WILLOW BROOK METROPOLITAN DISTRICT

SPECIAL MEETING NOTICE & AGENDA

Board of Directors	Office	Term Expiration
Mat Sherwood	President	May 2027
EJ Olbright	Vice President	May 2027
Jim Hahn	Secretary/Treasurer	May 2027
Carl Oppedahl	Director	May 2029
Blake Shutler	Director	May 2029

DATE: **Thursday, October 22, 2026**
TIME: **8:00 PM**
PLACE: **Virtual Meeting via Zoom**

Join Zoom Meeting
https://us06web.zoom.us/j/83330606515?pwd=KcrawByOqa054wdfjo6AsvDM8LGv3r.1
Meeting ID: 833 3060 6515
Passcode: 866667

One tap mobile
+17207072699,,83330606515# US (Denver)
+17193594580,,83330606515# US

FOR THOSE CALLING IN, PLEASE PRESS *6 TO MUTE/UNMUTE YOUR PHONE
DISTRICT INFORMATION AND PUBLIC DOCUMENTS ARE POSTED
ON THE DISTRICT'S WEBSITE AT: willowbrookmetro.org

I. ADMINISTRATIVE MATTERS:
   a. Call to Order
   b. Present Disclosures of Potential Conflicts of Interest
   c. Solicit Public Comment (for non-agenda items – 3-minute time limit)
   d. Approval of Agenda

II. DIRECTORS' ITEMS:
   a. Review and Consider Approval of Resolution to Adopt the Summit County 2026 Hazard Mitigation Plan (enclosures)

III. ADJOURNMENT:

The next regular meeting of the Board of Directors of the Willow Brook Metropolitan District is scheduled to be held on December 18, 2026.

RESOLUTION
OF THE BOARDS OF DIRECTORS OF
WILLOW BROOK METROPOLITAN DISTRICT

ADOPTING THE SUMMIT COUNTY HAZARD MITIGATION PLAN

WHEREAS, the Willow Brook Metropolitan District (the "**District**") is a quasi-municipal corporation and political subdivision of the State of Colorado; and

WHEREAS, pursuant to § 32-1-1001(1)(h), C.R.S., the Board of Directors of the District (the "**Board**") is empowered with the management, control, and supervision of all the business and affairs of the District; and

WHEREAS, the District recognizes the threat that natural hazards pose to people and property within the boundaries of the District; and

WHEREAS, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

WHEREAS, an adopted hazard mitigation plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, the District is within the Planning Area of the Summit County Hazard Mitigation Plan, and fully participated in the mitigation planning process with Summit County, Colorado, under the supervision of the Colorado Office of Homeland Security, to prepare the Summit County Hazard Mitigation Plan; and

WHEREAS, Colorado Department of Homeland Security and Emergency Management and Federal Emergency Management Agency, Region VIII officials have reviewed the Summit County Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governing body.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE DISTRICT AS FOLLOWS:

1. The Board of the District hereby adopts the Summit County Hazard Mitigation Plan, as an official Hazard Mitigation Plan.

2. The Board approves Summit County Emergency Management submitting this Resolution to Colorado Department of Homeland Security and Emergency Management and Federal Emergency Management Agency, Region VIII officials to enable the final approval of the District's Hazard Mitigation Plan.

ADOPTED OCTOBER 22, 2026

DISTRICT:

WILLOW BROOK METROPOLITAN DISTRICT, a quasi-municipal corporation and political subdivisions of the State of Colorado

By: _____
Officer of the District

ATTEST:

_____

APPROVED AS TO FORM:

WHITE BEAR ANKELE TANAKA & WALDRON
Attorneys at Law

_____
General Counsel to the District

From: Carl Oppedahl <coppedahl@wbmetro.org>
Date: October 21, 2026 at 4:54:31 PM MDT
To: Randel Lewis <randylewis999@mac.com>
Cc: Carlos Arreola-Karr <ckarr@crsofcolorado.com>, Mathew Sherwood <mathew_sherwood@wbmetro.org>
Subject: Re: Corrections for Annex K (was re: FEMA plan information)

Thank you Randy for your email.

I disagree vehemently with any suggestion that the reconstruction cost of the Sawmill Ditch would fall into the "not particularly material" category.

It will be recalled that for some months now I have been seeking read-only access to external communications of the District.

Kindly provide access to the prior communications with County officials that mention all of the Annex-K correction items that I identified.

Carl

On 10/21/2026 2:18 PM, Randel Lewis wrote:

Carl -

Thank you for your notes on Appendix K. All of the items mentioned come from the existing county records, are not particularly material and have been noted in prior communications with County officials. There is no opportunity to correct them in this iteration of the plan because it requires the county to update its records. In all likelihood, these items will be addressed in the 2031 iteration of the plan.

Regards,

Randy

On Oct 17, 2026, at 05:04, Carl Oppedahl <coppedahl@wbmetro.org> wrote:

Thank you Randy for your email of yesterday, quoted below.

Yesterday Carlos sent an email to the Directors with what was thought to be the Summit County Hazard Mitigation Plan, 229 pages in length. Yesterday was the first that I had seen that 229-page document. During yesterday's Board meeting, Jim Hahn tried to find Annex K (the Willow Brook Metropolitan District portion of the Hazard Mitigation Plan) in that document. He wasn't able to find it in those 229 pages. Just now I viewed every one of those 229 pages, reading some of the pages thoroughly. I was not able to find Annex K there.

I gather this means that yesterday's 229-page document was not the complete Summit County Hazard Mitigation Plan. Among other things, that 229-page document did not include the Annexes.

Randy, your email of yesterday provides a link to the Annex K, for which I thank you. A copy of the Annex K is attached. I see that it is twenty pages in length. This is the first time I have seen this Annex K. I have reviewed Annex K briefly and will study it in more detail later. In my brief review I

have noted a few things that could be corrected, and I wanted to get the corrections to you as soon as possible.

Page 1 says "quarterly invoices to homeowners for water usage." I suggest this be corrected to say "monthly".

Page 1 says the area of the District is "approximately 600 acres". My recollection is that the correct number is about 540. This difference may be due in part to the Filing-3 issue below.

Page 2 has a Figure 1 which is a map showing the location of the Willow Brook Metropolitan District. In Figure 1, the boundary of the District is shown in purple. Figure 1 incorrectly depicts Filing 3, which is now the Stockpond West Open Space, as part of the District. Filing 3 was removed from the District in 1999. I suggest that Figure 1 be corrected to show the post-1999 north boundary. Attached is a copy of Figure 1 on which I have denoted Filing 3 as "not part of the District" and I have marked the approximate post-1999 north boundary in red. I have attached an image from the County GIS that shows a close-up of Filing 3 and which more accurately shows that post-1999 north boundary of the District. I suggest that Figure 1 be corrected to exclude Filing 3.

Page 4 has a Table 2 listing water-system assets including the three headgates. The three headgates appear on the map of Figure 1. Unless I missed it, however, the actual ditches are not listed in Table 2 and their replacement cost is not indicated. I'd guess the replacement cost for the Sawmill Ditch alone would exceed any of the other numbers in Table 2.

The correction of the post-1999 north boundary can also be made in Figure 2 (page 7) and Figure 3 (page 8). My guess is that all three figures came from a single GIS. If so, then the post-1999 north boundary would only need to be corrected once and this would permit reprinting the three figures.

Randy, I wish I could have given you these corrections earlier, but this Annex K was provided to me only yesterday. I turned this around as quickly as I could.

It looks like the "Annexes" portion of the Summit County Hazard Mitigation Plan is 326 pages in length, meaning that the entire SCHMP is actually about 555 pages in length.

Mat, we left it that I would get back to you after I had had an opportunity to review the Summit County Hazard Mitigation Plan, with the hope that I might be able to give my assent to the District's adoption of the SCHMP. ***This email is not that assent.*** This email is merely providing suggestions for correction of the Annex K, based upon my initial brief review of Annex K.

Mat, I will continue my review of the 555-page document. I will get back to you as soon as possible.

Again, thank you Randy for your email and thank you for providing Annex K.

Carl

On 10/16/2026 2:57 PM, Randel Lewis wrote:

Here is the Office of Emergency Management message to all Plan participants.

I will forward the WBMD portion of the plan by Monday. As you will see below, the county is looking for our approval as soon as practicable. Failure to respond means being dropped from the plan.

I hope we can get this done in a special meeting as soon as practicable.

RL

Begin forwarded message:

From: Ben Pleimann <Ben.Pleimann@summitcountyco.gov>

Subject: 2026 Summit County Hazard Mitigation Plan Update

Date: October 9, 2026 at 3:38:12 PM MDT

To: EOC <EOC@summitcountyco.gov>

Cc: "Field, Scott" <scott.field@wsp.com>

Good Afternoon,

I am pleased to announce that we have received **FEMA approval, pending adoption, of our updated Hazard Mitigation Plan!**

I know it's been a while since I last reached out about the HMP update, so here is a quick recap of the last year.

· **November 2025:** The draft plan was distributed to stakeholders for review, final comments, and any outstanding information or details.

· **December 2025:** Following those last edits, the plan was submitted to the State for review.

· **April 2026:** After some delays at the State level, (Other jurisdictions had disasters and we got bumped behind them) we received feedback requesting several edits to the plan. Those were completed, and the plan was resubmitted.

· **July 2026:** We received approval from the State, and the plan was forwarded to FEMA for review.

· **August 2026:** FEMA completed its initial review and requested additional revisions. Over the following weeks, we worked through several rounds of comments and updates with FEMA.

· **October 2026:** We finally received FEMA's approval, **pending adoption.**

We are now at the final step of the process. At least one participating jurisdiction must formally adopt the updated Hazard Mitigation Plan through its governing body before FEMA can issue its final approval letter recognizing that jurisdiction.

If your jurisdiction would like to be included on FEMA's final approval letter, please move forward with adopting the plan and send me a copy of your signed adoption resolution as soon as possible. I will then submit those resolutions to the State so they can submit to FEMA for final approval.

We are finally at the end of this update, and the last thing we need is for each jurisdiction to complete its adoption process.

Thank you again for all your time that has gone into this project. Please let me know if you have any questions or need anything to help move the adoption process forward.

You will find the updated Hazard Mitigation Plan here. A sample adoption resolution is attached but feel free to use your templates as well.

I appreciate all the time everyone has put in to get us here. Thank you!

Ben

<image001.png>

Ben Pleimann

Emergency Management Specialist

0227 County Shops Rd **|** Frisco, CO 80443

970.668.2983 (o) **|** 970.409.6373 (c) **|** Register for SC Alert

<Summit County HMP Sample Adoption Resolution.docx>

<Annex K Willow Brook Metro District 082426.docx><corrected-map.png><Filing-3.png>

From: Carl Oppedahl <coppedahl@wbmetro.org>
Date: October 21, 2026 at 6:53:01 PM MDT
To: Mathew Sherwood <mathew_sherwood@wbmetro.org>
Cc: Carlos Arreola-Karr <ckarr@crsofcolorado.com>
Subject: Confirmation for adoption of Summit County Hazard Mitigation Plan

Hello Mat. It will be recalled (see below) that the 555-page Summit County Hazard Mitigation Plan ("SCHMP") was not provided to the Directors for review until after the Friday, October 16, 2026 meeting of the Board of Directors. During that meeting, the SCHMP was conditionally approved pending my review of the document. I wrote to you on Saturday, October 17 promising that I would get back to you as soon as possible after completing my review of the 555-page document. I noted several errors (quoted below) in the 20-page portion of the document authored by the Willow Brook Metropolitan District, namely Annex K, that needed correction.

Today (Wednesday, October 21) I received an email from Randel Lewis telling me that there is no opportunity to correct the errors at this stage. He assures me that in his view none of the errors is material.

I have just now completed my review of the remaining 535 pages of the SCHMP. I'll rely on Randy's assurance that the errors in Annex K are not material, and with that assurance, I do now provide my written asset to the Board's adoption of the 555-page Summit County Hazard Mitigation Plan provided to the Directors on the evening of Friday, October 16.

Carl

Carl Oppedahl, Director

On 10/17/2026 5:04 AM, Carl Oppedahl wrote:

Thank you Randy for your email of yesterday, quoted below.

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1 INTRODUCTION

1.1 Executive Summary

The impacts of hazards can often be lessened or even avoided if appropriate actions are taken beforehand. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from disasters or hazardous events. To that end, the following jurisdictions have prepared this 2025 update of the Summit County Hazard Mitigation Plan (HMP).

- Summit County
- Town of Blue River
- Town of Breckenridge
- Town of Dillon
- Town of Frisco
- Town of Silverthorne
- Summit Fire and EMS Authority
- Red, White, & Blue Fire Protection District
- Buffalo Mountain Metropolitan District
- Copper Mountain Consolidated Metropolitan District
- Hamilton Creek Metropolitan District
- Denver Water
- Willow Brook Metropolitan District
- East Dillon Water District
- Heeney Water District
- Mesa Cortina Water and Sanitation District

This Plan was developed to guide county and city officials and staff to coordinate and implement activities that will protect the people and property of the County from the effects of natural and human-caused hazards. It provides a list of mitigation goals and related actions that may assist the participating jurisdictions in reducing risk and preventing loss from future hazard events. By reducing exposure to known hazard risks, communities will save lives and property, and minimize the social, economic, and environmental disruptions that commonly follow hazard events.

The goals of the 2025 Summit County Hazard Mitigation Plan are:

Goal 1: Reduce risk to the people, property, and environment of Summit County from the impacts of hazards

Goal 2: Protect critical facilities and infrastructure

Goal 3: Minimize economic losses

Goal 4: Implement the mitigation actions identified in the plan

This Plan was also developed to maintain Summit County's and participating jurisdictions' eligibility for federal disaster assistance, specifically the FEMA Hazard Mitigation Assistance (HMA) grants and the Rehabilitation of High Hazard Potential Dams (HHPD) grant program.

Chapter 1 Introduction contains this Executive Summery along with background information on the Plan.

Chapter 2 Planning Process describes the process followed to update the Plan. A broad range of public and private stakeholders, including agencies, local businesses, nonprofits, and other interested parties were invited to participate. Public input was sought throughout the planning process including online surveys and public review of the draft Plan.

Chapter 3 Community Profile describes the planning area, consisting of Summit County and its municipalities, with updated information on demographics, social vulnerability, and changes in development. It includes an assessment of programs and policies currently in place across the County to reduce hazard impacts or that could be used to implement hazard mitigation activities and identifies opportunities to enhance those capabilities.

Chapter 4 Risk Assessment identifies the natural and human-caused hazards of greatest concern to the County and describes the risk from those hazards. The information generated through the risk assessment helps communities to prioritize and focus their efforts on those hazards of greatest concern and those assets or areas facing the greatest risk(s). The best available information on changing future conditions, including future development and the impacts of climate change, was considered for each hazard. The hazards profiled in the 2025 Plan and their overall significance are shown in Table 1-1.

Table 1-1 Hazard Significance Summary for Summit County

Hazard	Spatial Extent	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Highly Likely	Critical	High
Dam Failure	Small	Unlikely	Catastrophic	Medium
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Occasional	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Small	Likely	Critical	High
Hazardous Materials Release	Isolated	Likely	Limited	Medium
Landslide, Mudflow/Debris Flow, Rock Fall	Medium	Occasional	Critical	Medium
Lightning	Large	Likely	Limited	Medium
Pest Infestation	Large	Likely	Limited	Medium
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Large	Highly Likely	Catastrophic	High
Windstorm	Large	Highly Likely	Limited	Low
Wildlife-Vehicle Collisions	Large	Highly Likely	Negligible	Low

Chapter 5 Mitigation Strategy describes what the County and participating jurisdictions will do to reduce their vulnerability to the hazards identified in Chapter 4. This strategy presents the goals and objectives of the mitigation program and details a broad range of targeted mitigation actions to reduce losses from hazard events. The Plan identifies 71 mitigation actions for implementation by the participating jurisdictions and stakeholders.

Chapter 6 Plan Implementation and Maintenance details how the Plan will be implemented, monitored, evaluated, and updated, and how the mitigation program will be integrated into other planning mechanisms.

Details of how the risk and vulnerability varies among the participating jurisdictions, along with their mitigation capabilities and proposed mitigation actions, are included in **Jurisdictional Annexes**.

This plan demonstrates the County's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. Full implementation of this Plan will take time and resources. While this plan identifies a number of viable strategies and activities to reduce vulnerability to hazard events, it does not constitute a commitment of resources. It remains up to each jurisdiction to implement these activities as time and funding becomes available.

It is important that local decision-makers stay involved in mitigation planning to ensure it remains a priority. Coordination and communication within the planning partnership will be key to the successful implementation of this Plan. This effort will continue to require dedication and hard work, and to this end, this Plan update continues efforts to further strengthen the resiliency of Summit County.

SUMMIT COUNTY
COLORADO

Summit County Hazard Mitigation Plan

Base Plan







Summit County
Town of Blue River
Town of Breckenridge
Town of Dillon
Town of Frisco
Town of Silverthorne
Summit Fire and EMS Authority
Red, White, & Blue Fire Protection District
Buffalo Mountain Metropolitan District
Copper Mountain Consolidated Metropolitan District
Hamilton Creek Metropolitan District
Willow Brook Metropolitan District
East Dillon Water District
Heeney Water District
Mesa Cortina Water and Sanitation District
Denver Water

December 2025

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1 INTRODUCTION

1.1 Executive Summary

The impacts of hazards can often be lessened or even avoided if appropriate actions are taken beforehand. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from disasters or hazardous events. To that end, the following jurisdictions have prepared this 2025 update of the Summit County Hazard Mitigation Plan (HMP).

- Summit County
- Town of Blue River
- Town of Breckenridge
- Town of Dillon
- Town of Frisco
- Town of Silverthorne
- Summit Fire and EMS Authority
- Red, White, & Blue Fire Protection District
- Buffalo Mountain Metropolitan District
- Copper Mountain Consolidated Metropolitan District
- Hamilton Creek Metropolitan District
- Denver Water
- Willow Brook Metropolitan District
- East Dillon Water District
- Heeney Water District
- Mesa Cortina Water and Sanitation District

This Plan was developed to guide county and city officials and staff to coordinate and implement activities that will protect the people and property of the County from the effects of natural and human-caused hazards. It provides a list of mitigation goals and related actions that may assist the participating jurisdictions in reducing risk and preventing loss from future hazard events. By reducing exposure to known hazard risks, communities will save lives and property, and minimize the social, economic, and environmental disruptions that commonly follow hazard events.

The goals of the 2025 Summit County Hazard Mitigation Plan are:

Goal 1: Reduce risk to the people, property, and environment of Summit County from the impacts of hazards

Goal 2: Protect critical facilities and infrastructure

Goal 3: Minimize economic losses

Goal 4: Implement the mitigation actions identified in the plan

This Plan was also developed to maintain Summit County's and participating jurisdictions' eligibility for federal disaster assistance, specifically the FEMA Hazard Mitigation Assistance (HMA) grants and the Rehabilitation of High Hazard Potential Dams (HHPD) grant program.

Chapter 1 Introduction contains this Executive Summery along with background information on the Plan.

Chapter 2 Planning Process describes the process followed to update the Plan. A broad range of public and private stakeholders, including agencies, local businesses, nonprofits, and other interested parties were invited to participate. Public input was sought throughout the planning process including online surveys and public review of the draft Plan.

Chapter 3 Community Profile describes the planning area, consisting of Summit County and its municipalities, with updated information on demographics, social vulnerability, and changes in development. It includes an assessment of programs and policies currently in place across the County to reduce hazard impacts or that could be used to implement hazard mitigation activities and identifies opportunities to enhance those capabilities.

Chapter 4 Risk Assessment identifies the natural and human-caused hazards of greatest concern to the County and describes the risk from those hazards. The information generated through the risk assessment helps communities to prioritize and focus their efforts on those hazards of greatest concern and those assets or areas facing the greatest risk(s). The best available information on changing future conditions, including future development and the impacts of climate change, was considered for each hazard. The hazards profiled in the 2025 Plan and their overall significance are shown in Table 1-1.

Table 1-1 Hazard Significance Summary for Summit County

Hazard	Spatial Extent	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Highly Likely	Critical	High
Dam Failure	Small	Unlikely	Catastrophic	Medium
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Occasional	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Small	Likely	Critical	High
Hazardous Materials Release	Isolated	Likely	Limited	Medium
Landslide, Mudflow/Debris Flow, Rock Fall	Medium	Occasional	Critical	Medium
Lightning	Large	Likely	Limited	Medium
Pest Infestation	Large	Likely	Limited	Medium
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Large	Highly Likely	Catastrophic	High
Windstorm	Large	Highly Likely	Limited	Low
Wildlife-Vehicle Collisions	Large	Highly Likely	Negligible	Low

Chapter 5 Mitigation Strategy describes what the County and participating jurisdictions will do to reduce their vulnerability to the hazards identified in Chapter 4. This strategy presents the goals and objectives of the mitigation program and details a broad range of targeted mitigation actions to reduce losses from hazard events. The Plan identifies 71 mitigation actions for implementation by the participating jurisdictions and stakeholders.

Chapter 6 Plan Implementation and Maintenance details how the Plan will be implemented, monitored, evaluated, and updated, and how the mitigation program will be integrated into other planning mechanisms.

Details of how the risk and vulnerability varies among the participating jurisdictions, along with their mitigation capabilities and proposed mitigation actions, are included in **Jurisdictional Annexes**.

This plan demonstrates the County's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. Full implementation of this Plan will take time and resources. While this plan identifies a number of viable strategies and activities to reduce vulnerability to hazard events, it does not constitute a commitment of resources. It remains up to each jurisdiction to implement these activities as time and funding becomes available.

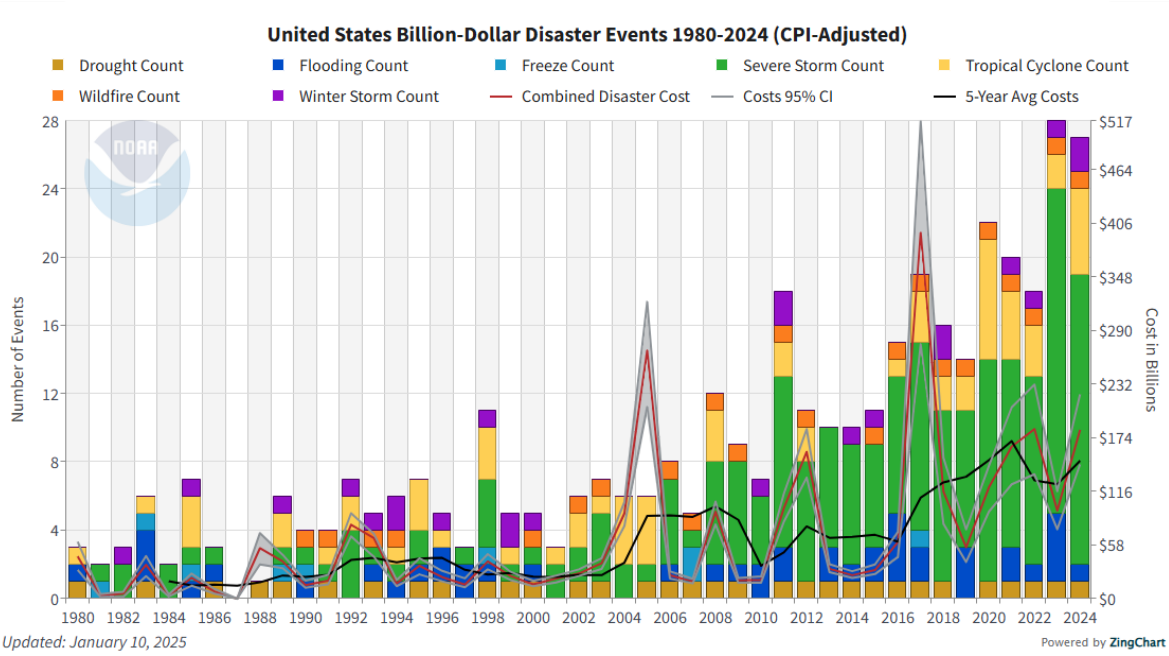
It is important that local decision-makers stay involved in mitigation planning to ensure it remains a priority. Coordination and communication within the planning partnership will be key to the successful implementation of this Plan. This effort will continue to require dedication and hard work, and to this end, this Plan update continues efforts to further strengthen the resiliency of Summit County.

1.2 Background and Scope

DMA Requirements §201.6
The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

FEMA defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." Each year in the United States, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Additional expenses to insurance companies and non-governmental organizations are not reimbursed by tax dollars, making the costs of disasters several times higher than calculated amounts. Figure 1-1 shows the number and type of natural disasters in the U.S. that have resulted in more than one billion dollars in damage, demonstrating how the frequency and cost of major disasters have risen over the past several decades.

Figure 1-1 Billion-Dollar Disasters in the U.S., 1980-2024



Source: National Oceanic and Atmospheric Administration

However, many of these hazards are predictable, and much of the damage caused by these events can be mitigated through the use of various zoning, construction and permitting vehicles and other preventative actions. Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are determined, prioritized, and implemented. A congressionally mandated independent study assessing future savings from mitigation activities determined that mitigation activities are highly cost-effective; on average, each dollar spent on mitigation saves society an average of $6 in avoided future losses in addition to saving lives and preventing injuries. (See Figure 1-2.)

Figure 1-2 Mitigation Return On Investment

National Institute of BUILDING SCIENCES™

	ADOPT CODE	ABOVE CODE	BUILDING RETROFIT	LIFELINE RETROFIT	FEDERAL GRANTS
Overall Benefit-Cost Ratio	11:1	4:1	4:1	4:1	6:1
Cost ($ billion)	$1/year	$4/year	$520	$0.6	$27
Benefit ($ billion)	$13/year	$16/year	$2200	$2.5	$160
Riverine Flood	6:1	5:1	6:1	8:1	7:1
Hurricane Surge	not applicable	7:1	not applicable	not applicable	not applicable
Wind	10:1	5:1	6:1	7:1	5:1
Earthquake	12:1	4:1	13:1	3:1	3:1
Wildland-Urban Interface Fire	not applicable	4:1	2:1	not applicable	3:1

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TABLE 1. Nationwide average benefit-cost ratio by hazard and mitigation measure. BCRs can vary geographically and can be much higher in some places. Find more details in the report.

Source: National Institute of Building Sciences, nibs.org/mitigationsaves

Recognizing the importance of mitigation planning, Summit County developed the County's first hazard mitigation plan in 2008; that plan was updated in 2013 and 2018. The Plan again underwent a comprehensive update in 2025.

This plan will serve as a blueprint for coordinating and implementing hazard mitigation policies, programs, and projects in Summit County. It provides a list of mitigation goals and related actions that may assist Summit County and its jurisdictions in reducing risk and preventing loss from future hazardous events. The impacts of hazards can be lessened and sometimes avoided altogether if appropriate actions are taken before hazardous events occur. By avoiding unnecessary exposure to known hazard risks, communities will save lives and property and minimize the social, economic, and environmental disruptions that commonly follow hazardous events.

It is our long-term goal that the Hazard Mitigation Plan and the mitigation strategies identified within will be fully integrated into daily decisions and routines of local government. This will continue to require dedication and hard work, and to this end, this Plan update continues efforts to further strengthen the sustainability of Summit County.

This plan was also developed and updated to maintain Summit County's and participating jurisdictions' eligibility for federal disaster assistance, specifically the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Assistance (HMA) grants such as the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), and Building Resilient Infrastructure and Communities (BRIC) grant program, as well as the Rehabilitation of High Hazard Potential Dam (HHPD) grant program. The County will continue to monitor changes in grant funding opportunities and may revise this plan to meet new grant requirements as needed.

2 PLANNING PROCESS

DMA Requirements §201.6(b), §201.6(c)(1)m, and §201.6(d)(3)
A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding. *[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.* *An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:* • *An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;* • *An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-profit interests to be involved in the planning process; and* • *Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

This section of the Plan describes the mitigation planning process undertaken by Summit County and the participating jurisdiction to update this Hazard Mitigation Plan. The following local governments and districts participated in the 2025 planning process:

- Summit County
- Town of Blue River
- Town of Breckenridge
- Town of Dillon
- Town of Frisco
- Town of Silverthorne
- Summit Fire and EMS Authority
- Red, White, and Blue Fire Protection District
- Buffalo Mountain Metropolitan District
- Copper Mountain Consolidated Metropolitan District
- Hamilton Creek Metropolitan District
- Denver Water
- Willow Brook Metropolitan District
- East Dillon Water District
- Heeney Water District
- Mesa Cortina Water and Sanitation District

2.1 Background on Mitigation Planning in Summit County

Recognizing the importance of hazard mitigation, the Summit County Office of Emergency Management developed the County's first hazard mitigation plan in 2008, and updated in 2013 and 2020. The plan again underwent a comprehensive update for 2025; a planning consultant, WSP USA Inc, was contracted to conduct research, facilitate data collection, incorporate best available current data, and revise the plan document. The planning process followed during the update was similar to what was used in the original plan development. This planning process utilized the input from a multi-jurisdictional Hazard Mitigation Planning Committee (HMPC). The process is described further in this section and documented in Appendix B.

WSP's role was to:

- Assist in reconvening a Hazard Mitigation Planning Committee (HMPC) for the County that incorporates key stakeholders and representatives from each participating jurisdiction
- Identify and invite new stakeholders to participate in the plan update process
- Meet all of the planning requirements of the Disaster Mitigation Act (DMA) and the Flood Mitigation Assistance program as established by federal regulations and following FEMA's planning guidance
- Facilitate the planning process

- Identify the data requirements that the HMPC can provide and conduct the research and documentation necessary to augment that data
- Develop and facilitate the public input process
- Produce the draft and final plan documents
- Coordinate the Colorado Department of Homeland Security and Emergency Management (DHSEM), and FEMA Region VIII reviews of the plan and its formal adoption by the Summit County Board of County Commissioners and the governing bodies of each of the participating jurisdictions

The remainder of this chapter provides a narrative description of the steps taken to prepare and update the hazard mitigation plan.

2.2 What's New in the Plan Update

The updated LHMP complies with Federal Emergency Management Agency (FEMA) guidance for Local Hazard Mitigation Plans. The update followed the requirements noted in the Disaster Mitigation Act (DMA) of 2000 and FEMA's updated 2025 Local Hazard Mitigation Planning Policy Guide.

This multi-jurisdictional Hazard Mitigation Plan update involved a comprehensive review and update of each section of the 2020 plan and includes an assessment of the success of Summit County and the participating jurisdictions in evaluating, monitoring, and implementing the mitigation strategy outlined in the initial plan. All sections of the plan were reviewed and updated to reflect new data and methodologies on hazards, risk analysis, capabilities, and mitigation strategies. The plan was also revised to reflect changes in development, including using the latest version of the assessor's office data as the basis for identifying overall and hazard exposure for developed parcels by County and jurisdiction. All relevant information and data still valid from the 2020 plan were carried forward as applicable to this plan update. Where applicable, the plan was revised to reflect changes in priorities, notably in the priority of hazard mitigation actions detailed in Chapter 4 and in the jurisdictional annexes.

The County received Hazard Mitigation Assistance grant funding from DHSEM and FEMA to procure consultant assistance during the 2025 update.

2.3 Multi-Jurisdictional Participation

Summit County invited every incorporated town and special district in the County to participate in the multi-jurisdictional Hazard Mitigation Plan. However the Towns of Keystone and Montezuma were unable to participate due to priorities and limited staff; some data for these jurisdictions has been maintained in this Plan for completeness, but they are not seeking approval as a participating jurisdiction.

The Disaster Mitigation Act requires that each jurisdiction participate in the planning process and officially adopt the hazard mitigation plan. Each jurisdiction that chose to participate in the planning process and development of the plan update was required to meet strict plan participation requirements defined at the beginning of the process, which included the following:

- Designate a representative to serve on the HMPC
- Participate in HMPC meetings
- Complete and return updates on Mitigation Actions since 2020 to WSP
- Identify new mitigation actions for the plan
- Review and comment on plan drafts
- Inform the public, local officials, and other interested parties about the planning process and provide opportunity for them to comment on the plan
- Formally adopt the mitigation plan and re-adopt every 5 years

All of the jurisdictions with annexes to this plan met all of these participation requirements. In most cases, the representative for each jurisdiction brought together a planning team to help collect data, identify mitigation actions and implementation strategies, and review annex drafts. Appendix B shows the attendance of representatives at each HMPC meeting; sign-in sheets are included in Appendix C Planning Process Documentation.

Each jurisdiction participating in this plan developed its own annex, which provides a more detailed assessment of the jurisdiction's unique risks as well as their mitigation strategy to reduce long-term losses. Each jurisdictional annex contains the following:

- Community profile summarizing geography and climate, history, economy, population growth and development trends
- Hazard information on location, previous occurrences, probability of future occurrences, climate change considerations (new in 2020 update) and magnitude/severity (extent) for each hazard
- Hazard map(s) at an appropriate scale for the jurisdiction, if available
- Number and value of buildings, critical facilities, and other community assets located in hazard areas, if available
- Vulnerability information in terms of future growth and development in hazard areas
- A capability assessment describing existing regulatory, administrative, technical, and fiscal resources and tools as well as outreach efforts and partnerships and past mitigation projects. Includes an assessment of opportunities to enhance existing capabilities as well.
- Mitigation actions specific to the jurisdiction, including a review of previous actions from the 2013 plan and progress made on implementation.

Information in this plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. The Summit County planning area has been affected by hazards in the past and is thus committed to reducing future impacts from hazard events and becoming eligible for mitigation-related federal funding.

This plan addresses natural hazards and one human-caused hazard—hazardous materials. Although the members of the Summit County Hazard Mitigation Planning Committee (HMPC) recognize that FEMA encourages communities to integrate human-caused hazards into the mitigation planning process, the scope of this effort did not address other human-caused hazards for several reasons. First, many of the planning activities for the mitigation of these hazards are either underway or complete and are addressed in the emergency operations plan for Summit County. Second, the Disaster Mitigation Act of 2000 requires extensive public information and input, and this is in direct conflict with the confidentiality necessary in planning for chemical, biological, and radiological terrorism. Thus the HMPC determined it was not in the planning area's best interests to publicly share specific information about its vulnerability to human-caused hazards.

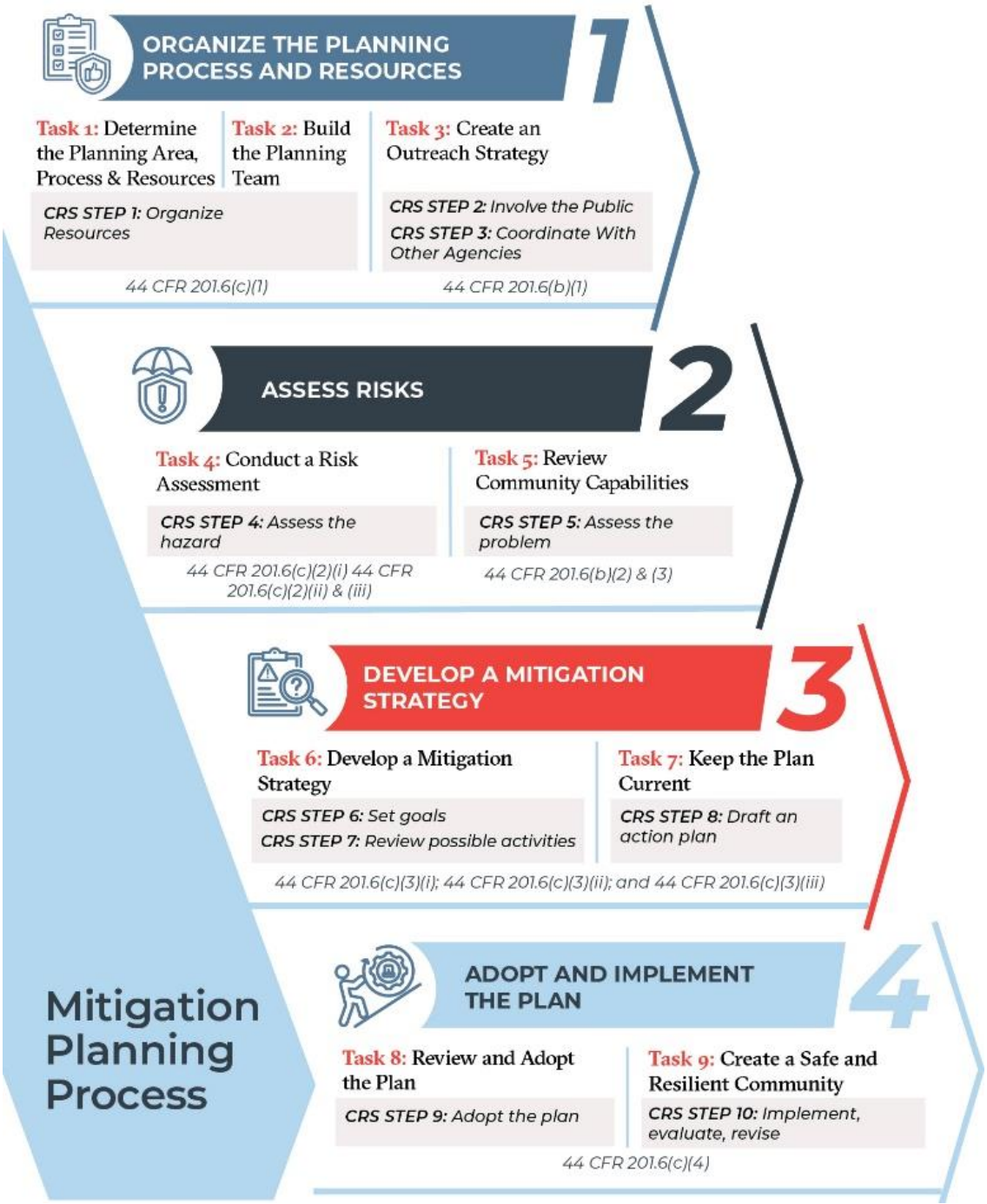
2.4 The 10-Step Planning Process

WSP and the Summit County Office of Emergency Management worked together to establish the framework and process for this planning effort using FEMA's *Local Mitigation Planning Policy Guide* (2025). The guidance and this plan are structured around a four-phase process:

1) Organize resources
2) Assess risks
3) Develop the mitigation plan
4) Implement the plan and monitor progress

Into this four-phase process, WSP integrated a more detailed 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs. Thus, the modified 10-step process used for this plan meets the funding eligibility requirements of the Hazard Mitigation Assistance grants (including Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, Flood Mitigation Assistance, Repetitive Flood Claims grants), Community Rating System, and the flood control projects authorized by the U.S. Army Corps of Engineers (USACE). Figure 2-1 shows how the modified 10-step process fits into FEMA's four-phase process.

Figure 2-1 Mitigation Planning Process Used to Update the Plan



2.4.1 Phase 1 Organize Resources

Step 1: Organize the Planning Effort

The Summit County Office of Emergency Management (OEM) worked with WSP to establish the framework and organization for the development of this plan and its update. The description of the planning process emphasizes the effort undertaken in the 2025 update. WSP and the Emergency Manager identified the key county, municipal, and other local government and initial stakeholder representatives. An email invitation was sent to them with a request to participate as a member of the HMPC and to attend a kickoff meeting. Stakeholder participation was significant during the 2025 update; stakeholders are listed in subsection Step 3: Coordinate with Other Departments and Agencies. The complete list of agencies who participated in the HMPC can be found in Appendix B, along with a list of other stakeholders invited to participate.

The Disaster Mitigation Act requires that each jurisdiction participate in the planning process and officially adopt the multi-jurisdictional hazard mitigation plan and re-adopt during the update. A planning committee was created that includes representatives from each participating jurisdiction, departments of the County, and other local, state, and federal organizations responsible for making decisions in the plan and agreeing upon the final contents. Kickoff meeting attendees discussed potential participants and made decisions about additional stakeholders to invite to participate on the HMPC.

The HMPC contributed to this planning process by:

- Providing facilities for meetings,
- Attending meetings,
- Collecting data,
- Managing administrative details,
- Making decisions on plan process and content,
- Submitting mitigation action implementation worksheets,
- Reviewing and editing drafts, and
- Coordinating and assisting with public involvement and plan adoptions.

The HMPC communicated during the planning process with a combination of online and face-to-face meetings, email correspondence, and using a SharePoint folder hosted by WSP. SharePoint was utilized to share drafts of the plan and its annexes for jurisdictional review and input. Draft documents were typically posted in the SharePoint folder so that HMPC members could access and review them. The HMPC met three times during the planning period (April 30th, 2025 to September 30th, 2025). The meeting schedule and topics are listed in Table 2-1. The sign-in sheets and agendas for each of the meetings are included in Appendix B.

Table 2-1 Schedule of HMPC Meetings

Meeting	Topic	Date
Kickoff Meeting	Introduction to DMA and the planning process; Identification of hazards impacting Summit County	April 30th, 2025
HMPC #2	Review of updated risk assessment; Review of goals and objectives	June 25th, 2025
HMPC #3	Identification, prioritization, and status update of mitigation actions; Discussion of process to monitor, evaluate, and update plan	July 30th, 2025

HMPC Meeting #1 – Kickoff Meeting

The initial kickoff meeting was held virtually on April 30th, 2025. The Summit County Office of Emergency Management emailed letters of invitation to the kickoff meeting to county, municipal, district, state, and other stakeholder representatives. During the kickoff meeting, WSP presented information on the scope and purpose of the plan update, participation requirements of HMPC members, and the proposed project work plan and schedule. Plans for public involvement (Step 2) and coordination with other agencies and departments (Step 3) were discussed. WSP also introduced the hazard identification requirements and data. The HMPC discussed past events and impacts and future probability for each of the hazards required by FEMA for consideration in a local hazard mitigation plan. WSP then provided an overview of the adoption and implementation of the plan including the four drafts the plan will go through before adoption. Each jurisdiction provided updates directly to their respective annexes about recent hazard events, growth and development trends, Community Wildfire Protection Plan updates, recent updated plans and policies, and latest GIS data. This information was provided directly to WSP for incorporation into the plan update.

HMPC Meeting #2 – Risk Assessment and Goals Update

On June 25th, 2025, the HMPC convened in person to discuss the results of the risk and vulnerability assessment update. Thirty-one members of the HMPC were present for the discussion. WSP began the meeting by discussing the ongoing public survey and an update on the planning process. The meeting continued with a presentation on the results of the risk assessment for natural and human-caused hazards. The group went through each hazard together and discussed the results as well as shared any local insight to inform the HIRA update. Refer to the meeting summary in Appendix B for notes related to each hazard discussed. Some of this discussion was also related to the capabilities assessment update.

At the end of the meeting WSP explained this update process provides an opportunity to review the previous plan's goals to determine if they are still valid, comprehensive, and reflect current priorities and updated risk assessments. Revisions to the goal can be found in Chapter 4 Mitigation Strategy. The meeting concluded with a review of the next steps and planning process schedule.

HMPC Meeting #3 – Mitigation Strategy Update Workshop

On July 30th, 2025, the HMPC convened in person to identify new mitigation actions to include in the updated plan. This encompassed a review of possible mitigation activities, alternatives, and related climate adaptation strategies. Several hazards were reviewed for projects eligible for FEMA funding. The group also discussed criteria for mitigation action selection and prioritization. This was followed by a brainstorming session to elicit the development of new mitigation actions. Entities responsible for new mitigation action implementation were identified. New mitigation action worksheets were distributed to allow additional details to be added following the workshop.

Step 2: Involve the Public

At the kickoff meeting, the HMPC discussed options for soliciting public input on the mitigation plan and developed an outreach strategy by consensus. An online public survey was developed by WSP and shared with the HMPC to share through their respective channels. A link to the survey was posted on the County's website and some of the participating jurisdiction's websites as well as through social media posts, screenshots from both can be found in Appendix D.

Online Public Survey

During the plan update's drafting stage, an online public survey was conducted in both English and Spanish as a tool to gather public input. The survey was for the public to provide feedback to the Summit

County Multi-Jurisdictional Hazard Mitigation Planning Committee on reducing hazard impacts. The survey provided an opportunity for public input during the planning process, prior to finalization of the plan update. The survey gathered public feedback on concerns about hazards and input on strategies to reduce their impacts. The survey was released in May and closed on June 30th, 2025. The HMPC provided links to the public survey by distributing it using social media, email, and posting the link on websites. Forty-seven people filled out the survey online.

Results showed that the public perceives the most significant hazards to be severe winter weather, wildfire, and wildlife-vehicle collisions. Figure 2-2 shows the responses to question 5 of the survey, which solicited the public's opinion on the mitigation actions that should have the highest priority in the updated hazard mitigation plan. Wildfire fuels treatment projects, public education and awareness on hazards, and public education and awareness on hazards were cited as the most popular mitigation actions. This information was shared with the HMPC during the update of the mitigation strategy as a source of potential mitigation ideas. Complete survey data can be found in Appendix D.

Figure 2-2 Sample of Public Survey Responses

The following types of mitigation actions may be considered in Summit County. Please indicate which actions you think should have the highest priority in Summit County?



Public Review Period

The public was also given an opportunity to provide input on a draft of the complete plan prior to its submittal to the State and FEMA. Summit County provided the plan draft for review and comment on the County website. The plan was available from XXX through XXX. The participating jurisdictions announced the availability of the draft plan and the public comment period through social and traditional media

announcements. Copies of these notes are provided in Appendix D. An online form to collect comments was posted with the plan. The plan was reviewed by XX participants. XX comments were received, which resulted in _____. These comments are included in Appendix C.

Step 3: Coordinate with Other Departments and Agencies

There are numerous organizations whose goals and interests interface with hazard mitigation in Summit County. Coordination with these organizations and other community planning efforts is vital to the success of this plan update. The Summit County Office of Emergency Management invited other local, state, and federal departments and agencies to the kickoff meeting to learn about the hazard mitigation planning initiative. Many of the agencies participated throughout the planning process in meetings described in Step 1: Organize the Planning Effort.

In addition, the HMPC developed a list of neighboring communities and local and regional agencies involved in hazard mitigation activities, as well as other interested parties to keep informed on the plan update process. At the Kickoff Meeting the County Director of Emergency Management noted upcoming meetings with the Colorado Avalanche Information Center (CAIC) and the County's Local Emergency Planning Committee (LEPC) where he would inform the groups of the update process and invite to provide input to the HMPC.

Stakeholders include local and regional agencies involved in hazard mitigation activities or those beyond the County and local government that have the authority to regulate development. Stakeholders could participate in various ways, either by contributing input at HMPC meetings, being aware of planning activities through an email group, providing information to support the effort, or reviewing and commenting on the draft plan. Further as part of the both HMPC and public outreach processes, all groups were invited to review and comment on the plan prior to submittal to Colorado DHSEM and FEMA. The list of organizations contacted and invited to participate in the planning process can be found in Appendix B.

Incorporation of Existing Plans and Other Information

The coordination and synchronization with other community planning mechanisms and efforts are vital to the success of this plan. To have a thorough evaluation of hazard mitigation practices already in place, appropriate planning procedures should also involve identifying and reviewing existing plans, policies, regulations, codes, tools, and other actions are designed to reduce a community's risk and vulnerability from natural hazards. Summit County uses a variety of mechanisms to guide growth and development. Integrating existing planning efforts, mitigation policies, and action strategies into this plan establishes a credible, comprehensive document that weaves the common threads of a community's values together. The development and update of this plan involved a comprehensive review of existing plans, studies, reports, and initiatives from Summit County and each participating municipality that relate to hazards or hazard mitigation. A high-level summary of the key plans, studies and reports is summarized in Table 2-2 below. Information on how they informed the update are noted and incorporated where applicable.

Table 2-2 Summary of Review of Key Plans, Studies and Reports

Plan, Study, Report Name	How Plan informed LHMP
Colorado State Hazard Mitigation Plan (2023)	Informed the HIRA (Chapter 4) with risk information specific to Summit County and hazard profile information for each of the hazards including the new Wildlife-Vehicle Collision hazard.
History of Colorado Avalanche Accidents 1859-2024	Informed the avalanche hazard profile in Chapter 3 risk assessment.

Plan, Study, Report Name	How Plan informed LHMP
Colorado State Drought Response and Mitigation Plan (2018)	Informed the drought hazard profile and vulnerability assessment in Chapter 3 risk assessment.
Colorado Water Conservation Board – Colorado Water Availability Study (2018)	Informed the drought hazard vulnerability assessment in Chapter 3 risk assessment.
Colorado State Forest Service - 2024 Report on the Health of Colorado's Forests	Informed the pest infestation, specifically to forest pests hazard profile and risk assessment. Provided background information on successful wildfire mitigation before the Buffalo Mountain Fire.
State Demography Office Demographic Profiles	Informed the Community Profile and each of the incorporated jurisdictional annexes.
Summit County Hazard Mitigation Plan (2020)	Informed the updated risk assessment.
Summit County Flood Insurance Study	Reviewed for information on past floods and flood problems to inform risk assessment (Chapter 3). Utilized Digital Flood Insurance Rate Maps effective November 2018 to update maps and flood risk assessment in Chapter 3.
Summit County Comprehensive Plan (2009)	Provided background information on the county including some information related to jurisdictions. Informed the Community Profile in Chapter 1 and the jurisdictional annexes.
Summit County Community Wildfire Protection Plan (2016)	Informed the hazard profile and vulnerability assessment for the Wildfire section and in the jurisdictional annexes.
Summit County Climate Action Plan: Strategies for a Sustainable Future (2019)	Informed the climate change considerations in Chapter 3 risk assessment.
Summit County Safe Passage: A County-wide Connectivity Plan for Wildlife (2024 update)	Informed the Wildlife-Vehicle Collisions profile and risk assessment.
Swift-Water Safety & Flood Preparedness Guide	Provided background information on flood and swift-water risk in the County.
Summit County Land Use and Development Code	Informed the County's capabilities assessment.
Town of Blue River Comprehensive Plan (2021)	Provided background information on the Town of Blue River. Informed the Blue River annex.
Town of Frisco Comprehensive Plan (2025)	Provided updated community profiles and development trends in the Town of Frisco. Informed the Frisco annex.
Town of Silverthorne Comprehensive Plan (2022)	Provided information regarding future developments, goals, and business developments. Informed the Silverthorne annex.
Blueprint Silverthorne Comprehensive Plan Update (2014)	Provided background information on the Town of Silverthorne. Informed the Silverthorne annex.
Heeney Water District Water System Repair and Upgrades Capital Improvement Plan	Informed the Capability Assessment and Mitigation Strategy.
Mesa Cortina/Summit County Open Space Wildfire Mitigation Plan (2018)	Informed the vulnerability assessment for wildfire risk in Chapter 3 and in the Annex L Water and Sanitation District's specific to the Mesa Cortina Water District.
Summit Fire and EMS Strategic Plan 2022-2027	Provided background information on Summit Fire & EMS and was included in the Fire Districts annex.
Joint Upper Blue Master Plan (2011)	Provided background information for the Town of Breckenridge, the Town of Blue River and unincorporated areas for Summit County.
Grand County Hazard Mitigation Plan (2020)	Informed the hazard profile for Wildlife-Vehicle Collisions.

Plan, Study, Report Name	How Plan informed LHMP
Dillon Dam Emergency Action Plan	Developed by Denver Water to address potential emergency situations such as dam failures or high flow events.

Other technical data, reports and studies were reviewed and considered, as appropriate, during the collection of data to support Planning Steps 4 and 5, which include the hazard identification, vulnerability assessment, and capability assessment. Information from the following agencies and groups were reviewed in the development and update of this plan. These sources are documented throughout the plan and specifically in the capability assessment sections of each jurisdictional annex.

- Center for Snow and Avalanche (CSAS) – Colorado Dust-on-Snow Program (CODOS)
- Colorado Avalanche Information Center (CAIC)
- Colorado Department of Public Health and Environment (CDPHE)
- Colorado Department of Transporation (CDOT)
- Colorado Division of Reclamation, Mining, and Safety (DRMS)
- Colorado Division of Water Resources – Dam Safety
- Colorado Earthquake Information Database
- Colorado Forest Atlas
- Colorado Geological Survey
- Colorado Parks and Wildlife
- Colorado State Forest Service
- The Denver Post
- Federal Wildland Fire Occurrence Database
- FEMA Community Information System
- Headwaters Economics
- National Drought Mitigation Center – Drought Impact Reporter
- National Fire Protection Association (NFPA)
- National Interagency Fire Center
- National Oceanic and Atmospheric Administration's (NOAA) National Center for Environmental Information (NCEI)
- National Register of Historic Places
- National Weather Service
- Summit Daily
- U.S. Army Corp of Engineers'(USACE) National Inventory of Dams (NID)
- USACE Ice Jam Information Clearinghouse
- U.S Census Bureau
- U.S. Coast Guard's National Response Center (NRC)
- U.S. Department of Agriculture (USDA) – Farm Service Agency (FSA)
- U.S. Department of Transporation (DOT)
- U.S. Drought Monitor
- U.S. Environmental Protection Agency (EPA)
- U.S. Forest Service
- U.S. Geological Survey
- Western Regional Climate Center
- Western Water Assessment Program

Integration of 2020 Plan into Other Plans and Planning Mechanisms

The 2020 hazard mitigation plan was incorporated into several County plans and planning mechanisms. The 2020 HMP provided information for the comprehensive plan updates in the towns of Blue River,

Frisco, and Silverthorne. The 2020 HMP was also integrated into the Summit Fire and EMS Strategic Plan by providing information on enhancing mitigation education programs, enforcing wildfire codes, and prioritizing capital improvements for response and prevention

Refer to each jurisdictional annex for additional information on how each jurisdiction integrated 2020 risk information into their planning mechanisms. As well as the process that will be used moving forward to integrate risk information from this plan update process.

2.4.2 Phase 2 Assess Risk

Step 4: Identify the Hazards

WSP led the HMPC in an effort to review the list of hazards identified in the 2020 plan and document all the hazards that have, or could, impact the planning area, including documenting recent avalanche, wildfire, flood, and winter storm events. The HMPC refined the list of hazards to make it relevant to Summit County. The profile of each of these hazards was then developed and updated in 2025 with information from the HMPC and additional sources. Web resources, existing reports, plans, and GIS layers were used to compile information about past hazard events and determine the location, previous occurrences, probability of future occurrences, and magnitude/severity of each hazard. Information on the methodology and resources used to identify and profile hazards is provided in Section 4.1.

Step 5: Assess the Risks

After profiling the hazards that could affect Summit County, the HMPC collected information to describe the likely impacts of future hazard events on the participating jurisdictions. This step included two parts: a vulnerability assessment and a capability assessment.

Vulnerability Assessment—Participating jurisdictions inventoried their assets at risk to natural hazards—overall and in identified hazard areas. These assets included total number and value of structures; critical facilities and infrastructure; natural, historic, and cultural assets; and economic assets. The HMPC also analyzed development trends in hazard areas. The County's DFIRM was used to refine the estimated flood losses during the update, where available for the NFIP participating communities.

Capability Assessment—This assessment consisted of identifying the existing mitigation capabilities of participating jurisdictions. This involved collecting information about existing government programs, policies, regulations, ordinances, and plans that mitigate or could be used to mitigate risk to disasters. Participating jurisdictions collected information on their regulatory, administrative, fiscal, and technical capabilities, as well as ongoing initiatives related to interagency coordination and public outreach. This information is included in the jurisdictional annexes.

A more detailed description of the risk assessment process and the results are included in Chapter 4 Risk Assessment.

2.4.3 Phase 3 Develop the Mitigation Plan

Step 6: Set Goals

WSP facilitated a brainstorming and discussion session with the HMPC during their second meeting to identify goals and objectives for the overall multi-jurisdictional mitigation plan update. The HMPC discussed definitions and examples of goals, objectives, and actions and considered the goals of the state hazard mitigation plan and other relevant local plans when forming their own goals and objectives. The HMPC determined that the goals and objectives from the 2020 plan were still relevant; they remained unchanged except for a minor edit to reflect that the plan includes human-caused hazards in addition to

natural hazards. The group discussed the ideas and came to consensus on the final goals and objectives for the multi-jurisdictional plan update, which are further discussed in Chapter 4.

Step 7: Review Possible Activities

The HMPC identified and prioritized mitigation actions at their third meeting. The group was presented with six different categories of mitigation actions and example actions for each identified hazard. The HMPC then participated in a brainstorming process, in which committee members identified actions to address each of the plan's four goals. The HMPC then reviewed potential mitigation alternatives and identified new actions by hazard and jurisdiction to ensure that all of the plan's profiled hazards were addressed and that all participating jurisdictions had at least one mitigation action.

The HMPC discussed criteria for narrowing down and prioritizing the identified actions. The group approved the STAPLEE criteria, which assesses the social, technical, administrative, political, legal, economic, and environmental implications of each action. Each member used these criteria to vote for their highest priority projects. Projects were then sorted into high, medium, or low priority based upon the number of votes they received. This process is described in more detail in Chapter 4 Mitigation Strategy.

The HMPC also identified the responsible agency for implementing each action. The identified agencies then completed a mitigation action implementation worksheet for each action. The purpose of these worksheets is to document background information, ideas for implementation, alternatives, responsible agency, partners, potential funding, cost estimates, benefits, and timeline for each identified action.

Each jurisdiction was responsible for completing mitigation action implementation worksheets for each action identified by the HMPC that they would need to implement on the jurisdictional level. The jurisdictions were also responsible for working with their local staff to submit additional mitigation actions unique to their jurisdiction. Each jurisdiction provided input on the progress made on actions identified in the 2020 plan.

Step 8: Draft the Plan

The first complete draft of the plan update, including annexes for new and past participating jurisdictions, were developed and submitted to the HMPC for review in October 2025. Once the committee's comments were incorporated, a complete draft of the plan was made available online and in hard copy for review and comment by the public and other agencies and interested stakeholders. This review period was from XX to XX, as described above under Step 2 and documented in Appendix D. Comments were integrated into a final draft for submittal to the Colorado Department of Homeland Security and Emergency Management, and FEMA Region VIII.

2.4.4 Phase 4 Implement the Plan and Monitor Progress

Step 9: Adopt the Plan

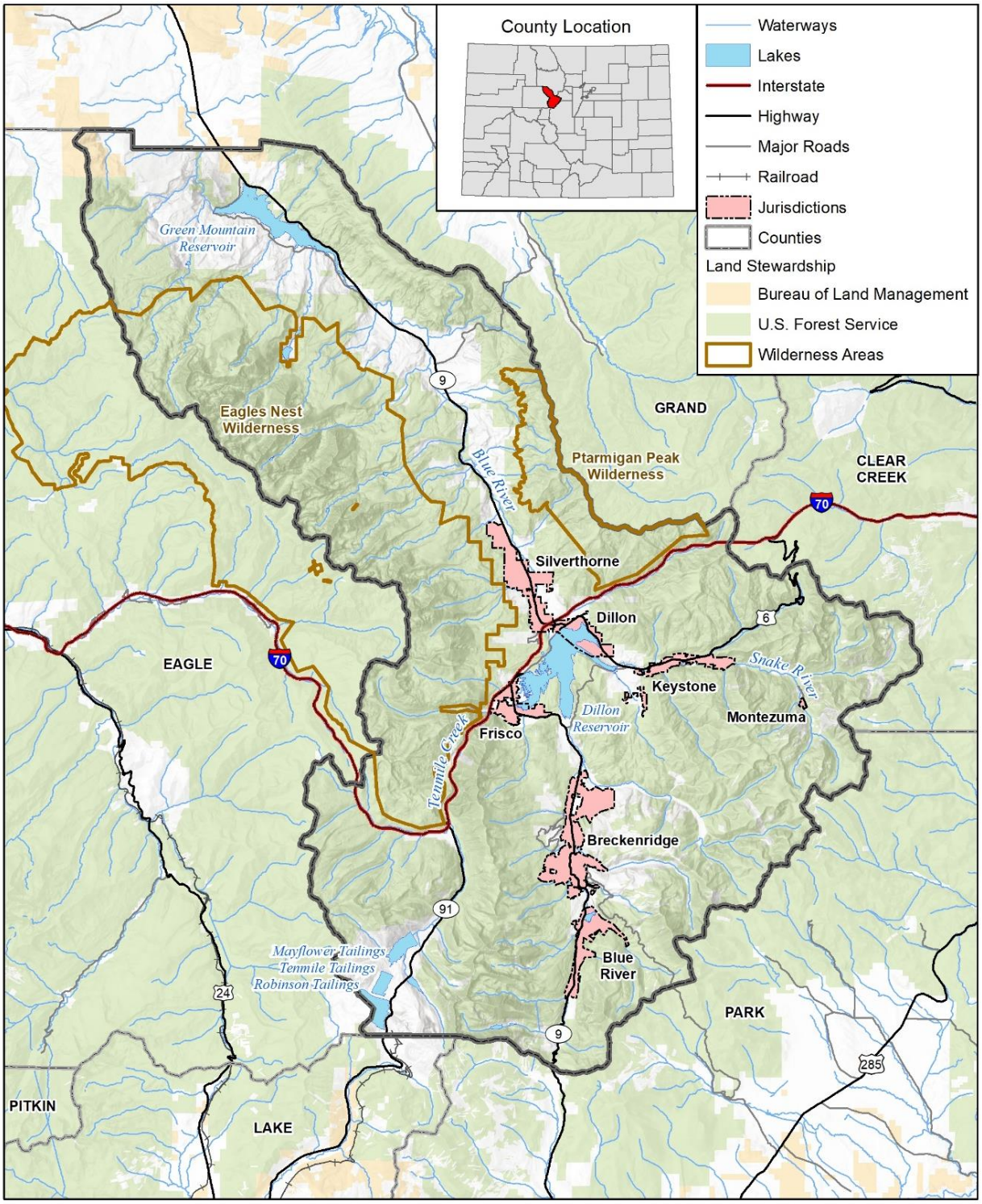
To secure buy-in and officially implement the plan, the governing bodies of each participating jurisdiction adopted the plan and their jurisdictional annex. Scanned copies of resolutions of adoption are included in Appendix A – Local Plan Adoptions.

Step 10: Implement, Evaluate, and Revise the Plan

Chapter 5 describes how the HMPC developed and agreed upon an overall strategy for plan implementation and for monitoring and maintaining the plan. This process was reviewed during Meeting #3. In general, this process was found to be effective and received minor updates during the 2025 planning process.

3 COMMUNITY PROFILE

Figure 3-1 Summit County



3.1 Geography and Climate

Figure 3-1 shows a map of Summit County and its municipalities. The County is located high in the Colorado Rockies along the west side of the Continental Divide. It encompasses 619 square miles and is located slightly northwest of the geographic center of Colorado. Interstate 70, the state's main east-west transportation corridor, bisects the County. The County is bounded by Grand (north), Clear Creek (east), Park (southeast), Lake (southwest), and Eagle counties (west). The eastern section of White River National Forest and Eagles Nest Wilderness are located in Summit County.

The County's topography includes broad mountain valleys flanked by high peaks. Several mountain ranges converge in the County, including portions of the Gore Range, the Ten Mile Range, and the Front Range. Elevations range from 7,500 feet at the northern end of the County where the Blue River enters Grand County to 14,278 feet at the summit of Grays Peak.

Vegetation is based primarily on elevation. The lowest elevation areas in the Lower Blue Basin are composed primarily of sage meadows. At around 9,000 feet and above, coniferous forest predominates. Timberline is located at approximately 11,500 feet, with areas above that elevation comprised of snow, rock, and alpine tundra. See Figure 4-41 in section 4.12 for a map of different vegetation types across the planning area.

The County has one major drainage basin, that of the Blue River. The river flows northerly throughout the County. Two large reservoirs, Dillon and Green Mountain, are located in the central and northern portions of the County, respectively. These reservoirs impound the Blue River, which intersects with the Colorado River about 15 miles north of the County border. Two large tributaries, the Snake River and Ten Mile Creek, also enter Dillon Reservoir.

At the lowest elevations, around Green Mountain Reservoir, summer high temperatures reach into the low 80s. At the County's higher elevations, high temperatures can be significantly cooler, with evening temperatures that can dip into the 30s. Winter lows occasionally drop below -35°F, though daytime temperatures are often in the 20s and 30s. The relative humidity is quite low throughout the year. Much of the annual precipitation comes in the form of winter snow, but afternoon summer thunderstorms are common. Snow is possible at any time of year in the highest elevations.

3.2 Population

Summit County has the 19th largest population of the 64 counties in Colorado as of 2023. Summit County had grown by 11% between 2010 and 2018, and grew an additional 3% between 2018 and 2023. The total County population in 2023 was 32,017. Populations for the County and municipalities from 2010 through 2023 are shown in Table 3-1

Table 3-1 Summit County Total Population, 2010 Through 2023

Jurisdiction	2010	2018	2023	Population Change 2018 to 2023
Town of Blue River	853	666	1,145	479
Town of Breckenridge	4,552	5,479	5,182	-297
Town of Dillon	906	1,169	933	-236
Town of Frisco	2,694	3,074	2,865	-209
Town of Keystone	---	978	1,111	133
Town of Montezuma	65	78	83	5
Town of Silverthorne	3,904	4,559	4,657	98
Unincorporated Summit County	15,099	15,099	16,041	942
Total Summit County	**28,073**	**31,102**	**32,017**	**915**

Source: US Census Bureau, American Community Survey 2010-2023

As a national and international center for winter sports and outdoor recreation, peak seasonal population in Summit County can swell to nearly 150,000 people. According to the County's Comprehensive Plan, monthly average population fluctuation indexes indicate that March has the highest seasonal population, with 147.4 percent of average occupation; May has the lowest with 54.1 percent of average. The County's visiting population from the Colorado Front Range swells significantly on weekends during ski season and the summer months.

Select demographic and social characteristics from the American Community Survey Five-Year Estimates for Summit County are shown in Table 3-2. Characteristics for Summit County are for the entire County.

Table 3-2 Summit County Demographic and Social Characteristics (2023)

Characteristic	Summit County	Town of Blue River	Town of Breckenridge	Town of Dillon	Town of Frisco	Town of Keystone	Town of Montezuma	Town of Silverthorne
Male (%)	54.8	44.6	55	54.7	50.2	56.3	74.7	61.3
Female (%)	45.2	55.4	45	45.3	49.8	43.7	25.3	38.7
Under 5 Years (%)	3.6	3.4	6.6	5.1	0	0.5	9.6	6.8
65 Years & Over (%)	15.4	10.4	13.3	21.9	22.2	8	0	16.9
Median Age	39.2	32.9	37	51.4	43.9	30.1	30.6	47.2
Race/Ethnicity (one race)								
White (%)	79.5	92.4	72.6	78.8	74.7	78.8	100	76.9
Black (%)	.4	0	3.1	3.9	0	3.2	0	0
American Indian & Alaska Native (%)	.4	.3	1.4	0	6.8	0	0	.2
Asian (%)	1.6	0	1.7	1.7	1	2.4	0	0
Native Hawaiian & Other Pacific Islander (%)	.5	0	0	0	0	0	0	.9
Other (%)	2.1	6.6	19.7	15.1	22.9	1.9	0	21
Hispanic/Latino (Any Race) (%)	16.9	2.2	37.1	13.8	2.6	34.5	0	21
Average Household Size	2.46	3.26	2.37	2.05	2.41	1.40	2.10	2.18
Housing Units with no Vehicles (%)	7.1	0	4.1	0	0	20.9	0	2.8

Source: U.S. Census Bureau, American Community Survey, 2023

3.2.1 Housing Characteristics

Table 3-3 summarizes the types of housing units and housing tenure (owner occupied, and renter occupied) in unincorporated Summit County.

Table 3-3 Housing Tenure in Unincorporated Summit County (2018-2023)

Type of housing units	Total
Occupied Housing	31,849
Owner Occupied	12,347
Renter Occupied	19,502

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

3.3 History

Summit County's history has included several waves of settlement and activity. Native Americans, who hunted in the area in the summer months, represented the first wave of settlers. In 1859, the second wave marked the official settlement of the area when gold was discovered in the Blue River just north of present-day Breckenridge. The Town of Breckenridge was founded, and it became the first permanent town on Colorado's Western Slope. Soon, other areas of the County were prospected and dozens of town settlements were established, including Frisco and Dillon.

While mining was the dominant employment activity in most of the County during the late 1800s and early 1900s, another source of income came from ranching. Ranching occurred throughout the valley areas of the County, but was most prevalent in the Lower Blue River valley. Because of the high elevation, ranching in the County has been mostly limited to raising cattle and growing hay. Some of the ranches in the County have been handed down through the family for generations and continue to be actively ranched.

By the 1960s, mining was mainly a memory of the past (with the exception of the Climax Molybdenum Mine at Fremont Pass), and the Arapahoe Basin and Breckenridge ski areas started to draw a new wealth to the County in the form of tourism. As skiing increased in popularity, the Keystone and Copper Mountain ski areas were created in the early 1970s, and the County experienced its third wave of settlement and growth. The current economy is based primarily on the County's recreational amenities.

3.4 Economy

Tourism and recreation dominate the County's economy. The local economy has transitioned from a dependence on mining in the late 1800s to dependence on some of the country's best-known and premier recreation and winter resorts. What started decades ago as a traditional seasonal ski economy has developed into a diverse year-round tourism-based economy. Four major ski areas are located in Summit County: Arapahoe Basin, Breckenridge, Copper Mountain, and Keystone. In the summer months, Dillon and Green Mountain reservoirs are popular recreation destinations. Approximately 80 percent of the land area in Summit County is publicly owned and is managed by the U.S. Forest Service. These lands offer a full spectrum of backcountry and wilderness recreation opportunities.

According to the U.S. Census American Community Survey Five-Year Estimates, 2018-2023, the industries that employed the highest percentages of Summit County's labor force were arts, entertainment, recreation, accommodation, and food services (21%); educational services, and health care and social assistance (18%); professional, scientific, and management, and administrative and waste management services (14%); retail trade (12%), construction (8%), finance, insurance, real estate, and rental and leasing (6.5%); other services (3.3%) and public administration (4.6%). Select economic characteristics for Summit County from 2018-2023 are shown in Table 3-4.

Table 3-4 Summit County Economic Characteristics (2023)

Characteristic	Summit County	Town of Blue River	Town of Breckenridge	Town of Dillon	Town of Frisco	Town of Keystone	Town of Montezuma	Town of Silverthorne
Families below Poverty Level (%)	3.4	2.7	10	0.0	0.0	0	0.0	6.6
Individuals below Poverty Level (%)	7.4	5.1	9.6	5.5	1.1	39.2	2.4	11
Median Home Value ($)	850,700	1,171,900	757,100	939,400	839,500	1,264,500	861,100	691,300
Median Household Income ($)	134,275	126,250	145,375	190,230	134,323	51,369	127,083	123,598
Per Capita Income ($)	58,219	51,936	58,796	65,758	72,879	43,631	46,666	77,069
Population in Labor Force*	19,822	637	2,741	571	1,877	880	63	3,241
Unemployment (%)**	2.5	0.6	0.4	0	0.0	1.6	23.1	4.9

Source: U.S. Census Bureau American Community Survey 5-Year Estimates 2018-2023
*Population 16 years and over. **Civilian labor force only

4 RISK ASSESSMENT

DMA Requirements §201.6(c)(2)
[The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include: *(i) A description of the type, location, and extent of all-natural hazards that can affect the jurisdiction. The Plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.* *(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The Plan should describe vulnerability in terms of:* *(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.* *(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate.* *(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.* *(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

As defined by FEMA, risk is a combination of hazard, vulnerability, and exposure: "It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage." This chapter will examine hazards and vulnerability. Jurisdictional annexes to the plan discuss the capabilities for each of the participating jurisdictions as well as the hazards and vulnerability particular to their area.

The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards. The goal of the risk assessment is to estimate the potential loss in Summit County, including loss of life, personal injury, property damage, and economic loss, from a hazard event. The risk assessment process allows communities in Summit County to better understand their potential risk to natural hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

This risk assessment builds upon the methodology described in the 2025 FEMA Local Mitigation Planning Policy Guide, which recommends a four-step process for conducting a risk assessment:

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

This chapter is divided into three parts: hazard identification, hazard profiles, and vulnerability assessment:

- **Section 4.1 Hazard Identification** identifies the hazards that threaten the planning area and describes why some hazards have been omitted from further consideration.
- **Section 4.2 Assets** assess the County's exposure to natural hazards and consider assets at risk, including critical facilities and infrastructure; natural, historic, and cultural resources; and economic assets.
- **Section 4.3 to 4.16 Hazard Profiles** discusses the geographic location, past events, future probability, magnitude/severity, and overall vulnerability of the planning area to each hazard.

Table 4-1 summarizes overall hazard significance, based on a combination of geographic area, probability of future occurrence and potential magnitude/severity as defined below.

Table 4-1 Hazard Significance Summary for Summit County

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Highly Likely	Critical	High
Dam Failure	Small	Unlikely	Catastrophic	Medium
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Occasional	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Small	Likely	Critical	High
Hazardous Materials Release	Isolated	Likely	Limited	Medium
Landslide, Mudflow/Debris Flow, Rock Fall	Medium	Occasional	Critical	Medium
Lightning	Large	Likely	Limited	Medium
Pest Infestation (Forest and Aquatic)	Large	Likely	Limited	Medium
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Large	Highly Likely	Catastrophic	High
Windstorm	Large	Highly Likely	Limited	Low
Wildlife-Vehicle Collisions	Large	Highly Likely	Negligible	Low

Geographic Area

Large: More than 50% of the planning area affected

Medium: 25-50% of the planning area affected

Small: 10-25% of the planning area affected

Isolated: Less than 10% of planning area affected

Probability of Future Occurrences

Highly Likely: Near 100% chance of occurrence in next year or happens every year.

Likely: Between 10 and 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.

Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years.

Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.

Magnitude/Severity

Catastrophic: More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths

Critical: 25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability

Limited: 10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability

Negligible: Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Overall Significance

Low: minimal potential impact

Medium: moderate potential impact

High: widespread potential impact

4.1 Hazard Identification

During the 2025 planning process, the Summit County Hazard Mitigation Planning Committee (HMPC) revisited data and discussed the impacts of each of the hazards listed alphabetically below, to determine the current hazards that threaten the planning area.

- Avalanche
- Dam Failure Incidents
- Drought
- Earthquake
- Erosion/ Deposition
- Flood
- Hazardous Materials Release
- Landslide/ Mudflow/ Debris Flow/Rock Fall
- Lightning
- Pest Infestation (Forest and Aquatic)
- Severe Winter Weather
- Wildfire
- Wildlife/ Vehicle Collisions
- Windstorm

The list of hazards did not change from the previous plan update in 2020.

The HMPC reviewed the natural hazards profiled in the 2023 Colorado State Hazard Mitigation Plan (SHMP), and determined that the following hazards do not pose a significant risk in Summit County, and therefore did not need to be analyzed further:

- Animal Disease Outbreak: minimal impacts in Summit County
- Expansive Soils: minimal exposure, Summit County ranked low vulnerability in SHMP
- Extreme Heat: minimal impacts, Summit County ranked low vulnerability in SHMP
- Ground Subsidence: minimal exposure, Summit County ranked low vulnerability in SHMP
- Hail: minimal exposure, Summit County ranked low vulnerability in SHMP
- Pandemic: covered under other plans maintained by County Public Health
- Tornado: minimal history of events, only two tornadoes recorded in Summit County since 1950

All hazards to be included in this plan update are profiled in further detail in the next section and listed in Table 4-1 above along with their significance ratings. Hazard tables for the special districts and incorporated jurisdictions are included in their individual annexes.

Data on the past impacts and future probability of these hazards was collected from a variety of sources including the following listed below. GIS data sources are described in more detail under Section 4.2 Vulnerability Assessment.

- Colorado Division of Water Resources (DWR)
- Colorado Forest Atlas
- Colorado Geological Survey
- Disaster declaration history from FEMA, the Public Entity Risk Institute, Colorado Governor Executive Orders, and the U.S. Department of Agriculture (USDA) Farm Service Agency
- FEMA
- HAZUS
- State of Colorado Hazard Mitigation Plan (2023)
- Summit County HMPC
- The National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI)

4.1.1 Disaster Declaration History

One method used by the HMPC to identify hazards was to examine events that triggered federal and/or state disaster declarations. Federal and/or state declarations may be granted when the severity and

magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. Should the disaster be so severe that both the local and state governments' capacities are exceeded; a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance.

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

Table 4-2 lists state and federal disaster declarations received by Summit County. Many of the disaster events were regional or statewide; therefore, reported details may not be accurate reflections of full effects in Summit County and its communities (e.g. the Hurricane Katrina Coastal Storm event).

Since 1977 there have been 7 drought declarations issued by the USDA's Secretary of Agriculture in Summit County, 5 of which were Fast Track Secretarial disaster designations. According to the Secretary of Agriculture, a Fast Track designation is for a severe drought and provides an automatic designation when, during the growing season, any portion of the county meets the severe drought intensity value for eight consecutive weeks or more. Refer to the Drought hazard profile for more information of Disaster Declarations from the Secretary of Agriculture related to drought events.

This disaster history including 13 events (combined federal and state) suggests that Summit County experiences a major event worthy of a disaster declaration every 3.8 years, though this is somewhat skewed by the multiple USDA Fast Track declarations that can occur during a drought year. Excluding drought, Summit County has only had five declared disasters in 50 years, or an average of one per decade.

Table 4-2 Disaster Declaration History in Summit County, 1977-2025

Date Declared	Declaration Type	Incident/Hazard Type	Disaster Number
1/29/1977	FEMA Emergency Declaration	Drought	EM 3025
6/19/2002	FEMA Disaster Declaration	Wildfire	DR 1421
4/9/2003	FEMA Emergency Declaration	Snow	EM 3185
9/5/2005	FEMA Emergency Declaration	Coastal Storm (Hurricane Katrina Evacuation)	EM 3224
7/3/2012	USDA, Primary Designation	Drought, Excessive Heat, High Winds	S3260
1/9/2013	USDA, Secondary Designation	Drought-FAST TRACK	S3456
8/28/2013	USDA, Secondary Designation	Drought-FAST TRACK	S3575
7/19/2017	Governor Declaration	Wildfire	D-2017-018
9/12/2018	USDA, Primary Designation	Drought-FAST TRACK	S4386
3/22/2019	USDA, Secondary Designation	Drought-FAST TRACK	S4468
5/30/2019	USDA, Primary Designation	Drought-FAST TRACK	S4481
3/13/2020	FEMA Emergency Declaration	Biological – COVID-19 Pandemic	EM 3436
3/28/2020	FEMA Emergency Declaration	Biological – COVID-19 Pandemic	DR 4498

Source: State of Colorado archives for Governor Executive Orders and Disaster Declarations 2019; FEMA 2019; USDA FSA 2019; Colorado State Hazard Mitigation Plan.

Summit County was included in the Presidential Major Disaster Declaration for wildfire in 2002; however; major fires or losses were not sustained in the County itself. The County provided aid to affected areas, but no reimbursement was involved. Then, the Peak 2 Fire in 2017 led to a governor declaration in the County, under disaster number D-2017-018. Other noted declarations include the Hurricane Katrina

Evacuation event in 2005, the 2003 FEMA Emergency Declaration for Snow hazards, and the Emergency Declarations for the COVID-19 Pandemic in March of 2020.

It is important to be aware that hazard events that happen outside of the County boundaries also can have direct and indirect impacts to Summit County. For instance, transportation routes or power supply could be interrupted by severe winter storms or wildfire hazards outside of the County.

4.1.2 Methodology

The vulnerability assessment further defines and quantifies populations, buildings, critical facilities and infrastructure, natural/cultural resources, and other community assets at risk to natural hazards, as well as the potential impacts to the economy and future development trends of the planning area.

The vulnerability assessment includes these sub-sections per applicable hazard:

- General Property
- People
- Critical Facilities and Infrastructure
- Economy
- Historic, Cultural, and Natural Resources
- Future Development
- Risk Summary

The vulnerability assessment was conducted based on the best available data and the overall planning significance of the hazard. Data sources which supported this vulnerability assessment included the following (among others):

- Summit County GIS data (hazards, base layers, and assessor's data);
- Statewide GIS datasets to support mitigation planning (e.g. Colorado Forest Atlas or COWRA); Colorado Geological Survey (CGS); Colorado Division of Water Resources (DWR)
- Federal GIS and other data sources (e.g. U.S. Census Bureau; U.S. Forest Service; U.S. Fish and Wildlife; Federal Emergency Management Agency and Hazus inventory data; National Inventory of Dams by the U.S. Army Corps of Engineers; U.S. Geological Survey; National Park Service; U.S. Department of Agriculture); Homeland Infrastructure Foundation-Level Data (HIFLD); National Bridge Inventory (NBI)
- State of Colorado Hazard Mitigation Plan 2018;
- Summit County Hazard Mitigation Plan of 2013;
- Written descriptions of inventory and risks provided by the jurisdictions and the public;
- Other online data sources (cited where applicable);
- Data and information from other existing plans and studies; and
- Input from planning team members and staff from the County and local, state, and federal agencies (HMPC).

In addition, a capability assessment was conducted for each jurisdiction as part of the risk assessment process. A capability assessment identifies the existing programs, policies, plans, and projects that mitigate or could be used to mitigate risk to disasters. This information can be found in the annexes for each jurisdiction.

4.1.3 Hazard Profiles

The hazards identified for inclusion in the current plan are profiled individually in this following sections. Hazard profiles were also included in the annexes, specifically hazards that were rated differently than the

county and had additional data and information. Detailed profiles for each of the identified hazards include information on the following characteristics of the hazard:

Risk Summary

This section summarizes the results of the hazard risk assessment and assigns a level of overall planning significance to each hazard of low, moderate, or high to each jurisdiction participating. Significance was determined based on the hazard profile, focusing on key criteria such as frequency and resulting damage, including deaths/injuries and property, crop, and economic damage. This assessment was used by the HMPC to prioritize those hazards of greatest significance to the planning area; thus, enabling the County to focus resources where they are most needed. Those hazards that occur infrequently or have little or no impact on the planning area were determined to be of low significance.

Description

General description of the hazard and the general impacts it may have on a community.

Location

The geographic coverage or location of the hazard in the planning area, assessed as follows:

- **Large**—More than 50% of the planning area affected
- **Medium**—25-50% of the planning area affected
- **Small**—10-25% of the planning area affected
- **Isolated**—Less than 10% of the planning area affected

Previous Occurrences

Summarizes historic hazard incidents in the planning area, including impacts and costs if known. Information from the HMPC was combined with other data sources as available (e.g. federal and state declaration history).

Probability of Future Occurrence

The frequency of past events and input from the HMPC's experience is used to gauge the likelihood of future occurrences. Based on historical data, the Probability of Future Occurrence is categorized as follows:

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

Magnitude/Severity

Summarizes the magnitude/severity (extent) of a hazard event in terms of deaths, injuries, property or other damage, and interruption of essential facilities and services. Magnitude/severity is classified in the following manner:

- **Catastrophic**—Multiple deaths; property destroyed and severely damaged; and/or interruption of essential facilities and service for more than 72 hours.
- **Critical**—Isolated deaths and/or multiple injuries and illnesses; major or long-term property damage that threatens structural stability; and/or interruption of essential facilities and services for 24-72 hours.
- **Limited**—Minor injuries and illnesses; minimal property damage that does not threaten structural stability; and/or interruption of essential facilities and services for less than 24 hours.

- **Negligible**—No or few injuries or illnesses; minor quality of life loss; little or no property damage; and/or brief interruption of essential facilities and services.

Climate Change Considerations

Discusses the potential for climate change to affect the frequency, intensity, or even location of the hazard in the future, based on the best available science.

Vulnerability

The vulnerability section further defines and quantifies populations, buildings, critical facilities and infrastructure, natural/cultural resources, and other community assets at risk to the profiled hazards, as well as the potential impacts to the economy and future development trends of the planning area. The vulnerability section includes these sub-sections per applicable hazard:

- General Property
- People (including vulnerable populations)
- Critical Facilities and Infrastructure
- Economy
- Historic, Cultural, and Natural Resources
- Development Trends

Table 4-3 summarizes the results of the hazard profiles for incorporated communities that are participating jurisdictions in the hazard mitigation plan. Details for special districts are available in their individual annexes.

Table 4-3 Planning Significance of Identified Hazards by Jurisdiction

Hazard Type	Summit County	Blue River	Breckenridge	Dillon	Frisco	Keystone	Silverthorne
Avalanche	High	Low	Low	Low	Low	Low	Low
Dam Failure	Medium	Medium	Medium	Medium	Low	Medium	High
Drought	Moderate	Low	Medium	Low	Medium	Medium	Medium
Earthquake	Low	Low	Low	Low	Low	Low	Low
Erosion/ Deposition	Low	Medium	Low	Medium	Medium	Low	Low
Flood	High	Medium	High	Low	Medium	High	High
Hazmat Release	Medium	Low	Low	High	High	Low	High
Landslide, Mudflow/Debris Flow, and Rockfall	Medium	Medium	Medium	Low	Low	Medium	Medium
Lightning	Medium	Low	Medium	Medium	Medium	Medium	Medium
Pest Infestation (Forest and Aquatic)	Medium	Medium	Medium	Medium	High	Medium	Medium
Severe Winter Weather	High	High	High	High	High	High	High
Wildfire	High	High	High	Medium	High	High	High
Wildlife-Vehicle Collisions	Low	Low	Low	Low	Low	Low	Low
Windstorm	Low	Low	Low	Medium	Low	Low	Low

4.2 Assets

The Summit County Risk Assessment revealed a number of problem areas to be addressed in the mitigation strategy. This section describes overall vulnerability and identifies structures and estimates potential losses to buildings, infrastructure, and critical facilities located in identified hazard areas.

This assessment is also limited by the data available for the hazards. The methods of analysis vary by hazard type and data available. Many of the identified hazards, particularly weather related hazards, affect the entire planning area, and specific hazards areas cannot be mapped geographically. For these hazards, which include drought, lightning, pest infestation, severe winter weather, and windstorm, vulnerability is mainly discussed in qualitative terms because data on potential losses to structures is not available. Geographic hazard areas can be mapped for the following identified hazards: avalanche; dam failure; earthquake; flood; and wildfire.

4.2.1 Asset Inventory

This section assesses the population, structures, critical facilities and infrastructure, and other important assets in Summit County at risk to the profiled hazards.

General Property Exposure to Hazards

Table 4-4 shows the total number of improved parcels, properties, and their Improvement and Contents Values by jurisdiction. Note that only those parcels with improvement values greater than $0, or those which were classified as exempt, were accounted here so that those non-developed or non-improved parcels were excluded for the purposes of conducting the vulnerability assessments in this Section 4.2. Counts and values are based on the latest county assessor's data (as of June 2025), which was provided in GIS format. Contents exposure values were estimated as a percent of the improvement value, specifically: 50% of the improvement value for Multi-Family and Residential structures, 150% for Industrial structures, 100% for Agricultural, Commercial, and Exempt structures, and 0% for Vacant parcels. These percentage calculations are based on standard FEMA Hazus methodologies. Finally, Total Values were aggregated by adding the improvement and Contents Values for each jurisdiction.

Table 4-4 Improved Parcel and Property Exposure by Jurisdiction

Jurisdiction	Improved Parcels	Improved Value	Estimated Contents Value	Total Value
Blue River	803	$937,605,726	$468,802,863	$1,406,408,589
Breckenridge	8,716	$10,262,538,701	$5,348,391,943	$15,610,930,644
Dillon	1,489	$1,312,357,766	$730,447,033	$2,042,804,799
Frisco	3,666	$3,519,544,361	$1,885,021,838	$5,404,566,199
Keystone	3,833	$3,783,231,153	$1,920,700,477	$5,703,931,630
Montezuma	50	$37,380,320	$18,690,160	$56,070,480
Silverthorne	3,207	$3,704,004,045	$1,958,073,473	$5,662,077,518
Unincorporated	12,451	$11,037,247,101	$5,681,131,173	$16,718,378,274
Total	**34,215**	**$34,593,909,173**	**$18,011,258,958**	**$52,605,168,131**

Source: Summit County Assessor Data 2025, WSP GIS Analysis

Table 4-5 below summarizes the same information as above, but this time by parcel type rather than jurisdiction. The below information indicates that most properties in Summit County are Residential, followed by Agricultural, Commercial, Exempt, Industrial, Multi-Family Residential, and Residential.

For those vulnerability analyses to follow, the number of properties at risk of the hazards available in geospatial format were obtained by overlaying the hazard threat layers with the parcel centroid layer, all in GIS. To further refine the properties at risk, those properties with improvements classified as open space or common space were removed from the analysis to avoid counting them as developed.

The following hazards will have vulnerability summaries at the parcel level, due to the availability of hazard data for the geospatial overlay analysis: Avalanche, Dam Failure, Flood, Landslide (including Special Slide Hazard Areas), and Wildfire. Earthquake will also include damage and loss estimates to general property based on Hazus-derived information. (See Section 4.3.4 Earthquake for more details.)

Table 4-5 Improved Parcel and Property Exposure by Parcel Type

Property Type	Improved Parcels	Improved Value	Estimated Contents Value	Total Value
Agricultural	55	$43,925,430	$43,925,430	$87,850,860
Commercial	1,429	$1,263,068,698	$1,263,068,698	$2,526,137,396
Exempt	1,111	$324,015	$324,015	$648,030
Industrial	1	$60,645,300	$90,967,950	$151,613,250
Multi-Family Residential	1,891	$2,199,658,645	$1,099,829,323	$3,299,487,968
Residential	29,728	$31,026,287,085	$15,513,143,543	$46,539,430,628
Total	**34,215**	**$34,593,909,173**	**$18,011,258,958**	**$52,605,168,131**

Source: Summit County Assessor Data 2025, WSP GIS Analysis

Land Use and Development Trends

Summit County is divided into four geographic basins, Lower Blue, Snake River, Ten Mile, and Upper Blue, each with its own unique master plan to guide future development and address issues important to residents in that basin. In the past five years growth has been experienced in all four basin areas with a total of 31,240 residential units built of the 42,855 unit allowed per zoning as of the end of 2018 (Summit County). This represents 73% of the absolute residential build-out in both the unincorporated and incorporated areas. According to Summit County Planning the estimated realistic build-out for the county is 39,256 units with a realistic build-out of approximately 80% in both in unincorporated and incorporated areas. There are some factors that may act to increase build-out in the County. These factors included potential annexations and upzonings by towns of lands that are currently unincorporated or affordable workforce housing projects. Table 4-6 breaks down the County's residential build-out by basin. Policies in the County's Comprehensive Plan limit the creation of new density in the unincorporated areas of the county as one method in controlling development and absolute build-out. The County's Transfer of Development Rights (TDR) program works together with the Town of Breckenridge for upzonings within the Town limits and moves the potential for new development out of the wildland urban interface (WUI). The County also working closely with the other incorporated communities on joint planning agreements and coordinate land use planning.

Table 4-6 below shows the summary of residential build-out of properties in the County, by basin. Units to Be Built includes vacant single family residential lots or multi-family units which are permitted by zoning, but not yet built. Additional Subdivision Potential in Units refers to additional units that could be created by further subdivision under existing zoning classifications. Absolute Build-out is the sum of total units built to date, remaining units to be built, and additional units that could be created through subdivision. Absolute build-out represents ultimate build-out, or the total number of units that could potentially be built if every property were subdivided and developed to the maximum density allowed under current zoning regulations. Absolute build-out does not factor in site constraints that could preclude realization

of the full development potential allowed under existing zoning regulations. Realistic build-out is a more likely picture of the build-out that may occur. Factors that affect realistic build-out include, but are not limited to the following: constrained property sizes in areas such as Heeney; development constraints such as wetlands and steep slopes; access constraints; unrealized subdivision potential on rural agricultural properties (due to property owners' desires, future conservation easements, open space purchases, etc.); and constrained development due to water rights issues.

Build-out for the unincorporated portions of the County, and the Towns of Blue River and Montezuma has been calculated by the Summit County Planning Department and updated as of December 31, 2023. Build-out for the remaining four towns in the County (Breckenridge, Frisco, Dillon, and Silverthorne) was obtained from the respective Town Planning Departments. Commercial build-out for the County is not included in this analysis. Overall, there is not a significant amount of commercially zoned land within the unincorporated areas of the County, as most commercial activity is located within the incorporated towns. Furthermore, commercial build-out is somewhat difficult to estimate, as permitted commercial development varies based on a ratio of floor area to land area. As of December 31, 2023, it is estimated that commercial build-out in unincorporated portions of the County is approximately 76.27%. Generally, there is a significant amount of property zoned for commercial uses that could still be developed.

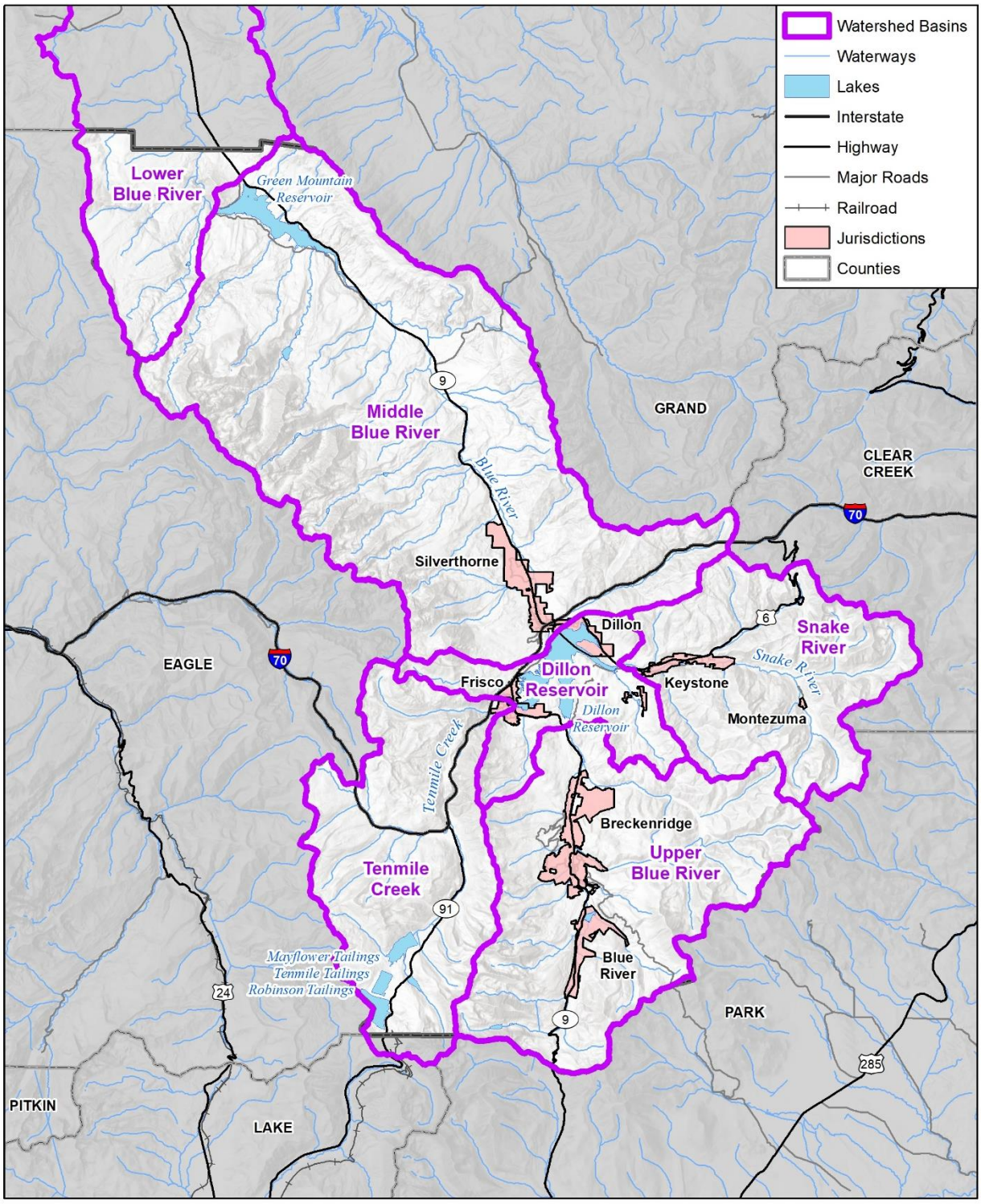
Figure 4-1 below shows these watershed basin boundaries as well as the jurisdictions.

Table 4-6 Residential Build-out Analysis of Summit County by Basin, December 2023

Basin / Jurisdiction	Total Units Built to Date	Remining Units to be Built	Additional Subdivision Potential	Absolute Build-Out (%)	Realistic Build-Out (%)
Lower Blue Basin					
Unincorporated Area	3,703	1,675	974	58.27	75.82
Town of Silverthorne	3,085	354	1,028	69.06	89.71
Total	**6,788**	**2,002**	**2,002**	**62.72**	**81.56**
Snake River Basin					
Unincorporated Area	6,640	2,167	72	75.24	75.24
Town of Dillon	1,339	114	288	76.91	76.91
Town of Montezuma	45	36	0	55.56	55.56
Total	**8,024**	**2,317**	**360**	**75.36**	**75.36**
Ten Mile Basin					
Unincorporated Area	2,407	706	103	75.83	78.92
Town of Frisco	3,276	85		97.47	97.47
Total	**5,683**	**791**	**103**	**86.96**	**88.64**
Upper Blue Basin					
Unincorporated Areas	3,808	1,252	593	67.05	76.93
Town of Blue River	734	104	0	87.59	87.59
Town of Breckenridge	8,076	935	303	89.62	92.74
Total	**12,618**	**2,291**	**896**	**81.26**	**87.04**
Countywide Totals					
Unincorporated Areas	16,558	5,800	1,742	68.90	76.27
Incorporated Areas	16,555	1,628	1,619	84.9	91.12
Total County	**33,113**	**7,428**	**3,361**	**76.07**	**83.04**

Source: Summit County Planning Department, December 31, 2023, https://www.summitcountyco.gov/services/community_development/planning/index.php

Figure 4-1 Summit County Watershed Boundaries



As of December 31st, 2023, approximately 33,113 units of the 43,532 units allowed per zoning have been built in the County. This represents an absolute residential build-out of 76% (including both the unincorporated areas and the incorporated towns). Summit County Planning Staff estimates that the realistic build-out for the county is approximately 39,877 units, which means that realistic build-out is approximately 83% (including both the unincorporated areas and the incorporated towns).

The data indicate that the incorporated towns are more built-out than the unincorporated portions of the county. Among the incorporated towns, the Town of Frisco is the most built-out at approximately 97%, followed by the towns of Breckenridge and Silverthorne. When looking at the respective planning basins (including both unincorporated areas and incorporated towns), in the context of absolute build-out, the Tenmile Basin is the most build-out of the four basins, with an absolute build-out of approximately 87%, followed by the Upper Blue and Snake River Basins. In terms of realistic build-out, all basins are roughly 83% built-out.

The data also show that there are significantly more residential units built in the Upper Blue Basin than any other basin (including both unincorporated areas and incorporated towns). There are approximately 12,618 units built in the Upper Blue Basin, which is approximately twice the number of units built in the Lower Blue or Tenmile basins.

Future Development

As indicated in the previous section, Summit County has grown substantially over the last four decades. Population growth in the county is expected to continue. As of July 2023, the permanent resident population of Summit County is 30,441, according to the most recent estimate from the State Demographer. Approximately 52% of the county's permanent residents live in unincorporated areas (properties located outside of town boundaries). From 2020 to 2023, the county experienced a 1.98% decline in total population, losing 614 residents overall. Most municipalities saw population decreases, with Frisco (-5.94%) and Montezuma (-6.76%) experiencing the steepest percentage declines, while the unincorporated area lost 765 residents (-4.60%), experiencing the largest population decline. Other areas, including Blue River (-4.79%), Dillon (-4.51%), and Breckenridge (-2.42%) also saw notable reductions. In contrast, Silverthorne was the only municipality to grow, adding 602 residents, a 13.68% increase from 2020. This growth stands out against the broader trend of decline and suggests Silverthorne may be an emerging hub in the county. Overall, while most areas experienced modest losses, the combination of these declines led to a net reduction in population.

The State Demography Office forecasts the County's population will reach by 2020 and 40,478 by 2040. Although growth is projected to continue through 2030, the growth rates experienced during the 1970s, 80s, and 90s are not expected to continue. Table 4-7 shows the population projections for the County as a whole through 2030.

Table 4-7 Population Projections for Summit County, 2010-2030

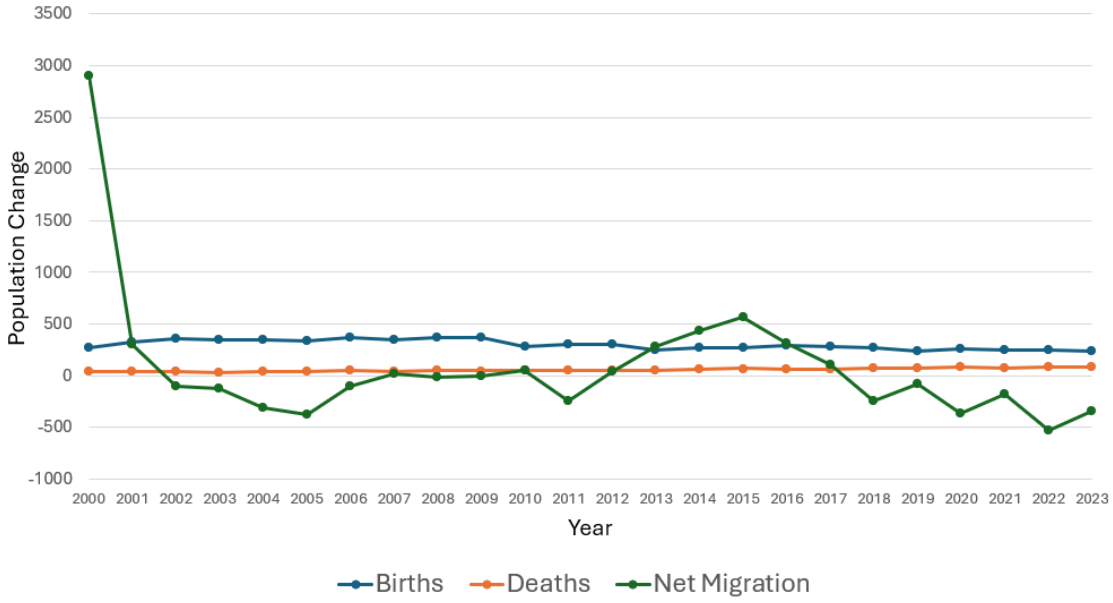
Time Frame/Years	Percent Change	New Residents Added	Projected Ending Population
2010-2015	9.6%	2,674	30,668
2015-2020	14.8%	4,553	35,221
2020-2025	12.7%	4,481	39,702
2025-2030	10.1%	4,000	43,702

Sources: Summit County Planning Department, http://www.co.summit.co.us/index.aspx?NID=519

The County has estimated the arrival of 4,733 new permanent residents between 2000 and 2023 or 205 new permanent residents per year, and approximately17 new permanent residents per month (Summit County Planning Department).

The net migration of the County, or the difference between the number of people moving into County and the number of people out, between 2018 and 2023. Figure 4-2 uses data from the State Demography office to show the components of change for Summit County between 2000 and 2023.

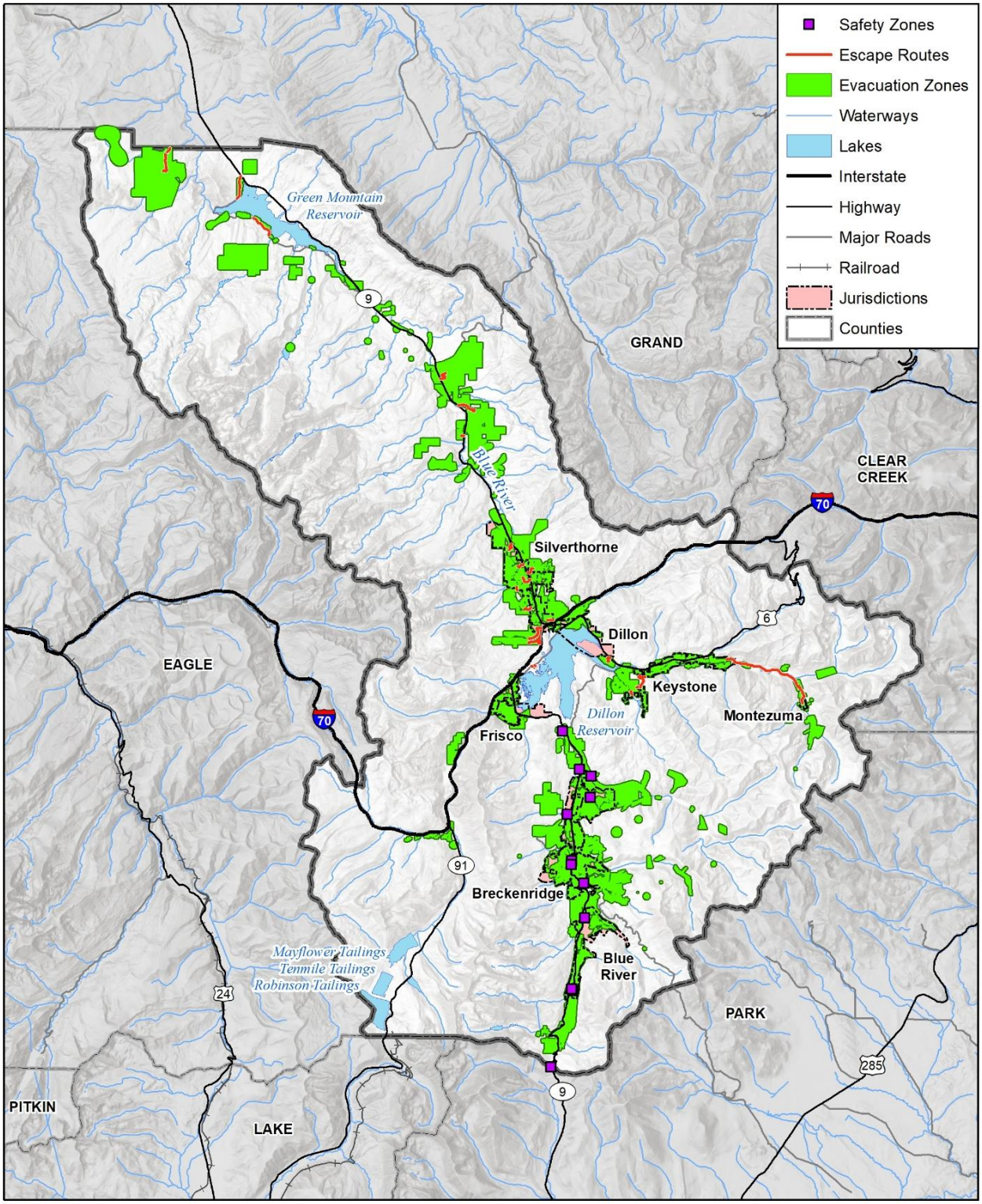
Figure 4-2 Summit County Births, Deaths and Net Migration, 2000-2023



Source: Colorado State Demography Office

The Interstate 70 corridor and U.S. 6 over Loveland Pass will continue to experience increased traffic with the greatest risks associated with snow and rock/mudslides in areas prone to such activity. U.S. 6 will likely continue to serve as a hazardous materials commercial truck route for the foreseeable future. Major accidents or significant snow events can result in the closure of vital highways and roads such as Interstate 70, U.S. 6, Colorado Highway 9, and the Dillon Dam Road, stranding several thousand motorists during seasonal and weekend peak travel periods in the County. Future growth will further exacerbate both the congestion and need to establish an adequate number of pre-designated emergency reception centers and emergency shelters. The Summit County Office of Emergency Management has already coordinated evacuation planning for jurisdictions in the County. Figure 4-3 below shows evacuation routes and identified areas of concern.

Figure 4-3 Summit County Evacuation Routes and Areas of Concern



People

As part of the planning process, the HMPC looked at changes in growth and development in terms of land use trends and examined these changes in the context of hazard-prone areas, and how the changes in growth and development affect loss estimates and vulnerability. Information from the Summit County Countywide Comprehensive Plan and website, the Colorado Department of Local Affairs Demography Section, and the U.S. Census Bureau form the basis of this discussion.

According to the State Demography Office, the 2023 population of Summit County was 30,441. This is an decrease of 1.72% from the 2018 U.S. Census population of 30,974. Table 4-8 through Table 4-10 illustrate past growth in Summit County in terms of population, housing units, and density. Section 3.2 of this plan provides additional details of the current demographics of Summit County and the incorporated jurisdictions within the county.

Table 4-8 Summit County Population Growth 1970-2023

Time Frame/Years	# Change	Percent Change	Estimated Ending Population
1970-1980*	+6,183	+232.0%	8,848
1980-1990	+4,033	+45.6%	12,881
1990-2000	+10,667	+82.8%	23,548
2000-2010	+4,446	+18.9%	27,994
2010-2018	+2,901	+10.3%	30,974
2018-2023	-533	-1.72%	30,441

Source: Summit County Planning Department, https://www.summitcountyco.gov/services/community_development/planning/index.php, and Colorado State Demography Office *Summit County was the fastest growing county in the nation

A majority of the County's population live in the unincorporated areas. According to Summit County Planning the unincorporated area known as Snake River Basin has seen as the greatest increase in population since 2010. Most of the growth occurred in the neighborhoods of Cove and Dillon Valley which are the two largest and most densely populated neighborhoods in the County. As shown in Table 4-9 and Table 4-10, all of the incorporated communities have seen growth since 2010, the Town of Silverthorne has seen the greatest increase (23%) followed by the Town of Frisco, in population since 2010.

Table 4-9 Population Growth for Jurisdictions in Summit County, 2018-2023

Jurisdiction	2018	2023	# Change	% Change	Percent of County	Percent of Total Growth
Blue River	666	1,145	73	71.9%	3%	35.09%
Breckenridge	4,936	5,001	437	1.3%	16%	4.76%
Dillon	945	933	62	-1.27%	3%	-0.88%
Frisco	3,074	2,865	500	-6.8%	10%	-15.31%
Montezuma	65	67	2	3%	0.2%	0.15%
Silverthorne	4,559	4,657	749	2.1%	15%	7.18%
Unincorporated Areas	15,099	16,041	881	6%	52%	69.01%
Total County	**28,073**	**30,974**	**2,561**	**9%**	**100%**	**100%**

Source: 2018-2023 US Census and State Demography Office

Table 4-10 Growth in Housing Units for Jurisdictions in Summit County, 2018-2023

Jurisdiction	2018	2023	# Change	Percent Change	Percent of County	Percent of Total Growth
Blue River	764	780	16	2%	2%	2%
Breckenridge	7,337	7,732	395	5%	23%	24%
Dillon	1,331	1,407	76	6%	4%	2%
Frisco	3,578	3,390	-188	-5%	11%	26%
Montezuma	55	57	2	4%	0%	0%
Silverthorne	2,449	3,123	674	27%	10%	22%
Unincorporated Areas	16,110	16,210	100	1%	50%	24%
Total County	**31,624**	**32,699**	**1,075**	**40%**	**100%**	**100%**

Source: State Demography Office

According to the Countywide Comprehensive Plan, seasonal population may swell to nearly 160,000 people during peak periods (i.e., December or March). Monthly average population fluctuation indexes indicate that March has the highest seasonal population with 147.4% of average occupation; May has the lowest with 54.1% of average. The plan also notes that there are more housing units than residents (this is due to the dynamics of the County's resort community, there is still a need for additional housing).

For hazards for which data was available for GIS-based parcel analysis, population estimates were calculated as well. These were based on multiplying the average persons per household value for Summit County as of the latest U.S. Census Bureau statistics (which equals 3.10 persons per household), times the number of properties of Residential nature in each of the vulnerability analyses. Hence, if 'X' number of properties of Residential nature were found to overlap with a hazard layer, the total population exposed to that hazard would be obtained by taking 'X' times 3.10, then adding the results by either jurisdiction or parcel type. For more details, refer to each hazard's vulnerability section in the following sub-sections (Section 3.3.3). This method does not account for people associated with commercial or other properties, or seasonal or visiting populations.

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. For this analysis, critical facilities were grouped together using FEMA Lifeline categories, shown in Figure 4-4. Table 4-11 summarizes the inventory of critical facilities by type (based on best available data) in Summit County as provided by the HMPC and Summit County departments. Table 4-12 summarizes the same facilities by Lifeline category, while Table 4-13 organizes them by jurisdiction. The approximate locations of these facilities are displayed in Figure 3-38 below. For context, FEMA Lifelines represent the U.S. Department of Homeland Security's current recommended way to standardize the classification of critical facilities and infrastructure which provide indispensable service, operation, or function to a community. Per the FEMA Community Lifelines information sheet, "A lifeline provides indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security" (FEMA Community Lifelines, 2019). These categorizations are particularly useful as they:

- Enable effort consolidations between government and other organizations (e.g. infrastructure owners and operators)
- Enable integration of preparedness efforts among plans; easier identification of unmet critical facility needs
- Refine sources and products to enhance awareness, capability gaps, and progress towards stabilization

- Enhance communication amongst critical entities, while enabling complex interdependencies between government assets
- Highlight lifeline related priority areas regarding general operations as well as response efforts.

Figure 4-4 Lifeline Categories



Source: FEMA

Approximate locations of identified critical facilities are shown in Figure 4-5. Specific information on facilities, names, and other key details by community can be found in the jurisdictional annexes. Note that there were several critical facilities the HMPC indicated should not be disclosed in terms of location or name, so while they were considered in the GIS analysis within each hazard's vulnerability assessment for planning purposes, they will not be described in detail nor will they be shown in any maps. These facilities include pharmacies, grocery stores and fuel stations. The County Jail is also considered a critical facility.

Table 4-11 Critical Facilities in Summit County by Facility Type

Facility Type	Count
Adult Care	1
Ambulance Station	1
Bridge - Fair Condition	40
Bridge - Fair Condition - Scour	1
Bridge - Good Condition	14

Facility Type	Count
Bridge - Poor Condition	2
Communications	14
Dam - High Hazard	9
Dam - Significant Hazard	4
Energy Substation	17
Fire Station	12
Government Building	27
Helipad	7
Historic Structure	4
Hospital	1
Incident Facility	9
Medical Facility/Urgent Care	5
Police Station	7
Power Plant	2
School	12
Shelter	2
State Licensed Daycare	20
Tier II	19
Wastewater Facility	8
Water Facility	40
Water Treatment Facility	8
TOTAL	**286**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

Table 4-12 Critical Facilities in Summit County by Lifeline

Lifeline	Total Facilities
Communications	14
Energy	19
Food/Water/Shelter	3
Hazardous Materials	19
Health and Medical	7
Safety and Security	92
Transportation	64
Water Systems	68
TOTAL	**286**

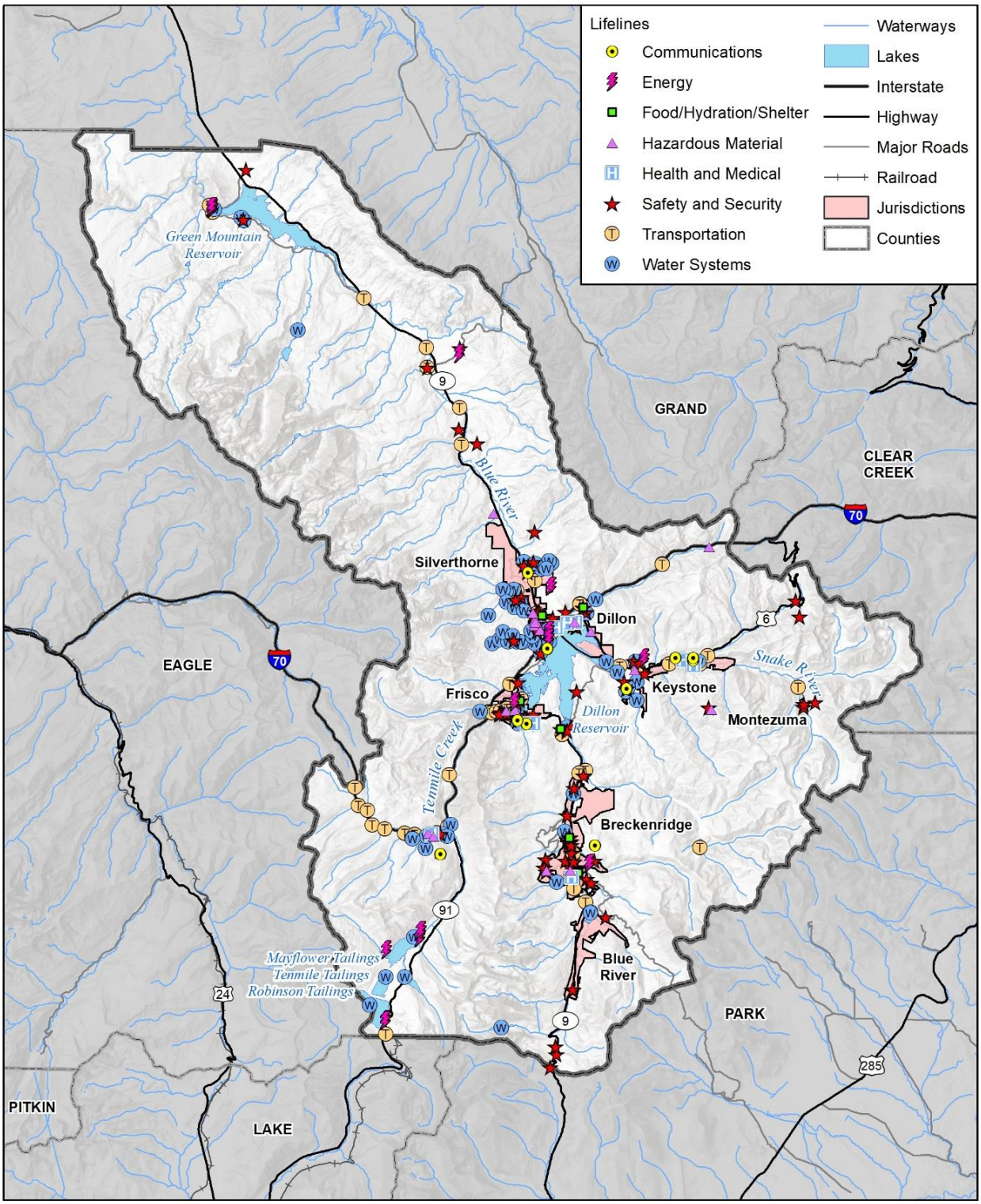
Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

Table 4-13 Critical Facilities in Summit County by Jurisdiction

Jurisdiction	Total Facilities
Blue River	4
Breckenridge	36
Dillon	13
Frisco	26
Keystone	11
Montezuma	2
Silverthorne	30
Unincorporated	164
TOTAL	**286**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

Figure 4-5 Summit County Critical Facilities



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams

0 5 10 Miles

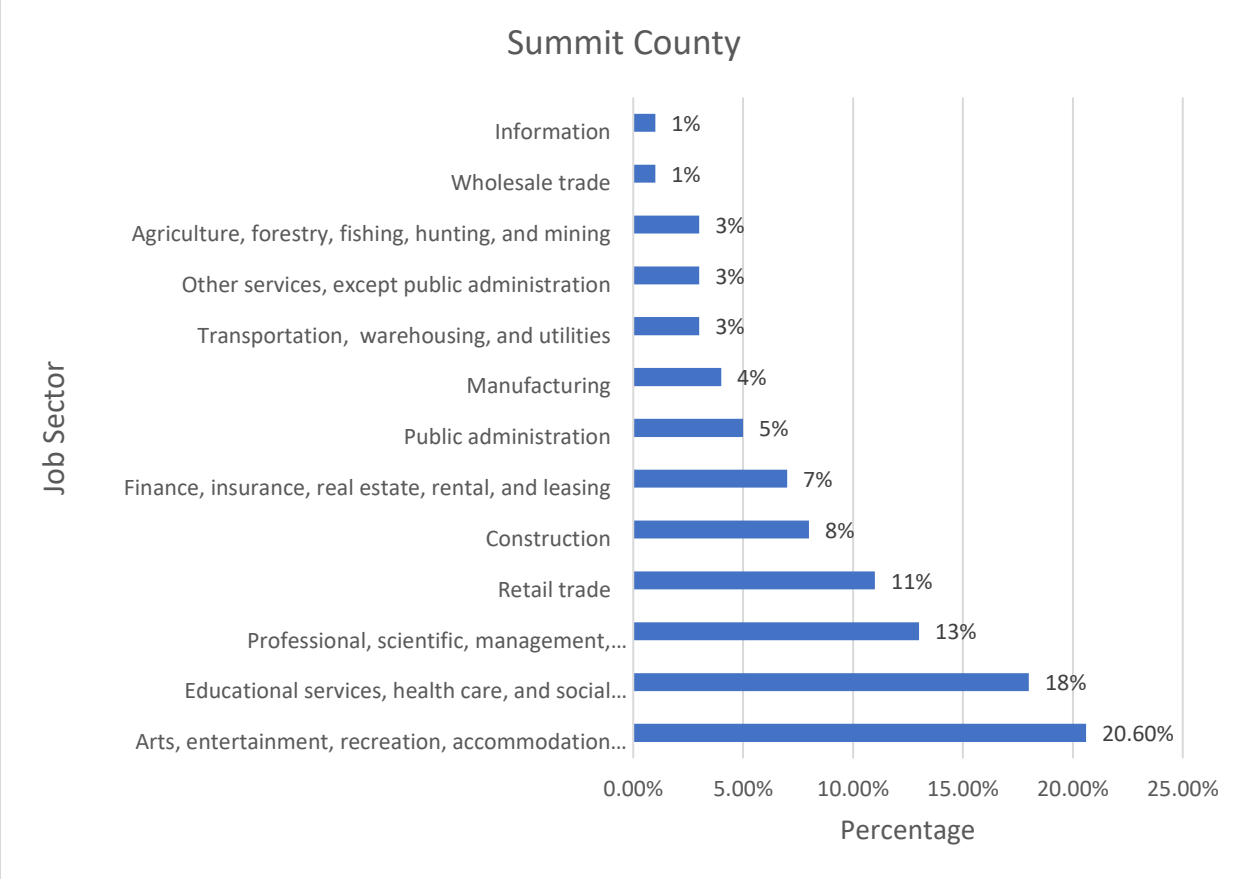
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Other facilities in the County such as ski areas, venues that hold concerts, sporting events, and other locations that attract large numbers of people, may also be at higher risk due to concentrations of people

Economic Assets

Economic assets may include major employers, businesses, industries, and economic sectors such as tourism or agriculture, whose losses or inoperability would have severe impacts on the community, its ability to recover from a disaster, and then the ability to sustain the current way of life. After a disaster, economic vitality is the engine that drives recovery. Every community has a specific set of economic drivers, which are important to understand when planning ahead to reduce impacts to the economy stemming from hazard events and other potential disasters. When major employers are unable to return to normal operations, impacts ripple throughout the community. Figure 4-6 lists the top employment industries in Summit County based on comparison percentages among the job sectors in the County.

Figure 4-6 Estimated Share of Jobs by Industry in Summit County



Source: Colorado State Demography Office, 2023

It is evident by the information presented in the above figure that the County's largest employers are involved in the art, entertainment, recreation, and accommodation, and food service industries. Summit County is known for attracting worldwide visitors for its popular winter and summertime actives like skiing/snowboarding, hiking, or biking (among others). Year-round, hundreds of thousands of tourists stay and enjoy services from the many hotels and resorts in the county, which are part of the accommodation and food services category in the figure above. A natural hazard such as a major drought or wildfire could severely impact the industry and the County's economy (including the large retailers that are also among the largest employers). Other hazards that could affect key transportation routes (e.g.

Interstate 70, Highway 9) such as landslides, avalanches, or even a major flood, would additionally affect the local economy by preventing visitors and tourists from accessing the communities and spending in the local businesses and industries.

Historic and Cultural Resources

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

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

A historic property not only includes buildings or other types of structures such as bridges and dams but can also refer to prehistoric or Native American sites, roads, byways, historic landscapes, and such other features. Given the history of the County, these types of historic properties exist; some are inventoried and listed in this plan.

Historic properties and cultural resources are also valuable economic assets that increase property values and attract businesses and tourists. Preservation of these assets is often an important catalyst for economic development (e.g., historic downtown revitalization programs leading to growth in heritage tourism). Some key information on historic assets and properties in Summit County was obtained from the *National Register of Historic Places* (NRHP). The NRHP database is the Nation's official list of cultural resources worthy of preservation, and the NRHP overall is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. Properties listed include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service (NPS), which is part of the U.S. Department of the Interior.

Based on this NRHP database, Summit County contains 4 historic resources, as shown in the following bullet list (where each structure/resource is followed by the Source Date):

- Frisco Schoolhouse, in western Frisco – 9/15/1983
- Wildhack's Grocery Store-Post Office, in central Frisco – 5/16/1985
- Slate Creek Bridge, to the west of Highway 9 in north-central Unincorporated Summit County – 6/24/1985
- Montezuma Schoolhouse, in the Town of Montezuma – 1/9/2007

Colorado has a similar historical resource record, called the *Colorado State Register of Historic Properties*. This database contains the state's significant cultural resources worthy of preservation for the future education and enjoyment of Colorado's residents and visitors. Properties listed in the Colorado State Register include individual buildings, structures, objects, districts, and historic and archaeological sites. The Colorado State Register program is administered by the Office of Archaeology and Historic Preservation within the Colorado Historical Society. Properties listed in the National Register of Historic Places are automatically placed in the Colorado State Register. Based on this statewide record set, Summit County contains additional resources deemed historic preservation-worthy:

- Boreas Railroad Station Site, southeast of Breckenridge – 10/28/1993

- Breckenridge Historic District, Breckenridge – 4/9/1980
- Masonic Placer Cemetery/Valley Brook Cemetery, central-west Breckenridge – 7/18/2014
- Porcupine Peak Site, east of Dillon – 8/1/1980
- Soda Creek Homestead, off Keystone Ranch Road – 3/1/2010
- Staley-Rouse House, central Frisco – 5/31/2007

After the early Native American nomadic populations who occupied the region from the mid-16th to the late 19th century, valuable gold and other mineral deposits brought early settlers to Summit County, leading to major development (Colorado Encyclopedia, 2019). Mineral extraction operations today are very few, but many of the old mines are treasured historic assets of the county. For example, Summit County's Breckenridge Historic District noted in the Colorado State Register of Historic Properties list above is one of Colorado's largest collections of historic buildings and structures, and a defining element in the Town of Breckenridge's identity and tourist appeal. Several historic mine structures are preserved in this district. The Town has adopted standards geared towards properly conserving historic properties and protecting the character of the district (Town of Breckenridge, 2017).

One other asset of interest to the County is the Top of the Rockies National Scenic Byway. Administered by the Federal Highway Administration, national scenic byways are so designated to preserve and protect the nation's scenic but often less-traveled roads and promote tourism and economic development. Any hazard-related damage done to the Top of the Rockies (or damage that affects access) could have negative implications on tourism, and thus the economy, in Summit County. The HMPC also noted that the Rice Building in Summit Cove contains a large collection of cultural resources.

It should be noted that as defined by the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register, also as stated under the National Historic Preservation Act (NHPA). Thus, in the event that the property is to be altered or has been altered as the result of a major federal action, the property must be evaluated under the guidelines set forth by NEPA and the NHPA regarding this key age period. For example, by law under the NHPA, "members of the public have a voice when federal actions will affect properties that qualify for the National Register of Historic Places, the nation's official list of historic properties" (A Citizen's Guide to Section 106 Review, 2016). Structural mitigation projects are considered alterations for the purpose of these NEPA/NHPA regulations.

Natural Resources

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

A number of natural resources exist in Summit County including wetlands, endangered species, and imperiled plant communities.

Wetlands

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

Between the 1780s and 1980s, over half of the wetlands in Colorado were lost due to human activities (e.g., filling and other degrading activities) (Yuhas, 1996). In Summit County, wetland loss has resulted from historic gold mining and large construction projects such as Interstate 70 and Dillon and Green Mountain reservoirs. In more recent years, construction of single-family residences, as well as other types of development, has resulted in a cumulative and permanent wetland loss in the County.

Endangered Species

To further understand natural resources that may be particularly vulnerable to a hazard event, as well as those that need consideration when implementing mitigation activities, it is important to identify at-risk species (endangered and threatened species) in the planning area. An *endangered* species is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or most of its range. A *threatened* species is a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Both endangered and threatened species are protected by law and any future hazard mitigation projects are subject to these laws. Candidate species are a third category of plants and animals at risk, but these have been proposed as endangered or threatened but are not currently listed.

According to the U.S. Fish and Wildlife Service (USFW) Environmental Conservation Online System (ECOS), there were 12 federal endangered, threatened, or candidate/proposed/under review species in Summit County (as of June 2025). These are listed in Table 4-14.

Table 4-14 At-Risk Wildlife Species in Summit County

Type of Species (Group)	Common Name	Scientific Name	Status
Amphibians	Boreal toad	Anaxyrus boreas	Under Review
Birds	Mexican spotted owl	Strix occidentalis lucida	Threatened
Birds	Yellow-billed Cuckoo	Coccyzus americanus	Threatened
Birds	Greater Sage-grouse	Centrocercus Urophasianus	Resolved Taxon
Fishes	Colorado pikeminnow (squawfish)	Ptychocheilus lucius	Endangered
Fishes	Greenback Cutthroat trout	Oncorhynchus clarkii stomias	Threatened
Fishes	Humpback chub	Gila cypha	Endangered
Fishes	Pallid Sturgeon	Scaphirhynchusalbus	Endangered
Flowering Plants	Osterhout milkvetch	Astragalus osterhoutii	Endangered
Flowering Plants	Penland alpine fen mustard	Eutrema penlandii	Threatened
Flowering Plants	Western prairie fringed Orchid	Platanthera praeclara	Threatened
Insects	Uncompahgre fritillary butterfly	Boloria acrocnema	Endangered
Insects	Monarch Butterfly	Danaus Plexippus	Proposed Threatened
Insects	Suckley's Cuckoo Bumblebee	Bombussuckleyi	Proposed Endangered
Mammals	Canada Lynx	Lynx canadensis	Threatened
Mammals	North American wolverine	Gulo luscus	Proposed Threatened
Mammals	Gray Wolf	Canis Lupus	Experimental Population, Non-Essential
Mammals	Little Brown Bat	Myotis Lucifugus	Under Review
Mammals	Long-eared myotis	Myotis Evotis	Species of Concern

Source: USFW ECOS, 2019

Imperiled Natural Plant Communities

According to the Colorado Natural Heritage Program, there are a number of natural plant communities in Summit County that have been identified as imperiled, critically imperiled, or imperiled/rare or uncommon. These communities are listed below.

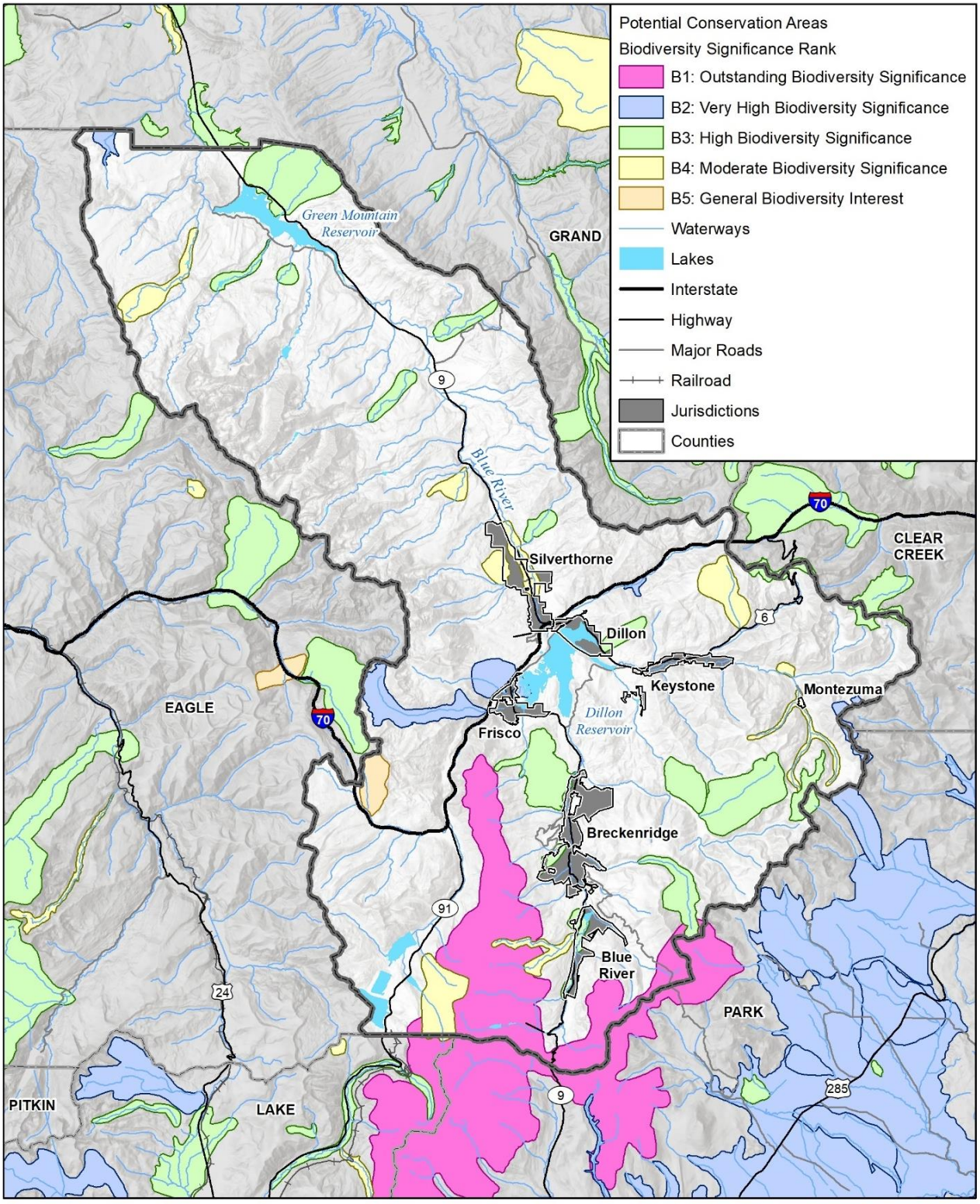
- Alpine meadows
- Alpine wetlands
- Alpine willow scrub
- Clustered sedge wetland
- Drummonds willow/mesic forb
- Geyer's willow/beaked sedge
- Geyer's willow – Rocky Mountain Willow/mesic forb
- Lower montane forests
- Lower montane woodlands
- Mesic alpine meadows
- Montane aspen forest
- Montane floating/submergent wetland
- Montane riparian forest
- Montane riparian shrubland
- Montane riparian willow carr
- Montane willow carr
- Penland Alpine Fen Mustard
- Subalpine riparian shrubland
- Subalpine riparian willow carr
- Western slope floating/submerged palustrine wetlands
- Western slope sagebrush shrublands

Ecologically Sensitive Areas

Figure 4-7 shows ecologically sensitive areas in Summit County where threatened and endangered species and imperiled natural plant communities are most likely to be found. The map shows statewide potential conservation areas identified by Summit County and the Colorado Natural Heritage Program. These are best estimates of the primary areas required to support the long-term survival of targeted species or natural communities. Each conservation area is given a biodiversity rank of B1 (most significant) through B5 (general interest) based on observed occurrences in the area. Part of Frisco has a biodiversity rank of B2 (very high), and parts of Blue River, Breckenridge, and Dillon have biodiversity ranks of B3 (high).

The map also shows statewide Network of Conservation Areas (NCA) identified by the Colorado Natural Heritage Program that are located in Summit County. An NCA may represent a landscape area that encompasses potential conservation areas that share similar species or natural communities and ecological processes. It may also represent a mostly intact, lightly fragmented landscape that supports wide-ranging species and large scale disturbances and include unoccupied or not surveyed areas that demonstrate the connectivity of the landscape. The only currently designated NCA in Summit County is the Upper Eagle River Megasite, which includes part of Copper Mountain and the area to the west in Eagle and Lake Counties.

Figure 4-7 Summit County Ecologically Sensitive Areas



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
Colorado Natural Heritage Program

4.3 Avalanche

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Highly Likely	Critical	High

4.3.1 Risk Summary

- The overall significance rating for Avalanche in Summit County is **High.**
- About 2,300 avalanches causing an average of 27 deaths are reported to the CAIC in an average winter
- Between 1987 and 2024, there were 32 notable avalanches in Summit County (e.g., avalanches that involved injuries or deaths to people, property damage, infrastructure interruptions, or road closures).
- The GIS analysis performed with CAIC avalanche paths and the county parcel layer yielded that 1 Exempt property is exposed to these avalanche paths. However, no improvement values were available for these.
- 2 critical facilities were found within avalanche paths, in the unincorporated portions of the County.
- Past avalanches have led to road and highway closure, and damaged power transmission lines and other facilities and infrastructure deemed as critical
- Related hazards: Severe winter storm, landslide/mudflow/debris flow/rockfall, dam incidents, flood

4.3.2 Description

Avalanche hazards occur predominantly in the mountainous regions of Colorado above 8,000 feet. The vast majority of avalanches occur during and shortly after winter storms. Avalanches occur when loading of new snow increases stress at a rate faster than strength develops, and the slope fails. Critical stresses develop more quickly on steeper slopes and where deposition of wind-transported snow is common. While most avalanches are caused simply by the weight of accumulated snow, other triggers can be a human (e.g., skier, snowshoer, snowmobiler), and animals.

The combination of steep slopes, abundant snow, weather, snowpack, and an impetus to cause movement creates an avalanching episode. According to the Colorado Avalanche Information Center (CAIC), about 90% of all avalanches start on slopes of 30-45 degrees, while about 98% of all avalanches occur on slopes of 25–50 degrees. Avalanches release most often on slopes above timberline that face away from prevailing winds (leeward slopes collect snow blowing from the windward sides of ridges). Avalanches can run, however, on small slopes well below timberline, such as gullies, road cuts, and small openings in the trees. Very dense trees can anchor the snow to steep slopes and prevent avalanches from starting; however, avalanches can release and travel through a moderately dense forest. An average-sized avalanche travels around 80mph, and the typical range of impact pressure from an avalanche is from 0.5 to 5.0 tons per foot.

Historically in Colorado, avalanches have occurred during the winter and spring months between November and April. The avalanche danger increases with major snowstorms and periods of thaw. About 3,600 avalanches as well as an average of 27 deaths are reported to the CAIC in an average winter. More than 80% of these fall during or just after large snowstorms. The most avalanche-prone months are, in order, February, March, and January, but avalanches caused by thaw occur most often in April.

4.3.3 Location

The geographic extent of this hazard in Summit County is **isolated**—less than 10% of the planning area affected—as displayed in which shows the avalanche paths in area, based on the Colorado Avalanche Information Center (CAIC), current as of December of 2025. Figure 4-8 shows the avalanche paths and unstable slopes throughout the county. Figure 4-9 below that shows the avalanche forecast zones in Colorado, with the Vail/Summit County zone enclosed in a blue square for reference. This zone encompasses the entire County as well as part of Eagle County to the west. Smaller portions of Grand and Routt County are contained in the forecast zone as well.

The prevailing winds in the region are westerlies, and most slides start on the lee (downwind) or eastern side of ridges where snow accumulates, such as on the east side of the Ten Mile Range in the southern part of the County. Avalanches and fatalities have occurred on Quandary Peak in the Ten Mile Range and in the Arapahoe Basin ski area and surrounding backcountry terrain in the eastern part of the County near Loveland Pass and Breckenridge (see Previous Occurrences).

The most severe avalanche terrain in Summit County is on federal lands. Unincorporated Summit County is the jurisdiction with the most avalanche risk. However, highway closures due to an event can affect all participating jurisdictions, such as the avalanche event that occurred in 2019.

Figure 4-8 Avalanche Paths and Unstable Slopes

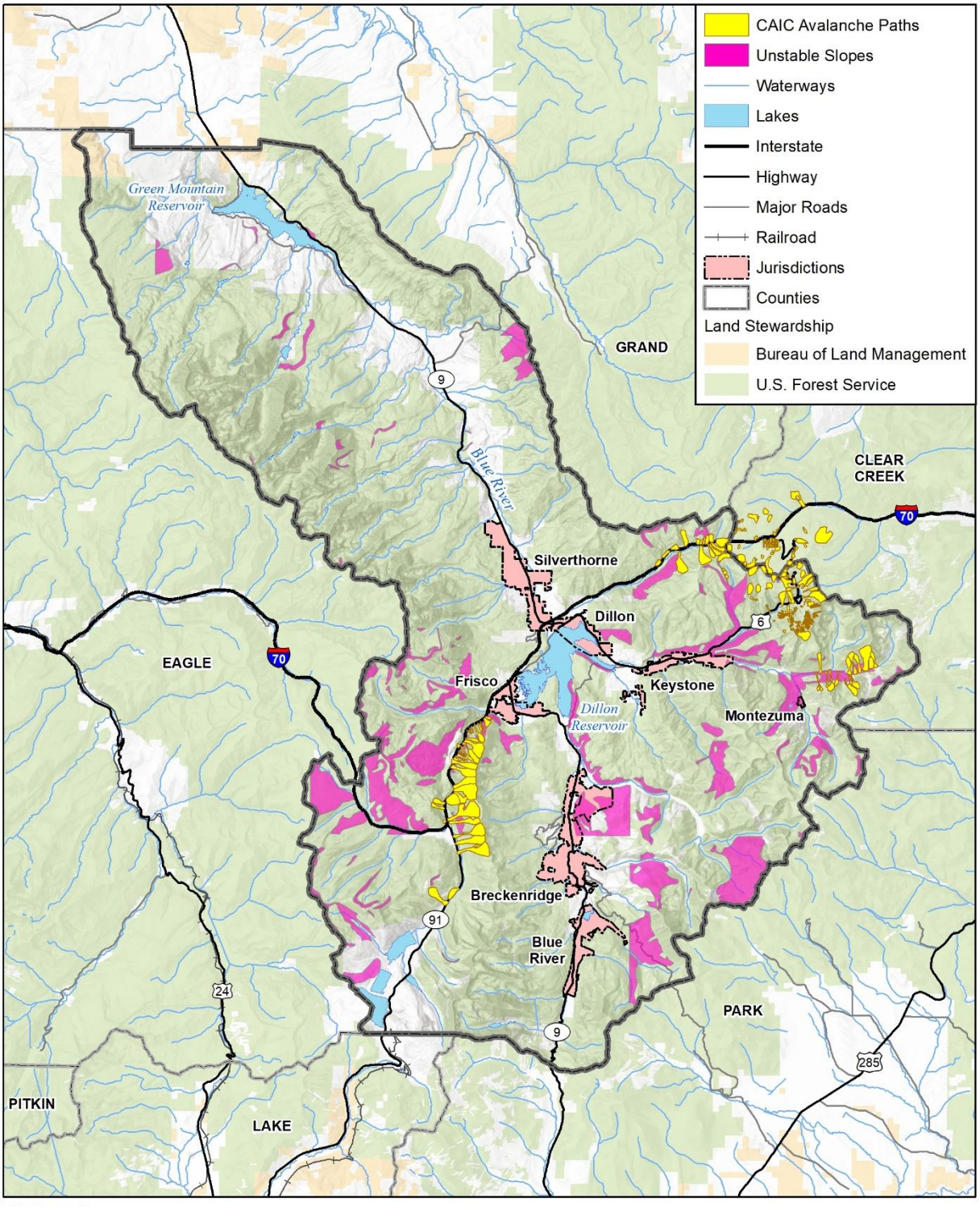
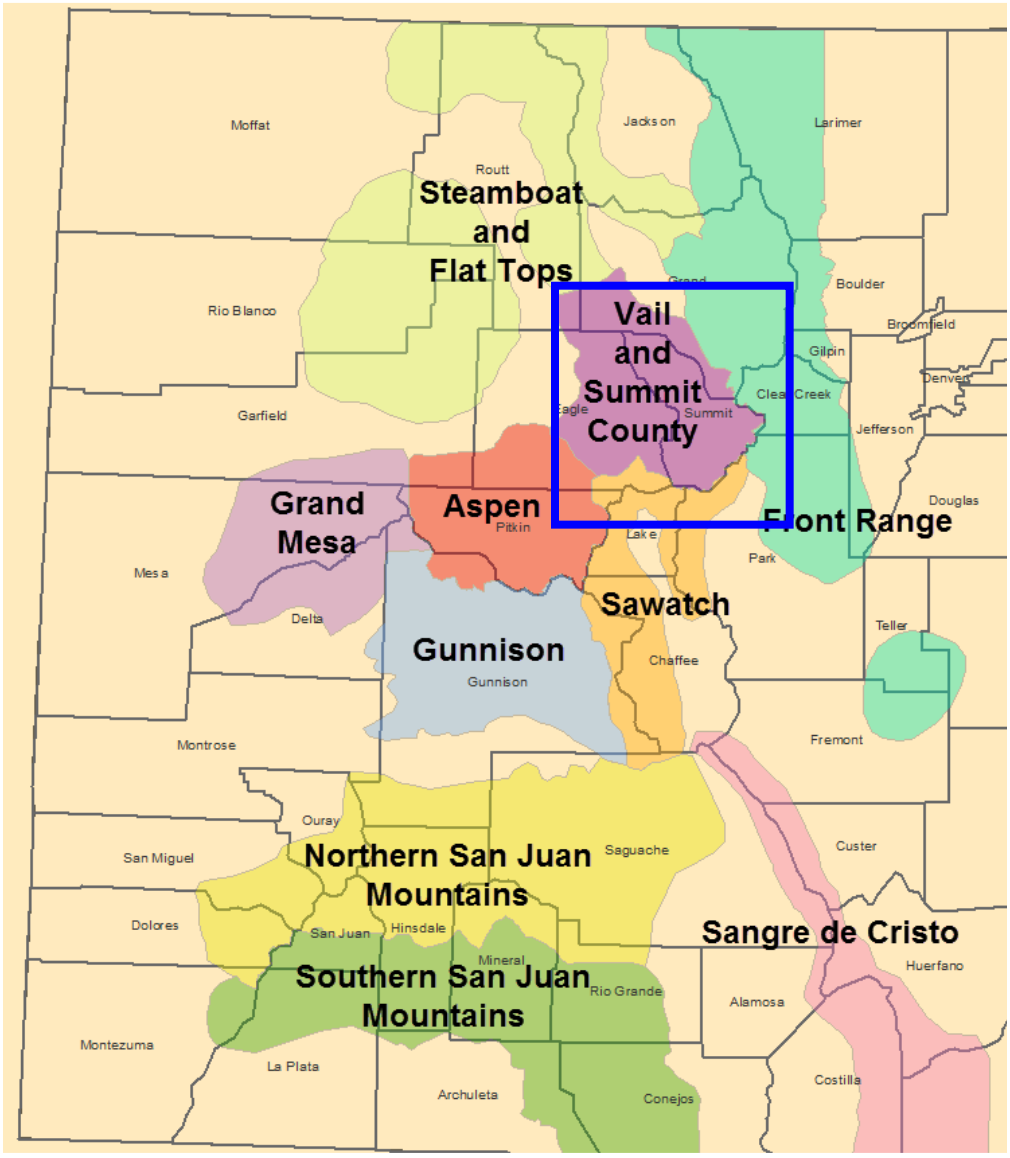


Figure 4-9 Colorado Avalanche Forecasts Zones and the Vail and Summit County Zone



Source: Colorado Avalanche Information Center (CAIC)

4.3.4 Previous Occurrences

According to information from a *History of Colorado Avalanche Accidents, 1859–2006*, there were 58 avalanche-related deaths in Summit County between 1859 and 2006. The National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI) database and the CAIC have information on 32 notable avalanches (e.g., avalanches that involved people) that occurred in Summit County between 1987 and May of 2025. All the aforementioned records which led to injuries, deaths, major damages, or closures are summarized below.

- **April 29th, 2023 –** A backcountry skier on Bald Mountain southeast of Breckenridge triggered an avalanche in steep terrain about 300 feet below the summit. The avalanche broke about 10 inches deep in dry, wind-drifted snow and quickly picked up speed. The avalanche swept the backcountry skier downhill about 1,700 feet to a point where rescuers from Summit County Rescue Group discovered his body around 11pm. This was the 11th avalanche death in Colorado in the 2023 season.



Source: CAIC

- **December 31st, 2022 –** Two skiers left the designated ski area at the Breckenridge Ski Resort and entered a backcountry access point to an area locally known as "the Numbers". When the second skier descended an avalanche was triggered trapping both skiers. The second skier was able to get out but the first skier unfortunately lost his life. This incident brought to light the importance of staying within designated ski areas.



Source: CAIC/Summit County Rescue Group

- **January 8th, 2022** – Two Colorado Springs residents and their dog were snowshoeing on North Star Mountain on Hoosier Pass when an avalanche was triggered. The avalanche broke about a mile north of Hoosier Pass at about 11,700 feet, it was 400 feet wide and ran 250 vertical feet breaking into old snow layers. Summit County Rescue Group ordered a Flight for Life helicopter to search the area where the two people and their dog were unfortunately found deceased at the scene.

- **February 16th, 2021-** An avalanche west of Ruby Mountain was triggered when 2 snowmobilers throttled their snowmobiles up the steep east-facing slope below Mount Epworth. One snowmobile and passenger were caught in the slide and landed in a small Pumphouse Lake at the bottom of the snowfield. The avalanche crown along the edge of Mount Epworth spanned 2,000 feet. The CAIC forecast pointed to high winds and new snow stressing a buried weak layer of faceted snow deep in the snowpack. 1 passenger was killed and the other partially buried. West of Ruby Mountain, southeast of Rand, 2 snowmobilers caught, 1 partially buried, 1 buried and killed

- **April 15th, 2020 –** At Point 12885 near Red Peak an avalanche was triggered by a group of backcountry skiers 10 miles west of Silverthorne. 2 of the skiers were caught when a shallow avalanche broke at the location of the uphill skier, caught and carried. One skier slid only a short distance and managed to roll back over onto his skis and right himself, the other was carried 1800 feet and sustained fatal injuries.



Source: Summit County Sheriff Department

- **March 3 and 7, 2019**—Media broadcasts reported avalanches on March 3rd and March 7th which swept across Interstate-70 in the Ten Mile Canyon between Frisco and Copper Mountain and trapped vehicles in several inches of avalanche debris. Fortunately, no injuries or property damages were reported but a large stretch of I-70 required closing down for several hours due to avalanche mitigation work.
- **February 10, 2014**—Two skiers exited the Keystone Ski Resort and descended into the North Fork of Swan River. They triggered a moderate sized avalanche that ran about 1,500 vertical feet. One skier was partially buried but was able to dig himself out. The other skier was completely buried, and his body was recovered the following day. The victim was buried in approximately 4.6 feet of snow, in a small stand of trees. This avalanche event was reported by the U.S. Forest Service and led to the death of 1 person.
- **April 20, 2013**—Five people were killed in the deadliest avalanche in Colorado in 50 years. It occurred near Sheep Creek, north of Loveland Pass (Clear Creek County) on Mount Sniktau but involved Summit County first responders. A series of rapid, heavy April storms created conditions for a deep-slab avalanche cycle in the Front Range and Vail-Summit CAIC forecast zones. A sixth person was rescued and survived the event. All six individuals were experienced skiers and snowboarders, taking part in the Rocky Mountain High Backcountry Gathering focused on backcountry snowboarding and avalanche safety. The avalanche was a hard slab, triggered by one or more party members as they were traversing the drainage at the bottom of the slope. The avalanche was medium sized.
- **February 19, 2013**—A skier on Peak 1 triggered a slide but managed to avoid being trapped.
- **February 16, 2013—**A slide occurred west of the Montezuma Bowl at the A-Basin ski area, nearly trapping a group of 15 skiers. 6 were partially buried and 1 was fully buried. 4 people sustained injuries, but fortunately no one was killed. There had been significant snowfall from a recent storm plus unstable snowpack due to snow conditions over the season. The same day in the North Bowl in Keystone, an avalanche occurred when a cornice released.
- **January 25, 2012—**Four snowboarders were riding in the Deer Creek Drainage above Montezuma. One snowboarder was caught and carried by an avalanche but not injured.
- **April 29, 2011—**A large hard slab avalanche release off of a subpeak between Tip Top and Morgan above Peru Creek. It wasted a large area of mature forest, with some tree ring counts

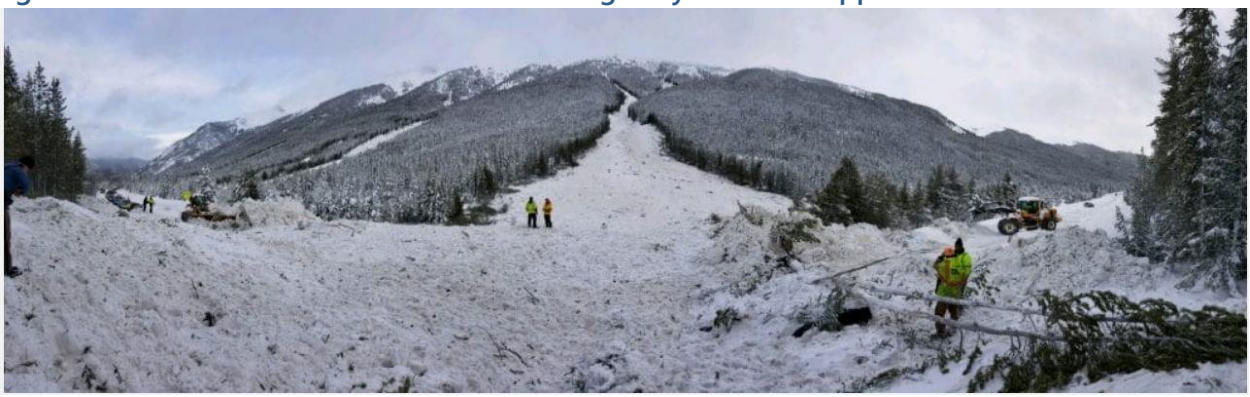
indicating trees over 300 years old were uprooted and destroyed. The avalanche hit Tower 73 on the Shoshone Line 100,000 volt power line that runs from the Shoshone power station in Glenwood Canyon and over the Continental Divide above Peru Creek before continuing to Denver. The estimated cost to repair this line was $250,000. The line was built in 1908 and has been impacted by avalanches before. The tower was repaired by an Xcel Energy crew. The tower was also relocated to the eastern flank of the avalanche path.



Source: CAIC

- **April 1, 2011—**A skier and snowboarder were riding near Devil's Tool near A-Basin. Both individuals were caught, with one fully buried. The skier broke a leg in the incident. The snowboarder was extracted and sustained no serious injuries.
- **March 10, 2010—**Three snowboarders were riding near Steep Gully #1, a backcountry area near A-Basin. After the avalanche triggered, one rider was caught and carried for most of the avalanche's run. He was partially buried and did not survive the incident.
- **February 14, 2010—**Two snowboarders were riding the "No Brain" gully near MM 224 at Loveland Pass to get from an upper part of Highway 6 to a lower part. One rider triggered an avalanche and was caught and partially buried. Neither snowboarder was seriously injured.
- **January 8, 2008—**Two skiers were riding Dave's Wave at Loveland Pass. The two triggered an avalanche. Neither skier was injured, but a dog was caught, buried, and killed.
- **December 31, 2006—**Two hikers, a father and son, were attempting to climb Torreys from the top of Loveland Pass via Grizzly Peak. An avalanche triggered and caught both hikers. The father was partially buried and was able to dig himself out. He was able to rescue his son who had been fully buried. Neither was seriously injured.
- **May 20, 2005**—A 53-year-old skier from Boulder was buried and killed in a medium-sized wet slab avalanche at Arapahoe Basin. The avalanche occurred in an area known as the First Alley, immediately below the roll on the west side of the Pallavicini Run.
- **May 18, 2005**—A backcountry snowboarder triggered a small slab avalanche on the north side of Buffalo Mountain. He received leg and facial injuries.
- **March 24, 2005**—Two climbers were caught in an avalanche on the south side of Quandary Peak, about 6.5 miles south southwest of Breckenridge. One man survived with only minor injuries; the other was buried and killed. Figure 4-10 displays a photo of this event.

Figure 4-10 Avalanche Path on Colorado Highway 91 Near Copper Mountain March 2019



Source: Picture taken by Colorado State Patrol. Summit Daily https://www.summitdaily.com

There were several other notable events discussed by online databases such as the CAIC and NOAA's NCEI as well as the HMPC that did not involve deaths or injuries. An avalanche slid onto the parking lot at Arapahoe Basin ski area (year unknown). In 2003, an avalanche near Silver Plume (Clear Creek County) took out a power transmission line and cellular phone tower causing the Loveland Ski Area to close for the day. An avalanche on Buffalo Mountain just above the Wilderness Subdivision in February 1987 cleared swaths of forest; the scars remain visible to this day.

4.3.5 Probability of Future Occurrence

Highly Likely—Near 100% chance of occurrence next year or happens every year

Between 1987 and 2025, there were 32 notable avalanches in Summit County (e.g., avalanches that involved injuries or deaths to people, property damages, infrastructure interruptions, or road closures). This suggests that approximately one notable avalanche occurs nearly every year in Summit County.

4.3.6 Magnitude/Severity

Critical—Isolated deaths and/or injuries and illnesses likely based on historical events, along with often major or long-term property damage that threatens structural stability and/or interruption of essential facilities and services for 24-72 hours. Avalanches in Summit County can injure and kill multiple people, damage property and infrastructure, and cause road closures or even infrastructure/utility/service interruptions. The overall significance rating for this hazard is **High**.

4.3.7 Climate Change Considerations

Climate change is likely to alter the frequency and severity of avalanches in the future. Greater temperature swings and more intense rain and snow storms could alter avalanche dynamics. In the last decade many experts in western states have pointed out increased avalanche risk associated with changing snow, precipitation, accumulation, and overall warmer winter patterns. Snow may fall earlier in the winter and is then followed by a longer period without snow. Temperatures becoming warmer throughout the winter can lead to more precipitation falling as rain instead of snow. This creates a thin snowpack that becomes structurally weaker as winter goes on. New layers of snow may not bond well to the weak base layer, creating prime conditions for avalanches. Periods of sporadic snowfall in early and mid-spring in Colorado also contribute to this process of creating structurally weaker snowpack, which can lead to avalanche activity as snow accumulation has already begun to thaw with the warmer season. According to the State of Colorado Hazard Mitigation Plan (2023), the rain-snow lines will move to higher

elevations over time and rain is expected to occur at higher elevations in the winter and earlier in the season. There will be more rain-on-snow events, even in cold interior climates like Colorado.

In terms of climate projections, it will be difficult to predict the length of winter seasons as the idea of an "average" year is becoming less useful. Each year will be different, but the difference between years are likely to be more dramatic with the expected influence of climate change. Projections do show that the winter season will start earlier, with wet avalanche activity earlier in the spring season and some wet activity occurring mid-winter. This pattern will be more pronounced in lower-elevation and warmer climates. This means that the county will likely have to deal with, and forecast for, more wet avalanche activity at different times of the season than done so historically.

As Colorado and Summit County experience winters with higher average temperatures and lower average precipitation, these conditions that increase avalanche risk become more common. More intense and continuous storms over multiple days can also increase the potential for major avalanche cycles, as was experienced in March 2019.

4.3.8 Vulnerability

Overall, public safety is the primary concern regarding avalanche hazards and vulnerability. Avalanches also cause road and highway closures. Road closures and the associated economic losses are another impact of avalanches, but also necessary to mitigate risk to motorists. The County has multiple programs and partnerships in place to reduce avalanche risk, which are summarized in Annex A.

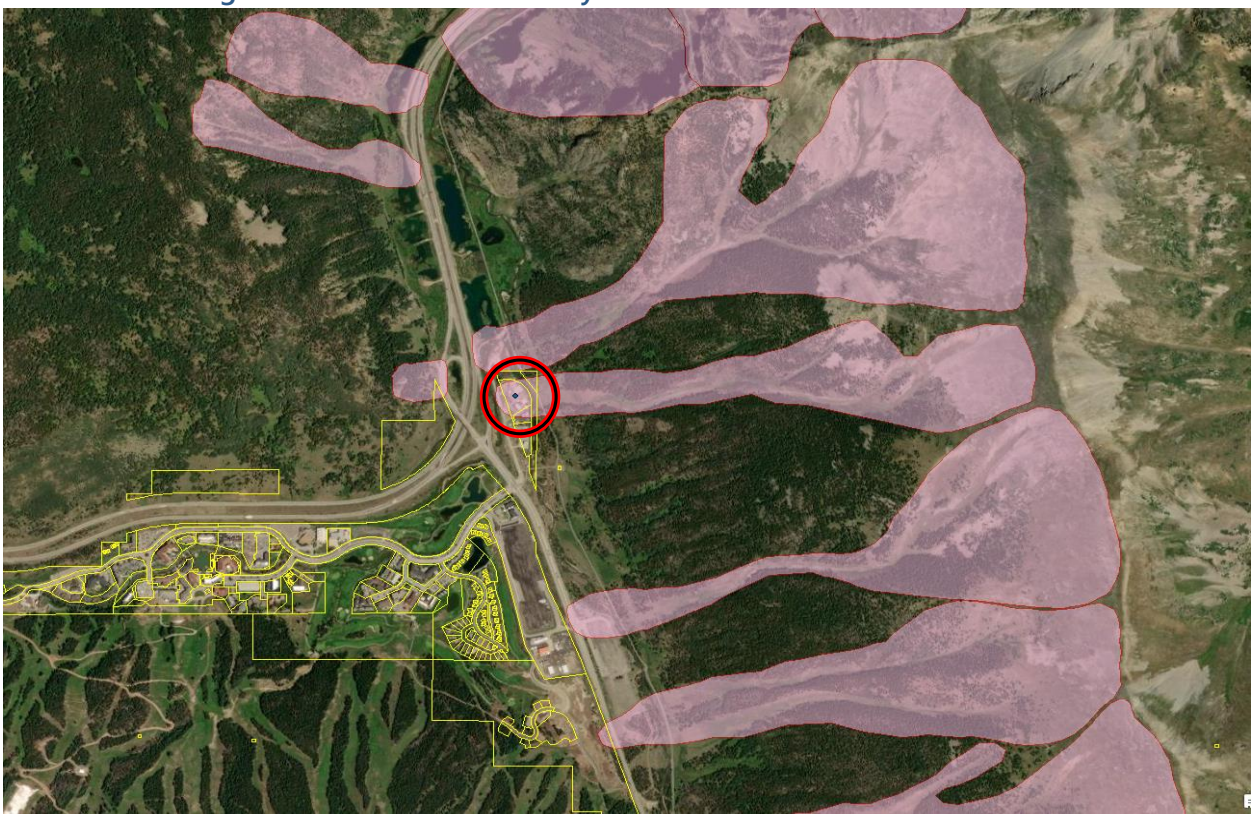
The following sub-sections will discuss in more detail the specific impacts that property, populations, critical facilities and infrastructure, and other aspects of the county's way of life (the economy, local resources of interest, and future development) may be affected negatively by this hazard.

General Property

The CAIC has mapped certain avalanche zones across the state, some of which are found in Summit County as displayed in Figure 4-9. These are current as of May of 2025. The CAIC avalanche path data is limited in the scope and does not identify all areas of avalanche hazard. The data is limited to maps of paths where avalanches pose a threat to state and federal highways.

A GIS analysis using CAIC provided avalanche hazard mapping available as of May of 2025 was performed, with the parcel data for Summit County as described in Section 4.1.2 Methodology. The results indicated that one structure right outside of the Copper Ski Resort in an Unincorporated part of the county was at risk. This parcel is circled below in Figure 4-11.

Figure 4-11 Summit County Parcel in Potential Avalanche Path



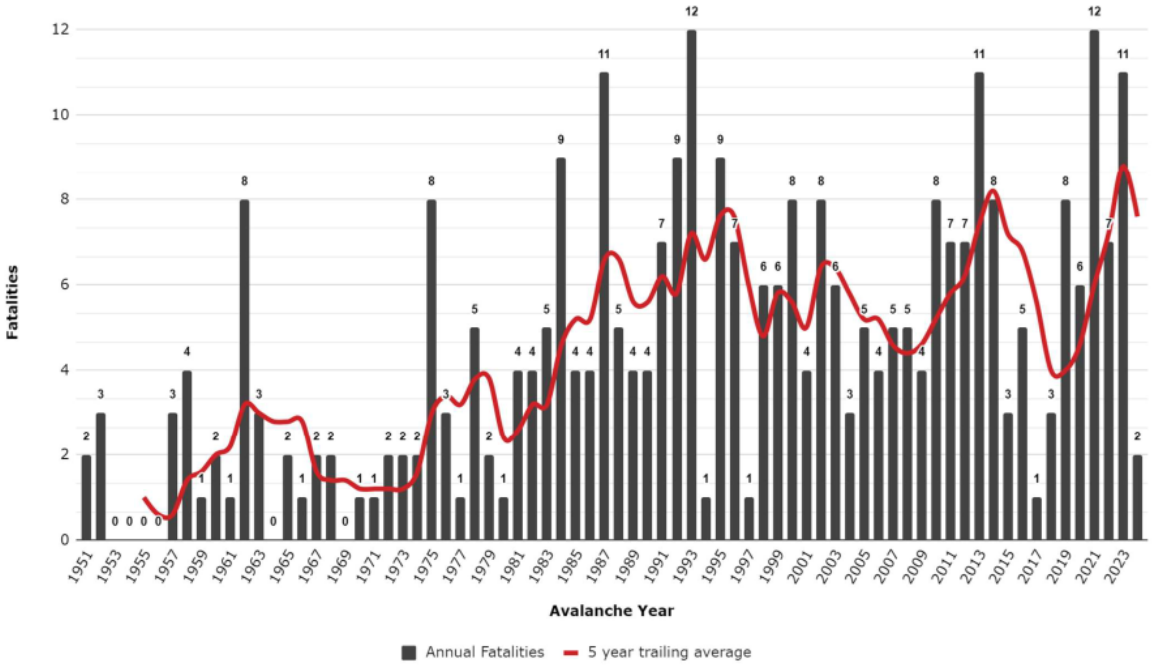
Source: Summit County GIS and Assessor's Office, CAIC, U.S Census, WSP Analysis

People

Summit County is susceptible to avalanche-related injuries and fatalities due to the high recreational use of backcountry areas. Backcountry recreationalists, skiers, snowshoers, road crews, and motorists along steep mountain roads are the most at risk to avalanche dangers. Backcountry avalanche incidents involve search and rescue teams and resources, which can put these personnel in areas of risk. Between 1987 and 2013, avalanches caused 10 injuries and 15 deaths in Summit County alone. Since 2013, over 68 additional deaths have been recorded across the entire state due to avalanches (as summarized in Figure 4-12 and shown on a map in Figure 4-13), but it is estimated that some of those deaths (around 6 at least) occurred in the Planning Area. Thus, there is a very high chance that avalanche-related injuries or deaths will occur in any given year.

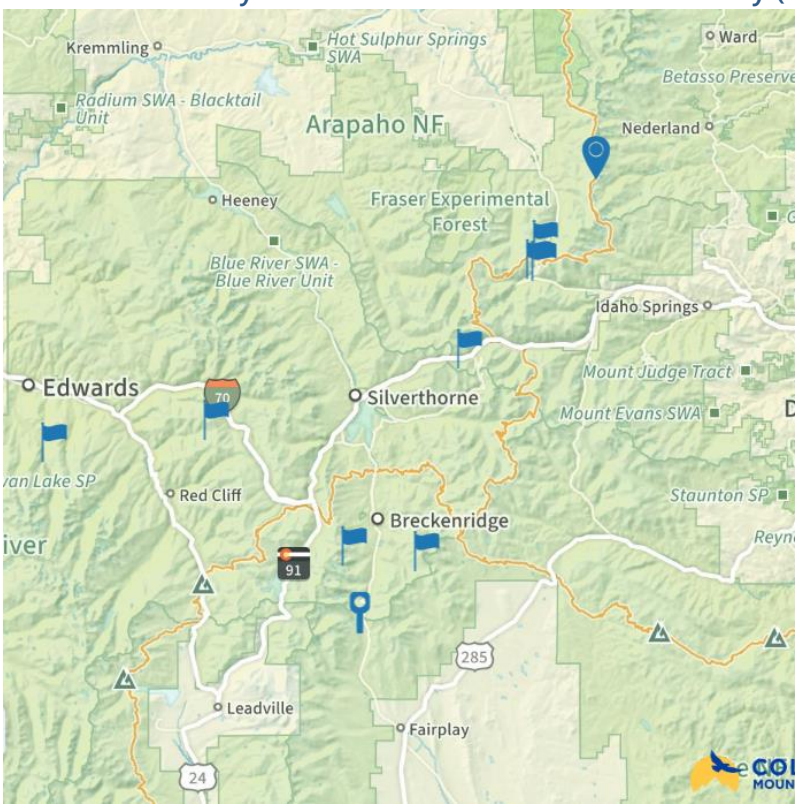
Figure 4-13 through Figure 4-17 show additional fatality-related summaries for the U.S. based on year and state, for Colorado based on mountain activity type, and by county based on various years.

