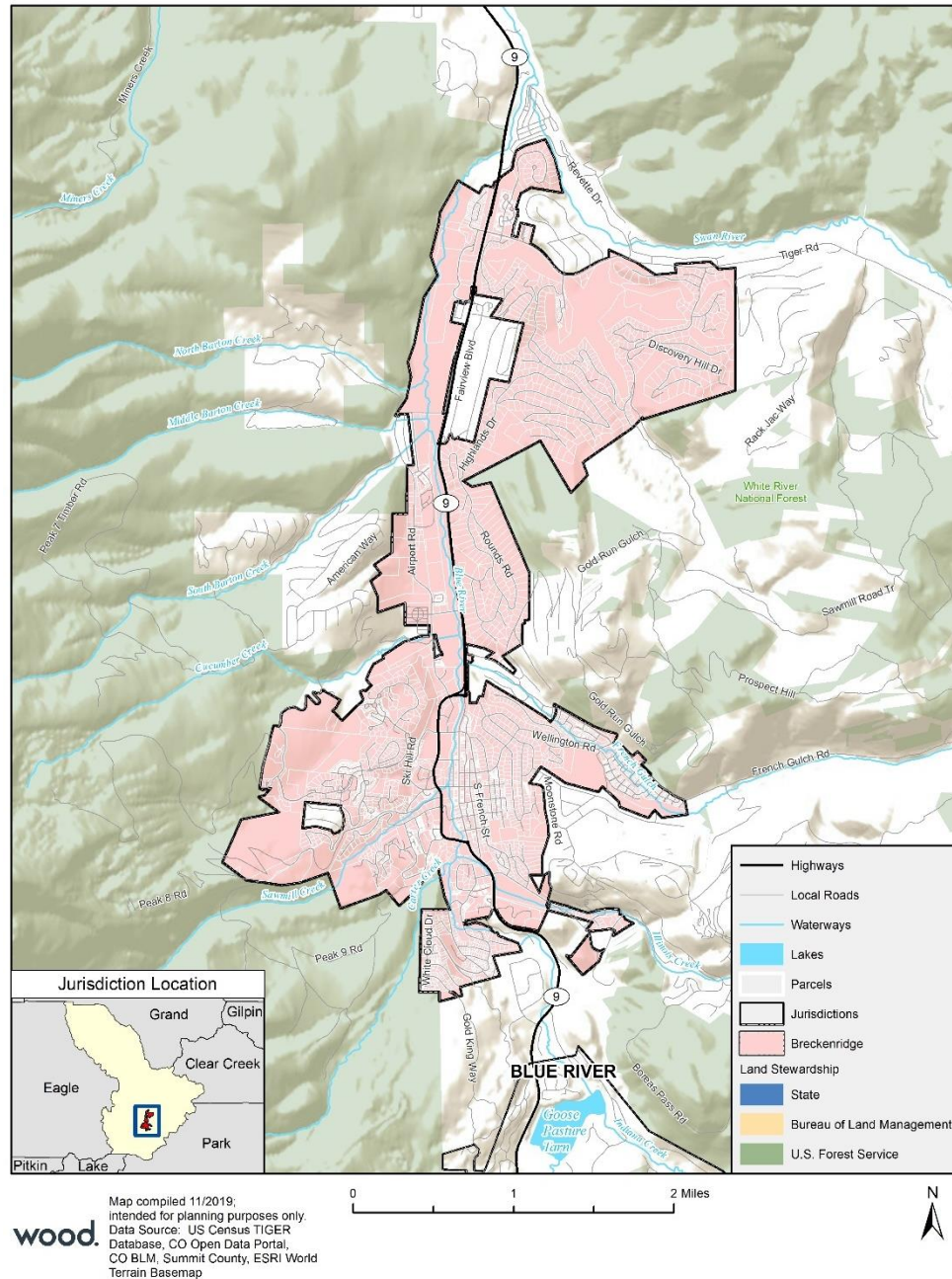


## ANNEX C: TOWN OF BRECKENRIDGE

### C.1 Community Profile

Figure C-1 shows a map of the Town of Breckenridge and its location within Summit County.

**Figure C-1 Map of Breckenridge**



## 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 5,135 in 2019 and at 4,560 in 2010. 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. Peak population in 2019 was estimated at 41,497. According to the Town's master plan, the months with the largest peak populations are December through March, with a summer spike in July.

Data collected through employer surveys indicated that there were about 3,700 winter seasonal employees and 2,400 summer seasonal employees in 2006. However, this segment of the population is not well-documented or understood.

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 2012-2017**

Breckenridge	2012	2017	% Change
Population	4,676	4,927	5.4%
Median Age	31.4	30.7	-2.2%
Total Housing Units	5,839	6,153	5.4%
Housing Occupancy Rate	28.1%	28.1%	0%
Median Home Value	\$448,200	\$667,450	49%
Unemployment	4.9%	1.9%	-61.2%
Mean Travel Time to Work (minutes)	13.2	12.7	-3.8%
Median Household Income	\$56,194	\$76,774	36.6%
Per Capita Income	\$31,243	\$31,999	2.4%
% Without Health Insurance	22.8%	26.1%	14.5%
% of Individuals Below Poverty Level	5.4%	10.5%	94.4%
# of Households	1,896	2,135	12.6%
Average Household Size	2.28	2.85	25.0%
% of Population Over 25 with High School Diploma	99.1%	97.9%	-1.2%
% of Population Over 25 with Bachelor's Degree or Higher	57.1%	48.3%	-15.4%
% with Disability	0.9%	6.3%	600.0%
% Speak English less than "Very Well"	2.8%	1.7%	-39.3%

Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2013-2017

**Table C-2 Demographic and Social Characteristics Compared to the County and State**

Demographic & Social Characteristics (as of 2017)	Breckenridge	Summit County	Colorado
Median Age	30.7	39.2	36.5
Housing Occupancy Rate	20.1%	30.80%	89.80%
Median Home Value	\$667,450	\$547,700	\$286,100
Unemployment	1.9%	2.60%	5.20%
Mean Travel Time to Work (minutes)	12.7	16.4	25.2
Median Household Income	\$76,774	\$73,538	\$65,458
Per Capita Income	\$31,999	\$37,192	\$38,845
% Without Health Insurance	26.1%	21.40%	9.40%
% of Individuals Below Poverty Level	10.5%	10.30%	11.50%
Average Household Size	2.85	3.1	2.55
% of Population Over 25 with High School Diploma	97.9%	93.40%	91.10%
% of Population Over 25 with bachelor's degree or Higher	48.3%	47.80%	39.40%
% with Disability	6.3%	6.10%	10.60%
% Speak English less than "Very Well"	1.7%	7.50%	6.00%

Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2013-2017

**Table C-3 Demographics by Race and Sex**

Blue River	Population	%
Total Population	4,927	
Male	2,483	51.4%
Female	2,350	48.6%
White, not Hispanic	4,591	95.0%
Hispanic or Latino	149	3.1%
Black	86	1.8%
Asian	7	0.1%
American Indian and Alaska Native	0	0.0%
Native Hawaiian and Other Pacific Islander	0	0.0%
Some other race	46	1.0%
Two or more races	64	1.3%

Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2013-2017

**Table C-4 Types and Total Amounts of Housing Units in Breckenridge**

Type of housing units	Total	Percentage
Total housing units	7,082	
1-unit detached	1,528	21.6%
1-unit attached	749	10.6%
2 units	191	2.7%
3 or 4 units	359	5.1%
5 to 9 units	559	7.9%
10 to 19 units	964	13.6%
20 or more units	2,701	38.1%
Mobile home	31	0.4%
Boat, RV, van, etc.	0	0.0%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2013-2017

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## Figure C-2      Age Distribution in Breckenridge

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2013-2017

### 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.

According to 2017 Census Bureau estimates, the industries that employed the highest percentage of Breckenridge's labor force were arts, entertainment, recreation, accommodation, and food services (53.2%); retail trade (9.3%); professional, scientific, and management, and administrative and waste management services (7.7%); educational services, and health care and social assistance (7.6%); and finance, insurance, real estate, and rental and leasing (7.1%).

As shown in Table C-2 per capita income in Breckenridge was \$31,999 in 2017, which is roughly 15% below average for both Summit County and the State of Colorado. A breakdown of Breckenridge's income distribution is shown in Figure C-3.

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### **Figure C-3      Income Distribution in Breckenridge**

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2013-2017

## 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 Hazard Rating
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 (Transportation)	Isolated	Unlikely	Critical	Low
Landslide, Mudflow/Debris Flow, Rockfall	Isolated	Occasional	Limited	Medium
Lightning	Large	Likely	Critical	Medium
Pest Infestation (Forest and Aquatic)	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 November 2019), 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**

Parcel Type	Parcel Totals	Total Properties*	Improved Value	Content Value	Total Value
Commercial	119	509	\$225,259,506	\$225,259,506	\$450,519,012
Exempt	411	586	\$0	--	\$0
Residential	3,058	7,791	\$5,878,017,954	\$2,939,008,977	\$8,817,026,931
Vacant	4	27	\$196,314,548	--	\$196,314,548
<b>TOTAL</b>	<b>3,592</b>	<b>8,913</b>	<b>\$6,299,592,008</b>	<b>\$3,164,268,483</b>	<b>\$9,463,860,491</b>

Source: Summit County Assessors Data, November 2019.

\*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 30 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 Critical Facilities and Infrastructure Summary**

FEMA Lifeline	Critical Facility Type	Total
Energy	Energy Substations	1
Food/Water/Shelter	Water/Wastewater Facilities	1
Hazardous Materials	HazMat Tier II SARA Facilities	1
Health and Medical	Ambulance Stations	1
	Medical Facilities	1
Other/Schools	Schools	4
Safety and Security	Fire Lookout Locations	3
	Fire Station	3
	Government Buildings	11
	Incident Facilities*	1
	Police Stations	2
Transportation	Helipads	1
TOTAL		30

\* This facility's location will not be disclosed, and no additional details will be provided.

Source: Town of Breckenridge, Summit County, and HIFLD.

**Table C-8 Detailed List of Critical Facilities and Infrastructure in Breckenridge that Can Be Disclosed**

FEMA Lifeline Category	Critical Facility Type	Facility Name	Facility Location / Values/ Notes
Energy	Energy Substations		Wellington Rd (Town of Breckenridge) – Xcel Energy
Food/Water/Shelter	Wastewater Facilities	Upper Blue Waste Water Treatment - Breck	\$5.8 M
Food/Water/Shelter	Water Facilities	Water Storage Facilities including Goose Pasture Tarn	\$9.59 Million
Food/Water/Shelter	Static Water Structure	Breckenridge North Water Treatment Plant	68 Stan Miller Drive, Breckenridge, 80424
Food/Water/Shelter	Wastewater Facilities	Breckenridge Treatment Plant (aka Gary Roberts Water Treatment Plant)*	99 Trapper Pl # 97, Blue River 80424
Hazardous Materials	HazMat Tier II SARA Facilities	CenturyLink Communications - Breck Central Office	300 W Four O'Clock Rd, Breckenridge 80424
Health and Medical	Ambulance Stations	SCG Ambulance	
	Medical Facilities	Breckenridge Mountain Clinic	
Other/Schools	Schools	Breckenridge Elementary School	
		Upper Blue Elementary School	
		Colorado Mountain College - Breckenridge	
Safety and Security	Fire Lookout Locations		
			Ski Hill Rd, East
	Fire Station	RWB Station 6	316 N. Main St, Breckenridge 80424
		RWB Station 4	13549 HWY 9, Breckenridge 80424
		RWB Station 5	1999 Ski Hill RD, Breckenridge 80424

FEMA Lifeline Category	Critical Facility Type	Facility Name	Facility Location / Values/ Notes
	Government Buildings	Breckenridge Police Department	
		USPS Breckenridge	
		Summit County Sheriffs Storage	
		County South Branch Library	
		Breckenridge Public Works	
		Summit County Road & Bridge Storage	
		Breckenridge Recreation Center	
		Summit County Justice Center & Sheriff	
		Breckenridge Town Hall	\$3 Million replacement value
		Old County Courthouse	
		Breckenridge Building	
	Police Stations	Breckenridge Police Department	150 Valley Brook St, Breckenridge 80424; \$ 4.5 Million (Facility), and \$150,000 (Equipment)
		Summit County Sheriff's Office	501 N Park Ave, Breckenridge 80424
Transportation	Helipads	Rankin Ave - TOB Helipad and transit centers	

\* Note: This facility is located in the Town of Blue River but is owned by the Town of Breckenridge. Refer to Annex B Town of Blue River for analysis specific to this facility. Source: Summit County GIS, Summit County HMPC.

