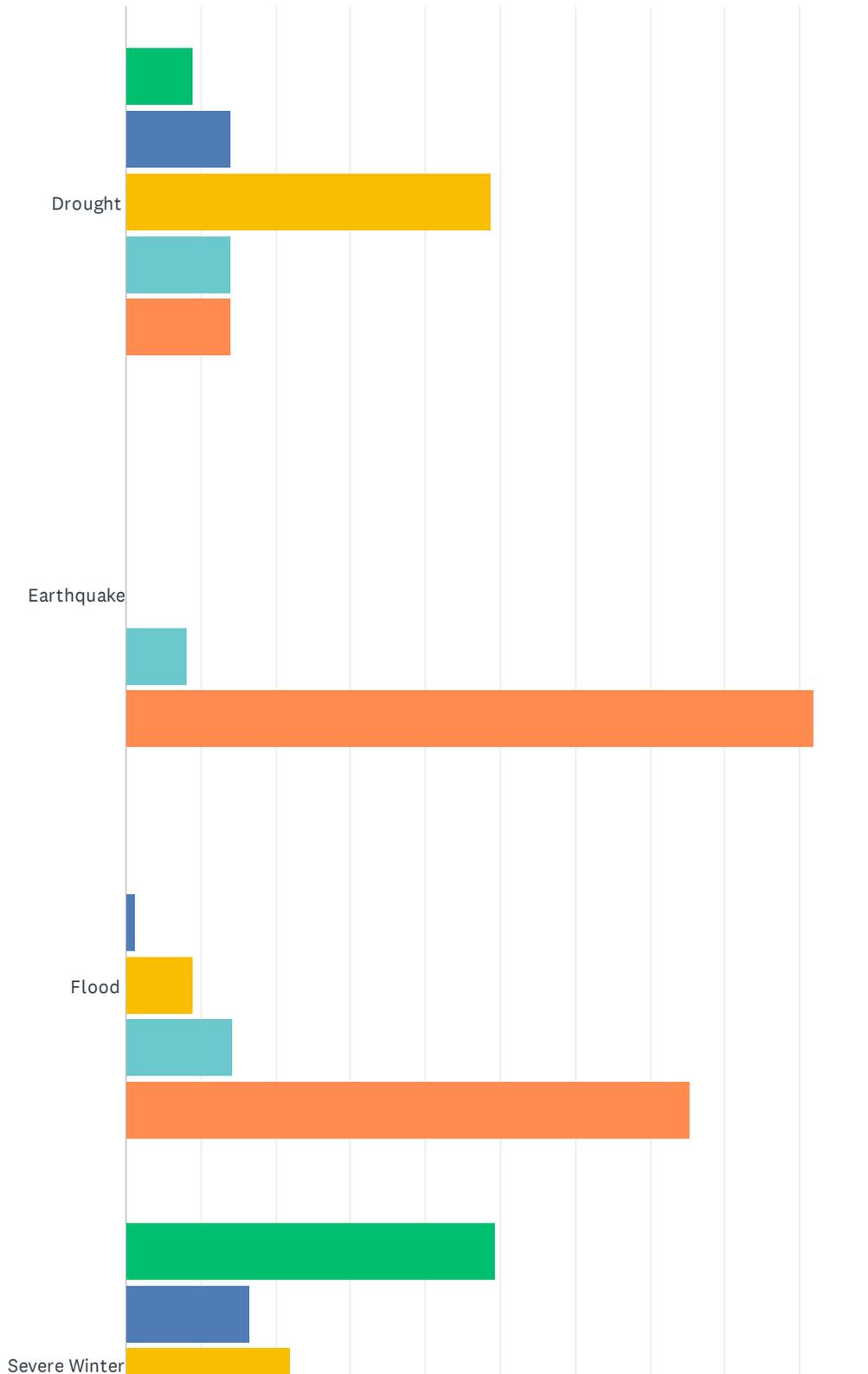
Answered: 140 Skipped: 1



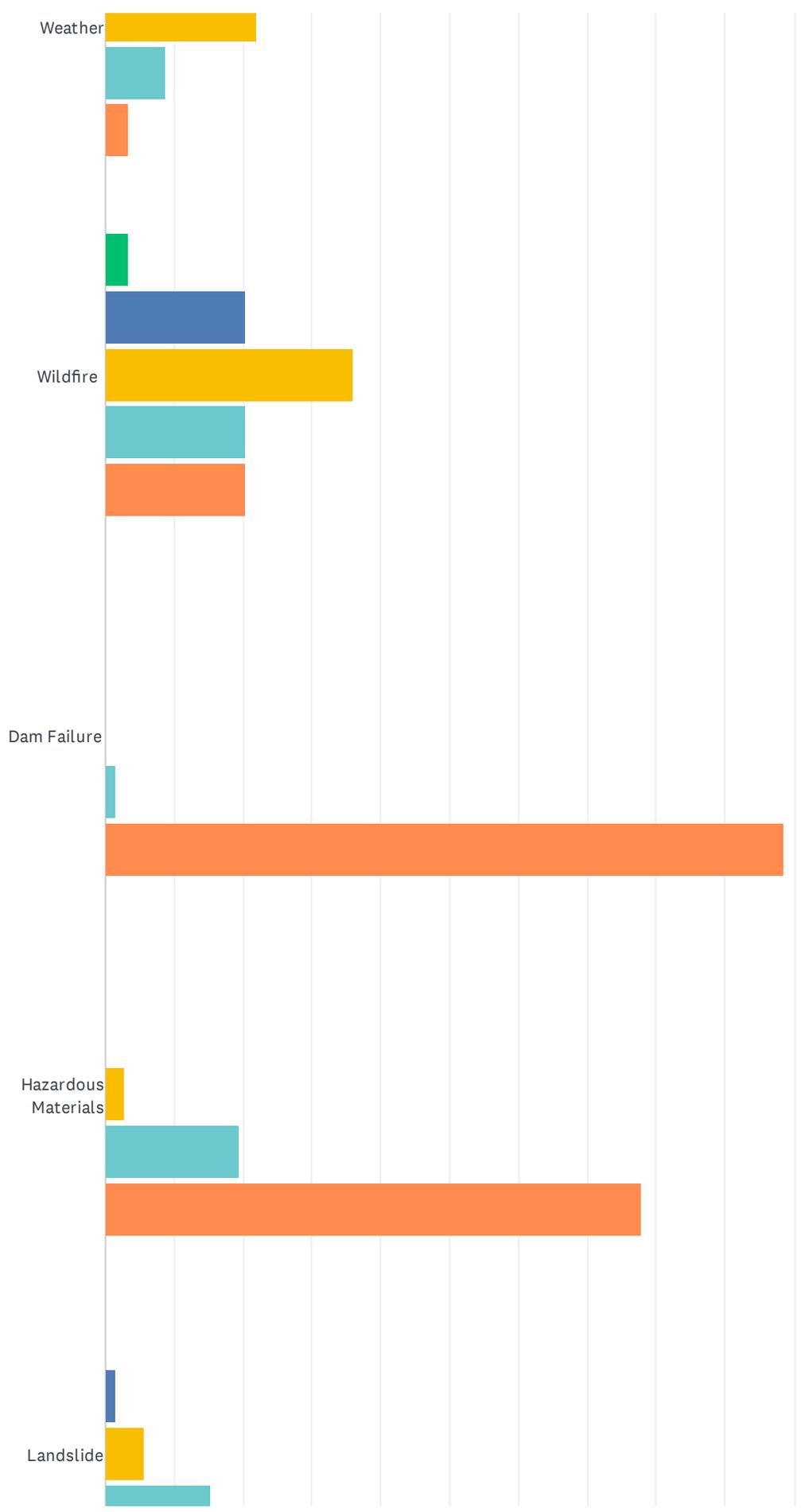
ANSWER CHOICES	RESPONSES	
Yes	47.86%	67
No	52.14%	73
TOTAL		140

### Q6 If you answered 'yes' to the previous question, please indicate the type(s) of disasters and the frequency with which you have experienced them in your community.

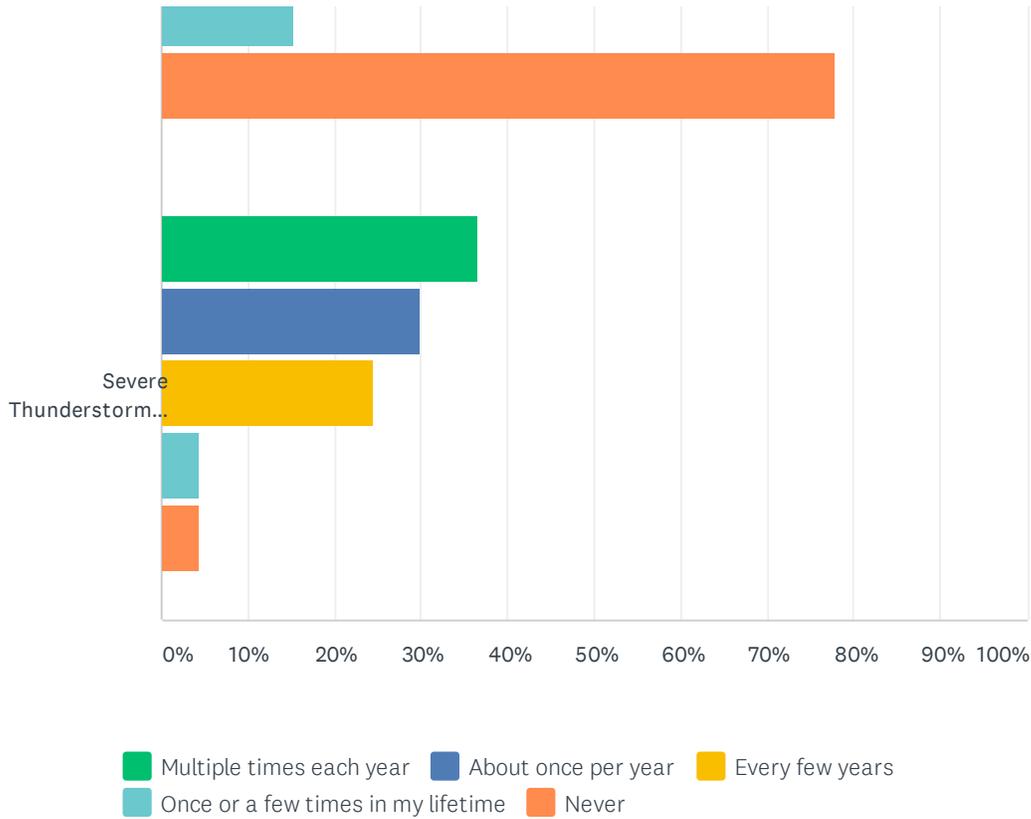
Answered: 99 Skipped: 42



# Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey



## Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey



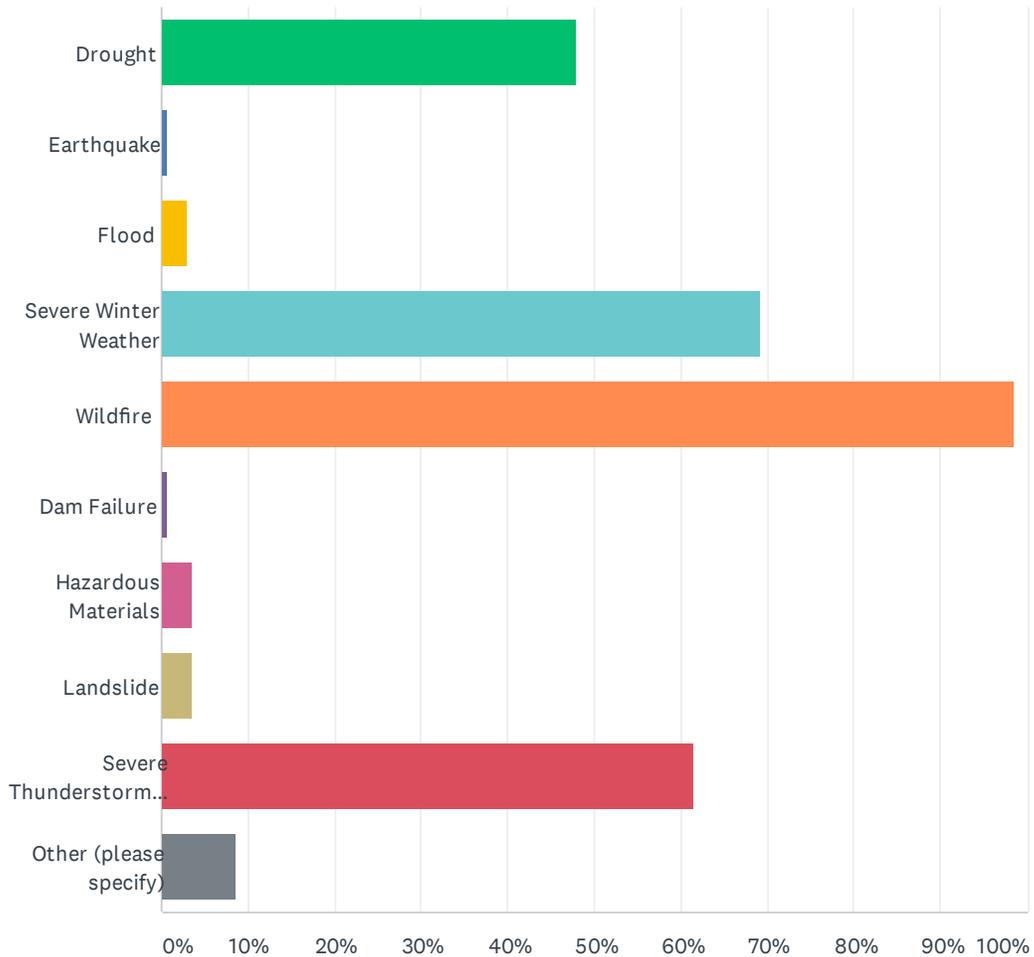
	MULTIPLE TIMES EACH YEAR	ABOUT ONCE PER YEAR	EVERY FEW YEARS	ONCE OR A FEW TIMES IN MY LIFETIME	NEVER	TOTAL
Drought	8.97% 7	14.10% 11	48.72% 38	14.10% 11	14.10% 11	78
Earthquake	0.00% 0	0.00% 0	0.00% 0	8.22% 6	91.78% 67	73
Flood	0.00% 0	1.30% 1	9.09% 7	14.29% 11	75.32% 58	77
Severe Winter Weather	49.45% 45	16.48% 15	21.98% 20	8.79% 8	3.30% 3	91
Wildfire	3.37% 3	20.22% 18	35.96% 32	20.22% 18	20.22% 18	89
Dam Failure	0.00% 0	0.00% 0	0.00% 0	1.37% 1	98.63% 72	73
Hazardous Materials	0.00% 0	0.00% 0	2.78% 2	19.44% 14	77.78% 56	72
Landslide	0.00% 0	1.39% 1	5.56% 4	15.28% 11	77.78% 56	72
Severe Thunderstorm, Hail, and Wind	36.67% 33	30.00% 27	24.44% 22	4.44% 4	4.44% 4	90

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

#	OTHER (PLEASE SPECIFY)	DATE
1	I consider wind and snow events as normal life in Park County.	3/18/2020 5:17 PM
2	wind events	3/16/2020 9:40 AM
3	Coronavirus	3/10/2020 7:41 PM
4	Not impacted because it is natural and you just deal with it naturally	3/10/2020 8:19 AM
5	Snow drifting	3/9/2020 8:22 PM
6	Samonella in the city's (Alamosa's) water supply in 2008	3/9/2020 3:44 PM
7	Road maintenance allowing for evacuation if needed.	3/9/2020 2:14 PM
8	Coronaviras	3/9/2020 11:17 AM
9	Snowstorms that close my road for several days	3/9/2020 10:49 AM

**Q7 Please select the top THREE (3) hazards you think are the GREATEST THREAT to your community, considering both frequency of occurrence and potential for severe damage.**

Answered: 140 Skipped: 1



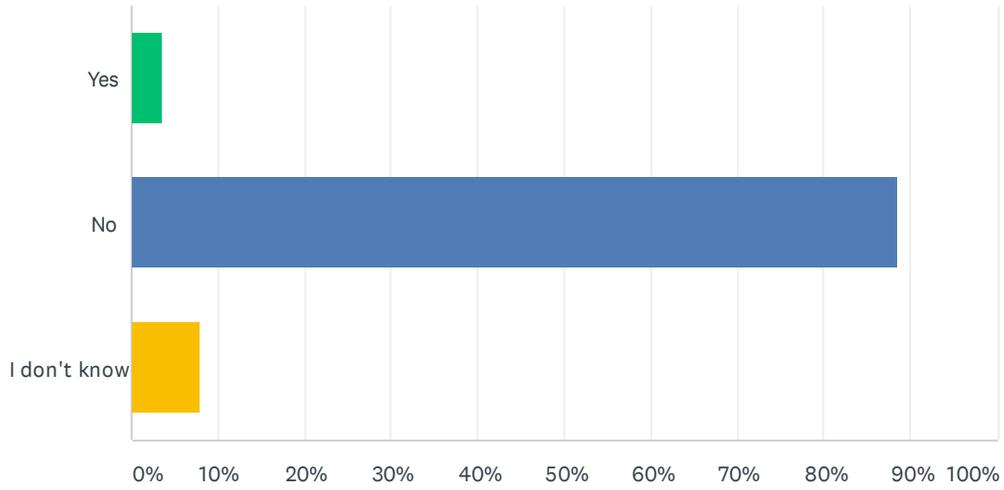
Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

ANSWER CHOICES	RESPONSES	
Drought	47.86%	67
Earthquake	0.71%	1
Flood	2.86%	4
Severe Winter Weather	69.29%	97
Wildfire	98.57%	138
Dam Failure	0.71%	1
Hazardous Materials	3.57%	5
Landslide	3.57%	5
Severe Thunderstorm, Hail, and Wind	61.43%	86
Other (please specify)	8.57%	12
Total Respondents: 140		

#	OTHER (PLEASE SPECIFY)	DATE
1	Wind	3/14/2020 1:29 PM
2	Excessive wind	3/14/2020 12:54 PM
3	Coronavirus	3/10/2020 7:41 PM
4	The unaware driver dragging trailer safety chains throwing sparks that'll start the forest fire... to me that's more likely than a camp fire left to burn or lightning or any other potential source of ignition.	3/10/2020 12:28 PM
5	Just because others make such a big deal out of them	3/10/2020 8:19 AM
6	insect damage	3/9/2020 3:22 PM
7	Property owners not mitigating the dense forests and clearing properties of gasoline and other hazards for fire.	3/9/2020 2:14 PM
8	over population	3/9/2020 12:42 PM
9	This is for Hartsel, not Denver	3/9/2020 12:33 PM
10	Crime	3/9/2020 12:30 PM
11	RADON	3/9/2020 12:23 PM
12	Coronaviras	3/9/2020 11:17 AM

## Q8 Is your home or business located in a designated floodplain or flood zone?

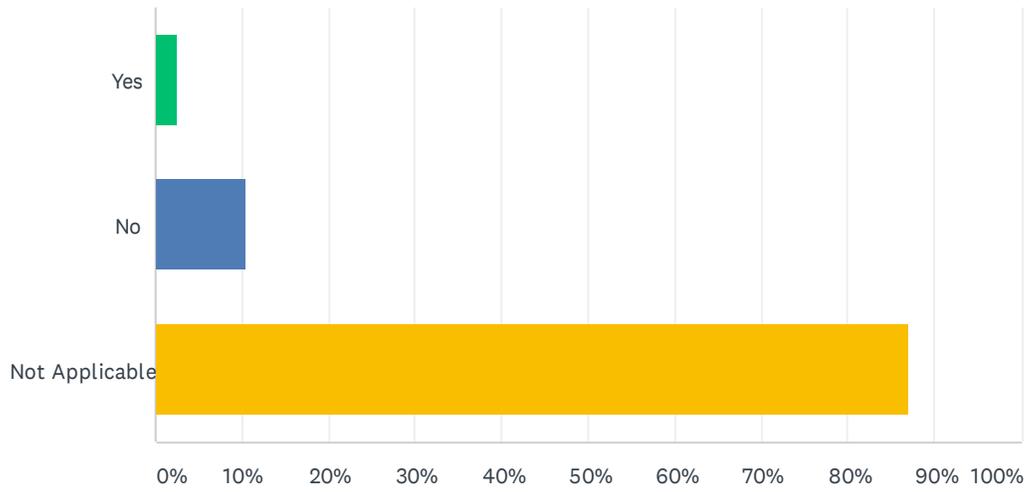
Answered: 140 Skipped: 1



ANSWER CHOICES	RESPONSES
Yes	3.57% 5
No	88.57% 124
I don't know	7.86% 11
TOTAL	140

### Q9 If you responded 'Yes' to the above question, do you currently have flood insurance?

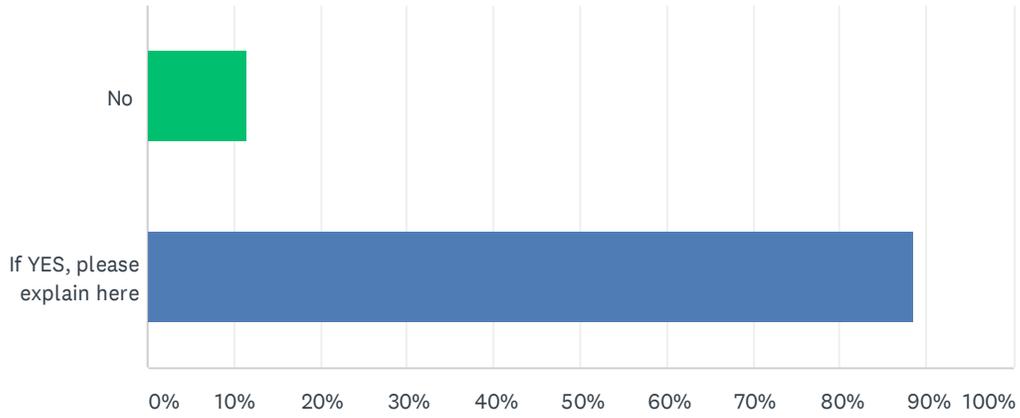
Answered: 115 Skipped: 26



ANSWER CHOICES		RESPONSES	
Yes		2.61%	3
No		10.43%	12
Not Applicable		86.96%	100
TOTAL			115

## Q10 Have you taken actions to protect your home and/or business from the impacts of hazards?

Answered: 139 Skipped: 2



ANSWER CHOICES	RESPONSES	
No	11.51%	16
If YES, please explain here	88.49%	123
TOTAL		139

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

#	IF YES, PLEASE EXPLAIN HERE	DATE
1	We keep grass mitigation active for fire prevention, maintain water runoff ditches clear of debris, emergency contact for snow removal, extra food & fuel for extended weather conditions. Evacuation route plans checked and tested with bug out practice drills quarterly to ensure safe passage depending on fire travel path.	3/22/2020 9:31 PM
2	Wildfire mitigation	3/19/2020 8:31 PM
3	Two mitigations performed by PCFD and year round constant mitigation by myself and hired help.	3/19/2020 7:56 PM
4	Cleared flammable son property	3/19/2020 1:27 PM
5	Insurance, tree trimming	3/19/2020 1:23 PM
6	Fire mitigation of trees and ground fuel	3/19/2020 11:50 AM
7	Limited vegetation within 50' of buildings	3/18/2020 5:17 PM
8	defensible space around my home	3/16/2020 9:40 AM
9	Fire mitigation around home	3/14/2020 1:29 PM
10	Wildfire mitigation, ember hardening of home	3/14/2020 12:54 PM
11	We have mitigated around our home and business.	3/14/2020 11:52 AM
12	Forest Mitigation	3/14/2020 9:55 AM
13	Fire Mitigation	3/14/2020 7:07 AM
14	Some mitigation	3/13/2020 8:20 AM
15	fire mitigation	3/12/2020 4:54 PM
16	Mitigated trees and shrubs on property with fire dept. guidance	3/12/2020 1:37 PM
17	Fire mitigation - created a defensible space around our home	3/11/2020 11:51 PM
18	Property mitigation and active monitoring of remote campsites in the forest above our home.	3/11/2020 8:52 PM
19	fire mitigation work, tree trimming and fuel removal	3/11/2020 7:01 PM
20	Graded roads removed trees	3/11/2020 1:36 PM
21	DRAINAGE, SNOW REMOVAL, FIRE MITIGATION	3/11/2020 12:44 PM
22	Mitigate for wild fires	3/11/2020 11:52 AM
23	We do ongoing fire mitigation.	3/11/2020 11:24 AM
24	mitigate land	3/11/2020 11:00 AM
25	fire mitigation	3/11/2020 9:27 AM
26	Fire Mitigation	3/11/2020 5:46 AM
27	Removing dead trees and downed limbs, mitigating fire hazards from near the houselimbs	3/10/2020 9:05 PM
28	fire mitigation on our property	3/10/2020 7:55 PM
29	Mitigation	3/10/2020 5:06 PM
30	Cleared trees. New roofs.	3/10/2020 4:45 PM
31	Tree mitigation.	3/10/2020 3:52 PM
32	I had an evaluation from the Platte Canyon Fire Department a number of years ago - because I live among aspen trees my risk was minimal, just need to cut grasses 30 feet from house. I can't really do it myself and it's expensive to hire some one.	3/10/2020 3:18 PM
33	Fire Mitigation	3/10/2020 2:47 PM
34	Prepared a quick evacuation plan for our home just in case its needed.	3/10/2020 2:22 PM

## Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

35	Tree mitigation	3/10/2020 1:40 PM
36	Fire mitigation	3/10/2020 12:16 PM
37	Have completed some fire mitigation, but at 75 years old it is difficult to do a full mitigation. Also don't want to cut down a lot of trees.	3/10/2020 12:08 PM
38	Fire mitigation	3/10/2020 11:27 AM
39	I keep the grass and weeds low to the ground and clean up pine needles.	3/10/2020 11:18 AM
40	New roof	3/10/2020 10:38 AM
41	Fire mitigation	3/10/2020 10:27 AM
42	fire mitigation work - trees, pine needles, house siding, etc.	3/10/2020 9:58 AM
43	Fire Mitigation in the neighborhood	3/10/2020 9:50 AM
44	Fire mitigation process; evacuation plan; winter emergency prep	3/10/2020 8:50 AM
45	Fire Mitigation	3/10/2020 8:42 AM
46	Fire mitigation	3/10/2020 8:29 AM
47	It is my own responsibility to protect my property	3/10/2020 8:19 AM
48	Mitigated around house against fire. Fire resistant construction	3/10/2020 6:30 AM
49	Mitigated property	3/9/2020 8:48 PM
50	Installed snow fences, purchased a small plow, purchased 4wd vehicles	3/9/2020 8:22 PM
51	Fire mitigation, wood burning stove, zero scaping	3/9/2020 8:21 PM
52	Fire Mitigation	3/9/2020 7:29 PM
53	Reduced flammable brush around house	3/9/2020 7:27 PM
54	Clearing brush and low branches	3/9/2020 6:11 PM
55	did fire mitigation planning before we built	3/9/2020 5:19 PM
56	Mitigation, drainage and house materials	3/9/2020 4:10 PM
57	Wildfire mitigation.	3/9/2020 3:51 PM
58	Home was built with exterior concrete surfaces, including soffits. Trees have been continuously felled or logs and slash have been masticated for two summers with one more summer to go.	3/9/2020 3:44 PM
59	Mitigate	3/9/2020 3:31 PM
60	Metal roofs	3/9/2020 3:27 PM
61	cleared dead trees	3/9/2020 3:22 PM
62	As much fire mitigation as possible, whatever possible to protect from weather and drought	3/9/2020 3:20 PM
63	Mitigation	3/9/2020 3:03 PM
64	fire mitigation	3/9/2020 3:01 PM
65	fire mitigation , winter preparedness	3/9/2020 2:51 PM
66	i've done fire mitigation on the land.	3/9/2020 2:43 PM
67	Contingency planning	3/9/2020 2:40 PM
68	Mitigation	3/9/2020 2:27 PM
69	Wildfire mitigation and training	3/9/2020 2:18 PM
70	Fire mitigation zones	3/9/2020 2:14 PM
71	Fire mitigation	3/9/2020 1:51 PM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

