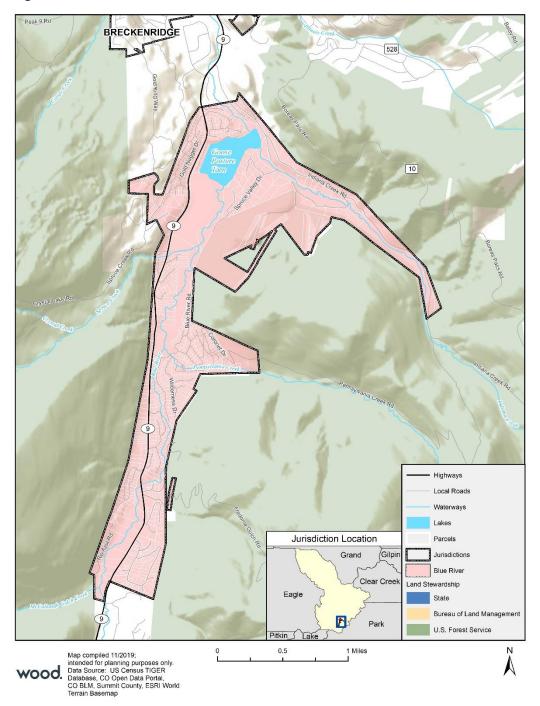


# ANNEX B: TOWN OF BLUE RIVER

# B.1 Community Profile

Figure B-1 shows a map of the Town of Blue River and its location within Summit County.

Figure B-1 Town of Blue River





# 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

According to the Colorado State Demographer, the estimated 2018 population of Blue River was 926, a population change of 73 from the 2010 Census numbers 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.

Town of Blue River	2012	2017	% Change
Population	890	932	5%
Median Age	39.0	39.3	0.8%
Total Housing Units	732	738	0.8%
Housing Occupancy Rate	49.0%	35.4%	-27.8%
% of Housing Units with no Vehicles Available	0.00%	0.00%	0.0%
Median Home Value	\$616,000	\$605,500	-1.7%
Unemployment	11.5%	4.4%	-61.7%
Mean Travel Time to Work (minutes)	14.5	18.1	24.8%
Median Household Income	\$87,426	\$94,844	8.5%
Per Capita Income	\$40,613	\$50,376	24.0%
% Without Health Insurance	16.9%	13.3%	-21.3%
% of Individuals Below Poverty Level	11.0%	6.4%	-41.8%
# of Households	359	261	-27.3%
Average Household Size	2.48	3.11	25.4%
% of Population Over 25 with High School Diploma	98.2%	100.0%	1.8%
% of Population Over 25 with Bachelor's Degree or Higher	60.9%	55.2%	-9.4%
% with Disability	3.7%	3.3%	-10.8%
% Speak English less than "Very Well"	1.5%	0.0%	-100.0%

#### Table B-1Blue River Demographic and Social Characteristics 2012-2017

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



Table B-2

# Demographic and Social Characteristics Compared to the County and State

Demographic & Social Characteristics (as of 2017)	Blue River	Summit County	Colorado
Median Age	39.3	39.2	36.5
Housing Occupancy Rate	35.4%	30.80%	89.80%
% of Housing Units with no Vehicles Available	0.0%	1.60%	5.30%
Median Home Value	\$605,500	\$547,700	\$286,100
Unemployment	4.4%	2.60%	5.20%
Mean Travel Time to Work (minutes)	18.1	16.4	25.2
Median Household Income	\$94,844	\$73,538	\$65,458
Per Capita Income	\$50,376	\$37,192	\$38,845
% Without Health Insurance	13.3%	21.40%	9.40%
% of Individuals Below Poverty Level	6.4%	10.30%	11.50%
Average Household Size	3.11	3.1	2.55
% of Population Over 25 with High School Diploma	100.0%	93.40%	91.10%
% of Population Over 25 with bachelor's degree or Higher	55.2%	47.80%	39.40%
% with Disability	3.3%	6.10%	10.60%
% Speak English less than "Very Well"	0.0%	7.50%	6.00%

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

### Table B-3Demographics by Race and Sex

Blue River	Population	%
Total Population	932	
Male	354	48.2%
Female	381	51.8%
White, not Hispanic	704	95.8%
Hispanic or Latino	13	1.8%
Black	3	0.4%
Asian	0	0.0%
American Indian and Alaska Native	0	0.0%
Native Hawaiian and Other Pacific Islander	0	0.0%
Some other race	16	2.2%
Two or more races	3	0.4%