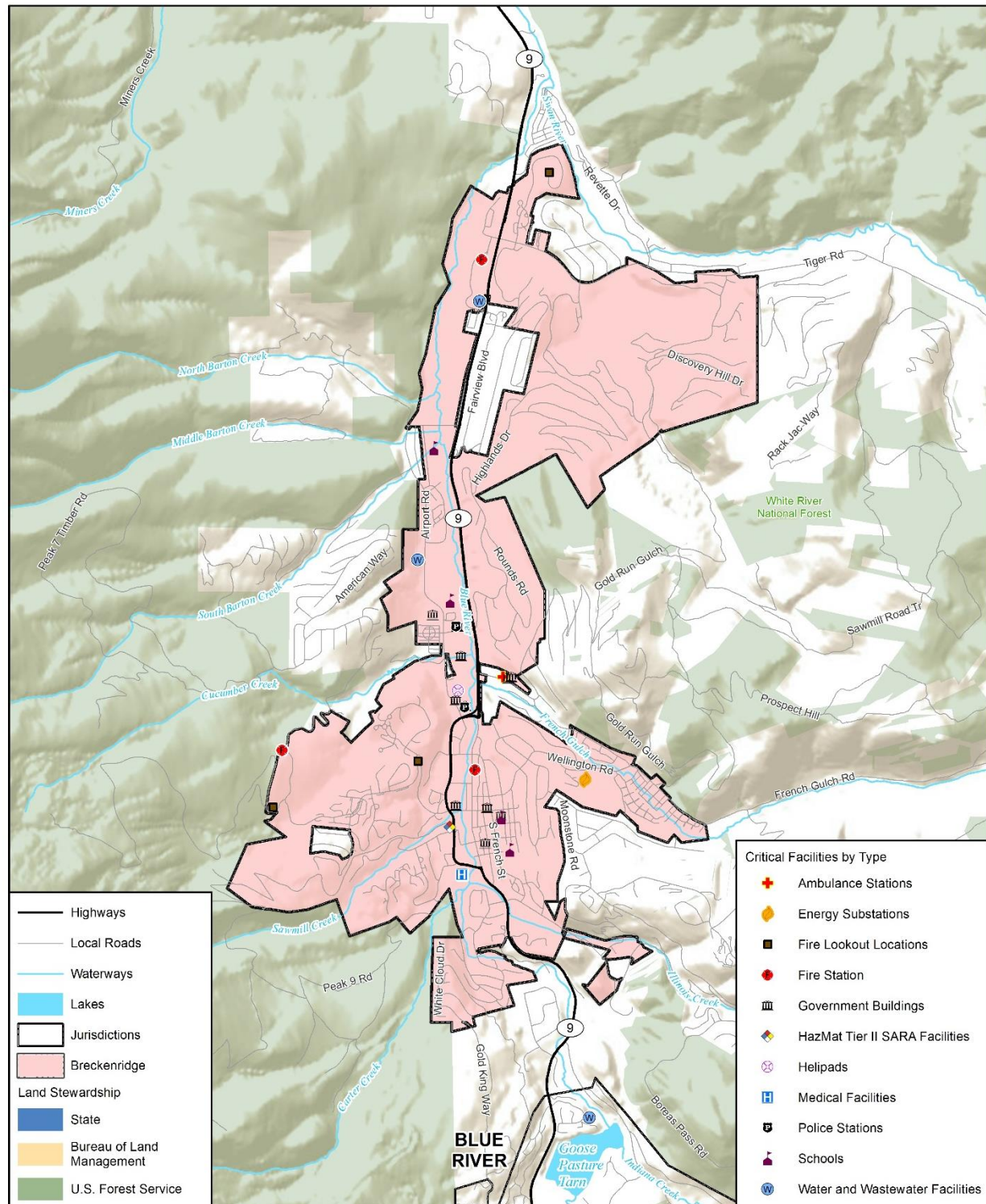
Other assets noted by the Town include:

- Carriage House: \$1.4 Million – 104 people occupancy
- Little Red Schoolhouse: \$1.56 Million – 102 people occupancy
- Timberline Learning Center: \$3.9 Million
- Transit Centers: \$950,000
- Boreas Railroad Station Site: \$147,000
- Breckenridge Historic District: \$660,000

A major concern of the Town's planning team is the necessary evacuation of the Town residents on Highway 9 (northbound and southbound) in the event of a disaster or significant emergency. There are two areas that seriously impact the possible speed of any evacuation. One is the development at the base areas of Peaks 7 and 8, which would have to enter into the Town limits before being able to leave the area. The locations of critical facilities in Breckenridge identified by Summit County are illustrated in Figure C-4.

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.

**Figure C-4 Breckenridge's Critical Facilities and Infrastructure**



**wood.**

Map compiled 2/2020;  
intended for planning purposes only.  
Data Source: US Census TIGER  
Database, CO Open Data Portal,  
CO BLM, Summit County, ESRI World  
Terrain Basemap, HIFLD

0 1 2 Miles



## 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 (Transportation)
- 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.

### 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 811 acre-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 Exposed	Improved Value	Content Value	Total Value	Population Exposed
Commercial	362	\$150,569,896	\$150,569,896	\$301,139,792	--
Exempt	33	\$0	--	\$0	--
Residential	1,624	\$1,094,060,941	\$547,030,471	\$1,641,091,412	5,034
Vacant	3	\$2,906,116	--	\$2,906,116	--
TOTAL	2,022	\$1,247,536,953	\$697,600,367	\$1,945,137,320	5,034

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

### ***People***

Based on the GIS analysis summarized in the table above, it is expected that around 5,034 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 3.10) 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, 15 critical facilities were found to be at potential risk. These are summarized in the table below.

**Table C-10 Critical Facilities in Breckenridge Exposed to Dam Inundation**

FEMA Lifeline Category	Critical Facility Type	Total Critical Facilities
Health and Medical	Medical Facilities	1
Other/Schools	Schools	2
Safety and Security	Fire Station	2
	Government Buildings	6
	Incident Facilities	1
	Police Stations	2
Transportation	Helipads	1
TOTAL		15

Source: Summit County, HIFLD, Wood 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 32 properties and an estimated \$45 million total value exposed. The 0.2% annual chance event would add an additional 5 properties, with loss estimates for both flood events equaling about \$12.9 million in Breckenridge. Most properties at risk of flooding from both events are residential.

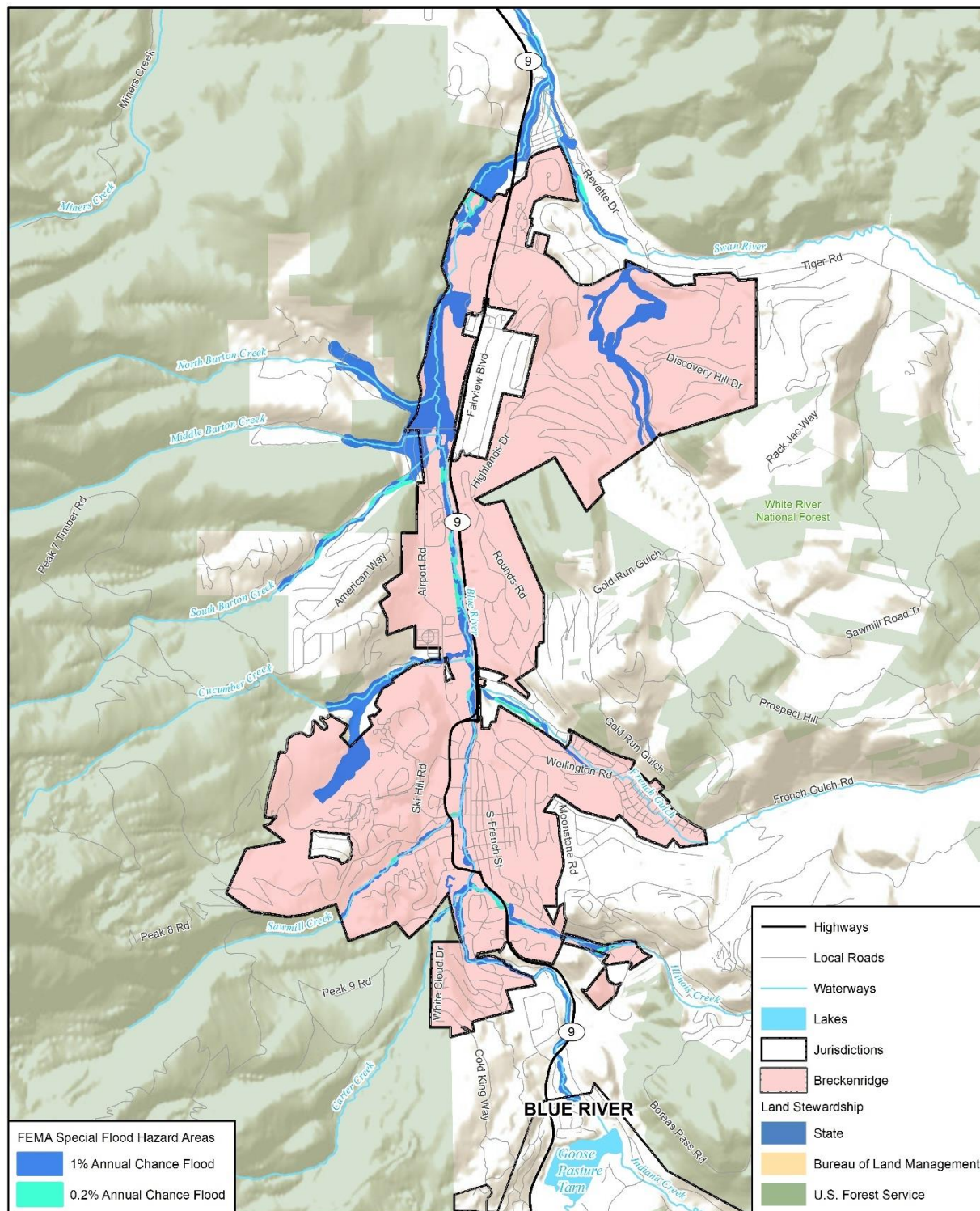
**Table C-11 Summary of Breckenridge Properties Vulnerable to 1% and 0.2% Annual Chance Flood Events, by Property Type**

