

# YELLOWSTONE HERITAGE TRAIL (NORTH)

•Along the Historic Elk River•

*Comprehensive Feasibility Study*

*July 2023*



# Acknowledgments

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| Weston Solutions

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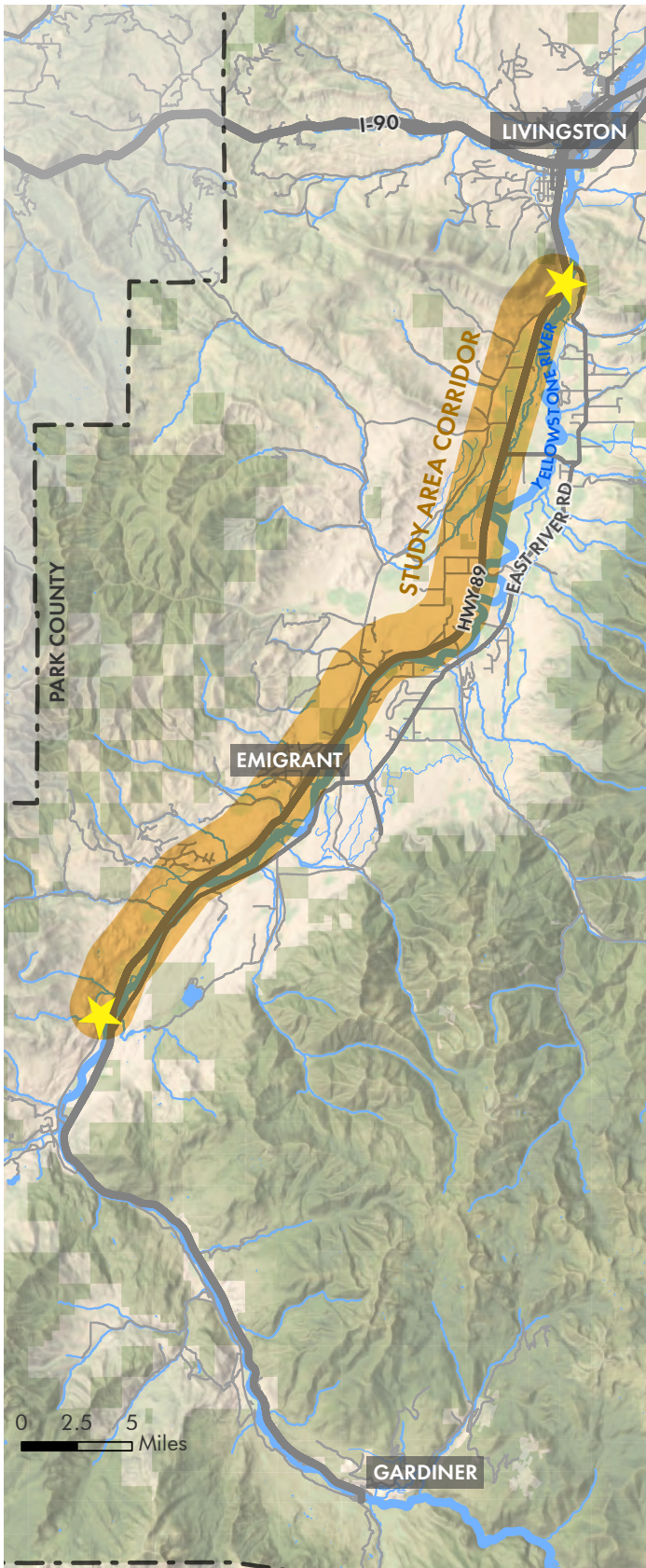
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# Executive Summary



The Yellowstone Heritage Trail (North) Feasibility Study examined the practicality and viability for the continuation of a section of the Great American Rail-Trail through Paradise Valley in Park County, Montana. The feasibility study provides thorough analysis and insight into the region's historical background, existing site conditions, trail alignment considerations, the public engagement process, and recommendations to guide future design and construction of a multi-use trail.

The Yellowstone Heritage Trail (North) is a 28-mile former railroad corridor, running parallel to Highway 89 through Paradise Valley, connecting the southern portion of Livingston, MT to an unnamed road at the Point of Rocks fishing access. In 2020, the Old Yellowstone Trail South (OYTS) Corridor Study evaluated 21.1-miles between Point of Rocks fishing access and Gardiner. Evaluation of trail improvements and recommendations for trail maintenance were provided with the OYTS study. The recommendations proposed by the two studies combined would connect 56 contiguous miles from Livingston, MT to Gardiner, MT.

The Yellowstone Heritage Trail (North) Feasibility Study was commissioned by the Rails-to-Trails Conservancy and funded by Arthur M. Blank Family Foundation with staff support from Park County.