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



#### Table B-4 Types and Total Amounts of Housing Units in Blue River

Total	Percentage
738	
644	87.3%
31	4.2%
23	3.1%
0	0.0%
18	2.4%
15	2.0%
0	0.0%
7	0.9%
0	0.0%
	738 644 31 23 0 0 18 15 0 0 7

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

#### Figure B-2 Age Distribution in Blue River

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

#### B.1.3 Economy

The Town of Blue River is a residential community with little industry or commercial business. According to 2017 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 (25.2%); educational services, and health care and social assistance (18.4%); retail trade (11.8%); finance, insurance, real estate, and rental and leasing (9.4%); construction (9.2%); and arts, entertainment, recreation, accommodation, and food services (9.3%).



As shown in Table B-1, per capita income in Blue River was \$50,376 in 2017, which is roughly 30% above average for both Summit County and the State of Colorado. A breakdown of Blue River's income distribution is shown in Table B-3.

Figure B-3 Income Distribution in Blue River as of 2017

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

# **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-5). In the context of the countywide planning area, there are no hazards that are unique to Blue River.



#### Table B-5Blue River Hazard Summary

Hazard Type	Geographic Location	Probability of Future Occurrence	Magnitude/ Severity	Overall Hazard Rating
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 (Transportation)	Isolated	Unlikely	Limited	Low
Landslide, Mudflow/Debris Flow, Rockfall	Small	Occasional	Limited	Medium
Lightning	Large	Likely	Limited	Low
Pest Infestation (Forest and Aquatic)	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.

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles of the main plan.

# 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.

# B.3.1 Community Asset Inventory

Table B-6 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 (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, 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.

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Parcel Type	Parcel Totals	Total Properties*	Improved Value	Content Value	Total Value
Exempt	41	42	\$0		\$0
Residential	721	758	\$516,501,499	\$258,250,750	\$774,752,249
Total	762	800	\$516,501,499	\$258,250,750	\$774,752,249

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 B-7 lists summary information about the 9 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-8 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-7 Blue River Critical Facilities and Infrastructure Summary

FEMA Lifeline	Critical Facility Type	Total
Food/Water/Shelter	Static Water Structures	5
	Wastewater Facilities	1
Safety and Security	Fire Station	1
	Government Buildings	1
	Police Stations	1
T	9	

Source: Summit County GIS, Summit County HMPC.

 Table B-8
 Detailed List of Critical Facilities and Infrastructure in Blue River



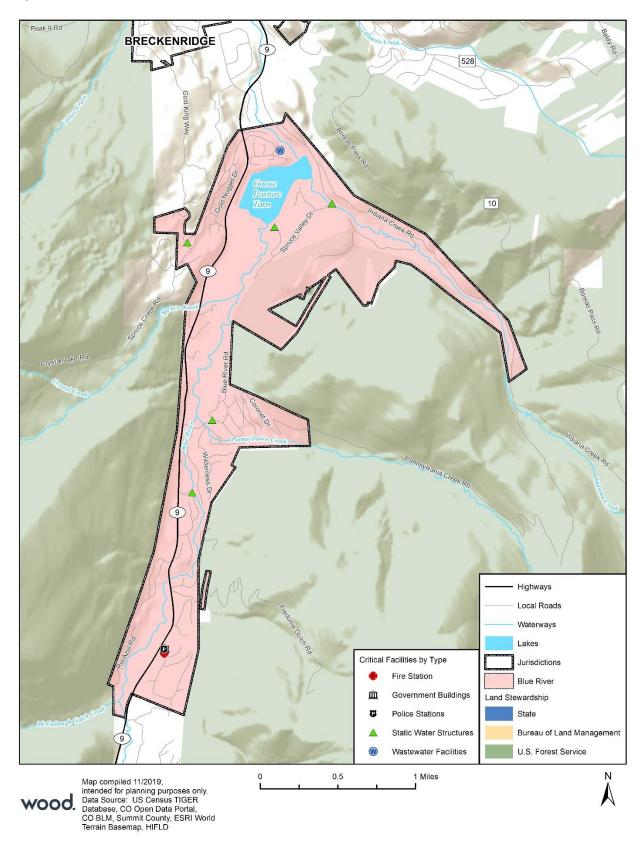
FEMA Critical Lifeline Facility Name **Facility Location** Notes or Additional Details Facility Type Category Theobald Way Access on both sides of stream, Blue Grouse Trail Draft Point Distance = 10 Ft, Stream May be accessible off driveway with rig. CR 801 Pond 87 CR 801 "Purbin's Recheck in summer., Distance = 50 Ft, House" Draft Point Pond Static Water Indiana Creek Access on upside of road, Distance = 20Food/ Spruce Valley Drive Structures Draft Point Ft, Stream Water/ Spruce Valley Access is just past canoe house, may be Shelter Tarn Access Draft Spruce Valley Drive accessible w/ type 6 as well, Distance = Point 100 Ft, Pond Blue River Rd Blue River Rd & Royal Water is available on W side of RD in a Draft Point Drive natural pool, Distance = 10 Ft, Stream Wastewater Breckenridge - ---Facilities **Treatment Plant** 120 Whispering Pines Fire Station **RWB** Station 7 - -Ln, Blue River 80424 Government Blue River Town \$350,000 replacement value --Safety and Buildings Hall Security Blue River Marshall Office -110 Whispering Pines Police Stations Summit County Cir, Blue River 80424 Govt.