Figure 4-12 Colorado Avalanche Fatalities by Avalanche Year, 1950 to 2024



Source: CAIC

Figure 4-13 Avalanche Fatality Locations in and Near Summit County (2020 to 2025)



Source: CAIC, 2025

Figure 4-14 U.S. Avalanche Fatalities by State, 1950-2024

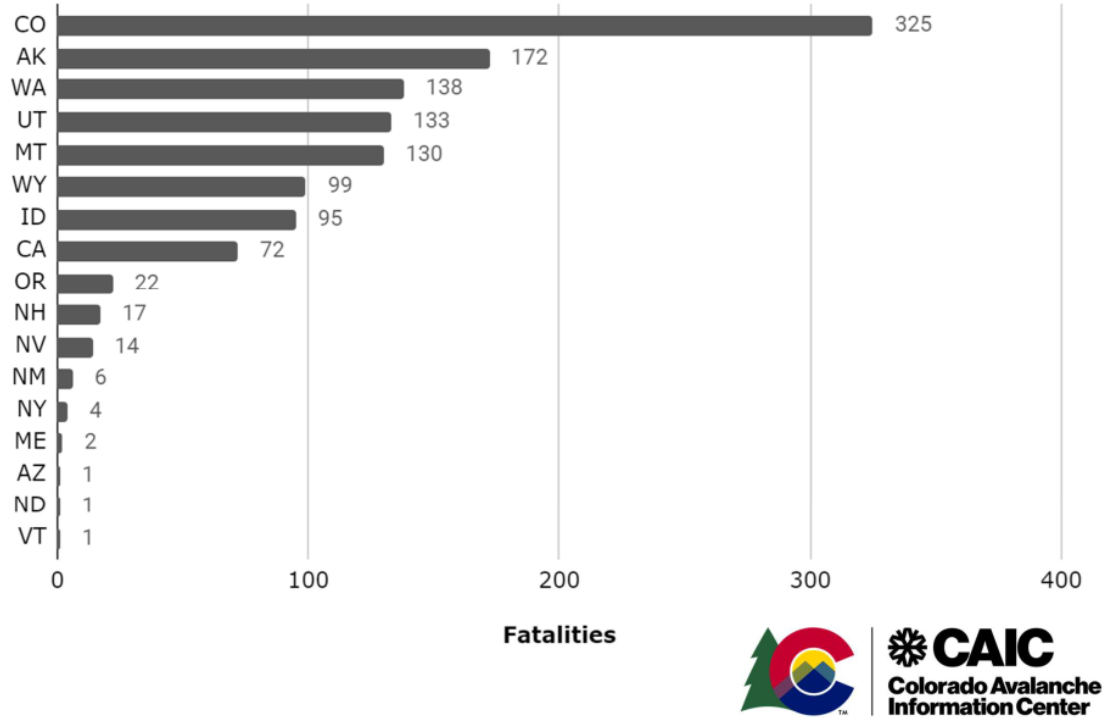
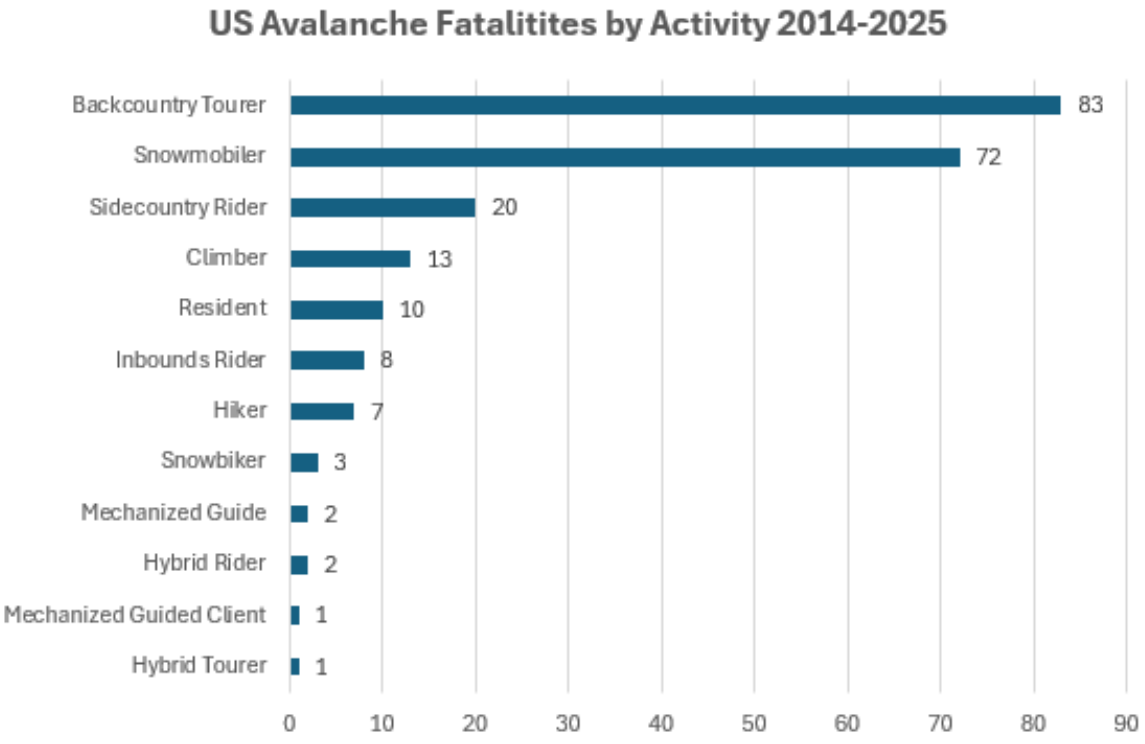


Figure 4-15 Avalanche Fatalities in USA by Primary Activity, 1951-2024



Source: CAIC

Figure 4-16 Avalanche Fatalities by Month in Colorado, 1950-2024

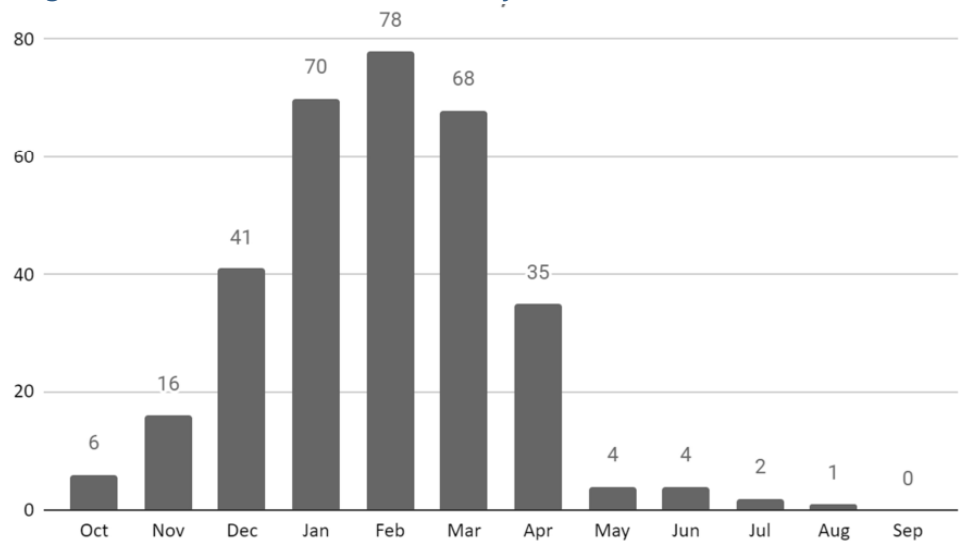
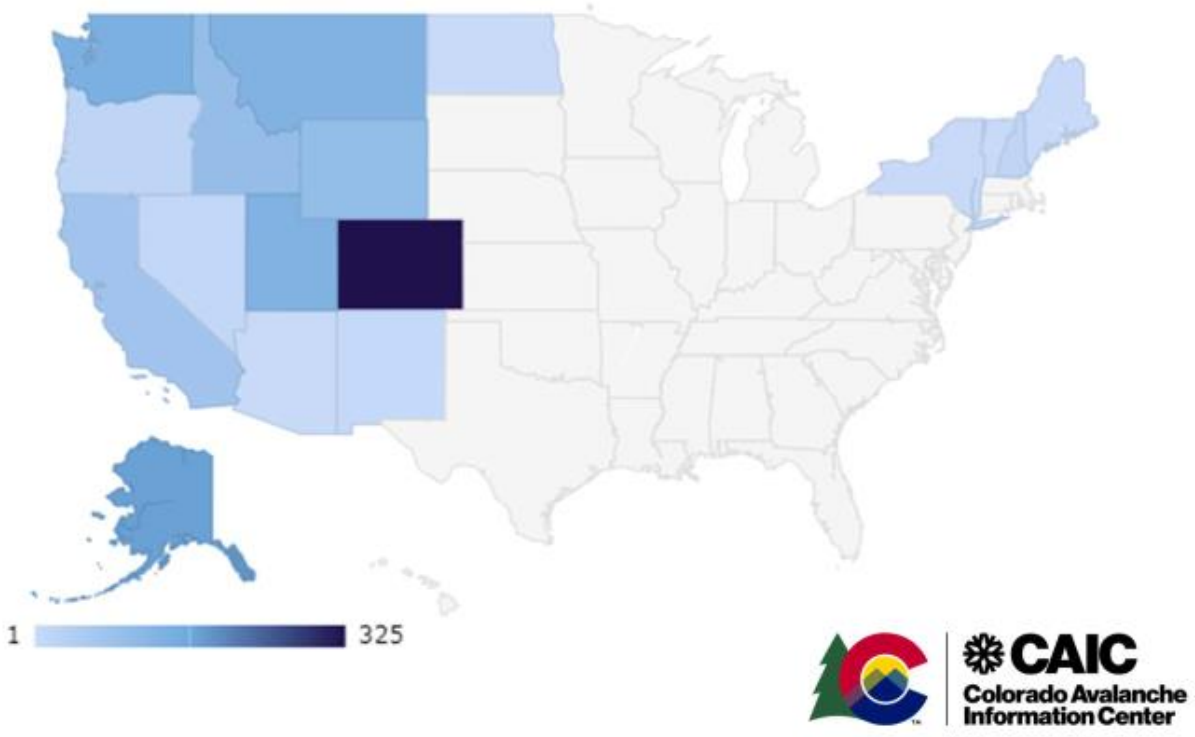


Figure 4-17 Avalanche Deaths by State 1950-2024



Source: CAIC

Critical Facilities and Infrastructure

Based on a GIS analysis using the CAIC provided avalanche paths (current as of December of 2019) and the Summit County critical facility and infrastructure dataset, there are 2 critical facilities found to overlap with avalanche paths, both in unincorporated parts of the county. 1 of the facilities is a wastewater facility within the food, hydration, and shelter FEMA lifeline. The other is a bridge in good condition within the transportation FEMA lifeline. Note that the CAIC avalanche path data is limited in the scope of providing where avalanches may actually occur (or where potential for incidents is highly likely, for example), as it only depicts areas where avalanches pose a threat to state and federal highways. Highways at risk include U.S. 6 near Loveland Pass and I-70 in Tenmile Canyon.

During the 2020 plan update the HMPC noted that the utility company Xcel experienced damage to electrical and natural gas lines, poles, and regulators due to avalanche activity in March of 2019. As a result, it became challenging to reach and inspect equipment due to general debris amounts (especially in the Tenmile area in Copper Mountain, near a gas station). Furthermore, Xcel was unable to inspect equipment until they received clearance from the CAIC, which led to employees snowshoeing several miles to reach critical equipment. As a result, Xcel decided to bury utility lines to prevent future incidents of this kind.

Past potentially vulnerable critical infrastructure was also noted by the HMPC as being located near U.S. Highway 6 over Loveland Pass, which is also a hazardous materials route. The Colorado Department of Transportation closes Loveland Pass when avalanche conditions are considered too severe. Overall, there are often competing priorities for avalanche induced debris removal.

Economy

Avalanche activity inside or outside the County (along connecting roadways) can disrupt transportation in and out of the local communities, which could result in temporary economic impacts. Tourism is a main economic driver for Summit County (due to the presence of large and important ski resorts), and a major closure of roads could leave these resorts as well as Summit County residents without access to this vital sector and other necessary resources, potentially hurting the economy of the county and region in a major way.

Historical, Cultural, and Natural Resources

Significant damage has occurred to forests below avalanche runout zones based on past avalanche cycles. Future avalanche activity can also disturb stream habitat with debris piles, and lead to debris removal costs and increased wildlife management costs, for example.

Additionally as temperatures warm, snowpack changes influence water storage for drinking water as well as recreational areas. A research project done by the USGS Snow and Avalanche Project shows way in which natural resources can be used to show the history and impacts of avalanches. For example, trees are susceptible to damage from geomorphic processes such as avalanches. An avalanche may cause wounds on the tree trunk or branches that leave “scar” tissue.

Less snowpack has reduced water availability in the Dillon Reservoir, as of June 16th, 2025 snowpack measuring sites have registered less than 1 inch of snow water equivalent, which is the amount of liquid water trapped in its snowpack. Snowstorms in October of 2024 helped build and maintain snowpack levels until mid-April when unseasonably warm weather and a lack of storms caused the snowpack to deplete and drop below normal in June of 2025. This is dangerous in relation to wildfire season, which historically runs from June through October and is exaggerated in drier years.

Development Trends

The Summit County Countywide Comprehensive Plan discourages building on slopes greater than 30 degrees, but there are not specific avalanche hazard areas identified or mapped. There are no guidelines related to utility lines in avalanche hazard areas.

4.4 Dam Incidents

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Dam Incidents	Small	Unlikely	Catastrophic	Medium

4.4.1 Risk Summary

- The overall significance rating for Dam Failure Incidents in Summit County is **Medium**.
- Eight high hazard are located in Summit County, along with four significant hazard and two low hazard dams.
- The largest three dam structures in terms of maximum storage are the Dillon Dam, Old Dillon Dam, Green Mountain Dam, and the Ten Pond #3 Tailing Dams.
- Goose Pasture Tarn is another dam of concern due to its potential to affect Breckenridge. Failure of any of these could result in catastrophic flooding or toxic sludge releases (with the tailing structure). A project completed in 2023 was done to repair some damages to the Goose Pasture Tarn Dam.
- Breckenridge and Silverthorne have the largest population at risk to a dam failure, but Blue River and the unincorporated portions of the county also have potential population and property at risk.
- New development in dam inundation areas increases risk and may cause dam hazard rankings to change.
- *Related hazards*: Flood, hazardous material release, landslide/mudflow/debris flow/rockfall, earthquake.

4.4.2 Description

Dams are constructed for a variety of uses, including flood protection, power, agriculture/irrigation, water supply, and recreation. Dams typically are constructed of earth, rock, concrete, or mine tailings. Two factors that influence the potential severity of a full or partial dam failure are the amount of water impounded and the density, type, and value of development and infrastructure located downstream.

Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which result in overtopping (overtopping is the primary cause of earthen dam failure)
- Earthquake/seismic activity
- Inadequate spillway capacity resulting in excess overtopping flows
- Internal erosion caused by embankment or foundation leakage or piping or rodent/wildlife activity
- Improper design
- Improper maintenance
- Negligent operation
- Failure of upstream dams on the same waterway

4.4.3 Location

The geographic extent of this hazard in Summit County is **Small**—10-25% of the planning area affected.

The U.S. Army Corps of Engineers National Inventory of Dams (NID) database was queried alongside supplied dam information from the Colorado Dam Safety Bureau. Between both sources, 14 dams in the County are listed and classified based on the potential hazard to the downstream areas as a result of failure or mis-operation of the dam or facilities:

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

Based on these classifications, there are nine high hazard dams, four significant hazard dams, and two low hazard dam in Summit County. These dams are listed in Table 4-15 and illustrated in Figure 4-18. Maps of potential inundation areas can be found in Appendix H (not available for public release). The high and significant hazard dams all have emergency action plans (EAP) in place, while the low hazard dams are not required to have these EAPs.

Table 4-15 ***Dams in Summit County***

Dam Name	River	Downstream City	Hazard Class	Condition	Max Storage (Acre-Feet)	EAP	Owner Type	Primary Use
Bills Ranch Lake	Miners-Trib	Frisco	Significant	Satisfactory	11	Y	Private	Recreation, Fish & Wildlife Pond
Buffehrs	Tenmile Creek	Frisco	Low	Not Available	152	NR	Private	Water Supply
Clinton Gulch	Tenmile Creek	Frisco	High	Satisfactory	4,372	Y	Private	Recreation
Old Dillon	Blue River	Silverthorne	High	Satisfactory	305,000	Y	Local Government	Water Supply, Recreation
Dillon	Blue River	Silverthorne	High	Satisfactory	305,000	Y	Public Utility	Water Supply
Goose Pasture Tarn	Blue River	Breckenridge	High	Satisfactory	2,026	Y	Local Government	Recreation, Water Supply
Green Mountain	Blue River	Kremmling	High	Not Available	161,850	Y	Federal	Hydroelectric, Irrigation, Recreation
Hoagland #1	Elliott Creek	Kremmling	Low	Not Available	628	NR	Private	Irrigation, Recreation
Mayflower Pond #5	-	Frisco	High	Not Available	64,300	Y	Private	Tailings
Reynolds	Soda Creek	Dillon	Significant	Satisfactory	244	Y	Private	Irrigation, Recreation
Robinson Tailing Pond #1	-	Red Cliff	High	Not Available	73,391	Y	Private	Other, Tailings
Sawmill	Sawmill Gulch	Breckenridge	Significant	Conditionally Satisfactory	40	Y	Local Government	Recreation
Ten Mile Pond #3	-	Frisco	High	Not Available	152,703	Y	Private	Tailings
Upper Black Creek Res.	Black Creek	Kremmling	Significant	Unsatisfactory	655	Y	Private	Recreation, Irrigation

Dam Name	River	Downstream City	Hazard Class	Condition	Max Storage (Acre-Feet)	EAP	Owner Type	Primary Use
Upper Blue Lake	Monte Cristo Creek	Breckenridge	High	Not Available	2,635	Y	Local Government	Water Supply
Lost Lake	Brush Creek	Kremmling	Low	Not Available	100	NR	Private	Irrigation

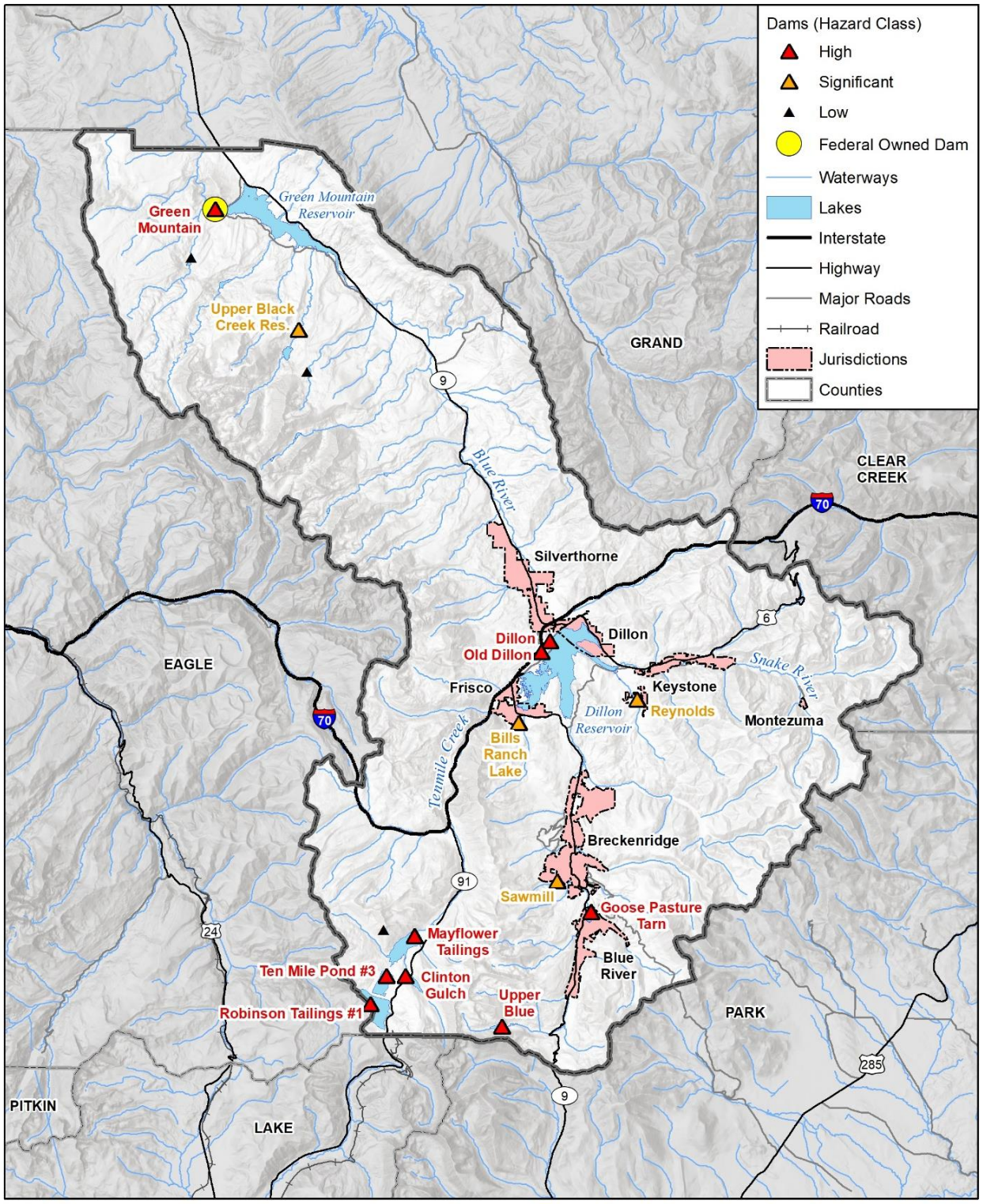
Source: Summit County; National Inventory of Dams 2025; Water Commissioner Division 5 – District 36

Breckenridge could be impacted by a failure of the Goose Pasture Tarn Dam, Upper Blue Lake Dam, and the Sawmill Dam, all of which are high or significant in terms of hazard rating. Frisco is exposed to four high or significant hazard dams that may potentially inundate: the Clinton Gulch Dam, the Mayflower Pond #5 Dam, Ten Pond #3 Dam, and Bills Ranch Lake Dam. The Summit Cove neighborhood including the Summit Cove Elementary School, Swan Mountain Road and the Wastewater Treatment Plant could be at risk of the Reynolds Dam (significant in terms of hazard rating).

Finally, Silverthorne could be affected by failure of the Dillon Dam or the Old Dillon Dam. This dam has several purposes including recreational water use/supply and hydroelectric generation and is managed by local government and public utility entities (Denver Water). Its primary purpose is water storage with recreation and hydroelectric generation as secondary use. Other uses of the reservoir dammed by the Dillon Dam and Old Dillon Dam structures include water storage collected from snowmelt runoff, for domestic use on the eastern slope/Denver area.

There is less risk to the jurisdictions of Montezuma and Blue River, based on their location and elevation. Unincorporated areas of the county may also be at risk of various dams, however. There are also three tailings related dam structures in the southwestern corner of Summit County, associated with molybdenum processing at the Climax Molybdenum mine. The Robinson Tailing Pond #1 Dam is rated as a high significance structure, though it does currently have an EAP on file, and is used for mine tailings storage. The Mayflower Pond #5 and the Ten Pond #3 Dam structures are tailings storage facilities are also rated as high hazard dams. As such, failure of these tailings impoundment structures could lead to a debris flow with contaminated materials towards the Town of Frisco and other portions of the unincorporated county. Additional information on the potential risk to life, property, infrastructure, and other assets and county resources are contained in discussions and tables under the Vulnerability section for this hazard.

Figure 4-18 Summit County Dams



4.4.4 Previous Occurrences

In July 2011, the Bills Ranch Dam was overtopped. This dam is non-jurisdictional in size, but total failure would cause significant property damage downstream. A combination of heavy snowmelt, heavy rain, and the failure of a beaver dam upstream (named Rainbow Lake Dam) overwhelmed the small spillway and outlet, causing the dam to be overtopped. The dam overtopped twice in the evening of July 3rd and then again in the evening of July 5th. An inspection of the dam on July 7th also revealed that heavy rodent activity had caused the crest of the dam to settle, making it more prone to overtopping. The dam safety engineer made several recommendations for improving the structural integrity of the dam and reducing the risk of overtopping and seepage. Those improvements were completed during the fall of 2012 and approved by the dam safety engineer.

The Rehabilitation of Goose Pasture Tarn Dam

In 2016 safety issues with the use of the concrete service spillway during high flows were identified in the Goose Pasture Tarn Dam. The town of Breckenridge took steps to ensure the safety of the dam by imposing a reservoir storage restriction, lowering the water levels and restricting flows down the service spillway. Colorado Dam Safety imposed a reservoir storage restriction, lowering the water level that could be stored in the reservoir.

Construction was delayed a year due to the COVID-19 pandemic and began in May 2021 and was completed in fall of 2023. The dam holds back the Blue River which runs through the Town of Breckenridge and required rehabilitation due to the Colorado State Engineers Office (SEO) and Engineers working for the Town of Breckenridge identifying dam safety concerns, with the dam under a lower reservoir restriction level imposed by the SEO. The rehabilitation replaced two existing spillways with a single, larger spillway. This improved the safety and long-term operation of the dam. A nearly 3-foot dam crest for flood protection was put in place alongside a new drainage system to prevent leaks. Breckenridge secured a $13 million loan from the Colorado Conservation Board to help cover the cost as well as a $10 million grant from the Federal Emergency Management Agency, provided through the Colorado Division of Homeland Security and Emergency Management. The construction for the project was overseen by the town of Breckenridge who owns the water rights to the dam, with the Town of Blue River managing all recreation once it reopened.

4.4.5 Probability of Future Occurrence

Unlikely—Less than 1% chance of occurrence in next 100 years

Using the methodology adopted for natural hazards in this plan, only one past event represents an unlikely probability of future occurrence. However, because dam failure is a human-caused hazard, the methodology for calculating probability based on past occurrences does not necessarily reflect the actual risk of future occurrence.

4.4.6 Magnitude/Severity

Catastrophic—Failure of a significant or high hazard dam could lead to multiple deaths; property destroyed and severely damaged; and/or interruption of essential facilities and services for more than 72 hours.

Water released by a failed dam generates tremendous energy and can cause a flood that is catastrophic to life and property located in the inundation area (downstream). The largest three dams in terms of maximum storage are the Dillon, the Green Mountain, and the Ten Pond #3 Dams (with 305,000 acre-feet, 161,850 acre-feet, and 152,703 acre-feet of capacity, respectively).

A failure of the Dillon Dam or the Old Dillon Dam would be catastrophic to the Town of Silverthorne but would also affect Dillon and Frisco. Unincorporated areas of the County located downstream from the dam and all the way to the Grand County border would also be flooded, along the Blue River. The Bureau of Reclamation regularly monitors and maintains Green Mountain Dam, and the dam continues to perform well. Failure of this dam would have greater impacts in Grand County and Kremmling. The Ten Pond #3 Dam would affect Frisco the worst, as well as those unincorporated areas between the dam and the Town (along the Tenmile Creek). Failure of the Robinson Tailing Pond #1 tailings dam in the southwestern corner of the County could release a devastating toxic sludge debris flow. This structure is the fourth largest in terms of maximum storage, with 73,391 acre-feet of tailings materials.

The HMPC noted that Summit County tried to obtain funding for Black Creek Dam repairs but was denied due to the FEMA cost benefit analysis not producing a qualifying outcome.

The overall significance rating for this hazard is **Medium.**

High Hazard Dam Outlet Release Analysis

In addition to standard hazard classifications, DWR maintains a separate analysis ranking high hazard dams based on their potential downstream impacts from controlled or uncontrolled outlet releases that result in flooding. This dataset, originally prepared in 2020, evaluates dams by:

- Maximum Outlet Release Capacity (in cubic feet per second),
- A Composite Ranking score (1–367), and
- A derived Outlet Release Ranking (High, Moderate, or Low)

The Composite Ranking reflects the relative impact of a dam's outlet flow based on hydrologic modeling, infrastructure vulnerability, and floodplain exposure. DWR segments the scores into three tiers:

- High Impact: Rank 1–139
- Moderate Impact: Rank 140–278
- Low Impact: Rank 279–367

This analysis provides an additional layer of risk insight beyond traditional hazard classification and highlights when dam inundation flooding can occur without an actual dam failure. While all 48 of these dams are already designated as High Hazard Potential by DWR, the outlet release data helps prioritize emergency planning, downstream alerting, and response needs based on likely flood behavior and infrastructure exposure.

Five dams in Summit County were identified as having significant risk of high outlet release flooding, as shown in Table 4-16.

Table 4-16 Outlet Release Impact Rankings for High Hazard Dams in Summit County

Dam Name	Outlet Description	Max Outlet Release Capacity (cfs)	Composite Ranking	Outlet Release Ranking
Dillon	15' CONC TUNL, 4' STL PENSTOCK	4,400	17	High
Green Mountain	18' TUNNEL, 2-8.5' PENSTOCK	1,530	39	High
Upper Blue	2-20" STEEL	145	76	High
Goose Pasture Tarn	30" RCP	118	90	High
Clinton Gulch	48" RCP AT ELEV 10,987	315	159	Moderate

Source: Colorado DWR. High Hazard Dam Release – Downstream Floodplain Impacts Study. Version No. 12/15/2020

4.4.7 Climate Change Considerations

The specific ways in which a changing climate may result in an increase of dam failure events, intensity, or even location of these failures requires additional research. However, with a potential for more extreme precipitation events associated with climate change, there are possible impacts including large inflows to reservoirs, which may then cause overtopping and hence a dam to fail and inundate areas downstream. Nevertheless, this potential outcome could be offset by generally lower reservoir levels if storage/water resources become more limited or stretched in the future due to climate change effects including drought or reduced precipitation levels combined with population growth.

4.4.8 Vulnerability

There are nine high hazard, four significant hazard, and two low hazard dams located in Summit County. A dam failure could result in impacts greater than the 100-year flood event and could be catastrophic. In addition, there are 3 mine tailings storage facilities also classified as dams that could compromise the health as well as safety of those communities and assets downstream, due to potential toxic sludge releases and debris flows of hazardous materials. Associated water quality and health concerns could also be an issue. Secondary losses would include loss of the multi-use functions of the dam itself and associated revenues that accompany those functions.

GIS analysis was carried out using dam inundation extents available for several dams, to overlay each dam inundation layer with the parcel and critical facility layers in the county to arrive at estimated units and populations at risk. The results of the analyses are explained in more detail below and in Appendix H.

General Property

The Summit County Office of Emergency Management has copies of Emergency Action Plans (EAPs) for all high and significant hazard dams in the County; these are available upon request for inspection by FEMA and the Colorado Division of Homeland Security and Emergency Management on a need to know basis. Structures and potential loss estimates in the County are based on approximate estimates for some of the dams present countywide and are provided in Table 4-17 below.

The total properties at risk and their improvements were found by counting the number of parcels intersecting with the dam inundation extents available and summing those improvement values. Contents Value calculations are based on FEMA Hazus software protocols.

Table 4-17 Dam Inundation Risk to Properties – Estimates by Jurisdiction

Jurisdiction	Improved Parcels	Improved Value	Estimated Contents Value	Total Value	Population
Blue River	150	$144,765,762	$72,382,881	$217,148,643	479
Breckenridge	2,087	$1,810,988,127	$1,049,109,676	$2,860,097,803	4,297
Dillon	110	$98,167,100	$56,808,350	$154,975,450	226
Frisco	233	$202,739,235	$101,867,768	$304,607,003	612
Silverthorne	1,900	$1,757,689,564	$984,173,682	$2,741,863,246	4,528
Unincorporated	798	$616,517,316	$317,576,108	$934,093,424	1,966
Total	**5,278**	**$4,630,867,104**	**$2,581,918,464**	**$7,212,785,568**	**12,107**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

Based on the above results, Breckenridge has over 2,000 parcels potentially exposed to dam inundation hazards, followed by Silverthorne (with 1,900 parcels exposed), the unincorporated portions of the County

(with 798 parcels), Frisco (with 233 parcels), Blue River (with 150 parcels), and the Town of Dillon (with 110 parcels). Table 4-18 shows these results.

Table 4-18 Dam Inundation Effects on Parcels – Estimates by Parcel Type

Jurisdiction	Property Type	Improved Parcels	Total Value	Population
Blue River	Exempt	3	$0	0
	Residential	147	$217,148,643	479
	Total	**150**	**$217,148,643**	**479**
Breckenridge	Commercial	345	$574,462,448	0
	Exempt	119	$0	0
	Multi-Family Residential	76	$186,244,014	630
	Residential	1,547	$2,099,391,341	3,666
	Total	**2,087**	**$2,860,097,803**	**4,297**
Dillon	Commercial	22	$30,899,200	0
	Exempt	7	$0	0
	Multi-Family Residential	1	$6,785,850	62
	Residential	80	$117,290,400	164
	Total	**110**	**$154,975,450**	**226**
Frisco	Commercial	9	$1,992,600	0
	Exempt	20	$0	0
	Multi-Family Residential	25	$46,015,418	181
	Residential	179	$256,598,985	431
	Total	**233**	**$304,607,003**	**612**
Silverthorne	Agricultural	1	$1,019,000	0
	Commercial	173	$420,296,600	0
	Exempt	101	$0	0
	Multi-Family Residential	104	$186,045,521	1,212
	Residential	1,521	$2,134,502,126	3,316
	Total	**1,900**	**$2,741,863,246**	**4,528**
Unincorporated	Agricultural	5	$3,985,200	0
	Commercial	30	$33,284,600	0
Unincorporated	Exempt	57	$0	0
	Multi-Family Residential	44	$91,024,800	337
	Residential	662	$805,798,824	1,629
	Total	**798**	**$934,093,424**	**1,966**
Grand Total		**5,278**	**$7,212,785,568**	**12,107**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

Each dam owner is responsible for having an EAP and inundation map for their facility. These documents are regularly updated and shared with Summit County Emergency Management and other governmental entities that have a direct role in emergency response. Emergency Management and response entities use the EAPs and inundation maps when developing response plans. Dam safety and public education information is available on the Summit County Office of Emergency Management website. Questions should be directed to the Office of Emergency Management or the facility owner.

People

Persons located downstream of a dam are at risk of a dam failure, though the level of risk can be tempered by topography, amount of water or material in the reservoir/dam/structure, and time of day of the breach. Injuries and fatalities can occur from debris, drowning, or release of sludge or other hazardous material. People in the inundation area may need to be evacuated, cared for, and possibly permanently relocated. Impacts could include hundreds of evacuations and possibly casualties, depending on the dam involved. Specific population impacts are noted in Table 4-19; total people at risk were calculated by taking the average number of persons per household in Summit County based on Census estimates (data for each jurisdiction can be found in Table 3-2) and multiplying it by the number of properties where the dam inundation extents were available. An estimated total of 12,107 people could be at risk countywide based on the rough estimation used, though again it is unlikely that all the parcels or properties found to overlap with dam inundation extents will be populated by the total persons estimated or actually affected by a dam failure event simultaneously. This estimate does not account for non-resident or visitor population. The estimated populations shown in Table 4-19 show that Breckenridge and Silverthorne have the highest population count in dam inundation zones with 4,297 people in Breckenridge and 4,528 in Silverthorne. Table 4-20 shows the break out by dam, with the Dillon dam having the most people in its dam inundation zone. For both tables, there can be double counts due to inundations overlapping.

Table 4-19 Jurisdiction Populations in Dam Inundation Zones

Jurisdiction	Population
Blue River	479
Breckenridge	4,297
Dillon	226
Frisco	612
Silverthorne	4,528
Unincorporated	1,966
Total	**12,108**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

Table 4-20 Population Counts in Dam Inundation Zones

Dam Name	Population
Bills Ranch Lake	63
Clinton Gulch	429
Dillon	5,922
Goose Pasture Tarn	3,957
Old Dillon	1,001
Reynolds	30
Upper Blue	5,163

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

Critical Facilities and Infrastructure

A total dam failure can cause catastrophic impacts to areas downstream of the water body, including critical infrastructure. Any critical asset located under the dam in an inundation area would be susceptible to the impacts of a dam failure. Of particular risk would be roads and bridges that could be vulnerable to washouts, further complicating response and recovery by cutting off impacted areas. Based on the critical

facility inventory considered in the updating of this plan and intersected with the dam inundation extents available, 93 critical facilities were found to be at risk. These at risk facilities are listed in Figure 4-21 by jurisdiction and lifeline category, with unincorporated having the most amount of facilities listed with 32, and transportation having the most facilities with 35. Figure 4-22 by dam name and lifeline category.

Table 4-21 Dam Inundation Effects on Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food/Hydration/ Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Water Systems	Total
Blue River	-	-	-	-	-	-	-	-	**0**
Breckenridge	-	-	-	-	1	15	6	1	**23**
Dillon	-	-	-	-	1	-	-	-	**1**
Frisco	-	-	-	1	-	-	5	1	**7**
Keystone	-	-	-	-	-	-	-	-	**0**
Montezuma	-	-	-	-	-	-	-	-	**0**
Silverthorne	-	-	-	6	-	12	9	3	**30**
Unincorporated	-	8	-	1	-	4	15	4	**32**
Total	**0**	**8**	**0**	**8**	**2**	**31**	**35**	**9**	**93**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, DWR Dam Safety, WSP GIS Analysis.

Figure 4-22 breaks it out by dam name and lifeline category. Dillon dam has the most facilities within its dam inundation zone with 61 facilities, 23 of which are for transportation. Due to overlapping of inundation zones, the lifeline categories are not totaled.

Table 4-22 Critical Facilities at Risk to Dam Inundation by Dam Name

Dam Name	Communications	Energy	Food/Hydration/ Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Water Systems	Total
Clinton Gulch	-	1	-	-	-	-	5	1	**7**
Dillon	-	7	-	8	1	16	23	6	**61**
Goose Pasture Tarn	-	-	-	-	1	15	9	2	**27**
Old Dillon	-	-	-	1	-	4	11	2	**18**
Rynolds	-	-	-	-	-	-	-	1	**1**
Upper Blue	-	-	-	-	1	14	9	1	**25**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, DWR Dam Safety, WSP GIS Analysis

Economy

Extensive and long-lasting economic impacts could result from a major dam failure or inundation events, including the long-term loss of water in a reservoir, which may be critical for potable water needs or local wildlife. A major dam failure and loss of water from a key structure could bring about direct business and

industry damages and potential indirect disruption of the local economy, and the failure and release of toxic materials such as sludge from tailings dams in the southwest of the county could impact nearby commerce and industries (such as the Climax Mine), and potentially affect important transportation routes enabling business and tourism into the county (e.g. from the nearby railroad or local highways).

Historical, Cultural, and Natural Resources

Dam or reservoir failure effects on the environment would be similar to those caused by flooding from other causes. Water could erode stream channels and topsoil and cover the environment with debris. For the most part the environment is resilient and would be able to rebound from whatever damages occurred, though this process could take years. However, historic and cultural resources could be affected just as housing or critical infrastructures would, were a dam to fail and cause downstream inundation that could further erode surfaces or cause scouring of structural foundations. Toxic releases from tailings dams would potentially affect natural resources by degrading their quality and affecting wildlife.

Development Trends

Flooding due to a water related dam failure event is likely to exceed the special flood hazard areas regulated through local floodplain ordinances. The County and towns should consider the dam failure hazard when permitting development downstream of the high hazard and significant hazard dams, in particular. Low hazard dams could become significant or high hazard dams if development occurs below them, however. Catastrophic flooding due to a failure of Dillon Reservoir is beyond mitigation capabilities of local land use planning. Regular monitoring of dams, exercising and updating of EAPs, and rapid response to problems when detected at dams are ways to mitigate the potential impacts of these rare, but potentially catastrophic, events.

Vulnerability of Dams to Other Hazards

In addition to the threat posed by dam failure, dams are themselves critical facilities that can be impacted by dam failures that occur upstream, as well as natural hazards, to include earthquake, flooding, landslides, severe winter weather, and wildfire. Any of these hazards have the potential to damage a dam, potentially triggering a dam failure and a release of water. Therefore, mitigation measures must include measures to protect the dams themselves, as well as actions to reduce downstream impacts of a dam failure. These measures will need to be coordinated with dam owners.

Table 4-23 shows dams in Summit County located in areas at risk of other hazards. There is 1 dam located in FEMA 1% annual chance floodplains, 1 at risk to landslides, and 1 in the Wildland Urban Interface highest risk zone. There are no dams in the FEMA 0.2% annual chance floodplain, avalanche, wildfire risk, or WUI high or moderate zones. Additionally, all dams in Summit County should be considered at risk of damage from earthquakes. Dams are also exposed to all weather hazards, although they are unlikely to be damaged by severe weather.

Table 4-23 Summit County Dams at Risk to Other Hazards

Dam Hazard Class	Total Number of Dams	1% Flood Hazard	0.2% Flood Hazard	Avalanche	Landslide	Wildfire Risk	WUI Highest	WUI High	WUI Moderate
High	**9**	1	-	-	-	-	-	-	-
Significant	**4**	-	-	-	1	-	1	-	-
Total	**13**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**0**

Source: Summit County, DWR Dam Safety, WSP GIS Analysis

4.5 Drought

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Drought	Large	Likely	Limited	Medium

4.5.1 Risk Summary

- Between 2000-2025, the county has spent 525 weeks (40% of the time) in some level of drought, defined as Abnormally Dry (D0) or worse.
- Summit County's drought occurrences can be stemmed from the lack of significant winter snowfall in the winter.
- Multi-year droughts occur approximately every 10 years on average in Summit County
- Drought can affect both water quantity and quality
- The Socioeconomic and recreation sectors are particularly vulnerable to drought
- Drought increases risk to other hazards, such as erosion and deposition, pest infestation, and wildfire
- *Related hazards*: Wildfire, pest infestation (forest and aquatic), erosion and deposition, lightning

4.5.2 Description

Drought is a condition of climatic dryness that reduces available soil moisture and water supplies needed for sustaining plant, animal, and human life systems. Lack of adequate annual precipitation, which is primarily snowfall in Summit County, can result in drought conditions. Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends.

Due to Colorado's semiarid conditions, drought is a natural but unpredictable occurrence in the state. Single season droughts over some portion of the state are quite common. The onset of drought in western Colorado mountain counties is usually signaled by a lack of significant winter snowfall. Hot and dry conditions that persist from spring into summer and fall can aggravate drought conditions, making the effects of drought more pronounced as water demands increase during the growing season and summer months.

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

- **Meteorological drought** is usually defined by a period of below average water supply. The commonly used definition of meteorological drought is an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply.
- **Agricultural drought** occurs when there is an inadequate water supply to meet the needs of crops and other agricultural operations such as livestock. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought and can affect livestock and other dry-land agricultural operations.
- **Hydrological drought** is defined as deficiencies in surface and subsurface water supplies. It is generally measured as streamflow, snowpack, and as lake, reservoir, and groundwater levels.

There is usually a delay between lack of rain or snow and less measurable water in streams, lakes, and reservoirs. Therefore, hydrological measurements tend to lag behind other drought indicators.

- **Socioeconomic drought** occurs when a drought impacts health, well-being, and quality of life or when a drought starts to have an adverse economic impact on a region.

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

The onset of drought in Colorado mountainous counties is usually signaled by a lack of significant winter snowfall. Hot and dry conditions that persist into spring, summer, and fall can aggravate drought conditions, making the effects of drought more pronounced as water demands increase during the growing season and summer months. Drought in Summit County can have widespread impacts on the availability of water supplies for Front Range Communities.

4.5.3 Location

The geographic extent of this hazard in Summit County is **large** – more than 50% of the planning area affected. Drought is a regional hazard, and at its worst can affect the entire state of Colorado with varying levels of dryness.

The Western Regional Climate Center reports precipitation data from weather stations in and around Summit County. The data reported here are from three of the stations: Breckenridge, Dillon, and Green Mountain Dam. Precipitation is greatest in Breckenridge, where the month with the most average precipitation is July. Precipitation is least at the Green Mountain reservoir, where May is the month with the most average precipitation.

Table 4-24 contains precipitation summaries for the three stations, and Figure 4-19 through Figure 4-21 show monthly average total precipitation. These summaries include rainfall only. Drought in Colorado and Summit County is largely contingent upon winter snowpack. Snowfall summaries can be found in Section 4.13 Severe Winter Weather.

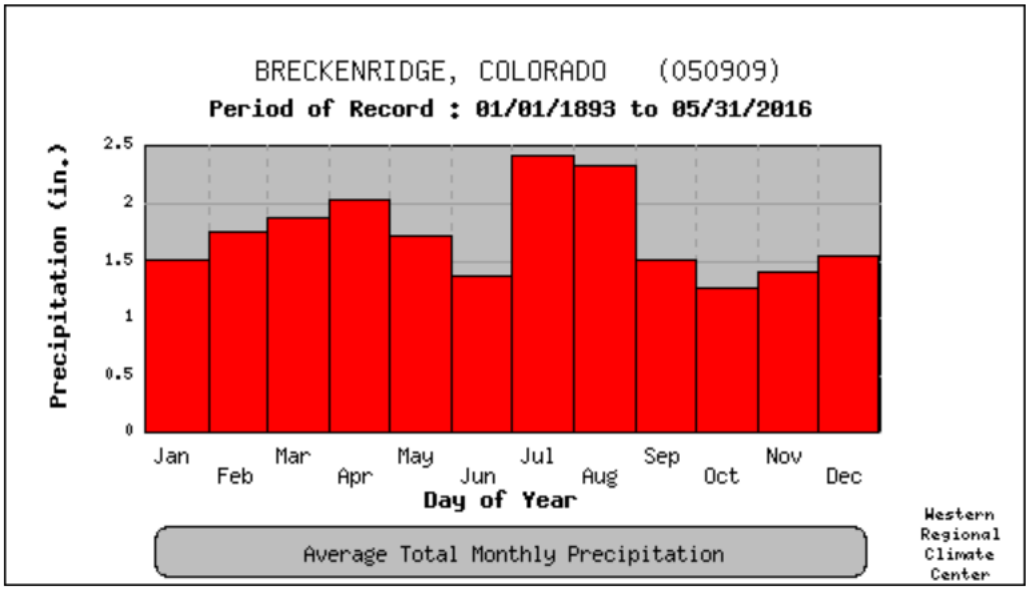
Table 4-24 Summit County Precipitation Summaries[1]

Station	Average Annual Precipitation	Month with Most Precipitation/Average Precipitation	Highest Monthly Precipitation	Highest Annual Precipitation
Breckenridge[2]	20.26	July/2.39	8.51/Dec. 1893	29.96/1995
Dillon[2]	16.01	July/1.92	6.97/Feb. 1936	26.28/1936
Green Mountain Dam[3]	15.03	May/1.62	5.95/Sept. 1961	22.37/1945

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

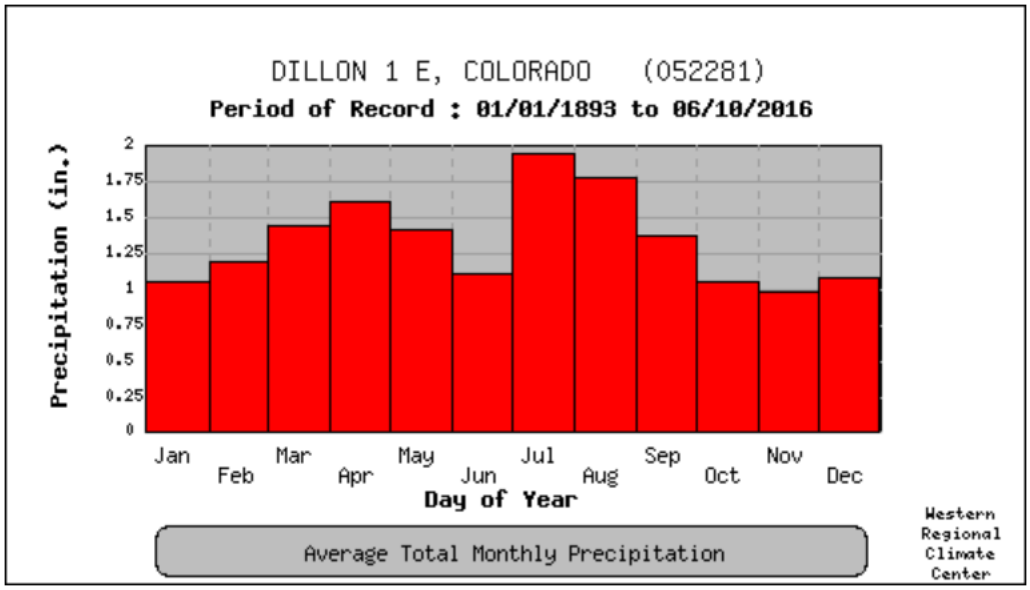
[1]All totals are reported in inches; [2]Period of Record: 1893-2016; [3]Period of Record: 1939-2016

Figure 4-19 Breckenridge Station Monthly Average Total Precipitation, 1893-2016



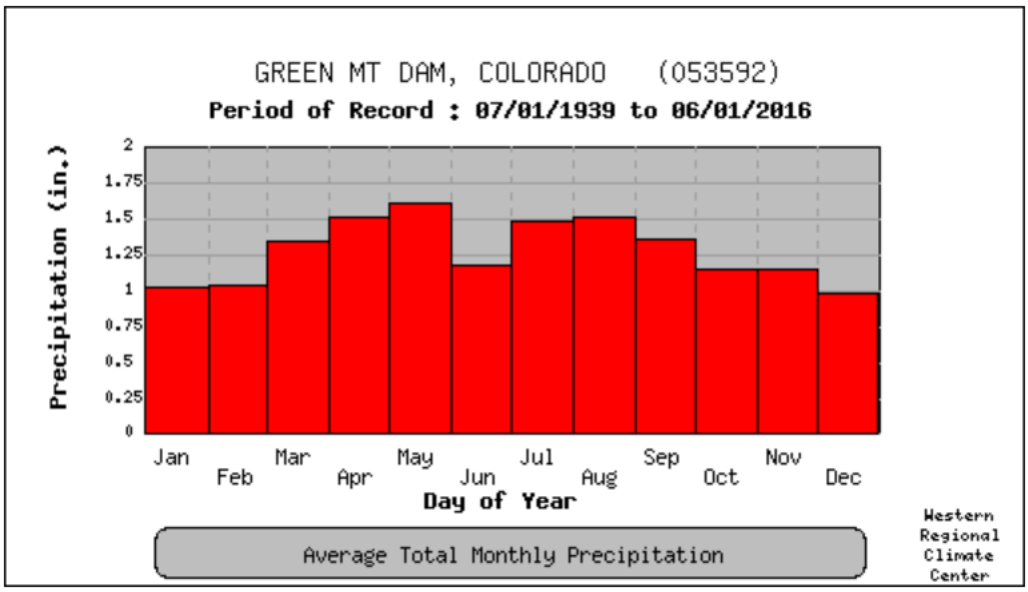
Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-20 Dillon Station Monthly Average Total Precipitation, 1893-2016



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

Figure 4-21 Green Mountain Dam Station Monthly Average Total Precipitation, 1893-2016



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

4.5.4 Previous Occurrences

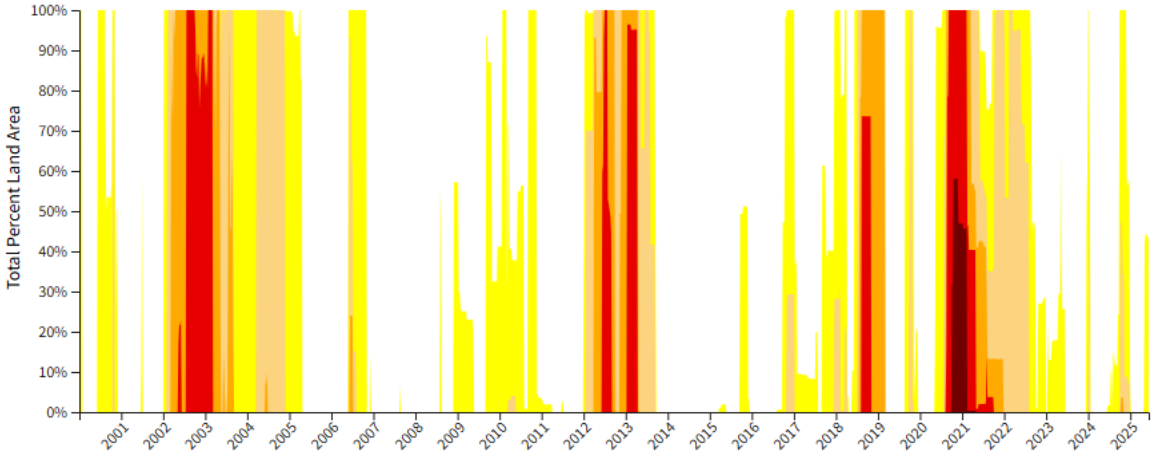
Drought is a regular widespread occurrence in the State of Colorado. According to the U.S. Drought Monitor records for Summit County, from 2000-2025, the county spent 525 weeks (40%0 of the time in some level of drought, defined as Abnormally Dry (D0) or worse conditions. Approximately 11.3% of the time, or 150 weeks, was spent in Severe Drought (D2) or worse conditions. Weeks in drought are summarized in Table 4-25 and shown in time series in Figure 4-22.

Table 4-25 U.S. Drought Monitor Weeks in Drought by Intensity, 2000-2025

Category	Description	Palmer Drought Severity Index (PDSI)	Standardized Precipitation Index (SPI)	Summit County Weeks in Drought, 2000-2025
D0	Abnormally Dry	-1.0 to -1.9	-0.5 to -0.7	461
D1	Moderate Drought	-2.0 to -2.9	-0.8 to -1.2	270
D2	Severe Drought	-3.0 to -3.9	-1.3 to -1.5	150
D3	Extreme Drought	-4.0 to -4.9	-1.6 to -1.9	44
D4	Exceptional Drought	-5.0 or less	-2.0 or less	0

Source: U.S. Drought Monitor, through July 2025

Figure 4-22 Summit County Percent Area in US Drought Categories, 2000-2025



Source: U.S. Drought Monitor, through July 2025

The following droughts were significant to Summit County:

- **2020-2021:** Summit County experiences extreme to exceptional drought conditions from October 2020 to April of 2021. The county experienced below average precipitation in the spring and summer of 2020, which led to widespread drought entering late 2020. By November 2020, areas of Colorado, including Summit County, was in Exceptional Drought levels.
- **2018:** Summit County experienced drought conditions that began in January, with extreme drought (D3) from August through October, with severe drought conditions continuing through February of 2019; substantial March and April precipitation brought conditions back to normal for the remainder of 2019.
- **2012-2013:** Summit County was included as a contiguous county in USDA drought declaration S3456. Summit was listed as a primary county for USDA drought declaration S3260.
- **2011-2012:** Colorado's ski industry suffered economic losses due to the low snowpack and drought conditions in 2011 and 2012. Colorado Ski County USA (CSCUSA) reported a decrease of 11.4 % in skier visits during the 2011-12 season as compared to the previous ski season. Climate data indicates that precipitation on Colorado's Western Slope for the 2011-12 winter was 43% below average, with the second warmest March on record. Statewide, the snowpack was 54% of average in April 2012. Skier visits continued to decrease between opening day of the 2012-13 ski season and December 31, 2012.
- **2006**: The U.S. Agriculture Secretary designated Summit among 59 counties in Colorado as disaster area due to the ongoing drought, high winds, insect pests, and a late freeze (Summit received its designation as a contiguous county).
- **2002**: This year was the driest year on record for the Denver region and much of the state. For the first time in state history, the Colorado governor asked the federal government to declare all of Colorado a drought disaster area. With an average temperature of 52 degrees, 2001 was the warmest year since 1986. The drought started in late 1999 and was compounded by scarce snowfall in 2001. Total precipitation for 2002 was 7.48 inches; the average is 15.81 inches (National Weather Service, Denver Office). April, normally the third snowiest month of the year with just over 9 inches, ended up being the third driest April on record for Denver. Only a trace of snow was recorded for the month with .23 inches liquid precipitation. The snowpack in the North Platte River Basin was only 44 percent of normal by the end of the month. In Summit County, the drought depleted reservoirs and the resulting exposed soils along the shorelines caused problems with dust and air pollution.

- **2000**: Strong La Niña conditions created below average precipitation and above average temperatures for most months in 2000. Statewide, snowpack started out well below average but recovered to near average in March. However, an early snowmelt resulted in low stream flows, and by June, drought conditions began to affect most of the state. By fall, weather patterns returned to near normal with average precipitation and below average temperatures.
- **1989**: In March 1989, the State Drought Water Availability Task Force met to access drought conditions within Colorado. Warm dry conditions during April of 1989 reduced snowpack to 50% of average.
- **1980–1981**: This drought, beginning in the fall of 1980 and lasting until the summer of 1981, had costly impacts to the ski industry.
- **1976–1977**: This drought was characterized as a winter event, limited in duration. It was the driest winter in recorded history for much of Colorado's high country and western slope, severely impacting the ski industry. Colorado agriculture producers and municipalities received over $110 million in federal drought disaster aid.

There has been one Federal disaster declaration related to drought for Summit County, EM-77026 declared January 29, 1977. Since 1977 there have been 7 drought declarations issued by the USDA's Secretary of Agriculture in Summit County, 5 of which were Fast Track Secretarial disaster designations (see Table 4-2 in Section 4.1.1). According to the Secretary of Agriculture, a Fast Track designation is for a severe drought and provides an automatic designation when, during the growing season, any portion of the county meets the severe drought intensity value for eight consecutive weeks or more.

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

The Drought Impact Reporter contains information on 405 drought impacts from droughts that affected Colorado between 2005 and 2025, 30 of which impacted Summit County. The list is not comprehensive, but only captures reported impacts. These impacts are shown in Table 4-26 and described in the following text, along with the number of impacts for that category reported in Summit County during that time period.

Table 4-26 NDMC Drought Impact Reporter, 2005-2025

Impact Category	Count of Impacts	Years Reported
Agriculture	9	2012, 2020, 2021, 2022
Business & Industry	6	2012, 2017, 2020, 2021
Energy	0	--
Fire	9	2018, 2020, 2021, 2025
Plants & Wildlife	11	2012, 2018, 2020, 2021, 2022, 2025
Relief, Response & Restrictions	14	2012, 2018, 2020, 2021, 2025
Society & Public Health	3	2012, 2018, 2025
Tourism & Recreation	9	2012, 2017, 2018, 2020, 2021, 2025
Water Supply & Quality	10	2012, 2018, 2020, 2021

Source: National Integrated Drought Information System (drought.gov)

- **Agriculture (9)** – Drought effects associated with agriculture, farming, aquaculture, horticulture, forestry, or ranching. Examples of drought-induced agricultural impacts include damage to crop quality; income loss for farmers due to reduced crop yields; reduced productivity of cropland; insect infestation; plant disease; increased irrigation costs; cost of new or supplemental water resource development (wells, dams, pipelines) for agriculture; reduced productivity of rangeland; forced reduction of foundation stock; closure/limitation of public lands to grazing; high cost or unavailability of water for livestock, Christmas tree farms, forestry, raising domesticated horses, bees, fish, shellfish or horticulture.
- **Business & Industry (6)** – This category tracks drought's effects on non-agriculture and non-tourism businesses, such as lawn care, recreational vehicles or gear dealers, and plant nurseries. Typical impacts include reduction or loss of demand for goods or services, reduction in employment, variation in number of calls for service, late opening or early closure for the season, bankruptcy, permanent store closure, and other economic impacts.
- **Energy (0)** – This category concerns drought's effects on power production, rates, and revenue. Examples include production changes for both hydropower and non-hydropower providers, changes in electricity rates, revenue shortfalls and/or windfall profits, and purchase of electricity when hydropower generation is down.
- **Fire (9)** – Drought often contributes to forest, range, rural, or urban fires, fire danger, and burning restrictions. Specific impacts include enacting or easing burning restrictions, fireworks bans, increased fire risk, occurrence of fire (number of acres burned, number of wildland fires compared to average, people displaced, etc.), state of emergency during periods of high fire danger, closure of roads or land due to fire occurrence or risk, and expenses to state and county governments of paying firefighters overtime and paying equipment (helicopter) costs.
- **Plants & Wildlife (11)** – Drought effects associated with unmanaged plants and wildlife, both aquatic and terrestrial, include loss of biodiversity of plants or wildlife; loss of trees from rural or urban landscapes, shelterbelts, or wooded conservation areas; reduction and degradation of fish and wildlife habitat; lack of feed and drinking water; greater mortality due to increased contact with agricultural producers, as animals seek food from farms and producers are less tolerant of the intrusion; disease; increased vulnerability to predation (from species concentrated near water); migration and concentration (loss of wildlife in some areas and too much wildlife in others); increased stress on endangered species; salinity levels affecting wildlife; wildlife encroaching into urban areas; and loss of wetlands.
- **Relief, Response & Restrictions (14)** – This category refers to drought effects associated with disaster declarations, aid programs, requests for disaster declaration or aid, water restrictions, or fire restrictions. Examples include disaster declarations, aid programs, USDA Secretarial disaster declarations, Small Business Administration disaster declarations, government relief and response programs, state-level water shortage or water emergency declarations, county-level declarations, a declared "state of emergency," requests for declarations or aid, non-profit organization-based relief, water restrictions, fire restrictions, NWS Red Flag warnings, and declaration of drought watches or warnings.
- **Society & Public Health (3)** – Drought effects associated with human, public and social health include health-related problems related to reduced water quantity and/or quality, such as increased concentration of contaminants; loss of human life (e.g. from heat stress, suicide); increased respiratory ailments; increased disease caused by wildland fire concentrations; increased human disease caused by changes in insect carrier populations; population migration (rural to urban areas, migrants into the United States); loss of aesthetic values; change in daily activities (non-recreational, like putting a bucket in the shower to catch water); elevated stress levels; meetings to discuss drought; communities creating drought plans; lawmakers altering penalties

for violation of water restrictions; demand for higher water rates; cultural/historical discoveries form low water levels; prayer meetings; cancellations of fundraising events; cancellation/alteration of festivals or holiday traditions; stockpiling water; public service announcements and drought information websites; protests; and conflicts within the community due to competition for water.

- **Tourism & Recreation (9)** – Drought effects associated with recreational activities and tourism include closure of state hiking trails and hunting areas due to fire danger; water access or navigation problems for recreation; bans on recreational activities; reduced license, permit, or ticket sales (e.g. hunting, fishing, ski lifts, etc.); losses related to curtailed activities (e.g. bird watching, hunting and fishing, boating, etc.); reduced park visitation; and cancellation or postponement of sporting events.
- **Water Supply & Quality (10)** – Drought effects associated with water supply and water quality include dry wells, voluntary and mandatory water restrictions, changes in water rates, easing of water restrictions, increases in requests for new well permits, changes in water use due to water restrictions, greater water demand, decreases in water allocation or allotments, installation or alteration of water pumps or water intakes, changes to allowable water contaminants, water line damage or repairs due to drought stress, drinking water turbidity, change in water color or odor, declaration of drought watches or warnings, and mitigation activities.
- **General Awareness (0)** – General Awareness applies only to media reports and usually indicates that people are concerned about drought, but no specific impact has occurred yet or the information is too general to use for an impact.
- **Other (0)** – Drought impacts that do not easily fit into any of the above categories.

4.5.5 Probability of Future Occurrence

Likely—10-100% chance of occurrence in next year or has a recurrence interval of 10 years or less.

According to information from the Colorado Drought Mitigation and Response Plan, including recent drought conditions, Colorado was in drought for 50 of the past 126 years (1893-2018). Thus, there is a 39.7% chance that a drought will happen in Colorado in any given year, and a drought can be expected somewhere in the state every 2.5 years. Summit County has had significant impacts in six droughts in the last 40 years.

A drought vulnerability study prepared by the CWCB in 2010 and updated in 2018 looked at the potential for climate change to alter drought recurrence, length, and intensity. This study builds upon information obtained in Phase I of the CWCB's Colorado Water Availability Study. Based on these studies the average length of the observed drought in the Colorado River basin, which includes Summit County, is six years. The chance of experiencing a drought longer than the historical observed length is only slightly greater than 50%. The study indicates other basins in Colorado, notably the San Juan Basin in the southwest, has a higher chance of exceeding the drought longer than the observed record (75-88%). While there is a large amount of uncertainty regarding future climate scenarios and how these may translate to physical conditions, the study indicates that current climate is not stationary and that planning efforts should take into account this uncertainty.

Based on historical patterns and documented occurrences, drought is recurring and persistent hazard in Summit County. As previously mentioned, since 2000, the county has spent approximately 525 weeks (equivalent to more than 10 cumulative years) in some level of drought, according to the U.S. Drought Monitor. These drought episodes have ranged from abnormally dry (D0) to exceptional drought (D4), and while conditions fluctuate seasonally, the long term trend shows that there is a likely probability of drought recurrence.

4.5.6 Magnitude/Severity

Limited—Minor injuries and illnesses; minimal property damage that does not threaten structural stability; and/or interruption of essential facilities and services for less than 24 hours

Drought impacts in Summit County can be wide-reaching: economic, environmental, and societal. The most significant impacts associated with drought are those related to water intensive activities such as wildfire protection, commerce, tourism, recreation, municipal usage, and wildlife preservation. Drought during the winter season impacts the ski industry and economy of Summit County. Drought in the summer increases problems with dust and erosion and can cause deterioration in water quality. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding. It also increases the wildfire hazard and even landslide hazard. In 1963 a rapid drawdown of the water in Green Mountain Reservoir caused a landslide that resulted in the loss of several homes in the community of Heeney. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline.

The U.S. Drought Monitor, which measures drought based on the PDSI, SPI, Keetch-Byram Drought Index, soil moisture indicators, streamflow, and other qualitative inputs, can be used to define drought severity. Table 4-27 details the criteria for each Drought Monitor category, and Table 4-28 summarizes the typical impacts associated with each Drought Monitor category in the State of Colorado. These possible impacts indicate that agricultural and rural lands are the primary affected areas under drought conditions of Category D0 through D2, while Category D3 and worse impacts are felt in urban areas and more severely affect water supplies and recreational industries.

Table 4-27 U.S. Drought Monitor Categories

			Ranges				
Category	Description	Possible Impacts	Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: ▪ short-term dryness slowing planting, growth of crops or pastures Coming out of drought: ▪ some lingering water deficits ▪ pastures or crops not fully recovered	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	▪ Some damage to crops, pastures ▪ Streams, reservoirs, or wells low, some water shortages developing or imminent ▪ Voluntary water-use restrictions requested	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	▪ Crop or pasture losses likely ▪ Water shortages common ▪ Water restrictions imposed	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	▪ Major crop/pasture losses ▪ Widespread water shortages or restrictions	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	▪ Exceptional and widespread crop/pasture losses ▪ Shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

Source: U.S. Drought Monitor

Table 4-28 Colorado Drought Impacts by U.S. Drought Monitor Category

Category	Impact
D0	Hay production decreases; rangeland is dry
	Irrigation begins sooner
D1	Rangeland growth is stunted; very little hay is available
	Dryland crops suffer
	Wildfires increase
	Pheasant population declines; ski season is limited
D2	CRP lands suffer
	Farmers reduce planting; producers sell cattle
	Fire season is extended
	Snowpack is low; surface water levels are low; river flow is reduced
D3	Pasture conditions worsen
	City landscapes are dying
	Large fires develop
	Rafting, fishing, hunting, skiing are reduced; fish kills occur
	Grasshopper and insect infestation are noted
	Reservoirs are extremely low; mandatory water restrictions are implemented; water temperature increases
D4	Dust storms and topsoil removal are widespread
	Agricultural and recreational economic losses are large

Source: U.S. Drought Monitor

4.5.7 Climate Change Considerations

The Intergovernmental Panel on Climate has projected dramatic changes in regional climate characteristics between present-day and if global temperatures rise between 1.5 degrees Celsius and 2 degrees Celsius. Climate change can have impacts both in terms of inter-annual droughts and intra-annual runoff patterns (State of Colorado Drought Mitigation and Response Plan Update, 2018). Intra-annual spring warming can shift peak runoff earlier in the year, filing reservoirs earlier, In turn what could not be stored in the spring and early summer would be spilled when agricultural demands are not as great as they are later in the summer. Temperatures increased and resulting changes in evaporation and soil moistures will also add to the trend of decreasing runoff in a majority of Colorado Basins. Table 4-29 shows the challenges water managers may face with the projected changes in climate.

Table 4-29 Future Drought Vulnerability Due to Climate Change

Challenge	Observed and/or Projected Change
Water demands for agriculture and outdoor watering	Increasing temperatures raise evapotranspiration by plants, lower soil moisture, alter growing seasons, and thus increase water demand.
Water supply infrastructure	Changes in snowpack, streamflow timing, and hydrograph evolution may affect reservoir operations including flood control and storage. Changes in the timing and magnitude of runoff may affect functioning of diversion, storage, and conveyance structures.
Legal water systems	Earlier runoff may complicate prior appropriation systems and interstate water compacts, affecting which rights holders receive water and operations plans for reservoirs

Challenge	Observed and/or Projected Change
Water quality	Although other factors have a large impact, "water quality is sensitive both to increased water temperatures and changes in patterns of precipitation" (CCSP SAP 4.3, p. 149). For example, changes in the timing and hydrograph may affect sediment load and pollution, impacting human health.
Energy demand and operating costs	Warmer air temperatures may place higher demands on hydropower reservoirs for peaking power. Warmer lake and stream temperatures may affect water use by cooling power plants and other industries.
Mountain habitats	Increasing temperature and soil moisture changes may shift mountain habitats toward higher elevation.
Interplay among forests, hydrology, wildfires, and pests	Changes in air, water, and soil temperatures may affect the relationships between forests, surface and groundwater, wildfire, and insect pests. Water-stressed trees, for example, may be more vulnerable to pests.
Riparian habitats and fisheries	Stream temperatures are expected to increase as the climate warms, which could have direct and indirect effects on aquatic ecosystems (CCSP SAP 43.), including the spread of instream non-native species and diseases to higher elevation and the potential for nonnative plant species to invade riparian areas. Changes in streamflow intensity and timing may also affect riparian ecosystems.
Water – and snow – based recreation	Changes in reservoir storage affect lake and river recreation activities; changes in streamflow intensity and timing will continue to affect rafting directly and trout fishing indirectly. Changes in the character and timing of snowpack and the ratio of snowfall to rainfall will continue to influence winter recreational activities and tourism.
Groundwater resources	Changes in long-term precipitation and soil moisture can affect groundwater recharge rates; coupled with demand issues, this may mean greater pressure on groundwater resources.

Source: State of Colorado Drought Mitigation and Response Plan 2018, Reproduced from CWCB

4.5.8 Vulnerability

The majority of past disaster declarations are related to drought, which indicates the County's vulnerability to this hazard. Previous multi-year droughts have left areas more prone to beetle kill and associated wildfires. Other past impacts of drought have included degradation of air quality due to dust, reduction of tourism and recreation activities, and damage to the ranching economy in the Lower Blue Basin. The economy of Summit County, which is largely based upon the ski industry and other outdoor recreation and tourism, is vulnerable to drought conditions.

The 2018 Colorado Drought Plan's drought vulnerability study states that "Counties with the largest rates of growing populations coupled with lack of economic diversification are most vulnerable during drought. The most vulnerable county is Routt, followed by mountain counties such as Eagle, Pitkin, Summit, and Grand, and others throughout the State." The study also observes that while ski resorts such as those in Summit County can be affected by drought, their overall vulnerability is relatively low due to their adaptive capacities, such as diversified offerings at ski resorts. While most large ski resorts do have snowmaking capability for dry years, snow generation can require millions of gallons of water annually. Ski resorts have rights for this water but their ability to divert water can be limited by instream flow rights during drought. The impact to specific resorts will vary by location and depending on where diversions occur relative to other rights. Some resorts may not be impacted at all during drought but can still be hurt by public perception of ski conditions. A widely publicized drought can keep visitation down regardless of actual conditions.

A decline in tourism and agricultural revenues could also impact the rest of the County's economy. According to the 2018 State of Colorado Drought Mitigation and Response Plan, "the multiplier effect of decreased business revenue can impact the entire economy. When an individual loses or decreases their income all of the goods and service providers, they usually support will also be impacted" (Annex B, 367).

The 2018 State of Colorado Drought Mitigation and Response Plan evaluated the vulnerability of different sectors to drought for all counties in Colorado. (The evaluation excluded the Municipal and Industrial sector because that sector did not follow standard methodology.) The sector vulnerability scores for Summit County are shown in Table 4-30, along with how the County ranks compared to other Colorado Counties. A score of 3.0 or above means that sector is vulnerable to drought; the only sector in Summit County scoring above 3.0 is socioeconomic. This is largely due to the County's lack of economic diversity and tourism economy base. This includes vulnerability to secondary economic impacts, behavioral health impacts and public health concerns specific to drought.

Table 4-30 Drought Vulnerability Scores by Sector

Sector	Summit County Score	Ranking Out of 64 CO Counties
Socioeconomic	3.40	4th
Recreation	2.16	34th
Agriculture	2.13	42th
Environment	1.67	43rd
State Assets	1.30	64th
Energy	1.00	44th
Average Overall Vulnerability	1.94	48th

Source: 2018 State of Colorado Drought Mitigation and Response Plan

While widespread, the losses associated with drought are often the most difficult to track or quantify. FEMA requires the potential losses to structures to be analyzed, and drought does not normally have a structural impact. A notable exception is the potential for drought to exacerbate the landslide hazard along Green Mountain Reservoir due to reduced water levels; this has resulted in damaged homes in the past. The other significant impacts from drought will be on agriculture, wildland fire protection, municipal usage, commerce, tourism and ski industry, and wildlife preservation. The County's economy is largely dependent on tourism, recreation and, to a lesser extent, agriculture. A lack of precipitation can impact skiing, fishing, hunting and more. Drought can also exacerbate the potential occurrence and intensity of wildland fires. The wildland areas of the County have seen an increase in dry fuels, beetle kill and some loss of tourism revenue during the ski season. Water supply issues for domestic needs will be less of a concern for the entire County during droughts since it is offset somewhat by the abundance of water resources and large reservoirs in the County.

General Property

Direct structural damage from drought is rare, though it can happen as noted in the previous paragraph. Drought can affect soil shrinking and swelling cycles and can result in cracked foundations and infrastructure damage. Drought also reduces stream and reservoirs levels which can affect irrigation systems, wells, and fire suppression resources.

People

The historical and potential impacts of drought on populations include agricultural and recreation/tourism sector job loss, secondary economic losses to local businesses and public recreational resources, increased cost to local and state government for large-scale water acquisition and delivery, and water rationing and water wells running dry for individuals and families. Other public health issues can include impaired

drinking water quality, increased incidence of mosquito-borne illness, an increase in wildlife-human confrontations and respiratory complications as a result of declined air quality in times of drought.

Critical Facilities and Infrastructure

Due to the long-lasting nature of the hazard, the biggest impact of drought is on water supply. As a result, critical facilities that rely on a steady supply of water could see the greatest impacts if a long-term drought occurred. Drought can also directly impact water storage, treatment and distribution systems.

Economy

Summit County's reliance on tourism and the recreation sector as the main economic base make it particularly vulnerable to the effects of drought. Wildlife viewing, hunting and fishing activities have been impacted in past drought events by lower production and requirement numbers and by animals moving away from traditional viewing and hunting areas due to lack of water, loss of vegetative cover, decreased streamflows, sedimentation and fish decline. Drought also has an impact on camping due to forced closures of campsites and surrounding forest due to wildfires and risk of wildfire and hazardous trees are all exacerbated by drought. Drought impacts on the County's natural environment and the cascading impacts to the recreation sector could lead to less people visiting and spending money in County which could have a negative impact on the entire local economy.

Historical, Cultural, and Natural Resources

Severe, prolonged drought can have a negative impact on the natural environment. Wildlife and natural habitats can be affected, including the shrinkage of habitat, dwindling food supplies and the migration of wildlife to more palatable areas. Prolonged drought can cause poor soil quality and increased soil erosion. One of the prevailing impacts of drought to the natural environment is the increased risk of pest infestations and wildfires that burn larger and more intensely during dry conditions. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding.

Existing Development

Drought normally does not impact structures and can be difficult to identify specific hazard areas. Data is not available to estimate potential losses to structures in identified hazard areas, with the exception of structures located within the Heeney slide area (see Landslide vulnerability discussion) along Green Mountain Reservoir. Many of the towns use public education efforts to encourage water conservation during the summer months.

Development Trends

As population grows, so do the water needs for household, commercial, industrial, recreation, and agricultural uses. Vulnerability to drought will increase with these growing demands on existing water supplies. Future water use planning in Colorado is complex and has to account for increasing population size as well as the potential impacts of climate change.

Most of the jurisdictions in Summit County encourage drought resistant landscaping in their master plans for new development. The County's land use code specifically addresses drought resistant landscaping.

4.6 Earthquake

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Earthquake	Large	Occasional	Limited	Low

4.6.1 Risk Summary

- The overall significance rating for Earthquake in Summit County is **Low**.
- Around 314 buildings are expected to incur at least moderate damage in the 2,500-year probabilistic earthquake scenario.
- Total economic losses could exceed $260 million.
- The building and income related losses are estimated to be $132.8 million, with 67% of the damages impacting residential structures, and 9% of losses being tied to business interruptions.
- Utility systems would experience over $127 million in damages or losses, but transportation systems would only suffer about $230,000 in damages. No essential facilities such as schools or police stations would suffer damages, however.
- No major casualties are expected from the modeled scenario, but a potential 7 households could be displaced, and 2 persons may seek temporary shelter due to this earthquake event.
- *Related hazards*: Landslide/mudflow/debris flow/rockfall, avalanche, wildfire, dam incidents, hazardous material release.

4.6.2 Description

An earthquake is the sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the earth's surface or along fault lines. For hundreds of millions of years, the forces of plate tectonics have shaped the Earth as the huge plates that form the Earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet, commonly called faults; however, some earthquakes occur in the middle of plates.

A fault is a fracture in the earth's crust along which movement has occurred either suddenly during earthquakes or slowly during a process called creep. Cumulative displacement may be tens or even hundreds of miles if movement occurs over geologic time. However, individual episodes are generally small, usually less than several feet, and are commonly separated by tens, hundreds, or thousands of years. Damage associated with fault-related ground rupture is normally confined to a fairly narrow band along the trend of the fault. Structures which straddle faults are often not able to withstand fault rupture and utilities crossing faults are at risk of damage. Fault displacement involves forces so great that it is generally not feasible (structurally or economically) to design and build structures to accommodate this rapid displacement.

Earthquakes can cause structural and non-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, seiches (damaging waves within reservoirs, lakes, and other water bodies), liquefaction, fires, and dam failure. Part of what makes earthquakes so destructive is that they generally

occur without warning. The main shock of an earthquake can usually be measured in seconds, and rarely lasts for more than a minute. Aftershocks can occur within the days, weeks, and even months following a major earthquake.

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

4.6.3 Location

The geographic extent of this hazard in Summit County is **Large** – more than 50% of the planning area affected. All of Summit County is at risk to a potential earthquake.

According to the Colorado Geological Survey (CGS) and the U.S. Geological Survey (USGS), Colorado has areas with low to moderate potential for damaging earthquakes. The presence of potentially active faults is an indicator of potential earthquake risk. There are about 90 potentially active faults that have been identified in Colorado, with documented movement within the last 1.6 million years. However, there are several thousand other faults that have been mapped in Colorado that are believed to have little or no potential for producing future earthquakes. Seismic hazard zone maps and earthquake fault zone maps are used to identify where such hazards are most likely to occur based on analyses of faults, soils, topography, groundwater, and the potential for earthquake shaking that can trigger landslide and liquefaction.

The location of historic epicenters, Quaternary faults, and hazard potential in terms of peak ground acceleration potential in Summit County are displayed in Figure 4-23. As reference, Quaternary faults are those recognized to have moved in the past 1,600,000 or so years, during a portion of the Quaternary geologic epoch (more details on faults and geologic periods below). Peak ground acceleration is used to portray relative ground motion of seismic activity, and it represents the maximum ground acceleration that has a 2% in 50 years of being equaled or exceeded during an earthquake shaking event at the mapped location.

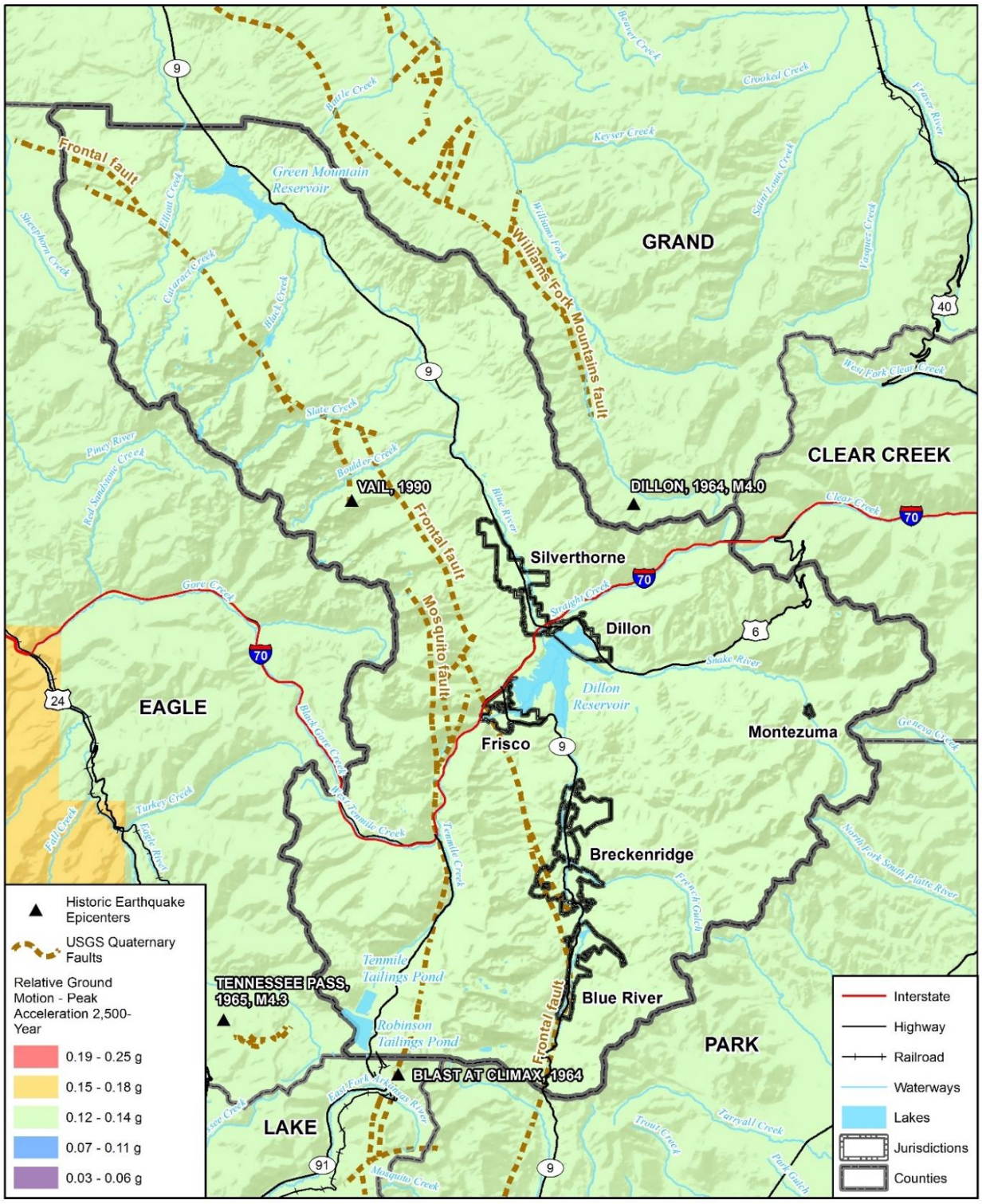
Faults are classified based on the geologic time frame of their latest suspected movement (in order of activity occurrence, with the most recent is listed first):

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

Faults that are considered by the CGS to be sources of damaging earthquakes that could affect the County are the Blue River Graben Faults (LC), Blue River Fault West (LC), Frontal (LQ), Gore (LC), Green Mountain Reservoir Faults (LC), Mosquito (LQ), Mount Powell Faults (LC), and Sheephorn Mountain Faults (LC). Of these faults, the Frontal and Mosquito faults are of most concern to the state. These faults are again depicted on Figure 4-23.

Other faults that could affect Summit County (e.g., other faults that were analyzed by the State for their potential impact on the County but are located outside of the County) are Chase Gulch (LQ), Golden (Q), N Sangre de Cristo (H), N Sawatch (LQ), S Sawatch (H), Ute Pass (MLQ), and Williams Fork (H), which is in Grand County but very close to the Summit County border.

Figure 4-23 Earthquake Faults, History, and Hazard Potential in Summit County



Map compiled 10/2019; intended for planning purposes only. Data Source: US Census TIGER Database, CO Open Data Portal, CO BLM, Summit County, ESRI World Terrain Basemap, USGS, CGS

4.6.4 Previous Occurrences

The Colorado Geological Survey provided information via the Colorado Earthquake Information database, which was queried for the years 1867-1996. The USGS Earthquake Catalog was also checked for events noted. The following events were found in or nearby the planning area.

- **September 12, 1990**—A magnitude 3.0 earthquake with an epicenter in Vail caused intensity V shaking in Vail, Frisco, and Minturn and intensity III shaking in Silverthorne. It is estimated that the depth of the seismic activity origin was about 5 kilometers.
- **May 29, 1965**—A magnitude 4.3 quake took place in the Tennessee Pass, just a few miles west of the Tenmile and Robinson Tailings Ponds near the southwest boundary of Summit County. It is unknown whether this event affected the planning area, however.
- **1964**—A blast event at the Climax molybdenum mine in 1964 caused quake activity just south of the Summit County boundary, along the Mosquito Fault, and slightly north of the Earth Fork Arkansas River as displayed in Figure 4-23.
- **August 4, 1964**—A magnitude 4.0 earthquake had an epicenter northeast of Dillon, on the boundary with Grand County and just outside Summit County.

Maximum historical earthquake Intensities felt in Colorado have been recorded by the CGS. Summit County has experienced up to Intensity V earthquake shaking. The largest known earthquake in Colorado occurred on November 7, 1882 and had an estimated magnitude of 6.6. The location of this earthquake, which has been the subject of much debate and controversy over the years, is thought to have originated in the northern Front Range west of Fort Collins and north of Estes Park. The quake was felt as far away as Salina, Kansas and Salt Lake City, Utah.

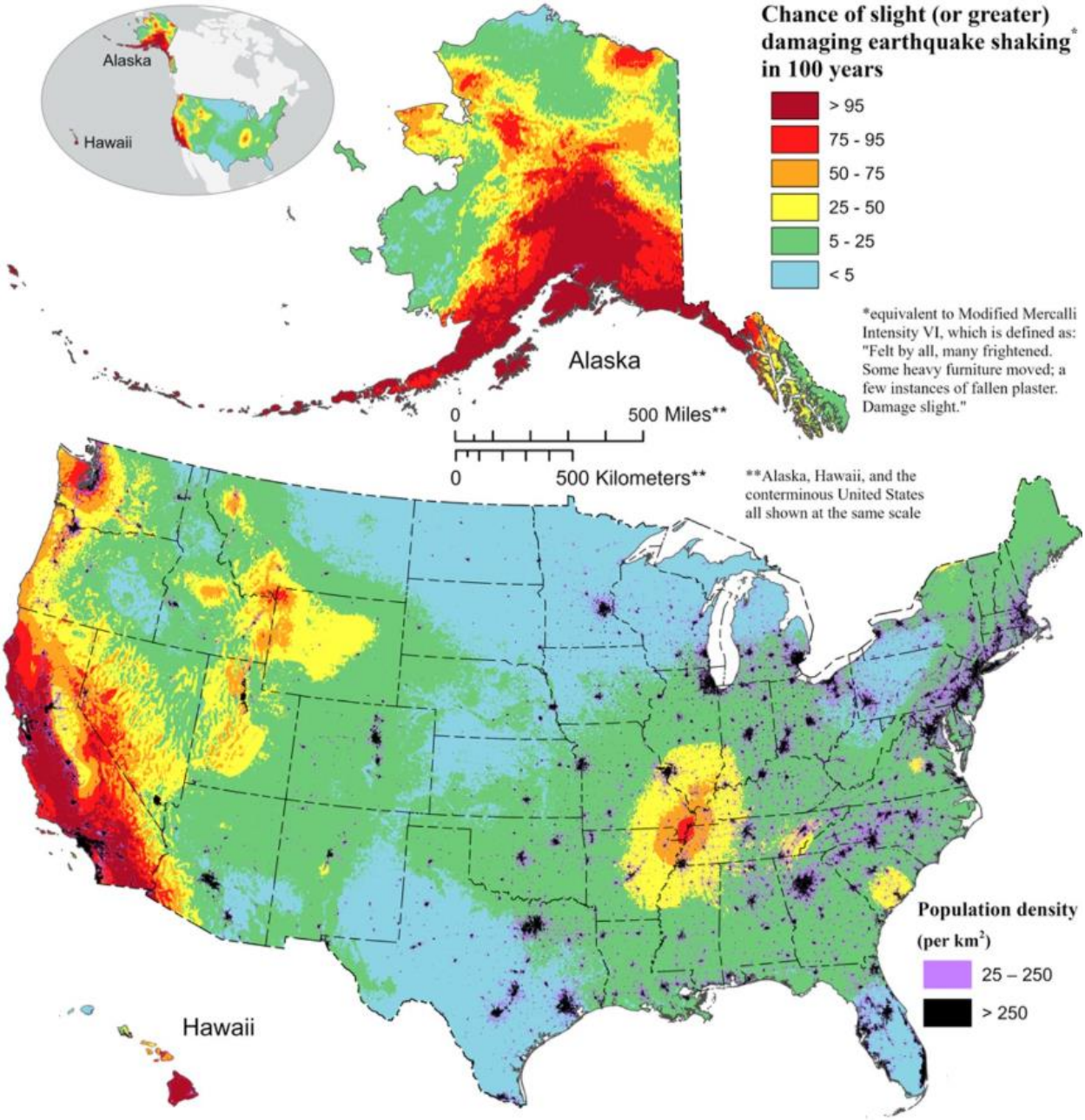
4.6.5 Probability of Future Occurrence

Occasional—Earthquakes have a 1-10% chance of occurrence in the next year in Summit County, equivalent to a recurrence interval of 1 in 11 to 100 years.

Figure 4-24 below includes a probabilistic seismic hazard map of the entirety of the U.S. from the USGS. The background colors depict the probability of slight (or greater) damaging earthquake shaking over the next 100 years, defined as MMI VI or greater. As shown in the graphic, Summit County, along with the majority of Colorado, is in the 5-25% chance range.

Four small events in the County and surrounding areas in the last 135 years approximately equals one event every 32-33 years, or a 3% chance in any given year. None of the noted events caused damages, and the occurrence of earthquakes is relatively infrequent in Colorado. In addition, the historical earthquake record is relatively short (roughly 130 years). However, earthquake hazards in Colorado are not well understood and the potential for unknown active faults exists. While rare, damaging earthquakes can and do occur in Colorado and areas not considered to be earthquake prone. For example, a M 5.3 earthquake and resulting aftershocks damaged homes west of Trinidad, Colorado on August 2, 2011, which was the largest earthquake since 1967.

Figure 4-24 USGS National Seismic Hazard Model



Source: USGS

4.6.6 Magnitude/Severity

Limited—Based on the estimation of potential damages, mass fatalities, impacts to critical lifelines, and the impact to the county's government ability to provide service or respond to an event due to seismic activity/earthquakes. Minor injuries could occur, along with minimal property damage that does not threaten structural stability, and interruption of essential facilities and services is for less than 24 hours.

Earthquakes are measured in terms of their magnitude and intensity, but other helpful characteristics used to describe and categorize them include the effects felt on people and property, and the frequency of

occurrence. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude. (Table 4-31) Each unit increase in magnitude on the Richter Scale corresponds to a 10-fold increase in wave amplitude, or a 32-fold increase in energy. The Richter Scale has largely been replaced by the similar Moment Magnitude Scale. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. This scale's levels are typically described using Roman numerals in increasing order based on destruction potential (from less catastrophic to most catastrophic). More detailed descriptions of the MMI Scale of earthquake intensity and correspondence to the Richter Scale, as well as descriptions of effects and frequency intervals are given in Table 4-31 below.

Table 4-31 Earthquake Magnitude, Intensity Measurements, and Associated Characteristics

Magnitude	Mercalli Intensity	Effects	Frequency
Less than 2.0	I	Microearthquakes, not felt or rarely felt; recorded by seismographs.	Continual
2.0-2.9	I to II	Felt slightly by some people; damage to buildings.	Over 1M per year
3.0-3.9	II to IV	Often felt by people; rarely causes damage; shaking of indoor objects noticeable.	Over 100,000 per year
4.0-4.9	IV to VI	Noticeable shaking of indoor objects and rattling noises; felt by most people in the affected area; slightly felt outside; generally, no to minimal damage.	10K to 15K per year
5.0-5.9	VI to VIII	Can cause damage of varying severity to poorly constructed buildings; at most, none to slight damage to all other buildings. Felt by everyone.	1K to 1,500 per year
6.0-6.9	VII to X	Damage to a moderate number of well-built structures in populated areas; earthquake-resistant structures survive with slight to moderate damage; poorly designed structures receive moderate to severe damage; felt in wider areas; up to hundreds of miles/kilometers from the epicenter; strong to violent shaking in epicentral area.	100 to 150 per year
7.0-7.9	VIII<	Causes damage to most buildings, some to partially or completely collapse or receive severe damage; well-designed structures are likely to receive damage; felt across great distances with major damage mostly limited to 250 km from epicenter.	10 to 20 per year
8.0-8.9	VIII<	Major damage to buildings, structures likely to be destroyed; will cause moderate to heavy damage to sturdy or earthquake-resistant buildings; damaging in large areas; felt in extremely large regions.	One per year
9.0 and Greater	VIII<	At or near total destruction - severe damage or collapse to all buildings; heavy damage and shaking extends to distant locations; permanent changes in ground topography.	One per 10-50 years

Source: USGS

As shown previously in Figure 4-23, the shaking level that has a 2% chance of being exceeded in Summit County over a period of 50 years is in the range of 12 to 14% peak (light green background color). Western Summit County is in close proximity to the range of 15-18% peak acceleration of gravity (light orange background color), a slightly faster measured change in speed for a particle at ground level that is moving horizontally because of an earthquake. Thus, the western Summit County portions have potential for a greater earthquake risk. Significant earthquake damage typically does not occur until peak accelerations are greater than 19%, however.

As further detailed under Section 4.6.8, a 2,500 year probabilistic earthquake scenario was performed using FEMA's Hazus 4.2 software. The Hazus loss estimation program was used as part of this mitigation plan's update in 2020 to further quantify the earthquake damage potential in Summit County. The 2,500 year scenario takes into account worst-case ground shaking from a variety of seismic sources. More information on the software and the results of the analysis are provided in the following sections.

4.6.7 Climate Change Considerations

Climate change is not expected to affect earthquake frequency or intensity.

4.6.8 Vulnerability

Past impacts due to earthquakes have been minimal and potential magnitude and severity is believed to be low, so the County's overall vulnerability to earthquake is low. To inform a vulnerability assessment, earthquake loss estimation for the 2025 HMP update utilized FEMA's Hazus 6.1 natural hazard loss estimation software. Hazus is a GIS based, standardized, nationally applicable multi-hazard loss estimation methodology and software. Local, state and federal government officials use Hazus for preparedness, emergency response, and mitigation planning. A level 1 Hazus analysis was performed which estimates damage based on an inventory database compiled at a national level aggregated to Census Tracts. As with any model there are uncertainties and the results should be considered approximate for planning purposes.

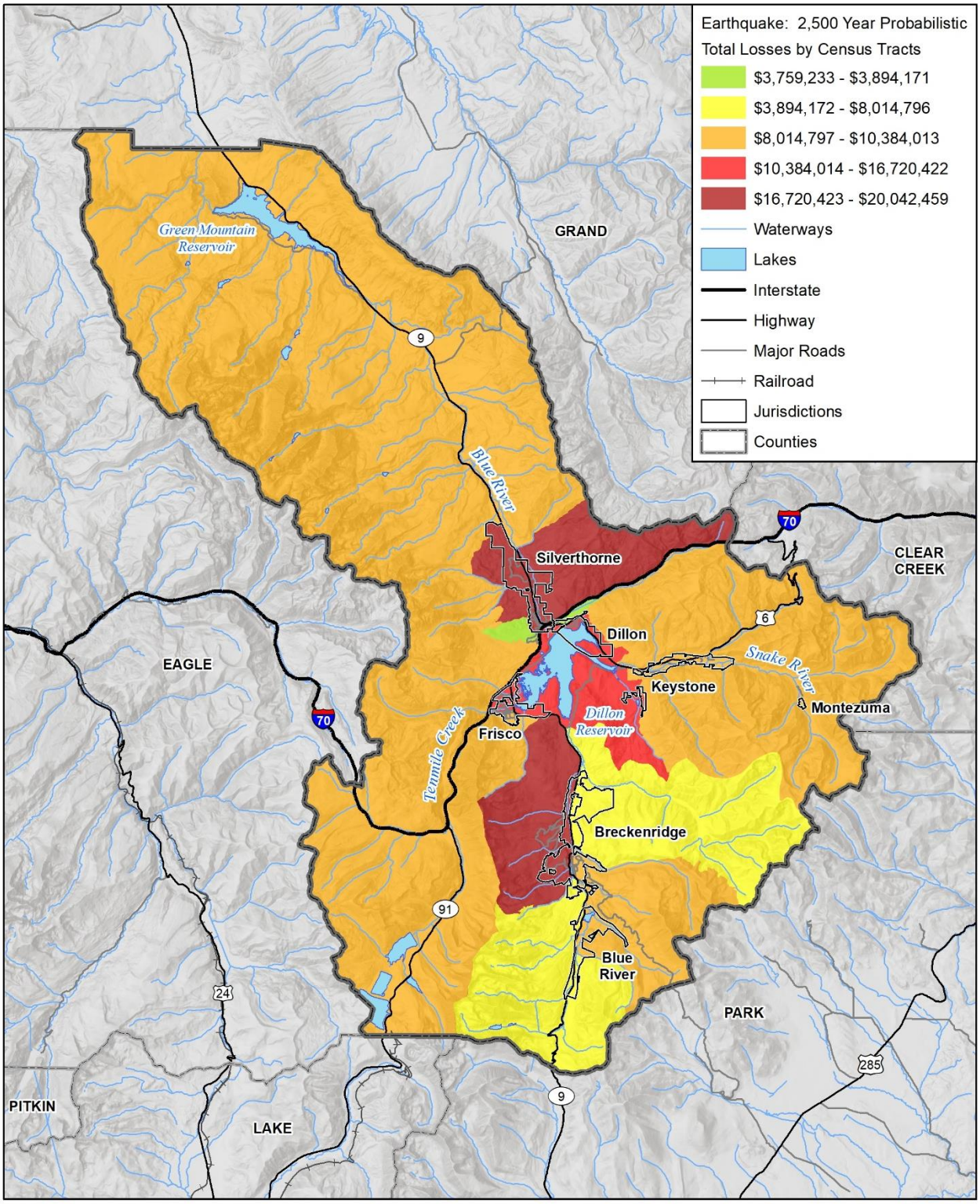
To evaluate potential losses associated with earthquake activity in the planning area (i.e. Summit County), a 2,500-year probabilistic scenario for a magnitude 6.0 event was run for the entire County using this Hazus 6.1 version. The 2,500-year scenario represents a worst-case level of shaking that considers multiple faults in the region as displayed and described in more detail above. The methodology utilizes probabilistic seismic hazard contour maps developed by the U.S. Geological Survey (USGS). The 2,500-year return period analyzes ground shaking estimates from the various seismic sources in the area with a 2 percent probability of being exceeded in 50 years. The International Building Code uses this level of ground shaking for building design in seismic areas.

Hazus estimates the number of people displaced, the number of buildings and facilities/infrastructure damaged, the number of casualties, and the damage to transportation systems and utilities. Results produced by Hazus are reported by at the census tract level. Note that this version of Hazus (6.1) provides estimates based on U.S. Census data from 2020, and so the mentioned inventory or population results may be lower than current inventory.

General Property

Figure 4-25 displays the Hazus-derived total losses based on the Summit County census tracts. The potential for the highest losses is in the middle portions of the county, specifically the areas of Breckenridge and Silverthorne. Table 4-32 summarizes the scenario results for Summit County based on various assets assessed.

Figure 4-25 Summit County Hazus 2,500-Year Probabilistic Earthquake Scenario



Map compiled 6/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, FEMA Hazus 6.2

Table 4-32 Earthquake Loss Estimates Based on Hazus 2,500-Year Scenario

Type of Impact	Impacts to County
Total Buildings Damaged	Slight: 1,342 Moderate: 287 Extensive: 26 Complete: 1
Building and Income Related Losses	$132.8 million 67% of damage related to residential structures 9% of loss due to business interruption
Total Economic Losses (includes building, income and lifeline/critical facility losses)	$260.1 million
Casualties (based on 2 a.m. time of occurrence)	Not requiring hospitalization (Level 1): 3 Requiring hospitalization (Level 2): 0 Life threatening (Level 3): 0 Fatalities (Level 4): 0
Casualties (based on 2 p.m. time of occurrence)	Not requiring hospitalization (Level 1): 5 Requiring hospitalization (Level 2): 1 Life threatening (Level 3): 0 Fatalities (Level 4): 0
Casualties (based on 5 p.m. time of occurrence)	Not requiring hospitalization (Level 1): 3 Requiring hospitalization (Level 2): 0 Life threatening (Level 3): 0 Fatalities (Level 4): 0
Damage to Transportation Systems	$230,000 in economic losses to transportation systems (from highway damages and bus facilities)
Damage to Essential Facilities	No damages to essential facilities (which include hospitals, schools, Emergency Operation Centers, Police Stations, and Fire Stations)
Damage to Utility Systems	$127,060,000 in economic losses to utility systems (from potable water, wastewater, natural gas, and communication components)
Households without Power/Water Service (Based on 11,754 Total Households)	No households without power or water service after event
Expected Utility System Pipeline Damages	15 Leaks and 4 Breaks on Potable Water Pipelines 8 Leaks and 2 Breaks on Wastewater Pipelines 3 Leaks and 1 Break on Natural Gas Pipelines 0 Leaks and 0 Breaks on Oil Pipelines
Displaced Households	7
Persons Seeking Temporary Shelter	2
Debris Generation	9,000 tons

Source: WSP analysis with FEMA Hazus 6.1 for Earthquake

The results of the earthquake scenario analysis show moderate damages and losses, especially with regards to economic losses from building, income, and lifeline or critical facilities.

According to this probabilistic scenario, the majority of properties affected are expected of be residential in nature (about 67% of the total number of buildings damaged across the county).

Much of the County's development has occurred more recently and building codes are in place, which reduce the risk of structural damage, partially explaining the decrease in expected damages reported by Hazus since the last plan update Historic buildings constructed of unreinforced masonry are most vulnerable to seismic ground shaking. Downtown Breckenridge is one of the areas most vulnerable to a

seismic event in Summit County due to the historic buildings and population center. The HMPC also discussed a "subgrade" water treatment plant in Breckenridge that may be vulnerable to seismic events.

Other potential impacts of an earthquake in Summit County could include secondary effects such as landslides, avalanches (if during winter), wildfire from broken utility or power lines, seiches, or dam failure.

People

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates that 7 households will be displaced due to the earthquake, and 2 people will seek temporary shelter in public shelters.

Ground movement during an earthquake is seldom the direct cause of death or injury. Most earthquake-related injuries result from collapsing walls, flying glass, and falling objects as a result of the ground shaking, or people trying to move more than a few feet during the shaking. Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four severity levels that describe the extent of the injuries. The levels are described as follows:

- Severity Level 1: Injuries will require medical attention, but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening.
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is at its maximum. The 2:00 PM estimate considers that the educational, commercial and industrial sector loads are at their maximum. The 5:00 PM represents peak commute time. There were no fatalities or major injuries in any of the three scenarios, though risk to populations would be highest from a 2 p.m. modeled scenario as this is typically when the greatest number of people could be expected to be in high-risk locations. .

Critical Facilities and Infrastructure

General Critical Facility Inventory: Hazus breaks critical facilities into several groups. For the purposes of this particular scenario, the following types of facilities will be discussed: essential facilities, transportation systems, and utility system lifelines.

*Essential Facility Damage***:** Essential facilities include hospitals (1 in the region based on Hazus inventory), schools (12 in the region based on Hazus inventory), fire stations (8 in the region based on Hazus inventory), police stations (6 in the region based on Hazus inventory), and emergency operation center facilities (1 in the region based on Hazus inventory). The model did not result in expected damages to this critical facility category from the earthquake event.

Transportation Systems Inventory: There are 7 transportation systems that include highways, railways, light rail, bus, ports, ferry, and airports; the replacement value for this critical facility category would be around $848.57 million. This inventory includes 55 bridges. The transportation systems inventory related expected damages from the earthquake would be relatively low, at $230,000.

Utility Lifeline Systems Inventory: There are 6 utility systems that include over 2,188 miles of the following (in pipeline/linear length): potable water, wastewater, natural gas, crude & refined oil, electric power, and communications lines. The replacement value of the utility lifeline systems is estimated to be $1.29 billion. The expected utility system facility damages in terms of economic losses in millions of dollars are

summarized in Table 4-33 below. Site specific expected utility system pipeline damages (including their inventory) are included in Table 4-34. The model did not predict potable water and electric power system performance limitations or damages in terms of household availability.

Table 4-33 Utility System Economic Losses in Millions of Dollars

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	64.6020	3.6713	5.68
	Distribution Line	35.2175	0.0684	0.19
	Subtotal	**99.8195**	**3.7397**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	932.8914	52.6097	5.64
	Distribution Line	21.1305	0.0344	0.16
	Subtotal	**954.0219**	**52.6441**	
Natural Gas	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Line	14.0870	0.0118	0.08
	Subtotal	**14.0870**	**0.0118**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Electrical Power	Facilities	221.4461	70.6205	31.89
	Subtotal	**221.4461**	**70.6205**	
Communication	Facilities	0.2910	0.0395	13.57
	Subtotal	**0.2910**	**0.0395**	
	Total	**1,289.67**	**127.06**	

Source: Hazus 6.1

Table 4-34 Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	1,094	15	4
Waste Water	656	8	2
Natural Gas	438	3	1
Oil	0	0	0

Source: Hazus 6.1

Economy

Hazus estimates the long-term economic impacts to the region. The model quantifies this information in terms of income and employment changes within the region. The total economic loss estimated for the earthquake is $260.11 million, which includes building and lifeline related losses based on the region's available inventory.

Since the building losses are broken into two categories (of direct building losses compared to business interruption losses), building related losses, which summarize estimated costs to fix or replace structures and damages to properties and their contents are discussed in more detail in the General Property section of this chapter.

The estimated losses related to the business interruption of the region (Summit County) were 9% of the specific building-related losses (which amounted to $132.8 million). Business interruption losses are detailed in Table 4-35 below. They included the temporary living expenses for people displaced from their homes because of the earthquake event.

Table 4-35 Business-Related Economic Loss Estimates in Millions of Dollars

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	0.3514	1.8649	0.0276	0.2707	2.5146
	Capital-Related	0.0000	0.1492	2.0605	0.0161	0.0443	2.2701
	Rental	0.6004	1.2636	0.9212	0.0201	0.0895	2.8948
	Relocation	2.0664	0.6556	1.1323	0.0872	0.6180	4.5595
	Subtotal	**2.6668**	**2.4198**	**5.9789**	**0.1510**	**1.0225**	**12.2390**
Capital Stock Losses							
	Structural	4.4191	1.6005	1.6260	0.2190	0.7124	8.5770
	Non_Structural	30.5040	24.0643	11.9165	2.0654	3.8195	72.3697
	Content	14.1920	9.1330	8.4453	1.4674	3.3403	36.5780
	Inventory	0.0000	0.0000	1.9942	0.3317	0.7351	3.0610
	Subtotal	**49.1151**	**34.7978**	**23.9820**	**4.0835**	**8.6073**	**120.5857**
	Total	**51.78**	**37.22**	**29.96**	**4.23**	**9.63**	**132.82**

Source: Hazus 6.1

Historical, Cultural, and Natural Resources

Earthquake effects on the environment, natural resources, and historic and cultural assets could be very destructive depending on the type of seismic activity experienced and secondary/cascading effects from seismic activity (e.g. wildfire). The biggest impacts would likely be on older historic properties in towns like Breckenridge, which may contain vulnerable structures such as wooden or unreinforced masonry buildings.

Development Trends

All jurisdictions within the County have adopted building codes. Building codes substantially reduce the potential for loss of life from earthquakes, as they help reduce the amount of damages to future structures by introducing strict requirements, indirectly helping safeguard the populations in or near those structures. Since the previous update of the HMP and the previous Hazus model, which utilized 2010 census figures and older building and infrastructure inventories, estimated earthquake losses have significantly decreased despite population and development growth. This includes massive decreases in the projected number of damaged buildings across all damage categories, decreases in the projected number of casualties under all scenarios, and decreased impacts to transportation lifelines. This could indicate that current seismic standards for construction are sufficient to protect Summit County from major damage in an earthquake. However, despite decreases in most areas, the anticipated total economic loss in this scenario has increased by approximately $80 million, largely due to the increase in anticipated losses in the utility lifelines sector. This could indicate the growing age and vulnerability of infrastructure in the county, as well as increased repair costs.

Continued growth of population in the County could potentially expose more people to earthquakes and their related hazards, though again this hazard was deemed to pose an overall Low Significance in the county.

4.7 Erosion/Deposition

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Erosion/Deposition	Small	Likely	Limited	Low

4.7.1 Risk Summary

- Erosion and deposition are rated **low** overall significance
- Erosion and deposition are natural processes that are also influenced by human activities
- The County's steep slopes and frequent slide activity causes erosion and deposition issues
- Dust-on-snow can result in early snowmelt leading to impacts to the local economy, lifestyle as well as water quality in the Dillon and Green Mountain Reservoirs.
- Climate Change projects show an increased risk of erosion due to increased intensity of heavy rainstorms and increased frequency of wildfire events.
- *Related Hazards*: Flood, drought, landslide, mudflow/debris flow/rockfall, wildfire, and windstorm

4.7.2 Description

The Colorado Geological Survey defines erosion as "the removal and simultaneous transportation of earth materials from one location to another by water, wind, waves, or moving ice" and deposition, also commonly known as sedimentation, as "the placing of the eroded material in a new location. All material that is eroded is later deposited in another location."

Erosion is generally a natural and ongoing geologic and atmospheric process that occurs slowly over time. According to the State of Colorado EHMP, damaging erosion and deposition is usually the result of more extreme events associated with severe winds, thunderstorms, floods, landslides, and debris flows. However, human activities greatly influence the rate and extent of erosion and sedimentation. Examples of these activities include removal of vegetation, alteration of natural drainages, and actions that rearrange the earth, such as subdivision development, highway construction, and modification of drainage channels. Erosion and deposition issues are also exacerbated in the burn scars of past wildfires.

4.7.3 Location

The geographic extent of this hazard in Summit County is **small** and occurs in varying rates across the County and State. Soil erosion and the associated deposition have proven to be problems in Summit County due to steep slopes and frequent slide activity.

Spreading sand on Interstate 70 to improve winter driving conditions also causes major deposition problems. Since the Town of Dillon gets 75% of its water supply from Straight Creek, which runs down from the Continental Divide at the Eisenhower Tunnel, along Interstate 70 and into the Blue River in Silverthorne, the water quality of the creek requires monitoring. Along Highway 6 between Loveland Pass and Keystone, there are numerous places where traction sand has covered U.S. Forest Service land, ultimately ending up in the North Fork of the Snake River.

Human activities such as development influence the rate and extent of erosion and deposition. Construction sites are common point sources of erosion. Chapter 7 of the Summit County Development Code, Water Quality Control Regulations set forth development standards to prevent the degradation of water quality in Dillon and Green Mountain Reservoirs through the reduction of erosion as well as the amount of phosphorus contributed from run-off.

4.7.4 Previous Occurrences

Erosion was a problem during the 2002 drought, when the exposed soils along shorelines of depleted reservoirs created large amounts of dust and air pollution. Data on other specific past events was not available.

In April 2014 a dust storm from the Greater Colorado Plateau blew through Summit County. The result was reddish splotches of dust on the snow leading to impacts to resorts by increasing the rate of snowmelt.

4.7.5 Probability of Future Occurrence

Likely—10-100% chance of occurrence in next year or has a recurrence interval of 10 years or less.

4.7.6 Magnitude/Severity

Limited—Minor injuries and illnesses; minimal property damage that does not threaten structural stability; and/or interruption of essential facilities and services for less than 24 hours

The impacts of erosion, deposition, and turbidity can be critical. When soil is removed by wind, snow, ice, and rain, and deposited into water systems, the soil can carry harmful chemicals such as pesticides, herbicides, and fertilizers that can contaminate the water supply. This can result in deteriorated water quality, loss of safe community drinking water, and creation of algae blooms which threatens the life of aquatic plants and animals. The EPA reports that increased sediment in lakes can affect storage capacity of reservoirs, reducing quantity and quality of drinking water sources.

Turbidity is a measure of water clarity. High turbidity makes water appear cloudy or muddy. Turbidity and total suspended solids (TSS) are different ways to measure similar water quality characteristics. Turbidity is measured in nephelometric turbidity units (NTU). Turbidity values less than 10 NTU are considered low, a value of 50 NTU would be considered moderately turbid, and very high turbidity values can be more than 100 NTU. Turbidity levels of 50 and above could be experienced in the water bodies in Summit County.

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

Erosion can be exacerbated by drought and wildfire. Wind erosion can result in dust storms reducing visibility leading to vehicle accidents and can impact machinery. Wind erosion can deposit dust-on-snow, resulting in earlier snowmelt.

Over time, the processes of erosion and sedimentation can have negative impacts on communities and the environment in Summit County. Resultant economic losses may include damage to property and infrastructure and lost recreational or development opportunities.

4.7.7 Climate Change Considerations

Climate change projections show an increase in the intensity of heavy rain events which can result in increased erosion and sediment transport in local water bodies threatening to both water quality as well as the fish and aquatic vegetation the live in the streams and rivers. Higher river levels and faster stream

velocity as a result of stronger, more intense storms can also increase erosion. According to the 2023 State of Colorado Hazard Mitigation Plan, the extent and frequency of erosion and deposition are expected to increase as the frequency of wildfires and droughts increase across the state. Overall, wildfire erosion is expected to increase across Colorado.

Dust-on-snow causes increased snowmelt because dust is darker than snow it absorbs more sunlight causing the snow underneath to heat up more rapidly. This is an emerging factor that could lead to substantial long-term reductions in Colorado's seasonal snow cover. The Center for Snow and Avalanche Studies (CSAS), located in Silverton, Colorado, operates the Colorado Dust-on-Snow (CODOS) program to study the effects of dust on Colorado's snowpack. The program has CSAS sensors at 11 mountain pass locations throughout the state to monitor the presence or absence of dust layers, including Grizzly Peak adjacent to Loveland Pass. As of April 30, 2019, the CODOS reported dust to be more evident and severe compared to the 10 other sites. The Rocky Mountains have been receiving dust since the ice age but the CODOS has seen evidence that the size and frequency of dust storms in the Colorado Mountains have been increasing since the 1990s.

4.7.8 Vulnerability

General Property

Damages to property may occur if streamside property is undercut. Development and construction activities can lead to an erosion event if buildings are placed in areas prone to erosion. Physical loss of land may occur as erosion carries land from one property and deposits it on another.

People

Property owners, farmers, and construction workers are rarely directly impacted by what typically are limited and localized events.

Critical Facilities and Infrastructure

Severe erosion may remove the earth from beneath bridges, roads and foundations of structures adjacent to streams. Erosion can also result in isolated infrastructure damage or failure in the County.

Economy

None or limited loss of facilities or infrastructure function or accessibility and limited uninsured damages.

Historical, Cultural and Natural Resources

This event innately impacts land and water. Earth materials are physically moved from one place to another and under certain circumstances, may be significant. Water quality may be impacted from siltation which can also harm to fish and aquatic vegetation. Major flood events can also lead to increased erosion rates as was witnessed in the 2013 floods along the Colorado Front Range.

Development Trends

New development can increase the rate and severity of erosion and deposition through the removal of vegetation, altering natural drainage, increasing impervious surface, and reducing stormwater infiltration. The increased risk of erosion as a result of new development can be minimized through the enforcement of the Chapter 7 of the Summit County's Land Development Code and the implementation of erosion best management practices to help minimize the impacts of future development.

4.8 Flood

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Flood	Small	Likely	Critical	High

4.8.1 Risk Summary

- The overall significance rating for Flood in Summit County is High.
- The most people and property at risk to flooding are located in unincorporated areas of Summit County followed by Frisco, Silverthorne, and Breckenridge.
- There are two critical facilities identified to fall in the 500-year floodplain, and 28 in the 100-year floodplain.
- There are currently, as of 2025, around $23.1 million in flood insurance in force for a total of 78 NFIP policies across Summit County and its jurisdictions.
- *Related hazards*: Dam incidents, avalanche, landslide/mudflow/debris flow/rockfall, pest infestation (forest and aquatic), severe winter weather.

4.8.2 Description

Floods involve inundation of normally dry land or other areas. Common types of flooding that can occur in Summit County include riverine flooding, localized or flash flooding (including thunderstorm generated flash floods), stormwater drainage flooding, dam failure inundation and related hazards (see Section 4.3.8), alluvial fan floods and ice jams.

Riverine flooding is defined as when a watercourse exceeds its "bank-full" capacity and is usually the most common type of flood event. Riverine flooding generally occurs as a result of prolonged rainfall, or rainfall that is combined with soils already saturated from previous rain events. It also occurs as a result from snowmelt, in which case the extent of flooding depends on the depth of winter snowpack and spring weather patterns.

A change in environmental conditions or land uses can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels (e.g. leading to flash flooding). These changes are most often created by human activity in developed areas but can also be created by other natural events such as wildland fires and avalanches causing compound effects. For example, wildfires create hydrophobic soils, a hardening or "glazing" of the earth's surface that prevents rainfall from being absorbed into the ground, thereby increasing runoff, erosion, and downstream sedimentation of channels.

The area adjacent to a river or stream channel is its floodplain. In its common usage, "floodplain" refers to that area that is inundated by the 100-year flood, or the flood that has a 1% chance in any given year of being equaled or exceeded. The 100-year flood is the national standard to which communities regulate their floodplains through the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP).

Floods can cause substantial damage to structures, landscapes, and utilities as well as cause life safety issues. Certain health hazards are also common to flood events. Standing water and wet materials in structures can become breeding grounds for microorganisms such as bacteria, mold, and viruses. This can cause disease, trigger allergic reactions, and damage materials long after the flood. When flood waters contain sewage or decaying animal carcasses, infectious disease becomes a concern. Direct impacts such as drowning can be limited with adequate warning and public education about what to do during floods.

Where flooding occurs in populated areas, warning and evacuation will be of critical importance to reduce life and safety impacts.

According to the latest Summit County Flood Insurance Study, dated November 16, 2018, high water typically occurs on the major waterways by the melting of the winter snow accumulation. When temperatures rise in late springtime and early summer snowmelt runoff increases to peak levels typically in June. Snowmelt runoff levels typically go back to normal flows by mid-July or August. Late summertime rain usually carries a greater chance of flooding than snowmelt runoff does.

According to stream gage records, approximately 97% of the annual peak flows in the Blue River Basin have been the result of melting winter snow accumulations. Spring runoff usually begins the first week in April, increases to a peak by mid-June, and then returns to a normal flow by early August. Rainfall occurs in the basin; however, this is primarily after the peak snowmelt period.

Ice jam flooding also occurs in Summit County. This flooding generally occurs when warm weather and rain break up frozen rivers or any time there is a rapid cycle of freezing and thawing. The broken ice floats down rivers until it is blocked by an obstruction such as a bridge or a shallow area. Ice dams which form can block the main waterway channel and cause flooding upstream (FEMA, 2005).

Swiftwater is water flowing faster than 1.85 kilometers per hour (i.e. considered to be "moving"). This description can easily fit flowing snowmelt waters, flood waters, high sloping waters, and other common flowing water found throughout Summit County, particularly during the peak runoff season. The HMPC noted that this type of moving water is a public safety concern, and can result in injuries, deaths, or rescues on an almost annual basis.

4.8.3 Location

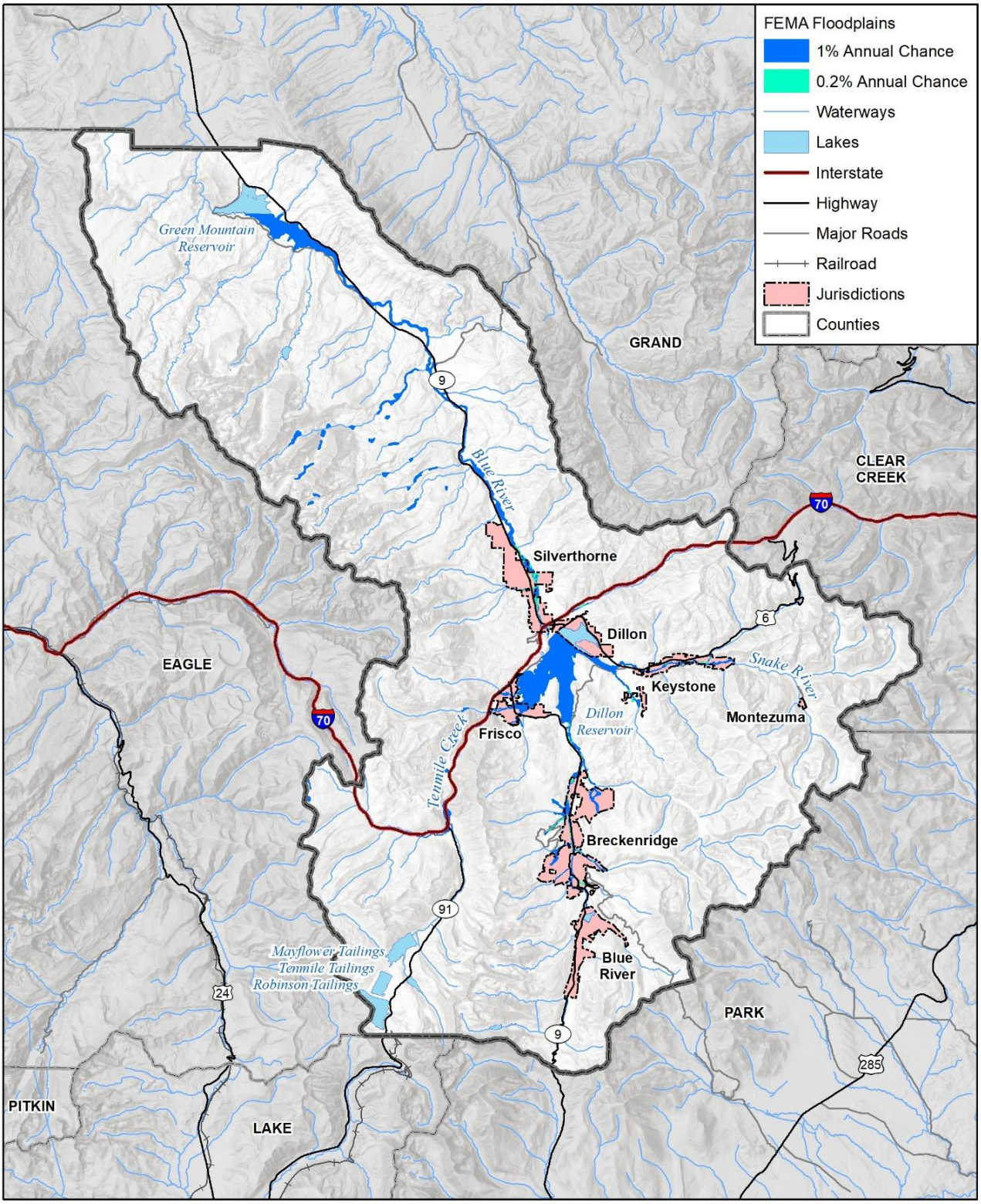
The geographic extent of flood hazards in Summit County is **Small**—Only 10-25% of the planning area is affected.

The Blue River Basin is the main basin in Summit County (Hydrologic Unit Code, or HUC 8 being 14010002), covering it entirely. It is located on the west side of the Continental Divide and feeds into the Colorado River at the Town of Kremmling in Grand County. The basin is about 683 square miles in size but has a drainage area of 514 square miles, generally draining in a north to northwest direction. The basin width ranges from 21 miles at Dillon Dam to 9 miles at Green Mountain Reservoir. The topography is mountainous with larger rivers in deep broad valleys and smaller creeks in the steep gullies. The basin is bounded by the Continental Divide on the east and south, from Loveland Pass to Fremont pass, while the Gore Rage and Vail Pass form the boundary on the west. The average elevation in the basin is approximately 10,000 feet. There has been little development along the riverbanks of the lower Blue River beyond Silverthorne with the exception of some gravel-mining operations and scattered houses.

Within the larger Blue River Basin are five smaller watersheds, with their classified by HUC 10 codes. They are the Middle Blue River, Dillon Dam, Snake River, Upper Blue River, and Tenmile Creek Basins, described in more detail in the following paragraphs.

Figure 4-26 below shows Summit County's floodplains that have been mapped by FEMA.

Figure 4-26 Summit County FEMA Floodplains



Map compiled 5/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
FEMA NFHL Effective Date 11/16/2018

0 5 10 Miles

N

Notable streams in the county in terms of flood hazard risk include the Blue River, Snake River, Tenmile Creek, French Creek, Straight Creek, West Tenmile Creek, Boulder Creek, Slate Creek, Sawmill Creek, and smaller tributaries and reaches.

In Breckenridge, flooding along the Blue River, Sawmill Gulch, Illinois Gulch, and Lehman Gulch occurs primarily in mid-June and is largely due to snowmelt. County Road 3 is subject to flooding, which threatens access to Peak 7 in Breckenridge. Past flooding in Breckenridge has been mitigated through culvert replacement and changes to the Blue River channel. The channel improvements were made to contain a 100-year flood.

In Frisco, flooding along the Ten Mile and Meadow creeks normally occurs from May through September and results from snowmelt and/or intense storms.

In Silverthorne, flooding along the Blue River, Straight Creek, and Willow Creek normally occurs from April to July. Again, the most common cause is snowmelt. Floodwaters can breach a private road to the south of Willow Creek and cause ponding along State Highway 9. The discharge of the Blue River through Silverthorne is regulated by the Dillon Dam, and the average annual peak discharge downstream of this reservoir is approximately 1,103 cubic feet per second (cfs). Since the Dillon Dam began operating in 1963 there have been no serious flood problems in Silverthorne, and the highest discharge has been around 2,010 cfs (or less than the 10-percent annual chance flood event).

With the exceptions of (incorporated) Dillon and Montezuma, every jurisdiction in Summit County is at risk to riverine flooding based on the FEMA Special Flood Hazard Area layers available to date. Localized stormwater flooding is a fairly minor problem in the communities of Breckenridge, Dillon, and Silverthorne, and is more significant along Main Street in Frisco. More specific information on flooding is provided in the jurisdictional annexes.

According to the November 16, 2018 Flood Insurance Study (FIS) report, the Town of Dillon and Montezuma do not have any Special Flood Hazard areas identified, though localized drainage flooding is possible. The most recent effective flood insurance rate maps (FIRMs) for the County were also published on November 16 of 2018, and there is a complete digital National Flood Hazard Layer (NFHL) version of these effective products on the FEMA Map Service Center, including all applicable Letters of Map Revision (LOMR) as of May 13, 2024.

As noted under Section 4.4.8 Dam Incident Vulnerability, releases from Dillon Dam during periods of high inflows could have flooding impacts on the Town of Silverthorne. The Dillon Dam Reservoir is currently located in the Dillon Reservoir Basin and receives flows from the three principal basins upstream of it: Upper Blue River, Snake River, and Ten Mile Creek Basins. The reservoir storage significantly reduces peak discharges and flood frequency downstream and is also used to control discharges of the Blue River through Silverthorne to the Green Mountain Reservoir. The primary functions of the Green Mountain and Dillon Reservoirs are to provide water for recreational uses, generate hydroelectricity, and collect and store snowmelt runoff for domestic use on the eastern slope.

The Goose Pasture Tarn, a small reservoir immediately upstream of Breckenridge, also serves as a flood protection measure for the Upper Blue River. The reservoir is important in reducing the peak discharge of the Upper Blue River and smaller Indiana Creek due to rainfall but is only marginally effective for runoff due to snowmelt.

The changes that have been made in the Blue River Middle Branch channel through part of Breckenridge has reduced some flood potential in the town. The improvements were made with the intention to contain a 1% annual chance flood. During a 1% annual chance flood event much of the flow, which previously would have spilled over the banks, will now be confined to the channel, particularly in the areas from the northern corporate limits to approximately 400 feet downstream of Watson Road; from

approximately 600 feet downstream of Lincoln Avenue to the Washington Avenue footbridge; and, in the area of the Four Seasons shopping center.

4.8.4 Previous Occurrences

According to the latest Summit County FIS report as well as the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI) storm database, there is little evidence of significant flooding in Summit County in recent years. Noted exceptions from the studies, NCEI, and the HMPC input include the following:

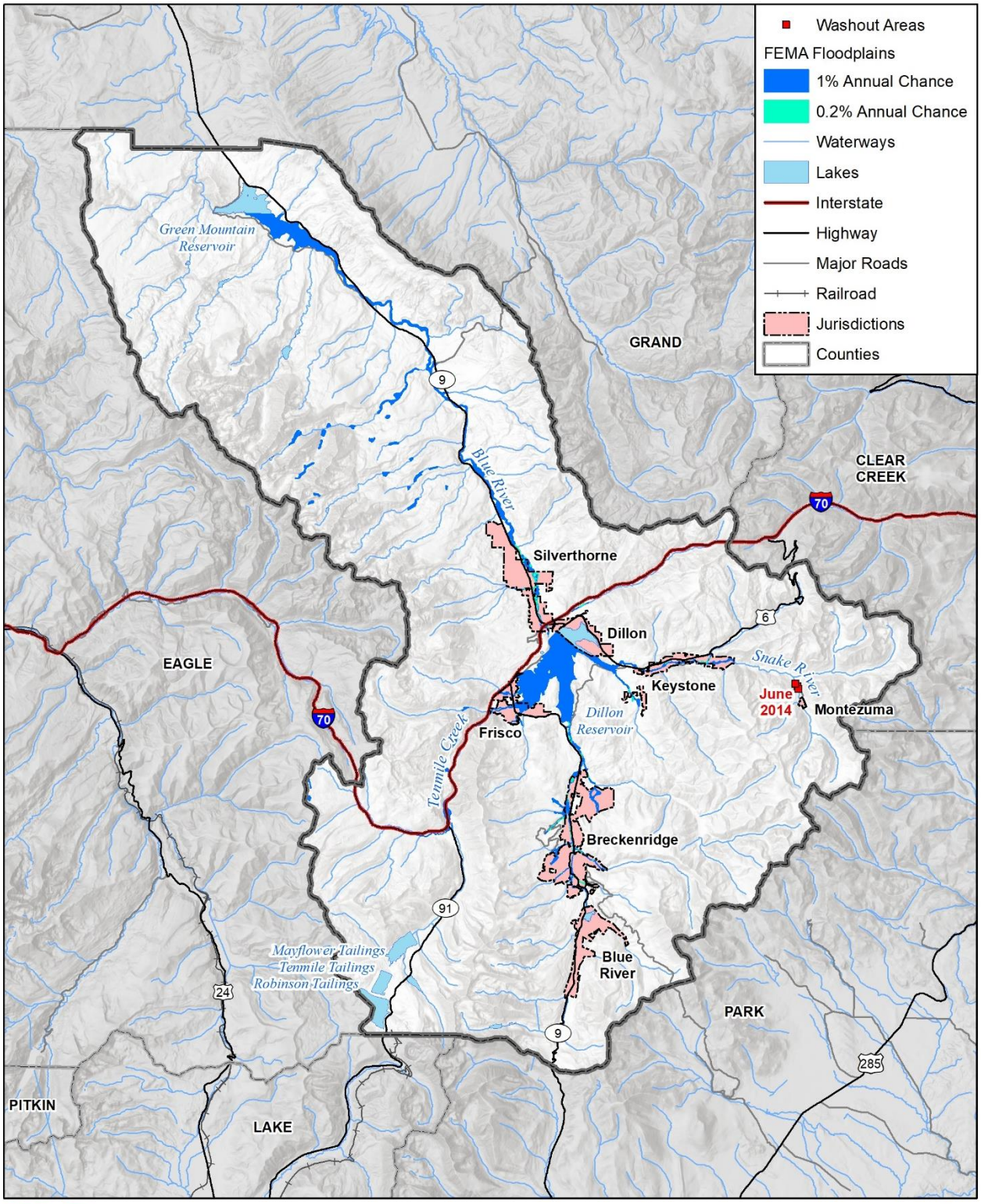
- **June 3, 2014**—The Town of Montezuma suffered major road and infrastructure washouts due to flooding which began on the 3rd of June. Flood waters from the Snake River destroyed the main road to the town (Montezuma Road), clogging a culvert and leading to the road being washed out. An estimated 20 residents were stranded for days due to the washout. A new bridge was installed to replace the 60-inch culvert which failed, which restored access to and from Montezuma and should mitigate future events. Figure 4-27 shows some of the road damage which was documented in this event.
- **July 18, 2011—**Thunderstorms produced very heavy rain and continuous lightning over Summit County. The historic rainstorm in the Town of Breckenridge produced 3.17 inches of rain at the local weather station. Most of the rain fell in less than 3 hours. A cooperative observer with the National Weather Service also recorded 3.59 inches of rainfall in east Breckenridge. The highest recorded 24-hour rainfall prior to this event occurred in the early 1890s when 2.6 inches were observed. Nearly 3,900 cloud to ground lightning strikes were also recorded during the 3-hour span. The steeple of the Father Dyer Church in Breckenridge sustained a direct hit from one of those strikes, damaging the structure. The heavy rainfall produced a large landslide a few miles above Dillon where a section of tree line collapsed. Large amounts of sediment partially covered a section of Straight Creek, which is the main water supply to thousands in the area. In addition, mudslides closed a portion of State Highway 9 north of Dillon and Airport Road in Breckenridge. Extensive flooding also forced the closure of Breckenridge Golf Course for several days. Extensive flooding damaged the Breckenridge Golf Course. Property damage was estimated at $200,000 and crop damage was estimated at $10,000.
- **July 12, 2011—**Following heavy rains, the Blue River at Coyne Valley Road washed out the road. The Barton Creek Pond at Coyne Valley Road and Airport Road overtopped and the culvert at Airport Road overflowed, forcing the road to be closed. A privately owned dam at 7th Street in Frisco overtopped, but the situation was stabilized before any significant damage occurred.
- **June 8, 2011—**The Blue River in Breckenridge was running near bank full in low areas behind the Justice Center and Breckenridge Recreation Center. Work was done behind the Breckenridge Street Department to add fill dirt to an 18" diameter sink hole that developed on the south shoulder of Coyne Valley Road above the primary culverts. The culverts in the area were running full, and the overflow culverts to the east moved water to the north side of the road near the bike path. The Swan River was running full, and a culvert was washed out at the driveway to Everist Materials at the Mascot Placer location in Breckenridge. In the 3200 block of Tiger Road a culvert overflowed, and 6 to 12 inches of standing water caused some road damage. Hamilton Creek in the South Forty subdivision was also running full, causing some local yard flooding to homes in the area. A private culvert was washed out over the weekend.
- **February 2007**—A frozen culvert caused water backup from a Reynolds Reservoir overflow, causing minimal water damage to a home in Summit Cove and the closure of Summit Drive for part of the day. Sandbagging kept damage to a minimum.

Figure 4-27 Road Damage in 2014 Flood



Source: Summit County GIS

Figure 4-28 Location of 2014 Road Washouts

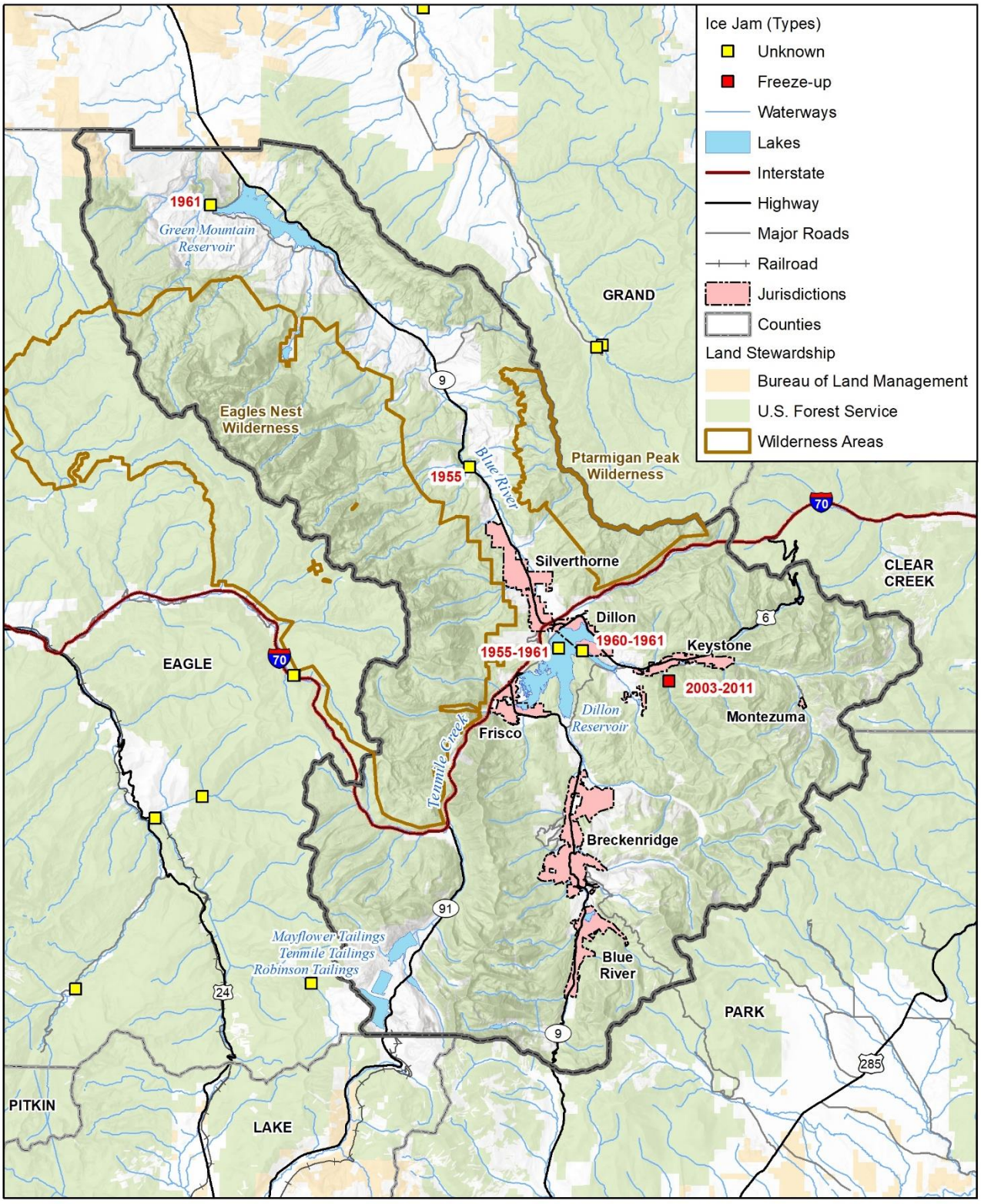


- **2003 and 1983—**St. John Road and Morgan Gulch in the Town of Montezuma have flooded in the past. The flood impacted Montezuma Road, Main Street, St. John Road, and 5th Street. The events did not result in any impact to local businesses or the economy at the time but would today. Roads and ditches were damaged, causing road closures. No injuries or fatalities occurred.
- **Spring 1996**—Flooding occurred on the Blue River in Breckenridge and on Straight Creek in Dillon Valley. Straight Creek Drive was washed out and a larger culvert was installed to mitigate future events.
- **July 23, 1965**—Rainfall runoff from a high-intensity storm centered over a small tributary above Breckenridge caused flooding along the Blue River. Damage was not very extensive. Other rivers in the County were also at their peaks during this storm.
- **June 17, 1965**—One of the largest discharges recorded during the 64 years of record on the Blue River near Dillon was 1,250 cfs. The high discharge was a result of snowmelt and high-intensity thunderstorm centered on a tributary above Breckenridge. This flood was a 2% annual chance event (i.e. 50-year flood storm).
- **1918**—The longest flood of record prior to the construction of the Dillon Dam took place this year, when the combined flow of the Blue River, Tenmile Creek, and the Snake River was around 3,500 cfs, just upstream from the present location of Silverthorne.

The HMPC commented that 2014 flood induced losses on Montezuma Road have been due to undersized culverts, so that the main road to Montezuma required closure. As a result of this event, culverts in the area were replaced with a bridge. Other HMPC noted issues with flooding include the replacement of Summit Cove culverts with another bridge (to be able to handle 100-year flooding), and the work performed by the Dillon Valley District to replace culverts.

The USACE Ice Jam Information Clearinghouse recorded 15 ice jam events in Summit County between 1955 and June 2025. Affected areas included Dillon and the Green Mountain Reservoir, along the Blue River, Rock Creek, Snake River, and Keystone Gulch. Also, the HMPC noted ice jam issues near the Upper Blue Lake Dam in recent times, which led in the flooding of two houses along Highway 9. Because of issues like this, Colorado Springs Utilities has begun to maintain the reservoir level slightly below spill level, to help reduce instances of ice jam flooding at this location. Figure 4-29 displays the locations of past ice jam events.

Figure 4-29 Summit County Ice Jams



Map compiled 6/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, COMaPv10Public, Living Atlas, USACE Ice Jams

0 5 10 Miles

N

4.8.5 Probability of Future Occurrence

Likely—There is a 10-100% chance of flood occurrence in the next year or a recurrence interval of 10 years or less.

The HMPC suggests that some level of flooding is almost an annual occurrence in Summit County. Zone A floodplains are often called the '100-year' flood zone, but really have a 1% annual chance of flooding any given year. In addition, based on the presence of 0.2% annual chance floodplains, or the '500-year' flood extents, it would be expected that events of this nature may take place in the future. The various FEMA zones applicable to Summit County are defined in Table 4-36. The flood map represents different flood zones as defined by FEMA.

Table 4-36 FEMA Special Flood Hazard Zones

Flood Zone	Definitions
FEMA Special Flood Hazard Areas (SFHA) Subject to Inundation by the 100- or 500-Year Floods	
Zone A	100-year floodplain, or areas with a 1% annual chance of flooding. Because detailed analyses are not performed for these areas, no depths or base flood elevations are shown in Zone A areas.
Zone AE	Detailed studies for the 100-year floodplain. The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 zones.
Zone AH	Areas with a 1% chance of shallow flooding, usually in the form of a pond with an average depth ranging from 1 to 3 feet. These are flood elevations derived from detailed analyses.
Zone AO	River or stream flood hazard areas and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. Average flood depths derived from detailed analyses.
Other Flood Areas	
Floodway	A regulatory floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.
Zone X (shaded)	Areas with a 0.2% annual chance flooding (1 in 500 chance), between the limits of the 100-year and 500-year floodplains. This zone is also used to designate base floodplains of lesser hazards, such as areas protected by levees from the 100-year flood, shallow flooding areas with average depths of less than one foot, or drainage areas less than 1 square mile.
Zone X (unshaded)	500-year floodplain (0.2% annual chance). Area of minimal flood hazard.

Source: FEMA Flood Map Service Center

4.8.6 Magnitude/Severity

Critical—Isolated deaths and/or multiple injuries and illnesses; major or long-term property damage that threatens structural stability; and/or interruption of essential facilities and services for 24-72 hours.

Because of the nature of floods, it is always possible that large events may cause injuries or deaths. Flood water, debris from steep tributary channels, ice jams, dam failure-induced inundation, and even swift water related events can damage property and infrastructure and lead to road closures. However, past flood damages have been limited in terms of damages to property and crops and resulted in no injuries or deaths.

The overall significance rating for this hazard is **High**.

4.8.7 Climate Change Considerations

In addition to increasing drought and wildland fire potential (which in turn both can increase runoff), climate change has the potential to intensify rain events and storms in Colorado. According to the NOAA,

there is generally more rain and snow falling in the Northern Hemisphere and precipitation has increased by about 5% over the last century. Additionally, according to a 2022 EPA analysis, the spring snowpack in the Western U.S. has dropped 23% from 1955 to 2022. An increase in precipitation alone is not immediately alarming but coupled with factors such as precipitation intensity and type (rainfall vs. snowfall), soil moisture, snowpack conditions, and basin topography all influence the severity and frequency of flooding. Warmer temperatures in the winters may cause increased precipitation to fall as rain instead of snow in mountain regions of Colorado, which may lead to elevated stream flows and increased flood risk across the state.

The 2014 Climate Change Assessments from the Western Water Assessment program (part of the NOAA Rise Team) includes a projection for sporadic but more intense heavy precipitation events, which could affect the nature and frequency of future floods. Additionally, with wildfires already being a problem in many parts of Colorado, increasing periods of drought and lack of precipitation are expected to exacerbate conditions for fires to occur, and in turn worsen the potential for runoff and flooding associated with burned areas.

4.8.8 Vulnerability

Flood hazards affect most of the communities in the County, will continue to occur in the future, and can be critical in their magnitude causing injuries or even deaths, and damaging property and infrastructure. The following sub-sections discuss the results of the parcel analysis conducted for Summit County, using parcel centroids and the latest FEMA National Flood Hazard Layer (NFHL) data.

General Property

Vulnerability to flooding was determined by summing potential losses to Summit County's improved parcels in GIS, by using the latest FEMA NFHL data along with the Summit County parcel layer the provided by the Assessor's Office. FEMA's NFHL data depicts the 1% annual chance (100-year) and the 0.2% annual chance (500-year) flood events. The methodology used for this analysis is described in detail in Section 4.1.2.

Results of the overlay analysis are summarized by jurisdiction and property type in Table 4-37 and Table 4-38. Contents values were estimated as a percentage of property improvement values based on their occupancy type, using FEMA Hazus guidance as follows: a) Commercial parcels received Contents Values worth 100% of their improvements; b) Residential parcels received Contents Values worth 50% of their improvements; c) Exempt and Vacant parcels received Contents Values worth 0% of their improvements; d) Industrial parcels received Contents Values worth 75% of their improvements; and e) Multi-Family Residential received Contents Values worth 35% of their improvements. Property improvements and Contents Values were then totaled, and a 25% loss estimation factor was applied based on those totals, per the FEMA depth damage functions.

There are 271 improved properties in the 1% annual chance flood zone, down from 284 properties at risk in the previous HMP. The total property exposure (actual building value plus Contents Value estimate) in that flood zone is $406.4 million, with a loss estimate of $101.5 million. In the 0.2% annual chance flood there are 82 properties, with a total exposure value of $134.3 million and a loss estimate of $33.6 million additional for that zone. This represents an almost 4 times increase in exposed properties and a 7 times increase in potential losses in the 0.2% annual chance flood zone.

Based on this analysis, the greatest potential losses from either 100-year or 500-year flooding would occur in unincorporated Summit County (with roughly 147 properties), followed by Frisco (with 88 properties), Silverthorne (with 85 properties), Breckenridge (with 28 properties), Keystone (with 4 properties) and Blue River (with 1 property). Neither Dillon nor Montezuma have special flood hazard

areas identified by the NFIP. Overall, there are a total of 353 parcels at risk, with a total value of $540.7 million and a loss estimate of $135.2 million countywide.

Table 4-37 1% Annual Chance FEMA Flood Hazard by Jurisdiction and Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Contents Value	Total Value	Estimated Loss	Population
Blue River	Residential	1	$1,791,700	$895,850	$2,687,550	$671,888	3
	Total	**1**	**$1,791,700**	**$895,850**	**$2,687,550**	**$671,888**	**3**
Breckenridge	Exempt	1	$0	$0	$0	$0	0
	Residential	22	$38,137,900	$19,068,950	$57,206,850	$14,301,713	52
	Total	**23**	**$38,137,900**	**$19,068,950**	**$57,206,850**	**$14,301,713**	**52**
Frisco	Commercial	3	$1,368,500	$1,368,500	$2,737,000	$684,250	0
	Exempt	9	$0	$0	$0	$0	0
	Multi-Family	18	$20,739,300	$10,369,650	$31,108,950	$7,777,238	130
	Residential	54	$53,397,908	$26,698,954	$80,096,862	$20,024,216	130
	Total	**84**	**$75,505,708**	**$38,437,104**	**$113,942,812**	**$28,485,703**	**260**
Keystone	Exempt	1	$0	$0	$0	$0	0
	Residential	3	$7,692,300	$3,846,150	$11,538,450	$2,884,613	7
	Total	**4**	**$7,692,300**	**$3,846,150**	**$11,538,450**	**$2,884,613**	**7**
	Commercial	1	$62,100	$62,100	$124,200	$31,050	0
	Exempt	6	$0	$0	$0	$0	0
	Multi-Family	6	$4,646,400	$2,323,200	$6,969,600	$1,742,400	39
	Residential	6	$7,299,600	$3,649,800	$10,949,400	$2,737,350	13
	Total	**19**	**$12,008,100**	**$6,035,100**	**$18,043,200**	**$4,510,800**	**52**
Unincorporated	Commercial	29	$22,278,800	$22,278,800	$44,557,600	$11,139,400	0
	Exempt	20	$0	$0	$0	$0	0
	Multi-Family	1	$16,289,200	$8,144,600	$24,433,800	$6,108,450	20
	Residential	90	$89,308,325	$44,654,163	$133,962,488	$33,490,622	221
	Total	**140**	**$127,876,325**	**$75,077,563**	**$202,953,888**	**$50,738,472**	**241**
Grand Total		**271**	**$263,012,033**	**$143,360,717**	**$406,372,750**	**$101,593,187**	**616**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Table 4-38 0.2% Annual Chance FEMA Flood Hazard by Jurisdiction and Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Contents Value	Total Value	Estimated Loss	Population
Breckenridge	Residential	5	$8,519,100	$4,259,550	$12,778,650	$3,194,663	12
	Total	**5**	**$8,519,100**	**$4,259,550**	**$12,778,650**	**$3,194,663**	**12**
Frisco	Residential	4	$2,858,900	$1,429,450	$4,288,350	$1,072,088	10
	Total	**4**	**$2,858,900**	**$1,429,450**	**$4,288,350**	**$1,072,088**	**10**
Silverthorne	Exempt	2	$0	$0	$0	$0	0
	Multi-Family Residential	2	$2,260,700	$1,130,350	$3,391,050	$847,763	13
	Residential	62	$65,833,700	$32,916,850	$98,750,550	$24,687,638	135
	Total	**66**	**$68,094,400**	**$34,047,200**	**$102,141,600**	**$25,535,400**	**148**
Unincorporated	Residential	7	$10,055,600	$5,027,800	$15,083,400	$3,770,850	17
	Total	**7**	**$10,055,600**	**$5,027,800**	**$15,083,400**	**$3,770,850**	**17**
Grand Total		**82**	**$89,528,000**	**$44,764,000**	**$134,292,000**	**$33,573,000**	**187**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Due to the lack of floodplain mapping from the NFIP in the towns of Blue River and Montezuma, a separate but identical flooding vulnerability analysis was conducted utilizing the FEMA Region 8 Hazus Statewide Flood Model for Colorado. The results of this analysis are shown in Table 4-39 below. While this

data may help in identifying potential vulnerabilities which may exist to flooding, it is worth noting that both the Towns of Blue River and Montezuma do not view flooding to be a major concern and these Hazus flood hazards should be considered as non-regulatory.

Table 4-39 1% Annual Chance Hazus Flood Hazard by Jurisdiction and Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Contents Value	Total Value	Estimated Loss	Population
Blue River	Exempt	3	$0	$0	$0	$0	0
	Residential	66	$68,017,872	$34,008,936	$102,026,808	$25,506,702	215
	Total	**69**	**$68,017,872**	**$34,008,936**	**$102,026,808**	**$25,506,702**	**215**
Montezuma	Residential	2	$1,026,770	$513,385	$1,540,155	$385,039	4
	Total	**2**	**$1,026,770**	**$513,385**	**$1,540,155**	**$385,039**	**4**
Grand Total		**71**	**$69,044,642**	**$34,522,321**	**$103,566,963**	**$25,891,741**	**219**

Source: Summit County Assessor Data 2025, FEMA Region 8 Hazus Statewide Flood Model, WSP GIS Analysis

The loss estimates for this vulnerability assessment are a planning level analysis suitable for flood risk mitigation, emergency preparedness, and response and recovery. The methodology and results should be considered approximate. Uncertainties are inherent in any loss estimation methodology, and losses will vary depending on the magnitude of the flood event. Other limitations may include incomplete or inaccurate inventories of the built environment, lack of mitigation information regarding built structures (e.g. structure elevation details), or even potential mitigation projects in place such as flood control projects. As such, this loss estimation assumes no mitigation and does not account for buildings that may have been elevated above the 1% annual chance event according to local floodplain management regulations. Another limitation to this analysis is that flooding does occur outside of available mapped floodplains due to poor drainage, stormwater overflow, and lack of FEMA or other data for those areas adjacent to streams that have not been analyzed.

People

The population exposed to the flood hazards described in the flood vulnerability analysis was estimated by applying an average household size factor (based on U.S. Census Bureau, American Community Survey 5-Year Estimates (2018-2023)for each jurisdiction in Summit County to the number of improved properties identified in the flood hazard areas. Note that only Residential parcels were used to estimate populations exposed. These estimates yielded the population exposures shown in Table 4-37 and Table 4-38 above). As such, the 1% annual chance flood would potentially displace 616 people, and a 0.2% flood would displace an additional 187 people for a total of 803 potential people at risk between both flood hazard areas.

Critical Facilities and Infrastructure

A similar analysis was performed in GIS with flood hazard areas to identify critical facilities at risk. Critical facility data was obtained from Summit County and verified against Homeland Infrastructure Foundation-Level Data (HIFLD) layers. This analysis indicated that a total of 28 facilities are located within the 1% annual chance zone. 25 of these facilities are bridges. Two structures in the 0.2% annual chance flood zones include the JSA Wastewater Treatment Plant and USFS Dillon Ranger District Office. These are summarized below in Table 4-40 and Table 4-41.

Table 4-40 Critical Facilities at Risk to FEMA 1% Flood Hazards by Jurisdiction

Jurisdiction	Communications	Energy	Food/Hydration/ Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Water Systems	Total
Blue River	-	-	-	-	-	-	-	-	**0**
Breckenridge	-	-	-	-	-	-	3	-	**3**
Dillon	-	-	-	-	-	-	-	-	**0**
Frisco	-	-	-	-	-	-	5	-	**5**
Keystone	-	-	-	-	-	-	-	-	**0**
Montezuma	-	-	-	-	-	-	-	-	**0**
Silverthorne	-	-	-	-	-	-	7	-	**7**
Unincorporated	-	-	-	-	-	1	10	2	**13**
Total	**0**	**0**	**0**	**0**	**0**	**1**	**25**	**2**	**28**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Table 4-41 Critical Facilities at Risk to FEMA 0.2% Flood Hazards by Jurisdiction

Jurisdiction	Communications	Energy	Food/Hydration/ Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Water Systems	Total
Blue River	-	-	-	-	-	-	-	-	**0**
Breckenridge	-	-	-	-	-	-	-	-	**0**
Dillon	-	-	-	-	-	-	-	-	**0**
Frisco	-	-	-	-	-	-	-	-	**0**
Keystone	-	-	-	-	-	-	-	-	**0**
Montezuma	-	-	-	-	-	-	-	-	**0**
Silverthorne	-	-	-	-	-	1	-	1	**2**
Unincorporated	-	-	-	-	-	-	-	-	**0**
Total	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**2**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Economy

Flooding can have a major economic impact on the economy, including indirect losses such as business interruption, lost wages, and other downtime costs. Flooding often coincides with the busy summer tourism months in Summit County, and may impact, directly or indirectly (such as from the negative perception of potential danger to his hazard), the revenues of tourist agencies, hotel bookings, outdoor activity companies, and other such businesses in the commercial and industrial sectors.

Historical, Cultural, and Natural Resources

There are significant historic, cultural, and natural resources and assets located throughout the County (e.g. ski/bike resorts, trails and natural spaces, reservoirs and lakes). Natural areas within the floodplain often benefit from periodic flooding as a naturally recurring phenomenon. These natural areas often reduce flood impacts by allowing absorption and infiltration of floodwaters. Natural resources are generally resistant to flooding except where natural landscapes and soil compositions have been altered for human development or after periods of previous disasters such as drought and fire. Wetlands, for example, exist because of natural flooding incidents. Areas that are no longer wetlands may suffer from oversaturation of water, as will areas that are particularly impacted by drought. Areas which may have recently suffered from wildfire damage may erode because of flooding, which can permanently alter an ecological system.

National Flood Insurance Program and Policies Analysis

In support of the NFIP, FEMA identifies flood hazard areas through the US and its territories by producing Flood Hazard Boundary Maps (FHNMs), Flood Insurance Maps (FIRMs) and Flood Boundary and Floodway Maps (FBFMs). Several areas of flood hazards are commonly identified on these maps. One of these areas is the Special Flood Hazard Area (SFHA) or high-risk area defined as any land that would be inundated by a flood having a 1% chance of occurring any given year (also referred to as the base flood level).

Participation in the NFIP is completely voluntary (although some states require NFIP participation as part of their flood plain management program) by cities and participation is on a community rather than an individual basis. Participating in the program allows those who want to purchase flood insurance for their insurable property, whether it is a home or other property. Almost every type of walled and roofed building that is principally above ground and not entirely over water may be insured if it is in a participating community.

The National Flood Insurance Program (NFIP) and Community Rating System (CRS) are highly effective in reducing flood risk for participating communities. Summit County and all participating jurisdictions have been mapped for flood hazards and participate fully in the NFIP. The Towns of Dillon, Keystone, and Montezuma have no mapped Special Flood Hazard Area (SFHA), and as such neither jurisdiction participates in the NFIP. The Town of Blue River also does not participate in the NFIP and has been sanctioned since 11/16/12. According to the HMPC, due to limited impacts from flooding and the cost of enforcement the Town has opted not to participate. Details of local jurisdiction participation status from the NFIP's Community Information System are shown in Table 4-42.

Table 4-42 Summit County NFIP Compliance

Community	Adoption of NFIP Min. Floodplain Management Criteria	Implementation & Enforcement of Local Flood-Plain Regulation on Development in SFHAs	Designee/ Agency to Implement NFIP Requirements	Describe How Jurisdiction Implements Substantial Improvement/ Substantial Damage Provision
Unincorporated	Yes	Yes (floodplain regulations – Chapter 4 of Land Use and Development Code)	County Engineer	The County floodplain ordinance treats substantially improved properties the same as new construction for purposes of meeting floodplain requirements. Substantial improvement is defined to include any instances of substantial damage.

Community	Adoption of NFIP Min. Floodplain Management Criteria	Implementation & Enforcement of Local Flood-Plain Regulation on Development in SFHAs	Designee/ Agency to Implement NFIP Requirements	Describe How Jurisdiction Implements Substantial Improvement/ Substantial Damage Provision
Breckenridge	Yes	Yes (2018 Breckenridge flood damage prevention ordinance)	Town Engineer	The Town floodplain ordinance treats substantially improved/ substantially damaged properties the same as new construction for purposes of meeting floodplain requirements.
Frisco	Yes	Yes (Chapter 97 of Unified Development Ordinance)	Community Development Director	The Town floodplain ordinance treats substantially improved/ substantially damaged properties the same as new construction for purposes of meeting floodplain requirements.
Silverthorne	Yes	Yes (Flood Damage Prevention Ordinance)	Public Works Director	The Town floodplain ordinance treats substantially improved/ substantially damaged properties the same as new construction for purposes of meeting floodplain requirements.

Source: HMPC, NFIP Community Information System, Municipal Codes of Ordinances

Table 4-43 below provides detailed information on National Flood Insurance Program (NFIP) policies in the county jurisdictions in as well as the unincorporated Summit County.

Table 4-43 Community Participation in the NFIP

Jurisdiction	Date Joined	Effective FIRM Date	Policies in Force	Insurance in Force ($)	Number of Claims	Claims Totals ($)
Blue River	-	11/16/2018 (does not participate)	-	-	-	-
Breckenridge	06/04/1980	11/16/2018	15	$4,370,000	2	$28,060
Dillon	-	No SFHA identified (does not participate)	-	-	-	-
Frisco	05/15/1980	11/16/2018	104	$23,500,000	6	$921
Montezuma	-	No SFHA identified (does not participate)	-	-	-	-
Silverthorne	05/01/1980	11/16/2018	22	$7,207,000	2	$0
Summit County	12/16/1980	11/16/2018	41	$12,305,000	19	$19,403

Source: National Flood Insurance Program Community Information System reports, 2025

NFIP insurance data indicates that as of July 1, 2025, there were 182 total flood insurance policies in force in the County (incorporated jurisdictions plus the unincorporated areas), with $47,382,000 of combined coverage. Flood insurance coverage has gone down from the 416 policies when this plan was updated in 2019. There have been 29 claims for flood losses totaling $48,384.

As part of the process to reduce or eliminate repetitive flooding to structures across the United States, FEMA has developed an official Repetitive Loss Strategy. The purpose behind the national strategy is to identify, catalog, and propose mitigation measures to reduce flood losses to the relatively few structures that absorb the majority of the premium dollars from the national flood insurance fund. A repetitive loss

property is defined by FEMA as "a property for which two or more NFIP losses of at least $1,000 each have been paid within any 10-year period since 1978". A repetitive loss property may or may not be currently insured by the NFIP. A Severe Repetitive Loss property (SRL) is defined as a residential property that is covered under an NFIP flood insurance policy and: a) has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or, b) a property for which at least two separate claim payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. For both a) and b) above, at least two of the referenced claims must have occurred within any ten-year period and must be greater than ten days apart.

There were no repetitive losses or severe repetitive losses in Summit County or any of the participating NFIP communities at the time of this plan's update.

Community Rating System (CRS) Participation

In addition to participating in the NFIP, the Towns of Frisco and Silverthorne participate in the Community Rating System (CRS). The CRS is a voluntary program for NFIP participating communities. The goals of the CRS are to reduce flood damages to insurable property, to strengthen and support the insurance aspects of the NFIP, and to encourage a comprehensive approach to floodplain management. The CRS provides incentives in the form of insurance premium discounts to communities that go above and beyond the minimum floodplain management requirements and develop extra measures to reduce flood risk. There are 10 CRS classes which determine the insurance premium discount for policy holders, which range from 5% to a maximum of 45%.

Frisco is a Class 7 CRS community, which earns the town a 15% premium discount for properties in the SFHA. Silverthorne is a Class 10 CRS community, which does not earn a discount on insurance premiums.

Development Trends

The risk of flooding to future development should be minimized by the floodplain management programs of the County and its municipalities, if properly enforced. However, increased development in the 0.2% annual chance floodplain has occurred in the past 5 years, particularly in Silverthorne. This floodplain is not regulated as heavily as the 1% annual chance floodplain but still poses a risk.

Risk could be reduced by strengthening floodplain ordinances and floodplain management programs beyond minimum NFIP requirements, such as aiming to increase a municipality's Community Rating System (CRS). Some of the reservoirs in the planning area provide only incidental flood protection, but projects such as the improvements to the Blue River Middle Branch channel can help reduce flood potential in developed areas.

4.9 Hazardous Materials Release

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Hazardous Materials Release	Isolated	Likely	Limited	Medium

4.9.1 Risk Summary

- There were 170 hazardous materials incidents reported between 1990 and 2024, an average of 5-6 per year. The majority of these were related to gasoline and diesel fuel spills resulting from an accident and had limited impact.
- Only 33 of those incidents resulted in any injuries, fatalities, property damage, or evacuations.
- Interstate 70 between the Eisenhower tunnel and Silverthorne is a primary concern when Loveland Pass is closed, and hazardous materials vehicles are escorted through the tunnel
- Other areas of concern are Highway 9 near Green Mountain Reservoir and Highway 6 near Dillon, Keystone, and Arapahoe Basin ski area
- Streams and reservoirs are also vulnerable to contamination from spills and mine releases
- There are no facilities classified as Risk Management Plan facilities, and 19 tier II facilities.
- *Related Hazards*: Severe winter weather, windstorm, landslide, mudflow/debris fall, rockfall

4.9.2 Description

Generally, a hazardous material is a substance or combination of substances which, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible, illness. Hazardous materials may also pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous material incidents can occur while a hazardous substance is stored at a fixed facility, or while the substance is being transported along a road corridor or railroad line or via an enclosed pipeline or other linear infrastructure.

The U.S. Department of Transportation (DOT), U.S. Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) all have responsibilities relating to the transportation, storage, and use of hazardous materials and waste. The Right to Know Network, maintained by the U.S. Coast Guard's National Response Center (NRC), is a primary source of information on the use and storage of hazardous materials, as well as data regarding spills and releases. In Colorado, the manufacture, use, storage, and transportation of hazardous materials is regulated by the Colorado Department of Public Health and the Environment (CDPHE). Hazardous materials carriers are subject to Colorado Public Utility Commission (PUC) registration and insurance requirements. Colorado statutes require that any person transporting hazardous materials that require placarding to obtain a Hazardous Materials Permit from the Public Utilities Commission. Safety oversight is the jurisdiction of the Colorado State Patrol.

Hazardous materials are typically divided into the following classes:

- Explosives
- Compressed gases: flammable, non-flammable compressed, poisonous
- Flammable liquids: flammable (flashpoint below 141 degrees Fahrenheit) combustible (flashpoint from 141 - 200 degrees)

- Flammable solids: spontaneously combustible, dangerous when wet
- Oxidizers and organic peroxides
- Toxic materials: poisonous material, infectious agents
- Radioactive material
- Corrosive material: destruction of human skin, corrodes steel

It is also common to see hazardous materials releases result as escalating incidents from other hazard incidents such as floods, wildfires, and earthquakes. The release of hazardous materials can greatly complicate or even eclipse the response to the natural hazards disaster that caused the spill.

4.9.3 Location

Hazmat incidents can occur at fixed facilities or during transportation, as discussed below. Overall, the geographic extent of this hazard in Summit County is **isolated -** less than 10% of the planning area affected - (based on historical experience) but depending on the type and quantity of spill and the medium affected, the geographic extent could become large.

Fixed Facilities

Generally, with a fixed facility, the hazards are pre-identified. The U.S. Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 requires industries to report on the storage, use, and releases of hazardous substances to federal, state, and local governments. Facilities in Colorado must submit an emergency and hazardous chemical inventory form (Tier II form) to the Colorado Department of Public Health and Environment (CDPHE) and, if required by local reporting regulations, the Local Emergency Planning Committee (LEPC) and local fire departments annually. Tier II forms provide state and local officials and the public with information on the general hazard types and locations of hazardous chemicals present at facilities during the previous calendar year. The inventory forms require basic facility identification information, employee contact information for both emergencies and non-emergencies, and information about chemicals stored or used at the facility. The EPA also requires facilities containing certain extremely hazardous substances to generate Risk Management Plans (RMPs) and resubmit these plans every five years.

The Summit County Office of Emergency Management administers the Emergency Planning and Community Right-to-Know program for the planning area through the LEPC. As of 2025, there are 19 Tier II facilities and no RMP facilities in Summit County; these facilities are listed in Table 4-44 below.

Table 4-44 Reporting Tier II Facilities in Summit County

Name	Jurisdiction	Fire Protection District
CenturyLink Breckenridge Central Office (220023)	Breckenridge	Red, White & Blue FPD
CenturyLink Copper Mtn Central Office (220216)	Unincorporated	Summit Fire and EMS Fire Protection District
CenturyLink Dillon Central Office (220214)	Dillon	Summit Fire and EMS Fire Protection District
CenturyLink Frisco Central Office (220250)	Frisco	Summit Fire and EMS Fire Protection District
Comcast of Colorado IX, LLC-249 Warren Ave.	Silverthorne	Summit Fire and EMS Fire Protection District
Copper Mountain Resort	Unincorporated	Copper Mountain Consol. Metropolitan District
Denver Water- Dillon Reservoir	Dillon	Summit Fire and EMS Fire Protection District
Ferrellgas-Frisco, CO	Frisco	Summit Fire and EMS Fire Protection District
Lowe's Of Silverthorne (#3206)	Silverthorne	Summit Fire and EMS Fire Protection District

Name	Jurisdiction	Fire Protection District
Peak - Silverthorne HMA and RMX	Unincorporated	Summit Fire and EMS Fire Protection District
UPS - Dillon (Silverthorne)	Silverthorne	Summit Fire and EMS Fire Protection District
Vail Summit Resorts, Inc. DBA Breckenridge Ski Resort	Breckenridge	Red, White & Blue FPD
Vail Summit Resorts, Inc. DBA Keystone Ski Resort	Unincorporated	Summit Fire and EMS Fire Protection District
Vail Summit Resorts, Inc. DBA River Course and Keystone Ranch Golf Course	Keystone	Summit Fire and EMS Fire Protection District
Verizon Wireless Copper Mountain (COW72093)	Unincorporated	Summit Fire and EMS Fire Protection District
Verizon Wireless West Tunnel (COW73618)	Unincorporated	Summit Fire and EMS Fire Protection District
Waste Connections Inc.-Timberline Disposal	Silverthorne	Summit Fire and EMS Fire Protection District
Waste Management of Colorado - Silverthorne Hauling	Silverthorne	Summit Fire and EMS Fire Protection District
Xcel Energy - Summit County Ops	Silverthorne	Summit Fire and EMS Fire Protection District

Source: Summit County, CEPC, WSP GIS Analysis

Abandoned Mines

A subset of fixed facilities are abandoned mines, many of which may contain large quantities of hazardous materials related to mine waste and contaminated water. Hazardous materials associated with mining materials was added to this plan in 2020 in part due to the 2015 Gold King mine toxic wastewater release in San Juan County. The Colorado Division of Reclamation, Mining, and Safety (DRMS) estimates there are approximately 23,000 abandoned mines in Colorado, including several in Summit County. DRMS tracks information on 230 mines that are currently draining water with the potential to impact water quality; 13 of these mines are located in Summit County and shown in Table 4-45. DRMS is working to identify remediation options for these mines.

Table 4-45 Mines in Summit County with the Potential to Impact Water Quality

Mine	UTM X	UTM Y	Status
Wellington/Oro	412730.00	4370921.00	Partial to complete restoration
Delaware	430185.00	4383026.00	Recent investigation or restoration project in process
Pennsylvania Mine Level C	430341.00	4383395.00	Recent investigation or restoration project in process
Pennsylvania Mine Level F	430530.00	4383648.00	Recent investigation or restoration project in process
Saints John	424573.00	4380427.00	Recent investigation or restoration project in process
Silverspoon	429973.00	4382229.00	Recent investigation or restoration project in process
Germania	411237.00	4369440.00	No recent investigations or restoration projects
Jumbo Mine	426736.00	4383481.00	No recent investigations or restoration projects
Morgan Mine	426569.00	4381819.00	No recent investigations or restoration projects
Puzzle/Unnamed Adit	411487.00	4369381.00	No recent investigations or restoration projects
Puzzle/Willard Tunnel	411506.00	4369298.00	No recent investigations or restoration projects
Shoebasin	431393.00	4384781.00	No recent investigations or restoration projects
Swan River Mine	417134.00	4374992.00	No recent investigations or restoration projects

Transportation

In transit, hazardous materials generally follow major transportation routes, including road, rail, and pipelines, creating a risk area immediately adjacent to these routes. Summit County is particularly concerned about the transport of hazardous materials on Interstate 70 (I-70) and U.S. 6. I-70 serves as a major east-west corridor for the state and the nation. Closure of the road due to a hazardous materials incident would significantly disrupt traffic flow between the Denver metropolitan area and the western slope of the Rocky Mountains and could cause severe economic impacts to the Summit County area. Similarly, the economies of Dillon and the Keystone and Arapahoe Basin ski areas are all dependent on U.S. 6 and would be severely impacted if an incident were to occur on the route, especially one that caused soil or water contamination.

Hazardous materials trucks, such as gas tankers, are not allowed passage through the Eisenhower/Johnson Memorial Tunnels on I-70 and are routed to U.S. 6 and over Loveland Pass, which is a mountain pass with tight switchbacks and steep grades. The purpose of this detour is to mitigate the potential for a hazardous materials incident within the tunnels. There are exceptions to this procedure when adverse winter weather closes Loveland Pass. In such an event, CDOT closes the tunnel to regular traffic for roughly 15 minutes at the top of the hour and escorts vehicles transporting hazardous materials through the tunnel.

There are no airports in Summit County, thus the potential for air incidents is minimal. The only rail line in the County is a rail hub near the Robinson Tailings Pond in the southwest corner of the County, so the potential for rail incidents is similarly minimal.