Flood Event	Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Loss Estimate (25% of Total Value)	Population
100-year	Exempt	4	\$0	--	\$0	\$0	--
	Residential	28	\$30,019,320	\$15,009,660	\$45,028,980	\$11,257,245	87
<b>TOTAL</b>		<b>32</b>	<b>\$30,019,320</b>	<b>\$15,009,660</b>	<b>\$45,028,980</b>	<b>\$11,257,245</b>	<b>87</b>
500-year	Residential	5	\$4,314,256	\$2,157,128	\$6,471,384	\$1,617,846	16
<b>TOTAL</b>		<b>5</b>	<b>\$4,314,256</b>	<b>\$2,157,128</b>	<b>\$6,471,384</b>	<b>\$1,617,846</b>	<b>16</b>
<b>GRAND TOTAL</b>		<b>37</b>	<b>\$34,333,576</b>	<b>\$17,166,788</b>	<b>\$51,500,364</b>	<b>\$12,875,091</b>	<b>102</b>

Source: Summit County, FEMA NFHL, U.S. Census Bureau, Wood analysis



**Figure C-5 FEMA Special Flood Hazard Areas in Breckenridge**



**wood.**

Map compiled 11/2019;  
intended for planning purposes only.  
Data Source: US Census TIGER  
Database, CO Open Data Portal,  
CO BLM, Summit County, ESRI World  
Terrain Basemap, FEMA NFHL

0 1 2 Miles



## ***Flood Insurance Program Policy Analysis***

Breckenridge joined the National Flood Insurance Program (NFIP) on June 4, 1980. NFIP insurance data indicates that as of September 12, 2019, there were 54 flood insurance policies in force in the County with \$14,357,000 of coverage. This is an increase of 8 policies since 2013. Twenty-eight of the policies are currently in A01-30 and AE zones, and 26 were located outside of the Special Flood Hazard Area (i.e. in B, C, & Z zones).

There has been one historical claim for flood losses totaling \$28,060. 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 3.1 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 102 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***

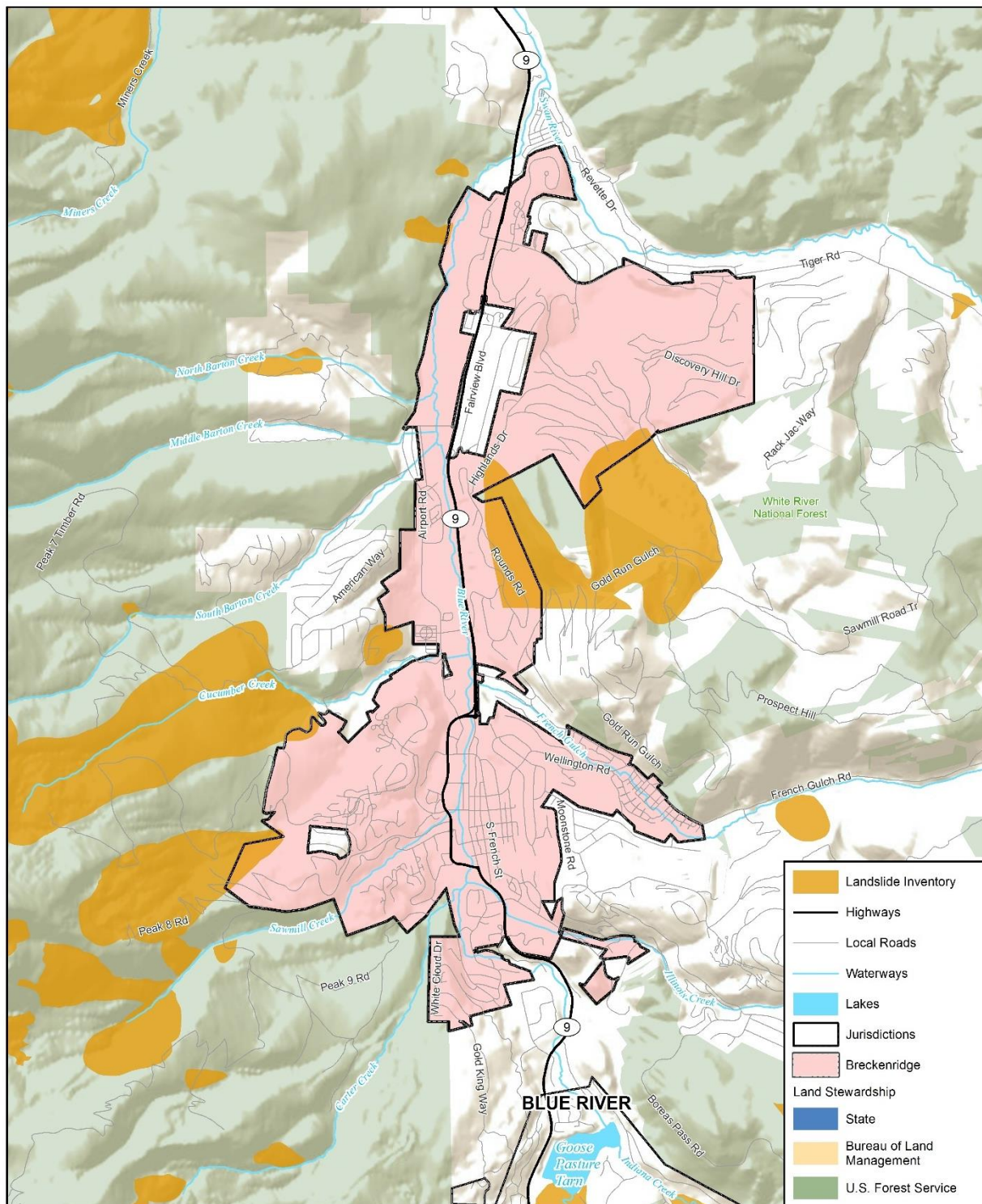
The Breckenridge Flood Damage Prevention Ordinance meets minimum NFIP requirements and regulates development in special flood hazard areas. In addition, the Town addresses floodplain management policies in its Master Plan and Development Code (see Regulatory Capabilities section below).

