3.12. TRANSPORTATION

This section describes the affected environment and potential impacts of the proposed Project on roads. The local road network is evaluated using a level of service analysis, review of accident rates, and review of the physical road characteristics. The evaluation identifies potential road improvements to increase road safety and address impacts.

3.12.1. Analysis Methods

3.12.1.1. Analysis Area

Analysis of transportation impacts includes both traffic function (traffic volumes, congestion, and delay) and transportation safety. The analysis area for transportation encompasses the road system that would be used to transport mine concentrates between the Project area and the Livingston and/or Townsend rail yards, including portions of Sheep Creek Road, U.S. Route 89, U.S. Route 12, I-90, and local roads in Livingston and Townsend.

3.12.1.2. Data Sources

Current and projected future (non-Project) traffic volumes, traffic classifications (i.e., by vehicle type), and safety data were obtained online from publicly available information provided by the MDT. The Proponent provided estimates of Project traffic volumes and vehicle classifications during construction and operations.

3.12.1.3. Transportation Analysis

Road transportation conditions are described not only according to traffic volumes and classifications, but also using Level of Service (LOS), a mathematical measure of the amount of traffic congestion or delay experienced on roadways and at intersections. LOS is typically evaluated for a road or intersection's peak hour (i.e., rush hour), and is expressed as a letter grade between A and F. LOS A indicates roads with minimal congestion and intersections with little to no delay, while LOS F indicates heavily congested roads (to the point of gridlock) and intersections with long delays (Transportation Research Board 2010). In rural areas, roads and intersections functioning at LOS C or better are typically considered to be operating acceptably, while LOS D or worse typically reflects conditions perceived as unacceptable for drivers.

Construction- and operations-phase road conditions are established by adding Project-related traffic to projected non-Project traffic volumes (i.e., the amount of traffic that would use the road system in future years if the Project were never to be constructed or operated).

Highway safety is commonly evaluated in terms of incident rates, such as the number of crashes, injuries, or fatalities per million vehicle miles traveled (VMT). All other factors being equal, the number of incidents increases in proportion with increases in traffic volumes. Other factors that can increase traffic incidents include increased congestion, poor road conditions, and increased truck volumes. The Project would result in increased total traffic and increased truck traffic on public roadways, which could increase the number of incidents. Analysis of traffic safety

impacts reflects the change in the total number and rate of incidents due to the addition of Project traffic.

The Proponent prepared a traffic study to evaluate baseline and future peak hour LOS for key intersections impacted by Project traffic. As stated in the traffic study, "due to the relatively low traffic volumes along the study roadways compared to the roadways capacity, no specific LOS calculations were performed for the study roadways" (Abelin Traffic Services 2018).

The Proponent's traffic study also analyzes historic vehicle crash information, intersection sight distance, and turning lane requirements at the following locations:

- U.S. Route 89 at Sheep Creek Road;
- The U.S. Route 89/U.S. Route 12 split northeast of White Sulphur Springs;
- Main Street at 3rd Avenue (both signed as U.S. Route 89/U.S. Route 12) in White Sulphur Springs;
- The U.S. Route 89/U.S. Route 12 split south of White Sulphur Springs;
- U.S. Route 12 at U.S. Route 287 in Townsend (entrance to the Townsend rail yard); and
- U.S. Route 12 through Deep Creek Canyon in the Helena National Forest.

This section assumes that employee commuter trips, and delivery of construction and operations-phase components, materials, consumable supplies, and hazardous materials (e.g., diesel fuel) would access the Project area through the roads listed in Section 3.12.1.1, Analysis Area. Specific origin points and delivery and commuter routes have not been defined. Accordingly, this section includes a generalized evaluation of traffic impacts on the roads in the analysis area.

3.12.2. Affected Environment

3.12.2.1. Existing Road Network

As described in Section 3.12.1.1, Analysis Area, major roads in the analysis area include U.S. Route 89, U.S. Route 12, Sheep Creek Road, and a small segment of I-90. Other roads impacted by the Project include Butte Creek Road and local roads in Livingston and Townsend.