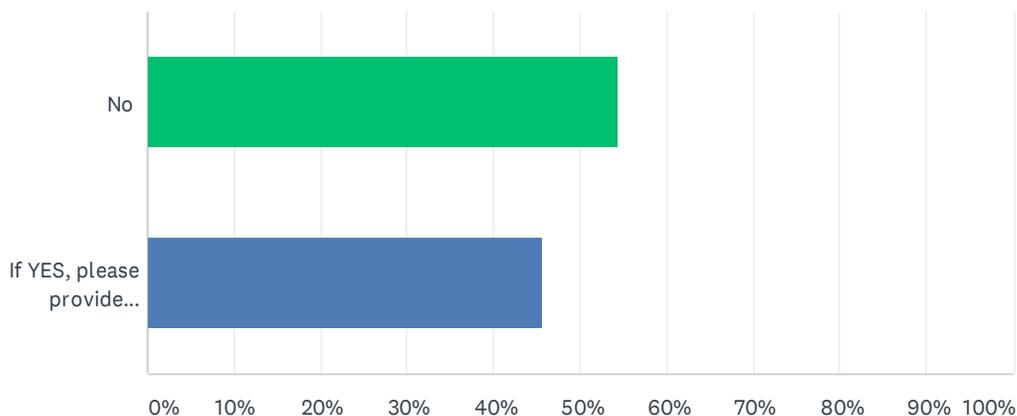
72	Roof rakes, fire mitigation.	3/9/2020 1:49 PM
73	fire migition on the property	3/9/2020 1:47 PM
74	Cleared dead trees and remove slash yearly	3/9/2020 1:43 PM
75	Fire mitigation and family emergency plan	3/9/2020 1:29 PM
76	Implemented fire mitigation for our property	3/9/2020 1:24 PM
77	none of your business	3/9/2020 1:20 PM
78	extensive fire mitigation	3/9/2020 1:04 PM
79	Fire mitigation cleanup on property, consistent snow and ice removal	3/9/2020 1:00 PM
80	Fire mitigation	3/9/2020 12:55 PM
81	fire resistant home exterior, tree-free area around home, grading to facilitate water drainage	3/9/2020 12:49 PM
82	yearly tree clean up, cut grass, good insurance	3/9/2020 12:45 PM
83	i try to keep pine needles, trees, etc..from overgrowth and being too close to my home	3/9/2020 12:42 PM
84	Bit of clearing	3/9/2020 12:40 PM
85	fire mitigation	3/9/2020 12:35 PM
86	Preventing water from draining off Conifer Drive and coming down my driveway.	3/9/2020 12:30 PM
87	RADON mitigation is done in my home, but MANY other people are NOT aware!	3/9/2020 12:23 PM
88	We clear and cut brush, tree limbs and remove dry materials from around our home during the year.	3/9/2020 12:21 PM
89	I cut tree limbs, cut grasses, and rake pine needles so they do not accumulate.	3/9/2020 12:20 PM
90	Mitagation	3/9/2020 12:08 PM
91	Fire mitigation	3/9/2020 12:07 PM
92	The Town has a Lake which is and can be impacted by run off or heavy rain during certain times of the year,as well as the Town has a campground/RV park which is located near the river stream.	3/9/2020 11:56 AM
93	Fire mitigation	3/9/2020 11:47 AM
94	My home is in a well mitigated area (re wildfire); reasonably well prepared for severe weather be it winter or non winter conditions	3/9/2020 11:37 AM
95	Extensive and continual fire mitigation has been undertaken	3/9/2020 11:37 AM
96	Wildfire mitigation	3/9/2020 11:34 AM
97	Fire mitigation	3/9/2020 11:22 AM
98	Fire mitigation on my property and home hardening for wildfire embers	3/9/2020 11:18 AM
99	We have our own snow removal. We have upgraded our home heating. We have done major fire mitigation on our property. We eat healthy, try to exercise as much as possible and stay away from large crowds, wash our hands and don't touch our face!	3/9/2020 11:17 AM
100	try to keep area around house free from debris and try to adhere to fire mitigation.	3/9/2020 11:12 AM
101	tree mitigation	3/9/2020 11:11 AM
102	cleared out area as best we could	3/9/2020 11:07 AM
103	Extra food and water. Generator.	3/9/2020 11:06 AM
104	Wildfire mitigation	3/9/2020 11:06 AM
105	Fire mitigation around my house.	3/9/2020 11:00 AM
106	Fire mitigation	3/9/2020 10:58 AM

## Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

107	machinery to move snow, barn to storage, changed solar pumps	3/9/2020 10:56 AM
108	Fire mitigation, regular snow removal for access,	3/9/2020 10:56 AM
109	REMOVAL OF TRESS, CLEARING OF UNDERBRUSH	3/9/2020 10:55 AM
110	Clear excess brush	3/9/2020 10:53 AM
111	Generator	3/9/2020 10:52 AM
112	Tree mitigation	3/9/2020 10:51 AM
113	Evacuation kit and wildfire emergency plan	3/9/2020 10:50 AM
114	sump pump in crawl space, cut trees and brush away from home	3/9/2020 10:50 AM
115	Fire midigation	3/9/2020 10:50 AM
116	Snow fencing. Need more. Need neighbors to not close the road.	3/9/2020 10:49 AM
117	Working on thinning land and clearing ground. Getting rid of slash is an obstacle.	3/9/2020 10:49 AM
118	cleared space around dwelling for fire and wind	3/9/2020 10:48 AM
119	Firewise, backup generator, making sure not low on propane, 4 wheel drive vehicles	3/9/2020 10:47 AM
120	Fire mitigation	3/9/2020 10:47 AM
121	Fire mitigation	3/9/2020 10:46 AM
122	Fire Mitigation - driveway faces South	3/9/2020 10:45 AM
123	Installed lightning spikes and clear defensible space around the house each spring/summer	3/9/2020 10:45 AM

# Q11 Do you have project ideas for how to protect the community from the impacts of hazards?

Answered: 138 Skipped: 3



ANSWER CHOICES	RESPONSES	
No	54.35%	75
If YES, please provide additional detail on what you would like to see	45.65%	63
<b>TOTAL</b>		<b>138</b>

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

#	IF YES, PLEASE PROVIDE ADDITIONAL DETAIL ON WHAT YOU WOULD LIKE TO SEE	DATE
1	Our neighbors & us maintain fire mitigation on our and vacant (abandoned) properties to help contain wild fires and easy access Fire Dept. to hard to reach areas. for Flood conditions we clear colverts and drain ditches that the county neglects to maintain over time in less populated areas.	3/22/2020 9:31 PM
2	Trimming roadside vegetation back to easement line on all roads. Cutting down dead trees on all properties and chipping	3/19/2020 7:56 PM
3	More sharing of private land such as hiking trails through private land, ag co-op'ing etc	3/19/2020 1:23 PM
4	community fire mitigation, better regulations on hazardous materials i.e. fracking chemicals	3/19/2020 11:50 AM
5	removable of all the downed trees. Not sure how to approach as it is pervasive	3/16/2020 9:40 AM
6	Mitigate BLM land and National forest	3/14/2020 1:29 PM
7	Community involvement with wildland fire professionals to assist homeowners with mitigation efforts.	3/14/2020 12:54 PM
8	I feel no one should be required by government to make changes to their property or be told how they can live.	3/14/2020 11:52 AM
9	clearing of evacuation routes, getting people to understand the danger of wildfire and what to do to lower the risk	3/12/2020 1:37 PM
10	Fire department provide free training and assessments	3/11/2020 11:51 PM
11	Active thinning of combustible fuels to enhance natural barriers to wildfire.	3/11/2020 8:52 PM
12	more community participation in Firewise committee and other similar organizations	3/11/2020 7:01 PM
13	first responders/local law enforcement complacent about punishment of violators. Several "not my Job" responses. AORs ill defined.	3/11/2020 9:27 AM
14	Trained residents could act as Community Safety Advisors and go around and talk with other residents, giving suggestions.	3/10/2020 4:45 PM
15	After selective cutting in the National Forest near hear a number of years ago, very large amounts of fuels were left on the forest floor. The contractors dumped all the slash in piles and ran over it with heavy equipment to make it less than 12 inches high, the requirement in their contract. I'm concerned about these fuels in the event of a forest fire. I'd like to see them removed or very carefully burned.	3/10/2020 3:18 PM
16	Further Mitigation along Roadways & Creating more exit routes for evacuation; Make Developers "donate" Exit Routes when Development approved for zoning and have it be apart of the very 1st phase !	3/10/2020 2:47 PM
17	Make PCR 7 an emergency snow route as Redhill Pass is often closed. People can use it to get around.	3/10/2020 2:22 PM
18	Better exit on 43 in case of emergence such as wildfires	3/10/2020 1:40 PM
19	Fire mitigation along CR 43	3/10/2020 10:38 AM
20	Just use common sense and if you are new to living outside of a city or place that you think will take care of you, learn the basics of nature and living away from the city and live accordingly	3/10/2020 8:19 AM
21	Firewise commity	3/9/2020 8:48 PM
22	Provide recommended plans from experts and contacts for advice	3/9/2020 8:22 PM
23	mandantory fire mitigation, it's just a matter of time till it happens.	3/9/2020 8:21 PM
24	Fire Wise Programs	3/9/2020 7:29 PM
25	Tree removal on escape routes	3/9/2020 6:11 PM
26	Fire mitigation for each home mandatory	3/9/2020 4:10 PM
27	Cut back trees from the roadway and have chippers available for residents to use to chip these roadway trees.	3/9/2020 3:44 PM

## Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

28	do something to control insect damage	3/9/2020 3:22 PM
29	I have attended various community meetings regarding wildfires but feel there needs to be better ways to get to more people. Too much complacency, unless there is a problem and large ones have not happened with all of the new residents. Some of the local groups are rather political.	3/9/2020 3:20 PM
30	If electricity was down for a long period of time, most of us wouldn't be able to use our well. It would be nice if as a community we created a water storage unit where we could get drinking water. It is conceivable that we wouldn't be able to get out to get food or necessities. I would like to see the community have a food storage unit where we could provide one meal a day to the community if we ran up against food shortage. It would help if it were mandatory if property owners were required to do fire mitigation on their properties.	3/9/2020 2:43 PM
31	ALL emergency evac routes mitigated for fire. Wildfire preparedness training for all citizens. Additional "back door" roadway escape routes built and maintained.	3/9/2020 2:18 PM
32	Volunteer mitigation projects, education on evacuations, Park County enforcement of LURs to remove junk cars and fire hazards. Clearing roads of trees and vegetation that will make evacuation possible.	3/9/2020 2:14 PM
33	Fire mitigation of main access roads to neighborhoods.	3/9/2020 1:51 PM
34	Chipping program	3/9/2020 1:43 PM
35	CWPP for all fire districts	3/9/2020 1:29 PM
36	Mitigate County Road 43 choke points to give us a chance of getting out in the event of a wildfire	3/9/2020 1:24 PM
37	Have designated evacuation routes in place	3/9/2020 1:22 PM
38	those who can't hack miving above 7000feet can just move out	3/9/2020 1:20 PM
39	Each fire district provide firewise documents to new residents, improve communication to campers in the national forest regarding extinguishing camp fires.	3/9/2020 12:49 PM
40	fire mitigation in the forest around our community	3/9/2020 12:35 PM
41	Properly grade our roads.	3/9/2020 12:30 PM
42	Radon is deadly. Causes lung cancer. My home had a level of over 10. It should be 4.	3/9/2020 12:23 PM
43	We would like for other owners in our area to mitigate their properties to help with fire prevention. We would also like the county to assess areas on our roads that snow melt erodes the dirt annually and install culverts to divert the water drainage from severely eroding the surface.	3/9/2020 12:21 PM
44	We do not have a place to deposit pine needle slash. There are places to bring tree limbs but pine needles either need to be burned (risky) or carted off to the landfill. I would love some specific suggestions.	3/9/2020 12:20 PM
45	Emergency evacuation planning	3/9/2020 11:56 AM
46	Additional and tested fire evacuation routes.	3/9/2020 11:47 AM
47	More wildfire mitigation in our foredt communities; better response to wind driven drifts and weather related impacts to rural roads	3/9/2020 11:37 AM
48	Continue the wildfire mitigation grants / tax deductions	3/9/2020 11:34 AM
49	Community education for evacuation and wildfire preparedness	3/9/2020 11:18 AM
50	Our community in Park County needs to think long term about major infrastructure improvements. Currently road and bridges are in poor condition. Snow removal during primary winter months has been hampered by poor/no equipment and lack of resources. Noticeable improvement projects during the spring, summer & fall have been far and few in between and not impacted the overall value of properties in the county! Establishment of a public banking institution to properly fund long term infrastructure projects like those that are needed in Park County should be reviewed by those elected officials for viability instead of these high cost short term mini-projects that dont provided necessary improvements for the sustainability and	3/9/2020 11:17 AM

## Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

value-add Park County needs for projected future growth. In other words, you cant continue to tax these small businesses to subsidize even the minimum of services as your current operating plan appears to be covering. Now more than ever those in power need to start thinking outside the box for Park County to sustain a successful future! One other thought: Instead of building round bypasses at 285/9, you should also consider having the Army Corp of Engineers build a dam across the river connection of 285 between prathers and Exxon which would create Fairplay Lake. This would help tourism but also provide a much needed fire mitigation plan for the many neighborhoods in the area.

51	I would like to see road improvements so residents can get in and out during any disasters.	3/9/2020 11:11 AM
52	Clear and make a easy alternate route out of Harris Park in the case the only way out now is blocked.	3/9/2020 11:07 AM
53	Roadside tree removal	3/9/2020 11:06 AM
54	Ensure property owners acquire necessary fire permits and they notify the servicing fire district.	3/9/2020 11:00 AM
55	Need all property owners to do fire mitigation	3/9/2020 10:58 AM
56	mandatory disclosures by realtors or any change of property ownership about winter, wildfire, floods and droughts	3/9/2020 10:56 AM
57	Tree mitigation along adjacent properties to Hwy 43 to lessen fire impact as our only evacuation route	3/9/2020 10:51 AM
58	Remove dead trees as well as junk on the property to make fire fighting easier	3/9/2020 10:50 AM
59	Snow fencing. Removal of hazards from neighboring properties	3/9/2020 10:49 AM
60	Would like to see a better way of ridding of slash. A company makes an air curtain burner that is connected to a power plant. This might be a good option for the county/IREA to investigate as they could burn slash year round and provide power while doing it. Placed properly, it could be used even during red flag times.	3/9/2020 10:49 AM
61	Guides for how to prepare for a storm, paving the roads in communities where the dirt roads are plowed poorly (makes getting out IMPOSSIBLE when the county does not plow timely or correctly)	3/9/2020 10:49 AM
62	requiring lot owners to clear / provide defensible space on their lots	3/9/2020 10:48 AM
63	Conduct more controlled burns	3/9/2020 10:46 AM

**Q12 Are you interested in staying up to date with our progress? Provide your email address and we will provide you with updates and information about what you can do to help us!**

Answered: 95 Skipped: 46

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

#	RESPONSES	DATE
1	jonathanmead1966@gmail.com	3/22/2020 9:31 PM
2	smyt_tee@yahoo.com	3/19/2020 8:31 PM
3	cowalk22@gmail.com	3/19/2020 7:56 PM
4	k.mcchesney@comcast.net	3/19/2020 1:23 PM
5	Not at this time.	3/18/2020 5:17 PM
6	carol_bush_2010@yahoo.com	3/16/2020 9:40 AM
7	kidquist@msn.com	3/14/2020 1:29 PM
8	gypsyburke@hotmail.com	3/14/2020 12:54 PM
9	no.	3/14/2020 11:52 AM
10	John.edson.stagg@gmail.com	3/14/2020 7:07 AM
11	Thorneron@gmail.com	3/13/2020 8:20 AM
12	carriemarsh@carriem.com	3/12/2020 1:37 PM
13	robinbolduc@msn.com	3/11/2020 11:51 PM
14	mqqc777@hotmail.com	3/11/2020 8:52 PM
15	t.ingwalson@gmail.com	3/11/2020 7:01 PM
16	j.r.lovejoy@att.net	3/11/2020 11:52 AM
17	cdwrites@evcohs.com	3/11/2020 11:24 AM
18	This county is becoming less inviting!	3/11/2020 9:27 AM
19	Jtpappy60@hotmail.com	3/11/2020 5:46 AM
20	claudia.mekins@gmail.com	3/10/2020 9:05 PM
21	deedeecase@msn.com	3/10/2020 7:55 PM
22	No	3/10/2020 7:41 PM
23	wbailey@qadas.com	3/10/2020 4:45 PM
24	jennings@qadas.com	3/10/2020 3:18 PM
25	sbonnie48@gmail.com	3/10/2020 2:47 PM
26	john@summittreasures.com	3/10/2020 2:22 PM
27	bholst1102@gmail.com	3/10/2020 1:40 PM
28	Styxdigsdirt@gmail.com	3/10/2020 12:28 PM
29	rjschwegel@gmail.com	3/10/2020 12:08 PM
30	steelers1965til@gmail.com	3/10/2020 11:18 AM
31	hllys351@gmail.com	3/10/2020 10:27 AM
32	graham.mckinley@att.net	3/10/2020 9:58 AM
33	rockymtnkoala@gmail.com	3/10/2020 8:50 AM
34	tclay68@gmail.com	3/10/2020 8:42 AM
35	w.d.boles@ieee.org	3/10/2020 6:30 AM
36	geektx@gmail.com	3/10/2020 5:38 AM
37	gene@carriem.com	3/9/2020 8:48 PM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

38	russ@exchangemct.com	3/9/2020 8:22 PM
39	diesel974x4@yahoo.com	3/9/2020 8:21 PM
40	griffin0998@gmail.com	3/9/2020 7:29 PM
41	bcrice2@gmail.com	3/9/2020 7:27 PM
42	msvbcoach63@gmail.com	3/9/2020 6:11 PM
43	tmjbp@aol.com	3/9/2020 5:19 PM
44	Michael.r.berry.co@gmail.com	3/9/2020 4:10 PM
45	pollywhite@comcast.net	3/9/2020 3:51 PM
46	psnewman@adams.edu	3/9/2020 3:44 PM
47	No	3/9/2020 3:27 PM
48	wlpwise@aol.com	3/9/2020 3:22 PM
49	lrezklein@gmail.com	3/9/2020 3:20 PM
50	RockyMtnHi2@q.com	3/9/2020 3:03 PM
51	jmoore26@hotmail.com	3/9/2020 2:51 PM
52	charles.schmidt320@gmail.com	3/9/2020 2:40 PM
53	nurseskimsn@gmail.com	3/9/2020 2:18 PM
54	suziglenn3@gmail.com	3/9/2020 2:14 PM
55	Twinkiner@yahoo.com	3/9/2020 1:56 PM
56	Mpoague81@me.com	3/9/2020 1:51 PM
57	Juleejohnzon@gmail.com	3/9/2020 1:49 PM
58	cyndie.sherriff@gmail.com	3/9/2020 1:29 PM
59	sjwesoloski@gmail.com	3/9/2020 1:24 PM
60	Koabjohn@gmail.com	3/9/2020 1:22 PM
61	Mikefisher421@gmail.com	3/9/2020 1:04 PM
62	tdisney521@comcast.net	3/9/2020 12:55 PM
63	amy@glenellenranch.us	3/9/2020 12:49 PM
64	gnrbull@hughes.net	3/9/2020 12:45 PM
65	cjwils57@yahoo.com	3/9/2020 12:42 PM
66	Vvandeveerekd@hotmail.com	3/9/2020 12:40 PM
67	cthiatt@yahoo.com	3/9/2020 12:35 PM
68	artglassbycarolking@hotmail.com	3/9/2020 12:23 PM
69	Hartselwoman@yahoo.com	3/9/2020 12:21 PM
70	nancy.conyers@yahoo.com	3/9/2020 12:08 PM
71	debbieestes111@gmail.com	3/9/2020 12:07 PM
72	LISAPINCOLORADO@YAHOO.COM	3/9/2020 12:01 PM
73	mwoodward@fairplayco.us	3/9/2020 11:56 AM
74	sgedgar@msn.com	3/9/2020 11:47 AM
75	Basketry@att.net	3/9/2020 11:37 AM

Park County Multi-Jurisdictional Hazard Mitigation Plan Public Survey

76	tbalough@yahoo.com	3/9/2020 11:22 AM
77	debivandoren1@gmail.com	3/9/2020 11:18 AM
78	dp4849@yahoo.com	3/9/2020 11:17 AM
79	GLORIAJ453@AOL.COM	3/9/2020 11:07 AM
80	yamakm@comcast.net	3/9/2020 11:06 AM
81	Robin.davis@centurylink.com	3/9/2020 11:06 AM
82	lugenbillc@att.net	3/9/2020 11:00 AM
83	springer1975@gmail.com	3/9/2020 10:56 AM
84	linda.balough@gmail.com	3/9/2020 10:56 AM
85	scottia112@hotmail.com	3/9/2020 10:55 AM
86	mrsbomeisl@gmail.com	3/9/2020 10:52 AM
87	gdumdie@yahoo.com	3/9/2020 10:51 AM
88	jim.gully@sykes.com	3/9/2020 10:50 AM
89	Swazlazo@gmail.com	3/9/2020 10:49 AM
90	c_l_k@comcast.net	3/9/2020 10:49 AM
91	karenruthpulley@outlook.com	3/9/2020 10:48 AM
92	slm1019@yahoo.com	3/9/2020 10:47 AM
93	No	3/9/2020 10:46 AM
94	KLKRAMER2017@GMAIL.COM	3/9/2020 10:45 AM
95	michelle@bear-river.net	3/9/2020 10:45 AM

# County News & Events

Find Information on the Incorporated Towns & Communities of Park County

## News Flash

### Park County Hazard Mitigation Plan Update

**Review** This is the newest, revised, Hazard Mitigation Plan for Park County up for review and feedback from our residents. [Read on...](#)

### 5th Amended Public Health Order 20-28 Safer At Home And In The Vast, Great Outdoors

At the direction of the Governor's Executive Order D 2020 091 on June 1st, the Fifth Amended Public Health Order 20-28 Safer At Home And In The Vast, Great Outdoors was issued by CDPHE effective June 2, 2020. [Read on...](#)

### Central Mountain SBDC Virtual Meet and Greet

The Live virtual meet and greet will be held in Fairplay at 856

[Open Meetings](#)

[Holiday Schedule](#)

[Events](#)

## JUNE 2020

SU	M	TU	W	TH	F	SA
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20

Thu, Jun 4

### BOCC Meeting

Video

To join the meeting, click on the link below... [Learn More](#)

Tue, Jun 9

### Planning Commission

Meeting [Learn More](#)

# BURN BAN INFORMATION

Burn Ban in Effect for Park County  
[Read On...](#)



- County Government
- Departments
- About Us
- Services
- Visitors

- Agendas & Minutes
- Facilities
- How Do I? +
- Park County Broadband Initiative +
- Public Notices
- Photo Gallery
- Photo Credits

Home > News Flash

## Emergency Management

Posted on: June 3, 2020

### Park County Hazard Mitigation Plan Update Review

This is the newest, revised, Hazard Mitigation Plan for Park County up for review and feedback from our residents. It includes our Municipalities, as well as our Fire and Ambulance Districts.



Please review these plans, and send any feedback, questions, or concerns to our [Emergency Manager](#) for additions or corrections. Our residents safety is our mission and your feedback and concerns are what we want so we can make our County, and its residents safer, and more prepared in the face of disaster.