## 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**



**wood.**

Map compiled 11/2019;  
intended for planning purposes only.  
Data Source: US Census TIGER  
Database, CO Open Data Portal,  
CO BLM, Summit County, ESRI World  
Terrain Basemap, CGS

0 1 2 Miles



### **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-12. 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 \$109.5 million. A total of 44 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-12 Property Exposure to General Landslide Hazard Areas in Breckenridge**

Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population at Risk
Residential	44	\$73,013,286	\$36,506,643	\$109,519,929	136

Source: Summit County GIS/Assessor Office, Colorado Geological Survey, U.S. Census, Wood 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-12 above, an estimated 136 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 3.1 per household) times the number of properties of type "residential" where landslide areas have been inventoried in the town.

### **Critical Facilities and Infrastructure**

No critical facilities are found at risk of landslide hazards in Breckenridge.

### **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 the County's Wildfire Protection Assessment Rating layer, which classifies 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 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 was found to intersect with wildfire areas rated as Medium, High, and Extreme, summarized by property type in Table C-13 below. Wildfire protection assessment areas for Breckenridge are displayed in Figure C-7.

**Table C-13 Property Values in Wildfire Zones\* by Parcel Type, Breckenridge**

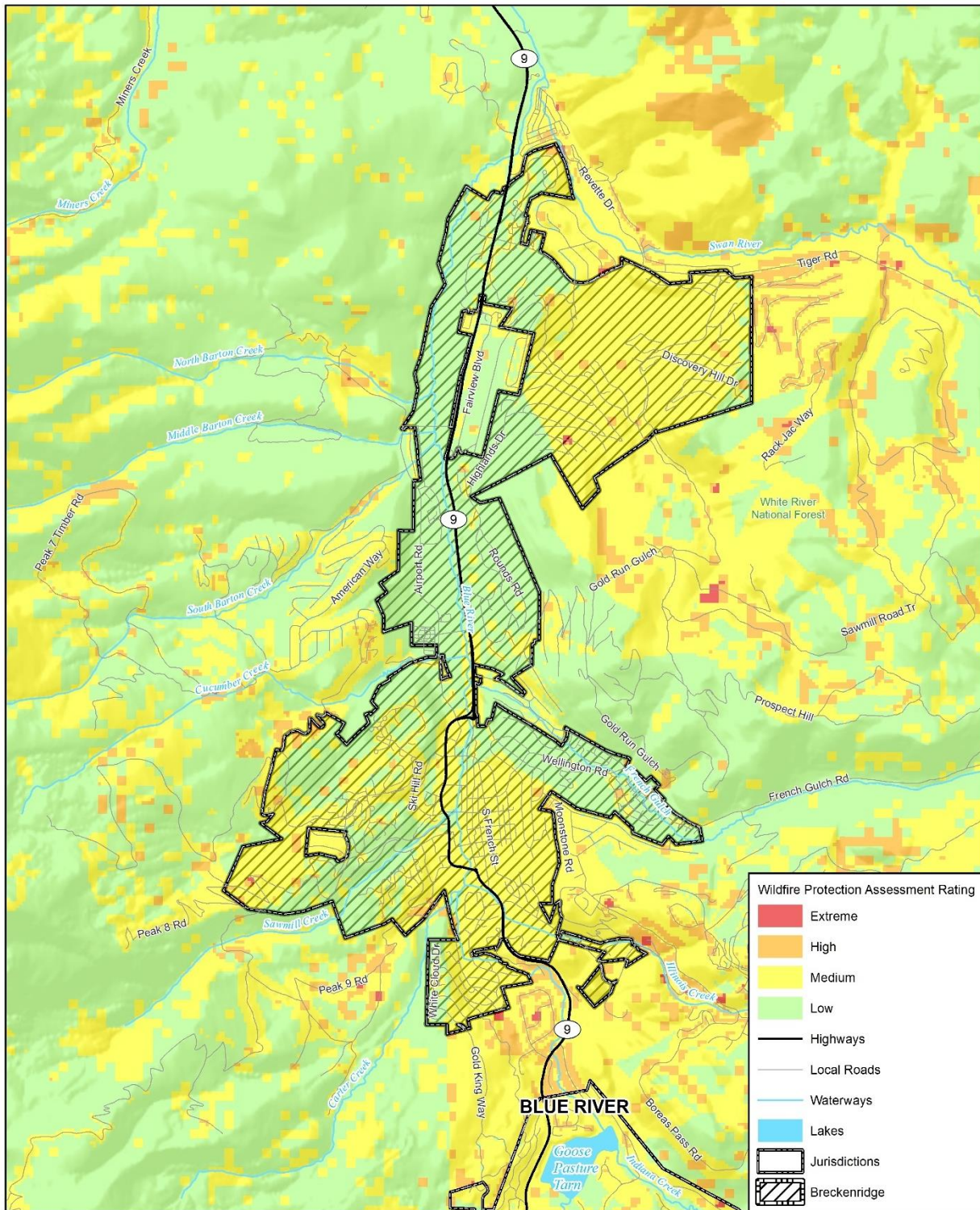
Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population at Risk
Commercial	371	\$177,587,983	\$177,587,983	\$355,175,966	--
Exempt	27	\$0	--	\$0	--
Residential	5,623	\$3,929,145,572	\$1,964,572,786	\$5,893,718,358	17,431
Vacant	5	\$3,075,208	--	\$3,075,208	--
TOTAL	6,026	\$4,109,808,763	\$2,142,160,769	\$6,251,969,532	17,431

Source: Summit County GIS/Assessor Office, CO-WRAP, U.S. Census, Wood analysis

\*Medium, High or Extreme



**Figure C-7 Wildfire Protection Assessment Areas and Ratings in Breckenridge**



wood.

Map compiled 11/2019;  
intended for planning purposes only.  
Data Source: US Census TIGER  
Database, CO Open Data Portal,  
CO BLM, Summit County, ESRI World  
Terrain Basemap, CO-WRAP

## People

The last column of Table C-13 above summarizes the number of people at risk to wildfire in the analyzed fire zones. Based on the assessment conducted, Breckenridge has an estimated 17,431 people at risk of Medium, High, and Extreme 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 zone/s.