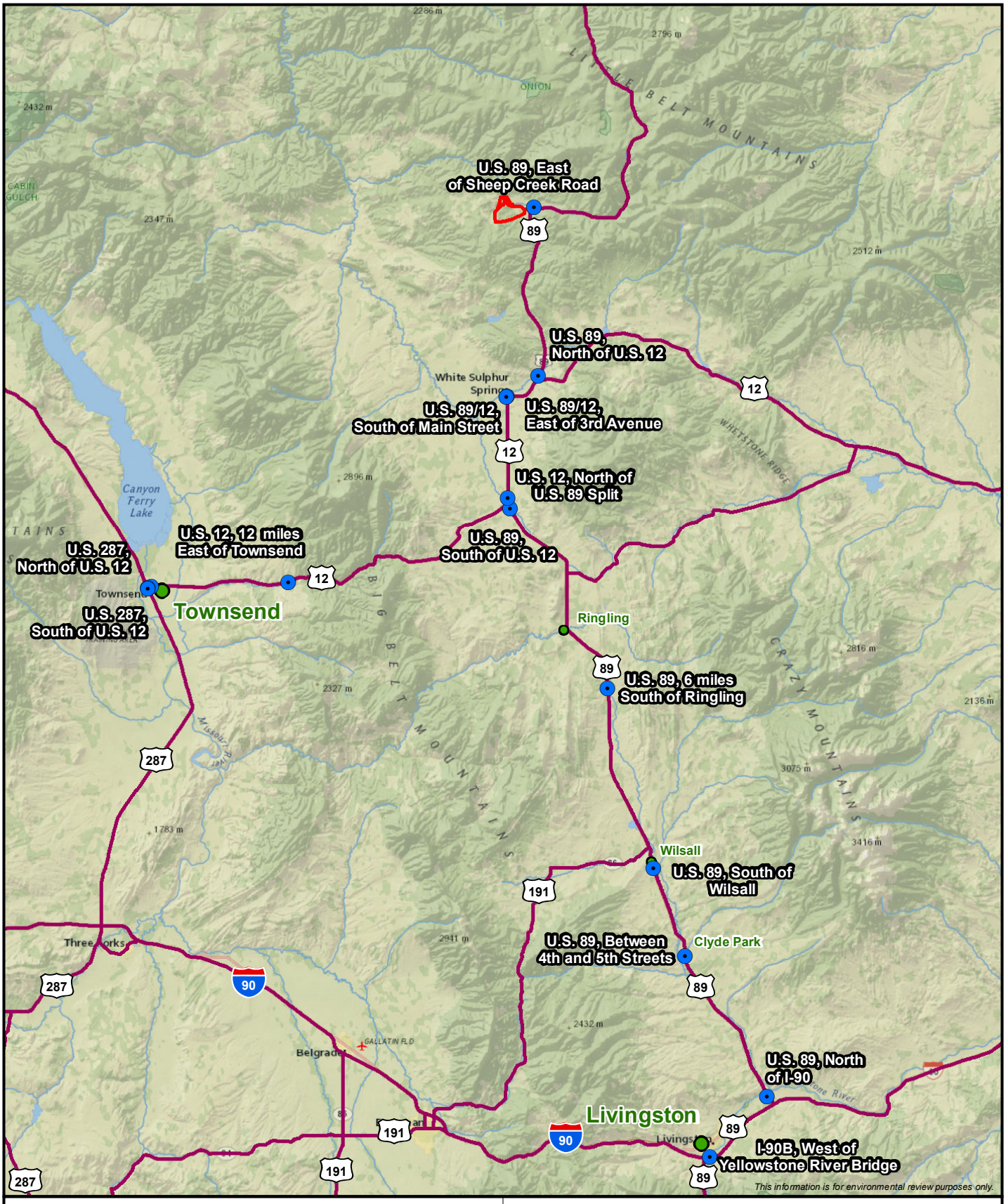
Access to the Project area would be via Sheep Creek Road and Butte Creek Road during construction and via Sheep Creek Road during mine operations. During mine operations, the haul route for mine concentrates would include the following road segments listed here and described in detail below. **Table 3.12-1** provides the AADT on these roads, while **Figure 3.12-1** shows AADT locations.

- U.S. Route 89 from Sheep Creek Road to the point where U.S. Route 89 and U.S. Route 12 join, just north of White Sulphur Springs; and
- U.S. Route 89/U.S. Route 12 from their merger north of White Sulphur Springs, through the town, to their split, approximately 9 miles south of White Sulphur Springs.

Table 3.12-1
2018 Average Annual Daily Traffic on Analysis Area Roads

Road	Location Milepost (MP)	2018 AADT		Truck Percent
		Total	Commercial	
North of Project area				
U.S. Route 89	North of Meagher County line, MP 28.95	393	52	13.2%
U.S. Route 89	0.5 mile east of Sheep Creek Road, MP 15.65	313	52	16.6%
South of Project area				
U.S. Route 89	0.5 mile north of U.S. Route 89/U.S. Route 12 merger, MP 0.51	541	52	9.6%
U.S. Route 12/ U.S. Route 89	Between Central and 1st Avenues, White Sulphur Springs, MP 42.30	2,479	73	2.9%
U.S. Route 12/ U.S. Route 89	East of 3rd Avenue, White Sulphur Springs, MP 42.15	3,452	73	2.1%
U.S. Route 12/ U.S. Route 89	South of Main Street, White Sulphur Springs, MP 42.06	1,600	73	4.6%
U.S. Route 12/ U.S. Route 89	0.5 mile north of U.S. Route 89/U.S. Route 12 split, MP 34.07	704	73	10.4%
South of Project area, route to Townsend				
U.S. Route 12	0.5 mile west of U.S. Route 89/U.S. Route 12 split MP 32.91	578	171	29.6%
U.S. Route 12	Deep Creek Canyon,12 mi east of Townsend, MP 12.03	687	171	24.9%
U.S. Route 12	0.03 mile east of U.S. Route 287, Townsend, MP 0.04	3,058	171	5.6%
U.S. Route 287	North of U.S. Route 12, Townsend, MP 77.52	6,277	388	6.2%
U.S. Route 287	South of U.S. Route 12, Townsend, MP 77.60	5,860	441	7.5%
South of Project area, route to Livingston				
U.S. Route 89	0.5 mile south of U.S. Route 89/U.S. Route 12 split, MP 56.94	400	107	26.8%
U.S. Route 89	6 miles south of Ringling, MP 38.99	522	107	20.5%
U.S. Route 89	0.5 mile south of Wilsall, MP 22.99	1,128	72	6.4%
U.S. Route 89	Between 4th and 5th Streets, Clyde Park, MP 15.05	1,468	72	4.9%
U.S. Route 89	1 mile north of I-90, MP 1.43	2,052	72	3.5%
I-90	West of U.S. Route 89 and east of Exit 337, MP 338.46	12,476	1,892	15.2%
I-90B (U.S. Route 89)	West of I-90 Exit 337, Livingston, MP 57.64	2,535	248	9.8%
I-90B (U.S. Route 89)	West of Yellowstone River Bridge, Livingston, MP 55.77	4,855	248	5.1%