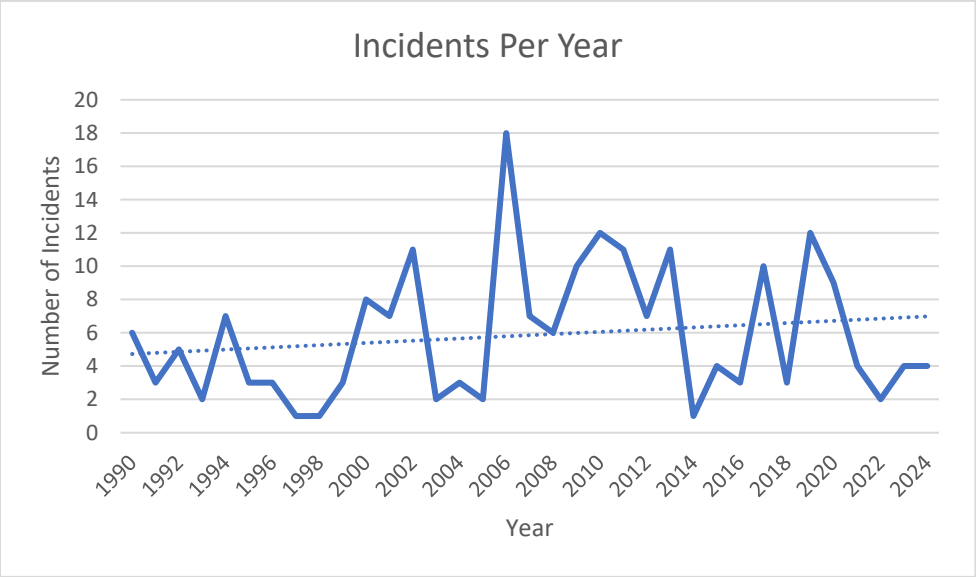
Natural gas pipelines do traverse the County, primarily alongside I-70 and State Highway 9. Pipeline ruptures can result in major spills or even explosions. Xcel Energy has introduced a non-pipeline alternative solution to strengthen its Eastern Mountain Gas System in Summit County. The Mountain Energy Project would involve constructing large compressed natural gas and liquefied natural gas facilities throughout the County, including visible sites along Highways 9 and 6 in keystone, Breckenridge, and Frisco. The Colorado Public Utilities Commission is in the process of reviewing the proposal and no set decisions have been made at this time.

Hazardous material incidents can also occur in agricultural areas; these types of facilities typically use pesticides, fertilizers, and other agricultural chemicals that are harmful to people and the environment. For example, agricultural pesticides and fertilizers are often transported daily around the planning area. Illegal drug operations and dumping sites have also been known to pose a hazardous materials threat.

4.9.4 Previous Occurrences

Minor hazardous materials incidents occur regularly in Summit County, but historically the impacts of those incidents have been minor. Statistics from the National Response Center (NRC), which serves as the primary national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories, indicate that between 1990 and 2024, 205 hazardous materials incidents were reported in Summit County. This number almost certainly excludes a number of very small spills that were not reported to the NRC. This translates to an average of 6.03 incidents per year. The trend over the last 34 years shows fewer incidents in the 1990s with the number of incidents more than doubling during the 2000s, followed by a slight decline during the 2010s, as shown in Figure 4-30.

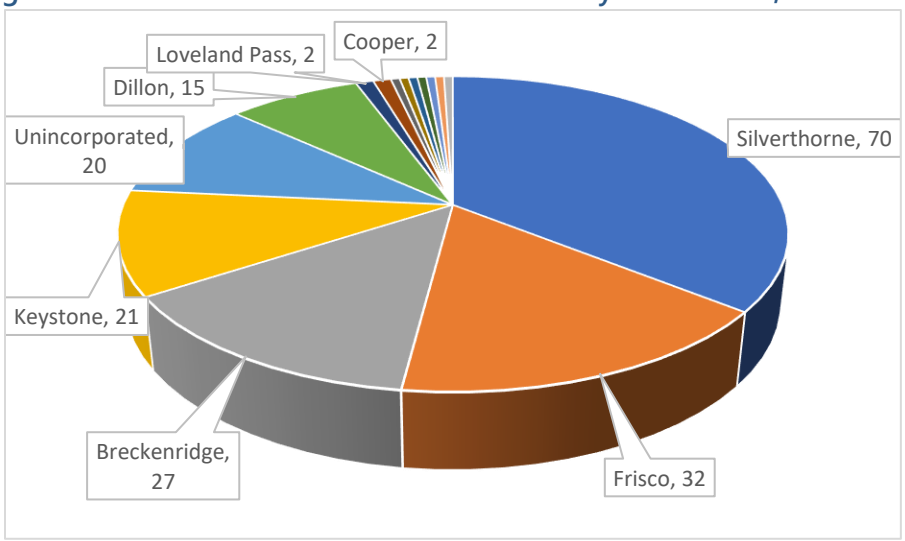
Figure 4-30 Hazardous Materials Incidents Reported in Summit County, 1990-2024



Source: http://nrc.uscg.mil/

As shown in Figure 4-31, the majority of incidents of incidents occurred in Silverthorne, followed by Frisco, then Breckenridge.

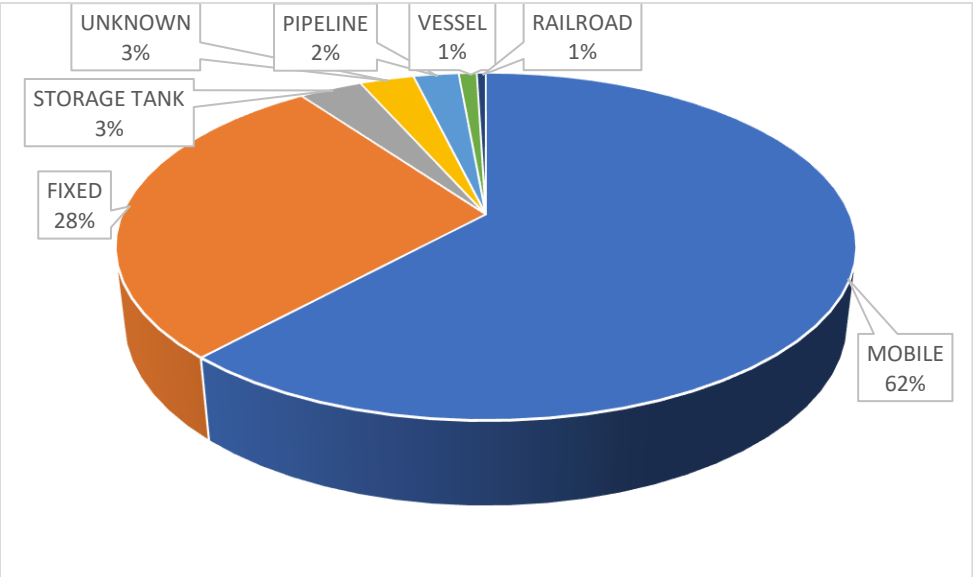
Figure 4-31 Hazardous Materials Incidents by Jurisdiction, 1990-2024



Source: http://nrc.uscg.mil/

Figure 4-32 shows that nearly two-thirds of these incidents occurred during transportation (road, pipeline, rail & vessel), with the remaining third occurring at fixed locations.

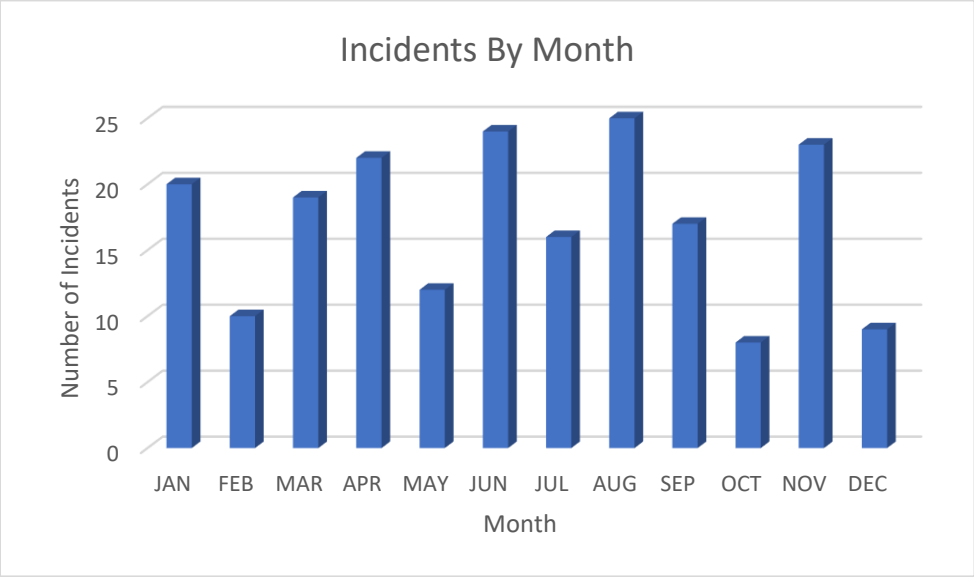
Figure 4-32 Hazardous Materials Incidents By Type, 1990-2024



Source: http://nrc.uscg.mil/

Figure 4-33 shows the average number of hazardous materials incidents in Summit County in a given month; hazardous materials incidents can happen during any month, but are most common in June, August, and November, and least common in February, October, and December.

Figure 4-33 Hazardous Materials Incidents by Month, 1990-2024



Source: http://nrc.uscg.mil/

The vast majority of these 205 reported incidents had no significant impacts. NRC data from 1990 through 2024 lists only 33 hazardous materials incidents in Summit County that resulted in injuries, fatalities, or significant property damage – an average of one per year. Between them, those 33 incidents resulted in 9 fatalities, 51 injuries (34 of which required hospitalization), and $119,998 in property damage. However, it is important to note that the NRC counts all injuries or damages resulting from an accident where hazardous materials were involved, whether or not the injuries or damages were caused by exposure to

the hazardous substance; closer analysis shows that at least half of those injuries, fatalities, and property damage were from the physical impacts of the accident.

Specific notable hazardous materials incidents in the County include the following:

- **February 1, 2019** — A minor collision on Wildernest Road in Silverthorne caused gallons of diesel fuel to spill into the streets in front of a gas station. Emergency crews were able to respond and clean the spill in time preventing any combustion of the hazardous materials.
- **May 30, 2012** — The Lake Dillon FPD (now known as Summit Fire & EMS) responded to a lime spill along eastbound I-70 at mile marker 204. Hazmat team members of Red, White, and Blue FPD, Copper Mountain Fire, and Colorado State Patrol Hazmat also responded to the incident. Roughly 400 pounds of high-grade lime spilled off of the back of a flatbed trailer. The event threatened the watershed, and I-70 eastbound was closed for 8 hours while the spill was addressed. The driver of the trailer was injured. Two CDOT workers were working in the spill area to remove some of the lime from the roadway and had to undergo emergency decontamination. Hazmat crews, with the assistance of CDOT, were able to clean much of the spill before deciding to hire a private clean-up contractor. Figure 4-34 shows a part of the response to this incident.

Figure 4-34 Lake Dillon FPD Responding to Lime Spill on Eastbound I-70



Source: Lake Dillon FPD

- **December 15, 2010** — A chlorine gas leak was reported at one of the Town of Frisco's domestic water wells located next to Ferrell Gas. An operator was changing out a chlorine tank when it malfunctioned and caused the leak. The affected area was located at the intersection of Summit Boulevard and Main Street in Frisco. As a precaution all immediate surrounding areas were

evacuated, and traffic was diverted. Highway 9 was closed from School Road south to CR 1040 or Peak One Boulevard. Traffic was directed to alternate routes through Frisco. The Fire Department contained the leak at approximately 4:00pm.

- **November 10, 2010** — Lake Dillon FPD dealt with another hazmat transportation spill after four hundred bags of sodium hydroxide spilled off of an overturned semi-trailer along Highway 6 about 1 mile east of Dillon. The spill threatened Dillon Reservoir and forced Highway 6 to close for 7 hours. The driver of the trailer was injured.
- **June 10, 2010** —A semi-trailer overturned, injuring the driver and spilling roughly 12,000 gallons of gas and diesel. An explosion ensued, but fortunately no additional casualties occurred. The event transpired along Highway 6 about 1.5 miles east of Arapahoe Basin Ski Area. Highway 6 was closed for 8 hours, and the watershed was threatened. Lake Dillon FPD responded to this incident, as shown in Figure 4-35.

Figure 4-35 Lake Dillon FPD Responding to Fuel Spill and Explosion on Highway 6



Source: Lake Dillon FPD

- **April 28, 2006** — A double box trailer truck combination overturned on U.S. 6 on the west side of Loveland Pass, closing the highway. The two trailers were reportedly carrying eight different types of hazardous products. Some of the products spilled and appeared to have reached a stream. There was concern that the products would contaminate water sources that could affect Denver Water, the Snake River Water District, and Dillon Reservoir.
- **2003** — A tanker rolled into the oncoming lane on I-70 near the Copper Mountain Fire Station and closed the interstate for 18 hours. The tanker spilled between 950-1,000 gallons of gasoline, which ran down the interstate under the snow into a storm drain.

- **July 7, 1997**— A gasoline tanker spilled fuel on U.S. Highway 6 near Keystone. Highway 6 had to be closed, and the event necessitated ground water contamination monitoring. One death was associated with the event.

4.9.5 Probability of Future Occurrence

Likely—10-100% chance of occurrence in next year or has a recurrence interval of 10 years or less

Hazardous materials incidents occur in Summit County every year. While the County experiences five to six hazardous materials incidents per year on average, incidents causing injuries, fatalities, damage, or evacuations occur only once a year on average. The majority of incidents are transportation related, and most are fuel spills that are not related to the cargo being transported. Based on previous experience, the probability of a spill of a nonfuel hazardous material or a spill with significant impact to people, the environment, or the economy is much less likely.

4.9.6 Magnitude/Severity

Hazardous materials come in the form of explosives, flammable and combustible substances, poisons and radioactive materials. Hazards can occur during production, manufacturing, storage, transportation, use, or disposal. Impacts from hazardous materials releases can include:

- Fatalities
- Injury
- Evacuations
- Property damage
- Animal fatalities (livestock, fish & wildlife)
- Air pollution
- Surface or ground water pollution/contamination
- Interruption of commerce and transportation

Numerous factors influence the impacts of a hazardous materials release, including the type and quantity of material, location of release, method of release, weather conditions, and time of day. This makes it difficult to predict precise impacts. The impact to life and property from any given release depends primarily on:

- The type and quantity of material released.
- The human act(s) or unintended event(s) necessary to cause the hazard to occur.
- The length of time the hazard is present in the area.
- The tendency of a hazard, or that of its effects, to either expand, contract, or remain confined in time, magnitude, and space.
- Characteristics of the location and its physical environment that can either magnify or reduce the effects of a hazard.

The release or spill of hazardous materials can also require different emergency responses depending on the amount, type, and location of the spill incident.

The impact of major hazardous materials incidents are potentially **catastrophic**, causing multiple deaths, property damage, and/or interruption of essential facilities and service for more than 72 hours. However, historically the impact of hazardous materials incidents in Summit County have been **Limited**.

4.9.7 Climate Change Considerations

There are no known effects of climate change on human-caused hazards such as hazardous material incidents.

4.9.8 Vulnerability

General Property

The impact of most fixed facility incidents is typically localized to the property where the incident occurs. The impact of small spills during transportation may also be limited to the extent of the spill and remediated if needed. While cleanup costs from major spills can be significant, they do not typically cause significant long-term impacts to property.

People

Hazardous materials incidents impact on people is highly dependent on the location of the incident, but can cause injuries, hospitalizations, and even fatalities to people nearby. People living near hazardous facilities and along transportation routes may be at a higher risk of exposure, particularly those living or working downstream and downwind from such facilities. For example, a toxic spill or a release of an airborne chemical near a populated area can lead to significant evacuations and have a high potential for loss of life.

Vulnerable populations can be more severely impacted by hazardous materials incidents. People with existing health risks or compromised immune systems could be severely affected by releases of even relatively low-impact materials. Individuals with disabilities may need more time to evacuate, so evacuation notices will need to be issued as feasible, and communicated by multiple, inclusive methods.

Critical Facilities and Infrastructure

Impacts of hazardous material incidents on critical facilities are most often limited to the area or facility where they occurred, such as at a transit station, airport, fire station, hospital, or railroad. However, they can cause long-term traffic delays and road closures resulting in major delays in the movement of goods and services. These impacts can spread beyond the planning area to affect neighboring counties, or vice-versa. While cleanup costs from major spills can be significant, they do not typically cause significant long-term impacts to critical facilities.

Economy

The primary economic impact of hazardous material incidents results from lost business, delayed deliveries, property damage, and potential contamination. Large and publicized hazardous material-related events can deter tourists and recreationists and could potentially discourage residents and businesses. Economic effects from major transportation corridor closures can be significant, particularly to tourism and recreation based businesses.

Even small incidents have cleanup and disposal costs, and for a larger scale incident, these could be extensive and protracted. Evacuations can disrupt home and business activities. Large-scale incidents can easily reach $1 million or more in direct damages, with clean-ups that can last for years.

As mentioned above, out of the 205 incidents that have occurred in Summit County, the NRC reported that of these incidents there has been $119,998 in total damages. It is important to note that not all damages are reported, which could affect this cost.

According to one study for the Colorado Department of Transportation, Risk Analysis Study of Hazardous Materials Trucks through Eisenhower/Johnson Memorial Tunnels, a hazardous materials incident on U.S. 6 would result in roadway damage with a replacement cost of approximately $5.5 million per mile. It is also possible that adjacent buildings and other infrastructure in Keystone, the Arapahoe Basin ski area, and Dillon could be damaged in an explosion or spreading fire caused by a hazardous materials incident. The Snake River and Dillon Reservoir are also at risk. The Colorado Department of Transportation estimates that 150 hazardous materials trucks travel along Loveland Pass each day.

Historical, Cultural, and Natural Resources

Hazardous material incidents may affect a small area at a regulated facility or cover a large area outside such a facility. Widespread effects occur when hazards contaminate the groundwater and eventually the municipal water supply, or they migrate to a major waterway or aquifer. Impacts on wildlife and natural resources can also be significant. Releases from abandoned mines in the County have the potential to affect streams and water supplies, but the probability of such an event is unknown.

Development Trends

The amount of hazardous materials that are stored, used, and transported across the county are not anticipated to increase over the next five years based on regional growth trends.

4.10 Landslide, Mudflow/Debris Flow, Rock Fall

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Landslide, Mudflow/Debris Flow, Rock Fall	Medium	Occasional	Critical	Medium

4.10.1 Risk Summary

- The overall significance rating for Landslide/Mudflow/Debris Fall/Rock Fall in Summit County is Medium.
- Potential landslide hazard areas are located throughout Summit County, with four special slide hazard zones: I-70 near mile marker 212; Heeney by the Green Mountain Reservoir; Mesa Cortina/Buffalo Mountain Dr. in Silverthorne; and the Quandary Village, near State highway 9. The Heeney area has the largest property at risk, however, based on the parcel analysis conducted with GIS.
- The parcel analysis with general landslide potential areas yielded 1,287 properties intersect with landslide potential areas, with $2.5 billion in structures and 3,048 people exposed.
- The parcel analysis with the special slide areas yielded 64 properties intersect with these areas, with $49.1 million in structures and 140 people exposed.
- The critical facility analysis shows that 30 facilities are exposed to the general landslide areas, and no facility falls within the special slide hazard areas.
- A slump on Interstate 70 west of the Eisenhower tunnel could create significant impacts, such as closing the highway and affecting nearby water resources.
- *Related hazards*: Erosion/deposition, flood, avalanche, earthquake, dam incidents, hazardous material release, wildfire, windstorm, severe winter weather.

4.10.2 Description

A *landslide* is a general term for a variety of mass-movement processes that generate a downslope movement of soil, rock, and vegetation under gravitational influence. For the purposes of this plan, the term "landslide" includes mudslides, debris flows, and rock falls. Some of the natural causes of ground instability are stream and lakeshore erosion, heavy rainfall, and poor quality natural materials. In addition, many human activities tend to make the earth materials less stable and thus increase the chance of ground failure. Human activities contribute to soil instability through grading of steep slopes or overloading them with artificial fill, by extensive irrigation, construction of impermeable surfaces, excessive groundwater withdrawal, and removal of stabilizing vegetation.

A *mudslide*, in particular, is a mass of water and fine-grained earth materials that flows down a stream, ravine, canyon, arroyo, or gulch. If more than half of the solids in the mass are larger than sand grains (e.g., rocks, stones, boulders), the event is called a *debris flow*. Many of Colorado's older mountain communities built in major mountain valleys are located on or near debris fans. A debris fan is a conical landform produced by successive mud and debris flow deposits, and the likely spot for a future event of this nature. The mud and debris flow problem can be exacerbated by wildfires that remove vegetation that serves to stabilize soil from erosion. Heavy rains on the denuded landscape can lead to rapid development of destructive mudflows.

A *rock fall* is the falling of a detached mass of rock from a cliff or down a very steep slope. Weathering and decomposition of geological materials produce conditions favorable to rock falls. Rock falls are

caused by the loss of support from underneath through erosion or triggered by ice wedging, root growth, or ground shaking. Changes to an area or slope such as cutting and filling activities can also increase the risk of a rock fall. Rocks in a rock fall can be of any dimension, from the size of baseballs to houses. Rock fall occurs most frequently in mountains or other steep areas during the early spring when there is abundant moisture and repeated freezing and thawing.

Landslides, mudslides, debris flows, and rock falls occur commonly throughout Colorado, and often damage buildings and infrastructure. California, Washington, and Colorado were the first three states to use federal disaster funds to acquire property in landslide hazard areas as a mitigation measure to prevent damages and potential injuries to people.

4.10.3 Location

The geographic extent of landslide hazards in Summit County is **Medium**—around 32% of the planning area is potentially at risk.

According to the 2002 update to the 1988 Colorado Landslide Mitigation Plan, a landslide complex on the south side of Green Mountain Reservoir in the community of Heeney is a tier two landslide/rock fall area. Geologic hazards mapping by the Colorado Geological Survey shows a large old landslide that includes all of Heeney and adjacent developed shore area for about 1.5 miles. Although there were no signs of large scale active sliding on the old landslide, it was considered to have the potential to become a large and serious landslide that could threaten the community and the reservoir.

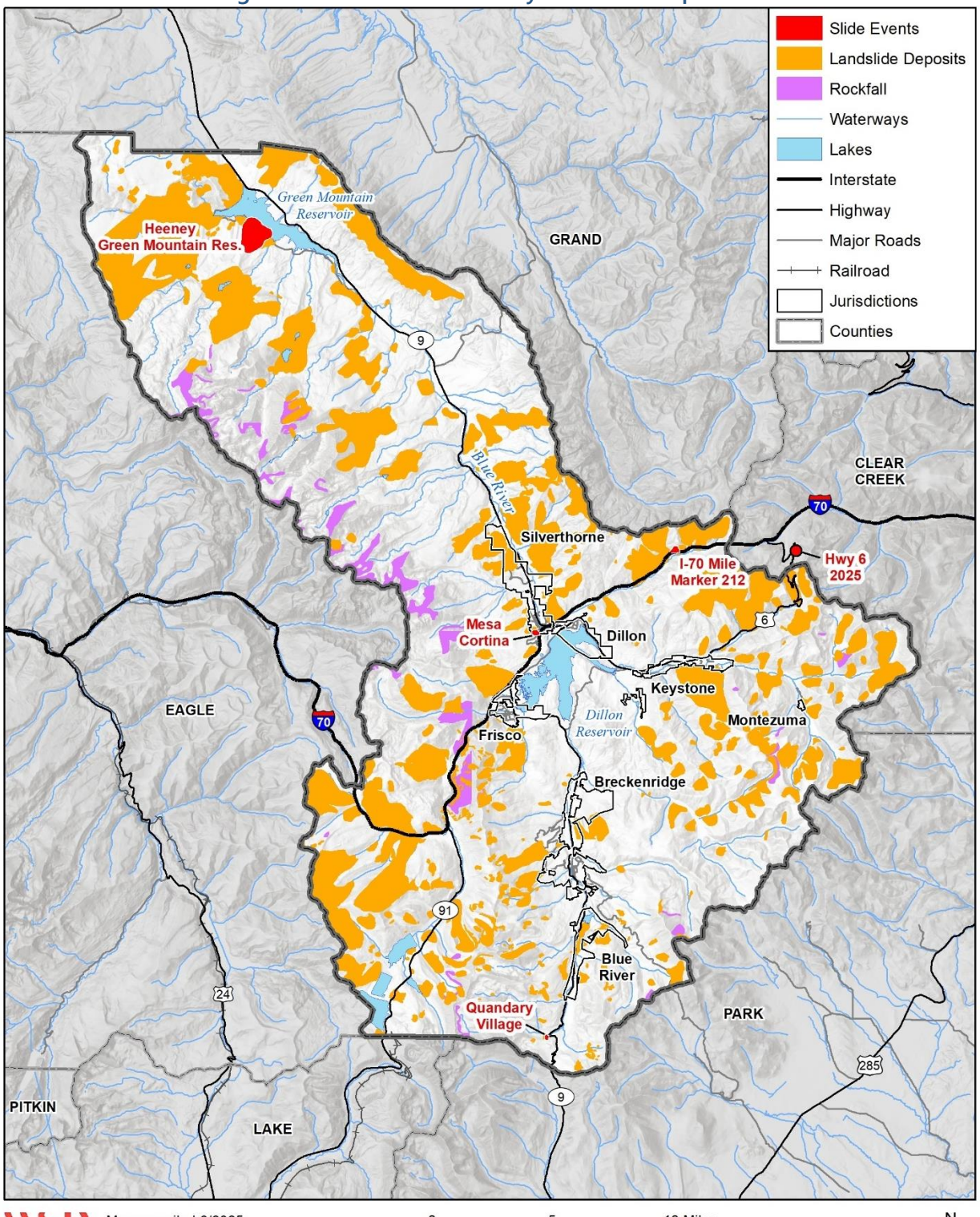
According to the Heeney/Green Mountain Reservoir Subbasin Plan, low water levels in the reservoir in 2002 created heightened concerns about the landslide potential in the area. Homes began to noticeably slip, and the last time that happened was in 1963, when a rapid drawdown of the water resulted in the loss of several homes. In 2002, the dramatic drop in water levels did not give the shoreline time to dry and solidify. It is anticipated that low reservoir levels in the future, as a result of possible drought conditions and high demand from water users downstream, will pose development challenges. The Bureau of Reclamation is monitoring the problem. Thus far there have been no further issues.

According to the HMPC, other problem areas in Summit County include Keystone Mountain's condo area, a slump on I-70 west of the Eisenhower/Johnson Memorial tunnels at mile marker 212 (approximately 23 acres), Quandary Village (approximately 4 acres), and Mesa Cortina in Silverthorne (approximately 14 acres).

The slump on I-70 at mile marker 212, known as the "Big Bump," is a slow but persistent landslide that subsides a few inches each year. Spring snowmelt and runoff soaks into the layers of rock and soil underlying the asphalt, creating conditions for a landslide. Slope instability is exacerbated by the fact that the eastbound lanes over this stretch of I-70 were built on fill excavated from the Eisenhower/Johnson Tunnel as it was being built in the 1970s. CDOT repaves the slump regularly to level out that portion of the road, but this only serves as a temporary fix. The asphalt at that location is now 6 to 7 feet deep after decades of repaving. Although it has not happened yet, there is a very real chance that a catastrophic slide could occur. Long-term solutions to the problem would prove extremely difficult and exorbitantly expensive to implement. The proposed solutions would necessitate closing that stretch of I-70 for several months and diverting traffic over Loveland Pass. Such a closure would be costly to the State's tourism and commerce industry and impact shipping and transit at the national level

Rockfall areas include the Tenmile Canyon corridor of I-70 between Frisco and Copper Mountain and along areas of the Dillon Dam Road, Boreas Pass Road, and portions of the bike path near the High School.

Figure 4-36 Summit County Landslide Deposits



Map compiled 6/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
Colorado Geological Survey (CGS)

The Colorado Geological Survey has developed a landslide inventory of Summit County that provides geologic hazard maps to state and local governments for use in planning processes. The map is an effort to develop landslide inventory maps for landslide prone areas. Figure 4-36 above illustrates significant landslide hazard areas in Summit County, as determined by the Colorado Geological Survey. The polygons in red are special slide hazard areas identified by the county; these are described and analyzed in more detail under Section 4.10.8.

4.10.4 Previous Occurrences

Previous occurrences of landslide and related hazards are not always well known unless they cause damages or hurt populations. Although the county is not known for frequent catastrophic landslide and related hazard events, these incidents are often triggered by heavy precipitation, snowmelt, or freeze-thaw cycles. However, below is a summary of the noteworthy events that were recorded, in chronological order from most recent to oldest, based on sources such as the HMPC.

- **June 15th, 2025**- A landslide occurred in the early Sunday morning at mile marker 226, approximately three miles up from the highways interchange with I-70 near Loveland Ski Area. The debris was nearly 100 feet wide and 15 to 20 feet deep. It closed Loveland pass for a few weeks while the debris was removed off the road. Figure 4-37 shows an image of this incident.
- **April 1, 2024-** A major rockslide occurred on Dillon Dam Road. The road was closed for approximately two and half weeks and was known to be one of the largest rockslides in the last 30 years on the road.
- **May 9, 2013**—A rockslide believed to have been caused by rain closed the right lane of westbound I-70 west of Frisco for about half an hour. Drivers helped pick up the smaller boulders to clear the roadway, putting themselves at risk of further rockfall and traffic. The HMPC also noted a fatality involving a rock striking a motorist on I-70; the exact timing of the incident was unknown.
- **July 6, 2011**—A significant mudslide occurred in the Straight Creek drainage between the 212- and 212.5-mile markers along I-70 on this day. The slide started above tree line and traveled down to a benched ridge above Straight Creek. Mudflows continued over the bench, through the forest, and reached and partially blocked Straight Creek. Sediment muddied the Creek, the primary water supply for Dillon and Dillon Valley. There were also concerns about the possibility of the mudslide completely damming Straight Creek, causing a public safety hazard. The U.S. Forest Service hydrologist who evaluated the incident determined that the mudslide did not pose a significant threat to public safety or water quality. Additional concerns included a nearby power line with an attached fiber optic line and a high pressure gas line located about two hundred yards west of the slide. These issues were checked by the Colorado Department of Transportation (CDOT). CDOT was satisfied that neither the gas line nor the power line was in imminent danger of being damaged. Xcel Energy was also made aware of the potential issues. Backup options were available for both the power line and water supply if the worst had happened. Figure 4-37 shows damage from the mudslide event.
- **June 2011**—A landslide occurred near the Keystone Ski Area in June 2011. A water transmission line had to be replaced. This was the third landslide within a half-mile radius in 17 years.
- **May 24, 2010**—A retaining wall on Little Beaver Trail in Dillon failed and collapsed onto the roadway. The roadway was blocked and closed for four months, though it was later reopened as a one-way road for 12 months. An impacted property owner was forced to delay their business opening for one year due to the slope failure event.
- **1963**—A rapid drawdown of the water in Green Mountain Reservoir caused a landslide that resulted in the loss of several homes in the community of Heeney this year.

- **Date Unknown**—The slump on I-70 at mile marker 212, known as the "Big Bump" and described under the Geographic Location section herein, is a slow and persistent landslide that subsides a few inches each year. The area has been steadily sliding since the 1970s. A catastrophic event has not yet occurred.
- **Date Unknown**—According to the Colorado Natural Hazards Mitigation Plan (2011), an area being planned as a subdivision in Summit County was engulfed by a mudslide caused by saturated soils below the Town of Breckenridge water reservoir and a beaver pond. No structures were involved. Geologic investigation showed several similar slides had occurred previously. The property lost its prime value and extensive regrading and mitigation work was required. It is unknown when this occurred.

Figure 4-37 June 15th, 2025, Loveland Pass Landslide Event



Source: Denver7

4.10.5 Probability of Future Occurrence

Occasional—This hazard has a 1-10% chance of occurrence in the next year, equivalent to a recurrence interval of 1 in 11 to 100 years.

Based on the known past events and the identified areas currently being monitored, probability of damaging landslide events in the future is occasional. Landslide activity typically increases during wet cycles, though drawdown of reservoir levels during drought has caused landslides to re-activate in Summit County. Although most landslides in the county have been localized and caused limited damage, the combination of steep terrain, climate variability, and expanding development in hillside areas can cause future landslide events.

4.10.6 Magnitude/Severity

Critical—Isolated deaths and/or multiple injuries and illnesses have and can occur; major or long-term property damage that threatens structural stability expected; and/or interruption of essential facilities, infrastructure, and services for 24-72 hours.

Landslides are serious geological hazards that can threaten human life, impact transportation corridors and communication systems, and result in other infrastructure, asset (e.g., reservoirs) and property damage. Actual losses can range from mere inconveniences due to road closures or high maintenance costs where very slow or small-scale destructive slides are involved. Rapidly moving large slides have the capacity to completely destroy buildings, roads, bridges, and other costly human-built structures. Such slides also have the potential for inflicting loss of life when they occur in developed areas. Debris flows and mudslides also have the potential to cause water quality impacts. Events are typically small in scale but are capable of causing localized disruption and infrastructure damages. As previously mentioned, these events are caused by rapid snowmelt, intense rainfall, or freeze-thaw cycles on steep slopes. These events will typically affect roadsides and trails, causing rockfalls along I-70 and SH-9 occasionally causing road closures, such as the most recent event on Loveland Pass.

The overall significance rating for this hazard is **Medium**.

4.10.7 Climate Change Considerations

Landslides can result from intense rainfall and runoff events. Projected climate change-associated variance in rainfall events may result in more high-intensity events, which could lead to higher frequency in landslide events, especially debris flows. Furthermore, the increased potential of wildfire occurrence due to a warming climate and decreased annual precipitation also escalates the risk of landslide and debris flows in the period following a fire, when slopes lack vegetation to stabilize soils so that burned soil surfaces create more rainfall runoff.

4.10.8 Vulnerability

In Summit County, vulnerability to landslides primarily occurs along roadways, where the hazard could cause injuries or even deaths. Landslides and related hazards (mudflows, debris falls, rock falls) can also flow into rivers and streams, degrading water quality or potentially creating a natural dam failure hazard that would impact property and life safety. Past landslides in the County have threatened or broken water, gas, and power lines. Road closures due to landslide events also affect the County economically.

Notable landslide hazard areas are described in more detail herein. For example, some areas of particular concern and where previous closures were required is Interstate 70 near mile marker 212, HWY 6, Heeney Green Mountain Reservoir, and Quandary Village. Landslides in neighboring counties along major highways that carry traffic into Summit County also impact the County indirectly. The primary areas vulnerable to known active landslides are shown in detail in Figure 4-36.

General Property

Potential losses for general landslide hazard areas as well as these four special slide zones were estimated using Summit County GIS and assessor's data and were examined in terms of values and critical facilities at risk. As with previous hazard overlay analysis, GIS was used to create a centroid representing the center of each parcel polygon, which was overlaid on the landslide hazard polygons. The assessor's improved values for each parcel are linked to the parcel centroids. For the purposes of this analysis, if the parcel's centroid intersects the landslide hazard polygons, that parcel is assumed to be at risk. From the improvement values were the Contents Values calculated next, as a percentage of property improvement values based on their occupancy type (using FEMA Hazus guidance as follows): a) Agricultural and Commercial parcels received Contents Values worth 100% of their improvements; b) Residential parcels received Contents Values worth 50% of their improvements; and, c) Exempt and Vacant parcels received Contents Values worth 0% of their improvements. Property improvements and Contents Values were then totaled to arrive at the Total Value column.

Two landslide hazard analyses were completed: the first uses the best available hazard data to date (as of 2025), based on the Colorado Geological Survey (CGS) landslide areas as utilized in the 2018 Colorado State Hazard Mitigation Plan Update. A more detailed analysis then takes into account the special landslide hazard areas displayed above in Figure 4-36.

The results of the first overlay analysis using the general landslide hazard areas provided by the CGS are presented in Table 4-46 and Table 4-47, first by jurisdiction and then by property type. More detailed results are provided in the jurisdictional annexes. If a jurisdiction is not included in the table, then it was not found to have quantifiable assets at risk. While the results indicate a substantial amount of exposure to the hazard particularly in the unincorporated areas of the county, followed by Silverthorne, a more detailed, site-specific analysis would need to be conducted to further assess potential risk. The CGS is currently (as of November 2019) working on an updated version of the landslide hazard layer for areas such as Summit County, so newer data may be available in the future. In many cases landslide issues may have been mitigated during construction. The Towns of Breckenridge, Blue River, and Montezuma are exposed to landslide hazards as well but to a more minor extent, as summarized in the table below.

Table 4-46 Landslide Hazard by Jurisdiction and Property Type Summary

Jurisdiction	Total Properties	Improved Value	Contents Value	Total Value	Population at Risk
Blue River	26	$23,906,229	$11,953,115	$35,859,344	81
Breckenridge	44	$73,013,286	$36,506,643	$109,519,929	136
Keystone	5	$885,825	$442,913	$1,328,738	6
Silverthorne	268	$217,456,668	$109,768,690	$327,225,358	806
Unincorporated	929	$626,016,170	$318,960,305	$944,976,475	2,740
TOTAL	**1,272**	**$941,278,178**	**$477,631,665**	**$1,418,909,843**	**3,770**

Source: Summit County Assessor Data 2025, Colorado Geological Survey (CGS), WSP GIS Analysis

Table 4-47 Landslide Hazard by Jurisdiction and Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Contents Value	Total Value	Population
Blue River	Residential	27	$36,630,454	$18,315,227	$54,945,681	88
	Total	**27**	**$36,630,454**	**$18,315,227**	**$54,945,681**	**88**
Breckenridge	Residential	5	$13,182,800	$6,591,400	$19,774,200	12
	Total	**5**	**$13,182,800**	**$6,591,400**	**$19,774,200**	**12**
Keystone	Commercial	1	$20,100	$20,100	$40,200	0
	Exempt	6	$0	$0	$0	0
	Residential	238	$312,790,340	$156,395,170	$469,185,510	555
	Total	**245**	**$312,810,440**	**$156,415,270**	**$469,225,710**	**555**
Silverthorne	Agricultural	2	$1,710,700	$1,710,700	$3,421,400	0
	Commercial	3	$1,191,100	$1,191,100	$2,382,200	0
	Exempt	5	$0	$0	$0	0
	Multi-Family Residential	23	$35,166,500	$17,583,250	$52,749,750	161
	Residential	384	$687,414,207	$343,707,104	$1,031,121,311	837
	Total	**417**	**$725,482,507**	**$364,192,154**	**$1,089,674,661**	**998**
Unincorporated	Agricultural	4	$3,656,400	$3,656,400	$7,312,800	0
	Commercial	6	$4,567,900	$4,567,900	$9,135,800	0
	Exempt	16	$0	$0	$0	0

Jurisdiction	Property Type	Improved Parcels	Improved Value	Contents Value	Total Value	Population
Unincorporated	Residential	567	$614,608,801	$307,304,401	$921,913,202	1,395
	Total	**593**	**$622,833,101**	**$315,528,701**	**$938,361,802**	**1,395**
Grand Total		**1,287**	**$1,710,939,302**	**$861,042,751**	**$2,571,982,053**	**3,048**

Source: Summit County Assessor Data 2025, Colorado Geological Survey (CGS), WSP GIS Analysis

The GIS portion of the analysis considering the landslide problem areas of I-70 Mile Marker 212, Heeney, Mesa Cortina, and Quandary Village are provided in Table 4-48 below. Based on this analysis, the landslide hazard at Heeney poses the largest threat to Summit County. That landslide polygon intersects 57 parcels that have a total property value of $49.1 million ($30.8 million in improvement value and $18.3 million in Contents Value). No other special slide area intersects with parcels.

Table 4-48 Property Exposure to Special Slide Hazard Areas by Jurisdiction

Jurisdiction	Property Type	Improved Parcels	Improved Value	Contents Value	Total Value	Population
Silverthorne	Commercial	1	$5,742,100	$5,742,100	$11,484,200	0
Unincorporated	Exempt	6	$0	$0	$0	0
	Residential	57	$25,129,655	$12,564,828	$37,694,483	140
Total		**64**	**$30,871,755**	**$18,306,928**	**$49,178,683**	**140**

Source: Summit County Assessor Data 2025, WSP GIS Analysis

People

People could be susceptible if they are caught in a landslide or debris flow, potentially leading to injury or death. There is also a danger to drivers operating vehicles, as rocks and debris can strike vehicles passing through the hazard area or cause dangerous shifts in roadways. Based on Tables 35, 36 and 37 above, an estimated 3,048 people are potentially exposed to general landslide hazards (Table 3-48 and Table 3-49) in the entire county, and 140 would be exposed to special slide hazard areas. At-risk population was estimated by multiplying the average number of persons living in each household in Summit County (which is 2.46 per home) times the number of properties of type "residential" where landslide areas have been inventoried.

Critical Facilities and Infrastructure

There are 30 critical facilities located in general landslide hazard areas, as summarized in Table 4-49. There are no critical facilities located in special slide areas.

Table 4-49 Critical Facilities in Landslide Hazard Areas

Jurisdiction	FEMA Lifeline Category	Total Facilities
Breckenridge	Safety and Security	1
	Total	**1**
Unincorporated	Communications	1
	Hazardous Materials	1
	Health and Medical	1
	Safety and Security	4
	Transportation	9
	Water Systems	14
	Total	**29**
Grand Total		**30**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Geological Survey (CGS), WSP GIS Analysis

Economy

Economic impacts typically center around transportation routes temporarily closed by debris flow, mudflow, or landslide activity. These roads may be used to transport goods across the county or provide access to visitors, which may be unavailable if roads are closed and hence reduce the amount of tourist spending on hotels, resorts, outdoor sports, and other local activities. Depending on the amount of damage, the road may simply need to be cleaned off, or may require some level of reconstruction and affect the local economy indirectly. The cost of cleanup and repair varies on the severity of the slide. In minor cases, a road may only require debris removal or minor gradings, with minimal disruptions. Although, more serious events may need engineering assessments, slope stabilization, or full reconstruction.

Historical, Cultural, and Natural Resources

As primarily natural processes, landslides and debris flows can have varying impacts to the natural environment; debris flows have the potential to permanently alter the natural landscape. The potential for landslide dams is real across Colorado, as evidenced by the presence of slide hazard areas which have formed important lake systems (e.g. Lake San Cristobal in Hinsdale County). Lakes that form behind landslides can potentially cause flooding downstream should the natural dam be overtopped or blown out by the pressure of the impounded water.

Development Trends

The severity of landslide problems is directly related to the extent of human activity in hazard areas. Adverse effects can be mitigated by early recognition and avoiding incompatible land uses in these areas, or by corrective engineering. The mountainous topography of the County presents considerable constraints to development, most commonly in the form of steep sloped areas. These areas (defined as having a grade change of 30% or more) are vulnerable to disturbance and can become unstable. Hence, developing in landslide prone areas can lead to higher hazard vulnerability which may be reduced by applying proper land use and building codes, as well as by introducing mitigation to prevent future damages, losses, and potential injuries or deaths from exposed populations.

As of November 2019, the Colorado Geologic Survey (CGS) was actively updating landslide hazard mapping for Summit County, with the results expected to become available for review in the months following (CGS, 2019). These updated maps aim to provide more detailed and accurate information about areas susceptible to landslides, debris flows, and other forms of slopes instability. Summit County and the towns of Breckenridge, Dillon, Frisco, and Silverthorne have policies in their master plans and/or development codes requiring mitigation through engineering for construction on slopes of a certain steepness and prohibiting development on slopes over 30%. These local regulations serve as an important tool for reducing vulnerability to landslides and protecting people, property, and critical infrastructure.

The Summit County Building Department reviews development applications in the Heeney area and explains hazards present to all applicants. Applicants are required to sign a document similar to a liability waiver and meet strict engineering standards if they choose to build in the known landslide hazard area.

4.11 Lightning

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Lightning	Large	Likely	Limited	Medium

4.11.1 Risk Summary

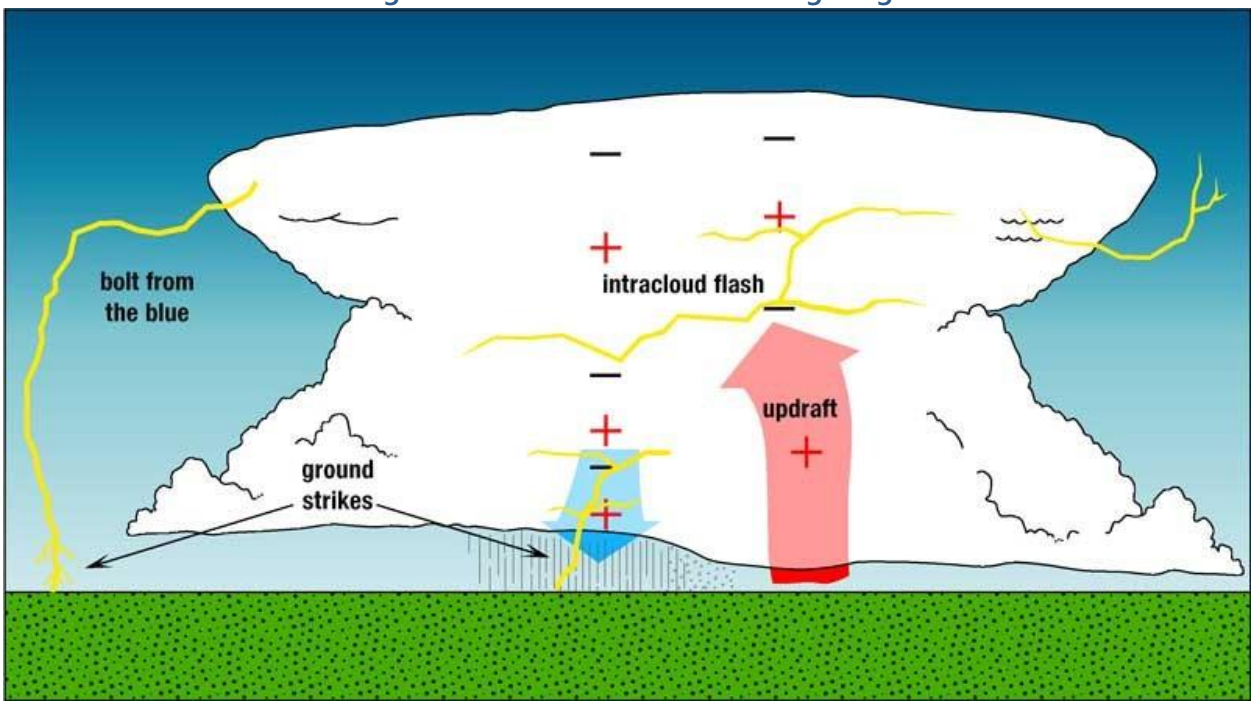
- The overall significance rating for Lightning in Summit County is **Medium**
- Lightning-caused deaths (2) and injuries (13) have occurred in Summit County in the past
- Outdoor recreationists at high altitude during summer months are very vulnerable to lightning
- Lightning can damage power grid and information technology and communications networks
- Lightning events have led to $20,000 in property damages in the past 37 years
- *Related Hazards*: Wildfire, drought

4.11.2 Description

Lightning is an electrical discharge between positive and negative regions of a thunderstorm. There are two main types of lightning, cloud-to-ground lightning and intra-cloud flashes, the latter of which do not reach the ground. Intra-cloud lightning is the most common type of discharge, with a rate of occurrence 5 to 10 times greater than cloud to ground lightning according to NOAA. This intra-cloud lightning occurs between oppositely charged centers within the same cloud.

Although not as common, cloud-to-ground lightning is the most damaging and dangerous form of lightning. Most flashes originate near the lower-negative charge center and deliver negative charge to earth. However, a large minority of flashes carry positive charge to earth. These positive flashes often occur during the dissipating stage of a thunderstorm's life. Positive flashes are also more common as a percentage of total ground strikes during the winter months. This type of lightning is particularly dangerous for several reasons. It frequently strikes away from the rain core, either ahead or behind the thunderstorm. It can strike as far as 5 or 10 miles from the storm in areas that most people do not consider to be a threat. Positive lightning also has a longer duration, so fires are more easily ignited. And, when positive lightning strikes, it usually carries a high peak electrical current, potentially resulting in greater damage. Figure 4-38 shows this process graphically.

Figure 4-38 Cloud to Ground Lighting



Source: National Weather Service Pueblo Office

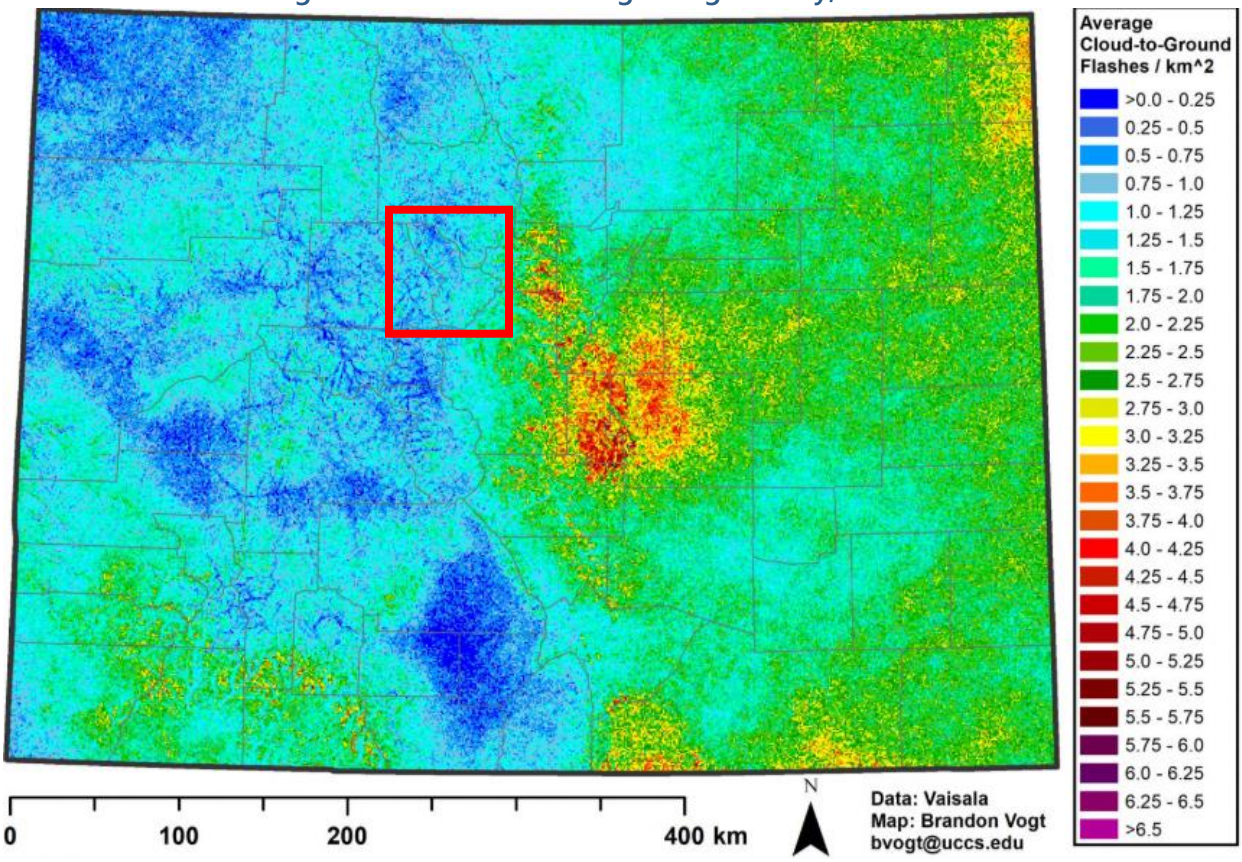
According to the National Fire Protection Association (NFPA), between 2007 and 2011 local fire departments in the U.S. responded to an average of 22,600 structural fires per year due to lightning. The National Lightning Safety Institute estimates property damage, increased operating costs, production delays, and lost revenue from lightning and secondary effects to be in excess of $8-10 billion per year. Impacts can be direct or indirect. People or objects can be directly struck, or damage can occur indirectly when the current passes through or near it.

Lighting is the most common cause of wildfires in Summit County (refer to Section 4.13.8 Wildfire). The National Interagency Fire Center reports that from 2001 to 2024 an average of 11,747 wildfires nationwide are reported to lightning-caused, burning over 4 million acres annually on average. On average the Rocky Mountain region has a report of 1,267 lighting-caused fires.

4.11.3 Location

Large - Lightning can occur anywhere in the County. Areas at high elevations above the tree line present particular risk to outdoor recreationists for injury and death. Figure 4-39 shows the lightning flash density for Colorado from 1996 to 2023.

Figure 4-39 Colorado Lightning Density, 1996-2023



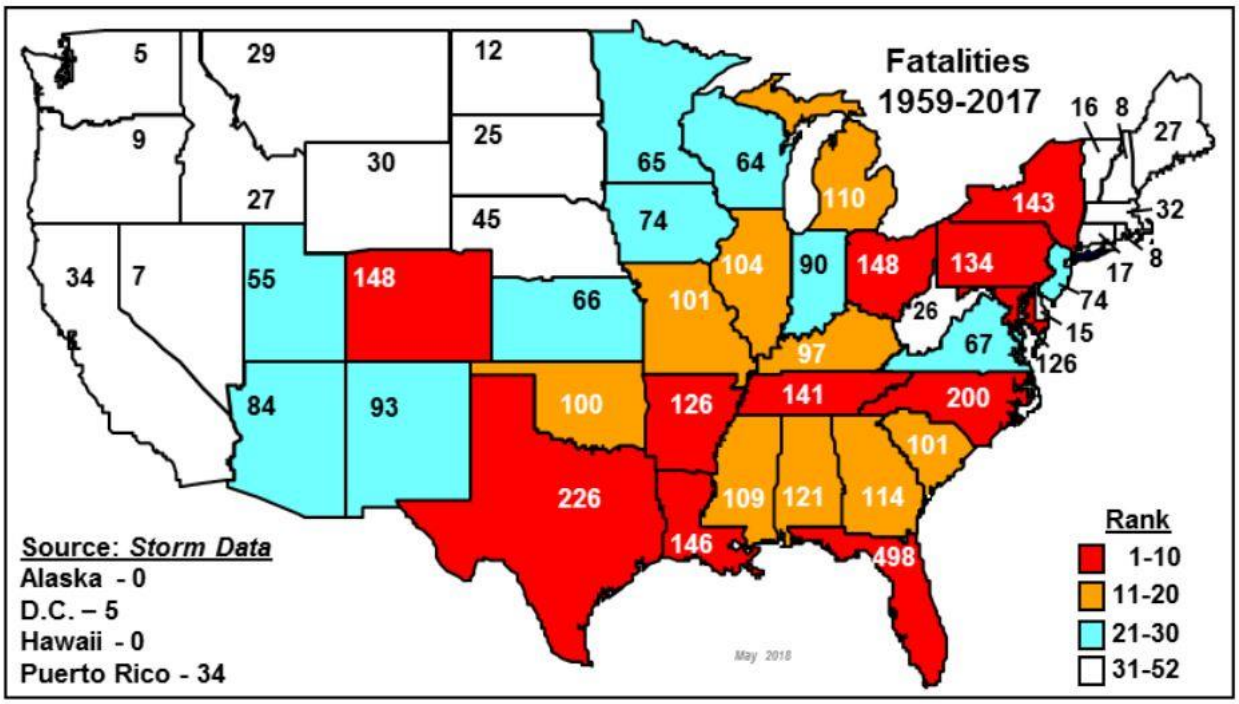
Source: NWS

4.11.4 Previous Occurrences

According to the National Weather Service Colorado ranks 19th in the nation with respect to the number of cloud-to-ground lightning flashes with an average number of 490,164 flashes per year (based on data collected between 2008 and 2017). Colorado ranks 31st in terms of cloud-to-ground flash density in the United Sates, with an average 4.7 flashes per kilometer squared (National Weather Service).

Figure 4-40 shows state-by-state lightning deaths between 1959 and 2017. Colorado ranks fourth for the number of deaths at 148. Florida (498), Texas (226), and North Carolina (200) were ranked higher. Based on National Weather Service data since 1980 an average of 3 people are killed and 12 are injured in Colorado.

Figure 4-40 Lightning Fatalities in the United States, 1959-2017



Source: National Weather Service

While lightning is a regular occurrence in Summit County, damaging lightning is not. According to the NCEI Storm Event Database, there were five notable lightning events in Summit County between 1997 and June 2025; the most recent event in the database is from 2011:

- **July 18, 2011—**Thunderstorms produced very heavy rain and continuous lightning over Summit County. The historic rainstorm in the town of Breckenridge produced 3.17 inches of rain at the local weather station. Most of the rain fell in less than 3 hours. A cooperative observer with the National Weather Service also recorded 3.59 inches of rainfall in east Breckenridge. The highest recorded 24-hour rainfall prior to this event occurred in the early 1890s when 2.6 inches was observed. Nearly 3,900 cloud to ground lightning strikes were also recorded during the 3-hour span. The steeple of the Father Dyer Church in Breckenridge sustained a direct hit from one of those strikes, damaging the historic structure. The heavy rainfall produced a large landslide a few miles above Dillon where a section of treeline collapsed. Large amounts of sediment partially covered a section of Straight Creek, which is the main water supply to thousands in the area. In addition, mudslides closed a portion of State Highway 9 north of Dillon and Airport Road in Breckenridge. Extensive flooding also forced the closure of Breckenridge Golf Course for several days. Damages were estimated at $15,000.
- **July 10, 2011—**Severe thunderstorms produced intense microburst winds over parts of Boulder and Elbert counties. Lightning damaged a boat in Dillon Reservoir. The blast blew several instruments off the top of the boat. All the electronics on the boat were fried, and a one-inch diameter hole was burned in the hull of the boat. Damages were estimated at $5,000.
- **August 1, 2004**—Lightning killed a woman as she was hiking in French Gulch near Breckenridge. Four other people hiking with the woman were knocked down but suffered only minor injuries.
- **July 9, 2001**—Lightning struck a home in Keystone, damaging the roof.
- **June 8, 1997**—Two search and rescue volunteers were injured while rescuing a skier atop Peak 10 at Breckenridge Ski Area. Lightning struck the first man as he was towing the injured skier by

snowmobile and toboggan. The bolt struck the snowmobile, then the rescuer, causing the rescuer permanent disability in eyesight. The other rescuer was injured 1/4 mile away. Apparently, the ground current created by the lightning travelled up his ski pole. He suffered temporary dizziness as a result of the strike.

It should be noted that this database captures only a small portion of damaging lightning events; most go unreported. The National Weather Service has been tracking lightning casualties by county in Colorado since 1980. The NWS statistics only include lighting causalities through 2023. According to the NWS statistics, Summit County has not experienced a documented causality due to lighting since 2004, refer to Table 4-50. All events took place in the afternoon and were most common in the summer months between June and August. According to the State of Colorado 2018 HMP, in any given day in July or August over 4,000 lightning flashes are expected to occur in Colorado.

Table 4-50 Lightning Fatalities and Injuries in Summit County, 1988-2023

Date	Time	Fatalities	Injury
July 3, 1988	Afternoon	0	2
July 1, 1990	1:00pm	0	5
April 5, 1992	12:55pm	1	2
June 8, 1997	1:45pm	0	2
August 1, 2004	2:30pm	1	2
Total		**2**	**13**

Source: National Weather Service, https://www.weather.gov/pub/lightning_casualties_by_county

4.11.5 Probability of Future Occurrence

Likely—10-100% chance of occurrence in next year or has a recurrence interval of 10 years or less

It is all but guaranteed that lightning will occur every year in Summit County, but not all occurrences will be damaging. In the last 37 years, the County experienced five damaging lightning events. This averages to a damaging lightning event every seven years, or roughly a 13% percent chance of an event in any given year.

4.11.6 Magnitude/Severity

Limited – Isolated deaths and/or multiple injuries and illnesses; major or long-term property damage that threatens structural stability; and/or interruption of essential facilities and services for 24-72 hours. Lightning can cause deaths, injuries, and property damage, including damage to buildings, communications systems, power lines, and electrical systems.

Common problems associated with lightning include the utility outages and related impacts. Loss of life is historically uncommon but can occur during severe storms. Loss of utilities, specifically power lines can occur due to downed trees from lighting.

Lightning is measured by the Lightning Activity Level (LAL) scale, created by the National Weather Service to define lightning activity into a specific categorical scale. The LAL is a common parameter that is part of fire weather forecasts nationwide. Due to the high elevation and varied topography of the County, Summit County is at risk to experience lightning in any of these categories. The LAL is reproduced in Table 4-51.

Table 4-51 Lightning Activity Level Scale

Level	Description
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five-minute period
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a five-minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a five-minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a five-minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag warning.

Source: National Weather Service

Lightning can occur anywhere in Summit County, and it is not possible to identify a specific hazard area, though high altitude areas above the treeline are particularly exposed. Data was not available to identify specific structures at risk. Data on average annual losses was limited, but based on NCEI records, $20,000 in lightning-related damages occurred between 1997 and 2025. Therefore, Summit County could expect roughly $741 dollars in damages from lightning in any given year. Two deaths and thirteen injuries also resulted from lightning during that time span. One of the most serious risks associated with lightning is its potential to cause wildland fires. This in particular could result in substantial losses for the County. For specific details on loss and vulnerability associated with wildland fires, please see the wildland fire vulnerability discussion.

4.11.7 Climate Change Considerations

Lightning tends to occur with warmer temperatures as heat energy fuels storm clouds. Climate change models are estimating an increase in temperature by the end of the century. A warmer climate will increase the chance of lightning events. A study published in the Journal of Science in November of 2014 showed the possibility of a 12 percent increase of lighting events for every degree of warming. On average the United States experiences 20 million lightning strikes with the possibility of 30 million lightning strikes over the continental U.S. by 2100 (Scientific American 2014). Another study from the University of California Berkeley, also published in *Science*, found that warming conditions could result in 50% more lightning strikes by the end of the century. Given the supporting evidence, it is likely that climate change will drive more frequent lightning strikes in Summit County.

4.11.8 Vulnerability

General Property

Lightning in particular can cause deaths, injuries, and property damage, including damage to buildings, communications systems, power lines, and electrical systems. Lightning strikes cause intense but localized damage. Structural fires, localized damage to buildings, damage to electrical powerlines and communications outages are typical consequences of a lightning strike.

People

Damaging lightning events are likely to occur and can be critical if a fatality occurs. Outdoor recreationists and others outside at high altitude during summer months are vulnerable to lightning. Exposure is the greatest danger to people from severe thunderstorms. Tourists and those enjoying the outdoors who are not familiar with the severe weather events in the County are particularly at risk of being struck by lightning.

Aspects of the population who rely on constant, uninterrupted electrical supplies may have a greater, indirect vulnerability to lightning. As a group, the elderly or disabled, especially those with home health care services relying on rely heavily on an uninterrupted source of electricity. Resident populations in nursing homes, residential facilities, or other special needs housing may also be vulnerable if electrical outages are prolonged. If they do not have a back-up power source, rural residents and agricultural operations reliant on electricity for heating, cooling, and water supplies are also especially vulnerable to power outages.

The U.S. Department of Health and Human Services ePOWER Mapping tool (https://empowermap.hhs.gov/) provides information on Medicare beneficiaries who rely on electricity-dependent medical equipment such as ventilators to live independently in their homes. According to the tool there are 4,317 Medicare Beneficiaries located in Summit County; of these individuals, 9% (approximately 493 persons) rely on electricity-dependent medical equipment, such as ventilators to live independently in their homes, making them more vulnerable to power outages as a result a lightning event.

Critical Facilities and Infrastructure

The HMPC is also concerned about the impacts lightning can have on the County's power grid and information technology network. Failure of these systems would have cascading effects that would disrupt other critical infrastructure in the County, such as water treatment facilities. Damage to communications infrastructure has the potential to cause widespread impacts.

Economy

Economic impact of a lightning event is typically isolated and short term. Lightning events can cause power outages and fires. Generally, long-term economic impacts center more around hazards that cascade from a severe thunderstorm, including wildfires ignited by lightning, and flooding (refer to the Wildfire and Flood sections). In general, lighting a risk to the tourism economy in the county. These events can disrupt travel into and out of all areas of the county and create perilous conditions for residents, tourists and nature alike.

Historical, Cultural, and Natural Resources

Environmental impacts include the sparking of potentially destructive wildfires by lightning which could affect some natural, historic and cultural resources.

Development Trends

New critical facilities, such as communication towers should be built to withstand lighting damage. Development trends in the County are not expected to increase overall vulnerability to the hazard but all development will be affected by lightning and any population growth will increase potential exposure to hazards such as lightning.

4.12 Pest Infestation (Forest and Aquatic)

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Pest Infestation (Forest and Aquatic)	Large	Likely	Limited	Medium

4.12.1 Risk Summary

- Western Balsam Bark Beetles have surpassed Spruce beetles for damage caused statewide
- Pine needle scale is persistent along the I-70 corridor and has been identified within the Town of Breckenridge
- The infestation is likely to significantly affect forest ecosystems, the economy, and wildfire risk.
- Although Quagga Mussels were taken off the positive list for Green Mountain Reservoir in 2021, evidence of larva has put them back on the list since 2023.
- Climate change is projected to increase likelihood of infestations of both native and invasive species.
- *Related Hazards:* Drought, wildfire, lighting, avalanche and windstorm

4.12.2 Description

The Colorado Department of Agriculture (CDA) defines a pest infestation as the occurrence of one or more pest species in an area or location where their numbers and impact are currently or potentially at intolerable levels or a sudden increase in destructiveness or population numbers of a pest species in a given area. Pests are any organism (insects, mammals, birds, parasite/pathogen, fungi, non-native species) that are a threat to other living species in its surrounding environment. Pest infestations can result in the destruction of various natural habitats, impact human health and cause disease and death among native plants, wildlife, and livestock.

Beetle epidemics are a natural part of forest ecosystems in Colorado. Certain factors, such as age of forests, drought, crowding, poor growing conditions, and warm temperatures, can fuel epidemics. While the stressed trees are targeted first, as beetle populations increase, they attack most of the large trees in an outbreak area. During an epidemic, enough beetles can emerge from an infested tree to kill at least two, and possibly more, trees the following year. The direction and spread rate of an infestation is impossible to predict. However, attacked trees usually are adjacent to or near previously killed trees. Once the beetle infests a tree, nothing practical can be done to save it, so prevention is critical. Prevention includes forest management (e.g., creating diversity in age and structure) and treating infested trees to kill developing beetles before they emerge as adults. Discolored foliage is generally the first sign of beetle-caused mortality. Needles on infested trees begin changing color several months to one year after attack, going from green to yellowish green, then sorrel and red to rusty brown. In year two, the needles begin to drop off. In year three to four the remaining needles and smaller limbs drop. Beginning about five years postmortem, the dead stems become increasingly susceptible to rot and blow-down.

The pests that have been identified as a threat to Summit County's forests include the following:

- **Western Balsam Bark Beetle/Root Disease Complex** – This beetle has caused persistent damage to Colorado's high-elevation subalpine fir for several years. The western balsam bark beetle is most commonly found in trees that are weakened from root disease, drought or other damaging factors. Unlike other types of beetles (mountain pine and spruce) tree mortality as a result of the infestation is not uniform across the affected landscape. External evidence of the beetle is difficult to find without

the removal of the tree's bark. Fir trees killed by the beetle retain their red needles, the predominate symptom of the beetle, for up to 3 years or more. Over the last several years, Western Balsam Bark Beetle and associated root diseases have increased in occurrence and intensity across subalpine fir trees. This beetle usually persists at normal levels in high-elevation forests in balance with associated fungi, but has built new populations as drought has left subalpine fir vulnerable to attack. Summit is among the listed counties experiencing the highest levels of subalpine fir decline.

- In 2022 the Western Balsam Bark Beetle impacted more acres of forests statewide than spruce beetle, according to aerial survey data collected by the Colorado State Forest Service and U.S. Forest Service Rocky Mountain Region.
    - **Spruce Beetle** – The spruce beetle is native to Colorado and feasts on subalpine Engelmann Spruce as its primary source, although it will infest any spruce species. This beetle is most commonly observed at high elevation spruce forests at more than 9,000 feet. According to the United States Forest Service, the spruce beetle is responsible for the deaths of more spruce trees in North American than any other agent. Signs of a spruce beetle infestation are most visible in summer months. When population levels are low the beetles tend to infest downed trees, and populations can increase quickly following an avalanche or windstorm event. The lifecycle of the spruce beetle is one to three years, and they are most active during the months of July and August. As of 2022 the Spruce Beetle remains in decline overall statewide. The Spruce Beetle affected 53,400 acres in 2021 but only 29,000 acres in 2022.
    - **Western Spruce Budworm** – Colorado's most damaging and widespread forest defoliator for several years. The larvae of this moth feeds in the buds of new shoots of Douglas-fir, true firs and spruce trees. As a result of their feeding, the needles on the trees turn a reddish-brown color. Damage tends to occur from early spring through mid-summer months when they turn into moths. As of 2023 the Western Spruce Budworm continues to infest forests with Douglas-fir, white fir, and Engelmann and blue spruce, especially in the south-central forests of Colorado.
    - **Pine Needle Scale** – The pine needle scale is an invasive species that feeds on the needles of pine species including Douglas Fir, Englemann Spruce, Colorado Blue Spruce and Lodgepole Pines. Insects settle on every surface of the tree's needles, taking tree nutrients and leading to premature needles drops. Other impacts include branch dieback and increased susceptibility to other insects or disease or tree death.
    - **Douglas-Fir Beetle** – This beetle is known as the "most destructive bark beetle of mature Douglas-fir forests in western North America" (CSFS 2016). Mature Douglas-fir trees are the only host for this beetle species. Generally small groups of trees are infested (groups of 100 or more during major outbreaks). Similar to the spruce beetle, a close relative, wind-thrown and downed trees are ideal habitats for the Douglas-fir beetle. As of 2023, the Douglas-Fire Beetle remains ever-present in most stands with Douglas-fir trees, despite having killed many of the largest, most susceptible trees over the past decade. This bark beetle is especially active in Colorado's central and southern conifer forests. The Douglas-Fir beetle impacted 21,000 acres in the state of Colorado in 2024, its largest total damage in almost 10 years.
    - **Mountain Pine Beetle** – The mountain pine beetle is native to western North America. The insect develops in and affects primarily pines, such as ponderosa, lodgepole, Scotch, and limber pines, and less commonly bristlecone and piñon pines. According to the Colorado State Forest Services 2024 Annual Report, the amount of acres affected by the Mountain Pine Beetle has increased since the previous HMP.

Pest infestations and invasive species are not just contained to dry land. Marine invasive species, or Aquatic Nuisance Species (ANS), can take over enclosed water ecosystems, disrupting delicate ecological structure and displacing entire native species. Marine invasive species can also foul pipes of hydroelectrical facilities, water works, and other industrial facilities, impairing facility functions. The

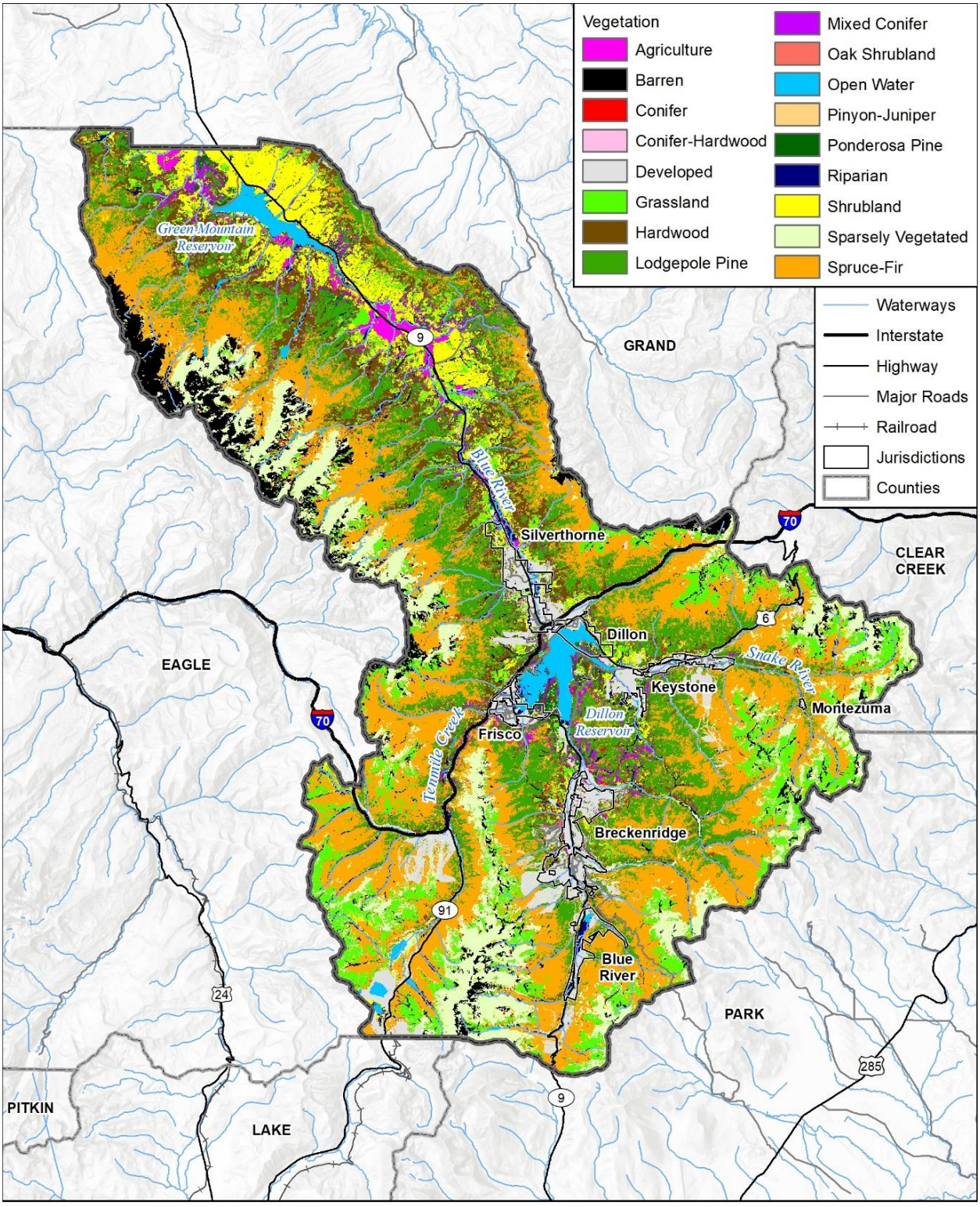
quagga and zebra mussels have caused havoc in western waterways including threatening Summit County's reservoirs. Colorado Parks and Wildlife considers the quagga mussel the state's most serious aquatic nuisance species threat.

- **Quagga/Zebra Mussels** - Non-native freshwater mussels from eastern Europe that clog waterways, undermine healthy lake ecosystems, ruin boat engine cooling systems, and financially burden water resources agencies. Prolific breeders, these mussels can overrun a lake causing hundreds of thousands of dollars' worth of damage annually. Rapid reproduction can negatively disrupt an ecosystem in a short amount of time. Once these mussels are introduced into a waterway, there is no way to fully eradicate the species.

4.12.3 Location

Figure 4-41 shows the vegetation breakdown by type in Summit County.

Figure 4-41 Types of Vegetation in Summit County



Map compiled 6/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CSFS Forest Atlas

Each of the identified beetles above attack a variety of pine, fir and spruce species. In total there are 340,560 forested acres in Summit County, with sixty percent of the forested area being made up of lodgepole pine and the remaining forty percent comprised of aspen and spruce-fir types. With different pests targeting different vegetation types, a majority of the counties 340,560 acres are vulnerable to a pest outbreak of some sort.

Pests such as the Mountain Pine Beetle use species such as the Lodgepole Pine as host species, which is found at elevations between 8,000 to 10,000 feet as shown in green in Figure 4-41 below. As you get into elevations above 10,000 feet you'll find spruce and fir species, as shown in orange in the figure below.

During the last plan update in 2020, the mountain pine beetle epidemic in Summit County was almost entirely limited to lodgepole pine. The Spruce Beetle damaged 178,000 acres of high-elevation Engelmann spruce forests in 2018 (USFS 2018) and continues to damage forests, surpassing the Mountain Pine Beetle. Additionally, other invasive species such as Pine Needle Scale are infesting Summit County forests, and continues to infect areas along the I-70 corridor including being found in Breckenridge. The Douglas-fir beetle has impacted Douglas-fir trees along the Mosquito Range in portions of southern Summit County and neighboring counties.

Aquatic infestations of the zebra and quagga mussels have been found in waterways across the western United States. In Summit County they have been found in the past in the Green Mountain Reservoir and have posed a threat to Dillon Reservoir. Both are multiuse reservoirs opened to recreational activities such as boating. Boating is a leading cause of introducing the invasive mussels into waterways.

4.12.4 Previous Occurrences

At the peak of mountain pine beetle infestation in 2008, over a million acres of Colorado's forests were impacted. By 2012 over three million acres had been infested statewide. In 2012 mountain pine beetle activity in Colorado declined for the fourth consecutive year as food sources became depleted in many areas of the state (at this time 264,000 acres of active infestation were detected). Between 1996 and 2014 the mountain pine beetle affected 3.4 million acres. By 2018, the spruce beetle surpassed the mountain pine beetle as most active threat to Colorado forests. Between 2000 and 2018 the spruce beetle had affected over 1.84 million acres of forests, the Engelmann spruce trees being the main victim of infestations (USFS 2018).

As noted above, outbreaks of the western balsam bark beetle decreased by 50% in 2018 but still continued to pose a threat to Summit County with 2,700 acres affected in 2018 an increase from 1,900 acres in 2017. Similarly, the U.S. Forest Service reported a decline in pine needle scale infestations in 2018 for much of the Colorado High Country but has remained persistent along the I-70 corridor in portions of Summit County. The infestations of forests pests have been on the decline. Based on an aerial survey by the Colorado State Forest Service in 2018, of Summit County's 204,310 forested acres, 82.4 acres or 0.04% of the forest was affected by an active pest infestation.

The Spruce Beetle remains in decline overall statewide. The Spruce Beetle affected 53,400 acres in 2021 but only 29,000 acres in 2022. In 2022 the Western Spruce Budworm was the most widespread forest pest in Colorado, affecting 112,000 acres statewide. The budworms weaken the tree, leaving it highly vulnerable to the Douglas-fir beetles to finish the job and kill the tree. Budworms impact the most acres, but bark beetles kill more trees.

A wetter year in 2023 allowed for the growth and health of many trees throughout the county, allowing for trees to fight off pests such as the Spruce Beetle and Spruce Budworm. However a dry 2024 left spruce and fir species susceptible to pest infestation, causing pests to feed on and drain trees of their water. The drier year meant pests such as the Western Spruce Budworm and Pine Needle Scale could thrive, leading

to an increase in both throughout Summit County and the rest of the state. The Western Beetle also thrives on weakened trees, causing them to surpass the Spruce Beetle as the deadliest forest pest. Additionally, the Douglas-Fir beetle impacted 21,000 acres in 2024, its largest total damage in almost 10 years. From 2020-2024, precipitation in 4 of those 5 years was below the 100-year average.

Aquatic Species

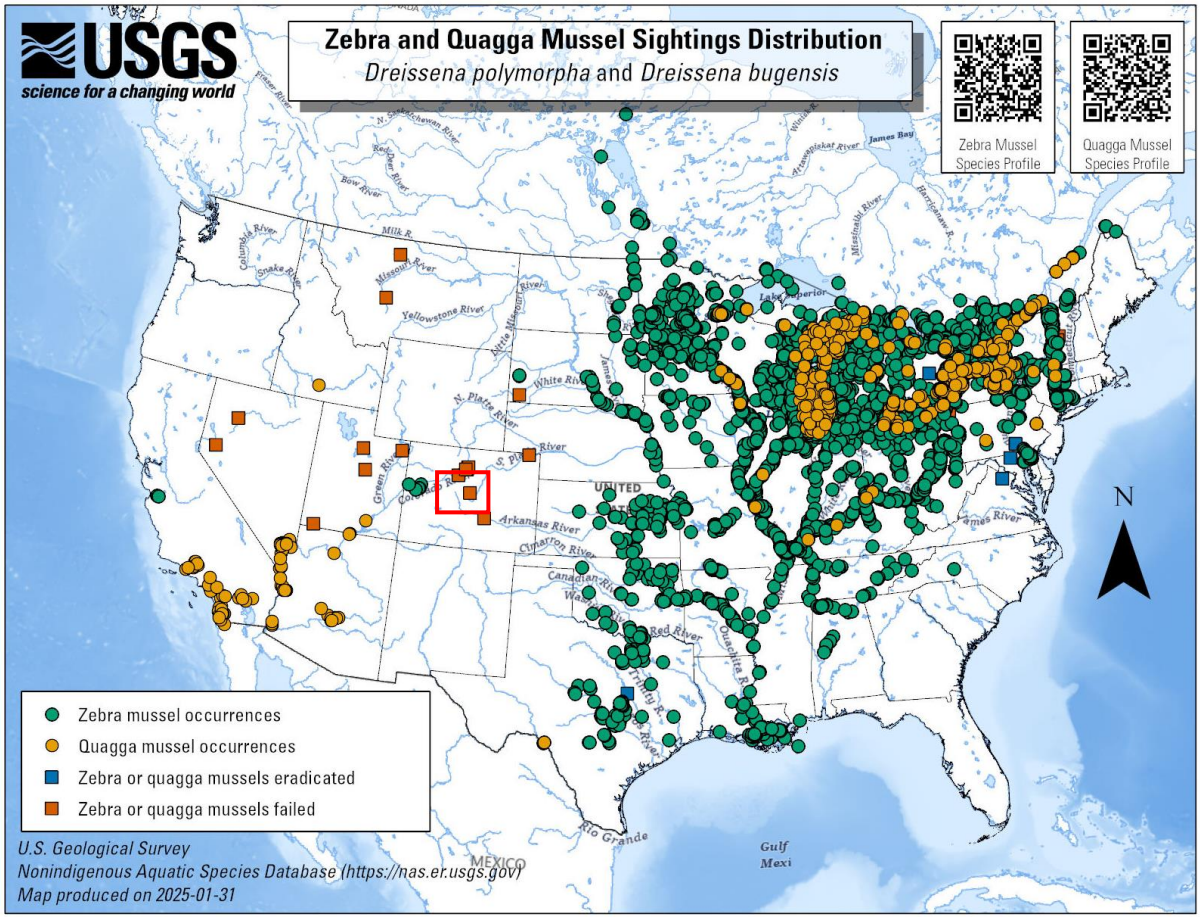
In August 2017, the quagga mussel was found in the Green Mountain Reservoir after years of being threatened by the invasive species and monitoring of the reservoir. Since 2017, the Reservoir is considered a 'suspect' reservoir for infestation. Between 2008 and 2017, eight total reservoirs in Colorado were confirmed to have mussel's present including the Willow Creek and Shadow Mountain Lake in neighboring Grand County. While the mussels haven't been found in Dillon Reservoir, Denver Water pays for boat inspectors who are trained in identifying aquatic nuisance species to inspect all boats prior to entering the water especially if from out of state. According to the HMPC in addition to boats kayaks are also a concern for infestation. The Green Mountain Reservoir also has inspectors that are funded through a combination of U.S. Forest Service regional funding when available, that is spilt between districts as well as funding from Colorado Parks and Wildlife.

Statewide in 2017 inspectors identified twenty-six boats infested with adult mussels, according to Colorado Parks and Wildlife. This was a new record for the state. Since 2008, Colorado has intercepted a total of 144 boats infested with adult mussels (Colorado Parks and Wildlife 2018).

After 3 years of negative testing in the Green Mountain Reservoir, the Colorado Parks and Wildlife division removed the reservoir from the positive waters list for quagga mussels in 2021. However, in 2023 state and federal officials confirmed the presence of invasive quagga mussel larvae. The reservoir is still closely monitored for quagga mussels as of 2025.

Figure 4-42 shows the distribution of zebra and quagga mussel sightings across the United States as of January 31st, 2025. The general area of Summit County is noted by the red square.

Figure 4-42 Distribution of Zebra and Quagga Mussel Sightings Across the United States



Source: U.S. Geological Survey

4.12.5 Probability of Future Occurrence

Likely— 10-10% chance of occurrence in the next year or has a recurrence interval of 10 years or less.

Forest beetles are endemic to the area, with outbreaks occurring cyclically. Since lodgepole pine forests are subject to stand replacing fires roughly every 100 to 300 years the species is well adapted to recovering from, and in fact requires, whole scale disturbances (Kaufmann et al 2008). However, the people who visit and live in Summit County are less accustomed to such widespread changes on the landscape. Because it will require decades for mature lodgepole pine stands to become reestablished, there is a low probability that an epidemic of this magnitude will occur again in the twenty-first century.

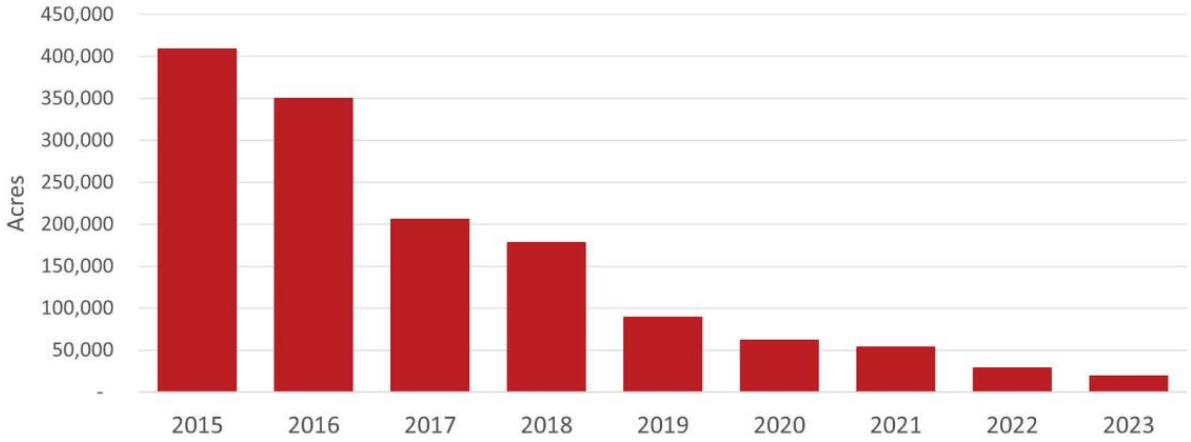
While probability of future occurrence is usually calculated based on past experience, different invasive pests have different recidivism rates across the county. Based on past experience, invasive species will continue to present a constant threat to the county and its jurisdictions.

4.12.6 Magnitude/Severity

Limited—Minor injuries and illnesses; minimal property damage that does not threaten structural stability; and/or interruption of essential facilities and services for less than 24 hours.

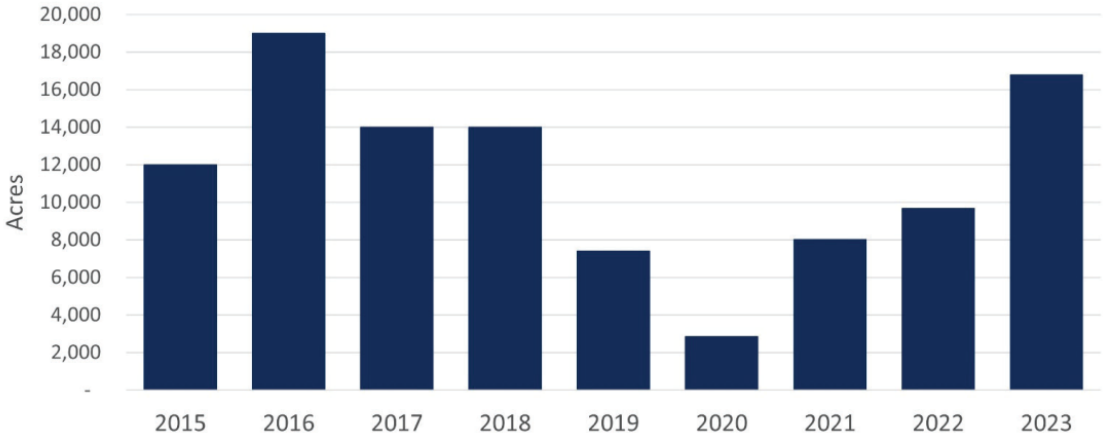
The definitions for magnitude/severity are not well-suited to this hazard. Although the forest beetles are unlikely to cause deaths or injuries or significant damage to property and infrastructures, it is killing millions of trees each year. The following table shows a breakdown of the number of forested acres affected by pest infestation in the State of Colorado in the last decade using data form the Colorado State forest Service. As shown in Figure 4-43 through Figure 4-47, Spruce Beetle populations have decreased since 2015, now only affecting less than 50,000 acres. Mountain Pine Beetle populations have also seen a decline. The Western Balsam Bark Beetle has seen an increase throughout the state, especially in 2021-2023 with 2022 being the highest year. The Mountain Pine Beetle, Douglas-Fir Beetle, and the Western Spruce Budworm all saw decreases around 2020, with a re-emergence in the last few years. All of these species are prevalent in Summit County, which follows trends of counties with similar elevation and vegetation. All of these pests have been found in Summit County in the last 5 years.

Figure 4-43 Spruce Beetle Affected Acres in Colorado 2015-2023



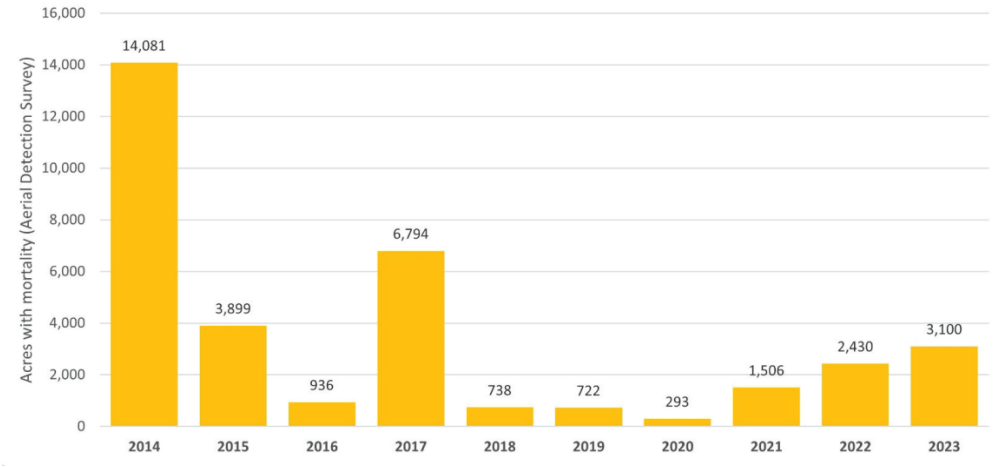
Source: Colorado State Forest Service (CSFS)

Figure 4-44 Douglas-Fir Beetle Affected Acres in Colorado 2015-2023



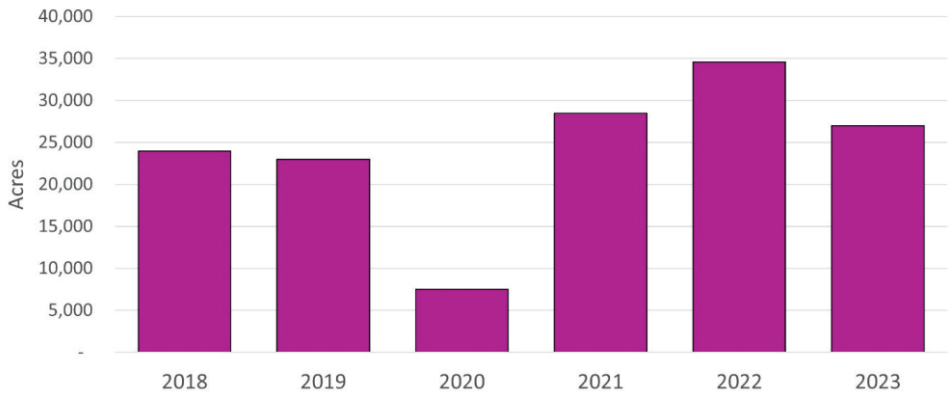
Source: Colorado State Forest Service (CSFS)

Figure 4-45 Mountain Pine Beetle Affected Acres in Colorado 2014-2023



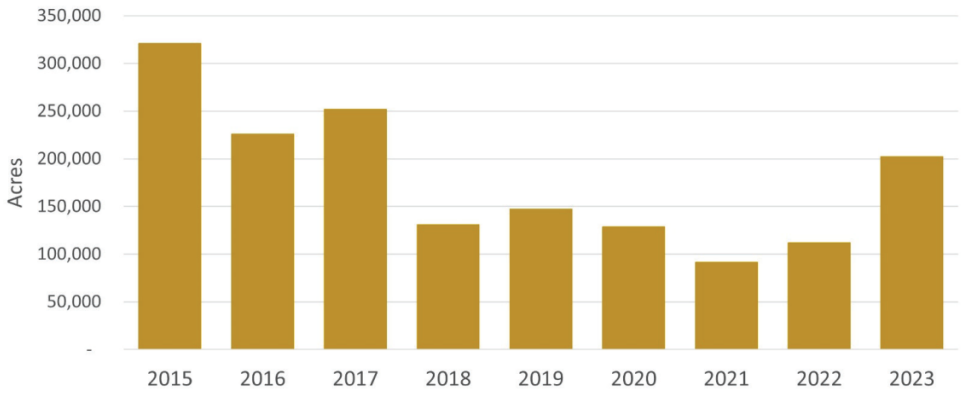
Source: Colorado State Forest Service (CSFS)

Figure 4-46 Western Balsam Bark Beetle Affected Acres in Colorado 2018-2023



Source: Colorado State Forest Service (CSFS)

Figure 4-47 Western Spruce Budworm Affected Acres in Colorado 2015-2023



Source: Colorado State Forest Service (CSFS)

The forest mortality resulting in a pest epidemic creates a number of direct and indirect hazards:

Deadfall and Blowdown: Approximately five years after mortality, the standing dead trees become markedly susceptible to falling and being blown down. This creates a hazard to lives and property near inhabited areas, travel corridors, and recreation areas. Some species such as the spruce beetle also thrive in blown down trees.

Power line impingement: The hazard to power lines from beetle impact forests merits specific attention. Power lines are dispersed throughout Colorado's forests, and the clearance around these lines is typically inadequate to address the threat of large scale mortality. Contact between power lines and trees has caused several fires in recent years and creates the potential for local power outages. It is noteworthy that a tree impinging on a powerline in California in 2018 caused the Camp Fire, the deadliest and most destructive wildfire in California's history. A similar situation occurred in Maui, Hawaii when strong winds caused a tree to fall into a power line, igniting a fire that destroyed 2,700 structures making it the deadliest wildfire in the U.S. in recent history.

Erosion: The loss of the lodgepole pine overstory should not increase erosion in and of itself. Quite unlike the effects of fire, the ground cover provided by duff, forest litter, and the understory remains in place. In fact, the surface litter load increases as needles, limbs, and tree stems fall to the forest floor in the years following mortality. Impacted areas may see an increase in overall water runoff in the absence of the water uptake required by a mature forest (Kaufmann et al 2008).

As lodgepole pine on the lower slopes of ski areas are lost, wind scouring may become more pronounced on ski runs, requiring increased snow fencing and other mitigative efforts to prevent loss of cover.

Hazardous fuels: There is no doubt that forest beetle epidemics greatly increase the amount of dead biomass in the forests, but predictions that this translates into an immediately drastic increase in the fire hazard is an oversimplification. While the infestation phase of the current MPB epidemic has largely run its course in Summit County, the impacts will continue to be felt for years as mortality continues, forests fall to the ground, and forest regeneration begins anew. As discussed in the Upper Blue River Basin Wildland-Urban Interface Forest Management Plan (Butler and Peterson 2009), moderate load conifer litter (fuel model TL3) can be expected to transition into high load conifer litter (fuel model TL5) as dead fall begins to accumulate approximately 10 years postmortem. As the understory is released and lodgepole pine regenerates, the fuel model is likely to become a very high load of timber and shrub (fuel model TU5) (Green 2007).

These changes in fuel loads will initially increase crown fire potential to some degree, as the needles dry on the trees. Once the needles and limbs begin to drop to the ground, crown fire potential diminishes, while the potential for more intense surface fire grows with the fuel load. Depending on how the new vegetation emerges on individual sites, the potential exists for very intense surface fires through brush and pine saplings until the forests mature. While it is impractical to treat the entirety of the affected area, fuels mitigation projects are being prioritized and undertaken near vulnerable areas as set forth in the Summit County Wildfire Protection Plan.

Aquatic nuisance species can have significant impacts on the natural environment as well as significant financial impacts on communities. Eradicating adult mussels specifically is extremely difficult and nearly impossible once established. Once identified in local waterways, controlling infestations become a permanent and expensive part of normal operations for communities. For example, the Metro District of Southern California will spend an estimated $10 million to $15 million annually in operations and maintenance costs to address quagga mussel infestation in its infrastructure (CPW 2018). The Mussel-Free Colorado Act signed by Governor Hickenlooper in 2018 provided funding source of $2.4 million for the state's ANS program in 2019. The Act requires boats to purchase an ANS stamp, increases fines related to

ANS violations, and allows CPW to charge labor/costs incurred to store and decontaminate intercepted vessels (CPW 2018).

4.12.7 Climate Change Considerations

Although some of the pests that thrive in Summit County can feed on healthy trees, many thrive on dying trees or trees dealing with the stresses of drought and warmer weather. Prolonged drought and warmer temperatures in Summit County's high-elevation forests have left subalpine fir trees susceptible to these beetles, meaning 40% of the forested areas in Summit County are at risk. Pests such as the Western Balsam Bark beetle see an increase in acres as they feed on already dying trees. In 2022 the Western Balsam Bark Beetles became the most prolific pest in the county, overtaking the Spruce Beetle.

According to the Summit County Climate Action Plan, forests grow slowly in the county due to the altitude, precipitation and colder than average temperatures. The plan states that, "most of Summit County's forests have been storing carbon for over a century" (Summit County 2018). The loss of forests due to pest infestations can have a larger impact on the county including increasing the output of greenhouse gases.

For quagga mussel populations, there is some evidence that a large infestation of mussels changes the carbon dioxide dynamics of waterbodies. In a study of the Great Lakes, increases in overall carbon dioxide emissions were observed in comparison with pre-invasion (1983-2006) levels, with fluxes three to four times higher in Lake Michigan and Huron. This caused the Great Lakes to become a significant atmospheric carbon dioxide source. The hypothesis was that quagga mussels altered carbon dioxide dynamics by decreasing primary production, increasing water clarity and photo-degradation of organic matter, and by the metabolic processes of the mussel population. Although studies cannot confirm the link between mussels and carbon dioxide emissions, studies do support claims that quagga mussels lower biodiversity and homogenize ecosystems, which can create situations where it may require significantly longer periods of time to recover from extreme climate-events.

For both forest and aquatic pests, changing climate conditions are expected to influence future pest infestation events. According to the Fifth National Climate Assessment, climate change is aiding in the spread of invasive species and often the changing climate favors the nonnative invading species over native ones. The State of Colorado Hazard Mitigation Plan (2023) identifies the following projected changes to pest infestations as a result of climate change:

Table 4-52 Climate Change Impacts

Impact	Projected Change
Location	Pests are projected to expand into more northern and higher elevation regions as average temperatures increase.
Extent/Intensity	Pest infestations are projected to increase in intensity as average temperatures increase. Extent may also increase.
Frequency	Pest infestations are projected to increase in frequency due to increased temperatures.
Duration	Crops are vulnerable to increased weeds and pests due to a longer growing season.

Source: Fifth National Climate Assessment (2023)

4.12.8 Vulnerability

General Property

The impacts to general property and the built environment due to forest pests are generally indirect. Bark beetles specifically have shown to have an impact on fuel structure and increased risk of wildfire. For

example, dead needles have a lower moisture content compared to green needles and typically play a role in crown fires. Approximately five years after mortality, the standing dead trees become markedly susceptible to falling and being blown down. This creates a hazard to lives and property near inhabited areas, travel corridors, and recreation areas.

Aquatic nuisance species have a direct impact on water infrastructure for municipal, agricultural and industrial purposes by attaching, clogging, and impairing water storage and distribution systems.

People

Impacts to people as a result of the pest infestation are generally indirect. In Summit County, pest infestations, both the kind of forest and aquatic, can impact the same areas used for recreational activities, and could possibly limit access to certain areas of the forest or limiting allowed activities on the County's reservoirs. Both the Dillon Reservoir and the Green Mountain Reservoir store water to benefit not only Summit County but much of the Front Range. Aquatic nuisance species such as the quagga and zebra mussels can have impacts on water infrastructure for communities in Summit County and Denver Water.

Critical Facilities and Infrastructure

The major pest identified in this section with the potential to impact critical infrastructure is the quagga/zebra mussel. As noted above, in large concentrations, zebra mussels can accumulate in waterways, clogging pipes and damaging equipment used for drinking water and irrigation.

As discussed previously, tree mortality can exacerbate the impacts of other hazards; dead trees can accelerate the spread of wildfire, adding to the vulnerability of infrastructure. The hazard to power lines from beetle impact forests merits specific attention. Power lines are dispersed throughout Colorado's forests, and the clearance around these lines is typically inadequate to address the threat of large scale mortality. Contact between power lines and trees has caused several fires in recent years and creates the potential for local power outages.

Economy

Pest infestations impact the economy through agricultural damage, structural damage, and property damage. Many visitors and tourists come to Summit County for recreational purposes and to enjoy the forested areas and the reservoirs. A healthy forest is good for the local economy. The spruce forests which are threatened by the beetles identified in the plan tend to be the same areas used for recreational activities. Lodgepole pines located on the lower slopes of ski areas that may be lost due to infestation can cause wind scouring to become more pronounced on ski runs, requiring increased snow fencing and other mitigative efforts to prevent loss of cover.

The United States Forest Service does routine fly overs of land to monitor for pest infestations. The HMPC reports that the amount of pests in Summit County in 2025 is low.

Historical, Cultural, and Natural Resources

The forest pests identified in this plan are all native to Colorado. Despite this, an epidemic of the beetle infestation can have impacts to forests. For example, many of the spruce forests being attacked by the spruce beetle are located at the headwaters of the Colorado River. Spruce forests also provide important habitats for several types of species including the boreal toad, Colorado's most at risk amphibian. Tree mortality as a result of infestation raises the wildfire threat in healthy forests, increasing the vulnerability, strength, speed and destruction of fires in the area.

Aquatic invasive species, such as the quagga and zebra mussels typically harm native species through predation, habitat degradation and competition for shared resources; they can muscle native species out of natural habitats and are a leading cause of population decline and extinction in animals.

Development Trends

Most likely, good development practices in the future would not have an impact on the planning area's vulnerability to forest and aquatic pest infestations.

4.13 Severe Winter Weather

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Severe Winter Weather	Large	Highly Likely	Critical	High

4.13.1 Risk Summary

- There is a high vulnerability to severe winter weather along highways and mountain passes
- Increased population exposed to hazards and emergencies during high tourist seasons
- Severe winter weather can isolate residents and travelers by closing roads into and out of the County.
- The County has experienced 393 severe winter weather events since 1950.
- Climate change projections show delays in early snowmaking and ski seasons being cut early due to decreased levels of snowpack, resulting in impacts to the local economy and lifestyle.
- *Related Hazards:* Avalanche, windstorm, hazardous material incidents

4.13.2 Description

Winter weather includes snow, ice, blizzard conditions, and extreme cold. Heavy snow can immobilize a region, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse roofs and knock down trees and power lines. The cost of snow removal, damage repair, and business losses can have a tremendous impact on cities and towns.

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

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

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

In 2001, the National Weather Service implemented an updated Wind Chill Temperature index. This index was developed to describe the relative discomfort/danger resulting from the combination of wind and temperature. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature. The National Weather Service will issue a Wind Chill Warning for Summit County when wind and temperature combine to produce wind chill values of -35°F.

The coldest months on average in Summit County are December and January and record minimum temperatures have fallen to -66°F. The average minimum temperatures are 18°F in Dillon and Breckenridge.

4.13.3 Location

Large – The entire County is susceptible to severe winter weather

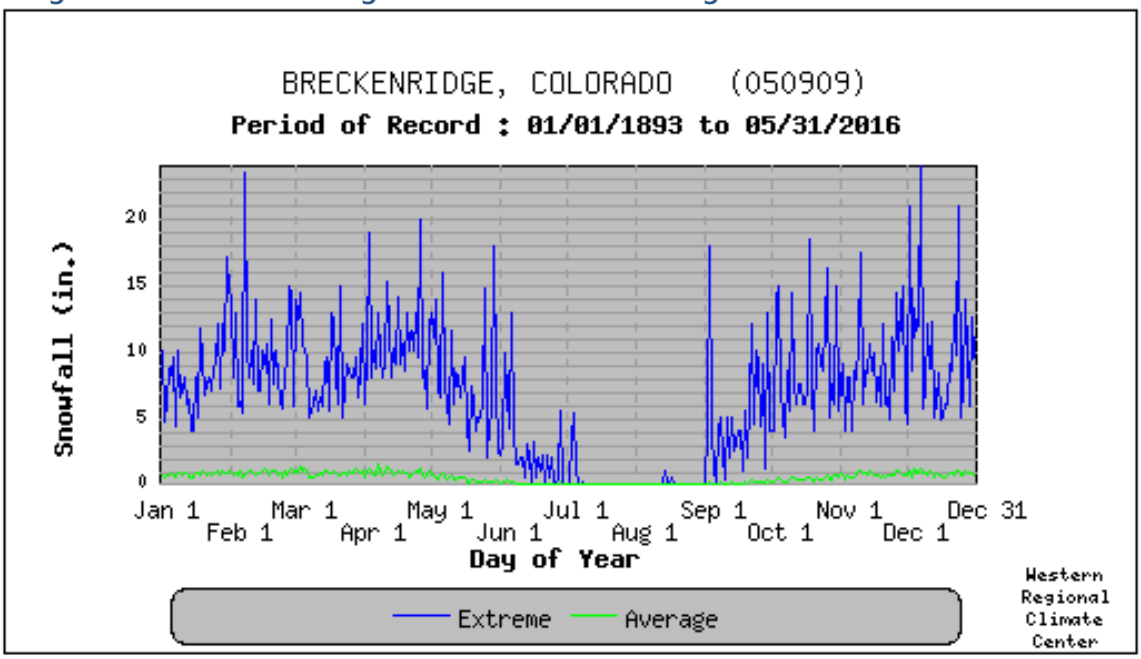
The Western Regional Climate Center reports data from weather stations in and around Summit County. The data reported here are from three of the stations: Breckenridge, Dillon, and Green Mountain Dam. Table 4-53 contains winter weather summaries for the three stations and illustrates differences within the County. Figure 4-48 through Figure 4-53 show daily snowfall and temperature averages and extremes.

Table 4-53 Summit County Winter Weather Summaries in Inches[1]

Station	Average Annual Total Snowfall (in.)	Average Snow Depth (in.)	Snowiest Month/Average Snowfall (in)	Highest Monthly Snowfall (in.)	Highest Seasonal Snowfall (in.)	Coldest Recorded Temperature (F)
Breckenridge[1]	163.6	7.0	March/23.6	94.1 Dec. 1983	292.6 1996	-66 3/2/1895
Dillon[1]	126.4	3.0	March/21.7	73.3 Feb. 1936	261.5 1951	-46 12/24/1924
Green Mountain Dam[2]	73.7	3.0	March/13.9	57.5 Jan. 1980	134.6 1979	-46 2/7/1980

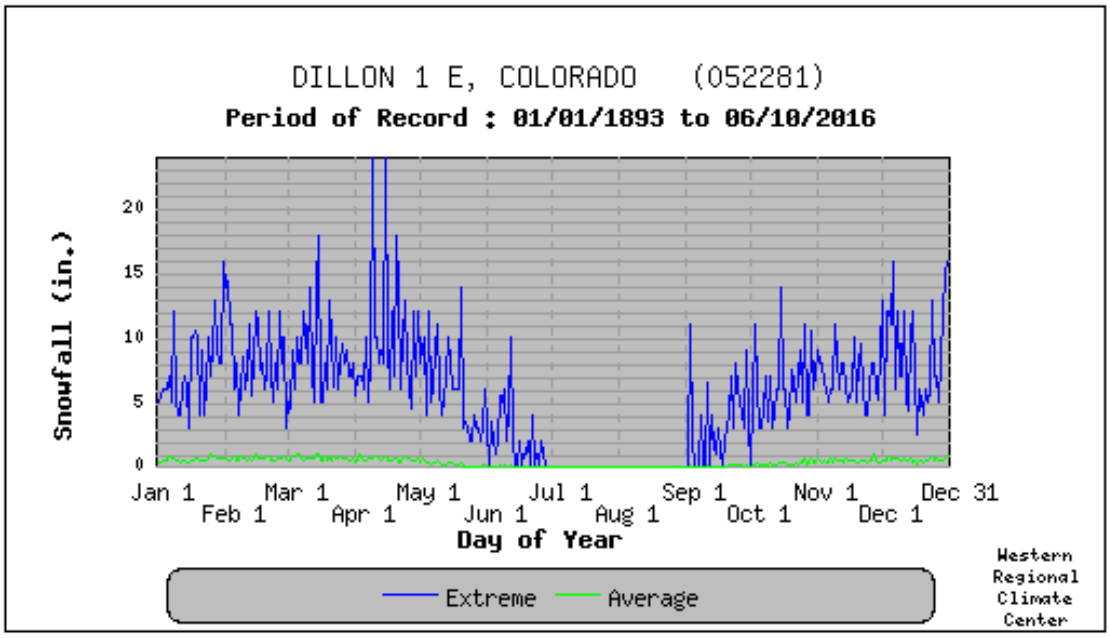
Source: Western Regional Climate Center, www.wrcc.dri.edu/
1 Period of Record 1893 – 2016
2 Period of Record 1939 - 2016

Figure 4-48 Breckenridge Station Snowfall Averages and Extremes: 1893-2016



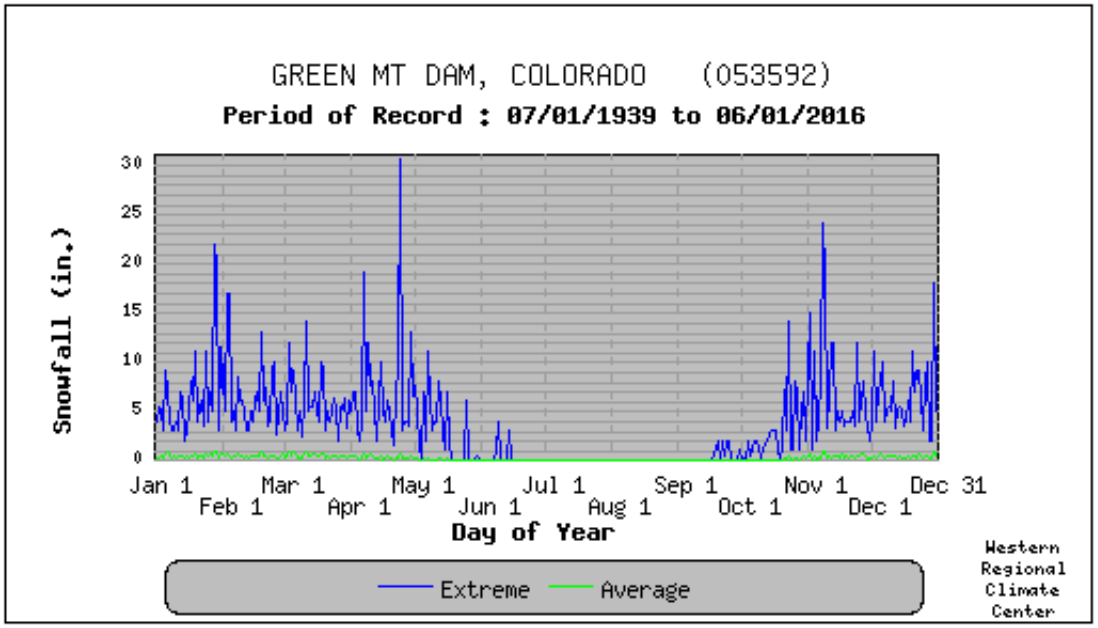
Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-49 Dillon Station Snowfall Averages and Extremes: 1893-2016



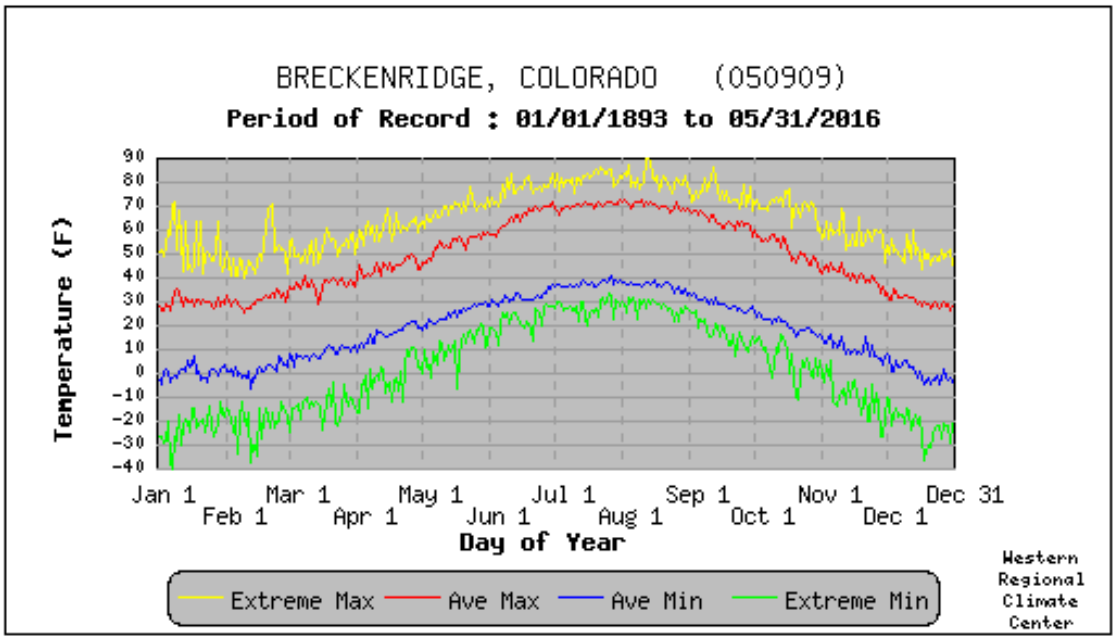
Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-50 Green Mountain Dam Station Snowfall Averages and Extremes: 1939-2016



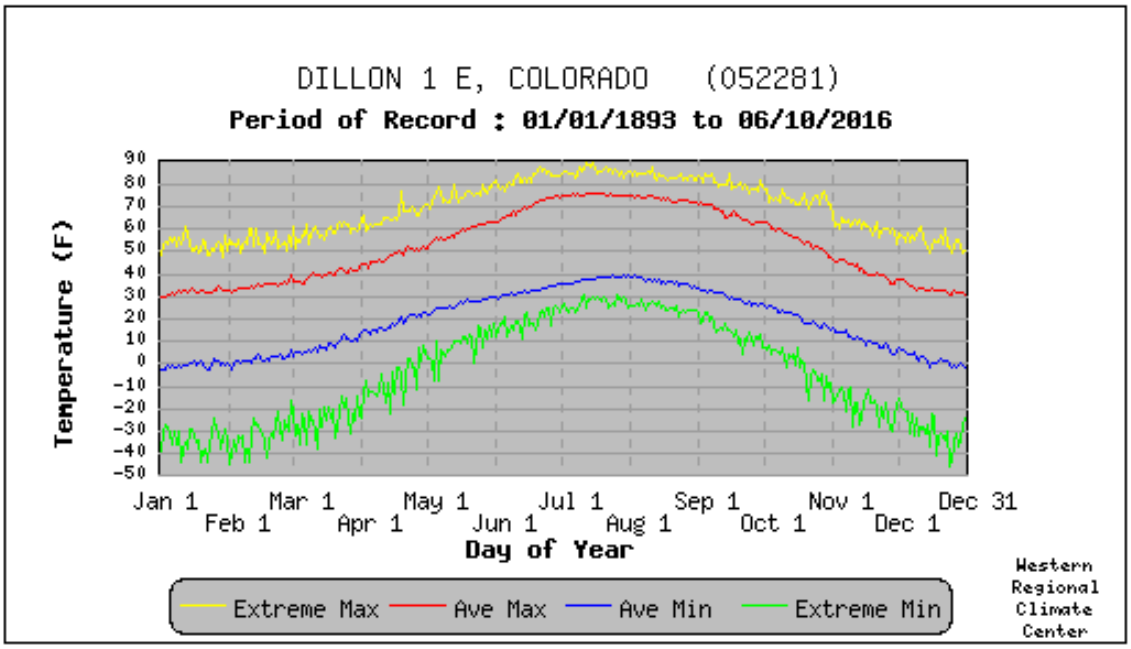
Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-51 Breckenridge Station Temperature Averages and Extremes: 1893-2016



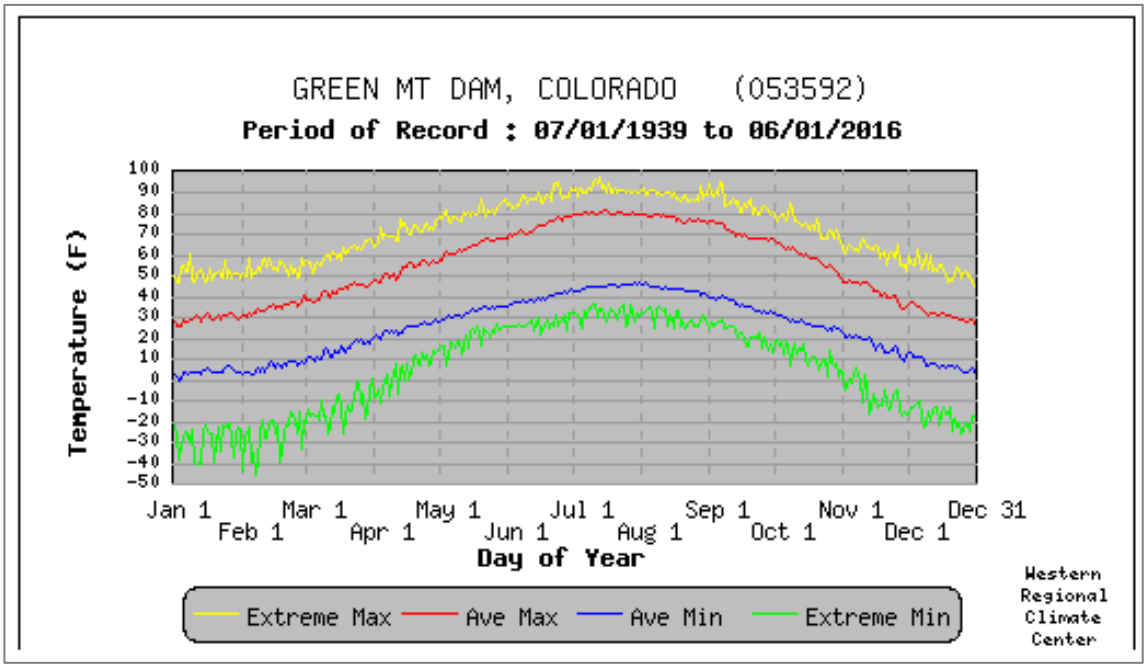
Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-52 Dillon Station Temperature Averages and Extremes: 1893-2016



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

Figure 4-53 Green Mountain Dam Station Temperature Averages and Extremes: 1939-2016



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

4.13.4 Previous Occurrences

Several major winter storms and blizzards have occurred in the planning area over the past several decades. Profiles of some of the more severe storms were obtained from the NCEI Storm Events Database. According to the Database there have been 393 severe winter storm events (includes blizzard, heavy snow, winter storm and winter weather events) between January 1, 1950 and December 31, 2024 that have impacted Summit County. The Storm Events Database does not have any records of deaths, injuries property damage or crop damage due to severe winter storm events, despite this is does not mean that these events did not have any impacts. Descriptions of notable events from the HMPC are included below. There were few significant events in 2011 and 2012, despite increased snowpack totals. This may be attributed to CDOT managing incidents from major winter storms along the I-70 corridor. Since the last plan update, CDOT has been proactively closing I-70 eastbound at Vail; according to the HMPC this has helped in reducing people being stranded in the county while the storm abates. The following are a list of significant events recorded in the Storm Events Database.

- **March 14, 2024**- A powerful winter storm struck the Front Range of Colorado March 13th and 14th, 2024, producing extremely heavy snowfall, difficult if not impossible travel conditions, and scattered power outages. While precipitation started in the form of snow in the mountains and foothills on March 13, it started as rain across the I-25 Corridor and plains. That rain mixed with and changed to heavy, wet snow across the Denver and Boulder metro areas during the late evening of the 13th. Storm totals included: 40.5 inches at St Mary's Glacier, 36 inches near Silverthorne, 28 inches at Breckenridge, and 25.0 inches in Frisco.
- **March 14, 2021**- Bands of snow developed over northeast Colorado into the northern mountains and foothills on the 13th, which then intensified overnight. The heavy snow then gradually shifted southward on the 14th and covered much of the area. The snow slowly decreased in the evening with only some lingering light snow across the plains continuing into the morning of the 15th. North winds increased to 25 to 35 mph, on the 14th, with gusts up to 50 mph. This produced

blizzard conditions along the I-25 Corridor from Palmer Divide north to the Wyoming border. Denver International Airport runways were closed, from noon on 14th until 2 pm on the 15th, with over 2000 flights canceled. All major Interstates were closed except for those areas around Denver and Fort Collins. Extensive drifting snow was observed, with drifts anywhere from 3 to 7 feet deep.

- **May 21, 2022**- A strong late season winter storm moved into Colorado on Thursday, May 20st, bringing much colder temperatures and heavy snow in and near the Colorado Front Range. Heavy, wet snow accumulated on trees which had already leafed out for the season, resulting in broken tree limbs and scattered power outages. At one point, Saturday morning May 22nd, nearly 100,000 customers along the Front Range were without power. Snow accumulated on roads in the higher terrain, and portions of I-70 west of Denver were shut down for a brief period of time. Total snow accumulations ranged from 1 to 11 inches across the Boulder and Denver metro areas, to 6 to 18 inches across the Palmer Divide, to between 6 to 24 inches across the foothills and mountains from Boulder County south through Park County.
- **March 6, 2019 -** A prolonged period of heavy snowfall during the first week of March produced historic avalanche conditions across the northern and central mountains of Colorado. Mountain highways including a large section of I-70 was closed on the 7th due to high to extreme avalanche danger. The snow was heaviest during the overnight hours when a concentrated band of heavy snow remained stationary over a large stretch of the Interstate 70 corridor, producing snowfall rates up to 2 inches per hour. Storm totals included: 17 inches near Loveland Pass; 15 inches near Silverthorne; 11 inches near Frisco; with 6 to 10 inches elsewhere. An avalanche that ruptured a natural gas line behind the Conoco station at Copper Mountain; and several other avalanches led to the closure of I-70 in both directions between Copper Mountain and Vail. The ruptured gas line created a power outage at the Eisenhower Tunnel. Colorado Department of Transportation (CDOT) crews were escorting 100 vehicles through the tunnel when the outage occurred. Interstate 70 between Silverthorne and Empire Junction was closed for about three hours in the area for avalanche mitigation. The Colorado Avalanche Information Center deemed several of the backcountry zones EXTREME (5 of 5), including Vail and Summit County. This was the first time this designation has been used since they converted to a ten-zone forecast format back in 2006. The warning comes after multiple avalanches over the previous weekend and an avalanche that has shut down Interstate 70 between Frisco and Vail early on the morning of the 7th. *(Refer to the Avalanche section for additional information on previous occurrences of avalanche events)*
- **March 1, 2019 -** A strong westerly flow aloft ushered a prolonged period of heavy snow and strong winds into the north central mountains of Colorado. The combination of snow and wind resulted in a high avalanche danger. An avalanche occurred along Interstate 70 between Frisco and Copper Mountain late in the afternoon on the 3rd. Several vehicles were trapped by the snow as it swept across the interstate. Another avalanche occurred near the same area earlier in the day. No injuries were reported, and the vehicles were able to pull out of the snow field. A large stretch of I-70 was closed through the mountains. On the 5th, both directions of Interstate 70 between Herman Gulch and Silverthorne were closed for 9 hours for avalanche mitigation work. One of the avalanches brought down more snow than expected and covered the westbound lanes with 15 feet of snow and the eastbound lanes with 8 feet. Storm totals for the 3-day event included: 27.5 inches near Hoosier Pass, Longs Peak, Loveland Pass; 26 inches near Berthoud Falls, Climax, Glendevey and Silverthorne; 25.5 inches near Frisco.
- **November 22, 2018 -** Heavy mountain snow developed in the northern mountains over the Thanksgiving weekend, impacting the Interstate 70 corridor the most on the 23rd and 24th. Significant travel impacts occurred due to the adverse conditions and multiple accidents. Both east and westbound lanes at Loveland Pass were closed due to adverse conditions on the 23rd.

Several multi-car crashes forced the closure of the I-70 west of the Eisenhower-Johnson Memorial Tunnels on the 24th. Two emergency shelters for motorists were opened in Summit County, where 80 people sought refuge. Storm totals included: 21 inches near Loveland Pass and 13 inches near Copper Mountain.

- **December 23, 2017 -** A powerful jet stream produced considerable snow and blowing snow in the northern Colorado mountains. Storm totals ranged from 6 to 12 inches. Strong winds with gusts ranging from 60 to 80 mph above timberline produced blowing and drifting snow, icy conditions with near zero visibility. The extreme weather conditions, numerous accidents and busy holiday travel forced the extended closure of Interstate 70 in both directions approaching the Eisenhower/Johnson Tunnel. Westbound I-70 was closed from Morrison Road to the tunnel and eastbound was closed at Vail, and from the Silverthorne exit to the tunnel. The closures started late in the afternoon of the 23rd and did not re-open until the following morning. According to CDOT, the Eisenhower Johnson Memorial Tunnel also lost power. Consequently, there was no control over the lights on the highway or the digital message boards. Temporary shelters had to be opened for stranded travelers.
- **April 5, 2016 –** Bands of moderate to heavy snowfall coupled with strong winds produced very poor road conditions along Interstate 70 near the Eisenhower Tunnel. Multiple crashes and poor visibility made travel difficult along stretches of Interstate 70 during the afternoon, forcing closures in several places. Eastbound I-70 was closed from Silverthorne to the Eisenhower Tunnel due to multiple crashes. Crashes also shut down westbound I-70 from Georgetown to the Eisenhower Tunnel. In addition, US-6 at Loveland Pass was closed due to an avalanche hazard. Storm totals during the day ranged from 3 to 6 inches in Summit County. Peak wind gusts included: 84 mph atop Peak 8 at Breckenridge Ski Area, and 62 mph atop Loveland Pass.
- **December 21, 2014 -** A winter storm produced heavy snow and very strong winds in the mountains of northern Colorado. Peak wind gusts to nearly 100 mph were recorded above timberline atop Loveland Pass. In addition, storm totals exceeded 2 feet in some locations. In the mountains, storm totals included: 22 inches near Breckenridge; 20 inches near Copper Mountain; 16 inches near Loveland Pass; 14 inches, 5 miles south-southwest of Blue River; Peak wind gusts included: 98 mph atop Loveland Pass and 79 mph at Breckenridge Ski Area.
- **January 29, 2014 -** A strong upper level jet stream coupled with abundant moisture from the Pacific brought an extended period of heavy snow to the North Central Mountains of Colorado where enhanced banded snowfall allowed storm totals to exceed 2 feet over a 3-day period. Storm totals included: 32.5 inches, 2 miles south-southeast of Breckenridge; 25.5 inches at Fremont Pass, 19 inches, 9 miles east-northeast of Dillon; 18 inches at Copper Mountain, 16 inches, 1 mile east of Dillon and 7 miles south-southwest of Frisco.
- **November 16, 2013 -** A storm system brought snow and strong winds to the high country. Storm totals generally ranged from 4 to 8 inches. Strong winds were also recorded above timberline. Peak wind gusts included 74 mph at Loveland Pass, with a gust to 72 mph at Copper Mountain.
- **April 13, 2013 -** A spring snowstorm brought heavy snow to the north central mountains of Colorado. Storm totals included: 12 inches at Breckenridge, 11 inches at Silverthorne; 10 inches at the Columbine and Copper Mountain SNOTELs; 9.5 inches at Frisco; 9 inches, 7 miles northwest of Silverthorne; and 8 inches in Dillon.

4.13.5 Probability of Future Occurrence

Highly Likely—Near 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.

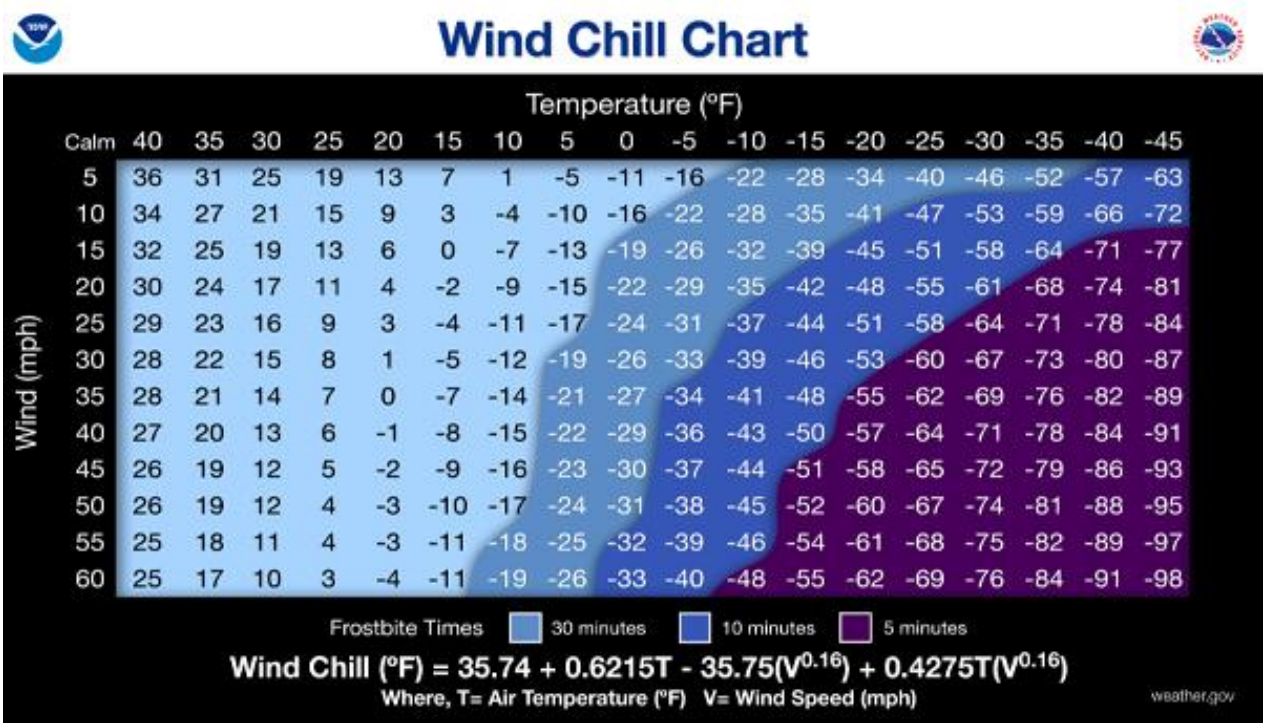
There were 393 recorded winter weather events in Summit County between 1950 and 2024. On average, there are 5 severe winter weather events in the County each year. Given Summit County's high elevation and mountainous terrain, snowstorms and blizzards are not expected but are an annual occurrence. Winter weather occurrence happen as frequent as multiple times a year per season especially from October through May.

4.13.6 Magnitude/Severity

Critical—Multiple injuries and illnesses; major or long-term property damage that threatens structural stability; and/or interruption of essential facilities and services for 24-72 hours

In 2001, the National Weather Service (NWS) implemented an updated Wind Chill Temperature index, which is reproduced in Figure 4-54. This index was developed to describe the relative discomfort/danger resulting from the combination of wind and temperature. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

Figure 4-54 Wind Chill Chart



Source: National Weather Service

The NWS has defined winter season watches, warnings, and advisories based on specific criteria. The following is a breakdown on the various warnings that could be issued:

- **Ice Storm Warning** is issued when a period of freezing rain is expected to produce ice accumulations of 1/4" or greater, or cause significant disruptions to travel or utilities.
- **Sleet Warning** is issued when a period of sleet is expected to produce ice accumulations of 1/2" or greater, or cause significant disruptions to travel or utilities.
- **Heavy Snow Warning** is issued when snow is expected to accumulate 4 inches or more in 12 hours, or 6 inches or more in 24 hours.

- **Winter Storm Warning** is issued for a winter weather event in which there is more than one hazard present, and one of the warning criteria listed above is expected to be met.
- **Blizzard Warning** is issued for sustained wind or frequent gusts greater than or equal to 35 mph accompanied by falling and/or blowing snow, frequently reducing visibility to less than 1/4 mile for three hours or more. Watches are issued when conditions may be met 12 to 48 hours in the future.
- **Wind Chill Warning** is issued when wind and temperature combine to produce wind chill values of -20°F.
- **Winter Weather Advisory** is issued when wintry weather is expected, and caution should be exercised. Light amounts of wintery precipitation of patchy blowing snow will cause slick conditions and could affect travel if precautions are not taken

Winter weather in Summit County, including strong winds and blizzard conditions, can result in property damage, localized power and phone outages, and closures of streets, highways, schools, businesses, and nonessential government operations. People can also become isolated from essential services in their homes and vehicles. A winter storm can escalate, creating life threatening situations when emergency response is limited by severe winter conditions. Other issues associated with severe winter weather include hypothermia and the threat of physical overexertion that may lead to heart attacks or strokes. Snow removal costs can impact budgets significantly. Heavy snowfall during winter can also lead to flooding or landslides during the spring if the area snowpack melts too quickly. High snow loads also cause damage to buildings and roofs.

Summit County can be isolated on all sides by highway closures or blocked vehicles stopped on the interstate for miles. With I-70 being the county's main transportation route, in the event of a severe winter storm, it can make it more difficult for the county to receive necessary supplies. The County usually has about three days' worth of commodities (food and gasoline). This supply is based upon the needs of a community of nearly 28,000 and is quickly depleted during peak tourism periods when the average daily population is over 100,000. During the December 2007 winter storm event stores already in short supply from the weekend were quickly emptied in one day from 2,500 stranded motorists.

4.13.7 Climate Change Considerations

Climate change has the potential to exacerbate the severity and intensity of winter storms, including potential heavy amounts of snow. A warming climate may also result in warmer winters, the benefits of which may include lower winter heating demand, less cold stress on humans and animals, and a longer growing season. However, these benefits are expected to be offset by the negative consequences of warmer summer temperatures. Climate change is making winter weather less predictable and potentially more dangerous. Increased storm variability, heavier precipitation, rising snowlines, and more freeze-thaw cycles can all contribute to hazardous winter weather.

The effects of climate change in Colorado have already been observed. The following climate change observations are noted in the 2018 Colorado State Hazard Mitigation Plan:

- Snowpack, as measured by April 1, 2018 snow-water equivalent (SWE), has been mainly below average since 2000 in all of Colorado's river basins, but long-term (30-year, 50-year) declining trends have been detected.
- The timing of snowmelt and peak runoff has shifted earlier in the spring by 1 to 4 weeks across the state's river basins over the past 30 years, due to the combination of lower SWE since 2000, the warning trend in spring temperatures, and enhanced solar absorption from dust-on-snow.

According to the 2018 Summit County Climate Action Plan the following impacts have already been felt by local ski industry:

- Higher night-time temperatures leading to delays in early season snowmaking.
- Compared to the late 1970s, the end of season snow is melting 15 to 30 days earlier, cutting the ski season short.
- Springtime snowpack levels have decreased at most monitoring sites since 1955.
- The reduction of skiers and winter tourists due to decreased snowpack could drastically affect local economy and lifestyle.

4.13.8 Vulnerability

General Property

Structural losses to buildings are possible and structural damage from winter storms in Colorado have resulted from severe snow loads on rooftops. Fall and spring snowstorms generally bring heavy and wet snow which impacts utilities, structures and even trees. Occasionally buildings and decks collapse from heavy snow loads. This occurred during the 2010-2011 winter when the Christy Sports shop in Frisco had a roof collapse. Vulnerability is influenced both by architecture and type of construction material and should be assessed on a building-by-building basis. For instance roof pitch and design, age and maintenance history, construction materials, and snow removal practices. "Roof avalanches" are a possibility after heavy snowfall events although it is uncommon, it has occurred in other mountain communities in Colorado.

It is difficult to identify specific winter weather hazard areas within Summit County. Data was not available to identify specific structures at risk or estimate potential losses to these structures. NCEI data did not provide enough details on past damages and casualties to perform an average annual loss assessment.

People

In the alpine environment of Summit County, severe winter weather occurs several times every season. The County is more vulnerable to the impacts of natural hazards during the winter months due to the increased volume of people living, working, and visiting here. The threat to public safety is typically the greatest concern when it comes to impacts of winter storms. While virtually all aspects of the population are vulnerable to the potential indirect impacts of a winter storm, others may be more vulnerable, such as the elderly and individuals with access and functional needs, particularly if there is a loss of electrical power.

The weight of heavy continued snowfall and/or ice accumulating on power lines often brings them to the ground causing service disruptions for thousands of customers. This can cause a loss of community water and sewer services, as well as the supply of gasoline, as these services almost always require electrical pumps. In addition, prolonged power outages can mean loss of food in grocery stores and other facilities such has restaurants.

The region can experience high winds and drifting snow during winter storms that can occasionally isolate individuals and entire communities and lead to serious damage to infrastructure. Travelers on Interstate 70 and U.S. 6 in the planning area, or particularly along the many remote stretches of road, can become stranded, requiring search and rescue assistance and shelter provisions. Persons that choose to live in these areas are generally self-sufficient or should be prepared to be self-sufficient for at least 72 hours, as government and emergency services may be limited during a severe winter storm.

Critical Facilities and Infrastructure

Vulnerability is high along roadways and mountain passes, particularly on Interstate 70 and U.S. 6, where severe winter weather conditions may cause traffic related deaths and injuries and increase avalanche risk. Road closures due to winter weather conditions also restrict or prevent the movement of people and goods and services (including food and gas), which can be crippling during the high tourism season and create the need for emergency sheltering for travelers. The potential for traffic accidents and multi-vehicle pile ups is a real possibility due to the combination of winter skier traffic and adverse weather.

Economy

Closure of Interstate 70 or U.S. 6 during winter storms could temporarily isolate Summit County and further isolate remote areas of the County. Depending on the length of the closure it could also hinder the local economy which is dependent on tourism and out of county visitors. Also, avalanche mitigation and storm related delays can temporarily close ski resorts or reduce operations, leading to reduced hours or lost of ticket sales. Summit County's geographic location makes it susceptible to disruptions in supply deliveries which can involve, grocery and retail stores, fuel deliveries, and construction and utilities can face delays.

Historical, Cultural, and Natural Resources

Natural resources may be damaged by the severe winter weather, including broken trees from avalanches. Unseasonable storms may damage or kill plant and wildlife, which may impact natural food chains until the next growing seasons. Most of these impacts would be short-term. As noted previously, older, historic buildings could potentially be more vulnerable to roof and structural damage from heavy snow. Some structures were constructed before adoption of modern snow load standards or were built with materials that have since degraded.

Development Trends

Future residential or commercial buildings built to code should be able to withstand snow loads from severe winter storms. The County adheres to the International Building Code (IBC), which includes specific provisions for roof snow load calculations, structural reinforcements, and energy efficiency standards appropriate for the county's environments. Population growth in the County and growth in visitors will increase problems with road, business, and school closures and increase the need for snow removal and emergency services related to severe winter weather events. Higher traffic volumes on I-70, U.S. 6, and other arterial roads will lead to more road closures during snow events.

4.14 Wildfire

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Wildfire	Large	Highly Likely	Catastrophic	High

4.14.1 Risk Summary

- The overall significance rating for Wildfire in Summit County is **High**
- Countywide there is an estimated $3.9 billion in total property value in moderate wildfire threat areas; $6.9 billion of total property value is in high wildfire threat areas; $36 million in property value is at exposed to highest wildfire threat
- A total of 7,768 properties were found in these wildfire threat areas, most of which are located in the unincorporated portions of the county.
- 16,579 properties and 62,713 people permanently reside within the Wildland Urban Interface (WUI)
- A large percentage of the population are exposed to wildfire threats across Summit County.
- Critical roads, including Interstate 70, Highway 6, and Highway 9, are also vulnerable to wildfire
- 122 critical facilities are identified in medium (with 101 facilities exposed), high (with 19 facilities exposed), or extreme (with 2 facilities exposed) wildfire risk areas.
- Unincorporated portions of the county contain the most at-risk critical facilities (with 78), followed by Breckenridge (13), Keystone (11), Frisco and Silverthorne (6), Dillon and Blue River (3)
- Related hazards: Earthquake, wildlife-vehicle collisions, drought, dam incidents, landslide/mudflow/debris flow/rockfall.

4.14.2 Description

Wildland fire is a naturally occurring disturbance across the landscape of the western United States. While the vegetative communities in Summit County are for the most part adapted to this natural force, many human communities are not. The Wildland-Urban Interface (WUI) is the convergence of these two communities and is defined in the Colorado State Hazard Mitigation Plan (2023) as the area where houses meet or intermingle with the undeveloped wildland or vegetation fuels. These WUI areas take into account significant developments in unincorporated Summit County.

The degree of hazard posed by wildfire is largely a function of the potential fire behavior. Fire behavior is the manner in which a fire reacts to the influences of fuel, weather, and topography. A low intensity, slow moving surface fire is obviously less hazardous to human communities than a rapidly moving crown fire. Fire behavior may be classified as ground fires smoldering in duff and roots, surface fire burning in the forest litter (e.g. grass and low shrubs), or crown fires. Crown fires move through the canopy of trees or shrubs and can be further categorized into active or passive. A passive crown fire, often called "torching", ignites individual or small groups of trees. An active crown fire spreads through the forest canopy as a flaming front. High intensity surface fires and crown fires pose the greatest challenge to suppression resources and the greatest threat to community values.

Generally, there are three major factors that sustain wildfires and predict a given area's potential to burn. These factors are fuel, topography, and weather, described herein.

- **Fuel**—Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and by volume and categorized via fire behavior fuel models. Fuel sources are diverse and include everything from dead tree needles and leaves, twigs, and branches to dead

standing trees, live trees, brush, and cured grasses. Other fuel sources that need to be taken into account include built structures such as homes and associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Light fuels such as grasses burn quickly and serve as a catalyst for fire spread. In addition, "ladder fuels" can spread a ground fire up through brush and into trees, leading to a devastating crown fire that burns in the upper canopy and cannot be controlled. The volume of available fuel is described in terms of fuel loading.

- **Topography**—An area's terrain affects its susceptibility to wildfire spread. Both fire intensity and rate of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The distribution and types of vegetation on a hillside can also contribute to increased fire activity on slopes.
- **Weather**—Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out the fuels that feed the wildfire creating a situation where fuel will more readily ignite and burn more intensely. Wind is the most treacherous weather factor. The greater the wind, the faster a fire will spread and the more intense it will be. In addition to wind speed, wind shifts can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. Lightning also ignites wildfires, which often occur in terrain that is difficult for firefighters to reach. Drought conditions contribute to concerns about wildfire vulnerability. During periods of drought, the threat of wildfire increases, and water sources may be scarcer.

Wildfires pose significant concerns throughout Colorado. According to the Colorado State Forest Service, vegetation fires occur on an annual basis; most are controlled and contained early with limited damage. For those ignitions that are not readily contained and become wildfires, damage can be extensive. There are many causes of wildfire, from naturally caused lightning fires to human-caused fires linked to activities such as smoking, campfires, equipment use, and arson.

According to the State of Colorado Hazard Mitigation Plan, a century of aggressive fire suppression combined with cycles of drought, changing land management practices, and the increase in beetle and other pest infestation occurrences (which affect the lifecycle of vegetation and tree survival in areas like Summit County) has significantly changed the face of Colorado forests. Further, the threat of wildfire and potential losses are generally on the rise as human development and population increases and the wildland-urban interface expands.

4.14.3 Location

The geographic extent of this hazard in Summit County is **large**, with over 50% of the planning area having a potential to be affected.

Throughout the county, both natural and manmade assets are at risk to wildfires. With almost 80% of the County's over 396,000 acres under United States Forest Service (USFS) management, the vast majority of the county will remain in an undeveloped condition that is susceptible, and largely adapted to, periodic wildfire. Figure 4-55 below shows the risk to assets, with the areas between Silverthorne and Frisco having a high risk to assets.

With Summit County's population on the rise, having grown 2.94% from 2018 to 2023 and being predicted to grow another 12.5% on average by 2030 (Summit County Planning, 2019), the WUI within this planning area continues to expand dramatically. The wildland urban interface geographic ratings are based on fuel hazard, risk of fire, essential infrastructure at risk, community values at risk, and local preparedness and firefighting capabilities. Within the risk areas, the plan identified "fire focus areas" for specific project planning and mitigation efforts. These focus areas are considered the highest risk areas and are shown on the map below enclosed in purple polygons.

Figure 4-56 illustrates Summit County's wildland-urban interface which includes forested areas within town boundaries, extends 0.5 miles beyond town boundaries, and includes significant developments in unincorporated Summit County (Summit County Community Wildfire Protection Plan 2018). For more details on the specific housing density percentages within the WUI boundaries, refer to the Summit County CWPP document.

Figure 4-57 uses the wildland urban interface layer and includes a layer showing flame length data. Adding this layer shows where the greatest potential impact to homes and people is likely to occur. This figure shows that jurisdictions such as Breckenridge and Silverthorne have the most areas within the wildland urban interface at risk of wildfires.

Figure 4-55 Wildfire Risk to Assets

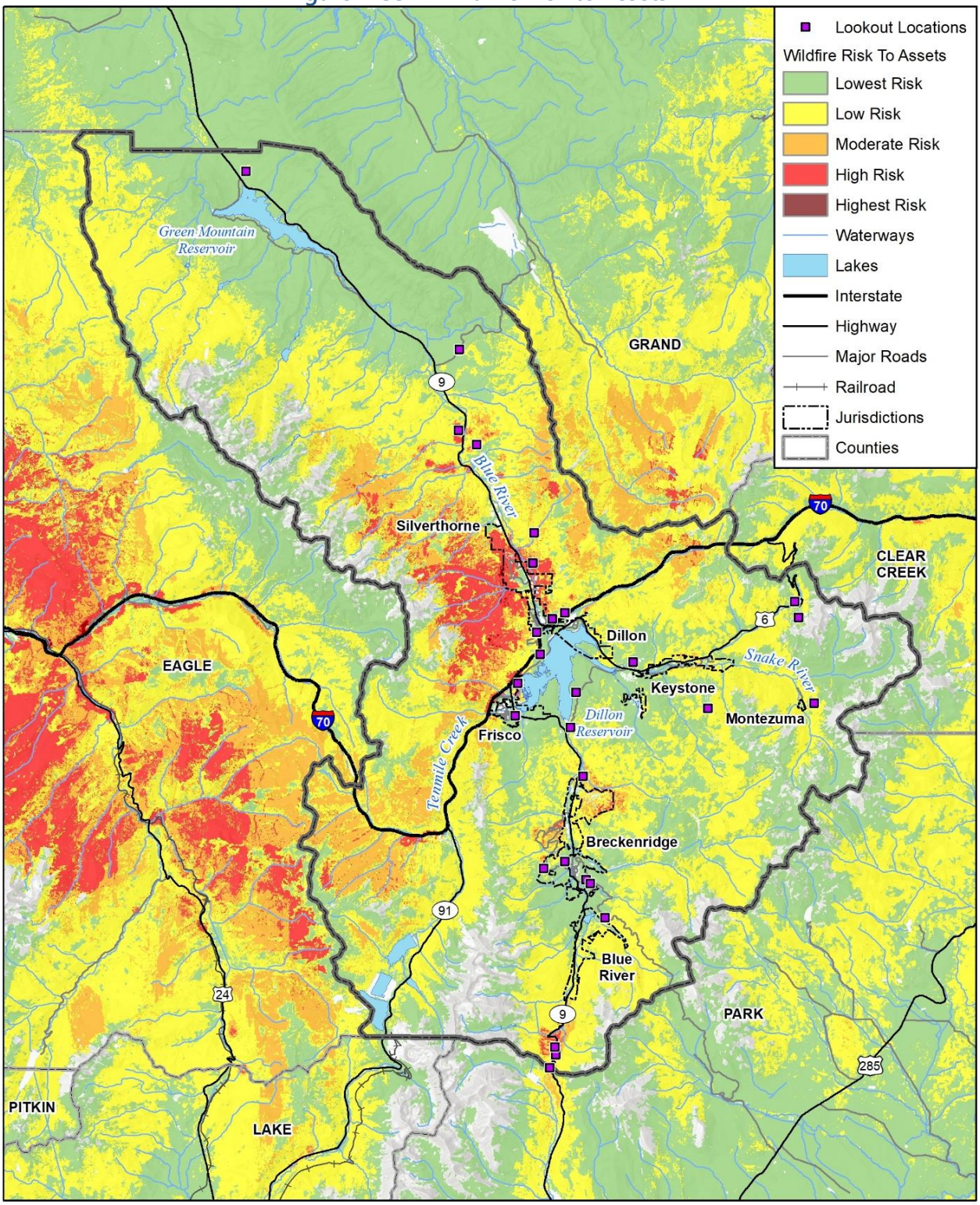


Figure 4-56 Summit County Wildland Urban Interface

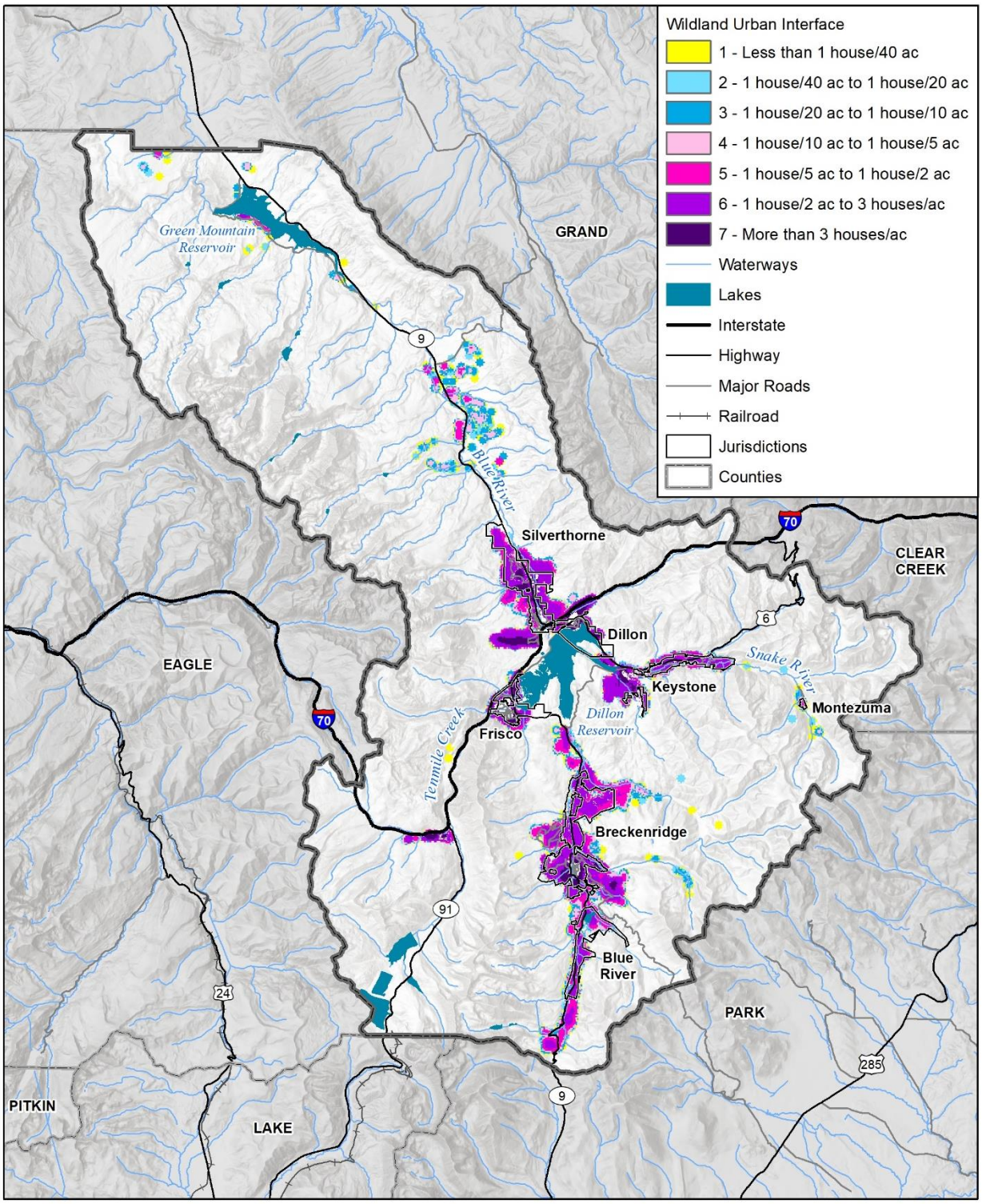
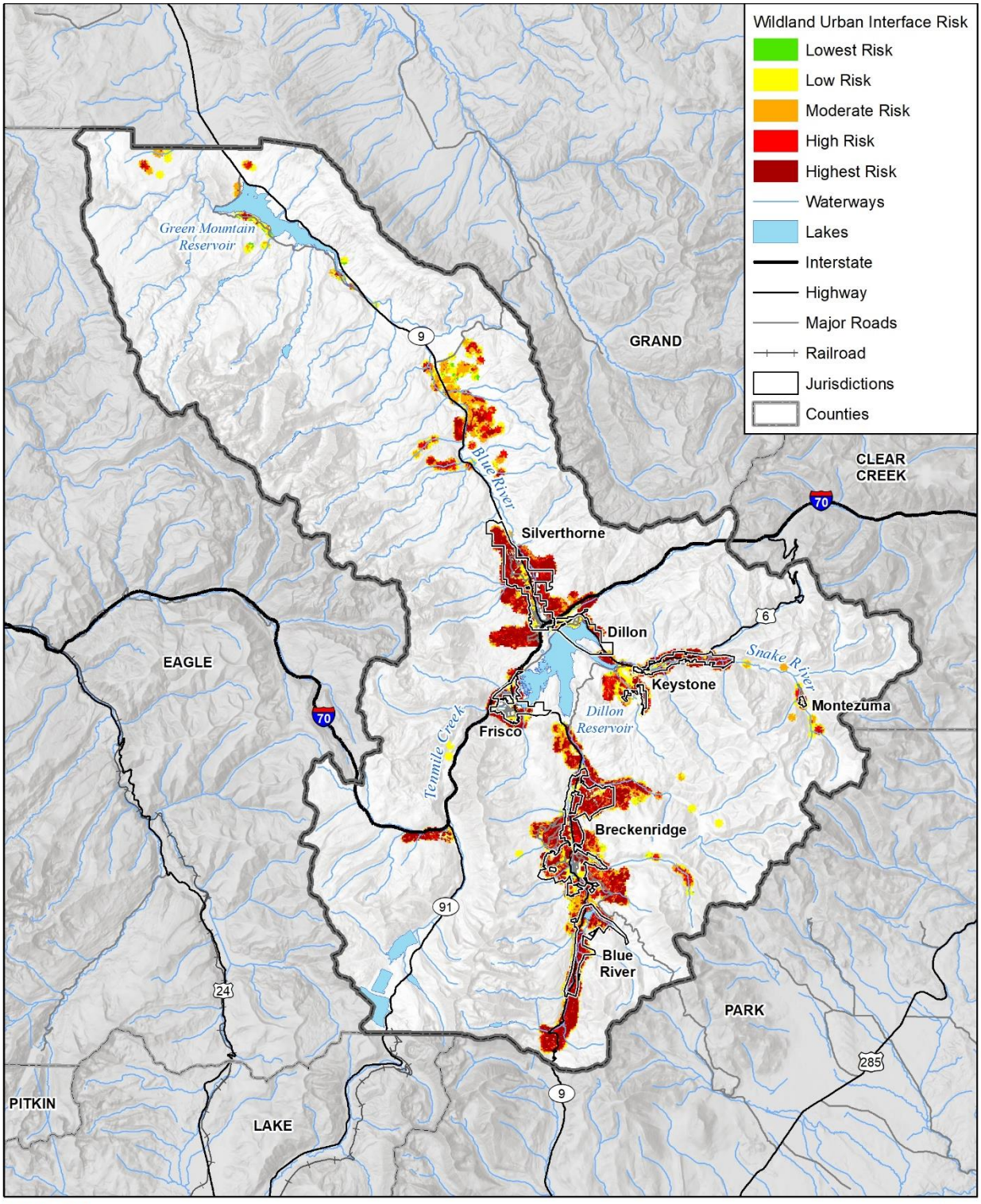


Figure 4-57 Wildland Urban Interface Risk



4.14.4 Previous Occurrences

Wildland fire occurrence has been historically focused around the most populated areas in the center of the county, as portrayed in the wildfire history map below (Figure 4-58) . The majority of Summit County's wildfires since 1980 have remained smaller than a quarter of an acre. Most fires between a quarter acre and ten acres have been concentrated in the same areas around the I-70, Highway 6, and the Colorado State Highway 9 corridors over the years (see the fire occurrences in the county from Figure 3-34). Since the year 2000, only Brush Creek Fire in 2015 and the Peak 2 Fire in 2017 have exceeded 100 acres. The 2017 Peak 2 Fire led to a governor-declared disaster emergency, which was signed on July 19th of that year, under Executive Order D-2017-018. It authorized deployment of the Colorado National Guard in order to assist Summit County and its communities with fire suppression, evacuations, and general alerting/response operations. Fires of over 1 burned acres have taken place throughout the county, as summarized in Table 4-54 below.

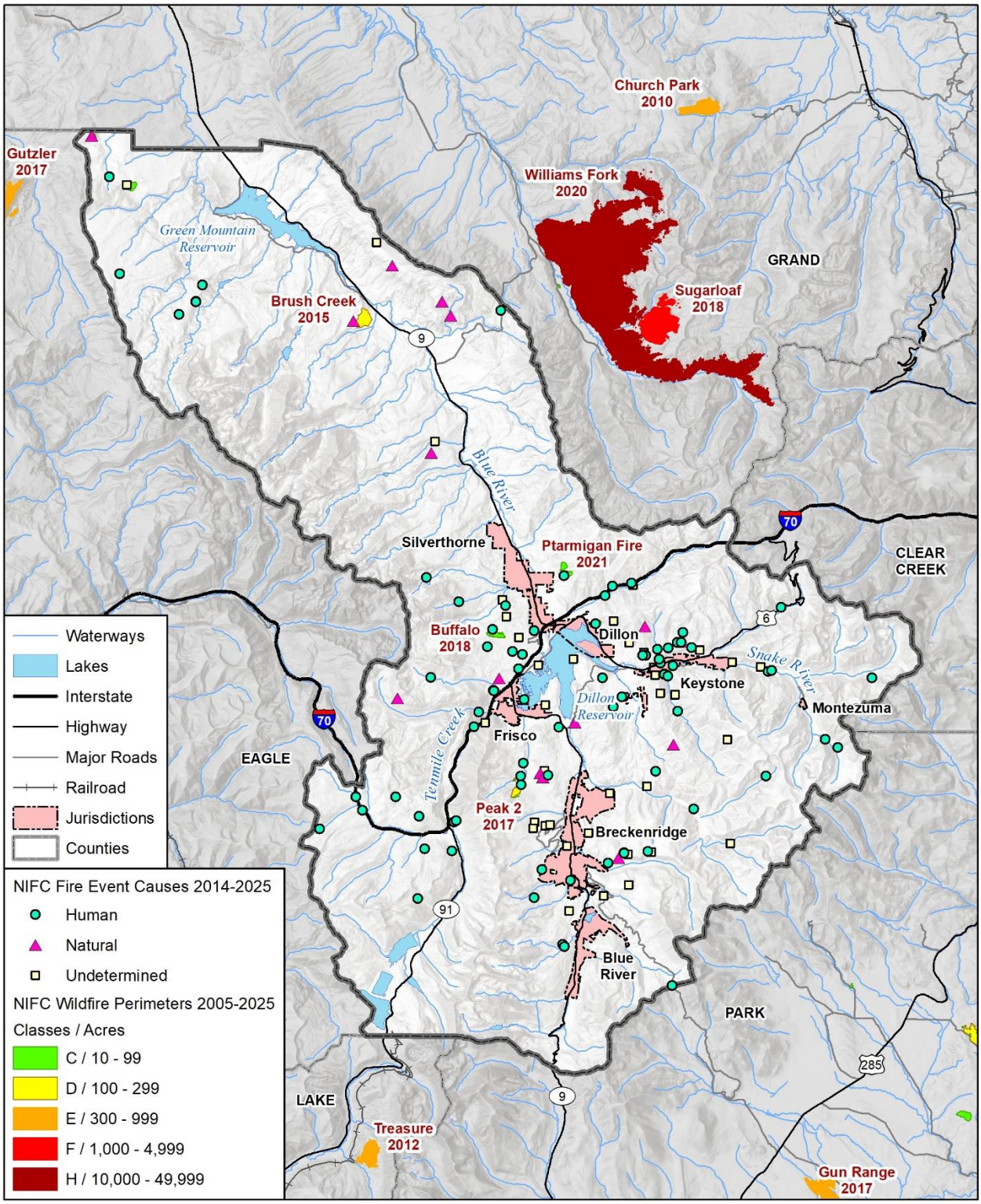
Table 4-54 Summit County Recent Fire History

Year	Fire Name	Fire Cause	Acres
2015	Brush Creek	Natural	229
2016	Frey Gulch 2	Human	22
2017	Peak 2	Human	84
2017	Tenderfoot 2	Human	25
2018	RX EZ Piles	Unknown	133
2018	Buffalo	Human	91
2020	Deep Creek Fire	Unknown	89
2020	Dice Hill	Natural	27
2021	Ptarmigan	Human	84
2021	Straight Creek	Undetermined	6
2021	Shooting Range Command	Human	5
2021	Williams	Natural	1
2023	Pasture	Natural	4
2024	Meadow Creek	Human	1
		Total	**800**

Source: National Interagency Fire Center (NIFC)

While there is no recent history of larger fires beyond 240 acres, the potential impact of wildland fires in Summit County should not be underestimated. In addition, many areas in Colorado and across the west are beginning to see fires of unprecedented size and intensity, especially given recent development trends, multi-year droughts, and human activity in wildland areas. In nearby Grand County, the Williams Fork fire burned 14,833 acres in August 2020. Grand County also had the Sugarloaf fire in 2018, which occurred near the area where the Williams fire would be two years later. The sugarloaf fire burned 1,280 acres. Statewide, wildfires ignited in counties such as Larimer and Boulder saw major destruction of both natural and manmade assets. The Cameron Peak wildfire in Larimer County burned 208,913 acres in 2020, while the Marshall Fire in Boulder County burned 6,219 acres and more than 1,000 homes. Although historically Summit County has not had a wildfire to that extent, it will be very important to continue to mitigate and plan for more windy and dry conditions throughout the county in the next decade.

Figure 4-58 Summit County Wildfire History



Map compiled 6/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
U.S. Forest Service, National Interagency Fire Center (NIFC)

Summit County has a pronounced summer fire season that peaks in July, however wildfire season has extended throughout the year, as shown with the Marshall Fire in December. Based on the county's CWPP, approximately 99% of the total Summit County population live within the WUI areas, so that summertime populations (which may include tourists and temporary visitors engaging in warmer weather activities) may be exposed to the highest wildfire risk.

Previous and recent occurrences of this hazard are described in more detail in the bullet points below.

- **September 27th, 2021 –** The fire started in the Ptarmigan Wilderness on U.S. Forest Service land northeast of Silverthorne. The first reports of smoke sightings from Ptarmigan Mountain came around 4:30pm, according to Summit Fire and EMS. At 6pm the Summit County Sheriff's office issued an evacuation order for residents on Lakeview Circle and then a full evacuation order for the entire neighborhood at 8pm. The fire burned overnight with the main fuel being heavy mixed timber and stands of dead and downed lodgepole pine trees. The 86-acre fire was contained by 6pm the next day.
- **June 1, 2018** – The Buffalo Mountain Fire near Silverthorne (reported to have started between Mesa Cortina and Buffalo Mountain trailheads) led to around 1,400 homes requiring evacuation, as well as road closures. That year was very dry and hot, and more than 800 firefighters were busy keeping homes along the fire's perimeters safe. The White River National Forest required closure due to this fire activity, especially near the Wildernest and Mesa Cortina subdivision areas. The cause of this fire was unknown. The area burned was near an area of a defensible space mitigation project funded by a FEMA Pre Disaster Mitigation grant in 2008-09. The project was considered to help reduce damages from the fire.
- **September 18, 2017** – The Tenderfoot 2 Fire started from a power pole insulator failure next to Highway 6 near Dillon, sources claim. The estimated 20 to 25 acres affected did not lead to any evacuations, but the Corinthian Hills and Oro Grande neighborhoods were under careful watch during the fire.
- **July 5, 2017** – The Peak 2 Fire was reported around 11 a.m. on July 5th, between Breckenridge and Frisco (in the Miner's Creek drainage area). It was about 2 miles north of the northernmost ski runs in Breckenridge, in a dense lodgepole and dead/down beetle-killed pine zone. The nearby community of Peak 7, which included around 463 properties, was evacuated. It is unknown what the cause of the fire was.
- **October 2, 2015** – Lightning caused the Brush Creek Ranch fire according to the U.S. Forest Service. The blaze that began during the afternoon of October 2 of that year as a small 1.5 acre fire was fully contained by 9 p.m. on October 4th. Over 100 firefighters and crewmembers were required to establish a fire line that eventually stopped the fire's spread. Mutual aid was provided by the Red, White and Blue Fire Rescue, the Copper Mountain Fire Department, Vail Fire and Emergency Services in nearby Eagle County, Kremmling Fire Protection District, and Alpine Hotshots, Park County, and Bureau of Land Management, the USFS, and a Department of Corrections Juniper Valley Hand Crew member.
- **March 29, 2012 –** Power lines in high winds ignited a 2.7 acre fire on Denver Water lands near Keystone Ski Resort. Several homes were evacuated, access to the town of Montezuma was closed and watershed lands were potentially threatened.
- **June 2, 2011 -** The Gulch Fire (Lake Dillon Fire Protection District, now part of Summit Fire & EMS) was caused by power lines in high winds near Keystone Ski Resort. It reached 18 acres and a Type III incident management team was mobilized. Thirty condominium units were evacuated. *Note, as of January 2020 Lake Dillon Fire Protection District is now Summit Fire & EMS.*
- **June 6, 2010 -** The Ruby Road Fire (Red, White, and Blue Fire Protection District) was started by juveniles and threatened a subdivision.

- **May 29, 2010 -** The Lake View Circle Fire (Red, White, and Blue Fire Protection District) was started by juveniles playing with fireworks and burned 1.8 acres. Several structures were threatened.
- **June 2006** - The Brinker Fire, near the Williams Fork Reservoir, was in Grand County, very close to the county line. It burned about 30 acres and was caused by arson.
- **September 19-20, 2005** - The Ophir Mountain Fire (Red, White, and Blue Fire Protection District) burned approximately 16 acres. Summit High School and about 50 homes were evacuated. Up to five homes were in immediate danger of being destroyed. Caused by a damaged power line, the fire spread quickly through beetle-killed lodgepole pine trees, mostly in the White River National Forest near Farmer's Korner. The fire burned on land designated in the County's Community Wildfire Protection Plan as high priority because of heavy fuel loads, ground litter, and its proximity to development. Southbound State Highway 9 was closed at the Nordic Center in Frisco.
- **July 17, 2005** - The Meadow Creek fire burned 2 acres near the Meadow Creek trailhead in Frisco. It was human-caused and took four days to extinguish.

Since 2020 there have been 72 projects that included the treatment, burning, and thinning of 595.75 acres throughout the county. These projects created fuel breaks and roadside thinning to slow down and stop the spread of a wildfire if one were to occur. The HMPC provided the following information about wildfire prevention projects since 2020:

Table 4-55 Wildfire Prevention Projects in Summit County 2020-2025

Year	Number of Projects	Acres of Fuels Treatment Projects
2025	17	89.43
2024	14	123.63
2023	9	60.22
2022	13	171.76
2021	9	42.88
2020	10	107.81
Total	**72**	**595.73**

Source: HMPC

Additionally, the HMPC provided these additional comments about wildfires in the planning area:

- A fire in neighboring Grand County resulted in smoke issues for Summit County in the past.
- 2018 California fires also brought smoke into county.
- Fire bans are a common tool in the county to prevent potential fires.
- Campfires not put out completely have posed issues across the County.
- Summit County's Public Health noted receiving calls from tourists asking if they should cancel their trips because of smoke issues.

4.14.5 Probability of Future Occurrence

Highly Likely—Near 100% chance of occurrence next year or happens every year

Significant wildfires take place in Summit or neighboring counties every 2-3 years on average, based on the latest decade trends. As such the County will continue to experience wildfires on an annual basis, though larger ones may be less frequent.

The mature even-aged lodgepole pine stands found locally were established after heavy mining and settlement utilization from 1860 to 1940 (USDA 2004). These forests tend to experience either very small

low intensity surface fires or high severity stand replacing fires. Large scale crown fires are infrequent, with fire return intervals on order of 100 to 300 years (Anderson 2003, Lotan et al 1985, Arno and Fielder 2005). The spruce-fir stands that develop on moist, cool sites also experience infrequent stand replacing fires on order of 150 to over 300 years apart.

4.14.6 Magnitude/Severity

Catastrophic—Multiple deaths possible; property destroyed and severely damaged highly likely; interruption of essential facilities and service for more than 72 hours common.

Potential losses from wildfires include the following:

- Injuries or deaths to people and wildlife
- Damages or losses to structures and other improvements
- Natural and cultural resources being impacted (e.g. burned down)
- Losses of assets such as timber and ranges
- Negative impacts to recreational opportunities
- Decreases in the quality and quantity of the water supply
- Economic losses
- Tourist income reductions

Smoke and air pollution from wildfires can be a severe health hazard. In addition, wildfires can lead to secondary impacts due to vegetation loss such as future increases in flooding, landslides, and erosion during heavy rains.

Predicting the intensity of a wildfire, its rate of spread, and its duration are important for wildfire mitigation activity, response, and firefighter safety. Three key factors affect wildfire behavior in the WUI:

- **Fuels:** The type, density, and continuity of surrounding vegetation and, sometimes, flammable structures, which provide fuel to keep a wildfire burning. Fuels consist of combustible materials and vegetation (including grasses, leaves, ground litter, plants, shrubs, and trees) that feed a fire.
- **Weather:** Relative humidity, wind, and temperatures all affect wildfire threat and behavior.
- **Topography:** The steepness and aspect (direction) of slopes, as well as building-site locations, are features that affect fire behavior.

Very often the only factor that a community can have direct influence over is fuel.

The Colorado Forest Atlas provides a description of fire intensity potential based on the conditions within the planning area. The tool uses the Fire Intensity Scale (FIS), which uses fuels, topography, and weather as inputs to determine potential fire intensity for a given location. FIS consists of five classes, where the order of magnitude between classes is ten-fold. The minimum class (Class 1 represents very low wildfire intensities, and the maximum class (Class 5) represents very high wildfire intensities.