Source: Summit County GIS, Summit County HMPC.

The past 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



# B.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
- Hazardous Materials (Transportation)
- Lightning
- Pest Infestation (Forest and Aquatic)
- Severe Winter Weather
- Wildlife-Vehicle Collisions
- Windstorm

Only Flood, Dam Inundation, 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 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-9	Estimated Dam Inundation Risk to Properties in Blue River

Parcel Type	Total Properties Exposed	Improved Value	Content Value	Total Value	Population Exposed
Exempt	1	\$0		\$0	
Residential	143	\$72,556,720	\$36,278,360	\$108,835,080	443
TOTAL	144	\$72,556,720	\$36,278,360	\$108,835,080	443

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

#### People

Based on the GIS analysis summarized in Table B-9 above, it is estimated that around 443 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 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 Blue River, 2 critical facilities were found to be at potential risk. These are summarized in the table below.

#### Table B-10 Critical Facilities in Blue River at Risk of Dam Inundation

FEMA Lifeline Category	Critical Facility Type	Facility Name
Food/Water/Shelter	Static Water Structures	Theobald Way Draft Point
		Spruce Valley Tarn Access Draft Point
TOTAL		2

Source: Summit County, HIFLD, Wood Analysis

#### 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.

#### Future Development

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.

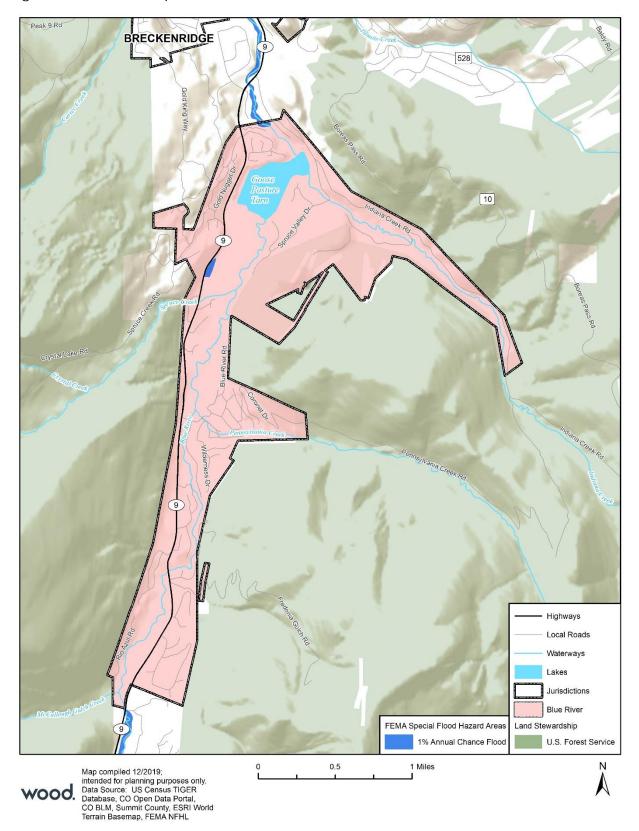


Though not fully delineated by the latest FEMA NFHL data (dated July 17, 2019), the Blue River is likely a cause for riverine flooding in the town, as it is the largest waterway crossing through it. Other streams which are present in Blue River include Pennsylvania Creek, Spruce Creek, Indiana Creek, 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, 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 areas. Figure B-5 below displays the FEMA special flood hazard areas present in the town, color coded based on flood event.