Source: MDT 2019



AADT Points
Towns
Highways
Project Area

1:700,000
0 5 10 Miles

Figure 3.12-1
Black Butte Copper Project
AADT Count Locations
Meagher County, Montana

ERM

MPLS M:\Clients\M-O\MTDEQ\BlackBute_Copper_ArcGIS\2018\03\Transportation_Fig_3_12_1.mxd | REVISED: 08/19/2019 | SCALE: 1:700,000

DRAWN BY: JML

Deliveries destined for Livingston would proceed along the following road segments:

- U.S. Route 89 south to I-90;
- I-90 from exit 340 to I-90 Business/U.S. Route 89/East Park Street (Exit 337);
- I-90 Business/U.S. Route 89/East Park Street to a Montana Rail Link (MRL) railhead shipping facility that would be constructed for the proposed mine. The Proponent's traffic study states that the rail facility would be east of the Yellowstone River along the MRL tracks north of U.S. Route 89/East Park Street (Abelin Traffic Services 2018). The specific entry point for the rail yard has not been determined by the Proponent and MRL.

Deliveries destined for Townsend would proceed west along U.S. Route 12 to Townsend, through Townsend on U.S. Route 12/Broadway Street and directly across U.S. Route 287/Front Street into the Townsend MRL rail yards.

The Proponent's traffic study anticipates that about 80 percent of employee traffic to the mine would travel on U.S Route 89 from the White Sulphur Springs area, while the remaining 20 percent would come from the north using U.S. Route 89 and from the south and east using U.S. Route 12 and U.S. Route 89.

Table 3.12-2 shows historic AADT. Traffic volume on most major analysis area roads has declined since 2005. U.S. Route 89 experienced a modest increase in traffic volume north of White Sulphur Springs and a sharp increase within White Sulphur Springs in 2018; the 2018 total diverges from the trend over the previous 10 years, when volumes fluctuated between roughly 2,100 and 3,100 AADT. No seasonal traffic data are available for analysis area roads; however, statewide trends show peak volume in July and August, approximately twice as high volumes in January and February (MDT 2019).

Table 3.12-2
Historic Average Annual Daily Traffic on Analysis Area Roads

Road	Location	Historic Traffic Data (AADT)				
		2005	2008	2011	2014	2018
North of Project area						
U.S. Route 89	0.5 mile east of Sheep Creek Road	330	390	460	390	313
South of Project area						
U.S. Route 89	0.5 mile north of U.S. Route 89/U.S. Route 12 merger	410	320	360	510	541
U.S. Route 12/ U.S. Route 89	East of 3rd Avenue, White Sulphur Springs	2,540	2,130	3,120	2,120	3,452
U.S. Route 12/ U.S. Route 89	0.5 mile north of U.S. Route 89/U.S. Route 12 split	860	870	930	870	704
South of Project area, route to Townsend						
U.S. Route 12	0.03 mile east of U.S. Route 287, Townsend	4,060	3,160	3,270	3,050	3,058
U.S. Route 287	North of U.S. Route 12, Townsend	7,010	6,090	6,300	6,670	6,277
U.S. Route 287	South of U.S. Route 12, Townsend	6,520	5,640	5,740	6,080	5,860

Road	Location	Historic Traffic Data (AADT)				
		2005	2008	2011	2014	2018
South of Project area, route to Livingston						
U.S. Route 89	0.5 mile south of U.S. Route 89/U.S. Route 12 split	550	560	610	630	400
U.S. Route 89	1 mile north of I-90	1,840	1,840	1,830	1,900	2,052

Source: MDT 2019

Sheep Creek Road (County Route 119) and Butte Creek Road

The primary access to the Project area is via Sheep Creek Road (County Road 119). Sheep Creek Road intersects U.S. Route 89 approximately 0.5 mile east of the MOP Application Boundary, and intersects Butte Creek Road within the Project area about 2.2 miles west of U.S. Route 89. No AADT or traffic safety data are available for Sheep Creek Road.

Sheep Creek Road is a two-lane roadway with a gravel surface and total width ranging from 24 to 28 feet. The road crosses gently rolling terrain from U.S. Route 89 through the Project area, and enters mountainous terrain north and west of the Project area. An unpaved acceleration area is present at the U.S. Route 89 intersection.

U.S. Route 89 and U.S. Route 12

U.S. Route 89 is the primary regional access route for the Project area. It runs north-south from Yellowstone National Park in Wyoming to the Canadian border near Glacier National Park, via Livingston, White Sulphur Springs, and Great Falls. U.S. Route 89 has an almost 90-degree curve, beginning about 500 feet north of the Sheep Creek Road intersection. U.S. Route 89 is a paved, two-lane road, with two 12-foot travel lanes and 0- to 2-foot shoulders outside of the communities.

U.S. Route 12 runs east-west through Montana, from North Dakota to Idaho, via White Sulphur Springs and Townsend. In the analysis area (from the northern U.S. Route 89 intersection to Townsend), U.S. Route 12 is a paved, two-lane road, with two 12-foot travel lanes and shoulders widths varying from 0 to 2 feet outside of the communities.

As shown in **Table 3.12-1**, AADT on U.S. Route 89 are low near the Project area, and increase toward White Sulphur Springs, particularly in the segment that overlaps with U.S. Route 12. Traffic volumes on U.S. Route 89 also increase south of the intersection with U.S. Route 12, toward the I-90 interchange. AADT on U.S. Route 12 is low outside of Townsend.

There are no curbs outside of towns, while guardrail and turn lanes are provided in some locations. U.S. Route 89 and U.S. Route 12 are generally flat to gently rolling, except the segment of U.S. Route 12 east of Townsend, in the Helena National Forest. This segment has dramatic elevation changes, climbing (westbound) 800 feet and then descending 2,000 feet to Townsend.