Descriptions of the FIS classes are listed below:

- **Class 1** – Lowest Intensity: Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
- **Class 2** – Low: Small flames, usually less than two feet long; small amount of very short-range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.

- **Class 3** – Moderate: Flames up to eight feet in length; short-range spotting possible. Trained firefighters find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
- **Class 4** – High: Large flames up to 30 feet in length; short-range spotting common; medium range spotting possible, Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
- **Class 5** – Highest Intensity: Very large flames up to 150 feet in length; profuse short-range spotting frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

The majority of the planning area is classified as low to moderate for fire intensity. Given the lack of history of damages from wildfires in the planning area and low to moderate fire intensity, severity is estimated to be **negligible**, although the possibility for more damaging fires does exist.

The Keetch-Byram Drought Index (KBDI) monitors fire danger using maximum daily temperature, and daily, antecedent, and annual precipitation. As shown in Table 4-56, the index ranges from 0 (no drought) to 800 (extreme drought).

Table 4-56 Keetch-Byram Drought Index (KBDI)

KBDI	Description
0-200	Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in sports and patches.
200-400	Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possibly through the night.
400-600	Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
600-800	Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

Source: U.S. Forest Service Wildland Fire Assessment System, 2019

4.14.7 Climate Change Considerations

Climate change is, and will continue to, increase wildfire frequency and amplify its ability to spread rapidly. The Fifth National Climate Assessment (NCA5) explicitly documents that climate change has caused wildfires to become larger, more frequent, and more severe in the western United States. In recent decades wildfires in the western United States have become larger, hotter, and more destructive and deadly due to a suite of factors, including climate change. Development in the last 50 years has greatly expanded the wildland-urban interface and increased human-caused ignitions, jeopardizing people, property, and infrastructure. Climate change has increased the area burned and severity of wildfires and impacts on the environment, human health, and society. Wildfires can impact snowmelt, runoff, and vegetation as well as cause smoke-related health risks, risks to critical infrastructure and properties, and reduced access for recreation and other cultural practices.

Current scientific models expect Colorado will be affected by increased numbers of forest fires with added intensity due to longer warmer seasons, reduced distribution of biodiversity, lack of moisture, changes in ecosystems, drought impacts (e.g. pest diseases and continued spread of invasive species), and other impacts in coming years. The extending of the wildfire season into winter months, coinciding with

seasonal high wind patterns, has contributed to severe fires in the last ten or so years. Mountainous zones of Colorado have seen many destructive wildfires in past years, whether natural or human caused, and the expectation is that worsening warmer and drier conditions would continue to impact Summit County and nearby areas. Climate change has produced warmer and drier conditions with prolonged droughts that stress forest vegetation. This can facilitate pest outbreaks and tree death that can lead to accumulation of surface fuel. Climate change has also increased vapor pressure deficit that dries fuels altering fire behavior that results in large, hotter, and more severe fires.

4.14.8 Vulnerability

Vulnerabilities to wildfire include:

- Structures and private property
- People, especially those living in the Wildland Urban Interface
- Critical Infrastructure as well as power lines and roadways
    - Key Resources and assets such as medical facilities, schools, watersheds, reservoirs, and public/government buildings
- Impact to economic condition of the county
    - Tourism and habitat resources such as trails, ski resorts, dispersed recreation sites, viewsheds, and wildlife habitat.

Figure 4-59 Aerial of the Aftermath of the 2018 Buffalo Mountain Fire – Example of Homes Intermixed in Summit County's Extensive WUI Areas



Source: U.S. Forest Service 2018 Report on The Health of Colorado's Forests

The highest potential for negative and even deadly impacts of wildland fire is in the WUI. Every fire season in the United States catastrophic losses from wildfire plague the WUI zones. Homes are damaged or lost,

businesses destroyed, community infrastructure damaged, and, most tragically, lives may be lost. Figure 4-59 above shows an example of properties found in the WUI areas in highly forested communities such as Summit County and its jurisdictions.

General Property

Potential losses to wildfire were estimated using a countywide wildfire protection assessment area GIS layer which depicts areas exposed to various degrees of wildfire threat (from low to extreme threat), along with assessor's data from Summit County. GIS was used to create a centroid, or point, representing the center of each parcel polygon, which was overlaid on the wildfire layer. For the purposes of this analysis, the wildfire threat zone that intersected the centroid was assigned as the threat zone for the entire parcel. Improvement values were summed by wildfire threat rating area and then sorted by jurisdiction. From the improvement values were calculated as a percentage of property improvement values based on their occupancy type (using FEMA Hazus guidance as follows): a) Agricultural, Natural Resources, and Commercial parcels received Contents Values worth 100% of their improvements; b) Residential parcels received Contents Values worth 50% of their improvements; c) Industrial and Utilities parcels received Contents Values worth 150% of their improvements, and, d) Exempt and Vacant parcels received Contents Values worth 0% of their improvements. Property improvements and Contents Values were then totaled to arrive at the Total Value column. Wildland urban interface fires typically result in complete loss of structures and contents.

The results are shown in Table 4-57 through Table 4-59 below. Additional information on these analysis results are provided in the respective jurisdictional annexes, as well as town wildfire hazard maps.

Based on this analysis, unincorporated Summit County has the highest total property value exposed to wildfire threat areas, with roughly $4.9 billion in moderate, high, and highest wildfire threat zones. Silverthorne is the incorporated jurisdiction most at risk to wildfire, with approximately $2.7 billion in moderate, high, and highest wildfire threat zones. Frisco follows in terms of risk, with approximately $2.2 billion in moderate to high wildfire threat zones. Breckenridge, Blue River, and Frisco are next with regards to most total value exposed to wildfire within the medium, high, and extreme threat zones.

The data contains a total exposure value of $10.9 billion, from a total improved value of $7 billion and $3.6 billion in Content Values.

Table 4-57 Properties in Highest Wildfire Risk Zones

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Silverthorne	Residential	2	$9,273,900	$4,636,950	$13,910,850	4
	Total	**2**	**$9,273,900**	**$4,636,950**	**$13,910,850**	**4**
Unincorporated	Residential	8	$14,799,500	$7,399,750	$22,199,250	20
	Total	**8**	**$14,799,500**	**$7,399,750**	**$22,199,250**	**20**
	Grand Total	**10**	**$24,073,400**	**$12,036,700**	**$36,110,100**	**24**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Table 4-58 Properties in High Wildfire Risk Zones

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Breckenridge	Multi-Family Residential	3	$5,991,700	$2,995,850	$8,987,550	21
	Residential	23	$68,930,820	$34,465,410	$103,396,230	55

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
	Total	**26**	**$74,922,520**	**$37,461,260**	**$112,383,780**	**76**
Frisco	Exempt	7	$0	$0	$0	0
	Multi-Family Residential	18	$18,942,900	$9,471,450	$28,414,350	130
	Residential	274	$304,397,832	$152,198,916	$456,596,748	660
	Total	**299**	**$323,340,732**	**$161,670,366**	**$485,011,098**	**790**
Silverthorne	Agricultural	1	$1,201,200	$1,201,200	$2,402,400	0
	Commercial	2	$1,397,800	$1,397,800	$2,795,600	0
	Exempt	24	$0	$0	$0	0
	Multi-Family Residential	79	$70,080,475	$35,040,238	$105,120,713	517
	Residential	978	$1,532,728,807	$766,364,404	$2,299,093,211	2,132
	Total	**1,084**	**$1,605,408,282**	**$804,003,641**	**$2,409,411,923**	**2,649**
Unincorporated	Agricultural	1	$12,800	$12,800	$25,600	0
	Commercial	14	$3,952,600	$3,952,600	$7,905,200	0
	Exempt	68	$0	$0	$0	0
	Multi-Family Residential	100	$108,496,200	$54,248,100	$162,744,300	1,459
	Residential	1,941	$1,697,988,016	$848,994,008	$2,546,982,024	4,775
	Total	**2,124**	**$1,810,449,616**	**$907,207,508**	**$2,717,657,124**	**6,234**
Grand Total		**3,533**	**$3,814,121,150**	**$1,910,342,775**	**$5,724,463,925**	**9,749**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Table 4-59 Properties in Moderate Wildfire Risk Zones

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Blue River	Multi-Family Residential	2	$2,862,100	$1,431,050	$4,293,150	20
	Residential	1	$1,496,300	$748,150	$2,244,450	3
	Total	**3**	**$4,358,400**	**$2,179,200**	**$6,537,600**	**23**
Breckenridge	Commercial	16	$7,789,000	$7,789,000	$15,578,000	0
	Exempt	3	$0	$0	$0	0
	Multi-Family Residential	43	$73,000,300	$36,500,150	$109,500,450	306
	Residential	198	$481,779,205	$240,889,603	$722,668,808	469
	Total	**260**	**$562,568,505**	**$285,178,753**	**$847,747,258**	**775**
Frisco	Commercial	3	$1,353,900	$1,353,900	$2,707,800	0
	Multi-Family Residential	9	$10,414,161	$5,207,081	$15,621,242	65
	Residential	21	$25,521,100	$12,760,550	$38,281,650	51
	Total	**33**	**$37,289,161**	**$19,321,531**	**$56,610,692**	**116**
Keystone	Commercial	1	$814,200	$814,200	$1,628,400	0
Keystone	Exempt	3	$0	$0	$0	0

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
	Multi-Family Residential	6	$17,982,539	$8,991,270	$26,973,809	144
	Residential	121	$133,752,500	$66,876,250	$200,628,750	282
	Total	**131**	**$152,549,239**	**$76,681,720**	**$229,230,959**	**426**
Montezuma	Residential	1	$1,558,100	$779,050	$2,337,150	2
	Total	**1**	**$1,558,100**	**$779,050**	**$2,337,150**	**2**
Silverthorne	Commercial	18	$5,410,800	$5,410,800	$10,821,600	0
	Exempt	11	$0	$0	$0	0
	Multi-Family Residential	30	$38,176,700	$19,088,350	$57,265,050	371
	Residential	145	$204,321,136	$102,160,568	$306,481,704	316
	Total	**204**	**$247,908,636**	**$126,659,718**	**$374,568,354**	**687**
Unincorporated	Commercial	9	$1,371,200	$1,371,200	$2,742,400	0
	Exempt	79	$0	$0	$0	0
	Multi-Family Residential	100	$90,344,100	$45,172,050	$135,516,150	750
	Residential	1,479	$1,389,243,260	$694,621,630	$2,083,864,890	3,638
	Total	**1,667**	**$1,480,958,560**	**$741,164,880**	**$2,222,123,440**	**4,389**
Grand Total	(blank)	**2,299**	**$2,487,190,601**	**$1,251,964,851**	**$3,739,155,452**	**6,417**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

The values for properties located within the wildland urban interface were also calculated; these results are shown in Table 4-60 through Table 4-62. The total exposure value of properties within the WUI is $37 billion, from a total improved value of $24.5 billion and $12.4 billion in Content Values. Based on this analysis, unincorporated Summit County has the highest total property value in Wildland Urban Interface zones, with roughly $13.7 billion in moderate, high, and highest WUI threat zones. Breckenridge is the incorporated jurisdiction most at risk to wildfire, with approximately $9.4 billion in moderate, high, and highest WUI threat zones. Keystone follows in terms of risk, with approximately $5.1 billion in moderate, high, and highest risk WUI zones. Silverthorne, Frisco, Blue River, Dillon, and finally Montezuma are next with regards to most total value exposed to wildfire within the moderate, high, and highest threat zones.

Table 4-60 Properties in Highest Wildfire WUI Zones

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Blue River	Exempt	7	$0	$0	$0	0
	Multi-Family Residential	28	$36,499,600	$18,249,800	$54,749,400	274
	Residential	494	$562,300,376	$281,150,188	$843,450,564	1,610
	Total	**529**	**$598,799,976**	**$299,399,988**	**$898,199,964**	**1,884**
Breckenridge	Commercial	96	$103,698,000	$103,698,000	$207,396,000	0
	Exempt	53	$0	$0	$0	0
	Multi-Family Residential	152	$226,725,046	$113,362,523	$340,087,569	1,590
Breckenridge	Residential	1,753	$2,772,710,397	$1,386,355,199	$4,159,065,596	4,155

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
	Total	**2,054**	**$3,103,133,443**	**$1,603,415,722**	**$4,706,549,165**	**5,745**
Dillon	Exempt	10	$0	$0	$0	0
	Multi-Family Residential	50	$69,522,500	$34,761,250	$104,283,750	308
	Residential	164	$172,066,285	$86,033,143	$258,099,428	336
	Total	**224**	**$241,588,785**	**$120,794,393**	**$362,383,178**	**644**
Frisco	Commercial	86	$58,191,800	$58,191,800	$116,383,600	0
	Exempt	31	$0	$0	$0	0
	Multi-Family Residential	107	$134,342,159	$67,171,080	$201,513,239	877
	Residential	1,120	$1,097,677,747	$548,838,874	$1,646,516,621	2,699
	Total	**1,344**	**$1,290,211,706**	**$674,201,753**	**$1,964,413,459**	**3,576**
Keystone	Commercial	68	$41,266,900	$41,266,900	$82,533,800	0
	Exempt	46	$0	$0	$0	0
	Multi-Family Residential	11	$115,400,713	$57,700,357	$173,101,070	1,046
	Residential	1,887	$1,963,638,515	$981,819,258	$2,945,457,773	4,397
	Total	**2,012**	**$2,120,306,128**	**$1,080,786,514**	**$3,201,092,642**	**5,443**
Montezuma	Residential	17	$13,427,870	$6,713,935	$20,141,805	36
	Total	**17**	**$13,427,870**	**$6,713,935**	**$20,141,805**	**36**
Silverthorne	Agricultural	1	$1,201,200	$1,201,200	$2,402,400	0
	Commercial	21	$15,655,100	$15,655,100	$31,310,200	0
	Exempt	42	$0	$0	$0	0
	Multi-Family Residential	185	$177,795,850	$88,897,925	$266,693,775	1,395
	Residential	1,366	$1,965,193,382	$982,596,691	$2,947,790,073	2,978
Silverthorne	**Total**	**1,615**	**$2,159,845,532**	**$1,088,350,916**	**$3,248,196,448**	**4,373**
	Agricultural	3	$3,623,070	$3,623,070	$7,246,140	0
	Commercial	54	$18,511,400	$18,511,400	$37,022,800	0
	Exempt	213	$0	$0	$0	0
	Multi-Family Residential	437	$451,664,894	$225,832,447	$677,497,341	3,980
	Residential	5,637	$5,239,467,710	$2,619,733,855	$7,859,201,565	13,867
	Total	**6,344**	**$5,713,267,074**	**$2,867,700,772**	**$8,580,967,846**	**17,847**
Grand Total		**14,139**	**$15,240,580,514**	**$7,741,363,992**	**$22,981,944,506**	**39,548**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Table 4-61 Properties in High Wildfire WUI Zones

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Blue River	Exempt	5	$0	$0	$0	0
	Multi-Family Residential	12	$14,234,200	$7,117,100	$21,351,300	117

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Blue River	Residential	155	$186,314,720	$93,157,360	$279,472,080	505
	Total	**172**	**$200,548,920**	**$100,274,460**	**$300,823,380**	**623**
Breckenridge	Commercial	63	$50,040,960	$50,040,960	$100,081,920	0
	Exempt	46	$0	$0	$0	0
	Multi-Family Residential	82	$88,223,046	$44,111,523	$132,334,569	583
	Residential	1,977	$2,341,102,749	$1,170,551,375	$3,511,654,124	4,685
	Total	**2,168**	**$2,479,366,755**	**$1,264,703,858**	**$3,744,070,613**	**5,269**
Dillon	Exempt	9	$0	$0	$0	0
	Residential	219	$182,860,410	$91,430,205	$274,290,615	449
	Total	**228**	**$182,860,410**	**$91,430,205**	**$274,290,615**	**449**
Frisco	Commercial	5	$5,906,900	$5,906,900	$11,813,800	0
	Exempt	9	$0	$0	$0	0
	Multi-Family Residential	10	$7,411,775	$3,705,888	$11,117,663	72
	Residential	203	$214,763,850	$107,381,925	$322,145,775	489
	Total	**227**	**$228,082,525**	**$116,994,713**	**$345,077,238**	**562**
Keystone	Commercial	24	$8,196,600	$8,196,600	$16,393,200	0
	Exempt	13	$0	$0	$0	0
	Multi-Family Residential	1	$1,821,300	$910,650	$2,731,950	7
	Residential	734	$757,218,045	$378,609,023	$1,135,827,068	1,710
	Total	**772**	**$767,235,945**	**$387,716,273**	**$1,154,952,218**	**1,717**
Montezuma	Exempt	1	$0	$0	$0	0
	Residential	15	$10,504,430	$5,252,215	$15,756,645	32
	Total	**16**	**$10,504,430**	**$5,252,215**	**$15,756,645**	**32**
Silverthorne	Commercial	29	$25,242,600	$25,242,600	$50,485,200	0
	Exempt	16	$0	$0	$0	0
	Multi-Family Residential	51	$50,740,100	$25,370,050	$76,110,150	499
	Residential	274	$335,641,621	$167,820,811	$503,462,432	597
	Total	**370**	**$411,624,321**	**$218,433,461**	**$630,057,782**	**1,097**
Unincorporated	Agricultural	2	$999,600	$999,600	$1,999,200	0
	Commercial	42	$61,217,600	$61,217,600	$122,435,200	0
	Exempt	72	$0	$0	$0	0
	Multi-Family Residential	106	$96,757,800	$48,378,900	$145,136,700	782
	Residential	2,625	$2,239,199,718	$1,119,599,859	$3,358,799,577	6,458
	Total	**2,847**	**$2,398,174,718**	**$1,230,195,959**	**$3,628,370,677**	**7,240**
Grand Total		**6,800**	**$6,678,398,024**	**$3,415,001,142**	**$10,093,399,166**	**16,987**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Table 4-62 Properties in Moderate Wildfire WUI Zones

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Blue River	Exempt	1	$0	$0	$0	0
	Residential	79	$111,740,430	$55,870,215	$167,610,645	258
	Total	**80**	**$111,740,430**	**$55,870,215**	**$167,610,645**	**258**
Breckenridge	Commercial	26	$11,447,924	$11,447,924	$22,895,848	0
	Exempt	14	$0	$0	$0	0
	Multi-Family Residential	40	$62,856,501	$31,428,251	$94,284,752	334
	Residential	327	$590,591,075	$295,295,538	$885,886,613	775
	Total	**407**	**$664,895,500**	**$338,171,712**	**$1,003,067,212**	**1,109**
Dillon	Commercial	13	$3,468,500	$3,468,500	$6,937,000	0
	Exempt	6	$0	$0	$0	0
	Multi-Family Residential	1	$4,523,900	$2,261,950	$6,785,850	62
	Residential	28	$27,601,900	$13,800,950	$41,402,850	57
	Total	**48**	**$35,594,300**	**$19,531,400**	**$55,125,700**	**119**
Frisco	Commercial	12	$34,766,500	$34,766,500	$69,533,000	0
	Exempt	5	$0	$0	$0	0
	Multi-Family Residential	3	$872,700	$436,350	$1,309,050	22
	Residential	66	$52,109,400	$26,054,700	$78,164,100	159
	Total	**86**	**$87,748,600**	**$61,257,550**	**$149,006,150**	**181**
Keystone	Commercial	9	$3,647,000	$3,647,000	$7,294,000	0
	Exempt	6	$0	$0	$0	0
	Multi-Family Residential	1	$1,959,900	$979,950	$2,939,850	7
	Residential	592	$508,183,880	$254,091,940	$762,275,820	1,379
	Total	**608**	**$513,790,780**	**$258,718,890**	**$772,509,670**	**1,386**
Montezuma	Exempt	1	$0	$0	$0	0
	Residential	10	$7,394,220	$3,697,110	$11,091,330	21
	Total	**11**	**$7,394,220**	**$3,697,110**	**$11,091,330**	**21**
Silverthorne	Agricultural	1	$509,500	$509,500	$1,019,000	0
	Commercial	16	$3,204,000	$3,204,000	$6,408,000	0
	Exempt	10	$0	$0	$0	0
	Multi-Family Residential	31	$14,529,400	$7,264,700	$21,794,100	203
	Residential	179	$166,051,625	$83,025,813	$249,077,438	390
	Total	**237**	**$184,294,525**	**$94,004,013**	**$278,298,538**	**593**
Unincorporated	Agricultural	7	$2,698,200	$2,698,200	$5,396,400	0
	Commercial	11	$3,362,500	$3,362,500	$6,725,000	0
	Exempt	36	$0	$0	$0	0
	Multi-Family Residential	28	$27,846,500	$13,923,250	$41,769,750	219

Jurisdiction	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Unincorporated	Residential	932	$984,771,040	$492,385,520	$1,477,156,560	2,293
	Total	**1,014**	**$1,018,678,240**	**$512,369,470**	**$1,531,047,710**	**2,512**
Grand Total		**2,491**	**$2,624,136,595**	**$1,343,620,360**	**$3,967,756,955**	**6,178**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Overall, Summit County has over $10.9 billion in total property values in moderate, high, and highest wildfire threat zones and over $27 billion and 62,713 members of the population in Wildland Urban Interface zones.

People

The last column of the tables above summarize the number of people at risk to wildfire in the analyzed fire threat zones, broken out by jurisdiction. Unincorporated areas of the County have the most people at risk (with 10,642), followed by Frisco (with 6,376), Silverthorne (with 3,340), Breckenridge (with 851), and Blue River (with 23). These totals were estimated by multiplying the average persons per household in Summit County, which is 3.1, times the number of residential properties falling within the fire threat zones. Overall, the county has an estimated 21,234 people at risk of wildfire hazard based on the analysis and estimation methodology described herein. While this is higher than the actual population, it may also be indicative of the population that surges during the summer season.

In addition, smoke resulting from fire is an issue to local populations, as noted by the Summit County's HMPC. For example, the County Public Health Department has received calls in the past from tourists asking if they should cancel travel plans in the county due to smoke and potential health and safety related concerns.

Critical Facilities and Infrastructure

As displayed in Figure 4-60 below, watersheds and power lines are examples of critical assets and infrastructure that Summit County is concerned about being vulnerable to wildfires, based on past experience with fire events.

Figure 4-60 Critical Infrastructure and Key Resources Vulnerable to Wildfire Examples



Source: The Summit Daily

Table 4-63, Table 4-64, and Table 4-65 list critical facilities identified in wildfire threat areas, based on a GIS overlay analysis which used a county critical facility layer along with the wildfire protection assessment areas. Table 4-63 summarizes the number of facilities at risk based on jurisdiction. Table 4-64 and Table 4-65 show the critical facilities at risk to Wildfire hazards and within the Wildland Urban Interface Risk areas but this time based on FEMA Lifeline Category. Overall, there are 122 critical facilities located in medium, high, or extreme wildfire threat areas amongst all incorporated jurisdictions as well as the unincorporated portions of the county. There are 2 critical facilities in extreme wildfire threat areas, all of which are in unincorporated areas of the County; 19 facilities fall in high fire threat areas; and, 101 are in medium fire threat areas.

Table 4-63 Critical Facilities in Wildland Urban Interface Risk by Jurisdiction

Jurisdiction	Risk	Communications	Energy	Food/Hydration/ Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Water Systems	Total
Blue River	High	-	-	-	-	-	2	-	-	2
	Highest	-	-	-	-	-	-	-	1	1
	Total	-	-	-	-	-	**2**	-	**1**	**3**
Breckenridge	Moderate	-	-	-	1	-	3	-	-	4
	High	-	-	-	-	-	2	1	-	3
	Highest	-	-	-	-	-	4	1	1	6
	Total	-	-	-	**1**	-	**9**	**2**	**1**	**13**
Dillon	High	-	-	-	1	-	-	-	-	1
	Highest	-	-	-	-	-	1	-	1	2
	Total	-	-	-	**1**	-	**1**	-	**1**	**3**
Frisco	High	-	-	-	-	-	-	2	1	3
Frisco	Highest	-	-	1	1	-	-	-	1	3
	Total	-	-	**1**	**1**	-	-	**2**	**2**	**6**
Keystone	Moderate	-	-	-	1	-	-	-	-	1
	High	1	-	-	-	-	-	1	-	2
	Highest	3	-	-	1	-	1	2	1	**8**
	Total	**4**	-	-	**1**	-	**1**	**3**	**1**	**11**
Montezuma	Moderate	-	-	-	-	-	2	-	-	2
	Total	-	-	-	-	-	**2**	-	-	**2**
Silverthorne	Moderate	-	-	-	1	-	2	-	-	3
	High	-	-	-	-	-	1	-	1	2
	Highest	-	-	-	-	-	-	1	-	1
	Total	-	-	-	**1**	-	**3**	**1**	**1**	**6**
Unincorporated	Moderate	1	-	-	-	2	5	1	4	13
	High	2	-	-	1	-	2	6	2	13
	Highest	2	-	-	1	1	6	7	35	52
	Total	**5**	-	-	**2**	**3**	**13**	**14**	**41**	**78**
Grand Total		**9**	**0**	**1**	**7**	**3**	**31**	**22**	**52**	**122**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Forest Atlas, WSP GIS Analysis

Table 4-64 and Table 4-65 below show the critical facilities at risk to wildfire hazards and within the Wildland Urban Interface Risk areas. Water systems have the highest risk, with 30 facilities in wildfire risk areas and 48 in WUI risk areas.

Table 4-64 Critical Facilities at Risk to Wildfire Risk Hazards by Lifeline Category

Lifelines	Total Critical Facilities
Communication	2
Hazardous Material	2
Health and Medical	1
Safety and Security	9
Transportation	5
Water Systems	30
Total	**49**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Forest Atlas, WSP GIS Analysis

Table 4-65 Critical Facilities at Risk to Wildfire WUI Risk Hazards by Lifeline Category

Lifeline	Total Critical Facilities
Communication	9
Food/Hydration/Shelter	1
Hazardous Material	7
Health and Medical	3
Safety and Security	32
Transportation	22
Water Systems	48
Total	**122**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Forest Atlas, WSP GIS Analysis

Economy

Tourism, the accommodation and food services industry (e.g. hotels and restaurants), and retail are major components of Summit County's economy. Wildland fires can have a direct impact on recreationally used lands and the County's scenery, adversely affecting the ability of the local populations to earn a living from these industries. For example, fires may lead to significant tourism reductions due to health and safety concerns, causing lost revenues from lack of visitation. Fire suppression may also require increased cost to local and state government for water acquisition and delivery, especially during periods of drought when water resources are scarce. Additionally, there will be expenses for responding in the form of equipment, personnel, and supplies. There is also a public expectation that the government will communicate in a timely and sufficient manner regarding an evacuations or updates during and following a wildfire.

Historical, Cultural, and Natural Resources

Many historic downtown areas in communities such as Breckenridge or Frisco could be especially vulnerable to wildfires and wind-driven firebrands. In addition, and as previously mentioned with the

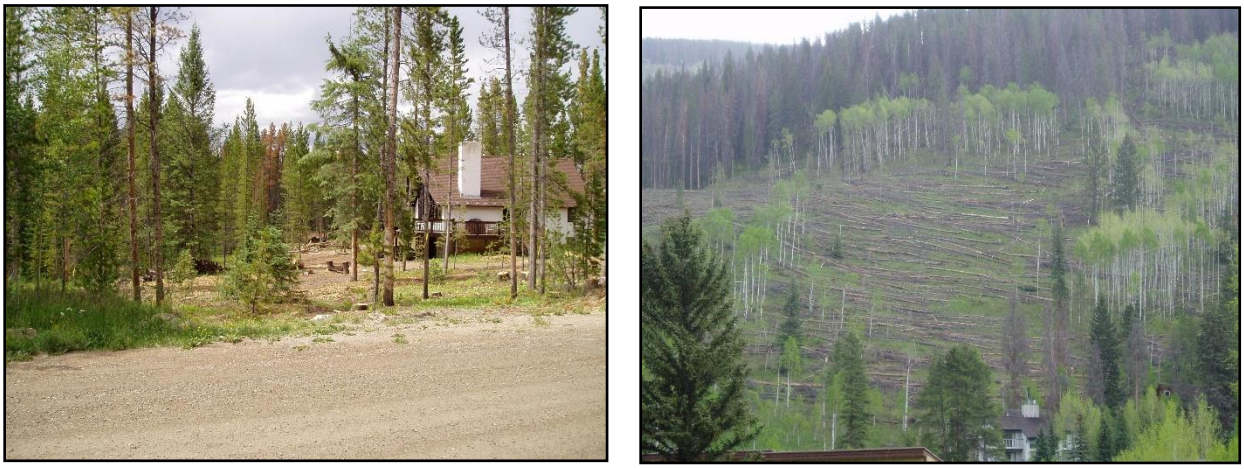
reliance on tourism and visitation for recreational purposes, environmental and natural landscapes are key resources to the county but may be negatively impacted from wildfires.

Next to people and property, natural resources impacts from wildfires could be severe and widespread. Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the trend for hotter, more widespread and destructive fires can make it more difficult for the environment to recover, and lead to increased flood or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after the fire.

Development Trends

Summit County's population has almost tripled since 1990. Much of this growth was in the wildland-urban interface, which has increased the risk that wildfire presents to lives, property, and community resources. Existing and future development in many areas of the County are vulnerable to wildfire. Summit County and the towns of Breckenridge and Silverthorne have wildfire mitigation regulations in place for new development. The Summit County Community Wildfire Protection Plan (CWPP), which was re-adopted in 2018, lays out a comprehensive set of strategies to address the wildfire issue while individual mitigation projects are being planned and implemented within the identified focus areas. Figure 4-61 shows examples of mitigation activities Summit County has or could carry out in order to reduce wildfire damages in the future. Refer to the capability assessments in the jurisdictions' specific annexes, as well as this CWPP, for further details on wildfire related plans, regulations, and mitigation strategies.

Figure 4-61 Wildfire Mitigation Example Activities



Future development will include the creation of defensible space and fuel breaks around structures as exhibited in this neighborhood scale defensible space in Breckenridge (left) and contour felling of beetle stricken pine as seen in Vail (right).

4.15 Wildlife-Vehicle Collisions

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Wildlife-Vehicle Collisions	Large	Highly Likely	Negligible	Low

4.15.1 Risk Summary

- 784 WVCs took place in Summit County between 2010 and 2024 resulting in 693 incidents of property damage, 90 injuries and 1 fatality.
- CDOT Region 3 (includes Summit County) had the highest number of wildlife animals killed from vehicle collisions, with over 8,000 animals killed in 4 years (2014-2018).
- Summit County averages 56 WVC events per year, and about 6 a year that result in injuries.
- CDOT continues to implement wildlife overpasses and underpasses to reduce wildlife vehicle collisions.
- CDOT reports 90% reduction in WVCs along Highway 9 and similar corridors after installation of crossing structures.
- *Related Hazards:* Wildfire, winter weather

4.15.2 Description

The development of highways and roads have led to the fragmentation of habitats for wildlife, making it challenging for them to access food, water, reproduce and migrate. Wildlife migration tends to take place during the dusk and dawn when it can be challenging for drivers to see. Most wildlife-vehicle collisions (WVCs) in the County involve deer and elk. Other large wildlife in the area include bighorn sheep, moose, lynx and black bears. These incidents pose risks to public safety, result in wildlife mortality, and contribute to property damage and transportation disruptions.

Increased road development and expansion in the County as well as continued development that converts wildlife habitats for housing and associated development increases the risk of WVCs. Summit County is part of Colorado Department of Transportation (CDOT) Region 3; the most reported WVCs in the state occurred in this Region. CDOT and Colorado Parks and Wildlife (CPW) have identified portions of I-70 and State Highway 9 as wildlife movement corridors and WVC hotspots. Mitigation efforts, such as fencing, wildlife crossing infrastructure, and signage, have shown some success, WVC's remain a concern, especially as development continues to expand into natural habitats and traffic volume increases.

4.15.3 Location

The geographic extent of wildlife hazards in Summit County is **large**. It is possible for wildlife-vehicle collisions to occur on any of the County's roadways, though perhaps more likely along well traveled routes or near wildlife migration corridors.

State Highway 9 between Silverthorne and Kremmling, an area of urban and suburban development, is considered one of the deadliest stretches of the highway for both people and wildlife due to the topography and high speeds. In June 2024, CDOT and CPW completed a $10.4 million wildlife underpass at mile marker 254.5 on I-70, near Genesee, along with 2 miles of accompanying fencing. This area has previously had the highest wildlife collisions east of the Eisenhower Tunnel, and the new infrastructure is expected to reduce WVC's by up to 90% according to CPW. House Bill 25-1303 (2025) secured ongoing state funding for crossing infrastructure.

In 2016, CDOT completed a wildlife crossing and underpass on a portion of Highway 9 in neighboring Grand County. In 2017 CDOT estimated that WVCs at this location decreased by 87% in one year. The Summit County Safe Passages Plan (2017) identifies and prioritizes seventeen areas for wildlife movement across Summit County and the highways that cross the County. The Plan identifies Interstate 70, State Highway 9 and U.S. 6 as priority wildlife crossing areas due to safety hazards as well as the type of species impacted. Table 4-66 shows the segment of each highway identified in the Plan as safety hazards to motorists due to the high number of WVC crash reports, carcass records and observations by local Colorado Parks and Wildlife staff.

Table 4-66 Safety Hazard Wildlife Linkages in Summit County

Road/Linkage Name	Species
SH9, Upper Blue River	Elk, Deer, Moose
SH9, Gold Hill	Elk, Lynx
SH9, Maryland/Everist	Elk, Deer, Moose
SH9, Green Mountain Reservoir	Elk, Deer
I-70, Vail Pass	Elk, Lynx
I-70, Laskey Gulch	Elk, Lynx, Deer
SH9, Lower Blue River	Elk, Deer

Source: Summit County Safe Passages Plan

4.15.4 Previous Occurrences

Wildlife-vehicle collisions are, unfortunately, an often unavoidable part of life in rural areas. As the population of the planning area has grown over the past several years, the incidence of WVCs has increased accordingly. As noted above State Highway 9 is considered a deadly stretch of highway for both people and wildlife. In recent years, populations growth and increased traffic volumes have contributed to a higher incidence of WVC's across the region. More vehicles on the road means a greater likelihood of encountering animals such as elk, deer, and moose crossing highways. As previously mentioned, State Highway 9 has some of the most WVC's incidents throughout the county.

Table 4-67 shows the number of property damage only events (PDOs- refers to events in which no injuries or fatalities occurred), injuries, and fatalities from wildlife-vehicle collisions in Summit County between 2010 and 2024.

Table 4-67 Wildlife-Vehicle Collisions in Summit County, 2010-2024

Year	Property Damage Only	Injury	Fatality	Totals
2010	35	2	0	37
2011	34	2	1	37
2012	38	9	0	47
2013	50	3	0	53
2014	50	2	0	52
2015	44	3	0	47
2016	49	6	0	55
2017	42	2	0	44
2018	56	11	0	67
2019	53	8	0	61

Year	Property Damage Only	Injury	Fatality	Totals
2020	37	5	0	42
2021	32	10	0	42
2022	63	5	0	68
2023	56	12	0	68
2024	61	5	0	66
Grand Totals	**693**	**90**	**1**	**784**

Source: Colorado Department of Transportation

4.15.5 Probability of Future Occurrence

Vehicular accidents or encounters involving wildlife are highly likely to occur in any given year in Summit County. According to the CDOT data described in the previous table, a total of 784 wildlife-vehicle accidents occurred between 2010 and 2024. This averages approximately 56 incidents throughout the 14 year span and about over a 12 year span of time averages out to 56 events per. Note, wildlife collision data tends to understate the problem as they are based on incidents when drivers stayed at the crash scene and waited for a police officer to file a report. The probability of future WVC events in Summit County is likely.

WVCs are most likely to occur between dusk and dawn, particularly during migration seasons (spring and fall). Additionally, traffic in Summit County increases seasonally during ski season. This increases exposure to wildlife-vehicle hazards in the County between roughly September and April. Incidentally, ski season corresponds with deer and elk migration season, potentially increasing the likelihood of WVCs.

4.15.6 Magnitude/Severity

The impacts of wildlife-human hazards in Summit County would likely be **negligible**. Less than 10 percent of the planning area would be affected by any single event. Generally, only a few people are affected by a wildlife hazard at any one time, although injuries or death are possible. Wildlife hazards are unlikely to disrupt essential services and local agencies are generally equipped to manage such events through response protocols, public education, and coordination with Colorado Parks and Wildlife.

4.15.7 Climate Change Considerations

According to the best data available at the time of this plan update, the future impacts of climate change are expected to influence future WVC events, but the extent of these impacts is as yet unknown. Climate Change is projected to cause major shifts in species habitat forcing wildlife to migrate in search of new habitats and potentially using different routes and patterns as resources become scare in their home habitats. Records dating back to the ice age shows shifts in species distributions as a result of a changing climate (Lister, Brocki and Ament 2105). Additional research is needed to determine the effects of climate change on the location, extent/intensity, frequency, and high-season duration of WVCs.

4.15.8 Vulnerability

General Property

The primary concern associated with wildlife hazards is public safety and to a lesser extent property damage. Wildlife-vehicle collisions caused 784 damages to property between 2010 and 2024. While many

WVCs results in minor damage, a substantial number lead to insurance claims, injuries, and even fatalities. Summit County and partnering agencies have implemented a range of strategies, including wildlife fencing, crossing structures, and public education campaigns on living with wildlife.

People

Travelling population in the planning area is at risk to this hazard. Generally, only a few people are affected by a wildlife hazard at any one time, although injuries or death are possible. WVCs have caused 90 injuries and one fatality in Summit County between 2010 and 2024. Since the installation of two wildlife overpasses and five overpasses on State Highway 9 between Silverthorne and Kremmling CDOT has reported an 90% decrease in WVCs on that stretch of notoriously dangerous road.

Critical Facilities and Infrastructure

It is unlikely that critical facilities and services would be impacted.

Economy

Wildlife-vehicle collisions can temporarily close roads, which can potentially hurt the County's economy during peak tourist seasons. During peak tourist seasons, especially winter, any interruption in traffic flow an delay travelers, reduce visitor spending, and negatively impact local businesses that depend on steady tourist activity. It is estimated that WVCs cost over $60 million to the state economy each year, according to the CPWA and the Department of Transportation. This includes vehicle damage and insurance claims, emergency cleanup and response, and medical expenses from injuries or fatalities.

Historical, Cultural, and Natural Resources

CDOT data reported 7,338 animal roadkill incidents in 2022 and noted that approximately 4,000 wildlife vehicle collisions are reported each year. Deer and elk represent the majority of species killed by vehicle collision but threatened and endangered species such as lynx have also been reported in Region 3. A disruption in an animal's natural habitat such as a wildfire event or severe winter storm with heavy snow amounts can push wild animals out of the habitats, sometimes from higher to lower elevations leading to an increased risk of WVCs.

Development Trends

As population growth continues in the County, increased road development and expansion is likely to follow. Both existing and future development need to take into account the locations of critical wildlife habitats. Wildlife migration corridors should be clearly marked during future development projects to help protect the County's residents, visitors, and wildlife.

CDOT installed two wildlife overpasses and five underpasses along an 11-mile stretch of Highway 9, including segments passing through Summit County. These structures, along with wildlife fencing, have led to nearly 90% reduction in WVCs in the corridor. Also, the nonprofit Summit County Safe Passages had advanced plans for three new crossings on the westbound side of I-70 near Copper Mountain. In May 2024, a $450,000 grant was awarded to support design, with additional matching funds from the Colorado Safe Passages Fund. The total estimated cost is around $32 million for the design and construction.

4.16 Windstorm

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Windstorm	Large	Highly Likely	Limited	Low

4.16.1 Risk Summary

- The overall significance rating for Windstorms in Summit County is **Low.**
- There have been 71 recorded wind events between 1985 and 2025 in the County. The highest recorded event was 116 mph in 2005.
- There is growing risk related to blowdown of dead trees which could impact recreational areas and powerline infrastructure.
- 9% of Medicare Beneficiaries (approximately 493 persons) in the County are dependent on electricity to live independently, making them highly vulnerable to loss of power.
- *Related Hazards:* Wildfire, erosion and deposition, pest infestation, severe winter weather and avalanche

4.16.2 Description

High winds occur year round in Summit County. In the spring and summer, high winds often accompany severe thunderstorms. These winds are typically straight-line winds, which are generally any thunderstorm wind that is not associated with rotation (i.e., is not a tornado). It is these winds, which can exceed 100 miles per hour (mph) that represent the most common type of severe weather and are responsible for most wind damage related to thunderstorms. Straight-line winds may also exacerbate existing weather conditions, as in blizzards, by increasing the effect on temperature and decreasing visibility due to the movement of particulate matters through the air, as in dust and snowstorms. The winds may also exacerbate fire conditions by drying out the ground cover, propelling fuel, such as tumbleweeds, around the region, and increasing the ferocity of existing fires. These winds may damage crops, push automobiles off roads, damage roofs and structures, and cause secondary damage due to flying debris.

Summit County experiences the Venturi Effect, when air has to go through confined spaces, such as canyons. This process creates drop in wind pressure as it moves through a confined space, which produces higher speeds. According to the National Park Service, within the Rocky Mountains valleys can act as a wind funnel, providing locally divergent wind patterns. Summits and crests are perpetually windy, with Summit County having three peaks over 14,000 feet and multiple areas at or above 10,000 feet, the county has multiple areas at risk of strong winds.

Figure 4-62 depicts wind zones for the United States. The map denotes that the majority of the County falls into Zone I which is characterized by high winds of 130 mph. The County borders Zone II, characterized by high winds of 160 mph.

Figure 4-62 Wind Zones in the United States



Source: FEMA

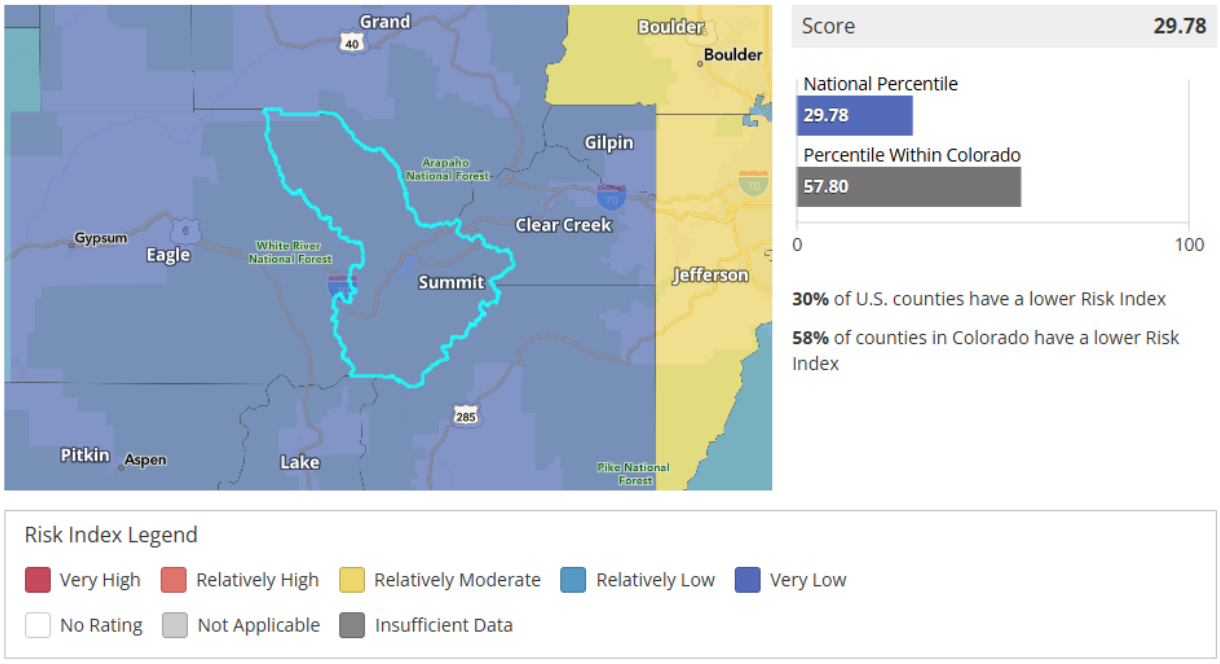
4.16.3 Location

The geographic extent of this hazard in Summit County is **large**—with 50 – 100% of the planning area affected.

High winds can occur throughout Summit County and may be most severe at high elevations. Frequent high winds at Dillon Reservoir make it a popular challenging technical sailing destination. There are sailing races here each weekend throughout the summer, and high winds often create hazardous conditions.

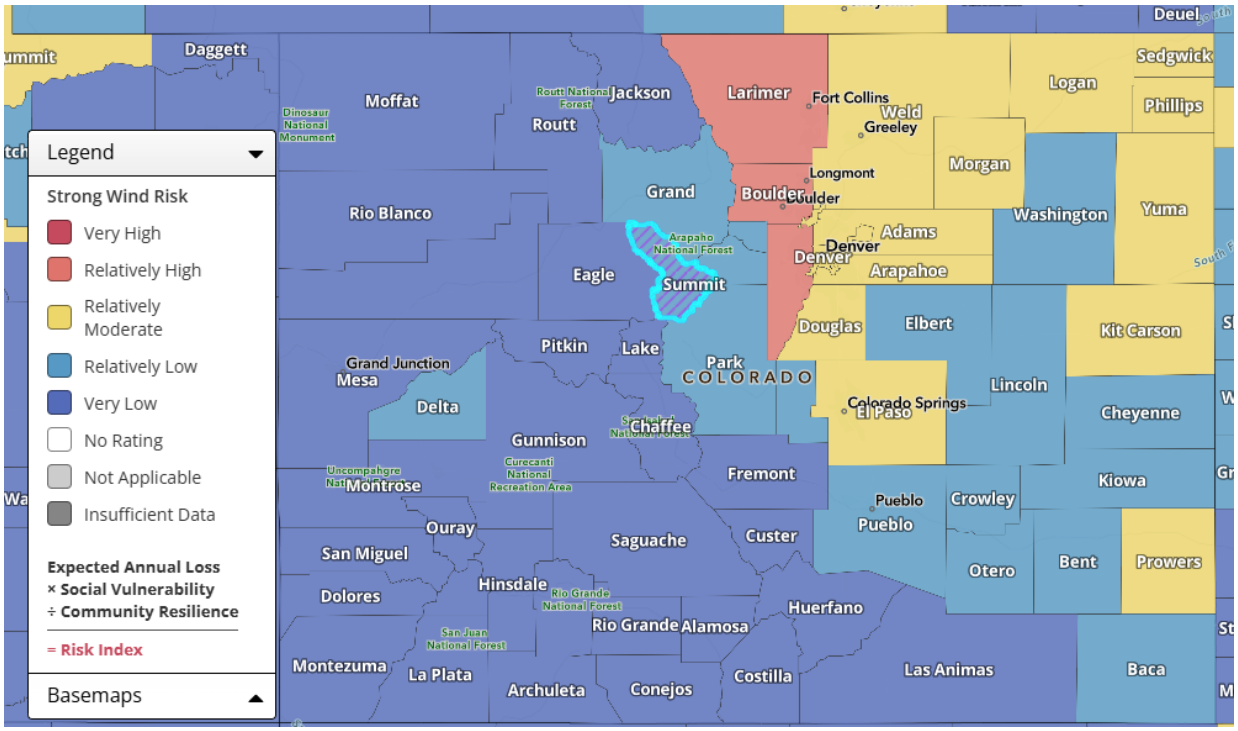
FEMA's National Risk Index tool shows that Summit County, when compared to other counties in the US as well as other counties in the State of Colorado, has a relatively low risk for wind storms as shown in Figure 4-63 and Figure 4-64.

Figure 4-63 Risk for Windstorms in Summit County



Source: FEMA National Risk Index

Figure 4-64 State of Colorado Risk for Windstorms



Source: FEMA National Risk Index

4.16.4 Previous Occurrences

Historical data from the National Centers for Environmental Information Storm Events Database was combined to determine that there were roughly 71 recorded wind events in Summit County between 1985 and 2025. (Note: These wind events were reported as high wind or thunderstorm wind events. The summary does not include winds that were part of severe winter weather - see Section 3.2.11 Severe Winter Weather.)

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

The event with the highest wind speed recorded at 116 miles per hour (mph) took place on November 12, 2005. According to the NCEI record the wind event peaked at 133 mph.

Notable events mentioned in the NCEI database include:

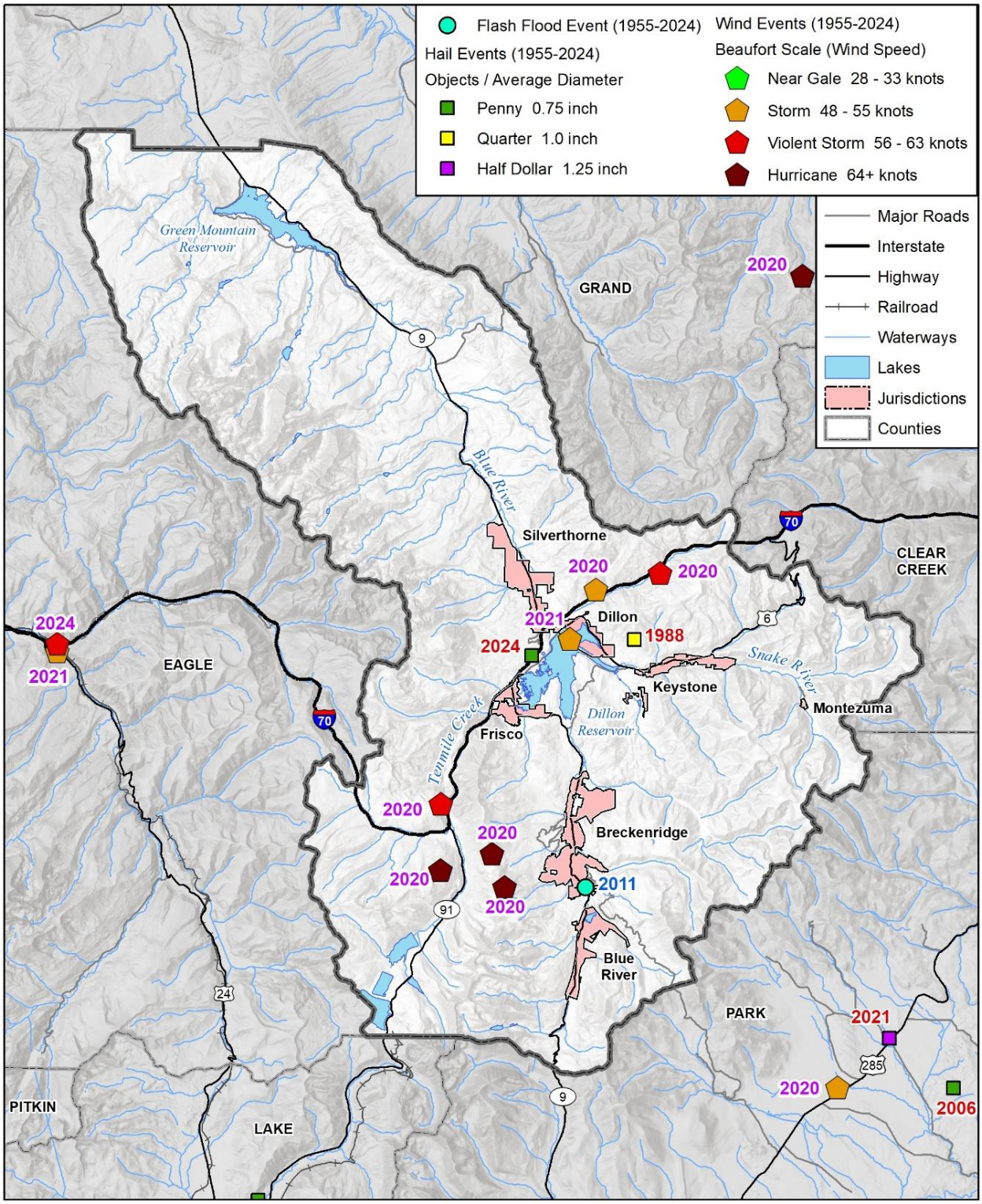
- **February 2nd, 2025 -** Strong winds prevailed February 2nd across the mountains, foothills, and nearby plains. The strongest winds were found above timberline where gusts of 80 to 96 mph were reported. Through the foothills, peak gusts generally ranged 60 to 80 mph.
- **November 19th, 2024 -** Gusty winds of 55-75 mph develop late on November 19th and continued into the early morning hours of the 20th. Peak winds occurred near Brainard Lake and near Winter Park with gusts of 76-78 mph.
- **May 25th, 2024** - Thunderstorms moved across the mountains and plains producing gusty winds up to 65 mph, though mostly less than 55 mph. There were 3 water rescues involving 16 people on Dillon Reservoir due to gusty winds.
- **December 1st, 2022** - Very strong winds developed in and near the Front Range mountains and foothills. The strongest wind occurred near Brainard Lake with a peak gust to 106 mph. Elsewhere, peak gusts included: 90 mph at the NCAR Mesa Lab; 89 mph, 3 miles southwest of Rocky Flats, 84 mph, 3 miles west-northwest of Mishawaka; 83 mph near Empire, 82 mph near Berthoud Pass, and 79 mph near Greenland.
- **January 13th, 2021** - Strong and damaging winds developed across north central and northeast Colorado. A peak wind gust of 116 mph was measured at Breckenridge Ski Area, at an elevation of 12,573 feet in the early morning hours of the 14th.
- **January 30, 2018** - A system that moved over the Pacific Northwest and across the Northern Rockies brought a period of high winds to areas in and near the Front Range Foothills. Peak wind gusts included: 101 mph atop Berthoud Pass; 97 mph near Loveland Pass.
- **July 5, 2017** – A shift in winds prevented an intense, fast-growing wildfire from moving into the town of Breckenridge, prompting the evacuation of about 450 homes. This sudden shift in wind patterns helped to put out the wildfire.
- **February 9, 2017** - Hurricane force winds toppled trees and knocked over several semis in and near the Front Range Mountains and Foothills. The Colorado Department of Transportation shut down Interstate 70 in both directions for a short time late between Beaver Brook and Silverthorne. Several trucks had been blown over and some cars received shattered windshields. High-profile vehicles and semi-trucks were barred from that area of the interstate until the wind weakened.
- **February 14, 2014** - High winds occurred above timberline in Summit County in the early morning hours of the 14th. Peak wind gusts included: 89 mph, atop Loveland Pass and 8 miles south-southwest of Frisco; 76 mph, 1 mile south of Copper Mountain.
- **December 31, 2011—**NWS issued a high wind warning. Winds were clocked at 126 mph at Breckenridge Ski Area. At 5:53am, Summit County Dispatch was notified of an extensive power

outage and explosions heard in the Breckenridge area. The outage was extensive, spanning from Agape Outpost to Hoosier Basin. Xcel reported a primary line down along Blue River Road and automatic switching equipment causing outages because of the wind's effects on transmission lines. Most power was back on by 1pm, though some homes did not have power until that evening. Trees were blown down on CR 450, 452, Peak 7, and 4 O'clock Road.

- **December 28, 2011—**NWS issued a high wind warning, but no incidents occurred in Summit County.
- **November 25, 2011—**High winds forced the gondola serving North Peak to close, leaving over 200 guests stranded at the restaurants overnight until 6:30am.
- **November 13, 2011—**Trees were blown down in the Breckenridge area. A small fire occurred as a result of a tree being blown into power lines.
- **June 2007**—A severe microburst in the area of Dillon Reservoir capsized a sailboat with four people onboard. A sheriff's deputy rescued the boaters; none were wearing floatation devices.
- **2002 (2003)**—There was a big windstorm on Dillon Reservoir.
- **1999 (2000)**—A microburst at Green Mountain Reservoir capsized a number of boats.
- **September 1986**—High winds at Dillon Reservoir broke up the marina, sinking six boats and damaging numerous others. Wind gusts of more than 70 mph were reported.

Figure 4-65 depicts weather events in Summit County, with the red, orange, and dark red pentagon's showing previous wind events.

Figure 4-65 Summit County Wind Events (1955-2024)



Map compiled 6/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, NCEI, NOAA, National Weather Service SVRGIS

0 5 10 Miles

N

4.16.5 Probability of Future Occurrence

Highly Likely—10-100% chance of occurrence in next year or has a recurrence interval of 10 years or less.

There were 72 significant recorded high wind events in the past 38 years in Summit County, which equals 1.89 wind events every year on average, or about a 100% chance of occurrence in any given year.

4.16.6 Magnitude/Severity

Table 4-68 shows the Beaufort Wind Scale. The replication of the scale only reflects land-based effects.

Table 4-68 Beaufort Wind Scale

Beaufort Number	Description	Windspeed (MPH)	Land Conditions
0	Calm	<1	Calm. Smoke rises vertically.
1	Light air	1 – 3	Wind motion visible in smoke.
2	Light breeze	3 – 7	Wind felt on exposed skin. Leaves rustle.
3	Gentle breeze	8 – 12	Leaves and smaller twigs in constant motion.
4	Moderate breeze	13 – 17	Dust and loose paper raised. Small branches begin to move.
5	Fresh breeze	18 – 24	Branches of a moderate size move. Small trees begin to sway.
6	Strong breeze	25 – 30	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic garbage cans tip over.
7	High wind, Moderate gale, Near gale	31 – 38	Whole trees in motion. Effort needed to walk against the wind. Swaying of skyscrapers may be felt, especially by people on upper floors.
8	Gale, Fresh gale	39 – 46	Some twigs broken from trees. Cars veer on road. Progress on foot is seriously impeded.
9	Strong gale	47 – 54	Some branches break off trees, and some small trees blow over. Construction/temporary signs and barricades blow over. Damage to circus tents and canopies.
10	Storm, Whole gale	55 – 63	Trees are broken off or uprooted, saplings bent and deformed. Poorly attached asphalt shingles and shingles in poor condition peel off roofs.
11	Violent storm	64 – 72	Widespread vegetation damage. Many roofing surfaces are damaged; asphalt tiles that have curled up and/or fractured due to age may break away completely.
12	Hurricane	≥ 73	Very widespread damage to vegetation. Some windows may break; mobile homes and poorly constructed sheds and barns are damaged. Debris may be hurled about.

Source: National Oceanographic and Atmospheric Association, http://www.spc.noaa.gov/faq/tornado/beaufort.html

Limited—Minor injuries and illnesses; minimal property damage that does not threaten structural stability; interruption of essential facilities and services for less than 24 hours

Windstorms in Summit County are rarely life threatening, but do threaten public safety, disrupt daily activities, cause damage to buildings and structures, increase the potential for other hazards (e.g., wildfire), and have adverse economic impacts from business closures and power loss. Power losses may be

increasing from high wind events due to the decreased forest health resulting from the pine beetle infestation. Dead trees and branches are more prone to being blown into power lines. Although windstorms are likely to occur in the future, data indicates that past losses have not been significant, and the overall magnitude of this hazard is limited.

4.16.7 Climate Change Considerations

Wind is the result of the sun unevenly heating the Earth's surface. The differential heating creates variations in air pressure, and air flows from high-pressure zones to low-pressure ones, generating wind. Higher average temperatures driven by greenhouse gases is disrupting this temperature imbalance. By trapping more heat, these gases are changing the temperature differences between the poles and the equator, and between land and sea. The modifications in global wind patterns have consequences that extend beyond changes in speed and direction. These shifts influence weather patterns and the behavior of major storms. A wavier, slower-moving jet stream can cause storm tracks to shift, altering where and when precipitation falls, which can lead to drier conditions in some agricultural heartlands and increased flood risk in others. Climate change is projected to alter global wind patterns, increasing the intensity of storms with stronger gusts and more frequent lightning strikes in the Rocky Mountains. This could have cascading affects such as making it difficult to stop wildfires once they start, similar to the Marshall Fire in nearby Boulder County.

According to researchers at the University of Colorado Boulder, when winds arrive from the west they are forced between the tops of the mountains and what meteorologists call a "stable layer" of the atmosphere, a layer where the temperature of the atmosphere increases with altitude rather than decreases. Winds pick up speed as they pass between the mountain tops and this stable layer. As the state warms, that stable layer above the mountains could climb higher in the atmosphere. Areas such as Boulder on the east side of the front range could experience slower wind speeds while areas throughout the Rocky Mountains may experience higher and more intense wind.

4.16.8 Vulnerability

It is difficult to identify specific windstorm hazard areas within Summit County. Data was not available to identify specific structures at risk or estimate potential losses to these structures. NCEI data did not provide enough details on past damages and casualties to perform an average annual loss assessment. Windstorm has a cascading impact on other hazards addressed in the plan. Windstorm vulnerability is increasing due to the damaged trees from pest infestations. Windstorms also contribute to the erosion hazard and have caused blowing dust during times of drought. Wind also is a major contributing factor to wildfire behavior.

General Property

General damages are both direct (what the wind event physically destroys) and indirect, which focuses on additional costs, damages and losses attributed to secondary hazards spawned by the event, or due to the damages caused by the wind event. Depending on the magnitude of the wind events they are capable of damaging and eventually destroying almost anything. Construction practices and building codes can help maximize the resistance of the structures to damage.

Secondary impacts of damage caused by wind events often result from damage to infrastructure. Downed power and communications transmission lines, coupled with disruptions to transportation, create difficulties in reporting and responding to emergencies. These indirect impacts of a wind event put tremendous strain on a community. In the immediate aftermath, the focus is on emergency services.

People

Community members are the most vulnerable to high wind events. The availability of sheltered locations such as basements, buildings constructed using wind-resistant materials and methods, and public storm shelters, all reduce the exposure of the population. However, there are also segments of the population that are especially exposed to the indirect impacts of high winds, particularly the loss of electrical power. These populations include the elderly or disabled, especially those with medical needs and treatments dependent on electricity. Nursing homes, community-based residential facilities, and other special needs housing facilities are also vulnerable if electrical outages are prolonged, since backup power generally operates only minimal functions for a short period of time. As noted under the Lighting Vulnerability Assessment section, there are 4,317 Medicare Beneficiaries located in Summit County; of these individuals, 9% (approximately 493 persons) rely on electricity-dependent medical equipment, such as ventilators to live independently in their homes, making them more vulnerable to power outages as a result of a windstorm event.

Critical Facilities and Infrastructure

Public gathering places including (but not limited to) schools, community centers, shelters, nursing homes and churches, may have increased impacts at certain times of day if a high wind event was to occur. Due to the random nature of this hazard, a more specific risk assessment was not conducted for this plan.

Economy

Winds typically don't have long-term impacts on the economy. High winds may impact exposed critical infrastructure such as power lines; depending on the impact and the function, this could cause a short-term economic disruption. The most common problems associated with high winds are loss of utilities. Downed power lines can cause power outages, leaving large parts of the County isolated, and without electricity, water, and communication. Damage may also limit timely emergency response and the number of evacuation routes. Damaging winds can also cause fires, which may start along dry roadside grass vegetation. Downed electrical lines following a storm can also increase the potential for lethal electrical shock. Additionally, Summit County's economy relies on tourism and the ski industry, but high winds and winter storms can cause conditions unsuitable for skiing. Wind is the movement of air molecules from areas of high pressure to areas of low pressure so when wind encounters the topography of a mountain, it becomes a dynamic force that can alter the skiing experience.

Historical, Cultural, and Natural Resources

High winds can cause massive damage to the natural environment, uprooting trees and other debris. This is part of a natural process, however, and the environment will return to its original state over time.

Development Trends

As the County continues increasing in population, the number of people and housing developments exposed to the hazard increases. Proper education on building techniques and the use of sturdy building materials, basements, attached foundations, and other structural techniques may minimize the property vulnerabilities. Public shelters at parks and open spaces may help reduce the impacts of windstorms on the recreational populations exposed to storms.

5 MITIGATION STRATEGY

DMA Requirements §201.6(c)(3)
[The plan shall include] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. [The hazard mitigation strategy shall include] *[a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.* *[a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.* *an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

This section presents the mitigation strategy developed by the Summit County Hazard Mitigation Planning Committee (HMPC) based on the County's risk assessment in Chapter 4. The mitigation strategy was developed through a collaborative group process and consists of goals, objectives, and mitigation actions.

- **Goals** are general guidelines that explain what you want to achieve. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. They are usually long-term, broad, policy-type statements.
- **Objectives** define strategies or implementation steps to attain the identified goals and are specific and measurable.
- **Mitigation Actions** are specific actions that help achieve goals and objectives.

This section describes how the County accomplished Phase 3 of FEMA's 4-phase guidance – Develop the Mitigation Plan – and includes the following from the 10-step planning process:

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

As part of the 2025 plan update process, a comprehensive review and update of the mitigation strategy portion of the plan was conducted by the HMPC. The goals and objectives from the 2020 plan were revisited and reaffirmed. The end result was an updated mitigation strategy that reflects the updated risk assessment, the completion of 2020 actions, and the new priorities of this plan update.

5.1 Goals and Objectives

The HMPC developed goals and objectives to provide direction for reducing hazard-related losses in Summit County. These were based upon the results of the risk assessment and a review of goals and objectives from other state and local plans, specifically, the Colorado State Hazard Mitigation Plan, 2023, Summit County Countywide Comprehensive Plan (2009), Summit County Climate Action Plan (2018) and Summit County Community Wildfire Protection Plan (2016). This review was to ensure that this plan's mitigation strategy was integrated with existing plans and policies.

The HMPC revisited and re-validated the goals during the 2025 update. Committee members were given the list of goals from the 2020 plan to review, along with the current goals from related plans previously mentioned. The HMPC was instructed that they could use, combine, or revise the statements they were provided or develop new ones on their own, keeping the risk assessment in mind. The HMPC felt the 2020

goals and objectives were still valid and comprehensive, and readopted them as written. Goals and objectives are listed below, but are not prioritized:

Goal 1: Reduce risk to the people, property, and environment of Summit County from the impacts of hazards

Objective 1: Minimize the vulnerability of existing and new development to hazards
Objective 2: Increase education and awareness of hazards and risk reduction measures for both residents and visitors to the County
Objective 3: Improve comprehensive wildfire planning, funding, and mitigation
Objective 4: Strengthen floodplain management programs

Goal 2: Protect critical facilities and infrastructure

Objective 1: Enhance assessment of multi-hazard risk to critical facilities and infrastructure
Objective 2: Prioritize mitigation projects based on the enhanced assessment and identify funding sources
Objective 3: Reduce hazard related closures of transportation routes

Goal 3: Minimize economic losses

Objective 1: Strengthen disaster resistance and resiliency of businesses and employers
Objective 2: Promote and conduct continuity of operations and continuity of governance planning
Objective 3: Reduce financial exposure of county and municipal governments and special districts

Goal 4: Implement the mitigation actions identified in the plan

Objective 1: Improve communication and coordination between communities and state and federal agencies
Objective 2: Engage collaborative partners, including community organizations, businesses, and others
Objective 3: Integrate mitigation activities into existing and new community plans and policies
Objective 4: Monitor, evaluate, and update the mitigation plan

5.2 Progress on Previous Mitigation Actions

The HMPC reviewed mitigation actions from the 2020 Plan to update the status of the actions. The purpose of this was to measure progress by determining which actions were completed, and to revisit the remaining items to determine if they should be carried forward or removed from the plan.

During this review process previous actions priorities were also reviewed, and many jurisdictions determined that some actions could be re-prioritized for the 2025 plan update. Table 5-1 lists nine completed or deleted actions from the 2020 plan.

Table 5-1 Completed and Deleted County Mitigation Actions from 2020 Plan

Jurisdiction	Action Description	Status	Comments
Summit County	Receive Storm Ready status from the National Weather Service	Completed	Action was added in 2013. In 2022 Summit County was accepted as a NOAA Weather Ready Nation Ambassador.
Blue River	Develop comprehensive Master Plan	Completed	Action added in 2013. Completed in 2021.
Blue River	Fuels reduction and creation of fuel breaks on the National	Completed	Completed

Jurisdiction	Action Description	Status	Comments
	Forest land and county land that border the Town.		
Blue River	Complete Capital Improvement Plan projects for roads to improve drainage and avoid flooding risks and road damage.	Completed	The Town completed and adopted the capital improvement plan. This plan is being utilized as a planning document and the town is working towards funding the plan as part of a long term project.
Breckenridge	Goose Pasture Tarn Dam Rehabilitation	Completed	
Breckenridge	Coyne Valley Culvert Replacement	Completed	
Copper Mountain	Enhanced public notification through cable network	Deleted	The CMCMD outsourced the cable network to a third party is unable to use it for public notification.
Water & Water/San Districts	Hazardous Materials – Transportation	Deleted	Determined to no longer be relevant
Denver Water	Develop GIS mapping coordination project to show damages based on dam EAPs, flood maps, and county floodplains	Completed	

Several of these actions have increased the mitigation and response capabilities of the County, and thus will help save lives in future incidents. Implementation of the actions has resulted in greater community awareness of Summit County's vulnerability to natural hazards and reduced vulnerability for hazards such as wildfire and forest pests, such as the mountain pine beetle.

Summit County, in partnership with the Summit County Wildfire Council, has created a sustainable wildfire mitigation funding source and made great strides in fuels reduction projects in an effort to mitigate wildfire hazards. This funding source is a direct result of implementation of Summit County mitigation actions #2 and #3. In 2011 the Summit County Wildfire Council recognized that an unfulfilled funding need existed for projects identified in the Community Wildfire Protection Plan (CWPP) that did not meet the criteria for the State's Hazardous Fuels Reduction Grant Program. That recognition has led to the creation of the CWPP Implementation Grant Program. The County uses this program to provide funds or matching funds to leverage other wildfire mitigation grants. The County maintains an atlas of fuels reduction projects on its wildfire mitigation web page that is updated quarterly so that progress is documented on a regular basis. Since 2020 there have been 72 projects that included the treatment, burning, and thinning of 595.75 acres throughout the county. These projects created fuel breaks and roadside thinning to slow down and stop the spread of a wildfire if one were to occur.

Shortly after the 2020 plan was initially completed the County was able to successfully obtain a FEMA Pre-Disaster Mitigation (PDM) Grant for defensible space near Keystone Ski Resort. The grant was awarded to the County in September 2010. Keystone Resort selected a contractor and entered into an additional contract with Summit County to manage the project and all site work. The project resulted in 48 acres of defensible space being created on private property throughout the Keystone Resort. This project w

s tied into other mitigation projects and resulted in over 3,890 high hazard trees being removed from the forest fuels. Summit County nominated Keystone Resort for the outstanding volunteer recognition award from the Colorado Emergency Management Association for their efforts on the project.

Partnership efforts, including a 900-acre fuel break created by the U.S. Forest Service around a subdivision near Silverthorne and Buffalo Mountain Metropolitan District, have resulted in demonstrated mitigation

success within the County. The project was tested in June 2018 and helped to reduce damages from the Buffalo Mountain Fire.

The HMPC identified multiple other fuels reduction and wildfire mitigation projects throughout the county since 2020. These projects were done with both the United States Forest Service and private residents. Those done by the county include areas such as Acorn Creek, Sierra Bosque, Pebble Creek, Ptarmigan Forest, Salt Lick Gulch, Summit Estates, Peak 7, The Crown, Quandary, Lewis Ranch, Iron Springs, Summit Cove, and Keystone Ranch. Other wildfire prevention projects were done in areas such as Boulder Creek, Mesa Cortina, and Peak 8, done by the towns of Silverthorne, Breckenridge, and Keystone. The projects completed included shaded fuel breaks, roadside thinning, repairing roads for evacuations, improving hydrant lines, and creating defensible spaces. In the last 5 years the county has done 72 projects with 595.73 acres of wildfire fuels treatment completed. Refer to the wildfire section (section 4.14) for details on these projects.

As of October 2025, the Blue River East Hazardous Fuels Reduction project is taking place near the Town of Blue River. This project is an 83-acre fuel break located near the Town of Blue River on the east side of Highway 9. The project takes place on U.S. Forest Service (USFS), Summit County Open Space, Town of Breckenridge, Town of Blue River, and private lands.

5.2.1 Continued Compliance with NFIP

Given the flood hazard and risk in the planning area and recognizing the importance of the NFIP in mitigating flood losses, an emphasis is placed on continued compliance with the NFIP by Summit County and all NFIP participating jurisdictions including Breckenridge, Frisco, and Silverthorne. As NFIP participants, these communities have and will continue to make every effort to remain in good standing with NFIP. This includes continuing to comply with the NFIP's standards for updating and adopting floodplain maps and maintaining and updating the floodplain zoning ordinance. There are several action items identified in Table 5-3 that address specifics related to NFIP continued compliance. Other details related to NFIP participation are discussed in the community capabilities section of each jurisdictional annex and the flood vulnerability discussion in Section 3.3.

5.3 Identification and Analysis of Mitigation Actions

A representative from each participating jurisdiction was present at the third HMPC meeting to identify and analyze potential mitigation actions. Jurisdictional representatives unable to attend the third meeting participated through emails and phone calls with the consultant and County Emergency Manager. To identify and analyze potential mitigation actions to achieve the mitigation goals, WSP provided the HMPC with a packet of materials at its third meeting with information on types of mitigation actions, key issues from Chapter 4 Risk Assessment, and a worksheet of the plan's goals and objectives. The group discussed different types of mitigation actions. The HMPC was also provided with the following list of categories of mitigation actions, which originated from the National Flood Insurance Program's Community Rating System (CRS), with definitions and example mitigation actions for each category:

- **Prevention**: Administrative or regulatory actions or processes that influence the way land and buildings are developed and built.
- **Property protection**: Actions that involve the modification of existing buildings or structures to protect them from a hazard or remove them from the hazard area.
- **Structural**: Actions that involve the construction of structures to reduce the impact of a hazard.
- **Natural resource protection**: Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems.

- **Emergency services**: Actions that protect people and property during and immediately after a disaster or hazard event.
- **Public information/education and awareness**: Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them.

Next, the HMPC discussed the key issues for each priority hazard that emerged from the Risk Assessment and brainstormed potential mitigation alternatives to address them. Each HMPC participating jurisdiction was asked to identify at least one new mitigation action that would work toward achieving the plan goals.

Next, the HMPC reviewed each jurisdiction's mitigation ideas and in some cases discussed the potential action further with the larger group. Based upon the key issues identified in the risk assessment, including the existing capabilities of jurisdictions, and the overall political, technical, and financial feasibility of the potential actions, the HMPC came to consensus or sent in new mitigation actions for each jurisdiction. The group then completed a prioritization process for all the newly identified actions, further details on this process can be found in subsection below. In all, 55 new mitigation actions were identified and added to the Plan, along with 79 actions carried over from the 2020 Plan, as summarized in Table 5-2.

Table 5-2 Mitigation Action Progress Summary

Jurisdiction	2020 Actions	Completed	Deleted	Continued to 2025	New Actions	2025 Actions
Summit County	21	1	0	20	3	23
Town of Blue River	7	3	0	4	2	6
Town of Breckenridge	7	2	0	5	3	8
Town of Dillon	3	0	0	3	1	4
Town of Frisco	3	0	0	3	5	8
Town of Silverthorne	4	0	0	4	12	16
Red White and Blue FPD	8	0	0	8	1	9
Summit Fire and EMS	3	0	0	3	4	7
Buffalo Mountain MD	6	0	0	6	0	6
Copper Mountain CMD	5	0	1	4	1	5
Hamilton Creek MD	6	0	0	6	1	7
Willow Brook MD	NA	NA	NA	NA	10	10
East Dillon Water District	6	0	1	5	1	6
Heeney Water District	NA	NA	NA	NA	8	8
Mesa Cortina Water District	5	0	1	4	1	5
Denver Water	5	1	0	4	2	6
TOTAL	**89**	**7**	**3**	**79**	**55**	**134**

5.3.1 Prioritization Process

Once the mitigation actions were identified, the HMPC was provided with several decision-making tools, including FEMA's recommended prioritization criteria, STAPLEE sustainable disaster recovery criteria, and others, to assist in deciding why one recommended action might be more important, more effective, or more likely to be implemented than another. STAPLEE stands for the following:

- **Social:** Will the action be acceptable to the community? Could it have an unfair effect on a particular segment of the population?
- **Technical:** Is the action technically feasible? Are there secondary impacts? Does it offer a long-term solution?

- **Administrative:** Are there adequate staffing, funding, and maintenance capabilities to implement the project?
- **Political:** Will there be adequate political and public support for the project?
- **Legal:** Does the jurisdiction have the legal authority to implement the action?
- **Economic:** Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?
- **Environmental:** Will there be negative environmental consequences from the action? Does it comply with environmental regulations? Is it consistent with community environmental goals?

At its third meeting, the HMPC used STAPLEE to determine which of the identified actions were most likely to be implemented and effective. Each member used STAPLEE to identify his or her top mitigation action, and worksheets were submitted at the end of the meeting. The actions are included in Table 5-3 below.

This process of identification and analysis of mitigation alternatives allowed the HMPC to come to consensus and to prioritize recommended mitigation actions. Emphasis was placed on the importance of a benefit-cost analysis in determining project priority; however, this was not a quantitative analysis. The Disaster Mitigation Act regulations state that benefit-cost review is the primary method by which mitigation projects should be prioritized. Recognizing the federal regulatory requirement to prioritize by benefit-cost, and the need for any publicly funded project to be cost-effective, the HMPC decided to pursue implementation according to when and where damage occurs, available funding, political will, jurisdictional priority, and priorities identified in the 2023 State of Colorado Hazard Mitigation Plan. Cost-effectiveness will be considered in additional detail when seeking FEMA mitigation grant funding for eligible projects identified in this plan.

Following the third HMPC meeting in both 2019 and 2025 the representative from each participating jurisdiction coordinated a meeting with his or her jurisdictional planning team to discuss mitigation actions. Using the STAPLEE criteria, the jurisdictional planning teams chose from the mitigation actions those that they wanted to implement in their jurisdiction. They also updated actions from the 2019 plan and identified new actions specific to the risks in their jurisdiction. Appropriate team members were assigned to complete implementation worksheets for each identified action.

5.4 Mitigation Action Plan

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

The new and continuing mitigation actions developed by the HMPC are summarized in Table 5-3. The HMPC came to consensus on which departments and persons are responsible for completing an implementation worksheet for the County for each identified mitigation action. The worksheets document background information, ideas for implementation, lead agency, partners, potential funding, cost estimates, benefits, and timeline for each identified action. Action details are presented in the respective jurisdictional annex or the beginning of Table 5-3 for multi-jurisdictional actions.

Table 5-3 also provide status and implementation notes that describe progress made on the actions so far, using the following categories, and where applicable, notes if there were changes in the priority level from the previous Plan:

- Not Started: Work has not begun but is still a priority
- In Progress: Work has started but not yet completed
- Annual: Work is ongoing on an annual basis with no specific end date.

- Completed: The action has been finished.
- Deleted: Action is no longer relevant or no longer a priority

Cost estimates are categorized as follows:

- Little to no cost
- Low: Less than $10,000
- Moderate: $10,000-$100,000
- High: $100,000-$1,000,000
- Very High: More than $1,000,000

The estimated timeframe for completing actions is categorized as:

- Short Term: 1-3 years
- Mid Term: 3-5 years
- Long Term: 5 years or more

The County's highest priority hazard in the mitigation strategy is wildfire. The County and jurisdictions continue to contribute their own resources to education, planning, land use and building regulations, defensible space, and fuel reduction. However, the vulnerability is high and continued resources are required to implement needed loss reduction measures.

Summit County and the Towns of Breckenridge, Dillon, Frisco, and Silverthorne all have significant regulatory, personnel, technical, and financial resources and capabilities. The communities have been very proactive about mitigating risk to natural hazards when the need is identified and guiding new development away from hazard areas. Several of the special districts have also been very proactive about mitigating risk to natural hazards. As a result, there are few structural mitigation projects that need to be addressed in these jurisdictions. The mitigation strategy instead focuses on improving communication and coordination within the County and between its jurisdictions to improve efficiency and effectiveness of existing mitigation activities. Many actions are also aimed at additional proactive planning efforts and integrating existing plans to further enhance local capabilities.

The participating jurisdictions have numerous existing, detailed action descriptions in other planning documents, such as general plan elements, community wildfire protection plans and capital improvement budgets and reports. These actions are part of this plan; refer to their original source documents for additional details. The Summit County planning area also realizes that new needs and priorities may arise as a result of a disaster or other circumstances and reserves the right to support new actions as necessary, as long as they conform to the overall goals of this plan.

Table 5-3 Mitigation Action Matrix

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	2025 Status and Implementation Notes
Multi-Juris 1	Coordinate annual reviews of the Summit County Hazard Mitigation Plan to monitor, evaluate, and update the plan.	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PR	4	**Emergency Management Division.** Towns, County, Special Districts	Low. County General Fund, Staff Time/Budget	High	Long Term	**Ongoing.** This review occurs as groups meet to review and discuss the hazards with highly likely ratings. Add the HMP to the MAC agenda. Both Executive and General meetings.
Multi-Juris 2	Continue public involvement in mitigation activities	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1,4	**CSU Extension.** USFS, CSFS, Fire Districts, Towns.	Low. County General Fund, Summit County Wildfire Council (SCWC), USFS, CSFS-WMOG, Staff Time/Budget.	High	Long Term	**Ongoing.** This action occurs in a number of meetings and venues. Wildfire mitigation received the highest degree of attention with activities organized through the Wildfire Council.
Multi-Juris 3	Coordinate wildland-urban interface policies and programs for improved consistency between the Towns and the County	Wildfire, PE	1,4	**Summit County OEM.** Summit County Gov., Towns, Fire Districts, USFS, Colorado State Forest Service	Low. County General Fund, SCWC, USFS, CSFS.	Medium	Long Term	**Ongoing.** Collaboration between the County and Towns on wildfire concerns is high. We recognize there are structural differences between the County and Town Governments. The County and Towns have uniformly adopted the Fire Code and through Building Codes are supporting wildfire policies such as defensible space.
Summit County 1	Support and participate in the Summit County Wildfire Council	Wildfire, PR	1,4	**CSU Extension, Wildfire Council**. Summit County Gov., Towns, Fire Districts, USFS, Colorado State Forest Service	Low. SCWC, CSFS-WMOG, USFS, County General Fund, Staff Time/Budget.	Medium	Long Term	**Ongoing**. The Summit County Wildfire Council remains active and continues to administer local wildfire mitigation grants. In 2018 and 2019, voters approved tax measures to continue to fund wildfire prevention strategies, driven by the SCWC's implementation of the CWPP's goals and objectives. The tax measures allocate $500K annually, in perpetuity, and an additional 1M per year for a ten-year period (2018 - 2027). The 27 Focus Areas had 89 action items associated. By 2019, nearly all of the attainable actions have been completed. The SCWC will review and revise the action list to support ongoing community protection from wildfire efforts.

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	2025 Status and Implementation Notes
Summit County 2	Integrate wildfire mitigation strategies identified in the Summit County Community Wildfire Protection Plan (CWPP) into the Hazard Mitigation Plan	Wildfire	1,4	**Summit County OEM.** Summit County Gov., Towns, Fire Districts, USFS, Colorado State Forest Service	Low. SCWC, CSFS-WMOG, USFS, County General Fund, Staff Time/Budget	High	Long Term	**Ongoing.** With the 2025 update of the Hazard Mitigation Plan, the integration of these plans grows stronger. The Summit County Wildfire Council remains active and continues to administer local wildfire mitigation grants.
Summit County 3	Work with the Summit County Forest Health Group (formerly referred to as Mountain Pine Beetle Task Force) to strengthen public and stakeholder educational efforts	Wildfire, PI	1,4	**Forest Health Task Force.** Summit County Gov., Towns, Fire Districts, USFS, Colorado State Forest Service	Low. USFS, CSFS-WMOG, SCWC, County General Fund, Staff Time/Budget.	High	Long Term	**Ongoing.** Stakeholder involvement and participation in the important topic of Wildfire Prevention, Forest Health and Resilience is an ongoing effort. In addition to our connection with the Forest Health Task Force (FHTF), staff actively works with the Summit Association of Realtors (SAR), Open Space and Trails (OST: in the County and Town of Breckenridge), and have partnered with the Treasurer to include wildfire information in the annual Tax Mailer, to name a few. The Summit County Wildfire Council represents a number of additional partners. Summit County will continue work with the Forest Health Task Force past 2025.
Summit County 4	Continue to enhance mapping of hazard and vulnerability analysis for wildland-urban interface areas of Summit County	Wildfire, PR	1	**Summit County GIS**. Fire Districts and USFS	Low. SCWC, USFS, USDA, DOI	High	Long Term	**Ongoing.** As of 2025 OEM and GIS are committed to annual reviews of mapping and data layers. In 2016, the CWPP received a 10-year update which included a comprehensive review and revision of the CWPP maps. With the addition of a dedicated Colorado State Forest Service (CSFS) staffer in Summit County, all project maps will be filed in a consistent manner and be reflective of projects funded with taxpayer monies.
Summit County 6	Incorporate information from the Hazard Mitigation Plan into community master plans	Multi-Hazard, PR	4	**Summit County Engineering.**	Low. EMPG, County Staff Time	Medium	Long Term	**Ongoing.** As of 2025 works continues with the Planning Department with the addition of the County Comprehensive Plan. The Planning Department is continually updating the master plans and incorporates many of the Hazard Mitigation Plan principles.
Summit County 7	Develop protection plans for roadside ditches to reduce erosion and flooding	Erosion/ Deposition, PR	2	**Summit County Engineering.**	Low. USACE Planning Assistance to States, FMA	Low	Mid Term	**Ongoing.** This has been implemented in select locations where the problem has either been accelerated by storm events or where reconstruction projects have provided an opportunity and will continue to be implemented on future planned projects.

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	2025 Status and Implementation Notes
Summit County 8	Improve education and information on the National Flood Insurance Program (NFIP) and flood hazard areas in Summit County.	Flood, PI	1	**Emergency Management Division.**	Low. FEMA HMA Grants, EMPG. County General Fund.	Low	Long Term	**Ongoing.** As of 2025 County website has been updated to include floodplains page with links to insurance requirements, maps and floodplain administrator contact information. County had a Community Assistance Visit with FEMA in fall of 2019 and discussed plans to improve our press releases and communication through permit processes. Additional opportunities may yet arise.
Summit County 9	Compost for revegetation – created by fuels reduction projects to help mitigate flood damage and erosion/ deposition/ water quality impacts	Erosion/ Deposition, NR	1	**SCRAP**	Moderate. SCWC, County General Fund	Medium	Long Term	**In Progress.** SCRAP continues to make compost. Further discussion is needed to find out how it is used. Action added in 2013
Summit County 10	Replace culverts with clear-span structures on Straight Creek and others to reduce or eliminate flood risk.	Flood, PP	1, 2, 3	**Summit County Public Works.**	High. HMA Grants, FMA, USACE Small Flood Control Projects, USACE Authorities, County General Fund.	Medium	Mid Term	**In Progress.** RFP for Canyon Trail design in progress. Bridge will replace culverts at this junction. Cost: 2.5 million. Future work on Little Beaver is expected to cost 500k- 1 million. Box culvert has been installed at Summit Dr. to mitigate flood hazard
Summit County 11	Emergency Power Study and Generator Installation	Wildfire, Severe Winter Weather, PR, PP, ES	1, 2, 3	**Summit County Facilities Department.**	High. County General Fund, HMA, EMPG	Medium	Mid Term	**Ongoing.** Generator at ES building that completely powers all aspects of building. County Commons has back up power in meeting rooms. Back up gen at courthouse, MOB, JC, fuel island
Summit County 12	Emergency Shelter Enhancements	Wildfire, Severe Winter Weather, PR, ES	1	**Summit County Human Services.** American Red Cross, Summit County OEM	Low. EMPG, HMA, County General Fund	Medium	Short Term	**Ongoing.** Meetings with Human Services and Red Cross are ongoing. Currently the EOP calls out Human Services as the lead on sheltering.
Summit County 13	Develop additional fuel breaks for critical infrastructure and evacuation routes	Wildfire, PR, PP, S	1, 2	**Summit County OEM.** Summit County Wildfire Council, Colorado State Forest Service, USFS	Moderate. SCWC, CSFS, USFS, USDA Community Wildfire Defense Grant (CWDG), FEMA FP&S Grants	Medium	Long Term	**Ongoing.**
Summit County 14	Mitigate areas prone to motor vehicle/ hazardous materials transportation accidents.	Hazardous Materials Incidents, PR, PP, S	1, 3	**Summit County Road and Bridge**. CDOT	Moderate. County General Fund	Medium	Mid Term	**Not Started.**

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	2025 Status and Implementation Notes
Summit County 15	Identify abandoned mines for cleanup & hazardous release mitigation.	Hazardous Materials Incidents, NR	1	**Summit County Environmental Health.** Private landowners, CDPHE	High. County General Fund, EMPG	Low	Mid Term	**Not Started.**
Summit County 16	Conduct a supply chain study	Wildfire, Severe Winter Storms, Avalanche, Hazmat, PR	1, 3	**Summit County OEM.**	Low. Staff Time/Budget, County General Fund	Medium	Mid Term	**In Progress.** Work has been done to complete the Supply Chain Resilience course from the Center for Homeland Defense and Security to help prepare for Summit County's study.
Summit County 17	Water source protection upgrades along Hwy 91, I-70 (Ten Mile Canyon, Officers Gulch)	Wildfire, HazMat, Avalanche, Landslide, PR, NR	1	**Summit County Road and Bridge**. CDOT	High. FMA, USACE Planning Assistance to States, USDA EWP Grant, EMPG	Low	Long Term	**Not Started.**
Summit County 18	Dam Road Rockfall Mitigation. Rockfall closed down the dam road, cutting off one of the three routes between communities on the North and South sides of the County.	Landslide; ST	2, 3	**Summit County Road and Bridge**. USFS, SC Road & Bridge	Very High. US DOT & CDOT grants	High	2-5 years	**New in 2025**
Summit County 19	Warning Sirens. Identify ideal locations for and install warning sirens to ensure county-wide coverage in areas that have little or no cellular service.	Wildfire; Severe Storm; ES, PE	1	**Summit County OEM**	~$1 Million per tower. HMGP, NDME	Low	2-5 years	**New in 2025**
Summit County 20	Morgue with Autopsy Suite Coroner's office. Summit County Coroner's Office does not have a facility. We use space in local hospital which stores 3 bodies we share with hospital. We transport our bodies to Boulder County for autopsy as well as storage. We do not have mass facility storage local.	Avalanche, Dam Failure, Drought, Earthquake, Flood, Hazmat, Landslide, Lightning, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm; ES	1, 2, 3, 4	**County Coroner**, County OEM, County Sheriff	Very High; CIP funds	High	5 years	**New in 2025**

6 PLAN IMPLEMENTATION AND MAINTENANCE

DMA Requirements §201.6(c)(4)(ii)
[The plan shall include] *[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] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.* *[a] discussion on how the community will continue public participation in the plan maintenance process.*

This chapter provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

6.1 Adoption & Implementation

Implementation and maintenance are critical to the mitigation plan's overall success. While this plan makes many important recommendations, the jurisdictions will need to decide which action(s) to undertake first. Two factors will help with making that decision: the priority assigned to the actions in the mitigation strategy and funding availability. Low or no-cost actions most easily demonstrate progress toward successful plan implementation.

Implementation will be accomplished by adhering to the schedules identified for each mitigation action in Table 5-3 in Chapter 5, and through pervasive efforts to network and highlight the multi-objective, win-win benefits of each project to the Summit County community and its stakeholders.

An important implementation mechanism that is highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other plans and mechanisms, such as comprehensive planning, capital improvement budgeting, economic development goals and incentives, and other regional plans. Mitigation is most successful when it is incorporated in the day-to-day functions and priorities of government and in land use and development planning. This integration can be accomplished through identifying multi-objective, win-win programs and projects and through the routine actions of monitoring agendas, attending meetings, sending memos, and promoting safe, sustainable communities.

Simultaneous to these efforts, it is important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions. This will include creating and maintaining a bank of ideas on how to meet local match or participation requirements. When funding does become available, the participating jurisdictions will be in a position to capitalize on the opportunity. Funding opportunities to be monitored include special pre- and post-disaster funds, County Wildfire Council Hazardous Fuel Reduction Grant fund, special district budgeted funds, state and federal earmarked funds, and other grant programs, including those that can serve or support multi-objective applications. Additional mitigation strategies include consistent and ongoing enforcement of existing rules and regulations and vigilant review of countywide programs for opportunities for better coordination. Other funds may include HMGP-Post Fire funding when Fire Management Assistance Grants are provided to Colorado for significant fires involving federal lands.

6.2 Monitoring, Evaluating, and Updating the Plan

6.2.1 Role of the Hazard Mitigation Planning Committee

With adoption of this plan, the HMPC will be tasked with plan monitoring, evaluation, and maintenance. The participating jurisdictions and agencies, led by the County Emergency Manager within the Summit County Office of Emergency Management or other designated organization elements, plan to conduct the following meetings and activities:

- Meet annually or after a disaster event to monitor and evaluate the implementation of the plan; this activity is further described in Mitigation Action Multi-Jurisdictional—1.

HMPC members also serve on various public safety planning committees and have regular meetings that are hazard specific. The County Emergency Manager will bring MHMP topics into these meetings as an ongoing way to tie mitigation initiatives into related activities and to monitor implementation.

Additionally the HMPC agrees to:

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

The HMPC is an advisory body and will not have any powers over County, city, town, or district staff. Its primary duty is to see the plan successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, hearing stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the County website.

6.2.2 Plan Maintenance Schedule

The HMPC agrees to meet annually and after a hazard event to monitor progress and update the mitigation strategy. The meeting is targeted to occur in December each year. The Summit County emergency manager is responsible for initiating these plan reviews. In conjunction with the other participating jurisdictions, a five-year written update of the plan will be submitted to the Colorado Department of Homeland Security and Emergency Management (DHSEM) and FEMA Region VIII.

This plan will be updated, approved and adopted within a five-year cycle as per Requirement §201.6(c)(4)(i) of the Disaster Mitigation Act of 2000 unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. Efforts to begin the next update should begin no later than 2028 by coordinating with DHSEM and FEMA for funding. The next plan update is anticipated to be completed and reapproved by DHSEM and FEMA Region VIII by January 2030.

6.2.3 Plan Maintenance and Evaluation Process

The HMPC will continually observe the incorporation process, evaluation method, updating method, continued public participation, and completion of the action/projects to assure that the planning team and the plan itself are performing as anticipated. By monitoring these processes, the planning team will then be able to evaluate them at the time of the plan update, determining if any changes are needed. The HMP plan update every five years provides an opportunity to determine whether there have been any significant changes in the county that may, in turn, necessitate changes in the types of mitigation actions proposed.

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions,
- Increase or decrease in capability to address hazards,
- Changes to federal and state legislation,
- Increased vulnerability as a result of failed or ineffective mitigation actions, and/or
- Increased vulnerability as a result of new development (and/or annexation).

Updates to this plan will:

- Consider changes in vulnerability due to project implementation,
- Document success stories where mitigation efforts have proven effective,
- Document areas where mitigation actions were not effective,
- Document any new hazards that may arise or were previously overlooked,
- Document hazard events and impacts that occurred within the five-year period,
- Incorporate new data or studies on hazards and risks,
- Incorporate new capabilities or changes in capabilities,
- Document continued public involvement,
- Document changes to the planning process, which may include new or additional stakeholder involvement,
- Incorporate growth and development-related changes to building inventories,
- Incorporate new project recommendations or changes in project prioritization,
- Include a public involvement process to receive public comment on the updated plan prior to submitting the updated plan to DHSEM/FEMA, and
- Include re-adoption by all participating entities following DHSEM/FEMA approval..

To best evaluate any changes in vulnerability as a result of plan implementation, the participating jurisdictions will use the following process:

- A representative from the responsible office identified in each mitigation action will be responsible for tracking and reporting on an annual basis to the jurisdictional lead on action status and provide input on whether the action as implemented meets the defined objectives and is likely to be successful in reducing vulnerabilities.
- If the action does not meet identified objectives, the jurisdictional lead will determine what additional measures may be implemented, and an assigned individual will be responsible for defining action scope, implementing the action, monitoring success of the action, and making any required modifications to the plan.

As a measure of progress the HMPC will evaluate the overall percentage of actions implemented within each five-year update cycle. During the five-year plan update process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Plan:

- Do the goals address current and expected conditions?
- Are the goals and objectives consistent with changes in State and Federal policy?
- Complete status update on all mitigation projects. What strategies should be revised?
- Has the nature or magnitude of risks changed (current and expected conditions)?
- Are the current resources appropriate for implementing the LHMP?
- Are there implementation problems, such as technical, political, legal or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- Did the county and participating agencies and other partners participate in the plan implementation process as assigned?

Changes will also be made to the plan to accommodate for actions that have failed or are not considered feasible after a review of their consistency with established criteria, timeframe, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation. Updating of the plan will be by written changes and submissions, as the Summit County Office of Emergency Management deems appropriate and necessary, and as approved by the Summit County Board of Commissioners and the governing boards of the other participating jurisdictions.

Summit County is committed to involving the public in the continual reshaping and updating of the Hazard Mitigation Plan, as discussed in Section Continued Public Involvement.

6.2.4 Disaster Proclamation or Declaration

Following a disaster proclamation or declaration, the HMP will be revised as necessary to reflect lessons learned, or to address specific issues and circumstances arising from the event. It will be the responsibility of the Office of Emergency Services to reconvene the Hazard Mitigation Planning Committee and ensure the appropriate stakeholders are invited to participate in the plan revision and update process following declared disaster events.

6.3 Incorporation into Existing Planning Mechanisms

Where possible, plan participants will use existing plans and/or programs to implement hazard mitigation actions. Based on the capability assessments of the participating jurisdictions, communities in Summit County continue to plan and implement programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through the following plans:

- Summit County Countywide Comprehensive Plan and four watershed basin master plans
- Summit County Emergency Operations Plan
- Summit County Community Wildfire Protection Plan
- Comprehensive or master plans of participating jurisdictions
- Ordinances of participating jurisdictions
- Capital improvement plans and budgets
- Other community plans within the County, such as water conservation plans, stormwater management plans, source water protection plans, and parks and recreation plans
- Other plans and policies outlined in the capability assessments in the jurisdictional annexes

The County documented its intention to incorporate information from the Hazard Mitigation Plan into community master plans in mitigation action Summit County—8 (Incorporate information from the Hazard Mitigation Plan into community master plans) and its intention to improve integration with the

Community Wildfire Protection Plan and the Hazard Mitigation Plan in mitigation action Summit County—3 (Integrate wildfire mitigation strategies identified in the Summit County Community Wildfire Protection Plan (CWPP) into the Hazard Mitigation Plan) in the mitigation strategy. Progress on these efforts can be referenced in the respective action descriptions in Annex A.

As an action step to ensure integration with other planning mechanisms the County Office of Emergency Management Manager or designee will discuss this topic at the annual meeting of the HMPC described in subsection 5.2.2. The HMPC will discuss where there are opportunities to incorporate the plan into other planning mechanisms and who would be responsible for leveraging those opportunities. HMPC members representing local jurisdictions will work with their jurisdictional planning teams to integrate their identified mitigation actions into their own local plans and programs. Efforts should be made to monitor the progress of mitigation actions implemented through these other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this hazard mitigation plan.

6.4 Continued Public Involvement

Continued public involvement is also imperative to the overall success of the Plan's implementation. This updated HMP will be posted on the county's website for reference and can be used to help inform the county's ongoing public education and outreach program, such as the completion of mitigation actions that reduce the community's vulnerability, can be shared with the public through forums like the Local Emergency Planning Committee (LEPC), public meetings, and through social media. This helps keep the concept of hazard mitigation alive and helps show the public that their government officials are working to keep them safe.

The update process provides an opportunity to publicize success stories from the plan's implementation and seek additional public comment. Information will be posted in the *Summit Daily News* and on the County website following the annual review of the mitigation plan. A public hearing(s) to receive public comment on plan maintenance and updating will be held during the update period. When the HMPC reconvenes for the update, they will coordinate with all stakeholders participating in the planning process, including those who joined the HMPC after the initial effort, to update and revise the plan. Public notice will be posted and public participation will be invited, at a minimum, through available website postings and press releases to the local media outlets, primarily newspapers. Continued public involvement is documented in the mitigation strategy in the action Multi-Jurisdictional—2 and is implemented annually. Details on each jurisdiction's methods for ensuring continued public involvement are detailed in their respective jurisdictional annexes. Activities related to public involvement during the 2025 update are documented in Section 2.4 and Appendix D.

SUMMIT COUNTY
COLORADO

Summit County Hazard Mitigation Plan

Jurisdictional Annexes







Summit County
Town of Blue River
Town of Breckenridge
Town of Dillon
Town of Frisco
Town of Silverthorne
Summit Fire and EMS Authority
Red, White, & Blue Fire Protection District
Buffalo Mountain Metropolitan District
Copper Mountain Consolidated Metropolitan District
Hamilton Creek Metropolitan District
Willow Brook Metropolitan District
East Dillon Water District
Heeney Water District
Mesa Cortina Water and Sanitation District
Denver Water

December 2025

ANNEX A UNINCORPORATED SUMMIT COUNTY

Jurisdictional annexes provide specific information unique to each jurisdiction participating in the hazard mitigation plan. For unincorporated Summit County, countywide information related to sections A.1 Community Profile, A.2 Hazard Identification and Profiles, and A.3 Vulnerability Assessment are addressed previously in the main plan. The location of this information is referenced below. The remainder of this annex focuses on the Capability Assessment and Mitigation Strategy unique to the County government.

A.1 Community Profile

Community profile information and the base map for Summit County are provided in Section 1.5 of the Base Plan.

A.2 Hazard Identification and Profiles

Countywide hazard identification and profiles information can be found in Section 3.1 and Section 3.2.

A.3 Vulnerability Assessment

The vulnerability assessment analyzes the population, property, and other assets at risk to hazards and estimates potential losses where data is available. Facilities owned by the County are inventoried in Table A-1. Other countywide vulnerability information is covered in Section 3.3.

Table A-1 Unincorporated Summit County—Critical Facilities and Other Community Assets

Name of Asset	Address	Replacement Value	Hazard Concerns
Breckenridge Area			
Courthouse	208 E. Lincoln	$4,382,940	
Justice Facility	501 Park Drive	$17,163,212	
District Attorney's Offices	1760 Airport Road Unit A	$773,195	
Library	504 Airport Road	$1,044,556	
Tyrollean Radio Site	Barney Ford Hill	$30,787	
High School Radio Site	0059 CR 1	$3,617	
Copper Mountain Area			
Copper Mountain Radio Site	SE of 3371 Hwy 91, Parcel 3	$38,507	
Dillon Area			
Snake River Wastewater Treatment Plant	4344 Swan Mountain Road	$27,835,200	
Snake River Wastewater Treatment	0297 Summit County Road 120	$1,660,786	
Snake River Wastewater Treatment Plant Digestor	0297 Summit County Road 120	$285,317	
Wastewater Treatment Plant	4344 Swan Mountain Road	$2,736,073	
Sewage Lift Station	4533 Swan Mountain Road	$62,832	
Material Recovery Facility	683 Landfill Road	$3,741,401	
Water Storage Tank	642 Landfill Road	$927,219	
Landfill Maintenance Garage	725 Landfill Road	$2,404,975	

Name of Asset	Address	Replacement Value	Hazard Concerns
Frisco Area			
Ambulance Search and Rescue	128 CR 1004	$522,453	Wildfire
Road and Bridge Building Department	128 CR 1004	$497,911	Wildfire
Road and Bridge Main Shops	128 CR 1004	$1,101,301	Wildfire
Storage	187 CR 1004	$344,292	Wildfire
Sand Storage	218 CR 1004	$96,207	Wildfire
Bus Garage	0222 SCR 1004	$980,809	Wildfire
Library/Administration	0037 CR 1004	$18,307,610	Wildfire
Emergency Services Facility	0227 CR 1003	$3,052,779	Wildfire
Transfer Center	1010 Meadow Drive	$813,800	
Animal Shelter, Classroom, Office	0191 CR 1004	$2,213,000	Wildfire
Community and Senior Center	0151 CR 1004 Peak 1 Boulevard	$4,760,529	Wildfire
Summit County Medical Offices	360 Peak One Drive	$8,913,399	Wildfire
St. Anthony Summit Medical Center	340 Peak One Drive	N/A	Wildfire
Summit County Offices (2nd Floor)	360 Peak One Drive	$1,131,000	Wildfire
Heeney Area			
Summit County Barn	1294 CR 30	$105,123	
Summit County Road and Bridge Shop	6631 CR 30	$104,059	
Heeney Radio Site	CR 30 at Willows Campground	$32,275	
Keystone Area			
County Maintenance Building	1252 Keystone Ranch Road	$125,158	
Landfill Maintenance/Storage Building	Landfill Road	$17,362	
Snake River Radio Site	22393 Highway 6	$1,220	
Silverthorne Area			
Search and Dive Rescue	222 Adams	$103,779	
North Branch Library	651 Center Circle	$4,156,122	
Wildernest Radio Site	Ryan Gulch Road at Wildernest	$122,062	

Source: Summit County Office of Emergency Management

A.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

A.4.1 Regulatory Mitigation Capabilities

Table A-2 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Summit County.

Table A-2 Summit County—Regulatory Mitigation Capabilities

Regulatory Tool (Ordinances, Codes, Plans)	Yes/No	Comments
Master Plan	Yes	2009 – updated in 2025
Zoning Ordinance	Yes	Summit County Land Use and Development Code
Subdivision Ordinance	Yes	Summit County Land Use and Development Code
Growth Management Ordinance	Yes	Summit County Land Use and Development Code
Floodplain Ordinance	Yes	Floodplain Overlay District
Other Special Purpose Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Chapter 44 of the County Building Code, Fire Mitigation Standards for New Development Development Code Chapters 6 and 7 include erosion control and revegetation requirements
Building Code	Yes	Version: 2018 International Code Council
Erosion or Sediment Control Program	Yes	
Stormwater Management Program	Yes	All large-scale development is required to have drainage designed to handle the 25-year storm event. Detention must be provided that will release water at the 25-year historic rate.
Site Plan Review Requirements	Yes	
Capital Improvements Plan	Yes	2025 County Budget Capital Projects Addendum
Economic Development Plan	No	
Local Emergency Operations Plan	Yes	Plan updated and adopted in 2025
Other Special Plans	Yes	Summit County Community Wildfire Protection Plan, Summit County Climate Action Plan
Flood Insurance Study or Other Engineering Study for Streams	Yes	FEMA Flood Insurance Study, November 16, 2018
Elevation Certificates	Yes	

Summit County Planning developed the matrix in Table A-3 listing their hazard mitigation measures. More detailed information on mitigation-related plans and policies follows the matrix.

Table A-3 Development Constraints, County Concerns, and Mitigation Measures

Constraint	County Concerns	Mitigation
Flood Fringe	Flood hazards to structures; Public health, safety, and welfare	A. Compliance with County Floodplain Regulations (See Section 4100 of the Summit County Land Use and Development Code)
Floodway	Flood hazards to structures; Public health, safety, and welfare	A. Compliance with County Floodplain Regulations (See Section 4100 of the Summit County Land Use and Development Code)
Geologic Hazard Areas	Avalanche paths; Landslide areas; Rock falls; Debris flows; Mudflows; Unstable slopes or soils; Seismic effects;	A. Avoiding placement of structures on areas subject to geologic hazards B. Submitting geotechnical report identifying hazards and recommending methods of construction to alleviate hazards; designing structures in accordance with recommendations contained in geotechnical report (See Chapter 6 of the Summit County Land Use and Development Code) C. Providing grading and foundation plans prepared by a registered professional engineer (See Chapter 6 of the Summit County Land Use and Development Code) D. Complying with recommendations of the State Geological Survey (See Chapter 8 of the Summit County Land Use and Development Code)

Constraint	County Concerns	Mitigation
	Ground subsidence radioactivity	E. Modifying land uses so that structures are minimized or eliminated F. Clustering development to avoid hazard areas
Slopes Exceeding 30%	Amount of site disturbance; Visual scarring; Slope stability; Soil erosion; Release of phosphorus; Wildfire potential (See also wildfire as constraint)	A. Avoiding placing such items as parking lots which require large, flat-surfaced areas on steep slopes B. Modifying land uses, so site disturbance is minimized C. Proposing smaller scale rather than larger scale development in order to minimize the amount of site disturbance D. Designing structures so they are stepped or otherwise fit with the terrain E. Minimizing the extent of roads F. Clustering development to avoid steep slopes G. Providing financial commitment to, and implementation of, a revegetation program (Required by Chapter 5, 7 and Section 3600 of the Summit County Land Use and Development Code)
Wetlands	Degradation of natural environment; Loss of wildlife habitat; Loss of cleansing action of wetlands; Disruption of natural corridors; Loss of amenity in project	A. Proposing land uses which are not disruptive to wetlands B. Clustering development to avoid wetlands areas C. Complying with 404 permit procedures D. Replacing wetlands on a 1:1 basis within same ecosystem
Wildfire	Fire hazard to structures; Public health, safety, welfare	A. Submitting the forest management plan approved by Colorado State Forest Service, and implementing measures needed to mitigate or eliminate hazard (required for areas of moderate or severe hazard by Chapter 8 of the Summit County Land Use and Development Code) B. Providing multiple points of access C. Using fire retardant roof covering materials in accordance with the building code D. Installing fire sprinkler system

Source: Summit County Planning Department

Countywide Comprehensive Plan, 2009

The Summit County Countywide Comprehensive Plan serves as the County's policy guidance and directs decisions that affect the physical and socioeconomic development of the County. The plan's overall vision is to "preserve and enhance our vibrant, attractive, and prosperous mountain community where people choose to live, work, recreate, and visit." Goals and policies related to hazard mitigation include the following:

Environment Element

- Goal A: Protect and preserve environmentally sensitive areas.
  - Policy/Action 6: The County should work cooperatively with homeowner groups and the state and federal forest services to promote healthy and naturally diverse forests while reducing wildfire hazards.
- Goals B-F: Wetland preservation and enhancement.
- Goal H: Protect and enhance the quality and quantity of water resources in the County.

- Policy/Action 1: Reduce water consumption and manage water resources in a more sustainable manner.
- Policy/Action 2: Development and other land use activities (e.g., highway operations and industrial activities) should avoid water quality impacts from erosion and sedimentation and should not result in degradation of water quality as measured by Colorado's Antidegradation Policy.
- Policy/Action 8: Ensure that new development does not disturb surface or subsurface hydrologic flows to the extent that recharge of nearby wetlands and streams are adversely affected.
- Policy/Action 14: Support projects that restore stream channels and natural conditions, provide erosion control, and improve fish and wildlife habitat.

Land Use Element

- Goal D: Guide the appropriate development of land through the County's master plans and development regulations.
  - Policy/Action 3.1: To the extent practicable, retain trees and forested areas while providing protection of the resources listed above and while allowing for forest management practices necessary for forest health and wildfire prevention.

Design and Visual Resources Element

- Goal E: Avoid or minimize development impacts on steep hillsides and ridgelines.
  - Policy/Action 1: Development on ridgelines and steep slopes should be avoided wherever possible. Where no feasible alternative exists, buildings on ridgelines and slopes should be located and designed so that the existing visual dominance of the natural landform, vegetation and topography is maintained.
  - Policy/Action 2: Minimize the need for grading, earth moving, vegetation removal, and site disturbance related to development on sloped areas.
  - Policy/Action 3: Grading or earth moving to create a flat building pad on a slope should be discouraged; instead, buildings should be stepped to fit with the natural terrain.

Watershed Basin Master Plans

Each of the County's four watershed basins, Upper Blue, Snake River, Ten Mile, and Lower Blue, has a basin master plan that provides further specific direction on land use decisions within the basin. Within each basin, there may be a subbasin plan to address unique circumstances on a neighborhood or regional scale. The Snake River Master Plan addresses flooding, avalanche hazards, steep slopes and other geologic hazards, wildfire and the transportation of hazardous materials in various sections of the plan. Within the plan's Affordable Workforce Housing element wildfire is addressed in relationship with siting future development. One of the policies in Appendix C guides development to avoid slopes over 30 percent slope and 100-year floodplains. The plan also includes maps that identify hazardous areas including 30 percent or great slopes and environmentally sensitive areas.

Summit County Land Use and Development Code

The Summit County Development Code is the legal framework outlining policies for development projects within the County's jurisdiction. It is organized under 16 chapters and various subsections. Code ordinances related to hazard mitigation are described below:

Zoning Regulations

3506: Transfer of Development Rights (TDRs) Program Regulations

Summit County's TDR program is another tool the County uses to protect the County's natural resources and lessening the risk of wildfire to future development in the backcountry. The program is divided into four geographically specific areas with the purpose of protecting rural backcountry parcels by allowing development rights to be voluntarily transferred from "sending" areas to the urban areas of the County or "receiving areas." In addition to the sending and receiving areas, the County has also identified neutral and optional areas, those that are either not suitable for sending or receiving development rights or those that are not eligible for receiving or sending density.

The Upper Blue Basin TDR Program began in 2000 and has successfully protected 1,415 acres, including 27 wetland lots of a total 14 acres. Owners of backcountry parcels voluntarily participate in the TDR program in exchange for giving up their right to develop a backcountry parcel for which they are monetarily compensated. When the property owner is compensated, the development rights are transferred into areas that can appropriately accommodate development, such as the Town of Breckenridge. Both County and town policies prohibit the upzoning of land or adding more units of density unless a TDR is acquired. To assist property owners in the TDR program a Joint Upper Blue TDR Bank was developed to bring prospective purchasers and sellers of TDRs together. The Bank is administered in coordination with the County and the Town of Breckenridge. One TDR is equal to 20 acres of backcountry property and is sold by the County for $92,590 as of January 2020. In 2018 the County transferred density from 324 acres equating to 25.93 development rights to the Town of Breckenridge.

3200 Rezoning Policies

Summit County has established policies that apply whenever a zoning amendment (rezoning) is proposed in the unincorporated area of the County. These Rezoning Policies are intended to ensure that land with development constraints is avoided in accordance with the policies contained herein, and that development contemplates and is designed in a manner consistent with the terrain and natural features of the site and is compatible with existing development in the vicinity.

- **3202.02 Development Constraints:** An applicant requesting a zoning amendment that may impact land with development constraints shall provide a surveyed existing conditions plan depicting all of the following constraints, unless the Planning Department waives mapping such environmental constraints:
  - 1. Slopes of greater than 30 percent.
  - 2. Areas subject to geologic hazards including avalanches, landslides, rock falls, mud flows, unstable slopes or soils, seismic effects, ground subsidence or radioactivity.
  - 3. Any regulatory floodway or flood fringe area as depicted on the County's Floodplain Overlay District Maps.
- **3202.05 Wildfire Hazard Areas:** Rezoning Policies for wildfire hazard areas state that in determining appropriate densities for a particular property, the Board of County Commissioners will take into account: 1) the wildfire hazard as identified in the Summit County Community Wildfire Protection Plan; 2) the potential impact to the public health, safety and welfare; 3) wildfire mitigation measures as required and/or allowed by the County; and 4) the proximity of the proposed development site to existing fire stations and the corresponding response zone and its inclusion in a designated fire protection district. Development projects seeking a zoning amendment shall ensure that wildfire

hazard areas do not pose an undue risk to the public health, safety and welfare. As a part of a zoning amendment application, the County may require:

- A. The submittal of a forest management plan approved by the Colorado State Forest Service that includes proposed mitigation for any wildfire hazard area.
- B. Inclusion in a fire protection district or other arrangement for fire protection
- C. Other measures as deemed necessary to reduce the wildfire hazard including consideration of the goals and policies set forth in the CWPP.

On January 9, 2018 the BOCC adopted Wildfire Mitigation/Forest Management amendments to the County's Rezoning Policies specific to wildfire hazard areas and mitigation with the following amendments:

- Include new requirements for assessing wildfire hazard within all four of the basin master plans,
- Assessing wildfire hazards and potential mitigation as part of any rezoning/PUD modification request
- Requirements for ensuring that full Zones 1 and 2 defensible space are incorporated into any new subdivision approval
- Changes to fencing requirement
- Prohibitions against the storage of firewood within Zone 1 during the fire season

Overlay Districts

4100 Floodplain Overlay District

The BOCC finds there are areas within Summit County subject to flooding which may cause serious property damage and threaten the health, safety and welfare of its residents. The imprudent use and occupation of these flood hazard areas will pose a continuing danger to life and property unless appropriate regulations are implemented concerning the use, development and occupation of these areas. The purpose and intent of these Floodplain Regulations is as follows:

- A. To reduce the hazard of floods to life and property through:
  - 1. Prohibiting certain uses that are hazardous to life or property in time of flood from locating in the floodplain;
  - 2. Restricting the development of certain uses in the floodplain that are hazardous to public health in time of flood;
  - 3. Restricting the development of certain uses in the floodplain which are especially susceptible to flood damage, so as to alleviate hardship and eliminate demands for public expenditures for relief and protection; and,
  - 4. Requiring permitted floodplain uses, including but not limited to public facilities that serve such uses, to be protected against floods by requiring floodproofing and general flood protection at the time of initial construction.
- B. To protect those who may occupy areas of the floodplain through:
  - 1. Regulating the manner in which structures and developments designed for human occupancy may be constructed and developed so as to minimize danger to human life within such structures;
  - 2. Regulating the method of constructing water supply and sanitation systems so as to prevent disease, contamination and unsanitary conditions resulting from inundation in time of flood;

  - 3. Regulating the location and method of constructing streets and bridges so as to prevent damage in time of flood; and,
  - 4. Requiring the provisions of this section and maps delineating floodplain areas be made available to the public so as to protect individuals from purchasing floodplain lands for purposes that are not suitable.

- C. To protect the public from the burden of avoidable financial expenditures for flood control and relief by regulating uses within floodplain areas so as to produce a method of construction and pattern of development which will minimize the probability of damage to property and loss of life or injury to the occupants of flood hazard areas.
- D. To protect and enhance the storage capacity of floodplains and to assure retention of sufficient floodway area to convey flood flows, which can reasonably be expected to occur by:
  - 1. Regulating filling, dumping, dredging, and alteration of drainage channels;
  - 2. Prohibiting excessive encroachments; and,
  - 3. Encouraging uses such as agriculture, recreation, and parking in floodplains.

The above regulations were reviewed and revised to conform with the updated State Floodplain Rules and Regulations that became effective statewide on January 14, 2011. The regulations were again revised to adopt the new maps prior to November 16, 2018. In 2019 FEMA and the CWCB visited with the Floodplain Manager and reviewed the existing regulations and practices. There are recommendations that will arise and be incorporated as a result of that meeting but have not yet been finalized as of the time of this plan.

Subdivision Regulations

Section 8150 Design Criteria includes separate sections on Protection of the Natural Environment, Areas Subject to Environmental Hazard, Drainage, Fire Protection, and Soil Suitability criteria and requirements in new subdivisions. Section 8101 also includes Required Fire Protection Improvements, including requiring fuel reduction and forest management plans for all subdivisions where the wildfire hazard is deemed significant by County staff in consultation with the Colorado State Forest Service (CSFS), US Forest Service, or local fire protection districts.

Rural Land Use Subdivision (RLUS)

The Rural Land Use Subdivision encourages the efficient use of land through cluster development, the grouping or directing of new development to less sensitive areas within a subdivision in order to protect environmentally sensitive lands including hazard prone areas. The County's RLUS regulations is intended to achieve the following goals:

- A. Implement goals of basin master plans and subbasin plans to protect the character of the County's rural areas.
- B. Provide incentives (e.g., simplified development review process, bonus densities) to landowners to choose the program rather than selecting other methods of land division
- C. Foster continued use of lands for ranching and agriculture
- D. Protect environmentally sensitive lands for ranching and agriculture
- E. Preserve open space
- F. Avoid disturbance of floodplains, steep slopes, and other geologically hazardous areas
- G. Preserve historic sites and structures
- H. Minimize visual impacts as seen from main public roads, when consistent with other goals
- I. Minimize extensive of roads and utilities
- J. Reduce exposure of new development to wildfire hazards.

Fire Hazard Mitigation Requirements for New Construction

Chapter 45 of the Summit County Building Code establishes minimum design and construction standards for the protection of life and property from fire within the wildland-urban interface. These provisions are meant to aid in the prevention and suppression of fires and lessen the hazards to structures from wildland fires as well as the hazards to wildlands from structure fires. New homes, additions, and applications for building new decks in any area in unincorporated Summit County must go through a wildfire mitigation inspection process.

Summit County Community Wildfire Protection Plan (CWPP), 2006, Readopted 2018

The purpose of the Summit County Community Wildfire Protection Plan is to establish a focused set of goals, policies, and implementation strategies specific to wildfire prevention and mitigation. The plan is a joint effort of the County, fire districts, State and Federal Forest Service, towns, the Northwest Colorado Council of Governments, and others. The document is organized into twelve sections and three appendices that include maps of focus areas for reducing wildfire risk and mitigation and implementation strategies. Appendix C details property specific implementation measures that support the goals of the overall document. The plan will be continuously updated. Since the plan's original adoption in 2006 the Wildfire Council and County staff continually review and refine the CWPP to meet the community's changing needs concerning wildfire protection. The plan has been revised in 2013 and again in 2018.

Evacuation Plan, 2020

The update to the Summit County Emergency Operations Plan in 2020 includes a new Functional Annex dedicated specifically to countywide evacuation. This plan will be all-hazards in nature and include evacuation plans and protocols for any incident requiring the protective order of evacuation.

Summit County Public Health Emergency Operations Plan, 2017

This plan was developed for the Summit County Public Health Department to promote a system to save lives, protect public health and the environment, alleviate damage and hardship, and to reduce vulnerability within Summit County. It provides guidance on overall emergency preparedness and concept of operations, roles, and responsibilities; Summit County Public Health Department emergency response organization; plan implementation process; and administrative, training, and exercising requirements.

A.4.2 Administrative/Technical Mitigation Capabilities

Table A-4 identifies the personnel responsible for activities related to mitigation and loss prevention in Summit County.

Table A-4 Summit County—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position	2025 Comments
Planner/Engineer with Knowledge of Land Development/Land Management Practices	Yes	Planning Department Engineering Department	
Engineer/Professional Trained in Construction Practices Related to Buildings and/or Infrastructure	Yes	Engineering, Building, Inspection Departments	
Planner/Engineer/Scientist with an Understanding of Natural Hazards	Yes	Engineering Department	
Personnel Skilled in GIS	Yes	GIS Department	
Full-Time Building Official	Yes	Building Inspection Department	

Personnel Resources	Yes/No	Department/Position	2025 Comments
Floodplain Manager	Yes	Engineering Department/County Engineer	
Emergency Manager	Yes	County Manager's Office/Director of Emergency Management	Full-time
Grant Writer	No	Several departments have staff that write grants as part of their work, including Transit Summit Stage, Public Health, and Youth and Family Services	
Other Personnel	Yes	Sheriff's Office Fire Watch patrols	
Warning Systems/Services	Yes	Office of Emergency Management/Summit County 911 Center	Integrated Public Alert and Warning System for immediate public protective actions and SC Alert for emergency messaging and information.

The United States Geological Survey (USGS) provides real-time water data via their National Water Information System. Within Summit County, data from stream gauges detailed in Table A-5 are monitored for anomalies and potential flood conditions.

Table A-5 USGS Stream Gauges in Summit County

Station Name	Station Number
Monte Cristo Diversion (Hoosier Pass)	09041900
Bemrose-Hoosier Diversion (Hoosier Pass	09044300
McCullough Diversion (Hoosier Pass)	09044800
Blue River (at Blue River)	09046490
Blue River (near Dillon)	09046600
Snake River (near Montezuma)	09047500
Keystone Gulch (Dillon)	09047700
Ten Mile Creek (Frisco)	09050100
Blue River (Below Dillon Dam)	09050700
Straight Creek (Dillon)	09051050
Elliot Creek Feeder Canal (Green Mtn. Reservoir)	09056500
Blue River (Below Green Mountain Dam)	09057500

Source: Summit County OEM, USGS

A.4.3 Fiscal Mitigation Capabilities

Table A-6 identifies financial tools or resources that Summit County could potentially use to help fund mitigation activities.

Table A-6 Summit County—Fiscal Mitigation Capabilities

Financial Resources	Accessible/ Eligible to Use
Community Development Block Grants	Yes

Financial Resources	Accessible/ Eligible to Use
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
Fees for Water, Sewer, Gas, or Electric Services	No
Impact Fees for New Development	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activities	No
Withhold Spending in Hazard Prone Areas	Yes

The fiscal capabilities of Summit County have been significant for wildfire mitigation efforts. Summit County, in partnership with the Summit County Wildfire Council, has created a sustainable wildfire mitigation funding source and made great strides in fuels reduction projects in an effort to mitigate wildfire hazards; a direct result of the continued implementation of Summit County mitigation actions #2 and #3. In 2011 the Summit County Wildfire Council recognized that an unfulfilled funding need existed for projects identified in the Community Wildfire Protection Plan (CWPP) that did not meet the criteria for the State's Hazardous Fuels Reduction Grant Program. That recognition has led to the creation of the CWPP Implementation Grant Program. The County uses this program to provide funds or matching funds to leverage other wildfire mitigation grants. In 2018 and 2019, voters approved tax measures to continue to fund wildfire prevention strategies, driven by the SCWC's implementation of the CWPP's goals and objectives. The tax measures allocate $500K annually, in perpetuity, and an additional $1M per year for a ten-year period (2018 - 2027). The County maintains an atlas of fuels reduction projects on its wildfire mitigation web page that is updated quarterly so that progress is documented on a regular basis. The Wildfire Council supports the concept of 'implementation' of the CWPP and funds not only defensible space projects, but hazard tree removal along right-of-way and bike paths, fire water storage systems, and comprehensive education programs.

A.4.4 Mitigation Outreach and Partnerships

Summit County is involved in the following mitigation related outreach programs and partnerships:

- Each spring, the governments of Summit County, Breckenridge, Dillon, Frisco, and Silverthorne distribute a packet of information to inform the communities about how to prepare for possible high water in May and/or June resulting from snowmelt.
- Wildfire mitigation is a cooperative effort of the Summit County Government and the two fire districts: Red, White, and Blue Fire Protection District, and Summit Fire & EMS. The county has an appointed Wildfire Council, has adopted a Community Wildfire Protection Plan (CWPP), and for the past several years the Board of County Commissioners has dedicated funding for wildfire risk reduction projects.
- The County promotes fire education programs for the public and in schools.
- The Environmental Health Department regularly educates the public on disease prevention, including infectious disease and food safety.
- In February 2018 Summit County joined ongoing efforts with the non-profit High Country Conservation Center to develop and implement a climate action plan through the Summit Climate Action Collaborative. As part of the planning effort, an initial county-wide greenhouse gas (GHG) emissions inventory was completed. The plan has recommendations for reducing locally generated GHG emissions. Plan implementation will include working collaboratively with Xcel Energy, Mountain Parks Electric and other community partners.

- In 2018 the CSU Extension Program hosted 34 community education workshops, council and community presentation and field-based learning activities while partnering with similar organizations to promote forest health and wildfire preparedness.
- The Summit County Chipping Program helps property owners create defensible space by providing free chipping and disposal of branches, logs, and small trees. Property owner's clear woody vegetation around their homes and stack it into a slash pile for the county to chip it and haul it away for no cost.

A.4.5 Past Mitigation Efforts

Past mitigation efforts have focused on wildland-urban interface areas. The County has funded the following wildfire mitigation projects since 2006:

- Supplied $50,000 as seed money to stimulate and encourage fuel reduction efforts on private lands valued at over $200,000.
- Allocated $20,000 toward a forester position in cooperation with the state and federal forest services.
- Actively managed four of its open space properties to mitigate the impacts of mountain pine beetle infestation and improve forest health. Properties managed include Blue Danube, Iron Springs, Mesa Cortina/Wildernest Buffer, and Mesa Cortina Trailhead.
- Cut and removed 2,130 trees from County lands.
- Sprayed 8,730 trees on County lands and on important public rights of way.
- In 2018 alone the County funded 4 Hazardous Fuels Reduction programs for a total cost of $158,645, with a county contribution of $76,822.50 and funded 4 CWPP Implementation projects at a total project cost of $198,928 and a county contribution of $124,699.
- The 2019 Chipping Program resulted in a total of 1,931 households participating. Chipping crews removed 3,738 slash piles and approximately 5,400 cubic yards were moved to the Climax Molybdenum Mine for reclamation efforts.

The following mitigation efforts from stakeholders were noted by the HMPC as having reduced the risk hazards pose to the Summit County Community.

- Fuels reduction efforts and the creation of a 900-acre fuel break created by the U.S. Forest Service around a subdivision near Silverthorne and Buffalo Mountain Metropolitan District. The project area was tested during the June 2018 Buffalo Mountain Fire. While 1,400 homes were evacuated, the fuel breaks have been attributed by fire managers as a significant reason for why the homes in that subdivision did not burn in the fire. Firefighters were able to stop the fire within the fuel break without any damages to property, infrastructure or individuals.
- During 2018-early 2019, the county experienced a large number of avalanches that caused impacts to critical infrastructure including power lines and highways. Xcel Energy began burying utility lines during the recovery process, lessening future avalanche impacts to existing infrastructure.

A.4.6 Opportunities for Enhancement

The 2025 update provided the County an opportunity to review and update the capabilities currently in place to mitigate hazards. This also provided an opportunity to identify where capabilities could be improved or enhanced. Specific opportunities could include:

- Integrate risk assessment information into future updates to the County's Comprehensive Plan as well as updates to any of the four basin master plans.
- Develop and implement an IGA with incorporated communities related to the TDR Program similar to the existing IGA with the Town of Breckenridge.
- Update the list of projects in the County CWPP.

A.5 Mitigation Strategy

A.5.1 Goals and Objectives

Summit County adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

A.5.2 Mitigation Actions

The planning team for the unincorporated areas of the County identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

As part of its mitigation strategy, Summit County will continue to participate in and demonstrate compliance with the National Flood Insurance Program. This includes continuing to comply with the NFIP's standards for updating and adopting floodplain maps and maintaining and updating the floodplain zoning ordinance. Other details related to NFIP participation are discussed in the flood vulnerability discussion in Chapter 3.

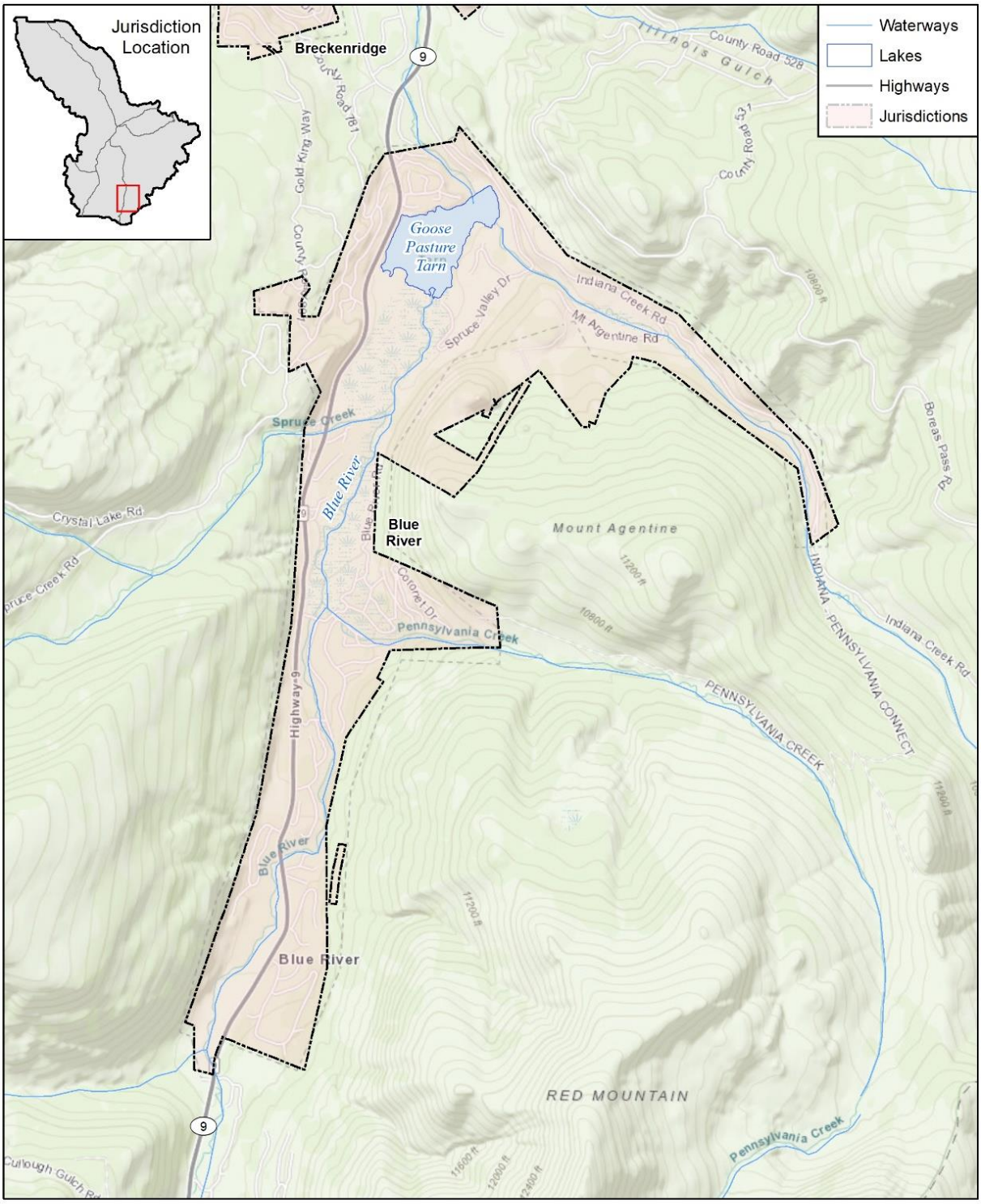
Mitigation Actions for the Unincorporated County are found in Table 5-4 in the Base Plan.

A.6 Implementation and Maintenance

The unincorporated county will follow the process for Implementation and Maintenance of this Plan, to include Incorporation into existing planning mechanisms, monitoring, evaluation and updating the plan, and continued public involvement outlined in Chapter 6 of the Base Plan.

Annex B: Town of Blue River

Figure B-1 Town of Blue River



B.1 Community Profile

Figure B-1 above shows a map of the Town of Blue River and its location within Summit County.

B.1.1 Geography

The Town of Blue River has a total area of 2.3 square miles. It is located along the Blue River approximately four miles south of the Town of Breckenridge at an elevation of 10,020 feet above sea level. Indiana Creek, Spruce Creek, Pennsylvania Creek, and McCollough Gulch Creek are all tributaries that flow into the Blue River (the main waterway) within Town.

B.1.2 Population

The estimated 2023 population of Blue River was 1,145, a population increase of 71.9% from 2018, although the exact number fluctuates from year to year. Select U.S. Census American Community Survey (ACS) demographic and social characteristics for Blue River are shown in the following tables and figures.

Table B-1 Blue River Demographic and Social Characteristics 2018-2023

Town of Blue River	2018	2023	% Change
Population	666	1,145	71.9%
Median Age	41.9	32.9	-21.5%
Total Housing Units	751	754	0.4%
Housing Occupancy Rate	33.2%	46.6%	40.4%
% of Housing Units with no Vehicles Available	0.0%	0.0%	--
Median Home Value	$644,000	$1,171,900	82.0%
Unemployment	0.0%	0.6%	--
Mean Travel Time to Work (minutes)	16.5	19.1	15.8%
Median Household Income	$109,531	$119,375	9.0%
Per Capita Income	$60,832	$51,396	-15.5%
% Without Health Insurance	5.6%	2.6%	-53.6%
% of Individuals Below Poverty Level	0.3%	5.1%	1600.0%
# of Households	249	351	41.0%
Average Household Size	2.67	3.26	22.1%
% of Population Over 25 with High School Diploma	100.0%	95.%	-5.0%
% of Population Over 25 with Bachelor's Degree or Higher	63.2%	55.9%	-11.6%
% with Disability	2.4%	1.7%	-29.2%
% Speak English less than "Very Well"	0.0%	0.0%	--

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table B-2 Demographic and Social Characteristics Compared to the County and State

Demographic & Social Characteristics (as of 2023)	Blue River	Summit County	Colorado
Median Age	32.9	39.2	37.9
Housing Occupancy Rate	46.6%	39.0%	92.0%
% of Housing Units with no Vehicles Available	0.0%	2.7%	5.4%
Median Home Value	$1,171,900	$850,700	$550,300
Unemployment	0.6%	2.5%	5.0%
Mean Travel Time to Work (minutes)	19.1	21.2	25.5
Median Household Income	$119,375	$106,255	$563,000
Per Capita Income	$51,396	$58,219	$51,768
% Without Health Insurance	2.6%	10.2%	9.3%
% of Individuals Below Poverty Level	5.1%	7.4%	6.7%
Average Household Size	3.26	2.35	2.37
% of Population Over 25 with High School Diploma	95.%	94.9%	93.3%
% of Population Over 25 with bachelor's degree or Higher	55.9%	52.5%	46.3%
% with Disability	1.7%	6.4%	11.7%
% Speak English less than "Very Well"	0.0%	5.5%	16.0%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table B-3 Demographics by Race and Sex

Blue River	Population	%
Total Population	1,145	--
Male	511	44.6%
Female	634	55.4%
White, not Hispanic	1058	92.4%
Hispanic or Latino	25	2.2%
Black	0	0.0%
Asian	0	0.0%
American Indian and Alaska Native	0	0.0%
Native Hawaiian and Other Pacific Islander	0	0.0%
Some other race	0	0.0%
Two or more races	62	5.4%

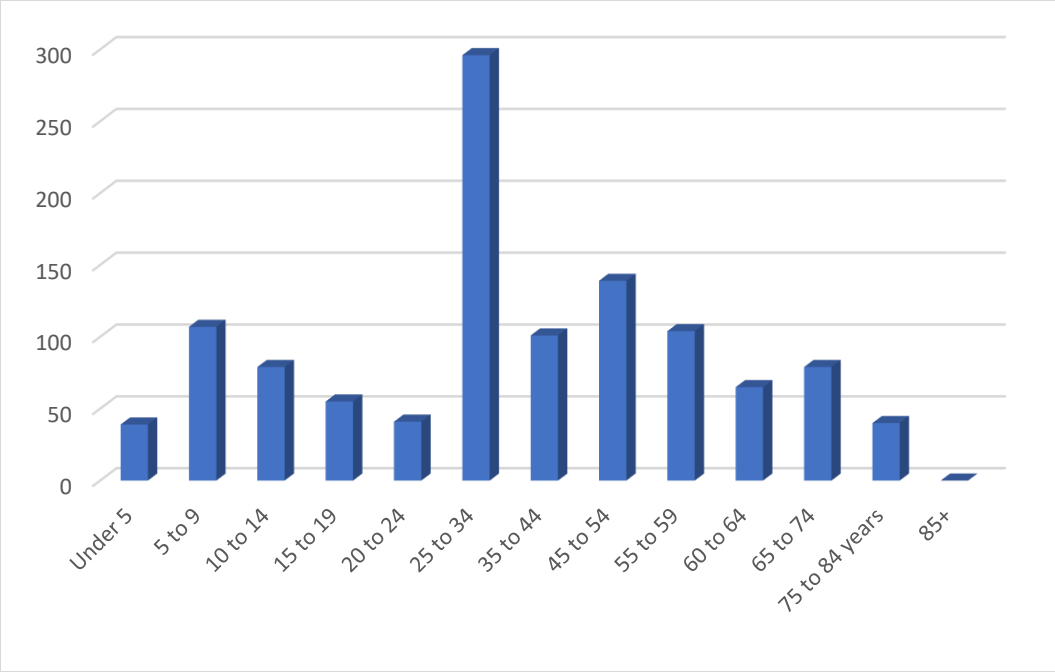
Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table B-4 Types and Total Amounts of Housing Units in Blue River

Type of Housing	Total	Percentage
Total housing units	754	(X)
1-unit detached	667	88.5
1-unit attached	38	5.0
2 units	7	0.9
3 or 4 units	0	0.0
5 to 9 units	15	2.0
10 to 19 units	16	2.1
20 or more units	0	0.0
Mobile home	11	1.5
Boat, RV, van, etc.	0	0.0

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Figure B-2 Age Distribution in Blue River



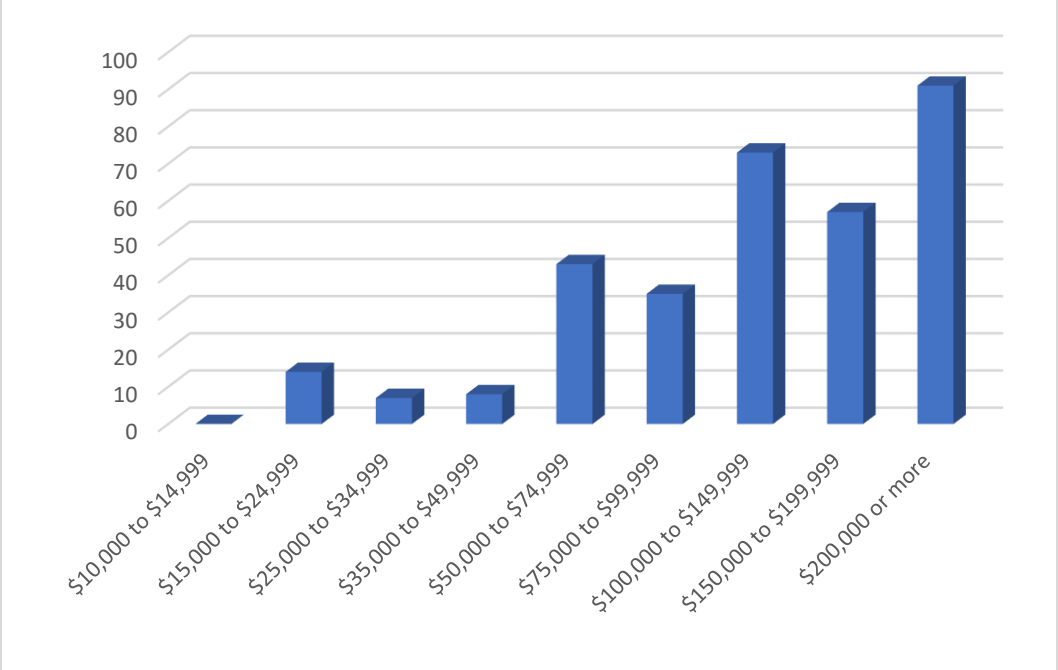
Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

B.1.3 Economy

The Town of Blue River is a residential community with little industry or commercial business. According to 2023 Census Bureau estimates, the industries that employed the highest percentages of Blue River's labor force were professional, scientific, management, administrative, and waste management services (21.0%); educational services, and health care and social assistance (13.0%); arts, entertainment, recreation, accommodation, and food services (12.2%); other services, except public administration (11.7%); retail trade (9.3%); and construction (8.2%).

As shown in Table B-1, per capita income in Blue River was $51,396 in 2023, which is similar to the average for both Summit County and the State of Colorado. A breakdown of Blue River's household income distribution is shown in Figure B-3.

Figure B-3 Income Distribution in Blue River as of 2023



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

B.1.4 Development Trends

Table B-5 illustrates how Blue River has grown in terms of population and number of housing units between 2012 and 2017.

Table B-5 Blue River—Change in Population and Housing Units, 2012-2017

2018 Population	2023 Population Estimate	Estimated Percent Change 2018-2023	2018 # of Housing Units	2023 Estimated # of Housing Units	Estimated Percent Change 2018-2023
666	1,145	71.9%	751	754	0.4%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

The Town of Blue River Comprehensive Plan states:

> Blue River is a unique municipality in that it encompasses only residential subdivisions and has no commercial uses that typically define downtowns or commercial corridors in other communities. Adding to its uniqueness is the fact that approximately 44% of the homes in the town are utilized as part-time residences or vacation homes (Census Bureau). For the most part, the full-time residents in Blue River are employed and commute to work in other communities, as evidenced by the 89% workforce participation rate and median household income of $78,000 per year, both of which are higher than other comparable small towns in the area including Frisco, Dillon and Fraser (Census Bureau).

While there has been little to no residential, commercial, or industrial development over the past five years, the town developed and adopted its Land Use Code which sets the framework for development

within its boundaries. Additionally, the town has a potential annexation to the south which would include both commercial and residential development.

B.2 Hazard Identification and Profiles

Blue River's HMPC identified the hazards that affect the community and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and overall significance specific to the Town (see Table B-6). In the context of the countywide planning area, there are no hazards that are unique to Blue River. Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

Table B-6 Blue River Hazard Summary

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Unlikely	Limited	**Low**
Dam Failure	Large	Unlikely	Critical	**Medium**
Drought	Large	Occasional	Limited	**Low**
Earthquake	Large	Unlikely	Limited	**Low**
Erosion/Deposition	Small	Likely	Critical	**Medium**
Flood	Small	Occasional	Limited	**Medium**
Hazardous Materials Release	Isolated	Unlikely	Limited	**Low**
Landslide, Mudflow/Debris Flow, Rockfall	Small	Occasional	Limited	**Medium**
Lightning	Large	Likely	Limited	**Low**
Pest Infestation	Small	Highly Likely	Limited	**Medium**
Severe Winter Weather	Large	Highly Likely	Critical	**High**
Wildfire	Large	Likely	Critical	**High**
Wildlife-Vehicle Collisions	Small	Likely	Negligible	**Low**
Windstorm	Large	Likely	Limited	**Low**

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

B.3 Vulnerability Assessment

The intent of this section is to assess Blue River's vulnerability to hazards separate from that of the planning area as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at for the more significant hazards or where available data permitted a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the main plan HIRA document.

Vulnerability details for the following bulleted hazards are often difficult to compile or estimate for specific jurisdictions and are already described in the Section 3.3.3 of the Base Plan.

- Dam Failure
- Earthquake
- Pest Infestation
- Severe Winter Weather
- Wildfire-Vehicle Collisions
- Windstorm

Only avalanche, drought, erosion/deposition, flood, hazardous materials, landslide/mudflow/debris flow/rock fall, lightning, and wildfire hazards will be profiled in the following vulnerability assessment sections, due to the ability to quantify vulnerability further with available data.

B.3.1 Community Asset Inventory

Table B-7 shows the total number of improved parcels, properties, and their improvement and content values for the Town of Blue River. Note that only those parcels with improvement values greater than $0, or those which were classified as "exempt," were accounted here and in vulnerability assessments to follow, so that those non-developed or non-improved parcels were left out for the purposes of conducting the vulnerability assessments in this annex. Counts and values are based on the latest county assessor's data, which was provided in GIS format. Contents exposure values were estimated as a percent of the improvement value here and under the hazard vulnerability assessment, specifically: 50% of the improvement value for Residential structures, and 0% for Exempt parcels. These percentage calculations are based on standard FEMA Hazus methodologies. Finally, Total Values were aggregated by adding the improvement and content values for each parcel type category.

Table B-7 Blue River's Improved Parcel and Property Exposure

Parcel Type	Parcel Totals	Improved Value	Content Value	Total Value
Exempt	15	$0	$0	$0
Multi-Family Residential	40	$50,733,800	$25,366,900	$76,100,700
Residential	748	$886,871,926	$443,435,963	$1,330,307,889
Total	**803**	**$937,605,726**	**$468,802,863**	**$1,406,408,589**

Source: Summit County Assessor Data 2025, WSP GIS Analysis

Table B-8 lists summary information about the five critical facilities and other community assets identified by Blue River's HMPC as important to protect or provide critical services in the event of a disaster.

Table B-9 details more information on the critical facilities in question found in the town and considered in the GIS analysis within each hazard's vulnerability assessment for planning purposes, to estimate whether it might be at risk of the various hazards assessed. For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the main plan HIRA document.

Table B-8 Blue River Critical Facilities and Infrastructure Summary

FEMA Lifeline	Critical Facility Type	Total
Food/Hydration/Shelter	Water Treatment Facility	1
Safety and Security	Fire Station	1
	Government Buildings	1
	Police Station	1
Water Systems	Dam - High Hazard	1
TOTAL		**5**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

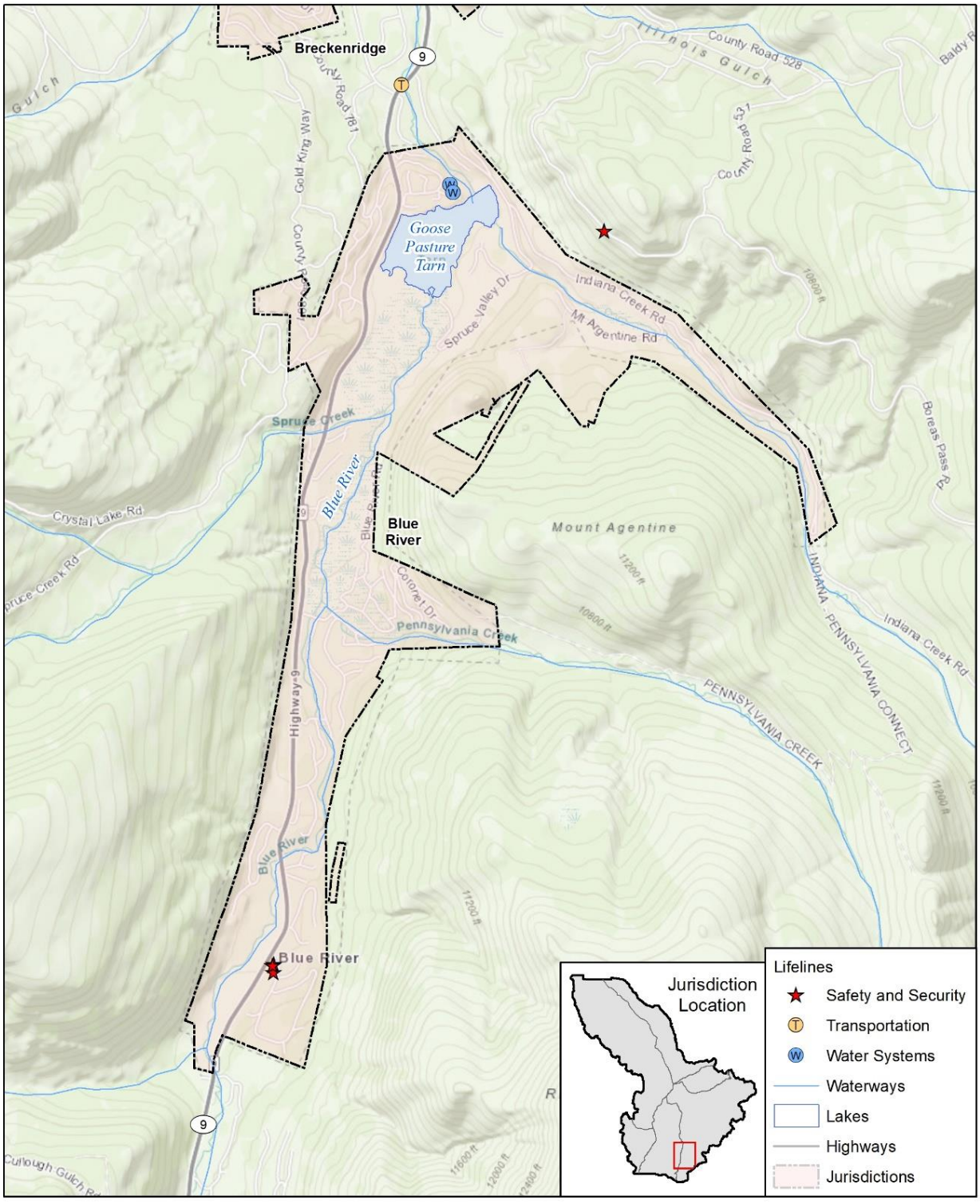
Table B-9 Detailed List of Critical Facilities and Infrastructure in Blue River

Lifeline Category	Critical Facility Type	Facility Name	Facility Location	Notes or Additional Details
Food/ Hydration/ Shelter	Static Water Structures	Theobald Way Draft Point	Blue Grouse Trail	Access on both sides of stream, Distance = 10 Ft, Stream
		CR 801 Pond Draft Point	87 CR 801 "Purbin's House"	May be accessible off driveway with rig. Recheck in summer., Distance = 50 Ft, Pond
		Indiana Creek Draft Point	Spruce Valley Drive	Access on upside of road, Distance = 20 Ft, Stream
		Spruce Valley Tarn Access Draft Point	Spruce Valley Drive	Access is just past canoe house, may be accessible w/ type 6 as well, Distance = 100 Ft, Pond
		Blue River Rd Draft Point	Blue River Rd & Royal Drive	Water is available on W side of RD in a natural pool, Distance = 10 Ft, Stream
	Wastewater Facilities	Breckenridge Treatment Plant	--	--
Safety and Security	Fire Station	RWB Station 7	120 Whispering Pines Ln, Blue River 80424	--
	Government Buildings	Blue River Town Hall	--	$350,000 replacement value
	Police Stations	Blue River Marshall Office - Summit County Govt.	110 Whispering Pines Cir, Blue River 80424	--
Water Systems	Dam - High Hazard	Goose Pasture Tarn	--	--

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

The 2013 HMP noted the Town Park as a community asset with a $200,000 approximate replacement value. The locations of identified critical facilities and infrastructure in Blue River are illustrated in Figure B-4.

Figure B-4 Critical Facilities and Infrastructure in the Town of Blue River



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams

0 0.5 1 Miles

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B.3.2 Avalanche

Overall, Summit County received a high ranking for avalanche as a hazard, with most of the areas at risk found in unincorporated parts of the county (see Section 3.2.1 in the base plan). However, the Town of Breckenridge has ranked avalanche as an overall low hazard. There is still some risk to the town if an avalanche were to occur in surrounding areas, as the closure of transportation corridors such as Highway 9 could disrupt access in and out of the town.

B.3.3 Dam Failure

General Property

The Goose Pasture Tarn Dam is located in the Town of Blue River, on the north end, and has a maximum storage capacity of approximately 811 acre-feet. The Town also lies downstream of the Upper Blue Lake Dam, which is located near the Summit County and Lake County boundary, about 5 miles east of the Robinson Tailings Pond. The Upper Blue Lake Dam has a maximum storage capacity of approximately 2,100 acre-feet.

While there is no concrete data available to indicate any likelihood of failure, based on best available dam inundation data there might be structures potentially at risk of dam failure flooding. The dam failure inundation maps contain sensitive information and are not available for display in this public planning document. Based on a GIS analysis performed with the county parcel layer and the available dam inundation mapping (for planning purposes only), the following potential damages would be expected in Blue River. Note that additional details on the GIS analysis methodology, data preparation process, and other helpful information for understanding how vulnerability assessment results were obtained can be found in Section 3.3. Vulnerability Assessment within the main plan HIRA document.

Table B-10 Estimated Dam Inundation Risk to Properties in Blue River

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Exempt	3	$0	$0	$0	0
Residential	147	$144,765,762	$72,382,881	$217,148,643	479
Total	**150**	**$144,765,762**	**$72,382,881**	**$217,148,643**	**479**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

People

Based on the GIS analysis summarized in Table B-10 above, it is estimated that around 479 people in Blue River might be at risk of dam inundation hazards. These totals were obtained by multiplying the average number of persons per household in Summit County (which equals 2.46) by the number of residential properties where dam inundation extents were available.

Critical Facilities and Infrastructure

Based on the critical facility inventory considered in the updating of this plan and intersected with the dam inundation extents available for the Town of Blue River, no critical facilities were found to be at potential risk. Economy

A dam inundation event that affected the major roads which give access to the town (e.g. Highway 9) could significantly affect the local economy, by limiting or completely impeding access to shops, restaurants, hotels, and other major industries which keep the local economy thriving.

Historical, Cultural, and Natural Resources

Dam or reservoir failure effects on the environment would be similar to those caused by flooding from other causes. For the most part the environment is resilient and would be able to rebound, though this process could take years. However, historic and cultural resources could be affected just as housing or critical infrastructures would.

Development Trends

A dam failure would likely result in impacts greater than the 100- and 500-year flood events, as modeled by the latest FEMA NFHL data. The Town should consider dam failure hazards when permitting development downstream of the Goose Pasture Tarn and Upper Blue Lake Dams.

B.3.4 Drought

The Town of Blue River is situated, almost entirely, within a forested area, so drought conditions can more severely impact the health of the mostly pine trees leading to a greater wildfire risk than what may be experienced by other incorporated areas in Summit County.

B.3.5 Erosion/Deposition

Similarly, the Town's varied topography can cause heavy rainfall to generate rapid, localized runoff. Without the extensive drainage infrastructure found in more urbanized communities, these intense rain events can lead to isolated floodings and erosion concerns within Town limits.

B.3.6 Flood

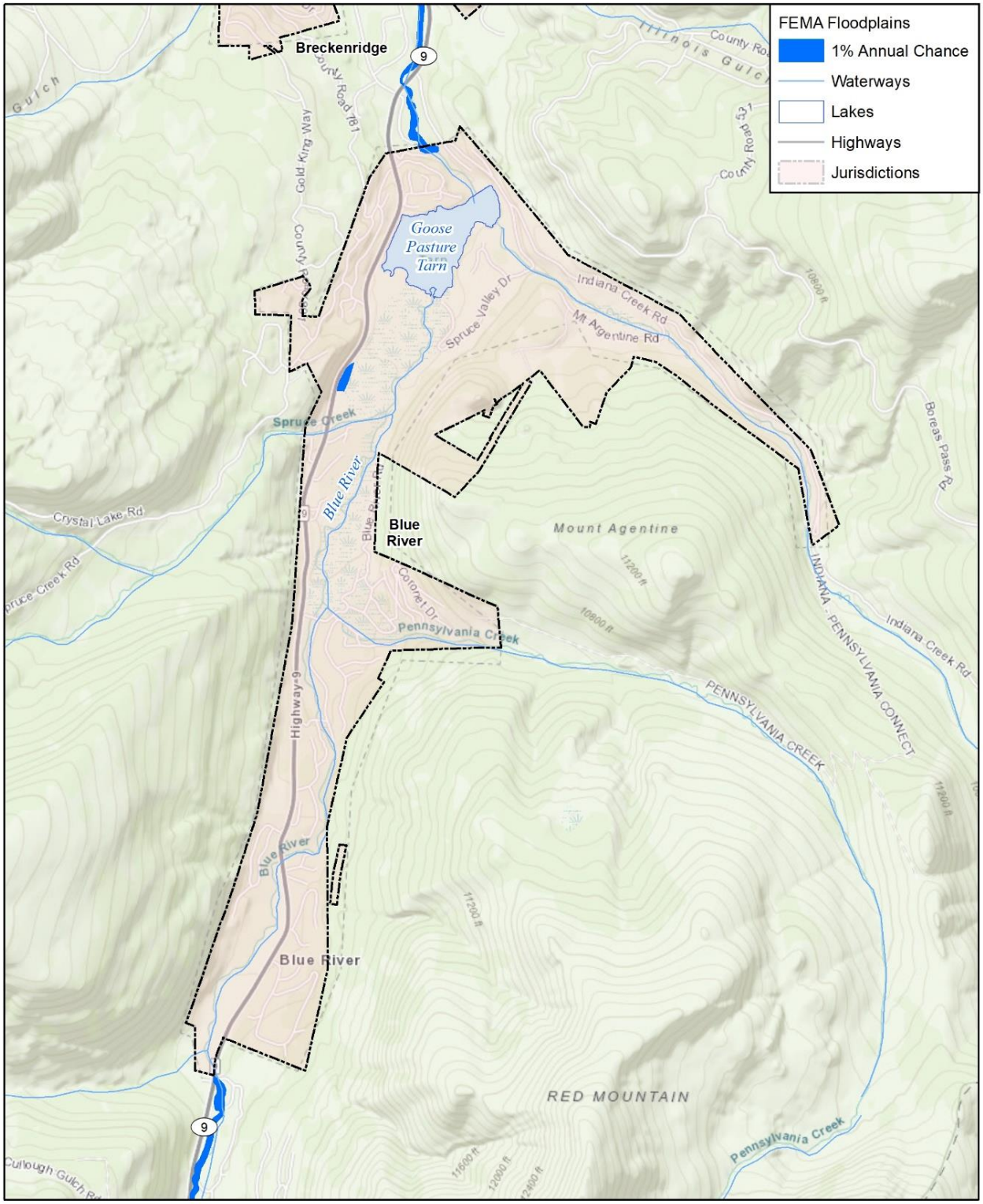
Though not fully delineated by the latest FEMA NFHL data (dated July 17, 2019), the Blue River is likely a cause for riverine flooding in the town, as it is the largest waterway crossing through it. Other streams which are present in Blue River include Pennsylvania Creek, Spruce Creek, Indiana Creek, and McCullough Gulch Creek, though flooding from these sources has not been included in the latest FEMA mapped areas and is hence not well known. However, the Goose Pasture Tarn Dam to the north of town reduces the peak discharge of the Blue River due to rainfall, but the effect is only marginal for runoff due to snowmelt, which is normally the major cause of peak flows. Other reservoirs provide only incidental flood protection (FEMA, 2018).

General Property

Vulnerability to flooding was determined by summing potential losses to Summit County's properties in GIS, using the latest FEMA NFHL data along with the Summit County parcel layer provided by the Assessor's Office. FEMA's NFHL data depicts the 1% annual chance (100-year) and the 0.2% annual chance (500-year) flood areas. Figure B-5 below displays the FEMA special flood hazard areas present in the town, color coded based on flood event.

Based on the GIS analysis performed with the county parcel layer and the available FEMA flood mapping, the potential risk for the Town is shown in Table B-11. Blue River's 1% annual chance flood zone shows that one residential structure is potentially at risk. No 0.2% annual chance flood zones are available in map form, and as such no exposure to this type of flooding was estimated using this methodology.

Figure B-5 FEMA Special Flood Hazard Areas in Blue River



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
FEMA NFHL Effective Date 11/16/2018

0 0.5 1 Miles

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Figure B-6 Hazus Flood Hazard Areas in Blue River

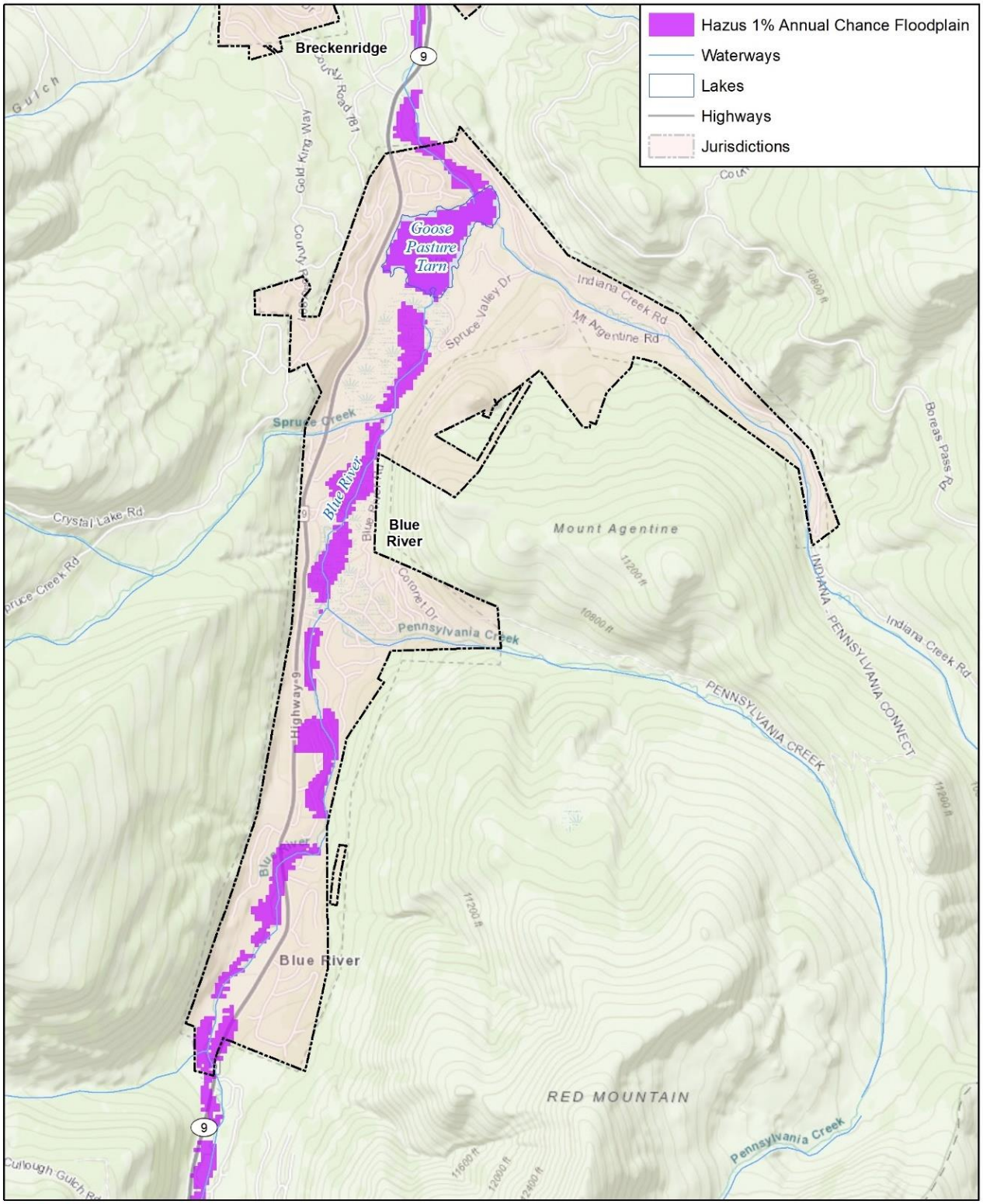


Table B-11 Summary of Properties Vulnerable to Flood in Blue River by Type (FEMA)

Flood Event	Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Loss Estimate	Population
100-year	Residential	1	$1,791,700	$895,850	$2,687,550	$671,888	3

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Additional analysis was done using Hazus flood layer data with the Summit County parcel layer. The Hazus 1% annual chance floodplain in Blue River is shown in Figure B-6. This information is further explained in Table B-12.

Table B-12 Summary of Properties Vulnerable to Flood in Blue River by Type (Hazus)

Flood Event	Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Loss Estimate	Population
100-year	Exempt	3	$0	$0	$0	$0	0
100-year	Residential	66	$68,017,872	$34,008,936	$102,026,808	$25,506,702	215
Total		**69**	**$68,017,872**	**$34,008,936**	**$102,026,808**	**$25,506,702**	**215**

Source: Summit County Assessor Data 2025, FEMA Region 8 Hazus Statewide Flood Model, WSP GIS Analysis

People

The population exposed to the flood hazards described in the flood vulnerability analysis above was estimated by applying an average household size factor to the number of improved properties identified in the flood hazard areas within Blue River. Note that only those parcels of type Residential were used to estimate populations exposed. These estimates yielded the population exposures shown in Table B-11 and Table B-12 above. As such, the 1% annual chance flood would potentially displace 3 to 215 people based on residential structures within these flood zones.

Critical Facilities and Infrastructure

No critical facilities were found to overlap with the flood zones mapped for Blue River. The Town has experienced problems with collapsing culverts and the bridge over the Blue River on Blue River Road. This issue has been resolved by implementing a hazard mitigation project as described in Section B.6.

Economy

Flooding can have a major impact on the economy, including indirect losses such as business interruption, lost wages, and other downtime costs. Flooding often coincides with the busy summer tourism months in Summit County, and may directly or indirectly impact the revenues of shops, restaurants, hotels, and other major industries which keep the local economy thriving. In addition, major flooding which led to road or other infrastructure closures could limit access to the Town by tourists, locals, and basic goods and services.

Historical, Cultural, and Natural Resources

The environment is mostly resilient to general flooding. However, cultural or historic properties within floodplains would be affected in similar ways as property and critical facilities/infrastructure, especially those with underground or basement levels where water would easily seep and potentially ruin archives, resources, or other important assets.

Development Trends

Blue River does not have a floodplain ordinance but there is not anticipated to be new development in the small amount of mapped Special Flood Hazard Area. The building regulations do allow the Town to require that new construction meet certain drainage requirements at its discretion.

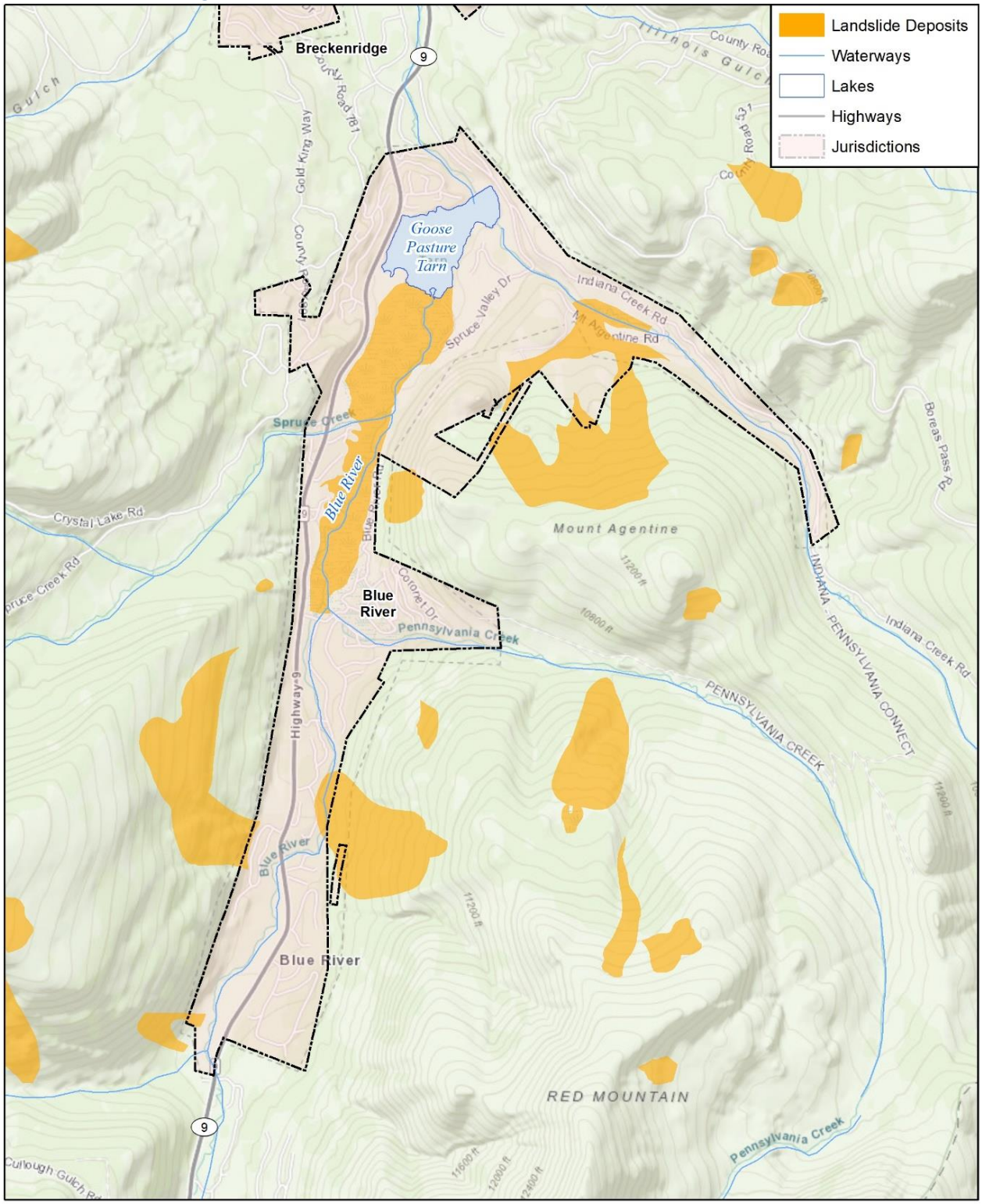
B.3.7 Hazardous Materials Release

Overall, Summit County has rated this hazard as a medium, while the Town of Blue River has rated it low. According to the National Response Center, there have been 27 reported hazardous materials incidents in Summit County between 1990-2024. Majority of these incidents occur along major highways and interstates which are primary transportation corridors for hazardous materials. As a result, the Town's direct exposure to this hazard is reduced compared to other areas in the County. Section 4.3.7 of the base plan for more details on hazardous materials release in Summit County.