#### Figure B-5 FEMA Special Flood Hazard Areas in Blue River



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-10. 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.

Table B-11	Summary of Properties Vulnerable to Flood in Blue River by Type

Flood Event	Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Loss Estimate (25% of Total Value)	Population
100-year	Residential	1	\$942,742	\$471,371	\$1,414,113	\$353,528	3

Source: Summit County, FEMA NFHL, U.S. Census Bureau, Wood 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 (based on 2018 U.S, Census estimates for Summit County, which equal to 3.1 persons per household) 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 the table above (Table B-10). As such, the 1% annual chance flood would potentially displace 3 people based on the single residential structure which falls in this flood zone.

#### 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 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

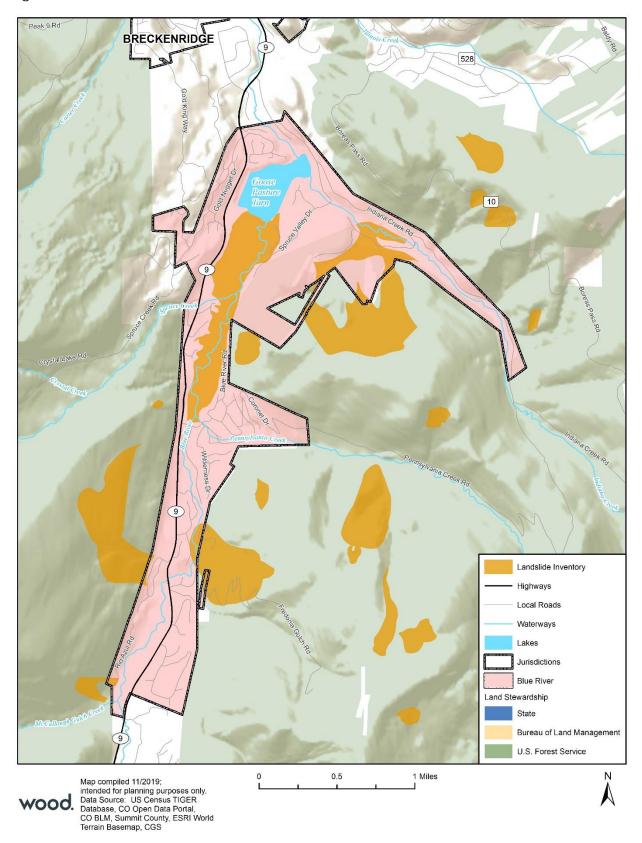
Blue River does not have a floodplain ordinance but there is not anticipated to be new development in the small amount of mapped Special Flood Hazard Area. The building regulations do allow the Town to require that new construction meet certain drainage requirements at its discretion.



#### 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-6 below).





#### Figure B-6 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-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 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 \$35.8 million. A total of 26 properties are exposed to these landslide hazards.

Table B-12	Property Exposure to General Landslide Hazard Areas in Blue River

Parcel Type	Total Properties	Improved Value	Content Value	Total Value	Population
Residential	26	\$23,906,229	\$11,953,115	\$35,859,344	81

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 B-12 above, an estimated 81 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 (which is 3.1 per home) times the number of properties of type "residential" where landslide areas have been inventoried in Blue River.

#### Critical Facilities and Infrastructure

Only one critical facility is found at risk of landslide hazards in Blue River. It is the Spruce Valley Tarn Access Draft Point just past the canoe house south of the Goose Pasture Tarn, and it is classified as a static water structure. This facility is categorized under the Food/Water/Shelter FEMA Lifeline.

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.

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 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 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, 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.