- [Park County HMP 2020 Update Revised Draft](#)
- [Revised Draft Fairplay Annex](#)
- [Revised Draft Fire and Ambulance District Annex](#)

Thank you,  
  
Park County Emergency Management

**Search**

All categories ▾

---

**Tools**

- RSS
- Notify Me
- View Archived

---

**Categories**

- All Categories
- Emergency Management
- Home
- Sheriff's Office
- Clerk & Recorder Notices





# Park County 2020 Multi-Jurisdictional Hazard Mitigation Plan Update

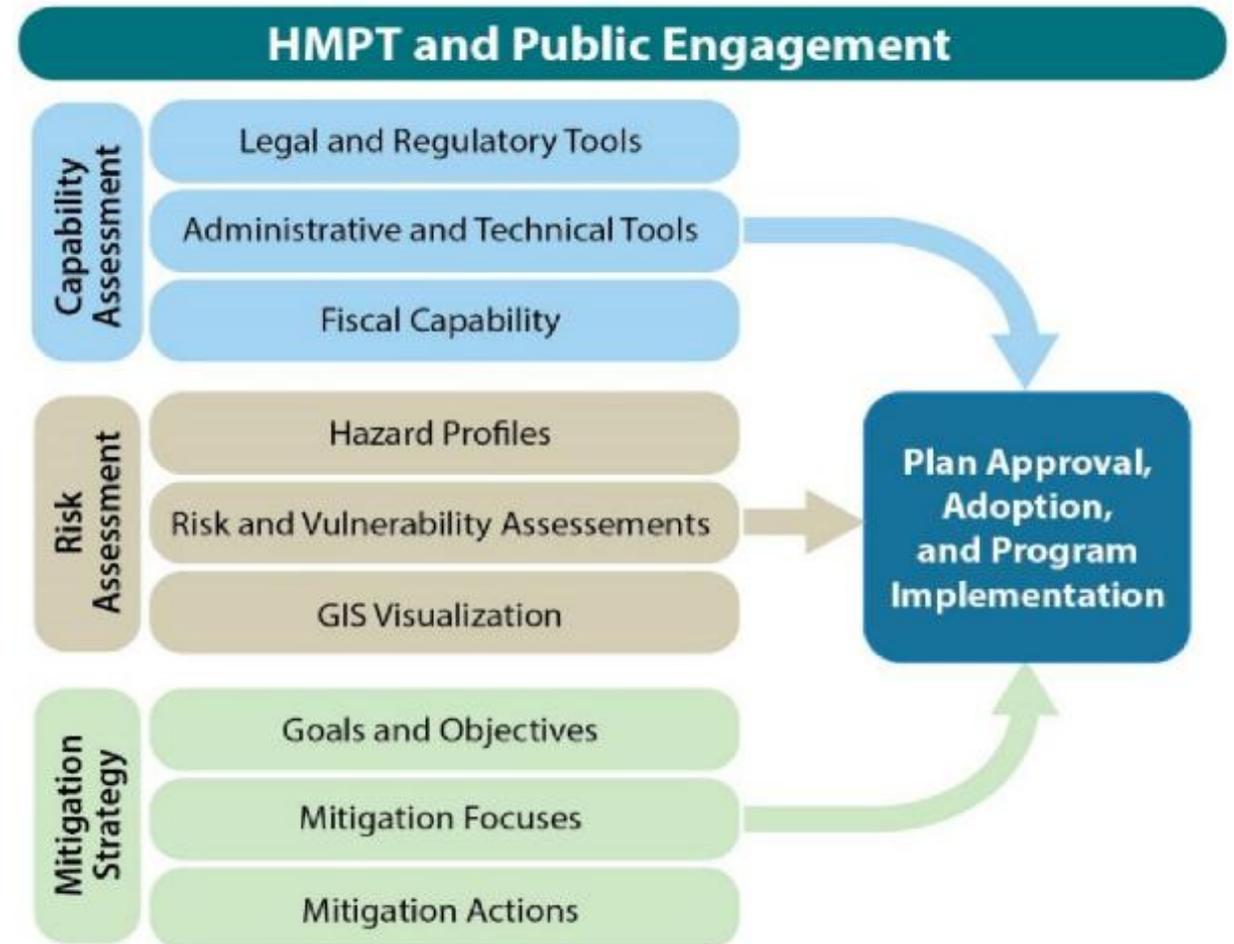
Community Presentation

Monday, June 15 | 5:30-6:30 p.m. | Webinar



# What is hazard mitigation?

- A commitment to reduce risks posed by hazards
- A comprehensive and inclusive planning process
- Development of a mitigation strategy with clear and concrete actions



# What is in the plan?

## Part 1: The Planning Process

- Introduction
- Planning Process

## Part 2: Risk Assessment

- Methodology
- Park County Profile
- Hazard Profiles

## Part 3: Mitigation Strategy

- Mitigation Strategy
- Implementation

## Jurisdictional Annexes:

- Town of Fairplay
- Fire and Ambulance Districts

# What hazards are we concerned about?

1. Wildfire
2. Severe Winter Weather
3. Severe Thunderstorm, Hail, and Wind
4. Flood
5. Hazardous Materials



*Hayman Fire  
Photo: Coalition for the Upper South Platte*

6. Dam Failure
7. Landslide
8. Earthquake
9. Drought
10. Epidemic/  
Pandemic

# How are hazards ranked?

Park County - Local Hazards							
	Probability/ Frequency (1=lowest, 5=highest)	Magnitude (1=lowest, 5=highest)	Onset (1=slowest, 5=fastest)	Duration (1=shortest, 5=longest)		Average	Rank
Wildfire	4.77	4.27	4.23	4.54		4.42	1
Severe Winter Weather	4.62	3.62	3.92	3.85		4.05	2
Severe Thunderstorm, Hail, and Wind	4.31	3.00	4.08	2.69		3.79	3
Flood	3.00	3.15	3.62	3.92		3.26	4
Hazardous Materials	3.12	2.38	3.77	2.46		3.09	5
Dam Failure	1.62	3.62	4.00	3.88		3.08	6
Landslide	2.27	1.85	4.00	3.38		2.71	7
Earthquake	1.15	2.31	4.04	2.85		2.50	8
Drought	3.31	2.08	1.54	4.08		2.31	9

# How do we mitigate hazards?

- **Plans and regulations** (e.g., update land use code)
- **Infrastructure/capital projects** (e.g., seismic retrofit)
- **Natural systems protection** (e.g., wildfire fuels management)
- **Education and awareness** (e.g., public outreach campaign)
- **Preparedness and response** (e.g., upgrading communications systems)



# What mitigation strategies are being considered?

- **Conduct one exercise annually, involving members of the public**, regarding all phases of emergency management (Multiple Hazards)
- **Continue to educate property owners at risk from wildfire** about specific maintenance strategies (Wildfire)
- Obtain funding to compensate volunteers to **run the fuels management program** (Wildfire)
- **Harden infrastructure** at greatest risk from wildfire (Wildfire)
- **Create an education program regarding winter weather preparedness**, including preparedness measures for pets/livestock (Severe Winter Weather)

# What mitigation strategies are being considered?

- **Educate the public** about thunderstorm awareness and safety precautions (Severe Thunderstorm, Hail, and Wind)
- **Install and upgrade lightning rods** on public structures (Severe Thunderstorm, Hail, and Wind)
- **Acquire generators for RE-2 (South Park) School District**, including Deer Creek Elementary School (Multiple Hazards)
- Identify drainage “hot spots” and **improve bridges, culverts, channels, and other infrastructure** in these areas (Flooding)

# How can I get involved?

1. Read the draft plan on the County's website: <https://www.parkco.us/CivicAlerts.aspx?AID=614>
2. Send any comments to [ParkHMP@ene.com](mailto:ParkHMP@ene.com) by June 18
3. Learn more at: <https://parkco.us/77/Emergency-Management>

## Survey Quick Facts

- More than 140 responses, mostly from county residents and landowners
- Wildfires; severe winter weather; and severe t-storms, hail, and wind are main hazards of concern



### Participants (5)

Panelists (3)

Attendees (2)



Timothy Peterson



Sharon Trilk



Richard Atkins

More ▾

Invite

Mute All

More ▲



### Zoom Group Chat

To: All panelists and attendees



Type message here ...

**Hazard Mitigation Plan Proposal**

**Park County 2020 Multi-Jurisdictional Hazard Mitigation Plan Update**  
Community Presentation

Monday, June 15 | 5:30-6:30 p.m. | Webinar

ecology and environment, inc.

### Hazard Mitigation Plan For Review

- [Park County HMP 2020 Update Revised Draft](#)
- [Revised Draft Fairplay Annex](#)

### COVID-19

The Park County Office of Emergency Management is working closely with Park County Public Health to monitor the rapidly evolving COVID-19

7 a.m. - 6 p.m.

### FAQs

- [Is there a fire ban for Park County?](#)

[View All](#)

### Quick Links

- [Park County Text to 911](#)
- [READYColorado](#)
- [Centers for Disease Control and Prevention](#)

[View All](#)

**From:** [Brad Golden](#)  
**To:** [Angell, Don](#)  
**Cc:** [Gene Stanley](#); [Forbes-Guerrero, Jessica](#)  
**Subject:** A review of our HMP plan  
**Date:** Thursday, July 9, 2020 9:02:33 AM  
**Attachments:** [image001.jpg](#)

---

Good morning Don,

Our HMP plan has gone out for review and is now posted on the County Web Page (<http://www.parkco.us/77/Emergency-Management>). It has been requested by our State Grant Manager to get some reviews and feedback to Jessica. If you have time, could you take a look? After your review, please send any feedback you have to Jessica, and cc me on the email for my records (JForbes-Guerrero@ene.com).

Any feedback you can offer from Teller County will be greatly appreciated. We need to have this feedback by, or before, **7-24-20**. Thanks for your time and support!

**Brad Golden M.Ed.**  
**Deputy Director of Emergency Management**  
**Park County, Colorado**  
**Phone: 719-836-4231**



[www.parkco.us](http://www.parkco.us)

**From:** [Brad Golden](#)  
**To:** [Bo Schlunsen](#); [Chris Tingle](#); [Eugene Farmer](#); [Gene Nagel](#); [Gene Stanley](#); [Joe Burgett](#); [Joey Behrman](#); [Kristy Olme](#); [Maria Mitchell](#); [Paul Matsey](#); [Susan Bernstetter](#); [Tina Darrah](#); [Tom McGraw](#); [Trent Smith](#)  
**Cc:** [Gene Stanley](#); [Mike Nelson](#); [Forbes-Guerrero, Jessica](#)  
**Subject:** HMP plan review.  
**Date:** Thursday, July 9, 2020 8:58:06 AM  
**Attachments:** [image001.jpg](#)

---

Good morning everyone,

Our HMP plan has gone out for review and is now posted on the County Web Page (<http://www.parkco.us/77/Emergency-Management>). It has been requested by our State Grant Manager to get some reviews and feedback to Jessica. After your review, please send any feedback you have to Jessica, and cc me on the email for my records (JForbes-Guerrero@ene.com).

Please take some time to look through this information. We need to have this feedback by, or before, **7-24-20**. This plan is extremely important for our County, our residents, and our departments. Thank you for all you do to keep our County Safe and prepared.

**Brad Golden M.Ed.**  
Deputy Director of Emergency Management  
Park County, Colorado  
Phone: 719-836-4231



[www.parkco.us](http://www.parkco.us)

**From:** [Brad Golden](#)  
**To:** [Cailee Hamm](#)  
**Cc:** [Forbes-Guerrero, Jessica](#); [Gene Stanley](#)  
**Subject:** Park County HMP review  
**Date:** Thursday, July 9, 2020 9:02:39 AM  
**Attachments:** [image001.jpg](#)

---

Good morning Cailee,

Our HMP plan has gone out for review and is now posted on the County Web Page (<http://www.parkco.us/77/Emergency-Management>). It has been requested by our State Grant Manager to get some reviews and feedback to Jessica. If you have time, could you take a look? After your review, please send any feedback you have to Jessica, and cc me on the email for my records (JForbes-Guerrero@ene.com).

Any feedback you can offer from Lake County will be greatly appreciated. We need to have this feedback by, or before, **7-24-20**. Thanks for your time and support!

**Brad Golden M.Ed.**  
**Deputy Director of Emergency Management**  
**Park County, Colorado**  
**Phone: 719-836-4231**



[www.parkco.us](http://www.parkco.us)

**From:** [Brad Golden](#)  
**To:** [ratkins@chaffeecounty.org](mailto:ratkins@chaffeecounty.org)  
**Cc:** [Forbes-Guerrero, Jessica](#); [Gene Stanley](#)  
**Subject:** Park County HMP review  
**Date:** Thursday, July 9, 2020 9:05:04 AM  
**Attachments:** [image001.jpg](#)

---

Good morning Richard,

Our HMP plan has gone out for review and is now posted on the County Web Page (<http://www.parkco.us/77/Emergency-Management>). It has been requested by our State Grant Manager to get some reviews and feedback to Jessica. If you have time, could you take a look? After your review, please send any feedback you have to Jessica, and cc me on the email for my records ([JForbes-Guerrero@ene.com](mailto:JForbes-Guerrero@ene.com)).

Any feedback you can offer from Chaffee County will be greatly appreciated. We need to have this feedback by, or before, **7-24-20**. Thanks for your time and support!

**Brad Golden M.Ed.**  
**Deputy Director of Emergency Management**  
**Park County, Colorado**  
**Phone: 719-836-4231**



[www.parkco.us](http://www.parkco.us)

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX C.**  
**EXAMPLE PROGRESS REPORT**

---

## APPENDIX C. EXAMPLE PROGRESS REPORT

---

### Park County Hazard Mitigation Plan Update Annual Progress Report

**Reporting Period:** *(Insert reporting period)*

**Background:** Park County and participating cities and special purpose districts in the county developed a hazard mitigation plan to reduce risk from all hazards by identifying resources, information, and strategies for risk reduction. The federal Disaster Mitigation Act of 2000 requires state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. To prepare the plan, the participating partners organized resources, assessed risks from natural hazards within the county, developed planning goals and objectives, reviewed mitigation alternatives, and developed an action plan to address probable impacts from natural hazards. By completing this process, these jurisdictions maintained compliance with the Disaster Mitigation Act, achieving eligibility for mitigation grant funding opportunities afforded under the Robert T. Stafford Act. The plan can be viewed on-line at:

**INSERT LINK**

**Summary Overview of the Plan's Progress:** The performance period for the Hazard Mitigation Plan became effective on [date], with the final approval of the plan by FEMA. The initial performance period for this plan will be 5 years, with an anticipated update to the plan to occur before [date], 2025. As of this reporting period, the performance period for this plan is considered to be % complete.

The Hazard Mitigation Plan has targeted [hazard mitigation initiatives] to be pursued during the 5-year performance period. As of the reporting period, the following overall progress can be reported:

- \_\_\_ out of \_\_\_ initiatives ( % ) reported ongoing action toward completion.
- \_\_\_ out of \_\_\_ initiatives ( % ) were reported as being complete.
- \_\_\_ out of \_\_\_ initiatives ( \_\_\_% ) reported no action taken.

**Purpose:** The purpose of this report is to provide an annual update on the implementation of the action plan identified in the Park County Hazard Mitigation Plan Update. The objective is to ensure that there is a continuing and responsive planning process that will keep the Hazard Mitigation Plan dynamic and responsive to the needs and capabilities of the partner jurisdictions. This report discusses the following:

- Natural hazard events that have occurred within the last year
- Changes in risk exposure within the planning area (all of Park County)
- Mitigation success stories
- Review of the action plan
- Changes in capabilities that could impact plan implementation
- Recommendations for changes/enhancement.

**The Hazard Mitigation Committee:** The Hazard Mitigation Committee (HMC), made up of planning partners and stakeholders within the planning area, reviewed and approved



Address the following in the “status” column of the following table:

- Was any element of the initiative carried out during the reporting period?
- If no action was completed, why?
- Is the timeline for implementation for the initiative still appropriate?
- If the initiative was completed, does it need to be changed or removed from the action plan?

<b>TABLE 2. ACTION PLAN MATRIX</b>				
Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O,✓)
			Action MH-1 – Generators to support South Park and Guffey	
			Action MH-2 – Detailed risk profiles for critical facilities	
			Action MH-3 – Dead end road signs	
			Action DT-1 – Alternative water supplies	
			Action DT-2 – Community Water Conservation Plans	
			Action DT-3 – Long-term drought monitoring program	
			Action EQ-1 – Regulations for areas of high seismic risk	
			Action EQ-2 – Map highest priority locations for detailed seismic risk studies	
			Action FL-1 – GIS and other automated inventories for storm-water	
			Action FL-2 – Stream reaches that do not meet water quality standards	
			Action FL-3 – Areas in need of flood hazard reduction plans	
			Action FL-4 – Jefferson-Como FPD Station 3	
			Action WW-1 – Building codes for roof snow loads	
			Action WF-1 – Infrastructure protection strategies	
			Action WF-2 – Proposed wildfire mitigation projects	

**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O,✓)
Action WF-3 - CWPPs				
Action WF-4 – Fuels treatment/reduction and implementation of defensible space				
Action WF-5 – Grant applications for wildfire mitigation actions				
Action WF-6 – Land and building standards for areas of high wildfire risk				
Action WF-7 – Local wildfire plans				
Action WF-8 – Fire mitigation associated with new development				
Action DF-1 – High priority dams				
Action DF-2 – Tarryall Dam				
Action LS-1 – Landslide risks following severe wildfires				
Action SW-1 – Lightning rods on public structures				
Action SW-2 – Program to receive, coordinate, and distribute information about likely thunderstorms				
Action EP-1 – After-action report for COVID-19 pandemic				
Action EP-2 – Public messaging in the event of a pandemic				

TABLE 2. ACTION PLAN MATRIX				
Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O,✓)
<b>Fairplay</b>				
Action MH-4 – Generators for RE-2 School District				
Action MH-5 – Gravity-fed fuel tanks				
Action MH-6 – Electric infrastructure at risk of outages				
Action FL-5 – Drainage system assessment				
Action HM-1 – HAZMAT awareness program				
<b>Northwest FPD</b>				
Action WF-9 – NWFPD onsite water requirements				
Action WF-10 – Benefits of controlled burns				
Action WF-11 – ISO rating				

<b>TABLE 2. ACTION PLAN MATRIX</b>				
Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O,✓)
<b>Platte Canyon FPD</b>				
Action WF-12 – Rights-of-way fuels				
Action MH-7 – Flammable materials safety				
<b>Lake George FPD</b>				
Action WF-13 – Fuels management program for residents				
Action MH-7 – Flammable materials safety				

TABLE 2. ACTION PLAN MATRIX				
Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O,✓)
<b>South Park Ambulance District</b>				
Action SW-3 – Extreme heat and cold				
Completion status legend: ✓ = Project Completed O = Action ongoing toward completion X = No progress at this time				

**Changes That May Impact Implementation of the Plan:** *(Insert brief overview of any significant changes in the planning area that would have a profound impact on the implementation of the plan. Specify any changes in technical, regulatory and financial capabilities identified during the plan’s development)*

**Recommendations for Changes or Enhancements:** Based on the review of this report by the HMC, the following recommendations will be noted for future updates or revisions to the plan:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Public review notice:** *The contents of this report are considered to be public knowledge and have been prepared for total public disclosure. Copies of the report have been provided to the governing boards of all planning partners and to local media outlets and the report is posted on the Park County Hazard Mitigation Plan website. Any questions or comments regarding the contents of this report should be directed to:*

**Insert Contact Info Here**

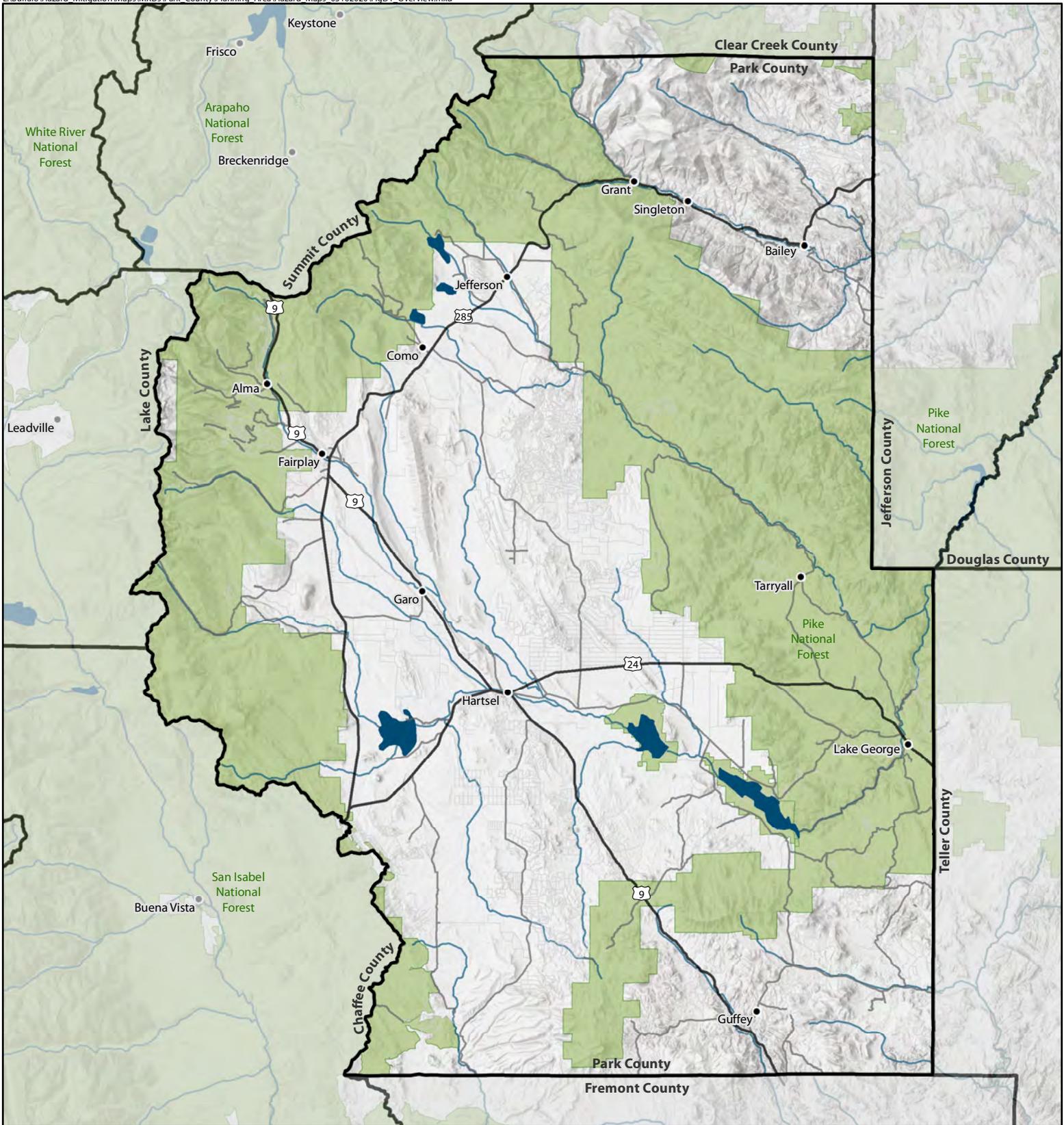
Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX D.**  
**MAPS AND HAZARD ASSESSMENT DATA**

---

## **D.1 Maps**



**Figure D-1  
Overview**

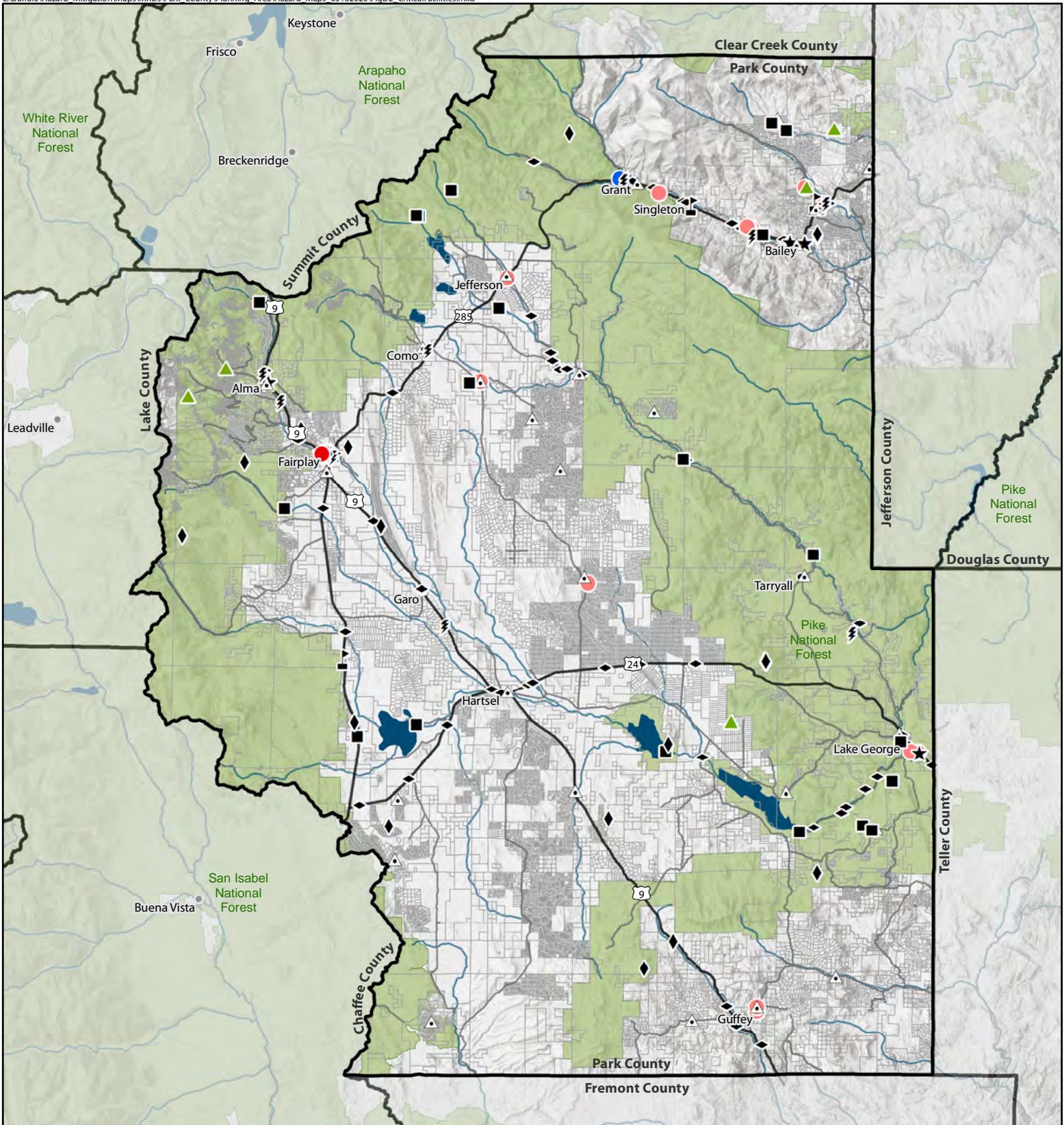
Park County  
Hazard Mitigation Plan

- Town
- Stream
- Highway
- Major Road
- Minor Road
- Waterbody
- Park
- County Boundary



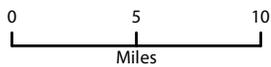
Source: CO 2020, ESRI 2019





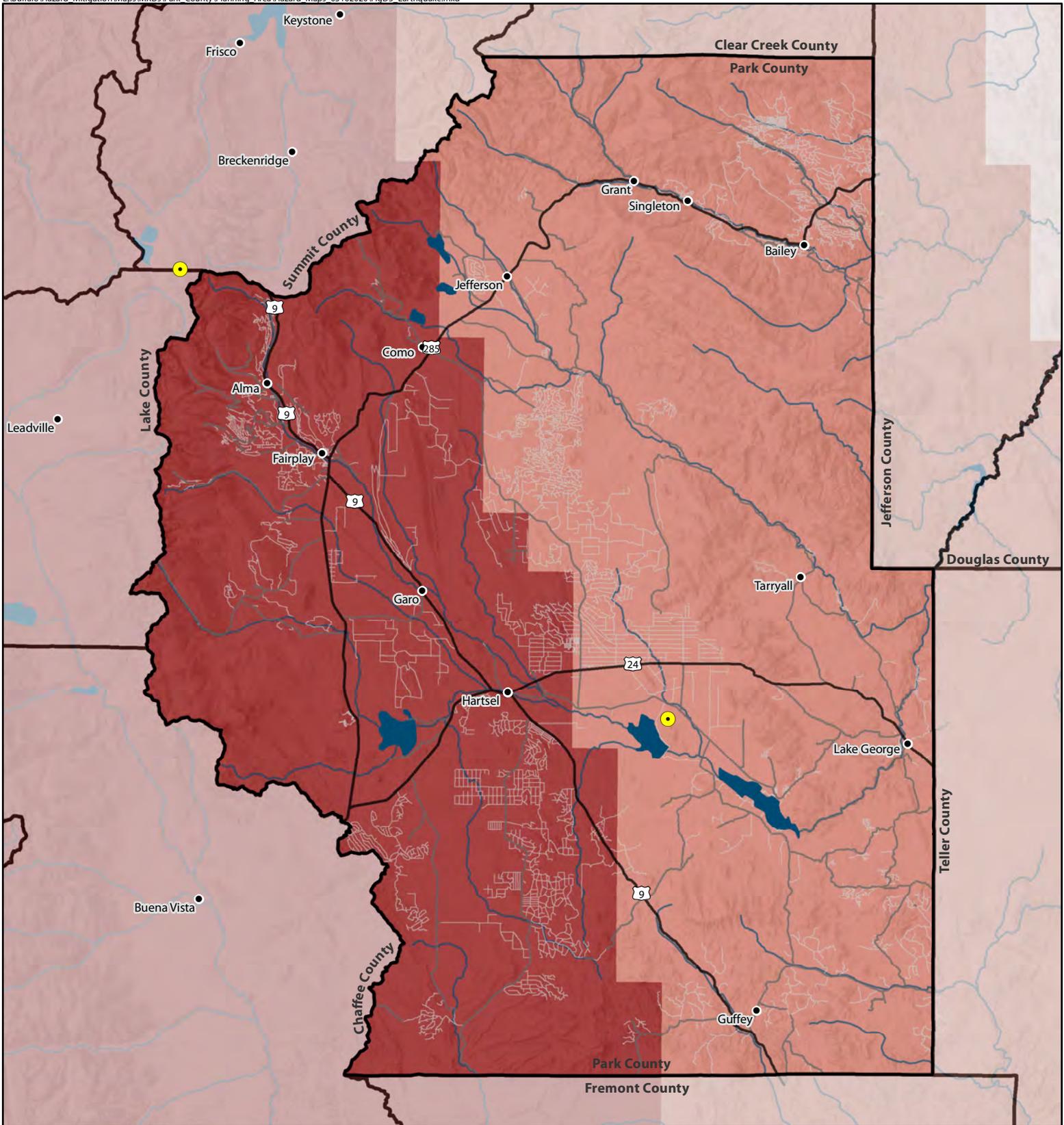
**Figure D-2**  
**Critical Facilities**