B.3.8 Landslide, Mud Flow/Debris Flow, Rock Fall

General landslide hazard areas are present in the Town of Blue River, particularly south of the Goose Pasture Tarn and along the Blue River, up until the Pennsylvania Creek merge. There are smaller hazard areas along Indiana Creek to the east of the town, and south of Wilderness Drive, east of Highway 9 towards Fredonia Gulch Road (see Figure B-7 below).

Figure B-7 General Landslide Hazard Areas in Blue River



General Property

Potential losses for general landslide areas were estimated using Summit County GIS and assessor's parcel data. Based on the GIS analysis performed, the potential risk to general landslide areas in Blue River is summarized in Table B-13. For the purposes of this analysis, if a parcel's centroid intersected the landslide hazard polygons, that parcel is assumed to be at risk. Content values were calculated from the improvements as a percentage of property improvement values based on their occupancy type (using FEMA Hazus guidance), so that Residential properties received content values worth 50% of their improvements. Property improvements and content values were then totaled to arrive at the Total Value column. Note that additional details on the GIS analysis methodology, data preparation process, and other helpful information for understanding how vulnerability assessment results were obtained can be found in Section 3.3. Vulnerability Assessment within the main plan HIRA document.

Blue River's Residential properties have a total exposure value of over $54.9 million. A total of 27 properties are exposed to these landslide hazards.

Table B-13 Property Exposure to General Landslide Hazard Areas in Blue River

Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population
Residential	27	$36,630,454	$18,315,227	$54,945,681	**88**

Source: Summit County Assessor Data 2025, Colorado Geological Survey (CGS), WSP GIS Analysis

People

People could be susceptible if they are caught in a landslide or debris flow, potentially leading to injury or death. There is also a danger to drivers operating vehicles, as rocks and debris can strike vehicles passing through the hazard area or cause dangerous shifts in roadways. Based on Table B-13 above, an estimated 88 people could be at risk of general landslide hazards in Blue River. At risk population was estimated by multiplying the average number of persons living in each household in Summit County by the number of residential properties where landslide areas have been inventoried in Blue River.

Critical Facilities and Infrastructure

There are no critical facilities found at risk of landslide hazards in Blue River. The major transportation route present in the town and hence key infrastructure allowing access in and out of it includes Highway 9. This route could be affected by the geologic hazards in question if closures were required, impeding the normal flow of goods and services, for example.

Economy

Economic impacts related to landslide, rockfall, debris fall, and mudslide hazards typically center around transportation routes temporarily closed by debris flow or other activity. The major route mentioned above (Highway 9) would be at most risk due to their heavy flow of goods, services, and populations which keep the economy thriving.

Historical, Cultural, and Natural Resources

As primarily natural processes, landslides and debris flows can have varying impacts to the natural environment as well as cultural or historical resources found on their path. For buildings and other structures, impacts would be similar as those seen on general property or critical facilities/infrastructure.

Future Development

The severity of landslide problems is directly related to the extent of human activity in hazard areas. Adverse effects can be mitigated by early recognition and avoiding incompatible land uses in these areas or by corrective engineering. The mountainous topography of Summit County and much of Blue River presents considerable constraints to development, most commonly in the form of steep sloped areas. These areas (defined as having a grade change of 30% or more) are vulnerable to disturbance and can become unstable.

B.3.9 Lightning

The overall lightning risk in Blue River is lower than Summit County as a whole because the Town covers a smaller geographic area, has less exposed high alpine terrain, and experiences fewer outdoor recreation concentrations than some of the county's more open or heavily used regions. As a result, the probability of lightning strikes affecting people or property is less.

B.3.10 Wildfire

General Property

Wildfire threat was estimated from the County's Wildfire Protection Assessment Rating layer, which breaks up areas into Low, Medium, High, and Extreme ratings. This wildfire layer was used to determine the number, type, and improvement values for properties found to overlap with them, and estimate potential property risk to wildfire threat in Blue River. For the purposes of this analysis, the wildfire zone that intersected a parcel centroid was assigned as the threat zone for the entire parcel. Improvement values were then summed by wildfire rating area and then sorted by parcel type. From the improvement values were the content values calculated, as a percentage of property improvement values based on their occupancy type using FEMA Hazus guidance as follows:

- Residential parcels received content values worth 50% of their improvements, and
- Exempt parcels received content values worth 0% of their improvements.

Figure B-8 below shows the Wildland Urban Interface (WUI) throughout Blue River. A large portion of the town has the highest risk within the WUI, including parts around Goose Pasture Tarn Lake and the entire southern half of the town.

Property improvements and content values were then totaled to arrive at the Total Value column, which is also the estimated value at risk based on FEMA loss curve standards for wildfire hazards. See Table B-14 and Table B-15 for the results of this analysis.

Figure B-8 Wildland Urban Interface Risk

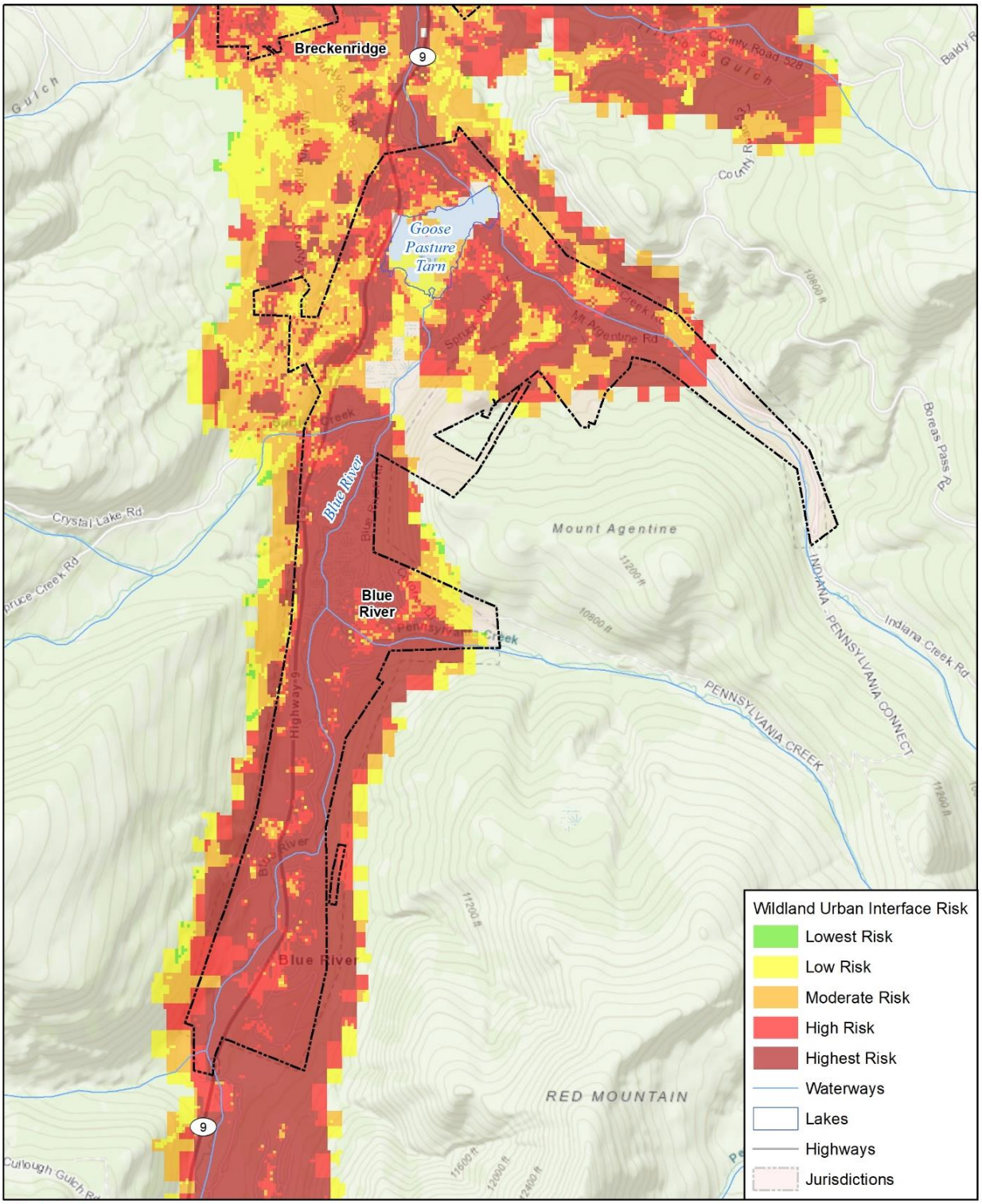


Table B-14 Property Values in Wildfire Zones by Parcel Type

Wildfire Risk	Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population at Risk
Moderate	Multi-Family Residential	2	$2,862,100	$1,431,050	$4,293,150	**20**
	Residential	1	$1,496,300	$748,150	$2,244,450	**3**
TOTAL		**3**	**$4,358,400**	**$2,179,200**	**$6,537,600**	**23**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Table B-15 Property Values in Wildfire WUI Zones by Parcel Type

Wildfire WUI Risk	Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population at Risk
Highest	Exempt	7	$0	$0	$0	**0**
	Multi-Family Residential	28	$36,499,600	$18,249,800	$54,749,400	**274**
	Residential	494	$562,300,376	$281,150,188	$843,450,564	**1,610**
High	Exempt	5	$0	$0	$0	**0**
	Multi-Family Residential	12	$14,234,200	$7,117,100	$21,351,300	**117**
	Residential	155	$186,314,720	$93,157,360	$279,472,080	**505**
Moderate	Exempt	1	$0	$0	$0	**0**
	Residential	79	$111,740,430	$55,870,215	$167,610,645	**258**
Total		**781**	**$911,089,326**	**$455,544,663**	**$1,366,633,989**	**2,764**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

People

The last column of Table B-14 above summarizes the number of people at risk to wildfire in the analyzed fire zones. Based on the assessment conducted, Blue River has between 23 and 2,764 people at risk of Medium, High, and Extreme rated wildfire and WUI zones. These totals were estimated by multiplying the average persons per household in Summit County by number of residential properties falling within each fire zone. While this is higher than the actual population, it may also be indicative of the population that surges during the summer season.

Smoke resulting from fire is an issue to local populations, as noted by the Summit County's HMPC. For example, the County Public Health Department has received calls in the past from tourists asking if they should cancel travel plans in the county due to smoke and potential health and safety related concerns.

Critical Facilities and Infrastructure

No critical facilities were found to overlap with the wildfire or WUI risk zones mapped for Blue River.

Economy

Tourism, the accommodation and food services industry (e.g. hotels and restaurants), and retail are major components of Summit County's economy, and Blue River's as well. Wildland fires can, for example, lead to significant tourism reductions due to health and safety concerns, causing lost revenues from lack of visitation, stays in hotels, spending on restaurants and other commerce sources, and more.

Historical, Cultural, and Natural Resources

Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the climate change trend which is leading to hotter, more widespread, and

destructive fires can make it more difficult for the environment to recover, and lead to increased flood runoff or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after the fire.

With regards to historic or cultural structures and resources, wildfires would affect those in similar ways as general property and critical facilities/infrastructure, having the potential for burn downs and hence possible complete loss of important historical assets in Blue River.

Development Trends

New construction in Blue River must meet defensible space regulations, which is included in the Town's code.

B.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into four sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, and mitigation outreach and partnerships.

B.4.1 Regulatory Mitigation Capabilities

Table B-16 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Blue River.

Table B-16 Blue River—Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	Current 2018IRC; will be adopting 2024 IRC
BCEGS Rating	Pending	Expect a commercial rating of 2 and residential rating of 3 in January
Capital Improvements Program (CIP) or Plan	Yes	
Community Wildlife Protection Plan (CWPP)	No	
Comprehensive, Master, or General Plan	Yes	
Economic Development Plan	Yes	
Elevation Certificates	No	
Emergency Operations Plan	No	
Erosion/Sediment Control Program	Yes	
Floodplain Management Plan	No	
Flood Insurance Study	No	
Growth Management Ordinance	Yes	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	Not at this time. Recommendations have been made.
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	Yes	
Zoning Ordinance	Yes	

Town of Blue River Comprehensive Plan

The Town's Comprehensive Plan contains existing hazard mitigation capabilities via goals and strategies such as Goal 11, aimed at reducing the risk of wildfire hazards particularly associated with the local conifer forests. Thinning of vegetation around and near structures is noted as helping to reduce wildfire risk, as

well as establishing and maintaining fire breaks. The three strategies contained within this goal are as follows:

- Strategy A: Work with the Red White and Blue Fire Protection District to attain "Fire Wise" status for Blue River
- Strategy B: Improve the Town addressing system and address signage standards for faster and more efficient EMS response
- Strategy C: Develop a program and funding for ware cisterns for fire protection

Town of Blue River Ordinances

Chapter 7 Health, Sanitation, and Animals

The purpose of Division II Forest Management of Article V Trees is to preserve the rural mountain character of the Town by minimizing the removal of live trees while protecting the life and property of the residents of the Town by establishing minimum wildfire mitigation standards. These include defensible space regulations for new construction.

Chapter 16 Zoning

Sec. 16-6-50. Site and structure requirements.

a) Density. The applicant shall be responsible for justifying the proposed density level in terms of land planning and physiographic data, but in no case shall the gross density exceed six (6) dwelling units per acre of land.

b) Yard requirements. Yard requirements will be determined upon submission and approval of the preliminary development plans. The applicant shall be responsible for justifying the proposed yard requirements in terms of land planning and fire safety.

c) Height requirements. The maximum height of structures must be approved by the Planning and Zoning Commission upon review of each planned residential development in relation to the following factors:

1) Geographical position.

2) The probable effect on surrounding slopes and hills.

3) Adverse visual effects imparted to adjoining property owners, other areas of the development, public lands or public rights-of-way.

4) Potential problems for adjacent sites, both within and out of the development, caused by shade, shadows, loss of air circulation or loss of view.

5) Surrounding traffic conditions and lines of sight.

6) Uses within each building.

7) Fire prevention measures. (Prior code 6-6-4)

Sec. 16-8-80. Compliance with Building and Fire Codes.

Where approval of an accessory apartment is sought by an owner for a unit existing before adoption of this Article, the unit shall be inspected and shall comply with applicable requirements of the Building and Fire Codes. (Prior code 5-5-8)

Chapter 18 Building Regulations

Prior to the issuance of a certificate of occupancy, any person who builds or erects any structure must contact the Town by calling or writing the building inspector to obtain approval for issuance of the certificate of occupancy. Approvals of the septic/sewer authority, the fire protection district, the Architectural Review Board, and homeowners' association may be required. Approval may, at the Town's sole discretion, require completion of the following improvements:

- Installation of culverts
- Grading or regrading any disturbed or damaged roads or driveways or other areas necessary for proper drainage
- All runoff created by or redirected by the construction, erection and landscaping of the structure on the property shall be treated, contained, and controlled so that there are no increases in runoff or other drainage consequences resulting from said construction, erection, and landscaping

Floodplain Regulations and NFIP Participation

There are limited flood areas mapped in Blue River, as indicated by the most current FEMA National Flood Hazard Layer data (November 2018). The Town of Blue River does not participate in the NFIP as of July 2025 and has been sanctioned since 11/16/12. According to the HMPC, due to limited impacts from flooding and the cost of enforcement the Town has opted not to participate. This means that the community has a mapped special flood hazard area but is not regulating development in those areas and flood insurance is not available for residents that may choose to have it.

B.4.2 Administrative/Technical Mitigation Capabilities

Table B-17 identifies the personnel responsible for activities related to mitigation and loss prevention in Blue River.

Table B-17 Blue River—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	Yes	
Floodplain Administrator	No	
Community Planning	Yes	We have an adopted Land Use Code and contract out our planning
Planner/Engineer (Land Development)	Yes	
Engineer/Professional (construction)	Yes	
Resiliency Planner	No	
Transportation Planner	No	
Full-Time Building Official	Yes	
GIS Specialist and Capability	No	
Grant Manager, Writer, or Specialist	Yes	
Warning Systems/Services	Yes	
• Flood	Yes	
• Wildfire	Yes	
• Tornado	Yes	
• Geological	Yes	
Other?	No	

B.4.3 Fiscal Mitigation Capabilities

Table B-18 identifies financial tools or resources that Blue River could potentially use to help fund mitigation activities.

Table B-18 Blue River—Fiscal Mitigation Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	Yes	No	
Utilities Fees	No	No	
System Development/ Impact Development Fees	Yes	No	
General Obligation Bonds to Incur Debt	Yes	No	
Special Tax Bonds to Incur Debt	Yes	No	
Withheld Spending in Hazard-Prone Areas	Yes	No	
Stormwater Service Fees	No	No	
Capital Improvement Project Funding	No	No	
Community Development Block Grants	No	No	
Other?	No	No	

B.4.4 Education and Outreach and Partnerships

Table B-19 identifies education and outreach programs that are in place or could be used in the future to carry out mitigation activities and communicate information about hazards. Additionally, Blue River continues to partner with the Red, White, and Blue Fire Protection District to implement defensible space projects for property owners to reduce wildfire risk. The Town plans to continue this program in the future and has maintained a wildfire mitigation budget line for the purpose of matching grants.

Table B-19 Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Firewise	Yes	
• Storm Ready	Yes	
• Severe Weather Awareness Week	No	
• School programs	No	
• Other	No	
Methods Used to Communicate Hazard Information to the Public		
• Local News	No	
• Social Media	Yes	
• Community Newsletters	Yes	
• Utility Bill Inserts	No	
• Community Events	Yes	
• Other	No	
Organizations that represent or work with underserved or vulnerable communities		
• American Red Cross	No	
• Salvation Army	No	
• Veterans Groups	No	
• Seniors Groups	No	

• Groups for People With Disabilities	No
• Environmental/Conservation Groups	No
• Other	No
Business Groups, Academia, Other	
• Chamber of Commerce	No
• Community Organizations (Lions, Kiwanis, etc.)	No
• Homeowner/Neighborhood Associations	Yes
• Universities or Community Colleges	No
• Agricultural Extension Office	No
• Other	No

B.4.5 Past Mitigation Efforts

The Town of Blue River in partnership with Red, White & Blue; Summit Wildfire Council and a private contractor has worked to provide defensible space grants to encourage residents to create defensible space around their homes. In addition, the Town has, with assistance from DOLA and Summit Wildfire Council in partnership with Red, White & Blue Fire District installed cisterns in 21 locations throughout Town to allow for enhanced fire response. The Town continues to be focused on fire mitigation, including right-of-way projects and defensible space. Recommendations are also in place to further protect wetlands as the town approaches build out.

B.4.6 Opportunities for Enhancement

Based on the capability assessment, Blue River has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the Town to expand or improve on these policies and programs to further protect the community.

Future improvements may include providing training for staff members related to hazard mitigation grant funding in partnership with the County and DHSEM. Several of the Town's critical facilities exist in medium to high wildfire threat areas, and grant funding is available to harden these facilities against wildfire and other severe weather events, ensuring continuity of operations during hazard events. Town staff have made hazard mitigation recommendations around wetlands, wildlife, and fire mitigation.

Additional training opportunities will help to inform Town staff and board members on how best to integrate hazard information and mitigation projects into Town policies and ongoing duties of Town staff. Continuing to train Town staff on mitigation and the hazards that pose a risk to the Town will lead to more informed staff members who can better communicate this information to the public.

B.5 Mitigation Strategy

B.5.1 Mitigation Goals and Objectives

Blue River adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

B.5.2 Progress on Previous Mitigation Actions

The Town of Blue River planning team reviewed their mitigation actions from the 2020 plan, and determined that three of the seven mitigation actions had been completed, as shown in Table B-20. The remaining actions were carried forward into the 2025 mitigation strategy along with two new actions.

Table B-20 Blue River Completed Mitigation Actions

Action Description	Status	Comments
Develop comprehensive Master Plan	Completed	Action added in 2013. Completed in 2021.
Fuels reduction and creation of fuel breaks on the National Forest land and county land that border the Town.	Completed	Completed
Complete Capital Improvement Plan projects for roads to improve drainage and avoid flooding risks and road damage.	Completed	The Town completed and adopted the capital improvement plan. This plan is being utilized as a planning document and the town is working towards funding the plan as part of a long term project.

B.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

B.5.4 Mitigation Actions

The planning team for Blue River identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Table B-21 Town of Blue River Mitigation Actions

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	2025 Status & Implementation Notes
Blue River 1	Continue homeowner defensible space program begun in 2007	Wildfire; PR	1, 2	**Blue River Building Dept.,** SC Wildfire Council; RWB Fire	Moderate; Town General Fund, Grant from Red, White, and Blue Fire Protection District, HMGP	High	Long Term	Ongoing
Blue River 2	Develop an Emergency Plan for Highway closures	Avalanche, Dam Failure, Flood, Hazmat, Landslide; PR, ES	1, 2	**Blue River Road and Bridge Dept.,** CDOT, Summit County Emergency Management	Moderate; Department of Transportation Grants; Town General Fund	High	Mid Term	Not Started
Blue River 3	Bury utilities throughout Town	Avalanche, Dam Failure, Flood, Landslide, Lightning, Wildfire; PR, PP, S	1, 2, 3	**Xcel**	Very High; HMGP	Medium	Long Term	Not Started
Blue River 4	Develop winter preparedness kits and information for mountain road travel along Hwy 9 and Hoosier Pass	Avalanche; PR, PI	1, 2	**Blue River Road and Bridge Dept.,** Summit County OEM	Moderate; Town General Fund	Medium	Long Term	Not Started
Blue River 5	Install erosion traps	Erosion/ Deposition, Flood, PR	1,2	**Blue River Road and Bridge Dept.**	Moderate; FMA, Town General Fund	Low	2027	New in 2025
Blue River 6	Water Supply Resilience and Conservation Preparedness for Drought Conditions. Focus on increasing water supply reliability, promoting efficient water use, and preparing for long-term drought impacts	Drought	1	**Town Administration** Denver Water, Colorado River District, CWCB	Moderate; Town General Fund	Low	2027	New in 2025

B.6 Implementation and Maintenance

Moving forward, the Town of Blue River will follow the procedures to review and update this plan in accordance with Chapter 6 of the 2025 Summit County MJHMP. The Town of Blue River annex to the Summit County MJHMP will be evaluated on a regular basis to determine the effectiveness of programs and to reflect changes in land development or programs that may affect mitigation priorities.

B.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the Town to help inform updates and the development of local plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

The information from the 2020 Summit County Hazard Mitigation Plan and the Town of Blue River annex was not incorporated into any planning mechanisms as the opportunity never arose. However, the Town intends to consider the hazard information presented in this 2025 plan during future updates to its planning mechanisms.

Process Moving Forward

Moving forward, the Town may utilize the hazard information when reviewing a site plan or other type of development applications. The Town will also incorporate this HMP into future updates to the Town of Blue River's Comprehensive Plan as appropriate.

As noted in Chapter 6 Plan Maintenance, the HMPC representatives from Blue River will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting

B.6.2 Monitoring, Evaluation and Updating the Plan

The Town will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 6 of the Base Plan. The Town will continue to involve the public in mitigation, as described in Section 6.4 of the Base Plan. The Town Manager will be responsible for representing the Town in the County HMPC, and for coordination with Town staff and departments during plan updates. The Town realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

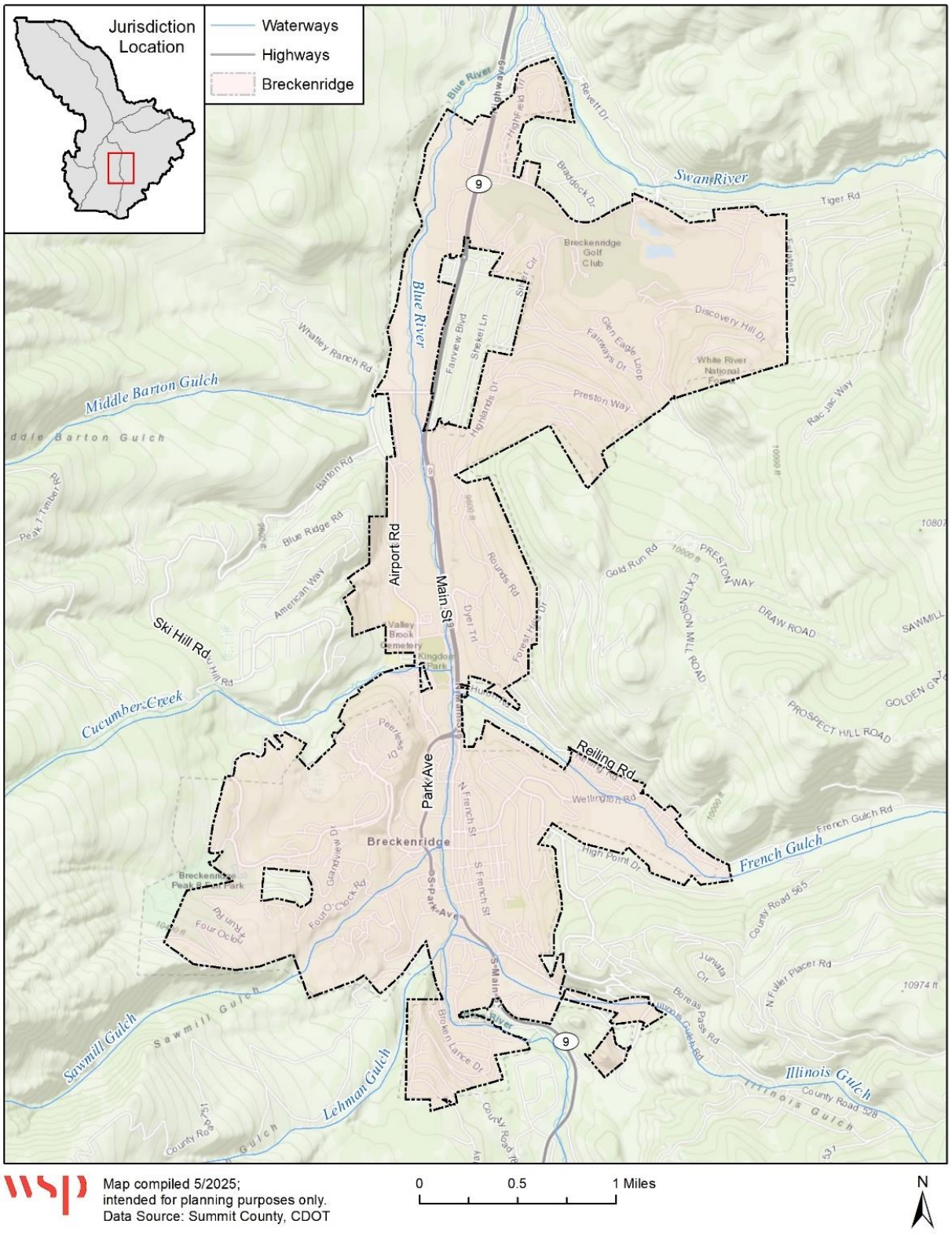
B.6.3 Continued Public Involvement

The Town of Blue River will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. Additionally, the Town will:

- Continue to inform town property owners of any code changes that affect hazard vulnerability.
- Provide regular newsletter broadcast of Town Council and Town government activities.
- Publish all emergency preparedness and mitigation activities for community review and awareness.

Annex C: Town of Breckenridge

Figure C-1 Map of Breckenridge



C.1 Community Profile

Figure C-1 above shows a map of the Town of Breckenridge and its location within Summit County.

C.1.1 Geography

The Town of Breckenridge encompasses approximately 3,700 acres of land, at an elevation of 9,600 feet. The Blue River flows northerly through Breckenridge along the valley floor. It has a steep narrow channel with a slope of approximately 108 feet per mile from the Goose Pasture Tarn to the Dillon Reservoir and an average width of about 30 feet. Breckenridge is surrounded by three mountain ranges: The Ten Mile Range to the west, Bald Mountain and the Front Range on the east, and Hoosier Pass and the Mosquito Range on the south. Annual precipitation exceeds 30 inches in the higher elevations and includes over 300 inches of annual snowfall.

C.1.2 Population

The population of Breckenridge fluctuates throughout the year because of the resort nature of the community. Thus, the population of Breckenridge has two important components: permanent and peak. The permanent population is the number of people who reside in the town on a year-round basis and was estimated at 4,936 in 2018 and at 5,001 in 2023. Peak population is the total number of people who are in the town at one time, including residents, second homeowners, overnight guests, and day visitors, along with an assumed 100 percent occupancy of all lodging units. According to the Town's master plan, the months with the largest peak populations are December through March, with a summer spike in July.

The estimated 2023 population of Breckenridge was 5,001, which is a 12.3% increase from 2012. Select U.S. Census American Community Survey (ACS) demographic and social characteristics for Breckenridge as well as information provided from the HMPC are shown in the following tables and figures.

Table C-1 Breckenridge Demographic and Social Characteristics 2018-2023

Breckenridge	2018	2023	% Change
Population	4,936	5,001	1.3%
Median Age	32.2	38.3	18.6%
Total Housing Units	7,232	7,719	6.7%
Housing Occupancy Rate	89.9%	92%	2.3%
Median Home Value	$497,200	$757,100	52.3
Unemployment	2.3%	0.4%	-82.6%
Mean Travel Time to Work (minutes)	13.2	16.3	23.5%
Median Household Income	$86,493	$132,666	53.4%
Per Capita Income	$33,722	$58,796	74.4%
% Without Health Insurance	26.9%	6.2%	-77.0%
% of Individuals Below Poverty Level	9.3%	9.6%	3.2%
# of Households	7,232	7,719	6.7%
Average Household Size	2.3	2.37	3.4%
% of Population Over 25 with High School Diploma	97.1%	97.8%	0.7%
% of Population Over 25 with Bachelor's Degree or Higher	52.7%	59.9%	13.7%

Breckenridge	2018	2023	% Change
% with Disability	6.9%	9.9%	43.5%
% Speak English less than "Very Well"	2.2%	1.5%	-31.8%

Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table C-2 Demographic and Social Characteristics Compared to the County and State

Demographic & Social Characteristics (as of 2023)	Breckenridge	Summit County	Colorado
Median Age	38.3	39.2	37.9
Housing Occupancy Rate	92%	38.8%	92%
Median Home Value	$757,100	$850,700	$550,300
Unemployment	0.4%	2.5%	2.6%
Mean Travel Time to Work (minutes)	16.3	21.2	25.5
Median Household Income	$132,666	$106,255	$92,911
Per Capita Income	$58,796	$58,219	$51,768
% Without Health Insurance	6.2%	10.2%	6.7%
% of Individuals Below Poverty Level	9.6%	7.4%	9.3%
Average Household Size	2.37	2.46	2.51
% of Population Over 25 with High School Diploma	97.8%	94.9%	93.3%
% of Population Over 25 with bachelor's degree or Higher	59.9%	52.5%	46.4%
% with Disability	9.9%	6.4%	11.7%
% Speak English less than "Very Well"	1.5%	5.5%	5.4%

Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

Table C-3 Demographics by Race and Sex

Breckenridge	Population	%
Total Population	5,182	-
Male	2,852	55.0%
Female	2,330	45.0%
White, not Hispanic	4,299	72.6%
Hispanic or Latino	5,182	37.1%
Black	162	3.1%
Asian	89	1.7%
American Indian and Alaska Native	74	1.4%
Native Hawaiian and Other Pacific Islander	0	0%
Some other race	213	4.1%
Two or more races	883	17%

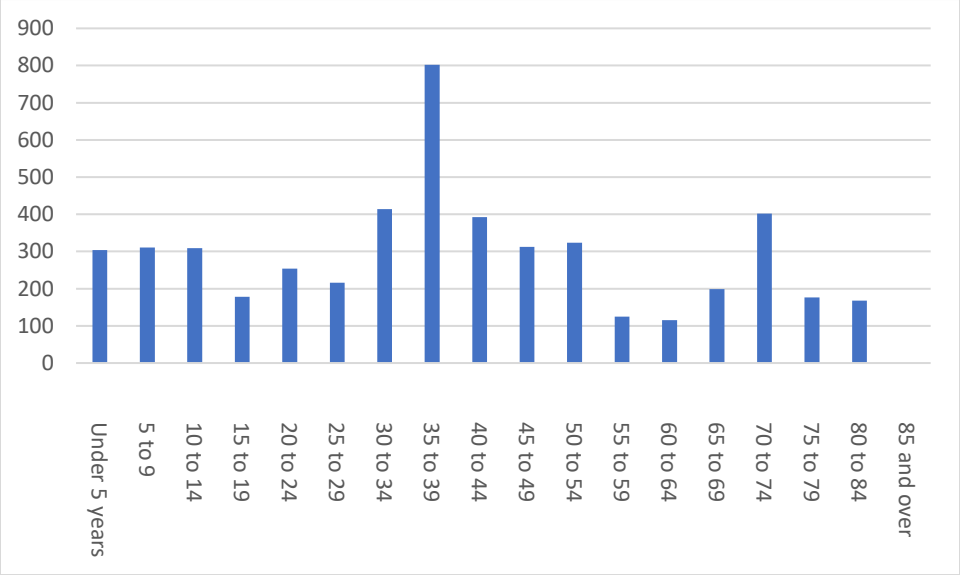
Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

Table C-4 Types and Total Amounts of Housing Units in Breckenridge

Type of housing units	Total	Percentage
Total housing units	2,540	-
1-unit detached	1,710	67.3%
1-unit attached	33	1.3%
2 units	77	3.0%
3 or 4 units	63	2.5%
5 to 9 units	88	3.5%
10 to 19 units	133	5.2%
20 or more units	284	11.2%
Mobile home	152	6.0%
Boat, RV, van, etc.	0	0.0%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

Figure C-2 Age Distribution in Breckenridge



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

C.1.3 History

Long before white settlers from the east crossed the Continental Divide, Breckenridge was part of the summer hunting grounds of the nomadic White River and Middle Park Ute Native Americans. The Town of Breckenridge was born out of the mid-nineteenth century gold rush and formally created in November 1859.

In the fall of 1861, the Town secured the Denver, Bradford, and Blue River Road Wagon Company connection, which gave lifeblood to the little gold mining community. Breckenridge was established as the permanent county seat of Summit County. However, by the mid-1860s there was a drop in the Breckenridge population due to both the Civil War and the increasing difficulty in locating free, accessible gold. Many businessmen and merchants moved on to other boomtowns.

The late-1860s saw the introduction of large-scale hydraulic placer mining and Breckenridge was once again busy with mining endeavors. By 1879, Breckenridge was an important hard-rock mining location and prominent supply center. The discovery of rich silver deposits and lead carbonates in the hillsides nearby put the Breckenridge mining district on the map, and the community was formally incorporated in 1880.

Breckenridge remained a prosperous frontier mining town for many years, but by the turn of the century, the local mining technology had shifted primarily to dredge mining, which employed relatively few people. The population and economy continued to decline during the Great Depression. The last gold dredge shut down in 1942 as resources shifted to the war effort associated with World War II.

In 1961, the Breckenridge Ski Area opened and breathed new life into the Town, drawing new visitors to discover and settle in Breckenridge. To this day, the "recreation" rush to Breckenridge continues.

C.1.4 Economy

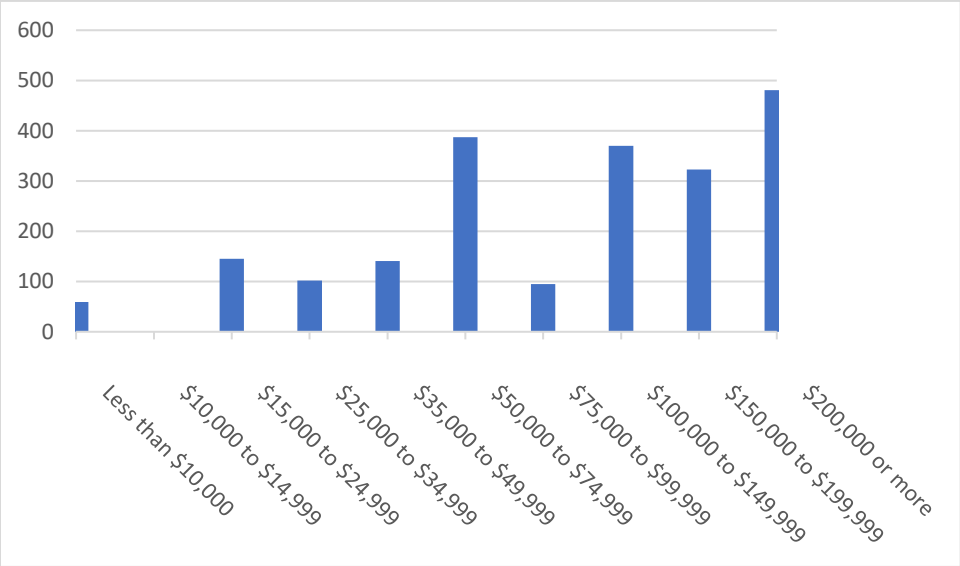
Mining activity was the primary economic force from the time Breckenridge was founded in 1859 until the early 1940s. The 1960s marked the beginning of a new era for Breckenridge, as recreation became the principal economic and population generator. Specifically, in 1961 the Breckenridge Ski Area was established, creating an enormous increase in the job market. The completion of I-70, the Eisenhower Tunnel, and Dillon Reservoir further enhanced the area's attractiveness and continued the drive towards a tourism-based economy.

In addition to the tourism economy, the second-home building market has been a major contributor to the local economy. The second-home building market not only creates numerous jobs in construction, but also creates the need for a number of jobs that support the construction industry (e.g., material supplies, landscaping services, realtors) and the additional need for retail and service businesses to accommodate the construction workers. In turn, this creates the demand for more construction to provide housing for the workforce. The second home and investment property market in Summit County has become an economic driver approaching the level of tourism and may soon overtake winter tourism in economic importance. The Town also needs to further evaluate the seasonal workforce, which is greater than the Town's permanent population, to better understand their impact on the community and what needs to be done to protect them.

According to 2023 Census Bureau estimates, the industries that employed the highest percentage of Breckenridge's labor force were educational services, and health care and social assistance (18.3%); arts, entertainment, and recreation, and accommodation and food services(14.9%); professional, scientific, and management, and administrative and waste management services (14.4%); retail trade (13.6%); and finance, insurance, real estate, and rental and leasing (8.6%).

As shown in Table C-2 per capita income in Breckenridge was $58,796 in 2023, which is roughly 13.5% below average for both Summit County and the State of Colorado. A breakdown of Breckenridge's income distribution is shown in Figure C-3.

Figure C-3 Income Distribution in Breckenridge



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

C.2 Hazard Identification and Profiles

Breckenridge's HMPC identified the hazards that affect the community and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and overall significance specific to the Town (see Table C-5). In the context of the countywide planning area, there are no hazards that are unique to Breckenridge.

Table C-5 Breckenridge Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Unlikely	Limited	Low
Dam Failure	Large	Unlikely	Catastrophic	Medium
Drought	Large	Occasional	Limited	Medium
Earthquake	Large	Unlikely	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Small	Likely	Critical	High
Hazardous Materials Release	Isolated	Unlikely	Critical	Low
Landslide, Mudflow/Debris Flow, Rockfall	Isolated	Occasional	Limited	Medium
Lightning	Large	Likely	Critical	Medium
Pest Infestation	Medium	Highly Likely	Limited	Medium
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Large	Likely	Catastrophic	High
Wildlife-Vehicle Collisions	Small	Likely	Negligible	Low
Windstorm	Large	Likely	Limited	Low

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles HIRA document (main plan).

C.3 Vulnerability Assessment

The intent of this section is to assess Breckenridge's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

C.3.1 Community Asset Inventory

Table C-6 shows the total number of improved parcels, properties, and their improvement and content values for the Town of Breckenridge. Note that only those parcels with improvement values greater than $0, or those which were classified as "exempt," were accounted here and in vulnerability assessments to follow, so that those non-developed or non-improved parcels were left out for the purposes of conducting the vulnerability assessments in this annex. Counts and values are based on the latest county assessor's data (as of June 2025), which was provided in GIS format. Contents exposure values were estimated as a percent of the improvement value here and under the hazard vulnerability assessment, specifically: 50% of the improvement value for Residential structures, 100% for Commercial structures, and 0% for Exempt and Vacant parcels. These percentage calculations are based on standard FEMA Hazus methodologies. Finally, Total Values were aggregated by adding the improvement and content values for each parcel type category.

Table C-6 Breckenridge Improved Parcel and Property Exposure

Property Type	Parcel Count	Improved Value	Estimated Contents	Total Value
Commercial	132	$148,536,300	$148,536,300	$297,072,600
Exempt	65	$0	$0	$0
Multi-Family Residential	53	$90,110,181	$45,055,091	$135,165,272
Residential	1,239	$1,073,711,285	$536,855,643	$1,610,566,928
Total	**1,489**	**$1,312,357,766**	**$730,447,033**	**$2,042,804,799**

Source: Summit County Assessors Data, November 2025.

Property totals were obtained by counting the number of separate property records that were part of the same parcels. As such, the improved values and subsequent totals stem from the total individual property records, not stand-alone parcel totals.

Table C-7 lists summary information about the 36 critical facilities and other community assets identified by Breckenridge's HMPC as important to protect or provide critical services in the event of a disaster. Table C-8 details more information on the critical facilities in question found in Breckenridge. Note that there were several critical facilities the HMPC indicated should not be disclosed in terms of location or name, so while they were considered in the GIS analysis within each hazard's vulnerability assessment for planning purposes, they will not be described in detail nor will they be shown in any maps. As such, the detailed facility list only contains information for 29 of the 30 facilities. For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the Base Plan.

Table C-7 Breckenridge FEMA Lifeline Critical Facilities Summary

FEMA Lifeline	Total
Energy	1
Hazardous Materials	2
Health and Medical	2
Safety and Security	23
Transportation	6
Water Systems	3
Total	**36**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

Table C-8 Breckenridge Critical Facilities, FEMA Lifelines, and Facility Types

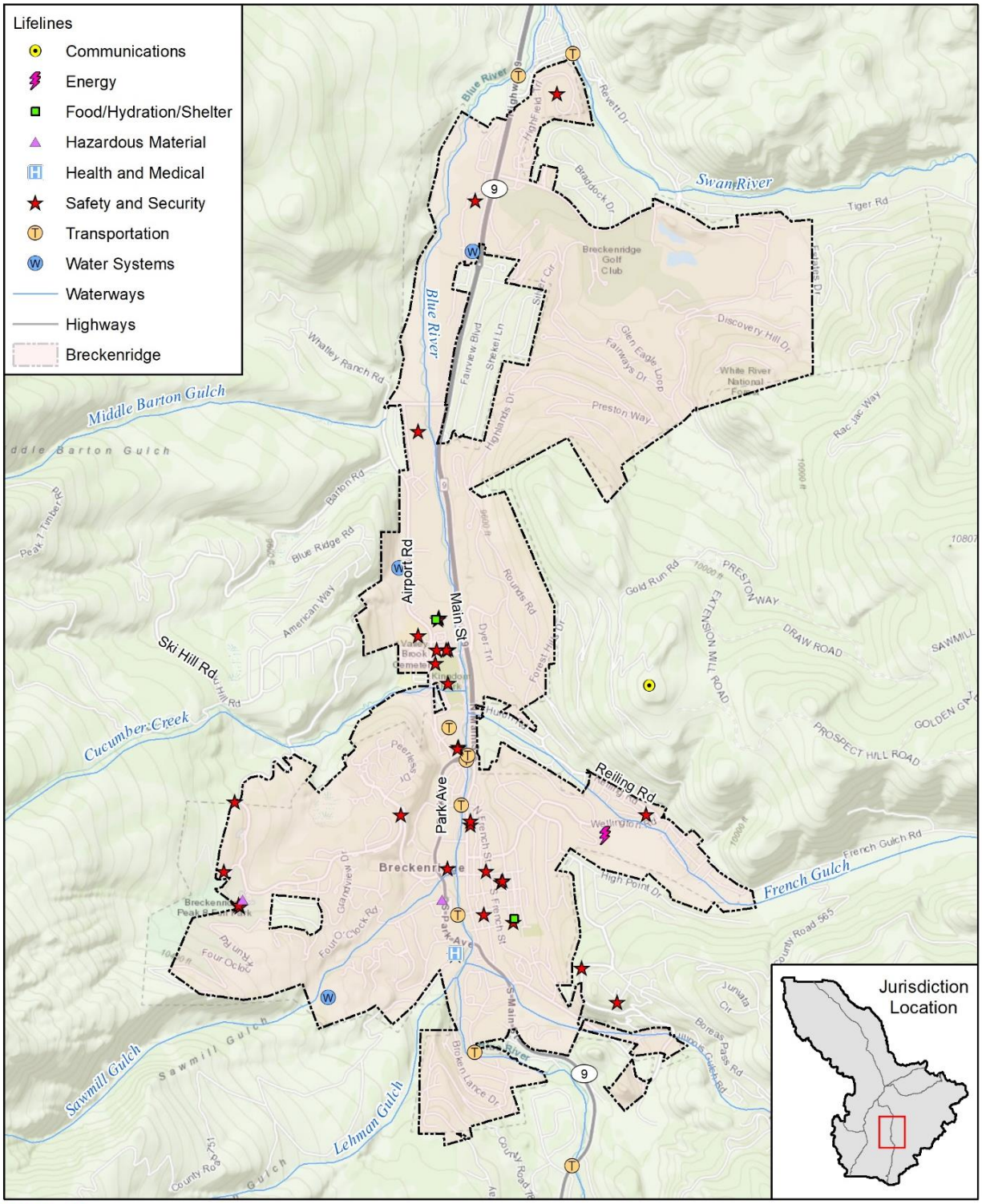
FEMA Lifeline Category	Critical Facility Type	Count
Energy	Energy Substations	1
Hazardous Materials	HazMat Tier II SARA Facilities	2
Health and Medical	Medical Facility	1
Safety and Security	Fire Station	3
	Government Buildings	5
	Police Stations	2
	School	3
	State Licensed Daycare	9
Transportation	Helipads	1
	Bridge- Fair Condition	4
	Bridge- Good Condition	1
Water Systems	Dam- Significant Hazard	1
	Wastewater Facility	1
	Water Treatment Facility	1

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

The location of critical facilities in Breckenridge, identified by Summit County GIS are illustrated in in the Community Profile Section.

The locations of identified critical facilities and infrastructure in Breckenridge are illustrated in Figure C-4.

Figure C-4 Critical Facilities and Infrastructure in the Town of Breckenridge



C.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk in more detail where the risk varies from the rest of the planning area. Vulnerability details for the following bulleted hazards are often difficult to compile or estimate for specific jurisdictions and are already described in the Section 3.3.3 of the Base Plan.

- Avalanche
- Drought
- Earthquake
- Erosion/Deposition
- Hazardous Materials Release
- Lightning
- Pest Infestation (Forest and Aquatic)
- Severe Winter Weather
- Wildlife-Vehicle Collisions
- Windstorm

Only Dam Inundation, Flood, Landslide/Mudflow/Debris Flow/Rockfall, and Wildfire hazards will be profiled in the following vulnerability assessment sections, due to the ability to quantify vulnerability further with available data.

Avalanche

Overall, Summit County received a high ranking for avalanche as a hazard, with most of the areas at risk found in unincorporated parts of the county (see Section 3.2.1 in the base plan). However, the Town of Breckenridge has ranked avalanche as an overall low hazard. There is still some risk to the town if an avalanche were to occur in surrounding areas, as the closure of transportation corridors such as Interstate 70 (I-70) could disrupt access in and out of the town.

Dam Failure

General Property

The Goose Pasture Tarn Dam is a High hazard structure located upstream of Breckenridge and has a maximum storage capacity of approximately 811acre-feet. The Sawmill Reservoir Dam is found within the boundaries of the Town, on its south-southwest area. This Significant hazard dam only has an estimated maximum storage of 36 acre-feet, however. Finally, the Upper Blue Lake Dam is also a High hazard dam, but this one has a slightly higher maximum storage capacity of 2,100 acre-feet. It is located near the Summit County and Lake County boundary, about 5 miles east of the Robinson Tailings Pond.

While there is no concrete data available to indicate any likelihood of failure, based on best available dam inundation data there might be structures potentially at risk of dam failure flooding. The dam failure inundation maps contain sensitive information and are not available for display in this public planning document. Based on a GIS analysis performed with the county parcel layer and the available dam inundation mapping (for planning purposes only), the following potential damages would be expected in Breckenridge. Note that additional details on the GIS analysis methodology, data preparation process, and other helpful information for understanding how vulnerability assessment results were obtained can be found in Section 3.3. Vulnerability Assessment within the Base Plan.

Table C-9 Estimated Dam Inundation Exposure to Properties in Breckenridge

Parcel Type	Total Properties	Improved Value	Estimated Contents	Total Value	Population Exposed
Commercial	345	$287,231,224	$287,231,224	$574,462,448	0
Exempt	119	$0	$0	$0	0
Multi-Family Residential	76	$124,162,676	$62,081,338	$186,244,014	630
Residential	1,547	$1,399,594,227	$699,797,114	$2,099,391,341	3,666
TOTAL	**2,087**	**$1,810,988,127**	**$1,049,109,676**	**$2,860,097,803**	**4,297**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

People

Based on the GIS analysis summarized in the table above, it is expected that around 4,297 people in Breckenridge might be at risk of dam inundation hazards. These totals were estimated by multiplying the average number of persons per household in Summit County (which equals 2.46) times the number of residential properties where dam inundation extents were available.

Critical Facilities and Infrastructure

Based on the critical facility inventory considered in the updating of this plan and intersected with the dam inundation extents available for the Town of Breckenridge, 23 critical facilities were found to be at potential risk. These are summarized in Table C-10 below.

Table C-10 Breckenridge Critical Facilities at Risk to Overall Dam Inundation Hazards

Critical Facility Type	Total Facilities
Communications	0
Energy	0
Food/Water/Shelter	0
Hazardous Materials	0
Health and Medical	1
Safety and Security	15
Transportation	6
Water Systems	1
TOTAL	**23**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, DWR Dam Safety, WSP GIS Analysis

Economy

In addition to commercial and residential building impacts, a dam inundation event that affected the major roads which give access to the town (e.g. Highway 9) could significantly affect the local economy, by limiting or completely impeding access to shops, restaurants, hotels, and other major industries which keep the local economy thriving.

Historical, Cultural, and Natural Resources

Dam or reservoir failure effects on the environment would be similar to those caused by flooding from other causes. For the most part the environment is resilient and would be able to rebound, though this

process could take years. However, historic and cultural resources could be affected just as housing or critical infrastructures would.

Future Development

There are probably limited impacts to future development since the inundation zone is already developed below the Goose Pasture Tarn Dam. For the Sawmill Dam, the inundation zone of the Snowflake and Westridge subdivisions below the dam was excluded from development during the platting phases about 10 to 15 years ago. Below those subdivisions development had already occurred before the inundation mapping was updated in 2006.

Flood

The major drainageway through Breckenridge is the Blue River, which flows through the center of Town. The streambed is straight and rough containing large rocks. The floodplain is largely confined to the channel, but does increase to between 300 to 400 feet in width in the ponds and behind some of the culverts. Most of the floodplain in Breckenridge contains no vegetation but is covered in rocks. The downstream reaches have willow bushes and gravel tailings covering much of the floodplain. Tributaries flowing into the Blue River are steep and shallow (FEMA, 2001).

Flooding in Breckenridge is primarily caused by the overflow of the Blue River, and smaller tributaries such as Illinois Creek, Indiana Creek, Carter Creek, Sawmill Creek, French Gulch, Cucumber Creek, South Barton Creek, Middle Barton Creek, and North Barton Creek (see Figure C-5). Flooding is mostly likely to occur in mid-June due to runoff from snowmelt. Major past flooding within the town was caused by backwater from blocked culverts and bridges. Many of the culverts have since been replaced; however, if these become blocked, they would again cause flooding around major crossings.

The Goose Pasture Tarn, a small reservoir immediately upstream of Breckenridge, also serves as a flood protection measure for the Blue River. The tarn has a drainage area of approximately 43.5 square miles, a storage capacity of nearly 811-acre-feet, and a spillway design capacity of 2,055 cubic feet per second. With the completion of the Goose Tarn Dam Repair project the capacity will be updated to 18,500 cubic feet per second (Town of Breckenridge HMPC, 2020). The reservoir is important in reducing the peak discharge of the Blue River due to rainfall. The reduction, however, is only marginal for runoff due to snowmelt, which is normally the major cause of peak flows. Other reservoirs in the Blue River basin above Breckenridge provide only incidental flood protection (FEMA, 2011).

General Property

Vulnerability to flooding was determined by summing potential losses to Summit County's properties in GIS, by using the latest FEMA NFHL data along with the Summit County parcel layer provided by the Assessor's Office. FEMA's NFHL data depicts the 1% annual chance (100-year) and the 0.2% annual chance (500-year) flood events. Figure C-5 below displays Breckenridge's FEMA special flood hazard areas present in the town, color coded based on flood event (i.e. 100-year versus 500-year).

Based on the GIS analysis performed with the county parcel layer and the available FEMA flood mapping, the potential risk for the Town is shown in Table C-11. Breckenridge's 1% annual chance flood zone presents has 23 properties and an estimated $57 million total value exposed. The 0.2% annual chance has 5 properties, with loss estimates for both flood events equaling about $12.7 million in Breckenridge. Most properties at risk of flooding from both events are residential.

Figure C-5 Breckenridge FEMA Floodplains

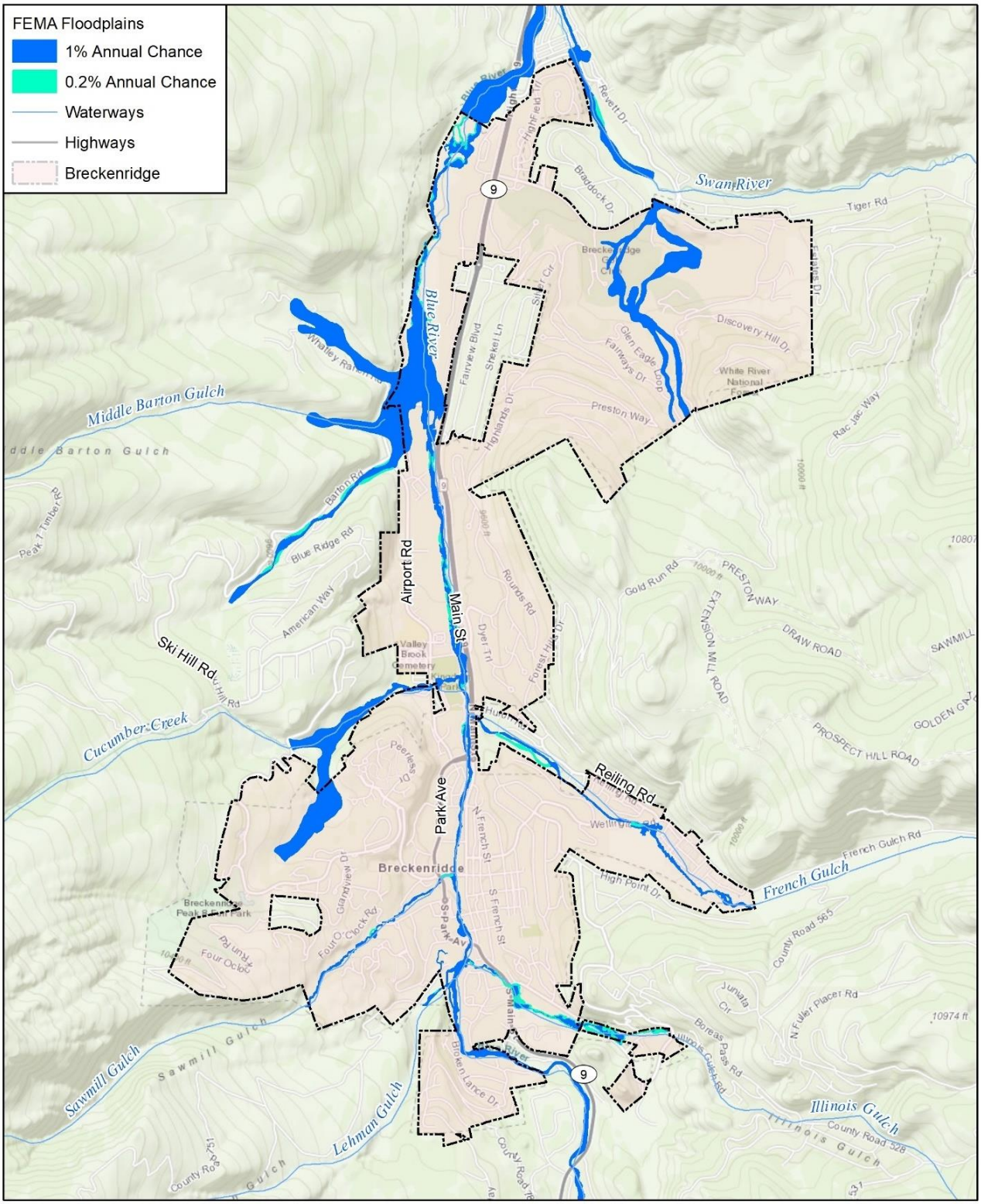


Table C-11 Breckenridge 1% Annual Chance FEMA Flood Hazard

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Estimated Loss	Population
Exempt	1	$0	$0	$0	$0	0
Residential	22	$38,137,900	$19,068,950	$57,206,850	$14,301,713	52
Total	**23**	**$38,137,900**	**$19,068,950**	**$57,206,850**	**$14,301,713**	**52**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Table C-12 Breckenridge 0.2% Annual Chance FEMA Flood Hazard

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Estimated Loss	Population
Residential	5	$8,519,100	$4,259,550	$12,778,650	$3,194,663	12
Total	**5**	**$8,519,100**	**$4,259,550**	**$12,778,650**	**$3,194,663**	**12**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Flood Insurance Program Policy Analysis

Breckenridge joined the National Flood Insurance Program (NFIP) on June 4, 1980. NFIP insurance data indicates that as of October 10, 2025, there were 25 flood insurance policies in force in the County with $47,752,000 of coverage.

There have been two historical claims for flood losses totaling $17,105. There are no repetitive or severe repetitive loss structures as defined by the NFIP as of 2019.

People

The population exposed to the flood hazards described in the flood vulnerability analysis above was estimated by applying an average household size factor (based on 2018 U.S Census estimates for Summit County of 2.46 persons per household) to the number of improved residential properties identified in the flood hazard areas within Breckenridge. These estimates yielded the population exposures shown in the table above (Table C-11). As such, the combined 1% and 0.2% annual chance floods would potentially displace 64 people, based on the residential structures which fall in those flood zones. For additional details on potential displacements by flood event, see the Summit County Base Plan.

Critical Facilities and Infrastructure

No critical facilities were found to overlap with the flood zones mapped for Breckenridge. This does not necessarily mean that no critical facilities are at risk of flooding, as localized flash flooding or non-mapped flooding is still possible outside of the studied stream areas.

Economy

Flooding can have a major economic impact on the economy, including indirect losses such as business interruption, lost wages, and other downtime costs. Flooding often coincides with the busy summer tourism months in Summit County, and may impact, directly or indirectly (such as from the negative perception of potential danger to his hazard), the revenues of shops, restaurants, hotels, and other major industries which keep the local economy thriving. In addition, major flooding which led to road or other

infrastructure closures could additionally limit access to the Town by tourists, locals, and even basic goods and services.

Historical, Cultural, and Natural Resources

The environment is mostly resilient to general flooding. However, cultural or historic properties within floodplains would be affected in similar ways as property and critical facilities/infrastructure, especially those with underground or basement levels where water would easily seep and potential ruin archives, resources, or other important assets.

Future Development

The Breckenridge Flood Damage Prevention Ordinance meets minimum NFIP requirements and regulates development in special flood hazard areas. In addition, the Town addresses floodplain management policies in its Master Plan and Development Code (see Regulatory Capabilities section below).

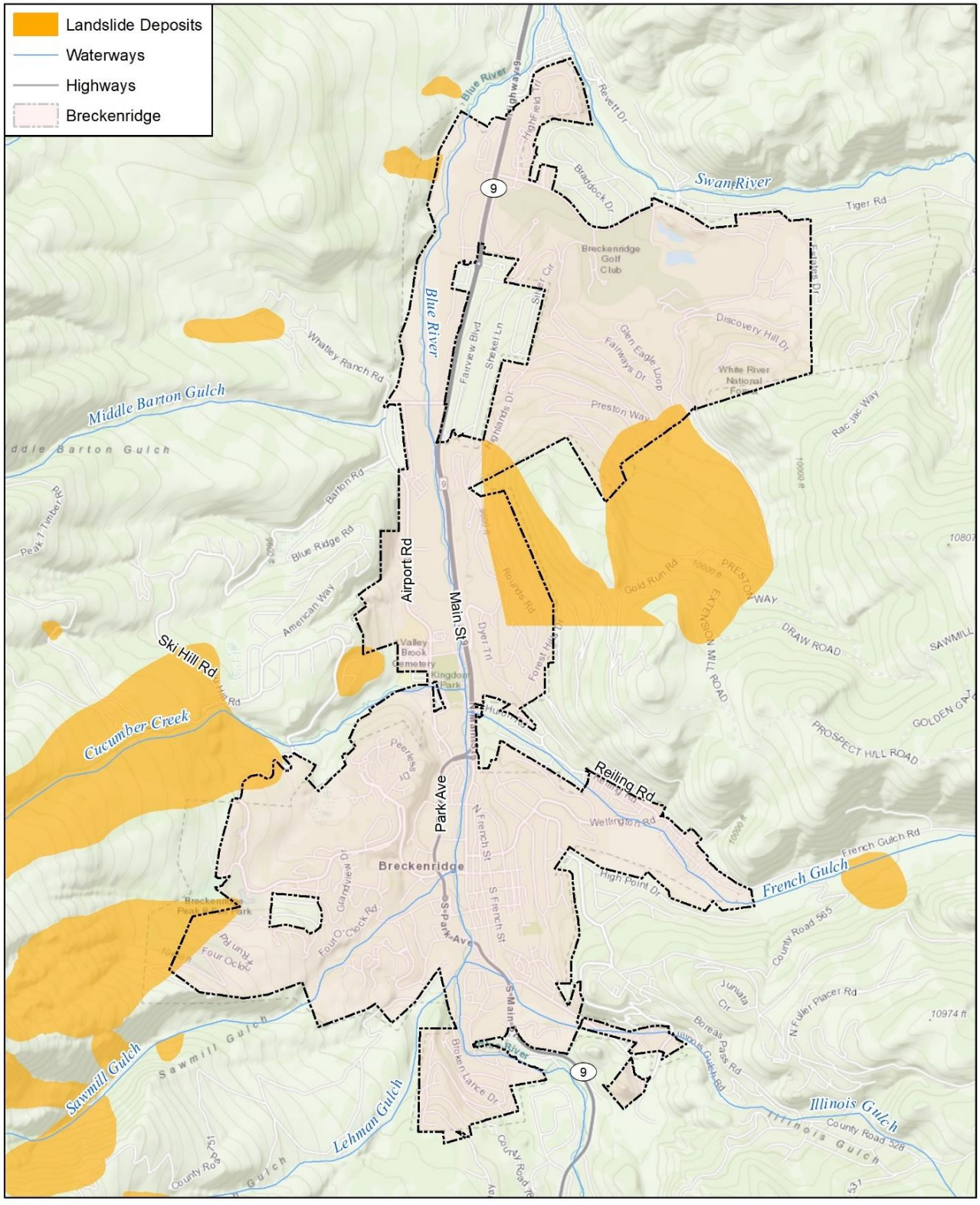
Hazardous Materials Release

Overall, Summit County has rated this hazard as a medium, while the Town of Breckenridge has rated it low. According to the National Response Center, there have been 27 reported hazardous materials incidents in Summit County between 1990-2024. Majority of these incidents occur along major highways and interstates which are primary transportation corridors for hazardous materials. As a result, the Town's direct exposure to this hazard is reduced compared to other areas in the County. Section 4.3.7 of the base plan for more details on hazardous materials release in Summit County.

Landslide, Mud Flow/Debris Flow, Rock Fall

Possible landslide areas are identified on steep slopes with unstable soil conditions. Areas identified in the Breckenridge area for possible landslides are in the Sawmill and Lehman gulches, Shock Hill, Ford Hill, Little Mountain, Silver Shekel, and Warriors Mark West (Breckenridge Comprehensive Plan, 2008). General landslide hazard areas are displayed in Figure C-6 below.

Figure C-6 Landslide Hazard Areas in Breckenridge



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
Colorado Geological Survey (CGS)

0 0.5 1 Miles

N

General Property

Potential losses for general landslide areas were estimated using Summit County GIS and assessor's parcel data. Based on the GIS analysis performed, the potential risk to general landslide areas in Breckenridge is summarized in Table C-13. For the purposes of this analysis, if a parcel's centroid intersected the landslide hazard polygons, that parcel is assumed to be at risk. Content values were calculated from the improvements as a percentage of property improvement values based on their occupancy type (using FEMA Hazus guidance), so that Residential properties received content values worth 50% of their improvements. Property improvements and content values were then totaled to arrive at the Total Value column. Note that additional details on the GIS analysis methodology, data preparation process, and other information can be found in Section 3.3. Vulnerability Assessment within the Base Plan.

Breckenridge's Residential properties have a total exposure value of over $19 million. A total of 5 properties are exposed to general landslide hazards. A site-specific analysis would be needed to further quantify actual risk to structures on these parcels.

Table C-13 Property Exposure to General Landslide Hazard Areas in Breckenridge

Parcel Type	Total Properties	Improved Value	Contents Value	Total Value	Population at Risk
Residential	5	$13,182,800	$6,591,400	$19,774,200	12

Source: Summit County Assessor Data 2025, Colorado Geological Survey (CGS), WSP GIS Analysis

People

People could be susceptible if they are caught in a landslide or debris flow, potentially leading to injury or death. There is also a danger to drivers operating vehicles, as rocks and debris can strike vehicles passing through the hazard area or cause dangerous shifts in roadways. Based on Table C-13 above, an estimated 12 people could be at risk of general landslide hazards in Breckenridge. At risk population was estimated by multiplying the average number of persons living in each household in Summit County (which is 2.46 per household) times the number of properties of type "residential" where landslide areas have been inventoried in the town.

Critical Facilities and Infrastructure

There was one critical facility found in Breckenridge, as shown in Table C-13. There is no critical facilities within the slide event hazard.

Table C-14 Critical Facilities at Risk to Landslide Hazards

Critical Facility Type	Total Facilities
Safety and Security	1

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Geological Survey (CGS), WSP GIS Analysis

Economy

Economic impacts related to landslide, rockfall, debris fall, and mudslide hazards typically center around transportation routes temporarily closed by debris flow or other activity. No routes were found to be at risk.

Historical, Cultural, and Natural Resources

As primarily natural processes, landslides and debris flows can have varying impacts to the natural environment as well as cultural or historical resources found on their path. For buildings and other structures, impacts would be similar as those seen on general property or critical facilities/infrastructure.

Future Development

The Town's Comprehensive Plan (2008) addresses requirements for development in areas with steep slopes. An engineer's report is required prior to construction for development on slopes of 15% or greater. The Town discourages development on slopes of 15% or greater, and encourages the density allocated to these sites to be transferred to areas suitable for development.

Wildfire

General Property

Wildfire threat was estimated from Summit County's Wildfire Protection Assessment Rating layer, which classifies areas into Moderate, High, and Highest ratings. This wildfire layer was used in GIS to determine the number, type, and improvement values for properties found to overlap with them and hence estimate potential property risk to wildfire threat in Breckenridge. For the purposes of this analysis, the wildfire zone that intersected a parcel centroid was assigned as the threat zone for the entire parcel. Improvement values were then summed by wildfire rating area and then sorted by parcel type. Property improvements and estimated content values were then totaled to arrive at the Total Value column, which is also the estimated potential loss as wildfires typically result in complete loss to structure and contents. Breckenridge is primarily found in moderate and high hazard areas.

Wildfire risk to assets areas for Breckenridge are displayed in Figure C-7 for reference. Properties exposed in the Wildland Urban Interface (WUI) were also noted in Table C-15 below. The wildland urban interface is a zone of transition between wilderness (unoccupied land) and land developed by human activity. Communities and properties within the WUI are at a greater risk of more intense wildfires. Within the Town of Breckenridge 4,629 properties with a total value of over $9.4 billion are within the WUI, as well as 12,123 people.

Table C-15 Wildfire Risk Hazard by Property Type

	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
High	Multi-Family Residential	3	$5,991,700	$2,995,850	$8,987,550	21
	Residential	23	$68,930,820	$34,465,410	$103,396,230	55
	Total	**26**	**$74,922,520**	**$37,461,260**	**$112,383,780**	**76**
Moderate	Commercial	16	$7,789,000	$7,789,000	$15,578,000	0
Moderate	Exempt	3	$0	$0	$0	0
Moderate	Multi-Family Residential	43	$73,000,300	$36,500,150	$109,500,450	306
Moderate	Residential	198	$481,779,205	$240,889,603	$722,668,808	469
Moderate	**Total**	**260**	**$562,568,505**	**$285,178,753**	**$847,747,258**	**775**
	Grand Total	**286**	**$637,491,025**	**$322,640,013**	**$960,131,038**	**851**

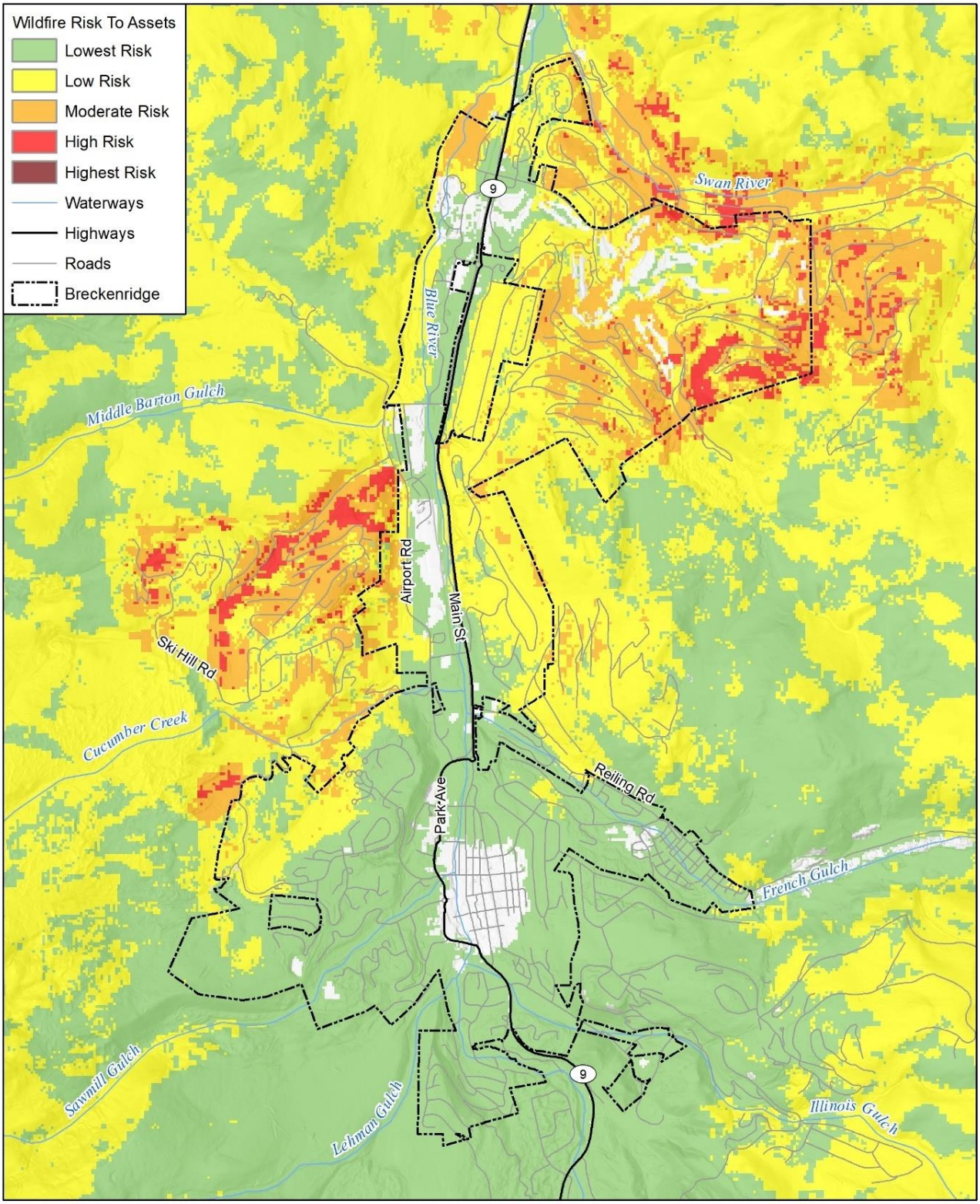
Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Table C-16 Wildfire WUI Risk Hazard by Jurisdiction and Property Type

Wildfire WUI Risk	Property Type	Improved Parcels	Improved Value	Estimated Content Value	Total Value	Population
Highest	Commercial	96	$103,698,000	$103,698,000	$207,396,000	0
	Exempt	53	$0	$0	$0	0
	Multi-Family Residential	152	$226,725,046	$113,362,523	$340,087,569	1,590
	Residential	1,753	$2,772,710,397	$1,386,355,199	$4,159,065,596	4,155
	Total	**2,054**	**$3,103,133,443**	**$1,603,415,722**	**$4,706,549,165**	**5,745**
High	Commercial	63	$50,040,960	$50,040,960	$100,081,920	0
	Exempt	46	$0	$0	$0	0
	Multi-Family Residential	82	$88,223,046	$44,111,523	$132,334,569	583
	Residential	1,977	$2,341,102,749	$1,170,551,375	$3,511,654,124	4,685
	Total	**2,168**	**$2,479,366,755**	**$1,264,703,858**	**$3,744,070,613**	**5,269**
Moderate	Commercial	26	$11,447,924	$11,447,924	$22,895,848	0
	Exempt	14	$0	$0	$0	0
	Multi-Family Residential	40	$62,856,501	$31,428,251	$94,284,752	334
	Residential	327	$590,591,075	$295,295,538	$885,886,613	775
	Total	**407**	**$664,895,500**	**$338,171,712**	**$1,003,067,212**	**1,109**
	Grand Total	**4,629**	**$6,247,395,698**	**$3,206,291,292**	**$9,453,686,990**	**12,123**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Figure C-7 Breckenridge Wildfire Risk to Assets

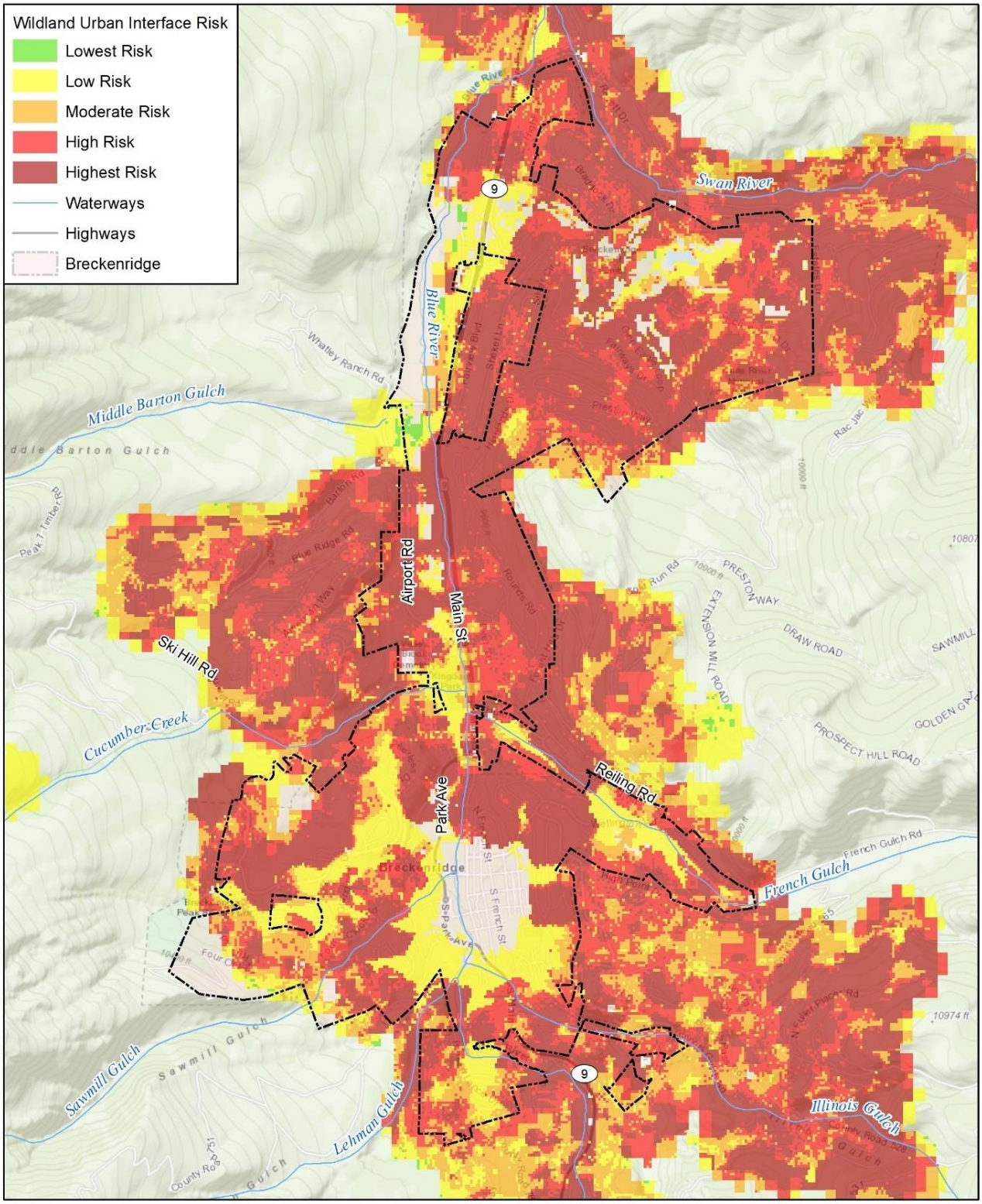


Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
CSFS Forest Atlas

0 0.5 1 Miles

N

Figure C-8 Breckenridge Wildland Urban Interface Risk



People

The last column of Table C-15 above summarizes the number of people at risk to wildfire in the analyzed fire zones. Based on the assessment conducted, Breckenridge has an estimated 851 people at risk of High and Moderate rated wildfire zones. These totals were estimated by multiplying the average persons per household in Summit County by the number of residential properties falling within the fire zones.

Smoke resulting from fire is an issue to local populations, as noted by the Summit County's HMPC. For example, the County Public Health Department has received calls in the past from tourists asking if they should cancel travel plans in the county due to smoke and potential health and safety related concerns.

Critical Facilities and Infrastructure

A total of 2 critical facilities were identified in Moderate wildfire zones in Breckenridge (see Table C-17).

Table C-17 Critical Facilities in Breckenridge at Risk to Wildfire Hazards

Wildfire Risk	Lifeline Category	Total Critical Facilities
Moderate	Safety and Security	1
	Water Systems	1
TOTAL		**2**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Forest Atlas, WSP GIS Analysis

A total of 13 critical facilities were identified in the WUI Risk Hazards (See Table C-18).

Table C-18 Critical Facilities at Risk to Wildfire WUI Risk Hazards

Wildfire Risk	Lifeline Category	Total Critical Facilities
Highest	Safety and Security	4
	Transportation	1
	Water Systems	1
	Total	**6**
High	Safety and Security	2
	Transportation	1
	Total	**3**
Moderate	Hazardous Material	1
	Safety and Security	3
	Total	**4**
TOTAL		**13**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Forest Atlas, WSP GIS Analysis

The Red, White, and Blue Fire Protection District, which provides fire protection services to Breckenridge, Blue River, and the surrounding area, is considered an initial attack center for wildland fires on all private land and takes a joint responsibility with the U.S. Forest Service for fires on federal land.

Economy

Tourism, the accommodation and food services industry (e.g. hotels and restaurants), and retail are major components of Summit County's economy, and Breckenridge's as well. Wildland fires can, for example, lead to significant tourism reductions due to health and safety concerns, causing lost revenues from lack of visitation, stays in hotels, spending on restaurants and other commerce sources, and more.

Historical, Cultural, and Natural Resources

Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the climate change trend which is leading to hotter, more widespread, and destructive fires can make it more difficult for the environment to recover, and lead to increased flood runoff or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after a fire.

With regards to historic or cultural structures and resources, wildfires would affect those in similar ways as general property and critical facilities/infrastructure, having the potential for burn downs and hence possible complete loss of important historical assets in Breckenridge.

Future Development

The Breckenridge Development Code requires that a wildfire plan is prepared and implemented for all areas designated with a "severe" wildfire rating and for all vegetated areas designated with a "hazard intensified due to slope" rating on the map of wildfire hazard and for all vegetated areas in excess of 30 percent slope. These plans must address wildfire prevention, mitigation, and control and shall further incorporate the recommendations contained within *Wildfire Hazards: Guidelines for Their Prevention in Subdivisions and Developments* prepared by the Colorado State Forest Service. The Town requires fuels mitigation for all properties seeking a development permit. Property owners with active development permits are now required to reduce fuels by removing most trees within a 30-foot defensible space zone of the home, limbing dead branches up to 10 feet off the ground, and removing woody litter off the forest floor.

C.3.3 Growth and Development Trends

Table C-19 illustrates how Breckenridge has grown in terms of population and number of housing units between 2012 and 2017.

Table C-19 Breckenridge—Change in Population and Housing Units, 2018-2023

2018 Population	2023 Population Estimate	Estimated Percent Change 2018-2023	2018 Total Housing Units	2023 Total Housing Units	Estimated Percent Change 2018-2023
4,936	5,001	1.3%	7,232	7,719	6.7%

Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

There is new development planned throughout Breckenridge (pending and in progress projects). Most future development that will take place in Breckenridge will be a mixture of multi-family, single family residential and mixed-use development occurring along High Street. Also the town has recently approved projects like Breckenridge Grand Vacations, Peak 7 and 8 Master Plan Amendment and Gondola Low Master Plan Amendment, Cammett House Historic Restoration, Highlands Gold Course HOA Voluntary Wildfire Mitigation, and several other projects. Future development on Main Street will likely focus on infill and adaptive reuse development. It is expected that land use tools, such as the Transfer of Development Rights (TDR) program in partnership with the county will continue and will evolve to include new markets for TDRs in the Town including affordable housing projects.

C.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

C.4.1 Regulatory Mitigation Capabilities

Table C-20 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Breckenridge.

Table C-20 Breckenridge—Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	TOB will adopt 2024 IRC and IBC codes in early 2026. Currently, TOB is operating under 2018 IRC and IBC with amendments.
BCEGS Rating	Yes	Building Code Effectiveness Grading Schedule; Town scored a rating of 4 a couple of years ago. Contact Rick Fout
Capital Improvements Program (CIP) or Plan	Yes	
Community Wildlife Protection Plan (CWPP)	No	TOB has adopted the Summit County Wildfire Protection Plan (CWPP), but does not have a wildlife plan.
Comprehensive, Master, or General Plan	Yes	
Economic Development Plan	No	
Elevation Certificates	Yes	
Emergency Operations Plan	Yes	
Erosion/Sediment Control Program	Yes	
Floodplain Management Plan	No	Engineering enforce the provisions of Title 44: Emergency Management and Assistance under National Flood Insurance Program Regulations for floodplain management. No specific plan
Flood Insurance Study	Yes	
Growth Management Ordinance	Yes	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes	Ordinance 11, Series 2024 Amending the Development Code to Create Defensible Space for Mitigation of Wildfire; update to Wildfire Mitigation Ordinance
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	Yes	
Zoning Ordinance	Yes	

Town of Breckenridge Comprehensive Plan, 2008

The Town Breckenridge Comprehensive Plan guides the future development of the town. The purpose of the Comprehensive Plan is to promote the health, safety, and welfare of the community and provide guidelines for the conservation and development of community resources. The Plan identifies goals and policies for the following primary sections: Natural Environment, Population and Demographics, Transportation, Community Facilities, Economy, Housing, Recreation and Tourism, Cultural Resources,

Historic Character, Community Character, and Land Use. It includes the following goals and policies related to hazard mitigation:

- **Goal:** Erosion/Landslide prevention and mitigation
  - **Policy:** Discourage development on slopes of 15 percent or greater or on land subject to natural hazards and require engineering when development on such sites is allowed.
  - **Policy:** Maintain undeveloped steep-slope areas exceeding 30 percent as natural open space to protect soils, vegetation, water, fish and wildlife, and open space resource value.
- **Goal:** Wildfire prevention and mitigation
  - **Policy:** Support hazardous and diseased tree removal and wildfire mitigation including the discouragement of wood shingles; but balance them with other goals such as landscaping, visual resources, buffers, etc.
- **Goal:** Flood loss prevention and mitigation
  - **Policy:** Maintain floodway areas in open and undeveloped land uses where legally permissible, including agriculture, parks, and open space.

Breckenridge Town Code

The Breckenridge Town Code serves as the legal framework for the Town and contains 12 titles and various subsections. Sections of the Town Code related to hazard mitigation are summarized below:

Title V. Public Health and Safety

The Public Health and Safety section of the Town Code includes several ordinances related to wildfire prevention and mitigation:

- Chapter 5: Except where otherwise allowed by this Code, it shall be unlawful for any person to conduct open burning anywhere in the town.
- Chapter 7: No person shall use or explode any fireworks, or supervise the use or explosion of any fireworks, other than permissible fireworks during times when the use or explosion of permissible fireworks is permitted pursuant to section 6-3C-11 of this code, in connection with, or as part of, a fireworks display unless a permit for such display has first been obtained from the town pursuant to this chapter.
- Chapter 11: …all trees infested with mountain pine beetle must be removed from the property by July 15 of the year in which the notice is given, or that an acceptable plan and schedule for removal of the beetle infested trees must be submitted to the director by such date.

Title IX. Land Use and Development

The Breckenridge Development Code includes the following policies and guidelines related to development in hazardous areas:

- Chapter 1: No development shall occur in any area of, or affected by, a geologic hazard unless mitigated to the satisfaction of the Town. Proof of mitigation may require reports as specified by the Town.
- Chapter 1: Erosion control measures shall be installed where required by the Town through the Breckenridge Water Quality and Sediment Transport Control Ordinance.

- Chapter 1: A wildfire plan shall be prepared and implemented for all areas designated with a "severe" wildfire rating and for all vegetated areas designated with a "hazard intensified due to slope" rating on the map of wildfire hazard and for all vegetated areas in excess of 30 percent slope. Such plans shall address wildfire prevention, mitigation, and control and shall further incorporate the recommendations contained within *Wildfire Hazards: Guidelines for Their Prevention in Subdivisions and Developments*, prepared by the Colorado State Forest Service.
- Chapter 1: No development shall increase danger to life or property from flood hazard within the Town. This shall include but not be limited to prohibition of actions which might increase the size of the floodway, reduce flood channel capacity, constrict the size or flow of the flood channel, create a significant backflow condition, increase the potential for debris in the floodway, or increase the volume or velocity of flood waters.
- Chapter 1: For all areas located within the special flood hazard areas as delineated on the Flood Boundary Floodway Map, the Flood Insurance Rate Maps, and the Flood Insurance Study, a plan of onsite flood prevention, control, and hazard mitigation shall be prepared and implemented according to the provisions of the Breckenridge Flood Damage Prevention Ordinance.
- Chapter 1: Improvements to the floodway or any part thereof which will result in an overall reduction of flooding potential or a reduction to the flood hazard area are encouraged.

Title X. Flood Control

This section includes ordinances for storm drainage, flood damage prevention, and water quality and sediment transport control standards:

- **Storm Drainage Ordinance**: Sets certain rules and standards for the control and drainage of storm and surface waters.
- **Flood Damage Prevention Ordinance**: The floodplain ordinance establishes the Town's special flood hazard areas (as identified by the flood insurance study and flood insurance rate map) and prohibits development, construction, or improvement within such floodplains in an effort to prevent flood damage and protect public health, safety, and general welfare.

Town of Breckenridge Emergency Operations Annex, revised 2012

The purpose of the Town of Breckenridge Emergency Operations Annex is to provide general guidelines and principles for planning, managing, and coordinating the overall response and recovery activities of the town departments; Red, White, and Blue Fire Protection District; participating agencies; and volunteer agencies to be used before, during, and after a threatened, imminent, or actual major emergency or disaster. The plan's guidelines are consistent with the accepted standards of the National Incident Management System as well as emergency planning guidelines developed by FEMA as adopted by the Town of Breckenridge.

Master Drainage Plan, 1993

The Master Drainage Plan's purpose was to identify existing deficiencies and provide recommendations for corrections. This document identified and analyzed the drainage basins affecting the Town of Breckenridge. To date, all of those deficiencies have been corrected except for the addition of drainage

structures to Main Street. Improvements to Main Street were completed in 2014. According to the HMPC, the multi-year project included the addition of stormwater infrastructure.

Engineering Standards, 1987

Street, storm drainage, flood damage prevention, water quality and sediment transport control standards (Engineering Standards) were developed in 1987 to address the design and implementation of the Town's drainage systems. Any newly developed area is required to meet these standards and therefore provide a functioning drainage system. These standards deal with water quantity and quality.

Breckenridge Open Space Plan, 2007

The Breckenridge Open Space Plan provides the framework for how the open space sales tax revenues should be used. The plan addresses land acquisition, natural resource protection, land conservation values, stewardship and management of open space, and land protection strategies.

Breckenridge Open Space Advisory Commission

In 1997, the Town Council established the Breckenridge Open Space Advisory Commission (the BOSAC), which advises the Council on the appropriate goals and objectives of the Town's Open Space Program, such as the acquisition, stewardship, and preservation of open space. The BOSAC helps define the types of open space to be protected, the criteria used to select parcels for acquisition, and the priorities for stewardship practices. The BOSAC is also the public forum for discussion on open space issues.

Town of Breckenridge Mountain Pine Beetle Program Guidelines, 2008

The overall goal of the Town of Breckenridge Mountain Pine Beetle Program Guidelines is to contain the spread of the pine beetle infestation that plagues lodgepole pine forests. This program supports efforts to prevent or mitigate wildfires, due to the fact that trees killed by the pine beetle contribute to escalated wildfire risk.

The program is a joint effort between the Town and property owners. Free beetle inspections are provided by Town staff for property owners, and beetle-infested trees that are a declared nuisance are required to be removed. Permits issued by the Town are required for tree removal. Property owners are responsible for cutting down the trees and the Town chips them at curbside and hauls the remaining debris.

Floodplain Regulations and NFIP Participation

Breckenridge joined the National Flood Insurance Program (NFIP) on June 4, 1980. The floodplain management criteria and regulations for the town are contained in the Town Code under Ordinance No. 24 (Series 2018). Under this code, the Town Engineer is designated as the floodplain manager for Breckenridge, overseeing floodplain regulations. The Town of Breckenridge does not participate in the Community Rating System (CRS). There are no repetitive loss or severe repetitive loss properties in Breckenridge as defined by the NFIP.

C.4.2 Administrative/Technical Mitigation Capabilities

Table C-21 identifies the personnel responsible for activities related to mitigation and loss prevention in Breckenridge.

Table C-21 Breckenridge—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	No	
Floodplain Administrator	Yes	
Community Planning	Yes	Community Development, including Open Space and Trails
Planner/Engineer (Land Development)	Yes	
Engineer/Professional (construction)	Yes	
Resiliency Planner	No	No but TOB is participant in the Blue River Watershed Group's Wildfire Ready Action Plan (WRAP) due to be released in late 2026.
Transportation Planner	No	
Full-Time Building Official	Yes	
GIS Specialist and Capability	Yes	
Grant Manager, Writer, or Specialist	Yes	Aubrey Ciol is our Grants Administrator
Warning Systems/Services	Yes	Relies on SC Alert, system updated in 2025
Flood	No	
Wildfire	No	
Tornado	No	
Geological	No	

C.4.3 Fiscal Mitigation Capabilities

Table C-22 identifies financial tools or resources that Breckenridge could potentially use to help fund mitigation activities.

Table C-22 Breckenridge—Fiscal Mitigation Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	Yes		
Utilities Fees	Yes	Yes	Water fees -Dam repair
System Development/ Impact Development Fees	Yes		
General Obligation Bonds to Incur Debt	Yes		
Special Tax Bonds to Incur Debt	Yes		
Withheld Spending in Hazard-Prone Areas	No		
Stormwater Service Fees	No		
Capital Improvement Project Funding	Yes		
Community Development Block Grants	Yes		

In November of 1996, voters in Breckenridge passed a .5 cent sales tax to be used exclusively for open space and trails. The sales tax produced $1.64 million in 2006 and $3.1 million in 2018.

C.4.4 Educational and Outreach

Table C-23 identifies education and outreach resources that Breckenridge could potentially use to help fund mitigation activities.

Table C-23 Breckenridge Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
Firewise	No	
Storm Ready	No	
Severe Weather Awareness Week	No	
School programs	No	
Other	No	
Methods Used to Communicate Hazard Information to the Public		
Local News	Yes	TOB directs info to Summit Daily that may be pertinent to the community.
Social Media	Yes	Social Media used to communicate hazard information, like prescribed burns or haze/smoke coming from other locations. Additionally, social media used to communicate chipping program dates and Summit County Wildfire Educational Field Trips.
Community Newsletters	No	
Utility Bill Inserts	Yes	Utility bill communication could include educational info
Community Events	No	
Other	No	
Organizations that represent or work with underserved or vulnerable communities		
American Red Cross	Yes	
Salvation Army	No	
Veterans Groups	No	
Seniors Groups	No	
Groups for People With Disabilities	No	
Environmental/Conservation Groups	No	
Other	No	
Business Groups, Academia, Other		
Chamber of Commerce	No	
Community Organizations (Lions, Kiwanis, etc.)	No	
Homeowner/Neighborhood Associations	Yes	Work with HOA's on Firewise
Universities or Community Colleges	No	
Agricultural Extension Office	Yes	
Other	No	

C.4.5 Mitigation Outreach and Partnerships

- The Town of Breckenridge uses the semiannual "Breckenridge Bulletin" to provide information to citizens in the Upper Blue Valley. It also uses local media (press releases), Town Council meetings, and pamphlets with information on wildfire, pine beetle, flooding, etc. that are available in town facilities and are free to the public.
- Each spring, the governments of Summit County, Breckenridge, Dillon, Frisco and Silverthorne distribute a packet of information to inform the communities about how to prepare for possible high water in May and/or June resulting from snowmelt.
- The Town participates in a transferable development rights (TDR) program with Summit County that protects Summit County's natural resources by allowing development rights to be voluntarily transferred from rural sending areas to urban receiving areas.

C.4.6 Past Mitigation Efforts

- The Town of Breckenridge constructed a flood bank project to keep the Blue River within its flood banks in the event of a significant flood.
- In the 1990s, the Town rerouted Sawmill Creek to remove structures from the floodplain.
- In 2005 and 2006, the Town's staff inspected all Town-owned properties, including public rights of way, for beetle-infested or dead trees. The Town then had trees removed that were beetle infested. The Town also sprayed trees on visually sensitive Town-owned land as a preventive measure against pine beetle infestation.
- Breckenridge has received a Section 206 grant from the U.S. Army Corps of Engineers for a stream restoration project along approximately one mile of the Blue River north of Town.
- The Town of Breckenridge has created a Renewable Energy Mitigation Program (REMP) which means that residential and commercial building permits that propose fossil fuels consuming outdoor amenities such as pools, spas, firepits, and snowmelt systems are required to mitigate the energy intensity with clean energy systems.

C.4.7 Opportunities for Enhancement

Based on the capability assessment, Breckenridge has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the Town to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform Town staff and Town Council on how best to integrate hazard information and mitigation projects into the Town policies and ongoing duties of the Town. Continuing to train Town staff on mitigation and the hazards that pose a risk to the Town will lead to more informed staff members who can better communicate this information to the public. Another capability enhancement would be to consider joining the CRS, which would require enhancements to the Town's floodplain management program. This could potentially make flood insurance more affordable.

C.5 Mitigation Strategy

C.5.1 Mitigation Goals and Objectives

Breckenridge has adopted the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

C.5.2 Progress on Previous Mitigation Actions

The Town of Breckenridge Planning Team reviewed their mitigation actions from the 2020 plan, and determined that two of their seven mitigation actions have been completed, as shown in Table C-24. The remaining actions were carried over into the 2025 Plan, along with three new actions.

Table C-24 Breckenridge Completed Mitigation Actions

Actions Description	Status/Comments
Goose Pasture Tarn Dam Rehabilitation	Completed
Coyne Valley Culvert Replacement	Completed

Continued Compliance with the National Flood Insurance Program

Breckenridge will continue participation in and compliance with the National Flood Insurance Program. Specific activities that the Town will undertake to continue compliance include the following; some are specified under Town Code Ordinances such as No. 24, chapter 3 (published in 2018):

- Working with FEMA and the Colorado Water Conservation Board in the review and adoption of new digital flood insurance rate maps (DFIRMs) which was done with new effective mapping that became available in 2018.
- Reviewing the flood damage prevention ordinance and identifying opportunities to strengthen requirements and enforcement when adopting new DFIRMs
- Consider joining the Community Rating System after adopting the new DFIRMs and updating the floodplain ordinance
- Continuing strong enforcement of the floodplain ordinance and working with developers and property owners to understand the program
- Restoring a section of the Blue River damaged by past mining activities to improve overall ecological functions of the river and floodplain

C.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan, were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

C.5.4 Mitigation Actions

The planning team for Breckenridge identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

The 2025 update has five annually implemented or ongoing actions for the Town of Breckenridge as shown in Table C-25 below. During the planning process the Lead Planning Team identified that of their 11 mitigation actions from 2020, 6 were completed and 5 of the actions are ongoing, demonstrating the building of the community's resilience.

Table C-25 Breckenridge Mitigation Action Plan

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Breck 1	Inspect metal culverts to determine risk of failure	Flood, PR	1,2	**Town Public Works**	Low. FEMA HMA Grants, Town General Fund.	High	2026	Ongoing
Breck 2	Install erosion traps	Erosion/ Deposition, Flood, PR	1,2	**Town Public Works**	Moderate. FMA, Town General Funds.	High	2027	Not started
Breck 3	Promote defensible space and removal of beetle-infested trees	Wildfire, PR	1,2	**Town Community Development**	Low. SCWC, USFS, USDA	High	2026	Ongoing
Breck 4	Inventory and map locations of hazardous materials	Hazardous Materials, ES	1	**Town Police**, RWB Fire	Low. Town General Fund, EMPG	Low	2027	In Progress
Breck 5	Watershed protection plan	Hazardous Materials, ES	1	**Town Public Works**	Moderate. FMA, USDA, EMPG, Town General Fund.	High	2027	Not started
Breck 6	Avalanche/ Landslide remediation. Potential locations - West side of TOB and Peaks 6-9	Avalanche; Landslide	1, 2. 3	**Town Police**, Vail Resorts, USFS, County Sheriff	Unknown at this time	Medium	Winter 2026	New in 2025
Breck 7	Improve education on risk and preparedness and mitigation measures	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1	**Town Police,** Summit County OEM	Staff time	Low	Ongoing	New in 2025
Breck 8	Multi-hazard awareness and warning system	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1	**Town Police,** Summit County OEM	$15,000.00 per unit: total $30,000,00; Dept. Budget	Medium	Mid Term	New in 2025

C.6 Implementation and Maintenance

Moving forward, the Town will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

C.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the Town to help inform updates and the development of local plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

The HMPC did not identify the incorporation of the 2020 hazard mitigation plan into Town plans and planning mechanisms although moving forward the Town will consider the hazard information in this 2025 plan when updated the Town's planning mechanisms.

Process Moving Forward

Moving forward, the Engineering Division may utilize the hazard information when implementing the Town's Capital Improvement Plan and the Planning and Zoning Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The Town will also incorporate this HMP into future updates to the Town of Breckenridge Comprehensive Plan.

As noted in Chapter 5 Plan Maintenance, the HMPC representatives from Breckenridge will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

C.6.2 Monitoring, Evaluation and Updating the Plan

The Town will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. The Town will continue to involve the public in mitigation, as described in Section 5.4 of the Base Plan. The Town Manager will be responsible for representing the Town in the County HMPC, and for coordination with Town staff and departments during plan updates. The Town realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

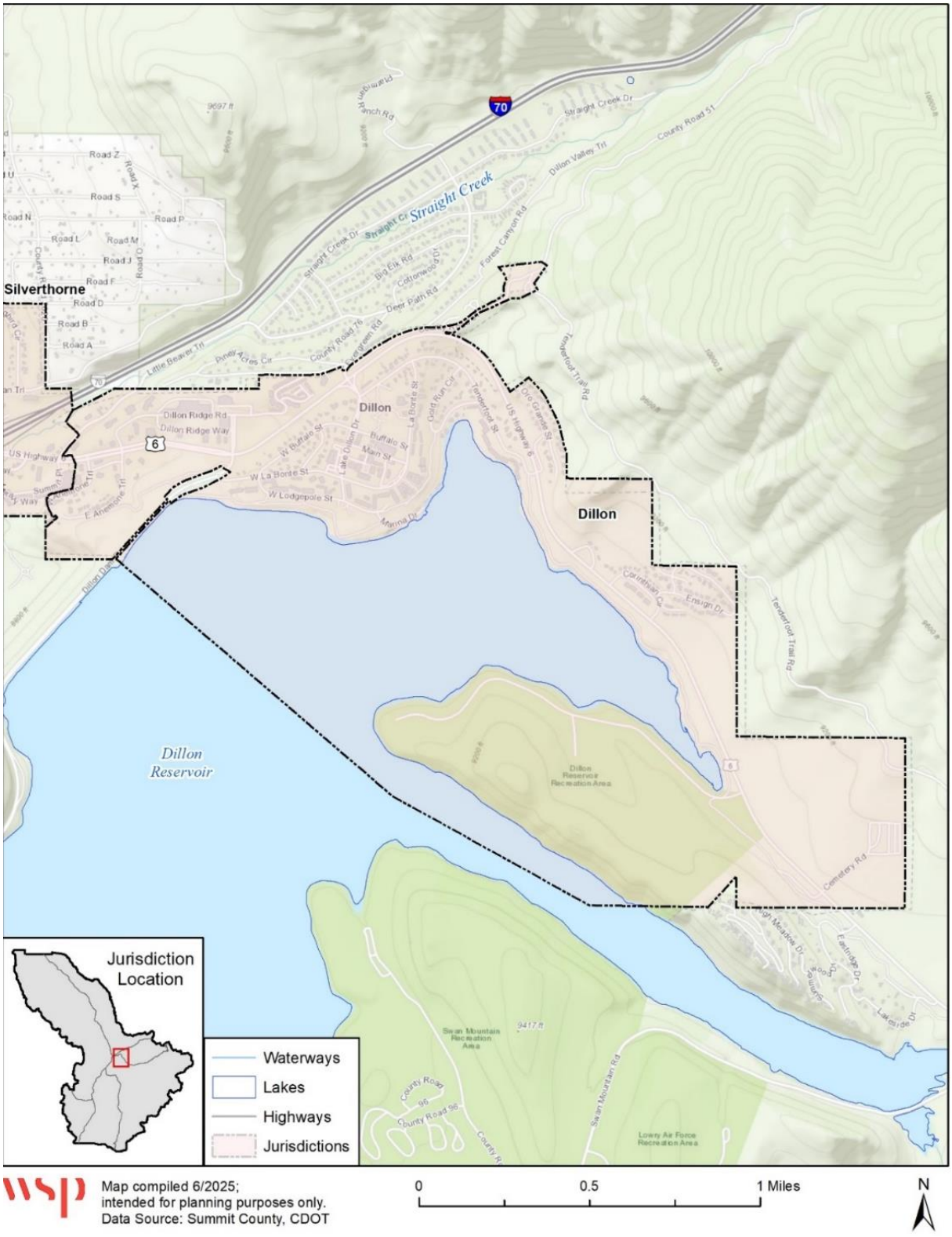
C.6.3 Continued Public Involvement

The Town of Breckenridge will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The Town will also:

- Continue to inform town property owners of any code changes that affect hazard vulnerability.
- Provide regular newsletter broadcast of Town Council and Town government activities.
- Publish all emergency preparedness and mitigation activities for community review and awareness.

Annex D: Town of Dillion

Figure D-1 Town of Dillion



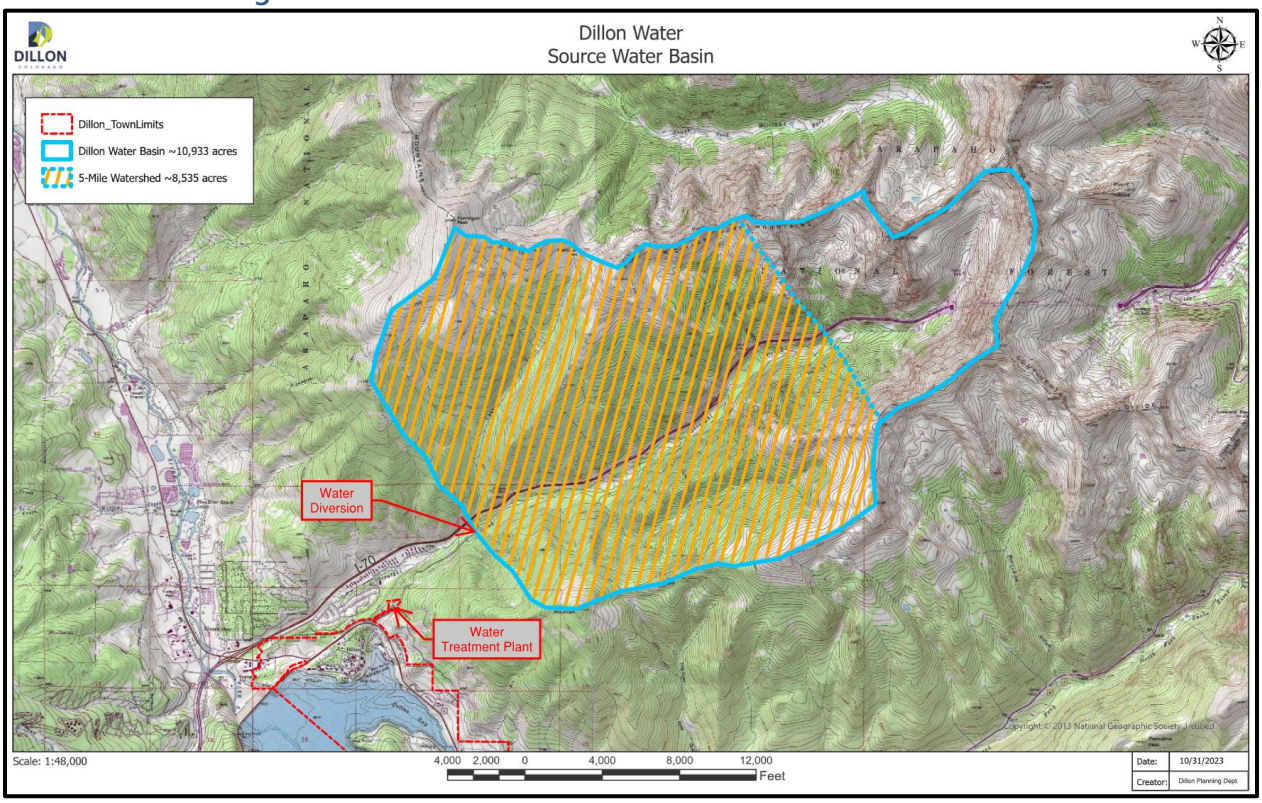
D.1 Community Profile

Figure D-1 above shows a map of the Town of Dillon and its location within Summit County.

D.1.1 Geography

The Town of Dillon is located in central Summit County on the north shore of Dillon Reservoir directly south of Interstate 70 (I-70). Straight Creek runs in a southwesterly direction along the northern boundary of the Town. Dillon's total area is 2.3 square miles and the nearest city is Silverthorne which is immediately adjacent on Dillon's northwestern boundary, with much of Silverthorne located on the northern side of I-70. The elevation is 9,156 feet and the dry, high alpine climate is typified by cold winters and temperate summers. Dillon's municipal source water is diverted from the Straight Creek and Laskey Gulch watersheds to the northeast of the municipal boundary of the Town as shown in Figure D-2.

Figure D-2 Town of Dillon Source Water Basin & Watershed



D.2 Population

The estimated 2023 population of the Town of Dillon was 933, a 1.27% decrease since 2018. Select U.S. Census American Community Survey (ACS) demographic and social characteristics for Dillon are shown in the following tables and figures.

Table D-1 Dillon Demographic and Social Characteristics 2018-2023

Dillon	2018	2023	% Change
Population	945	933	-1.27%
Median Age	39.4	40	1.52%
Total Housing Units	1,426	1,423	-.21%
Housing Occupancy Rate	30%	35%	16.7%
% of Housing Units with no Vehicles Available	0.7%	0%	-100%
Median Home Value	$387,500	$983,600	153.8%
Unemployment	4%	1.8%	-55%
Mean Travel Time to Work (minutes)	14.8	17.9	20.9%
Median Household Income	$104,375	$190,230	82.3%
Per Capita Income	$38,796	$65,758	69.5%
% Without Health Insurance	8.2%	2.4%	-70.73%
% of Individuals Below Poverty Level	12.9%	5.5%	-57.4%
# of Households	1,426	1,222	-14.3%
Average Household Size	2.76	2.19	-20.7%
% of Population Over 25 with High School Diploma	98.6%	97.7%	-.91%
% of Population Over 25 with Bachelor's Degree or Higher	46.8%	65.7%	40.4%
% with Disability	12.6%	5.3%	-57.9%
% Speak English less than "Very Well"	14.8%	3.6%	-75.7%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table D-2 Demographic and Social Characteristics Compared to the County and State

Demographic & Social Characteristics (as of 2023)	Town of Dillon	Summit County	Colorado
Median Age	40	39.2	37.9
Housing Occupancy Rate	35%	39%	92.04%
% of Housing Units with no Vehicles Available	0%	2.7%	5.4%
Median Home Value	$983,600	$850,700	$550,300
Unemployment	1.8%	2.5%	5%
Mean Travel Time to Work (minutes)	17.9	21.2	25.5
Median Household Income	$190,230	$106,255	$563,000
Per Capita Income	$65,758	$58,219	$51,758
% Without Health Insurance	2.4%	10.2%	6.7%
% of Individuals Below Poverty Level	5.5%	7.4%	9.3%
Average Household Size	2.19	2.35	2.37
% of Population Over 25 with High School Diploma	97.7%	94.9%	93.3%

Demographic & Social Characteristics (as of 2023)	Town of Dillon	Summit County	Colorado
% of Population Over 25 with bachelor's degree or Higher	65.7%	52.5%	46.3%
% with Disability	5.3%	6.4%	11.7%
% Speak English less than "Very Well"	3.6%	5.5%	16%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

Table D-3 Demographics by Race and Sex

Dillon	Population	%
Total Population	933	
Male	510	54.7%
Female	423	45.3%
White, not Hispanic	735	94.4%
Hispanic or Latino	129	13.8%
Black	36	3.9%
Asian	16	1.7%
American Indian and Alaska Native	0	0%
Native Hawaiian and Other Pacific Islander	0	0%
Some other race	0	0%
Two or more races	146	15.6%

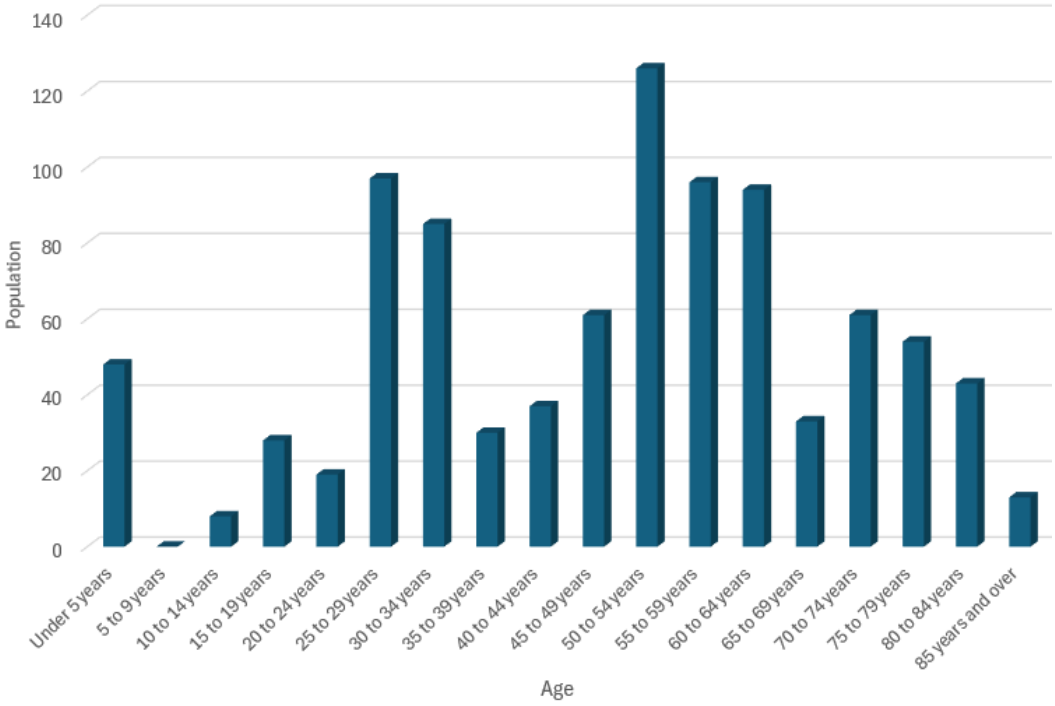
Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

Table D-4 Types and Total Amounts of Housing Units in Dillon

Type of housing units	Total	Percentage
Total housing units	1,222	
1-unit detached	179	14.6%
1-unit attached	271	22.2%
2 units	12	1%
3 or 4 units	39	3.2%
5 to 9 units	34	2.8%
10 to 19 units	150	12.3%
20 or more units	528	43.2%
Mobile home	0	0%
Boat, RV, van, etc.	9	0.7%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2023

Figure D-3 Age Distribution in Dillon



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

D.2.1 History

The Town of Dillon was first incorporated in 1883. Originally, three rivers came together where a trading post and clusters of cabins existed. This was the scene in the late 1800s until Denver needed water storage in the high country. In 1963 a water storage project was completed for the Denver metropolitan area which created Dillon Reservoir. The Town had to relocate to the northeastern shore of the reservoir while the reservoir was completed. The creation of the reservoir, the completion of the Eisenhower Tunnel in the 1960s, and the incorporation of the neighboring Town of Silverthorne all helped to establish Dillon's modern historical era.

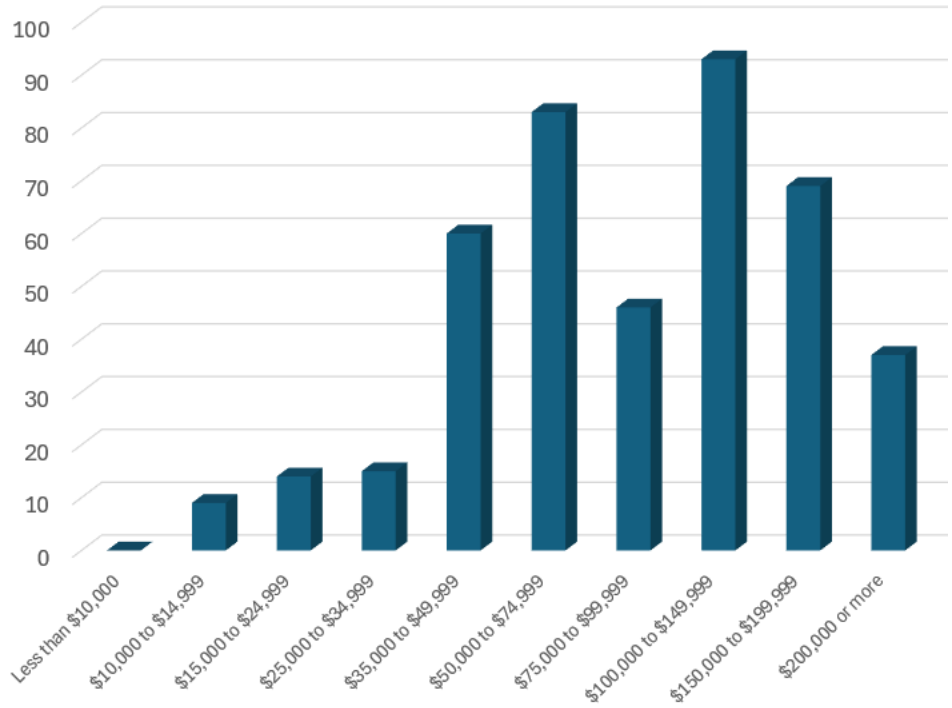
Although there are not historical structures remaining in Dillon from its prior location where now there is Dillon Reservoir, some buildings and artifacts were moved to the New Town of Dillon. The Dillon School House Museum has received historical significance recognition and houses numerous relocated historical structures, artifacts, and documents. It is a historical resource carrying the history of Dillon forward for generations to come. Although relocated buildings set upon new foundations do not retain their true historic context and historical structure protections, they remain vitally important historical assets.

D.2.2 Economy

According to 2023 Census Bureau estimates, the industries that employed the highest percentages of Dillon's labor force were professional, scientific, and management, and administrative and waste management services (20.4%); public administration (10.6%), arts, entertainment, recreation, accommodation, and food services (10.5%); finance, insurance, real estate, and rental and leasing (12.4%); and educational, health, and social services (11.3%).

As shown in Table D-2, per capita income in Dillon was $65,758 in 2023, which is roughly 11% above average for Summit County and 21% above average for the State of Colorado. A breakdown of Dillon's income distribution is shown in Figure D-4.

Figure D-4 Income Distribution in Dillon



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

D.3 Hazard Identification and Profiles

Dillon's planning team identified the hazards that affect the community and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the Town (see Table D-5). In the context of the countywide planning area, there are no hazards that are unique to Dillon.

Table D-5 Dillon Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Unlikely	Negligible	Low
Dam Failure	Medium	Unlikely	Catastrophic	Medium
Drought	Large	Likely	Critical	Medium
Earthquake	Large	Unlikely	Limited	Low
Erosion/Deposition	Medium	Likely	Critical	Medium
Flood	Isolated	Unlikely	Limited	Low
Hazardous Materials Release (Transportation)	Isolated	Occasional	Critical	High
Landslide, Mudflow/Debris Flow, Rockfall	Isolated	Unlikely	Critical	Medium
Lightning	Large	Likely	Critical	Medium
Pest Infestation (Forest and Aquatic)	Small	Highly Likely	Limited	Medium
Severe Winter Weather	Large	Likely	Critical	High
Wildfire	Small	Occasional	Critical	High
Wildlife-Vehicle Collisions	Small	Likely	Limited	Medium
Windstorm	Large	Likely	Limited	Medium

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

D.4 Vulnerability Assessment

The intent of this section is to assess Dillon's vulnerability separate from that of the planning area (i.e. Summit County) as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk to hazards ranked of medium or high significance based on the specific community in question (i.e. Dillon). For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

D.4.1 Community Asset Inventory

Table D-6 shows the total number of improved parcels, properties, and their improvement and content values for the Town of Dillon. Note that only those parcels with improvement values greater than $0, or those which were classified as "exempt," were accounted here and in vulnerability assessments to follow, so that those non-developed or non-improved parcels were left out for the purposes of conducting the vulnerability assessments in this annex. Counts and values are based on the latest County Assessor's data (as of June 2025), which was provided in GIS format. Contents exposure values were estimated as a percent of the improvement value here and under the hazard vulnerability assessment, specifically: 50% of the improvement value for Residential structures, 100% for Commercial structures, and 0% for Exempt parcels. These percentage calculations are based on standard FEMA Hazus methodologies. Finally, Total Values were aggregated by adding the improvement and content values for each parcel type category.

Table D-6 Dillon Improved Parcel and Property Exposure

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value
Commercial	132	$148,536,300	$148,536,300	$297,072,600
Exempt	65	$0	$0	$0
Multi-Family Residential	53	$90,110,181	$45,055,091	$135,165,272
Residential	1,239	$1,073,711,285	$536,855,643	$1,610,566,928
Total	**1,489**	**$1,312,357,766**	**$730,447,033**	**$2,042,804,799**

Source: Summit County Assessors Data, November 2025.

**Property totals were obtained by counting the number of separate property records that were part of the same parcels. As such, the improved values and subsequent totals stem from the total individual property records, not stand-alone parcel totals.*

Table D-7 lists summary information about the 13 critical facilities and other community assets identified by Dillon's HMPC as important to protect or provide critical services in the event of a disaster. Table D-7 details more information on the critical facilities in question found in the town and considered in the GIS analysis within each hazard's vulnerability assessment for planning purposes, to estimate whether it might be at risk of the various hazards assessed. For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the main plan HIRA document.

Table D-7 Dillon Critical Facilities

FEMA Lifeline	Facility Type	Count
Food/Hydration/Shelter	Shelter	1
Hazardous Material	Tier II	2
Health and Medical	Hospital & Orthopedic Surgery Center	1
	Urgent Care	2
Safety and Security	Fire Station (Summit Fire & EMS)	1
	Government Building	2
	Police Station*	1
	School (K-12 & CMC)	2
	State Licensed Daycare	2
Water Systems	Water Treatment Facility	1
	Roberts Tunnel Diversion (Denver Water)	1
Grand Total		**16**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis
**Shared Asset with Keystone*

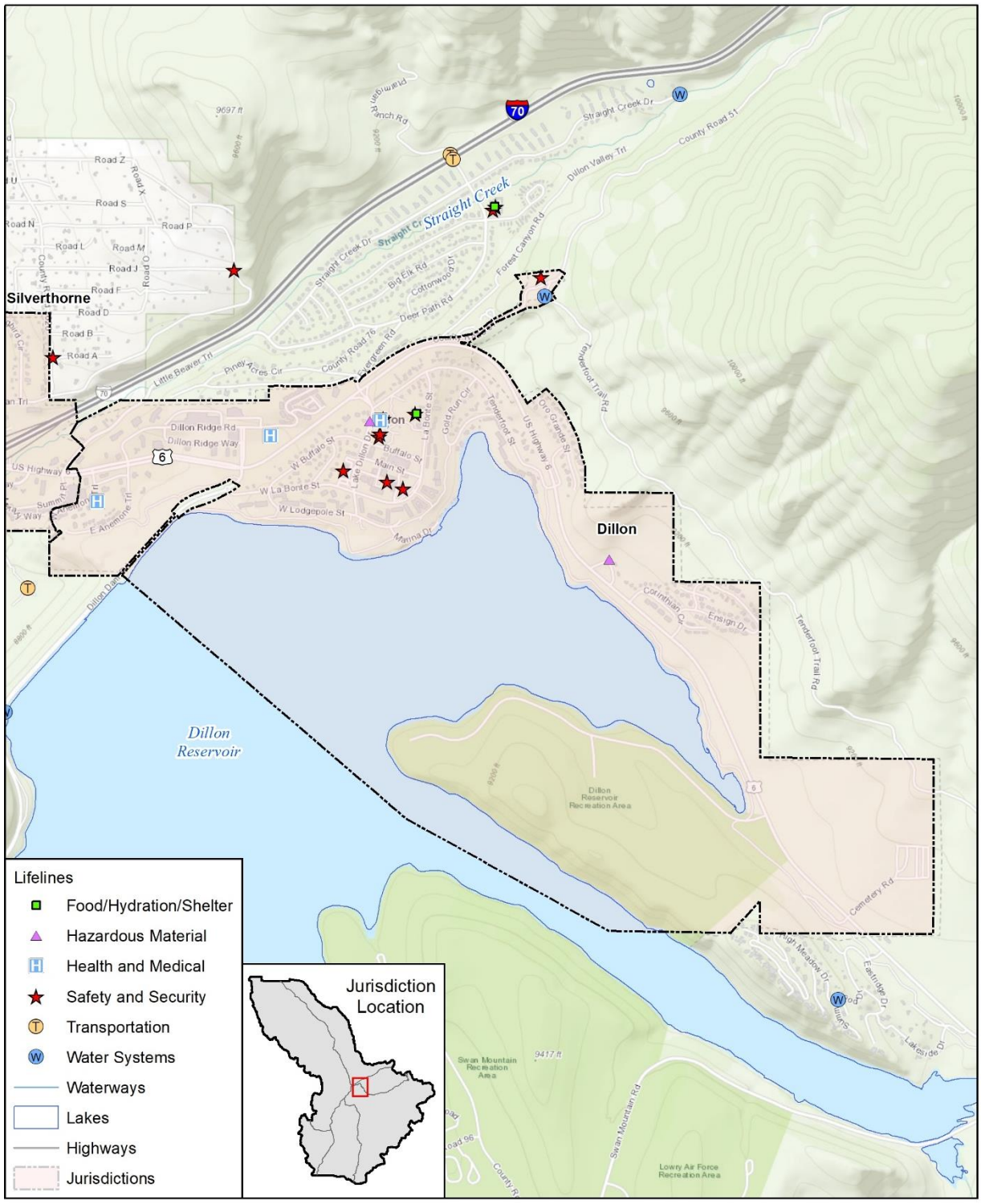
The following facilities were noted by the HMPC in addition to the tables mentioned in Table D-7. Other critical facilities in the Town of Dillon include:

Other Critical Facilities and Assets

- MGD Water Treatment Plant: $30 Million – 5/1.5 millions of gallons per day
  - 900 GPM Potable Water Production (Current Capacity) – 1200 GPM Long-range
  - Micro Filter and Chemical Treatment Facility

- Potable Water and Fire Suppression Distribution System:
    - 150 Fire Hydrants: ~ $20,000 each = $3 Million
    - 280 Distribution System Valves: ~ $7,000 each = $2 Million
    - 65,885 LF+/- Ductile Iron Pipe (6", 8". 10", & 12") Water Main Distribution Network: ~$300/LF = $19.8 Million
    - Specialty Water Support Systems (PRVs, Vaults, Check Valves etc.): $1.5 Million
    - TOTAL: $26.3 Million
- Gold Run Sewage Lift Station: $2 Million
- Elevated Water Storage Tank – 1.5 million gallons: $2 Million
- Buried Water Storage Tank – 500,000 gallons: $1.5 Million
- Dillon Valley Emergency Water Interconnect: $ 600,000
- Silverthorne Emergency Water Interconnect: $1.5 Million
- Straight Creek Water Diversion: $2 Million
    - Dillon (& Dillon Valley) Source Water Basin – 17.1 mi^2 (10,933 acres): USFS & CDOT
- Old Dillon Reservoir: $5.25 Million
- Public Works Maintenance Building: $5 Million
    - Heavy Equipment Yard
    - Sand Storage (Ice, Flood)
    - Traffic Control Devices
- Dillon – Keystone Police Station: $15 Million
- Aquatic Nuisance Species (ANS) Treatment Station (Dillon Marina): $200,000
- Roberts Tunnel Raw Water Diversion (Denver Water - DW): Asset Value is Proprietary (DW)
- Dillon Dam Denver Water Board Office (17864 Us Hwy 6): Asset Value is Proprietary (DW)
- Energy Facilities:
    - -City Market Gas Station (1)
    - -Dillon Marina Fuel Station (High Octane) (1)
    - -DCFC EV Charging Plaza (1) 700 E. Anemone Trail (Summer 2026)
    - -Level 2 EV Charging Facilities (7+/-) Various Locations (Fall 2026)
    - -Electrical & Gas Infrastructure (Xcel Energy) Overhead, at Grade & Buried
- Back-up Energy Generators:
    - -Water Plant
    - -Town Hall
    - -Fire Station
    - -Gold Run Lift Station
- Communications: Fiber, Cellular, Cable, Telephone

Figure D-5 Critical Facilities and Infrastructure in the Town of Dillon



D.4.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk in more detail where the risk varies from the rest of the planning area. Vulnerability details for the following bulleted hazards are often difficult to compile or estimate for specific jurisdictions and are already described in the Section 3.3.3 of the Base Plan.

- Drought
- Earthquake
- Flood
- Lightning
- Pest Infestation (Forest and Aquatic)
- Severe Winter Weather
- Wildlife-Vehicle Collisions
- Windstorm

Dam Failure, Landslides, Erosion/Deposition, Hazardous Materials Release (Transportation), and Wildfire, hazards will be profiled in the following vulnerability assessment sections, due to vulnerability and applicable context. The Town of Dillon does not have any Special Flood Hazard Areas identified in the FEMA National Flood Hazard Layer. Therefore, the Town has no property or critical facilities at risk of flooding identified through FEMA flood insurance program mapping. The HMPC only knew of one area where flooding sometimes occurs, which is Little Beaver Creek near I-70 and the Town of Silverthorne. Flooding sometimes occurs when a beaver dam is built up and backs up water. In this case, the Public Works department removes the dam. A property along the shores of Dillon Reservoir experiences periodic underground parking structure flooding during high water events in the reservoir. The Town of Dillon has considered participating in FEMA's flood insurance program; however, the property owners of the Little Beaver Trail and Dillon Reservoir adjacent properties have been reluctant to participate.

Avalanche

Overall, Summit County received a high ranking for avalanche as a hazard, with most of the areas at risk found in unincorporated parts of the County (see Section 3.2.1 in the base plan). However, the Town of Dillon has ranked avalanche as an overall low hazard. There is still some risk to the town if an avalanche were to occur in surrounding areas, as the closure of transportation corridors such as Interstate 70 (I-70) could disrupt access in and out of the town. Lengthy highway closures can impact the available food supply due to delivery disruptions, as well as isolating the community from I-70 travelers, tourists and visitors which the community depends on for economic vitality.

Dam Failure

General Property

While there is no specific data available to indicate any likelihood of failure, based on best available dam inundation data there might be structures potentially at risk of dam failure flooding. The dam failure inundation maps contain sensitive information and are not available for display in this public planning document. Based on a GIS analysis performed with the County parcel layer and the available dam inundation mapping (for planning purposes only), the following potential damages would be expected in the Town of Dillon. Note that additional details on the GIS analysis methodology, data preparation process, and other helpful information for understanding how vulnerability assessment results were obtained can be found in Section 3.3. Vulnerability Assessment within the main plan HIRA document.

The biggest dam inundation zone in Dillon is from the Dillon Dam. The Dillon Dam is a High hazard earthen structure located just southwest of the Town of Dillon, on the north-northwest corner of the Dillon Reservoir. It has a maximum storage capacity of 305,000 acre-feet as of 2025 records. The closest town downstream of the Dillon dam is Silverthorne, however failure of a dam at that capacity creates a much larger dam inundation zone that reaches multiple parts of Dillon. As shown in Table D-8 below, 110 properties are in dam inundation zones, with a total value of over $154M.

The HMPC notes that it is estimated that a dam failure above Dillon in Keystone (Reynolds) would have a less than one inch impact in the elevation of Dillon Reservoir. Failure of the Dillon Dam would be catastrophic locally (with lower reaches of Dillon directly impacted) and throughout the Blue River and Colorado River watersheds.

Table D-8 Estimated Dam Inundation Risk to Properties in Dillon

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Commercial	22	$15,449,600	$15,449,600	$30,899,200	0
Exempt	7	$0	$0	$0	0
Multi-Family Residential	1	$4,523,900	$2,261,950	$6,785,850	62
Residential	80	$78,193,600	$39,096,800	$117,290,400	164
Total	**110**	**$98,167,100**	**$56,808,350**	**$154,975,450**	**226**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

Table D-9 below shows that if the Reynolds dam were to fail, the nearest downstream city is Dillon. This is a private irrigation structure located in Keystone, Colorado. Were Reynolds dam to fail, floodwaters would enter the Snake River which is tributary to Dillon Reservoir. Although such an event would be a significant occurrence, the volume of water Reynolds dam detains would contribute less than an inch of increase in the water surface elevation of a full Dillon Reservoir. As such, direct flood water impacts on the Town of Dillon would be limited.

Table D-9 Dams Upstream of Dillon

Dam Name	River	Downstream City	Dam Type	Max Storage (Acre-Feet)	EAP	Dam Info Source	Hazard Class	Primary Use
Reynolds	Soda Creek	Dillon	Earth	244	Y	County	Significant	Irrigation, Recreation

Source: Summit County; National Inventory of Dams 2025; Water Commissioner Division 5 – District 36

People

Based on the GIS analysis summarized in the Table D-8 above, it is expected that around 226 people in Dillon might be at risk of dam inundation hazards. These totals were estimated by multiplying the average number of persons per household in Summit County (which equals 3.1) times the number of residential properties where dam inundation extents were available.

Critical Facilities and Infrastructure

Based on the critical facility inventory considered in the updating of this plan and intersected with the dam inundation extents available for the Town of Dillon, 1 critical facility, a health and medical facility is at risk to overall dam inundation.

Economy

A dam inundation event that affected the major roads which give access to the town (e.g. Interstate 70, U.S. Highway 6 and U.S. Highway 9) could significantly affect the local economy, by limiting or completely impeding access to shops, restaurants, hotels, and other major industries which keep the local economy thriving. These impacts could be realized on both the supply and demand sides of the economy which could lead to pervasive impacts across much of the community.

Historical, Cultural, and Natural Resources

Dam or reservoir failure effects on the environment would be similar to those caused by flooding from other causes. For the most part the environment is resilient and would be able to rebound, though this process could take years. However, historic and cultural resources could be affected just as housing or critical infrastructures would.

Future Development

Flooding due to a Dillon Dam failure event is a low probability event and the area at risk is already urbanized, so future development is not anticipated to change vulnerability to the hazard.

Erosion/Deposition

The HMPC gave erosion and deposition a "Low" ranking, in contrast with the County who gave the hazard a "medium" ranking. Throughout the County there are areas that are at risk of erosion, but few if any are found in the Town of Dillon. That said, the potential impacts of wildfire and/or landslides in Dillon's watershed or on Tenderfoot Mountain above outlying Dillon neighborhoods could lead to high risk of erosion and deposition. In the broader context of evaluating potential hazard risk of erosion and deposition on the Town of Dillon, aligning with the general ranking of the County as "medium" seems appropriate.

Hazardous Materials Release

The only Tier II hazardous materials facility within Dillon town limits is the CenturyLink Communications Center, as shown in Table 3-11 in the base plan. Both I-70 and U.S. 6 are significant hazardous materials transportation routes. Hazardous materials vulnerability is considered high due to the traffic on I-70 and the diversions on U.S. 6 through town due to the hazmat restrictions at the Eisenhower/Johnson tunnels.

Flood

According to FEMA's National Flood Hazard Layer (NFHL) there are no properties in Dillon within flood zones, as well as no population at risk. However, there are potential flood zones in Dillon along Straight Creek within the municipal limits of the Town and some properties on the shores of Dillon Reservoir which are susceptible to flooding during Dillon Reservoir active spillway conditions during significant spring runoff events. Although the County gave flood a "high" overall significance rating, the HMPC gave the town of Dillon a "low" flood rating.

Floodplain Regulations and NFIP Participation

There are no Special Flood Hazard Areas identified in the most current (June 2025) Flood Insurance Study and associated National Flood Hazard Layer. Thus, the Town is not a participant in the National Flood Insurance Program and is not required to. There are no repetitive loss properties. Although the Town does not have a floodplain ordinance in place, it addresses development in flood prone areas in its subdivision regulations (noted previously). Proposed subdivisions impacting a flood-prone area must be designed to minimize flood damage within the flood-prone area; must locate and construct all public utilities and facilities, such as sewer, gas, electric and water systems, to minimize and eliminate flood damage; and must provide adequate drainage to reduce exposure to flood hazards.

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According to FEMA's National Flood Hazard Layer (NFHL) there are no properties in Dillon within flood zones, as well as no population at risk. However, there are potential flood zones in Dillon along Straight Creek within the municipal limits of the Town and some properties on the shores of Dillon Reservoir which are susceptible to flooding during Dillon Reservoir active spillway conditions during significant spring runoff events. Although the County gave flood a "high" overall significance rating, the HMPC gave the town of Dillon a "low" flood rating.

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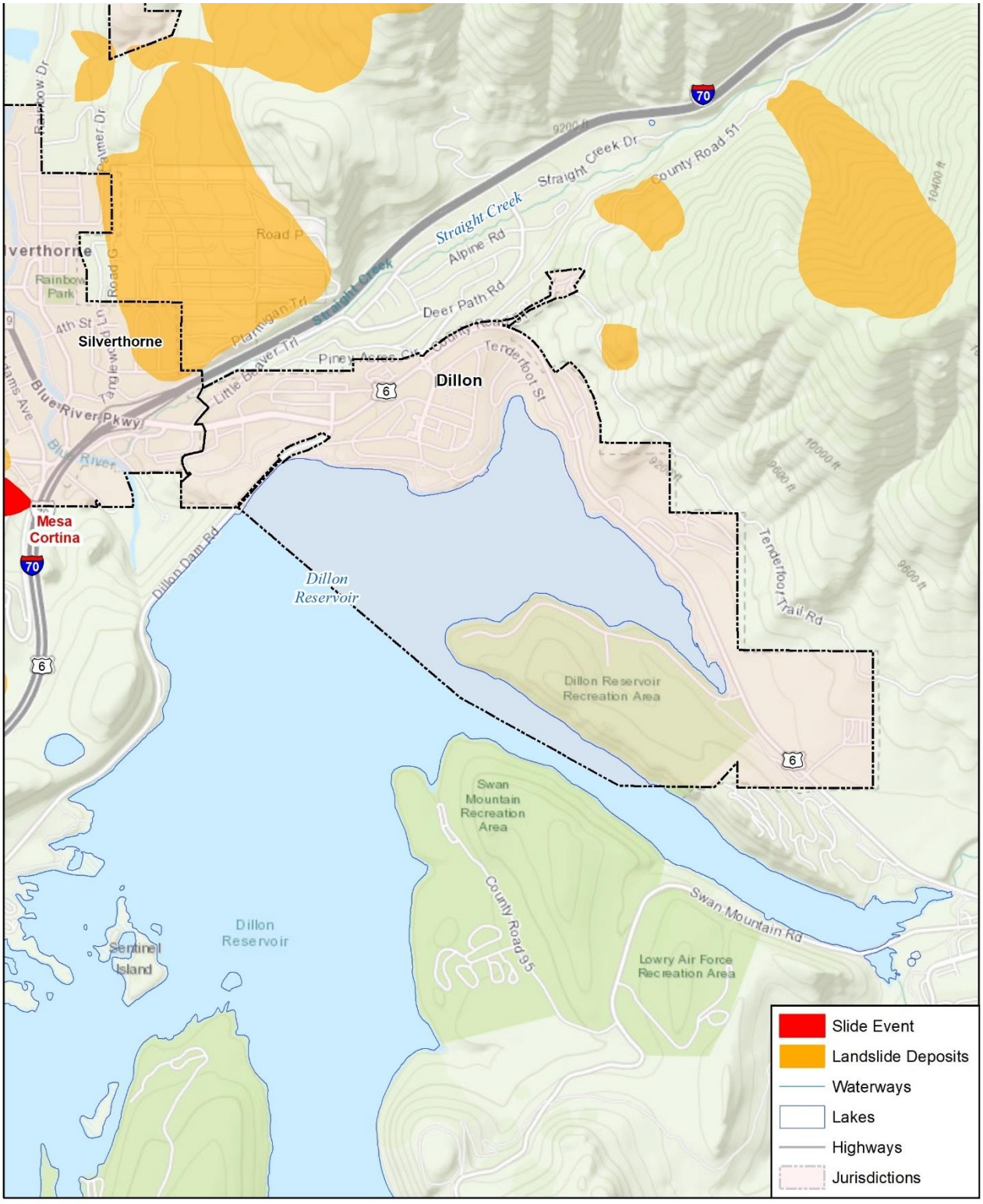
Landslides

General Property

The data for Figure D-6 below, obtained from the Colorado Geological Survey, shows significant landslide hazard areas in Dillon. As the figure shows, areas northwest and northeast of the town have high landslide potential. Although there aren't any recent landslide deposits within jurisdiction boundaries, there are landslide chutes and pathways along I-70 which could cut off transportation in and out of the town and which have potential to compromise municipal source water quality. For example, on July 6, 2011, a significant mudslide occurred in the Straight Creek drainage between the 212 and 212.5 mile-markers along I-70. The slide started above tree line and traveled down to a benched ridge above Straight Creek. Mudflows continued over the bench, through the forest, and reached and partially blocked Straight Creek. Sediment muddied the Creek, the primary water supply for Dillon and Dillon Valley.

Noteworthy are two small landslide locations in the municipal limits of the Town: 1.) A naturally occurring shallow hill slope soil failure is active in the hillside above the Dillon Marina. Here the hillside is in slow failure and colluvial creep. This situation has not been mitigated. 2.) A man-made hillside failure due to a water main rupture occurred above the Little Beaver Trail roadway causing a hillside failure and landslide onto the roadway, obstructing both lanes of traffic. The slope was structurally reconstructed with a sheet pile retaining system embedded into bedrock and then faced with a stacked concrete block retaining wall system.

Figure D-6 Landslide Deposits in Dillon, Colorado



People

Landslides threaten lives, especially those participating in recreational activities such as hiking. Landslides could also greatly disrupt transportation routes for people living or driving through Dillon. If a landslide were to occur along I-70, road closures and rerouting could disrupt businesses and work commutes, as well as impact people in nearby communities who work and need to travel into Dillon.

Critical Facilities and Infrastructure

According to data provided from the County as well as the National Bridge Inventory, and Colorado Geological Survey (CGS), the Town of Dillon has one critical facility, the Municipal Water Source, that is highly susceptible to landslides. A significant landslide in Straight Creek will compromise water quality and may limit or preclude the diversion of water for municipal waterworks treatment. Heavy sediment loads will also compromise the efficiency of water treatment, especially given the micro-filtration utilized at Dillon's Water Treatment Plant. Limitations on domestic water production also affect firefighting water supply.

Economy

Tourism and retail are major components of Summit County's economy, and Dillon's as well. A landslide restricting access to the town followed by a cleanup period with closures to roads in and out of the town could reduce customers and tourists traveling to Dillon for one of its many recreational activities, as well as the supply of goods such as food and fuel. The inability to divert source water for municipal water treatment and supply will cost the Town significantly to purchase water from Silverthorne, if they are able to provide it. Absent potable water, Dillon's economy would grind to a halt.

Historical, Cultural, and Natural Resources

A landslide could also greatly impact the water quality of both recreation and drinking water supplies in Dillon. For example, on July 6th, 2011 a significant mudslide occurred in the Straight Creek drainage between the 212 and 212.5 mile-markers along I-70. The slide started above the tree line and traveled down to a benched ridge above Straight Creek. Mudflows continued over the bench, through the forest, and reached and partially blocked Straight Creek. Sediment muddied the Creek, the primary water supply for Dillon and Dillon Valley, which limited intake capabilities for a period of time.

Future Development

Future development should be avoided on landslide deposits. Developers should try to avoid slopes greater than 15% to limit soil loss, erosion, excessive stormwater runoff, and the degradation of surface water. The Town of Dillon as well as surrounding jurisdictions and the County have policies in their master plans and/or development codes requiring mitigation through engineering for construction on slopes of a certain steepness and prohibiting development on slopes over 30%. In fact, the Dillon Municipal Code states, "In general no development should take place on slopes in excess of twenty percent (20%)" (DMC § 17-3-10). In some circumstances, the Town may choose to develop, or permit the development of, sites with steeper slopes due to limitations in available land and other site constraints. In such circumstances, substantial engineering and sediment controls are required to ensure slope stability.

Wildfire

General Property

Wildfire threat was estimated from the County's Wildfire Protection Assessment Rating layer, which breaks up areas into Low, Medium, High, and Extreme ratings. This wildfire layer was used in GIS to determine the number, type, and improvement values for properties found to overlap with them, and hence estimate potential property risk to wildfire threat in Dillon. For the purposes of this analysis, the wildfire zone that intersected a parcel centroid was assigned as the threat zone for the entire parcel. Improvement values were then summed by wildfire rating area and then sorted by parcel type. From the improvement values the content values were calculated next, as a percentage of property improvement values based on their occupancy type (using FEMA Hazus guidance as follows): Residential parcels received content values worth 50% of their improvements; Commercial parcels received content values worth 100% of their improvements; and Exempt parcels received content values worth 0% of their improvements. Property improvements and content values were then totaled to arrive at the Total Value column, which is also the estimated value at risk based on FEMA loss curve standards for wildfire hazards.

Dillon was found to have areas moderate, high, and high Wildland Urban Interface (WUI) zones as shown in Table D-10 below. Wildfire protection assessment areas for Dillon are displayed in Figure D-7. This includes both manmade and natural assets. Natural assets include ecosystem features that provide services we rely on, from municipal water supply to stormwater management, to flood risk reduction. Figure D-5 shows that Dillon has mostly lowest and low risk to assets, though the watershed and raw water diversion structure on Straight Creek are not presented in the Dillon Wildfire Risk to Assets map presented in the figure.

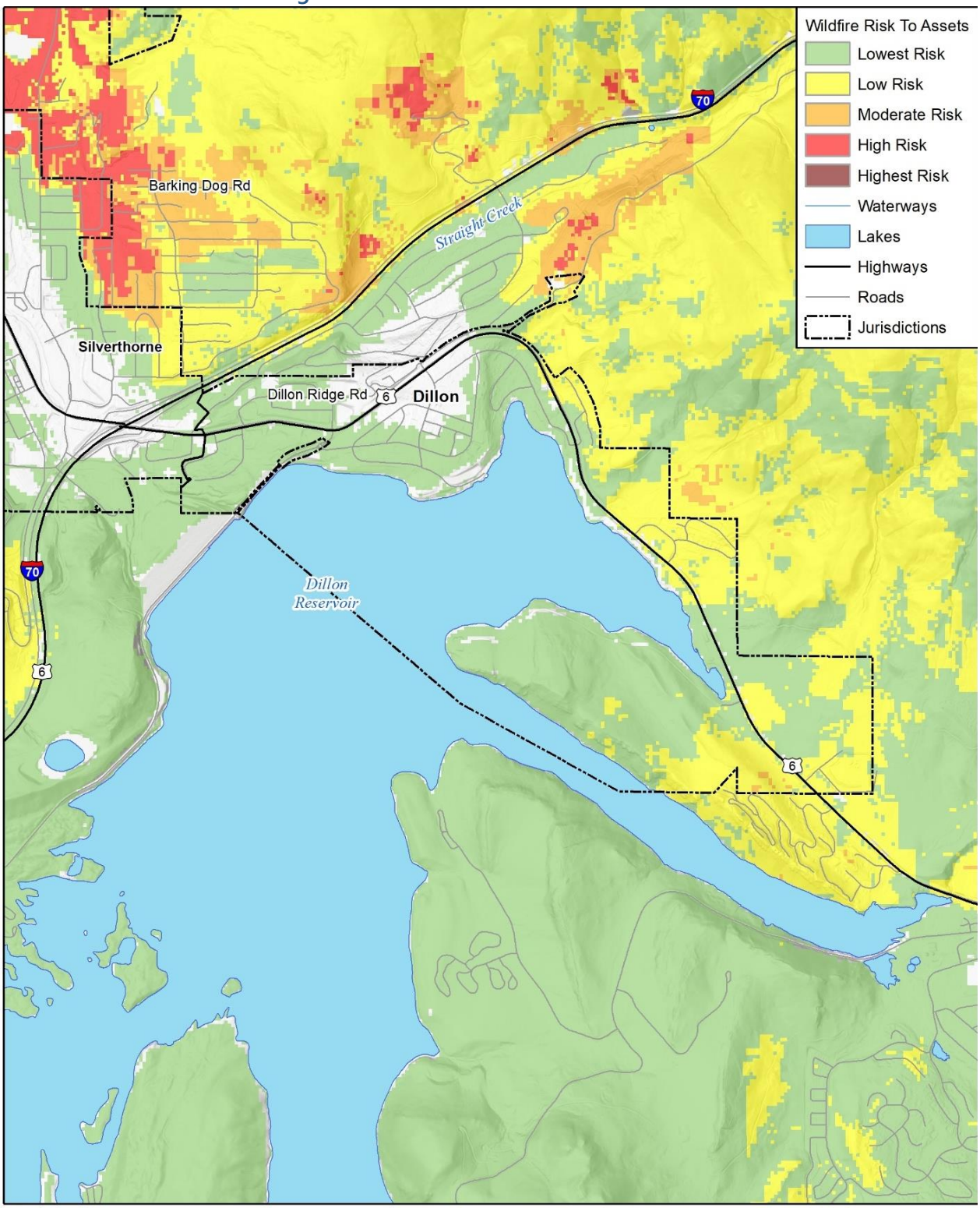
Figure D-8 below shows areas in Dillon within the Wildland Urban Interface (WUI). With forested and open land areas in close proximity to developed land, there are areas with the highest WUI evaluation risk. In general, Dillon has properties ranging from the low to highest risks within the WUI.

Table D-10 Wildfire WUI Risk Hazard by Jurisdiction and Property Type

Risk	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Highest	Exempt	10	$0	$0	$0	0
	Multi-Family Residential	50	$69,522,500	$34,761,250	$104,283,750	308
	Residential	164	$172,066,285	$86,033,143	$258,099,428	336
	Total	**224**	**$241,588,785**	**$120,794,393**	**$362,383,178**	**644**
High	Exempt	9	$0	$0	$0	0
	Residential	219	$182,860,410	$91,430,205	$274,290,615	449
	Total	**228**	**$182,860,410**	**$91,430,205**	**$274,290,615**	**449**
Moderate	Commercial	13	$3,468,500	$3,468,500	$6,937,000	0
	Exempt	6	$0	$0	$0	0
	Multi-Family Residential	1	$4,523,900	$2,261,950	$6,785,850	62
	Residential	28	$27,601,900	$13,800,950	$41,402,850	57
	Total	**48**	**$35,594,300**	**$19,531,400**	**$55,125,700**	**119**
	Grand Total	**500**	**$460,043,495**	**$231,755,998**	**$691,799,493**	**1,212**

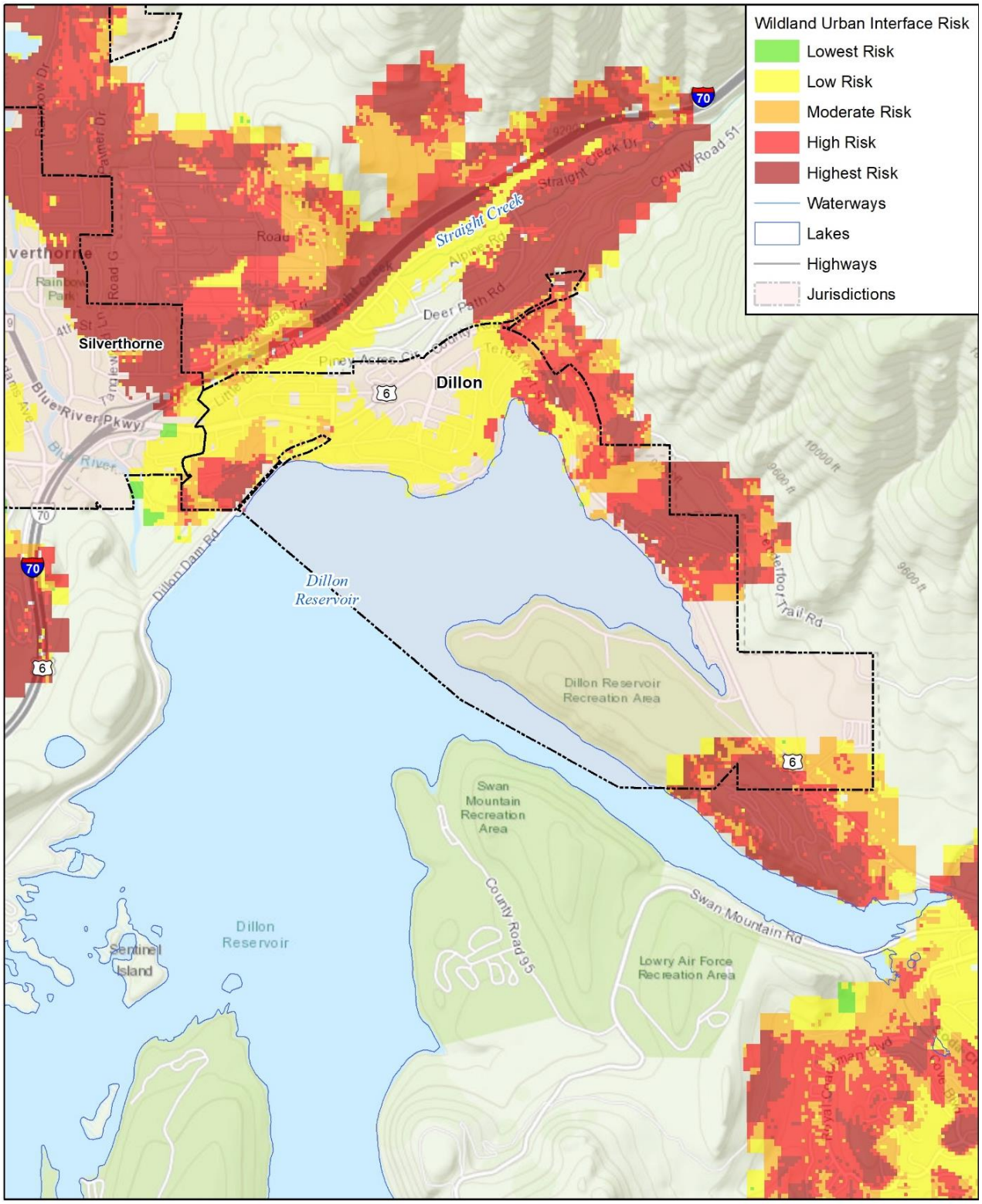
Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Figure D-7 Dillon Wildfire Risk to Assets



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CSFS Forest Atlas

Figure D-8 Dillon Wildland Urban Interface Risk



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CSFS Forest Atlas

0 0.5 1 Miles

N

People

The last column of Table D-10 above summarizes the number of people at risk to wildfire in the analyzed fire zones. Based on the assessment conducted, Dillon has an estimated 3,677 people at risk of Medium and High rated wildfire zones. These totals were estimated by multiplying the average persons per household in Summit County, which is 3.1, times the number of residential properties falling within the fire zones in Dillon. This population at risk is a maximum calculated value for the purposes of "worst-case" evaluation.

Smoke and airborne particulates resulting from fire is an issue to local populations, as noted by the Summit County's HMPC. Impacts from smoke are evidenced by previous experience of the County Public Health Department having received calls from tourists asking if they should cancel travel plans in the County due to smoke and potential health and safety related concerns.

Evacuation is of critical concern in Summit County in response to a potential major wildfire event. With only a few ways in and out of Summit County, the management of mass evacuation operations will be one of the greatest challenges in the event of a significant wildfire and present the greatest hazard to human life.

And again, domestic water supply is critically vital to human populations, and wildfires can have lasting devastating effects on the supply of clean, treatable water.

Critical Facilities and Infrastructure

2 critical facilities located in Dillon are found in Medium wildfire threat areas, as well as 2 facilities at risk to highest Wildland Urban Interface (WUI) risk and 1 in a high WUI risk zone. Since all the facilities profiled in this plan update were already discussed in the Community Asset Inventory subsection of this annex, more details are available in Table D-7. These are summarized again in the bullet points below for reference:

Facilities in Moderate Wildfire Threat Areas:

- Safety and Security
- Water Systems

Facilities in Highest WUI zones:

- Safety and Security
- Water Systems

Facilities in High WUI zones:

- Hazardous Materials

Since 2006, much of the wildfire hazard in Dillon has been reduced as a result of the removal of trees infested with mountain pine beetle. The Town has removed a significant number of infested trees as part of a program managed by the Public Works Department. The Town has been actively participating with the Summit County Wildfire Council in the establishment of a wildland-urban interface map. These efforts allow the County to apply for federal assistance in establishing defensible space around buildings under threat from wildfire. It is important to note the wildfire risk to watersheds, which can impact Dillon and most of the other jurisdictions, is a significant threat. In particular, the risk to the watershed on USFS property to the northeast of Dillon is considerable and only limited wildfire fuels mitigation work has been performed in the basin. Coupled with Laskey Gulch being a wilderness area and much of Tenderfoot

Mountain being a roadless area, access into Dillon's watershed is extremely limited, and hand work is required in the vast majority of the basin to accomplish any fuels mitigation work. The Town continues to work with the US Forest Service for such projects, with one project being completed in the summer of 2024. The Town continues to plan future such projects through cooperative projects with the Forest Service.

The Summit Fire & EMS Authority, which provides fire protection services to the Town of Dillon and surrounding area, is considered an initial responding entity for wildland fires on all private land and acts jointly with the U.S. Forest Service in responding to fires on federal land.

Economy

Tourism, the accommodation and food services industry (e.g. hotels and restaurants), and retail are major components of Summit County's economy, and Dillon's as well. Wildland fires can, for example, lead to significant tourism reductions due to health and safety concerns, causing lost revenues from lack of visitation, stays in hotels, spending on restaurants and other commerce sources, and more.

Historical, Cultural, and Natural Resources

Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the climate change trend which is leading to hotter, more widespread, and destructive fires can make it more difficult for the environment to recover, and lead to increased flood runoff or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after the fire.

With regards to historic or cultural structures and resources, wildfires would affect those in similar ways as general property and critical facilities/infrastructure, having the potential for burn downs and hence possible complete loss of important historical assets in Dillon.

Future Development

Chapter 18 of the Dillon Municipal Code specifies building codes and mitigation measures for development in high wildfire hazard areas. The comprehensive plan also has policies related to assisting homeowners in creating defensible space around homes and continuing to remove and replace beetle kill trees throughout Town.

Windstorm

The risk to windstorms is higher in Dillon than other parts of Summit County due to the prevailing wind fetch across Dillon Reservoir and the up-valley winds from the Blue River valley. High wind events are regularly observed in Dillon, and the older structures were not typically designed to the current design wind speed of 115 mph. High wind events can be hazardous to structures and people through building damage, flying debris, marina impacts, recreation hazards, wind driven wildfire, and other wind related life-safety concerns.

D.4.3 Growth and Development Trends

Table D-11 illustrates how Dillon has grown in terms of population and number of housing units between 2018 and 2023.

Table D-11 Change in Population and Housing Units in Dillon, 2018-2023

2018 Population	2023 Population	Population Percent Change 2018-2023	2018 Total Housing Units	2024 Total Housing Units	Estimated Percent Change 2018-2023
945	933	-1.27%	1,426	1,423	-.2%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023, Colorado State Demography Office (2024)

Dillon is surrounded by the Dillon Reservoir, I-70, and open space, and there is not a significant amount of undeveloped land available for new residential or commercial development. That said, numerous properties in Dillon are aging and redevelopment is anticipated as inevitable for some properties. Given market realities and the need for additional housing, it is anticipated that residential development will be a component of any redevelopment and urban revitalizations development plans.

In 2024 a 485,000 square-foot mixed-use development near the Dillon Reservoir was proposed to revitalize an aging multi-building hotel property. The proposal included the building of 200 residential condominium units, three restaurants, retail space, an observation tower, a below grade parking structure with 484 parking spaces, and a park open to the public. The Dillon Town Council approved the development application for the project in March of 2024; however, in October 2024 in a 132-299 referendum vote, residents overturned the Council's approval and voted down the proposed development. At a Town Council meeting residents discussed how this development would not be affordable for local residents and was too tall in the context of adjacent properties. While some residents showed support for the development, citing that Dillon is often overlooked compared to other towns in Summit County and the proposed developed would be a catalyst for revitalization of the Town and capture a share of the economy to support the sustainability of the Town, those in opposition prevailed.

It remains to be seen if other concepts will be put forth for the revitalization of the hotel site or other sites in Dillon's Town Center and if any such proposals will attempt the Planned Unit Development (PUD) process which has proved to be subject to the public's will through the referendum process. The Dillon Planning and Zoning Commission would review any commercial or multi-family residential development plans submitted for construction on any property even if fully compliant with the zoning requirements set forth in the Dillon Municipal Code.

A goal of the Town's Comprehensive Plan is to provide open space throughout the community in order to protect features that are unique to Dillon, particularly open space along Dillon Reservoir and the hillsides that frame the existing community. Future goals include redevelopment of the Core Area zone district of the Town, considered Dillon's Town Center.

D.5 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

D.5.1 Regulatory Mitigation Capabilities

Table D-12 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Dillon.

Table D-12 Dillon—Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	2018 (same as County); Preparing 2024 ICC Adoption
BCEGS Rating	No	Same as Summit County
Capital Improvements Program (CIP) or Plan	Yes	Annual Five-Year Capital Improvement Plan Updates
Community Wildlife Protection Plan (CWPP)	Yes	The County's CWPP includes Dillon
Comprehensive, Master, or General Plan	Yes	
Cross-connection Control Ordinance	Yes	Annual backflow prevention testing requirements
Economic Development Plan	Yes	Urban Renewal Authority formed in 2009
Elevation Certificates	Yes	Required for new development
Emergency Operations Plan	No	
Erosion/Sediment Control Program	Yes	
Floodplain Management Plan	No	
Flood Insurance Study	No	
Growth Management Ordinance	Yes	Zoning provisions contain maximum density criteria; Adopted Three Mile Plan (annexation)
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes	Adoption of 2018 Fire Code; Requirements for wildfire fuels inspections; Slope Ordinance
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	Yes	
Water Efficiency Plan	Yes	Update in progress
Watershed Protection Ordinance	Yes	In progress
Wildfire Ready Watershed Action Plan	Yes	In progress; to be published in 2026
Zoning Ordinance	Yes	
Others:	Yes	Forest Management Plan
	Yes	Parks Master Plan
	Yes	Trails Master Plan

The Town of Dillon has numerous community driven planning documents providing guidance for long-range planning visions for the community. Here are a few of them:

2024 Town of Dillon Trail Master Plan

The Dillon Trails Master Plan was a comprehensive planning effort with the purpose to study and document the existing network of trails and provide recommendations for improvements. Dillon has a wide variety of trails, pathways, connections, and recreational facilities throughout the Town. These pathways include sidewalks, asphalt walkways, multi-use asphalt recreation (multimodal) pathways, improved soft surface pathways and unimproved soft surface trails. While walkability at each park or facility may be appropriate, connections between facilities and destinations within the Town may be lacking. Given the growth in tourism, visitation, and recreation, additional connections, pathways, and trails are expected. Likewise, connections to adjacent trail systems and other neighborhoods in Summit County are also anticipated. The Dillon Town Council adopted the Trails Master Plan in April 2024.

Given the Town of Dillon's unique layout and current status in trails planning, the following were the goals and objectives of the Trails Master Plan:

1. Complete an inventory of the Town's pedestrian circulation routes, ranging from soft surface trails, sidewalks, and recreation paths into a digital geographic information system (GIS) database
2. Analysis of existing trails and pedestrian infrastructure to inform maintenance of existing trails and the construction of new trails and pedestrian routes.
3. Identify gaps in the overall trails and pedestrian network and opportunities for new connections that will bring greater connectivity within the Town and to broader Summit County trails systems.
4. Provide recommendations for improvements to existing trail infrastructure and new improvements to the trails system, including new soft surface trails and paved pathways to better connect different areas of Town.
5. Provide recommendations for trailheads, parking, and staging improvements to improve the access to the trail system.
6. Identify locations for new signage kiosks, gateway elements, and landmark features that will improve way finding within the Town and create a unique aesthetic that is specific to Dillon.

The 2020 Waterfront Master Plan

The 2020 Waterfront Master Plan was a community lead effort with input from stakeholders, local officials, and community members. A public survey with summarized finding gives a user's perspective to the marina and guides future improvements. Project meetings and the public survey occurred during July through October 2019 to capture the Dillon Open, the largest waterfront event in the community as well as boat pullout and storage. In addition, discussions with stakeholders also provided insight to ever-expanding winter month use of Lake Dillon and the waterfront.

It was agreed to concentrate on projects that increased revenue or increased safety. Goals include:

1. Better separation of marina industrial activities from public recreation activities
2. Upgraded visitor facilities especially restaurant/ Tiki Bar, parking, and rental services. Eventually, boat rental services will be separated from non- rental retail. This should enhance the experience for both users.
3. Linking the water taxi services with better trails and wayfinding signage.
4. Completion of shoreline (sheet pile and Redi-Rock) upgrades
5. Development of a new launch ramp for service work. Replacement of the existing service building with a new and upgraded one to east to integrate service activities into one area.
6. Upgrading SUP and Kayak rental facilities.
7. Improved access from town and parking areas to waterfront.

Town of Dillon Comprehensive Plan, 2017

The primary purpose of the Dillon Comprehensive Plan is to provide a framework for decision making which encourages public and private decisions be made in a manner that enhances the livability of the community, by adopting goals and policies that encourage local development decisions that are in the best interest of the community. The Planning and Zoning Commission of the Town of Dillon is currently in the process of updating Dillon's Comprehensive Plan. Current adopted goals and policies of the

Comprehensive Plan related to hazard mitigation are listed below and address the hazards of wildfire, flood, landslide, erosion/deposition, and drought.

Goal: To protect the environment and improve it whenever and wherever possible.

- Discourage development within or adjacent to areas identified as potential hazardous areas (steep slopes, unstable soils, flood plains, etc.), and developments proposed for any areas considered to pose a hazard should submit engineering investigations of the site and mitigate any potential negative impacts.
- Limit development on slopes of greater than 20% and require engineering investigations of sites over 20% during project review. Development on slopes in excess of 20%, if allowed, should maintain the maximum vegetative cover possible to protect soils, prevent land slippage, and retain wildlife habitat, view corridors and open space resources.
- Require that the implications of any potential geological and geo-technical constraints be appropriately addressed by persons experienced and legally qualified to do so. Such evaluative and mitigation procedures should incorporate analytical and design methods representing current generally accepted professional practices.
- Require proposals for all new developments to recognize the value of existing on-site natural vegetation and inventory, and preserve these resources to the maximum extent feasible, including the preservation of large trees. Every effort should be made to use native plants and to emulate the surrounding mountain landscape. Diversity in tree selection is a priority following the recent mountain pine beetle infestation.
- Encourage new and existing developments to provide adequate measures to control any adverse effects to the water quality and groundwater resources of the region.

Goal: To preserve and foster the unique natural, physical, and man-made characteristics and cultural aspects of Dillon.

- Establish criteria within the Chapter 16 Zoning to encourage new projects to be designed so they do not block views to prominent features such as Dillon Reservoir, the Robert's Peninsula, and other natural and man-made features.
- Inspect and enforce landscape warranties to ensure that vegetation in new developments establishes itself.
- Work with the Division of Wildlife to ensure that new developments minimize adverse impacts on fish and other wildlife habitat, breeding areas, and migration routes in and adjacent to Dillon.
- Preserve shorelines and wildlife habitats from intensive development. If development occurs, developers should be encouraged to develop on land with minor constraints, and utilize clustering of development to minimize development impacts on sensitive areas.

Goal: To preserve community water sources, and the water quality of the community to enhance the livability of the Town.

- Improve the Town's landscaping regulations including the adoption of regulations that would reduce the amount of water utilized for the maintenance of landscaping.
- Continue to enact watering restrictions in times of drought and encourage voluntary water reduction at all times.

- Provide guidance to the community in selection of drought resistant xeriscape plant species. Amend wetland regulations to relate the wetland definition to the Army Corps of Engineer standards and updates.
- Work with Denver Water Board to preserve the areas near the lake to reduce erosion.
- Work to reduce point source pollution that may enter the lake, or other water bodies, including Straight Creek.
- Monitor areas of high mortality due to pine beetle infestation, and take steps to mitigate erosion following tree removal.

Goal: The Town should continue to cooperate in wildfire preparation with other jurisdictions.

- Continue participation in the County Wildfire Council.
- Assist homeowners in creating defensible space around homes.
- Continue to remove and replace beetle kill trees throughout the Town.

Goal: To cooperate with Lake Dillon Fire Rescue (LDFR) to provide a fire protection system that is of high quality and can meet the existing and future needs of the community, and keep fire insurance rates as low as possible in the community.

- Continue to work with the Joint Fire Authority to provide for the community's fire protection needs.
- Continue to provide water lines and maintenance adequate to meet fire flow requirements, and the Town should not allow new developments unless adequate fire protection can be provided.
- Evaluate existing development ordinances to insure they provide adequate measures for fire protection, and modify them if necessary.

Goal: To provide a water distribution and treatment system that meets the current and future needs of the community.

- Continue to look toward the future and provide adequate water rights and storage capacity to meet the future build-out of the community.
- Require new developments to provide the water system improvements needed to meet the water needs of their projects. For single-family homes adjacent to existing water distribution lines, this may be as simple as tapping into the existing water lines and paying the appropriate plant investment fees / tap fees. While for annexation requests and rezoning for uses that utilize additional treated water, the applicant will be required to either provide the necessary facilities or financially guarantee their installation prior to them being needed.
- Ensure that future water system improvements are undertaken in a manner that will be least disruptive to the environment and the community.
- Continue to strive toward conservation of the community's water resources through policies in Town development ordinances.
- Revise the current landscaping regulations and drought response program to reflect best management practices concerning water conservation and the use of drought-tolerant native plant species.

Dillon Municipal Code

The Dillon Municipal Code serves as the legal framework for the Town. Sections related to hazard mitigation are described below.

Chapter 16 Zoning Regulations

The Dillon Municipal Code includes the following policies and guidelines related to development in hazardous areas:

- Sec. 16-3-110 Residential Estate (RE) Zone
  - In a RE zone, the following regulations shall apply: (2) Allowed density. Density shall be calculated at a density of one (1) unit per acre of developable land. Developable land shall include all land within the parcel, minus any area containing slopes over fifteen percent (15%), any wetlands and any land impacted by geologic hazards.
- Sec. 16-5-10 Planned Unit Development Purpose
  - (a) The purpose of a Planned Unit Development (PUD) is to encourage flexibility in the development of land in order to promote appropriate and high quality use; to improve the design, character and quality of new development; to facilitate the adequate and economical provision of streets and utilities; to protect the natural environment and avoid development in hazardous areas; and to provide the appropriate natural and scenic features of open space.

Chapter 17 Subdivision Regulations

The Improvements, Reservations, and Design Standards include the following policies related to hazard mitigation:

- Land which the Town determines to be unsuitable for subdivision or development due to flooding, improper drainage, steep slopes, rock formations, adverse earth formations or topography, utility easements, adverse visual impacts or other features which could be harmful to the safety of citizens can not be subdivided or developed unless adequate mitigation methods are in place.
- Development, including the placement of public improvements and the creation of sites for the placement of structures, shall only be allowed on slopes in excess of 15 percent if no other reasonable alternatives exist and the subdivider mitigates any potential negative impacts created by development on these slopes. No development should take place on slopes in excess of 20 percent.
- If a proposed subdivision impacts a flood-prone area: 1) it shall be designed to minimize flood damage within the flood-prone area; 2) all public utilities and facilities, such as sewer, gas, electric and water systems, shall be located and constructed to minimize and eliminate flood damage; and 3) adequate drainage shall be provided to reduce exposure to flood hazards.
- Wetland regulations that limit development activity in and around wetland areas.