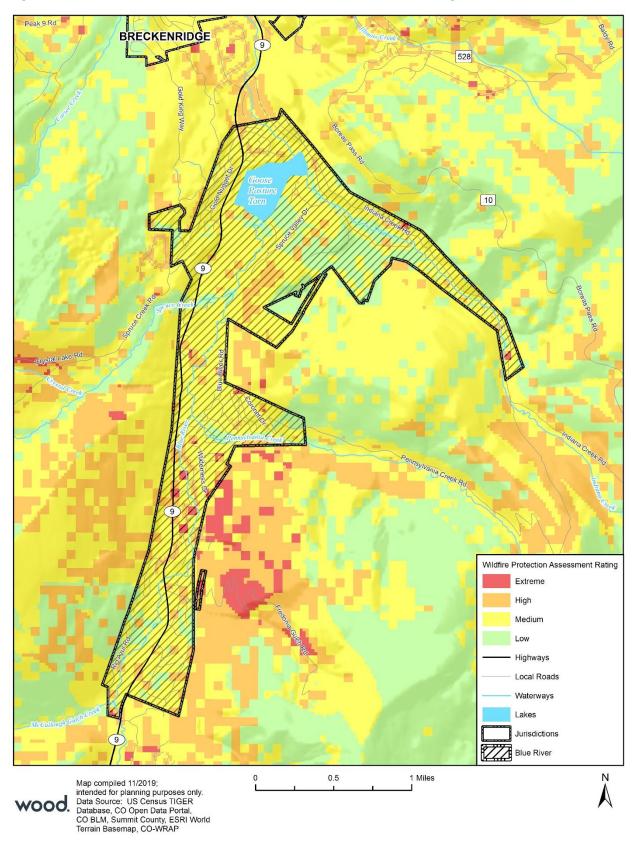
Wildfire protection assessment areas for Blue River are displayed in Figure B-7 for reference.

Parc	el Type:	Total Properties	Improved Value	Content Value	Total Value	Population at Risk
Res	sidential	689	\$435,593,437	\$217,796,719	\$653,390,156	2,136
E>	xempt	4	\$0		\$0	
Т	OTAL	693	\$435,593,437	\$217,796,719	\$653,390,156	2,136

#### Table B-13Property Values in Wildfire Zones by Parcel Type, Blue River

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





# Figure B-7 Wildfire Protection Assessment Areas and Ratings in Blue River



#### People

The last column of Table B-13 above summarizes the number of people at risk to wildfire in the analyzed fire zones. Based on the assessment conducted, Blue River has an estimated 2,136 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, which is 3.1, times the number of residential properties falling within the fire zone/s. While this is higher than the actual population, it may also be indicative of the population that surges during the summer season.

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

All 9 critical facilities located in Blue River are found in either Medium or High wildfire threat areas. 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 B-7 and Table B-8. These are summarized again in the bullet points below for reference:

- Food/Water/Shelter
  - Static Water Structures: Theobald Way Draft Point, CR 801 Pond Draft Point, Indiana Creek Draft Point, Spruce Valley Tarn Access Draft Point, and Blue River Road Draft Point
  - Wastewater Facilities: Breckenridge Treatment Plant
- Safety and Security
  - Fire Station: RWB Station 7
  - Government Buildings: Blue River Town Hall
  - Police Stations: Blue River Marshall Office Summit County Government

The Red, White, and Blue Fire Protection District, which provides fire protection services to Breckenridge, Blue River, 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 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.



#### Future Development

New construction in Blue River must meet defensible space regulations, which is included in the Town's code.

# B.3.3 Growth and Development Trends

Table B-14 illustrates how Blue River has grown in terms of population and number of housing units between 2012 and 2017.

Tahlo R_1/	RIUA Rivar_	-Chango in Pa	nulation and	I Housing Units	2012_2017
	DIUC NIVU -		pulation and	i nousing onits	$S_1 = Z \cup I Z = Z \cup I I$

2012 Population	2017 Population Estimate	Estimated Percent Change 2012-2017	2012 # of Housing Units	2017 Estimated # of Housing Units	Estimated Percent Change 2012-2017
890	932	5%	732	738	+0.8%

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

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).

# **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-15 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.

Regulatory Tool		
(Ordinances, Codes, Plans)	Yes/No	Comments
Master Plan	Yes	Covered by Joint Upper Blue Master Plan (2011)
Zoning Ordinance	Yes	Chapter 16 of Town Ordinances
Subdivision Ordinance	Yes	Chapter 17 of Town Ordinances
Growth Management Ordinance	Yes	Addressed in Comprehensive Master Plan
Floodplain Ordinance	No	
Other Special Purpose Ordinance	Yes	Wildfire mitigation standards