Park County  
Hazard Mitigation Plan



- Town
- Stream
- Highway
- Major Road
- Minor Road
- ▭ Parcel Boundary
- ▭ Waterbody
- ▭ Park
- ▭ County Boundary
- Critical Facilities**
- Emergency Operations Center
- Emergency Shelter
- ▭ School
- ▭ Fire Station
- ★ Law Enforcement
- ▭ Medical
- ▭ Hazardous Materials Facility
- ◆ Com Tower
- ⚡ Electric Substation
- ▭ Dam
- ◆ Bridge
- Hydroelectric Plant





**Figure D-3**  
**Earthquake Hazard**

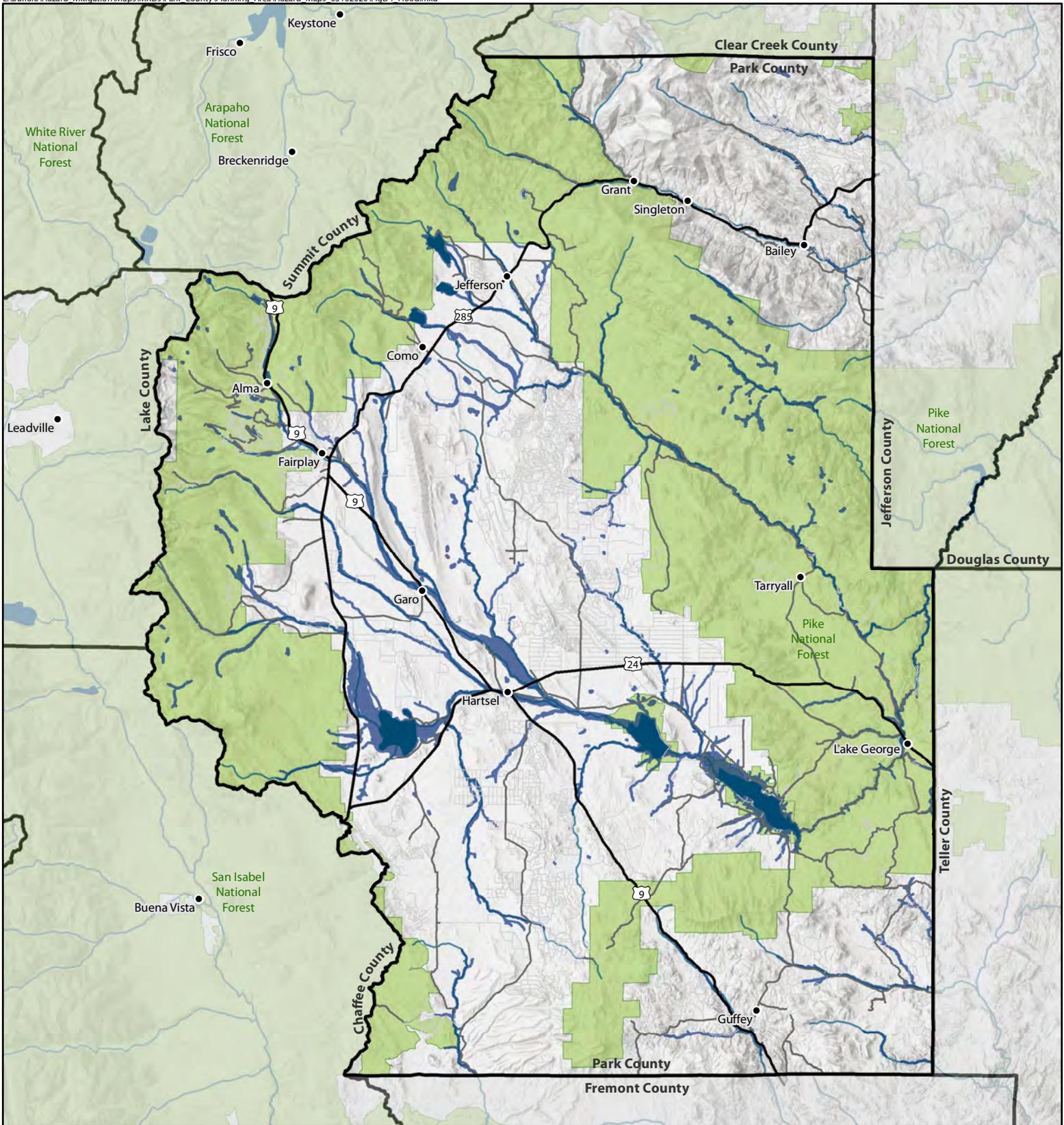
Park County  
Hazard Mitigation Plan

- Earthquake Epicenter
  - Town
  - Stream
  - Highway
  - Major Road
  - Minor Road
  - Waterbody
  - County Boundary
- | Peak Ground Acceleration 2500-yr |               |
|----------------------------------|---------------|
|                                  | 0.034 - 0.112 |
|                                  | 0.113 - 0.128 |
|                                  | 0.129 - 0.162 |



Source: CO 2020, ESRI 2019

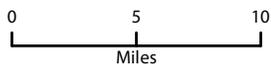




**Figure D-4  
Flood Hazard**

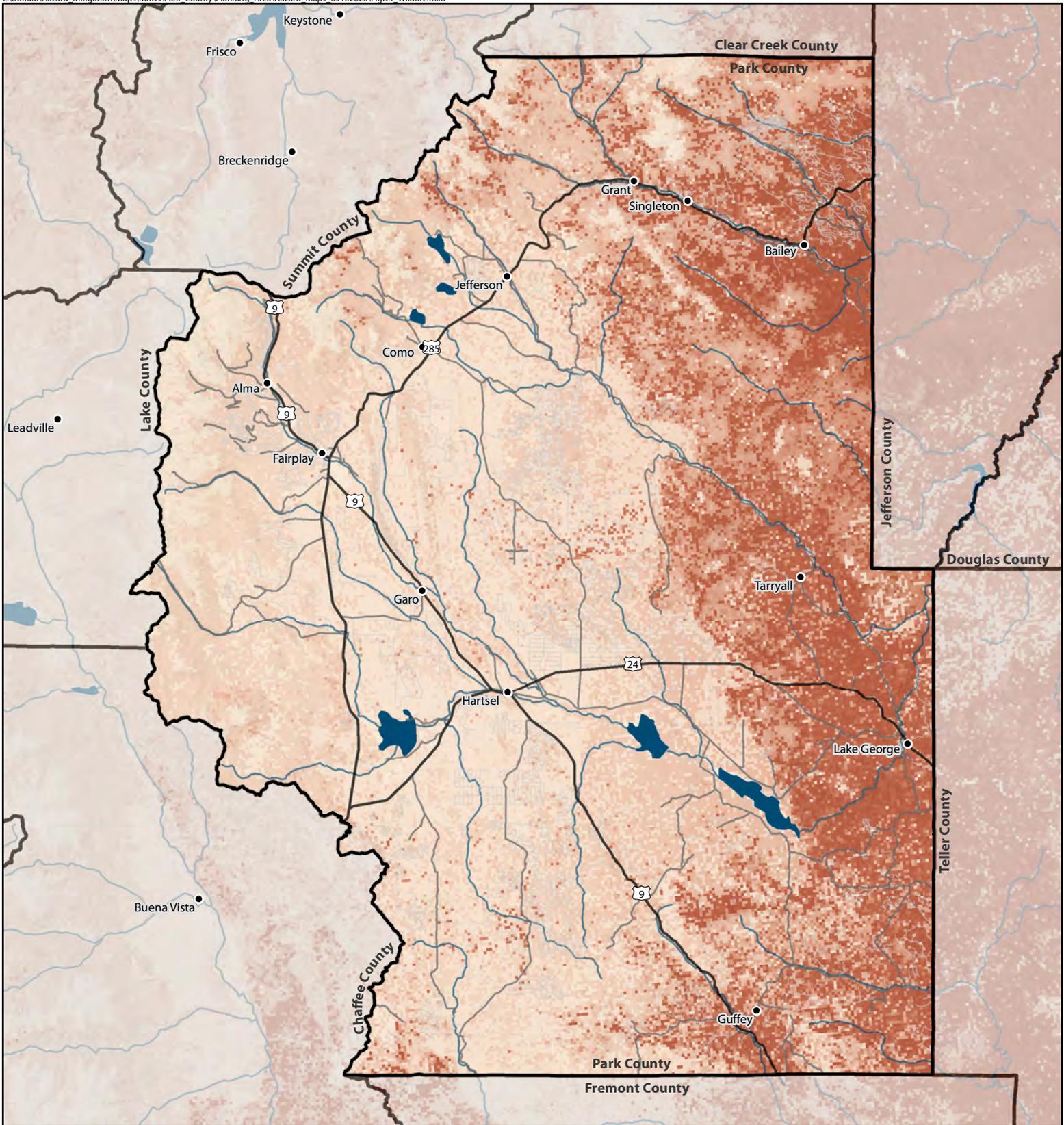
Park County  
Hazard Mitigation Plan

- Town
- Stream
- Highway
- Major Road
- Minor Road
- Waterbody
- Park
- County Boundary
- 100-yr Floodplain



Source: CO 2020, ESRI 2019





**Figure D-5  
Wildfire Hazard**

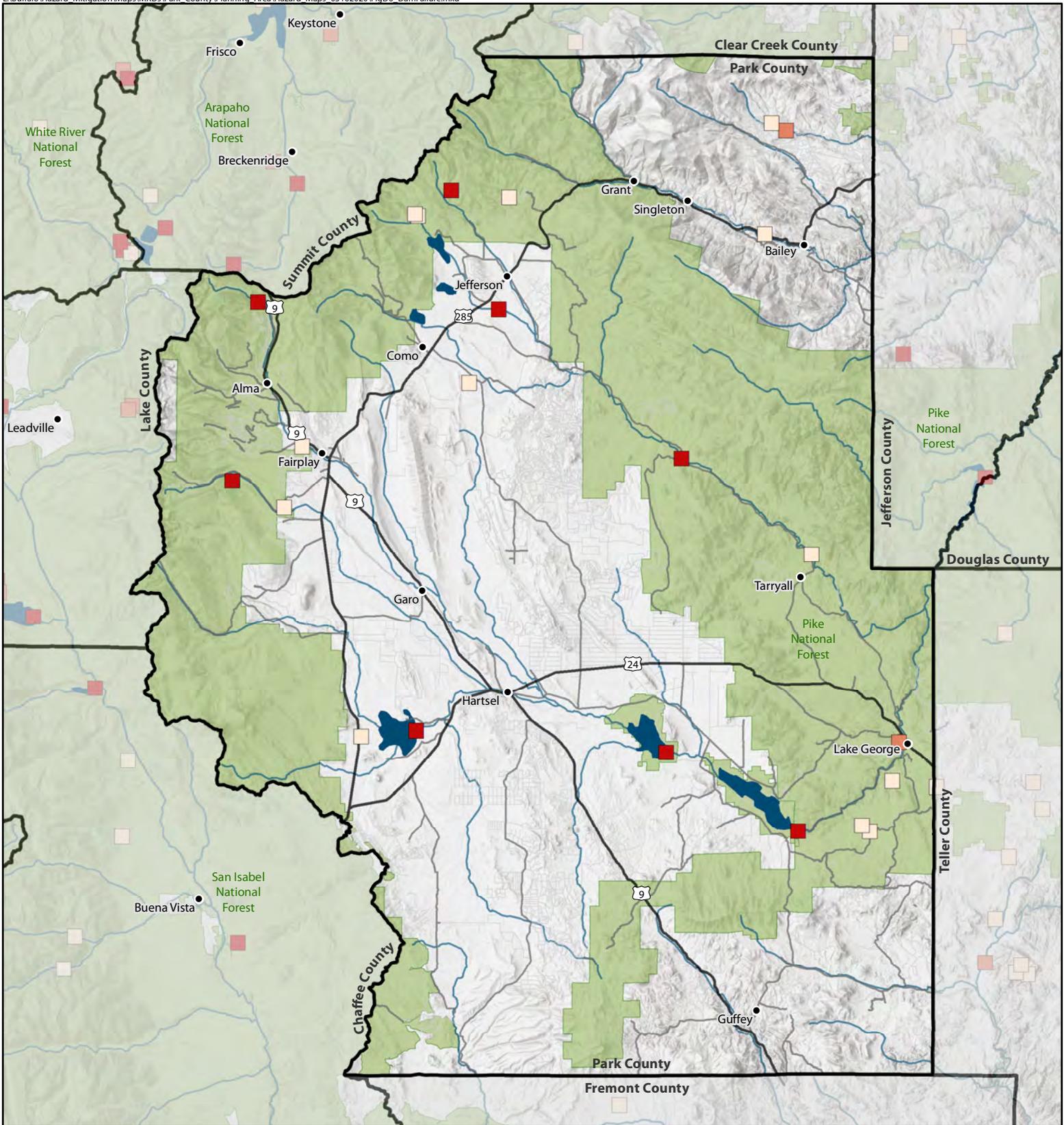
Park County  
Hazard Mitigation Plan

- Town
- Stream
- Highway
- Major Road
- Minor Road
- Waterbody
- County Boundary

Wildland Fire Potential

- High
- Low



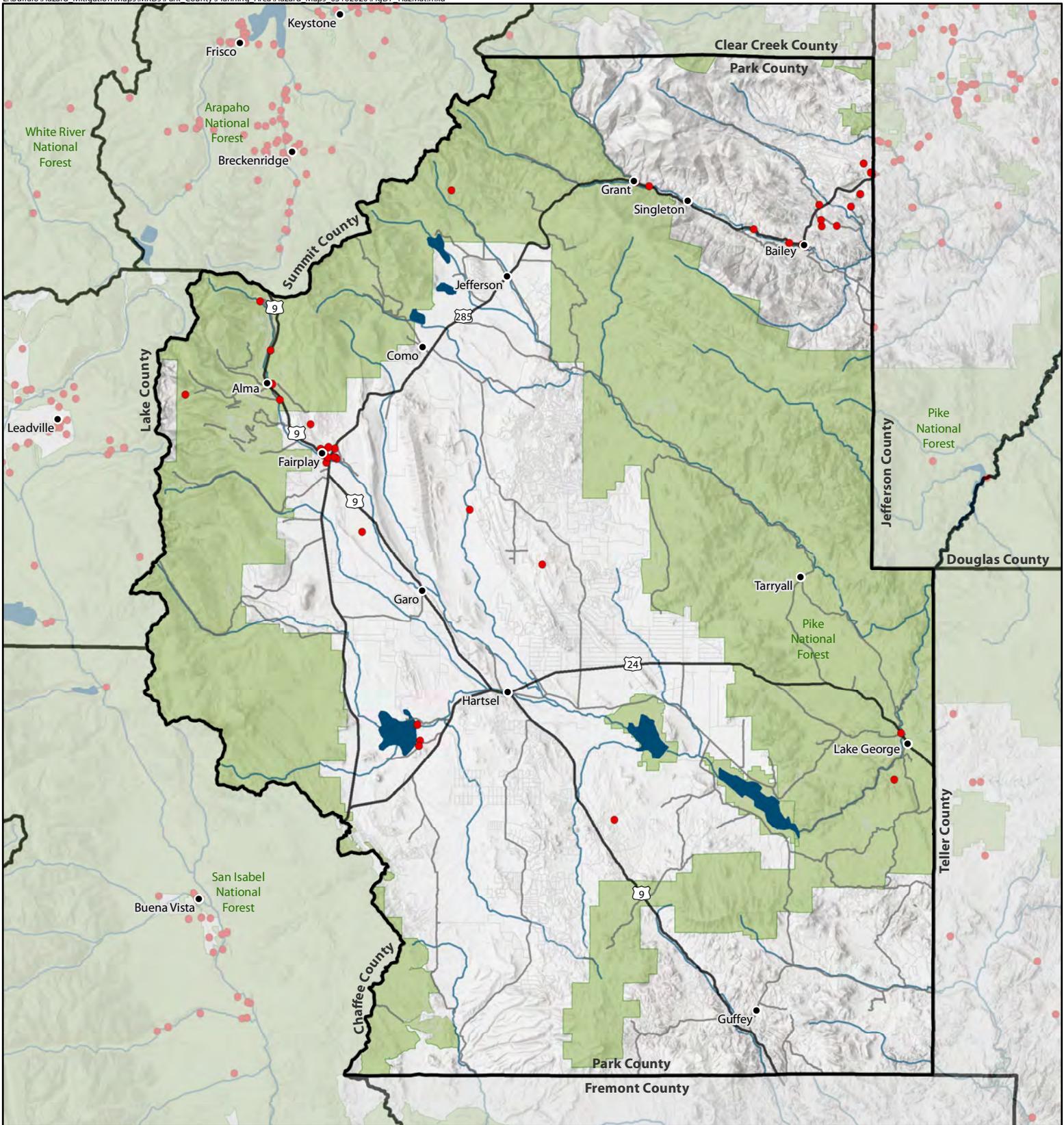


**Figure D-6**  
**Dam Failure Hazard**

Park County  
Hazard Mitigation Plan

- Town
  - Stream
  - Highway
  - Major Road
  - Minor Road
  - Waterbody
  - Park
  - ▭ County Boundary
- Dam Failure Hazard**
- High
  - Significant
  - Low



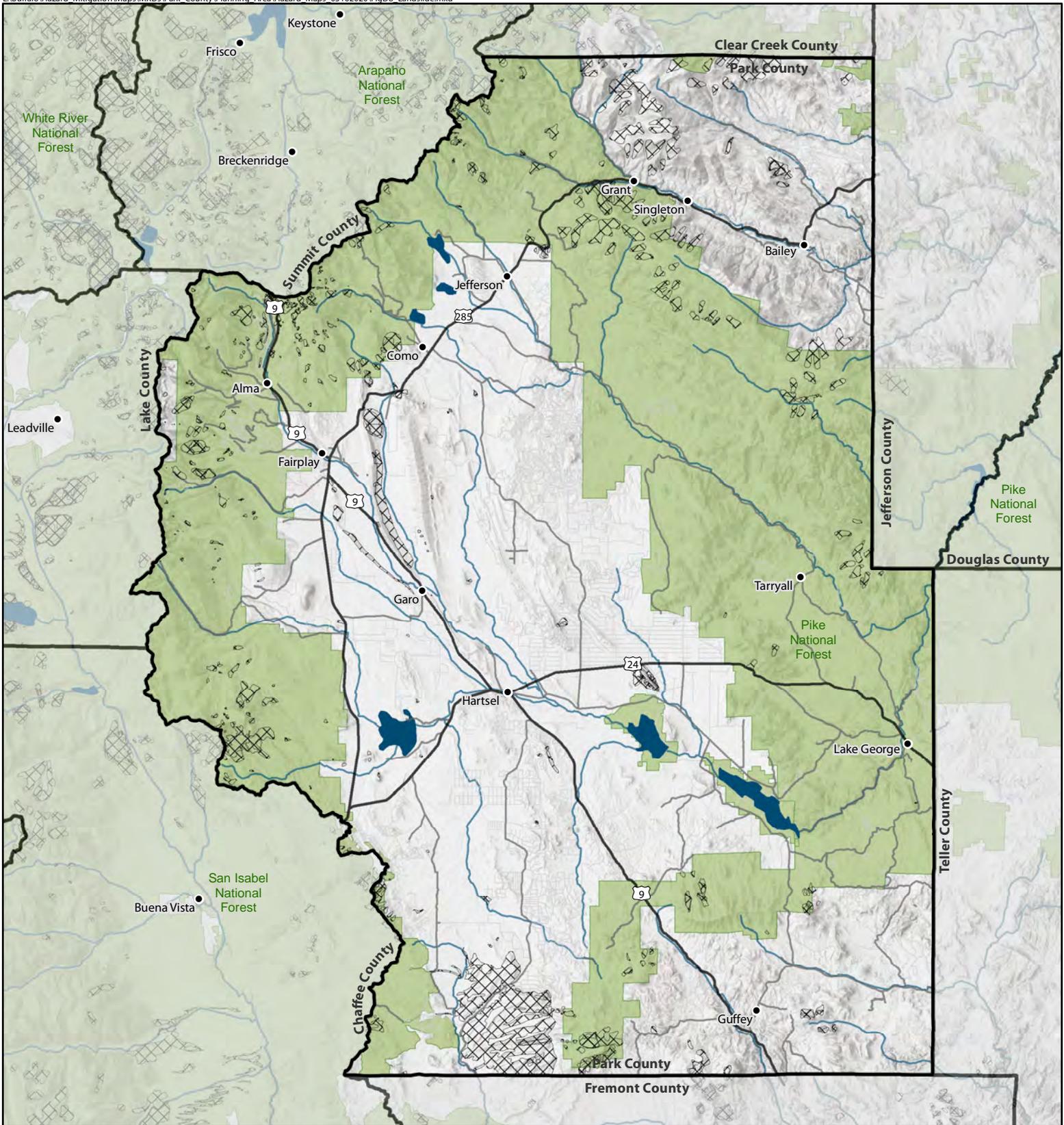


**Figure D-7**  
**Hazardous Materials**

Park County  
Hazard Mitigation Plan

- Hazardous Materials Facility
- Town
- Stream
- Highway
- Major Road
- Minor Road
- Waterbody
- Park
- County Boundary





**Figure D-8**  
**Landslide Hazard**

Park County  
Hazard Mitigation Plan

- Town
- Stream
- Highway
- Major Road
- Minor Road
- Waterbody
- Park
- County Boundary
- ▨ Landslide Debris



April 2020



Source: CO 2020, ESRI 2019



## **D.2 Hazard Assessment Data**

## Park County - Local Hazards

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>		<i>Average</i>	<i>Rank</i>
<b>Wildfire</b>	4.77	4.27	4.23	4.54		4.42	1
<b>Severe Winter Weather</b>	4.62	3.62	3.92	3.85		4.05	2
<b>Severe Thunderstorm, Hail, and Wind</b>	4.31	3.00	4.08	2.69		3.79	3
<b>Flood</b>	3.00	3.15	3.62	3.92		3.26	4
<b>Hazardous Materials</b>	3.12	2.38	3.77	2.46		3.09	5
<b>Dam Failure</b>	1.62	3.62	4.00	3.88		3.08	6
<b>Landslide</b>	2.27	1.85	4.00	3.38		2.71	7
<b>Earthquake</b>	1.15	2.31	4.04	2.85		2.50	8
<b>Drought</b>	3.31	2.08	1.54	4.08		2.31	9

## Park County - Local Hazards

**Agency/Organization: Development Services**

**Name: Sheila Cross, Director**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk (↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	4	3	1	5		
<b>Earthquake</b>	3	5	5	2		
<b>Flood</b>	2	4	5	3		
<b>Severe Winter Weather</b>	5	3	3	4		
<b>Wildfire</b>	5	3	4	4		
<b>Dam Failure</b>	2	4	5	3		
<b>Hazardous Materials</b>	2	2	5	3		
<b>Landslide</b>	4	2	5	1		
<b>Severe Thunderstorm, Hail, and Wind</b>	5	4	5	2		

## Park County - Local Hazards

**Agency/Organization: Park 911**

**Name: Maria Mitchell**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk (↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	4	4	3	2	1	
<b>Earthquake</b>	1	1	1	1	1	
<b>Flood</b>	4	4	4	4	0	
<b>Severe Winter Weather</b>	4	5	5	4	0	
<b>Wildfire</b>	5	5	5	5	0	
<b>Dam Failure</b>	2	2	5	4.5	0	
<b>Hazardous Materials</b>	3	3	3	1	0	
<b>Landslide</b>	2	2	2	2	1	
<b>Severe Thunderstorm, Hail, and Wind</b>	5	5	5	2	0	

## Park County - Local Hazards

**Agency/Organization: Park County Coroner**

**Name: David E Kintz Jr.**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	1	1	1	3		
<b>Earthquake</b>	1	3	5	1		
<b>Flood</b>	2	2	1	2		
<b>Severe Winter Weather</b>	5	5	4	5		
<b>Wildfire</b>	4	4	3	4		
<b>Dam Failure</b>	2	5	1	4		
<b>Hazardous Materials</b>	4	3	1	2		
<b>Landslide</b>	4	3	2	5		
<b>Severe Thunderstorm, Hail, and Wind</b>	4	3	1	2		

## Park County - Local Hazards

**Agency/Organization: Platte Canyon Fire**

**Name: Joe Burgett**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	4	3	3	3	↔	
<b>Earthquake</b>	1	3	5	4	↔	
<b>Flood</b>	3	4	5	4	↑	
<b>Severe Winter Weather</b>	5	5	4	4	↑	
<b>Wildfire</b>	5	5	5	5	↑	
<b>Dam Failure</b>	3	4	5	4	↑	
<b>Hazardous Materials</b>	5	2	5	3	↑	
<b>Landslide</b>	3	3	5	3	↔	
<b>Severe Thunderstorm, Hail, and Wind</b>	5	2	4	2	↔	

## Park County - Local Hazards

**Agency/Organization: Southern Park County Fire (Guffey Fire & EMS)** **Name: Eugene Farmer**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk (↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	4	2	1	5	↔	
<b>Earthquake</b>	1	3	5	4	↔	
<b>Flood</b>	1	1	3	4	↔	
<b>Severe Winter Weather</b>	4	2	3	3	↔	
<b>Wildfire</b>	5	5	4	5	↔	
<b>Dam Failure</b>	1	1	4	3	↔	
<b>Hazardous Materials</b>	2	3	5	3	↔	
<b>Landslide</b>	2	1	4	4	↔	
<b>Severe Thunderstorm, Hail, and Wind</b>	4	2	4	3	↔	

## Park County - Local Hazards

**Agency/Organization: Park County**

**Name: Brad Golden**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	3	3	2	4		
<b>Earthquake</b>	1	1	1	3		county has a fault line
<b>Flood</b>	5	3	3	3		snow melt
<b>Severe Winter Weather</b>	5	5	5	4		south park has severe weather
<b>Wildfire</b>	5	5	5	5		national lands surround
<b>Dam Failure</b>	2	4	3	2		possible, not probable
<b>Hazardous Materials</b>	4	2	3	2		major roadways
<b>Landslide</b>	2	2	2	2		possible
<b>Severe Thunderstorm, Hail, and Wind</b>	3	2	3	3		moderate summer storms