Posted speed limits outside of towns are 70 miles per hour (mph) (65 mph at night) for passenger vehicles, and 60 mph (50 mph at night) for trucks. Within White Sulphur Springs, Wilsall, and

Clyde Park, speed limits decrease to 45 mph and then 25 to 35 mph within town centers. Within White Sulphur Springs and Townsend, U.S. Route 89/12 and U.S. Route 12 typically have on-street parking adjacent to travel lanes, with curb/gutter and sidewalks in some locations.

I-90

I-90 is a limited-access freeway that runs east-west through the entire width of Montana, and links the Atlantic and Pacific coasts, from Boston to Seattle. Mine concentrate shipments would use the segment of I-90 between U.S. Route 89/Park Street at Livingston (exit 337) and U.S. Route 89 (exit 340). Each of the separate eastbound and westbound lanes of the Interstate consists of two 12-foot travel lanes, 8-foot wide outside shoulders, and 4-foot inside shoulders. Acceleration and deceleration lanes are provided for both exits. AADT on this segment of I-90 exceeds 12,000 vehicles per day, of which more than 15 percent are heavy trucks.

I-90 near Livingston is frequently impacted by high winds, resulting in four levels of response, as determined by MDT (CDM Smith and MDT 2019):

1. A severe cross-wind warning is triggered when wind speeds reach 40 mph. This warning does not result in closures or other restrictions.
2. A partial I-90 closure between Exits 330 and 337 (west and east of Livingston) is triggered when wind speeds reach 50 mph. This closure requires trucks to exit I-90 and detour through Livingston.
3. A full I-90 closure between Exits 330 and 337 is triggered when wind speeds reach 60 mph, or as deemed necessary by MDT based on weather conditions. This closure requires all vehicles to exit I-90 and detour through Livingston.
4. Full closure of a longer segment of I-90 (i.e., extending east or west of Livingston) is a less common occurrence, and generally occurs due to blowing snow.

On average, partial or full detours on I-90 occur about two times per week from October through March. During partial or full closures, traffic is detoured onto U.S. Route 10 and I-90 Business/U.S. Route 89/Park Street through Livingston. Full closure results in traffic back-ups through the town and onto I-90, hindering travel through and within the town (CDM Smith and MDT 2019). Public comments on the Draft EIS described difficulties accessing Livingston Health Care, the hospital located on U.S. Route 89 east of the Yellowstone River (1.3 miles from the I-90 interchange, Exit 337) during these closures.

Other Roads

U.S. Route 287 runs north-south through Townsend, linking West Yellowstone to Helena. Mine concentrate shipments would not travel on U.S. Route 287, but would cross it on U.S. Route 12, at the Broadway Street/Front Street intersection in Townsend.

Roads along the mine concentrate haul route in Livingston would include I-90 Business (which is also signed as U.S. Route 89, and becomes Park Street) and would end at a new rail yard east of the I-90 Business/U.S. Route 89 bridge over the Yellowstone River, before I-90 Business enters downtown Livingston.

3.12.2.2. Traffic Safety Data

The Proponent's traffic study evaluated general vehicle crash trends, as well as historic crash rates at the intersections listed in Section 3.12.1.3. "In general, a vehicle crash rate of less than one crash per million vehicles entering (MVE) [i.e., vehicles entering the intersection] is typical for rural highway intersections. The road segment crash rate for rural highways is generally between 0.5 to 1.0 crashes per million vehicle miles traveled" (Abelin Traffic Services 2018). Vehicle crashes in the past 10 years, crash rates (where different from the general rate of 0.5 to 1.0 crash per million VMT), and existing safety measures (aside from stop signs or standard traffic signals) for Project-area intersections are summarized below:

- Intersection of U.S. Route 89 at Sheep Creek Road: no crashes in past 10 years.
- Intersection of U.S. Route 12/U.S. Route 89 east of White Sulphur Springs: one crash, a single-vehicle rollover. The intersection has approaching warning rumble strips on U.S. Route 89 and overhead warning flashers at the intersection. U.S. Route 12/U.S. Route 89 has a left-turn lane to facilitate vehicles turning onto U.S. Route 89 from the south.
- Intersection of U.S. Route 12/89 (Main Street at 3rd Avenue) in White Sulphur Springs: no crashes.
- Intersection of U.S. Route 12/U.S. Route 89 south of White Sulphur Springs: Three crashes, including a collision with a wild animal, a single-vehicle rollover, and a multi-vehicle sideswipe. The crash rate for this intersection is 0.68 crashes per MVE.
- Intersection of U.S. Route 12 and U.S. Route 287 in Townsend: ten vehicle crashes, nine of which were multi-vehicle collisions. The crash rate for this intersection is 0.34 crashes per MVE. The intersection has four-way stop signs with overhead warning flashers.
- Road Segment of U.S. Route 12 through Deep Creek Canyon (Helena National Forest): 60 crashes, of which 53 were single-vehicle crashes, resulting in an accident rate of 2.13 accidents per million VMT. Wet, icy, or snow covered roads or dark conditions contributed to 41 of these crashes. The roadway was improved in 2016 with new bridges, signage, and guardrails. As a result, it is not yet known whether these upgrades have improved safety conditions on this road segment.

3.12.3. Environmental Consequences

MDT generally assumes annual traffic growth rates of one percent for U.S Route 12 and U.S. Route 89. These roads typically operate at 5 to 10 percent of their carrying capacity. Based on MDT assumptions, baseline traffic not associated with the Project would increase about 20 percent (above the traffic volumes shown in **Table 3.12-2**) by the end of the Project's operational life, and total traffic on Project-area roads would still be less than 20 percent of total capacity. This assumption provides the basis for the discussion of the Project's traffic impacts.