Chapter 18 Building Regulations

Chapter 44 of the Building Regulations details fire hazard mitigation requirements for new construction. This includes requirements for roofing and construction materials, as well as defensible space requirements according to the structure's wildland fire hazard level assigned by the Colorado State Forest Service.

- "Section 4404 Required Mitigation.

- "Class A roof. All new construction, including additions, regardless of the designated response zone or the wildfire hazard rating assigned to the property, shall be provided with a Class A roof as defined in R902.
- "Low hazard. Construction in an area with a 'Low' Fire Hazard Rating shall require no additional mitigation measures beyond the installation of a Class A roof.
- "Moderate hazard. Construction in an area with a 'Moderate' Fire Hazard Rating shall provide a defensible space area in accordance with the requirements of this chapter and Table 44-A. Additionally, based upon the higher fire loading potential, structures 6,000 square feet and larger in building size shall be provided with an automatic sprinkler system, and structures 4,000 square feet to 6,000 square feet in building size shall implement a fire-resistive construction measure as defined herein.
- "High hazard. Construction in an area with a 'High' Fire Hazard Rating shall provide a defensible space area in accordance with the requirements of this chapter and Table 44-A. Additionally, structures 4,000 square feet and larger in building size shall be provided with an automatic sprinkler system, and structures ranging from 2,400 square feet up to 4,000 square feet in building size shall implement a fire-resistive construction measure as defined herein.
- "Additions. An addition located in a high or moderate wildfire hazard rated subdivision, added to any structure built before January 1, 2000, will require that a defensible space be provided around the addition as well as the existing structure, in accordance with the requirements of this chapter and Table 44-A. If the building size of the addition itself would require fire-resistive construction by this chapter, the addition shall be of fire-resistive construction but not the existing structure. If the building size of the addition itself would require a sprinkler system under this chapter, the entire building, including the additions, the existing structure and any other applicable structures, must be equipped with a sprinkler system. An addition to a building that was previously required to be of fire-resistive construction or was required to have a sprinkler system or monitored smoke detector system installed will require the same level of protection.
- "Alternates and exceptions to Section 4404.
    - "1) Unless otherwise required by this code, an automatic sprinkler system may be installed in lieu of required fire-resistive construction.
    - "2) A monitored smoke alarm system may be provided in lieu of fire-resistive construction.
    - "3) Alternate materials and methods, such as installing a draft hydrant in lieu of fire-resistive construction, may be considered by the Building Department in accordance with Section R104.11 in its discretion on a case-by-case basis.

D.5.2 Administrative/Technical Mitigation Capabilities

Table D-13 identifies the personnel responsible for activities related to mitigation and loss prevention in Dillon.

Table D-13 Dillon—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	Yes	Summit County Emergency Management and the Chief of Police of the Town of Dillon
Floodplain Administrator	No	
Community Planning	Yes	2 Planners focus on Community Planning

Personnel Resources	Yes/No	Comments and Changes for 2025
Planner/Engineer (Land Development)	Yes	Community Development Department
Engineer/Professional (construction)	Yes	
Resiliency Planner	Yes	Handled in Community Development
Transportation Planner	Yes	Handled in Community Development
Full-Time Building Official	Yes	Summit County Building Inspection is the Town's Full-time Building Inspector
GIS Specialist and Capability	Yes	
Grant Manager, Writer, or Specialist	No	Department by department
Warning Systems/Services	Yes	Summit County EM
• Flood	No	
• Wildfire	No	
• Tornado	No	
• Geological	No	

D.5.3 Fiscal Mitigation Capabilities

Table D-14 identifies financial tools or resources that Dillon could potentially use to help fund mitigation activities.

Table D-14 Dillon—Fiscal Mitigation Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	Yes		
Utilities Fees	Yes		Wildfire Mitigation - Water Source
System Development/ Impact Development Fees	Yes		
General Obligation Bonds to Incur Debt	Yes		
Special Tax Bonds to Incur Debt	Yes		
Withheld Spending in Hazard-Prone Areas	No		
Stormwater Service Fees	No		Funding through sales tax tied to streets fund
Capital Improvement Project Funding	Yes		
Community Development Block Grants	Yes		
Other	Yes		CWCB Grants
	Yes		NFF Grants

D.5.4 Educational and Outreach

Table D-15 identifies education and outreach resources that Dillon could potentially use to help fund mitigation activities.

Table D-15 Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Emergency Responder Public Engagement	Yes	
• Firewise	Yes	
• Friends of the Dillon Ranger District	Yes	
• Native Species & Low Water Education Garden	Yes	

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
• Summit County Wildfire Council	Yes	
• Storm Ready	Yes	
• Severe Weather Awareness Week	Yes	
• School programs	No	Potential exists
• Wildfire Ready Watersheds Action Plan	Yes	Plan in process; outreach occurring
Methods Used to Communicate Hazard Information to the Public		
• Local News	Yes	
• Social Media	Yes	
• Community Newsletters	Yes	
• Utility Bill Inserts	Yes	
• Community Events	Yes	
• Digital Sign and Webpage	Yes	Sustainable Dillon Webpage
Organizations that represent or work with underserved or vulnerable communities		
• American Red Cross	No	
• Salvation Army	No	
• Veterans Groups	No	
• Seniors Groups	No	
• Latino Community	Yes	Mountain Dreamers
• Groups for People With Disabilities	No	
• Environmental/Conservation Groups	Yes	Blue River Watershed Group
• Other	Yes	High Country Conservation center
Business Groups, Academia, Other		
• Chamber of Commerce	Yes	
• Community Organizations (Lions, Kiwanis, etc.)	Yes	
• Economic Development Advisory Committee	Yes	
• Homeowner/Neighborhood Associations	Yes	
• Universities or Community Colleges	Yes	
• Agricultural Extension Office	Yes	Summit County CSU Extension Office

D.5.5 Mitigation Outreach and Partnerships

- Each spring, the governments of Summit County, Breckenridge, Dillon, Frisco and Silverthorne distribute a packet of information to inform the communities about how to prepare for possible high water in May and/or June resulting from snowmelt.
- The Dillon Town Council and Dillon Water Department request water conservation from citizens and businesses on a voluntary basis by eliminating the use of sprinklers and irrigation systems from 9 am to 6 pm every day.
- For many years, the Town has been working to control the spread of the Mountain Pine Beetle. Town crews have been conducting surveys on both public and private property and have been removing infested trees in an effort to protect our valuable community forests.
- The Town is engaged in an ongoing water conservation program, as well as Firewise educational efforts in association with the Summit County Wildfire Council.
- The Town has installed a native species and low water plant education garden and will utilize it as an educational element to encourage water conservation and appropriate plant species selection.

D.5.6 Past Mitigation Efforts

Working with Summit County and Denver Water, the Town took the lead on Wildland Urban Interface hazardous fuels reduction in the Town limits area of Summit County, Denver Water, and Town property (in and around the Dillon Cemetery) from 2015-2019.

Then, in 2024 a wildfire mitigation project removed dead and fallen trees at the Dillon Nature Preserve, with collaboration from Dillon town staff, Denver Water, and the Summerwood Homeowners Association. The goal of the project is to reduce hazardous fuels within a 150-feet border between the property owned by Summerwood, Denver Water, and the Town of Dillon. The project removed fallen and standing dead, thinned areas to expand a fire break, stabilized soil areas, and encouraged species diversity.

D.5.7 Opportunities for Enhancement

Based on the capability assessment, Dillon has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the Town to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform Town staff and board members on how best to integrate hazard information and mitigation projects into the Town policies and ongoing duties of the Town. Continuing to train Town staff on mitigation and the hazards that pose a risk to the Town will lead to more informed staff members who can better communicate this information to the public. Public engagement is paramount in distributing vital information, and working diligently to reach people where there are with that information is the best means of getting it to them. The Town should continue to expand upon public engagement and public awareness campaigns.

Additionally, the Town has identified the following opportunities to improve mitigation capabilities:

- Adopt the Watershed Protection Ordinance;
- Complete the updates and adopt the revised Water Efficiency Plan;
- Complete the Wildfire Ready Watersheds Plan and implement actionable mitigation strategies and incident preparedness; d.) Continue wildfire fuels mitigation management and mitigation projects.
- Continue to work with neighborhood communities on Firewise certifications.
- Continue to work with Xcel Energy on wildfire hazard preparedness, mitigation, detection, and response. Encourage their continued deployment of remote sensing measures with drone flights and remote cameras;
- Deploy remote sensing measures at the Straight Creek Diversion Structure c.) Formalize an emergency Management Plan and identify scenario management strategies.
- Formalize grant writing strategies and capabilities
- NEPA & Environmental Assessment planning, budgeting, and preparation;
- Leverage metro district funds;
- Expand grant funding targeting.
- Create annual awareness event;
- Continue to work with emergency responders for public engagement events;
- Develop a community stewardship collision of like-minded citizens.

D.6 Mitigation Strategy

D.6.1 Mitigation Goals and Objectives

Dillon adopted the hazard mitigation goals and objectives developed by the HMPC and as described in Chapter 4 "Mitigation Strategy" of the Multi-jurisdictional Hazard Mitigation Plan.

D.6.2 Progress on Previous Mitigation Actions

The Town of Dillon Planning Team reviewed all the mitigation actions from the 2020 plan, and determined that none of them had been completed. All actions were carried over into the 2025 Plan, along with one new action.

D.6.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan, were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

Continued National Flood Insurance Program compliance

The Town of Dillon, Colorado is listed as a participating community in the National Flood Insurance Program (NFIP) according to FEMA sources. However, Dillon does not have any Special Flood Hazard Areas (SFHAs) identified by FEMA, meaning there are no properties within the town designated as high-risk flood zones. This status means flood insurance through the NFIP is available to Dillon residents, but it is not federally required for any property.

D.6.4 Mitigation Actions

The 2025 update has 3 annually implemented or ongoing actions for the Town of Dillon as shown in Table D-16 below. During the planning process the Lead Planning Team identified that of their 3 mitigation actions from 2020, all 3 actions were in progress or ongoing. With 0 new ones added as of 2025, demonstrating ongoing process and building the community's resilience.

Table D-16 Town of Dillon Mitigation Actions

ID	Description	Hazard(s) & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	Status and Implementation Notes
Dillon 1	Develop a Hazard Mitigation Planning Committee to guide policy and implementation	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PR	4	**Town of Dillon Department heads,** Summit County OEM	No cost for the committee; costs determined by hazard.	Low	Ongoing	Annual
Dillon 2	Improve education on risk and preparedness and mitigation measures	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1	**Dillon Police,** Summit County OEM	Staff time	Low	Ongoing	Annual
Dillon 3	Multi-hazard awareness and warning system	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1	**Dillon Police,** Summit County OEM	$15,000.00 per unit: total $30,000,00; Dept. Budget	Medium	Mid Term	Not Started
Dillon 4	Install erosion traps	Erosion/ Deposition, Flood, PR	1,2	**Road and Bridge Dept.**	Moderate; FMA, Town General Fund	Low	Mid Term	New in 2025

D.7 Implementation and Maintenance

Moving forward, the Town will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

D.7.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the Town to help inform updates and the development of local plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

The risk and vulnerability information the 2020 Summit County Hazard Mitigation Plan and the Town of Dillon annex was used to inform the 2017 update to the Town of Dillon Comprehensive Plan, the 2020 Waterfront Master Plan, as well as the 2024 Town of Dillon Trail Master Plan, as noted in section D.5 Capability Assessment. The plan acknowledges that as the Town continues to grow and develop, "…the potential for development to conflict with areas with natural hazards increases" (Dillon, 2017). Refer to subsection D.5.1 Regulatory Mitigation Capabilities for more information related to the integration and acknowledgment of the hazards in the Town's Comprehensive Plan. The impending Comprehensive Plan update includes expanded detail on hazard awareness and mitigation which will further influence decision making and the establishment of policies for the community.

Process Moving Forward

Moving forward, the Public Works Department may utilize the hazard information when updating the Town's Capital Improvement Plan annually and the Planning and Development Department may utilize the hazard information when reviewing a site plan or other type of development applications. The Town will also incorporate this HMP into future updates to the Town of Dillon Comprehensive Plan as well as other master planning documents.

As noted in Chapter 5 "Plan Maintenance," the HMPC representatives from Dillon will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

D.7.2 Monitoring, Evaluation and Updating the Plan

The Town will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. The Town will continue to involve the public in mitigation, as described in Section 5.3 of the Base Plan. The Dillon Police Chief will be responsible for representing the Town in the County HMPC, and for coordination with Town staff and departments during plan updates. The Town realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

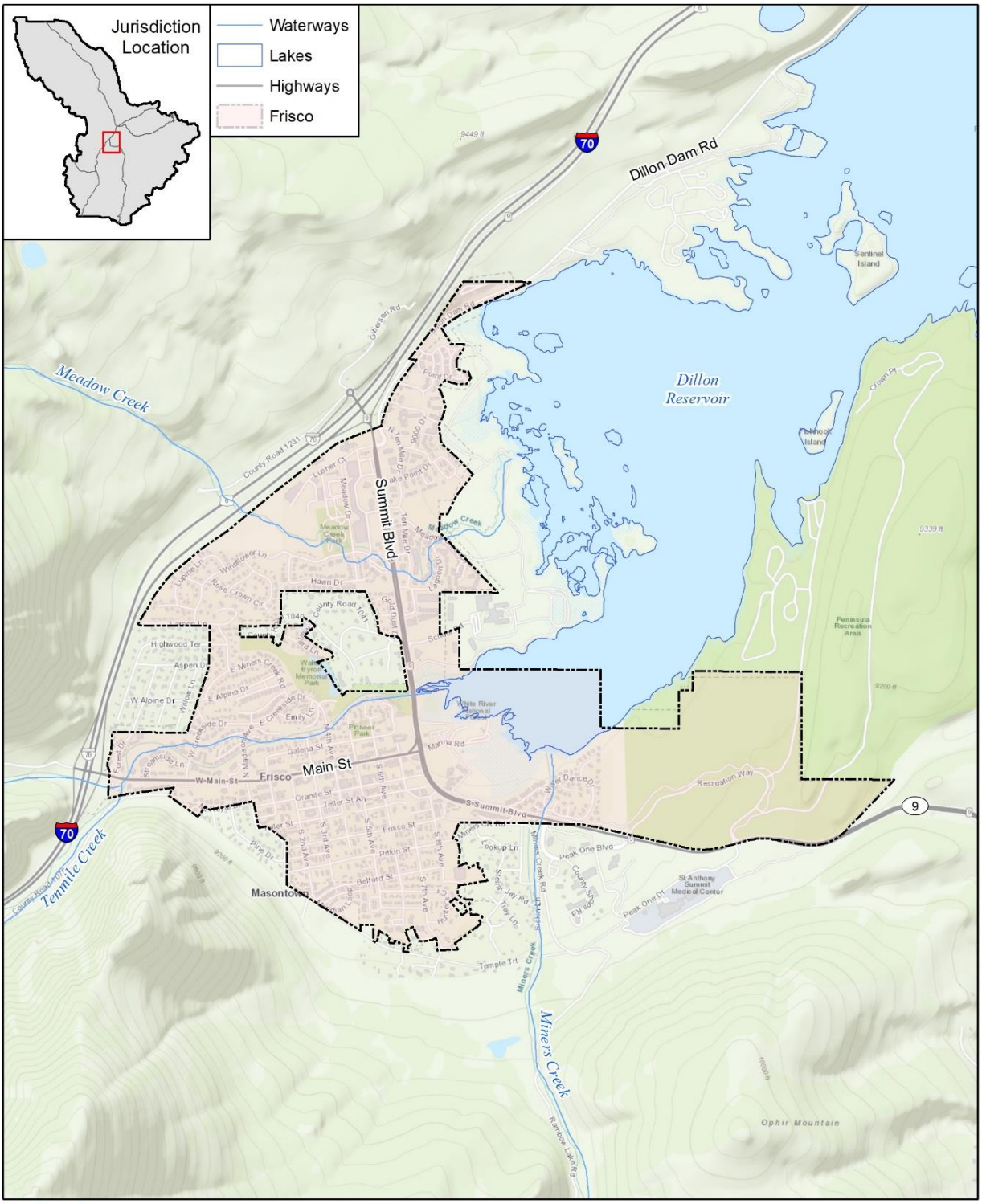
D.7.3 Continued Public Involvement

The Town of Dillon will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. Additionally, the Town will continue public outreach through community

engagement on wildfire, water conservation, and land stewardship. Through the Town's native species and low water plant garden, the Town will continue to educate the community on water wise landscapes suitable for Dillon's dry, high alpine environment. The Town will also continue to proactively work on planning, mitigation, and preparedness related to the protection and preservation of Dillon's source water basin.

Annex E: Town of Frisco

Figure E-1 Town of Frisco



E.1 Community Profile

Figure E-1 above shows a map of the Town of Frisco and its location within Summit County.

E.1.1 Geography

The Town of Frisco is located in central Summit County on the west shores of Dillon Reservoir and east of the base of Royal Mountain. Ten Mile Creek runs in an easterly direction through the city. The Town's total area is 1.8 square miles and the nearest city is Silverthorne, approximately five miles east along Interstate 70. The elevation at Frisco is 9,075 feet, and the climate is typified by cold winters and temperate summers. Native vegetation consists of sparse subalpine forest and dispersed patches of evergreen shrubs.

E.1.2 Population

The estimated 2023 population of the Town of Frisco was 2,865, which is a 6.8% decrease since 2017. Select U.S. Census American Community Survey (ACS) demographic and social characteristics for Frisco are shown in the following tables and figures.

Table E-1 Frisco Demographic and Social Characteristics 2018-2023

Frisco	2018	2023	% Change
Population	3,074	2,865	-6.8%
Median Age	48.8	43.9	-10%
Total Housing Units	3,690	3,649	-1.1%
Housing Occupancy Rate	34.5%	39.8%	15.3%
% of Housing Units with no Vehicles Available	0%	1.2%	100.0%
Median Home Value	$568,300	$839,500	47.8%
Unemployment	0.3%	0.0%	-100.0%
Mean Travel Time to Work (minutes)	26.3	9.9	-62.4%
Median Household Income	$70,789	$113,406	60.2%
Per Capita Income	$34,152	$72,879	113%
% Without Health Insurance	12.1%	11.5%	-5%
% of Individuals Below Poverty Level	6%	1.1%	-81%
# of Households	1,272	1,454	14%
Average Household Size	2.42	1.97	-19%
% of Population Over 25 with High School Diploma	98%	100%	2%
% of Population Over 25 with bachelor's degree or Higher	50%	72.3%	45%
% with Disability	6%	1.1%	-81%
% Speak English less than "Very Well"	5.9%	2%	-66%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table E-2 Demographic and Social Characteristics Compared to the County and State

Demographic & Social Characteristics (as of 2023)	Frisco	Summit County	State of Colorado
Median Age	48.8	39.2	37.9
Housing Occupancy Rate	34.50%	39.00%	92.04%
% of Housing Units with no Vehicles Available	0%	3%	5%
Median Home Value	$568,300	$850,700	$550,300
Unemployment	0.30%	2.50%	5.00%
Mean Travel Time to Work (minutes)	26.3	21.2	25.5
Median Household Income	$70,789	$106,255	$563,000
Per Capita Income	$34,152	$58,219	$51,768
% Without Health Insurance	12.10%	10.20%	9.30%
% of Individuals Below Poverty Level	6.00%	7.40%	6.70%
Average Household Size	2.42	2.35	2.37
% of Population Over 25 with High School Diploma	98.00%	94.90%	93.31%
% of Population Over 25 with bachelor's degree or Higher	50.00%	52.50%	46.30%
% with Disability	6.00%	6.40%	11.70%
% Speak English less than "Very Well"	5.90%	5.50%	16.00%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table E-3 Demographics by Race and Sex

Frisco	Population	%
Total Population	2,865	
Male	1,437	50.2%
Female	1,428	49.8%
White, not Hispanic	2,140	74.7%
Hispanic or Latino	75	2.6%
Black	25	0.9%
Asian	28	1%
American Indian and Alaska Native	16	.6%
Native Hawaiian and Other Pacific Islander	0	0.0%
Some other race	656	22.9%
Two or more races	622	21.7%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

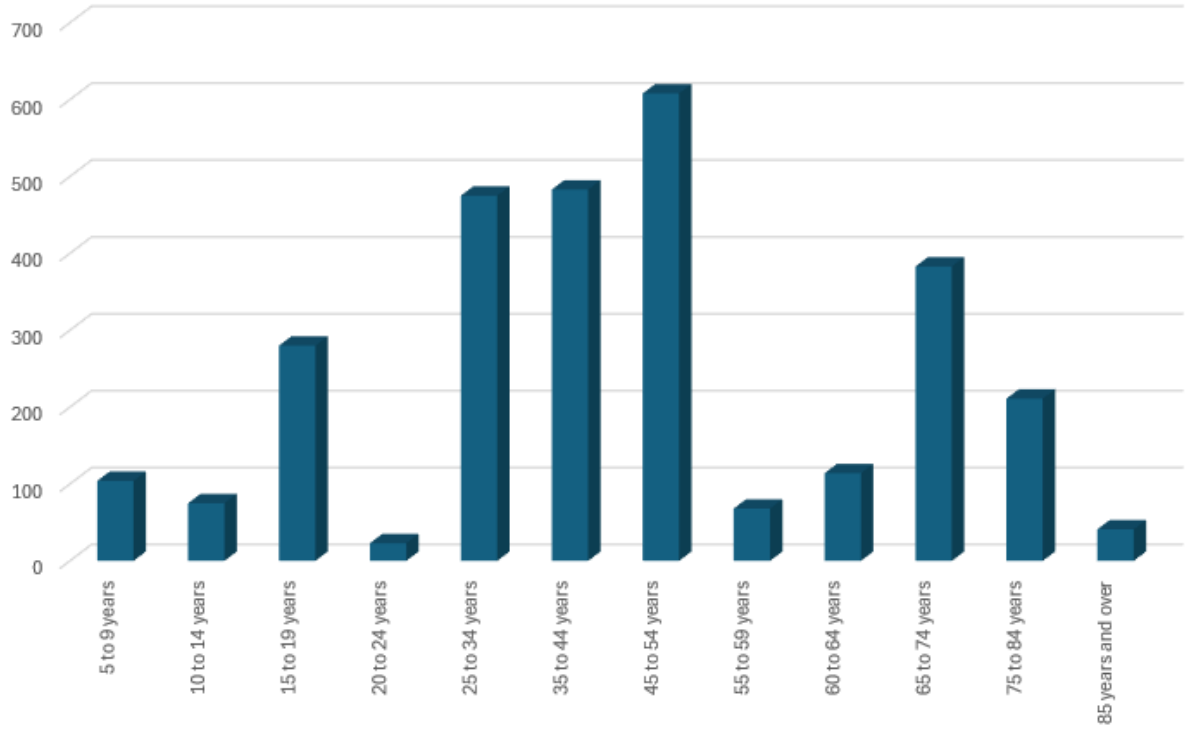
Table E-4 Types and Total Amounts of Housing Units in Frisco

Type of Housing	Total	Percentage
Total housing units	3649	
1-unit, detached	915	25.1%

Type of Housing	Total	Percentage
1-unit,attached	824	22.6%
2 units	212	5.8%
3 or 4 units	119	3.3%
5 to 9 units	358	9.8%
10 to 19 units	417	11.4%
20 or more units	804	22%
Mobile home	0	0%
Boat, RV, van, etc.	0	0%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Figure E-2 Age Distribution in Frisco



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

E.1.3 History

The Town of Frisco was incorporated in 1880, and its early history was shaped by the mining industry. A stagecoach and two major railroad routes converged at the Town making it a gateway to the mining claims located near the crest of the Continental Divide. Skiing also has been a part of the Town's history going back at least 120 years. Much of Frisco's history is preserved within the Frisco Historical Park, including restored nineteenth century log cabins, a chapel, and a jailhouse.

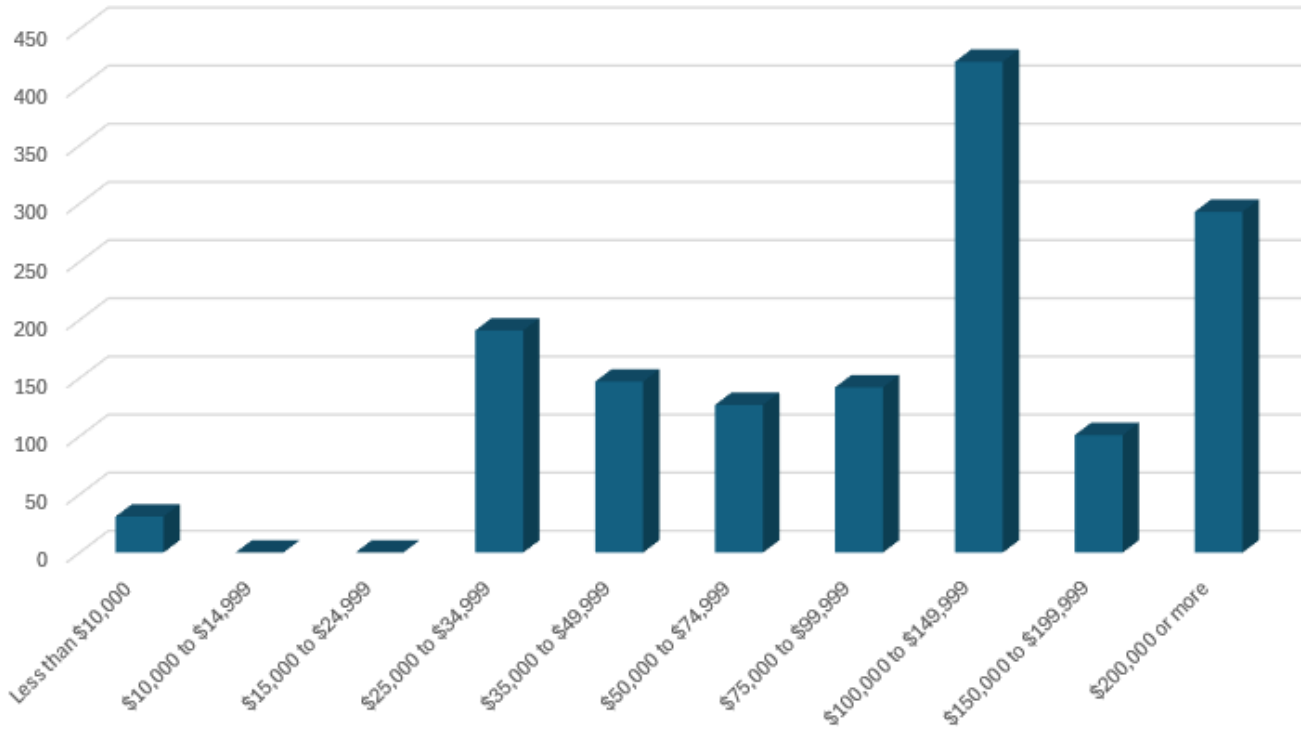
E.1.4 Economy

According to 2023 Census Bureau estimates, the industries that employed the highest percentages of Frisco's labor force were arts, entertainment, recreation, accommodation, and food services (21.9%),

educational services, and health care and social assistance (17.5%), professional, scientific, and management, and administrative and waste management services (15.2%), and finance and insurance, and real estate and rental and leasing retail trade (11.9%).

As shown in Table E-2, per capita income in Frisco was $34,152 in 2023, which is roughly 70% and 52% below average for Summit County and the State of Colorado respectively. A breakdown of Frisco's income distribution is shown in Figure E-3.

Figure E-3 Income Distribution in Frisco



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

E.2 Hazard Identification and Profiles

Frisco's HMPC identified the hazards that affect the community and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the Town (see Table E-5). In the context of the countywide planning area, there are no hazards that are unique to Frisco.

Table E-5 Frisco—Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Unlikely	Negligible	Low
Dam Failure	Isolated	Unlikely	Limited	Low
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Unlikely	Limited	Low
Erosion/Deposition	Medium	Likely	Limited	Medium
Flood	Isolated	Likely	Limited	Medium
Hazardous Materials Release (Transportation)	Isolated	Occasional	Critical	High
Landslide, Mudflow/Debris Flow, Rockfall	Isolated	Unlikely	Limited	Low
Lightning	Large	Likely	Critical	Medium
Pest Infestation (Forest and Aquatic)	Small	Highly Likely	Limited	High
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Small	Occasional	Critical	High
Wildlife-Vehicle Collisions	Small	Likely	Negligible	Low
Windstorm	Large	Likely	Limited	Low

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

E.3 Vulnerability Assessment

The intent of this section is to assess Frisco's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk to hazards for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

E.3.1 Community Asset Inventory

Table E-6 shows the total number of improved parcels, properties, and their improvement and content values for the Town of Frisco. Note that only those parcels with improvement values greater than $0, or those which were classified as "exempt," were accounted here and in vulnerability assessments to follow, so that those non-developed or non-improved parcels were left out for the purposes of conducting the vulnerability assessments in this annex. Counts and values are based on the latest county assessor's data (as of June 2025), which was provided in GIS format. Total Values were aggregated by adding the improvement and content values for each parcel type category.

Table E-6 Frisco Improved Parcel and Property Exposure

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value
Commercial	290	$250,175,300	$250,175,300	$500,350,600
Exempt	158	$324,015	$324,015	$648,030
Multi-Family Residential	372	$438,590,754	$219,295,377	$657,886,131

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value
Residential	2,846	$2,830,454,292	$1,415,227,146	$4,245,681,438
Total	**3,666**	**$3,519,544,361**	**$1,885,021,838**	**$5,404,566,199**

Source: Summit County Assessor Data 2025, WSP GIS Analysis
**Property totals were obtained by counting the number of separate property records that were part of the same parcels. As such, the improved values and subsequent totals stem from the total individual property records, not stand-alone parcel totals.*

Table E-7 lists summary information about the 26 critical facilities and other community assets identified by Frisco's HMPC as important to protect or provide critical services in the event of a disaster. For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the base plan HIRA (Chapter 3).

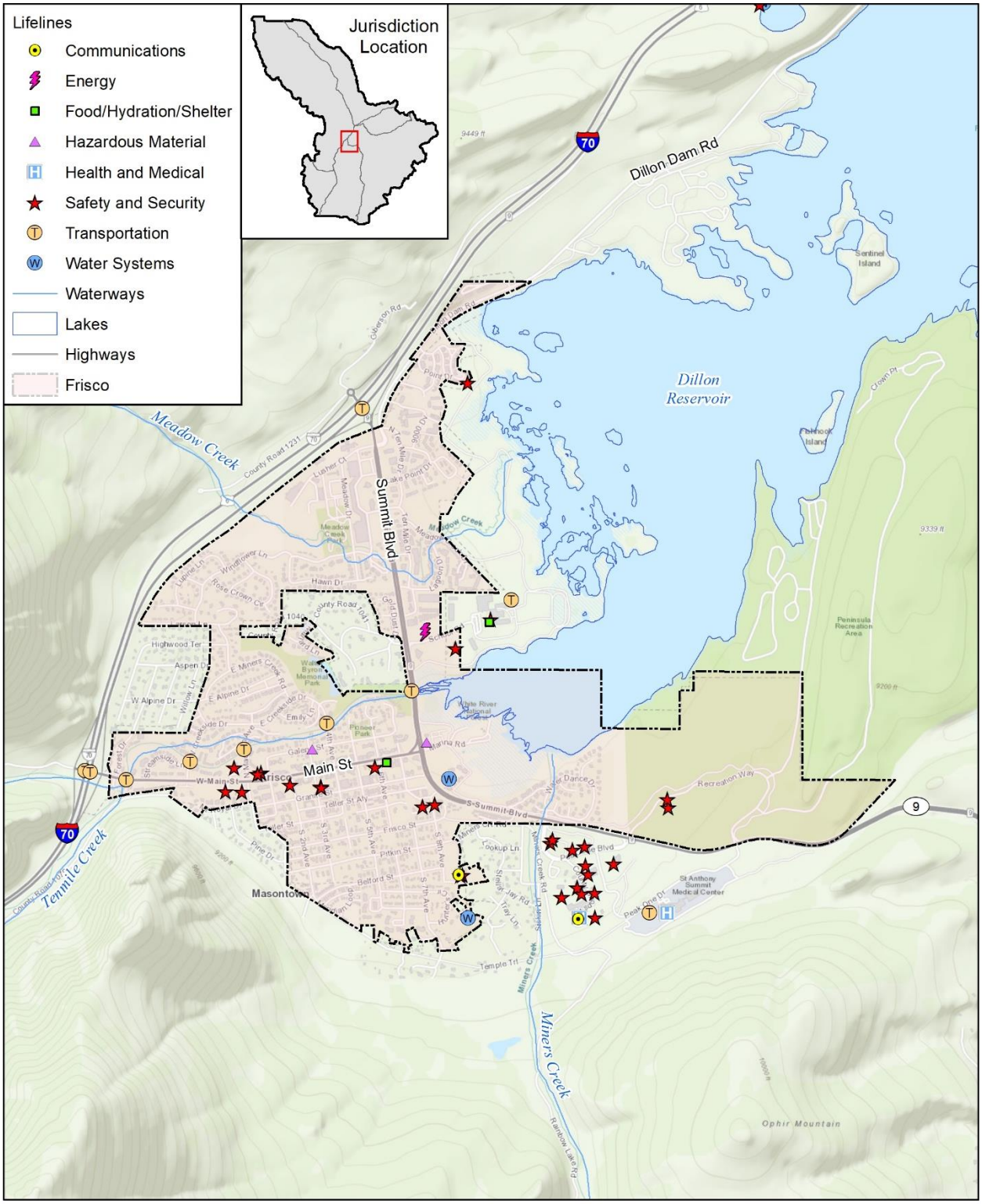
Table E-7 Frisco Critical Facilities

FEMA Lifeline	Facility Type	Count
Energy	Energy Substation	1
Food/Hydration/Shelter	Shelter	1
Hazardous Material	Tier II	2
Safety and Security	Fire Station	1
	Government Building	3
	Historic Structure	2
	Incident Facility	1
	Police Station	1
	School	2
	State Licensed Daycare	5
Transportation	Bridge - Fair Condition	5
Water Systems	Dam - Significant Hazard	1
	Wastewater Facility	1
Total		**26**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

The locations of identified critical facilities and infrastructure in Dillon are illustrated in Figure E-4.

Figure E-4 Critical Facilities and Infrastructure in the Town of Dillon



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams

0 0.5 1 Miles

N

E.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk in more detail where the risk varies from the rest of the planning area. Vulnerability details for the following bulleted hazards are often difficult to compile or estimate for specific jurisdictions and are already described in the Section 3.3.3 of the Base Plan.

- Drought
- Earthquake
- Lightning
- Severe Winter Weather
- Wildlife-Vehicle Collisions
- Windstorm

Avalanche, dam failure, erosion/deposition, flood, hazardous materials release, landslide, pest infestation, wildfire hazards will be profiled in the following vulnerability assessment sections, due to the ability to quantify vulnerability further with available data. These dams are described further in Section 3.3.3 under the Base Plan HIRA.

Avalanche

Overall, Summit County received a high ranking for avalanche as a hazard, with most of the areas at risk found in unincorporated parts of the county (see Section 3.2.1 in the base plan). However, the Town of Frisco has ranked avalanche as an overall low hazard. There is still some risk to the town if an avalanche were to occur in surrounding areas, as the closure of transportation corridors such as Interstate 70 (I-70) could disrupt access in and out of the town.

Dam Failure

General Property

The Town of Frisco has vibrant creeks and streams as well as the Dillon Reservoir directly next to the town. While there is no specific data available to indicate any likelihood of failure, based on best available dam inundation data there might be structures potentially at risk of dam failure flooding. The dam failure inundation maps contain sensitive information and are not available for display in this public planning document. Based on a GIS analysis performed with the county parcel layer and the available dam inundation mapping (for planning purposes only), the following potential damages would be expected in the Town of Frisco. Note that additional details on the GIS analysis methodology, data preparation process, and other helpful information for understanding how vulnerability assessment results were obtained can be found in Section 3.3. Vulnerability Assessment within the main plan HIRA document.

Within Frisco, the Tenmile Creek flows past I-70 into the town center. This means there are multiple properties throughout the town in dam inundation zones, or areas that would be flooded if a dam failure were to occur. As shown in Table E-8 below, the Town of Frisco has 233 parcels in dam inundation zones with a total value of over $304M.

Table E-8 Dam Inundation Hazard by Property Type in Frisco

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Commercial	9	$996,300	$996,300	$1,992,600	0
Exempt	20	$0	$0	$0	0
Multi-Family Residential	25	$30,676,945	$15,338,473	$46,015,418	181
Residential	179	$171,065,990	$85,532,995	$256,598,985	431
Total	**233**	**$202,739,235**	**$101,867,768**	**$304,607,003**	**612**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

Table E-9 discusses the dams within the county where the closest downstream city is Frisco. There are 3 high hazard dams, 1 significant, and 1 low hazard dam with Frisco being the nearest downstream city. These 5 dams have different primary uses including recreation, water supply, and tailings. The dam with the largest storage capacity is Ten Pond #3 Dam, with 152,703 acre-feet of storage capacity. Ten Pond #3 Dam is also a high hazard dam, meaning there would be a probable loss of life if a failure were to occur.

Table E-9 Dams Upstream of Frisco

Dam Name	River	Downstream City	Dam Type	Max Storage (Acre-Feet)	EAP	Dam Info Source	Hazard Class	Primary Use
Bills Ranch Lake	Miners-Tr	Frisco	Earth	11	Y	NID 2022	Significant	Recreation, Fish & Wildlife Pond
Buffers	Tenmile Creek	Frisco	Earth	152	NR	NID 2018	Low	Water Supply
Clinton Gulch	Tenmile Creek	Frisco	Earth	4,372	Y	County	High	Recreation
Mayflower Pond #5	Columbia River	Frisco	Earth	64,300	Y	NID 2021, private	High	Tailings
Ten Pond #3 Dam	Tenmile Creek	Frisco	Earth	152,703	Y	NID 2022	High	Tailings

Source: Summit County; National Inventory of Dams 2025; Water Commissioner Division 5 – District 36

Not listed is the Dillon dam with the nearest downstream city of Silverthorne. However with the Town of Frisco being directly next to the Dillon Reservoir, the areas surrounding the reservoir are all within the Dillon Dam inundation zone. With a storage capacity of 305,000 a failure of the Dillon could be catastrophic.

People

As shown previously in Table E-8, Frisco has 612 people within dam inundation zones. If any of the dams listed above in Table E-9 were to fail, people within these inundation zones are at risk of injury or death. These zone are mapped to help emergency services plan for potential flooding and warn homeowners of the risk.

Critical Facilities and Infrastructure

Economy

The local economy in Frisco relies heavily on tourism and people traveling on I-70. According to the American Community Survey discussed in section E.1.2, the Town of Frisco has a house occupancy rate of

39.8% in 2023, indicating the town is primarily made up of rentals and vacation homes. A dam failure or fear of failure from tourists could greatly reduce the amount of visitors to the town as well as impede access to shops, restaurants, hotels, and other major industries.

Historical Cultural, and Natural Resources

A dam failure would have a major impact on the water quality and health of nearby ecosystems, especially if a tailing dam were to fail. Additionally, although the Frisco Historical Park is not within the Clinton Gulch dam inundation zone for the Ten-Mile creek, it is only two blocks away from the inundation zone. If the Clinton Gulch dam or the Dillon dam were to fail and flood Frisco, it would most likely impact the historical main street and Frisco Historical Park.

Future Development

Although a dam failure is unlikely, future development should consider flood inundation zones and areas with a high risk of flooding in general *(see next section: Flood)*. If development does occur within these zones flood insurance and other mechanisms should be in place to reduce impacts.

Erosion/Deposition

The HMPC gave erosion and deposition a "Low" ranking, in contrast with the county who gave the hazard a "medium" ranking. Throughout the county there are areas that are at risk of erosion, but few if any are found in the Town of Frisco.

Flood

The main flood-causing streams in Frisco include Ten Mile Creek, Meadow Creek, and Miners Creek. Ten Mile Creek flows easterly through Frisco and discharges into Dillon Reservoir. It drains approximately 94 square miles, all within Summit County. Vegetation along the channel through Frisco consists of sparse woods and scattered brush. The channel bed is mostly cobble materials with interspersed boulders. Meadow Creek also flows easterly through Frisco into Dillon Reservoir. The basin has a total drainage area of 5.8 square miles and a length of 4.5 miles. In Frisco, Meadow Creek is confined mainly to a constructed channel through residential and commercial areas (FEMA, 1994 and 2011).

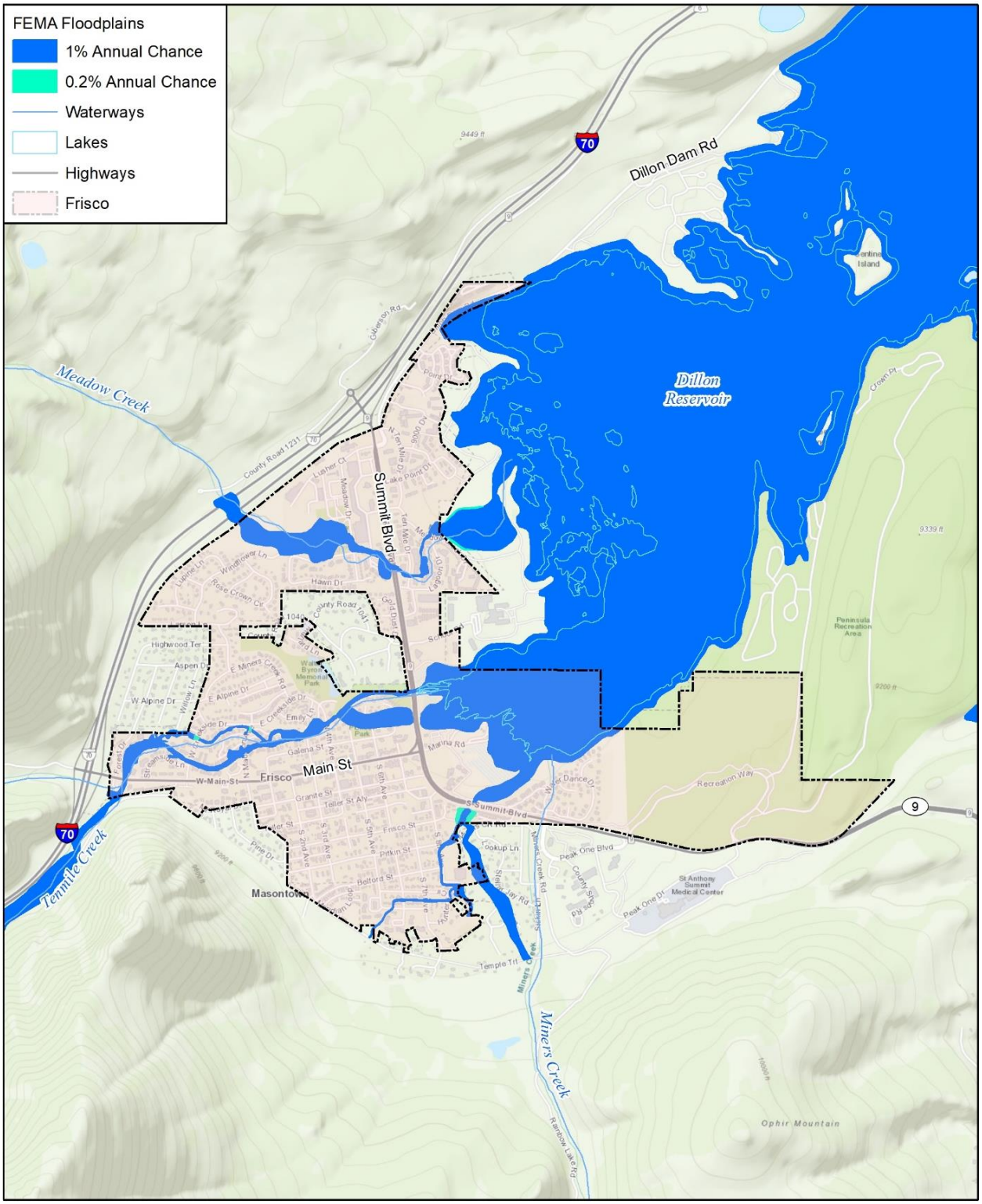
The principal flood problems along Ten Mile and Meadow Creeks from May through September are a result of snowmelt and/or intense rainstorms. Flows approximately equaling the 100-year flood were recorded on June 16, 1965, along Ten Mile Creek but no records of damages are available. Drainage complications from freeze-thaw cycles have also contributed to flooding when the ground is still frozen and cannot absorb excess water, usually from melting snow. The flooding results from repeated melting and freezing of accumulated snow draining into low lying areas. There are no flood protection structures in place that reduce flood hazards in Frisco (FEMA, 2018).

Floodplain development in Frisco consists primarily of condominium and townhome buildings along with single family residences along Ten Mile Creek. Additionally, there are several condominium developments in the floodplain along Meadow Creek.

General Property

Vulnerability to flooding was determined by summing potential losses to Summit County's properties in GIS, by using the latest FEMA NFHL data along with the Summit County parcel layer the provided by the Assessor's Office. FEMA's NFHL data depicts the 1% annual chance (100-year) and the 0.2% annual chance (500-year) flood events. This latest NFHL data is current as of September 17, 2019. Figure E-5 below displays the FEMA special flood hazard areas present in the town, color coded based on flood event (i.e. 100-year versus 500-year).

Figure E-5 Frisco FEMA Floodplains



Map compiled 5/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
FEMA NFHL Effective Date 11/16/2018

0 0.5 1 Miles

N

Based on the GIS analysis performed with the county parcel layer and the available FEMA flood mapping, the potential flood risk for the Town is shown in Table E-10 1% Annual Chance FEMA Flood Hazard by Jurisdiction and Property Type and Table E-11. Frisco's 1% annual chance flood zone has 260 properties and an estimated $113M in total value exposed while the towns .2% annual chance flood zone has 10 properties with a total value of $4.2M exposed. Most properties at risk of flooding from both 1% and 0.2% annual chance flood events are residential in nature.

Table E-10 1% Annual Chance FEMA Flood Hazard by Jurisdiction and Property Type

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Estimated Loss	Population
Commercial	3	$1,368,500	$1,368,500	$2,737,000	$684,250	0
Exempt	9	$0	$0	$0	$0	0
Multi-Family Residential	18	$20,739,300	$10,369,650	$31,108,950	$7,777,238	130
Residential	54	$53,397,908	$26,698,954	$80,096,862	$20,024,216	130
Total	**84**	**$75,505,708**	**$38,437,104**	**$113,942,812**	**$28,485,703**	**260**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Table E-11 0.2% Annual Chance FEMA Flood Hazard by Jurisdiction and Property Type

Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Estimated Loss	Population
Residential	4	$2,858,900	$1,429,450	$4,288,350	$1,072,088	10
Total	**4**	**$2,858,900**	**$1,429,450**	**$4,288,350**	**$1,072,088**	**10**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Flood Insurance Policy Analysis

NFIP insurance data indicates that as of October 28th, 2025, there were 141 flood insurance policies in force in Frisco, with $38,668,000 of coverage. A total of 20 policies currently fall in A01-30 & AE zones. There have been six historical claims for flood losses totaling $921. There were no repetitive or severe repetitive loss properties as defined by the NFIP.

People

The population exposed to the flood hazards described in the flood vulnerability analysis above was estimated by applying an average household size factor (based on 2023 U.S, Census estimates for Summit County, which equal to 2.41 persons per household) to the number of improved residential properties identified in the flood hazard areas within Frisco. These estimates yielded the population exposures shown in the table above (Table E-10 1% Annual Chance FEMA Flood Hazard by Jurisdiction and Property Type and Table E-11). As such, the combined 1% and 0.2% annual chance floods would potentially displace 270 people, based on the residential structures which fall in those flood zones. For additional details on potential displacements by flood event, see the Summit County base plan HIRA (Chapter 4) document.

Critical Facilities and Infrastructure

There are five critical facilities that overlap with the flood zones mapped for Frisco. All 5 are for transportation and fall within the 1% annual chance floodplains. All facilities are along the ten mile creek that flows through town.

Economy

Flooding can have a major economic impact on the economy, including indirect losses such as business interruption, lost wages, and other downtime costs. Flooding often coincides with the busy summer tourism months in Summit County, and may impact, directly or indirectly (such as from the negative perception of potential danger to his hazard), the revenues of shops, restaurants, hotels, and other major industries which keep the local economy thriving. In addition, major flooding which led to road or other infrastructure closures could additionally limit access to the Town by tourists, locals, and even basic goods and services.

Historical, Cultural, and Natural Resources

The environment is mostly resilient to general flooding. However, cultural or historic properties within floodplains would be affected in similar ways as property and critical facilities/infrastructure, especially those with underground or basement levels where water would easily seep and potential ruin archives, resources, or other important assets.

While two historical/cultural properties of interest are located in Frisco based on the National Register of Historic Places (the Frisco Schoolhouse and the Wildhack's Grocery Store-Post Office), neither is found to overlap with currently mapped FEMA special flood hazard areas.

Future Development

The Flood Hazard Area regulations in the Frisco Town Code regulate development in mapped special flood hazard areas. Subdivision regulations also seek to prevent flood damage to persons and properties and minimize expenditures for flood control and to restrict building on floodlands, shorelands, steep slopes, areas covered by poor soils, or in areas otherwise poorly suited for building or construction.

Hazardous Materials Release

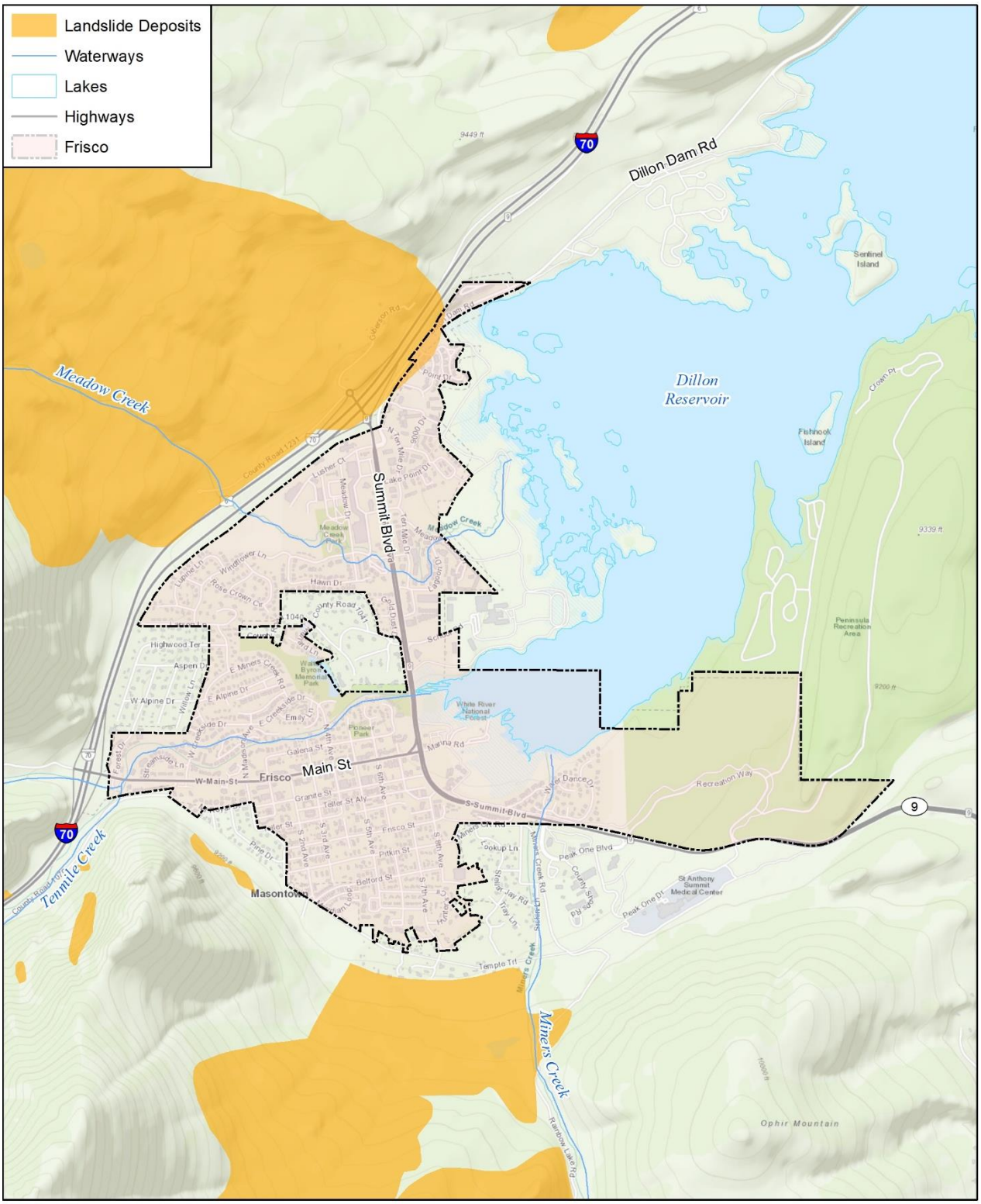
The only Tier II hazardous materials facilities within Frisco town limits are the CenturyLink Communications Center and the Ferrellgas location, as shown in Table 3-11 in the base plan. Both I-70 and U.S. 6 are significant hazardous materials transportation routes.

Landslide

General Property

Landslides throughout the county have historically occurred along I-70 with landslide deposits along the steeper slopes surrounding the interstate. Within Frisco there has been one notable incident; on May 9th, 2013 a rockslide believed to have been caused by rain closed the right lane of westbound I-70 west of Frisco for about half an hour. Drivers helped pick up the smaller boulders to clear the roadway, putting themselves at risk of further rockfall and traffic. The HMPC also noted a fatality involving a rock striking a motorist on I-70; the exact timing of the event was unknown. As shown in Figure E-6 below, landslide deposits surround the northwest corner and southern portion of the town, potentially causing closures on I-70 such as the one that occurred in May 2013. Landslides can also destroy properties, roads, communication networks, and pipelines.

Figure E-6 Frisco Landslide Deposits



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
Colorado Geological Survey (CGS)

0 0.5 1 Miles

N

People

Landslides threaten lives, especially those participating in recreational activities such as hiking or skiing. Landslides could also greatly disrupt transportation routes for people living or driving through Frisco. If a landslide were to occur along I-70, road closures and rerouting could disrupt businesses and work commutes, as well as impact people in nearby communities who work and need to travel into Frisco.

Critical Facilities and Infrastructure

No critical facilities were found to overlap with the landslide zones mapped for Frisco.

Economy

Tourism and retail are major components of Summit County's economy, and Frisco's as well. A landslide restricting access to the town, especially along Interstate 70 (I-70), followed by a cleanup period with closures to roads in and out of the town could reduce customers and tourists traveling to Frisco for one of its many recreational activities.

Historical, Cultural, and Natural Resources

The forested areas that surround Frisco are habitats of multiple species, provide timber and biodiversity protection, and contribute to the overall beauty and aesthetic of the town. A landslide could disrupt all of these features, including impacting the Dillon reservoir and the overall water quality of the town. A sudden disruption in forest health can also leave areas susceptible to other hazards such as floods and wildfires.

Future Development

Future development should be avoided on landslide deposits. Developers should try to avoid slopes greater than 15% to limit soil loss, erosion, excessive stormwater runoff, and the degradation of surface water. The Town of Frisco as well as surrounding jurisdictions and the county have policies in their master plans and/or development codes requiring mitigation through engineering for construction on slopes of a certain steepness and prohibiting development on slopes over 30%. Within the Town of Frisco's 2025 Comprehensive Plan, a mitigation action to minimize development in high risk, hazard, and environmentally sensitive areas, including building on steep slopes, was added to the section for protecting and restoring natural habitats to preserve biodiversity and ensuring ecosystem health (Town of Frisco Comprehensive Plan, 2025).

Wildfire

General Property

Wildfire threat was estimated from Summit County's Wildfire Protection Assessment Rating layer, which classifies areas into Moderate, High, and Highest ratings. This wildfire layer was used in GIS to determine the number, type, and improvement values for properties found to overlap with them, and hence estimate potential property risk to wildfire threat in Frisco. For the purposes of this analysis, the wildfire zone that intersected a parcel centroid was assigned as the threat zone for the entire parcel. Improvement values were then summed by wildfire rating area and then sorted by parcel type. Property improvements and estimated content values were then totaled to arrive at the Total Value column, which is also the

estimated potential loss as wildfires typically result in complete loss to structure and contents. Frisco is primarily located in moderate and high hazard areas.

Wildfire risk to assets areas for Frisco are displayed in. This includes both manmade and natural assets. Natural assets include ecosystem features that provide services we rely on, from stormwater management to flood risk reduction. Figure E-7 shows that areas around I-70 as well as areas around the Dillon Reservoir have a high wildfire risk to assets.

Properties exposed in the Wildland Urban Interface (WUI) were also noted in Table E-13 below. The wildland urban interface is a zone of transition between wilderness (unoccupied land) and land developed by human activity. Communities and properties within the WUI are at a greater risk of more intense wildfires. Within the Town of Frisco 1,657 properties with a total value of $2.4 billion are within the WUI, as well as 4,319 people.

Table E-12 Wildfire Risk Hazard by Property Type

	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
High	Exempt	7	$0	$0	$0	0
	Multi-Family Residential	18	$18,942,900	$9,471,450	$28,414,350	130
	Residential	274	$304,397,832	$152,198,916	$456,596,748	660
	Total	**299**	**$323,340,732**	**$161,670,366**	**$485,011,098**	**790**
Moderate	Commercial	3	$1,353,900	$1,353,900	$2,707,800	0
	Multi-Family Residential	9	$10,414,161	$5,207,081	$15,621,242	65
	Residential	21	$25,521,100	$12,760,550	$38,281,650	51
	Total	**33**	**$37,289,161**	**$19,321,531**	**$56,610,692**	**116**
	Grand Total	**664**	**$721,259,786**	**$361,983,793**	**$1,083,243,579**	**1,812**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Table E-13 Wildfire WUI Risk Hazard by Jurisdiction and Property Type

Wildfire WUI Risk	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Highest	Commercial	86	$58,191,800	$58,191,800	$116,383,600	0
	Exempt	31	$0	$0	$0	0
	Multi-Family Residential	107	$134,342,159	$67,171,080	$201,513,239	877
	Residential	1,120	$1,097,677,747	$548,838,874	$1,646,516,621	2,699
	Total	**1,344**	**$1,290,211,706**	**$674,201,753**	**$1,964,413,459**	**3,576**
High	Commercial	5	$5,906,900	$5,906,900	$11,813,800	0
	Exempt	9	$0	$0	$0	0
	Multi-Family Residential	10	$7,411,775	$3,705,888	$11,117,663	72
	Residential	203	$214,763,850	$107,381,925	$322,145,775	489
	Total	**227**	**$228,082,525**	**$116,994,713**	**$345,077,238**	**562**
Moderate	Commercial	12	$34,766,500	$34,766,500	$69,533,000	0

Wildfire WUI Risk	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Moderate	Exempt	5	$0	$0	$0	0
	Multi-Family Residential	3	$872,700	$436,350	$1,309,050	22
	Residential	66	$52,109,400	$26,054,700	$78,164,100	159
	Total	**86**	**$87,748,600**	**$61,257,550**	**$149,006,150**	**181**
	Grand Total	**1,657**	**$1,606,042,831**	**$852,454,016**	**$2,458,496,847**	**4,319**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Figure E-7 Frisco Wildfire Risk to Assets

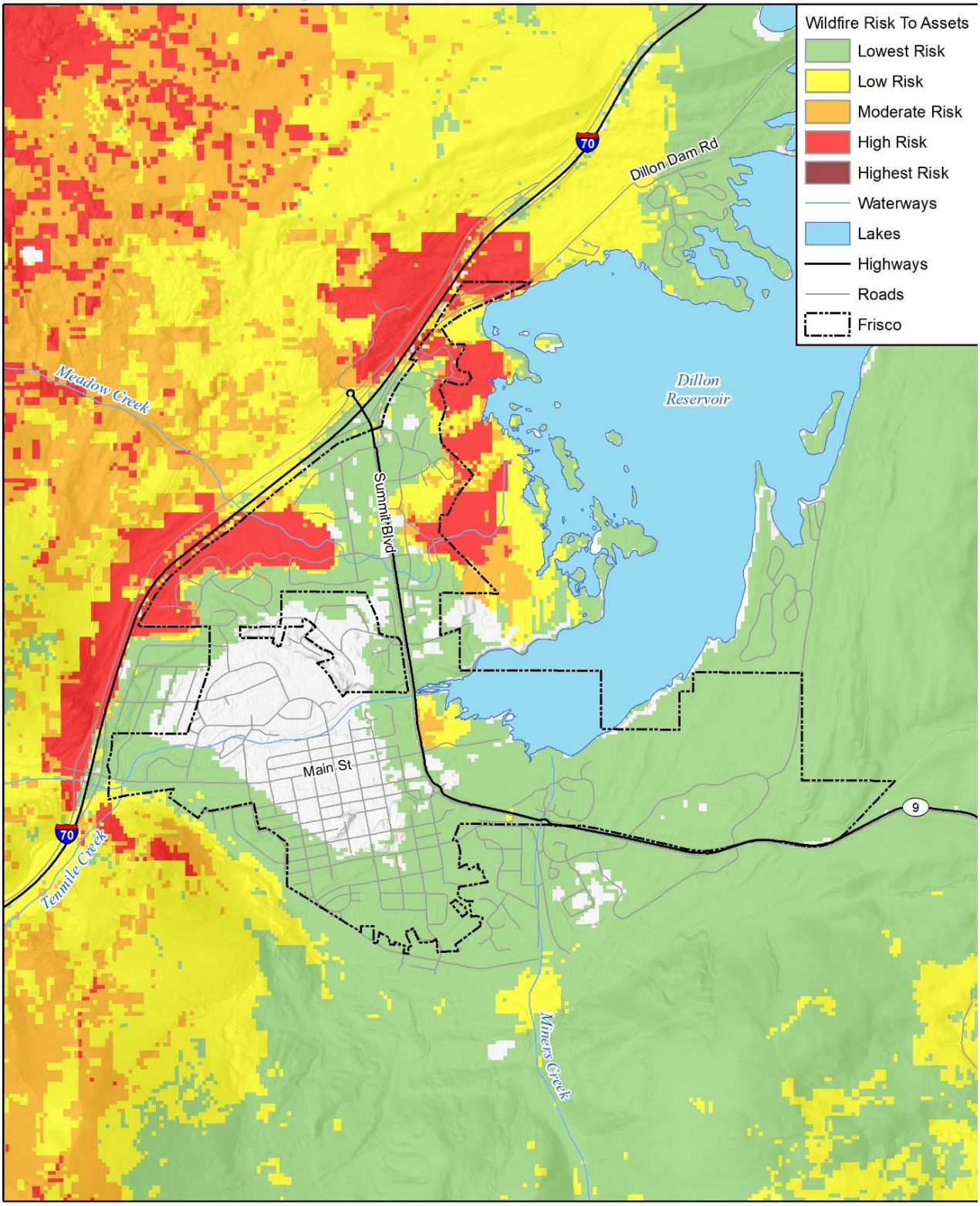
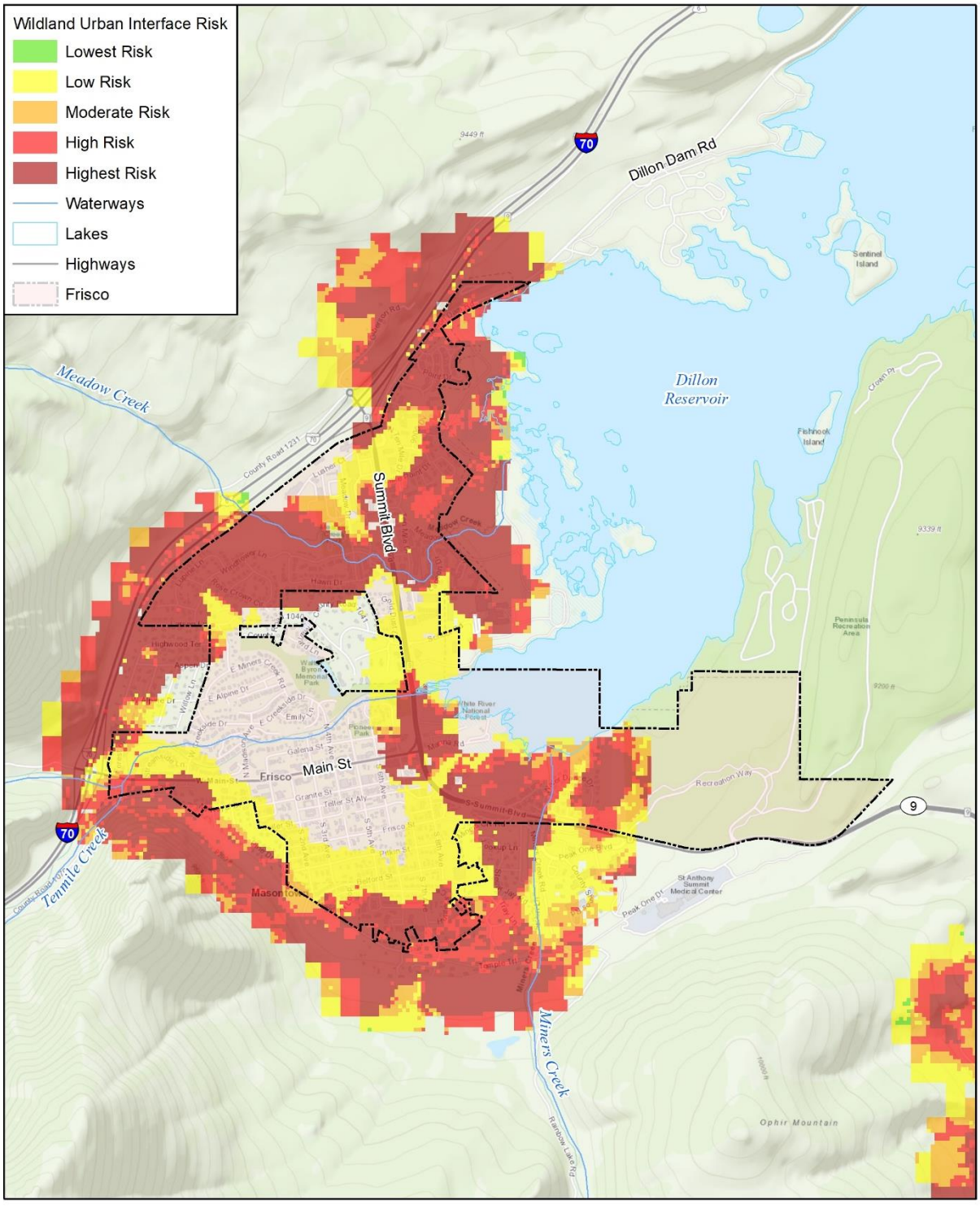


Figure E-8 Frisco Wildland Urban Interface Risk



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CSFS Forest Atlas

People

The last column of above summarizes the number of potential people at risk to wildfire in the analyzed fire zones (medium and high rated protection assessment areas). Based on the assessment conducted, Frisco has an estimated 4,319 people within the Wildland Urban Interface. These totals were estimated by multiplying the average person per household in Summit County, which is 2.41, times the number of residential properties falling within the WUI. The numbers may not be fully accurate but provide a general estimate of potential people exposed to wildfire risks in the area.

In addition, smoke resulting from fire is an issue to local populations, as noted by the Summit County's HMPC. For example, the County Public Health Department has received calls in the past from tourists asking if they should cancel travel plans in the county due to smoke and potential health and safety related concerns.

Critical Facilities and Infrastructure

There are 6 critical facilities located in the Wildland Urban Interface in Frisco, 3 are in the highest WUI Risk zones and 3 are in the high WUI risk zones.

Table E-14 Critical Facilities in Frisco in Wildland Urban Interface Zones

WUI Risk	FEMA Lifeline	Count
Highest	Food/Hydration/Shelter	1
	Hazardous Material	1
	Water Systems	1
	Total	**3**
High	Transportation	2
	Water Systems	1
	Total	**3**
	Grand Total	**6**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Forest Atlas, WSP GIS Analysis

Summit Fire and EMS (SFE), which provides fire protection services to the Town of Frisco and surrounding area, is considered an initial attack center for wildland fires on all private land and takes a joint responsibility with the U.S. Forest Service for fires on federal land.

Economy

Tourism, the accommodation and food services industry (e.g. hotels and restaurants), and retail are major components of Summit County's economy, and Frisco's as well. Wildland fires can, for example, lead to significant tourism reductions due to health and safety concerns, causing lost revenues from lack of visitation, stays in hotels, spending on restaurants and other commerce sources, and more.

Historical, Cultural, and Natural Resources

Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the climate change trend which is leading to hotter, more widespread, and destructive fires can make it more difficult for the environment to recover, and lead to increased flood

runoff or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after the fire.

With regards to historic or cultural structures and resources, wildfires would affect those in similar ways as general property and critical facilities/infrastructure, having the potential for burn downs and hence possible complete loss of important historical assets in Frisco. Two historical/cultural properties of interest are located in Frisco based on the National Register of Historic Places: the Frisco Schoolhouse and the Wildhack's Grocery Store-Post Office. Both are found to overlap with Medium rated wildfire protection assessment areas.

Future Development

The 2025 Town of Frisco Comprehensive Plan discusses different wildfire mitigation strategies, including goals specifically for wildfire mitigation such as Goal R.2: Strengthen wildfire and hazard mitigation efforts and improve infrastructure resiliency to protect the community. Descriptions of Goal R.2 include:

1. Pursue wildfire mitigation effort. Focus on the WUI, the watershed above Tenmile Creek, and create a buffer zone between natural and developed areas .
2. Support the Wildfire Preparedness Plan in partnership with Summit County and surrounding municipalities. Outline strategies for risk reduction, emergency response, and community outreach, including the robust Backyard Plan and the NEPA process.
3. Share resources for wildfire awareness, evacuation planning, and education. Prepare evacuation routes, communication plans, and protocols to ensure quick and organized responses.

Additionally, the Town of Frisco developed a 'Backyard' fuels and recreation plan led by the USDA Forest Service to prepare an environmental assessment in partnership with the Dillon Ranger District of the White River National Forest (WRNF). The Town and Forest Service proposes to implement fuels reduction treatments on approximately 1,233 acres of NFS lands and upgrades to 21 miles of trails.

E.3.3 Growth and Development Trends

Table E-15 illustrates how Frisco has grown in terms of population and number of housing units between 2013 and 2017.

Table E-15 Frisco—Change in Population and Housing Units, 2018-2023

2018 Population	2023 Population	Estimated Percent Change 2018-2023	2018 # of Housing Units	2023 Estimated # of Housing Units	Estimated Percent Change 2012-2017
3,074	2,865	-6.8%	3,690	3,649	-1.1%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Because Frisco is essentially landlocked due to topography, the primary source of new growth is occurring as a result of the redevelopment and infill development of existing residential and commercial properties and lots.

E.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections:

regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

E.4.1 Regulatory Mitigation Capabilities

Table E-16 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Frisco.

Table E-16 Frisco—Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	2024 building code will be adopted by mid-2026
BCEGS Rating	Yes	
Capital Improvements Program (CIP) or Plan	Yes	Capital plan spending to support Frisco Backyard NEPA approved wildfire mitigation
Community Wildlife Protection Plan (CWPP)	No	
Comprehensive, Master, or General Plan	Yes	Adopted in 2025 to start implementation in 2026
Economic Development Plan	Yes	
Elevation Certificates	Yes	
Emergency Operations Plan	Yes	County Level
Erosion/Sediment Control Program	Yes	
Floodplain Management Plan	Yes	
Flood Insurance Study	Yes	
Growth Management Ordinance	Yes	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	Exists at the county level
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	Yes	Will begin process to develop/update this in 2026
Zoning Ordinance	Yes	Begin updates in 2026
Steep Slope	Yes	

The Town of Frisco's application submittal requirements for site plan reviews are cited as a best practice in the document *Planning for Hazards: Land Use Solutions for Colorado* created by the Colorado Department of Local Affairs.

Town of Frisco Comprehensive Plan 2025

According to the Town of Frisco Comprehensive Plan, Comprehensive Plans are required by all municipalities with a Planning Commission by the State of Colorado to "promote the community's vision, goals, objectives, and policies, establish a process for orderly growth and development, address both current and long-term needs, and provide for a balance between the natural and built environment." (See Colorado Revised Statute 30-28-106 and 31-23-206). This Plan is enacted to protect the public health, safety, and general welfare of the Town. Development applications should align with the implementation the policies herewith in.

The Town of Frisco Comprehensive Plan will be a forward-looking document to articulate the needs and priorities of The Town of Frisco and Frisco community and to create an actionable guide in decision making. Goals, Strategies, and Actions within the Plan will facilitate sustainable growth and development, with particular attention to quality of place, economics, mobility, equity, and sustainability.

The city had six categories of goals, each category had around 3-7 specific goals listed. The categories were listed as follows:

B) An inclusive and accessible community

C) Connectivity for all

D) A diverse and thriving economy

H) Housing affordability

N) Connection to Nature

R) Resilient Environment

Each of these categories also had actions listed, with around 2-6 actions for each specific goal within the six categories. Overall there were 102 actions listed within the plan.

2025 Town of Frisco Backyard Fuels and Recreation Project

In 2023 the Forest Service proposed approximately 1,250 acres of fuels reduction activities and approximately 25 miles of trails decommission, improvement, and construction activities near the Town of Frisco. The comment period ended in April 2025 with an estimated decision of December 2025 and implementation in June 2026. The project would include:

- Fuel Treatments (Non-Activity Fuels)
- Forest Vegetation Improvements
- Dispersed Recreation Mgmt.; Special Use Authorizations
- Trail Management
- Noxious Weed Treatments
- Order Creation/Modification
- Road Maintenance
- Road Improvements/Construction
- Special Area Management
- Timber Sales (Salvage)
- Travel Management
- Timber Sales (Green)
- Watershed Improvements

2023 The Town of Frisco Trails Master Plan

The Town of Frisco Trails Master Plan serves as an update to the 2017 Frisco Trails Master Plan, much of which the Town has implemented. Over the last five years, the Town has successfully moved forward with planning, approval, and completion of many new and improved trails for Nordic skiing, mountain biking, hiking, and running at the Peninsula Recreation Area (PRA) – spearheaded by the hire of a new Trails Manager.

Additionally, the Town has invested in two new paved multi-use pathways along 2nd Avenue and Belford Street, providing essential dedicated infrastructure for bicyclists and pedestrians in the neighborhoods south of Main Street and adjacent to Frisco Elementary. The Town has also continued to work successfully with CDOT to improve circulation and pedestrian infrastructure along SH-9, including its intersection with Main Street, two new roundabouts, and a pedestrian underpass at Peak One Boulevard/Recreation Way connecting County Commons to the PRA. These, along with other projects illustrate the Town's commitment and achievement in improving safety, comfort, connectivity, and recreational opportunities for its residents and visitors.

2022 Downtown Complete Streets Plan

Beginning in summer 2021, the Town of Frisco began the process to develop the Downtown Complete Streets Plan. The planning effort was led by Community Development Department staff, a consultant team, and a Project Management Team composed of the Town Manager, Town Council and Planning Commission representatives, and staff representing other Town departments including Public Works and Recreation and Culture. This Plan reflects the knowledge, priorities, and values of community participants, the Project Management Team, Town staff, and other stakeholders about how to best transform Frisco's downtown streets to meet the needs of current residents and generations to come.

The plan states:

> *The Downtown Complete Streets Plan sets a clear vision and framework for Town staff, elected officials, community members, stakeholders, and private developers to participate in transforming the Town's core street network into a more vibrant, inclusive, and inviting place for all people, regardless of whether they are walking, bicycling, rolling, riding transit, or driving. As Frisco continues to grow and change, its downtown streets remain its largest and most valuable public space, enabling the rich social and economic life of the Town. By promoting safe, comfortable, accessible, and active streets, the Town's people, workforce, business community, and visitors can continue to flourish and enjoy all that makes Frisco a unique and exciting place.*

Town of Frisco Community Plan 2019

The Frisco Community Plan is an advisory document that presents a clear and concise community vision for the future of Frisco, and establishes realistic strategies for achieving that vision. The plan is visionary and not regulatory, and is intended to provide direction to elected officials, appointed officials, staff, and the citizenry. The 2019 Plan establishes six guiding principles and highlights the County's 2013 Hazard Mitigation Plan. Guiding Principle 6: Sustainable Environment states the following:

> Frisco's natural environment is the primary quality that attracts residents and visitors. It supports our economy and drives our recreational pursuits. Protecting the surrounding mountains, forests, waterways, and views are all deeply important to the community. These natural assets make Frisco beautiful, unique, and drive a thriving year-round economy. Pollution, wildfires, avalanches, and floods are threats to Town resources that should be recognized and minimized to the extent possible. The community should embrace measures for sustainability that reduce greenhouse gas emissions and conserve its water resources.

The following goal and policies under Guiding Principle 6 relate to natural hazards and hazard mitigation:

- **Goal 6.3:** Minimize risks to property, infrastructure and lives from natural disasters.
  - 6.3A Continue to collaborate with regional partners on efforts to implement the Community Wildfire Protection Plan (CWPP), Summit County All-Hazards Mitigation Plan, and standardized emergency response plans.
  - 6.3B Educate property owners on the impacts of development in areas that are susceptible to risk from natural hazards.
  - 6.3C Evaluate Town policies and regulations to support best practices in hazard resiliency.

Town of Frisco Town Code

The Frisco Town Code serves as the legal framework for the Town, codifying allowable activities, and creating an enforcement structure for the adopted policy of the Town. Outlined below are the chapters in the Frisco Town Code that are related to hazard mitigation and loss avoidance:

- **Chapter 97 Flood Hazard Areas:** The purpose of the floodplain ordinance is to protect public health, safety, and welfare by regulating development and land use in mapped flood hazard areas.
- **Chapter 180 Unified Development Code (Subdivision of Land):** The subdivision regulations require that particular consideration will be given to geologic hazards and topography in relation to the suitability of the land for development, flooding, storm drainage, and preservation of natural areas for open space. Land subject to hazardous conditions such as landslides, mudflow, rock falls, snowdrifts, possible mine subsidence, shallow water table, floods, and polluted or nonpotable water supply shall be identified and shall not be subdivided until hazards have been or will be eliminated by the subdivider in accordance with the plans developed by a Colorado licensed engineer specializing in such matters, and as approved by the Town Council. Hazard related purposes of the regulations include the following:
  - Protect natural vegetation, wetlands, and scenic areas.
  - Prevent and control erosion, sedimentation, and other pollution of surface and subsurface water.
  - Prevent flood damage to persons and properties and minimize expenditures for flood control.
  - Restrict building on floodlands, shorelands, steep slopes, areas covered by poor soils, or in areas otherwise poorly suited for building or construction.
  - Prevent loss or injury from landslides, expansive soils, and other geological hazards.
- **Chapter 180 Unified Development Code (Zoning):** The purpose of this chapter is to lessen congestion in the streets, to conserve health, to secure safety from fire, flood, and other dangers.

Floodplain Regulations and NFIP Participation

Frisco joined the National Flood Insurance Program (NFIP) on May 15, 1980. The floodplain regulations are defined in Chapter 97 of the Town Code. The Town of Frisco also participates in the Community Rating System (CRS), which means they go above and beyond the minimum NFIP floodplain regulations. The Town currently holds a CRS class ranking of 8, which provides a 10 percent reduction in flood insurance premiums for all policy holders in special flood hazard areas. Frisco achieves its CRS points through the following activities:

- Map Information Services
- Community Outreach Projects

- Floodplain Hazard Disclosure
- Flood Protection Information
- Open Space Preservation
- Higher Regulatory Standards
- Flood Data Maintenance
- Stormwater Management
- Drainage System Maintenance

E.4.2 Administrative/Technical Mitigation Capabilities

Table E-17 identifies the personnel responsible for activities related to mitigation and loss prevention in Frisco.

Table E-17 Frisco—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	No	
Floodplain Administrator	Yes	Contracted or on staff
Community Planning	Yes	Full staffing in house
Planner/Engineer (Land Development)	Yes	Contracted
Engineer/Professional (construction)	Yes	
Resiliency Planner	No	Contracted
Transportation Planner	No	Contracted
Full-Time Building Official	Yes	Contracted
GIS Specialist and Capability	Yes	Contracted
Grant Manager, Writer, or Specialist	Yes	Contracted
Warning Systems/Services	Yes	
• Flood	Yes	County Level
• Wildfire	Yes	County Level
• Tornado	Yes	County Level
• Geological	Yes	County Level

E.4.3 Fiscal Mitigation Capabilities

Table E-18 identifies financial tools or resources that Frisco could potentially use to help fund mitigation activities.

Table E-18 Frisco—Fiscal Mitigation Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	Yes		
Utilities Fees	No		
System Development/ Impact Development Fees	Yes		
General Obligation Bonds to Incur Debt	Yes		
Special Tax Bonds to Incur Debt	Yes		
Withheld Spending in Hazard-Prone Areas	Yes		
Stormwater Service Fees	No		Begin development in 2026

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Capital Improvement Project Funding	Yes		CIP is fully funded
Community Development Block Grants	Yes		Not eligible for State priorities

E.4.4 Mitigation Outreach and Partnerships

Table E-19 identifies financial tools or resources that Frisco could potentially use to help fund mitigation activities.

Table E-19 Frisco - Education and Outreach

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Firewise	Yes	Conducted by the County
• Storm Ready	Yes	Conducted by the County
• Severe Weather Awareness Week	Yes	Conducted by the County
• School programs	Yes	Conducted by the County
• Other	Yes	Conducted by the County
Methods Used to Communicate Hazard Information to the Public		
• Local News	Yes	
• Social Media	Yes	
• Community Newsletters	Yes	
• Utility Bill Inserts	Yes	
• Community Events	No	
• Other		
Organizations that represent or work with underserved or vulnerable communities		
• American Red Cross	Yes	
• Salvation Army	Yes	
• Veterans Groups	Yes	
• Seniors Groups	Yes	
• Groups for People With Disabilities	Yes	
• Environmental/Conservation Groups	Yes	HC3
• Other – Mountain Dreamers		
Business Groups, Academia, Other		
• Chamber of Commerce	Yes	Summit Chamber of Commerce
• Community Organizations (Lions, Kiwanis, etc.)	Yes	Rotary
• Homeowner/Neighborhood Associations	Yes	
• Universities or Community Colleges	Yes	CSU Extension Fire Mitigation
• Agricultural Extension Office	No	
• Other – Summit Builder's Association	Yes	

Frisco is also involved in ongoing outreach activities, which include the following:

- The Town has held fire safety classes at the elementary school
- Frisco participates in the Summit County Wildfire Council
- The Blue River Watershed Regional Water Efficiency Plan highlights vulnerabilities to drought and wildfires. This regional plan seeks to raise common themes and water saving opportunities to

encourage partnership and collaboration between participating utilities and entities (High Country Conservation Center, 2018).

- Each spring, the governments of Summit County, Breckenridge, Dillon, Frisco and Silverthorne distribute a packet of information to inform the communities about how to prepare for possible high water in May and/or June resulting from snowmelt

E.4.5 Past Mitigation Efforts

2016: the Town completed a project to install flood pans on both the north and south sides of Main Street at a cost of $300,000. This activity will specifically address past flooding at the intersection of 7th Avenue and Main Street and will return collected water back to Ten Mile Creek. Frisco is also replacing a culvert on Jug Creek. This particular project was completed as part of the Town's "Step up Main Street" project which focused on fixing drainage on Frisco's Main Street.

2018: The Town of Frisco adopts the Marina Master Plan and along with it starts the "Big Dig" project. This project's main goal was to deepen the marina's lakebed by removing up to 85,000 cubic yards of dirt, lowering some areas by as much as 13 feet. This deepening allowed for improved navigation, a longer boating season (up to a month longer), and greater resilience during seasons of low water.

2019: The Meadowcreek Wetlands Mitigation Project comes as a direct result of the town's Big Dig Project, an excavation of dirt from the Dillon Reservoir's lakebed, that was completed earlier this year. As part of the work, Frisco disturbed about 1.03 acres of wetlands near the marina and is required by the Army Corps of Engineers to replace the wetlands with a 2-to-1 ratio or about 2.1 acres. the project includes lining the edge of the wetlands with an impermeable curtain to keep the manmade ditch from pulling ground water away from the wetlands, though surface water will be allowed to flow naturally.

2023: Frisco Bay Marina Lighthouse Lawn. This project added a beautiful outdoor connection between the Lund House and Frisco Bay Landing and provides the community with a expansive open space next to the water for recreation, relaxation, and Town hosted events such as Rock the Dock. The 1.3-acre site, largely created during the "Big Dig" consists mostly of turf framed with trails and native plantings to celebrate the mountain environment and reduce maintenance. Trails and walkways are aligned to view the surrounding mountains and promote easy wayfinding and safety. The scope of this project also included drainage repair to prevent flooding in the fire lane near the lighthouse.

2025: According to the United States Forest Service, the Frisco Backyard project is a 3,026-acre area of White River National Forest south and east of downtown Frisco that includes Mount Royal, Miners Creek, Rainbow Lake, Ophir Mountain, and Gold Hill. Past history of wildfire suppression and the mountain pine beetle epidemic have created high fuel loads in this area, increasing wildfire risk to the Town of Frisco. The area is also heavily used for outdoor recreation year-round, with over 250,000 annual visits creating impacts the proposal addresses through trail and trailhead improvements. This project includes:

- 1,576 acres of various wildfire fuel treatments divided into 63 treatment units.
- Creating a more sustainable summer trail system through actions such as constructing or rerouting trails, decommissioning trail sections, and adopting and maintaining select user-created trails.

- Grooming approximately 10.2 miles of National Forest System trails and non-NFS routes during the winter for multiple uses (skiing, snowshoeing, hiking/walking, running, bicycling, etc.). All trails open to bicycles during the summer season would be open to bicycles during the winter season, which is currently prohibited.

- The Peaks/Zach's Stop Trailhead and Miner's Creek Trailheads would be redesigned and improved to better manage parking and reduce impacts to adjacent neighborhoods.

E.4.6 Opportunities for Enhancement

Based on the capability assessment, Frisco has several existing mechanisms in place that already help to mitigate hazards. One of these is to amend the Town's Unified Development Code to include wildfire risk reduction standards. This has been detailed as a new mitigation strategy in 2020. Another opportunity would be to improve the CRS rating. The Town has a substantial number of flood insurance policies, and an improved rating could make flood insurance more affordable.

E.5 Mitigation Strategy

Frisco adopted the hazard mitigation goals and objectives developed by the HMPC and described Chapter 4 Mitigation Strategy.

E.5.1 Mitigation Goals and Objectives

Frisco adopted the hazard mitigation goals and objectives developed by the HMPC and described Chapter 4 Mitigation Strategy.

E.5.2 Progress on Previous Mitigation Actions

The Town of Frisco Planning Team reviewed their mitigation actions from the 2020 plan, and determined that none of their three mitigation actions have been completed. The remaining actions were carried over into the 2025 Plan, along with five new actions.

E.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan, were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

Continued National Flood Insurance Program compliance

The Town of Frisco will continue participation in and compliance with the National Flood Insurance Program. The Flood Preparedness section on the towns website lists the ongoing requirements for citizens and property owners to continue compliance:

- A Floodplain Development Permit is required before construction or development begins within any Special Flood Hazard Area (SFHA), regulatory floodplain, or a project whose limits extend to within 25 feet of a SFHA

- Create and practice a Disaster Plan. Talk to everyone in your household about what to do if a flood occurs. Decide where you would meet and who you would contact in case of flooding. Assemble and maintain an emergency preparedness kit. Be prepared to evacuate your family and pets at a moment's notice.
- Visit the Summit County Office of Emergency Management website for additional updates about flood emergencies and how to protect yourself during floods and other hazard events.
- Heed Flood Warnings. Listen to your local radio and TV stations for updated flood information. A flood watch means flooding or flash flooding is possible in your area.
- Contact the Community Development Department (CDD) to find information about the risk of flooding to a property you own, are considering purchasing, or selling.

E.5.4 Mitigation Actions

The 2025 update has 3 annually implemented or ongoing actions for the Town of Frisco as shown in Table E-20 below. During the planning process the Lead Planning Team identified that of their 4 mitigation actions from 2020, 1 was completed, 3 of the actions implemented annually, demonstrating ongoing process and building the community's resilience.

The planning team for Frisco identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Frisco will continue participation in and compliance with the NFIP. Specific activities that the Town will undertake to continue compliance include the following:

- Working with FEMA and the State in the map modernization program and adopting new DFIRMs when effective
- Reviewing the flood damage prevention ordinance and identifying opportunities for strengthening the ordinance at the same time it is updated to adopt new DFIRMs
- Continuing participation in the Community Rating System and identifying opportunities to increase points and lower rating, such as through this planning process

Table E-20 Town of Frisco Mitigation Actions

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Frisco 1	Improve information on website about natural hazard risk and mitigation	Avalanche, Dam Failure, Drought, Earthquake, Erosion/ Deposition, Flood , Hazardous Materials, Landslide,, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1	**Frisco Community Development Department**	Staff time. Town General Fund	Low	2020-2024	Ongoing. The Town of Frisco's website is continuously updated to reflect the current risks in the area as well as historical risks. Information pertaining to flood and wild fire is easily accessible and substantial.
Frisco 2	Maintain NFIP participation and keep CRS rating as 8 and/or improve to higher rating	Flood, PR, PP	1, 2, 3	**Frisco Community Development Department**	Staff time. Town General Fund	Low	2020-2025	Ongoing. As of the April 2025 CRS Eligible Communities report by FEMA, the Town of Frisco now has a score of 7, an improvement from 2020, resulting in a 15% discount
Frisco 3	Amend the Frisco Unified Development Code to implement wildfire risk reduction best practices including amendments that complement the recently adopted fire code standards for defensible space	Wildfire, PP	1, 2, 3	**Frisco Community Development Department**	Staff time. Town General Fund	Medium	2020-2024	Not Started. Currently, this is under discussion with the community development team, who are coordinating efforts with Summit Fire and EMS
Frisco 4	Develop storm water management utility	Flood	2, 3	**Frisco Public Works**	Staff time. Town General Fund	High	2026 - 2028	**New in 2025.**
Frisco 5	Be a funding and project partner to the USFS in wildfire mitigation on adjacent National Monument lands that border Frisco	Wildfire	1, 2, 3, 4	**Frisco Community Development Department**	Staff time. Town General Fund	High	2026 - 2035	**New in 2025.**NEPA clearance for project implementation expected in Feb 2026

ID	Description	Hazard & Category	Goals	Lead & Partner Agencies	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Frisco 6	Development of a new well that will separate Frisco's groundwater sources from the highest risk hazardous materials areas due to I70 currently passing two close wells.	Hazardous Materials Incidents	1, 2, 3, 4	**Frisco Public Works**	High, US EPA	Medium	2025-2029	**New in 2025.**
Frisco 7	Enhanced coordination with state, County and other local governments to be able to react both proactively and post snow/ice event to protect residents and visitors.	Winter Weather	1, 2, 3, 4	**Frisco Community Development Department**	Staff time, Town of Frisco	Medium	2026	**New in 2025.**
Frisco 8	Multi-hazard awareness and warning system	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1	**Frisco Public Works,** Summit County OEM	$15,000.00 per unit: total $30,000,00; Dept. Budget	Medium	Mid Term	**New in 2025.**

E.6 Implementation and Maintenance

Moving forward, the Town will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

E.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the Town to help inform updates and the development of local plans, programs and policies.

Integration of 2019 Plan into Other Planning Mechanisms

Risk and vulnerability information from the 2019 Summit County Hazard Mitigation Plan and the Town of Frisco annex was used to inform the 2025 update to the Town of Frisco Community Plan, as noted in section E.4 Capability Assessment. The plan acknowledges that natural hazards exist and influence how the Town has grown and will develop. Hazard mitigation is also noted as high priority for the Town. Refer to subsection E.4.1 Regulatory Mitigation Capabilities for more information related to the integration and acknowledgment of the hazards in the Town's Community Plan.

Process Moving Forward

Moving forward, the Planning Division may utilize the hazard information when reviewing a site plan or other type of development applications and the Public Works department may utilize the hazard information when updating the Town's Capital Improvement Plan annually. The Town will also incorporate this HMP into future updates to the Town of Frisco Community Plan.

As noted in Chapter 5 Plan Maintenance, the HMPC representatives from Frisco will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting

E.6.2 Monitoring, Evaluation and Updating the Plan

The Town will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. The Town will continue to involve the public in mitigation, as described in Section 5.4 of the Base Plan. The Community Development and Public Works Directors, or their designee will be responsible for representing the Town in the County HMPC, and for coordination with Town staff and departments during plan updates. The Town realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

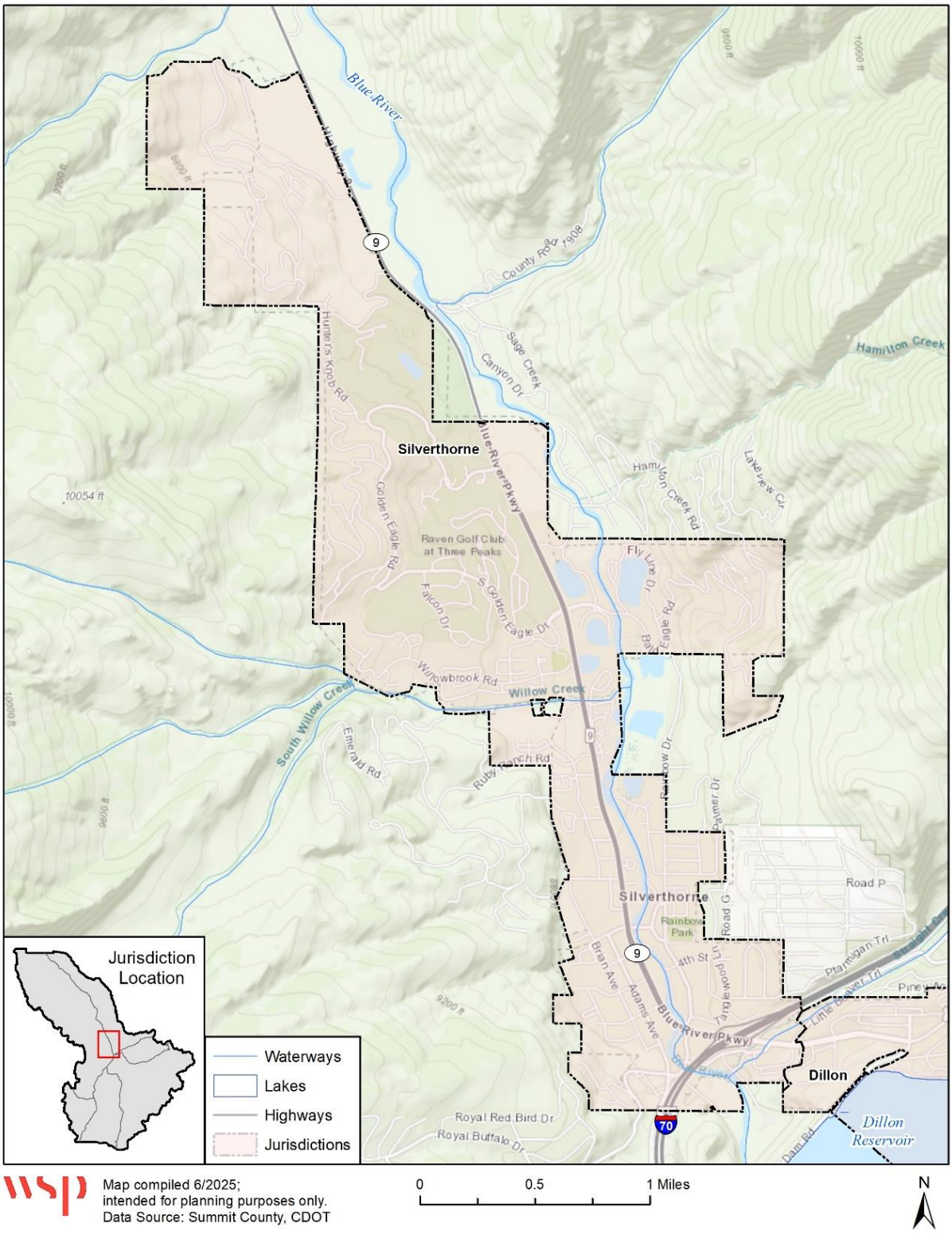
E.6.3 Continued Public Involvement

The Town of Frisco will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. Additionally, the Town will engage the public in implementation of trail work, encouraging volunteer efforts around such and to support the wildfire mitigation that the USFS will be performing in the US Forest south of Town. The Town will also:

- Continue to inform town property owners of any code changes that are forwarded to encourage fire hardening
- Provide regular newsletter broadcast of Town Council and Town government activities
- All activities around Emergency Preparedness and any mitigation of risk the Town works on will be published to the community for review and awareness.

Annex F: Town of Silverthorne

Figure F-1 Town of Silverthorne



F.1 Community Profile

Figure F-1 above shows a base map of the Town of Silverthorne and its location in Summit County.

F.1.1 Geography

Silverthorne is in the center of Summit County at an elevation of 8,790 feet, just downstream from Lake Dillon on the Blue River. The Blue River flows north through the Town. Its discharge through Silverthorne is regulated by the Dillon Dam. Straight Creek, Willow Creek, and the smaller Vendett Gulch Creek are tributaries of the Blue River that flow through Silverthorne (as displayed in the figure above). The Town is nestled below Buffalo Mountain and Red Peak, both part of the Gore Range to the west, and Ptarmigan Mountain and the Williams Fork Range to the east. Both sides of the valley are characterized by steep hillsides.

The climate of Silverthorne is that of a Colorado alpine valley. The mean annual temperature is approximately 35°F, with minimum daily temperatures averaging approximately 16°F and maximum daily temperatures averaging approximately 52°F. The lowest annual temperature averages approximately -45°F and the highest yearly temperature averages approximately 89°F. Total annual precipitation averages 18.4 inches, with approximately 140 inches of snow.

F.1.2 Population

The estimated 2023 population of the Town of Silverthorne was 4,657. Select U.S. Census data and American Community Survey (ACS) 2018-2023 estimates of demographic and social characteristics for Silverthorne are summarized in the following tables and figures.

Table F-1 Silverthorne Demographic and Social Characteristics 2018-2023

Town of Silverthorne	2018	2023	% Change
Population	4,559	4,657	2.1%
Median Age	44.3	47.2	6.5%
Total Housing Units	2,327	2,943	26.5%
Housing Occupancy Rate	63.7%	72.3%	13.5%
% of Housing Units with no Vehicles Available	8.0%	2.8%	-65.0%
Median Home Value	$611,700	$691,300	13.0%
Unemployment	2.1%	4.9%	133.3%
Mean Travel Time to Work (minutes)	20.9	28.8	37.8%
Median Household Income	$63,452	$114,185	80.0%
Per Capita Income	$35,294	$77,069	118.4%
% Without Health Insurance	18.8%	12.1%	-35.6%
% of Individuals Below Poverty Level	9.6%	6.6%	-31.3%
# of Households	1,482	2,128	43.6%
Average Household Size	3.07	2.18	-29.0%
% of Population Over 25 with High School Diploma	84.6%	89.7%	6.0%
% of Population Over 25 with Bachelor's Degree or Higher	46.0%	48.5%	5.4%
% with Disability	6.3%	0.5%	-92.1%
% Speak English less than "Very Well"	22.7%	9.2%	-59.5%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table F-2 Demographic and Social Characteristics Compared to the County and State

Demographic & Social Characteristics (as of 2023)	Silverthorne	Summit County	Colorado
Median Age	47.2	39.2	37.9
Housing Occupancy Rate	72.3%	39.0%	92.0%
% of Housing Units with no Vehicles Available	2.8%	2.7%	5.4%
Median Home Value	$691,300	$850,700	$550,300
Unemployment	4.9%	2.5%	5.0%
Mean Travel Time to Work (minutes)	28.8	21.2	25.5
Median Household Income	$114,185	$106,255	$563,000
Per Capita Income	$77,069	$58,219	$51,768
% Without Health Insurance	12.1%	10.2%	9.3%
% of Individuals Below Poverty Level	6.6%	7.4%	6.7%
Average Household Size	2.18	2.35	2.37
% of Population Over 25 with High School Diploma	89.7%	94.9%	93.3%
% of Population Over 25 with bachelor's degree or Higher	48.5%	52.5%	46.3%
% with Disability	0.5%	6.4%	11.7%
% Speak English less than "Very Well"	9.2%	5.5%	16.0%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Table F-3 Demographics by Race and Sex

Silverthorne	Population	%
Total Population	4,657	(X)
Male	2,854	61.3
Female	1,803	38.7
White, not Hispanic	3,582	76.9%
Hispanic or Latino	979	21.0%
Black	0	0.0%
Asian	1	0.0%
American Indian and Alaska Native	11	0.2%
Native Hawaiian and Other Pacific Islander	40	0.9%
Some other race	0	0.0%
Two or more races	44	0.9%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

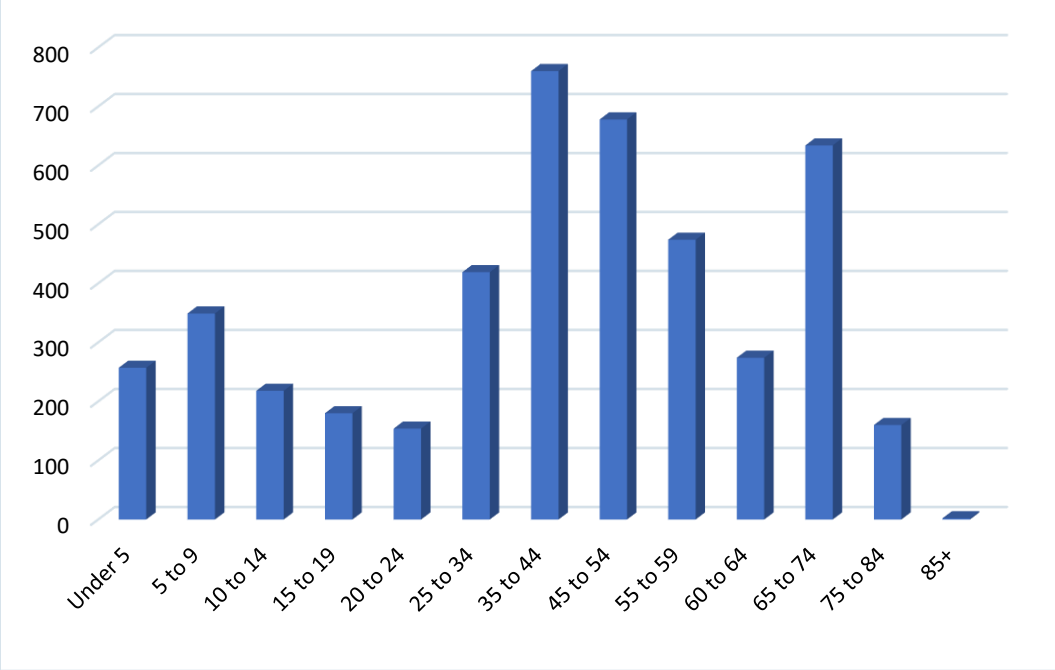
Table F-4 Types and Total Amounts of Housing Units in Silverthorne

Type of Housing Units	Total	Percentage
Total housing units	2,943	(X)
1-unit detached	1,646	55.9%
1-unit attached	773	26.3%
2 units	14	0.5%

Type of Housing Units	Total	Percentage
3 or 4 units	14	0.5%
5 to 9 units	129	4.4%
10 to 19 units	345	11.7%
20 or more units	0	0.0%
Mobile home	22	0.7%
Boat, RV, van, etc.	0	0.0%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

Figure F-2 Age Distribution in Silverthorn



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

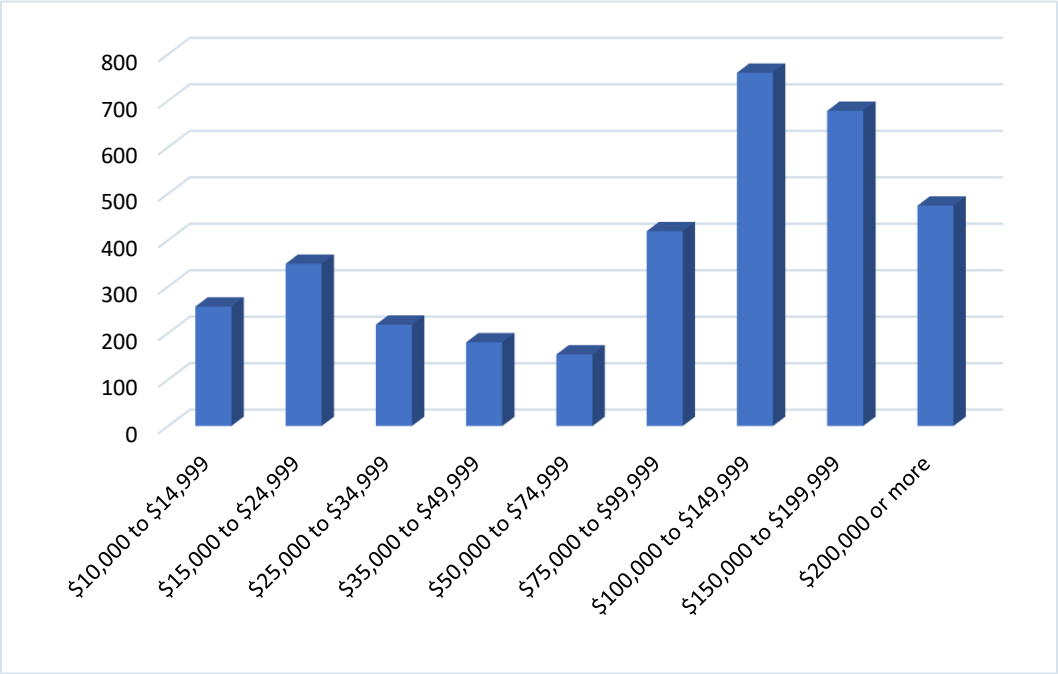
F.1.3 History

Incorporated in 1967, Silverthorne began as a residential area approximately two miles north of the old Town of Dillon. The Town is named for Judge Marshall Silverthorn who bought 160 acres at the Town's current location in 1881. Original subdivisions in the 1950s were home to the construction workers building the Dillon Dam.

F.1.4 Economy

According to the 2023 ACS 5-Year Survey, the industries that employed the highest percentages of Silverthorne's labor force were: educational services, and health care and social assistance (31.0%); professional, scientific, and management, and administrative and waste management services (14.8%); arts, entertainment, and recreation, and accommodation and food services (13.9%); and construction (12.3%).

Figure F-3 Income Distribution in Silverthorne as of 2023



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2018-2023

F.2 Hazard Identification and Profiles

Silverthorne's HMPC identified the hazards that affect the community and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and overall significance specific to the Town. These hazards and their significance is displayed in Table F-5. In the context of the countywide planning area, there are no hazards that are unique to Silverthorne.

Table F-5 Silverthorne Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Occasional	Negligible	Low
Dam Failure	Large	Unlikely	Catastrophic	High
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Unlikely	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Small	Likely	Critical	High
Hazardous Materials Release (Transportation)	Isolated	Occasional	Critical	High
Landslide, Mudflow/Debris Flow, Rockfall	Medium	Likely	Limited	Medium
Lightning	Large	Highly Likely	Critical	Medium
Pest Infestation (Forest and Aquatic)	Medium	Likely	Limited	Medium
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Small	Likely	Critical	High
Wildlife-Vehicle Collisions	Small	Likely	Limited	Low
Windstorm	Large	Likely	Limited	Low

Note: See Section 3.2 of the Base Plan for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

F.3 Vulnerability Assessment

The intent of this section is to assess Silverthorne's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk to hazards for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

F.3.1 Community Asset Inventory

Table F-6 shows the total number of improved parcels, properties, and their improvement and content values for the Town of Silverthorne. Note that only those parcels with improvement values greater than $0, or those which were classified as "exempt," were accounted here and in vulnerability assessments to follow, so that those non-developed or non-improved parcels were left out for the purposes of conducting the vulnerability assessments in this annex. Counts and values are based on the latest county assessor's data, which was provided in GIS format. Contents exposure values were estimated as a percent of the improvement value here and under the hazard vulnerability assessment, specifically: 50% of the improvement value for residential structures, 150% for utility structures, 100% for agricultural and commercial structures, and 0% for exempt and vacant parcels. These percentage calculations are based on standard FEMA Hazus methodologies. Finally, total values were aggregated by adding the improvement and content values for each parcel type category.

Table F-6 Silverthorne Improved Parcel and Property Exposure

Parcel Type	Improved Parcels	Improved Value	Estimated Contents	Total Value
Agricultural	2	$1,710,700	$1,710,700	$3,421,400
Commercial	177	$210,432,200	$210,432,200	$420,864,400
Exempt	121	$0	$0	$0
Multi-Family Residential	333	$319,680,372	$159,840,186	$479,520,558
Residential	2,574	$3,172,180,773	$1,586,090,387	$4,758,271,160
Total	**3,207**	**$3,704,004,045**	**$1,958,073,473**	**$5,662,077,518**

Source: Summit County Assessor Data 2025, WSP GIS Analysis

Table F-7 lists summary information about the 35 critical facilities and other community assets identified by Silverthorne's HMPC as important to protect or provide critical services in the event of a disaster. Table F-8 details more information on the critical facilities in question found in Silverthorne. Note that there were several critical facilities the HMPC indicated should not be disclosed in terms of location or name, so while they were considered in the GIS analysis within each hazard's vulnerability assessment for planning purposes, they will not be described in detail nor will they be shown in any maps. As such, the detailed facility list only contains information for 29 of the 35 facilities. For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the main plan HIRA document.

Table F-7 Silverthorne Critical Facilities and Infrastructure Summary

FEMA Lifeline Category	Critical Facility Type	Total
Communications	Information Center	1
Food/Hydration/Shelter	Shelter	2
	Wastewater Facilities	2
Hazardous Materials	HazMat Tier II SARA Facilities	6
Safety and Security	Schools	1
	State Licensed Daycare	1
	Fire Lookout Locations	1
	Fire Station	1
	Government Buildings	6
	Incident Facilities*	3
	Police Stations	1
Transportation	Bridges	9
Water Systems	Water Treatment Plant	1
TOTAL		**35**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

Table F-8 Detailed List of Critical Facilities and Infrastructure in Silverthorne

FEMA Lifeline Category	Critical Facility Type	Facility Name	Facility Location	Notes or Additional Details
Communications	Information Centers	Silverthorne Elementary Information Center	Hwy 9 and Hamilton Creek	--
Food/Hydration/ Shelter	Shelter	Silverthorne Recreation Center	430 Rainbow Dr	--
		Silverthorne Elementary School	101 Hamilton Creek Dr	--
	Wastewater Facilities	Buffalo Mtn Waste Water Treatment	--	--
		JSA Waste Water Treatment Plant	--	--
Hazardous Materials	Hazmat Tier II SARA Facilities	Autostar Chrysler, Dodge, Jeep, Ram, Dealership	171 W 9th St, Silverthorne 80498	Lake Dillon Fire Protection District *(now Summit Fire & EMS)*
		Lowes	201 Buffalo Mountain Dr, Silverthorne 80498	Lake Dillon Fire Protection District *(now Summit Fire & EMS)*
		Xcel Energy	200 W 6th St, Silverthorne 80498	Lake Dillon Fire Protection District *(now Summit Fire & EMS)*
		UPS	337 W 4th St, Silverthorne 80498	Lake Dillon Fire Protection District *(now Summit Fire & EMS)*
		Comcast of Colorado IX, LLC	249 Warren Ave, Silverthorne 80498	Lake Dillon Fire Protection District *(now Summit Fire & EMS)*
		Waste Connections Inc.	--	--

FEMA Lifeline Category	Critical Facility Type	Facility Name	Facility Location	Notes or Additional Details
Hazardous Materials	Hazmat Tier II SARA Facilities	Waste Management	314 W 3rd St, Silverthorne 80498	Lake Dillon Fire Protection District *(now Summit Fire & EMS)*
Schools	Schools	Silverthorne Elementary School	--	$14 M replacement
Safety & Security	Fire Lookout Location	Buffalo Dr	--	--
	Government Buildings	Silverthorne Town Hall	--	--
		County North Branch Library	--	--
		Silverthorne Public Works	--	--
		USFS Dillon Ranger District Office	--	--
		CDOT Maintenance Buildings - Silverthorne	--	--
		USPS Silverthorne	--	--
	Police Stations	Silverthorne Police Department	601 Center Cir, Silverthorne 80498	$8.5 M replacement
Transportation	Bridge - Fair Condition	F-12-BP	--	--
		F-12-R	--	--
		F-12-S	--	--
		F-12-X	--	--
		F-12-Y	--	--
		SILVTH-BLDEGLRD	--	--
		SILVTH-STEPHENS	--	--
		SILVTH-WILDRNST	--	--
	Bridge - Good Condition	SILVTH-6THST	--	--

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, WSP GIS Analysis

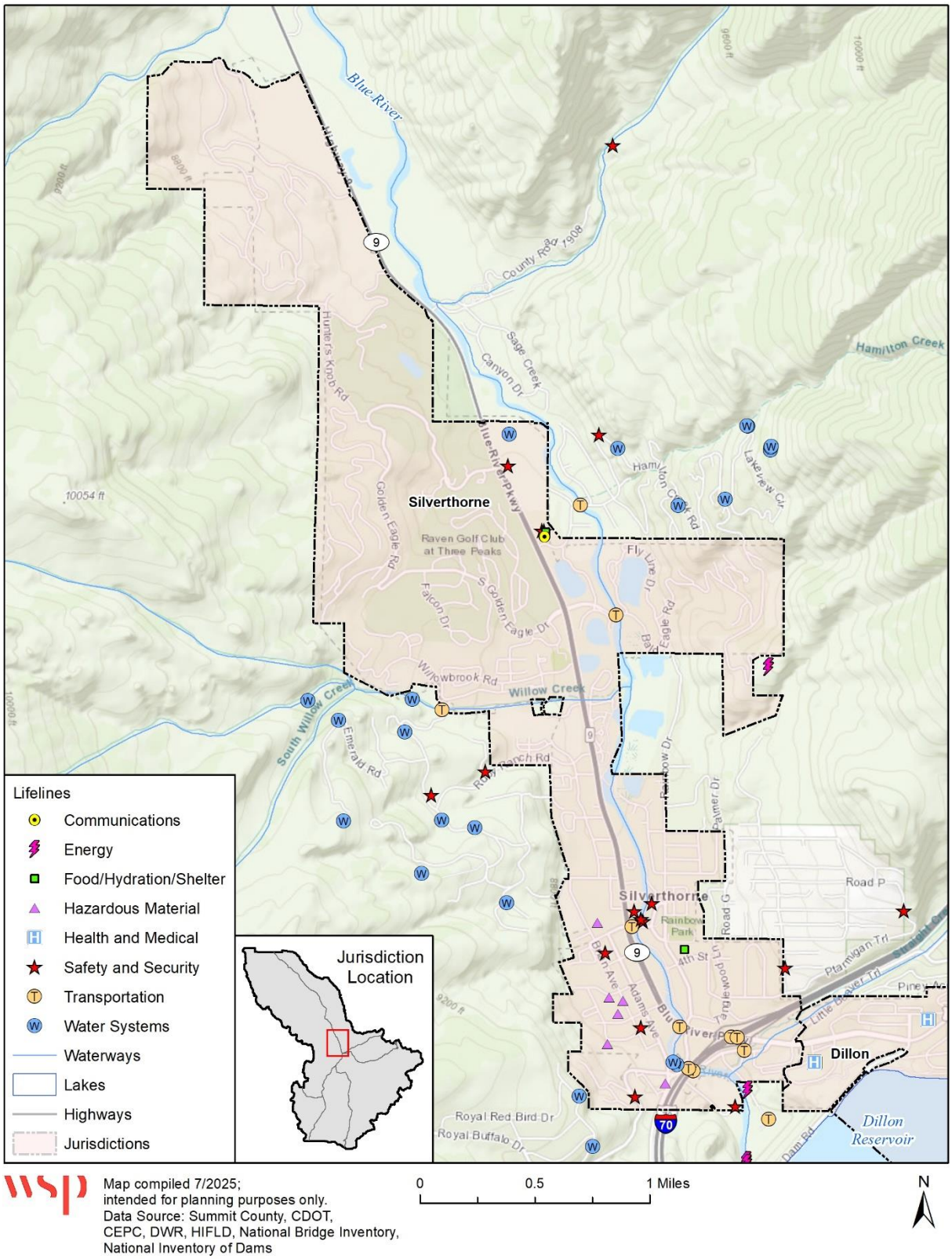
Interstate-70 is also a critical facility and key asset to the community. The locations of critical facilities in Silverthorne identified by Summit County GIS are illustrated in Figure F-4.

In addition, the following assets were noted by the HMPC.

- Medical Offices: $ 3 Million
- Fire Station: $ 2.5 Million
- Summit Education Center: $ 5 Million

The locations of identified critical facilities and infrastructure in Silverthorne are illustrated in Figure F-4.

Figure F-4 Critical Facilities and Infrastructure in Silverthorne



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams

F.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk in more detail where the risk varies from the rest of the planning area. Vulnerability details for the following bulleted hazards are often difficult to compile or estimate for specific jurisdictions and are already described in the Section 3.3.3 of the Base Plan:

- Drought
- Earthquake
- Erosion/Deposition
- Lightning
- Pest Infestation (Forest and Aquatic)
- Severe Winter Weather
- Wildlife-Vehicle Collisions
- Windstorm

Only avalanche, dam failure, flood, hazardous materials release, landslide/mudflow/debris flow/rockfall, and wildfire hazards will be profiled in the following vulnerability assessment sections, due to the ability to quantify vulnerability further with available data.

Avalanche

Overall, Summit County received a high ranking for avalanche as a hazard, with most of the areas at risk found in unincorporated parts of the county (see Section 3.2.1 in the base plan). However, the Town of Silverthorne has ranked avalanche as an overall low hazard. There is still some risk to the town if an avalanche were to occur in surrounding areas, as the closure of transportation corridors such as Interstate 70 (I-70) or Highway 9 could disrupt access in and out of the town.

Dam Failure

General Property

The Dillon Dam and Reservoir are located approximately 0.5 miles upstream of the southern corporate limits of Silverthorne. As discussed in Chapter 3 Risk Assessment of the main plan, failure of the Dillon Dam would have catastrophic effects to the Town of Silverthorne, damaging and destroying the majority of structures. The dam failure inundation map contains sensitive information and is not available in this public planning document. Based on a GIS analysis performed with the county parcel layer and the available dam inundation mapping (for planning purposes only), the following potential damages would be expected in Silverthorne.

Table F-9 Estimated Dam Inundation Risk to Properties in Silverthorne

Parcel Type	Total Properties Exposed	Improved Value	Content Value	Total Value	Population Exposed
Agricultural	1	$509,500	$509,500	$1,019,000	0
Commercial	173	$210,148,300	$210,148,300	$420,296,600	0
Exempt	101	$0	$0	$0	0
Multi-Family Residential	104	$124,030,347	$62,015,174	$186,045,521	1,212
Residential	1,521	$1,423,001,417	$711,500,709	$2,134,502,126	3,316
Total	**1,900**	**$1,757,689,564**	**$984,173,682**	**$2,741,863,246**	**4,528**

Source: Summit County Assessor Data 2025, DWR Dam Safety, WSP GIS Analysis

People

Based on the GIS analysis summarized in the table above, it is expected that around 4,528 people in Silverthorne might be at risk of dam inundation hazards. These totals were estimated by multiplying the average number of persons per household in Summit County (which equals 2.46) times the number of residential properties where dam inundation extents were available.

Critical Facilities and Infrastructure

Based on the critical facility inventory considered in the updating of this plan and intersected with the dam inundation extents available for the Town of Silverthorne, 30 critical facilities were found to be at potential risk. These are summarized in the table below.

Table F-10 Critical Facilities in Silverthorne at Risk of Dam Inundation

Critical Facility Type	Total Facilities
Communications	-
Energy	-
Food/Water/Shelter	-
Hazardous Materials	6
Health and Medical	-
Safety and Security	12
Transportation	9
Water Systems	3
TOTAL	**30**

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, DWR Dam Safety, WSP GIS Analysis

Economy

A dam inundation event that affected the major roads which give access to the Town (e.g. Interstate 70) could significantly affect the local economy, by limiting or completely impeding access to shops, restaurants, hotels, and other major industries which keep the local economy thriving.

Historical, Cultural, and Natural Resources

Dam or reservoir failure effects on the environment would be similar to those caused by flooding from other causes. For the most part the environment is resilient and would be able to rebound, though this process could take years. However, historic and cultural resources could be affected just as housing or critical infrastructures would.

Future Development

Most future development occurring in Silverthorne will be at risk to a failure of the Dillon Dam due to the large extent of the inundation potential.

Flood

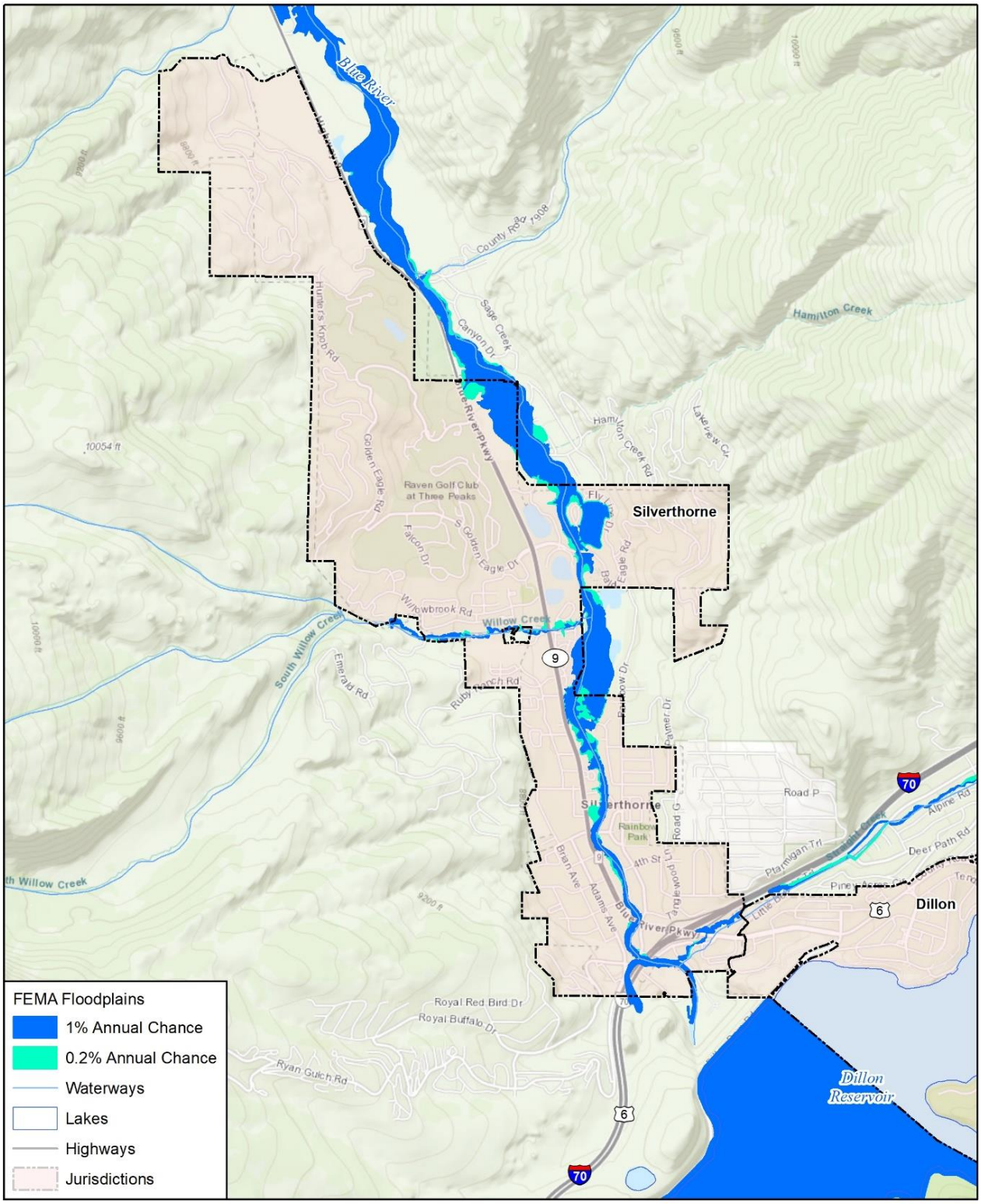
The principal causes of flooding in Silverthorne are along the Blue River, Straight Creek, and Willow Creek from April to July as a result of snowmelt runoff. The largest flood on record prior to the construction of the dam was in 1918 when the combined flow of the Blue River, Ten Mile Creek, and the Snake River was 3,500 cfs just upstream of the present location of Silverthorne. U.S. Geological Survey records show high flows on all three streams during May and June of several other years, but no significant damage was reported.

Dams built by beavers within Willow Creek occasionally result in nuisance flooding to nearby adjacent property owners. Although Willow Creek runs through private property in these locations, the Town has often assisted with dam removal during these emergencies.

General Property

Vulnerability to flooding was determined by summing potential losses to Summit County's properties in GIS, by using the latest FEMA NFHL data along with the Summit County parcel layer provided by the Assessor's Office. FEMA's NFHL data depicts the 1% annual chance (100-year) and the 0.2% annual chance (500-year) flood events. This latest NFHL data is current as of September 17, 2019. Figure F-5 below displays the FEMA special flood hazard areas present in the town, color coded based on flood event (i.e. 100-year versus 500-year).

Figure F-5 FEMA Special Flood Hazard Areas in Silverthorne



Based on the GIS analysis performed with the county parcel layer and the available FEMA flood mapping, the potential risk shown in Table F-11. Silverthorne's 1% annual chance flood zone has 52 properties with a total value of over $18 million. For the 0.2% annual chance flood zone, 148 properties are exposed. The combined loss estimates for the properties in the floodplains (both 1% and 0.2% annual chance events) is around $30 million.

Table F-11 Summary of Properties Vulnerable to Flood in Silverthorne, by Type

Flood Zone	Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Loss Estimate	Population
1%	Commercial	1	$62,100	$62,100	$124,200	$31,050	0
	Exempt	6	$0	$0	$0	$0	0
	Multi-Family Residential	6	$4,646,400	$2,323,200	$6,969,600	$1,742,400	39
	Residential	6	$7,299,600	$3,649,800	$10,949,400	$2,737,350	13
	Total	**19**	**$12,008,100**	**$6,035,100**	**$18,043,200**	**$4,510,800**	**52**
0.2%	Exempt	2	$0	$0	$0	$0	0
	Multi-Family Residential	2	$2,260,700	$1,130,350	$3,391,050	$847,763	13
	Residential	62	$65,833,700	$32,916,850	$98,750,550	$24,687,638	135
	Total	**66**	**$68,094,400**	**$34,047,200**	**$102,141,600**	**$25,535,400**	**148**
GRAND	**TOTAL**	**85**	**$80,102,500**	**$40,082,300**	**$120,184,800**	**$30,046,200**	**200**

Source: Summit County Assessor Data 2025, FEMA NFHL Effective Data 11/16/2018, WSP GIS Analysis

Flood Insurance Policy Analysis

NFIP insurance data indicates that as of October 28th, 2025, there were 76 flood insurance policies in force in the Town with $20,611,000 of coverage. Three of the policies were in A zones, and 19 were located outside of the Special Flood Hazard Area (falling within B, C, and X zones). There have been two historical claims for flood losses that did not result in any payments. Thus, there were no repetitive or severe repetitive loss structures.

People

The population exposed to the flood hazards described in the flood vulnerability analysis above was estimated by applying an average household size factor to the number of improved properties identified in the flood hazard areas within Silverthorne. Note that only those parcels of type Residential were used to estimate populations exposed. These estimates yielded the population exposures shown in the table above (Table F-11). As such, the combined 1% and 0.2% annual chance floods would potentially displace 200 people, based on the residential structures which fall in those flood zones. For additional details on potential displacements by flood event, see the Summit County main plan HIRA document.

Critical Facilities and Infrastructure

There are nine critical facilities located in flood zones in Silverthorne: the JSA Wastewater Treatment Plant and the USFS Dillon Ranger District Office government building, both of which fall in the 500-year flood zone. The remaining seven critical facilities are bridges in the 100-year flood plain.

Economy

Flooding can have a major impact on the economy, including indirect losses such as business interruption, lost wages, and other downtime costs. Flooding often coincides with the busy summer tourism months in Summit County, and may impact, directly or indirectly (such as from the negative perception of potential

danger), the revenues of shops, restaurants, hotels, and other major industries which keep the local economy thriving. In addition, major flooding which led to road or other infrastructure closures could limit access to the Town by tourists, locals, and basic goods and services.

Historical, Cultural, and Natural Resources

The environment is mostly resilient to general flooding. However, cultural or historic properties within floodplains would be affected in similar ways as property and critical facilities/infrastructure, especially those with underground or basement levels where water would easily seep and potentially ruin archives, resources, or other important assets.

Future Development

Based upon the most recent 2019 FEMA NFHL data and Summit County's parcel layer, there is development within the 100- and 500-year floodplain in Silverthorne, including increased development in the 0.2% annual chance floodplain that has occurred during the past five years. Most development in the floodplain occurs along the stretch of the Blue River between 6th Street and Rainbow Court. The Town's flood damage prevention ordinance regulates development in special flood hazard areas.

Significant wetland areas exist east of State Highway 9 and north of 12th Street in Silverthorne as the Blue River meanders northwards. There are also many wetland areas adjacent to ponds, streams, and tributaries to the Blue River. Water bodies, wetlands and riparian areas are protected by the water body, wetland, and riparian protection regulations of the Town Code (Town of Silverthorne 2004).

Silverthorne is considering the development of a kayak park in the Blue River for recreational purposes. Because the park would be considered development within the floodway, the Town has requested and has received a conditional letter of map revision from FEMA. The FEMA-issued CLOMR is dated March 18, 2008. While the Town still desires to build the kayak park, other, higher priorities have postponed completing it. Timing for completion of this is uncertain.

Hazardous Materials Release (Transportation)

The six identified hazardous materials (HazMat) facilities in the Town of Silverthorne are summarized below for reference, by name and address.

Table F-12 Hazardous Materials Facilities in Silverthorne

Name	Address
Comcast of Colorado V, LLC	249 Warren Ave.
Excel Energy	200 W 6th St.
Lowes	201 Buffalo Mountain Dr.
UPS	337 W 4th St.
Vista Auto Group	171 W 9th St.
Waste Management	314 W 3rd St.

Source: Summit County GIS

General Property

The impact of most fixed facility incidents is typically localized to the property where the incident occurs. Based on Table F-12 above, those properties or parcels found immediately adjacent to these facilities could potentially be affected by a spill or incident if, for example, road closures were required which could prevent those in the nearby areas from getting around. However, it is not expected that significant impacts or damages would be incurred to those properties in the vicinity of the HazMat facilities in Silverthorne.

People

As mentioned in the General Property subsection above, people could be temporarily affected by HazMat incidents if they were found in the near vicinity of a facility that suffered an accident, especially if road or other access was limited during cleanup. Depending on the degree of severity of a spill, however, HazMat incidents could lead to injuries, hospitalizations, and even fatalities to people nearby. People living near hazardous facilities and along transportation routes may be at a higher risk of exposure, particularly those living or working downstream and downwind from such facilities. For example, a toxic spill or a release of an airborne chemical near a populated area can lead to significant evacuations and have a high potential for loss of life if people were to inhale damaging fumes.

Critical Facilities and Infrastructure

Impacts of hazardous material incidents on critical facilities are most often limited to the area or facility where they occurred, such as at a transit station, airport, fire station, hospital, or railroad. However, they can cause long-term traffic delays and road closures resulting in major delays in the movement of goods and services.

Economy

Because of the presence of major roads in Silverthorne such as I-70, and Highway 9, and U.S. Highway 6, a potential HazMat incident which led to temporary closures of these roads might significantly impact the local economy, impeding access of important resources or even tourism into or out of the town.

Historical, Cultural, and Natural Resources

HazMat hazards could contaminate the local groundwater and eventually the municipal water supply, or even migrate to a major waterway or aquifer. If this was the case, Silverthorne's potable water, recreational water, other water uses, and overall natural resources would be severely compromised. Impacts on wildlife can also be significant.

Future Development

The amount of hazardous materials that are stored, used, and transported across the county are not anticipated to increase over the next five years based on regional growth trends. As such, future development should not be significantly affected by HazMat hazards.

Landslide, Mudflow/Debris Flow, Rockfall

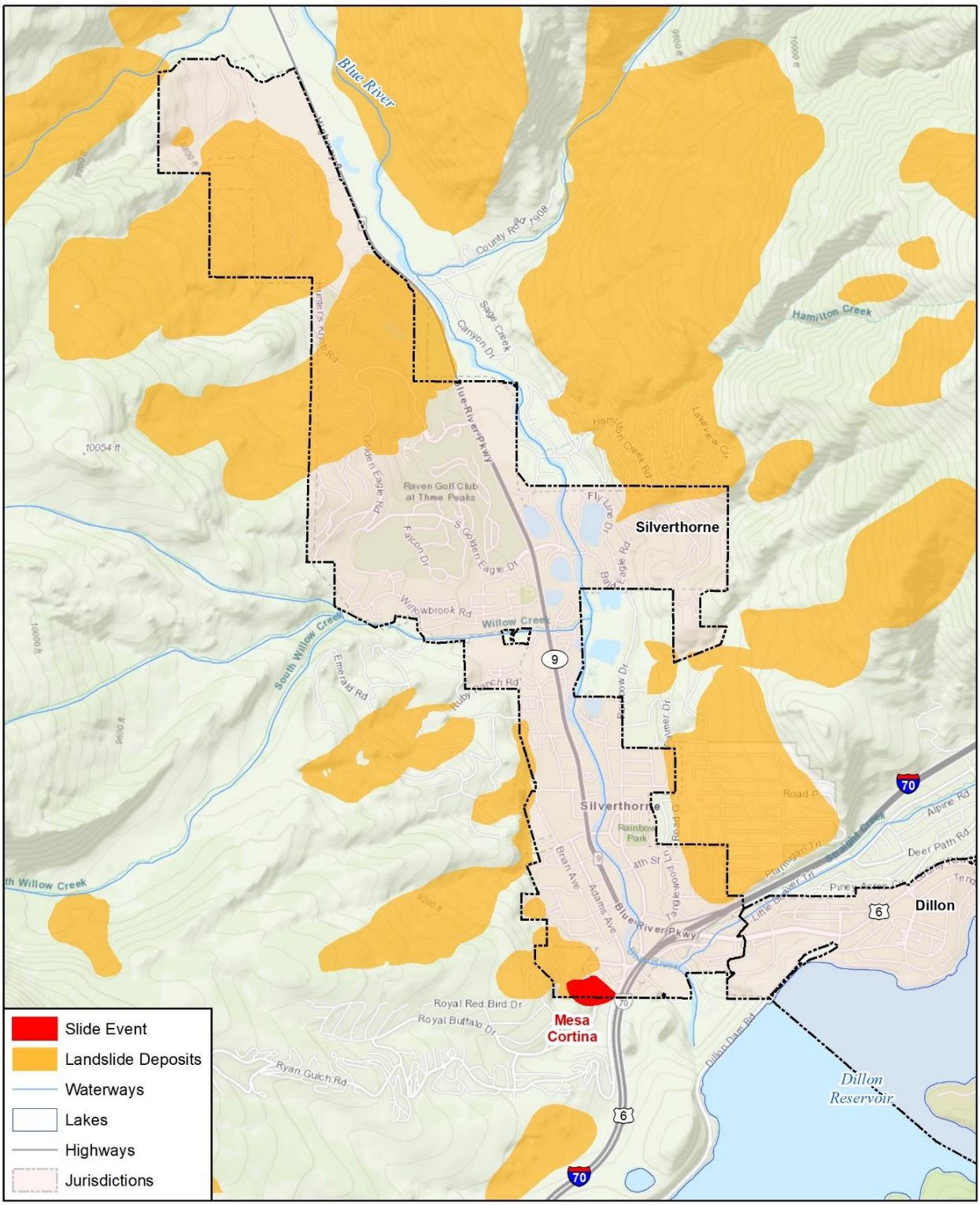
General Property

The majority of the Silverthorne community is located in areas that have limited potential for landslide, mudflow, debris flow, or rockfall hazards. While most of the town itself is relatively flat, the Eagles Nest, Willow Creek Highlands, and South Maryland Creek Ranch subdivisions in the northwestern portion of the town have been developed on forested hillsides. Angler Mountain Ranch subdivision, located in the northeastern portion of the Town, has been developed on a sage meadow hillside.

There are several areas in the Town that have slopes between 10 and 20 percent. These areas are located primarily west of Highway 9 in and around Golden Eagle Road in the Willowbrook Subdivision. South of Golden Eagle Road there are slopes between 10 and 20 percent along the westernmost edge of town, west of Brian Avenue and Adams Avenue, and west of Warren Avenue. Slopes of this same percent are also found in the portion of Town that extends east in and around Angler Mountain Ranch. There are also many slopes within the Town and its immediate vicinity that are over 30 percent (Silverthorne Comprehensive Plan, 2008).

As shown in Figure F-6 below, a special slide hazard area is also present in the southernmost edge of the town, in the Mesa Cortina Buffalo Mountain Drive area. However, no improved properties were found exposed to that special landslide hazard area, shown in yellow.

Figure F-6 Landslide Hazard Areas in Silverthorne



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, Colorado Geological Survey (CGS)

Potential losses for general landslide areas were estimated using Summit County GIS and assessor's parcel data. Based on the GIS analysis performed, the potential risk to general landslide areas in Silverthorne is summarized in Table F-13. For the purposes of this analysis, if a parcel's centroid intersected the landslide hazard polygons, that parcel is assumed to be at risk.

Silverthorne's residential properties have the highest exposure with a total value of over $1.03 billion, followed by multi-family residential, and exempt properties. A total of 417 properties are exposed to landslide hazards, with over $1.1 billion in value.

Table F-13 Property Exposure to General Landslide Areas in Silverthorne

Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population at Risk
Agricultural	2	$1,710,700	$1,710,700	$3,421,400	0
Commercial	3	$1,191,100	$1,191,100	$2,382,200	0
Exempt	5	$0	$0	$0	0
Multi-Family Residential	23	$35,166,500	$17,583,250	$52,749,750	161
Residential	384	$687,414,207	$343,707,104	$1,031,121,311	837
Total	**417**	**$725,482,507**	**$364,192,154**	**$1,089,674,661**	**998**

Source: Summit County Assessor Data 2025, Colorado Geological Survey (CGS), WSP GIS Analysis

People

People could be susceptible if they are caught in a landslide or debris flow, potentially leading to injury or death. There is also a danger to drivers operating vehicles, as rocks and debris can strike vehicles passing through the hazard area or cause dangerous shifts in roadways. Based on Table F-13 above, an estimated 998 people could be at risk of general landslide hazards in Silverthorne. At risk population was estimated by multiplying the average number of persons living in each household in Summit by the number of residential properties where landslide areas have been inventoried in Silverthorne.

Critical Facilities and Infrastructure

There are no critical facilities at risk of landslide hazards in Silverthorne. Major transportation routes present in the town and hence key infrastructure allowing access in and out of it include Interstate 70, Highway 9, and U.S. Highway 6. These routes could be affected by the geologic hazards in question if closures were required, impeding the normal flow of goods and services, for example.

Economy

Economic impacts related to landslide, rockfall, debris fall, and mudslide hazards typically center around transportation routes temporarily closed by debris flow or other activity. The major routes mentioned above (I-70, Hwy 9, and U.S. Hwy 6) would be at most risk due to their heavy flow of goods, services, and populations which keep the economy thriving.

Historical, Cultural, and Natural Resources

As primarily natural processes, landslides and debris flows can have varying impacts to the natural environment as well as cultural or historical resources found on their path. For buildings and other structures, impacts would be similar as those seen on general property or critical facilities/infrastructure.

Future Development

The Town's subdivision regulations address procedures and requirements for development in geologic hazard areas. The following information was extracted from the Silverthorne Comprehensive Plan (2008). Slope is the most limiting factor to be considered in the design of access roads and residential

subdivisions. Slope stabilization in the Silverthorne area is difficult even where homes are constructed on nearly level pads. Homes should be designed to use the existing slope as much as possible and keep foundation cuts to a minimum. Roads should be designed to keep cut and fill slopes to a minimum and to provide appropriate snow stacking areas and drainage. Current Town Code standards require paved roads.

The 2014 version of the Silverthorne Comprehensive Plan addresses the fact that the Buffalo Mountain Road area has existing structural problems related to slide hazards. For one, there is the issue that all roads in that development are gravel based and require upgrading (including paving and drainage improvements that will bring them up to Town standards), so that future development can benefit from the safest infrastructure. In addition, future development including mountain bike and pedestrian systems in the form of soft surfaces (to withstand landslide and related activity) would be most recommended.

Wildfire

General Property

Wildfire threat was estimated from the County's Wildfire Protection Assessment Rating layer, which breaks up areas into Low, Medium, High, and Extreme ratings. This wildfire layer was used in GIS to determine the number, type, and improvement values for properties found to overlap with them, and estimate potential property risk to wildfire threat in Silverthorne. For the purposes of this analysis, the wildfire zone that intersected a parcel centroid was assigned as the threat zone for the entire parcel. Improvement values were then summed by wildfire rating area and then sorted by parcel type. The content values were calculated next, as a percentage of property improvement values based on their occupancy type using FEMA Hazus guidance as follows:

- Commercial parcels received content values worth 100% of their improvements,
- Residential parcels received content values worth 50% of their improvements, and
- Exempt parcels received content values worth 0% of their improvements.

Property improvements and content values were then totaled to arrive at the Total Value column, which is also the estimated value at risk based on FEMA loss curve standards for wildfire hazards.

The results of these calculations are shown in Table F-14. Properties exposed in the Wildland Urban Interface (WUI) were also noted in Table F-15 below. The wildland urban interface is a zone of transition between wilderness (unoccupied land) and land developed by human activity. Communities and properties within the WUI are at a greater risk of more intense wildfires. Wildfire protection assessment areas for Silverthorne are displayed in Figure F-7 for reference.

Table F-14 Property Values in Wildfire Zones by Parcel Type, Silverthorne

Wildfire Zones	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Highest	Residential	2	$9,273,900	$4,636,950	$13,910,850	4
	Total	**2**	**$9,273,900**	**$4,636,950**	**$13,910,850**	**4**
High	Agricultural	1	$1,201,200	$1,201,200	$2,402,400	0
	Commercial	2	$1,397,800	$1,397,800	$2,795,600	0
	Exempt	24	$0	$0	$0	0
	Multi-Family Residential	79	$70,080,475	$35,040,238	$105,120,713	517
	Residential	978	$1,532,728,807	$766,364,404	$2,299,093,211	2,132
	Total	**1,084**	**$1,605,408,282**	**$804,003,641**	**$2,409,411,923**	**2,649**

Wildfire Zones	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Moderate	Commercial	18	$5,410,800	$5,410,800	$10,821,600	0
	Exempt	11	$0	$0	$0	0
	Multi-Family Residential	30	$38,176,700	$19,088,350	$57,265,050	371
	Residential	145	$204,321,136	$102,160,568	$306,481,704	316
	Total	**204**	**$247,908,636**	**$126,659,718**	**$374,568,354**	**687**
	Grand Total	**1,290**	**$1,862,590,818**	**$935,300,309**	**$2,797,891,127**	**3,340**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Table F-15 Property Values in Wildfire WUI Zones by Parcel Type, Silverthorne

Wildfire Zones	Property Type	Improved Parcels	Improved Value	Estimated Contents	Total Value	Population
Highest	Agricultural	1	$1,201,200	$1,201,200	$2,402,400	0
	Commercial	21	$15,655,100	$15,655,100	$31,310,200	0
	Exempt	42	$0	$0	$0	0
	Multi-Family Residential	185	$177,795,850	$88,897,925	$266,693,775	1,395
	Residential	1,366	$1,965,193,382	$982,596,691	$2,947,790,073	2,978
	Total	**1,615**	**$2,159,845,532**	**$1,088,350,916**	**$3,248,196,448**	**4,373**
High	Commercial	29	$25,242,600	$25,242,600	$50,485,200	0
	Exempt	16	$0	$0	$0	0
	Multi-Family Residential	51	$50,740,100	$25,370,050	$76,110,150	499
	Residential	274	$335,641,621	$167,820,811	$503,462,432	597
	Total	**370**	**$411,624,321**	**$218,433,461**	**$630,057,782**	**1,097**
Moderate	Agricultural	1	$509,500	$509,500	$1,019,000	0
	Commercial	16	$3,204,000	$3,204,000	$6,408,000	0
	Exempt	10	$0	$0	$0	0
	Multi-Family Residential	31	$14,529,400	$7,264,700	$21,794,100	203
	Residential	179	$166,051,625	$83,025,813	$249,077,438	390
	Total	**237**	**$184,294,525**	**$94,004,013**	**$278,298,538**	**593**
	Grand Total	**2,222**	**$2,755,764,378**	**$1,400,788,390**	**$4,156,552,768**	**6,063**

Source: Summit County Assessor Data 2025, Colorado Forest Atlas, WSP GIS Analysis

Figure F-7 Wildfire Protection Assessment Areas and Ratings in Silverthorne

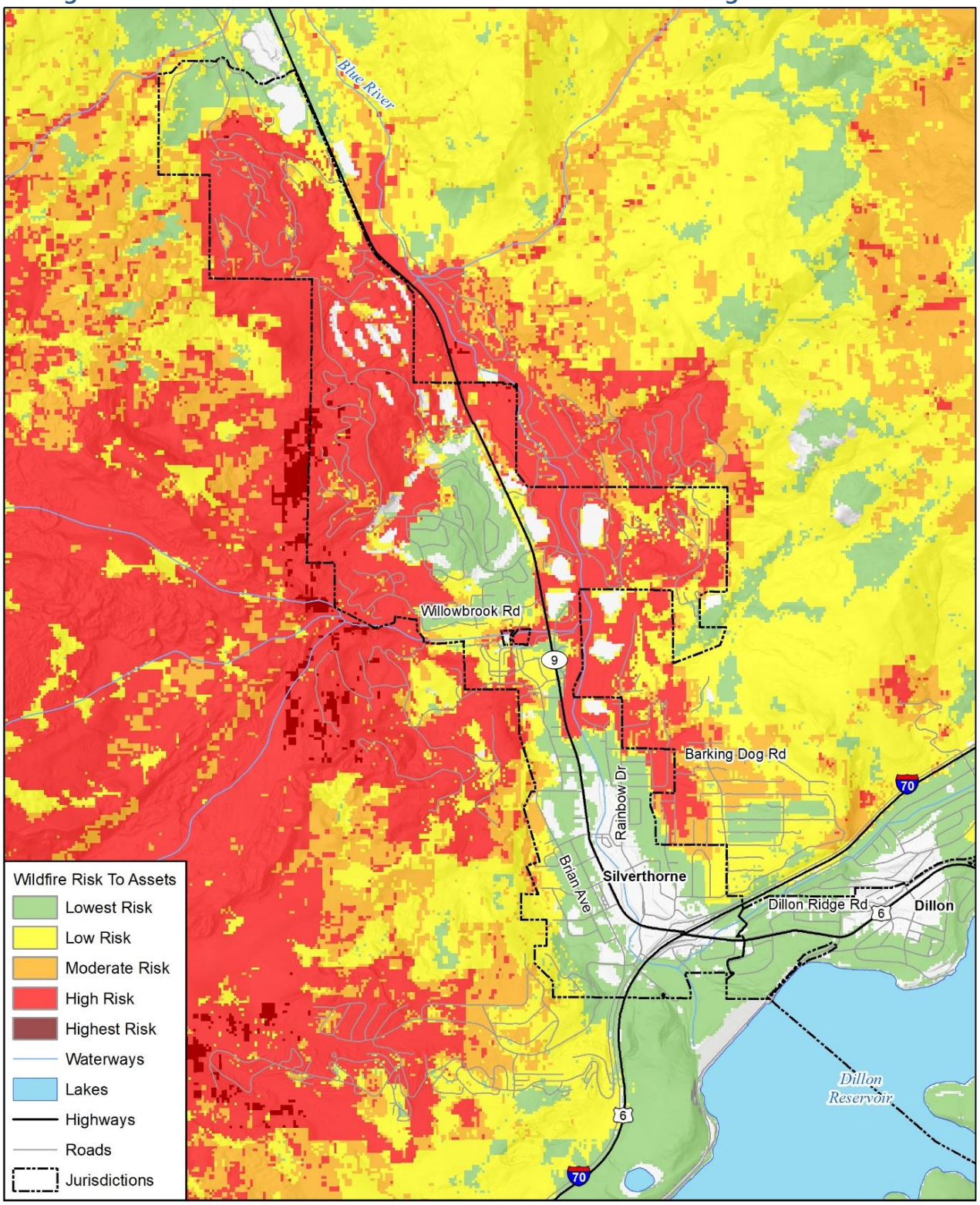
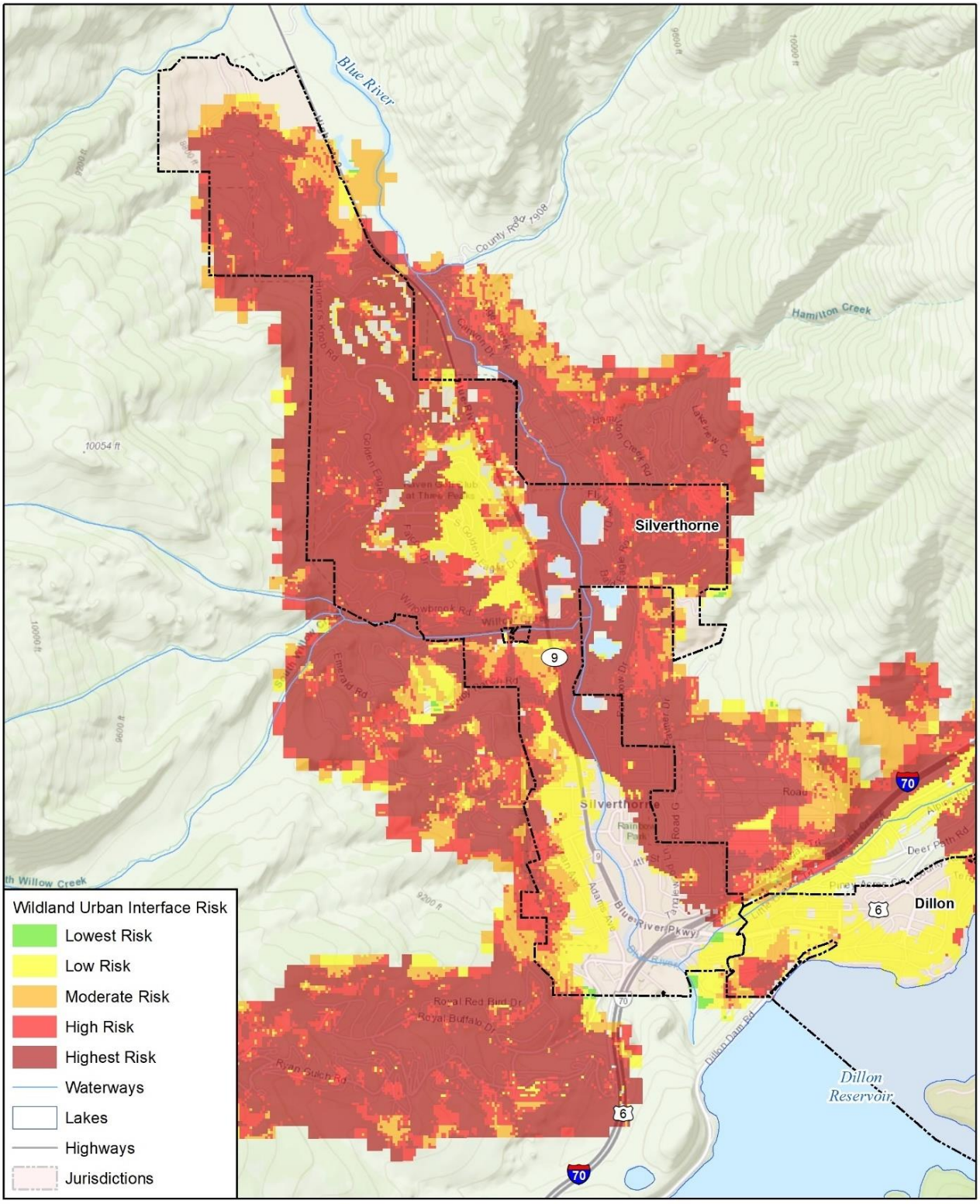


Figure F-8 Silverthorne Wildfire Urban Interface



People

Table F-14 and Table F-15 above summarize the number of people at risk to wildfire in the analyzed fire zones and WUI areas. Based on the assessment conducted, Silverthorne has an estimated 3,340 people in wildfire risk zones and 6,063 in WUI risk areas. These totals were estimated by multiplying the average persons per household in Summit County by the number of residential properties falling within the fire threat zones.

However, smoke resulting from fire is an issue to local populations, as noted by the Summit County's HMPC. For example, the County Public Health Department has received calls in the past from tourists asking if they should cancel travel plans in the county due to smoke and potential health and safety related concerns.

Critical Facilities and Infrastructure

There are 20 critical facilities found in wildfire assessment areas in Silverthorne, as listed in Table F-16 below.

Table F-16 Critical Facilities by Wildfire Zone and FEMA Lifeline

Wildfire Zones	FEMA Lifeline	Type	Name
Lowest	Hazardous Material	Tier II	Comcast of Colorado IX, LLC-249 Warren Ave.
			LOWE'S OF SILVERTHORNE (#3206)
			UPS - DILLON (SILVERTHORNE)
			Waste Connections Inc.- Timberline Disposal
			Waste Management of Colorado - Silverthorne Hauling
			Xcel Energy - Summit County Ops
	Safety and Security	Fire Lookout Location	Buffalo Dr
		Government Building	CDOT Maintenance Buildings - Silverthorne
		Government Building	USPS Silverthorne
		Incident Facility	Silverthorne Rec Center
			Silverthorne Recreation Center
	Transportation	Bridge - Fair Condition	F-12-X
			F-12-Y
			SILVTH-WILDRNST
	Water Systems	Wastewater Facility	Buffalo Mtn Waste Water Treatment
Moderate	Food/Hydration/ Shelter	Shelter	Silverthorne Elementary School
	Safety and Security	Fire Station	Fire Station 10
		School	Silverthorne Elementary School
High	Safety and Security	State Licensed Daycare	Silverthorne Elementary Preschool
	Transportation	Bridge - Fair Condition	SILVTH-BLDEGLRD

Source: Summit County, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Colorado Forest Atlas, WSP GIS Analysis

Economy

Tourism, the accommodation and food services industry, and retail are major components of Summit County's economy, and Silverthorne's as well. Wildland fires can lead to significant tourism reductions due

to health and safety concerns, causing lost revenues from lack of visitation, stays in hotels, spending on restaurants and other commerce sources, and more.

Historical, Cultural, and Natural Resources

Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the climate change trend which is leading to hotter, more widespread, and destructive fires can make it more difficult for the environment to recover, and lead to increased flood runoff or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after the fire.

With regards to historic or cultural structures and resources, wildfires would affect those in similar ways as general property and critical facilities/infrastructure, having the potential for burn downs and hence possible complete loss of important historical assets in Silverthorne.

Future Development

As Silverthorne grows and development on steep hillsides continues to be considered, the hazard potential will increase. Wildfire hazards, especially the wildland-urban interface, are becoming a larger issue in Silverthorne and the surrounding public lands. This is largely due to the fact that most of the valley floor in the Town has been developed, and residential subdivisions are now being built on the forested slopes that surround the Town. Areas of significant concern include the Wildernest and Mesa Cortina subdivisions located in Summit County (but within Silverthorne's three-mile area), and the Ptarmigan Mountain area (Government Small Tracks Subdivision) on the southeast side of the Town. Many of these subdivisions do not comply with current fire codes and present significant challenges to the fire district, especially with regard to access. The Eagles Nest and Willow Creek Highlands subdivisions, the Daley Ranch, and Angler Mountain Ranch on the northeast side of town are other areas were wildfire hazard is a concern.

In the past several years, recent annual outbreaks of pine beetle infestation in the forested areas around the Town have resulted in large numbers of dead trees which also creates safety and fire hazards. The Town Code requires the removal of dead, diseased, and/or beetle infested trees from properties upon receipt of written notice from the Town to the property owner (Silverthorne Comprehensive Plan, 2008). Nevertheless, Silverthorne's Fire Hazard Mitigation ordinance establishes permitted fire mitigation standards for new and existing development.

For additional information on wildfire and hazard mitigation across Summit County, refer to the main plan or the Summit County Community Wildfire Protection Plan, re-adopted in 2018.

F.3.3 Growth and Development Trends

Table F-17 summarizes how Silverthorne has grown in terms of population and number of housing units between 2011 and 2017, based on the State of Colorado Demography Office figures.

Table F-17 Change in Population and Housing Units in Silverthorne, 2018-2023

2018 Population	2023 Population	Population Percent Change 2018-2023	2018 Total Housing Units	2023 Total Housing Units	Housing Units Percent Change 2018-2023
4,152	5,004	+20.5%	2,342	3,123	+33.3%

Source: HMPC and Colorado Demography Office, 2025

In 2019, the Town of Silverthorne building department issued permits for 140 residential/multi-family units. The majority of this growth occurred in the subdivisions of Angler Mountain and Summit Sky Ranch.

Residential building permits in coming years are expected to remain steady. There is a total of 2,688 acres within the incorporated limits of the Town. At the end of 2019, there were a total of 4,205 zoned residential units, of which 2,756 have been platted, and 2,481 have been built.

The Town has had an increase in development activity over the last 5 years, with approximately 60-70% build out projections. The increase in development in the larger NW corner of Colorado has increased traffic which impacts the Town. I-70 closes frequently and limits mobility in the community due to congestion.

F.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

F.4.1 Regulatory Mitigation Capabilities

Table F-18 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Silverthorne.

Table F-18 Silverthorne's Planning and Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	2018 International Building Code (effective January 1, 2020); 2012 International Fire Code and Amendment,; 2012 International Energy Conservation Code
BCEGS Rating	No	
Capital Improvements Program (CIP) or Plan	Yes	Based budget availability
Community Wildlife Protection Plan (CWPP)	Yes	Included in County CWPP
Comprehensive, Master, or General Plan	Yes	
Economic Development Plan	Yes	
Elevation Certificates	Yes	
Emergency Operations Plan	No	Part of multi-agency plans
Erosion/Sediment Control Program	Yes	
Floodplain Management Plan	Yes	
Flood Insurance Study	Yes	
Growth Management Ordinance	Yes	Removal of Dead Diseased and Beetle Infested Trees
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes	Floodplain Ordinance
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	Yes	
Zoning Ordinance	Yes	

Silverthorne Comprehensive Plan, 2022

The Silverthorne Comprehensive Plan, originally developed in 2001 and last updated in 2022, defines a long-term vision for the Town. The goals of the Comprehensive Plan are the following:

- Protect the health, safety, and general welfare of the citizens in the community,
- Improve the physical, social, and economic environment of the community, and
- Understand and make decisions on proposed short-term, individual actions that are informed by their expected long-range impacts.

In addition, the 2022 plan update more specifically seeks to:

- Provide a framework that supports informed and consistent decision making by Town elected officials, appointed officials, and staff,
- Outline a series of long range goals and policies concerning land use, community design, transportation, and annexation of lands within three miles of Town limits,
- Guide public investment and the provision of services,
- Establish policies to balance the rights of the individual with the interests of the community at large, and
- Provide direction for land-use regulations, namely the Development Code and Design District Standards.

Chapter 3 Community Vision describes the town's community values as they relate to overall vision, land use, transportation, design, growth, and economic development.

Chapter 4 Goals and Policies contains detailed information on the Land Use Element, namely the following goals and policies related to environmental resource conservation and/or hazard mitigation:

- **Goal LU 1: Land Use Pattern -** Establish a pattern of future land uses that promotes health, safety, and well-being for all members of the community; makes the most efficient use of land, community facilities, and services; promotes economic vibrancy; and protects and integrates natural resources
  - **Policy LU 1.4** - Integrate and establish public lands including parks, open space and trails, throughout Silverthorne to provide access to the outdoors for all residents, as well as to provide buffers and greenspace for environmental protection and hazard mitigation.
  - **Policy LU 1.8 -** Utilize sound land use planning principles when considering re-zonings and density increases in order to manage growth, ensure compatibility with surrounding developments, contain the urban form, protect environmental resources, and account for fiscal impacts.
- **Goal LU 2: Commercial Centers -** Establish a hierarchy of commercial activity in Silverthorne, focused on the Town Core and Gateway Districts which diversifies Silverthorne's revenue streams, reinforces economic sustainability and adds to the year-round experience for residents and visitors.
  - **Town Core District Policy TC.5** - Position the aesthetic and function of State Highway 9 to encourage users to engage with the Town Core. Create a strong hierarchy of linked streets through and around the Core that support various forms of transit and mitigate impacts to traffic.
  - **Business Park District Policy BP.2** - Ensure that new development is well-integrated with existing commercial, service, and business uses, and that adverse visual, noise, odor, and/or traffic impacts are mitigated.
- **Goal LU 6: Natural Resources** - Ensure that future development minimizes its impact on natural resources, integrates natural features and views where possible and appropriate, and reduces environmental hazards for the Silverthorne community.
  - **Sites and Vegetation Policy LU 6.1** - Discourage development within, or adjacent to, areas identified as potential hazardous areas. Developments proposed for any areas considered to pose a hazard shall submit engineering investigations of the site and mitigate potential negative impacts.
  - **Site and Vegetation Policy LU 6.2** – Prohibit the disturbance of slopes greater than 30% during development. Discourage development on slopes in excess of 15%. For development on slopes, require engineering investigations during project review and maintain the maximum vegetative

cover possible to protect soils, prevent land slippage, and retain wildlife habitat and open space resources.

- **Site and Vegetation Policy LU 6.3** - Encourage the paving of existing gravel roadways, driveways and parking lots to decrease pollution from erosion and dust.
- **Water Quality, Wildlife Habitat and the Blue River Policy LU 6.9** - Require new and existing developments to provide adequate measures to control, manage, and minimize adverse effects on the water resources and water quality of the region. These include items such as water related treatment and management basins and/or plans for stormwater and water quality management.
- **Wildfire Prevention and Mitigation Policy LU 6.17** - Work cooperatively with appropriate agencies on wildfire prevention and mitigation policies and programs, and explore efforts aimed at reducing wildfire risk within the Town boundaries. Be aware of areas that border Silverthorne's boundaries that have a high risk of wildfire, and implement mitigation efforts to address those areas.

Silverthorne Town Code

The Silverthorne Town Code serves as the legal framework for the Town, codifying allowable activities and creating an enforcement structure for its adopted policy. The Town Code is organized into five chapters and various subsections; those related to hazard mitigation are outlined below.

Chapter 3 Public Works Article VIII Flood Damage Prevention Ordinance, 2021

The flood damage prevention ordinance was recently re-adopted via ordinance 1) to reflect FEMA DFIRM mapping effective dates, reflecting November 2018 effective dates, and 2) to incorporate new State mandated requirements, which are more stringent than the prior requirements. It is the purpose of this Article to promote public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- (1) Protect human life and health;
- (2) Minimize expenditure of public money for costly flood control projects;
- (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) Minimize prolonged business interruptions;
- (5) Minimize damage to critical facilities, infrastructure and other public facilities such as water, sewer and gas mains; electric and communications stations; and streets and bridges located in floodplains;
- (6) Help maintain a stable tax base by providing for the sound use and development of floodprone areas in such a manner as to minimize future flood blight areas; and
- (7) Ensure that potential buyers are notified that property is in a flood hazard area.

In order to accomplish its purposes, this Article uses the following methods:

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

In all areas of special flood hazards where base flood elevation data has been provided, residential and nonresidential new construction and substantial improvement must have the lowest floor elevated to at least one foot above base flood elevation.

The ordinance designates the Public Works Director or his or her designee as the floodplain administrator and defines the administrator's duties.

Chapter 4 Community Development Article V Procedures and Requirements for Subdivisions

One of the purposes of this article is to promote the general health, safety, and welfare of the present and future inhabitants of the Town by requiring that land proposed for subdivision shall be used safely for the intended purpose without danger to health or peril from fire, flood, geologic hazards, or other natural hazards. It requires that no land shall be subdivided which is determined by the Town to be unsuitable for subdivision by reason of flooding, bad drainage, rock or soil creep, mudflow, rockslide, avalanche or snow slide, steep topography, or any other natural or environmental hazard, feature or condition of potential harm to the health, safety, or welfare of the future residents of the proposed subdivision or to the Town.

Chapter 4 Community Development Article VIII Environmental Guidelines

Division 5 Fire Hazard Mitigation establishes permitted fire mitigation standards for the protection of life and property from wildfires by reducing the hazards from threat of wildland fires on structures. Mitigation regulations include the following

- Roof material required.
    1. All new construction of residential and commercial structures shall be required to install a Class A roof covering.
    2. All existing residential and commercial structures when re-roofing will require a Class A roof cover to be installed.
- Vegetation/natural materials.
    1. A property owner may remove all trees and shrubs within 10 feet of structures on site.
    2. Tree branches of large trees should be trimmed to a minimum of six feet from the ground.
    3. Cut or piled combustible materials may be a minimum of 10 feet from the property line and/or 10 feet from any structure.
    4. Grass and/or other combustible materials on undeveloped parcels of any size which pose a fire hazard as determined by the Community Development Department or Lake Dillon Fire Department shall be removed.
    5. Dead, diseased and/or beetle infested trees must be removed from the property within 10 days of receipt of written notice to the property owner or responsible party.
- Chimney spark arrestors. Upon remodeling, renovation, or repairs requiring a building permit, the owners of the residential property will retrofit all existing wood stoves/wood burning fireplace chimneys with approved spark arrestors as approved by the building official.

Floodplain Regulations and NFIP Participation

Silverthorne joined the National Flood Insurance Program (NFIP) on May 1, 1980. There are Special Flood Hazard Areas identified in the most current (November 2018) Flood Insurance Study and associated National Flood Hazard Layer, for both the 1% and the 0.2% annual chance events. However, there are no repetitive loss or severe repetitive loss properties as defined by the NFIP. The Town Engineer in Public

Works shares responsibilities related to flooding hazards such as acting as the floodplain administrator, and ensuring Town compliance with Federal, State, and local floodplain regulations. As previously stated, Chapter 3 of the Silverthorne Town Code also has flood damage prevention ordinance.

Silverthorne participates in the Community Rating System (CRS). Silverthorne is a Class 10 CRS community, which does not earn a discount on insurance premiums. Silverthorne can achieve CRS points through the following activities:

- Elevation certificates
- Map information service
- Hazard disclosure
- Higher regulatory standards
- Flood data maintenance
- Stormwater management
- Drainage system maintenance

F.4.2 Administrative/Technical Mitigation Capabilities

Table F-19 identifies the personnel responsible for activities related to mitigation in Silverthorne.

Table F-19 Administrative and Technical Mitigation Capabilities in Silverthorne

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	No	
Floodplain Administrator	Yes	
Community Planning	Yes	
Planner/Engineer (Land Development)	Yes	Community Development/Director; Planning Manager, Planner II
Engineer/Professional (construction)	Yes	Public Works/Director, Engineer; Utilities Manager
Resiliency Planner	No	
Transportation Planner	Yes	Part of the Town Engineer's duties
Full-Time Building Official	No	Contracted through Summit County
GIS Specialist and Capability	No	Public Works and Utilities Personnel; Community Development/Information Systems Technician
Grant Manager, Writer, or Specialist	Yes	We contract with an outside firm for grant writing along with internal staff.
Warning Systems/Services	Yes	

Fiscal Mitigation Capabilities

Table F-20 identifies financial tools or resources that Silverthorne could potentially use to help fund mitigation activities.

Table F-20 Fiscal Mitigation Capabilities in Silverthorne

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	Yes	Yes	
Utilities Fees	Yes	Yes	
System Development/ Impact Development Fees	Yes	Yes	
General Obligation Bonds to Incur Debt	Yes	Yes	
Special Tax Bonds to Incur Debt	Yes	Yes	
Withheld Spending in Hazard-Prone Areas	Yes	No	

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Stormwater Service Fees	Yes	Yes	Water and sewer
Capital Improvement Project Funding	Yes	Yes	Dedicated tax towards capital improvements
Community Development Block Grants	Yes	Yes	

F.4.3 Educational and Outreach

Table F-21 identifies education and outreach resources that Silverthorne could potentially use to help fund mitigation activities.

Table F-21 Silverthorne Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Firewise	Yes	
• Storm Ready	No	
• Severe Weather Awareness Week	No	
• School programs	No	
Methods Used to Communicate Hazard Information to the Public		
• Local News	Yes	
• Social Media	Yes	
• Community Newsletters	Yes	
• Utility Bill Inserts	Yes	
• Community Events	Yes	
Organizations that represent or work with underserved or vulnerable communities		
• American Red Cross	Yes	
• Salvation Army	No	
• Veterans Groups	No	
• Seniors Groups	No	
• Groups for People With Disabilities	No	
• Environmental/Conservation Groups	No	
Business Groups, Academia, Other		
• Chamber of Commerce	No	Not specific to Silverthorne
• Community Organizations (Lions, Kiwanis, etc.)	Yes	Not specific to Silverthorne
• Homeowner/Neighborhood Associations	Yes	
• Universities or Community Colleges	No	
• Agricultural Extension Office	Yes	Through Summit County

F.4.4 Mitigation Outreach and Partnerships

Silverthorne is involved in ongoing outreach activities and partnerships related to hazard mitigation, which include the following:

- In 2025 the town created a new program and staff position to address sustainability issues. This includes a sustainability strategic plan. Energy efficiency, renewable energy, water conservation, waste reduction, landfill disposal, mobility, public transportation and greenhouse gas reductions are the focuses in the report.
- Each spring, the governments of Summit County, Breckenridge, Dillon, Frisco, and Silverthorne distribute a packet of information to inform the communities about how to prepare for possible high water in May or June resulting from snowmelt.

- After the December 2007 severe winter storm, the Town met with the Red Cross to improve guidelines and procedures for deploying an emergency shelter in the Silverthorne Recreation Center. Specific times of operation, capacity of the building, and capacity of each room within the building were determined. The Town will apply the new procedures during the next emergency event that requires sheltering.

F.4.5 Past Mitigation Efforts

Other mitigation related programs and projects that Silverthorne has implemented in the past include the following:

- In November 2007, a tree survey of public and private forested properties was conducted to help manage the mountain pine beetle infestation in Silverthorne. The survey identified 2,129 trees that needed to be cut and removed (or cut and chipped) before the summer of 2008. Property owners were responsible for taking action on trees on their property.
- In 2006, the Town hired a consultant to review all Town-owned property, including public rights of way, for beetle or other infestation killed trees. The Town then had the dead and downfall trees removed and preventive spraying applied to specified trees per the consultant's recommendations.
- The Town completed a stream restoration project on the Blue River to improve fish habitat and ecological function. This project also deepened the flow channel, which reduces flooding.
- Within the past 10 years, the Town has implemented an automatic backup power source for the Town's water supply system to insure an available water source during emergencies, such as a wildfire incident.
- Initiated in 2000 and continued annually, the Town provides a dropoff site for slash and processes the collected slash into chips that are transported to the Climax Mine as part of their reclamation efforts.