## Park County - Local Hazards

**Agency/Organization: South Park Ambulance District**

**Name: Paul Mattson**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	3	1	1	5	↔	
<b>Earthquake</b>	1	3	5	1	↔	
<b>Flood</b>	3	3	4	3	↔	
<b>Severe Winter Weather</b>	5	2	5	5	↑	
<b>Wildfire</b>	5	4	5	5	↑	
<b>Dam Failure</b>	1	1	4	4	↔	
<b>Hazardous Materials</b>	5	2	5	2	↔	
<b>Landslide</b>	2	1	5	3	↔	
<b>Severe Thunderstorm, Hail, and Wind</b>	5	2	5	2	↔	

## Park County - Local Hazards

**Agency/Organization: Fire Adapted Bailey**

**Name: John Van Doren**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	4	1	1	5		
<b>Earthquake</b>	1	2	5	4		
<b>Flood</b>	3	3	3	5		
<b>Severe Winter Weather</b>	3	4	3	4		
<b>Wildfire</b>	5	5	4	5		flood follows
<b>Dam Failure</b>	1	5	5	5		
<b>Hazardous Materials</b>	3	1	5	3		
<b>Landslide</b>	3	3	5	5		
<b>Severe Thunderstorm, Hail, and Wind</b>	4	2	3	3		

## Park County - Local Hazards

**Agency/Organization: North-West Fire Protection District**

**Name: Trent Smith**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	4	2	3	4	↑	
<b>Earthquake</b>	1	1	1	1	↔	
<b>Flood</b>	4	5	5	4	↔	
<b>Severe Winter Weather</b>	5	3	4	4	↑	
<b>Wildfire</b>	5	4	5	3	↑	
<b>Dam Failure</b>	1	5	5	5	↔	
<b>Hazardous Materials</b>	2	3	5	3	↔	
<b>Landslide</b>	2	1	5	3	↔	
<b>Severe Thunderstorm, Hail, and Wind</b>	5	2	5	3	↑	

## Park County - Local Hazards

Agency/Organization: Lake George Fire Protection District						Name: Susan Bernstetter
	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk (↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
Drought	4	3	1	5	↔	
Earthquake	1	4	5	5	↔	
Flood	4	3	2	4	↑	
Severe Winter Weather	5	2	4	2	↑	
Wildfire	5	5	1	5	↑	
Dam Failure	1	5	5	5	↔	
Hazardous Materials	4	2	1	3	↑	
Landslide	1	2	3	4	↔	
Severe Thunderstorm, Hail, and Wind	4	4	5	5	↑	increase in tornadoes

## Park County - Local Hazards

**Agency/Organization: Park County Sheriff's Office**

**Name: Mark Dahlsten**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk (↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	4	1	1	5		
<b>Earthquake</b>	1	1	5	5		
<b>Flood</b>	1	2	4	5		
<b>Severe Winter Weather</b>	4	2	3	4		
<b>Wildfire</b>	5	3	5	5		
<b>Dam Failure</b>	1	5	5	5		
<b>Hazardous Materials</b>	2	3.5	5	3		
<b>Landslide</b>	1	1	5	5		
<b>Severe Thunderstorm, Hail, and Wind</b>	4	2.5	4	3		

## Park County - Local Hazards

**Agency/Organization: Town of Fairplay**

**Name: Marcus Woodward**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	1	1	1	4		
<b>Earthquake</b>	1	2	4.5	5		
<b>Flood</b>	4	5	5	5		
<b>Severe Winter Weather</b>	5	4	4	4		
<b>Wildfire</b>	3	2.5	4	5		
<b>Dam Failure</b>	2	5	4	5		
<b>Hazardous Materials</b>	3.5	3.5	5	3		
<b>Landslide</b>	1.5	2	4	5		
<b>Severe Thunderstorm, Hail, and Wind</b>	4	3.5	4	2		

## Park County - Local Hazards

**Agency/Organization: Park County Office of Emergency Management**

**Name: Gene Stanley**

	<i>Probability/Frequency (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk ( ↑, ↓, ↔ since 2015)</i>	<i>Notes</i>
<b>Drought</b>	3	2	1	3	↔	
<b>Earthquake</b>	1	1	5	1	↔	
<b>Flood</b>	3	2	3	5	↔	
<b>Severe Winter Weather</b>	5	5	4	3	↔	
<b>Wildfire</b>	5	5	5	3	↔	
<b>Dam Failure</b>	2	1	1	1	↔	
<b>Hazardous Materials</b>	1	1	1	1	↔	
<b>Landslide</b>	2	1	5	2	↔	
<b>Severe Thunderstorm, Hail, and Wind</b>	4	5	5	3	↔	

## Exposure Assessment (Parcels)

### Sources:

### Hazards:

Flood	CO 2020
Earthquake	CO 2020
Wildfire	USGS 2018
Dam Failure	CO 2020
Landslide	CO 2020

Received from State

Received from State

<https://www.fs.usda.gov/rds/archive/catalog/RDS-2015-0047-2>

Received from State

Received from State

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels Sum of L_VALUE	Count of LAND_TY	Fire District Facility Parcels Sum of L_VALUE	Count of LAND_TY	Total Sum of L_VALUE	Total Count of LAND_TY
<b>0</b>					<b>\$100,427.02</b>	<b>1</b>
Vacant Land					\$100,427.02	1
<b>0.117</b>					<b>\$38,162,856.37</b>	<b>318</b>
					\$0.00	3
Agricultural					\$2,664.06	1
Exempt					\$2,305,675.62	3
Mixed Use- Com					\$326,303.40	2
Mixed Use-AgRes					\$55,287.70	1
Residential					\$33,262,307.85	293
Vacant Land					\$2,210,617.74	15
<b>0.118</b>			<b>\$61,646.30</b>	<b>1</b>	<b>\$69,489,645.97</b>	<b>1313</b>
					\$0.00	8
Agricultural					\$147,284.85	22
Commercial					\$3,075,875.17	21
Exempt			\$61,646.30	1	\$3,866,983.87	30
Industrial					\$147,193.91	1
Mixed Use- Com					\$1,097,268.92	2
Mixed Use-AgRes					\$227,860.94	4
Mobile Home					\$143,040.01	3
Residential					\$51,453,314.32	1087
Vacant Land					\$9,330,823.98	135
<b>0.119</b>			<b>\$138,969.58</b>	<b>2</b>	<b>\$154,248,577.67</b>	<b>2042</b>
					\$0.00	18
Agricultural					\$574,328.69	30
Commercial					\$5,902,515.81	60
Exempt			\$138,969.58	2	\$21,097,263.55	68
Mining					\$40,283.09	1
Mixed Use- Com					\$2,878,917.56	22
Mixed Use-AgRes					\$474,142.70	12
Mobile Home					\$615,640.00	14
Residential					\$106,902,031.31	1620
Vacant Land					\$15,763,454.96	197
<b>0.12</b>			<b>\$38,650.36</b>	<b>2</b>	<b>\$114,520,497.62</b>	<b>2786</b>

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
					\$0.00	52
Agricultural					\$687,074.81	144
Commercial					\$1,781,613.65	30
Exempt			\$38,650.36	2	\$27,595,664.83	37
Mixed Use- Com					\$2,515,465.59	11
Mixed Use-AgRes					\$1,477,783.15	54
Mobile Home					\$1,171,649.16	53
Residential					\$65,806,547.47	1469
Vacant Land					\$13,484,698.96	936
<b>0.121</b>			<b>\$23,920.80</b>	<b>1</b>	<b>\$115,099,721.34</b>	<b>1911</b>
					\$0.00	16
Agricultural					\$281,677.29	42
Commercial					\$16,796.70	1
Exempt			\$23,920.80	1	\$56,295,096.97	36
Mining					\$214,431.44	6
Mixed Use- Com					\$615,782.64	6
Mixed Use-AgRes					\$756,223.10	20
Mobile Home					\$185,040.66	5
Residential					\$39,179,797.36	865
Vacant Land					\$17,554,875.18	914
<b>0.122</b>			<b>\$8,050,551.47</b>	<b>1</b>	<b>\$53,885,551.83</b>	<b>710</b>
					\$0.00	6
Agricultural					\$643,332.05	72
Commercial					\$226,874.20	2
Exempt			\$8,050,551.47	1	\$25,981,073.14	12
Mining					\$400,745.47	10
Mixed Use- Com					\$565,535.60	3
Mixed Use-AgRes					\$892,434.48	33
Mobile Home					\$535,272.93	8
Residential					\$14,976,896.56	252
Vacant Land					\$9,663,387.40	312
<b>0.123</b>			<b>\$156,628.75</b>	<b>3</b>	<b>\$83,646,962.28</b>	<b>1188</b>

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
					\$0.00	23
Agricultural					\$570,355.54	157
Commercial					\$480,091.07	3
Exempt			\$9,775.92	1	\$47,028,322.43	25
Mining					\$67,942.48	1
Mixed Use- Com					\$1,652,097.63	9
Mixed Use-AgRes					\$897,068.91	42
Mobile Home					\$186,096.27	5
Residential			\$146,852.83	2	\$18,861,848.97	412
Vacant Land					\$13,903,138.98	511
<b>0.124</b>			<b>\$172,249.63</b>	<b>2</b>	<b>\$100,729,338.61</b>	<b>1056</b>
					\$0.00	29
Agricultural					\$797,197.91	118
Commercial					\$249,580.24	7
Exempt			\$172,249.63	2	\$62,278,849.33	52
Mining					\$24,303.51	1
Mixed Use- Com					\$616,534.51	6
Mixed Use-AgRes					\$717,280.92	29
Mobile Home					\$510,147.23	8
Residential					\$19,778,713.67	264
Vacant Land					\$15,756,731.29	542
<b>0.125</b>					<b>\$76,709,127.17</b>	<b>1785</b>
					\$0.00	23
Agricultural					\$856,796.65	170
Commercial					\$103,412.78	1
Exempt					\$38,051,146.74	44
Mixed Use- Com					\$114,971.84	1
Mixed Use-AgRes					\$753,274.57	28
Mobile Home					\$82,904.04	9
Residential					\$15,115,780.75	309
Vacant Land					\$21,630,839.80	1200
<b>0.126</b>			<b>\$61,072.83</b>	<b>4</b>	<b>\$186,327,270.81</b>	<b>5557</b>

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
					\$0.00	52
Agricultural					\$1,722,325.62	210
Commercial					\$678,075.67	8
Exempt			\$61,072.83	4	\$84,320,089.24	105
Mixed Use- Com					\$70,111.76	2
Mixed Use-AgRes					\$1,432,722.88	31
Mobile Home					\$575,445.14	38
Residential					\$39,183,199.18	1250
Vacant Land					\$58,345,301.32	3861
<b>0.127</b>					<b>\$90,515,847.49</b>	<b>3163</b>
					\$0.00	20
Agricultural					\$599,346.97	149
Commercial					\$66,310.00	1
Exempt					\$44,854,247.20	125
Mining					\$1,364.98	2
Mixed Use- Com					\$562,198.60	2
Mixed Use-AgRes					\$909,864.83	30
Mobile Home					\$94,877.29	7
Nat. Resources					\$68,758.56	1
Residential					\$17,466,753.00	553
Vacant Land					\$25,892,126.06	2273
<b>0.128</b>			<b>\$21,161.73</b>	<b>2</b>	<b>\$62,355,465.60</b>	<b>2498</b>
			\$0.00	1	\$0.00	15
Agricultural					\$869,402.83	196
Commercial					\$267,500.73	1
Exempt			\$21,161.73	1	\$38,388,299.48	155
Mixed Use-AgRes					\$786,211.34	33
Mobile Home					\$23,215.93	3
Residential					\$4,940,208.29	141
Vacant Land					\$17,080,627.00	1954
<b>0.129</b>			<b>\$8,367.70</b>	<b>1</b>	<b>\$62,355,972.46</b>	<b>1921</b>

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
					\$0.00	14
Agricultural					\$653,492.08	182
Commercial					\$270,965.86	2
Exempt			\$8,367.70	1	\$38,001,101.22	49
Mining					\$161,309.21	5
Mixed Use- Com					\$608,673.06	3
Mixed Use-AgRes					\$687,791.58	36
Mobile Home					\$89,947.06	9
Residential					\$6,811,611.67	162
Vacant Land					\$15,071,080.72	1459
<b>0.13</b>					<b>\$53,168,841.73</b>	<b>2051</b>
					\$0.00	14
Agricultural					\$1,294,416.24	275
Commercial					\$969,028.96	13
Exempt					\$31,506,160.99	42
Mining					\$17,623.80	10
Mixed Use- Com					\$361,384.12	5
Mixed Use-AgRes					\$1,008,423.82	11
Mobile Home					\$7,259.50	1
Residential					\$4,094,939.70	90
Vacant Land					\$13,909,604.60	1590
<b>0.131</b>	<b>\$9,591,448.21</b>	<b>346</b>			<b>\$111,630,605.02</b>	<b>2388</b>
	\$0.00	13			\$0.00	44
Agricultural	\$9,096.30	2			\$650,553.06	159
Commercial	\$1,239,667.86	18			\$1,368,716.77	19
Exempt	\$2,172,496.61	27			\$58,545,410.38	160
Mining					\$1,784,835.05	126
Mixed Use- Com					\$194,234.40	1
Mixed Use-AgRes					\$715,244.70	10
Mobile Home	\$99,958.80	2			\$133,853.48	5
Nat. Resources					\$1,972,146.32	5
Residential	\$4,719,982.78	200			\$24,636,712.09	483
Vacant Land	\$1,350,245.86	84			\$21,628,898.77	1376
<b>0.132</b>	<b>\$9,283,825.58</b>	<b>324</b>	<b>\$42,105.25</b>	<b>2</b>	<b>\$106,357,929.94</b>	<b>2438</b>

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
	\$0.00	10			\$0.00	35
Agricultural					\$318,667.67	41
Commercial	\$4,109,660.52	87			\$7,328,808.35	132
Exempt	\$1,934,228.14	34	\$42,105.25	2	\$21,925,908.78	91
Mining					\$1,402,739.46	15
Mixed Use- Com	\$1,257,928.57	23			\$2,384,631.47	33
Mixed Use-AgRes					\$310,928.87	7
Mobile Home	\$34,585.14	13			\$367,824.94	33
Nat. Resources					\$6,641,290.28	4
Residential	\$1,654,345.70	107			\$40,226,698.77	982
Vacant Land	\$293,077.51	50			\$25,450,431.35	1065
<b>0.133</b>					<b>\$107,203,652.16</b>	<b>2158</b>
					\$0.00	64
Agricultural					\$919,488.94	252
Commercial					\$1,153,068.76	7
Exempt					\$23,619,822.69	35
Mining					\$516,584.28	221
Mixed Use- Com					\$146,966.07	1
Mixed Use-AgRes					\$217,687.92	11
Mobile Home					\$898,195.81	15
Nat. Resources					\$665,452.74	2
Residential					\$43,846,274.28	675
Vacant Land					\$35,220,110.67	875
<b>0.134</b>					<b>\$244,929,296.64</b>	<b>2192</b>
					\$0.00	70
Agricultural					\$569,366.25	86
Exempt					\$171,752,351.63	63
Mining					\$4,901,205.98	435
Mixed Use-AgRes					\$222,912.29	9
Mobile Home					\$509,414.29	8
Nat. Resources					\$49,103.33	1
Residential					\$38,457,653.36	820
Vacant Land					\$28,467,289.51	700
<b>0.135</b>			<b>\$146,150.00</b>	<b>1</b>	<b>\$30,564,875.90</b>	<b>477</b>

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels Sum of L_VALUE	Count of LAND_TY	Fire District Facility Parcels Sum of L_VALUE	Count of LAND_TY	Total Sum of L_VALUE	Total Count of LAND_TY
					\$0.00	19
Agricultural					\$79,846.77	16
Exempt			\$146,150.00	1	\$12,322,664.55	26
Mining					\$497,501.34	133
Mixed Use-AgRes					\$146,095.87	5
Mobile Home					\$64,020.44	3
Residential					\$9,323,133.17	105
Vacant Land					\$8,131,613.76	170
<b>0.136</b>			<b>\$35,492.00</b>	<b>1</b>	<b>\$97,479,869.58</b>	<b>1647</b>
					\$0.00	37
Agricultural					\$123,474.62	11
Exempt			\$35,492.00	1	\$66,720,945.18	63
Mining					\$957,983.26	411
Mixed Use-AgRes					\$379,071.81	9
Residential					\$9,546,448.80	291
Vacant Land					\$19,751,945.91	825
<b>0.137</b>					<b>\$10,897,780.07</b>	<b>250</b>
					\$0.00	8
Agricultural					\$64,317.85	8
Exempt					\$2,316,468.99	4
Mining					\$34,446.23	43
Mixed Use-AgRes					\$170,812.30	4
Mobile Home					\$62,521.66	1
Residential					\$4,493,316.46	60
Vacant Land					\$3,755,896.58	122
<b>0.138</b>			<b>\$6,091.74</b>	<b>1</b>	<b>\$45,246,412.69</b>	<b>1097</b>
					\$0.00	25
Agricultural					\$93,606.85	8
Exempt			\$6,091.74	1	\$21,040,508.54	14
Mining					\$340,032.10	88
Mixed Use- Com					\$151,240.91	1
Mixed Use-AgRes					\$259,730.12	6
Mobile Home					\$71,819.61	3
Residential					\$9,087,184.43	336
Vacant Land					\$14,202,290.13	616
<b>0.139</b>					<b>\$16,973.72</b>	<b>1</b>

2500-yr Peak Ground Acceleration

Row Labels	Fairplay Parcels Sum of L_VALUE	Count of LAND_TY	Fire District Facility Parcels Sum of L_VALUE	Count of LAND_TY	Total Sum of L_VALUE	Total Count of LAND_TY
Agricultural					\$16,973.72	1
<b>0.14</b>					<b>\$4,336,863.46</b>	<b>5</b>
Exempt					\$4,280,661.05	3
Mining					\$56,202.41	2
<b>0.141</b>					<b>\$16,260,004.03</b>	<b>23</b>
					\$0.00	1
Exempt					\$14,112,005.99	8
Mining					\$9,650.73	3
Vacant Land					\$2,138,347.31	11
<b>0.142</b>					<b>\$2,635,614.02</b>	<b>7</b>
Exempt					\$2,370,751.30	1
Mining					\$264,862.72	6
<b>0.144</b>					<b>\$1,373,749.70</b>	<b>3</b>
Exempt					\$1,319,184.39	1
Mining					\$54,565.31	2
<b>All Parcels</b>	<b>\$18,875,273.79</b>	<b>670</b>	<b>\$8,963,058.14</b>	<b>24</b>	<b>\$2,040,249,730.90</b>	<b>40986</b>

**Wildfire Fire Hazard**

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
					<b>\$100,427.02</b>	<b>1</b>
Vacant Land					\$100,427.02	1
<b>High</b>					<b>\$92,001,733.00</b>	<b>1039</b>
					\$0.00	2
Agricultural					\$238,579.43	43
Commercial					\$2,121,458.51	15
Exempt					\$34,981,646.19	32
Mixed Use- Com					\$2,164,362.88	6
Mixed Use-AgRes					\$443,286.47	15
Mobile Home					\$122,162.27	3
Residential					\$43,138,956.17	701
Vacant Land					\$8,791,281.08	222
<b>Low</b>			<b>\$8,318,382.87</b>	<b>7</b>	<b>\$369,131,150.88</b>	<b>5144</b>
					\$0.00	61
Agricultural					\$1,759,324.35	251
Commercial					\$4,724,491.92	49
Exempt			\$8,284,864.07	6	\$138,871,164.09	120
Industrial					\$147,193.91	1
Mining					\$596,827.97	15
Mixed Use- Com					\$3,660,228.75	22
Mixed Use-AgRes					\$2,324,190.85	88
Mobile Home					\$1,762,601.07	44
Residential			\$33,518.80	1	\$172,561,938.50	2967
Vacant Land					\$42,723,189.47	1526
<b>Medium</b>					<b>\$91,408,673.99</b>	<b>1091</b>
					\$0.00	18
Agricultural					\$214,449.54	48
Commercial					\$205,087.23	2
Exempt					\$28,263,347.21	20
Mixed Use- Com					\$1,207,340.31	3
Mixed Use-AgRes					\$936,864.20	27
Mobile Home					\$221,542.47	6
Residential					\$45,864,461.94	697
Vacant Land					\$14,495,581.09	270
<b>Very High</b>					<b>\$16,310,304.34</b>	<b>278</b>

**Wildfire Fire Hazard**

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
					\$0.00	2
Agricultural					\$96,393.54	24
Commercial					\$200,930.92	2
Exempt					\$1,664,514.46	2
Mining					\$46,302.41	1
Mixed Use- Com					\$214,475.20	1
Mixed Use-AgRes					\$92,617.04	5
Mobile Home					\$168,634.28	3
Residential					\$10,985,316.43	173
Vacant Land					\$2,841,120.06	65
<b>Very Low</b>	<b>\$18,875,273.79</b>	<b>670</b>	<b>\$644,675.27</b>	<b>17</b>	<b>\$1,471,297,441.67</b>	<b>33433</b>
	\$0.00	23	\$0.00	1	\$0.00	513
Agricultural	\$9,096.30	2			\$10,227,244.46	1984
Commercial	\$5,349,328.38	105			\$16,687,266.14	240
Exempt	\$4,106,724.75	61	\$531,341.24	15	\$718,115,986.13	1078
Mining					\$11,105,482.47	1505
Mixed Use- Com	\$1,257,928.57	23			\$7,615,910.94	78
Mixed Use-AgRes					\$9,701,896.24	290
Mobile Home	\$134,543.94	15			\$4,053,245.36	175
Nat. Resources					\$9,396,751.23	13
Residential	\$6,374,328.48	307	\$113,334.03	1	\$344,900,698.42	7981
Vacant Land	\$1,643,323.37	134			\$339,492,960.28	19576
<b>All Parcels</b>	<b>\$18,875,273.79</b>	<b>670</b>	<b>\$8,963,058.14</b>	<b>24</b>	<b>\$2,040,249,730.90</b>	<b>40986</b>

**100-yr Floodzone**

Row Labels	Fairplay Parcels		Fire District Facility Parcels		Total Sum of L_VALUE	Total Count of LAND_TY
	Sum of L_VALUE	Count of LAND_TY	Sum of L_VALUE	Count of LAND_TY		
<b>100-yr Floodzone</b>	<b>\$1,424,164.27</b>	<b>23</b>	<b>\$8,109,823.63</b>	<b>3</b>	<b>\$446,583,715.62</b>	<b>2406</b>
					\$0.00	41
Agricultural					\$6,314,279.21	462
Commercial	\$1,081,579.19	5			\$3,101,034.11	39
Exempt	\$206,938.89	6	\$8,076,304.83	2	\$314,732,272.92	234
Mining					\$652,029.64	29
Mixed Use- Com					\$5,041,081.16	21
Mixed Use-AgRes					\$5,796,036.01	117
Mobile Home					\$816,250.72	13
Nat. Resources					\$8,343,245.23	8
Residential			\$33,518.80	1	\$64,406,788.08	646
Vacant Land	\$135,646.19	12			\$37,380,698.54	796
<b>All Parcels</b>	<b>\$1,424,164.27</b>	<b>23</b>	<b>\$8,109,823.63</b>	<b>3</b>	<b>\$446,583,715.62</b>	<b>2406</b>

## Landslide Debris

Row Labels	Total Sum of L_VALUE	Total Count of LAND_TY
<b>Landslide Debris</b>	<b>\$237,145,157.51</b>	<b>1258</b>
	\$0.00	38
Agricultural	\$862,790.41	86
Exempt	\$197,663,286.22	95
Mining	\$2,477,403.24	216
Mixed Use- Com	\$512,585.40	2
Mixed Use-AgRes	\$1,392,555.35	22
Mobile Home	\$228,482.72	3
Residential	\$17,945,722.04	236
Vacant Land	\$16,062,332.13	560
<b>All Parcels</b>	<b>\$237,145,157.51</b>	<b>1258</b>

\*No parcels within Fairplay or fire district facilities are located within a landslide debris area

Within 1000 feet of Dam

Row Labels	Fire District Facility Parcels Sum of L_VALUE	Count of LAND_TY	Total Sum of L_VALUE	Total Count of LAND_TY
<b>H</b>			<b>\$6,594,434.53</b>	<b>12</b>
			\$0.00	1
Agricultural			\$185,565.26	2
Exempt			\$6,228,077.61	4
Mining			\$42,250.29	3
Mixed Use-AgRes			\$72,865.62	1
Vacant Land			\$65,675.75	1
<b>L</b>	<b>\$8,050,551.47</b>	<b>1</b>	<b>\$32,657,666.10</b>	<b>318</b>
			\$0.00	2
Agricultural			\$24,355.72	2
Commercial			\$0.00	12
Exempt	\$8,050,551.47	1	\$23,722,701.43	11
Mixed Use-AgRes			\$25,236.41	1
Mobile Home			\$25,833.18	4
Nat. Resources			\$1,168,155.11	1
Residential			\$5,496,297.42	143
Vacant Land			\$2,195,086.83	142
<b>S</b>			<b>\$3,539,938.20</b>	<b>52</b>
Agricultural			\$5,890.00	2
Exempt			\$2,624,352.98	3
Mixed Use-AgRes			\$105,550.97	2
Residential			\$502,554.47	27
Vacant Land			\$301,589.78	18
<b>All Parcels</b>	<b>\$8,050,551.47</b>	<b>1</b>	<b>\$42,792,038.83</b>	<b>382</b>

\*No parcels in Fairplay are within 1000 feet of a dam

H = High

S = Significant

L = Low

## Exposure Assessment (Critical Facilities)

### **Sources:**

#### *Hazards:*

Flood	CO 2020	Received from State
Earthquake	CO 2020	Received from State
Wildfire	USGS 2018	<a href="https://www.fs.usda.gov/rds/archive/catalog/RDS-2015-0047-2">https://www.fs.usda.gov/rds/archive/catalog/RDS-2015-0047-2</a>
Dam Failure	CO 2020	Received from State
Landslide	CO 2020	Received from State