3.12.3.1. No Action Alternative

Without the Project, there would be no Project-related increases in traffic, traffic congestion, or highway safety incidents.

3.12.3.2. Proposed Action

Project Traffic

Project construction and operations would generate the following vehicle traffic (Abelin Traffic Services 2018):

- During the 2-year construction period, approximately 160 daily vehicle trips generated by approximately 75 employees, in addition to eight truck round trips per day carrying supplies and construction materials.
- During operations:
  - 18 truck round trips per day transporting mine concentrate in sealed containers to MRL rail yards in Livingston and/or Townsend, operating 24 hours per day[1];
  - An average of 9 truck round trips for supplies and other deliveries[2]; and
  - 300 employee vehicle trips (see below).

As stated in Section 3.9.3.2, Project operations would employ a total of 386 workers (Proponent employees, Proponent contractors, and associated support workers) at the mine site. This includes the 235 Proponent workers listed in the Proponents' Mine Operating Permit application, as well as 24 contractors and 127 support workers. The Mine Operating Permit application states that 104 of the 235 Proponent employees (44 percent) would be on site during the day shift (the largest employee shift) and 41 (17 percent) would be onsite during the night shift. The remaining employees would be on leave or not on shift.

Applying these ratios to the full operational employment of 386, a maximum of 170 total workers would be on site during the day shift and 66 would be on site during the night shift. These workers would generate a maximum of 472 total vehicle movements (trips to and from the Project site): 340 for the day shift and 132 for the night shift.

The Proponent would encourage carpooling, and would provide shuttle service from White Sulphur Springs to the mine using at least one 40-person shuttle vehicle for each shift change. If fully utilized, the shuttle bus and carpooling could eliminate at least 160 trips daily, although actual shuttle bus and carpool use would depend on employee preferences.

Based on this information, the Proponent's traffic study and MOP Application estimate 300 employee vehicle movements, 36 concentrate haul truck movements, and 12 to 18 other truck movements per day during operations.

[1] The Proponent's traffic study (Abelin Traffic Services 2018) states that the daily truck trips along the haul routes would be distributed throughout the daylight period. The Proponent's application indicates haul trucks would operate 24 hours per day. Daylight-only activity would result in higher hourly truck volumes, but nighttime truck traffic could generate traffic safety concerns not present during daytime operations. As a result, this EIS evaluates 24-hour truck travel.

[2] The Proponent's MOP Application (Tintina 2017) states that supplies and services would generate 18 daily truck trips (9 round-trips), while the Proponent's traffic study assumes 12 daily trips (6 round-trips). This EIS evaluates the higher estimate: 18 daily truck trips.

Road Congestion

Table 3.12-3 shows Project-related increases, as cited in the Proponent's traffic study and MOP Application, in total and truck traffic on major roads in the Project area during construction, while **Table 3.12-4** shows traffic increases during operations. The largest Project-related traffic volumes would occur on the segment of U.S. Route 89 between White Sulphur Springs and the Project site.

No traffic counts are available for Sheep Creek Road or Butte Creek Road; however, given the rural nature of these roads, and the absence of commercial or residential destinations, existing traffic is likely to be minimal. Project traffic would thus represent an increase in existing traffic. Project traffic may result in brief periods of congestion at the intersection of Sheep Creek Road and U.S. Route 89, particularly during employee shift changes.

Table 3.12-3
Increase in AADT during Project Construction

Road	Location	Number		Percent Increase	
		Total	Truck	Total	Truck
U.S. Route 89	South of the Project area	178	16	33%	31%
U.S. Route 12/U.S. Route 89	East of 3rd Avenue, White Sulphur Springs	178	16	5%	22%
U.S. Route 12/U.S. Route 89	South of Main Street, White Sulphur Springs	178	16	11%	22%
U.S. Route 12/U.S. Route 89	0.5 mile north of U.S. Route 89/U.S. Route 12 split	178	16	21%	22%

Source: Abelin Traffic Services 2018; Tintina 2017

Table 3.12-4
Increase in AADT during Project Operations (Compared to 2016 AADT)

Road	Location	Number [a]		Percent Increase	
		Total	Truck	Total	Truck
U.S. Route 89	North of the Project area	20	0	5%	0%
U.S. Route 89	South of the Project area	334	54	62%	104%
U.S. Route 12/U.S. Route 89	East of 3rd Avenue, White Sulphur Springs	334	54	10%	74%
U.S. Route 12/U.S. Route 89	South of Main Street, White Sulphur Springs	334	54	21%	74%
U.S. Route 12/U.S. Route 89	0.5 mile north of U.S. Route 89/U.S. Route 12 split	94	54	13%	74%
U.S. Route 12	0.5 mile west of U.S. Route 89/U.S. Route 12 split	74	54	13%	32%
U.S. Route 12	Deep Creek Canyon,12 mi east of Townsend	74	54	11%	32%
U.S. Route 89	0.5 mile south of U.S. Route 89/U.S. Route 12 split	74	54	19%	50%

Road	Location	Number [a]		Percent Increase	
		Total	Truck	Total	Truck
U.S. Route 89	1 mile north of I-90	74	54	4%	75%

Source: Abelin Traffic Services 2018; Tintina 2017

Notes:
[a] Because the Proponent has not determined how many concentrate trucks would travel to either the Townsend and/or Livingston, the Truck Volumes column indicates the maximum possible increase in truck traffic on any of the major Project-area roads.