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 14 critical facilities were identified in Medium wildfire zones in Breckenridge (see Table C-14).

**Table C-14 Critical Facilities in Breckenridge in Wildfire Protection Assessment Areas**

FEMA Lifeline Category	Critical Facility Type	Total Critical Facilities
Health and Medical	Medical Facilities	1
Other/Schools	Schools	2
Safety and Security	Fire Lookout Locations	2
	Fire Station	2
	Government Buildings	5
	Police Stations	1
Transportation	Helipads	1
<b>TOTAL</b>		<b>14</b>

Source: Summit County, HIFLD, Wood 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-15 illustrates how Breckenridge has grown in terms of population and number of housing units between 2012 and 2017.

**Table C-15 Breckenridge—Change in Population and Housing Units, 2012-2017**

2012 Population	2017 Population Estimate	Estimated Percent Change 2012-2017	2012 # of Housing Units	2017 Estimated # of Housing Units	Estimated Percent Change 2012-2017
4,676	4,927	+5.4%	5,839	6,153	+5.4%

Source: HMPC and U.S. Census Bureau, American Community Survey 5-Year Estimates, 2013-2017

This growth rate is significantly slower than during the 2000-2011 time period, which saw 50% increases in both categories, partly due to the annexation of the Warrior’s Mark area in 2002.

There is new development planned on the recently annexed Stan Miller property (155 units). At the base of Peaks 7 and 8 (mostly condominium and hotel units, 450-500 units, depending on size, most units will be short-term rentals and time shares), some more units recently completed at Wellington Neighborhood/Lincoln Park about 45 units at Valley Brook (north of police and Timberline Learning Center), 250-300 units planned for Block 11 and at Pinewood Village Phase 2 (45 units).

As of 2018, the Town of Breckenridge residential build-out was 88% of realistic build-out and it is estimated to experience build-out of remaining properties before the year 2030. 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 Main Street. 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-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 Breckenridge.

**Table C-16 Breckenridge—Regulatory Mitigation Capabilities**

Regulatory Tool (Ordinances, Codes, Plans)	Yes/No	Comments
Master Plan	Yes	Town of Breckenridge Comprehensive Plan (March 25, 2008)
Zoning Ordinance	Yes	
Subdivision Ordinance	Yes	Town of Breckenridge Subdivision Standards (February 14, 2020)
Growth Management Ordinance	Yes	Upper Blue Master Plan, updated 2011/Nonbinding agreement with Summit County government
Floodplain Ordinance	Yes	
Other Special Purpose Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Preventive Management Area Ordinance, Pine Beetle Ordinance
Building Code	Yes	Version: 2006 International Building Code
Fire Department ISO Rating	Yes	Rating: 4
Erosion or Sediment Control Program	Yes	
Stormwater Management Program	Yes	
Site Plan Review Requirements	Yes	Town of Breckenridge Development Code (February 12, 2019)
Capital Improvements Plan	Yes	
Economic Development Plan	No	
Local Emergency Operations Plan	Yes	Town of Breckenridge Emergency Operations Annex, revised 2012
Other Special Plans	Yes	Master Drainage Plan, 1993; Open Space, 2007
Flood Insurance Study or Other Engineering Study For Streams	Yes	FEMA Flood Insurance Study, November 16, 2018
Elevation certificates on file	Yes	
Other	Yes	Capacity Analysis for the Upper Blue Valley

### 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-17 identifies the personnel responsible for activities related to mitigation and loss prevention in Breckenridge.

**Table C-17 Breckenridge—Administrative and Technical Mitigation Capabilities**

Personnel Resources	Yes/No	Department/Position	Comments
Planner/Engineer with Knowledge of Land Development/Land Management Practices	Yes	Engineering and Community Development	
Engineer/Professional Trained in Construction Practices Related to Buildings and/or Infrastructure	Yes	Engineering/Community Development	
Planner/Engineer/Scientist with an Understanding of Natural Hazards	No		
Personnel Skilled in GIS	Yes	Engineering	
Full Time Building Official	Yes	Community Development	
Floodplain Manager	Yes	Town Engineer	
Emergency Manager	No	Partner with Summit County government	
Grant Writer	No		
Warning Systems/Services (Reverse 9-11, Cable Override, Outdoor Warning Signals)	Yes	Summit County Communications	Reverse 911

## C.4.3 Fiscal Mitigation Capabilities

Table C-18 identifies financial tools or resources that Breckenridge could potentially use to help fund mitigation activities.

**Table C-18 Breckenridge—Fiscal Mitigation Capabilities**

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	
Capital Improvements Project Funding	Yes	
Authority to Levy Taxes for Specific Purposes	Yes	
Fees for Water, Sewer, Gas, or Electric Services	Yes	
Impact Fees for New Development	Yes	
Incur Debt through General Obligation Bonds	Yes	
Incur Debt through Special Tax Bonds	Yes	Town has done so in the past, but has not issued any in several years
Incur Debt through Private Activities	No	
Withhold Spending in Hazard Prone Areas	No	

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 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.4.5 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.

#### C.4.6 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 Goals and Objectives

Breckenridge had adopted the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

## C.6 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.

### **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



## Mitigation Action: Breckenridge—1 Culvert Inspections

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Inspect metal culverts to determine risk of failure
<b>Hazard(s) Mitigated</b>	Flood
<b>Priority:</b>	High
<b>Issue/Background:</b>	Failure of culverts could lead to potential flooding issues or road collapse.
<b>Ideas for Implementation:</b>	The Town of Breckenridge would hire an inspection company to inspect metal culverts throughout the Town to determine risk of failure.
<b>Responsible Agency:</b>	Town of Breckenridge
<b>Partners:</b>	Colorado Department of Transportation Summit County Road and Bridge Department
<b>Potential Funding:</b>	Town of Breckenridge; other unknown
<b>Cost Estimate:</b>	\$50,000 for consultation services
<b>Benefits: (Losses Avoided)</b>	<ul style="list-style-type: none"> <li>• Reliable culverts for water to move through reducing the risk of flooding</li> <li>• Mitigated risk of water moving across roadways, which could lead to damage or collapse</li> <li>• Passable transportation corridors</li> </ul>
<b>Timeline:</b>	Annual Implementation
<b>Status:</b>	Ongoing. Culverts are inspected annually.

## Mitigation Action: Breckenridge—2 Erosion Traps

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Install erosion traps
<b>Hazard(s) Mitigated</b>	Erosion/Deposition, Flood
<b>Priority:</b>	High
<b>Issue/Background:</b>	Erosion hazards can contaminate the water supplies to the Breckenridge. The hazard could be severe after a wildfire.
<b>Ideas for Implementation:</b>	Install erosion traps throughout the valley to catch erosion silt that could contaminate water supplies to the Town of Breckenridge.
<b>Responsible Agency:</b>	Town of Breckenridge
<b>Partners:</b>	Breckenridge Water and Sanitation District
<b>Potential Funding:</b>	Town of Breckenridge; other unknown
<b>Cost Estimate:</b>	\$1,000,000 (+)
<b>Benefits: (Losses Avoided)</b>	<ul style="list-style-type: none"> <li>• Reduce impacts to water quality from erosion hazards</li> <li>• Sustain healthy water sources for the Town of Breckenridge</li> <li>• Continue to provide water services after a wildfire</li> </ul>
<b>Timeline:</b>	Ongoing projects completed as necessary.
<b>Status:</b>	Ongoing. Erosion traps are installed as necessary. Sediment detention improvements.