#### Table B-15 Blue River—Regulatory Mitigation Capabilities



Regulatory Tool (Ordinances, Codes, Plans)	Yes/No	Comments
Building Code	Yes	2018 International Residential Code adopted in 2019
Fire Department ISO Rating	Yes	Rating: 2
Erosion or Sediment Control Program	Yes	Coordinating on this category and Stormwater with the Upper Blue Sanitation District. As sewer projects are being conducted the Town replaces culverts and drainage control measures
Stormwater Management Program	Yes	See above statement
Site Plan Review Requirements	Yes	Architectural Guidelines
Capital Improvements Plan	Yes	Capital Improvement Plan (2018)
Economic Development Plan	Yes	Included in Comprehensive Master Plan
Local Emergency Operations Plan	No	Update in progress with other Municipalities
Other Special Plans	Yes	Defensible space plans being developed
Flood Insurance Study or Other Engineering Study for Streams	No	Contract with water specialist and looking at future water projects

#### 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 Codes1. (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 September 12, 2019 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

<sup>&</sup>lt;sup>1</sup> See Chapter 18 of this Code.



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-16 identifies the personnel responsible for activities related to mitigation and loss prevention in Blue River.

#### Table B-16 Blue River—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position	Comments
Planner/Engineer with Knowledge of Land Development/Land Management	Yes	Land Planner	Contract position
Practices Engineer/Professional Trained in Construction Practices Related to Buildings and/or Infrastructure	Yes	Building Inspector	Full time position with Town
Planner/Engineer/Scientist with an Understanding of Natural Hazards	Yes	Engineer	Contract Position
Personnel Skilled in GIS	No		Utilize Summit County GIS
Full Time Building Official	Yes	Building Inspector	
Floodplain Manager	No		Handled by contract Engineer
Emergency Manager	Yes	Town Manager	Town Manager fulfills these duties
Grant Writer	Yes	Town Manager	Town Manager fulfills these duties
Other Personnel	Yes	Town Manager/Clerk	
Warning Systems/Services	Yes		Provided by Summit County Communications Center

# B.4.3 Fiscal Mitigation Capabilities

Table B-17 identifies financial tools or resources that Blue River could potentially use to help fund mitigation activities.

#### Table B-17 Blue River—Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	No	
Capital Improvements Project Funding	No	
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	



# B.4.4 Mitigation Outreach and Partnerships

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.

# 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.

# 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 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.

# **B.5 Mitigation Goals and Objectives**

Blue River adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

# **B.6 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.



# Mitigation Action: Blue River-1 Culvert and Bridge Replacement

Jurisdiction:	Town of Blue River
Action Title:	Replace collapsing culverts and rebuild bridge over the Blue River on Blue River Road.
Hazard(s) Mitigated:	Flood
Priority:	High
Background/Issue:	
Responsible Agency:	Town of Blue River Town Management
Partners:	Summit County
Potential Funding:	Town of Blue River, FEMA Hazard Mitigation Grant Program and Pre-Disaster Mitigation Grant Program
Cost Estimate:	\$300,000
Benefits: (Losses Avoided)	<ul> <li>Protect public health and safety</li> <li>Reduce damage due to flooding</li> <li>Prevent bridge collapse</li> <li>Improve evacuation routes</li> </ul>
Timeline:	
Status:	<b>Completed</b> . This is complete and culverts are cleared on an annual basis to ensure functionality



# Mitigation Action: Blue River—2 Defensible Space Program

Jurisdiction:	Town of Blue River
Action Title:	Continue homeowner defensible space program begun in 2007
Hazard(s) Mitigated:	Wildfire
Priority:	High
Background/Issue:	Forest pests has killed many trees in town increasing the wildfire danger. As we are told by the fire district, it is not if, but when a wildfire will break out. The Town of Blue River has embarked on a defensible space program to help with fire mitigation. The Town has had the program in place since 2007. We also now have hydrants in the Town.
Ideas for Implementation:	Encourage homeowners and property owners to clear a 30-foot defensible space around their homes through education and rebates. Seek funding to continue this program each year.
Responsible Agency:	Town of Blue River Town Management
Partners:	Red, White, and Blue Fire Protection District
Potential Funding:	Town of Blue River, grant from Red, White, and Blue Fire Protection District, FEMA Hazard Mitigation Grant Program and Pre-Disaster Mitigation Grant Program
Cost Estimate:	We have budgeted (the Town) \$15,000 with a matching grant from Red, White and Blue Fire Protection District for \$15,000.
Benefits: (Losses Avoided)	<ul><li>Help residents take responsibility for mitigation of their homes</li><li>Reduce potential loss of life and structures</li></ul>
Timeline:	Annual Implementation
Status:	The Town provides funding each year towards the defensible space grant program in conjunction with the Summit County Wildfire Council.