South of White Sulphur Springs, mine-related traffic is anticipated to disperse over several routes, including the major roads listed in Section 3.12.2.1, Existing Road Network, as well as other roads leading to and from the Project area. Mine concentrate trucks would travel to Townsend and/or Livingston; these are also likely destinations for employee and supplier traffic.

Although **Tables 3.12-3** and **3.12-4** show substantial percent increases in total and truck traffic, actual Project-related traffic volume increases would be small, compared to the capacity of U.S. Route 89 and other major roads. For example, the capacity of two-lane rural arterial highways, such as U.S. Route 89 and U.S. Route 12, exceeds 3,000 vehicles per hour under extreme congestion conditions (Transportation Research Board 2014), while traffic volumes are under 2,000 average vehicles per day on most of the impacted roads. Mine-related traffic would not result in traffic congestion; however, local communities would experience increased traffic, and the increase would feel more acute for residents and commuters who are accustomed to very low traffic volumes. Public comments on the Draft EIS expressed concern about traffic near the communities of Ringling, Wilsall, and Clyde Park, where U.S. Route 89 is used by residents for travelling to work, school, and services within and between these communities. As indicated by **Table 3.12.1**, traffic volumes near Wilsall and Clyde Park are higher than on the rural segments of U.S. Route 89, but still below the capacity of the highway. As a result, impacts in these communities would be similar to the impacts described above for the overall U.S. Route 89 corridor.

The Proponent states that the mine operation would have the option to stockpile containers of concentrate to transport on subsequent days if U.S. Route 12 through Deep Creek Canyon is closed, blocking shipments to Townsend. The Proponent also states that the mine would agree not to send concentrate haul trucks to the Livingston railroad facility during wind-related I-90 closures that route I-90 traffic through Livingston (Section 3.12.2.1, Existing Road Network). The number of haul trucks to both destinations (Livingston and Townsend) would average one truck every 80 minutes, so if a haul truck is on the road when a wind restriction occurs, it would not add significantly to traffic congestion east of Livingston.

Road Safety

As discussed in Section 3.12.1.3, Transportation Analysis, the number of highway incidents could increase in proportion to Project-related increases in traffic volumes during construction and operations. The proposed mine would generate traffic at night as well as during the day, for night shift workers and nighttime mine concentrate haul trucks.

The Proponent's traffic study (Abelin Traffic Services 2018) notes that a generally anticipated collision rate on rural roads is 0.5 to 1.0 incident per 1 million VMT. Based on the highest projections of Project-related traffic and the estimated incident rate (or the recorded incident rate cited in Section 3.12.2.2, Traffic Safety Data, if different), **Table 3.12-5** estimates the Project's potential traffic safety impacts. Because the distribution of truck traffic along U.S. Route 89 and U.S. Route 12 is not known, these estimates assume that all Project trucks would travel both to Townsend and Livingston. As a result, the calculations below overestimate the number of potential traffic incidents south and west of the U.S. Route 89/U.S. Route 12 split, south of White Sulphur Springs.

Table 3.12-5
Estimated Project-Related Traffic Safety Impacts

Road Segment	Miles	Project Annual VMT [a]	Incident Rate [b]	Potential Annual Project Incidents
U.S. Route 89 from Sheep Creek Road to White Sulphur Springs	18	2,194,000	1.0	2.2
U.S. Route 89/U.S. Route 12 from White Sulphur Springs to U.S. Route 89/U.S. Route 12 Split	9	309,000	1.0	0.3
U.S. Route 12 from U.S. Route 89 to Townsend	33	891,000	2.13 [c]	1.9
U.S. Route 89 from U.S. Route 12 to I-90	56	1,513,000	1.0	1.5
I-90 from U.S. 89 to Exit 337	2.5	68,000	1.0	0.1

Notes:
[a] Project VMT rounded to the nearest thousand miles.
[b] Incident rate expressed as the number of incidents per million VMT. Reflects the higher of observed crash rates or up to 1.0 incident per million VMT for rural routes (statewide average).
[c] Incident rate for U.S. Route 12 does not include safety improvements completed in 2016 (see Section 3.12.2.2); as a result, the current incident rate may be lower.

To address traffic safety concerns, potential safety improvements cited in the Proponent's traffic study are listed below:

- U.S. Route 89 at Sheep Creek Road: The limited sight distance to the north along U.S. Route 89 (750 feet) does not meet MDT design standards for truck traffic. The Proponent's traffic study recommends realignment of Sheep Creek Road at least 500 feet to the south. If this is not feasible, the traffic study recommends improvements such as grading and installation of actuated warning flashers. In addition, the traffic study found that although a northbound left-turn lane on U.S. Route 89 would not be required by the MDT Road Design Manual, it would enhance intersection safety.
- U.S. Route 12 west of U.S. Route 89 (Milepost 28.0 to 29.9): Ensure the pullouts and vehicle chain-up areas on U.S. Route 12 near Deep Creek Canyon meet MDT length, width, and surface condition standards. Conduct a special speed zone investigation to consider lowering the posted speed limit.
- If issues occur between mine truck traffic and school buses, implement truck scheduling to limit interactions with school bus traffic. The Proponent's traffic study states that, "It is

unclear if the low amounts of anticipated heavy truck traffic from the mine would have any negative interactions with school bus traffic" (Abelin Traffic Services 2018).

- Use on-board systems to monitor truck speed and limit mine concentrate truck speeds along certain portions of the route, especially on U.S. Route 12 near the Deep Creek Divide.