## Public Engagement

Public feedback was collected via four separate methods - one-on-one conversations with landowners, public open house, public survey, and letters mailed to adjacent property owners. All techniques provided information regarding the study and provided opportunities for input and feedback from the community. Public comment suggests overall support of the Yellowstone Heritage Trail (North) development and indicates the trail would provide a safe and secure multi-use alternative connection through Paradise Valley. Detailed results are provided in Appendix A.



## Feasibility Criteria

This study examines a number of factors to assess the feasibility of creating a multi-use trail along the former railroad corridor. These factors include physical conditions along the corridor, as well as community and property owner support for the project.

- » Easement Potential - identifying a continuous route for trail
- » Obstructions - identifying physical elements that obstruct a clear and direct pathway
- » Safety - identifying potential safety concerns and opportunities to reduce those concerns
- » Property Owner Interest and Support - developing the trail will require significant support from land owners and the local community

## Preferred Alignment

After reviewing multiple alignment options using the feasibility criteria, the preferred option to complete a multi-use trail in the study area uses the former railroad corridor as the primary route, with alternate routes in locations where obstructions or other issues dictate a diversion. The alignment follows the former railroad corridor for approximately 60 percent of the length of the corridor, with the remaining 40 percent using alternate routes along Highway 89, nearby roads, or along property boundaries where other options do not exist.

## Recommendations

Construction and completion of the rail-trail within the scope of this feasibility study will require extensive coordination and partnership with adjacent property owners, local trail advocates, and permitting agencies. The following are recommendations to continue development of the trail:

- » Continue public engagement during subsequent phases of design and construction of any trail segment.
- » Work with property owners in determining viability of easements and/or land acquisition for development of a final trail alignment. This will be an essential component in determining final trail design and alignment, as well as reflect property owner expectations and needs.
- » Identify key elements for design of the trail, including trail width and surface materials, to ensure a unified design throughout the entire corridor. Additionally, amenities such as wayfinding, parking, fencing, waste receptacles, and benches, along with the maintenance of these amenities should be considered.
- » Develop an operations and maintenance plan prior to trail construction to provide the necessary framework for future activities.
- » Create a funding strategy to address the high cost of the full build out of the trail. The strategy should include funding sources from a variety of sources, such as local, state, and federal grants which could offset some, or all, of the costs associated with trail design and construction.

# 01 | Introduction

This Yellowstone Heritage Trail (North) Feasibility Study is an investigation to evaluate and identify alignment options for a new multi-use trail through the Paradise Valley in Park County, Montana. The project ultimately envisions a facility that will connect the Highway 89 Pedestrian Path with the Old Yellowstone Trail to create a 56-mile active transportation and recreation pathway between Gardiner and Livingston that will be a key segment of the cross-country Great American Rail-Trail.

## 1.1 Project Introduction

This study identifies the opportunities and constraints to completing a section of the Great American Rail-Trail along the northern portion of the Old Yellowstone Trail. Alternatives address the goals of the project while evaluating the physical conditions within the corridor area, as well as potential costs associated with a given alignment. A summary of recommendations and future actions are included to provide the road map for construction of this section of the Great American Rail-Trail.

## 1.2 Great American Rail-Trail

### A Trail that Connects the Nation

Spanning more than 3,700 miles, the Great American Rail-Trail promises an all-new American experience. The trail travels through 12 states and the District of Columbia, connecting trail users and communities from Washington to Washington DC. As the first cross-country trail of its kind, the “Great American” will be hosted primarily by rail-trails—public paths created from former railroad corridors—as well as other multi-use trails, offering a route across the nation that is completely separated from vehicle traffic. Upon its completion, the Great American will serve more than 50 million people within 50 miles of its route, as well as the millions from across the country and the world who will explore America’s diverse places via the trail.

The preferred route of the Great American Rail-Trail is about 3,700 miles—with approximately 2,057 miles of existing trails (trails along the route that are built and maintained by dedicated teams

## WHAT’S IN A NAME?

The project name, Yellowstone Heritage Trail (North), reflects both the natural resources and historical significance of the area. Tribal nations have historically called the river that flows through Paradise Valley, Elk River. Today, it is known as the Yellowstone River. For generations, the river and surrounding valley has played a fundamental part of the landscape, traditions, and economics of the area. The feasibility study, which assesses the options for a new multi-use trail, reflects that history and seeks to align with the traditions that have shaped the river and surrounding landscape.







of local staff and volunteers) and 1,696 miles of identified trail gaps (sections of trail that still need to be developed) as of July 2023.