## Mitigation Action: Breckenridge—3 Defensible Space and Beetle-Infested Trees

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Promote defensible space and removal of beetle-infested trees
<b>Hazard(s) Mitigated</b>	Wildfire
<b>Priority:</b>	High
<b>Issue/Background:</b>	Wildfire risk is high in several neighbourhoods in Breckenridge and public policy and education promoting defensible space could be further improved.
<b>Ideas for Implementation:</b>	<p>Create public policy and public education initiatives enforcing 15 feet of defensible space around homes. Public policy would be accomplished by the passing of ordinances by the Breckenridge Town Council. This would include development of mitigation rules and guidelines for the removal of beetle kill trees within the determined defensible space perimeter.</p> <p>Public education would be accomplished by hiring a production company to produce public service announcements for local television stations and radio stations and through awareness articles published in a biannual newsletter to citizens of Breckenridge.</p> <p>This action may also include the development of a program to subsidize homeowners for their compliance efforts, in the form of reforestation assistance or assistance in the removal of beetle kill trees</p>
<b>Responsible Agency:</b>	Town of Breckenridge
<b>Partners:</b>	Red, White, and Blue Fire Protection District
<b>Potential Funding:</b>	U.S. Forest Service, Town of Breckenridge
<b>Cost Estimate:</b>	\$250,000
<b>Benefits: (Losses Avoided)</b>	<ul style="list-style-type: none"> <li>• Creation of a Firewise community</li> <li>• Reduce wildfire risk to people and property</li> </ul>
<b>Timeline:</b>	Ongoing
<b>Status:</b>	Ongoing. A defensible space ordinance is in place. All new construction must create defensible space as part of the project as of January 1, 2011 (Ordinance 1, 2011). The Mountain Pine Beetle Ordinance requires all property owners to remove dead and infested trees by July 15 <sup>th</sup> annually (Ord. 13, 2010).

## Mitigation Action: Breckenridge—4 Winter Preparedness Kits

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Educate public about winter preparedness kits
<b>Hazard(s) Mitigated</b>	Severe Winter Weather
<b>Priority:</b>	High
<b>Issue/Background:</b>	Severe winter weather is a priority hazard in Breckenridge, where frequent cold temperatures, high winds, and heavy snow events can make travel very dangerous for citizens and visitors.
<b>Ideas for Implementation:</b>	<p>The Town of Breckenridge would hire a production company to educate the public on preparing household winter preparedness or survival kits to have readily available during times of severe winter weather. These public service announcements would be run on local television and radio stations.</p> <p>The Town would partner with local merchants/grocers to educate the public about the types of supplies to include in the kits.</p> <p>The Town would host Winter Preparedness Kit sessions at local grocery stores, demonstrating a prepared kit, in addition to distributing a “shopping list” of items they can purchase while at that location.</p>
<b>Responsible Agency:</b>	Town of Breckenridge Police Department
<b>Partners:</b>	Local merchants
<b>Potential Funding:</b>	Town of Breckenridge, donation from local merchants
<b>Cost Estimate:</b>	\$20,000
<b>Benefits: (Losses Avoided)</b>	<ul style="list-style-type: none"> <li>• Reduce number of cars/citizens on roadways during times of severe winter weather, as supplies would be kept in homes</li> <li>• Sustain food resources in local markets in the event deliveries to the area become impaired by road and weather conditions</li> </ul>
<b>Timeline:</b>	2009-2013
<b>Status:</b>	Completed

## Mitigation Action: Breckenridge—5 Evacuation Planning

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Update and enhance evacuation plan
<b>Hazard(s) Mitigated</b>	Multi-Hazard
<b>Priority:</b>	Low
<b>Issue/Background:</b>	Evacuation of Town residents along Highway 9 (northbound and southbound) in the event of an emergency is a major concern. There are two areas that seriously impact the possible speed of any evacuation. One is the development at the base areas of Peaks 7 and 8, which would have to enter into the Town limits before being able to leave the area. The other is the Block 11 planned development on Airport Road in Breckenridge, which consists of more than 400 units.
<b>Ideas for Implementation:</b>	Update and expand upon current evacuation plans, such as egress and ingress routes. The enhanced plan would focus on high occupancy complexes and population centers and would include awareness notification, wayfinding, and sheltering options. Once the evacuation plans are developed, they will be reproduced in book form and distributed to all first responders (fire, police and EMS personnel).
<b>Responsible Agency:</b>	Town of Breckenridge Police Department
<b>Partners:</b>	Red, White, and Blue Fire Protection District Summit County Sheriff's Department
<b>Potential Funding:</b>	Staff time
<b>Cost Estimate:</b>	\$10,000
<b>Benefits: (Losses Avoided)</b>	Planned, safe, and effective evacuation of at risk populations during times of disaster.
<b>Timeline:</b>	2009-2013
<b>Status:</b>	Completed

## Mitigation Action: Breckenridge—6 Hazardous Materials Mapping and Planning

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Inventory and map locations of hazardous materials
<b>Hazard(s) Mitigated</b>	Hazardous Materials Release
<b>Priority:</b>	Low
<b>Issue/Background:</b>	Locations of hazardous materials need to be better understood by emergency responders.
<b>Ideas for Implementation:</b>	The Town of Breckenridge would hire a consultant to compile an inventory of hazardous materials processes and their storage (i.e. bodyshops, woodworking businesses, plastics fabrication, pool and spa water treatments, etc.). These locations would be mapped and provided to first responders.
<b>Responsible Agency:</b>	Town of Breckenridge
<b>Partners:</b>	Red, White, and Blue Fire Protection District, Summit County Local Emergency Planning Committee
<b>Potential Funding:</b>	TBD
<b>Cost Estimate:</b>	\$20,000
<b>Benefits: (Losses Avoided)</b>	<ul style="list-style-type: none"> <li>• Improve responder knowledge of potential hazardous material release</li> <li>• Identify of populations at risk</li> </ul>
<b>Timeline:</b>	--
<b>Status:</b>	Ongoing by fire department

## Mitigation Action: Breckenridge—7 Portable Wayfinding Signage

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Locate portable wayfinding signage around Town during emergency events
<b>Hazard(s) Mitigated</b>	Multi-Hazard
<b>Priority:</b>	Low
<b>Issue/Background:</b>	During emergency events, communication with the public is essential. Communication could be enhanced through using wayfinding signage.
<b>Ideas for Implementation:</b>	Purchase portable “wayfinding” signage to place throughout the Town of Breckenridge to assist citizens and guests with navigation in times of disaster. Additionally, it would be necessary to purchase a trailer to store the signage and make ready the rapid deployment of it during times of need.
<b>Responsible Agency:</b>	Town of Breckenridge
<b>Partners:</b>	
<b>Potential Funding:</b>	Town of Breckenridge
<b>Cost Estimate:</b>	\$15,000 for the creation of signage and purchase of the trailer
<b>Benefits: (Losses Avoided)</b>	Improve safety of citizens during emergency events
<b>Timeline:</b>	
<b>Status:</b>	Completed.