Spills

The Proponent proposes to load the mine concentrate into sealed shipping containers within an enclosed structure at the mine site. The sealed containers would be transported by truck to the MRL rail facilities, and transferred directly onto rail cars for transportation to smelters. The use of sealed containers reduces spill risk during transport, eliminates the need for material handling at rail stations or other intermediate points, and reduces the risk of spills if an accident occurs. According to the Proponent, the containers are "strong and rugged enough that they are unlikely to release concentrate during shipping accidents or mishandling" (Tintina 2017).

As noted in Section 2.2.3, Operations (Mine Years 3–15), the mine concentrate would not be a liquid, but rather would be thickened and pressed to remove water, with a moisture content of approximately 10 percent. The texture of the concentrate would be approximately comparable to wet sand, thus limiting its ability to spread or flow. As a result, it is likely that a crash severe enough to cause release of mine concentrate would have similar traffic impacts to a crash and release of other bulk materials, such as sand, concrete, or agricultural products. Impacts on other resources are discussed in their respective sections in Chapter 3 of this EIS.

General procedures for all spills, including concentrate spillage from a haul truck accident, are included in the "Emergency Response Plan" (Tintina 2017), which is included as Appendix P of the MOP Application (see specifically Section 4.2, General Rules for Responding to a Spill or Release, and Section 4.3, Reportable Quantities and Agency Notification). The Proponent's anticipated response to spills from sealed concentrate containers as a result of a haul truck crash are summarized below (Zieg 2019):

- The Proponent would initiate immediate response by trained safety and environmental personnel.
- The Proponent would isolate and contain the spilled material, notify appropriate agencies, clean and dispose of the spill material, and then conduct an investigation of the spill. The Proponent would use appropriate equipment to clean the spill, such as loaders, dump trucks, vacuum trucks, and hydro excavation trucks. The type of equipment used would depend upon the quantity and location of the spill, weather, and road conditions.
- The Proponent would remove all traces of the spill and properly dispose of the spilled material.
- The Proponent would conduct post-spill monitoring of the spill site where warranted, especially if the spill impacted a waterbody.
- Handling/cleanup procedures specific to mine concentrate spills from the sealed containers would be addressed in detail before mine operations begin. The Proponent is

in the process of formalizing a Safety Data Sheet for the Black Butte Copper concentrate that would include information critical to concentrate spill response. The Proponent is also preparing a Spill Prevention, Control, and Countermeasures Plan for submittal to the Montana State Fire Marshal and DEQ.

Reclamation

During reclamation, impacts of the Proposed Action on transportation would be similar to those anticipated for construction.

Summary of Impact

Using the assessment rating explained in Section 3.1.2, Impact Assessment Methodology, the transportation impacts are summarized below.

Road Congestion

Although project traffic volumes would result in substantial percentage increases in traffic volumes during Project construction and operations, Project area major roads have substantial available capacity. The Proponent's traffic study states that Project operations would not meaningfully impact road traffic capacity. As a result, traffic congestion is a low-likelihood event during both construction and operations.

Road Safety

During Project construction and operations, Project traffic could increase the chance of traffic incidents, degradation of roadways, and other risks to road safety. This increased risk would not necessarily occur at every intersection or on every road segment. The Proponent's traffic study recommends improvements to the intersection of Sheep Creek Road at U.S. Route 89 to improve sight distance.

Based on existing traffic conditions and behaviors described in Section 3.12.2.1, non-Project drivers are likely to be accustomed to varying road and weather conditions, as well as the presence of heavy truck traffic on analysis area roads.

Spills

Haul truck incidents are not likely to result in breaching of the sealed containers; however, if a container is breached, resulting in a mine concentrate spill, the cleanup process would interrupt road travel. Depending on the severity of the incident and spill, the interruption could range from usage of the road shoulder by response vehicles up to complete road closure for several hours. Spills are a low-likelihood event, and the resulting impact on road traffic would be of low severity.