# Mitigation Action: Blue River—3 Regrade Spruce Creek Road

Jurisdiction:	Town of Blue River
Action Title:	Re-grade Spruce Creek Road to allow safe automobile passage to homes and national forest trails
Hazard(s) Mitigated:	Erosion/Deposition, Flood
Priority:	Low
Background/Issue:	The current road is being washed away. Complete re-engineering is required to bring it up to a safe standard. This is a major thoroughfare into the National Forest and is heavily used. If the Town deems it unsafe and we cannot get it repaired, we will have to close the road for safety reasons.
Ideas for Implementation:	We have approached the county for assistance since our Town road connects with the County and on to the National Forest.
Responsible Agency:	Town of Blue River Town Management
Partners:	Summit County
Potential Funding:	
Cost Estimate:	It has been estimated at \$1,000,000 to reconstruct the road.
Benefits: (Losses Avoided)	<ul><li>Ensure safety of road for residents and visitors to the national forest.</li><li>Avoid closing the road.</li></ul>
Timeline:	
Status:	<b>Completed</b> . The road was addressed as best possible given funding and terrain. Safety of this road is addressed in the Blue River Capital Improvement Plan and will be completed as funding is available.



# Mitigation Action: Blue River—4 Augment Water Supply

Jurisdiction:	Town of Blue River
Action Title:	Structural Project – Augment water supply – Cistern Project
Hazard(s) Mitigated:	Wildfire
Priority:	High
Background/Issue:	The Town intends to purchase land to install cisterns in strategic locations for wildfire and structure protection.
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	Red, White and Blue Fire Protection District, Wildfire Council
Potential Funding:	Grants, Awards, Town funds
Cost Estimate:	\$100,000 for each system, plus land acquisition costs
Benefits: (Losses Avoided)	There are few hydrants throughout the jurisdiction and firefighting requires shuttling water with tenders. The additional water would be a benefit in initial attack of a wildfire or structure fire or structure protection.
Timeline:	
Status:	<b>Completed</b> . Action added in 2013. Cisterns have been installed in 21 locations throughout town. As easements are granted and requests submitted, additional cisterns will be installed per the capital improvement plan.



# Mitigation Action: Blue River—5 Comprehensive Master Plan

Jurisdiction:	Town of Blue River
Action Title:	Prevention– Comprehensive Master Plan
Hazard(s) Mitigated:	Multi-Hazard
Priority:	Medium
Background/Issue:	The Town is in the process of developing a comprehensive master plan. The plan includes annexation and tax alternatives.
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	Summit County Planning
Potential Funding:	Town funds
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	The plan will provide the Town with a comprehensive planning strategy for the future.
Timeline:	2-5 years. The Plan was adopted in 2015 and is being updated in 2020.
Status:	In progress. Action added in 2013. In 2019 the Town completed and adopted the capital improvement plan. This plan is being utilized and a planning document and the town is working towards funding the plan as part of a long-term project. In 2020 the Town will be updating the 2014 Comprehensive Plan.



# Mitigation Action: Blue River-6 Realign Spruce Creek Road

Jurisdiction:	Town of Blue River
Action Title:	All Hazards – Structural Project – Re-alignment of Spruce Creek Road with Colorado Highway 9
Hazard(s) Mitigated:	Multi-Hazard
Priority:	High
Background/Issue:	The Town is looking into a seasonal closure as one alternative to addressing the safety hazard at the Spruce Creek Road and Highway 9 intersection. A second alternative would be the permanent closure of the intersection. A third alternative would be the re-alignment of the intersection with the State Highway.
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	Colorado Department of Transportation
Potential Funding:	Grants, Awards, State and Town funds
Cost Estimate:	
Benefits: (Losses Avoided)	The intersection is a blind entrance point onto Highway 9 where the posted speed limit is 50 mph. During the winter months the weather elements cause motorists to slide into the intersection as well as having extreme difficulty in climbing up the grade on Spruce Creek Road from the highway. This is dangerous because of the grade, road construction material, and weather elements.
Timeline:	
Status:	Completed. Action added in 2013. Safety mirrors are being installed.