While there are more than 1,600 miles of trails to complete along the route of the Great American Rail-Trail, each trail gap has one or more future trail options identified as possible trail connections. Many of these gaps and proposed future trails are already identified in public plans that have been adopted at state and local levels. Insight from local trail partners and states has helped to identify the preferred alignment that best corresponds with their priorities, with the intention of maximizing

existing trail momentum as the Great American Rail-Trail is connected across the country.

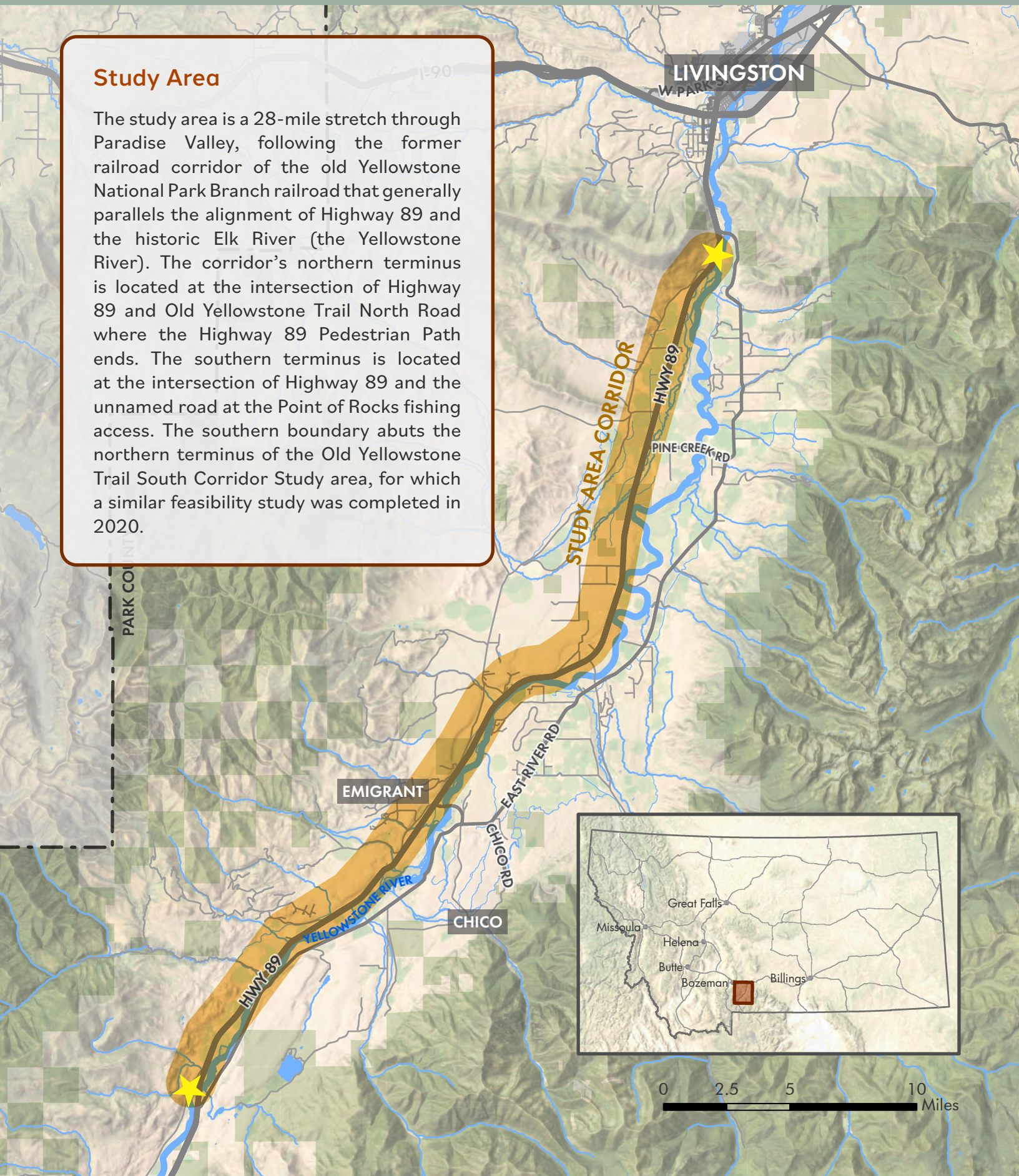
### The Route Through Montana

The Great American Rail-Trail route through Montana will connect many of the state's communities known for outdoor recreation assets— including Livingston, Bozeman, Three Forks, Butte, and Missoula. There are currently 319 miles of trail gaps to be developed in Montana, including the potential trail connection through Park County studied in this report.