F.4.6 Opportunities for Enhancement

Based on the capability assessment, Silverthorne has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the Town to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform Town staff and board members on how best to integrate hazard information and mitigation projects into the Town policies and ongoing duties of the Town. Continuing to train Town staff on mitigation and the hazards that pose a risk to the Town will lead to more informed staff members who can better communicate this information to the public.

Another opportunity would be to improve the CRS rating; and an improved rating could make flood insurance more affordable. See related mitigation action #7 Floodplain mapping and management.

F.5 Mitigation Strategy

F.5.1 Mitigation Goals and Objectives

Silverthorne adopted the hazard mitigation goals and objectives developed by the Summit County Hazard Mitigation Planning Committee and described in Chapter 4 Mitigation Strategy.

F.5.2 Progress on Previous Mitigation Actions

The Town of Silverthorne Planning Team reviewed their mitigation actions from the 2020 plan, and determined that none of their four mitigation actions have been completed. The remaining actions were carried over into the 2025 Plan, along with twelve new actions.

F.5.2.1 Continued Compliance with the National Flood Insurance Program

As part of their mitigation strategy, Silverthorne will continue participation in and compliance with the NFIP. Specific activities that the Town will undertake to continue compliance include the following:

- Continuing participation in the Community Rating System and identifying opportunities to increase points and lower rating, such as through this planning process
- The Town will let the Insurance Services Office (ISO) know that this plan exists, is updated, and conforms with DMA, FMA and CRS planning requirements so that credit can be considered during the next CRS review.

F.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan, were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

F.5.4 Mitigation Actions

The planning team for Silverthorne identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included. The Town also chose to include emergency response actions related to water and wastewater facilities in their annex.

Table F-22 Silverthorne Mitigation Action Plan

ID	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Silver-thorne 1	**Floodplain mapping and management.** There are two main components: CRS Update: —Silverthorne participates in FEMA's CRS program, which offers flood insurance discounts based on points for education and land use near floodplains. FEMA updated CRS guidance in 2013, and Silverthorne may adjust its approach to earn more points and increase discounts. —RICD Projects: The Town proposes a kayak park to boost recreation and reduce flood hazards with higher river flows, managed by Denver Water. These flows help clear sediment and blockages, lowering future flood risk.	Flood, Erosion; PR, ES	1	**Silverthorne Public Works.** Department of Emergency Management	$5,000 to $100,000; FEMA HMGP, CWCB. Town general fund	Medium	Long Term	In Progress
Silver-thorne 2	**Community Evacuation.** Develop procedures to quickly, efficiently and effectually evacuate critically identified areas of the community.	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, ES	1	**Silverthorne Public Works,** County GIS.	$5,000 to $25,000; State OEM Grants; Town general fund	High	Mid Term	In Progress
Silver-thorne 3	**Firewise Education.** Summit County has experienced wildfires near the Silverthorne area in recent years and proper wildfire mitigation practices has proven successful in saving property and lives. This action would provide education on fire wise practices to any property that is applying for a building permit. Both new construction and remodel work will receive the educational materials.	Wildfire, PR, PP, PI	1,2,3	**Silverthorne Community Development Department**. County OEM	$2,000; Town general fund	Medium	Ongoing	In Progress
Silver-thorne 4	**Reinforce Riverbanks to prevent flooding onto private property.** During high flows usually associated with floods or high releases from Dillion Reservoir the Blue River begins to erode the river banks at some isolated locations next to private property. The erosion will damage private property if left	Flood, Dam Incident, Erosion, ES	1, 3	**Silverthorne Public Works,** Army Corps of Engineers	$150,000; Town general fund, CDOT grants	High	Mid Term	Not Started

ID	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
	unchecked. The erosion does not cause debris flow but instead destroys the adjacent properties and makes them unusable. Design and construct armament along the banks of the Blue River in those isolated areas so that the banks remain in the current location.							
Silver-thorne 5	**Localized Flood Risk Reduction and Stormwater System Enhancements.** Flooding within the Town of Silverthorne is primarily associated with riverine overflow from the Blue River and localized urban drainage issues during heavy precipitation or rapid snowmelt events. Although large-scale flooding has not been frequent in recent years, low-lying areas adjacent to waterways, undersized culverts, and certain drainage basins within the Town remain vulnerable to stormwater accumulation and overland flow. While the Blue River is regulated by Dillon Reservoir and controlled releases by Denver Water help reduce major flood risk, localized flooding remains a recurring issue in specific neighborhoods and along select roadways. Investing in targeted flood mitigation will protect public and private property, ensure safer travel routes during storm events, and reduce long-term infrastructure damage.	Flood, Dam Incident and Erosion. ES	1,2,3,4	**Town of Silverthorne.** Engineering Consultant, Summit County, CWCB	Stormwater master planning, modeling, and engineering evaluation: $75,000 – $150,000. HMGP, U.S. EPA, Clean Water State Revolving Fund (CWSRF), CDBG	High	3–5 years (phased planning, design, and construction)	New in 2025.
Silver-thorne 6	**Lightning Awareness, Protection Systems, and Emergency Response Enhancements**. Conducting a public awareness campaign on lightning safety, including "When Thunder Roars, Go Indoors" messaging, Installing lightning protection systems (LPS) on critical public facilities, including community centers, emergency services buildings, and high-use park shelters, Assessing and upgrading grounding systems for vulnerable infrastructure, such as water towers, communications equipment, and power facilities. Additionally, integrating lightning detection and warning systems into emergency operations to support early protective actions at public events and outdoor recreation areas, Coordinating with event organizers and schools to adopt lightning safety protocols for outdoor activities, Providing training to first responders on lightning injury response.	Lightning, PP, PE	1, 2, 3, 4	**Town of Silverthorne Public Works,** Xcel, Silverthorne Police Department, Summit County Emergency Management, NWS, Local schools and recreation organizations, Utility companies and telecommunications providers	Moderate – High, Town general fund, CIP budget	Medium	1–3 years	New in 2025.

ID	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Silver-thorne 7	**Wildlife-Vehicle Collision Prevention and Safety Program.** This mitigation action aims to reduce WVC frequency and severity through infrastructure improvements, targeted public education, and coordination with state and local partners. Key components include: Identifying roadway segments with high WVC incidence using Colorado Department of Transportation (CDOT) data, installing wildlife crossing signage, seasonal electronic message boards, and speed reduction measures in high-risk zones, exploring wildlife overpasses, underpasses, or fencing to channel animals toward safe crossings, coordinating with Colorado Parks and Wildlife (CPW) to monitor wildlife movement patterns, launching public outreach campaigns to educate drivers about seasonal migration periods and WVC prevention, integrating WVC response protocols into emergency services and roadway maintenance plans.	Wildlife Vehicle Collisions; PE	1, 2, 3, 4	**Town of Silverthorne Public Works.** Summit County Government, (CDOT), Colorado Parks and Wildlife (CPW), Local conservation groups	$150,000 to $1,500,000 (High) • CDOT Wildlife Crossing Program grants. Colorado Parks and Wildlife habitat and safety grants, FHWA wildlife crossing funding, Town of Silverthorne transportation improvement funds, Nonprofit conservation organizations (e.g., Rocky Mountain Elk Foundation)	Low	1–3 years	New in 2025.
Silver-thorne 8	**Pest Infestation Risk Assessment, Monitoring, and Response Plan.** Conducting an environmental scan to identify any emerging pest threats in Summit County and surrounding areas, partnering with Summit County Public Health to monitor disease-vector species, coordinating with Colorado Parks and Wildlife for invasive species detection and prevention, implementing preventive measures at public facilities, parks, and stormwater systems to reduce habitat for pests, providing public education on pest prevention, safe pesticide use, and reporting of unusual pest activity, and developing a response protocol for rapid control if a pest outbreak occurs.	Pest Infestation, PV	1, 2, 3, 4	**Town of Silverthorne Public Works.** Summit County Public Health, Colorado Parks and Wildlife (CPW), Colorado Department of Agriculture, Local pest management companies, U.S. Forest Service	$75,000 to $250,000. Centers for Disease Control and Prevention (CDC) vector control grants, Colorado Department of Public Health and Environment (CDPHE) programs, USDA invasive species programs, and local general funds.	Medium	1-2 years	New in 2025.
Silver-thorne 9	**Critical Infrastructure Resilience and Community Preparedness for Severe Winter Storms.** Upgrading snow removal and de-icing equipment to increase operational efficiency and road safety, installing backup power generators at critical facilities such as the Town Hall, Police Department, and water/wastewater systems, conducting snow load assessments on public buildings and retrofitting roofs where	Winter Storms, PP	1, 2, 3, 4	**Town of Silverthorne Public Works.** Summit County Public Health, Colorado Parks and Wildlife (CPW), Colorado Department of Agriculture, Local pest management	$500,000 – $2 million (High). HMGP, state funding through DHSEM or DOLA.	High	2-5 years	New in 2025.

ID	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
	necessary, developing warming shelters and establishing agreements with local facilities for emergency housing during prolonged cold weather events, enhancing public communication and alert systems to ensure timely dissemination of weather warnings and safety information, training staff in winter weather incident response and maintaining a Continuity of Operations Plan (COOP).			companies, U.S. Forest Service				
Silver-thorne 10	**Windstorm Risk Reduction through Infrastructure.** Hardening, Public Education, and Emergency Planning. Conducting a community-wide risk assessment to identify vulnerable structures, facilities, and utilities, hardening critical facilities and infrastructure (e.g., reinforcing roofs, securing HVAC units, installing wind-resistant materials), implementing and enforcing building codes and design standards for wind resistance, developing vegetation management programs to reduce tree fall hazards near power lines, roads, and public spaces, expanding public outreach campaigns on windstorm safety and property preparation, integrating windstorm scenarios into the Town's Emergency Operations Plan (EOP) and conducting regular training exercises, coordinating with utility companies for grid protection measures and rapid restoration plans.	Windstorm , PP, PV	1, 2, 3, 4	**Town of Silverthorne Public Works.** Summit County Emergency Management, local utility providers (Xcel Energy, telecommunications companies), Colorado State Forest Service (for vegetation management guidance), National Weather Service (NWS) for early warning integration, local contractors specializing in structural retrofits and wind-resistant materials	**$300,000 to $1,200,000.** HMGP, DHSEM grants. U.S. DOE grid resilience funding (for utility protection projects, USDA Community Facilities Direct Loan & Grant Program (for public facility retrofits, Private utility company resilience and vegetation management funds, Town of Silverthorne CIP funds	Low	1-4 years	New in 2025.
Silver-thorne 11	**Wildland-Urban Interface (WUI) Fuels Reduction, Defensible Space, and Emergency Preparedness.** Conducting fuel reduction treatments (e.g., thinning, chipping, prescribed burning) in priority WUI areas in partnership with Summit County and the U.S. Forest Service. Encouraging and enforcing defensible space practices on public and private properties through ordinances and incentive programs, improving access routes for emergency responders and ensuring clear egress paths for residents, installing or maintaining wildfire buffer zones in parks and open space areas, conducting public education campaigns to increase resident participation in Firewise practices, and enhancing	Wildfire; PV, PP	1, 2, 3,4	**Summit Fire and Town of Silverthorne Public Works.** Summit Fire and Red, White & Blue Fire Protection District, Summit County Wildfire Council, Colorado State Forest Service, U.S. Forest Service (White River National Forest)	**$500,000 to $2.5 million.** HMGP, Colorado State Forest Service grants, and potential cost-sharing through Summit County Wildfire Council and local homeowner associations.	High	1-5 years	New in 2025.

ID	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
	early warning systems and updating evacuation and sheltering protocols.							
Silver-thorne 12	**Erosion Control, Sediment Management, and Streambank Stabilization Program**. Conducting a watershed and streambank condition assessment to identify high-risk erosion and deposition sites, installing erosion control measures such as vegetative buffers, riprap, or bioengineering solutions, stabilizing disturbed soils at construction sites and recreational access points, improving stormwater management systems to reduce sediment transport, performing regular dredging or sediment removal at critical infrastructure such as culverts and bridges, and partnering with landowners and community groups to implement best management practices (BMPs).	Erosion, PV, PP	1, 2, 3,4	**Town of Silverthorne Public Works**. Town of Silverthorne Public Works Department, Summit County Government, Colorado Department of Public Health and Environment (CDPHE), Colorado Parks and Wildlife (CPW), U.S. Forest Service, Blue River Watershed Group	**$250,000 to $1,000,000.** HMGP, EPA watershed grants, CWCB funding, and local stormwater utility funds.	Low	1-5 years	New in 2025.
Silver-thorne 13	**Emergency Preparedness, Evacuation Planning, and Public Notification for Dillon Dam Failure.** Updating and exercising the Emergency Action Plan (EAP) in coordination with Denver Water, Summit County, and downstream jurisdictions. Conducting inundation mapping updates to reflect population growth, infrastructure changes, and improved hydrologic modeling, enhancing public warning systems (e.g., sirens, reverse 911, IPAWS) to ensure timely notification to all affected residents and visitors, developing and practicing evacuation plans for flood-prone neighborhoods and essential facilities, training emergency responders in dam failure-specific response and coordination procedures, and assessing critical infrastructure vulnerabilities (e.g., bridges, utilities, emergency routes) within the inundation zone and identifying improvements to reduce exposure.	Dam Incident; PV, PP, NR	1,2,3,4	**Denver Water, Summit Emergency Management.** Denver Water, Summit County Emergency Management, Colorado Dam Safety Branch (Division of Water Resources), Town of Silverthorne Police, Public Works, and Administration Departments, and FEMA and DHSEM (technical assistance and funding)	**$250,000 to $750,000.** HMGP, Colorado Dam Safety funds, and local emergency management grants.	Medium	1-3 years	New in 2025.
Silver-thorne 14	**Hazardous Materials Incident Preparedness and Community Risk Reduction.** Updating or adopting a local Hazardous Materials Annex as part of the Emergency Operations Plan (EOP), coordinating with Summit Fire & EMS, Summit County HazMat Team, and CDOT for regional response protocols and mutual aid, identifying and mapping potential fixed-site and transportation-based HazMat risks,	Hazardous Materials; PV, PE	1, 2, 3, 4	**Summit Fire and EMS.** Summit County Office of Emergency Management, CDOT, Summit County Public Health Department, DHSEM, CDPHE, and Local	**$200,000 to $500,000,** HMGP, SHSGP, US DOT HMEP grants, DOLA Energy and Mineral Impact Assistance Fund (EIAF), Local public safety and	Medium	1-3 years	New in 2025.

ID	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
	training first responders in hazardous materials recognition, containment, and decontamination procedures, and conducting community outreach on household hazardous waste disposal and shelter-in-place guidance, and reviewing emergency routes and ensuring equipment and protective gear availability for responders.			utility providers (water, wastewater, energy)	utility budgets (matching funds or equipment purchase			
Silver-thorne 15	**Slope Stability Assessment, Monitoring, and Protective Measures.** Conducting a geotechnical and hydrologic assessment to identify areas at risk within or directly upstream of Town boundaries. Coordinating with Summit County, CDOT, and the U.S. Forest Service on slope stabilization or monitoring projects for high-risk areas adjacent to transportation corridors, installing debris flow barriers, diversion structures, or improved drainage where hazard mapping indicates vulnerability, updating development codes to incorporate geotechnical review requirements for construction in areas with moderate slope hazard potential, training public works and emergency response personnel on post-event debris removal and public safety protocols, and enhancing public awareness of potential post-wildfire debris flow risks in nearby drainages.	Landslide; PV, NR	1, 2, 3, 4	**Town of Silverthorne Public Works.** Summit County Government, CDOT, U.S. Forest Service (White River National Forest), Colorado Geological Survey	**$350,000 to $1.5 million.** HMGP, U.S. DOT safety grants, and potential Colorado Geological Survey technical assistance.	Medium	2-5 years	New in 2025.
Silver-thorne 16	**Water Supply Resilience and Conservation.** Preparedness for Drought Conditions. This mitigation action focuses on increasing water supply reliability, promoting efficient water use, and preparing for long-term drought impacts	Drought; PV, PE	1	**Town of Silverthorne Utilities & Public Works,** Denver Water, Colorado River District, CWCB, Summit County Sustainability Office	$250k - $1,200k	Medium	2-5 years	New in 2025.

F.6 Implementation and Maintenance

Moving forward, the Town of Silverthorne will follow the procedures to review and update this plan in accordance with Chapter 6 of the 2025 Summit County MJHMP. The Town of Silverthorne annex to the Summit County MJHMP will be evaluated on a regular basis to determine the effectiveness of programs and to reflect changes in land development or programs that may affect mitigation priorities.

F.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the Town to help inform updates and the development of local plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

The HMPC did not note the integration of the 2020 hazard mitigation plan into the Town's existing plans and planning mechanisms. In future updates, the Town intends to incorporate the hazard information provided in the 2025 plan when revising its planning mechanisms.

Process Moving Forward

Moving forward, the Engineering Division may utilize the hazard information when implementing the Town's Capital Improvement Plan and the Planning and Zoning Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The Town will also incorporate this HMP into future updates to the Town of Silverthorne Comprehensive Plan.

As noted in Chapter 6 Plan Maintenance, the HMPC representatives from Silverthorne will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

F.6.2 Monitoring, Evaluation and Updating the Plan

The Town will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 6 of the Base Plan. The Town will continue to involve the public in mitigation, as described in Section 6.4 of the Base Plan. The Director of Public Works will be responsible for representing the Town in the County HMPC, and for coordination with Town staff and departments during plan updates. The Town realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

F.6.3 Continued Public Involvement

The Town of Silverthorne will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The Town will also:

- Continue to inform town property owners of any code changes that affect hazard vulnerability.
- Provide regular newsletter broadcast of Town Council and Town government activities.
- Publish all emergency preparedness and mitigation activities for community review and awareness.

Annex G: Fire Protection Districts

G.1 Community Profile

The material presented in this annex applies to the two fire protection districts participating in the 2025 Summit County Hazard Mitigation Plan Update , which are described below. Each of the districts participated individually in this planning process.

Figure G-1 and Figure G-2 below show maps of the Summit Fire & EMS Authority and Red, White and Blue Fire Protection District boundaries.

G.1.1 Summit Fire & Emergency Medical Service Authority (SFE)

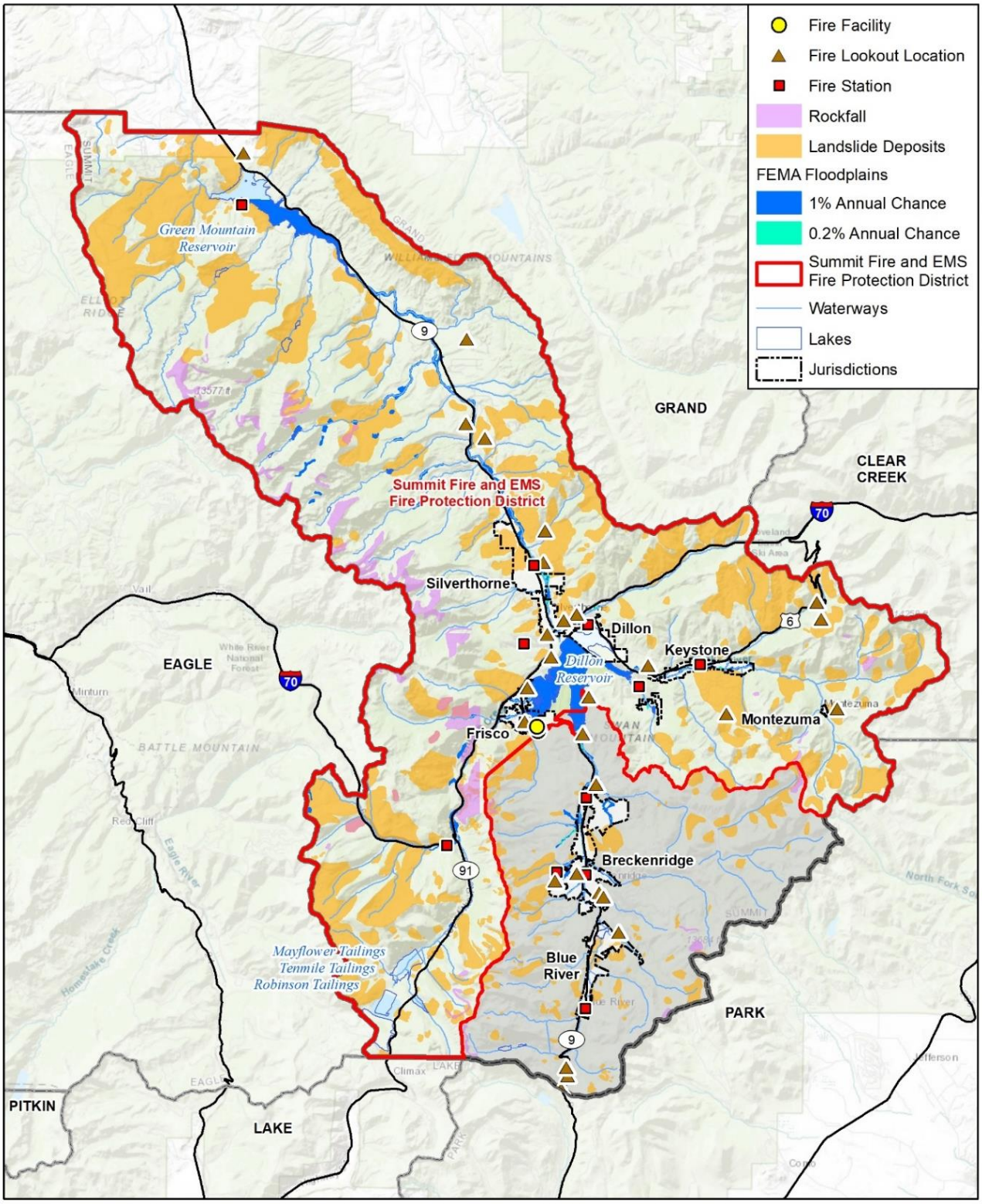
After a series of consolidations and mergers between various smaller fire districts dating back to 1989, the Lake Dillon Fire Protection District (LDPD) entered into an Intergovernmental Agreement (IGA) with Copper Mountain Consolidated Metropolitan District to form the Summit Fire & EMS Authority (SFE) in 2017. The Summit Fire & EMS Authority, which is funded by taxpayers through their property tax as well as from fees from Emergency Medical Transports, is now one of two districts serving Summit County. It is now a career department with 115 employees operating five 24-hour stations, and two reserve stations covering Frisco, Silverthorne, Dillon, Keystone, Copper Mountain, Heeney, and Montezuma. SFE is the successful consolidation of five former fire districts. Currently it is operating as part of an Authority model which now includes the all-hazards incidents formerly covered by the Copper Mountain Consolidated Metro District. It has a response area of 479 square miles and protects the majority of the shoreline of Lake Dillon, Loveland Pass, which is a designated hazardous materials corridor by the Colorado Department of Transportation, and approximately 24 miles of the highest stretch of Interstate 70 in the United States. The ski resorts of Arapahoe Basin, Copper Mountain, and Keystone are also included in the protection area. Protected municipalities include Dillon, Frisco, Montezuma, and Silverthorne as well as 13 water entities or districts.

G.1.2 Red, White, and Blue Fire Protection District (RWBFPD)

The name Red, White, and Blue originates from three different fire companies that were organized in 1882 to protect the mining district of Breckenridge after three large fires almost destroyed the town. In 1947, the fire department changed names to the Breckenridge Volunteer Fire Department. In 1976, a special taxing district was officially formed renaming the department to the Red, White, and Blue Fire Protection District (RWBFPD), as it is called today. The District covers approximately 138 square miles of Summit County, including the towns of Breckenridge and Blue River, the Breckenridge Ski Resort, and unincorporated sections of Summit County. The District boundaries are Hoosier Pass to the south, Frisco town limits to the north, the Continental Divide to the east, and the Ten Mile range to the west. Red, White, and Blue is a career department with approximately 68 paid personnel in 5 divisions: Operations, Administration, Community Risk Management, Training, Safety, and Operations, and the Board of Directors. The District has an elected Board of Directors consisting of 5 community members.

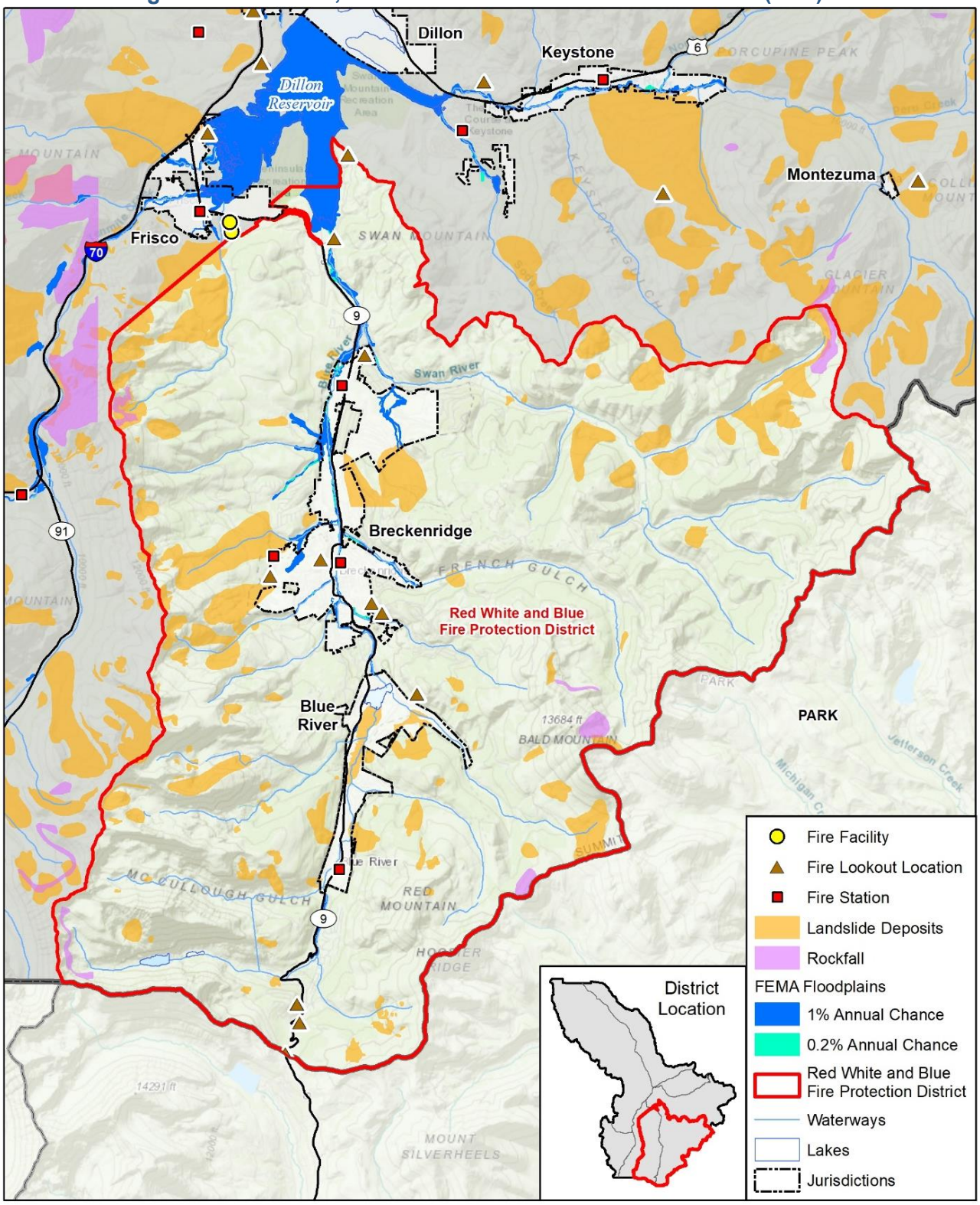
As community priorities in hazard mitigation have changed over time, RWBFPD is planning to create a full time position focused on Community Risk Reduction and developing a comprehensive Community Risk Reduction plan for the future.

Figure G-1 Summit Fire & EMS Authority



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
Colorado Geological Survey (CGS), FEMA NFHL Effective Date 11/16/2018

Figure G-2 Red, White and Blue Fire Protection District (FPD)



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
Colorado Geological Survey (CGS), FEMA NFHL Effective Date 11/16/2018

0 2.5 5 Miles

N

G.2 Hazard Identification and Profiles

Representatives from each district identified the hazards that affect the districts and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and overall planning significance (see Table G-1). Each of the districts includes similar terrain and hazards; the hazards that impact the districts are summarized below. Magnitude and overall hazard rating are assessed in terms of impacts to fire protection district assets and operations.

Table G-1 Summit County Fire Protection Districts Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	NA	NA	NA	NA
Dam Failure	Small	Unlikely	Critical	Medium
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Unlikely	Limited	Low
Erosion/Deposition	Small	Unlikely	Limited	Low
Flood	Small	Likely	Limited	Medium
Hazardous Materials Release	Isolated	Highly Likely	Critical	Medium
Landslide	Isolated	Likely	Critical	Medium
Lightning	Large	Highly Likely	Critical	Medium
Pest Infestation	Large	Likely	Critical	Medium
Severe Winter Weather	Large	Likely	Limited	Medium
Wildfire	Large	Highly Likely	Catastrophic	High
Wildlife-Vehicle Collisions	Small	Likely	Limited	Low
Windstorm	Large	Likely	Limited	Low

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

G.3 Vulnerability Assessment

The intent of this section is to assess the vulnerability of the fire protection districts separate from that of the planning area as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment in the main plan. For the Districts' purposes, wildfire is the main hazard of concern and the primary hazard for which the Districts have responsibilities. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment in the main plan.

G.3.1 District Asset Inventory

Summit Fire & EMS identified the following critical facilities and other community asset replacement values, which may not be accurate as of 2025 costs but provide a general guideline of possible costs incurred if these facilities were affected by various hazards.

Table G-2 Summit Fire & EMS Critical Facilities & Key Resources

Facility	Location	Occupancy	Replacement Cost
Lake Dillon Fire Protection District Station 2	Frisco	20	$9.5 Million
Lake Dillon Fire Protection District Station 8	Dillon	13	$7.5 Million
Lake Dillon Fire Protection District Headquarters Building (District Administrative and EMS Offices)		30	$5.5 Million
Lake Dillon Fire Protection District Station 11 (Fire Station and Support and Fleet Services)	Keystone	50	$9.5 Million
Lake Dillon Fire Protection District Station 12	Summit Cove	EMS Crew only	$3.5 Million
Lake Dillon Fire Protection District Station 14	Wildernest	Not staffed	$3 Million
Copper Mountain Metropolitan District (SFE) Station 1	Copper Mountain	15	$9.5 Million

The Red, White, and Blue Fire Protection District's 2020 Community Risk Assessment: Standards of Cover includes the following critical infrastructure and key resources located in each of the RWBPD response areas. RWBPD defines a key resource as publicly or privately controlled resources essential to the minimal operations of the economy and government. Replacement costs were not available.

Table G-3 Red, White, & Blue Fire Protection District's Critical Facilities & Key Resources

Response Area	Critical Facility	Key Resources*
Station 4 Response Area	Red, White, & Blue Fire Station 4	Breckenridge Nordic Center
	Summit High School	Colorado Mountain College
	Town of Breckenridge Water Treatment	
	Four Mile Bridge	
	Town of Breckenridge Roads, Summit County Roads, State of Colorado Roads	
	Town of Breckenridge Water Distribution Resources (Plants, Pipelines, Tanks, Hydrants, Tarn, etc.)	
	FCC Cell Phone/Radio Tower Sites	
	Alpensee Water Distribution Resources (Plants, Pipelines, Tanks, Hydrants, etc.)	
	Swan River Water Distribution Resources (Plants, Pipelines, Tanks, Hydrants, etc.)	
	Cistern Access Points	
	Upper Blue Sanitation Wastewater Distribution Resources (Plants, Pipelines, Tanks, etc.)	
Station 5 Response Area	Breckenridge Ski Resort	Breckenridge Grand Vacations Properties (Grand Timber, Grand Lodge, Grand Colorado, etc.) (Key Resource)
	Town of Breckenridge Water Distribution Resources (Plants, Pipelines, Tanks, Hydrants, Tarn, etc.)	Breckenridge Nordic Center

Response Area	Critical Facility	Key Resources*
Station 5 Response Area	Red, White & Blue Fire Station 5	Crystal Peaks Lodge
	Town of Breckenridge Roads, Summit County Roads	One Ski Hill Place
Station 6 Response Area	City Market	Beaver Run Resort
	Breckenridge Arts District/Historical District	Marriott Mountain Valley Lodge
	Breckenridge Ski Resort	Residence Inn by Marriott
	Breckenridge Elementary	Breckenridge Grand Vacations Properties (Grand Timber, Grand Lodge, Grand Colorado, etc.)
	Upper Blue Elementary	Double Tree by Hilton
	Town of Breckenridge Town Hall	Main Street Station
	Town of Breckenridge Public Works Facilities	Village at Breckenridge
	Red, White & Blue Fire Station 6	Lodge and Spa at Breckenridge
	Town of Breckenridge Police Department	Valdoro Mountain Lodge
	Summit County Justice Center/Jail	Mountain Thunder Lodge
	Old Summit County Courthouse	River Mountain Lodge
	Breckenridge Recreation Center	Blue Sky Resort
	Little Red Schoolhouse	Breckenridge Area Churches
	Carriage House Pre-School	Town of Breckenridge Ice Rink
	Timberline Learning Center	Town of Breckenridge Free Ride Bus Service/Summit Stage Bus System
	Breckenridge Montessori School	Breck Grand Vacations Community Center
	Breckenridge Medical Center	
	High Country Health Care	
	Local Gas Stations	
	Century Link Breckenridge	
	Xcel Energy Gas/Electric Buildings/Grid/Substations	
	Colorado Natural Gas Meter Station	

Response Area	Critical Facility	Key Resources*
Station 6 Response Area	Summit County District Attorney's Office	
	Breckenridge Post Office	
	FCC Cell Phone/Radio Tower Sites (Town of Breckenridge, Cell Phone Companies, Local Television, etc.)	
	Town of Breckenridge Water Distribution Resources (Plants, Pipelines, Tanks, Hydrants, Tarn, etc.)	
	Town of Breckenridge Roads, Summit County Roads, State of Colorado Roads	
	Summit County Communications Center 911 Radio Sites (Summit High School, Tyrollean Terrace, Fire Station 4, Peak 10)	
	Upper Blue Sanitation Waste Water Distribution Resources (Plants, Pipelines, Tanks, etc.)	
	Qwest Corporation (Distribution Buildings, service lines, etc.)	
	Cistern Access Points	
Station 7 Response Area	Town of Breckenridge Water Treatment	
	Red, White & Blue Fire Station 7	
	Town of Blue River Town Hall	
	Town of Breckenridge Roads, Summit County Roads, State of Colorado Roads	
	Blue Lakes Dam	
	Tarn Dam	
	Timber Creek Water Distribution Resources (Plants, Pipelines, Tanks, Hydrants, etc.)	
	Cistern Access Points	
	Upper Blue Sanitation Waste Water Distribution Resources (Plants, Pipelines, Tanks, etc.)	

The identified critical facilities were analyzed for vulnerability to various hazards. The results are shown in Table G-4 and Table G-5.

Table G-4 Hazard Analysis of Summit Fire & EMS Assets

Lifeline	Type	Name	Avalanche	Dam Inundation	1% Flood	Landslide	Wildfire	WUI Risk
Health and Medical	Ambulance Station	Summit County Bldgs EMS	-	-	-	-	-	Moderate
Safety and Security	Facility	High Country Training Center	-	-	-	-	-	Moderate
		Summit Fire and EMS Headquarters	-	-	-	-	-	-
	Fire Station	Lake Dillon Fire Station 8	-	-	-	-	-	-
		Lake Dillon Fire Station 2	-	-	-	-	-	Low
		Lake Dillon Fire Station 11	-	-	-	-	Low	Moderate
		Lake Dillon Fire Station 12	-	-	-	-	Lowest	Low
		Fire Station 10	-	At Risk	-	-	Moderate	Moderate
		Copper Mountain Station 1	-	-	-	-	Low	Low
		Lower Blue Station 15	-	-	-	At Risk	Lowest	High
		Station 14 (Wildernest)	-	-	-	-	High	Highest

Source: Summit County, Summit Fire and EMS FPD, WSP Analysis

Table G-5 Red, White & Blue Fire Protection District Assets Hazard Analysis

Lifeline	Type	Name	Avalanche	Dam Inundation	1% Flood	Landslide	Wildfire	WUI Risk
Safety and Security	Fire Station	RWB Station 7	-	-	-	-	Low	High
		RWB Station 4	-	At Risk	-	-	-	Low
		RWB Station 5	-	-	-	-	Moderate	Highest
		RWB Station 6	-	At Risk	-	-	Lowest	Highest

Source: Summit County, Red, White & Blue FPD, WSP Analysis

Additional community assets noted by the HMPC include the following:

- Dillon Town Hall
- Frisco Town Hall
- Silverthorne Town Hall
- Summit County Commons Building
- Summit Stage Facilities
- Silverthorne-Dillon Joint Sanitation Plant
- Snake River Sanitation Plant
- Frisco Sanitation District Facilities
- Summit County Emergency Operations Center
- Summit County Community Center
- Silverthorne Recreation Center
- U.S. Forest Service Dillon District Ranger Offices
- Keystone Resort Gondolas
- Dillon Dam and Facilities
- Green Mountain Dam and Facilities
- Eisenhower/Johnson I-70 Tunnels
- Summit Medical Center – Frisco
- Summit Middle School – Frisco
- Frisco Elementary School (Shelter Location)
- Dillon Valley Elementary School
- Silverthorne Elementary School
- Summit Cove Elementary School
- Copper Mt. Metro District Offices

Other areas of concern include the protection of critical watershed areas for the Ten Mile, Snake River, and Lower Blue basins as well as almost 21 miles of Dillon Reservoir shoreline. The watersheds principally serve Summit County, Denver Water, and the Colorado Big Thompson Project for Northern Colorado. Over 49 miles of high-power transmission lines lie within the boundaries of Summit Fire & EMS response areas, which supply major portions of the western United States. The District also is challenged geographically with natural and developed features that make response extremely challenging. Among these are the Dillon Dam and Eisenhower Tunnel, both of which have been identified as National Critical Infrastructure. Protection also includes three mountain passes at the Interstate-70 tunnel approaches, Loveland Pass (which is a Colorado Department of Transportation designated Hazardous Materials route), and Ute Pass (which carries a significant amount of hazardous materials from the Henderson Mill).

The RWBFPD noted that the Goose Pasture Tarn Reservoir is a critical water source for fire protection and drinking water supplies for the Town of Breckenridge and surrounding areas. The District is geographically isolated and will also rely on aid from outside the County.

G.3.2 Vulnerability by Hazard

This section analyzes existing and future structures and other assets at risk to hazards of significance to the fire protection districts and estimates potential losses as applicable. For the Districts' purposes, wildfire is the only hazard that will be addressed herein due to jurisdictional power and responsibility by the FPDs over fire-related facility and infrastructure maintenance.

Avalanche

While Summit County ranked Avalanche as a high risk hazard, avalanches have negligible impact on the assets or operations of the fire protection districts. As such, the fire districts have ranked this hazard as not relevant, and have no planned mitigation activities.

Dam Failure

Both Fire Protection Districts have facilities potentially at risk of dam inundation. Details can be found in Appendix H (not for public release.)

Flood

Floodplains for Summit Fire & EMS and Red, White and Blue FPD are shown in Figure G-1 and Figure G-2 respectively. While Summit County ranked flood as high risk, the fire protection district have significantly less exposure and therefore rated flood as medium risk.

Landslide, Mudflow/Debris Flow, Rock Fall

Mapped landslide and rockfall deposits for Summit Fire & EMS and Red, White and Blue FPD are shown in Figure G-1 and Figure G-2 respectively.

Severe Winter Weather

While Summit County ranked Winter Weather as a high risk hazard, winter storms have limited impact on fire protection district assets or operations. As such, the fire districts have ranked this hazard as medium.

Wildfire

Together, SFE and RWBFPD provide fire response and suppression services for all of Summit County. As both fire protection districts collectively cover the entire territory of Summit County, the property, people, and facilities detailed in the vulnerability analysis in Section 4.3.12 of the base plan apply to these two districts as well and there is no difference in the vulnerability and exposure of people, property, and facilities between the FPDs and the County. Because of its size, SFE has more total property value in wildfire areas than the Red, White and Blue FPD. As the primary hazard of concern for both Fire Protection Districts, wildfire is rated High significance. Please review the base plan HIRA for full details on wildfire vulnerability and exposure in Summit County.

Evacuation in the wildland urban interface is a top concern for vulnerable populations in both districts, as additional resources may not be readily available to assist evacuation during the emergency.

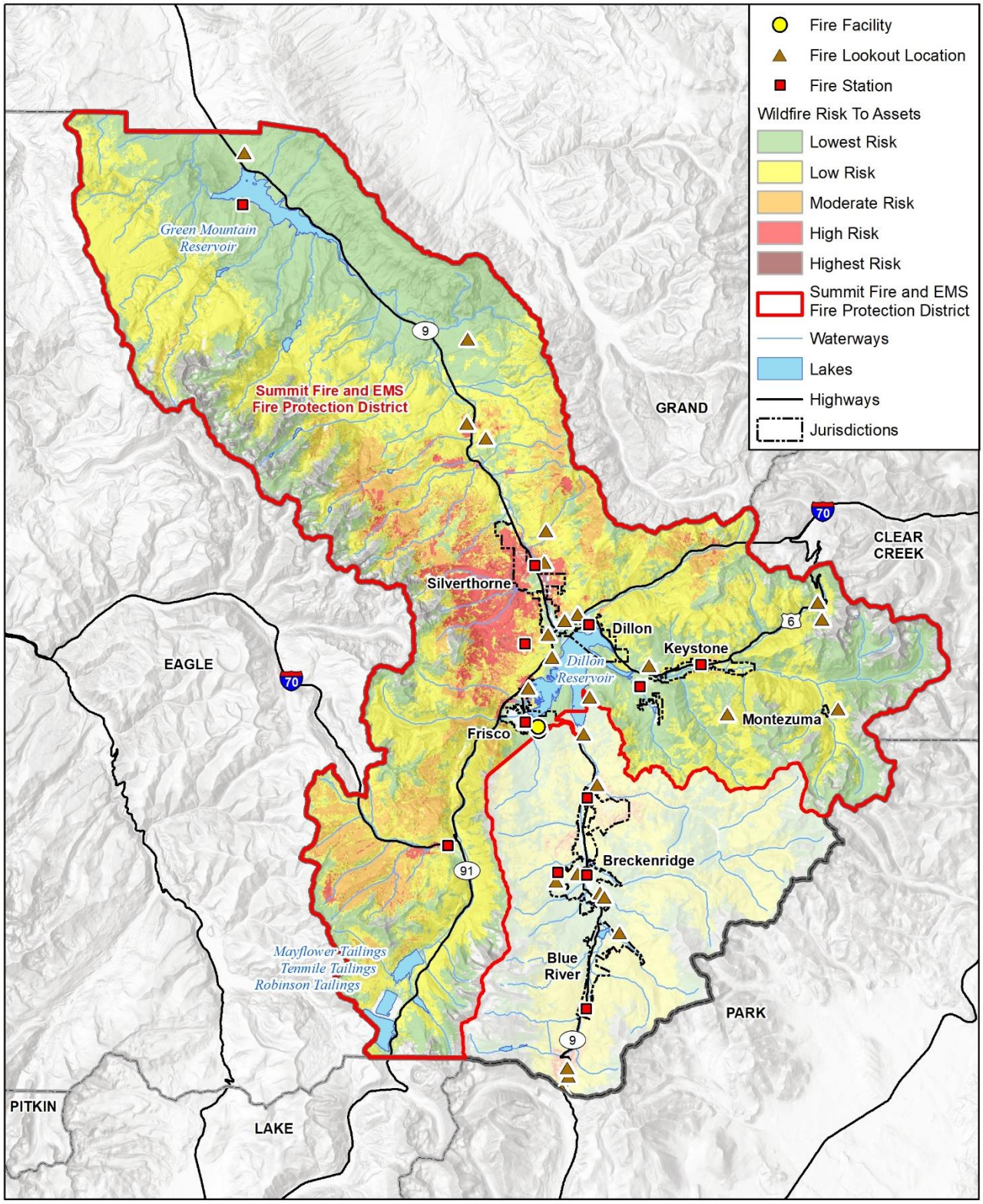
The districts are also affected by other hazards that exacerbate wildfire hazard conditions, such as drought, lightning, pest infestation and windstorms and are considered medium significance. In addition, lands damaged by wildfire are subject to increased runoff (floods) and erosion as well as landslides, mudslides/debris flows, and rockfall. Due to its unique location, Summit Fire & EMS, along with other areas of Summit County, are geographically isolated and in the event of natural disasters such as blizzards, wildfires, avalanches, or landslides may become isolated for an extended period of time. The districts protect a variety of critical infrastructures across the county and its jurisdictions, thus the analysis of specific facilities at risk can be referenced in the base plan hazard identification and risk assessment for hazards such as avalanche, flood, landslides, or applicable jurisdiction annexes.

Human-caused disasters such as hazardous materials, bioterrorism, or explosions will also isolate Summit Fire & EMS and other areas of Summit County. This may serve as an impediment for receiving aid from outside the County for a period of time. According to the Colorado Department of Transportation, traffic

on Interstate 70 through Summit Fire & EMS boundaries has increased by a factor of three over the past decade.

Figure G-3 through Figure G-6 show the wildfire and WUI risk for the two fire protection districts.

Figure G-3 Summit Fire & EMS Wildfire Risk



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, CSFS Forest Atlas

0 5 10 Miles

N

Figure G-4 Summit Fire & EMS WUI Risk

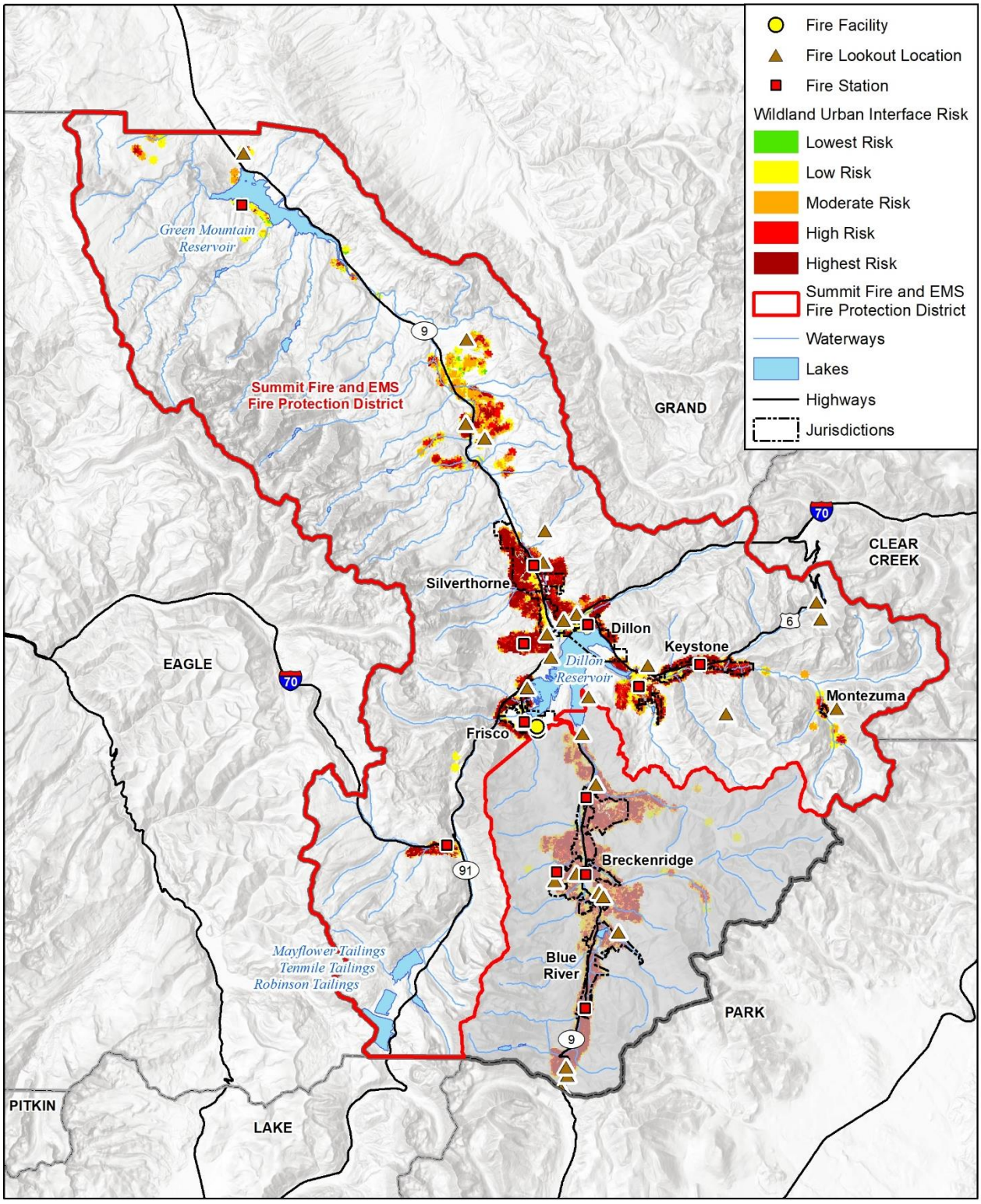


Figure G-5 Red, White & Blue FPD Wildfire Risk

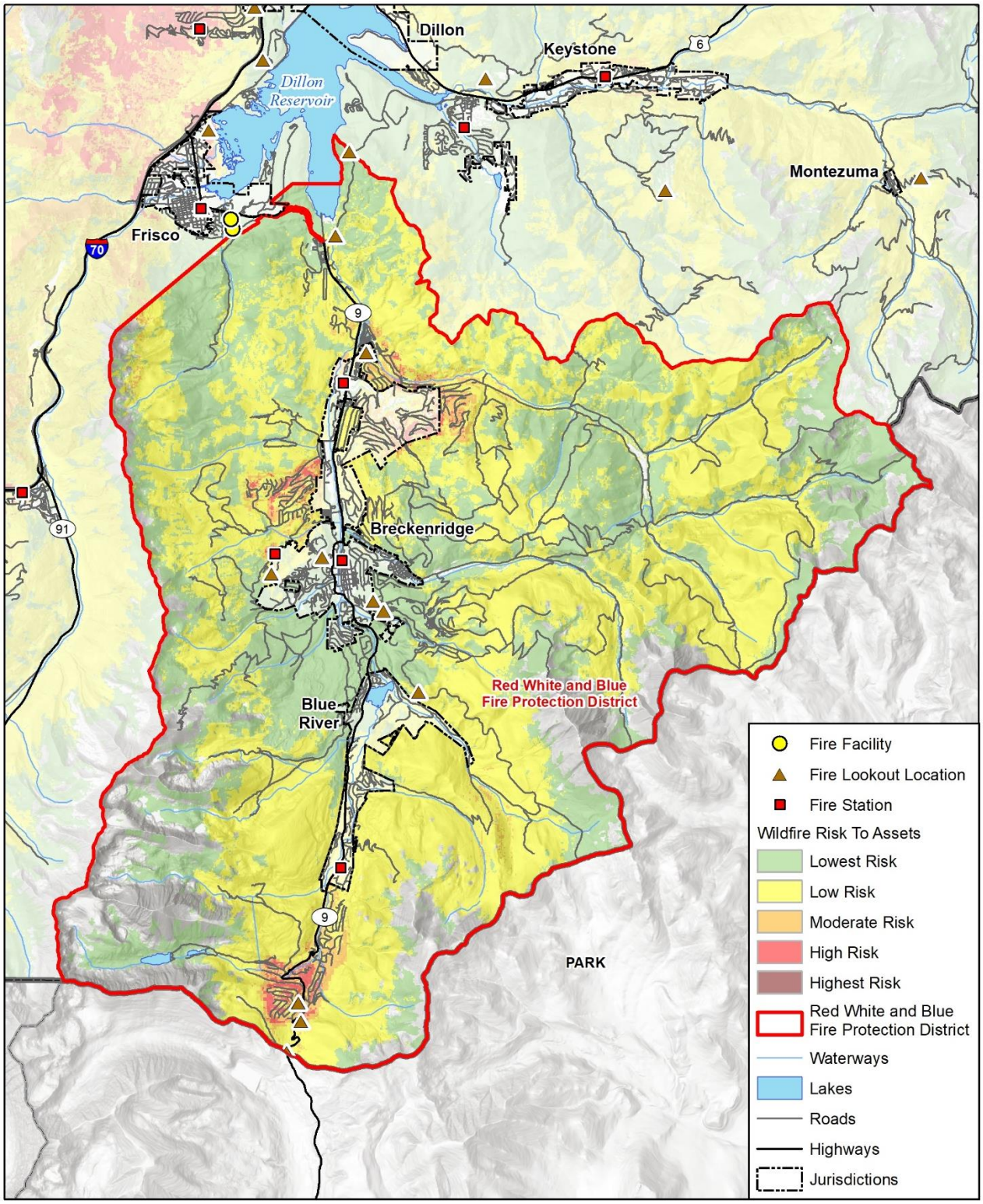
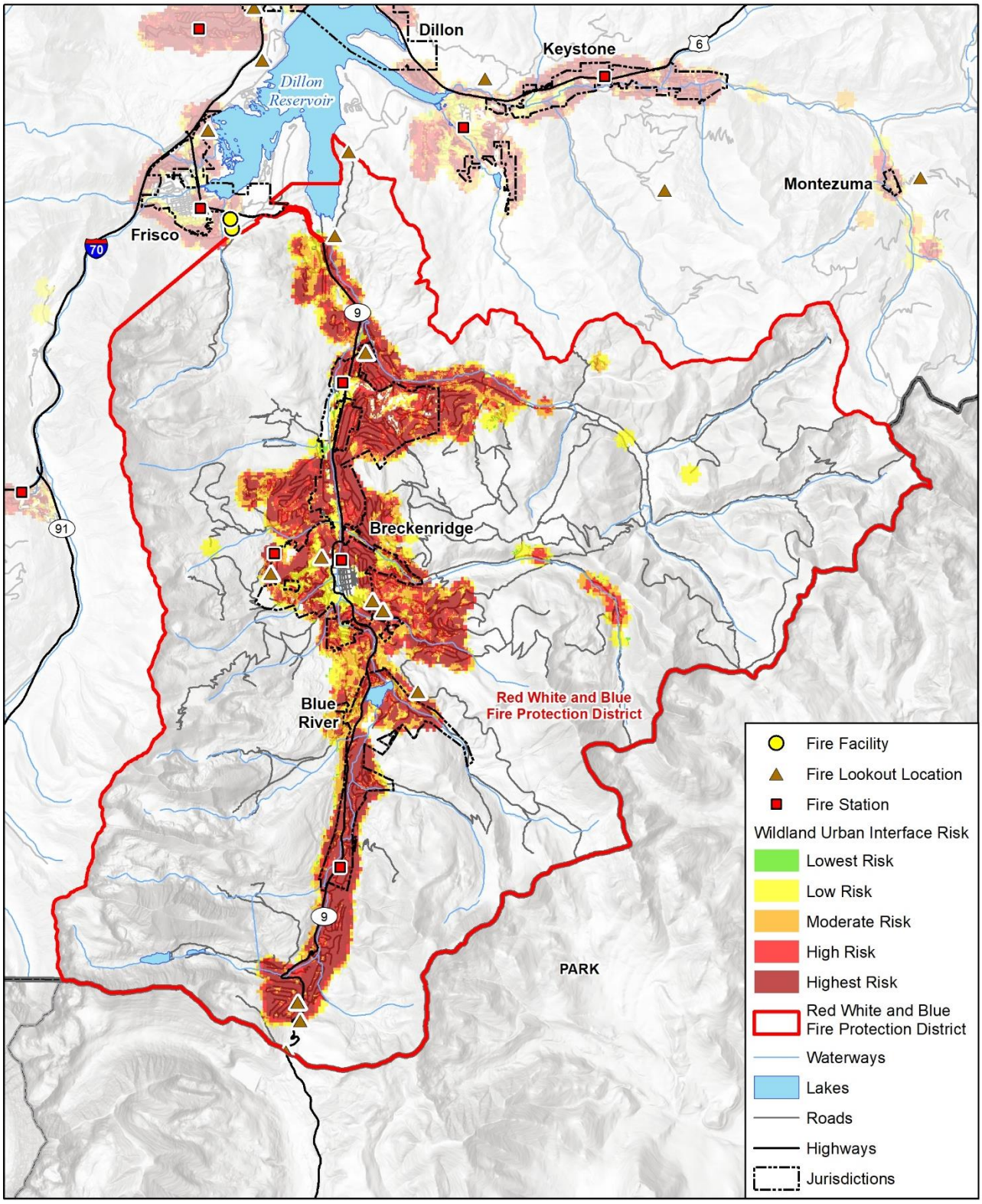


Figure G-6 Red, White & Blue FPD WUI Risk



G.3.3 Growth and Development Trends

Growth & development trends for the areas covered by the fire protection districts can be found in the base plan and municipal annexes.

G.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into four sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, and mitigation outreach and partnerships.

G.4.1 Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. The fire protection districts are governed under the policies and programs of Summit County, including its building codes and land use planning. The fire districts enforce a mitigation appending of the International Fire Code, as amended. The 2018 International Fire Code has been adopted and went into effect January 1, 2020. The 2024 International Fire Code is currently in the process of being adopted by both SFE and RWBFPD, with adoption anticipated in January 2026. The fire districts also support programs such as Firewise and Ready, Set, Go. The RWBFPD and SFE both have capital improvement plans for their facilities and apparatus as part of their Strategic Plans.

The Summit Fire & EMS Service Plan was updated and adopted in 2018. The District performs site plan reviews for local jurisdictions. The District has an Insurance Services Office (ISO) rating of 2 for unincorporated areas of the district, and a 10 in areas farther than 5 miles from a response station.

The Red, White, and Blue Fire Protection District is a participating agency in Summit County's Annual Wildfire Operating Plan, Emergency Operations Plan, and Community Wildfire Protection Plan. The District enforces the 2024 International Fire Code as amended by Summit County and conducts site plan review for emergency access and water supply requirements. The District has an ISO rating of 2 in areas of the district with hydrants and 2x in areas of the district without hydrants. In 2020 the District will be pursuing evaluation to lower the insurance rating in areas of the district without hydrants.

Table G-6 Summit Fire and EMS Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	2018 IFC, Adopting 2024 International Fire Code effective 1/1/2025
BCEGS Rating	NA	
Capital Improvements Program (CIP) or Plan	No	
Community Wildlife Protection Plan (CWPP)	Yes	
Comprehensive, Master, or General Plan	No	
Economic Development Plan	No	
Elevation Certificates	Yes	
Emergency Operations Plan	No	
Erosion/Sediment Control Program	No	

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Floodplain Management Plan	No	
Flood Insurance Study	No	
Growth Management Ordinance	No	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes	
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	No	
Zoning Ordinance	NA	County

Table G-7 Red, White, and Blue FPD Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	Adopting 2024 International Fire Code effective 1/1/2025
BCEGS Rating	NA	
Capital Improvements Program (CIP) or Plan	Yes	
Community Wildlife Protection Plan (CWPP)	Yes	Participating agency
Comprehensive, Master, or General Plan	Yes	Strategic Plan
Economic Development Plan	No	
Elevation Certificates	No	
Emergency Operations Plan	Yes	Participating agency
Erosion/Sediment Control Program	No	
Floodplain Management Plan	No	
Flood Insurance Study	No	
Growth Management Ordinance	No	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes	Participating agency in Operating Plan for wildfire
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	No	
Zoning Ordinance	NA	

G.4.2 Administrative/Technical Mitigation Capabilities

The Districts work with Summit County departments of engineering, emergency management, and GIS on activities related to hazard mitigation and loss prevention. SFE has two IT support specialists in the Support Services Division skilled in GIS. The Fire Marshall, Deputy Fire Marshall, and two fire inspectors are trained in construction practices related to buildings and infrastructure. RWBFPD Community Risk Management Division Staff is trained in construction practices related to fire safety for buildings and infrastructure. Each district has its own grant writing capabilities, and both are career fire departments.

Table G-8 Summit Fire & EMS Administrative and Technical Capabilities

Personnel Resources	Yes/No	Comments
Emergency Manager	No	
Floodplain Administrator	No	
Community Planning	No	CRR

Personnel Resources	Yes/No	Comments
Planner/Engineer (Land Development)	No	
Engineer/Professional (construction)	No	
Resiliency Planner	No	
Transportation Planner	No	
Full-Time Building Official	No	
GIS Specialist and Capability	No	
Grant Manager, Writer, or Specialist	No	
Warning Systems/Services	No	
• Flood		
• Wildfire		
• Tornado		
• Geological		

Table G-9 Red, White, and Blue FPD Administrative & Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments
Emergency Manager	Yes	Administrative staff are trained to assist with different emergency management and public information functions.
Floodplain Administrator	No	
Community Planning	Yes	Participating Agency
Planner/Engineer (Land Development)	No	
Engineer/Professional (construction)	No	
Resiliency Planner	No	
Transportation Planner	No	
Full-Time Building Official	No	Full-time Fire Marshal
GIS Specialist and Capability	No	Limited capabilities
Grant Manager, Writer, or Specialist	Yes	
Warning Systems/Services	No	Can send messages through the County Everbridge system
• Flood		
• Wildfire		
• Tornado		
• Geological		

G.4.3 Fiscal Mitigation Capabilities

Fire protection districts are funded through property taxes. Fiscal mitigation capabilities are financial tools or resources that the fire protection districts could or already do use to help fund mitigation activities. These include the following:

- Capital improvements project funding
- Taxes for specific purposes
- Debt through general obligation bonds
- Grants from state and federal agencies

In 2024 Colorado allowed Special Districts to collect development impact fees to support their fiscal capabilities. At this time RWBFPD does not collect impact fees, however this funding mechanism remains available for the districts to implement in the future.

G.4.4 Mitigation Outreach and Partnerships

Other mitigation related activities for each district include the following:

Summit Fire & EMS

- Coordinates annual fire-safety education programs in the schools and for the general public in October of each year as part of the National Fire Protection Association's (NFPA) National Fire Prevention Week. The Community Services Bureau follows the NFPA "Learn Not to Burn" curriculum and teaches it throughout the year to 4 elementary schools, one middle school, and several pre-schools.
- Provides public education and information to citizen groups and homeowners associations concerning fire hazard mitigation and wildfire preparedness. SFE held over 35 meetings with HOA groups to discuss/educate on wildfire issues.
- Maintains a proactive public information office staffed by a full-time community resource officer to keep educational fire safety information, public awareness of fire district activities, and active participation in community events promoting fire safety.
- Participates in the fire hazard mitigation program for the County and its municipalities that utilize strategies similar to the Firewise Communities program.
- Instrumental in planning and organizing the Summit County Incident Management Team in 1996. Summit Fire & EMS became an accredited agency through the Center for Public Safety Excellence in March 2019.
- Actively participated and contributed to the development of an expanded evacuation plan for all areas of Summit County and a majority of the towns protected by the agency.
- Currently participating in a study to determine the effect and designation of hazardous materials routes over Loveland Pass and/or the Eisenhower/Johnson Tunnels on Interstate 70, which is a designated critical infrastructure facility located in both Clear Creek and Summit counties.
- While Lake Dillon Fire-Rescue and the Lower Blue Fire Protection District share an agreement to provide assistance to each other in the event of larger-scale incidents, as of January 1, 2008, Lake Dillon and Lower Blue are now operating under a new, wider intergovernmental agreement that enhances responses, equipment, and administrative assistance between the two departments. Lake Dillon Fire – Rescue merged with the fire department portion of the Copper Mt. Consolidated Metro District in January 2018 and began doing business as the Summit Fire & EMS. In July 2019 SFE assumed operational functions of the Summit County Ambulance Service (SCAS). In January 2020 SCAS and SFE will become fully merged under the name Summit Fire & EMS.

Red, White, and Blue Fire Protection District

- RWBFPD is partnered with the Town of Breckenridge and Summit County and works with the building and planning departments of each on their climate action plans.

- Provides public education and information in fire safety, Risk Watch, and all-hazard emergency preparedness.
- RWBFPD currently has 9 recognized Firewise communities, including Christie Height, Highlands Park, Miners View Estates, Park Forest Estates, Shock Hill, Summit Estates, The Highlands, The Pines at Four O'clock Subdivision, and White Wolf.
- RWBFPD participates in the implementation of Community Wildfire Protection Plan (CWPP) projects.

G.4.5 Opportunities for Enhancement

Based on the capability assessment, both FPDs have several existing mechanisms in place that help to mitigate hazards. There are also opportunities for the districts to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Colorado's Department of Homeland Security and Emergency Management (DHSEM). Additional training opportunities will help to inform district staff and board members on how best to integrate hazard information and mitigation projects into the district policies and ongoing duties of the district. Continuing to train district staff on mitigation and the hazards that pose a risk to the districts will lead to more informed staff members who can better communicate this information to the public.

G.5 Mitigation Strategy

G.5.1 Mitigation Goals and Objectives

Each of the fire protection districts adopts the hazard mitigation goals and objectives developed by the Hazard Mitigation Planning Committee and described in Chapter 4 Mitigation Strategy.

G.5.2 Progress on Previous Mitigation Actions

During the 2025 planning process, the fire protection districts reviewed all mitigation actions from the 2020 plan to provide updates on their implementation status. Both districts determined that none of the actions from 2020 had been completed, and they were carried forward into the 2025 mitigation strategy.

G.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the districts.

G.5.4 Mitigation Actions

Since the previous plan update there has been significant progress made on the previously identified mitigation actions. Summit Fire & EMS completed two of their mitigation actions: Action Summit Fire &

EMS Authority —2 and Summit Fire & EMS Authority – 5. The first of these actions was to install emergency generators in three of the districts fire stations, which was accomplished with generators installed at all stations except Station 2. The second of these complete actions was to construct an additional fire station in Silverthorne, which was completed in 2023. RWBFPD did not mark any of their actions complete, however progress has been made towards completion on all but one of the actions identified in 2020 (see Table G-11 for full details).

Each of the fire protection districts identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Table G-10 Summit Fire & EMS Authority Mitigation Action Plan

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Summit Fire & EMS 1	Maintain and enhance wildfire mitigation program	Wildfire; PR	1,3	**SFE Community Risk Division**	Moderate; SFE General Fund, HMGP	High	Ongoing	Annual. Considerable progress has been made on fuels reduction since 2020, but most will need to be re-cleared in next 5 years.
Summit Fire & EMS 2	Rural addressing	Wildfire; ES	1	**SFE Community Risk Division**	Minimal; SFE General Fund	Medium	Ongoing	Annual. Initial addressing completed but will need to be updated in coming years.
Summit Fire & EMS 3	Provide backup power to Frisco fire station to protect continuity of services.	Avalanche, Dam Failure, Earthquake, Flood, Hazardous Materials, Landslide, Winter Weather, Wildfire, Windstorm; PR, ES	1, 2	**SFE Community Risk Division**	Moderate; SFE General Fund, HMGP, AFFG	High	Short Term	In Progress. Budgeted and scheduled for 2026.
Summit Fire & EMS 4	Summit Fire & EMS Fuels Crew and Suppression Module (SMOD). This project establishes a four-person crew to perform fuels reduction work on private, local, state, or federal lands. This crew will bolster what the USFS is already doing with their Fuels Crew and have the capacity to work on non-federal lands. The eventual goal is to build this fuels crew into a 10-person Suppression Module that would deploy nationally to wildland fire assignments nationally but would continue fuels mitigation work while at home. Costs are for personnel, equipment, and vehicles.	Wildfire; PR, NR, ES	1, 2, 3, 4	**SFE Community Risk Division**; USFS, Summit County Wildfire Council, RWBFPD	Very High; SFE General Fund, FMA, HMGP, AFFG	High	Medium Term	New in 2025
Summit Fire &	Summit County Fuels Collection Program. This project establishes a fuels collection program for determining fire danger and	Wildfire; PP, PE, NR	1, 2	**SFE Community Risk Division**; USFS, RWBFPD	Medium; SFE General Fund, HMGP, AFFG	High	Medium Term	New in 2025

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
EMS 5	potential within Summit County. Currently there is one site with a RAWS (remote automated weather station). In order to get a better picture of our fuel conditions in Summit County, three additional sites are proposed. The priority for this project is to purchase a lab grade oven, scale, and the needed tools and supplies. Secondary to this would be to purchase and establish additional RAWS (Remote Automated Weather Station) units.							
Summit Fire & EMS 6	Summit Fire & EMS Wildland Facility. The SFE Wildland Division is growing capacity and staff and the District does not own a building that would accommodate the program. The project is to identify, plan, and build a facility at the appropriate site.	Wildfire; ES, SP	1, 2	**SFE Community Risk Division;** USFS, Local Municipalities, Summit Count	Very High; SFE General Fund, HMGP, AFFG	High	Medium Term	New in 2025
Summit Fire & EMS 7	Wildfire/Mitigation Tech and Data Progression. Identify, test, utilize & contribute data through daily operations to technologies like Echospectra, PanoAI, FireAside. We need better tech and data information on multiple fronts: -Where mitigation work needs to be completed the most. - What work has already been done and a way to show through localized data and modeling that summit county is in certain areas well mitigated against wildfire risk. -More detection cameras to assist in notifying of potential fires quickly. Working with tech companies that take good data and turn it into measurable information for our district would promote an effective decision making process for future mitigation efforts. Echospectra does	Wildfire; ES, SP	1, 2, 3, 4	**SFE Community Risk Division**; Breckenridge Red, White, & Blue, Summit County, Excel Energy	Echospectra $15,000 per year. Fire Aside $15,000 per year. Pano AI camera $50,000 per year per camera; FEMA AFFG, HSGP	Medium	Medium Term	New in 2025

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
	wildfire investigation, and localized fuels data and fire modeling to show potentially impacted landscapes. This would give us the upper hand in deciding where to place time and dollars for the most effective work right now and over an extended period of time. FireAside collects courtesy inspections and work completed by homeowners into an easy to manage and view database that many fire departments are using. With this we can view regular reports at the parcel and local landscape levels to see work that has been completed by homeowners and HOA's in effort of better protection. This will eventually be crucial in proving to insurance companies that this is a safe place to own a home. Pano AI already effectively identifies and notifies of potential new fire starts in summit county however there seems to be holes in the cameras' detection coverage. Ensuring that the entire county and more are covered by these cameras decreases response times and increases our chances at an effective initial attack on new wildfires. Potential locations for new cameras could be north end of the county between Silverthorn and Kremmling and potentially one at Arapaho basin with the ability to look into the snake river drainage and up towards Montezuma.							

Table G-11 Red, White, and Blue Fire Protection District Mitigation Action Plan

ID	Description	Hazard(s) & Category	Related Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Red, White, & Blue 1	Create public education program encouraging wildfire defensible space	Wildfire, PI	Goal 1	**Wildland Fire Division;** SFE, USFS	$300,000; Colorado State Forest Service Grants and RWBFPD	High	Ongoing	Annual implementation.
Red, White, & Blue 2	Promote household winter preparedness kits	Severe Winter Weather, PI	Goal 1	**Community Risk Reduction Division**, Summit School District, OEM	None; Red Cross	High	Ongoing	This program is being started through our school education programs in conjunction with the School District and OEM
Red, White, & Blue 3	Conduct periodic community evacuation drills	Avalanche, Dam Failure, Earthquake, Flood, Hazmat, Landslide, Wildfire, Windstorm; PR, ES	Goal 1	**Community Risk Reduction Division**; TOB	$1,000; Summit County Wildfire Council Grant Program and RWBFPD	Medium	Ongoing	Annual implementation.
Red, White, & Blue 4	Inventory and map locations of hazardous materials	Hazmat, PR	Goal 1	**Community Risk Reduction Division**	$5,000; Summit County Wildfire Council Grant Program and RWBFPD	Low	Long Term	In Progress
Red, White, & Blue 5	Rural addressing	Wildfire, ES	Goal 1	**Wildland Fire Division**; SFE, TOBR, TOB	$1,000; Summit County Wildfire Council Grant Program and RWBFPD	Low	Long Term	In Progress
Red, White, & Blue 6	Firewise communities program	Wildfire, PI	Goal 1, 4	**Wildland Fire Division**	Summit County Wildfire Council Grant Program and RWBFPD	Medium	Long Term	In Progress
Red, White, & Blue 7	Develop a threat and hazard assessment for each critical infrastructure in the District and identify risk reduction strategies	Multi-Hazard, PP	Goal 2	**Community Risk Reduction Division**	$5,000; Summit County Wildfire Council Grant Program and RWBFPD	Medium	Mid Term	Not Started
Red, White, & Blue 8	Develop inspection strategies and response plans for locations identified as Critical Infrastructure of key resources in the community	Multi-Hazard, PP	Goal 2	**Community Risk Reduction Division**	Part of cost associated Action #1; Summit County Wildfire Council Grant Program and RWBFPD	Medium	Mid Term	In Progress

ID	Description	Hazard(s) & Category	Related Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Red, White, & Blue 9	Community Risk Assessment. This will create and implement a Community Risk Assessment Plan for RGB Fire District.	Avalanche, Dam Failure, Earthquake, Flood, Hazmat, Landslide, Wildfire, Windstorm; PR	Goal 1, 2	**Community Risk Reduction Division**; Summit Fire & EMS	$100,000 to $200,000 per year; District general fund, SAFER grant	High	Short Term	New in 2025

G.6 Implementation and Maintenance

Moving forward, the Districts will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

G.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the Fire Protection Districts to help inform updates and the development of the District's plans, programs and policies.

Integration of Previous Plan into Other Planning Mechanisms

Red, White and Blue Fire Protection District has included risk information from both the 2013 and 2020 HMPs and Fire Protection District's annex to inform updates to the District's Community Risk Assessment: Standards of Cover document, which is produced every 5 years as part of the district's re-accreditation process. Chapter IV All-Hazard Risk Assessment of the Community and specifically informs the Natural Risks section of the document.

While Summit Fire & EMS did not indicate integration of risk from the 2013 plan into the Districts plans, or codes directly, the information from the 2013 plan provided a general understanding of the risks and vulnerabilities that natural disaster may pose on people and structures within the District's boundaries.

Process Moving Forward

Moving forward, the Fire Protection Districts may use the vulnerability and risk information to help inform updates to future capital improvement planning for the Districts. For example, the Additional Response Station in Silverthorne mitigation action (SFE action #4) has been added to District Strategic Plan in 2019. RWBFP will continue to include risk information, including the information from this plan update process, in the District's annual Community Risk Assessment: Standards of Cover document, refer to Appendix A References.

The County Planning and Building Department may utilize the hazard information when reviewing a site plan or other type of development applications with the boundaries of the Fire Protection Districts.

As noted in Chapter 5 Plan Maintenance, the HMPC representatives from Summit Fire & EMS and the Red, White, and Blue Fire Protection Districts will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

G.6.2 Monitoring, Evaluation and Updating the Plan

The Fire Protection Districts will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. The districts will continue to involve the public in mitigation, as described in Section 5.4 of the Base Plan. The Deputy Chiefs for Summit Fire and & EMS and Red, White, and Blue Fire Protection District will be responsible for representing the Fire Protection Districts in the County HMPC, and for coordination with County staff and

departments during plan updates. Summit Fire& EMS and the Red, White, and Blue Fire Protection District realize it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

G.6.3 Continued Public Involvement

The Fire Protection Districts will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The Districts will also pursue the following public engagement activities:

Summit Fire and EMS:

- Engage the public through the PIO
- Our Community Risk Reduction Specialist
- Fire Prevention Week
- External Stakeholders
- Summit Medical Center
- Colorado Mountain College
- Summit County Schools: Caree day and Education programs
- Wildfire Curtesy Assessments
- Silverthorn First Fridays

Red, White, and Blue FPD:

- Engage the public in wildfire education, mitigation, and Firewise community programs.
- Continue to engage the community in our evacuation and preparedness training programs through take-home materials from school presentations.
- Community Risk Assessment will engage the community to help determine the hazards and risks they feel are essential to our community.

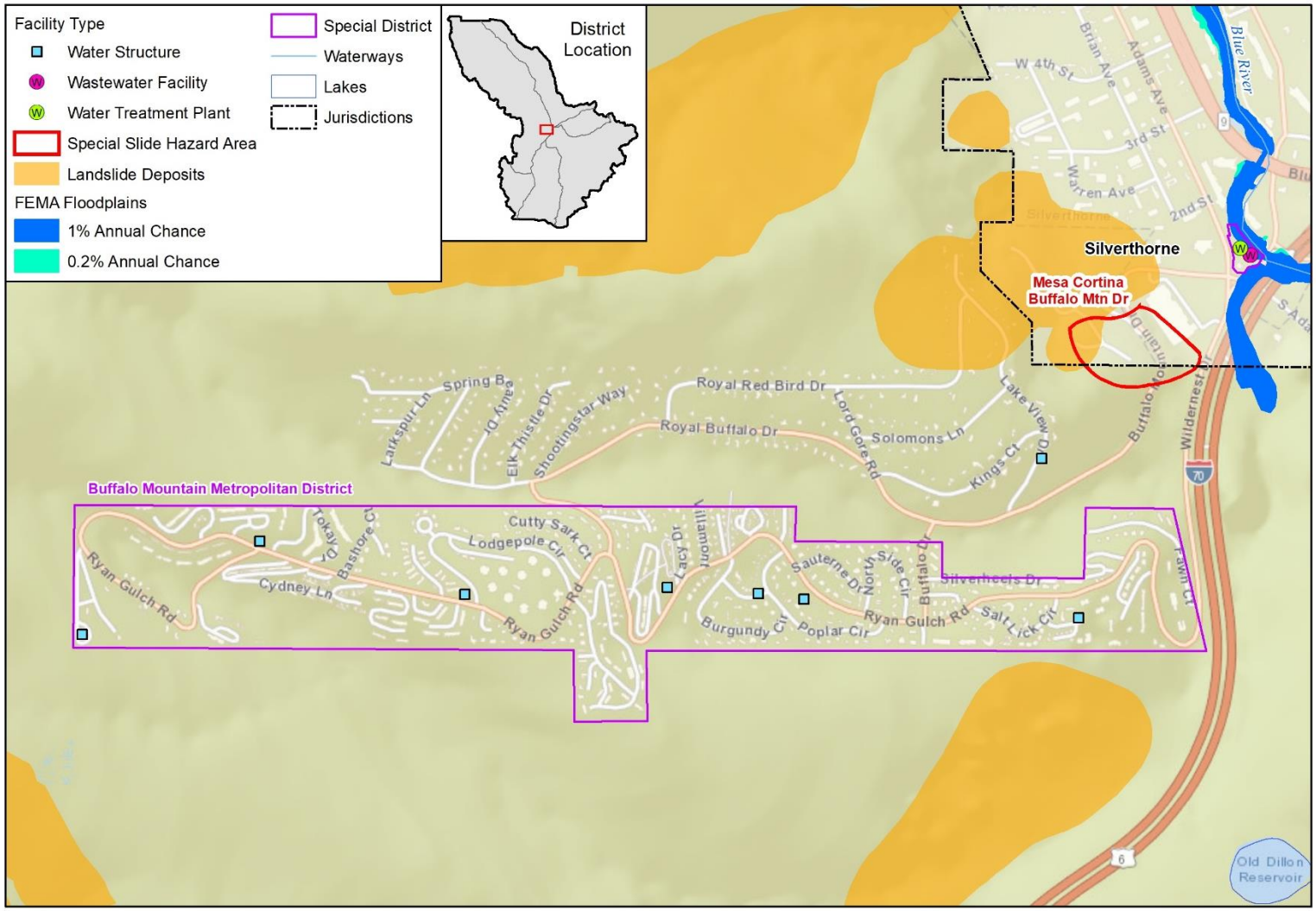
Annex H: Buffalo Mountain Metropolitan District

H.1 Community Profile

The Buffalo Mountain Metropolitan District is a special district in Summit County, which provides services for the Wildernest subdivision located on the southwest side of the Town of Silverthorne. The District provides water and sewer, road maintenance, and snow removal services and also functions as a homeowners' association providing architectural review and covenant enforcement. The District also coordinates with the U.S. Forest Service and Summit County, who own and manage most of the surrounding land.

The District operates under the direction of an elected Board of Directors that sets policy decisions. The District serves over 2,400 properties located on 300 acres. Figure H-1 shows the location of the Buffalo Mountain Metropolitan District as well as all available local hazards

Figure H-1 Buffalo Mountain Metropolitan District and Local Hazards



H.2 Hazard Identification and Profiles

Representatives of the Buffalo Mountain Metropolitan District identified the hazards that affect the District and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the district (see Table H-1). In the context of the countywide planning area, there are no hazards that are unique to the Buffalo Mountain Metropolitan District.

Table H-1 Buffalo Mountain Metropolitan District—Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Unlikely	Negligible	Low
Dam Incidents	Isolated	Unlikely	Limited	Low
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Occasional	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Isolated	Occasional	Limited	Low
Hazardous Materials Release (Transportation)	Isolated	Unlikely	Limited	Low
Landslide, Mudflow/Debris Flow, Rockfall	Small	Occasional	Limited	Low
Lightning	Large	Likely	Limited	Low
Pest Infestation (Forest and Aquatic)	Large	Highly Likely	Limited	Low
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Large	Highly Likely	Critical	High
Wildlife-Vehicle Collisions	Small	Likely	Negligible	Low
Windstorm	Large	Likely	Limited	Low

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

H.3 Vulnerability Assessment

The intent of this section is to assess Buffalo Mountain Metropolitan District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

H.3.1 District Asset Inventory

Buffalo Mountain Metropolitan District identified the following list of assets, which were analyzed for vulnerability to various hazards. The results are shown below in Table H-2. Replacement costs were not available.

Table H-2 Hazard Analysis of Buffalo Mountain Metropolitan District Assets

Lifeline	Jurisdiction	Type	Avalanche	Dam Inundation	1% Flood	Landslide	Wildfire Risk	WUI Risk
Water Systems	Silverthorne	Joint Sewer Authority/ Buffalo Mtn Waste Water Treatment	-	Dillon & Old Dillon	-	-	Lowest	-
		BMMD Water Treatment Plant	-	Dillon & Old Dillon	-	-	-	-
	Unincorporated	Sewer Lift Station	-	-	-	-	Low	Highest
		Zone 3/2 PRV Vault	-	-	-	-	Low	Highest
		Zone 4/3 PRV Vault	-	-	-	-	Moderate	Highest
		Water Storage Tank 2 (old)/ Being removed in summer 2026	-	-	-	-	High	Highest
		Water Storage Tank 4	-	-	-	-	High	Highest
		Water Tank 2R	-	-	-	-	Low	Highest
		Water Tank 5	-	-	-	-	High	Highest
		Water Tanks 6A+B	-	-	-	-	Highest	Highest

Source: Summit County, Buffalo Mountain Metropolitan District, WSP Analysis

H.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risks to hazards deemed significant for the District. Vulnerability details for all hazards other than Wildfire are often difficult to compile or estimate for specific communities and are already sufficiently described in Section 3.3.3 of the Base Plan. Note that the Buffalo Mountains Wastewater Treatment Plant is located within the Town of Silverthorne's boundaries, and as such is exposed to potential inundation from the Dillon Dam. However, the dam incident hazard is not profiled or discussed further due to lack of relevance to the rest of the Buffalo Mountain Metropolitan District.

Avalanche

While Summit County ranked Avalanche as a high risk hazard, avalanches have negligible impact on the assets or operations of the Buffalo Mountain Metro District. As such, the district has ranked this hazard as low significance.

Dam Failure

Buffalo Mountain Metro District has a much lower exposure to dam inundation than the County as a whole, and therefore ranking this hazard as low significance. Details can be found in Appendix H (not for public release.)

Flood

Existing Development

Mapped floodplains in and near Buffalo Mountain Metro District can be seen on Figure H-1. While Summit County ranked flood as high risk due to the presence of river corridors, steep watershed terrain, and dense populations near drainages, the district has less exposure and therefore rated flood as medium risk. However, the district is exposed to steep gradients and limited drainage infrastructure that can contribute to localized flooding, culvert blockages, or rapid runoff during intense rain events. These localized impacts, while generally less severe than riverine flooding, can still create hazards for residents, infrastructure, and access routes. The HMPC determined that a medium risk accurately reflect the district's exposure and vulnerability of the district.

Future Development

Buffalo Mountain Metro District is making infrastructure investments by upgrading its water system, installing pressure reducing valves in water zones, and improving its telemetry and control systems. BBMD's infrastructure plan notes the need for improved storm drainage, and they plan to install an underground storm culvert along Ryan Gulch Road to mitigate freezing and runoff issues. As development continues to increase, existing drainage system may be overwhelmed during high rainfall causing potential issues.

Landslide, Mudflow/Debris Flow, Rock Fall

Mapped landslide/rockfall deposits in and near Buffalo Mountain Metro District can be seen in Figure H-1. While Summit County ranked landslide, mudflow/debris flow, and rock fall as medium risk, the district has significantly less exposure and therefore rated it as low risk.

Lightning

While Summit County ranked lightning as medium risk, its impacts on district assets are much more limited and therefore they rated it as low risk.

Pest Infestation

While Summit County ranked pest infestation as medium risk, its impacts on district assets are much more limited and therefore they rated it as low risk.

Wildfire

General Property

Wildfire threat was estimated from the County's Wildfire Protection Assessment Rating layer, which breaks up areas into Low, Medium, High, and Extreme ratings. This wildfire layer was used in GIS to determine the number, type, and improvement values for properties found to overlap with them, and hence estimate potential property risk to wildfire threat in the Buffalo Mountain Metropolitan District. For the purposes of this analysis, the wildfire zone that intersected a parcel centroid was assigned as the threat zone for the entire parcel. Improvement values were then summed by wildfire rating area and then sorted by parcel

type. Property improvements and estimated content values were then totaled to arrive at the Total Value column, which is also the estimated potential loss as wildfires typically result in complete loss to structure and contents.

The HMPC notes that the large increase in fires in the County and the 2018 Buffalo Fire being within feet of the BMMD community increased our concern for forest fires entering the district due to the community being nearly surrounded by pine beetle forests. The district would probably not exist if not for the forest service mitigation work that was performed before the 2018 fire.

Wildfire risk for the Buffalo Mountain Metro District is displayed in Figure H-2. This includes both manmade and natural assets. Natural assets include ecosystem features that provide services we rely on, from stormwater management to flood risk reduction. The district has many assets with the highest risk if a wildfire were to occur.

Figure H-3 below shows areas in the district within the Wildland Urban Interface (WUI). With the district so secluded to forested areas and all developments within them, a majority of the district is at the highest risk within the WUI. This means a wildfire of any kind could be catastrophic to the district.

Figure H-2 Buffalo Mountain Metropolitan District Wildfire Risk to Assets

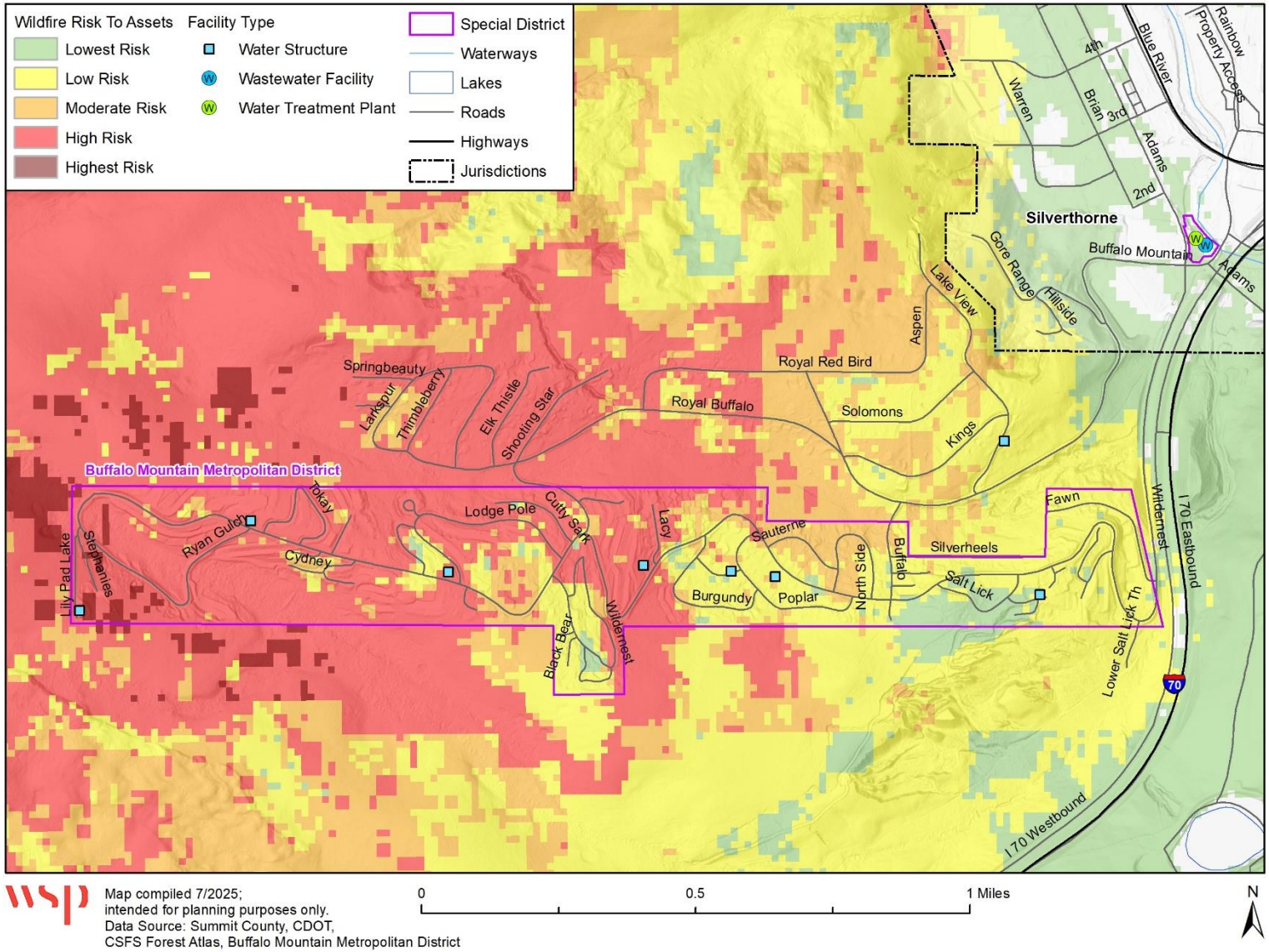
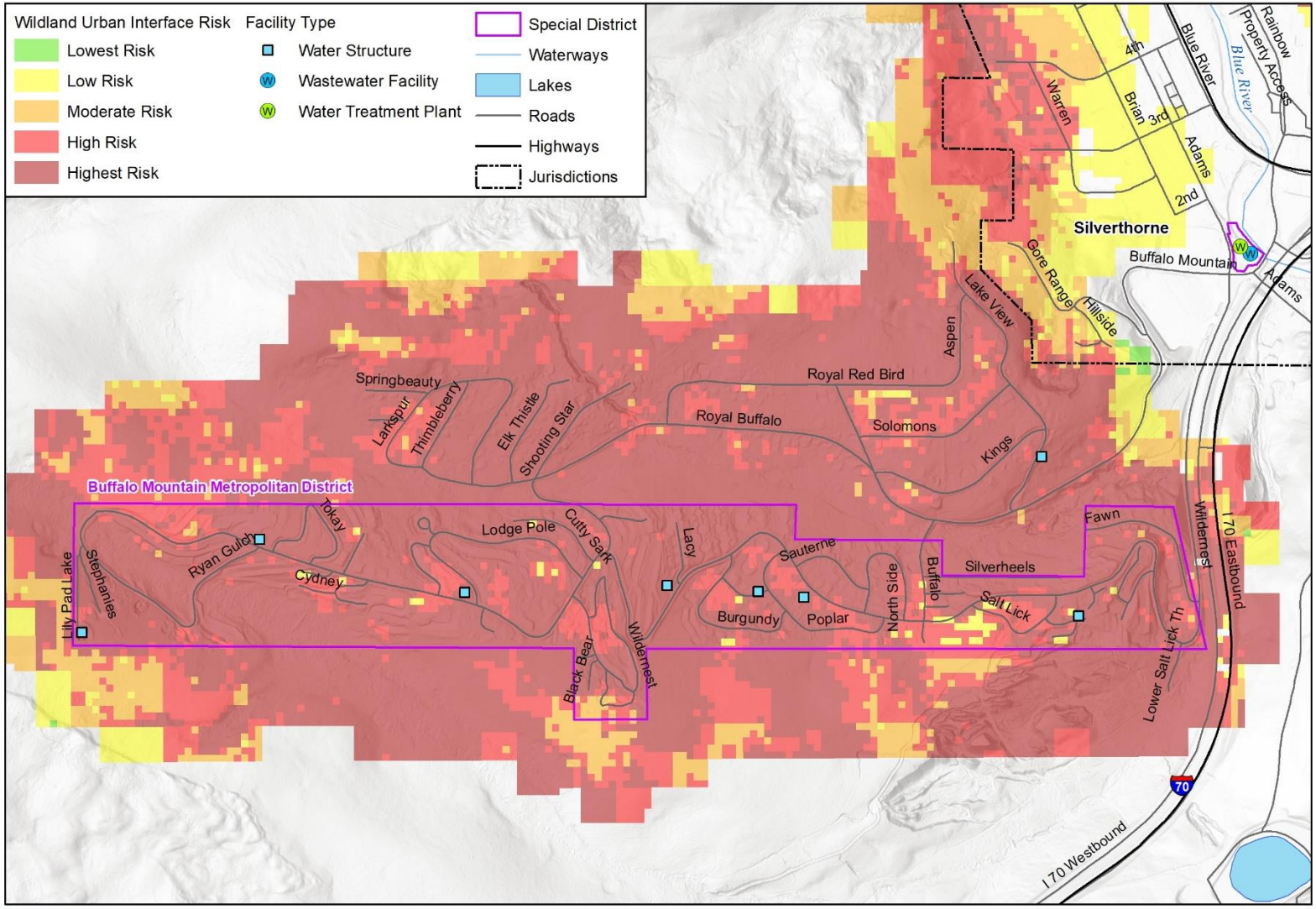


Figure H-3 Buffalo Mountain Metropolitan District Wildland Urban Interface Risk



People

People are at risk of wildfires even if they are not located in the Wildland Urban Interface (WUI). Smoke resulting from fire is an issue to local populations, as noted by the Summit County's HMPC. For example, the County Public Health Department has received calls in the past from tourists asking if they should cancel travel plans in the county due to smoke and potential health and safety related concerns. The HMPC for Buffalo Mountain Metro District also mentioned that many residents in the Wildernest subdivision in Buffalo Mountain Metropolitan District do not have access to private transportation in the event of an emergency, so evacuation is a concern for wildfire and other emergency events.

In addition to transportation limitations, the road network itself poses challenges. Much of the are is served by steep, narrow, and winding roads that can become highly congested during an evacuation. Many of these roads coverage at a single major intersection at the bottom of the subdivision, restricting traffic flow and limit evacuation routes.

Economy

Tourism, the accommodation and retail are major components of Summit County's economy, and the district's as well. Wildland fires can, for example, lead to significant tourism reductions due to health and safety concerns, causing lost revenues from lack of visitation, stays in hotels, spending on restaurants and other commerce sources, and more.

Historical, Cultural, and Natural Resources

Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the climate change trend which is leading to hotter, more widespread, and destructive fires can make it more difficult for the environment to recover, and lead to increased flood runoff or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after the fire.

With regards to historic or cultural structures and resources, wildfires would affect those in similar ways as general property and critical facilities/infrastructure, having the potential for burn downs and hence possible complete loss of important natural resources in the District and nearby areas.

H.3.3 Growth and Development Trends

The Wildernest subdivision has reached 98 percent buildout, so future development will be limited and subject to wildfire mitigation policies of Summit County. There has been no pressure to develop hazardous areas, including wildfire zones. Newer homes are built with fire resistant materials and FireWise landscaping standards with remodels also having to follow when they occur. Only a 1% development increase has occurred since 2008. There has been no pressure to develop hazardous areas. The HMPC also notes that future growth will be slow and not near floodplains. However, all properties are and will be in the wildland urban interface.

H.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into four sections:

regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, and mitigation outreach and partnerships.

H.4.1 Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. The District is governed under the policies and programs of Summit County, including its building codes and land use planning. There are architectural guidelines that are part of the site plan review requirements in the Wildernest subdivision. The District also has a service plan, which includes information on the services the District has the authority to provide, and a long-range financial plan. The table below lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table H-3 Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	N/A	
BCEGS Rating	No	We do not currently utilize the BCEGS.
Capital Improvements Program (CIP) or Plan	Yes	2015 Infrastructure Improvements Plan
Community Wildlife Protection Plan (CWPP)	No	
Comprehensive, Master, or General Plan	Yes	
Economic Development Plan	No	
Elevation Certificates	N/A	
Emergency Operations Plan	Yes	
Erosion/Sediment Control Program	Yes	Summit County Building Code
Floodplain Management Plan	No	
Flood Insurance Study	No	
Growth Management Ordinance	No	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	N/A	
Site Plan Review Requirements	Yes	District Architectural Review Documents
Stormwater Program, Plan, or Ordinance	Yes	Article VII of District Rules & Regulations
Zoning Ordinance	N/A	

The HMPC notes that BMMD is near built out with only a few remaining empty lots available. Newer homes are built with fire resistant materials and FireWise landscaping standards with remodels also having to follow when they occur.

H.4.2 Administrative/Technical Mitigation Capabilities

The District works with Summit County departments of engineering, emergency management, and GIS on activities related to hazard mitigation and loss prevention within the District. Summit Fire & EMS Authority provides wildfire protection within the Buffalo Mountain Metropolitan Service District. The District consists of the district manager and one part-time administrator. Water/sewer are contracted through a separate business.

The table below identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table H-4 Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	Yes	
Floodplain Administrator	No	
Community Planning	Yes	County building department creates and enforces rules and regulations for construction while the planning department handles zoning and property use. The district manages architectural reviews for new construction and remodels but that is our extent of authority. District Manager works within our organization and with other local agencies to help plan for the future.
Planner/Engineer (Land Development)	No	
Engineer/Professional (construction)	Yes	
Resiliency Planner	No	
Transportation Planner	No	
Full-Time Building Official	No	
GIS Specialist and Capability	Yes	Manager & Water/Sewer Department
Grant Manager, Writer, or Specialist	Yes	
Warning Systems/Services	Yes	Electronic Message Board, Group emails to all property owners
• Flood		
• Wildfire		
• Tornado		
• Geological		
Other?		Water/Sewer/Road Operations

H.4.3 Fiscal Mitigation Capabilities

The District receives revenue from rates, fees, property taxes, and interest on investments. Fiscal mitigation capabilities are financial tools or resources that the Buffalo Mountain Metropolitan District could or already does use to help fund mitigation activities. These include the following:

- Capital improvements project funding
- Taxes for specific purposes
- Fees for water, sewer, and other services
- Impact fees for new development
- General obligation bonds

Table H-5 Fiscal Mitigation Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	No	No	
Utilities Fees	No	No	

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
System Development/ Impact Development Fees	No	No	
General Obligation Bonds to Incur Debt	No	No	
Special Tax Bonds to Incur Debt	No	No	
Withheld Spending in Hazard-Prone Areas	No	No	
Stormwater Service Fees	No	No	
Capital Improvement Project Funding	No	No	The district has obtained federal funding to assist with making improvements to our water treatment and distribution systems including increasing water capacity for firefighting.
Community Development Block Grants	No	No	
Other?			The district has performed multiple mitigation projects that were associated with dead tree surveys and removals.

H.4.4 Educational and Outreach

Table H-6 identifies education and outreach resources that Buffalo Mountain Metropolitan District could potentially use to help fund mitigation activities.

Table H-6 Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Firewise	Yes	In process
• Storm Ready	No	
• Severe Weather Awareness Week	No	
• School programs	No	
Methods Used to Communicate Hazard Information to the Public		
• Local News	No	
• Social Media	No	
• Community Newsletters	No	
• Utility Bill Inserts	No	
• Community Events	No	
Organizations that represent or work with underserved or vulnerable communities		
• American Red Cross	No	
• Salvation Army	No	
• Veterans Groups	No	
• Seniors Groups	No	
• Groups for People With Disabilities	No	
• Environmental/Conservation Groups	No	
Business Groups, Academia, Other		

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
• Chamber of Commerce	No	
• Community Organizations (Lions, Kiwanis, etc.)	No	
• Homeowner/Neighborhood Associations	No	
• Universities or Community Colleges	No	
• Agricultural Extension Office	No	

The HMPC notes that for elderly, disabled, and low-income, or under-served populations are going to be more susceptible to issues during emergencies due to lack of technical skills (cell phones and notifications), egress, and education of these events and what to do. The HMPC suggests the county mail homeowner's evacuation routes and emergency contact information.

H.4.5 Mitigation Outreach and Partnerships

Other mitigation related activities include the following:

- The district works with the Summit Wildfire council, Summit Fire + EMS, Blue River Watershed Group, the forest service and local towns and districts to collaborate on events and planning for future events.
- Partnership efforts, including a 900-acre fuel break created by the U.S. Forest Service around a subdivision near the Buffalo Mountain Metropolitan District, have resulted in demonstrated mitigation success within the County. The project was tested in June 2018 and helped to reduce damage from the Buffalo Mountain Fire.
- Since 2004, the District's summer newsletter has included outdoor watering guidelines to promote water conservation.
- Since 2007, quarterly newsletters include fire safety, wildfire mitigation, and emergency preparedness information.
- The District has worked with property owners since 2005 to provide assistance with the removal of beetle-infested and dead trees to improve forest health and reduce wildfire risk. Over 4,000 trees have been removed.
- For the past four years, the District has communicated with homeowners regarding the county sponsored has assisted property owners in removing dead and fallen trees by offering free chipping services and with providing information on fire mitigation and county lead grant programs. As of 2013, 95% of the dead and fallen trees have been removed within the District boundaries.

H.4.6 Past Mitigation Efforts

- During the Buffalo Mountain Fire in 2018 which threatened the Wildernest neighborhood, the District lost power leading to the inability to pump water to serve customers. As a result of this incident the District has purchased a generator to be able to pump water if power is lost again. Refer to mitigation action Buffalo Mountain Metropolitan District – 3 Backup Power for Critical Facilities.
- The district replaced and enlarged a new 250,000-gallon underground water tank and pump station in 2021 that will enhance water storage and supplies during times of drought. And emergencies

- The District has installed two of four underground PRV vaults to upgrade the water distribution system to allow for automatic fire flow rather than rely on manual operation.

The District holds periodic meetings regarding participation in the Firewise USA program

H.4.7 Opportunities for Enhancement

Based on the capability assessment, the District has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the District to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform District staff and board members on how best to integrate hazard information and mitigation projects into the District policies and ongoing duties of the District. Continuing to train District staff on mitigation and the hazards that pose a risk to the District will lead to more informed staff members who can better communicate this information to the public. Public outreach for wildland fires and evacuation procedures before events is critical.

Better communications between District and FS/County open space to relay information on forest thinning and timeframes for defensible space and other mitigation work will also help the District's ability to understand the process and follow up timing for projects or emergency events.

Additionally, the District will work with the County Building Department to enact Firewise building and landscaping requirements.

H.5 Mitigation Strategy

H.5.1 Mitigation Goals and Objectives

Buffalo Mountain Metro District adopted the hazard mitigation goals and objectives developed by the HMPC and described Chapter 4 Mitigation Strategy.

H.5.2 Progress on Previous Mitigation Actions

The 2025 update has eight annually implemented or ongoing actions for the Buffalo Mountain Metro District as shown in Table H-7 below. During the planning process the Lead Planning Team identified that none of their six mitigation actions from 2020 have been completed. These actions were carried over into the 2025 Plan.

H.5.3 Mitigation Actions

The 2025 update has eight annually implemented or ongoing actions for the Buffalo Mountain Metro District as shown in Table H-7 below. During the planning process the Lead Planning Team identified that of their ten mitigation actions from 2020, two were completed, eight of the actions implemented annually as of 2025, demonstrating ongoing process and building the community's resilience.

The district identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Table H-7 Buffalo Mountain Metro District Mitigation Actions

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Buffalo Mtn 1	Reduce the risk of wildfire in the Wildernest subdivision by assisting property owners with the creation of defensible spaces around residential buildings	Wildfire, PP	1	BMMD District Manager	Moderate. SCWC, USFS, CSFS, District General Fund.	Medium	Annual	**Ongoing.** BMMD has continued to work on this project. New FireWise regulations will further help with the cause.
Buffalo Mtn 2	Enhance the ability to ensure continuity of water and sewer service during emergencies by converting paper as-built infrastructure drawings to digital format	Avalanche, Dam Failure, Earthquake, Flood, Hazardous Materials, Landslide, Winter Weather, Wildfire, Windstorm, PR	2	BMMD Administration	Low. Staff Time/ District General Fund.	Low	2028	**Ongoing.** The district has continued to transition to digital information using various tools including our GIS system. Having field information readily available is critical in handling emergences efficiently.
Buffalo Mtn 3	Develop drainage improvement plan to reduce erosion and flooding to avert severe winter weather hazard	Flood, Winter Weather; PR	1	BMMD Streets & Drainage;	Moderate. Staff Time/ District General Fund.	Medium	2027	**Ongoing.** District completed plans for next phase of storm sewer infrastructure improvements in 2023 and have been waiting on the county for approval. We were just given county approval this spring. This delay has pushed the project back and has increased the cost of the project due to increasing construction costs.
Buffalo Mtn 4	Continue to implement mountain pine beetle program	Wildfire, Pest Infestation, PR	1	BMMD Streets & Drainage;	Low. CSFS, USFS.	Medium	Annual	**Ongoing.** BMMD has continued to work with property owners with removing dead, dying and desired vegetation. Communications include newsletters and website articles.
Buffalo Mtn 5	Electronic communication with district constituents in cases of emergency (database of email address)	Avalanche, Dam Failure, Earthquake, Flood, Hazardous Materials, Landslide, Winter	1	BMMD District Manager;	Low. Staff/ District General Fund.	Medium	Annual	**Ongoing.** The district switched our billing software program in 2023. New billing system has communication capabilities and is the new method to contact property owners in times of

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
		Weather, Wildfire, Windstorm, ES						emergencies. We continue to work on obtaining emails and other means of contacting the public.
Buffalo Mtn 6	Increase Water Storage Capacity	Drought, PR	1,2	BMMD Water & Sewer;	Moderate. Staff Time/ District General Fund, USDA, DOI.	High	2030	**Ongoing.** BMMD has installed monitoring equipment in the aquifer and we are monitoring the levels 24/7. This data has been valuable in running our water system efficiently without over taxing the ground water level. We are monitoring the situation and are looking at redrilling our wells to find more consistent water levels. The district has replaced one of our water storage tanks with a new, larger tank. We are also working on installing 2 more pressure reducing vaults that can download water in times of emergencies and will increase our capacity.

H.6 Implementation and Maintenance

Moving forward, the District will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

H.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the Metropolitan District to help inform updates and the development of District plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

The District did not integrate the 2020 risk information into current planning or regulation documents, but it did give a general awareness of the District's vulnerabilities to natural hazards and the need of mitigation projects to protect the District's critical facilities and lessen the impacts of hazard events.

Process Moving Forward

Moving forward, the District may use the vulnerability information to understand the hazards that pose a risk and the specific vulnerabilities to the jurisdiction in future capital improvement planning for the District. The County Planning and Building Department may utilize the hazard information when reviewing a site plan or other type of development applications within the boundaries of the Buffalo Mountain Metropolitan District area.

As noted in Chapter 5 Plan Maintenance, the HMPC representatives from the Buffalo Mountain Metropolitan District will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

H.6.2 Monitoring, Evaluation and Updating the Plan

The Buffalo Mountain Metropolitan District will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. The District will continue to involve the public in mitigation, as described in Section 5.4 of the Base Plan. The District Manager will be responsible for representing the Metropolitan District in the County HMPC, and for coordination with County staff and departments during plan updates. The Buffalo Mountain Metropolitan District realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

H.6.3 Continued Public Involvement

The Buffalo Mountain Metropolitan District will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The District will also pursue the following public engagement activities:

- The district has recently upgraded their website to better share information with the public and will continue add information about County and District emergency planning and updates.

- Work to better incorporate emergency planning and preparation into future newsletters.
- Organize annual public events to share importance of emergency mitigation.
- Work to obtain FireWise status as a district and to continue working towards those directives.

Annex I: Copper Mountain Consolidated Metropolitan District

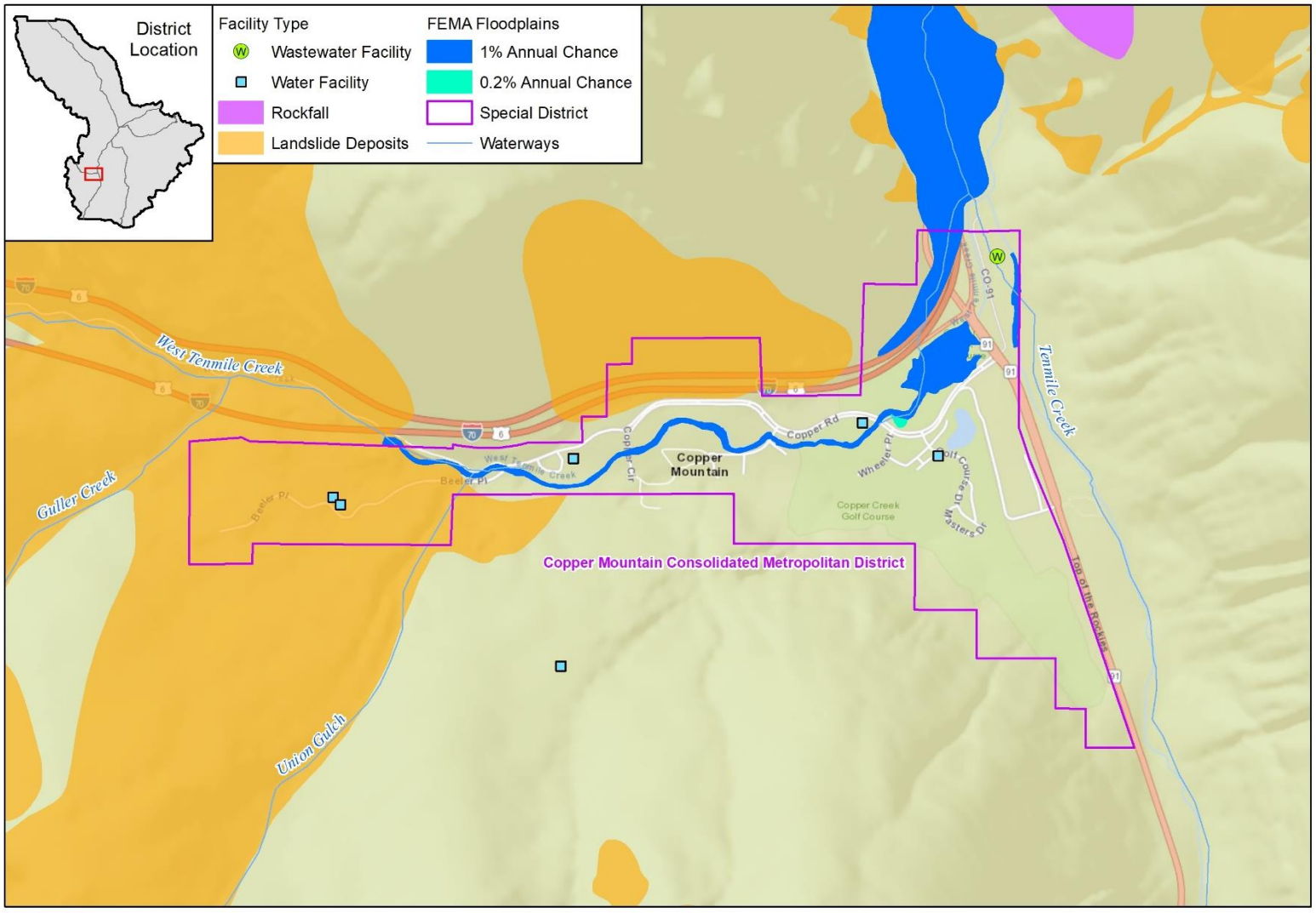
I.1 Community Profile

Copper Mountain Consolidated Metropolitan District (CMCMD) is a special district in Summit County. The CMCMD area was formerly known as Wheeler Junction. The Wheeler Junction settlement was founded in the 1880s and home to miners who worked in the copper mines. As was the case with other areas in Summit County, most of the old settlements decayed as the mining claims dried up. In 1971 Chuck Lewis came to the area and decided to build a ski area with construction beginning that same summer. In 1972 the Copper Mountain Consolidated Metropolitan District was formed to address the needs of the citizens of the area.

The Metro District oversees services such as water, sewer, sanitation, television, parks, and streets. Emergency services, including wildfire response, are handled by the Summit Fire & EMS Authority. The District operates under the direction of a five-person, elected Board of Directors. The Board sets policy decisions, which are carried out by CMCMD staff. The District Manager oversees roughly 22 full-time employees.

Figure I-1 shows the location of the Copper Mountain Consolidated Metropolitan District as well as all available local hazards. Critical facilities located within the district boundaries are also included.

Figure I-1 Copper Mountain Consolidated Metropolitan District



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, Colorado Geological Survey (CGS), FEMA NFHL Effective Date 11/16/2018, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Copper Mountain Consolidated Metropolitan District

I.2 Hazard Identification and Profiles

Representatives of CMCMD identified the hazards that affect the District and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the District (see Table I-1). In the context of the countywide planning area, there are no hazards that are unique to CMCMD.

Table I-1 CMCMD—Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Highly likely	Limited	High
Dam Incidents	Large	Unlikely	Catastrophic	High
Drought	Large	Likely	Limited	Medium
Earthquake	Large	Occasional	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Small	Likely	Limited	Low
Hazardous Materials Release (Transportation)	Isolated	Likely	Critical	High
Landslide, Mudflow/Debris Flow, Rockfall	Isolated	Likely	Negligible	Medium
Lightning	Large	Highly Likely	Critical	High
Pest Infestation (Forest and Aquatic)	Large	Highly Likely	Limited	High
Severe Winter Weather	Large	Highly Likely	Critical	High
Wildfire	Large	Highly Likely	Catastrophic	High
Wildlife-Vehicle Collisions	Small	Likely	Negligible	Low
Windstorm	Large	Highly Likely	Limited	Low

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

I.3 Vulnerability Assessment

The intent of this section is to assess the Copper Mountain Consolidated Metropolitan District's vulnerability separate from that of the planning area (i.e. Summit County) as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

I.3.1 District Asset Inventory

Table I-2 lists summary information for the seven critical facilities in the District that are important to protect in the event of a disaster. Table I-3 details more information on these critical facilities. For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the base plan HIRA document.

Table I-2 CMCMD—Critical Facilities and Infrastructure

Lifeline	Critical Facility Type	Total
Water Systems	Wastewater Treatment	1
	Water Tank	2
	Pump Station	1
	Well House	3
Safety & Security	District Office/ Fire House	1
TOTAL		**8**

Sources: Summit County, DOLA, HIFLD.

Table I-3 CMCMD—Details on Critical Facilities and Infrastructure

Lifeline	Critical Facility Type	Facility Name	Location/Notes
Water Systems	Pump station	Lewis Ranch Pump Station	-
	Wastewater Facility	Copper Mountain Wastewater Treatment	$18,752,202 replacement value
	Water Tank	Copper Mountain Water Tank 250,000 gal	-
		Lewis Ranch Water Tank 750,000 gal	$1,000,000 replacement value
	Well house	Well & Pumps #4	-
		Well House 1 & 3 with Pumps	$1,007,043 replacement value
		Well House 2 & 4	$1,536,093 replacement value

Source: Summit County, DOLA, HIFLD.

Copper Mountain Consolidated Metropolitan District identified the following list of assets, which were analyzed for vulnerability to various hazards. The results are shown below in Table I-4.

Table I-4 Hazard Analysis of Copper Mountain District Assets

Type	Avalanche	Dam Inundation	Flood	Landslide	Wildfire Risk	WUI Risk
Copper Mountain Wastewater Treatment	At Risk	-	-	-	Low	-
Copper Mountain Water Tank 250,000 gal	-	-	-	-	Low	-
Lewis Ranch Pump Station	-	-	-	At Risk	High	Highest
Lewis Ranch Water Tank 750,000 gal	-	-	-	At Risk	High	Highest
Well & Pumps #4	-	-	-	-	High	Highest
Well House 1 & 3 with Pumps	-	-	-	-	Low	Highest
Well House 2 & 4	-	-	-	-	Lowest	Highest

Source: Summit County, Copper Mountain Metropolitan District, WSP Analysis

I.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk in more detail where the risk varies from the rest of the planning area. Vulnerability details for the following bulleted hazards are often difficult to compile or estimate for specific jurisdictions and are already described in the Section 3.3.3 of the Base Plan. Hazards available for mapping are represented in Figure I-1.

- Avalanche
- Drought
- Earthquake
- Erosion/Deposition
- Severe Winter Weather
- Wildfire
- Wildlife-Vehicle Collisions

Only dam failure, flood, hazardous materials release, lightning, pest infestation, Wildfire, and windstorm hazards will be profiled in the following vulnerability assessment sections, due to the ability to quantify vulnerability further with available data.

Dam Failure

Existing Development

CMCMD could be severely impacted by failure of the Clinton Gulch dam. There are also tailings ponds in the southwestern corner of Summit County associated with molybdenum processing at the Climax mine near Fremont Pass. These structures include Ten Pond #3 and Mayflower Pond #5, both ranked as high hazard dams. Failure of these dams could release a debris flow towards the Copper Mountain Metro District area that would result in extensive public safety and environmental concerns. As such, CMCMD has rated Dam Failure as a high risk hazard.

Future Development

Flooding due to a dam failure event would likely exceed the special flood hazard areas regulated through local floodplain ordinances. CMCMD should consider the dam failure hazard when planning development downstream of a high or significant hazard dam, particularly critical facilities. Low hazard dams could become significant or high hazard dams if development occurs below them. Regular monitoring of dams, exercising and updating of EAPs, and rapid response to problems when detected at dams are ways to mitigate the potential impacts of these rare, but potentially catastrophic, events.

Details can be found in Appendix H (not for public release.)

Flood

Flood is considered a low significance hazard for the CMCMD, whereas it is rated as high significance for the County. As illustrated in Figure K-1, no 0.2% annual chance floodplains are present within the CMCMD boundaries. Although there are 1% annual chance floodplains, no critical infrastructure exists within these areas, resulting in flooding being categorized as a low significance hazard.

Hazardous Materials Release

Existing Development

CMCMD has rated hazardous materials release as a high significance hazard, which is higher than the County rating of medium. CMCMD uses a limited number of groundwater wells, storage tanks, and treatment facilities. The release of hazardous materials near wellheads, tributaries, or pipelines could exceed treatment capacity or result in temporary service interruptions. Additionally, hazardous materials releases can lead to fires, explosions, or corrosive damage to utilities.

Future Development

The amount of hazardous materials that are stored, used, and transported across the county are not anticipated to increase over the next five years based on regional growth trends.

Lightning

Existing Development

CMCMD has rated lightning as a high significance hazard, which is higher than the county-wide rating of medium. Tall buildings and utility structures are at risk of lightning strikes, which could lead to fires, structural failures, or costly repairs. Lightning can damage transformers, substations, and communication infrastructure, interrupting water treatment, sanitation pumps, internet availability, and essential services.

Future Development

Increased residential and commercial developments that rely on CMCMD's services may result in greater impacts if lightning hazards occur. CMCMD may require investment in more advanced lightning protection systems, which could lead to higher costs for future project development.

Pest Infestation (Forest and Aquatic)

Existing Development

CMCMD has rated pest infestation as a high significance hazard, which is higher than the county-wide rating of medium. Forest pest infestations result in dead and dying trees. These trees can damage roads, power lines, and buildings. Additionally, an abundance of dead and dying trees can create highly flammable fuel loads, increasing the risk of catastrophic fires, threatening people, property, and infrastructure.

To date, Quagga or Zebra mussels have not been reported in Tenmile Creek, which supplies water to CMCMD. Tenmile Creek is a high-altitude, fast-moving stream that does not generally provide the stagnant conditions necessary for mussel settlement and growth. While the likelihood of their proliferation is low, it remains a possibility.

Future Development

Future development in or near high fire risk zones may require stricter building codes, increased defensible space, or limitations on new constructions if forest pest infestations continue. CMCMD may incur increased costs for vegetation management, hazard tree removal, and fireproofing.

The primary pathway for the introduction of invasive mussels into water bodies is through human activity, such as boats and fishing gear. Continued inspection and decontamination protocols will be crucial in preventing potential outbreaks.

Wildfire

Wildfire risk for CMCMD is displayed in Figure I-2. This includes both manmade and natural assets. Natural assets include ecosystem features that provide services we rely on, from stormwater management to flood risk reduction. The district has many assets with the highest risk if a wildfire were to occur.

Figure I-3 below shows areas in the district within the Wildland Urban Interface (WUI). With the district so secluded to forested areas and all developments within them, a majority of the district is at the highest risk within the WUI. This means a wildfire of any kind could be catastrophic to the district.

Figure I-2 Copper Mountain Consolidated Metropolitan District Wildfire Risk to Assets

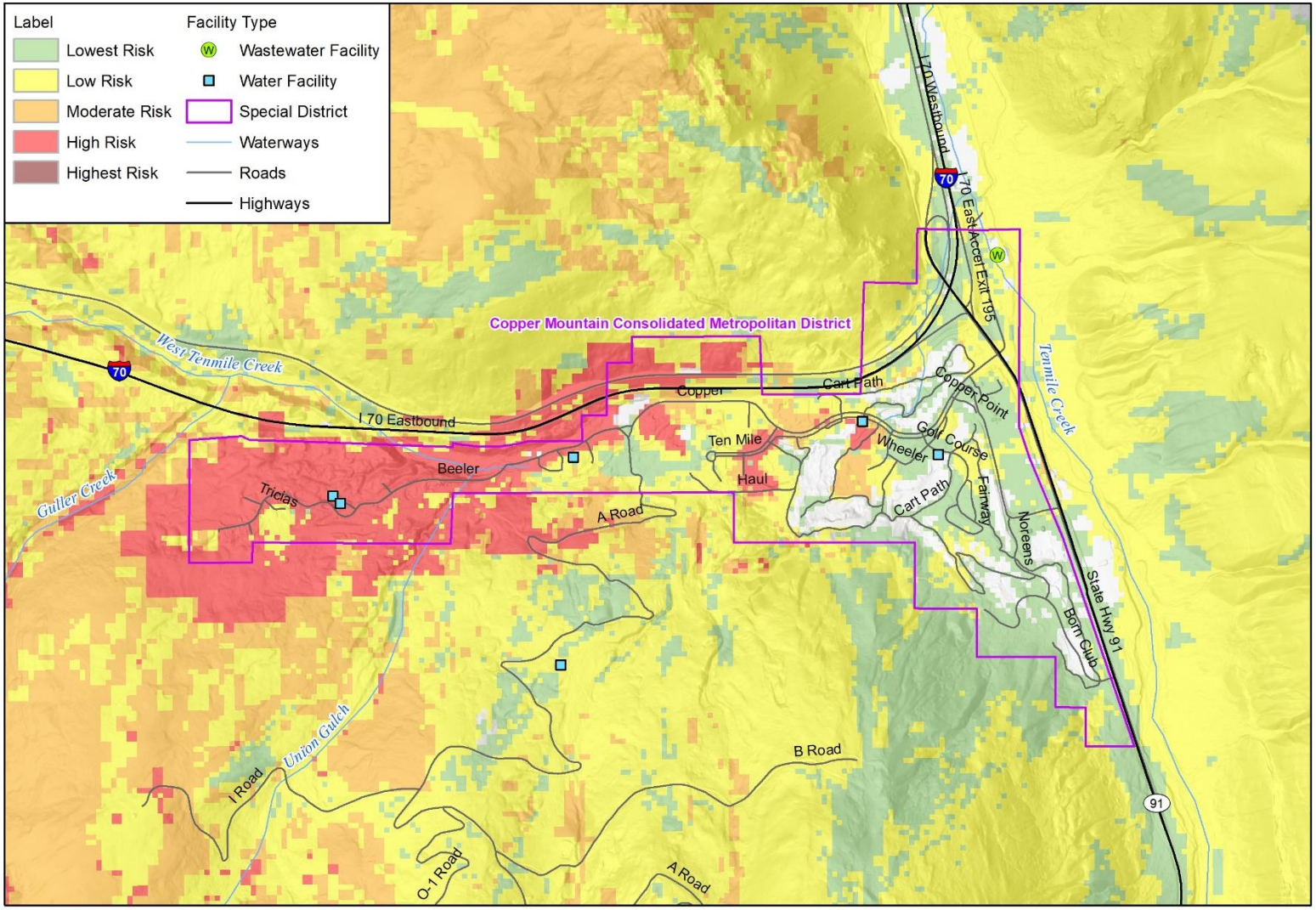
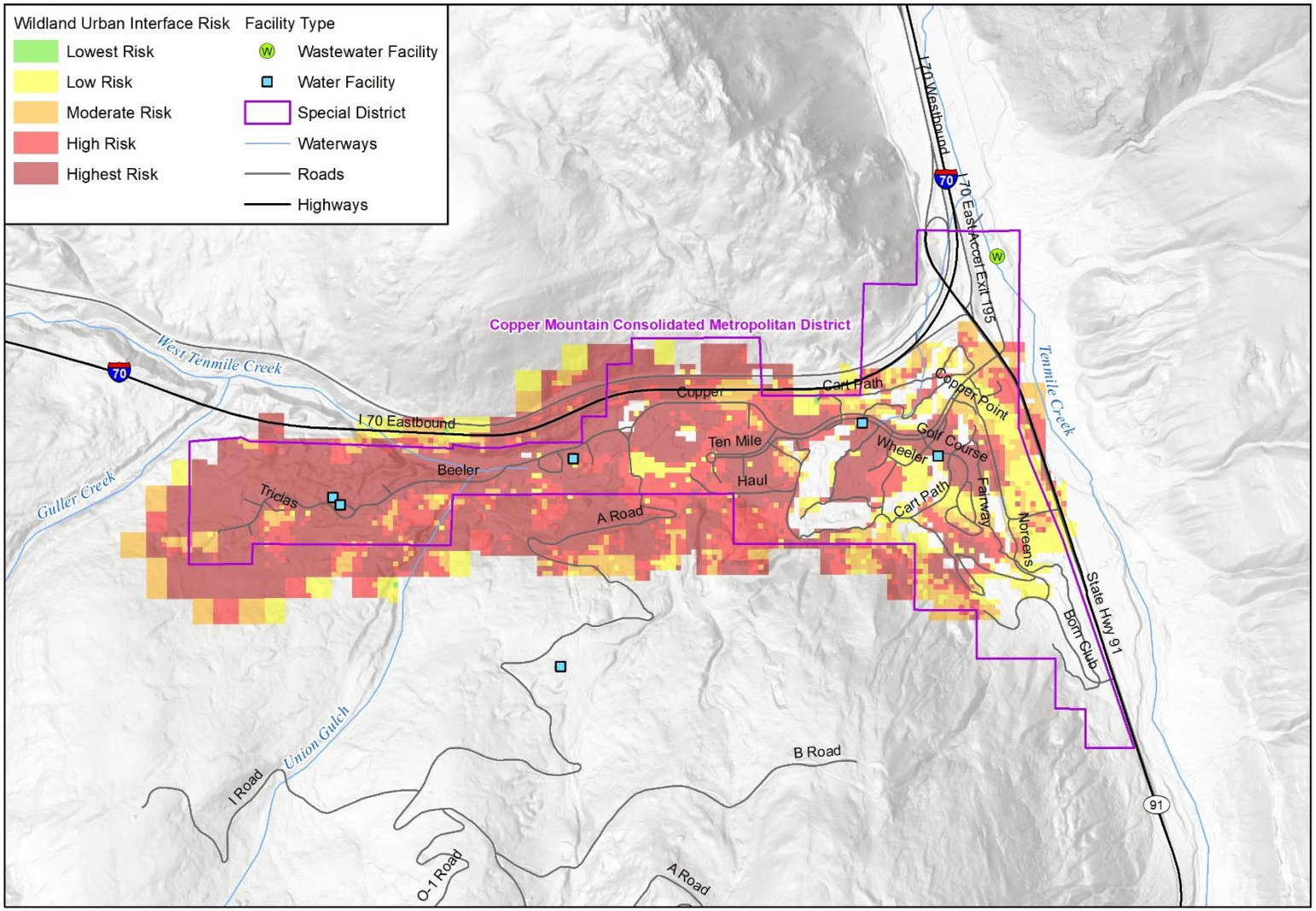


Figure I-3 Copper Mountain Consolidated Metropolitan District Wildland Urban Interface Risk



I.3.3 Growth and Development Trends

After several years of limited development at Copper Mountain, several new development projects are currently underway as planned, including a new employee housing development located near the North Alpine lot, and a 127-room hotel at the Chapel Lot.

Plans are also underway to bring new community offerings to the Copper Mountain resort, including at the base of the Alpine lift in the resort's East Village, and at the Chapel and North Alpine Lots. The proposed "Alpine Neighborhood" at the base of the Alpine Lift is planned to include new construction single-family homes and townhomes and a new hotel with slope side accommodations and dining options open to the public. This project is seen as a way to set the bar for future, thoughtful development across the resort. The proposed plan for the Alpine Neighborhood reflects community input, minimizes environmental impacts, enhances the golf course, and will create a phenomenal asset for Copper Mountain Community residents and guests.

Growth in existing developed areas, as opposed to new undeveloped areas, would help mitigate vulnerability to hazards in the District. A new Planned Unit Development (PUD) is in the process of being approved by the County. No increase in overall density numbers is planned from the 2008 PUD. However, existing density will be concentrated more into the core and Union Creek areas of the resort. Structures that are currently 2 stories in height will be increased to 110 feet in height to increase density within that area.

I.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

I.4.1 Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. The District is governed under the policies and programs of Summit County, including its building codes and land use planning. Table I-5 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in CMCMD.

Table I-5 CMCMD—Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	
BCEGS Rating	No	
Capital Improvements Program (CIP) or Plan	Yes	
Community Wildlife Protection Plan (CWPP)	No	
Comprehensive, Master, or General Plan	Yes	
Economic Development Plan	Yes	
Elevation Certificates	Yes	

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Emergency Operations Plan	No	
Erosion/Sediment Control Program	Yes	
Floodplain Management Plan	No	
Flood Insurance Study	Yes	
Growth Management Ordinance	Yes	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes	
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	Yes	
Zoning Ordinance	Yes	

I.4.2 Administrative/Technical Mitigation Capabilities

Table I-6 identifies the personnel responsible for activities related to mitigation and loss prevention in CMCMD.

Table I-6 CMCMD—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	Yes	
Floodplain Administrator	No	
Community Planning	Yes	Expanding this area
Planner/Engineer (Land Development)	No	
Engineer/Professional (construction)	Yes	
Resiliency Planner	No	
Transportation Planner	No	
Full-Time Building Official	No	
GIS Specialist and Capability	No	
Grant Manager, Writer, or Specialist	No	
Warning Systems/Services	Yes	
• Flood	No	
• Wildfire	Yes	County access to PANO AI provided by Xcel Energy
• Tornado	No	
• Geological	No	

I.4.3 Fiscal Mitigation Capabilities

Fiscal mitigation capabilities are financial tools or resources that CMCMD could or already does use to help fund mitigation activities. CMCMD has identified the Summit County Wildfire Grant Program as a potential source of mitigation funding. Collaborative programs between Copper Mountain Inc., The Village Company, and CMCMD may pool resources to help fund mitigation projects in the future. Additional fiscal mitigation resources are shown in Table I-7.

Table I-7 Fiscal Mitigation Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	No	No	This could be an option in the future
Utilities Fees	No	No	
System Development/ Impact Development Fees	No	No	This could be an option in the future
General Obligation Bonds to Incur Debt	No	No	
Special Tax Bonds to Incur Debt	No	No	
Withheld Spending in Hazard-Prone Areas	No	No	
Stormwater Service Fees	No	No	This could be an option in the future
Capital Improvement Project Funding	Yes	No	
Community Development Block Grants	No	No	

I.4.4 Mitigation Outreach and Partnerships

Table I-8 identifies education and outreach programs that are in place or could be used in the future to carry out mitigation activities and communicate information about hazards. A list of ongoing education and outreach activities follows.

Table I-8 Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Firewise	No	
• Storm Ready	No	
• Severe Weather Awareness Week	No	
• School programs	No	
Methods Used to Communicate Hazard Information to the Public		
• Local News	No	
• Social Media	Yes	
• Community Newsletters	Yes	
• Utility Bill Inserts	Yes	
• Community Events	Yes	
Organizations that represent or work with underserved or vulnerable communities		
• American Red Cross	No	
• Salvation Army	No	
• Veterans Groups	No	
• Seniors Groups	No	
• Groups for People With Disabilities	No	
• Environmental/Conservation Groups	No	
Business Groups, Academia, Other		
• Chamber of Commerce	Yes	
• Community Organizations (Lions, Kiwanis, etc.)	No	
• Homeowner/Neighborhood Associations	Yes	

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
• Universities or Community Colleges	No	
• Agricultural Extension Office	No	

Education and outreach activities conducted by CMCMD include:

- Ongoing public education programs focusing on residential fire safety.
- Ongoing education of Copper Mountain, Inc. (CMI) building managers, HOAs, restaurants, and other personnel on fire safety.
- Fire drills at CMI-owned employee housing facilities.
- The Copper Mountain Consolidated Metropolitan District Water Efficiency Plan highlights vulnerabilities to hazards such as drought and wildfires, and related infrastructure risks. This plan seeks to raise common themes and water saving opportunities to encourage partnership and collaboration between participating utilities and entities, particularly given the uniqueness of the district and its reliance on groundwater for supply (High Country Conservation Center, 2018b).
- Yearly fire inspections of all CMI and private buildings.

I.4.5 Past Mitigation Efforts

- CMCMD is currently working on Firewise in conjunction with the adoption of the 2012 IFC and amendments.
- Two to three grants have been obtained by The Village Company, with assistance from CMCMD, to mitigate WUI issues in Lewis Ranch. This includes the CMCMD water storage tank and Lewis Ranch Pump House. CMCMD has been working with CMR to establish access to snowmaking water and guns in the summer to protect critical infrastructure from wildfire.

Additional projects may involve selective thinning of vegetation within forest service's permitted resort properties adjacent to privately owned lands and structures.

I.4.6 Opportunities for Enhancement

Based on the capability assessment, the CMCMD has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the District to expand or improve on these policies and programs to further protect the community. Hiring a GIS specialist or sharing GIS services with the County or neighboring jurisdictions could strengthen hazard analysis and support project planning and implementation.

Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Pursuing additional funds, such as FEMA's Hazard Mitigation Grant Program, could increase mitigation project implementation. CMCMD could also consider introducing development impact fees or utility-based charges to fund future resilience projects.

Additional training opportunities will help to inform District staff and board members on how best to integrate hazard information and mitigation projects into the District policies and ongoing duties of the District. Continuing to train District staff on mitigation and the hazards that pose a risk to the District will lead to more informed staff members who can better communicate this information to the public.

I.5 Mitigation Strategy

I.5.1 Mitigation Goals and Objectives

CMCMD has adopted the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

I.5.2 Progress on Previous Mitigation Actions

During the 2025 planning process, the CMCMD planning team reviewed all mitigation actions from the 2020 plan to provide updates on their implementation status. The team determined that one of the five mitigation actions could be deleted, as shown in Table I-9. The remaining actions were carried over into the 2026 Mitigation Action Plan.

Table I-9 CMCMD Completed Mitigation Actions

Action	Hazard & Category	Status	Comments
Enhanced public notification through cable network	Multi-Hazard, PI	Deleted	The CMCMD outsourced the cable network to a third party is unable to use it for public notification.

I.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

I.5.4 Mitigation Actions

CMCMD identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Table I-10 CMCMD Mitigation Actions

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Copper Mtn 1	Wildland urban interface (WUI) fuels reduction program	Wildfire, Pest Infestation, PR	1	**Copper Mountain Inc;** CMCMD, Copper Mountain Resort Association, CMI, CMCMD, Summit County Wildfire Council, USDS, CSFS, CSU Extension Office	$3,000 - $5,000 per acre; Summit County Wildfire Council grants & collaboration among HOAs, CMI, and Copper Mountain Resort Association	Low	Ongoing	Annual Implementation
Copper Mtn 2	Replace Copper Road West Tenmile culverts and Copper Circle West Tenmile culverts	Flood, PP	1, 2	**Summit County Road and Bridge**; Powdr Corp./Copper Mountain and CMCMD	$500,000 - 600,000; Summit County Road and Bridge Funding	Medium	Two to five years	Not Started
Copper Mtn 3	Community wildfire protection planning	Wildfire, PR	1, 4	**Copper Mountain Fire Department**; CSU Extension Program/ Copper Homeowners Association/ Copper Mountain Incorporated/ Summit County/ Summit County Wildfire Council	$5,000; Summit County Wildfire Council/ CMCMD/ CMI/ Copper Mountain Resort Association/ Copper Chamber	Medium	Annual	Not Started
Copper Mtn 4	Avalanche Mitigation and Reduction	Avalanche, PR, PP	1,2,3	**CMCMD**; Copper Mountain Resort, CDOT, CAIC, Summit County, USFS	$3,000 - $30,000; District General Fund	Low	Annual	Not Started
Copper Mtn 5	Obtain backup power for water pumping stations	Avalanche, Dam Failure, Earthquake, Flood, Hazmat, Landslide, Lightning, Winter Weather, Wildfire, Windstorm, PP	2	**BMMD Water & Sewer**;	High. District General Fund, HMGP,	Medium	2030	New in 2025

I.6 Implementation and Maintenance

Moving forward, the District will follow the procedures to review and update this plan in accordance with Chapter 6 of the 2025 Summit County MJHMP. The District will be evaluated on a regular basis to determine the effectiveness of programs and to reflect changes in land development or programs that may affect mitigation priorities.

I.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the Metropolitan District to help inform updates and the development of District plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

The District did not integrate the 2020 risk information into current planning or regulation documents, but it did give a general awareness of the District's vulnerabilities to natural hazards and the need of mitigation projects to protect the District's critical facilities and lessen the impacts of hazard events.

Process Moving Forward

Moving forward, the District may use the vulnerability information to understand the hazards that pose a risk and specific vulnerabilities in future capital improvement planning for the District. The County Planning and Building Department may utilize the hazard information when reviewing a site plan or other type of development applications with the boundaries of the Copper Mountain Consolidated Metropolitan District area.

As noted in Chapter 6 Plan Maintenance, the HMPC representatives from the Copper Mountain Consolidated Metropolitan District will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

I.6.2 Monitoring, Evaluation and Updating the Plan

The Copper Mountain Consolidated Metropolitan District will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 6 of the Base Plan. The District will continue to involve the public in mitigation, as described in Section 6.4 of the Base Plan. The District Manager will be responsible for representing the Metropolitan District in the County HMPC, and for coordination with County staff and departments during plan updates. The Copper Mountain Consolidated Metropolitan District realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

I.6.3 Continued Public Involvement

The Copper Mountain Consolidated Metropolitan District will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The District will also pursue the following public engagement activities: CMCMD annual community dinner, monthly CMRA homeowner newsletter, and annual State of the Resort forum.

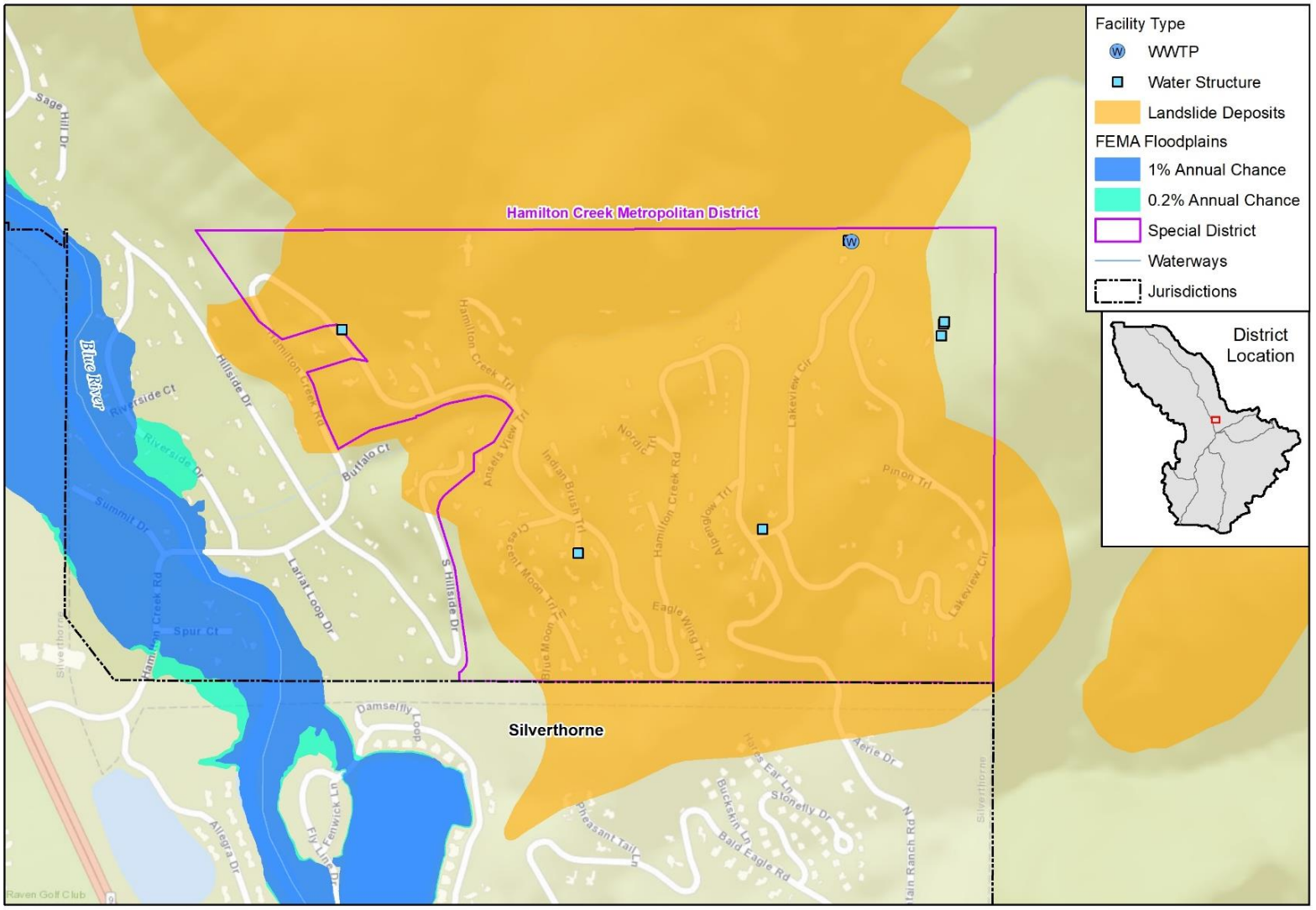
Annex J: Hamilton Creek Metropolitan District

J.1 Community Profile

Hamilton Creek Metropolitan District (HCMD) is a special district in Summit County, located just north of Silverthorne. Formed in 1984, the Hamilton Creek Metropolitan District (HCMD) is a Title 32 Special District that provides services for water, streets, open space, and limited individual septic system maintenance. The District operates under the direction of a five-person, elected Board of Directors. The Board sets policy decisions, which are carried out by HCMD staff. Other staff members include an administrator, auditor, attorney, and water operator.

Figure J-1 shows the location of the Hamilton Creek Metropolitan District as well as all available local hazards. Eight critical facilities are located within the district boundaries.

Figure J-1 Hamilton Creek Metropolitan District and Local Hazards



J.2 Hazard Identification and Profiles

Representatives of HCMD identified the hazards that affect the District and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the Town (see Table J-1). In the context of the countywide planning area, there are no hazards that are unique to HCMD.

Table J-1 HCMD—Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Unlikely	Negligible	NA
Dam Incidents	Isolated	Unlikely	Negligible	Low
Drought	Large	Likely	Limited	Medium
Earthquake	Isolated	Occasional	Limited	Low
Erosion/Deposition	Isolated	Unlikely	Negligible	Low
Flood	Isolated	Unlikely	Negligible	Low
Hazardous Materials Release (Transportation)	Isolated	Unlikely	Negligible	Low
Landslide, Mudflow/Debris Flow, Rockfall	Large	Occasional	Limited	Medium
Lightning	Isolated	Highly Likely	Negligible	Low
Pest Infestation (Forest and Aquatic)	Large	Highly Likely	Limited	Medium
Severe Winter Weather	Large	Likely	Limited	Low
Wildfire	Large	Occasional	Critical	High
Wildlife-Vehicle Collisions	Small	Likely	Negligible	Low
Windstorm	Large	Likely	Limited	Low

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles in the body of this document.

J.3 Vulnerability Assessment

The intent of this section is to assess Hamilton Creek Metropolitan District's vulnerability separate from that of the planning area (i.e. Summit County) as a whole, which has already been assessed in Section 3.3 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

J.3.1 District Asset Inventory

Table J-2 lists the critical facilities in the District which are important to protect in the event of a disaster. For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the Base Plan.

Table J-2 HCMD—Critical Facilities and Other Community Assets

Lifeline	Critical Facility Type	Replacement Cost
Water Systems	200,000gal Tank	$500,000
	12,500gal Tank	
	12,500gal Tank	
	Water Treatment Plant	$1,000,000
	Well House	
	PRV Vault	
	Dry Well	
	PRV Vault	1
TOTAL		**8**

Sources: Summit County, Hamilton Creek Metro District, WSP Analysis

Hamilton Creek Metropolitan District identified the following list of assets, which were analyzed for vulnerability to various hazards. The results are shown below in Table J-3.

Table J-3 Hazard Analysis of Hamilton Creek District Assets

Type	Avalanche	Dam Inundation	Flood	Landslide	Wildfire Risk	WUI Risk
200,000gal Tank	-	-	-	-	High	Highest
12,500gal Tank	-	-	-	-	High	Highest
12,500gal Tank	-	-	-	-	High	Highest
Water Treatment Plant	-	-	-	At Risk	High	Highest
Well House	-	-	-	At Risk	High	Highest
PRV Vault	-	-	-	At Risk	High	Highest
Dry Well	-	-	-	At Risk	Moderate	Highest
PRV Vault	-	-	-	At Risk	High	Highest

Source: Summit County, Hamilton Creek Metropolitan District, WSP Analysis

J.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk to hazards deemed significant for the District or to detail how the hazard varies from the planning area. These hazards include Landslide, and Wildfire. Hazards available for mapping are represented in Figure J-1.

Avalanche

While Summit County as a whole has ranked Avalanche as a high significance hazard, HCMD has very little exposure to avalanche and no past history of damaging avalanches impacting the district. The district has therefore rated this hazard as not applicable.

Dam Failure

Hamilton Creek Metropolitan District has a much lower exposure to dam inundation than the County as a whole, and therefore ranking this hazard as low significance. Details can be found in Appendix H (not for public release.)

Flood

Mapped floodplains in and near Hamilton Creek Metropolitan District can be seen in Figure J-1. While Summit County ranked flood as high risk, the district has significantly less exposure and therefore rated flood as low risk.

Landslide, Mud Flow/Debris Flow, Rockfall

Virtually the entirety of the district is located on sloped terrain and mapped landslide deposits. There are 113 properties exposed to identified landslide areas in the District, with a potential of 322 people and over $128 million of property values exposed, as summarized in Table J-4. A total of 5 District critical facilities are found in known landslide areas. These include the following:

- PRV Vault on Hamilton and Lakeview
- Dry well on Hamilton Creek Rd
- PRV Vault on Stormwatch Circle
- Well House
- Water Treatment Plant on Lakeview Circle

Table J-4 Property Exposure to General Landslide Hazard Areas in HCMD

Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population
Exempt	9	$0	--	$0	--
Residential	104	$85,775,341	$42,887,671	$128,663,012	322
TOTAL	**113**	**$85,775,341**	**$42,887,671**	**$128,663,012**	**322**

Source: Summit County GIS/Assessor Office, DOLA, CGS, U.S. Census, Wood analysis

Wildfire

Wildfire risk for the Hamilton Creek Metropolitan District is portrayed in Figure J-2. This includes both manmade and natural assets. Natural assets include ecosystem features that provide services we rely on, from stormwater management to flood risk reduction. As shown previously in Table J-3, the District has many assets with high or highest risk if a wildfire were to occur.

Figure J-3 below shows areas in the District within the Wildland Urban Interface (WUI). With the District so secluded to forested areas and all developments within them, a majority of the district is at high or highest risk within the WUI. This means a wildfire of any kind could be catastrophic to the district.

Figure J-2 HCMD Wildfire Risk

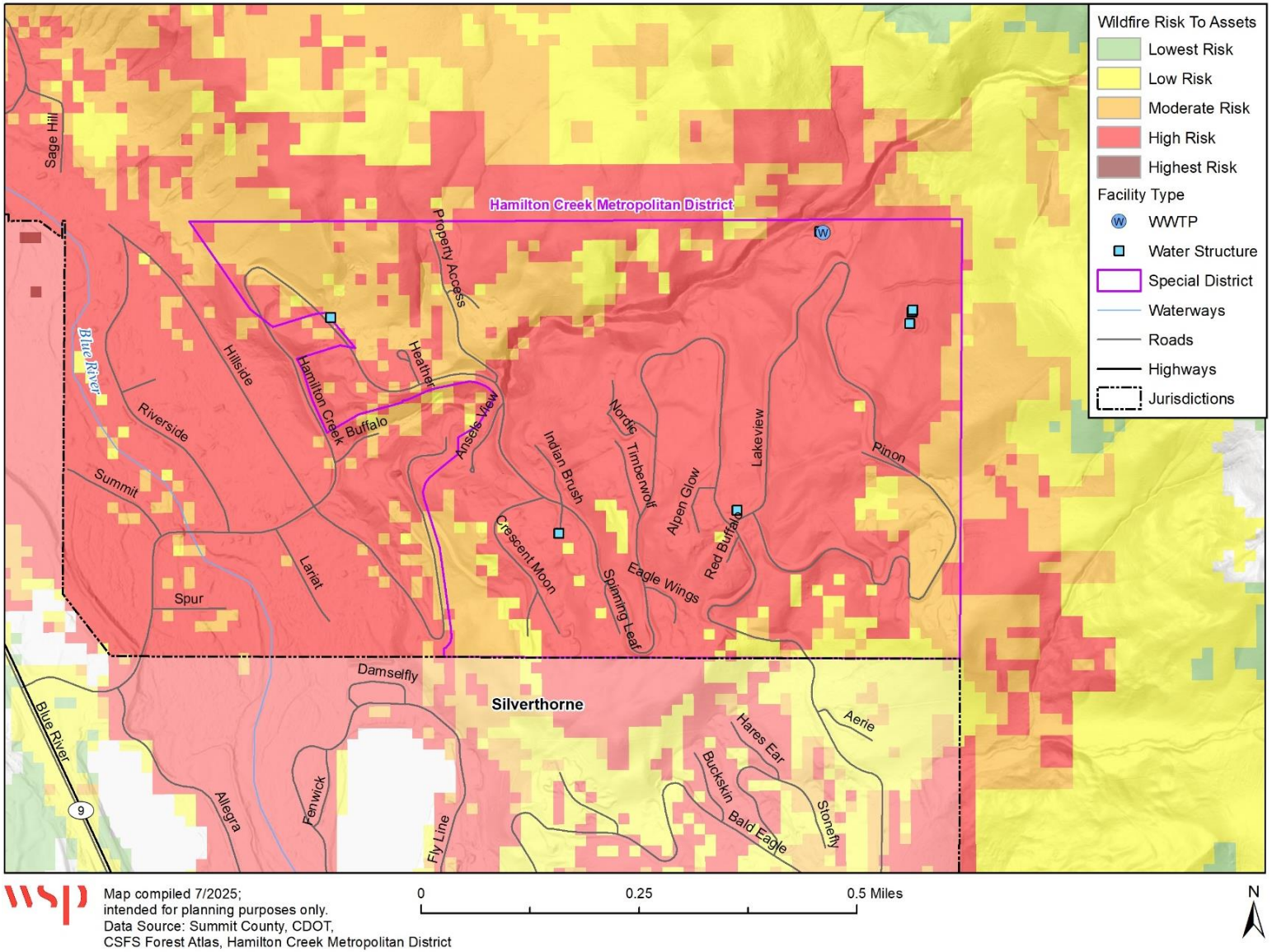
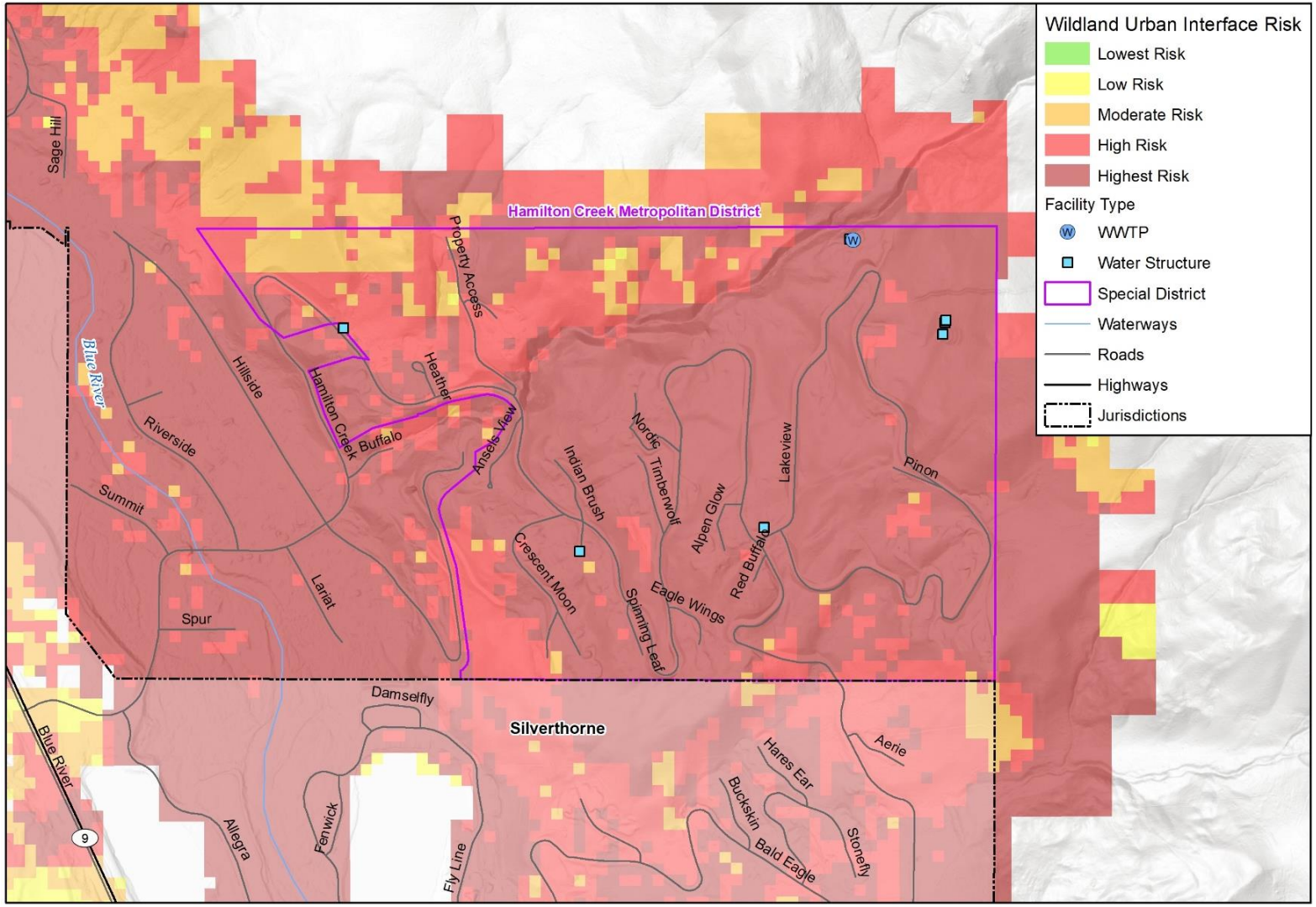


Figure J-3 HCMD WUI Risk



A total of 4 critical facilities identified in Table J-2 (and listed below) are found in areas rated as Medium under the Wildfire Protection Assessment ranking. The other 5 critical facilities to the District are located in Low vulnerability areas.

- Fire Lookout Location on Hamilton Creek Rd, West
- PRV Vault on Stormwatch Circle (water structure)
- Dry Well on Hamilton Creek Rd (water structure)
- PRV Vault on Hamilton and Lakeview (water structure)

Summit Fire EMS Authority (SFE) provides fire protection services to HCMD. SFE is considered an initial attack center for wildland fires on all private land and takes a joint responsibility with the U.S. Forest Service for fires on federal land. The HMPC noted a wildfire which occurred in 2021 immediately adjacent to Hamilton Creek. The fire burned 86 acres in September 2021 and led to some road closures but otherwise had a minimal direct impact on the district.

J.3.3 Growth and Development Trends

Residential development continues to occur in the wildland-urban interface where limited access, lack of a central water supply with fire hydrants, and longer response times elevate the risk associated with a wildfire event. Development in wildland-urban interface areas is regulated through the building code and land use planning policies of the jurisdiction in which the development is located. Summit County and Silverthorne have wildfire mitigation policies as a part of their county or municipal code.

The HMPC noted that construction has picked up the last few years with about 7 new builds starting in the neighborhood. There are now only about 5 lots left in the neighborhood that are undeveloped. Wildfire is the primary hazard that is neighborhood-wide, and accessibility and the ability to evacuate is a concern, especially for elderly residents.

J.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

J.4.1 Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. The District is governed under the policies and programs of Summit County, including its building codes and land use planning. Table J-5 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in HCMD.

Table J-5 HCMD—Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	No	
BCEGS Rating	No	

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Capital Improvements Program (CIP) or Plan	Yes	
Community Wildlife Protection Plan (CWPP)	No	
Comprehensive, Master, or General Plan	No	
Economic Development Plan	No	
Elevation Certificates	No	
Emergency Operations Plan	Yes	The district water system operator has one
Erosion/Sediment Control Program	No	
Floodplain Management Plan	No	
Flood Insurance Study	No	
Growth Management Ordinance	No	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	
Site Plan Review Requirements	Yes	
Stormwater Program, Plan, or Ordinance	No	The district relies on county building requirements
Zoning Ordinance	No	The district relies on county building requirements

J.4.2 Administrative/Technical Mitigation Capabilities

Table J-6 identifies the personnel responsible for activities related to mitigation and loss prevention in HCMD.

Table J-6 HCMD—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments
Emergency Manager	No	
Floodplain Administrator	N/A	
Community Planning	No	We have a board of directors and rules and regs must be followed for new development
Planner/Engineer (Land Development)	No	
Engineer/Professional (construction)	Yes	
Resiliency Planner	No	Not specifically
Transportation Planner	No	Not specifically
Full-Time Building Official	No	
GIS Specialist and Capability	Yes	
Grant Manager, Writer, or Specialist	No	
Warning Systems/Services	No	
• Flood		
• Wildfire		
• Tornado		
• Geological		

J.4.3 Fiscal Mitigation Capabilities

Fiscal mitigation capabilities are financial tools or resources that HCMD could or already does use to help fund mitigation activities. The HMPC noted that Capital Reserves can be used to fund District mitigation activities and projects.

Table J-7 HMCD Financial Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	Yes	Yes	
Utilities Fees	Yes	Yes	
System Development/ Impact Development Fees	Yes	Yes	
General Obligation Bonds to Incur Debt	Yes	Yes	
Special Tax Bonds to Incur Debt	??		
Withheld Spending in Hazard-Prone Areas	No		
Stormwater Service Fees	No		
Capital Improvement Project Funding	Yes	Yes	
Community Development Block Grants	No		

J.4.4 Mitigation Outreach and Partnerships

The HCMD uses District meetings and newsletters to send information to the public related to hazards such as wildfire, drought as well as give the public information related to evacuation routes.

Table J-8 HMCD Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
Firewise	Yes	The HOA for Hamilton Creek has a Firewise program
Storm Ready	No	
Severe Weather Awareness Week	No	
School programs	No	
Methods Used to Communicate Hazard Information to the Public		
Local News	Yes	
Social Media	No	
Community Newsletters	No	
Utility Bill Inserts	Yes	
Community Events	Yes	
Other	Website	
Organizations that represent or work with underserved or vulnerable communities		
American Red Cross	No	
Salvation Army	No	
Veterans Groups	No	
Seniors Groups	No	
Groups for People with Disabilities	No	

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Environmental/Conservation Groups	No	
Business Groups, Academia, Other		
Chamber of Commerce	No	
Community Organizations (Lions, Kiwanis, etc.)	No	
Homeowner/Neighborhood Associations	Yes	Hamilton Creek HOA
Universities or Community Colleges	No	
Agricultural Extension Office	No	

J.4.5 Past Mitigation Efforts

Past mitigation efforts have included fuel reduction to mitigate wildfire risk and the use of alternate water sources to help lessen the impacts of drought.

J.4.6 Opportunities for Enhancement

Based on the capability assessment, the HCMD has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the District to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Colorado's DHSEM. Additional training opportunities will help to inform District staff and board members on how best to integrate hazard information and mitigation projects into the District policies and ongoing duties of the District. Continuing to train District staff on mitigation and the hazards that pose a risk to the District will lead to more informed staff members who can better communicate this information to the public. Another opportunity for enhancement could be developing an evacuation plan for the district, to address one of the primary concerns around accessibility and evacuation for elderly residents.

J.5 Mitigation Strategy

J.5.1 Mitigation Goals and Objectives

HCMD has adopted the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

J.5.2 Progress on Previous Mitigation Actions

During the 2025 planning process, the CMCMD planning team reviewed all mitigation actions from the 2020 plan to provide updates on their implementation status. The team determined that all six previous actions were still in progress or not yet started; all actions were therefore carried forward into the 2026 Plan.

J.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and

medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

J.5.4 Mitigation Actions

HCMD identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Table J-9 Hamilton Creek Metro District Mitigation Action Plan

ID	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Hamilton Creek 1	Backup power for treatment plant	Dam Failure, Earthquake, Flood, Hazmat, Landslide, Winter Weather, Wildfire, Windstorm; PP	1, 2	**Hamilton Creek Water System Operator**	High; District General Fund, HMGP	Low	Long Term	Not Started
Hamilton Creek 2	Water supply interconnect	Dam Failure, Earthquake, Flood, Hazmat, Landslide, Winter Weather, Wildfire, Windstorm; ES	1, 2	**Hamilton Creek Water System Operator**	Very High; District General Fund, HMGP, EPA	Medium	Long Term	Not Started. Negotiations stalled with Town of Silverthorne
Hamilton Creek 3	Maintain existing wildfire mitigation efforts	Wildfire, PR	1, 2	**Hamilton Creek Metro District Board**	Low; District General Fund	High	Ongoing	Annual Implementation HOA obtain Firewise grant for fire mitigation
Hamilton Creek 4	Continue education and outreach about water conservation	Drought, PI	1	**Hamilton Creek Metro District Board**	Minimal; District General Fund	High	Ongoing	Annual Implementation.
Hamilton Creek 5	Develop Source Water Protection Plan (SWPP)	Dam Failure, Earthquake, Flood, Hazmat, Landslide, Winter Weather, Wildfire, Windstorm; NR	1, 3	**Hamilton Creek Water System Operator**	Low; District General Fund	Low	Ongoing	Annual Implementation
Hamilton Creek 6	Hydrologic Monitoring	Drought, ES, PI	1,2	**Hamilton Creek Water System Operator**	Low; District General Fund	High	Short Term	In Progress. Making progress with plans to install level monitor in 2025
Hamilton Creek 7	Continue to implement mountain pine beetle program	Wildfire, Pest Infestation, PR	1	**Hamilton Creek Metro District Board**	Low; CSFS, USFS.	Medium	Annual	New in 2025

J.6 Implementation and Maintenance

Moving forward, the District will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

J.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the Metropolitan District to help inform updates and the development of District plans, programs and policies.

Integration of Previous Plan into Other Planning Mechanisms

Using the risk information from the previous 2013 plan the District updated its Capital Improvement Plan to include mitigation projects such as backup power supply and interconnectedness into the CIP update. The district has not had any further updates of other planning mechanisms since the 2020 HMP for said HMP to be integrated into.

Process Moving Forward

Moving forward, the Metropolitan District may use vulnerability information to help inform updates and understanding of the hazards that pose a risk and the specific vulnerabilities to the jurisdiction in future capital improvement planning for the District. The County Planning and Building Department may utilize the hazard information when reviewing a site plan or other type of development applications with the boundaries of the Hamilton Creek Metropolitan District area.

As noted in Chapter 5 Plan Maintenance, the HMPC representatives from the Hamilton Creek Metropolitan District will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

J.6.2 Monitoring, Evaluation and Updating the Plan

The Hamilton Creek Metropolitan District will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. The District will continue to involve the public in mitigation, as described in Section 5.4 of the Base Plan. The District Manager will be responsible for representing the District in the County HMPC, and for coordination with County staff and departments during plan updates. The Hamilton Creek Metropolitan District realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

J.6.3 Continued Public Involvement

The Hamilton Creek Metropolitan District will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The District also provides updated information on resources, and ongoing projects at their website: https://hamiltoncreekmd.colorado.gov/. Information regarding similar plans and resources for the District, including water conservation guidelines, the

Sustainable Building Code, the Climate Change Equity Plan can be found on the High Country Conservation Club website: https://highcountryconservation.org/water/irrigation/.

Annex K: Willow Brook Metropolitan District

K.1 Community Profile

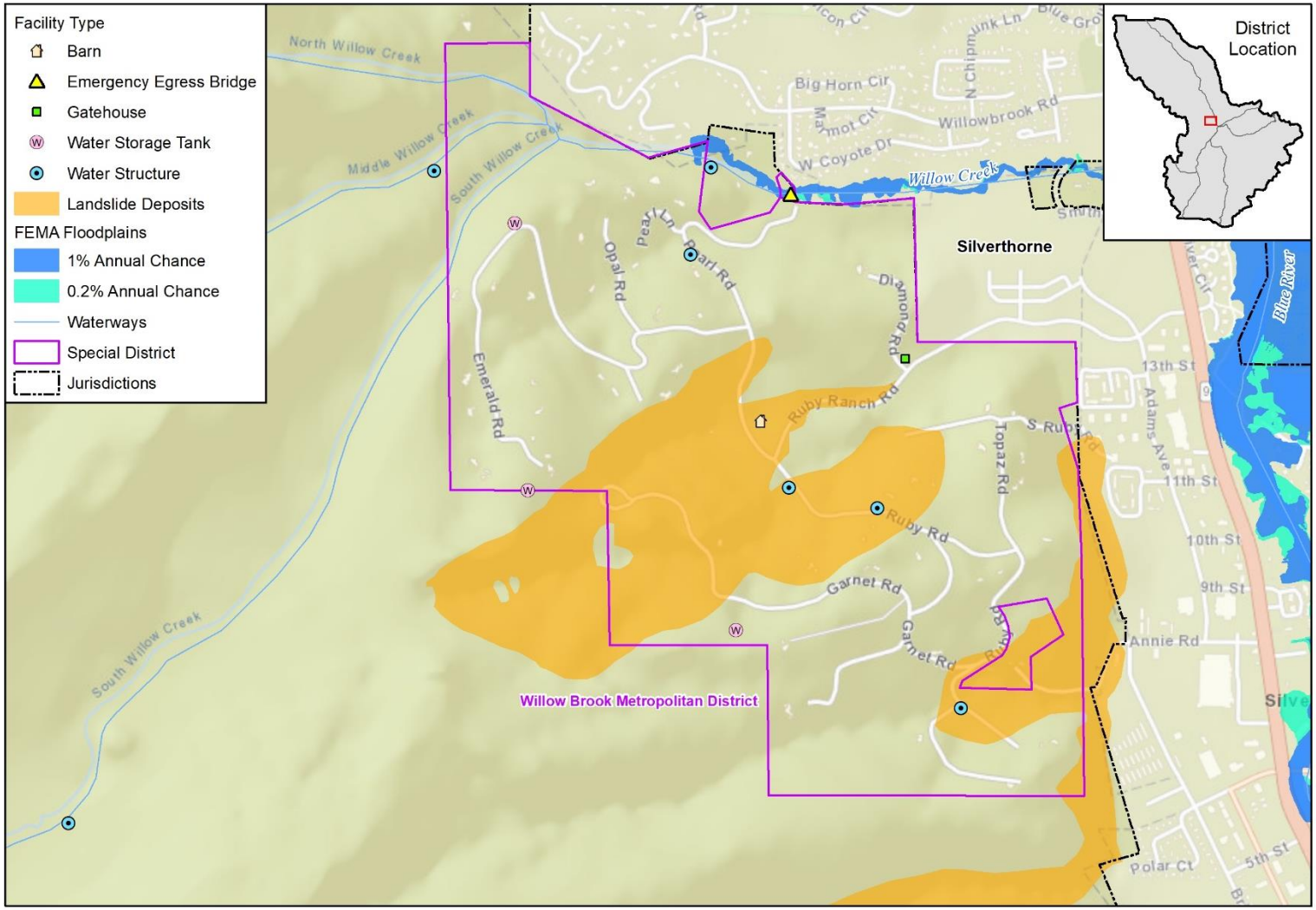
Willow Brook Metropolitan District (WBMD) is a special district in Summit County, located north of Silverthorne. The District operates under the direction of a five-person, elected Board of Directors. Funding for the Metro District comes for the collection of property taxes as well as through quarterly invoices to homeowners for water usage. WBMD provides the following services to the district:

- Water
- Trash removal and recycling
- Road, gate, and bridge maintenance, signage, and snow removal
- Land management: hazardous fuels removal, haying operation, open lands, fencing

Financial and legal records are maintained by a district manager. Records can be obtained from the manager through a simple email request. The District is managed by CRS of Colorado under the supervision of the elected Board of Directors. The Board holds regular meetings supported by the District Management. Meeting schedules and related information are available on the Meetings page. Information about board member elections is available on the Elections page.

The District operates under the direction of an elected Board of Directors that sets policy decisions. The District serves over 51 properties located on approximately 600 acres. Figure K-1 shows the location of the Willow Brook Mountain Metropolitan District as well as all available local hazards.

Figure K-1 Willow Brook Metro District and Local Hazards



K.2 Hazard Identification and Profiles

Representatives of the Willow Brook Metropolitan District identified the hazards that affect the District and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the district (see Table K-1 Willow Brook Metropolitan District—Hazard Summary). In the context of the countywide planning area, there are no hazards that are unique to the Willow Brook Metropolitan District.