# Mitigation Action: Blue River—7 Develop Emergency Plan for Highway Closures

Jurisdiction:	Town of Blue River
Action Title	Emergency Plan for Highway Closures
Hazard(s) Mitigated:	Multi-Hazard
Priority:	High
Background/Issue:	When I-70 is closed, traffic is diverted through the Town of Blue River along Hwy 9 to Hoosier Pass. In cases of inclement weather, we lack a plan to address traffic back up, accidents and overall mitigation including resources. A plan needs to be developed outlining protocols and procedures including how to address safety closures of Hwy 9
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	Summit County OEM, Summit County Sheriff's Office, Colorado State Patrol, Colorado Department of Transportation
Potential Funding:	Grants, Awards, State and Town funds
Cost Estimate:	\$0
Benefits: (Losses Avoided)	With a plan in place, we will be able to prevent and/or respond better to accidents and safety concerns along Hwy 9.
Timeline:	Spring 2020
Status:	New in 2020



# Mitigation Action: Blue River – 8 Fuel Reduction and Fuel Breaks

Jurisdiction:	Town of Blue River
Action Title:	Fuels reduction and creation of a break area on National Forest Service and County land that borders the Town of Blue River
Hazard(s) Mitigated:	Wildfire
Priority:	High
Background/Issue:	The Town of Blue River has worked diligently to encourage defensible space around private property within the Town limits. The area that surrounds the Town is both County and National Forest that is in need of fuels reduction to create a healthy forest and buffer in case of a wildfire.
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	Summit County Wildfire Council, USFS
Partners: Potential Funding:	Summit County Wildfire Council, USFS HMA Grants, HMGP -Post Fire following FMAG, County
Potential Funding:	HMA Grants, HMGP -Post Fire following FMAG, County
Potential Funding: Cost Estimate: Benefits:	HMA Grants, HMGP -Post Fire following FMAG, County Unknown By conducting a fuels reduction along the Town borders, it will increase the ability to



# Mitigation Action: Blue River – 9 Bury Utilities

Jurisdiction:	Town of Blue River
Action Title:	Work to bury utilities throughout Town
Hazard(s) Mitigated:	Multi-Hazard, Wildfire, Severe Weather
Priority:	Medium
Background/Issue:	Electrical lines are currently above ground within Town limits. This exposes the Town to power outages and potential fire risk during inclement weather.
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	Xcel Energy, Comcast
Potential Funding:	HMA Grants
Cost Estimate:	Unknown
Benefits: (Losses Avoided)	By burying the lines, this will assist in protecting vital communication lines and power.
Timeline:	2023
Status:	New in 2020



# Mitigation Action: Blue River – 10 Implement Capital Improvement Plan Projects

Jurisdiction:	Town of Blue River
Action Title:	Complete Capital Improvement Plan projects for roads to improve drainage and avoid flooding risks and road damage. Good neighbor program.
Hazard(s) Mitigated:	Flood
Priority:	Medium
Background/Issue:	Many Town road lack proper drainage. During periods of heavy run-off or melting, properties are facing flooding into homes.
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	FEMA
Potential Funding:	HMA Grants,
Cost Estimate:	\$2,000,000
Benefits: (Losses Avoided)	By completing projects within the Town of Blue River Capital Improvement Plan, proper drainage and culverts may be installed allowing for water to run off of roads, into ditches and proceed to wetlands. In cases of heavy rain, flooding or run-off this will help protect properties
Timeline:	2023
Status:	New in 2020



# Mitigation Action: Blue River – 11 Winter Preparedness Kits

Jurisdiction:	Town of Blue River
Action Title:	Winter preparedness kits and information for mountain road traveling along Hwy 9 and Hoosier Pass
Hazard(s) Mitigated:	Severe Winter Weather
Priority:	Medium
Background/Issue:	Winter preparedness kits and information for mountain road traveling along Hwy 9 and Hoosier Pass. Being a major thorough fair for those traveling to and from Summit County, the Town experiences inclement weather and the possibility of stranded motorists.
Ideas for Implementation:	
Responsible Agency:	Town of Blue River Town Management
Partners:	
Potential Funding:	Staff Time
Cost Estimate:	Unknown
Benefits: (Losses Avoided)	Being able to provide weather kits and expanding information about traveling through Blue River and being prepared, will help mitigate incidents.
Timeline:	2023
Status:	New in 2020



# B.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.

# B.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 risk and vulnerability information the 2013 Summit County Hazard Mitigation Plan and the Town of Blue River annex was used to inform the 2015 update to the Town of Blue River Comprehensive Plan, as noted in section B.4 Capability Assessment. Refer to subsection B.4.1 Regulatory Mitigation Capabilities for more information related to the integration and acknowledgment of the hazards in the Town's Comprehensive Plan.

#### 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 5 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.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.