## Mitigation Action: Breckenridge—8 Emergency Generators

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Emergency generator power connections at pump stations
<b>Hazard(s) Mitigated</b>	Multi-Hazard
<b>Priority:</b>	Low
<b>Issue/Background:</b>	Quick connections and manual transfer switches for temporary power generators are needed during long term power outage at pump stations in order to fill water tanks.
<b>Ideas for Implementation:</b>	Received quotes from two local industrial electrical contractors.
<b>Responsible Agency:</b>	Town of Breckenridge Water Division, Gary Roberts, Water Division Manager
<b>Partners:</b>	None
<b>Potential Funding:</b>	Town of Breckenridge Water Fund-2014 Budget
<b>Cost Estimate:</b>	\$100,000
<b>Benefits: (Losses Avoided)</b>	Fill water tanks to sustain fire protection of structures during long term power outage.
<b>Timeline:</b>	
<b>Status:</b>	<b>Completed.</b> Action added in 2013.



## Mitigation Action: Breckenridge—9 Wildfire Prevention and Watershed Protection Plan

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Wildfire Prevention and Watershed Protection Plan
<b>Hazard(s) Mitigated</b>	Multi-Hazard
<b>Priority:</b>	High
<b>Issue/Background:</b>	The Town of Breckenridge produced a Forest Health Plan with proposed fuels treatments for the Breckenridge area. During the planning for that effort in conjunction with the pine beetle epidemic, the Town had increased concerns over vulnerability for the Town's sole water source, the Goose Pasture Tarn. According to the Blue River Watershed Assessment prepared by JW Associates, the drainages south of the Tarn are within a zone of concern, classified as Category 5. The Town then secured a grant for the USGS to produce a debris flow study in a post fire setting for this area. This narrowed down particular areas within Indiana Gulch which were highest risk post-fire to the Goose Pasture Tarn. The Town then hired Tetra Tech to complete a more detailed study and plan for Wildfire Prevention and Watershed Protection which resulted in a plan adopted by the Town of Breckenridge. This preplanning effort identifies forest treatment areas in a pre-fire condition as well as immediate remediation efforts post fire to assist the BAER team after a burn. The Town of Breckenridge and the USFS entered into a formal MOU in 2017 acknowledging the plan and partnership between the two entities.
<b>Ideas for Implementation:</b>	
<b>Responsible Agency:</b>	Town of Breckenridge Assistant Community Development Director
<b>Partners:</b>	Town of Breckenridge, USFS. (Input on project from USFS, BAER Team rep, NRCS rep)
<b>Potential Funding:</b>	Town of Breckenridge self funded for planning efforts of the plan. The USFS has self funded some fire mitigation efforts post MOU. The Town of Breckenridge recently acquired a \$30,000 grant from the Summit County Wildfire Council for an aquatic organism passage and road restoration project for 2020.
<b>Cost Estimate:</b>	The plan has many pre-fire mitigation action items. The item for 2020 is for an aquatic organism passage and road restoration project for 2020 which will result in stream health improvements, water quality protection totaling \$40,000 plus USFS in kind design and labor.
<b>Benefits: (Losses Avoided)</b>	Based on other municipalities which have experienced wildfire in their watersheds and primary water sources, the Town stands to save millions of dollars with preplanning mitigation efforts to ideally avoid a drastic wildfire as well as post-fire recommendations specific to Indiana Gulch watershed area to allow to Town and/or the USFS to act quickly after a heavy rain event to minimize sludge and sedimentation impacts to the Town's water supply in Goose Pasture Tarn.
<b>Timeline:</b>	The MOU was completed in 2017. Pre-fire implementation is currently ongoing.
<b>Status:</b>	In process. Action added in 2013.

## Mitigation Action: Breckenridge —10 Goose Pasture Dam Rehabilitation

**Jurisdiction:** Town of Breckenridge

**Action Title:** Rehabilitation of Goose Pasture Tarn Dam

**Hazard(s) Mitigated** Dam Failure

**Priority:** High

**Issue/Background:** Rehabilitation of Goose Pasture Tarn Dam, located on the Blue River and in the Town of Blue river approximately two miles south of the Town of Breckenridge, is planned to start in May 2020 and be completed by the fall of 2022. The Colorado State Engineers Office (SEO) and Engineers working for the Town of Breckenridge have identified dam safety concerns, and the dam is currently under a lower reservoir restriction level imposed by the SEO until rehabilitation measures to improve dam safety have been implemented. The measures generally include replacement of two existing spillways with a single spillway, construction of a downstream drainage system, and lining of the outlet works conduit among other measures.

### Ideas for Implementation:

**Responsible Agency:** Town of Breckenridge Public Works

**Partners:** Summit County, Town of Blue River, SEO

**Potential Funding:** FEMA, FEMA High Hazard Potential Dam Program; The Town of Breckenridge is working with FEMA to obtain a FEMA grant to help fund the project, in addition to obtaining low-interest rate from CWCB.

**Cost Estimate:** \$18-22M

**Benefits:  
(Losses Avoided)** Reduced potential for failure and downstream impacts in Breckenridge

**Timeline:** 2020-2022

**Status:** New in 2020

## Mitigation Action: Breckenridge— 11 Coyne Valley Culvert Replacement

<b>Jurisdiction:</b>	Town of Breckenridge
<b>Action Title:</b>	Coyne Valley Road Culvert Replacement
<b>Hazard(s) Mitigated</b>	Flooding
<b>Priority:</b>	High
<b>Issue/Background:</b>	The existing culverts that pass the Blue River under Coyne Valley Road are not adequately sized for a 100-year flood event.
<b>Ideas for Implementation:</b>	The triple corrugated metal pipes are planned for replacement with a single concrete arch culvert sized for a 100-year flood.
<b>Responsible Agency:</b>	Town of Breckenridge Public Works
<b>Partners:</b>	
<b>Potential Funding:</b>	Town of Breckenridge Capital Fund
<b>Cost Estimate:</b>	\$3.5 M
<b>Benefits: (Losses Avoided)</b>	This project will decrease the chance that the river flows will overtop the roadway, decreasing the chance for road closure/loss and erosion that may damage existing utilities in the right of way.
<b>Timeline:</b>	Construction targeted for 2021.
<b>Status:</b>	New in 2020. Design completed. Construction contract not yet awarded.

## C.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.

### C.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 2013 Plan into Other Planning Mechanisms**

The HMPC did not identify the incorporation of the 2013 hazard mitigation plan into Town plans and planning mechanisms although moving forward the Town will consider the hazard information in this 2020 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.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 5.4 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.