Smith River Assessment

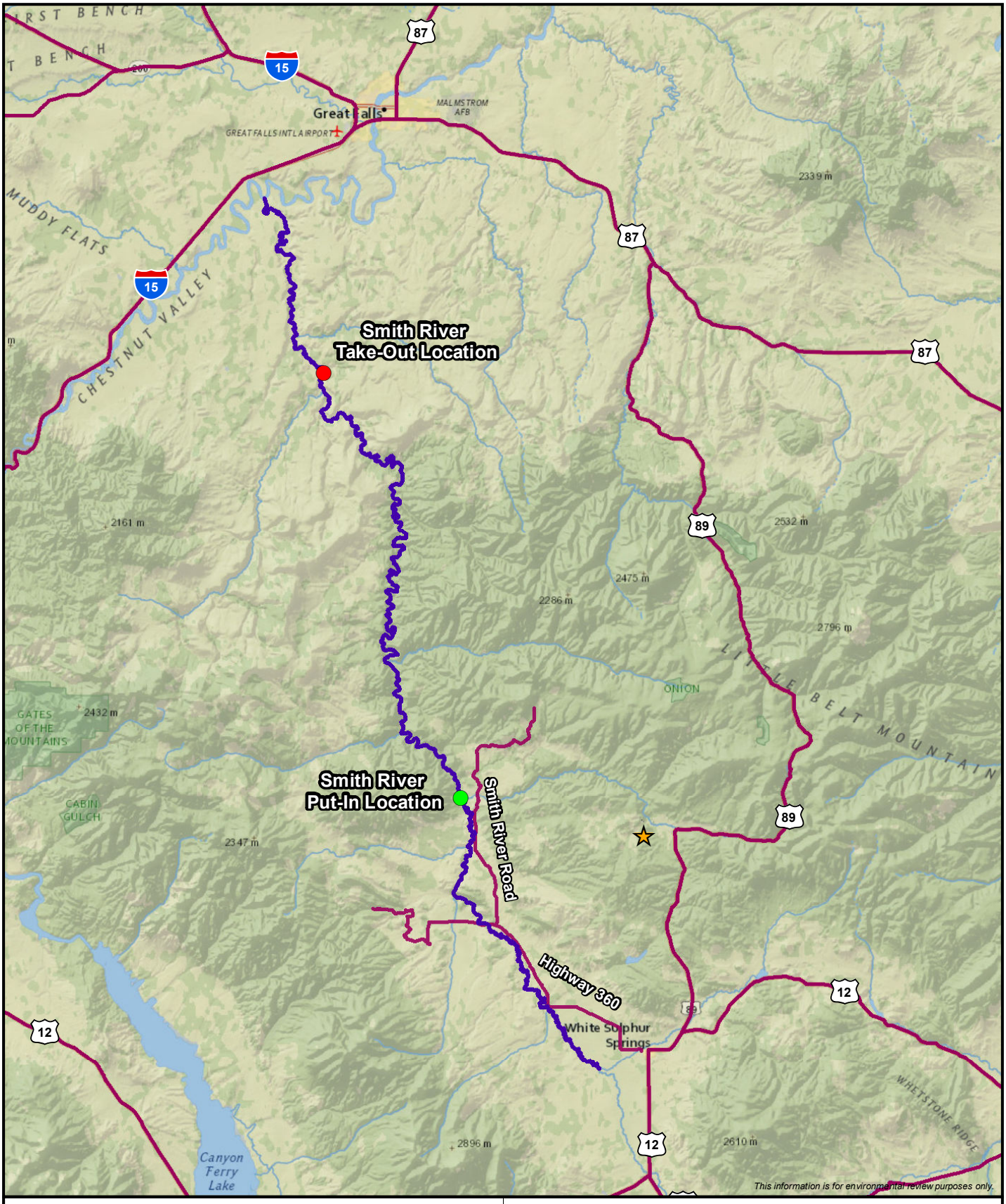
Transportation activity associated with construction and operations of the Project could potentially increase traffic congestion and safety risks for non-Project traffic traveling to and from the Smith River.

None of the analysis area roads cross the Smith River, although U.S. Route 89 follows Sheep Creek for approximately 12 miles north of Sheep Creek Road, and crosses other tributaries to the Smith River. As discussed in Section 3.7.2.2, Recreation, private fishing access to Sheep Creek and the Smith River is available at various points along the Smith River. As shown in **Table 3.7-4**, recreational river use has increased over the past decade. Public boating on the Smith River is regulated by permit, with no more than nine boating groups of up to 15 people, each permitted to use a 59-mile stretch of the river, between one designated put-in (at Camp Baker, at the mouth of Sheep Creek) and one designated take-out (at Eden Bridge where Boston Coulee Road crosses the river). Road access to boating put-in and take-out locations includes (see **Figure 3.12-2**):

- To Camp Baker from the south: State Route 360, which forms the eastern leg of the Main Street/3rd Avenue intersection in White Sulphur Springs (where U.S. Route 89/12 turns south), to Smith River Road;
- To Camp Baker from the north: via Belt Park Road, which intersects U.S. Route 89 approximately 30 miles north of Sheep Creek Road;
- To Eden Bridge from the south: State Route 360 from White Sulphur Springs to Millegan Road (U.S. Route 330); and
- To Eden Bridge from the north: I-15 to State Route 330/Millegan Road (exit 270).

From the south, and from areas east of Great Falls, road access to other segments of Sheep Creek, the Smith River, and its tributaries generally relies on U.S. Route 89 and U.S. Route 89/12 in White Sulphur Springs. Traffic to the Smith River occurs primarily from April through July, when weather and water levels allow boating.

Impacts to traffic using U.S. Route 89 and U.S. Route 89/12 are described in Section 3.12.3.2, Proposed Action. Once off U.S. Route 89 and U.S. Route 89/12, travelers visiting the river are unlikely to encounter Project traffic, with the possible exception of mine employees who live locally. Therefore, the Project would have no impact on transportation associated with the Smith River outside of U.S. Route 89 and U.S. Route 89/12.



Project Location
Smith River Take Out Location
Smith River Put In Location
Smith River
Highways
1:600,000
0 5 10 Miles

Figure 3.12-2
Black Butte Copper Project
Smith River Float Route and Major Roads
Meagher County, Montana

ERM

MPLS M:\Clients\M-O\MTDEQ_ArcGIS\2018\03\Transportation_Fig_3_12_2.mxd | REVISED: 03/15/2018 | SCALE: 1:600,000

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3.12.3.3. Agency Modified Alternative

The modifications identified would result in impacts similar to those described for the Proposed Action, with the following exception. Additional backfilling associated with the AMA would require another 106,971 cubic yards of cemented paste tailings. The additional shipments of flotation chemicals and dry cement would occur during Project operations and closure. It is assumed that truck traffic associated with the AMA would follow the same routes as trucks associated with the Proposed Action.

Transportation of flotation chemicals and dry cement would marginally increase truck traffic compared to the number of truck trips shown in **Table 3.12-4.** These additional trips would not meaningfully change the traffic impacts described for the Proposed Action.

Smith River Assessment

The impacts of AMA traffic on the Smith River would be the same as described for the Proposed Action. Smith River travelers on U.S. Route 89 and U.S. Route 89/12 would encounter Project-related traffic. Once exiting U.S. Route 89 and U.S. Route 89/12, travelers visiting the river are unlikely to encounter Project traffic, with the possible exception of mine employees who live locally. Therefore, the Project would have no impact on transportation associated with the Smith River outside of U.S. Route 89 and U.S. Route 89/12.