#### *Critical Facilities:*

Bridge	NTAD 2016	<a href="https://catalog.data.gov/dataset/national-bridge-inventory-national-geospatial-data-asset-ngda-bridges">https://catalog.data.gov/dataset/national-bridge-inventory-national-geospatial-data-asset-ngda-bridges</a>
Com Tower	FCC 2018	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/am-transmission-towers">https://hifld-geoplatform.opendata.arcgis.com/datasets/am-transmission-towers</a>
Dam	USGS 2019	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/national-hydrography-dataset-nhd-points">https://hifld-geoplatform.opendata.arcgis.com/datasets/national-hydrography-dataset-nhd-points</a>
Electric Substation	HIFLD 2019	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/electric-substations">https://hifld-geoplatform.opendata.arcgis.com/datasets/electric-substations</a>
Emergency Operations Ce	HIFLD 2018	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/local-emergency-operations-centers-eoc">https://hifld-geoplatform.opendata.arcgis.com/datasets/local-emergency-operations-centers-eoc</a>
Emergency Shelter	FEMA 2020	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/national-shelter-system-facilities">https://hifld-geoplatform.opendata.arcgis.com/datasets/national-shelter-system-facilities</a>
Fire Station	USGS 2020	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/fire-stations-1">https://hifld-geoplatform.opendata.arcgis.com/datasets/fire-stations-1</a>
Hazardous Waste Facility	EPA 2020	<a href="https://www.epa.gov/frs/geospatial-data-download-service">https://www.epa.gov/frs/geospatial-data-download-service</a>
Hydroelectric Plant	HIFLD 2019	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/power-plants">https://hifld-geoplatform.opendata.arcgis.com/datasets/power-plants</a>
Law Enforcement	DOJ 2019	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/local-law-enforcement-locations">https://hifld-geoplatform.opendata.arcgis.com/datasets/local-law-enforcement-locations</a>
Medical	HIFLD 2019	<a href="https://hifld-geoplatform.opendata.arcgis.com/datasets/hospitals">https://hifld-geoplatform.opendata.arcgis.com/datasets/hospitals</a>
School	ESRI 2019	

NAME	Facility Type	Flood Hazard	Earthquake Hazard, Peak			Distance to Dam, miles
			Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	
G-12-C	Bridge	Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	5.26
G-13-G	Bridge	Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	5.91
G-14-Q	Bridge	Not Within 100yr Floodzone	0.124	Very Low	Not Within Landslide	8.60
G-14-R	Bridge	Not Within 100yr Floodzone	0.123	Very Low	Not Within Landslide	9.24
G-14-S	Bridge	Not Within 100yr Floodzone	0.123	Very Low	Not Within Landslide	9.45
G-14-T	Bridge	Not Within 100yr Floodzone	0.121	Very Low	Not Within Landslide	1.85
G-14-U	Bridge	Within 100yr Floodzone	0.12	Very Low	Not Within Landslide	1.50
G-15-J	Bridge	Within 100yr Floodzone	0.119	Low	Not Within Landslide	5.39
H-12-H	Bridge	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.93
H-13-A	Bridge	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.29
H-13-AA	Bridge	Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	6.51
H-13-E	Bridge	Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	7.04
H-13-F	Bridge	Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	6.83
H-13-G	Bridge	Within 100yr Floodzone	0.134	Very Low	Not Within Landslide	8.00
H-13-M	Bridge	Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	9.17
H-13-N	Bridge	Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	9.55
H-13-R	Bridge	Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	10.82
H-13-S	Bridge	Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	10.82
H-13-Z	Bridge	Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	7.04
H-14-A	Bridge	Not Within 100yr Floodzone	0.127	Very Low	Not Within Landslide	7.95
H-14-B	Bridge	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	7.01
H-14-C	Bridge	Not Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	7.12
I-13-G	Bridge	Not Within 100yr Floodzone	0.138	Very Low	Not Within Landslide	5.22
I-13-H	Bridge	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	3.73
I-13-I	Bridge	Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.36
I-14-I	Bridge	Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	10.64
I-15-AB	Bridge	Not Within 100yr Floodzone	0.119	Very Low	Not Within Landslide	1.68
I-15-AK	Bridge	Not Within 100yr Floodzone	0.119	Very Low	Not Within Landslide	1.68
I-15-AV	Bridge	Within 100yr Floodzone	0.119	Low	Not Within Landslide	0.60
J-14-F	Bridge	Not Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	11.02
PA14-S0.3-S9A	Bridge	Within 100yr Floodzone	0.133	Very Low	Not Within Landslide	0.59
PA211-0.1-77	Bridge	Not Within 100yr Floodzone	0.12	Very Low	Not Within Landslide	6.40
PA59-S1.1-C92A	Bridge	Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	2.75
PA64-S0.0-S285	Bridge	Within 100yr Floodzone	0.12	Low	Not Within Landslide	2.77
PA64-S0.1-S285	Bridge	Within 100yr Floodzone	0.12	Very Low	Not Within Landslide	2.26
PA853-0.1-S285	Bridge	Not Within 100yr Floodzone	0.122	Very Low	Not Within Landslide	6.74
PASS-W0.4-77	Bridge	Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	7.98
	2.121E+13 Bridge	Within 100yr Floodzone	0.121	High	Not Within Landslide	1.19
	2.121E+13 Bridge	Within 100yr Floodzone	0.121	Very High	Not Within Landslide	2.15
	2.121E+13 Bridge	Within 100yr Floodzone	0.122	Very High	Not Within Landslide	1.91
	2.121E+13 Bridge	Within 100yr Floodzone	0.122	Very Low	Not Within Landslide	1.86
	2.121E+13 Bridge	Within 100yr Floodzone	0.122	Low	Not Within Landslide	1.21
	2.1211E+13 Bridge	Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	3.30

NAME	Facility Type	Flood Hazard	Earthquake Hazard, Peak			Distance to Dam, miles
			Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	
G-15-E	Bridge	Not Within 100yr Floodzone	0.119	Very Low	Not Within Landslide	4.31
G-15-F	Bridge	Not Within 100yr Floodzone	0.119	Very Low	Not Within Landslide	4.31
J-14-C	Bridge	Within 100yr Floodzone	0.124	Low	Not Within Landslide	11.64
PA10SW4-0.2-285	Bridge	Not Within 100yr Floodzone	0.121	Very Low	Not Within Landslide	2.65
PA77-S0.2-S285	Bridge	Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	2.59
PA77-S10.6S285A	Bridge	Within 100yr Floodzone	0.124	Very Low	Not Within Landslide	0.35
PA77-S2.9-S285	Bridge	Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	2.49
PA77-S5.7-S285	Bridge	Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	5.13
PA77-S6.3-S285	Bridge	Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	5.66
PA77-S7.1S285A	Bridge	Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	6.51
PA77-S7.6-S285	Bridge	Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	6.88
PAGL4-S0.1S285A	Bridge	Within 100yr Floodzone	0.12	Very Low	Not Within Landslide	1.78
PASE1-0.1-S285	Bridge	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	6.45
LOUISIANA CALLCOMM, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	4.01
LOUISIANA CALLCOMM, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.26
LOUISIANA CALLCOMM, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	3.49
SKYTEL SPECTRUM LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.137	Very Low	Not Within Landslide	5.60
FONES WEST DIGITAL SYSTEMS, INC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	4.01
FONES WEST DIGITAL SYSTEMS, INC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.26
FONES WEST DIGITAL SYSTEMS, INC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	3.49
BELLSOUTH TELECOMMUNICATIONS, INC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	12.60
CAL-ORE TELEPHONE CO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	12.60
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.90
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.73
AT&T COMMUNICATIONS OF THE MOUNTAIN STATES, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.90
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.73
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.55
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.90
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.136	Very Low	Not Within Landslide	7.15
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.55
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.73
INTERMOUNTAIN RURAL ELECTRIC ASSOCIATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
INTERMOUNTAIN RURAL ELECTRIC ASSOCIATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
AT&T COMMUNICATIONS OF THE MOUNTAIN STATES, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
AT&T COMMUNICATIONS OF THE MOUNTAIN STATES, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
PIKES PEAK TELEVISION, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.86
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.90
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
COMMUNITY TELEVISION OF COLORADO LICENSE, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
PARK, COUNTY OF: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.80
PARK, COUNTY OF: Com Tower	Com Tower	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	4.01
PARK, COUNTY OF: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.80

NAME	Facility Type	Flood Hazard	Earthquake Hazard, Peak			Distance to Dam, miles
			Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
XCEL ENERGY SERVICES INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	6.71
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	6.63
NEW CINGULAR WIRELESS PCS, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.86
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
CITY OF COLORADO SPRINGS: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
CITY OF COLORADO SPRINGS: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	3.98
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	3.98
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.86
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.86
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.74
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.74
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.86
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.05
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.05
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.74
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	0.66
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.127	Very Low	Not Within Landslide	10.51
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	3.45
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
ROCKY MOUNTAIN PUBLIC BROADCASTING NETWORK, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
NEW CINGULAR WIRELESS PCS, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.86
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.127	Very Low	Not Within Landslide	10.51
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.127	Very Low	Not Within Landslide	10.51
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	0.66
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.127	Very Low	Not Within Landslide	10.51
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	4.00
CITY OF COLORADO SPRINGS: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
CITY OF COLORADO SPRINGS: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
CELLULAR INC. NETWORK CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.73
CELLULAR INC. NETWORK CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.52
CELLULAR INC. NETWORK CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.52
CELLULAR INC. NETWORK CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.73
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.136	Very Low	Not Within Landslide	7.15
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	1.73
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87

NAME	Facility Type	Flood Hazard	Earthquake Hazard, Peak			Distance to Dam, miles
			Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	
COMMNET FOUR CORNERS, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
COMMNET FOUR CORNERS, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.136	Very Low	Not Within Landslide	1.16
COMMNET FOUR CORNERS, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.136	Very Low	Not Within Landslide	1.16
COMMNET FOUR CORNERS, LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	6.63
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.91
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	7.46
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
PIKES PEAK TELEVISION, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.86
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	3.45
COLORADO SPRINGS UTILITIES: Com Tower	Com Tower	Not Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	0.66
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	7.46
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.87
TELLER COUNTY: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
TELLER COUNTY: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
TELLER COUNTY: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
GOGO LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.89
GOGO LLC: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.89
TELLER COUNTY: Com Tower	Com Tower	Not Within 100yr Floodzone	0.122	Low	Not Within Landslide	8.85
LP BROADBAND, INC.: Com Tower	Com Tower	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	4.00
	Dam	Within 100yr Floodzone	0.12	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.136	Very Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.124	Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.134	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.127	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.125	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.123	Very Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.121	Very Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.121	Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.121	Very Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.133	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.119	Very Low	Not Within Landslide	0.00
	Dam	Within 100yr Floodzone	0.12	Very Low	Not Within Landslide	0.00
	Dam	Not Within 100yr Floodzone	0.12	Medium	Not Within Landslide	0.00
UNKNOWN201855	Electric Substation	Not Within 100yr Floodzone	0.119	High	Not Within Landslide	4.89
UNKNOWN201282	Electric Substation	Not Within 100yr Floodzone	0.123	Very Low	Not Within Landslide	8.85

NAME	Facility Type	Flood Hazard	Earthquake Hazard, Peak			Distance to Dam, miles
			Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	
ALMA	Electric Substation	Not Within 100yr Floodzone	0.133	Very Low	Not Within Landslide	3.71
HARTSEL	Electric Substation	Not Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	8.18
FAIRPLAY	Electric Substation	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.51
COMO	Electric Substation	Not Within 100yr Floodzone	0.129	Very Low	Not Within Landslide	3.94
TARRYALL	Electric Substation	Not Within 100yr Floodzone	0.12	Low	Not Within Landslide	6.88
UNKNOWN205902	Electric Substation	Not Within 100yr Floodzone	0.121	Medium	Not Within Landslide	0.96
TAP206529	Electric Substation	Not Within 100yr Floodzone	0.123	Very Low	Not Within Landslide	8.83
TAP208123	Electric Substation	Within 100yr Floodzone	0.119	Very High	Not Within Landslide	5.17
UNKNOWN209078	Electric Substation	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	5.60
PARK COUNTY EMERGENCY OPERATIONS CENTER	Emergency Operations Center	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.61
SAINT MARY OF ROCKIES	Emergency Shelter	Not Within 100yr Floodzone	0.119	Very Low	Not Within Landslide	4.98
DEER CREEK ELEMENTARY SCHOOL	Emergency Shelter	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	4.59
PLATTE CANYON SCHOOL DISTRICT ADMINISTRATIVE OFFICES	Emergency Shelter	Not Within 100yr Floodzone	0.121	Very Low	Not Within Landslide	1.16
JEFFERSON COMMUNITY CIVIC ASSOCIATION	Emergency Shelter	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	2.48
GUFFEY COMMUNITY CHARTER SCHOOL	Emergency Shelter	Not Within 100yr Floodzone	0.124	Very Low	Not Within Landslide	12.56
PLATTE CANYON HIGH SCHOOL	Emergency Shelter	Not Within 100yr Floodzone	0.121	Low	Not Within Landslide	1.37
CAMP SANTA MARIA	Emergency Shelter	Not Within 100yr Floodzone	0.123	Very Low	Not Within Landslide	8.64
GUFFEY COMMUNITY CENTER	Emergency Shelter	Not Within 100yr Floodzone	0.124	Very Low	Not Within Landslide	12.77
LAKE GEORGE COMMUNITY CENTER	Emergency Shelter	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	1.63
JEFFERSON COMO FIRE 5	Emergency Shelter	Not Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	0.85
FAIRPLAY COMMUNITY CENTER	Emergency Shelter	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.99
LAKE GEORGE CHARTER SCHOOL	Emergency Shelter	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	1.14
SOUTH PARK HIGH SCHOOL	Emergency Shelter	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.80
SHAWNEE COMMUNITY CENTER (VFW)	Emergency Shelter	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	11.90
FITZSIMMONS MIDDLE SCHOOL	Emergency Shelter	Not Within 100yr Floodzone	0.121	Low	Not Within Landslide	1.46
Southern Park County Fire Protection District Station 3 Pike T	Fire Station	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	8.45
Southern Park County Fire Protection District Station 1 Guffey	Fire Station	Not Within 100yr Floodzone	0.124	Very Low	Not Within Landslide	12.77
Southern Park County Fire Protection District Station 2	Fire Station	Not Within 100yr Floodzone	0.123	Low	Not Within Landslide	11.32
Platte Canyon Fire Protection District Station 2	Fire Station	Not Within 100yr Floodzone	0.119	Low	Not Within Landslide	4.35
Elk Creek Fire / Rescue Station 2	Fire Station	Not Within 100yr Floodzone	0.118	Low	Not Within Landslide	6.95
Platte Canyon Fire Protection District Station 3	Fire Station	Not Within 100yr Floodzone	0.123	Very Low	Not Within Landslide	9.82
Platte Canyon Fire Protection District Station 1	Fire Station	Not Within 100yr Floodzone	0.12	Very Low	Not Within Landslide	2.54
North - West Fire Protection District Station 2	Fire Station	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.68
Hartsel Fire Protection District Station 1	Fire Station	Not Within 100yr Floodzone	0.13	Very Low	Not Within Landslide	7.55
Hartsel Fire Protection District Station 4	Fire Station	Not Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	7.48
Lake George Fire Protection District Station 3	Fire Station	Not Within 100yr Floodzone	0.123	Medium	Not Within Landslide	3.09
Jefferson - Como Fire Protection District Station 5 Elkhorn Ro	Fire Station	Not Within 100yr Floodzone	0.128	Very Low	Not Within Landslide	0.85
North - West Fire Protection District Station 1 Alma	Fire Station	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	5.49
Hartsel Fire Protection District Station 5	Fire Station	Not Within 100yr Floodzone	0.136	Very Low	Not Within Landslide	9.71
Jefferson - Como Fire Protection District Station 4 Buffalo	Fire Station	Not Within 100yr Floodzone	0.126	Very Low	Not Within Landslide	9.23
Hartsel Fire Protection District Station 3	Fire Station	Not Within 100yr Floodzone	0.135	Very Low	Not Within Landslide	5.35
Hartsel Fire Protection District Station 7 Badger Creek Ranch	Fire Station	Not Within 100yr Floodzone	0.138	Very Low	Not Within Landslide	15.51
Lake George Fire Protection District Station 4	Fire Station	Not Within 100yr Floodzone	0.121	Low	Not Within Landslide	1.76
Jefferson - Como Fire Protection District Station 6 Lost Park	Fire Station	Not Within 100yr Floodzone	0.124	Low	Not Within Landslide	4.11

NAME	Facility Type	Flood Hazard	Earthquake Hazard, Peak			Distance to Dam, miles
			Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	
Jefferson - Como Fire Protection District Station 2 Como	Fire Station	Not Within 100yr Floodzone	0.129 Very Low		Not Within Landslide	4.46
Jefferson - Como Fire Protection District Station 1	Fire Station	Not Within 100yr Floodzone	0.126 Very Low		Not Within Landslide	2.64
Lake George Fire Protection District Station 2	Fire Station	Not Within 100yr Floodzone	0.121 Very Low		Not Within Landslide	0.53
Lake George Fire Protection District Station 1	Fire Station	Not Within 100yr Floodzone	0.119 Very Low		Not Within Landslide	0.65
Hartsel Fire Protection District Station 2	Fire Station	Not Within 100yr Floodzone	0.126 Very Low		Not Within Landslide	11.69
Jefferson - Como Fire Protection District Station 3 Stagemstop	Fire Station	Within 100yr Floodzone	0.125 Very Low		Not Within Landslide	7.88
Platte Canyon Fire Protection District Station 4 Harris Park	Fire Station	Not Within 100yr Floodzone	0.12 Very Low		Not Within Landslide	0.57
Elk Creek Fire Protection District - Station 2	Fire Station	Not Within 100yr Floodzone	0.118 Low		Not Within Landslide	6.95
Jefferson - Como Fire Protection District Station 7 Indian Mou	Fire Station	Not Within 100yr Floodzone	0.126 Very Low		Not Within Landslide	5.51
FT COLLINS DOWNTOWN RIVER CORRIDOR: ACRES Brownsfie	Hazardous Materials Facility	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	5.43
TRANSPACIFIC'S SHOE BASIN: ACRES Brownsfield Property	Hazardous Materials Facility	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	5.43
CHRISTIANSEN'S BRAGANZA: ACRES Brownsfield Property	Hazardous Materials Facility	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	5.43
WILLIAMS' REVENUE: ACRES Brownsfield Property	Hazardous Materials Facility	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	5.43
THE PINWOOD SCH. OLIVIA LORIA: NCDB Compliance Activit	Hazardous Materials Facility	Not Within 100yr Floodzone	0.119 Medium		Not Within Landslide	3.68
SITE II (NAME UNKNOWN): ACRES Brownsfield Property	Hazardous Materials Facility	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	5.43
DEPEW STREET PROPERTY: ACRES Brownsfield Property	Hazardous Materials Facility	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	5.43
PLATTE CANYON SCHOOL DISTRICT RE-1: NCDB Compliance A	Hazardous Materials Facility	Not Within 100yr Floodzone	0.119 Low		Not Within Landslide	4.62
LONDON WATER TUNNEL: NCDB Compliance Activity	Hazardous Materials Facility	Not Within 100yr Floodzone	0.136 Very Low		Not Within Landslide	4.31
FAIRPLAY PHARMACY: RCRA CESQG	Hazardous Materials Facility	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	1.57
PARIS MILL PROPERTY: ACRES Brownsfield Property	Hazardous Materials Facility	Not Within 100yr Floodzone	0.134 Very Low		Not Within Landslide	5.65
COLORADO DEPT OF TRANS - BAILEY: RCRA CESQG	Hazardous Materials Facility	Not Within 100yr Floodzone	0.119 Very Low		Not Within Landslide	4.48
SITE I (NAME UNKNOWN): ACRES Brownsfield Property	Hazardous Materials Facility	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	5.43
NORTH FORK HYDRO PLANT	Hydroelectric Plant	Not Within 100yr Floodzone	0.124 Very Low		Not Within Landslide	8.56
FAIRPLAY POLICE DEPARTMENT	Law Enforcement	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	1.49
Park County Sheriff's Office Lake George Substation	Law Enforcement	Not Within 100yr Floodzone	0.119 Very Low		Not Within Landslide	1.76
Alma Police Department	Law Enforcement	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	5.50
Park County Sheriff's Office Bailey Substation	Law Enforcement	Not Within 100yr Floodzone	0.12 Low		Not Within Landslide	2.02
Park County Sheriff's Office	Law Enforcement	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	2.48
Fairplay Police Department	Law Enforcement	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	2.04
Park County Jail	Law Enforcement	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	2.47
Colorado State Patrol Bailey Office Post 3	Law Enforcement	Not Within 100yr Floodzone	0.119 Very Low		Not Within Landslide	3.10
Colorado State Patrol Fairplay Post 3	Law Enforcement	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	2.47
South Park Ambulance District	Medical	Not Within 100yr Floodzone	0.132 Very Low		Not Within Landslide	2.12
Case School	School	Not Within 100yr Floodzone	0.122 Very Low		Not Within Landslide	5.96
Dry Creek School	School	Not Within 100yr Floodzone	0.119 Low		Not Within Landslide	4.55
Buffalo Springs School	School	Not Within 100yr Floodzone	0.136 Very Low		Not Within Landslide	5.96

NAME	Facility Type	Flood Hazard	Earthquake Hazard, Peak Ground Acceleration, 2500yr	Wildfire Hazard	Landslide Debris Area	Distance to Dam, miles
H-13-A	Bridge	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.29
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.55
QWEST CORPORATION: Com Tower	Com Tower	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.55
PARK, COUNTY OF: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.80
PARK, COUNTY OF: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.80
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.05
STATE OF COLORADO: Com Tower	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.05
CELLULAR INC. NETWORK CORPORATION: Com Tow	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.52
CELLULAR INC. NETWORK CORPORATION: Com Tow	Com Tower	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.52
FAIRPLAY	Electric Substation	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.51
PARK COUNTY EMERGENCY OPERATIONS CENTER	Emergency Operations Center	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.61
FAIRPLAY COMMUNITY CENTER	Emergency Shelter	Not Within 100yr Floodzone	0.131	Very Low	Not Within Landslide	1.99
SOUTH PARK HIGH SCHOOL	Emergency Shelter	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.80
FAIRPLAY PHARMACY: RCRA CESQG	Hazardous Materials Facility	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.57
FAIRPLAY POLICE DEPARTMENT	Law Enforcement	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	1.49
Park County Sheriff's Office	Law Enforcement	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.48
Fairplay Police Department	Law Enforcement	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.04
Park County Jail	Law Enforcement	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.47
Colorado State Patrol Fairplay Post 3	Law Enforcement	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.47
South Park Ambulance District	Medical	Not Within 100yr Floodzone	0.132	Very Low	Not Within Landslide	2.12

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX E.**  
**Plan Adoption**  
**Resolutions from Planning Partners**

---

1 pg  
No fee

\*770239\*

770239  
1 of 1

9/17/2020 10:34 AM  
R\$0.00 D\$0.00

Debra A Green  
Park County Clerk

COUNTY OF PARK, COLORADO  
BOARD OF COUNTY COMMISSIONERS  
856 CASTELLO AVE  
FAIRPLAY, COLORADO 80440

RESOLUTION NO. 2020-29

WHEREAS, *COUNTY OF PARK, COLORADO* with the assistance from ECOLOGY AND ENVIRONMENT, INC., MEMBER OF WSP, 5665 Flatiron Parkway, Suite 250, Boulder, CO 80301, has gathered information and prepared the PARK COUNTY MULIT-JURISDICTIONAL HAZARD MITIGATION PLAN 2020 UPDATE; and,

WHEREAS, the PARK COUNTY MULIT-JURISDICTIONAL HAZARD MITIGATION PLAN 2020 UPDATE has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *COUNTY OF PARK* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *BOARD OF COUNTY COMMISSIONERS* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by BOARD OF COUNTY COMMISSIONERS FOR THE COUNTY OF PARK adopts the PARK COUNTY MULIT-JURISDICTIONAL HAZARD MITIGATION PLAN 2020 UPDATE *as approved by FEMA*, as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 17th day of September, 2020 at the meeting of the BOARD OF COUNTY COMMISSIONERS FOR THE COUNTY OF PARK.

**PARK COUNTY BOARD OF COUNTY COMMISSIONERS**

Richard Elsner, Chairperson

ATTEST:

County Clerk  
Deputy



**TOWN OF FAIRPLAY  
STATE OF COLORADO  
RESOLUTION NO. 2020 -30**

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FAIRPLAY, COLORADO ADOPTING THE PARK COUNTY HAZARD MITIGATION PLAN UPDATE DATED SEPTEMBER 2020.**

**WHEREAS**, the Town of Fairplay, with the assistance from Park County, has gathered information and prepared the Park County Hazard Mitigation Plan; and,

**WHEREAS**, the Park County Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

**WHEREAS**, the Town of Fairplay is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

**WHEREAS**, the Town of Fairplay Board of Trustees has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

**NOW THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FAIRPLAY, COLORADO, THAT:**

The Park County Hazard Mitigation Plan Updated dated September 2020 is hereby adopted and approved by the Board of Trustees as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

READ, APPROVED and ADOPTED at a regular meeting of the Board of Trustees of the Town of Fairplay, Colorado, this 21st day of September, 2020.



Frank Just, Mayor

ATTEST:

Tina Darrah, Town Clerk

**Exhibit 1: Adoption Resolution**  
(from How-To Guide #8)

Platte Canyon Fire Protection District

---

Platte Canyon Fire Protection District

---

153 Delwood Drive Bailey, CO 80421

---

**RESOLUTION**

WHEREAS, *Platte Canyon Fire Protection District* with the assistance from *Park County* has gathered information and prepared the *All Hazards Plan*; and,

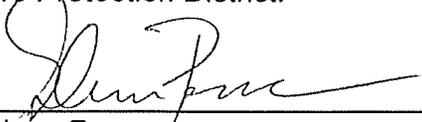
WHEREAS, the *All Hazards Plan* has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *Platte Canyon Fire Protection District* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *Platte Canyon Fire Protection District* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *Platte Canyon Fire Protection District* that *Platte Canyon Fire Protection District* adopts the *All Hazards Plan*, as approved by FEMA, as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 22 day of SEP, 2020 at the meeting of the *Platte Canyon Fire Protection District*.

  
\_\_\_\_\_  
Glenn Pence  
Board Chair  
*Platte Canyon Fire Protection District*



## Adoption Resolution

The North-West Fire Protection District  
Board of Directors  
21455 US Hwy 285 (P.O. Box 1090) Fairplay, CO 80440

### RESOLUTION

WHEREAS, *The North-West Fire Protection District*, with the assistance from *Park County, Colorado*, has gathered information and prepared the *Hazard Mitigation Plan*; and,

WHEREAS, the *Hazard Mitigation Plan*; has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *The North-West Fire Protection District* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *The North-West Fire Protection District* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *The North-West Fire Protection District* that *The North-West Fire Protection District* adopts the Hazard Mitigation Plan, as approved by FEMA, as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 26 day of Sept, 2020 at the meeting of the *North-West Fire Protection District*.

  
\_\_\_\_\_  
Tim Zingler, Board President

---

**NORTH-WEST FIRE PROTECTION DISTRICT**  
21455 HIGHWAY 285 P.O. BOX 1090 FAIRPLAY, COLORADO 80440  
Tel: 719-836-3150  
Fax: 719-836-7231  
Email: kolme@nwfpd.org

Lake George Fire Protection District  
Lake George Fire Protection District Board of Directors  
PO Box 281; 8951 CR 90  
Lake George, CO 80827

**RESOLUTION 2020-02**

WHEREAS, *Lake George Fire Protection District*, with the assistance from *Jessica Forbes-Guerrero of Ecology & Environment, Inc.*, has gathered information and prepared the *Park County Multi-Jurisdictional Hazard Mitigation Plan*; and,

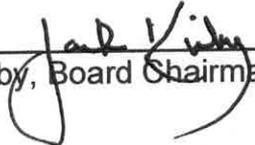
WHEREAS, the *Park County Multi-Jurisdictional Hazard Mitigation Plan* has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, Lake George Fire Protection District is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *Lake George Fire Protection District Board of Directors* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *Lake George Fire Protection District Board of Directors* that *Lake George Fire Protection District* adopts the *Park County Multi-Jurisdictional Hazard Mitigation Plan*, as approved by FEMA, as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 6<sup>th</sup> day of October 2020 at the meeting of the *Lake George Fire Protection District Board of Directors*.