Table K-1 Willow Brook Metropolitan District—Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Significance
Avalanche	Isolated	Unlikely	Negligible	Low
Dam Incidents	Isolated	Unlikely	Negligible	Low
Drought	Large	Likely	Critical	High
Earthquake	Isolated	Occasional	Limited	Low
Erosion/Deposition	Isolated	Unlikely	Negligible	Low
Flood	Isolated	Unlikely	Negligible	Low
Hazardous Materials Release (Transportation)	Isolated	Unlikely	Negligible	Low
Landslide, Mudflow/Debris Flow, Rockfall	Large	Occasional	Limited	Medium
Lightning	Isolated	Highly Likely	Limited	Medium
Pest Infestation (Forest and Aquatic)	Large	Highly Likely	Critical	High
Severe Winter Weather	Large	Likely	Limited	Low
Wildfire	Large	Occasional	Critical	High
Wildlife-Vehicle Collisions	Small	Likely	Negligible	Low
Windstorm	Large	Likely	Limited	Low

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

K.3 Vulnerability Assessment

The intent of this section is to assess Willow Brook Metropolitan District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.2 Vulnerability Assessment of the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

K.3.1 District Asset Inventory

The Willow Brook Metropolitan District identified the following critical assets, which were analyzed for vulnerability to various hazards. The results are shown below in Table K-2. No assets were identified as being at risk of avalanche, dam inundation, or flood.

Table K-2 Hazard Analysis of Willow Brook District Assets

Lifeline	Type	Landslide	Wildfire Risk	WUI Risk	Replacement Cost
Transportation	Emergency Egress Bridge	-	High	Highest	-
Safety and Security	Gatehouse	-	High	Moderate	$250,000
	Barn	At Risk	High	Moderate	$650,000
Water Systems	Well #2	At Risk	High	High	$250,000
	Water Interconnection	At Risk	High	Highest	$1,275,000
	Well #3	-	High	Highest	$250,000
	Water Diversion Headgate	-	High	Highest	$150,000
	Water Storage Tank	-	High	Highest	$500,000
	Water Diversion Headgate	-	Low	-	$150,000
	Water Storage Tank	-	High	Highest	$500,000
	Water Storage Tank	-	Moderate	Moderate	$500,000
	Well #1	At Risk	High	Highest	$250,000
	Water Diversion Headgate	-	High	-	$150,000

Source: Summit County, Willow Brook Metropolitan District, WSP Analysis

For additional information on the definitions behind each critical facility category, source, and other details refer to Section 3.3.2 of the Base Plan.

K.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk to hazards deemed significant for the District. Vulnerability details for all hazards other than Wildfire are often difficult to compile or estimate for specific communities and are already sufficiently described in Section 3.3.3 of the Base Plan.

Avalanche

While Summit County as a whole has ranked Avalanche as a high significance hazard, WBMD has very little exposure to avalanche and no past history of damaging avalanches impacting the district. The district has therefore rated this hazard as low significance.

Dam Failure

Willow Brook Metropolitan District has a much lower exposure to dam inundation than the County as a whole, and therefore ranking this hazard as low significance. Details can be found in Appendix H (not for public release.)

Drought

Willow Brook Metropolitan District rates drought as a high significance hazard and notes that a drought could greatly impact their drinking water supply.

Flood

Mapped floodplains in and near Willow Brook Metropolitan District can be seen in Figure K-1. While Summit County ranked flood as high risk, the district has significantly less exposure and therefore rated flood as low risk.

Landslide, Mud Flow/Debris Flow, Rockfall

Mapped landslide/rockfall deposits in and near Willow Brook Metropolitan District can be seen in Figure K-1. The landslide hazard is rated with critical severity as Well #2 is in the middle of the larger landslide area, indicated on Figure K-1.

Lightning

The Willow Brook Metropolitan District rated lightning as having a medium overall significance, along with the county. The HMPC noted that the Willow Brook water system depends on electricity and internet to function, meaning a power outage would also impact the water system.

Pest Infestation (Forest and Aquatic)

The Willow Brook Metropolitan District rated pest infestation as having a medium overall significance, along with the county. The HMPC noted that an infestation of pine beetles would be devastating as the forests within the district are older pine trees which are highly susceptible to attacks. Additionally, the district has at least 56 acres of wetlands to preserve from aquatic pests.

Wildfire

General Property

Wildfire threat was estimated from the County's Wildfire Protection Assessment Rating layer, which breaks up areas into Lowest, Low, Medium, High, and Highest ratings. This wildfire layer was used in GIS to determine the number, type, and improvement values for properties found to overlap with them and hence estimate potential property risk to wildfire threat in the Willow Brook Metropolitan District. For the purposes of this analysis, the wildfire zone that intersected a parcel centroid was assigned as the threat zone for the entire parcel. Improvement values were then summed by wildfire rating area and then sorted by parcel type. Property improvements and estimated content values were then totaled to arrive at the Total Value column, which is also the estimated potential loss as wildfires typically result in complete loss to structure and contents.

The HMPC notes that From 2006 – 2020, WBMD and its private owners had matched Summit County Wildfire Grants for Hazardous Fuels removal projects:

- From 2006-2011, WBMD and homeowners used matched grant funding and private funds for hazardous fuels reduction projects.
- In 2019 WBMD used matched grant funding to complete a fire hydrant project bringing fire hydrants withing 1,000 feet of each home. In 2023, Summit Fire and EMS received an ISO rating of 2 for the district.

- In 2020 WBMD joined Fire Adapted Communities National Learning Network
- In 2022, WBMD (aka "Ruby Ranch") received its Firewise™ National Recognition and has maintained this recognition yearly. Our community receives regular Wildfire Ready/Firewise updates from our Firewise™ volunteers.
- In 2022, WBMD completed a large hazardous fuels mitigation project within the Eagles Nest Wilderness Area that was a coordinated effort between Summit County, Summit County Wildfire Council, USFS, and State and National Political Support.
- In 2023, an interconnect water system was completed as well as a full update of our water delivery system throughout the district that now provides sufficient water pressure (and more reliable, updated water delivery system) to adequately pressurize our fire hydrants.
- In 2023 WBMD joined Fire Adapted Colorado Communities

Wildfire risk areas for the Willow Brook Metro District are displayed below in Figure K-2. Most of the District has a high risk of wildfires, with a small section consisting of private ranch having low risk. Figure K-3 Willow Brook Metropolitan District Wildland Urban Interface RiskFigure K-3 below shows areas in the district within the Wildland Urban Interface (WUI). With the district so secluded to forested areas and all developments within them, a majority of the district is at the highest risk within the WUI. This means a wildfire of any kind could be catastrophic to the District.

Figure K-2 Willow Brook Metropolitan District Wildfire Risk

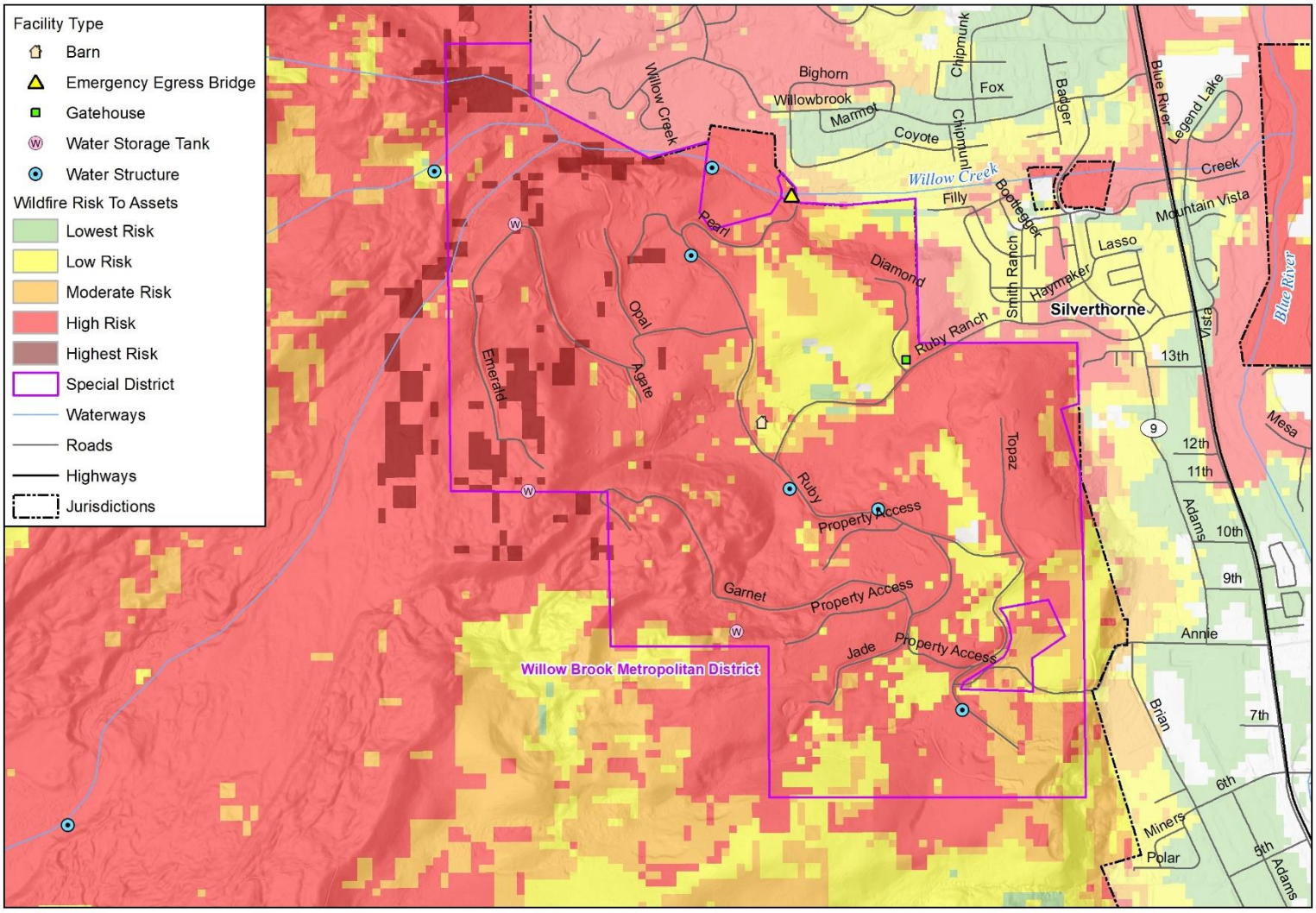
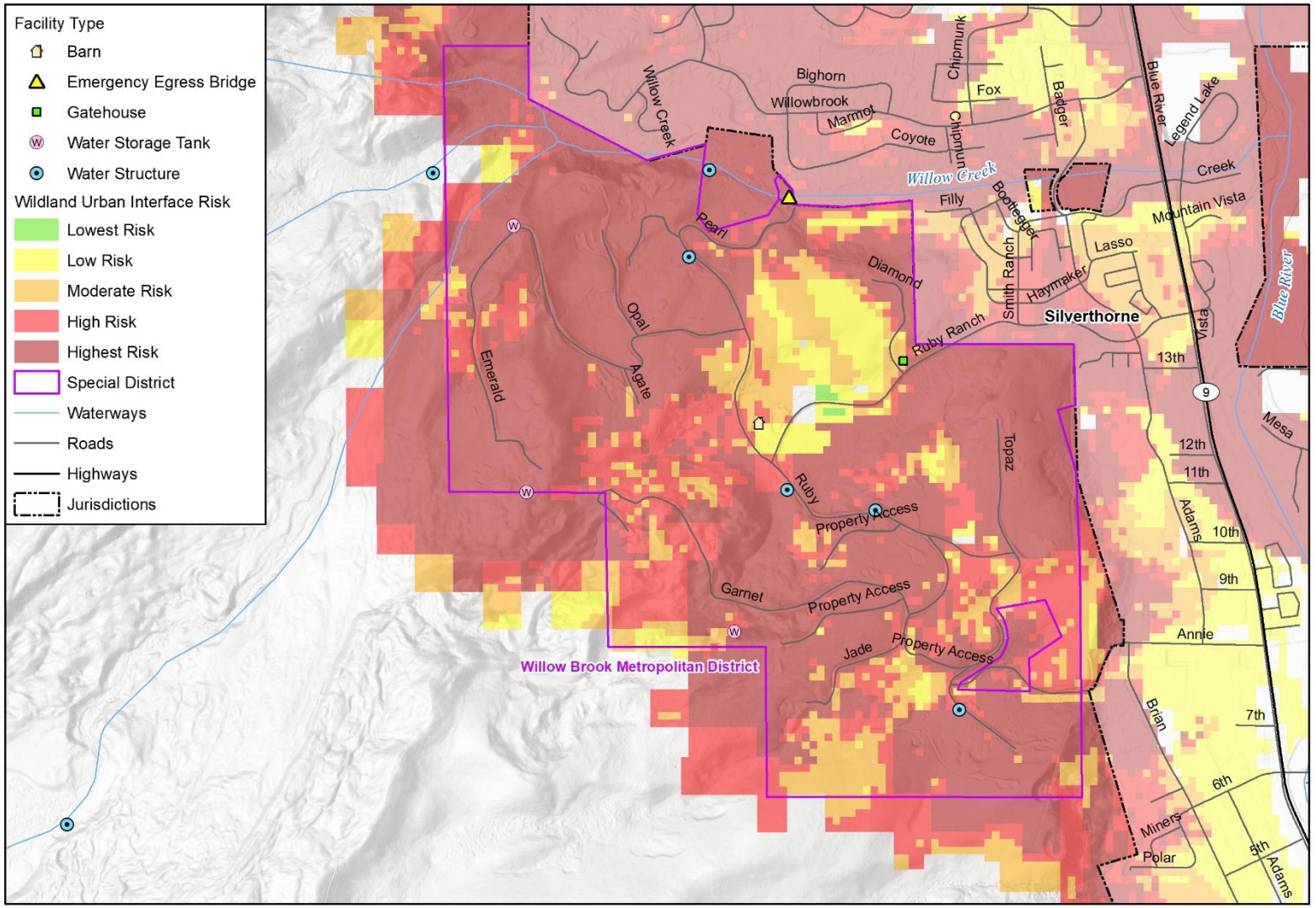


Figure K-3 Willow Brook Metropolitan District Wildland Urban Interface Risk



People

Although a majority of the district is open space with few structures, the people living within this area are at risk of smoke inhalation and if any area of Silverthorne were to have a fire.

Economy

Tourism, the accommodation and food services industry (e.g. hotels and restaurants), and retail are major components of Summit County's economy, and the district's as well. Wildland fires can, for example, lead to significant tourism reductions due to health and safety concerns, causing lost revenues from lack of visitation, stays in hotels, spending on restaurants and other commerce sources, and more.

Historical, Cultural, and Natural Resources

Wildfires are a common and naturally occurring phenomenon in forested areas and can benefit forest health in many respects. But the climate change trend which is leading to hotter, more widespread, and destructive fires can make it more difficult for the environment to recover, and lead to increased flood runoff or other secondary/cascading hazards. This can severely impact water quality and watershed health for years after the fire.

With regards to historic or cultural structures and resources, wildfires would affect those in similar ways as general property and critical facilities/infrastructure, having the potential for burn downs and hence possible complete loss of important natural resources in the District and nearby areas.

K.3.3 Growth and Development Trends

The Willow Brook Metro District has been characterized by its establishment as a low-density, large-lot residential community. The district includes 51 properties throughout 600 acres, with each lot ranging from 5 to 17 acres. The district aims to have open space and rural character, with no major commercial or dense residential development within the district.

K.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into four sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, and mitigation outreach and partnerships.

K.4.1 Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. WBMD is governed under the policies and programs of Summit County, including its building codes and land use planning. The following table lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in WBMD.

Table K-3 Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	No	We utilize Summit County Building Code
BCEGS Rating	No	Summit County
Capital Improvements Program (CIP) or Plan	No	In development
Community Wildlife Protection Plan (CWPP)	No	In development
Comprehensive, Master, or General Plan	No	In development
Economic Development Plan	N/A	
Elevation Certificates	No	
Emergency Operations Plan	N/A	?
Erosion/Sediment Control Program	No	
Floodplain Management Plan	No	Irrigation ditches & headgate diversions are mapped
Flood Insurance Study	No	
Growth Management Ordinance	N/A	
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	In development
Site Plan Review Requirements	Yes	Architectural review committee
Stormwater Program, Plan, or Ordinance	No	In process (i.e. culverts)
Zoning Ordinance	Yes	We utilize Summit county Ordinance

K.4.2 Administrative/Technical Mitigation Capabilities

The table below identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table K-4 Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	Yes	President Of WBMD Board
Floodplain Administrator	N/A	
Community Planning	Yes	WBMD Board with community volunteers
Planner/Engineer (Land Development)	No	Land conservation plan in progress, working with CPW, wildlife biologist; hoping to bring in neighborhoods next to us.
Engineer/Professional (construction)	N/A	
Resiliency Planner	Yes	Community volunteers with Metro District Board
Transportation Planner	No	
Full-Time Building Official	No	Architectural Review Committee
GIS Specialist and Capability	No	In progress of bringing someone on
Grant Manager, Writer, or Specialist	No	Community volunteers
Warning Systems/Services	No	
• Flood		Summit County Alerts
• Wildfire		Summit county Alerts
• Tornado		Summit County Alerts
• Geological		Summit County Alerts

K.4.3 Fiscal Mitigation Capabilities

Fiscal mitigation capabilities are financial tools or resources that WBMD could or already does to fund mitigation activities. WBMD raises tax questions and uses long term loan products available to special districts to cover mitigation activities and projects.

Table K-5 Fiscal Mitigation Capabilities

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	Yes	Yes	
Utilities Fees	Yes	Yes	Water utility fee update 2025
System Development/ Impact Development Fees	No	No?	
General Obligation Bonds to Incur Debt	No	No	
Special Tax Bonds to Incur Debt	No	Yes	
Withheld Spending in Hazard-Prone Areas	No		
Stormwater Service Fees	No		
Capital Improvement Project Funding	No	Yes	May be available 2025-2026
Community Development Block Grants	No		
Other? WBMD Charity Fund For Conservation	Yes	No	03/2025

K.4.4 Educational and Outreach

Table K-6 identifies education and outreach programs that are in place or could be used in the future to carry out mitigation activities and communicate information about hazards.

Table K-6 Education and Outreach Capabilities

Education & Outreach Resources	Yes/ No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Firewise	Yes	Newsletters & communications, expanding into resilience
• Storm Ready	No	Rely on county alerts
• Severe Weather Awareness Week	No	N/A or rely on county
• School programs	No	N/A
Methods Used to Communicate Hazard Information to the Public		
• Local News	N/A	We may direct HOA to look at various Summit Daily news articles
• Social Media	N/A	
• Community Newsletters	Yes	
• Utility Bill Inserts	No	
• Community Events	Yes	HOA meetings, chipping program,
• Other		The HMPC is exploring other ways to communicate emergencies to the community (text, social media, etc.)
Organizations that represent or work with underserved or vulnerable communities		

Education & Outreach Resources	Yes/ No	Comments and Changes for 2025
• American Red Cross	No	
• Salvation Army	No	
• Veterans Groups	No	
• Seniors Groups	No	
• Groups for People With Disabilities	No	
• Environmental/Conservation Groups	No	
Business Groups, Academia, Other		
• Chamber of Commerce	No	
• Community Organizations (Lions, Kiwanis, etc.)	No	
• Homeowner/Neighborhood Associations	Yes	
• Universities or Community Colleges	No	
• Agricultural Extension Office	Yes	CSU Extension has been used/USFS & State Forest Service

The HMPC notes that for elderly, disabled, and low-income, or under-served populations are going to be more susceptible to issues during emergencies due to lack of technical skills (cell phones and notifications), egress, and education of these events and what to do. The HMPC suggests the county mail homeowner's evacuation routes and emergency contact information.

K.4.5 Mitigation Outreach and Partnerships

Other mitigation related activities include the following:

- The district works with the Summit Wildfire council, Summit Fire + EMS, Blue River Watershed Group, the forest service and local towns and districts to collaborate on events and planning for future events.
- Partnership efforts, including a 900-acre fuel break created by the U.S. Forest Service around a subdivision near the Willow Brook Metropolitan District, have resulted in demonstrated mitigation success within the County. The project was tested in June 2018 and helped to reduce damages from the Buffalo Mountain Fire.
- Since 2021, quarterly newsletters include fire safety, wildfire mitigation, and emergency preparedness information.
- The District has worked with property owners since 2005 to provide assistance with the removal of beetle-infested and dead trees to improve forest health and reduce wildfire risk. Over 4,000 trees have been removed.

K.4.6 Past Mitigation Efforts

Fuels reduction projects within the District – nearly 20 years of matched grants between the District and the Summit County Wildfire Council, individual matched grants with the Summit County Wildfire Council, yearly high participation with the Summit County Free Chipping Program; and the District's 200' hand cut and stacked fuels reduction project within the Eagles Nest Wilderness Area in 2022.

The District continues to maintain all prior treated areas by managing regrowth rather than wait for these areas to fill in again with too many closely spaced lodgepole pine.

The district has installed more accurate water meters, and a new water rate system was created in 2025 to improve water conservation efforts. The district also installed a water interconnect system between the north and south ends of our community.

HMPC noted that Willow Brook Metro District partnered with the USFS and Summit County to perform a 'once in a lifetime' hazardous fuels reduction project within the boundaries of the Eagles Nest Wilderness Area. Because it was within a congressionally designated Wilderness Area, the work was performed by hand, using hand saws, to clear a 200' fire break along the southern and western borders. Also, the District mentioned that they are working on a comprehensive long-term vision plan that incorporates the following:

- Conservation of land, water, and habitat in the area. The district has nearly 675 acres of private and community land and forest, wetlands, and their haying operation.
- Resiliency of infrastructure. The district has its own water system, roads, etc.

K.4.7 Opportunities for Enhancement

The Willow Brook Metropolitan District volunteers and Board note that they have learned a lot about hazard mitigation by participating in the water meter installation project, as well as the Summit County Wildfire Ready Watershed Project and Colorado Resiliency Office 2025 framework process. The HMPC notes that they see many opportunities to enhance the overall master plan that will align the land and water conservation strategy with the wildfire mitigation strategy and now the county's multi-hazard plan. Benefits of the comprehensive plan are imbedded in better planning overall so that capital costs can be better timed to align with district needs.

Other capabilities that could be improved or expanded on to reduce risk from hazards include:

- Improve documentation of culverts, water supply/wells, ditches and headgates to help better understand threats and opportunities.
- More funding will be needed to maintain private and open lands that have been mitigated for hazardous fuels.
- Continue to work heavily with Summit County Fire & EMS

K.5 Mitigation Strategy

K.5.1 Mitigation Goals and Objectives

The Willow Brook Metro District adopted the hazard mitigation goals and objectives developed by the HMPC and described Chapter 4 Mitigation Strategy.

K.5.2 Progress on Previous Mitigation Actions

As a newly participating jurisdiction for the 2025 Plan, all actions in Table K-7 are new.

K.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction. There are six high priority and 4 medium priority actions added.

K.5.4 Mitigation Actions

The Willow Brook Metropolitan District implemented 10 new mitigation actions during the 2025 update as shown in Table K-7.

The district identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Table K-7 Mitigation Actions for Willow Brook Metro District

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
WBMD 1	**Comprehensive Action Plan.** A detailed comprehensive plan integrates multi-hazard preparedness and resilience strategy with land/water stewardship goals. The process brings data to inform prioritization of projects, Benefit/Cost Analysis, and capacity/capital needed to complete these projects.	Drought, Landslide, Lightning, Pest Infestation, Severe Winter Weather, Wildfire, Windstorm	1, 2, 3, 4	**Willow Brook Highlands and Meadows subdivisions.** Colorado Department of Parks and Wildlife, Colorado State Forest Service, US Forest Service, Summit County Wildfire Council, other landowners to the north of us.	$175,000. WBMD Tax Revenue	High	2 years	Engage partners within each area to make sure each area is well-studied and thought through with all other threats and opportunities in mind. We have created a charity/donation fund for homeowners to contribute toward this plan. We also passed a tax question to raise money to start working on this plan.
WBMD 2	**Backup Power Supply for Water Distribution System.** Long term power outages will have a direct impact on both water supply and delivery. Our project would first start with exploring all forms of backup power to our system before implementing. Goal is to eventually implement a system.	Landslide, Lightning, Wildfire, Severe Winter Weather, Windstorm	1, 2, 3, 4	**Xcel Energy,** Town of Silverthorne, Summit County	$700,000. Willow Brook Metropolitan District and grants or low interest loans as available	High	1 year	Explore solar backup with battery systems, other renewable energy supplies, and backup natural gas driven generators versus petroleum based mobile generator
WBMD 3	**Water Supply**. In the event that wildfire, drought or landslide cripples our water sources, we must identify a backup water solution. We have an alluvial aquifer, which is shallow.	Drought, Wildfire, Landslide	1, 2, 3, 4	**Colorado Water Conservation Board,** Wildfire Ready Watershed Summit County, Colorado Department of Public health and Environment Source Water Action Plan, Colorado Resiliency Office, USFS	$50,000. Willow Brook Metropolitan District, grant or low interest loans as available	High	2 years	We will study water systems – both our current state and for any potential changes/improvements we can make to our system. Increase community water conservation awareness.
WBMD 4	**Road Erosion and Drainage Improvements.** WBMD manages	Wildfire, Landslide,	1, 2, 3, 4	**Summit County,** FEMA Hazard	Past work was done at a cost of $30,000	Medium	3 years	WBMD manages approximately 9 miles of dirt roads. Washouts,

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
	approximately 9 miles of dirt roads. Washouts, erosion can create threats to life; but there must be a sensitivity to habitat and wetland maintenance.	Severe Weather		Mitigation Planning Partners	per culvert placed/replaced or drainage system installed. WBMD tax revenues and any available grant/low interest loan programs			erosion can create threats to life; but there must be a sensitivity to habitat and wetland maintenance.
WBMD 5	**Emergency Evacuation Plan**. Closure of I-70 anywhere along the mountain corridor can cause traffic standstill for hours in Summit County. Improved public awareness of backup evacuation routes and the importance of leaving early to avoid traffic education.	Wildfire, Winter Weather	1, 2, 3,	**Town of Silverthorne,** Colorado State Patrol, Summit County Sherrif, Town of Silverthorne Police	Minimal. Willow Brook Metropolitan District	Medium	Continual - due to its importance, it will be a constant effort	Leave Early Campaign, Neighbors helping neighbors (pick up kids, pets, elderly/disabled) in case of emergent evacuation needs, maps
WBMD 6	**Emergency Egress Road and Bridge Maintenance.** Our emergency egress bridge spans a wetlands area yet is at 1% annual risk for flooding. This bridge provides emergency egress for WBMD residents and potentially for Willow Brook area neighbors.	Wildfire, Winter Weather, Flood	1, 2, 3, 4	**Wildfire ready Watershed Summit County**, County Roads and Bridges Engineering	Too early to define. Willow Brook Metropolitan District	Medium	Ongoing project to maintain flow	Engage water engineers, Wildfire Ready Watershed Summit County to see if modifications to the bridge are necessary and implement necessary changes, Monitor water flow and remove obstructions to prevent backup/overflow.
WBMD 7	**Road maintenance plan.** We have one person who maintains our roads and two others who can serve as backup drivers for our road equipment. Regular training for backup drivers may be evaluated as well as working with the Town of Silverthorne for additional equipment and operators in case of severe road damage.	Severe Winter Weather, Wildfire, Landslide	1, 2, 3, 4	**Town of Silverthorne**, Summit County Roads and Bridges	Undetermined at this time. Willow Brook Metropolitan District	High	2 years	Add other backup drivers, regular training for backup drivers, consider policy for new employees to constantly monitor and maintain the condition of road throughout the year

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
WBMD 8	**Land and Water Conservation Plan.** WBMD has threatened and endangered species within its boundaries, elk and moose migration and calving areas, as well as several wetland areas. Protection of our land, water, and natural species will help us maintain forest and water health. Mitigate our noxious weeds. Incorporate this plan into our master plan.	Drought, Wildfire, Landslide, Windstorm	1, 2, 3, 4	**Colorado State Forest Service**, Colorado Parks and Wildlife, Conservation Biologists and Legal Experts, Summit County Open Space, US Forest Service, Summit County, Town of Silverthorne	**$75,000.** Willow Brook Metropolitan District	High	2 years	Engage conservation experts to align our resilience planning with conservation goals
WBMD 9	**Forest Health.** Having a healthy forest means a resilient natural landscape to all of the above hazards.	Drought, Wildfire, Windstorm, Pest Infestation, Lightning	1, 2, 3, 4	**CSU Extension**, CSFS, Conservation Biologists, Town of Silverthorne, Summit County Forest Health, Summit County Wildfire Council	**$75,000.** Willow Brook Metropolitan District, Grants and Low interest loans as available	High	5 years	Working with CSU-Extension, CSFS, Conservation biologists, BLM to create as healthy of a forest as possible that can be more resilient to pests and other hazards listed above. Firewise, chipping program, managing regrowth. Maintain wetlands.
WBMD 10	**Water Diversion Plan.** Water diversion headgates for our haying operation are within the Eagles Nest Wilderness Area and are vulnerable to shifts in Willow Brook flow due to wildfire or landslide	Landslide, Windstorm, Wildfire	1, 2, 3, 4	**Wildfire Ready Watershed Summit County**, USFS, Denver Water, Colorado Water Conservation Board, Colorado Department of Public Health and Environment	**$50,000 planning and $150,000 for headgate replacement**. Willow Brook Metropolitan District and potential grants (will be a part of our master plan planning for resiliency)	Medium	2 years	Work with Wildfire Ready Watershed Summit County to assess risk for Willow Brook to change flows following the above hazards, plan for costs to move a diversion headgate within a Congressionally Designated Wilderness Area that allows only hand work and no mechanized transportation of equipment needed to rebuild a headgate (3 total)

K.6 Implementation and Maintenance

Moving forward, the District will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

K.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the Metropolitan District to help inform updates and the development of District plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

The WBMD did not integrate the 2020 risk information into current planning or regulation documents, but it did give a general awareness of the District's vulnerabilities to natural hazards and the need of mitigation projects to protect the District's critical facilities and lessen the impacts of hazard events.

Process Moving Forward

Moving forward, the District may use the vulnerability information to understand the hazards that pose a risk and the specific vulnerabilities to the jurisdiction in future capital improvement planning for the District. The County Planning and Building Department may utilize the hazard information when reviewing a site plan or other type of development applications within the boundaries of the Willow Brook Metropolitan District area.

As noted in Chapter 5 Plan Maintenance, the HMPC representatives from the Willow Brook Metropolitan District will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

K.6.2 Monitoring, Evaluation and Updating the Plan

The Willow Brook Metropolitan District will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. The District will continue to involve the public in mitigation, as described in Section 5.4 of the Base Plan. The District Manager will be responsible for representing the Metropolitan District in the County HMPC, and for coordination with County staff and departments during plan updates. The Willow Brook Metropolitan District realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

K.6.3 Continued Public Involvement

The Willow Brook Metropolitan District will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The District will also pursue the following public engagement activities:

- The Willow Brook Metropolitan District President now attends Owner Association Meetings to give updates and receive feedback

- The district publishes at least quarterly newsletters that are pushed to the public and posted on the website immediately
- Board meeting minutes are published to the district website within 10 days of their approval.

Annex L: Water and Sanitation Districts

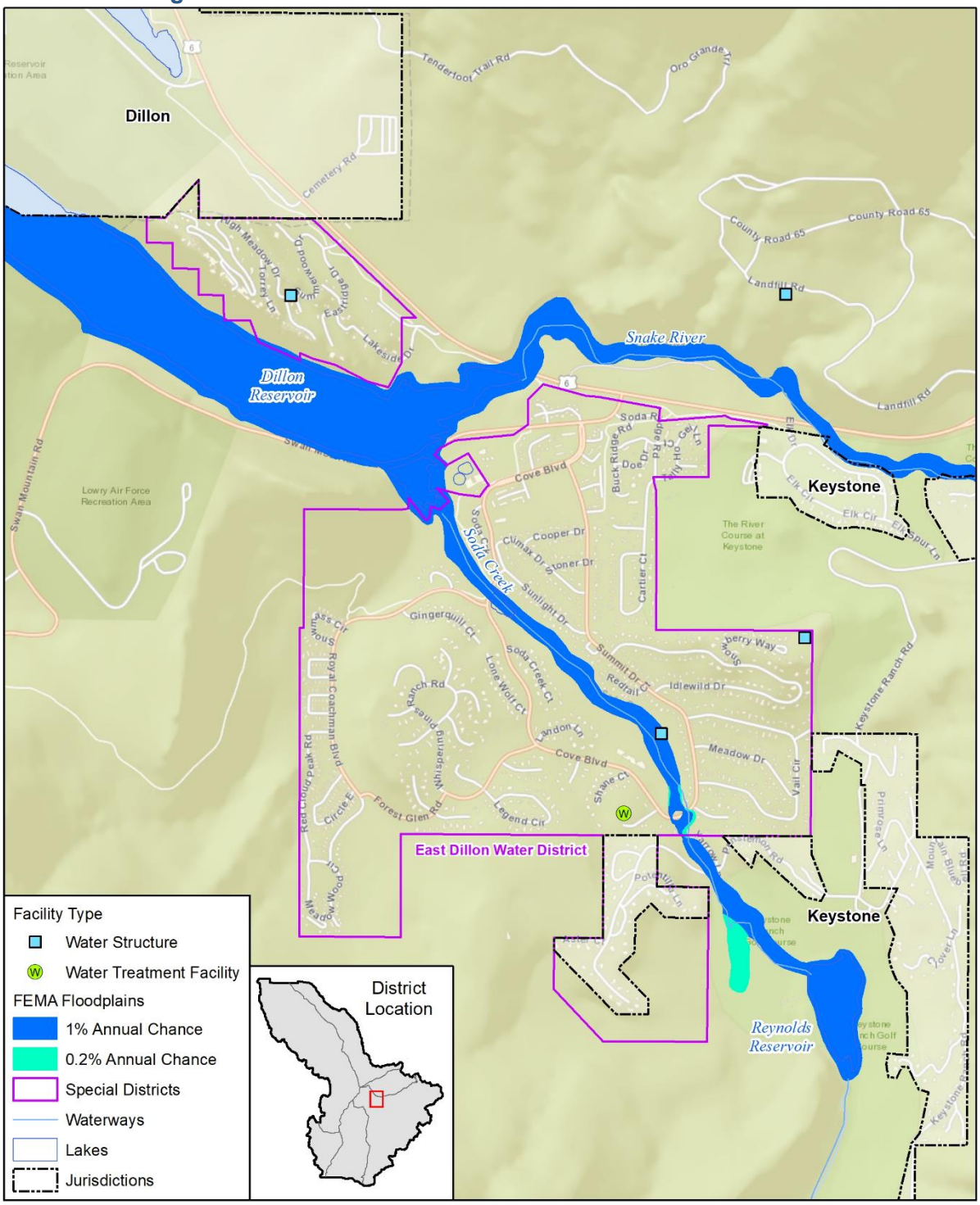
L.1 Community Profile

The following water and water & sanitation districts participated in the 2025 update process for the Summit County Multi-Hazard Mitigation Plan:

- East Dillon Water District
- Heeney Water District
- Mesa Cortina Water and Sanitation District

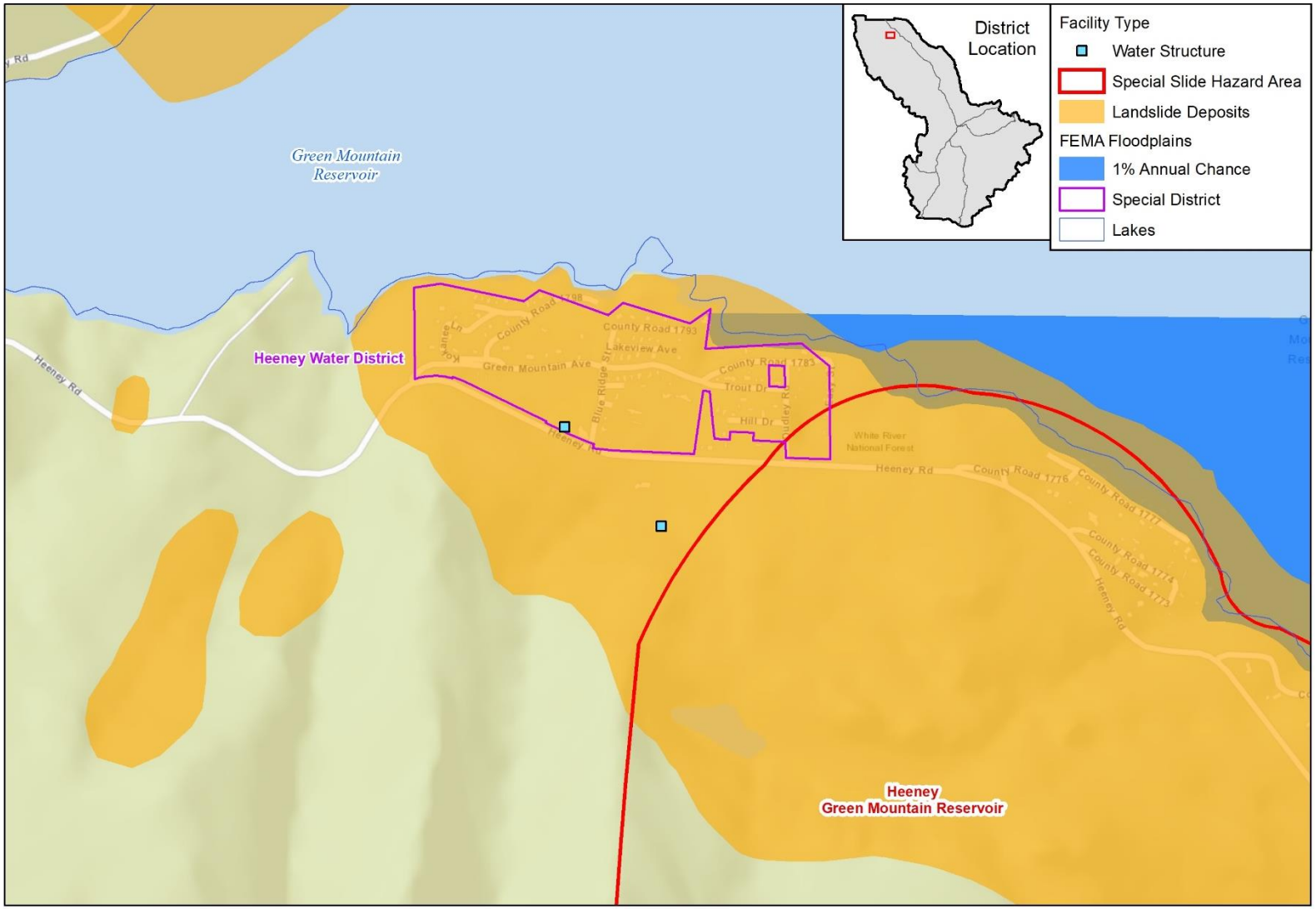
Figure L-1, Figure L-2, and Figure L-3 show the location of the districts listed above along with several mapped hazards. District critical facilities are also included.

Figure L-1 East Dillon Water District and Local Hazards



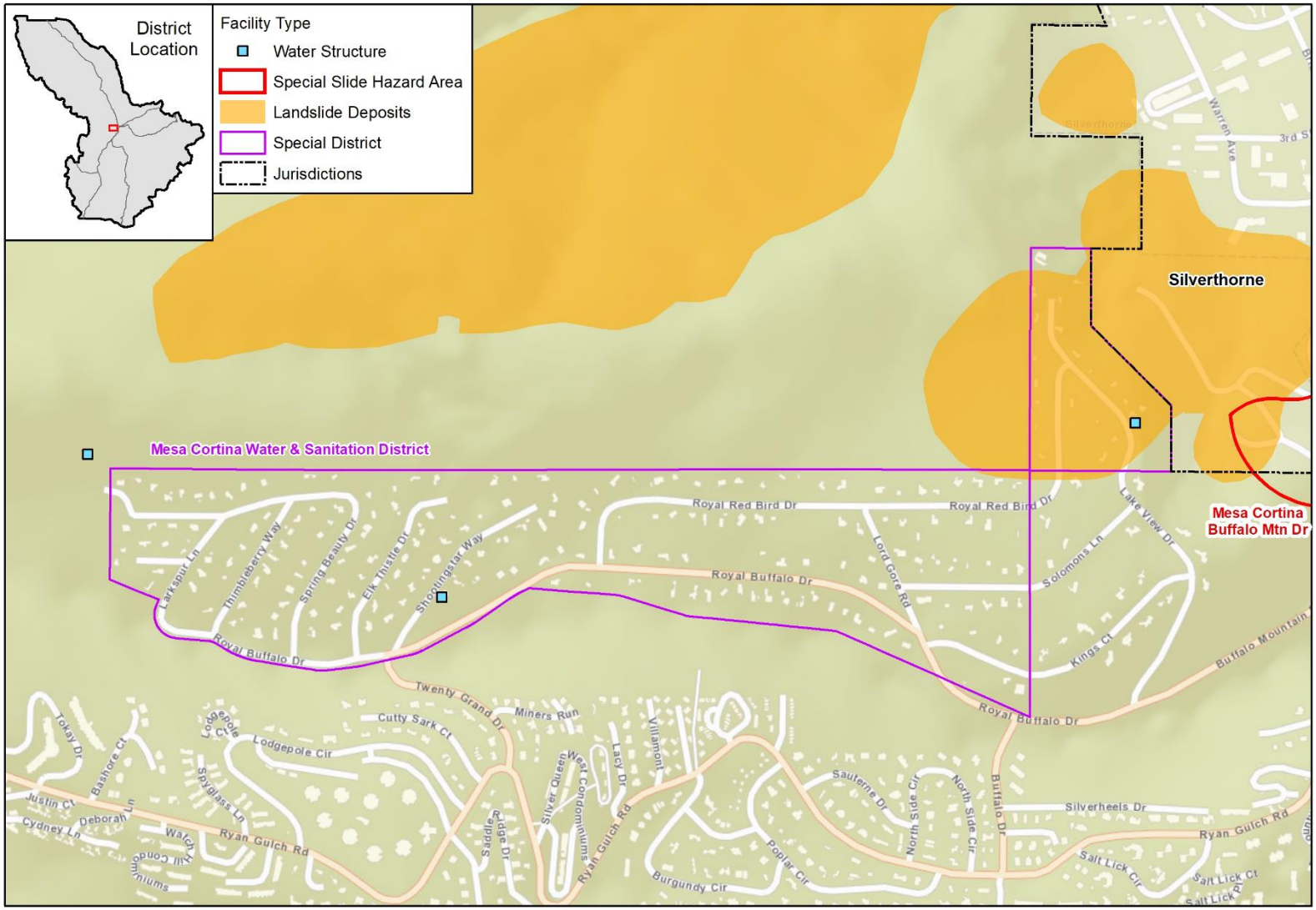
Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, Colorado Geological Survey (CGS), FEMA NFHL Effective Date 11/16/2018, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, East Dillon Water District

Figure L-2 Heeney Water District



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT, Colorado Geological Survey (CGS), FEMA NFHL Effective Date 11/16/2018, CEPC, DWR, HIFLD, National Bridge Inventory, National Inventory of Dams, Heeney Water District

Figure L-3 Mesa Cortina Water and Sanitation District and Local Hazards



L.2 Hazard Identification and Profiles

Representatives of the districts in this annex identified the hazards that affect them and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the Town (see Table L-1). In the context of the countywide planning area, there are no hazards that are unique to these districts.

Table L-1 Water and Water & Sanitation Districts—Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Hazard Significance
East Dillon Water District				
Avalanche	Isolated	Unlikely	Negligible	Low
Dam Incidents	Medium	Unlikely	Critical	Medium
Drought	Large	Likely	Negligible	Medium
Flood	Medium	Likely	Critical	High
Hazardous Materials Release	Isolated	Unlikely	Negligible	Low
Landslide, Mudflow/Debris Flow, Rockfall	Isolated	Unlikely	Negligible	Low
Lightning	Isolated	Highly Likely	Negligible	Medium
Pest Infestation (Forest and Aquatic)	Large	Highly Likely	Limited	Medium
Severe Winter Weather	Large	Likely	Negligible	Medium
Wildfire	Large	Occasional	Critical	High
Mesa Cortina Water and Sanitation District				
Avalanche	Isolated	Unlikely	Negligible	Low
Dam Incidents	Small	Unlikely	Limited	Medium
Drought	Large	Likely	Negligible	Medium
Flood	Isolated	Unlikely	Negligible	Low
Hazardous Materials Release	Isolated	Unlikely	Negligible	Low
Landslide, Mudflow/Debris Flow, Rockfall	Isolated	Unlikely	Negligible	Low
Lightning	Large	Highly Likely	Negligible	Medium
Pest Infestation (Forest and Aquatic)	Large	Highly Likely	Limited	Medium
Severe Winter Weather	Large	Likely	Negligible	Medium
Wildfire	Large	Occasional	Critical	High
Heeney Water District				
Avalanche	Isolated	Unlikely	Negligible	Low
Dam Incidents	Isolated	Unlikely	Critical	Medium
Drought	Large	Likely	Negligible	Medium
Flood	Small	Likely	Limited	Medium
Hazardous Materials Release	Isolated	Unlikely	Negligible	Low
Landslide, Mudflow/Debris Flow, Rockfall	Extensive	Unlikely	Limited	High
Lightning	Isolated	Highly Likely	Negligible	Medium
Pest Infestation (Forest and Aquatic)	Large	Highly Likely	Limited	Medium
Severe Winter Weather	Large	Likely	Negligible	Medium
Wildfire	Large	Occasional	Critical	High

Note: See Section 3.2 of the HIRA document for definitions of these hazard categories.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

L.3 Vulnerability Assessment

The intent of this section is to assess the water and water & sanitation districts' vulnerability separately from that of the planning area as a whole, which has already been addressed in Section 3.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, critical facilities, and other assets at risk for the more significant hazards or where available data permits a more in-depth analysis. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment of the Base Plan.

L.3.1 District Asset Inventory

A parcel exposure summary of the properties across Summit County has been included in the main Hazard Identification and Risk Assessment (HIRA) document of this plan.

Table L-2 lists critical facilities and infrastructure assets identified by each district as important to protect in the event of a disaster.

Table L-2 Water and Water & Sanitation Districts—Critical Facilities

Special District	FEMA Lifeline	Critical Facility Type	Total
East Dillon Water District	Water Systems	Treatment Facility	1
		Water Tank	2
		Wellhouse	1
		Pump Station	1
		TOTAL	**5**
Heeney Water District	Water Systems	Water Spring	1
		Chlorination Building	1
		TOTAL	**2**
Mesa Cortina Water & San District	Water Systems	Water Tank	1
		Pump Station	1
		Sewage Lift Station	1
		TOTAL	**3**
GRAND TOTAL			**10**

Sources: Summit County, DOLA

L.3.2 Vulnerability by Hazard

This vulnerability section analyzes existing and potential future risk in more detail where the risk varies from the rest of the planning area. Vulnerability details for the following bulleted hazards are often difficult to compile or estimate for specific jurisdictions and are already described in Section 3.3.3 of the Base Plan.

- Drought
- Earthquake
- Erosion/Deposition
- Wildlife-Vehicle Collisions
- Windstorms

The following hazards will be described in more detail: avalanche, dam failure, flood, hazardous materials release, landslide/mudflow/debris flow/rockfall, and wildfire.

Avalanche

Overall, Summit County received a high ranking for avalanche as a hazard, with most of the areas at risk found in unincorporated parts of the County (see Section 3.2.1 in the base plan). The East Dillon Water District, Heeney Water District, and Mesa Cortina Water and Sanitation District have negligible exposure to avalanches and therefor each ranked avalanche as a low significance hazard. There is still some risk to the districts if an avalanche were to occur in surrounding areas, potentially as the closure of transportation corridors could disrupt access to critical infrastructure.

Dam Failure

Dam failure is a medium risk for the East Dillon Water District and Heeney Water District – the same as Summit County overall – and a low risk for the Mesa Cortina Water & Sanitation District.

Details can be found in Appendix H (not for public release.)

Flood

Floodplains for the three water and water & sanitation districts are shown in Figure L-1, Figure L-2, and Figure L-3. Flooding is a high risk for the East Dillon Water District, but a low risk for the Heeney Water District and Mesa Cortina Water and Sanitation District. Neither the Heeney Water District nor Mesa Cortina Water and Sanitation District have mapped floodplains within their jurisdictional boundaries. The East Dillon Water District does contain 1% annual chance floodplains within its jurisdictional boundaries. The district operates one critical facility located within those floodplains. In the event of a 100-year flood, this water structure could become damaged, potentially interrupting service and requiring costly repairs.

Hazardous Materials Release

Overall, Summit County has rated this hazard as medium, while the East Dillon Water District, Heeney Water District, and Mesa Cortina Water and Sanitation District have each rated it low. According to the National Response Center, there have been 27 reported hazardous materials incidents in Summit County between 1990-2024. The majority of these incidents occur along major highways and interstates which are primary transportation corridors for hazardous materials. As a result, each district has limited direct exposure to this hazard. Section 4.3.7 of the base plan for more details on hazardous materials release in Summit County.

Landslide, Mudflow/Debris Flow, Rockfall

Mapped landslide and rockfall deposits for the three water and water & sanitation districts are shown in Figure L-1, Figure L-2, and Figure L-3. The Heeney Water District has rated this hazard as medium, while the East Dillon Water District and Mesa Cortina Water and Sanitation District have each rated it low.

The Colorado Geological Survey developed a landslide inventory that provides geologic hazard maps to state and local governments for use in planning processes, shown in Figure L-2 and Figure L-3. The polygons in red are special slide hazard areas identified by the county; these are described and analyzed

in more detail under Section 3.3.3 of the base plan. The East Dillon Water District has no history of mapped landslide hazards, making this hazard non applicable.

The Mesa Cortina Water and Sanitation District has limited mapped landslide deposits within its jurisdictional boundaries, with one sewage lift system located within the landslide inventory, shown in Figure L-3. The entirety of the Heeney Water District is within the mapped landslide inventory, including both of the district's critical facilities, a water spring and chlorination facility, shown in Figure L-2. A landslide in either area could necessitate costly repairs to these critical facilities, and leave those dependent on services provided by the Mesa Cortina Water and Sanitation District and Heeney Water District, without reliable water and sanitation services.

Summit County has policies requiring mitigation through engineering for construction on slopes of a certain steepness and prohibiting development on slopes over 30%. These local regulations serve as an important tool for reducing vulnerability to landslides and protecting people, property, and critical infrastructure.

The Summit County Building Department reviews development applications in the Heeney area and explains hazards present to all applicants. Applicants are required to sign a document similar to a liability waiver and meet strict engineering standards if they choose to build in the known landslide hazard area.

Wildfire

Based on the methodology described for wildfire in Section 3.3.3 Vulnerability by Hazard of the Base Plan, all critical facilities described in Table L-2 are in a wildfire risk or Wildland-Urban Interface (WUI) Risk area. Table L-3 summarizes the critical facilities located within the water and sanitation district boundaries that are at risk of wildfire. The location of these facilities within each wildfire or WUI risk area are shown in Figure L-4 through Figure L-9 below.

Table L-3 Critical Facilities at Risk of Medium Threat Wildfire, by District

Special District	Critical Facility	Wildfire Risk	WUI Risk	Total
East Dillon Water District	Water Treatment Facility	Lowest	Moderate	1
	Snowberry Tank	Lowest	High	1
	Wellhouse	Lowest	Moderate	1
	Landfill Tank	Lowest	-	1
	Summerwood Pump Station	Low	Highest	1
	TOTAL			**5**
Heeney Water District	Water Spring	Lowest	Highest	1
	Chlorination Building	Lowest	Highest	1
	TOTAL			**2**
Mesa Cortina Water & San District	Water tank	Low	Highest	1
	Pump station	High	Highest	1
	Sewage lift station	Low	Highest	1
	TOTAL			**3**
GRAND TOTAL				**10**

Source: Summit County GIS/Assessor Office, DOLA, CO-WRAP, U.S. Census, Wood analysis

Figure L-4 East Dillon Water District Wildfire Risk

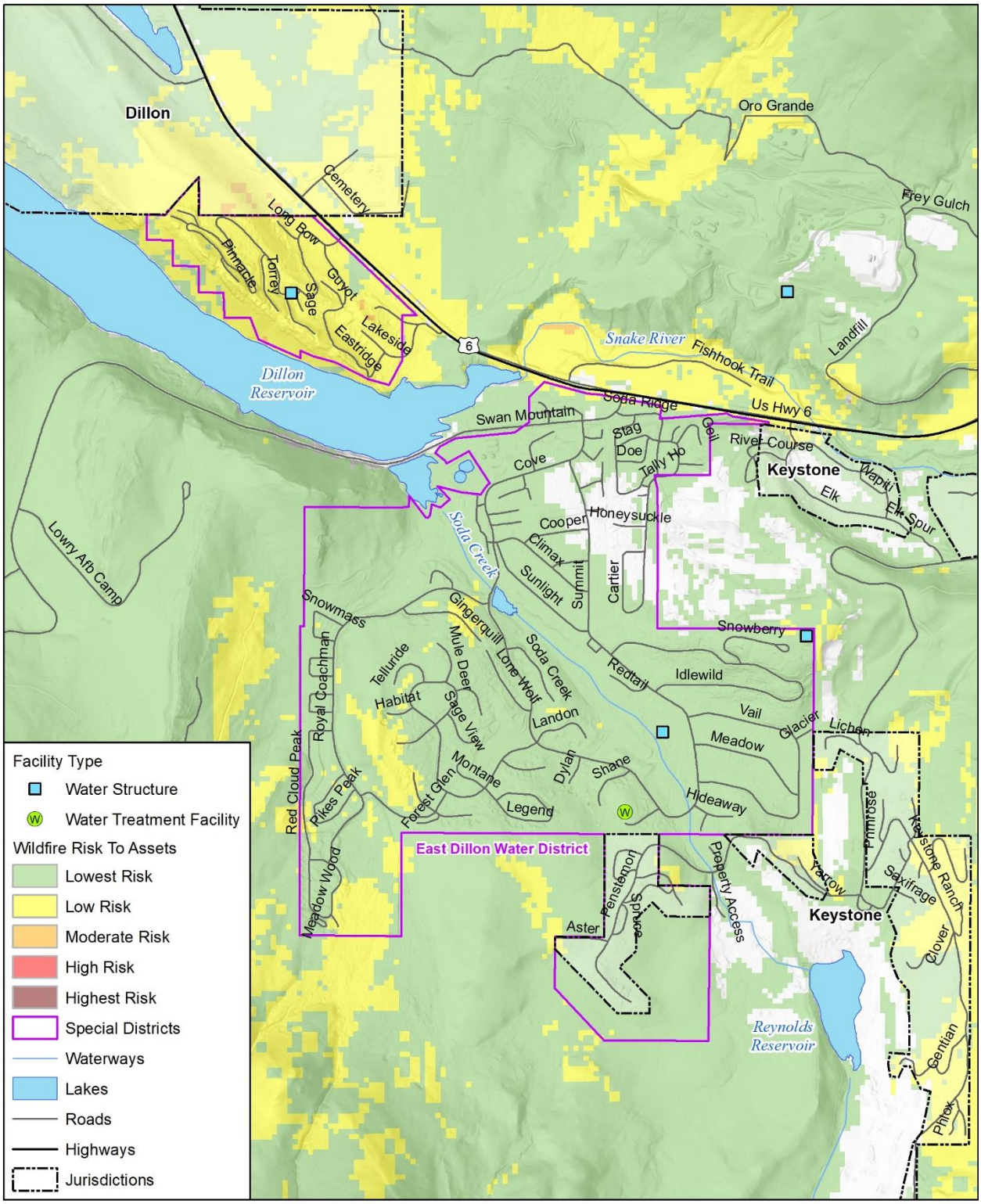
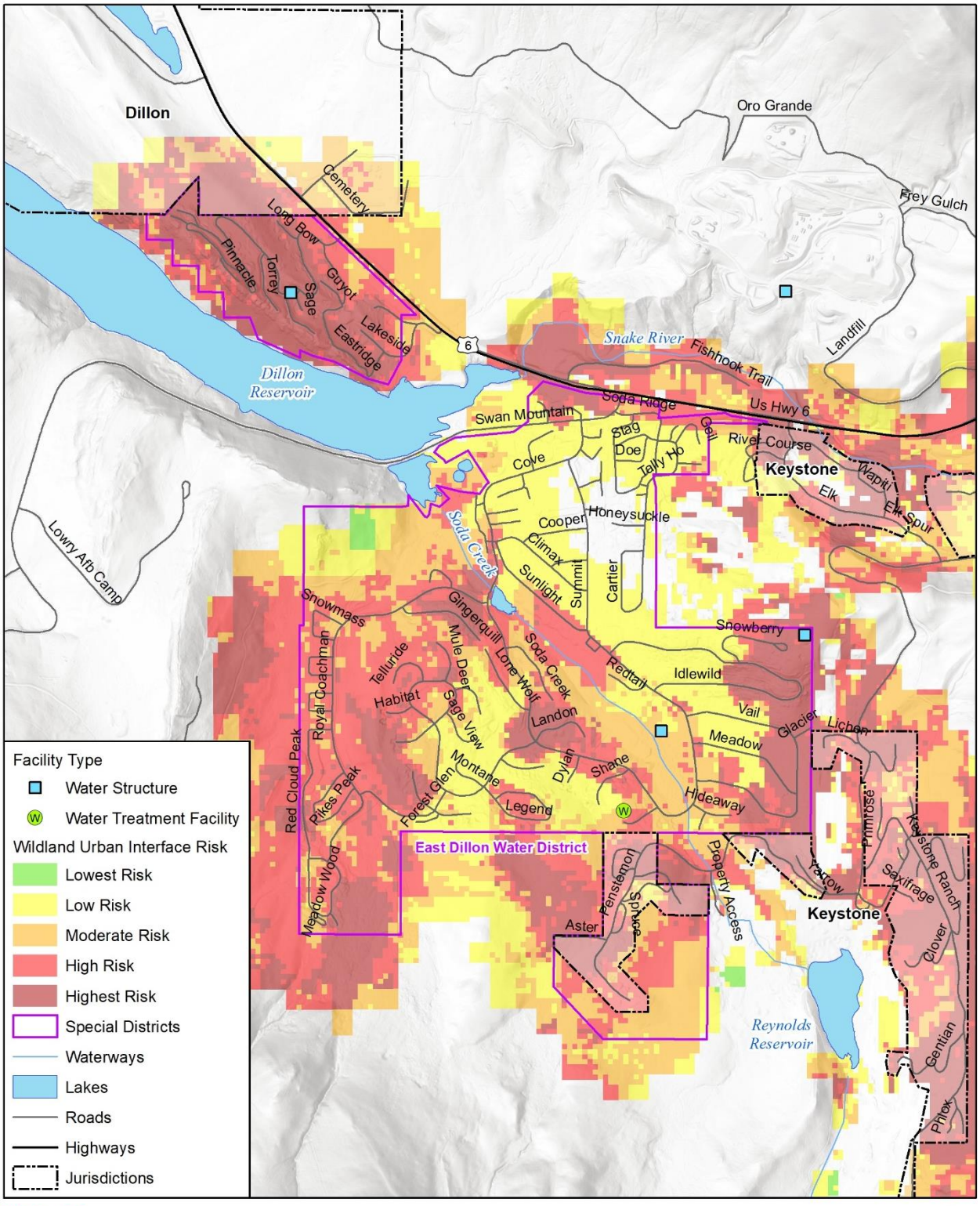


Figure L-5 East Dillon Water District WUI Risk



Map compiled 7/2025;
intended for planning purposes only.
Data Source: Summit County, CDOT,
CSFS Forest Atlas, East Dillon Water District

Figure L-6 Heeney Water District Wildfire Risk

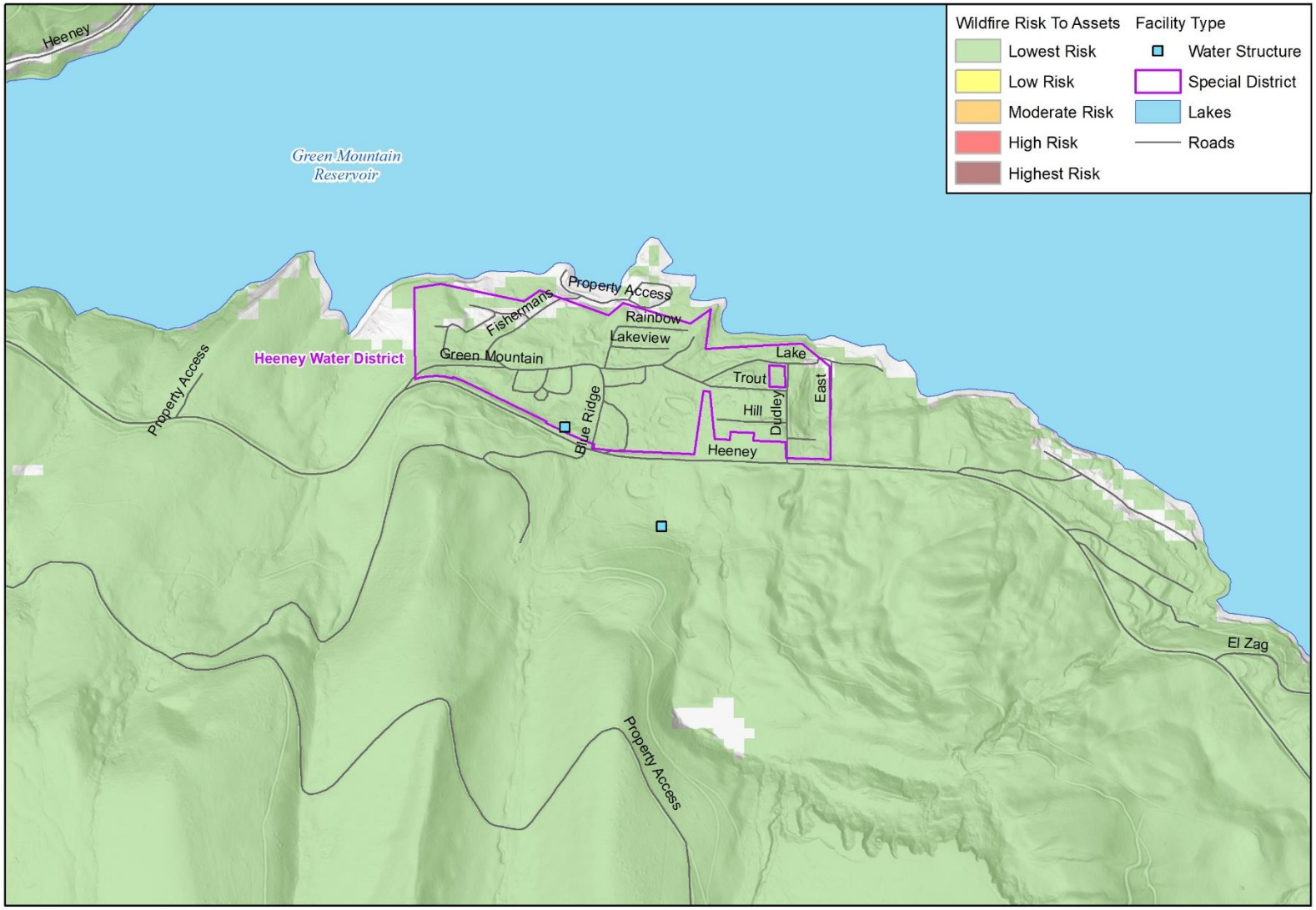


Figure L-7 Heeney Water District WUI Risk

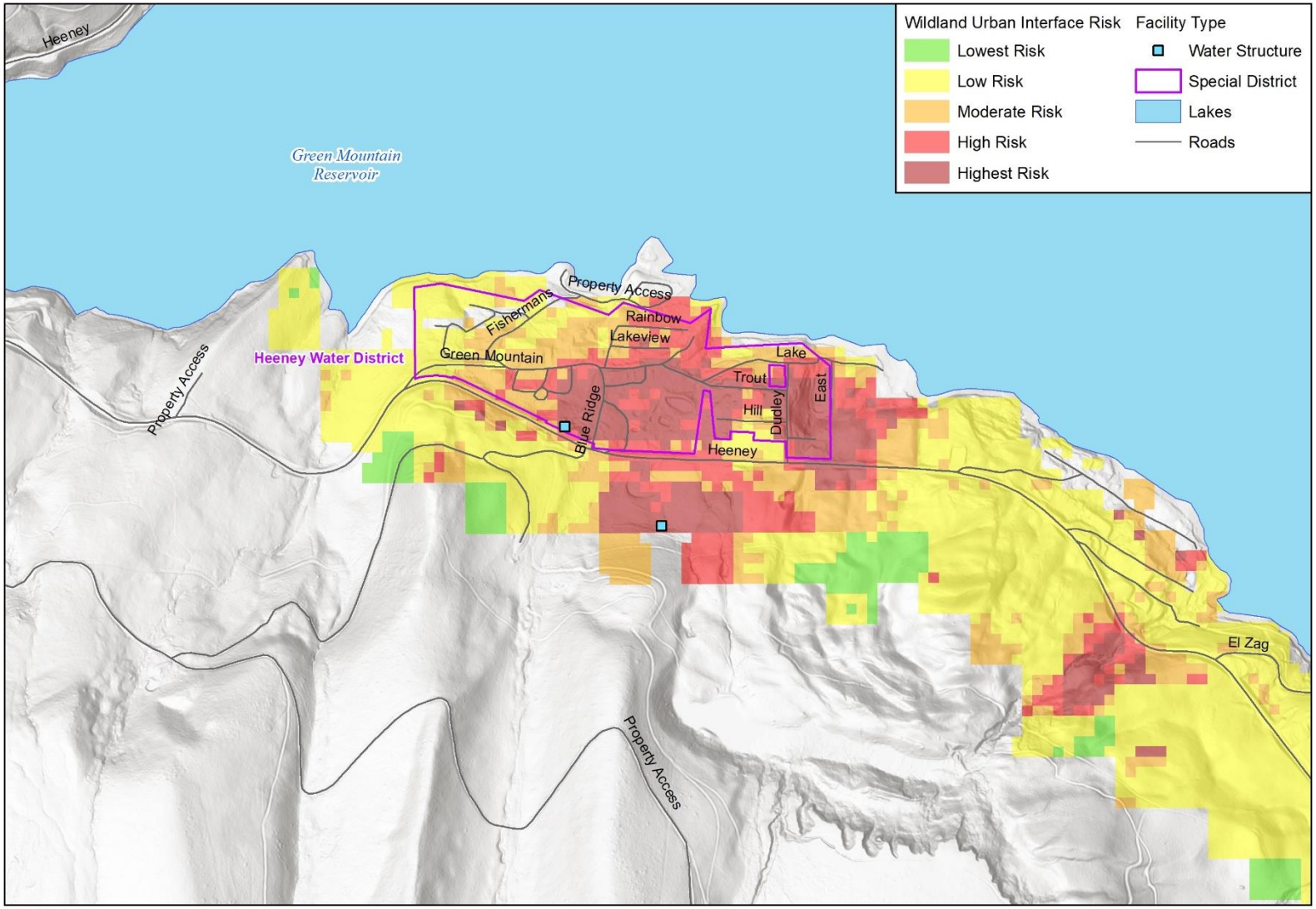


Figure L-8 Mesa Cortina Water and Sanitation District Wildfire Risk

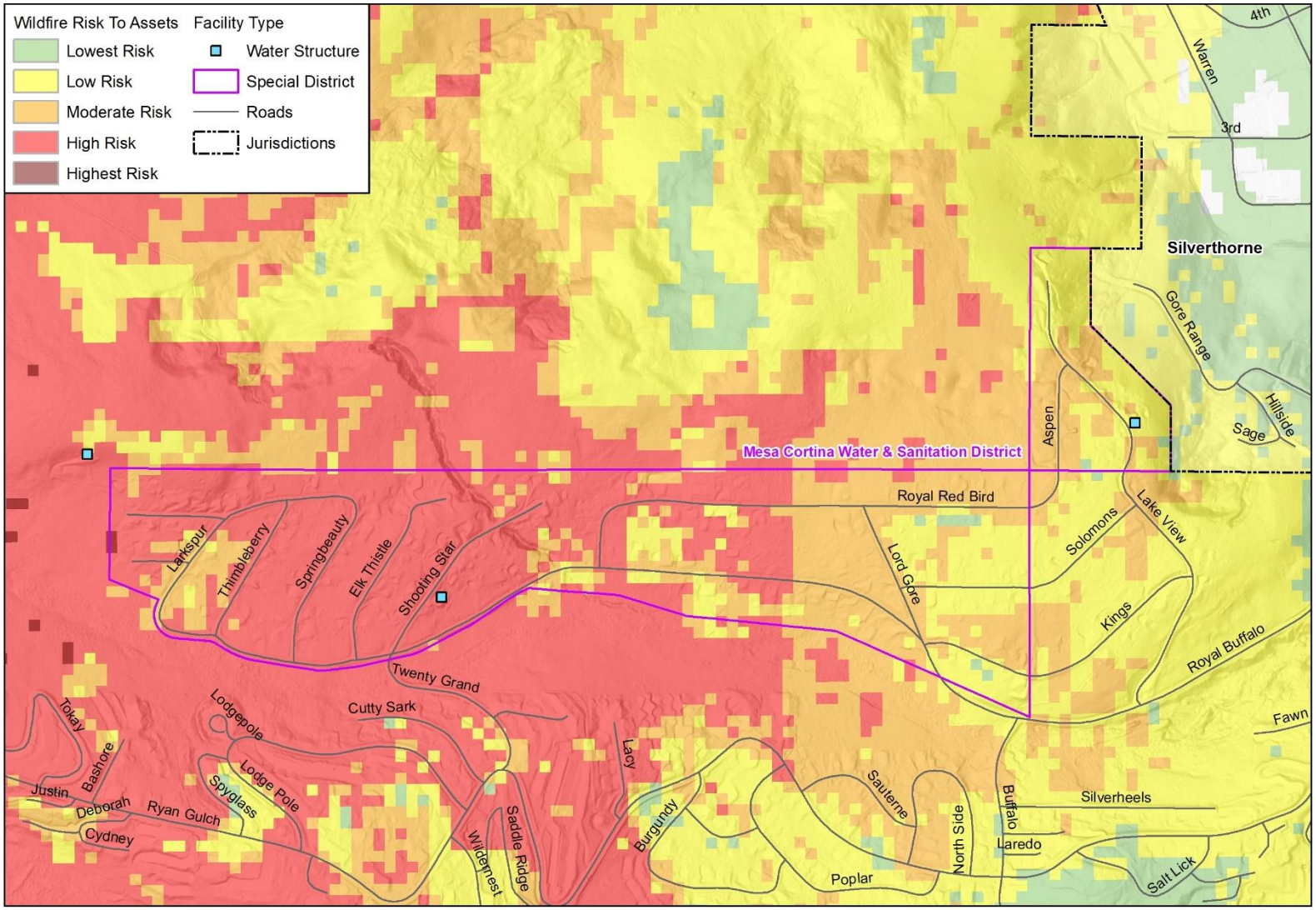
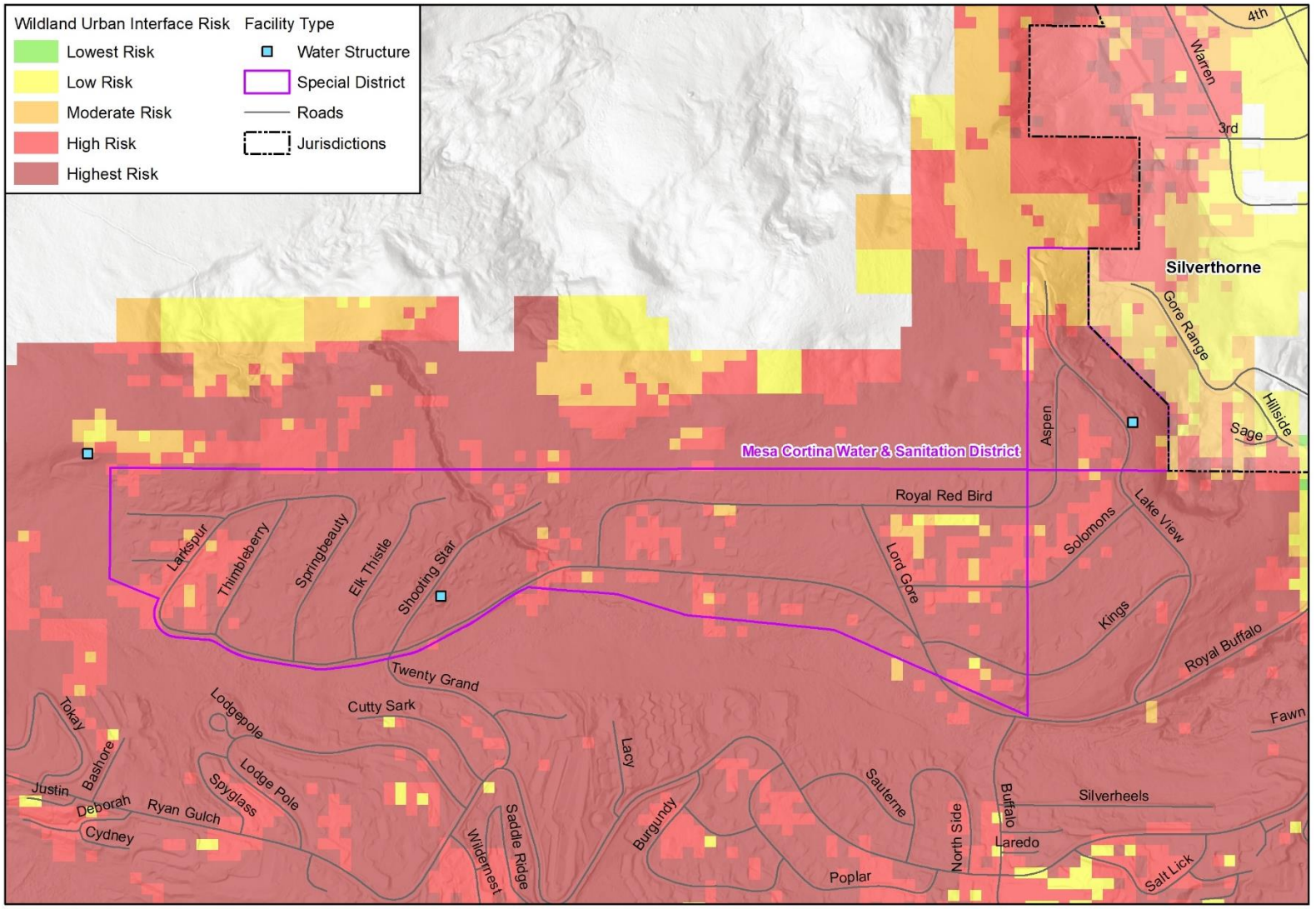


Figure L-9 Mesa Cortina Water and Sanitation District WUI Risk



L.3.3 Growth and Development Trends

Residential development continues to occur in the wildland-urban interface (WUI) where limited access, lack of a central water supply with fire hydrants, and longer response times elevate the risk associated with a wildfire event. Development in wildland-urban interface areas is regulated through the building code and land use planning policies of the jurisdiction in which the development is located. Summit County has wildfire mitigation policies as a part of their county code.

The Heeney Census designated place is seeing a switch of part-time residents to full-time residents, and interest in home selling and buying. As the population grows the need for a reliable water system is paramount to protect single family home structures from fire and mitigate the existing water system as demand increases.

East Dillon Water District is about 90% of build-out potential. The district is comprised of a mix of second homes and full time residents.

Mesa Cortina has 249 platted lots of which 219 are currently developed.

L.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

L.4.1 Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. The water and water & sanitation districts are governed under the policies and programs of Summit County or the Towns (if the district falls within town boundaries), including their building codes and land use planning. Table L-5 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the districts.

Table L-4 Regulatory Mitigation Capabilities

Regulatory Tool (ordinances, codes, plans)	East Dillon Water District	Heeney Water District	Mesa Cortina Water & Sanitation District
General or Comprehensive plan		No	No
Zoning ordinance	No	No	No
Growth management ordinance	No	No	No
Floodplain ordinance	No	No	No
Other special purpose ordinance (stormwater, steep slope, wildfire)	No	No	No
Building code	Yes	No	No
Erosion or sediment control program	No	No	No
Stormwater management program	No	No	No
Site plan review requirements	Yes	No	Yes

Regulatory Tool (ordinances, codes, plans)	East Dillon Water District	Heeney Water District	Mesa Cortina Water & Sanitation District
Capital improvements plan	Yes	Yes, Current CIP address fire and introduces ability of new infrastructure to mitigate landslide	Yes
Economic development plan	No	No	No
Local emergency operations plan	Yes	Yes, a water system specific operations plan	No
Other special plans	Yes, Source Water Protection Plan	No	Yes, Source Water Protection Plan
Flood insurance study or other engineering study for streams	No	No	No
Elevation certificates (for floodplain development)	No	No	No

L.4.2 Administrative/Technical Mitigation Capabilities

The table below identifies the personnel responsible for activities related to mitigation and loss prevention in the Districts.

Table L-5 Administrative and Technical Mitigation Capabilities

Personnel Resources	East Dillon Water District	Heeney Water District	Mesa Cortina Water & Sanitation District
Planner/engineer with knowledge of land development/land management practices	Yes	Yes	No
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes, contracted	Yes, Roaring Fork Engineering (RFE)	Yes, contracted
Planner/engineer/scientist with an understanding of natural hazards	Yes, contracted	No	Yes, contracted
Personnel skilled in GIS	Yes, contracted	No	No
Full time building official	No	No	No
Floodplain manager	No	Yes, through County	No
Emergency manager	No	Yes, through County	No
Grant writer	No	Yes, District Board and RFE	No
Warning Systems/Services (Reverse 9-11, cable override, outdoor warning signals)	No	No	No

L.4.3 Fiscal Mitigation Capabilities

Fiscal mitigation capabilities are financial tools or resources that the water and water & sanitation districts could use or has used to help fund mitigation activities.

Table L-6 Financial Mitigation Capabilities

Financial Resources	East Dillon Water District	Heeney Water District	Mesa Cortina Water & Sanitation District
Levy Taxes for Specific Purposes with Voter Approval	Yes	Yes	No
Utilities Fees	Yes	Yes	Yes
System Development/ Impact Development Fees	Yes	Yes	Yes
General Obligation Bonds to Incur Debt	Yes	No	No
Special Tax Bonds to Incur Debt	No	No	No
Withheld Spending in Hazard-Prone Areas	No	No	No
Stormwater Service Fees	No	No	No
Capital Improvement Project Funding	No	No	No
Community Development Block Grants	No	No	No

L.4.4 Educational and Outreach Capabilities

Table L-7 identifies education and outreach resources that the districts could use to increase hazard and mitigation awareness.

Table L-7 Education and Outreach Capabilities

Education & Outreach Resources	East Dillon Water District	Heeney Water District	Mesa Cortina Water & Sanitation District
Hazard Awareness/Education Campaigns			
• Firewise	No	Yes	Yes
• Storm Ready	No	No	No
• Severe Weather Awareness Week	No	No	No
• School programs	No	No	No
Methods Used to Communicate Hazard Information to the Public			
• Local News	No	No	No
• Social Media	No	Yes	No
• Community Newsletters	Yes	Yes	Yes
• Utility Bill Inserts	Yes	Yes	Yes
• Community Events	No	No	No
Organizations that represent or work with underserved or vulnerable communities			
• American Red Cross	No	No	No
• Salvation Army	No	No	No
• Veterans Groups	No	No	No
• Seniors Groups	No	No	No
• Groups for People With Disabilities	Yes	No	No
• Environmental/Conservation Groups	Yes	No	No
Business Groups, Academia, Other			
• Chamber of Commerce	No	No	No
• Community Organizations (Lions, Kiwanis, etc.)	No	No	No
• Homeowner/Neighborhood Associations	Yes	Yes	Yes
• Universities or Community Colleges	No	No	No
• Agricultural Extension Office	No	No	No

L.4.5 Past Mitigation Efforts

L.4.6 Opportunities for Enhancement

Based on the capability assessment, the participating water and water & sanitation districts have several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the districts to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Colorado's DHSEM. Additional training opportunities will help to inform district staff and board members on how best to integrate hazard information and mitigation projects into district policies and ongoing duties of the districts. Continuing to train district staff on mitigation and the hazards that pose a risk to the districts will lead to more informed staff members who can better communicate this information to the public.

L.5 Mitigation Strategy

L.5.1 Mitigation Goals and Objectives

The districts discussed in this annex have adopted the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

M.1.1 Progress on Previous Mitigation Actions

During the 2025 planning process, the planning team for the districts reviewed all mitigation actions from the 2020 plan to provide updates on their implementation status. The team determined that one mitigation action could be deleted, as shown in Table L-8. The remaining actions were carried over into the 2026 plan.

Table L-8 Completed Mitigation Actions for Water and Water/Sanitation Districts

Jurisdiction- Action No.	Action Description	Status	Comments
Water & Water/San Districts 5	Hazardous Materials – Transportation	Deleted	Determined to no longer be relevant

M.1.2 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

L.5.2 Mitigation Actions

The special districts in this annex identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such

as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Table L-9 Water and Sanitation Districts Mitigation Action Plan

ID	Jurisdiction(s)	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Water & Water/San Districts 1	East Dillon, Heeney, and Mesa Cortina Districts	**Backup power connection**. Long term power outages have the potential to disrupt water treatment and supply. This project would entail the installation of a connection to temporary backup power for the districts' treatment plants and pumps to provide domestic water service to residents in the event of long-term power outage.	Avalanche, Dam Failure, Earthquake, Flood, Hazardous Materials, Landslide, Winter Weather, Wildfire, Windstorm, PP	1, 2	**Districts;** Summit County; Hamilton Creek Metropolitan District	$50,000; General funds, HMGP	High	Long-term	Not started
Water & Water/San Districts 2	East Dillon, Heeney, and Mesa Cortina Districts	**Trailer mounted generator**. A roll-up generator could be used as a countywide resource when and where needed. A mobile generator would reduce installation and maintenance costs associated with permanent generators.	Avalanche, Dam Failure, Earthquake, Flood, Hazardous Materials, Landslide, Winter Weather, Wildfire, Windstorm, ES	1, 2, 3	**Districts;** Summit County; Hamilton Creek Metropolitan District	$100,000; General funds, HMGP	High	Long-term	Not started
Water & Water/San Districts 3	East Dillon, Heeney, and Mesa Cortina Districts	**Maintain existing wildfire mitigation efforts and identify access road mitigation needs.** The districts have done defensible space projects at the facility and service tank locations for each of these areas. This project would continue the mitigation benefits accomplished by these projects through continued maintenance of these sites including removal of ladder fuels, mowing of brush, and FireWise landscaping techniques. This project would also include working with Summit County OEM and GIS to identify district facility access roads that may need additional wildfire mitigation. Overlaying existing wildfire treatments with these roads might identify 'gaps' that may warrant additional mitigation efforts.	Wildfire, PR	1, 2	**Districts**, Summit County	$2,500.00 annually; General funds, HMGP	High	Ongoing	Not started
Water & Water/San Districts 4	East Dillon, Heeney, and Mesa Cortina Districts	**Develop Source Water Protection Plan (SWPP).** The program would encourage community-based protection and non-regulatory preventive management strategies to ensure that all Districts' drinking water resources are kept safe from future contamination.	Avalanche, Dam Failure, Earthquake, Flood, Hazardous Materials, Landslide, Pest Infestation, Winter Weather, Wildfire, Windstorm, NR	1, 3	**Districts**, Summit County; CO Rural Water Association	CDPHE SWAP Development and Implementation Grant	High	Short-term	In process SWPP has been completed for Mesa Cortina Water & Sanitation District.

ID	Jurisdiction(s)	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Water & Water/San Districts 5	East Dillon Water District	**Hydrologic Monitoring.** Drought is a gradual phenomenon, often occurring slowly, over a multi-year period and is often not obvious to quantify when a drought event begins and ends. Drought impacts are wide-reaching and may be economic, environmental, and/or societal.	Drought, PI	1, 3	**East Dillon Water District**; Summit County	$5,000 initial installation, $2,000 annual maintenance; CWCB, HMGP, FMA, EPA	Low	Ongoing	Ongoing maintenance of level sensors.
Water & Water/San Districts 6	East Dillon Water District	**Chlorine Safety Project**	Hazardous Materials	2	**East Dillon Water District**	$200,000; CIP Budget	High	Short Term	New in 2025
Water & Water/San Districts 7	Heeney Water District	**Slope Instability and Pipe Integrity.** The Heeney water system, built on an unstable slope, suffers frequent pipe failures due to ground movement and poor joint construction. Replacing the existing pipes with flexible fittings and properly rated buried pipes is necessary to prevent further breaks and contamination.	Landslide, Erosion Control, PP	2	**Consultant Engineer**	$3 million; EDA, Rural Development, RUS	High	Medium-term	New in 2025
Water & Water/San Districts 8	Heeney Water District	**Distribution System Replacement.** The District's pipeline is aging and was not built with standard construction materials. The loss of water incurred from bleeding the lines each year should be eliminated as quickly as possible. Given the scope of design and construction work this portion of the project is a high priority.	Drought, Flood, Landslide, Winter Weather, Wildfire; ES, PP, ST	1, 2, 3	**Consultant Engineer**	Over $1M; BoR DRGP, DOLA EIAF, USDA Rural Utility Loan Program, State Revolving Fund Loan Program	High	Medium-term	New in 2025. Project identified in 2023 Strategic Plan.
Water & Water/San Districts 9	Heeney Water District	**Installation of Concrete Storage Tank.** With no storage tank available, the recommendation to add a storage tank for both fire protection and chlorine contact time achieves two goals with one project. Increasing the resiliency of a community against fires is critical for communities across Colorado. Additionally, providing higher level of treatment will minimize the risk of a system upset and health impact to the customers.	Drought, Flood, Hazmat, Landslide, Winter Weather, Wildfire; ES, PP, ST	1, 2, 3	**Consultant Engineer**	$240,000; BoR DRGP, DOLA EIAF, USDA Rural Utility Loan Program, State Revolving Fund Loan Program	Medium	Medium-term	New in 2025. Project identified in 2023 Strategic Plan.
Water & Water/San Districts 10	Heeney Water District	**Rehabilitation of Pond.** Building fire resiliency is a main priority for the District, by possibly completing minor rehabilitation work on the pond and providing the District another source of water in the event of an emergency will increase the ability of the District to fight brush and house fires within the community.	Drought, Flood, Wildfire; ES, PP, ST	1, 2, 3	**Consultant Engineer**	$165,000; BoR DRGP, DOLA EIAF, USDA Rural Utility Loan Program, State Revolving Fund Loan Program	Medium	Medium-term	New in 2025. Project identified in 2023 Strategic Plan.

ID	Jurisdiction(s)	Description	Hazard(s) & Category	Goals	Lead Agency and Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Water & Water/San Districts 11	Mesa Cortina Water & Sanitation District	**Cast iron water main replacement project.** A majority of Mesa Cortina's water mains are cast iron pipe. Cast iron is much more prone to line breaks than ductile iron due to the brittleness of cast iron.	Flood, Drought, PR, S	2,3	Mesa Cortina Water and Sanitation Board of Directors	$1.8 million; General Fund	Medium	Long-term	Ongoing

L.6 Implementation and Maintenance

Moving forward, the Districts will use the mitigation action worksheets in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 in the Base Plan.

L.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by each district to help inform updates and the development of District plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

None of the Water and Water and Sanitation District incorporated 2020 risk information into their District's plans or codes, although the HMPC noted being part of the 2020 and reviewing the information from the previous plan did provide a general understanding of each District's risks and vulnerabilities and helped to inform participation in the plan update process.

This is Heeney Water District's first incorporation into the plan so no integration in other planning mechanisms has been done yet.

Process Moving Forward

Moving forward, the water and sanitation districts may use vulnerability information to understand the hazards that pose a risk and specific vulnerabilities to each jurisdiction in future capital improvement planning. The County Planning and Building Department may utilize the hazard information when reviewing a site plan or other type of development applications with the boundaries of the Districts.

As noted in Chapter 6 Plan Maintenance, the HMPC representatives from each of the water and sanitation districts will report on efforts to integrate the hazard mitigation plan into local plans, programs, and policies and will report on these efforts at the annual HMPC plan review meeting.

L.6.2 Monitoring, Evaluation and Updating the Plan

Each of the water and sanitation districts will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 6 of the Base Plan. The districts will continue to involve the public in mitigation, as described in Section 6.4 of the Base Plan. The District Administrators will be responsible for representing each of the water and sanitation districts in the County HMPC, and for coordination with County staff and departments during plan updates. The water and sanitation districts realize it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

L.6.3 Continued Public Involvement

The districts in this annex will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The Districts will also include information and links to resources on their websites.

- The East Dillon Water District will include information and links to resources on our website.
- The Heeney Water District will host public meetings and post minutes on their website for continued public participation. Additionally, annual or semi-annual meetings will update the public on progress of mitigation efforts, project status, and funding status.
- The Mesa Cortina Water and Sanitation District will include information and links to resources on our website.

Annex M: Denver Water

M.1 Community Profile

Denver Water proudly serves high-quality water and promotes its efficient use to 1.4 million people in the city of Denver and many surrounding suburbs. Established in 1918, the utility is a public agency funded by water rates and new tap fees, not taxes. It is Colorado's oldest and largest water utility.

Dillon Dam, located in Summit County, is a critical part of the Denver Water collection system, however, Summit County is not a part of the Denver Water's service area. Refer to the countywide maps in Chapter 3 and in Annex A.

M.2 Hazard Identification and Profiles

Representatives of Denver Water identified the hazards that affect the Denver Water's properties in Summit County and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to Denver Water properties and its facilities (see Table M-1). In the context of the countywide planning area, there are no hazards that are unique to Denver Water.

Table M-1 Denver Water—Hazard Summary

Hazard Type	Geographic Location	Probability	Magnitude	Overall Significance
Avalanche	Isolated	Likely	Limited	Low
Dam Incidents	Medium	Unlikely	Catastrophic	High
Drought	Isolated	Likely	Limited	Medium
Earthquake	Medium	Occasional	Catastrophic	High
Erosion/Deposition	Isolated	Likely	Limited	Low
Flood	Small	Likely	Critical	Medium
Hazardous Materials Release	Isolated	Occasional	Limited	Medium
Landslide, Mudflow/Debris Flow, Rock Fall	Isolated	Occasional	Critical	Medium
Lightning	Isolated	Likely	Negligible	Low
Pest Infestation (Forest and Aquatic)	Isolated	Likely	Limited	Medium
Severe Winter Weather	NA	NA	NA	NA
Wildfire	Small	Likely	Critical	High
Wildlife-Vehicle Collisions	Isolated	Likely	Negligible	Low
Windstorm	Isolated	Likely	Negligible	Low

**See Section 3.2 for definitions of these factors*

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

M.3 Vulnerability Assessment

The intent of this section is to assess Denver Water's vulnerability separately from that of the planning area as a whole, which has already been addressed in Section 3.3 Vulnerability Assessment in the main

plan. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment.

M.3.1 Denver Water's Asset Inventory in Summit County

Table M-2 lists critical facilities and other community assets identified by Denver Water as important to protect in the event of a disaster.

Table M-2 Denver Water—Critical Facilities and Other Community Assets

Name of Asset	Hazard Specific Info/Comments
Dillon Dam	Dam Failure, Drought, Earthquake
Robert's Tunnel	Earthquake

Source: Denver Water

M.3.2 Vulnerability by Hazard

This section examines assets at risk to hazards ranked that vary from the risks facing the entire planning area and estimates potential losses. Denver Water's exposure to most hazards in Summit County does not differ significantly from that of the County as a whole, but the focus of vulnerability assessment is on those hazards that have the potential to impact Denver Water's infrastructure.

Avalanche

Overall, Summit County received a high ranking for avalanche as a hazard, with most of the areas at risk found in unincorporated parts of the county (see Section 3.2.1 in the base plan). However, Denver Water has ranked avalanche as an overall low hazard. There is still some risk to Denver Water if an avalanche were to occur in surrounding areas, as the closure of transportation corridors such as Interstate 70 (I-70) could disrupt access.

Dam Incidents

Dillon Dam is a critical part of Denver Water's Collection System and is used for storage. Dillon dam is used for water storage and is not used as a "flood control dam". The dam is classified as a high hazard dam that has the potential to impact Silverthorne and other downstream areas. The likelihood and impacts of an incident at Dillon Dam are discussed in Section 4.4 of the base plan. Failure of the dam is unlikely but would have extensive consequences both in terms of economic losses to Denver Water, as well as the loss of the water resource for a period of time. Outside of potential effects to Denver Water infrastructure, failure of the dam would also result in damage to downstream communities and property and potential loss of life. Dillon reservoir could also be impacted by failure of dams in the Blue River and Tenmile watersheds. Depending on the type or severity of the incident, this could result in water quality impacts and possibly lead to spillway flows or concerns for the integrity of the Dillon Dam.

The LPT noted that power outages could result in loss of power to dam facilities, causing downstream effects to Denver Water system. This can mean that vulnerable communities would need direct assistance receiving bottled water or treated water, if they are unable to boil water at home.

High Flow Releases from Dillon Dam (>10-year recurrence)

One of the more significant hazards to the public would be high flow releases out of Dillon Dam due to large natural inflows due to heavy snow and/or inclement weather, though it is highly unlikely there would be more released than what is coming in naturally.

The downstream floodplain in the Town of Silverthorne and Summit County is highly developed, and Denver Water has witnessed flooding impacts around the 10-year recurrence interval discharge (likely probable, critical magnitude). Denver Water has invested time working with the Town of Silverthorne and Summit County to inform the communities of these risks, including significant public outreach efforts related to high flows.

Drought / Water Shortage

The most significant impacts associated with drought and water shortage for Denver Water are those related to water intensive activities such as wildfire protection and municipal usage in its service area. Denver Water will utilize their Water Shortage Response Plan during water shortage events. This plan contains progressive stages that can be enacted. These stages contain voluntary and mandatory conservation measures in addition to specific curtailments of water usage for specific industries. Denver Water uses various indicators when deciding to enact restrictions. These indicators include geographical, environmental and economic conditions on the western slope. An important note is restrictions and subsequent reductions in usage will not increase water in streams and waterways in Denver Water's collection system. Revenue shortages, water quality issues and recycled water availability are all potential impacts during water shortage events. In addition, a lack of available water can also lower reservoir levels, which exposes more shoreline to erosion. This can result in increased water treatment costs. During an extraordinary, long-term water shortage event, hydropower availability may be at risk.

Earthquake

Similar to any high-hazard dam, Dillon Dam is at risk of significant structural damage following a large earthquake. An earthquake event affecting the dam would immediately trigger response from Denver Water to inspect the dam for potential damage and evaluate its integrity. Impacts following the earthquake would be similar to those found identified in the "Dam Incidents" section of this annex.

Flood

The Planning Area below the dam, is prone to high flows along the rivers from heavy snowmelt runoff and intense rainfall. When significant runoff rain and events occur, Denver Water is responsible for managing Dillon Dam to maintain reservoir capacity, including releasing water to relieve pressure on the dam structure. This could result in high flows in communities such as Silverthorne, which have become highly developed in the floodplain downstream of Dillon Dam.

Lightning

Lightning may cause widespread power-outages and disrupt communications systems. Denver Water has worked to ensure the continued operation of its critical infrastructure, such as installing generators and the ability to conduct manual operations.

Severe Winter Weather

Denver Water facilities are not significantly impacted by winter weather. Denver Water operates facilities in all conditions, and has built redundancy into the system to continue water distribution during extreme weather.

M.3.3 Growth and Development Trends

Denver Water does not have authority to manage growth or development within its district outside of Denver Water property. As the population continues to grow in Summit County, but more importantly the Front Range, so too will the demand for water growth and reliance on Denver Water assets, particularly during times of drought.

M.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

M.4.1 Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. Table M-3 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Denver Water. Many of the regulatory capabilities used by local jurisdictions are not applicable to Denver Water.

Table M-3 Denver Water—Regulatory Mitigation Capabilities

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Building Codes	Yes	Denver Water Design Standards Design Standards | Denver Water;
BCEGS Rating	N/A	
Capital Improvements Program (CIP) or Plan	Yes	Program utilizes metrics for risk and hazards to determine which projects are funded and/or prioritized
Community Wildlife Protection Plan (CWPP)	N/A	
Comprehensive, Master, or General Plan	Yes	Called the Integrated Resource Plan. Identifies planning scenarios for water usage in the next 50 years.
Economic Development Plan	N/A	
Elevation Certificates	N/A	
Emergency Operations Plan	Yes	
Erosion/Sediment Control Program	N/A	
Floodplain Management Plan	N/A	
Flood Insurance Study	N/A	
Growth Management Ordinance	N/A	

Plan/Regulatory Tool	Yes/No	Comments and Changes for 2025
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	N/A	
Site Plan Review Requirements	N/A	
Stormwater Program, Plan, or Ordinance	N/A	
Zoning Ordinance	N/A	
Other?	Yes	• Lead Reduction Program • Enterprise Risk Management Plan • Drought Response Plan • Watershed Management Plan • Climate Adaptation Plan • Emergency Action Plan for all high-hazard dams • Emergency Response Plan for all Water Treatment facilities • Continuity of Operations plan • Water Distribution Emergency Response Plan

M.4.2 Administrative/Technical Mitigation Capabilities

Table M-4 identifies the personnel responsible for activities related to mitigation and loss prevention in Denver Water.

Table M-4 Denver Water—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Comments and Changes for 2025
Emergency Manager	Yes	
Floodplain Administrator	N/A	
Community Planning	N/A	
Planner/Engineer (Land Development)	Yes	
Engineer/Professional (construction)	Yes	
Resiliency Planner	Yes	
Transportation Planner	N/A	
Full-Time Building Official	N/A	
GIS Specialist and Capability	Yes	
Grant Manager, Writer, or Specialist	Yes	
Warning Systems/Services	Yes	Internal Denver Water employee emergency alerting system
Other?		Watershed Management Planning Water Resource Planning

M.4.3 Fiscal Mitigation Capabilities

Fiscal mitigation capabilities are financial tools or resources that Denver Water could or already does use to help fund mitigation activities. Denver Water has received funding for forest management and watershed health improvements through the Colorado State Forest Service and U.S. Forest Service (USFS).

Financial Resources	Available To Use	Have Used in the Past	Comments and Changes for 2025
Levy Taxes for Specific Purposes with Voter Approval	N/A	N/A	
Utilities Fees	Yes	Yes	
System Development/ Impact Development Fees	Yes	Yes	
General Obligation Bonds to Incur Debt	Yes	Yes	
Special Tax Bonds to Incur Debt	N/A	N/A	
Withheld Spending in Hazard-Prone Areas	N/A	N/A	
Stormwater Service Fees	N/A	N/A	
Capital Improvement Project Funding	N/A	N/A	
Community Development Block Grants	N/A	N/A	

M.4.4 Educational and Outreach

Table M-5 identifies education and outreach resources the Denver Water could potentially use to help fund mitigation activities.

Table M-5 Denver Water Education and Outreach Capabilities

Education & Outreach Resources	Yes/No	Comments and Changes for 2025
Hazard Awareness/Education Campaigns		
• Firewise	N/A	
• Storm Ready	N/A	
• Severe Weather Awareness Week	N/A	
• School programs	Yes	
Methods Used to Communicate Hazard Information to the Public		
• Local News	Yes	
• Social Media	Yes	
• Community Newsletters	Yes	
• Utility Bill Inserts	Yes	
• Community Events	Yes	
Organizations that represent or work with underserved or vulnerable communities		
• American Red Cross	N/A	
• Salvation Army	N/A	
• Veterans Groups	N/A	
• Seniors Groups	N/A	
• Groups for People With Disabilities	N/A	
• Environmental/Conservation Groups	N/A	
Business Groups, Academia, Other		
• Chamber of Commerce	N/A	
• Community Organizations (Lions, Kiwanis, etc.)	N/A	
• Homeowner/Neighborhood Associations	N/A	
• Universities or Community Colleges	Yes	Partnership with Colorado State University.
• Agricultural Extension Office	N/A	

M.4.5 Mitigation Outreach and Partnerships

Denver Water has various outreach and partnerships including public education programs related to water conservation, drought response, water quality, and a very active youth education program focusing on a variety of water-related topics.

Coordination Efforts include:

- Denver Water's External Affairs division consists of Customer Relations, Communications & Marketing, Government & Stakeholder Relations, Conservation, Treated Water Planning, Demand Planning and Water Resources. This group provides a plethora of planning and outreach with local partners. They provide media relations, social media, marketing, publications, internal communication, stakeholder relations, government relations, community outreach, and website communications for both our combined service area of 1.4 million people and for the communities where Denver Water's watersheds and facilities are located. Denver Water is an active participant in the Summit County Wildfire Council and leverages the From Forests to Faucets Partnership with the County's Strong Future Funds administered through the Council.
- Denver Water's Emergency Management, Health, Safety & Security section partners with local OEMs and local law enforcement agencies to work closely on planning, response, recovery and mitigation efforts in order to build a resilient community that can respond to emergencies, to share public safety messages around flood/runoff safety, to create a culture of preparedness and foster an understanding of Denver Water's operations and constraints.

Denver Water uses the following communication and coordination methods to conduct public outreach:

- "Dillon Dam Outflows" community e-newsletter
- Dillon Dam Spring runoff committee
- Dillon Dam Security Taskforce committee
- Direct mail/collateral to at-risk property owners downstream of Dillon (e.g., post cards promoting local EM resources and sign-ups for our e-newsletter).
- TAP stories, videos and infographics across all social media channels, which provide content and opportunities for local partners to adapt for use on their social media channels.
- Partnerships with County Emergency Management and offering content for their annual safety guide
- Presentations to community groups, the annual State of the River event, Emergency Manager's Town Halls, etc.
- Expert interview(s) on local PATV station.
- Proactive media pitches to local publications and websites.

M.4.6 Past Mitigation Efforts

Denver Water has partnered with local emergency management agencies to participate in local emergency management programs – planning (i.e., hazard mitigation planning), training and exercises; response, recovery and mitigation efforts. Denver Water has incorporated the FEMA process for plan development including after-action reviews and improvement items all to enhance the planning, response and mitigation efforts in order to build a resilient utility. Denver Water has partnered with the U.S. Forest Service to improve forest and watershed conditions in parts of Colorado by implementing hazardous fuels

treatments and removing hazardous biomass. Forests play a role in protecting areas important to surface drinking water. USFS maps these areas using GIS before working with Denver Water on fuels treatment projects. This effort is part of the From Forests to Faucets Program.

M.4.7 Opportunities for Enhancement

Based on the capability assessment, Denver Water has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for Denver Water to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Colorado Division of Homeland Security and Emergency Management (DHSEM) or the Colorado Water Conservation Board (CWCB). Additional training opportunities will help to inform staff and board members on how best to integrate hazard information and mitigation projects into Denver Water policies and ongoing duties. Continuing to train Denver Water staff on mitigation and the hazards that pose a risk to the district will lead to more informed staff members who can better communicate this information to the public. Another opportunity for enhancement includes continued relationship building with county and local government staff to raise awareness of preparedness resources and mitigation techniques in the event of high-water flows. Denver Water has a Forests to Faucets partnership which is a collaborative effort with the US Forest Service, Colorado State University Forest Service Colorado Forest Restoration Institute, and Natural Resources Conservation Service. The partnership implements forest restoration and wildfire mitigation treatments in high-risk watershed areas. These projects work across ownership lines and use risk metric for project priority.

M.5 Mitigation Strategy

M.5.1 Mitigation Goals and Objectives

Denver Water has adopted the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

M.5.2 Progress on 2020 Mitigation Actions

During the 2025 planning process Denver Water Planning Team reviewed all the mitigation actions from the 2020 plan. During the 2025 planning process the Planning Team identified that of their five mitigation actions from 2020, one of the actions has been completed as shown in Table M-6. The remaining actions were carried over into the 2025 Plan.

Table M-6 Denver Water Completed Mitigation Actions

Actions Description	2025 Status	2025 Comments
Develop GIS mapping coordination project to show damages based on dam EAPs, flood maps, and county floodplains	Completed	

M.5.3 Identification and Analysis of New Mitigation Actions

The natural and human caused hazards identified in Section 4 Risk Assessment of the base plan were evaluated to identify and select mitigation actions to support the mitigation goals and objectives described in Section 5.2 of the base plan. While the LPT focused primarily on addressing high and

medium hazards, individual mitigation actions were also suggested for the low priority hazards. The LPT identified the following actions to mitigate risk in the jurisdiction. These actions are intended to address both existing and potential future hazards in the jurisdiction.

M.5.4 Mitigation Actions

Denver Water identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

The 2025 update has three annually implemented or ongoing actions for Denver Water as shown in Table M-7 below. During the planning process the Lead Planning Team identified that of their five mitigation actions from 2020, one was completed, one of the actions has not started, three are ongoing and two new ones were added as of 2025, demonstrating ongoing process and building the community's resilience.

Table M-7 Denver Water Mitigation Action Plan

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Denver Water 1	**Update drought management plan**	Drought, PR	1, 4	**Denver Water - Raw Water**	Minimal; General fund	Low	Short Term	In Progress. Update coming in 2026/2027 following update to the Integrated Resource Plan
Denver Water 2	**Public outreach efforts.** Denver Water government stakeholder group would like to partner with Summit County stakeholders and rebuild relationships, provide networking and education for the public	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm, PI	1	**Denver Water - Public Affairs**	Minimal; General fund	Medium	Ongoing	Annual Implementation. Denver Water continues providing education and outreach in the Summit County area. - Developed a source water stakeholder-focused engagement and outreach plan (which includes hazard mitigation communications) - Government and Community Relations/media team are connected with a group of PIOs in the area who regularly share information - Strengthened connections to community organizations like Blue River Watershed Group and High Country Conservation, particularly through our event and sponsorship program
Denver Water 3	**Watershed management program.** Forests to Faucets Partnership	Wildfire, Flood, Drought, Pest Infestation, NR	1, 2, 3, 4	**Denver Water - Watershed Planning**	Very High; General fund (Denver Water contributes funding to these watershed projects)	Medium	Ongoing	Annual Implementation. Program does not have a defined end date. Will operate as long as budget permits.
Denver Water 4	**Implement Summit County Runoff Season Safety Strategy Communications Plan**	Flood, PI	1	**Denver Water - Public Affairs**	Minimal; General Fund	Medium	Long Term	In Progress. During runoff season, we typically send multiple newsletters, the timing/frequency of which depends on conditions. These typically start in April with our reminder that we do not operate Dillon Reservoir as a flood control facility, links to sign up for emergency notifications from the county, flood plain maps and links to Summit County Emergency Management (all of which are in the

ID	Description	Hazard(s) & Category	Goals	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
								boilerplate for every newsletter moving forward). In heavy runoff years, these focus on updates on outflow and reminders about what to do in a high water event. In lower runoff years, we typically focus on recreation safety and outflow updates aren't as front and center. We also have an emergency template ready to go. The subscriber list is in the ballpark of 750 people (including OEM and PIOs) and averages about 4% growth year over year.
Denver Water 5	**Dillon Dam – Seminars and Exercises.** Denver Water will continue to provide awareness of Dillon Dam, its capabilities, and the possible needs during response to an emergency at the facility. This includes annual seminars, possible tours, and exercises to validate current processes and procedures.	Dam Failure	1, 2	Denver Water – Emergency Management, Local first responder agencies	Minimal; None required	High	Ongoing	New in 2025.
Denver Water 6	**Alternate EOC location and agreements:** Identify partner agencies (i.e., County OEMs) that would permit the use of their EOC, or other facilities, to serve as an alternate EOC location for Denver Water's EOC. Formalize agreements in documentation.	Avalanche, Dam Failure, Drought, Earthquake, Erosion, Flood, Hazmat, Landslide, Lightning, Pest Infestation, Winter Weather, Wildfire, Wildlife-Vehicle Collisions, Windstorm	3,4	Denver Water Emergency Management,	Staff time; No funding required	High	Ongoing	New in 2025

M.6 Implementation and Maintenance

Moving forward, Denver Water will manage their identified mitigation projects through normal business practices, to track progress of projects. Implementation of the plan overall is discussed in Chapter 5 in the Base Plan.

M.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by Denver Water to help inform updates and the development of District plans, programs and policies.

Integration of 2020 Plan into Other Planning Mechanisms

While Denver Water did not directly integrate risk information from the 2020 into existing planning mechanisms, through various planning committees, Denver Water did review and edit the 2020 mitigation plan and have incorporated improvement in this iteration of the Denver Water annex.

Process Moving Forward

Moving forward, Denver Water may use the vulnerability information to help inform updates and understanding of the hazards that pose a risk and the specific vulnerabilities to the jurisdiction in future capital improvement planning for Denver Water area in Summit County.

As noted in Chapter 5 Plan Maintenance, the HMPC representatives from Denver Water will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

M.6.2 Monitoring, Evaluation and Updating the Plan

Denver Water will follow the procedures to monitor, review, and update this plan in accordance with Summit County as outlined in Chapter 5 of the Base Plan. Denver Water will continue to involve the public in mitigation, as described in Section 5.4 of the Base Plan. Denver Water Manager of Emergency Management will be responsible for representing the organization in the County HMPC, and for coordination with County staff and departments during plan updates. Denver Water realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements.

M.6.3 Continued Public Involvement

Denver Water will follow the strategy for ongoing public education and outreach outlined in Section 6.4 of the Base Plan. The District will also pursue the following public engagement activities:

1. Integration of standardized messaging in periodic newsletters regarding runoffs from Dillon Dam, as follows:

   As a reminder, while Denver Water operates the reservoir, Mother Nature has a mind of her own. Be prepared for runoff season and other potential emergencies by checking out the resources available at the Summit County

Office of Emergency Management website. Also, make sure to sign up for SC Alert, which provides emergency notifications to your cell phone and email.

2. Provide Summit County media with dam safety messaging during runoff season.

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Summit County Hazard Mitigation Plan

Appendices







Summit County
Town of Blue River
Town of Breckenridge
Town of Dillon
Town of Frisco
Town of Silverthorne
Summit Fire and EMS Authority
Red, White, & Blue Fire Protection District
Buffalo Mountain Metropolitan District
Copper Mountain Consolidated Metropolitan District
Hamilton Creek Metropolitan District
Willow Brook Metropolitan District
East Dillon Water District
Heeney Water District
Mesa Cortina Water and Sanitation District
Denver Water

December 2025

APPENDIX A: ADOPTIONS AND APPROVALS

Note: The records of adoption will be incorporated as an electronic appendix. When the plan is adopted in 2026, the jurisdictions and adoption date will be noted here, but scanned versions of all adoption resolutions will be kept on file with Summit County Emergency Management. A sample adoption resolution is provided here.

Hazard Mitigation Plan Adoption Sample Resolution

Resolution # _____

Adopting the Summit County

Hazard Mitigation Plan 2025

Whereas, (name of county or community) recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, (name of county or community) resides within the Planning Area, and fully participated in the mitigation planning process to prepare this Hazard Mitigation Plan; and

Whereas, the Colorado Department of Homeland Security and Emergency Management and Federal Emergency Management Agency, Region VIII officials have reviewed the Arapahoe County Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governing body; and

Now, therefore, be it resolved, that the (name of board or council), hereby adopts the Arapahoe County Hazard Mitigation Plan, as an official plan; and

Be it further resolved, Summit County Emergency Management will submit this Adoption Resolution to the Colorado Department of Homeland Security and Emergency Management and Federal Emergency Management Agency, Region VIII officials to enable the Plan's final approval.

Passed: ___(date)___

_____

Certifying Official

APPENDIX B: HAZARD MITIGATION PLANNING COMMITTEE

The following table lists the members of the Hazard Mitigation Planning Committee, along with stakeholders and others who participated in the 2026 update. In addition to showing attendance at the three Planning Team meetings, it also lists individuals who participated in other ways such as by sharing information, submitting mitigation actions, or commenting on the draft plan.

Organization	Name	Title	Kickoff	Mtg #2	Mtg #3	Other
Arapahoe Basin Ski Resort	Corey McClure	Risk & Safety Manager	X			
Arapahoe Basin Ski Resort	Tony Cammarata	Operations Director		X		X
Blue River Watershed Group	Vanessa Logsdon	Executive Director		X		
Buffalo Mountain Metropolitan District	Will Yates	District Manager	X		X	X
CDOT	Patrick Chavez	Statewide Emergency Manager			X	X
Colorado Avalanche Information Center	Mike Cooperstein	Northern Mountains Regional Manager		X		X
Colorado DFPC	Carter Miller	Battalion Chief		X		
Colorado DHSEM	Matt West	Mitigation Planning Supervisor			X	X
Colorado DHSEM	Danielle Aguilar	Northwest Area Field Manager	X			
Colorado DHSEM	Jason Humble	Mitigation Planning Specialist	X			X
Copper Mountain Consolidated Metro District	Abigail Tietjen	District Manager	X	X		X
Copper Mountain Ski Resort	Bec Bale	Risk Manager		X		
CSU Extension	Dan Schroeder	Program Manager			X	X
Denver Water	Mallory Buys	CEM Emergency Manager		X		
Denver Water	Mason Dixon	Dillon Operations Supervisor	X			
Denver Water	Nick Sporer	Senior EM Specialist	X			X
Dillon Valley District	Angelique Justich	Administrator	X			
East Dillon Water District	Tom Oberheide	Administrator	X			X
Hamilton Creek Metropolitan District	Tom Oberheide	Administrator	X			X
Heeney Water District	Maggie McHugh	Engineer	X	X	X	X
High Country Conservation Center	Jess Hoover	Climate Action Director	X			
Mesa Cortina Water District	Jeff Leigh	Water Manager				X
National Weather Service (Boulder)	Greg Heavener	Warning Coordination Meteorologist	X			X
Red White & Blue Fire & EMS	Jay Nelson	Deputy Chief		X	X	X
Red White & Blue Fire & EMS	Jeff Nordeen	Division Chief		X		X
Snake River Wastewater Utility	Josh Johnson	Director	X			
Summit County Chamber of Commerce	Cheri Ryan	Executive Director	X			
Summit County Coroner	Amber Flenniken	Coroner			X	
Summit County Emergency Management	Ben Pleimann	Emergency Management Specialist	X	X	X	X

Organization	Name	Title	Kickoff	Mtg #2	Mtg #3	Other
Summit County Emergency Management	Cailee Hamm	deputy Director	X	X	X	X
Summit County Emergency Management	Brian Bovaird	Director	X			
Summit County Environmental Health	Dan Hendershot	Manager			X	
Summit County Environmental Health	Seth Danner	Senior Environmental Health Specialist			X	
Summit County GIS	Suzanne Kenney	GIS Services Lead	X	X	X	x
Summit County Landfill	William Schenk	Assistant Director			X	
Summit County Planning Department	Sally Ward	Planner II	X			x
Summit County School District	Brandon Smith	Director of Emergency Preparedness	X	X	X	
Summit County Sheriff's Office	Peter Haynes	Undersheriff	X	X	X	
Summit County Sheriff's Office	Mark Watson	Sergeant	X			x
Summit Fire & EMS	Brian Schenking	Deputy Chief of Administration		X		x
Summit Foundation	Kelly Cochran	Administrative Coordinator	X	X	X	
Town of Blue River	Michelle Eddy	Town Manager	X			x
Town of Breckenridge Police Department	Deric Gress	Chief		X	X	
Town of Dillon	Ned West	Senior Town Planner				X
Town of Frisco	Tom Fisher	Town Manager				X
Town of Silverthorne Police Department	Alice Cary	Police Chief	X			
Town of Silverthorne Public Works	Tom Daugherty	Director	X	X	X	x
US Forest Service	Amanda Wheelock	Deputy District Ranger	X			x
US Forest Service	Justin Conrad	Fire Management Officer	X			
US Forest Service	Kat Gray	Fuels Planner		X		
Willow Brook Metro District/Ruby Ranch	Lisa Lewis	Project Coordinator	X	X	X	x
WSP USA	Bailey Nock	Hazard Mitigation Planner	X	X	X	
WSP USA	Scott Field	Project Manager, Consultant	X	X	X	
WSP USA	Carlie Hager	Hazard Mitigation Planner	X	X		
WSP USA	Christopher Johnson	Deputy Project Manager, Consultant	X			
WSP USA	Jeff Brislawn	Senior Technical Advisor	X			
Xcel Energy	Meredith Guinan	Electric Operations	X			

A number of other organizations and stakeholders were invited to participate but were unable to do so:

- Breckenridge Ski Resort
- Bureau of Reclamation (Green Mtn. Dam)
- Clear Creek County OEM
- CO Department of Natural Resources
- CO Division of Water Resources
- CO Water Conservation Board
- Colorado General Assemble
- Colorado Mountain College (Breck)
- Colorado Springs Utilities (Upper Blue Dam)
- Colorado State Patrol
- Eagle County OEM
- Family & Intercultural Resource Center
- FEMA Region VIII
- Forest Health Taskforce
- Friends of Dillon Ranger District
- Grand County OEM
- High Country Conservation Center
- High Country Training Center
- Keystone Science School
- Keystone Ski Resort
- Lake County OEM
- Town of Keystone
- Town of Montezuma
- US EPA

APPENDIX C: PLANNING PROCESS DOCUMENTATION

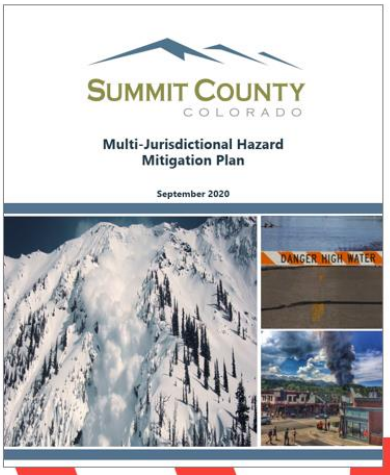
SUMMIT COUNTY
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Summit County Hazard Mitigation Plan 2025 Update

Project Kickoff Meeting

April 30th, 2025, 2:00 -3:30 pm

Please enter your name, title, and agency in the chat



Agenda

1. Introductions
2. Hazard Mitigation Overview - DHSEM
3. Hazard Mitigation Planning Process and Requirements
4. Project Schedule and Next Steps
5. Adjourn

Summit County, Colorado Hazard Mitigation Plan
2025 Update Kick-Off Meeting Summary
April 30th, 2025
1:00 – 2:30 pm MST
Virtual Meeting via Zoom

Introductions and Opening Remarks

This document summarizes the kickoff meeting for the Summit County Hazard Mitigation Plan 2025 update. The meeting was held virtually via Teams, with members of the Hazard Mitigation Planning Committee (HMPC) in attendance. The meeting was facilitated by WSP USA Environment & Infrastructure, the consulting firm contracted by Summit County to guide the planning process and develop the updated Plan.

Summit County Emergency Manager Ben Pleimann began the meeting with a brief introduction of the plan update and emphasized the importance of maintaining a current Hazard Mitigation Plan (HMP). This HMP update will build on the previous Summit County HMP, approved in 2020. Scott Field, Project Manager with WSP, explained that updating the HMP every five years is necessary for jurisdictions who seek FEMA grant funding before or after disasters. Scott then asked those attending to introduce themselves in chat by clicking the link provided stating their name and agency/jurisdiction. Forty-four people representing a mix of county departments, town departments, special districts, and stakeholders attended the meeting.

ORGANIZATION	TITLE	NAME
Arapahoe Basin Ski Resort	Risk & Safety Manager	Corey McClure
Buffalo Mountain Metropolitan District	District Manager	Will Yates
Colorado DHSEM	Mitigation Planning Specialist	Jason Humble
Colorado DHSEM	Mitigation Planning Supervisor	Matt West
Colorado DHSEM	Northwest Area Field Manager	Danielle Aguilar
Colorado Mountain College, Breckenridge	Dean	David Askeland
Colorado State Patrol	Captain	Jared Rapp
Copper Mountain Consolidated Metro District	District Manager	Abigail Tietjen
Copper Mountain Ski Resort	Risk Manager	Bec Bale
Denver Water	Dillon Operations Supervisor	Mason Dixon
Denver Water	Senior EM Specialist	Nick Sporer
Dillon Valley District	Administrator	Angelique Justich
East Dillon Water District	Administrator	Tom Oberheide
Hamilton Creek Metropolitan District	Administrator	Tom Oberheide
Heeney Water District	Engineer	Maggie McHugh
High Country Conservation Center	Climate Action Director	Jess Hoover
National Weather Service (Boulder)	WCM	Greg Heavener
Red White & Blue Fire & EMS	Deputy Chief	Jay Nelson

ORGANIZATION	TITLE	NAME
Ruby Ranch/Willow Brook Metro District	Homeowner	Lisa Lewis
Silverthorne Police	Assistant Chief	Eric Stremel
Silverthorne Police Department	Police Chief	Alice Cary
Silverthorne Public Works	Director	Tom Daugherty
Snake River Wastewater Utility	Director	Josh Johnson
Summit County Chamber of Commerce	Executive Director	Cheri Ryan
Summit County Emergency Management	deputy Director	Cailee Hamm
Summit County Emergency Management	Director	Brian Bovaird
Summit County Emergency Management	Emergency Management Specialist	Ben Pleimann
Summit County GIS	GIS Services Lead	Suzanne Kenney
Summit County Planning Department	Planner II	Sally Ward
Summit County Resource Allocation Park	Assistant Director	Bill Schenk
Summit County School District	Director of Emergency Preparedness	Brandon Smith
Summit County Sheriff's Office	Sergeant	Mark Watson
Summit County Sheriff's Office	Undersheriff	Peter Haynes
Summit Fire & EMS	Deputy Chief of Administration	Brian Schenking
Summit Foundation	Administrative Coordinator	Kelly Cochran
Town of Blue River	Town Manager	Michelle Eddy
US Forest Service	Deputy District Ranger	Amanda Wheelock
US Forest Service	Fire Management Officer	Justin Conrad
WSP USA	Deputy Project Manager, Consultant	Christopher Johnson
WSP USA	Hazard Mitigation Planner	Carlie Hager
WSP USA	Hazard Mitigation Planner	Bailey Nock
WSP USA	Project Manager, Consultant	Scott Field
WSP USA	Senior Technical Advisor	Jeff Brislawn
Xcel Energy	Electric Operations	Meredith Guinan

The key discussion is summarized below, and additional details are within the meeting PowerPoint presentation.

Hazard Mitigation Overview (Colorado DHSEM)

Jason Humble with Colorado DHSEM gave a presentation on the concept of hazard mitigation planning and its importance. Mitigation is any sustained action taken to reduce or eliminate long-term risk to human life and property from natural or human-caused hazards. Mitigation Planning guides mitigation activities in a coordinated and economic manner to make communities more disaster resilient. An example of a hazard mitigation strategy is the practice of elevating homes located near a river, so the house stays above rising water during a flooding event and therefore minimizes damages to the home. The FEMA definition of mitigation does not include purchasing emergency vehicles or radios for communication, because those resources would be used to respond to a disaster, not prevent one; those kinds of activities can be included in the plan if the jurisdictions want to, but they will not count toward meeting FEMA requirements.

The U.S. Disaster Mitigation Act of 2000 requires state and local governments to adopt a hazard mitigation plan, updated every five years, to maintain eligibility for pre- and post-disaster FEMA mitigation assistance grants. Jason stated there are two main types of benefits a community gain from having a FEMA approved hazard mitigation plan (HMP); (1) the planning process is a great way to collaborate with other jurisdictions in the community; (2) having an HMP approved by FEMA makes a community eligible for FEMA grants (Hazard Mitigation Assistance Pre-Disaster, Flood Mitigation Assistance, Hazard Mitigation Grant Program-Post-Disaster). He noted that any funding requests from FEMA needs to be based on the hazards and mitigation strategy in the HMP. He added that information from the HMP, specifically the vulnerability assessment and mitigation strategy, can be used in other hazard related plans such as an Emergency Operations Plan or Community Wildfire Protection Plan.

There are trends resulting in increased costs for disaster response and recovery related to population growth and the increase in the types of events we experience as a community. Jason explained we need these plans for several reasons because the reduce future recovery costs, we can plan around predictive events, and they guide mitigation activities in a coordinated manner. Additionally, mitigation efforts are economically beneficial. It was found that, on average, for every $1 spent on mitigation, and average of $6 is saved during disaster response. The section was concluded by emphasizing that the HMP is not a regulatory document and there is no penalty for jurisdictions who are not able to meet all the hazard mitigation goals. Rather, this plan is used to outline the goals and actions that help communities better prepare for and respond to disaster events

Hazard Mitigation Planning Process and Requirements

Scott Field continued the meeting with the specific planning requirements the County will have to meet to have a FEMA approved plan. The Summit County HMP will be updated in accordance with the Disaster Mitigation Act (DMA) requirements using a 4-phase planning process:

1. **Get Organized:** The first step is to get commitment from the jurisdictions to participate and determine the planning team. The Hazard Mitigation Planning Committee (HMPC) includes county, municipalities, and special districts. Local input and participation from HMPC members are required for FEMA approval. Stakeholders include other local, state, and federal agencies with a stake in hazard mitigation in the County or may include academic institutions and local business and industry. Neighboring counties were also notified about the update and will be given an opportunity to provide input into the process. The following jurisdictions are expected to participate in the 2025 update and re-adopt the plan:
    - Summit County
    - Town of Blue River
    - Town of Breckenridge
    - Town of Dillon
    - Town of Frisco
    - Town of Silverthorne
    - Denver Water
    - Buffalo Mountain Metropolitan District
    - Copper Mountain Consolidated Metropolitan District
    - East Dillon Water District

- Hamilton Creek Metropolitan District
- Mesa Cortina Water District
- Red, White and Blue Fire Protection District
- Summit Fire and EMS Fire Protection District
- Willow Brook Metropolitan District

A wide variety of stakeholders have been invited to participate, representing federal and state agencies, neighboring jurisdictions, businesses, NGOs, and academia. Additional stakeholders suggested by the group included:

- Blue River Watershed Group
- Summit County Search & Rescue
- Colorado Avalanche Information Center
- Local ski patrol (for information on changes in avalanche behavior)
- Climax Molybdenum - Freeport McMoRan Company
- Middle Park Conservation District

2. **Risk Assessment:** The hazard identification and risk assessment (HIRA) is used to describe hazards, identify community assets, analyze risk based on gaps in assets, and summarize vulnerability. Conducting a risk assessment is a key aspect of a hazard mitigation plan and involves two components; hazard identification (what can happen here) and the vulnerability assessment (what will be affected). The HMP update will be based on existing documents and studies, with the 2020 Summit County HMP providing the baseline for identified hazards and the groundwork for goals, policies, and actions for hazard mitigation. Data on hazards from the past five years will be used to update the risk assessment, using sources such as GIS-based maps, historic records, insurance data, etc. Members of the HMPC and the public will ground truth this data to ensure the HMP is accurate and to maximize the utility of the document.

   FEMA community lifelines will be used to organize community assets and then a vulnerability assessment will be conducted to identify infrastructure and groups of people who will be more likely to experience losses.

3. **Develop a Mitigation Plan:**

   The goals of the 2020 Summit County HMP were reviewed:

   - Goal 1: Reduce risk to the people, property, and environment of Summit County from the impacts of hazards
   - Goal 2: Protect critical facilities and infrastructure
   - Goal 3: Minimize economic losses
   - Goal 4: Implement the mitigation actions identified in the plan

   The HMPC reviewed the mitigation actions from the 2020 Summit County Plan. Each jurisdiction will need at least one action for each applicable hazard, with an emphasis on high-priority hazards and areas. Several types of mitigation projects are eligible for FEMA funding, including wildfire, flooding, winter storms, landslides, generator installation, climate resilience activities, etc.

4. **Adoption and Implementation:** The public will be given an opportunity to comment on the draft HMP before the official adoption of the plan by the governing board occurs. Once the plan is officially adopted, the designated project manager for each participating jurisdiction will integrate the plan into existing structures and track progress of the mitigation actions. The HMP will be revised as necessary to keep the plan current. In order to keep this HMP used, it is important to incorporate the document into existing plans and reference the document in future plans.

   The updated plan will go through four drafts over the course of the planning process:

   1. Internal review
   2. Public review
   3. State review
   4. FEMA review

A significant part of the update requirements includes revisiting the old plan and noting any changes in the risk assessment and capability assessment. The WSP team will rely on the HMPC and the public for any mitigation success stories. This information is important because it helps the team understand where improvements can be made in strategies and understand the strategies that worked well for the area. Other requirement for the plan update includes revisiting goals and identify completely, deleted, or deferred actions.

Planning for Public Involvement:

Public outreach is important to identify the gaps between what the experts think and what the community perceives as risk, as well as to raise awareness about the plan and mitigation efforts in the planning area. There will be two primary opportunities for public engagement, one at the beginning of the process and one towards the end.

In the coming weeks, an online survey will be developed to gather input from the public on hazard concerns and mitigation ideas. It is advantageous to involve the public in the planning process to strength local support for the plan and ensure that the mitigation actions outlined in the HMP will better suit local needs. The survey is an online form that takes less than five minutes to complete. The URL for the survey will be sent to the HMPC to be advertised to community members through public information channels, official websites, social media, email blasts, etc.

Once the updated plan has been drafted, it will be made available for public review and comment before submitting it for state and FEMA review.

Participants are encouraged to identify existing or possible public forums where the plan can be promoted. Silverthorne First Friday Events was suggested as an opportunity for outreach and engagement.

Initial Information Needs/Next Steps:

The HMP will be updated over the next ten months, with at least two more meetings with the HMPC and a predicted final approval date for the HMP by December 2025. WSP will be updating the Hazard Identification and Risk Assessment (HIRA) in the next couple of months, with input from the HMPC. The anticipated timeline of the planning process is displayed below.

Phase/Task	April		May		June		July		August		September		October		November		December	
Phase 1: Organize Resources																		
Initial Coordination																		
Stakeholder Outreach																		
Kickoff Meeting		Mtg																
Data Collection and Review																		
Public Survey																		
Phase 2: Assess Risks																		
Assess Existing Risk Assessment																		
Update Risk Assessment																		
Capability Assessment																		
Planning Meeting #2						Mtg												
Phase 3: Develop HMP Mitigation Strategy																		
Update Mitigation Strategy																		
Planning Meeting #3								Mtg										
Preparation of Draft Plan																		
Planning Team Review																		
Public Comment Period																		
Phase 4: Plan Adoption, Monitoring & Evaluation																		
State Review																		
FEMA Review																		
Local Adoptions																		
Final Plan																		

A Plan Update Guide will be sent to all participating jurisdictions. Jurisdictions should review the hazard identification and ranking and fill out the status of actions from the previous HMP and **return the Plan Update Guide to WSP by June 15th**.

Participants were encouraged to send Summit County OEM and WSP relevant information, such as:

- Recent hazard events (since 2020) – damages, incident logs, damage assessments, etc.
- Growth and development trends
- Updated Community Wildfire Protection Plan (CWPP)
- Recent updated plans and policies
- Latest GIS data

It is crucial that all jurisdictions stay involved in the planning process to get FEMA approval of the HMP and ensure that the plan is suited to local needs. The role of the HMPC is to provide accurate information and contribute ideas that will ensure the HMP is a useful document.

For **Hazard Mitigation Planning Committee (HMPC) members**, participation includes:

- Attend meetings and participate in the planning process
- Provide requested information to update or develop jurisdictional information
- Provide status of previous mitigation projects
- Identify new mitigation projects
- Review drafts and provide comments
- Assist with and participate in the public input process
- Track your time for local match purposes

Participating jurisdictions also need to:

- Participate in the County HMPC
- Coordinate with other departments/agencies from your jurisdiction
- Update jurisdictional information
- Identify new mitigation actions
- Complete and return Plan Update Guide

- Coordinate formal adoption

Stakeholders can participate by:

- Attend HMPC meetings or stay in loop via email list
- Provide data/information
- Partner on mitigation efforts
- Review and comment draft plan

Summit County HMPC will share the meeting summary, handouts, presentation, and meeting recording so that other HMPC members that could not attend today's meeting could get up to speed. WSP will begin work on the Hazard Identification and Risk Assessment update and develop a public survey that can be used online. The next HMPC meeting will be following the update of the Hazard Identification and Risk Assessment section of the plan. The specific date will be shared when available.

Adjourn

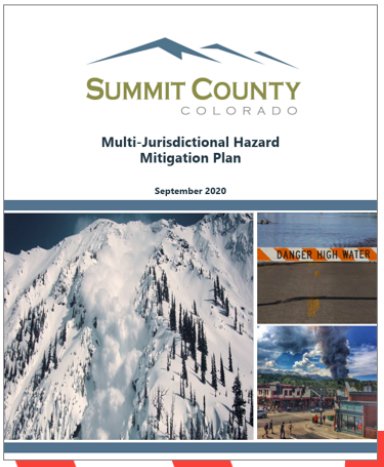
The meeting adjourned at 3:30 pm MST.

Summit County Hazard Mitigation Plan 2025 Update

Hazard Identification and Risk Assessment (HIRA) Meeting

June 25th, 2025, 1:00 – 3:00 pm

Please type your name, agency & title in the chat



Agenda

1. Review of the hazard mitigation planning process
2. Hazards review
3. Update of hazard mitigation goals & actions
4. Next steps
5. Questions and answers

Summary of the Summit County, Colorado
Multi-Jurisdictional Hazard Mitigation Plan Update
Risk Assessment and Goals Meeting
Wednesday, June 25th, 2025
1:00 pm to 3:00 pm MST
Zoom Meeting

Subject/Purpose
The purpose of the meeting was to review the highlights of the updated Hazard Identification and Risk Assessment and revisit the plan's goals. The meeting was delivered as an in person meeting with no virtual option.

Attendees
24 people total attended the meeting:

- Tony Cammarata
- Mike Cooperstein
- Bec Bale
- Jay Nelson
- Cailee Hamm
- Peter Haynes
- Deric Grass
- Kat Gray
- Scott Field
- Vanessa Logsdon
- Carter Miller
- Mallory Buys
- Jeff Nordeen
- Suzanne Kenney
- Brian Schenking
- Tom Daugherty
- Lisa Lewis
- Patrick Chavez
- Abigail Tietjen
- Maggie McHugh
- Ben Pleimann
- Branden Smith
- Kelly Cochran
- Carlie Hager
- Bailey Nock

Introductory Remarks/Review of the planning process

Scott Field, WSP, gave a brief introduction of the meeting and its purpose.

There was a general discussion of the uncertainty surrounding FEMA and the Hazard Mitigation Assistance grants. While the BRIC and FMA grants have been canceled, it is expected that some new grant(s) will be released to replace them. Additionally there are a lot of federal and state grants out there to fund mitigation activities. This will be discussed in more detail at the next meeting.

Scott Field, WSP, gave an overview of planning activities completed so far.

- The kickoff meeting was held April 30th, 2025;
- WSP has updated the risk assessment based on research, GIS analysis, and stakeholder input.
- The public survey is still open, and so far, have received 42 responses.
    - The hazards that the public ranked highest were wildfire, severe winter weather, and lightning.
    - The lowest ranked hazards were earthquake, dam failure, and erosion/deposition.
    - The highest ranked mitigation activities were public education and awareness on hazard, wildfire/grass fire fuels treatment projects, evacuation route development, and critical facilities & infrastructure resiliency.

    - The lowest ranked mitigation activities were buyout of flood prone properties, tornado safe rooms, and flood insurance education and discounts.
- Evacuation routes were discussed and Ben noted that the County is currently studying evacuation routes and can get us more information about this.

Review of identified hazards and vulnerability assessment update highlights

The general risk assessment requirements were outlined before turning to a detailed discussion of each hazard. An overview was given of the changes in the hazards profiled and Summit County decided to continue with the same hazards as the previous plan. WSP discussed the hazard rankings that will be used for the plan update and highlights were presented on each hazard included in the updated risk assessment chapter of the plan. Refer to the PowerPoint presentation for specific details on each hazard. Highlights of the discussion are noted by hazard in the bulleted list below.

- Avalanche – High Significance
    - HMPC mentioned that the map for avalanches only shows interstate routes and not routes that can affect critical facilities.
- Flood– High Significance
    - Brief discussion on ice jams and if they are an issue still in the county and HMPC responded by saying that there have not been any significant incidents.
    - HMPC did note there were smaller scale issues in Beaver Pond
- Severe Winter Weather- High Significance
    - HMPC mentioned the importance of discussing traffic caused by severe winter weather. This is one of the biggest challenges that the county faces.
- Wildfire- High Significance
- Drought- Medium Significance
- Dam Incident Medium Significance
    - The HMPC noted in the chat the Clinton Ditch and Reservoir Company owns the Clinton Ditch
- Hazardous Materials Incident- Medium Significance
    - HMPC noted that “cooper” should be “Copper” on the pie chart
    - Fire/EMS was curious about the damage cost, but we informed them that this is reported incidents from NRC.
- Landslide/Mudslides/ Debris Flow/Rock Fall- Medium Significance
    - HMPC considered changing the rating to high just based on more common occurrences in the county.
- Lightning- Medium Significance
- Pest Infestation- Medium Significance
    - Pat from Forest Service does annual checks to see where pests are in Summit County. She mentioned that they have been low quantity.
- Earthquake- Medium Significance
    - HMPC noted reports done regarding previous earthquakes thousands of years ago. Will send over reports
- Erosion and Deposition- Low Significance
- Windstorm- Low Significance
- Wildlife/ Vehicle Collisions- Low Significance

Update of Hazard Mitigation Goals and Actions

- Scott briefly reviewed the mitigation goals from the 2020 plan; these will be revisited during our next meeting.
- Mitigation actions from the previous plan will need to be updated. There is no expectation they have been completed, but we'll need a status update.

Next Steps

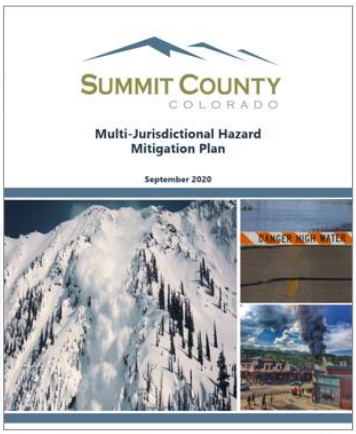
- The next meeting will be held in July 30th and will focus on updating the mitigation strategy part of the plan.
- The HMPC discussed how the HMP has been integrated or cross-referenced with other plans.

Summit County Hazard Mitigation Plan 2025 Update

Mitigation Strategy Workshop
July 30th, 2025,
1:00-3:00pm MDT







Agenda

1. Introductions
2. Planning process update
3. Mitigation goals & objectives
4. Progress on existing mitigation actions
5. Types of mitigation actions
6. Development of new mitigation actions
7. Mitigation action prioritization
8. Next steps

2

Summit County Hazard Mitigation Plan Update Meeting #3

Mitigation Strategy Meeting
July 30th, 2025 1:00-3:00pm MDT
107 Denison Placer Rd, Breckenridge, CO 80204

The meeting began with an introduction by Ben Pleimann, an Emergency Management Specialist from the Summit County Office of Emergency Management. He explained the purpose of hazard mitigation plans and the importance of each jurisdiction participating. He then passed it over to Scott Field from the consulting company WSP to start the presentation.

Scott gave introductions for himself and his team and then had everyone in the room introduce themselves and their positions.

The following members of the HMPC were present:

Name	Title	Organization
Will Yates	District Manager	Buffalo Mountain Metropolitan District
Patrick Chavez	Statewide Emergency Manager	Colorado Department of Transportation
Matt West	Mitigation Planning Supervisor	Colorado DHSEM
Dan Schroeder	Program Manager	CSU Extension
Maggie McHugh	Engineer	Heeney Water District
Jay Nelson	Deputy Chief	Red White & Blue Fire & EMS
Amber Flenniken	Coroner	Summit County Coroner
Ben Pleimann	Emergency Management Specialist	Summit County Emergency Management
Cailee Hamm	Deputy Director	Summit County Emergency Management
Dan Hendershot	Manager	Summit County Environmental Health
Seth Danner		Summit County Environmental Health
Suzanne Kenney	GIS Services Lead	Summit County GIS
William Schenk	Assistant Director	Summit County Landfill
Brandon Smith	Director of Emergency Preparedness	Summit County School District
Peter Haynes	Undersheriff	Summit County Sheriff's Office
Kelly Cochran	Administrative Coordinator	Summit Foundation
Deric Gress	Chief	Town of Breckenridge Police Department
Tom Daugherty	Director	Town of Silverthorne Public Works
Lisa Lewis	Project Coordinator	Willow Brook Metro District/Ruby Ranch
Bailey Nock	Hazard Mitigation Planner	WSP USA
Scott Field	Project Manager, Consultant	WSP USA

Scott then presented a planning process update and a refresh on what was discussed in the previous meetings, as well as the hazard rankings decided on by the HMPC. He also discussed the mitigation goals and objectives. The HMPC read the 2020 HMP goals and asked about other what other counties did for their goals and the purpose of having goals. At the end of the discussion the team decided the goals from the previous plan covered everything.
A representative from the Department of Homeland Security and Emergency Management (DHSEM) also mentioned that they have project specialists ready to support any new project ideas.

Scott then discussed potential mitigation actions, he started by giving examples of what is and what is not an acceptable mitigation action. He then reviewed mitigation alternatives and categories, followed by a review of critical infrastructure tiers and climate change adaptation considerations.

The following hazards were reviewed for projects eligible for FEMA funding:

Flooding

- DHSEM mentioned Stormwater Protection Plans that a jurisdiction could also implement

Winter Storms

- HMPC discussed:
  - PowerGrid options including
    - Turning on microgrids
  - Shifting from relying on gas power to electrical power
  - Hardening the overhead system instead of putting it underground
    - Wildfire mitigation as well
  - More pieces of automatic equipment – add devices

Wildfire

- HMPC discussed:

- Adding a mitigation action about installation of assets
  - Signage surrounding wildfires
  - Language more universal on signs
- Xcel Energy has wildfire cameras in place
- Initiate and push for Business Continuity Plans
- I-70: extending areas such as the road over top by Lake Hill
  - Creating more connections between I-70, dam road, wind walls
- Create a transportation water plan

Scott then discussed funding sources for various projects including those at the local, state, and federal levels.

Development of new mitigation actions was discussed, Scott and DHSEM added that when a disaster declaration occurs DHSEM pulls plans to see what FEMA can fund. So, creating a precise action could get you funding more quickly. It was also noted that an action doesn't have to be in the plan, but it must meet one of the plan's goals.

While discussing mitigation action development, the HMPC brought up High Hazard Potential Dam Grants (HHPDG) and noted the following:

- If you are a community that could be impacted by a dam you need to include a mitigation action in the HMP.

Scott then discussed the mitigation action selection and prioritization, sources of ideas of mitigation actions, as well as public survey results.

Scott went over what FEMA will NOT count towards the requirement:

- DHSEM noted that they have a mitigation action dashboard that can be helpful for thinking of a mitigation action to add to the plan.

The HMPC then filled out new mitigation action worksheets and the meeting concluded with a deadline of August 15th for turning in new actions.

From: ben.pleimann@summitcountyco.gov
To: Field, Scott
Subject: Summit County Hazard Mitigation Plan Update - Kick Off
Date: Friday, April 11, 2025 1:14:01 PM

Good afternoon everyone,
We're officially kicking off the 2025 update to Summit County's Hazard Mitigation Plan (HMP), and your organization's participation is vital to the success of this effort.
The **first planning meeting will be held virtually on Wednesday, April 30th at 2:00 PM.** A calendar invite with the virtual meeting link will follow shortly.
What to Expect:

- **Three total planning meetings** will take place between **April and September 2025**.
- These meetings will guide the update of the plan through risk assessment, data collection, and mitigation strategy development.
- Our selected contractor for this update is **WSP, Inc.**, the same firm that completed the original plan and all previous updates. Their familiarity with the County's needs and goals will help ensure a streamlined and effective process.

As a reminder, the **current Hazard Mitigation Plan expires in September 2025**, so timely participation and collaboration are key to maintaining our eligibility for FEMA mitigation funding.
Action Requested:
Please reply to this email if a different person within your organization should serve as the primary point of contact for this planning process.
We look forward to working together once again to strengthen our community's resilience.

Thank you,

Ben Pleimann
Emergency Management Specialist
Summit County Sheriff's Office
P.O. Box 210 / 501 N. Park Avenue | Breckenridge, CO 80424
970.668.2983 **p** | 970.409.6373 **d** | 970.423.8894 **f**
Facebook | **Instagram** | **Register for SCAlert**

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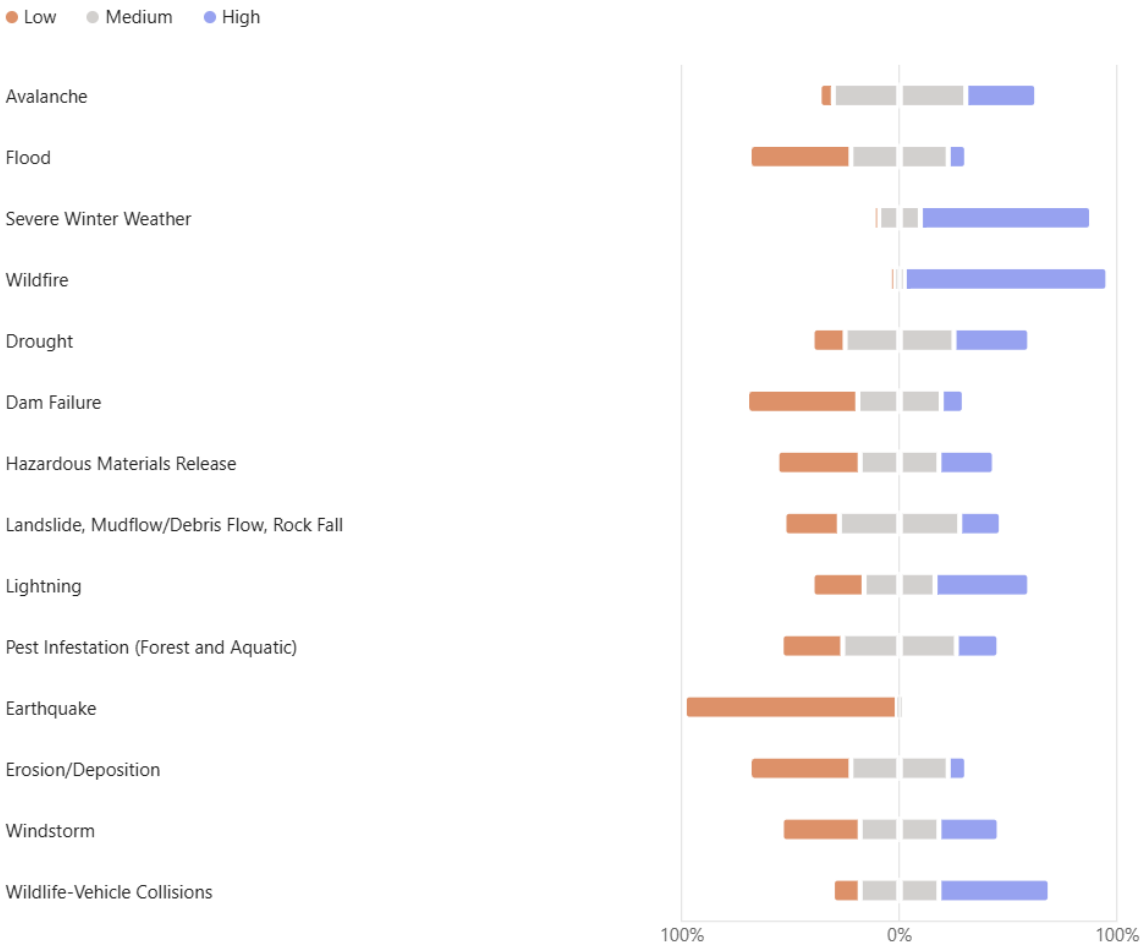
APPENDIX D: PUBLIC INPUT

Public and stakeholder input was collected at the beginning of the planning process through an online survey from May 18th through June 30th. The survey was advertised by the County and participating jurisdictions through social media.

The survey provided an opportunity for public input during the planning process prior to finalization of the plan update. The public survey received responses from 47 individuals. Responses to the survey are shown on the following pages. Based on this survey, the public perceives the most significant hazards to be wildfire, severe winter weather, and wildlife-vehicle collisions.

The following questions were asked in the public survey:

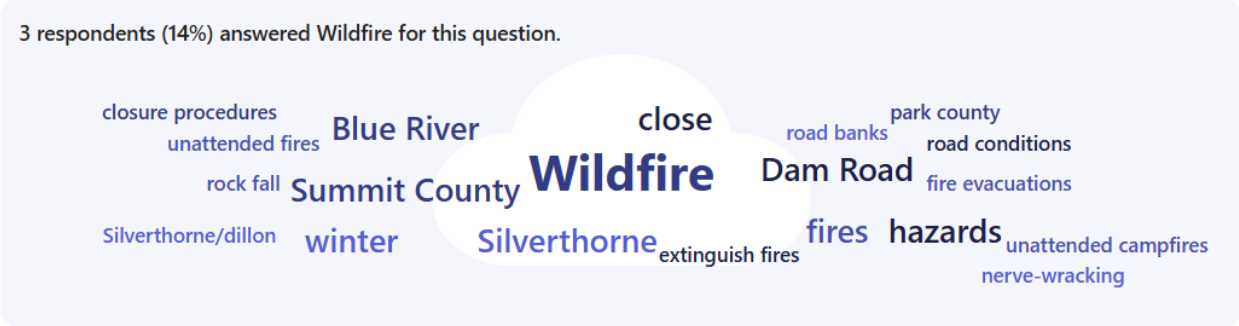
1. The Summit County Hazard Mitigation Plan addresses the following hazards. Please rate how significant each hazard is in Summit County.



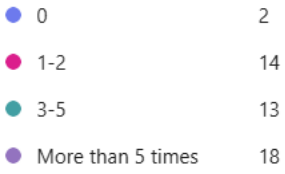
2. Are there other natural or human-caused hazards you feel the planning team should consider?

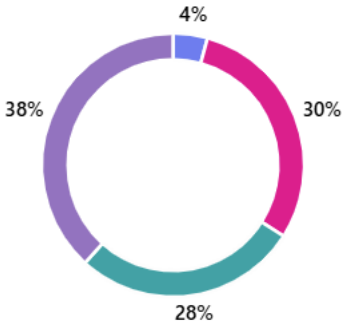


3. Do you have information on specific hazard issues or problem areas you would like the planning committee to consider? Note the jurisdiction to which it applies.

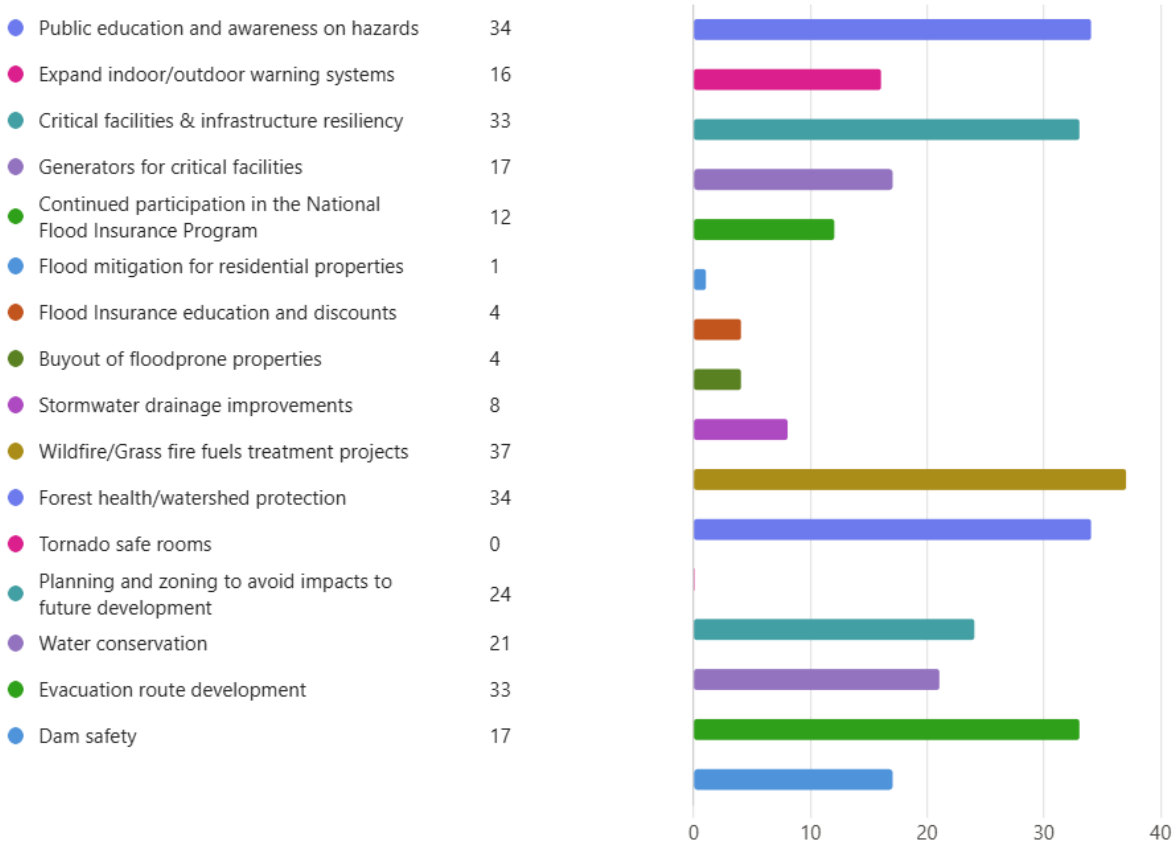


4. How many times has a natural hazard disrupted your daily life in the last five years?





5. The following types of mitigation actions may be considered in Summit County. Please indicate which actions you think should have the highest priority in Summit County?



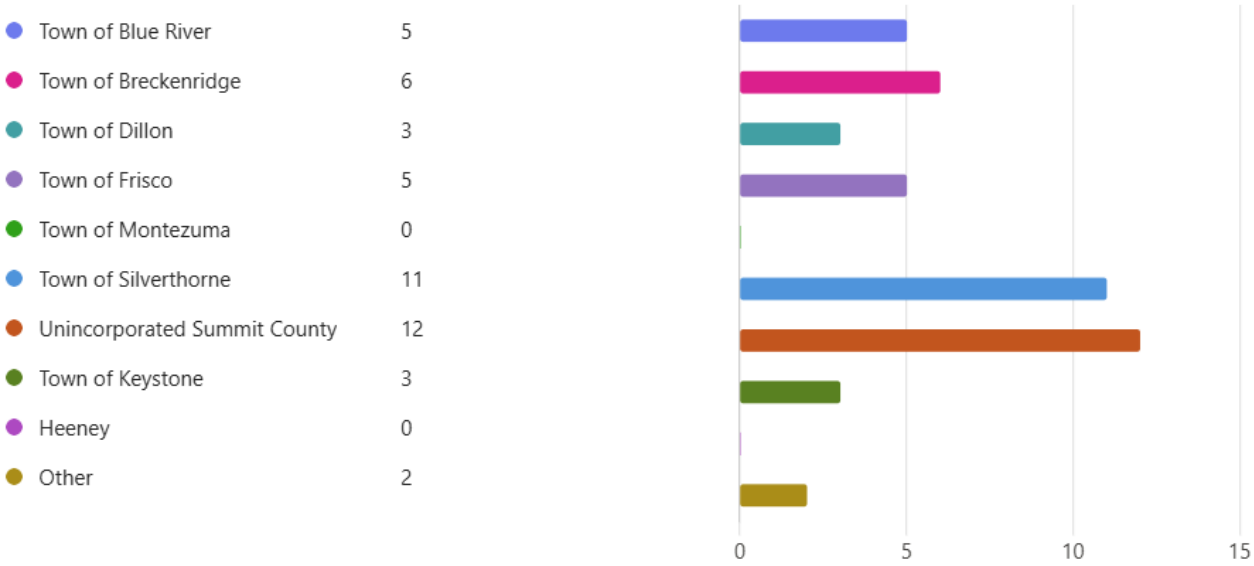
6. Are there any other pre-disaster strategies you think the planning committee should consider for reducing future losses from hazards.



7. What have you personally done to protect yourself and your household from hazards?



8. Where do you live?



9. How long have you lived in this community?



APPENDIX E: REFERENCES

American Community Survey (ACS). https://www.census.gov/programs-surveys/acs

Bridge condition ratings explained (for reference): https://cdot.maps.arcgis.com/apps/MapSeries/index.html?appid=4d91712cfa5e42ae9292685059b47b6d

Building Code Effectiveness Grading Schedule (BCEGS). https://www.isomitigation.com/bcegs/

Bureau of Labor Statistics (BLS). https://www.bls.gov/

Centers for Disease Control and Prevention (CDC). https://www.cdc.gov/

Colorado Avalanche Information Center. http://avalanche.state.co.us

Colorado Climate Plan- State Level Policies and Strategies to Mitigate and Adapt (2015). https://www.codot.gov/programs/environmental/Sustainability/assets/colorado-climate-plan-2015

Colorado Department of Labor and Employment. http://lmigateway.coworkforce.com

Colorado Department of Local Affairs. www.dola.colorado.gov

Colorado Department of Natural Resources – Dam Safety Division.

https://dwr.colorado.gov/services/dam-safety

Colorado Department of Transportation. https://www.codot.gov/

Colorado Department of Local Affairs. https://cdola.colorado.gov/

Colorado Division of Homeland Security and Emergency Management. https://dhsem.colorado.gov/

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APPENDIX F: GLOSSARY

ACRONYMS

%g	Percentage of gravity
°C	Degrees Celsius
°F	Degrees Fahrenheit
ACS	American Community Survey
BCA	Benefit-Cost Analysis
BCC	Board of County Commissioners
BCEGS	Building Code Effectiveness Grading Schedule
BLM	Bureau of Land Management
BRIC	Building Resilient Infrastructure and Communities
CDC	Centers for Disease Control and Prevention
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health & Environment
CERT	Community Emergency Response Team
CDSB	Colorado Dam Safety Division
CFR	Code of Federal Regulations
CGS	Colorado Geological Survey
CIP	Capital Improvement Plan
CIS	Community Information System
CISA	Cyber & Infrastructure Security Agency
COOP	Continuity of Operations Plan
COVID-19	Coronavirus Disease 2019
CRS	Community Rating System
CSFS	Colorado State Forest Service
CWCB	Colorado Water Conservation Board
CWPP	Community Wildfire Protection Plan
DEM	Digital Elevation Model
DFIRM	Digital Flood Insurance Rate Maps
DHSEM	Division of Homeland Security and Emergency Management
DMA	Disaster Mitigation Act

DMV	Department of Motor Vehicles
DNR	Colorado Department of Natural Resources
DOLA	Colorado Department of Local Affairs
DOT	U.S. Department of Transportation
DR	(Major) Disaster Declaration
DRCOG	Denver Regional Council of Governments
DWR	Colorado Department of Water Resources
EAP	Emergency Action Plan
ECOS	Environmental Conservation Online System
EF	Enhanced Fujita
EM	Emergency Declarations
EMPG	Emergency Management Performance Grant
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flooding Mitigation Assistance
FM	Fire Management Declaration
FPD	Fire Protection District
GIS	Geographic Information System
HAZMAT	Hazardous Materials
Hazus-MH	Hazards, United States-Multi Hazard
HIFLD	Homeland Infrastructure Foundation-Level Data
HHPD	High Hazard Potential Dam
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan

HMPC	Hazard Mitigation Planning Committee
HIRA	Hazard Identification and Risk Assessment
HUD	Housing and Urban Development
HPL	High Potential Loss
IBC	International Building Code
ICC	International Code Council
ISO	Insurance Services Office
LAL	Lightning Activity Level
LEPC	Local Emergency Planning Committee
LHMP	Local Hazard Mitigation Plan
MHFD	Mile High Flood District
MMI	Modified Mercalli Scale
MPH	Miles per Hour
NASA	National Aeronautics and Space Administration
NCEI	National Centers for Environmental Information
NDMC	National Drought Mitigation Center
NFDRS	National Fire Danger Rating System
NFHL	National Flood Hazard Layer
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NEPA	National Environmental Policy Act
NID	National Inventory of Dams
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NRC	U.S. Coast Guard's National Response Center
NRP	Natural Resource Protection
NWS	National Weather Service
OEM	Office of Emergency Management
OIT	Office of Information Technology (State of Colorado)
ORM	Colorado Office of Risk Management
OSHA	Occupational Safety and Health Administration

PGA	Peak Ground Acceleration
PIF	Pandemic Intervals Framework
PPE	Personal Protective Equipment
RMIIA	Rocky Mountain Insurance Information Association
SBA	Small Business Administration
SCADA	Supervisory Control and Data Acquisition
SCENIC	Southwest Climate and Environmental Information Collaborative
SFHA	Special Flood Hazard Area
SRL	Severe Repetitive Loss Properties
THIRA	Threat and Hazard Identification and Risk Assessment
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFW	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WHO	World Health Organization
WRCC	Western Regional Climate Center
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% 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% annual chance flood, which is now the standard definition used by most federal and state agencies and by the National Flood Insurance Program (NFIP).

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.

Active Threat: A dynamic, quickly evolving situation involving an individual (or individuals) using deadly physical force, such as firearms, bladed weapons, or a vehicle.

> **Active Shooter**: One or more individuals actively engaged in killing or attempting to kill people in a populated area. The terms active threat and active shooter are often used interchangeably.

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.

Avalanche: Any mass of loosened snow or ice and/or earth that suddenly and rapidly breaks loose from a snowfield and slides down a mountain slope, often growing and accumulating additional material as it descends.

Slab avalanches: The most dangerous type of avalanche, occurring when a layer of coherent snow ruptures over a large area of a mountainside as a single mass. Like other avalanches, slab avalanches can be triggered by the wind, by vibration, or even by a loud noise, and will pull in surrounding rock, debris, and even trees.

Climax avalanches: An avalanche involving multiple layers of snow, usually with the ground as a bed surface.

Loose snow avalanches: An avalanche that occurs when loose, dry snow on a slope becomes unstable and slides. Loose snow avalanches start from a point and gather more snow as they descend, fanning out to fill the topography.

Powder snow avalanches: An avalanche that occurs when sliding snow has been pulverized into powder, either by rapid motion of low-density snow or by vigorous movement over rugged terrain.

Surface avalanches: An avalanche that occurs only in the uppermost snow layers.

Wet snow avalanche: An avalanche in wet snow, also referred to as a wet loose avalanche or a wet slab avalanche. Often the basal shear zone is a water-saturated layer that overlies an ice zone.

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.

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

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 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.
- Public and private utilities, facilities and infrastructure that are vital to maintaining or restoring normal services to areas damaged by hazard events.
- Government facilities.

Cyber Attack: A deliberate exploitation of computer systems, technology-dependent enterprises, and networks. The term encompasses a variety of malicious activities, as defined in the text.

Dam: A man-made barrier, together with appurtenant structures, constructed above the natural surface of the ground for the purpose of impounding 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.

Dam Incident: Situations at dams that require an immediate response by dam safety engineers. These are episodes that without intervention will likely result in a dam failure.

High Hazard Dam: Dams where failure or operational error will probably cause loss of human life.

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.

Low-Hazard Dam: No probable loss of human life and low economic or environmental losses; losses are principally limited to the owner's property.

Low Head Dam: Engineered structures built into and across stream and river channels for a variety of purposes. Water flows over the dams continuously, as they span from one riverbank to the other. Low head dams generally range in height from 1-15 feet.

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%.

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: A sudden slip on a fault, volcanic or magmatic activity, and sudden stress changes in the earth that result in ground shaking and radiated seismic energy.

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.

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. It also contains inundation maps to show emergency management authorities the critical areas for action in case of an emergency.

Epidemic: An infectious disease outbreak affecting a large number of people in a given population in a short period of time.

Erosion: The removal and simultaneous transportation of soil or other earth materials from one location to another by water, wind, waves, or moving ice. Deposition is the placing of eroded material in a new location.

Expansive Soil: Expansive or swelling soils are made up of layers of clay and can expand up to 20% by volume when exposed to water causing more property damage than any other natural hazard.

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.

Extreme Heat: Summertime weather that is substantially hotter or more humid than average for a location at that time of year.

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.

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

Flash Flood: A flash flood occurs with little or no warning when water levels rise at an extremely fast rate

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 (SFHA).

Flood Insurance Study: A report published by the Federal Insurance and Mitigation Administration for a community in conjunction with the community's FIRM. 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.

Floodplain: Any land area susceptible to being inundated by flood waters from any source. A FIRM identifies most, but not necessarily all, of a community's floodplain as the SFHA.

1% Annual Chance Floodplain or 100-Year Floodplain: The area flooded by a flood that has a 1% 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% annual chance flood is the standard used by most federal and state agencies.

0.1% Annual Chance Floodplain or 500-Year Floodplain: The area flooded by a flood that has a 0.1% chance of being equaled or exceeded each year. This is a statistical average only; a 500-year flood can occur more than once in a short period of time.

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.

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 6 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, 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% 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 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

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.

Hydrology: Hydrology is the analysis of waters of the earth. For example, a flood discharge estimate is developed by conducting a hydrologic study.

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: Landslides can be described as the sliding movement of masses of loosened rock and soil down a hillside or slope. Fundamentally, slope failures occur when the strength of the soils forming the slope exceeds 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 50,000ºF. 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).

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.

Malware: Malicious code infecting a computer system.

Mass Movement: A collective term for landslides, debris flows, falls and sinkholes.

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 Initiatives (or Mitigation Actions): Mitigation initiatives are specific actions to achieve goals and objectives that minimize the effects from a disaster and reduce the loss of life and property.

Mudslide, 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.

Pandemic: An epidemic that has spread across multiple continents or worldwide, affecting a substantial number of individuals.

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.

Ransomware: A type of malware that encrypts a system's data, which the perpetrators then demand a ransom to restore the data.

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.

Riverine: Of or produced by a river. Riverine floodplains have readily identifiable channels. Floodway maps can only be prepared for riverine floodplains.

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.

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.

SCADA systems: Supervisory Control and Data Acquisition Systems are control system architecture for operating machinery, utilities, or other systems.

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.

Sinkhole: A collapse depression in the ground with no visible outlet. Its drainage is subterranean. It is commonly vertical-sided or funnel-shaped.

Special Flood Hazard Area: The base floodplain delineated on a FIRM. The SFHA is mapped as a Zone A in riverine situations. The SFHA may or may not encompass all of a community's flood problems

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.

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%.

Subsidence: The sinking of the ground over human-caused or natural underground voids, or the settlement of native low-density soils.

Terrorism: The unlawful use of intentional violence to achieve political aims. The term active threat is used here to include terrorism, but the term active shooter is most often used to refer to non-politically motivated acts.

Thunderstorm: A thunderstorm is a storm with lightning and thunder produced by cumulonimbus clouds. Thunderstorms usually produce gusty winds, heavy rains, and sometimes hail. Thunderstorms are usually short in duration (seldom more than 2 hours). Heavy rains associated with thunderstorms can lead to flash flooding during the wet or dry seasons.

Tornado: A tornado is a violently rotating column of air extending between and in contact with a cloud and the surface of the earth. Tornadoes are often (but not always) visible as funnel clouds. On a local scale, tornadoes are the most intense of all atmospheric circulations, and winds can reach destructive speeds of more than 300 mph. A tornado's vortex is typically a few hundred meters in diameter, and damage paths can be up to 1 mile wide and 50 miles long.

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: Wildfire refers to any uncontrolled fire occurring on undeveloped land that requires fire suppression. The potential for wildfire is influenced by three factors: the presence of fuel, topography, and air mass. Fuel can include living and dead vegetation on the ground, along the surface as brush and small trees, and in the air such as tree canopies. Topography includes both slope and elevation. Air mass includes temperature, relative humidity, wind speed and direction, cloud cover, precipitation amount, duration, and the stability of the atmosphere at the time of the fire. Wildfires can be ignited by lightning and, most frequently, by human activity including smoking, campfires, equipment use, and arson.

Wildlife-Vehicle Collisions: an accident where a motor vehicle strikes an animal, or where a driver swerves to avoid an animal, resulting in vehicle damage, human injury, or fatality.

Wildland Urban Interface (WUI) 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: 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.

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

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.

APPENDIX G: SAMPLE ANNUAL PROGRESS MEETING AGENDA AND REPORT

Summit County Hazard Mitigation Plan

Annual Progress Meeting Agenda

1. **Discussion on hazard events and impacts that occurred during the performance period**
2. **Review of progress on mitigation action implementation**
3. **Discussion on success stories**
4. **Recommendations for new actions/projects**
5. **Review of funding options and grant opportunities**
6. **Review of changes in plan maintenance or implementation**
7. **Review of continuing public involvement**

Summit County Hazard Mitigation Plan
Annual Progress Report Template

Reporting Period:

Background: Summit County, along with the Town of Blue River, Town of Breckenridge, Town of Dillon, Town of Frisco, Town of Keystone, Town of Silverthorne, Fire Protection Districts, Buffalo Mountain Metropolitan District, Copper Mountain Consolidated metropolitan District, Hamilton Creek Metropolitan District, Willow Brook Metropolitan District, Water and Sanitation Districts, and Denver Water, 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 online at:

Summary Overview of the Plan's Progress: The performance period for the Hazard Mitigation Plan became effective on ____, 2025, 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 _____, 2031. The *Summit County Hazard Mitigation Plan* has targeted 71 hazard mitigation activities 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 *Summit County Hazard Mitigation Plan*. 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
- Mitigation success stories
- Review of the action plan
- Changes in capabilities that could impact plan implementation
- Recommendations for changes/enhancement

The Hazard Mitigation Planning Committee: The Hazard Mitigation Planning Committee, made up of planning partners and stakeholders within the planning area, reviewed and approved this progress report at its annual meeting held on _____, 202_. It was determined through the plan's development process that the HMPC would remain in service to oversee maintenance of the plan. At a minimum, the HMPC will provide technical review and oversight on the development of the annual progress report. It is anticipated that there will be turnover in the membership annually, which will be documented in the progress reports. For this reporting period, the HMPC membership present at the meeting is as indicated in Table 1.

Table 1		
Name	**Title**	**Jurisdiction/Agency**

Hazard Events within the Planning Area: During the reporting period, there were _____ hazard events in the planning area that had a measurable impact on people or property. A summary of these events is as follows:

_____

_____

_____

Changes in Risk Exposure in the Planning Area: *(Insert brief overview of any natural hazard event in the planning area that changed the probability of occurrence or ranking of risk for the hazards addressed in the hazard mitigation plan)*

Mitigation Success Stories: *(Insert brief overview of mitigation accomplishments during the reporting period)*

Review of the Action Plan: Table 2 reviews the action plan, reporting the status of each initiative. Reviewers of this report should refer to the *Summit County Hazard Mitigation Plan* for more detailed descriptions of each initiative and the prioritization process.

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?*

ID	Title and Description	Hazards Mitigated	Goals & Lifelines	Lead Agency & Partners	Cost Estimate & Potential Funding	Priority	Timeline	Status & Implementation Notes
Summit County Mitigation Actions								

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 Hazard Mitigation Planning Committee, 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 Summit County Hazard Mitigation Plan website. Any questions or comments regarding the contents of this report should be directed to:*

Insert Contact Info Here