  
\_\_\_\_\_  
Jack Kirby, Board Chairman

10-06-20  
\_\_\_\_\_  
Date

## Exhibit 1: Adoption Resolution

South Park Ambulance District

Board of Directors

911 Castello Avenue / PO Box 417 / Fairplay, CO 80440

### RESOLUTION

WHEREAS, the South Park Ambulance District, with the assistance from Ecology & Environment, Inc for the Park County Office of Emergency Management, has gathered information and prepared the 2020 Park County Hazard Mitigation Plan; and,

WHEREAS, the 2020 Park County Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, the South Park Ambulance District is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and,

WHEREAS, the South Park Ambulance District has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Board of Directors that the South Park Ambulance District adopts the 2020 Park County Hazard Mitigation Plan, as approved by FEMA, as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 15<sup>th</sup> day of September 2020 at the meeting of the Board of Directors



---

Mark Lamb, President

Park County  
**Hazard Mitigation Plan Update**

---

**APPENDIX F.**  
**MITIGATION ACTIONS**

---

## **2015 Mitigation Action Status Table**

**Table F-1: Status of 2015 Mitigation Actions**

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
<b>Countywide Mitigation Actions</b>						
1	Communication during emergency events is critical. There is significant need to harden existing County radio and microwave communication and tower facilities for all hazards.	County OEM	General Funds and Grants	2014 and ongoing	High	Ongoing and deleted. In 2016, County communications moved to the Motorola 7500 radio system joining the State zone controller. All Park County radio tower sites have had program maintenance as well as site-specific maintenance. All batteries have been replaced at all sites. The Sacramento site is under upgrade in 2020 for the air conditioning system for the radio room. Communications improvement is always ongoing.
2	Implement the recommendations of the 2007 Community Wildfire Protection Plan to lessen the likelihood that future fires will cause harm to existing and future buildings.	OEM and local emergency services	Staff time and grants	2015	High	Continued.
3	Continue community outreach and conduct workshops to educate property owners at risk from wildfire about specific maintenance strategies to reduce their risk from wildfire, and develop a list of the components of a homeowner's wildfire emergency evacuation kit and publicize the need for such kits.	OEM	Staff time	Ongoing	High	Continued.
4	Create an education program regarding winter weather preparedness for citizens. Ensure that ranch owners and pet owners are included in this process, and specific strategies for protecting livestock and pets from severe winter weather events are addressed	OEM	Staff time	Ongoing	High	Continued.
5	Conduct one exercise annually, involving members of the public, regarding the four phases of emergency management, to increase understanding of each person's role during a disaster, including public health issues such as Pandemic Flu	OEM and local emergency services	Staff time	Ongoing	High	Continued.
6	As funding becomes available, harden infrastructure at greatest risk from wildfire. Develop infrastructure protection strategies and implement those strategies.	OEM and local emergency services	Staff time, general fund and grants	Ongoing	High	Continued.
7	Continue to conduct regular exercises for dam failure and dam preparedness. Work with those partners who maintain dams in Park County to ensure they are maintained and that emergency exercises for simulated dam failure response are conducted.	OEM and local emergency services	Staff time	Ongoing	High	Ongoing. Continued. Tabletop exercise completed in 2019.
8	County Emergency Manager to update and maintain current EOC policies and procedures manual for all county employees and emergency responders on an on-going basis. Participate in county, regional, and statewide exercises to determine strengths and weaknesses in EOC operations, enhancing support activities during an actual disaster.	OEM	Staff time, general fund and grants	Ongoing	High	Continued.
9	Conduct an evacuation drill of the Park County 911 Communications Center at	OEM, Sheriff & police department	Staff time, general fund and grants	Ongoing	High	Ongoing. Continued.

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
	least once annually to ensure the safety of all employees, and to ensure a seamless communications system during an emergency.					
10	Update, expand and reprint county winter disaster preparedness booklet to cover all hazards and distribute to residents of the County through a mass mailing or by making it available to organizations such as homeowner associations and fire districts for distribution.	County Emergency Management	Grants, County and other organizations funding	2014-2015	High	Continued.
11	Educate the public about ways to lessen the effects of drought, and the need to be water-wise.	OEM	Staff time	Ongoing	Medium	Continued.
12	North-West FPD completed a CWPP in 2010. Included in this plan are proposed locations for wildfire mitigation projects based on risk and hazard severity to reduce the frequency and intensity of wildfires within the District. All of these projects would benefit from funding in order to proceed.	North-West FPD, Towns, Park County OEM, U.S. Forest Service, homeowner associations etc.	Grants with soft, in-kind matches	2014-2015	Medium	Ongoing and continued as an action for the North-West FPD. The locations noted in the 2010 CWPP have been or are being worked on. The addition of a second chipper through the ES council has assisted with these mitigation efforts. Northwest Fire has and continues to assist Homeowners and homeowner associations utilizing the chipper and paid staff.
13	North-West FPD's CWPP will be in need of review and renewal by 2015 in order to stay current and meet grant requirements.  By keeping the plan current, North-West FPD can provide the most accurate information to its residents and remain eligible for grant funding to perform mitigation work called for in the CWPP	North-West FPD, Towns, Park County OEM	FEMA & CSFS grants, etc.	2014-2015	Medium	Ongoing and deleted in the HMP. The district is in the process of renewing the 2010 CWPP.
14	There has been a lack of fuels treatment / reduction and implementation of defensible space around structures in the wildland / urban interface area.  Actively addressing this issue will provide increased protection to life and property.	Platte Canyon Fire etc	FEMA & CSFS grants, etc	2014 and ongoing	Medium	Continued.
15	Research the availability and make grant applications for wildfire mitigation actions in the areas identified as the highest risk areas in the CWPP.	County OEM & Fire Districts	FEMA & CSFS grants, etc.	2013 and ongoing	Medium	Continued.
16	Acquire generators for the Fairplay Town Hall, Police Department and Public Works	Fairplay town manager	Town budget, FEMA and other grants	2014 on	Medium	Completed. A new action was added to acquire a generator for the RE-2 School District, including Deer Creek Elementary School.
17	Acquire generators to support South Park and Guffey	Southern Park County FPD	FPD Budget, FEMA and other grants	2014 on	Medium	Continued.
18	Investigate the status of and need to establish alternative emergency vehicle access routes in the County	South Park Ambulance	Staff time	2013 on	Medium	Continued.
19	Investigate the process and revise current county codes to require that all new platted subdivisions have a minimum of two ingress and egress points.	South Park Ambulance with County Planning	Staff time	2014 onward	Medium	Completed. County land use regulations require two ingress and egress points for subdivisions.
20	Adopt land and building standards for future development in the county's mapped areas of high wildfire risk.	Park County Planning with assistance from OEM	Staff time	2014 onward	Medium	Continued.
21	Identify the priority areas for high wildfire risk that have not burned in the last five years. Encourage and assist neighborhoods and homeowner associations in developing local wildfire plans,	Park County OEM and Fire Districts	Staff time	2014 onward	Medium	Continued.

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
	allowing for mitigation project development in the high hazard areas and technical input to future land use decisions.					
22	Develop a program to better receive, coordinate and distribute information about likely thunderstorms, with assistance from NOAA and NWS.	Park County OEM	Staff time and grants	2015	Medium	Completed. In 2016, the Code Red weather warning system was added to the emergency alert system for automatic alerts to residents for thunderstorms, flooding, tornadoes, and critical winter weather.
23	In conjunction with CGS and/or USGS, define the high priority areas for landslides in Park County to guide future land use decisions and future mitigation decisions.	Park County OEM and Engineering	Staff time		Medium	Completed. Review of geological hazards is included in development review for all new developments in the County.
24	Work with the Division of Water Resources to rank high priority dams within Park County and for installation of dam failure warning systems and plans.	Park County OEM	Grants	2016	Medium	Continued
25	Adopt zoning and subdivision regulations for proposed development in or adjacent to areas of high seismic risk.	Planning with OEM	Staff time	2016	Low	Continued.
26	Identify flood values at risk, cross-referenced with hazards, and by the end of 2015, update county Land Use Regulations to include mitigation measures for flooding in order to lessen flood damages to existing and future buildings.		Staff time	2015	Low	Completed. Land use regulations and the building code strictly limit development in floodplains.
27	Continue to foster and maintain mutual aid agreements with local and regional partners to enhance Park County's ability to protect its citizens and infrastructure from the impacts of natural hazards.	Park County OEM, Police/She riff and Fire Districts	Staff time	Ongoing	Low	Ongoing and deleted in the HMP. North-West FPD and the Town of Fairplay continue to foster and maintain mutual aid agreements.
28	Identify stream reaches that do not meet water quality standards, specifically those with sediment buildup and provide technical information to local officials from the three Park County jurisdictions about the significance and consequences of sediment buildup in local streams.	Road and Bridge	Staff time/ general fund	2015	Low	Continued.
29	Educate the public about thunderstorm awareness and safety precautions	OEM	Staff time	Ongoing	Low	Continued.
30	Continually produce a written After Action Report for every exercise and disaster in Park County, and make those results known to all involved so that processes and procedures can be improved in future operations.	OEM and local emergency services	Staff time	Ongoing	Low	Continued.
31	Create a public notification program for severe thunderstorms and lightning, tornados, winter weather, and flash flooding.	OEM and local emergency services	Staff time and grants	2016	Low	Continued.
32	Utilize additional Variable Message Sign (VMS) boards on Highways, as well as county roads, to warn the public about possible hazards in the area.	OEM and local emergency services	Staff time	Ongoing	Low	Continued.
33	As funding becomes available, develop detailed risk profiles for each identified critical facility, keeping in mind security needs and vulnerabilities in order to make buildings more secure, especially those critical during an emergency response.	OEM	Staff time, general fund, and grants	2017	Low	Continued.

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
34	Continue to identify those areas of Park County most in need of flood hazard reduction plans with detailed engineering analyses. Identify specific drainage "hot spots" in the Park County jurisdictions, develop engineering plans to improve bridges, culverts, channels and other infrastructure in those areas, fund the projects and complete them to lessen the likelihood that future floods will cause harm to existing and future buildings.	OEM	Staff time, general fund, and grants	Ongoing	Low	Continued.
35	With the assistance of CGS and USGS, map highest priority locations for detailed seismic risk studies and other geologic hazards in Park County and identify bridges and other infrastructure subject to the greatest seismic risk.	OEM	Staff time, general fund and grants	2014	Low	Continued.
36	Continue to identify those unincorporated communities in Park County most at risk due to drought, develop Community Water Conservation Plans, and alternate water supply locations for those communities, and implement those plans.	OEM	Staff time, general fund and grants	2016	Low	Continued.
37	Identify specific locations and specific parameters for a long-term drought monitoring program and implement the monitoring program.  Obtain assistance and technical recommendations from the Natural Resources Conservation Service for an improved program of drought preparedness and drought response.	OEM	Staff time, general fund and grants	2015	Low	Continued.
<b>Fairplay</b>						
38	Investigate the adoption of an Ordinance that requires Fire Retardant materials in new building construction and any remodels replacements.	Fairplay Administration	General Fund/Staff Time	2014	High	Deleted. The Residential Building Code (RBC) 2012 includes these requirements.
39	Since the threat and impact of wildfires in our community continues to increase, investigate what would be necessary to implement a program requiring property owners to mitigate fire sources on their property, such as dead vegetation. These actions would also reduce potential damage in high wind events, tornados and drought.	Fairplay	General Fund/Staff Time/DHS Grants	2014 and on-going	High	Deleted. Priorities have shifted to addressing fuels on public land and encouraging voluntary actions by property owners.
40	Public Works will make road access during severe winter weather a priority such as plowing and sanding, making access to critical facilities easier.	Fairplay Department of Public Works	General Fund	2014 and on-going	High	Ongoing and continued.
41	Educate Fairplay residents, business owners and visitors on the potential impacts of severe winter weather and provide FEMA sponsored brochures regarding severe winter weather preparedness. The Police and Public Works will handout these to town citizens and make the available at Town Hall.	Fairplay Police Department	General Fund and FEMA grants	2014 and on-going	Medium	Continued.
42	Public Works will undertake an assessment of Fairplay's current drainage system.	Fairplay Department of Public Works	General Fund	2014 and on-going	Medium	Ongoing. Fairplay currently has very few drainages.

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
	Based on the results, the town will strive to install new culverts as indicated and needed. Additionally, PW's will create a maintenance plan to repair and maintain drainage culverts in the Town's higher flood areas					
43	Work together with the North-West Fire Protection District and the Colorado State Patrol to implement their existing HAZMAT plans as the predominant threat from HAZMAT is on the two State highways running through Fairplay.	Police department together North-West FPD and State Patrol	General fund	2014 and on-going	Low	Ongoing and deleted in the HMP. Northwest Fire maintains a regional hazmat unit and 3 hazmat techs, along with 15 hazmat Ops certified personnel.
44	All Police and Public Works employees will attend a HAZMAT Awareness Program in the next year	Fairplay Police and Public Works Departments	General Fund and DHS Grants	2014 and on-going	Low	Ongoing and continued.
<b>Alma</b>						
45	As climate change continues to affect the region, it will be important to identify alternative water supplies for time of drought. Consider the development of mutual aid agreements with alternative suppliers. Additionally, look at obtaining additional water rights.	Town Administrator	General Fund	2013 & on-going	High	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
46	Research options, cost, funding and acquisition of back-up power sources for Alma essential services to avoid water shortages, etc. during extended power outages	Town Administrator	Government Surplus/General Fund	2013	High	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
47	Support programs such as a "tree watch" program that encourages residents to proactively manage vegetative problem areas (beetle kill) by use of selective removal of hazardous trees, tree replacement, etc.	Town Administrator	General fund / staff time	2014 & on-going	High	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
48	Develop and implement a program which encourages residents to trim or remove trees that could affect power lines	Town Administrator	General fund / staff time	2014 & on-going	High	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
49	Review current town codes and policies and update as necessary to encourage residents and businesses to create and maintain defensible space around structures and infrastructure.	Town Administrator	General Fund	2013 & on-going	Medium	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
50	Develop a safe room plan for Alma community facilities and residents	Town Administrator	General Fund/grants	2015	Medium	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
51	Review current town codes and policies and update as necessary to require the use of fire-retardant building materials in high fire hazard areas.	Town Administrator	General Fund	2013 & on-going	Medium	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
52	Continue to Install and upgrading lightning rods on public structures as needed	Town Administrator	General fund / water / sewer	2013 & on-going	Low	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
53	Consider establishing an administrative procedure or change in the current codes that requires builders to develop a site drainage plan ensuring "no adverse impact" when they apply for permits for new construction within the town.	Town Administrator	General fund, staff time	2014	Low	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.
54	Complete GIS and other automated inventories for storm-water, problem drainage areas, DFIRM and other community assets.	Town Administrator	General fund	2015	Low	Continued. Actions for the Town of Alma have been included with the County's actions in the 2020 Park County HMP update.

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
<b>North-West Fire District</b>						
55	North-West FPD completed a CWPP in 2010. Included in this plan are proposed locations for wildfire mitigation projects based on risk and hazard severity to reduce the frequency and intensity of wildfires within the District. All of these projects would benefit from funding in order to proceed.	Town Administrator	Grants with soft, in-kind matches	2015	High	Ongoing and continued. The locations noted in the 2010 CWPP have been or are being worked on. The addition of a second chipper through the ES council has assisted with these mitigation efforts. Northwest Fire has and continues to assist Homeowners and homeowner associations utilizing the chipper and paid staff.
56	North-West FPD's CWPP will be in need of review and renewal by 2015 in order to stay current and meet grant requirements. By keeping the plan current, North-West FPD can provide the most accurate information to its residents and remain eligible for grant funding to perform mitigation work called for in the CWPP.	North- West FPD and Towns	FEMA & CSFS grants, etc.	2014-2015	High	Ongoing and deleted in the HMP. A delay in the review of the 2010 CWPP due to personnel changes. The district is currently in the process of reviewing and renewing the 2010 CWPP.
57	Communication during emergency events is critical. There is a significant need to harden existing North-West FPD radio and microwave communication and tower facilities for all hazards.	North- West FPD	C	2014 and ongoing	High	Ongoing and deleted. In 2016, County communications moved to the Motorola 7500 radio system joining the State zone controller. All Park County radio tower sites have had program maintenance as well as site-specific maintenance. All batteries have been replaced at all sites. The Sacramento site is under upgrade in 2020 for the air conditioning system for the radio room. Communications improvement is always ongoing.  North-West FPD has established first responder cell phone contract through Verizon for all staff.
58	There has been a lack of fuels treatment / reduction and implementation of defensible space around structures in the wildland / urban interface area. Actively addressing this issue will provide increased protection to life and property within the North-West FPD.	North- West FPD	FEMA & CSFS grants, etc.	2014 and ongoing	High	Completed. Park County Emergency Services Council has purchased a second chipper. This chipper is staffed by Northwest Fire personnel and has currently assisted 18 homeowners with mitigation of their property. Northwest has established a list of additional properties to assist in mitigation and if staffing allows the district will continue to assist with mitigation efforts.
59	Research the availability and make grant applications for wildfire mitigation actions in the areas identified as the highest risk areas in the North-West FPD CWPP.	North- West FPD	FEMA & CSFS grants, etc.	2013 and ongoing	Medium	Completed. The District has registered with Ready Set Go. And continues to research and apply for grants.
60	Continue community outreach and conduct workshops to educate property owners at risk within the North- West FPD from wildfire about specific maintenance strategies to reduce their risk from wildfire, and develop a list of the components of a homeowner's wildfire emergency evacuation kit and publicize the need for such kits.	North- West FPD	Staff Time	Ongoing	Medium	Completed. North-West Fire meets with most of the homeowner associations at least once a year. The district also utilizes the annual Open House and community dinner to promote and schedule mitigations.
61	North-West FPD to actively participate in one exercise annually, involving members of the public, regarding the four phases of emergency management, to increase understanding of each person's role during a disaster, including public health issues such as Pandemic Flu.	North- West FPD together with County OEM and other FPDs	Staff Time	Ongoing	Medium	Continued.
62	Create an education program regarding winter weather preparedness for citizens within the North-West FPD. Ensure that ranch owners and pet owners are included in this process, and specific strategies for protecting livestock and pets from severe winter weather events are addressed	North- West FPD	Staff time	Ongoing	Low	Continued.

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
63	Investigate the status of and need to establish alternative emergency vehicle access routes in the County	North- West FPD together with all County	Staff time	2013 on	Low	Continued.
64	Update, expand and reprint county winter disaster preparedness booklet to cover all hazards and distribute to residents of the County through a mass mailing or by making it available to organizations such as homeowner associations and fire districts for distribution. Ensure that the County-wide public addresses any factors that may be unique to residents and businesses located within the North-West FPD boundaries.	North- West FPD together with County OEM and other FPDs	Grants, County and other organizations funding	2014-2015	Low	Ongoing and continued. The Park County Emergency Services Council is working on an updated booklet for release in 2020.
<b>Platte Canyon FPD / Bailey</b>						
65	There has been a lack of fuels treatment / reduction and implementation of defensible space around structures in the wildland / urban interface area.  Actively addressing this issue will provide increased protection to life and property within the North-West FPD.	Platte Canyon FPD	FEMA & CSFS grants, etc.	2014 and ongoing	High	Continued.
66	Implement and maintain current Community Wildfire Protection Plans	Platte Canyon FPD	FEMA & CSFS grants, etc.	2014 and ongoing	High	Continued.
67	Communication during emergency events is critical. There is a significant need to harden existing County radio and microwave communication and tower facilities for all hazards.	Platte Canyon FPD	General Funds and Grants	2014 and ongoing	Medium	Ongoing and deleted. In 2016, County communications moved to the Motorola 7500 radio system joining the State zone controller. All Park County radio tower sites have had program maintenance as well as site-specific maintenance. All batteries have been replaced at all sites. The Sacramento site is under upgrade in 2020 for the air conditioning system for the radio room. Communications improvement is always ongoing.  The Bailey tower site was updated in 2018 by the State and Park County. Program maintenance was completed, and the battery was updated.
68	Create an education program regarding winter weather preparedness for Bailey and area residents. Ensure that ranch owners and pet owners are included in this process, and specific strategies for protecting livestock and pets from severe winter weather events are addressed	Platte Canyon FPD	Staff Time	Ongoing	Low	Continued.
<b>Southern Park County FPD/South Park Ambulance District</b>						
69	Investigate the status of and need to establish alternative emergency vehicle access routes in the County	South Park Ambulance	Staff time	2013 on	High	Continued.
70	Identify the priority areas for high wildfire risk that have not burned in the last five years. Encourage and assist neighborhoods and homeowner associations in developing local wildfire plans, allowing for mitigation project development in the high hazard areas and technical input to future land use decisions.	Park County OEM and Fire Districts	Staff time	2014 onward	High	Continued.
71	South Park Ambulance is interested in working together with County OEM and other agencies to update, expand and reprint county winter disaster preparedness booklet to cover all hazards and distribute to residents of the County through a mass mailing or by making it available to organizations such as homeowner	South Park Ambulance with County OEM	Grants, County and other organizations funding	2014-2015	High	Continued.

Action Number	Problem/Project Description	Lead & Support Agency	Target Funding Source	Target Completion Date	Priority	2020 Status Update
	associations and fire districts for distribution.					
72	South Park emergency responders will work with the County OEM and the Division of Water Resources to rank high priority dams within Park County and for installation of dam failure warning systems and plans.	South Park emergency responders w/ Park County OEM	Grants	2016	High	Continued.
73	South Park Ambulance will work together with public officials to investigate the process and revise current county codes to require that all new platted subdivisions have a minimum of two ingress and egress points.	South Park Ambulance with County Planning	Staff time	2014 onward	Medium	Completed. County land use regulations require two ingress and egress points for subdivisions.
74	Develop a program to better receive, coordinate and distribute information about likely thunderstorms, with assistance from NOAA and NWS.	Park County OEM	Staff time and grants	2015	Medium	Continued.
75	Southern Park FPD recognizes that communication during emergency events is critical. There is a significant need to harden existing County radio and microwave communication and tower facilities for all hazards. Southern Park County FPD will work together with local officials to find the mechanisms to harden these facilities.	County OEM	County General Funds & Grants	2014 and ongoing	Medium	Ongoing and continued. Southern Park FPD has been working to secure an additional TAC channel for the district. Moving radio equipment from the PISGAH site to the TENDERFOOT site is being considered to improve coverage to the district.
76	South Park emergency responders recognize that there has been a lack of fuels treatment / reduction and implementation of defensible space around structures in the wildland / urban interface area within their service area. They propose to actively address this issue recognizing that it will provide increased protection to life and property.	Southern Park County FPD together with other area agencies	FEMA & CSFS grants, etc.	2014 and ongoing	Low	Continued.
77	Southern Park FPD proposes to work with County officials and other area first responders to create an education program regarding winter weather preparedness for citizens. They will ensure that ranch owners and pet owners are included in this process, and specific strategies for protecting livestock and pets from severe winter weather events are addressed.	OEM	Staff Time	Ongoing	Low	Continued.
78	As funding becomes available, Southern Park County FPD recognizes the need to harden infrastructure at greatest risk from wildfire. Develop infrastructure protection strategies and implement those strategies.	Southern Park County FPD, County OEM and local emergency services	Staff time, general fund and grants	Ongoing	Low	Continued.

## **2020 Mitigation Actions**

Mitigation Action Worksheet

Contact Information:

<b>Name:</b> John Van Doren	<b>Phone:</b> 303-877-1447	<b>Email:</b> john@kzhoa.net
--------------------------------	-------------------------------	---------------------------------

1. Identify the Problem

<p>Our new Bailey area CWPP has determined that a very high percentage of area roadways are NOT survivable during a wildfire event (90 percentile weather conditions).</p>
<p>In addition, evacuation roadway capacity will not be sufficient to clear resident vehicular traffic during a fast-moving event. Conclusion: Residents will be stuck in bumper-to-bumper traffic on roads that are not survivable much like Paradise CA.</p>

2. Mitigation & Adaption Actions and Alternatives

<p>a. Remove rights-of-way fuels along critical roadway segments</p>
<p>b. Identify and develop existing and new areas of refuge (safe areas) for residents that will be unable to safely evacuate to State Hwy 285</p>
<p>c. Develop new emergency roadway exits for CR43 &amp; Burland residents</p>
<p>d. Hire an outside consultant to help PCSO and PCFPD develop a comprehensive community wide evacuation plan</p>

3. Action Status:

New    Existing    Complete

4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

**Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.

**Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.

- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

**5a. Lead Department/Organization:**

<b>PCFPD actions a&amp;b</b>
<b>BOCC action c</b>
<b>PCSO action d</b>

**5b. Supporting Departments/Organizations:**

<b>PC Emergency Management &amp; Communications</b>
<b>Fire Adapted Bailey &amp; Seniors Alliance of Platte Canyon</b>

**6a. Timeline:**    Immediate    < 1 year    1 – 3 years    3 – 5 years

**6b. Life of Action:**    Temporary    Short-Term (Interim)    Long-Term

**7. Hazards Addressed (Check all that apply):**

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**    Yes    Anticipated    No

**8c. Funding Source:**  Existing Budget    Grant    Bond/Levy    No/minimal cost

Other:

<b>Partial funding (\$52K) for roadway fuels modification is available from a crowdfunding effort by Fire Adapted Bailey. Addition work will need to be funded via a Grants and other sources</b>
<b>Funding for the outside consultant will come from ESC funds</b>

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Safety and Security  | <input type="checkbox"/> Energy (Power & Fuel) | <input checked="" type="checkbox"/> Transportation |
| <input checked="" type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials       |
| <input type="checkbox"/> Health and Medical              |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Co-Benefits                            | <input type="checkbox"/> Social Equity       | <input checked="" type="checkbox"/> Adaptive Capacity            |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity        |
| <input type="checkbox"/> Economic Benefit-Cost                  | <input type="checkbox"/> Innovation          | <input checked="" type="checkbox"/> Long-Term and Lasting Impact |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

<b>STAPLEE Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
<b>S:</b> Is it Socially acceptable?	3	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
<b>T:</b> Is it Technically feasible and potentially successful?	3	
<b>A:</b> Does the responsible agency/department have the Administrative capacity to execute this action?	3	
<b>P:</b> Is it Politically acceptable?	3	
<b>L:</b> Is there Legal authority to implement?	3	
<b>E:</b> Is it Economically beneficial?	3	
<b>E:</b> Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

**12.** Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

<b>Mitigation Effectiveness Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
Will the implemented action result in lives saved?	5	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	3	High = 5 Medium = 3 Low = 1

Mitigation Action Worksheet

Contact Information:

Name: BO SCHLUNSEN	Phone: 719-839-1981	Email: BSCHLUNSEN@FAIRPLAYCO.US
-----------------------	------------------------	------------------------------------

1. Identify the Problem

ACCESS TO VEHICLE FUEL GAS + DIESEL

2. Mitigation Action and Alternatives

ABOVE GROUND FUEL TANKS - GRAVITY FED
OR MAKE ARRANGEMENTS TO SHARE WITH COUNTY SHOPS

3. Action Status:

New    Existing    Complete

4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

FAIRPLAY POLICE DEPARTMENT

5b. Supporting Departments/Organizations:

FAIRPLAY PUBLIC WORKS

6a. Timeline:  Immediate  < 1 year  1-3 years  3-5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

7. Hazards Addressed (Check all that apply):

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Drought          | <input checked="" type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake       | <input type="checkbox"/> Wildfire                         | <input type="checkbox"/> Landslide                          |
| <input checked="" type="checkbox"/> Flood | <input type="checkbox"/> Dam Failure                      | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic         |   |   |

8a. Anticipated Cost (if known): \$ 3,000<sup>00</sup>

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:


## Park County 2020 Hazard Mitigation Plan Update

9. What **FEMA Community Lifeline(s)** would the mitigation action support?

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Safety and Security  | <input checked="" type="checkbox"/> Energy (Power & Fuel) | <input checked="" type="checkbox"/> Transportation |
| <input type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications                   | <input type="checkbox"/> Hazardous Materials       |
| <input type="checkbox"/> Health and Medical   |   |  |

10. What **State of Colorado resiliency prioritization criteria** would the mitigation action support? (See attachment.)

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Co-Benefits                 | <input type="checkbox"/> Social Equity       | <input checked="" type="checkbox"/> Adaptive Capacity     |
| <input type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity |
| <input type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation          | <input type="checkbox"/> Long-Term and Lasting Impact     |

11. Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	3	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	1	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

12. Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	1	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	1	High = 5 Medium = 3 Low = 1

Mitigation Action Worksheet

Contact Information:

Name: BO SCHLUNSEN	Phone: 719-839-1981	Email: BSCHLUNSEN@FAIRPLAYCO.US
-----------------------	------------------------	------------------------------------

1. Identify the Problem

PROTECTION OF WATER SUPPLY CRITICAL INFRASTRUCTURE —  
 CONCERNS ABOUT THE EFFECT OF WILDFIRE ON THE TOWN'S ELECTRICAL SUPPLY  
 TO ITS INDIVIDUAL WATER WELLS AND THE CONTROL BUILDING IN GENERAL

2. Mitigation Action and Alternatives

PROVIDE DISTANCE / BARRIER TO FIRE FOR THE WELLS. LOOK AT  
 WAYS TO HARDEN THE CONTROL BUILDING, CLEAR BRUSH AND  
 TREES

3. Action Status:

- New    Existing    Complete

4. Type of Action:

- Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

FAIRPLAY PUBLIC WORKS

5b. Supporting Departments/Organizations:

N/A

6a. Timeline:  Immediate  < 1 year  1-3 years  3-5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

7. Hazards Addressed (Check all that apply):

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

8a. Anticipated Cost (if known):  $\approx \$1,500^{00}$

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:


## Park County 2020 Hazard Mitigation Plan Update

9. What **FEMA Community Lifeline(s)** would the mitigation action support?

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Safety and Security             | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input checked="" type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical              |  |  |

10. What **State of Colorado resiliency prioritization criteria** would the mitigation action support? (See attachment.)

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Co-Benefits                            | <input type="checkbox"/> Social Equity       | <input type="checkbox"/> Adaptive Capacity                |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity |
| <input type="checkbox"/> Economic Benefit-Cost                  | <input type="checkbox"/> Innovation          | <input type="checkbox"/> Long-Term and Lasting Impact     |

11. Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?	3	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	2	
P: Is it Politically acceptable?	3	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	2	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

12. Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	3	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	3	High = 5 Medium = 3 Low = 1

### Mitigation Action Worksheet

Contact Information:

Name: Gene Stanley	Phone: 719-875-1113	Email: gstanley@park.co.us
-----------------------	------------------------	-------------------------------

1. Identify the Problem

Emergency Sheltering

2. Mitigation Action and Alternatives

Obtain funding to supply shelters with food, water, bedding and training volunteers to run the shelters
---

3. Action Status:

- New    Existing    Complete

4. Type of Action:

- Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

Gain funding and training of volunteers

5a. Lead Department/Organization:

Emergency Management

5b. Supporting Departments/Organizations:

Red Cross and grant monies

6a. Timeline:  Immediate  < 1 year  1 – 3 years  3 – 5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

7. Hazards Addressed (Check all that apply):

- |                                     |   |  |
|-------------------------------------|---|--|
| <input type="checkbox"/> Drought    | <input checked="" type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                           |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire              | <input type="checkbox"/> Landslide                                     |
| <input type="checkbox"/> Flood      | <input checked="" type="checkbox"/> Dam Failure           | <input checked="" type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |   |  |

8a. Anticipated Cost (if known):

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:


## Park County 2020 Hazard Mitigation Plan Update

9. What **FEMA Community Lifeline(s)** would the mitigation action support?

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Safety and Security             | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input checked="" type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input checked="" type="checkbox"/> Health and Medical   |  |  |

10. What **State of Colorado resiliency prioritization criteria** would the mitigation action support? (See attachment.)

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Co-Benefits      | <input checked="" type="checkbox"/> Social Equity | <input type="checkbox"/> Adaptive Capacity                       |
| <input type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness      | <input type="checkbox"/> Harmonize with Existing Activity        |
| <input type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation               | <input checked="" type="checkbox"/> Long-Term and Lasting Impact |

11. Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?	3	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	2	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	3	
L: Is there Legal authority to implement?	1	
E: Is it Economically beneficial?	2	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

12. Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	5	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	3	High = 5 Medium = 3 Low = 1

Mitigation Action Worksheet

Contact Information:

Name: Susan Bernstetter	Phone:	Email:
----------------------------	--------	--------

1. Identify the Problem

Additional staffing needed for the Lake George FPD's fuels management program for private properties (providing wood chipping). Mitigation helps elderly residents to clean up their properties.
--

2. Mitigation Action and Alternatives

Obtain funding to compensate volunteers to run the fuels management program (provide wood chipping services) for residents on the weekends.
Better educate members of the public on the need to manage fuels and provide defensible space on their properties.

3. Action Status:

New    Existing    Complete

4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

Lake George FPD

5b. Supporting Departments/Organizations:

CUSP (Coalition for the Upper South Platte)

6a. Timeline:  Immediate  < 1 year  1 – 3 years  3 – 5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

7. Hazards Addressed (Check all that apply):

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |

8a. Anticipated Cost (if known): \$18,000 (annually)

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Firewise?
Educational component would be low/minimal cost (printing) and could be funded with existing budget

## Park County 2020 Hazard Mitigation Plan Update

9. What **FEMA Community Lifeline(s)** would the mitigation action support?

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Safety and Security  | <input checked="" type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input checked="" type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications                   | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical              |   |  |

10. What **State of Colorado resiliency prioritization criteria** would the mitigation action support? (See attachment.)

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Co-Benefits                 | <input checked="" type="checkbox"/> Social Equity       | <input type="checkbox"/> Adaptive Capacity                |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input checked="" type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity |
| <input type="checkbox"/> Economic Benefit-Cost                  | <input type="checkbox"/> Innovation                     | <input type="checkbox"/> Long-Term and Lasting Impact     |

11. Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	2	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	3	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	3	

12. Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	5	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1

## Mitigation Action Worksheet

### Contact Information:

<b>Name:</b> Brad Golden	<b>Phone:</b> 719-836-4231	<b>Email:</b> bgolden@parkco.us
-----------------------------	-------------------------------	------------------------------------

### 1. Identify the Problem

The Lake George area is at a higher risk than the rest of the county for landslides due to recent large wildfires that have created mudslides and flooding in the area. U.S. Highway 285 between Bailey and Fairplay also has a higher likelihood to experience a landslide, which is of particular concern as a landslide or rockslide here would cut off all east-west traffic.

### 2. Mitigation Action and Alternatives

Assess burn scars following severe wildfires to determine landslide risks and implement temporary or permanent measures to stabilize slopes and loose soils such as spreading straw to protect soils and revegetation, creating check dams along drainages using straw bales, or felling dead trees to slow water runoff after rainfall.

### 3. Action Status:

New    Existing    Complete

### 4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

### 5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

### 5a. Lead Department/Organization:

County OEM

**5b. Supporting Departments/Organizations:**

Fire districts

**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input type="checkbox"/> Wildfire              | <input checked="" type="checkbox"/> Landslide               |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Costs for staff time and minimal materials
--

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Safety and Security  | <input type="checkbox"/> Energy (Power & Fuel) | <input checked="" type="checkbox"/> Transportation |
| <input type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials       |
| <input type="checkbox"/> Health and Medical   |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Co-Benefits      | <input type="checkbox"/> Social Equity                  | <input type="checkbox"/> Adaptive Capacity                |
| <input type="checkbox"/> High Risk and Vulnerability | <input checked="" type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity |
| <input type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation                     | <input type="checkbox"/> Long-Term and Lasting Impact     |

## Park County 2020 Hazard Mitigation Plan Update

---

11. Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

<b>STAPLEE Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
S: Is it Socially acceptable?	3	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	2	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	3	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	3	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	3	

12. Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

<b>Mitigation Effectiveness Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
Will the implemented action result in lives saved?	3	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	3	High = 5 Medium = 3 Low = 1

## Mitigation Action Worksheet

### Contact Information:

<b>Name:</b> Public Health	<b>Phone:</b>	<b>Email:</b>
-------------------------------	---------------	---------------

### 1. Identify the Problem

The County identified gaps in resources and capabilities during the COVID-19 pandemic in 2020. The County does not have the resources to provide a full response to COVID-19 through contact tracing, enforcing public health recommendations for businesses, or responding to questions from members of the public.

### 2. Mitigation Action and Alternatives

Park County Public Health should contribute to the after action report for the COVID-19 pandemic to identify critical actions that need to be completed to reduce risks to the community from future pandemics. These recommendations should be included in future updates of the HMP.

### 3. Action Status:

New    Existing    Complete

### 4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

### 5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

### 5a. Lead Department/Organization:

Park County Public Health

**5b. Supporting Departments/Organizations:**

County OEM

**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Drought             | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake          | <input type="checkbox"/> Wildfire              | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood               | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input checked="" type="checkbox"/> Pandemic |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Costs for staff time
----------------------

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Safety and Security | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input type="checkbox"/> Food, Water, Shelter           | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input checked="" type="checkbox"/> Health and Medical  |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Co-Benefits                            | <input checked="" type="checkbox"/> Social Equity | <input type="checkbox"/> Adaptive Capacity                |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness      | <input type="checkbox"/> Harmonize with Existing Activity |
| <input type="checkbox"/> Economic Benefit-Cost                  | <input type="checkbox"/> Innovation               | <input type="checkbox"/> Long-Term and Lasting Impact     |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

**Park County 2020 Hazard Mitigation Plan Update**

<b>STAPLEE Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
S: Is it Socially acceptable?	3	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	2	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	3	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	3	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

**12.** Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

<b>Mitigation Effectiveness Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
Will the implemented action result in lives saved?	1	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	1	High = 5 Medium = 3 Low = 1

## Mitigation Action Worksheet

### Contact Information:

<b>Name:</b> Public Health	<b>Phone:</b>	<b>Email:</b>
-------------------------------	---------------	---------------

### 1. Identify the Problem

The County identified gaps in resources and capabilities during the COVID-19 pandemic in 2020. The County does not have the resources to provide a full response to COVID-19 through contact tracing, enforcing public health recommendations for businesses, or responding to questions from members of the public. Small businesses, in particular, have learned that they did not have the proper planning in place before the pandemic and have been impacted more than expected. Outreach and coordination with small businesses has taken a lot of effort by County staff.

### 2. Mitigation Action and Alternatives

Develop public messaging and a list of resources for small businesses and other community members in the event of a pandemic or other disaster that affects the local economy. Coordinate these efforts with regional councils of government, DOLA, and the Central Mountain Small Business Development Corporation. These response resources should be institutionalized in County emergency response and recovery plans.

### 3. Action Status:

New    Existing    Complete

### 4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

### 5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

### 5a. Lead Department/Organization:

Park County Public Health

**5b. Supporting Departments/Organizations:**

County OEM

**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Drought             | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake          | <input type="checkbox"/> Wildfire              | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood               | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input checked="" type="checkbox"/> Pandemic |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Costs for staff time

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Safety and Security | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input type="checkbox"/> Food, Water, Shelter           | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input checked="" type="checkbox"/> Health and Medical  |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Co-Benefits           | <input checked="" type="checkbox"/> Social Equity | <input type="checkbox"/> Adaptive Capacity                |
| <input type="checkbox"/> High Risk and Vulnerability      | <input type="checkbox"/> Technical Soundness      | <input type="checkbox"/> Harmonize with Existing Activity |
| <input checked="" type="checkbox"/> Economic Benefit-Cost | <input type="checkbox"/> Innovation               |   |

## Park County 2020 Hazard Mitigation Plan Update

Long-Term and Lasting Impact

**11.** Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?	3	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	3	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	3	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

**12.** Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	1	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	1	High = 5 Medium = 3 Low = 1

## Mitigation Action Worksheet

### Contact Information:

<b>Name:</b> Bo Schlunsen	<b>Phone:</b>	<b>Email:</b> bschlunsen@fairplayco.us
------------------------------	---------------	---

### 1. Identify the Problem

Coordination with utility providers is needed to reduce the risk of power outages during severe winter weather, storms, and wildfires.

### 2. Mitigation Action and Alternatives

Coordinate with electric power providers to identify electric infrastructure at risk of outages during various hazard events and develop a prioritized list of actions to address these risks. Include these actions in the next update of the HMP.

### 3. Action Status:

New    Existing    Complete

### 4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

### 5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

### 5a. Lead Department/Organization:

Fairplay Police

**5b. Supporting Departments/Organizations:**

Fairplay Public Works

**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |                                     |   |  |
|-------------------------------------|---|--|
| <input type="checkbox"/> Drought    | <input checked="" type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                           |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire              | <input type="checkbox"/> Landslide                                     |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure                      | <input checked="" type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |   |  |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Costs for staff time
----------------------

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Safety and Security  | <input checked="" type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications                   | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical   |   |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Co-Benefits                 | <input type="checkbox"/> Social Equity                  | <input type="checkbox"/> Adaptive Capacity                       |
| <input type="checkbox"/> High Risk and Vulnerability | <input checked="" type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity        |
| <input type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation                     | <input checked="" type="checkbox"/> Long-Term and Lasting Impact |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

**Park County 2020 Hazard Mitigation Plan Update**

<b>STAPLEE Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
S: Is it Socially acceptable?	3	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	2	
L: Is there Legal authority to implement?	2	
E: Is it Economically beneficial?	3	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

**12.** Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

<b>Mitigation Effectiveness Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
Will the implemented action result in lives saved?	5	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1

Mitigation Action Worksheet

Contact Information:

<b>Name:</b> Sheila Cross	<b>Phone:</b> 719.836.4272	<b>Email:</b> scross@parkco.us
------------------------------	-------------------------------	-----------------------------------

1. Identify the Problem

Coordinating fire mitigation associated with new development between fire districts and based on actual risk.

2. Mitigation Action and Alternatives

Note: actions require updated fire hazard risk mapping. Options to analyze: 1) "zoning" overlays based on wildfire risk, and mitigation requirements appropriate for risk. 2) consistent wildfire mitigation requirements county-wide, based on risk, required by fire districts (not LURs).

3. Action Status:

New  Existing  Complete

4. Type of Action:

Plans and Regulations  Infrastructure/Capital Project  Natural Systems Protection  
 Education and Awareness  Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

Park County Development Services

**5b. Supporting Departments/Organizations:**

All fire districts.

**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Developer’s cost to mitigate, fire district mitigation fees, development fees (new impact fee if needed).
---

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Safety and Security  | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input checked="" type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical              |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |   |  |
|---|---|--|
| <input checked="" type="checkbox"/> Co-Benefits                 | <input checked="" type="checkbox"/> Social Equity       | <input checked="" type="checkbox"/> Adaptive Capacity                |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input checked="" type="checkbox"/> Technical Soundness | <input checked="" type="checkbox"/> Harmonize with Existing Activity |
| <input checked="" type="checkbox"/> Economic Benefit-Cost       | <input checked="" type="checkbox"/> Innovation          | <input checked="" type="checkbox"/> Long-Term and Lasting Impact     |

**11.** Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

<b>STAPLEE Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
<b>S:</b> Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
<b>T:</b> Is it Technically feasible and potentially successful?	3	
<b>A:</b> Does the responsible agency/department have the Administrative capacity to execute this action?	3	
<b>P:</b> Is it Politically acceptable?	2	
<b>L:</b> Is there Legal authority to implement?	3	
<b>E:</b> Is it Economically beneficial?	3	
<b>E:</b> Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	3	

**12.** Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

<b>Mitigation Effectiveness Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
Will the implemented action result in lives saved?	5	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1

Mitigation Action Worksheet

Contact Information:

<b>Name:</b> Sheila Cross	<b>Phone:</b> 719.836.4272	<b>Email:</b> scross@parkco.us
------------------------------	-------------------------------	-----------------------------------

1. Identify the Problem

Coordinating fire mitigation associated with new development between fire districts and based on actual risk.

2. Mitigation Action and Alternatives

Note: actions require updated fire hazard risk mapping. Options to analyze: 1) "zoning" overlays based on wildfire risk, and mitigation requirements appropriate for risk. 2) consistent wildfire mitigation requirements county-wide, based on risk, required by fire districts (not LURs).

3. Action Status:

New    Existing    Complete

4. Type of Action:

Plans and Regulations    Infrastructure/Capital Project    Natural Systems Protection  
 Education and Awareness    Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

Park County Development Services

**5b. Supporting Departments/Organizations:**

All fire districts.

**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

Developer’s cost to mitigate, fire district mitigation fees, development fees (new impact fee if needed).
---

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Safety and Security  | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input checked="" type="checkbox"/> Food, Water, Shelter | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical              |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |   |  |
|---|---|--|
| <input checked="" type="checkbox"/> Co-Benefits                 | <input checked="" type="checkbox"/> Social Equity       | <input checked="" type="checkbox"/> Adaptive Capacity                |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input checked="" type="checkbox"/> Technical Soundness | <input checked="" type="checkbox"/> Harmonize with Existing Activity |
| <input checked="" type="checkbox"/> Economic Benefit-Cost       | <input checked="" type="checkbox"/> Innovation          | <input checked="" type="checkbox"/> Long-Term and Lasting Impact     |

## Park County 2020 Hazard Mitigation Plan Update

11. Please score the action against the **STAPLEE** criteria using the evaluation ratings below.

STAPLEE Criteria	Score	Evaluation Ratings
<b>S:</b> Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
<b>T:</b> Is it Technically feasible and potentially successful?	3	
<b>A:</b> Does the responsible agency/department have the Administrative capacity to execute this action?	3	
<b>P:</b> Is it Politically acceptable?	2	
<b>L:</b> Is there Legal authority to implement?	3	
<b>E:</b> Is it Economically beneficial?	3	
<b>E:</b> Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	3	

12. Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	5	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1

Mitigation Action Worksheet

Contact Information:

<b>Name:</b> Jefferson-Como FPD	<b>Phone:</b>	<b>Email:</b>
------------------------------------	---------------	---------------

1. Identify the Problem

Jefferson-Como FPD Station 3 is within the 100-year flood zone.

2. Mitigation Action and Alternatives

Work with the County to identify and acquire, if necessary, a site for construction of a new fire station outside the mapped flood zone when Station 3 reaches the end of its service life.

3. Action Status:

- New
- Existing
- Complete

4. Type of Action:

- Plans and Regulations
- Infrastructure/Capital Project
- Natural Systems Protection
- Education and Awareness
- Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

Jefferson-Como FPD

**5b. Supporting Departments/Organizations:**

County Development Services

**6a. Timeline:**  Immediate  < 1 year  1 – 3 years  3 – 5 years

**6b. Life of Action:**  Temporary  Short-Term (Interim)  Long-Term

**7. Hazards Addressed (Check all that apply):**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Drought          | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake       | <input type="checkbox"/> Wildfire              | <input type="checkbox"/> Landslide                          |
| <input checked="" type="checkbox"/> Flood | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic         |  |   |

**8a. Anticipated Cost (if known):**

**8b. Funding Available?:**  Yes  Anticipated  No

**8c. Funding Source:**  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:

--

**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Safety and Security | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input type="checkbox"/> Food, Water, Shelter           | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical             |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Co-Benefits      | <input type="checkbox"/> Social Equity       | <input type="checkbox"/> Adaptive Capacity                       |
| <input type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness | <input type="checkbox"/> Harmonize with Existing Activity        |
| <input type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation          | <input checked="" type="checkbox"/> Long-Term and Lasting Impact |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

**Park County 2020 Hazard Mitigation Plan Update**

<b>STAPLEE Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
S: Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	2	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	3	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	2	

**12.** Please score the action against the **mitigation effectiveness criteria** using the evaluation ratings below.

<b>Mitigation Effectiveness Criteria</b>	<b>Score</b>	<b>Evaluation Ratings</b>
Will the implemented action result in lives saved?	3	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1

### Mitigation Action Worksheet

Contact Information:

Name: North-West Fire P.D.	Phone: 719-836-3150	Email: tsmith@nwfpd.org
----------------------------	---------------------	-------------------------

1. Identify the Problem

North-West FPD's CWPP review and renewed in order to stay current and meet grant requirements.
By keeping the plan current, North-West FPD can provide the most accurate information to its residents and
remain eligible for grant funding to perform mitigation work called for in the CWPP

2. Mitigation Action and Alternatives

Review of CWPP and needed addition, changes, or deletions.
Utilizing possible third-party sources to assist in CWPP review.
Establish cwpp committee , meeting schedule and public meetings.

3. Action Status:

- New
- Existing
- Complete

4. Type of Action:

- Plans and Regulations
- Infrastructure/Capital Project
- Natural Systems Protection
- Education and Awareness
- Preparedness and Response

5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

North-West Fire Protection District

5b. Supporting Departments/Organizations:

Park County Government, Park County OEM, U.S. Forest Service , Homeowners Association, Public

6a. Timeline:  Immediate  < 1 year  1 – 3 years  3 – 5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

7. Hazards Addressed (Check all that apply):

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

8a. Anticipated Cost (if known):

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:


**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Safety and Security | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input type="checkbox"/> Food, Water, Shelter           | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical             |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Co-Benefits                 | <input type="checkbox"/> Social Equity       | <input type="checkbox"/> Adaptive Capacity                           |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness | <input checked="" type="checkbox"/> Harmonize with Existing Activity |
| <input checked="" type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation          | <input checked="" type="checkbox"/> Long-Term and Lasting Impact     |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

STAPLEE Criteria	Score	Evaluation Ratings
S: Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?	3	
A: Does the responsible agency/department have the Administrative capacity to execute this action?	3	
P: Is it Politically acceptable?	2	
L: Is there Legal authority to implement?	2	
E: Is it Economically beneficial?	2	
E: Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	3	

**12. Please score the action against the mitigation effectiveness criteria using the evaluation ratings below.**

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	3	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1

## Mitigation Action Worksheet

### Contact Information:

Name: North-West Fire P.D.	Phone: 719-836-3150	Email: tsmith@nwfpd.org
----------------------------	---------------------	-------------------------

### 1. Identify the Problem

North-West FPD's CWPP review and renewed in order to stay current and meet grant requirements.
By keeping the plan current, North-West FPD can provide the most accurate information to its residents and remain eligible for grant funding to perform mitigation work called for in the CWPP

### 2. Mitigation Action and Alternatives

Review of CWPP and needed addition, changes, or deletions.
Utilizing possible third-party sources to assist in CWPP review.
Establish cwpp committee , meeting schedule and public meetings.

### 3. Action Status:

New  Existing  Complete

### 4. Type of Action:

Plans and Regulations  Infrastructure/Capital Project  Natural Systems Protection  
 Education and Awareness  Preparedness and Response

### 5. Goals Supported:

- Goal 1:** Ensure hazard awareness and risk reduction principles are institutionalized into the Park County jurisdictions' daily activities, processes, and functions, by incorporating them into policy documents and initiatives.
- Goal 2:** Enhance whole community understanding and awareness of hazard risks and community mitigation and preparedness needs.
- Goal 3:** Enhance public safety by protecting public and private facilities and infrastructure and critical facilities and infrastructure from the effects of hazards.
- Goal 4:** Protect natural resources from the effects of hazards.

5a. Lead Department/Organization:

North-West Fire Protection District

5b. Supporting Departments/Organizations:

Park County Government, Park County OEM, U.S. Forest Service , Homeowners Association, Public

6a. Timeline:  Immediate  < 1 year  1 – 3 years  3 – 5 years

6b. Life of Action:  Temporary  Short-Term (Interim)  Long-Term

7. Hazards Addressed (Check all that apply):

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Drought    | <input type="checkbox"/> Severe Winter Weather | <input type="checkbox"/> Hazardous Materials                |
| <input type="checkbox"/> Earthquake | <input checked="" type="checkbox"/> Wildfire   | <input type="checkbox"/> Landslide                          |
| <input type="checkbox"/> Flood      | <input type="checkbox"/> Dam Failure           | <input type="checkbox"/> Severe Thunderstorm, Hail and Wind |
| <input type="checkbox"/> Pandemic   |  |   |

8a. Anticipated Cost (if known):

8b. Funding Available?:  Yes  Anticipated  No

8c. Funding Source:  Existing Budget  Grant  Bond/Levy  No/minimal cost

Other:


**9. What FEMA Community Lifeline(s) would the mitigation action support?**

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Safety and Security | <input type="checkbox"/> Energy (Power & Fuel) | <input type="checkbox"/> Transportation      |
| <input type="checkbox"/> Food, Water, Shelter           | <input type="checkbox"/> Communications        | <input type="checkbox"/> Hazardous Materials |
| <input type="checkbox"/> Health and Medical             |  |  |

**10. What State of Colorado resiliency prioritization criteria would the mitigation action support? (See attachment.)**

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Co-Benefits                 | <input type="checkbox"/> Social Equity       | <input type="checkbox"/> Adaptive Capacity                           |
| <input checked="" type="checkbox"/> High Risk and Vulnerability | <input type="checkbox"/> Technical Soundness | <input checked="" type="checkbox"/> Harmonize with Existing Activity |
| <input checked="" type="checkbox"/> Economic Benefit-Cost       | <input type="checkbox"/> Innovation          | <input checked="" type="checkbox"/> Long-Term and Lasting Impact     |

**11. Please score the action against the STAPLEE criteria using the evaluation ratings below.**

STAPLEE Criteria	Score	Evaluation Ratings
<b>S:</b> Is it Socially acceptable?	2	Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0
<b>T:</b> Is it Technically feasible and potentially successful?	3	
<b>A:</b> Does the responsible agency/department have the Administrative capacity to execute this action?	3	
<b>P:</b> Is it Politically acceptable?	2	
<b>L:</b> Is there Legal authority to implement?	2	
<b>E:</b> Is it Economically beneficial?	2	
<b>E:</b> Will the project have either a neutral or positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)	3	

**12. Please score the action against the mitigation effectiveness criteria using the evaluation ratings below.**

Mitigation Effectiveness Criteria	Score	Evaluation Ratings
Will the implemented action result in lives saved?	3	High = 5 Medium = 3 Low = 1
Will the implemented action result in a reduction of disaster damage?	5	High = 5 Medium = 3 Low = 1