## Study Area

The study area is a 28-mile stretch through Paradise Valley, following the former railroad corridor of the old Yellowstone National Park Branch railroad that generally parallels the alignment of Highway 89 and the historic Elk River (the Yellowstone River). The corridor's northern terminus is located at the intersection of Highway 89 and Old Yellowstone Trail North Road where the Highway 89 Pedestrian Path ends. The southern terminus is located at the intersection of Highway 89 and the unnamed road at the Point of Rocks fishing access. The southern boundary abuts the northern terminus of the Old Yellowstone Trail South Corridor Study area, for which a similar feasibility study was completed in 2020.







## Local & Regional Significance

Much like early visitors to Yellowstone National Park, today's visitors seeking outdoor pursuits make up a large section of Montana's tourism industry. According to the recently published Economic Potential of The Great American Rail Trail by Headwaters Economics, the completion of the Great American Rail-Trail could add \$16 million in visitor spending within Montana. While the economic benefits of the trail can be a boon to many communities, tourism can also result in overcrowding of popular destinations. Facilities like the Great American can create opportunities for tourism by providing additional facilities and

amenities without generating additional traffic and congestion on overburdened highways and scenic byways.

## 1.3 Study Overview

### Assessing Feasibility

A feasibility study is a detailed assessment that evaluates a project's practicality, analyzing the opportunities and obstacles that will factor into the project's success or failure. This study assesses whether the implementation of the Yellowstone Heritage Trail (North) through Paradise Valley is a practicable project. It evaluates the nuanced



## PUBLIC PROCESS

Public feedback was collected using four primary methods throughout the outreach process. First, property owners of critical parcels along the railroad corridor were individually contacted to have one-on-one conversations in order to share first-hand information about the Yellowstone Heritage Trail (North) project, answer questions, and gauge their initial level of support. Next, a public open house was held at the Park County Fairgrounds to allow community members and property owners the opportunity to learn about the feasibility study and its progress, share concerns and support, ask questions, and provide tangible feedback. In congruence with the open house, a public survey was published via the project website and advertised to community members to gather more candid feedback from citizens that were not able to attend the in-person event. Finally, letters were sent to every property owner with land intersecting or adjacent to the former railroad corridor to ensure that they had been properly notified of the study and given another opportunity to express their thoughts on the project. The input from the community was integral in directing and confirming alignment strategies and study priorities, and reflections from the community engagement can be seen in the Appendix A.



environmental, economic, land ownership, recreational, traffic, and social factors of the trail in the context of the valley. Additionally, recommended strategies for potential trail alignments are considered.

While evaluating the feasibility of this section of the Great American Rail-Trail, the following criteria were identified at the outset of the project:

- » Create a separated multi-use trail facility
- » Protect cultural and natural resources that make the corridor unique
- » Balance visitor experience with landowner

property rights

- » Provide opportunities to address the overuse of existing recreational assets

## The Study Process

The process of this feasibility study was broken into four phases: corridor evaluation, public outreach, alignment development, and plan compilation.

1. The corridor evaluation phase consisted of analyzing existing conditions, identifying the social and environmental factors that would impact or be impacted by the rail-trail, examining opportunities and challenges of the





corridor, and refining alignment approaches down to three plausible options.

2. The public outreach phase aimed to gather valuable insight and opinions of property owners within the corridor and community members through one-on-one conversations, a public open house, a public survey, and letters mailed to adjacent property owners.
3. The alignment development phase combined the corridor analysis findings from phase one along with the feedback and preferences voiced during the outreach phase to inform the final preferred alignment recommendation. A deep dive into each mile of the corridor was

completed to ensure alignment feasibility and develop alignment alternatives if physical barriers were present.

4. The plan compilation phase synthesized all of the project context, study findings, and final recommendations developed through the feasibility study process to create a succinct document that can be used to guide the future implementation of the Yellowstone Heritage Trail (North).



# 02 | Background

## 2.1 Corridor History

### Historic Elk River

This area of Montana has been home to Native Peoples for over 12,600 years, as evidenced by the Anzick Clovis burial site, located near present day Wilsall, Montana. Once part of the original Crow Indian Reservation, the Apsáalooke people refer to the Paradise Valley as Púchéetá’annaáu, or “well-traveled road”, and it holds a rich and ancient history as being one of the most important indigenous cultural pathways in the Western Hemisphere. Twenty-seven tribes have historical connections to this corridor as it has served as a destination, travel route, and homeland for these peoples. Most tribal nations called the river that flows through the valley Elk River, or lichiiikaashaashe in Apsáalooke (Crow); the same river that is known today as the Yellowstone River. Over 70 miles of rock cairn “drive lines” have been identified in the Paradise Valley by archaeologists. These rock lines and other ancient sites are shown on the map to the right (Map 2).

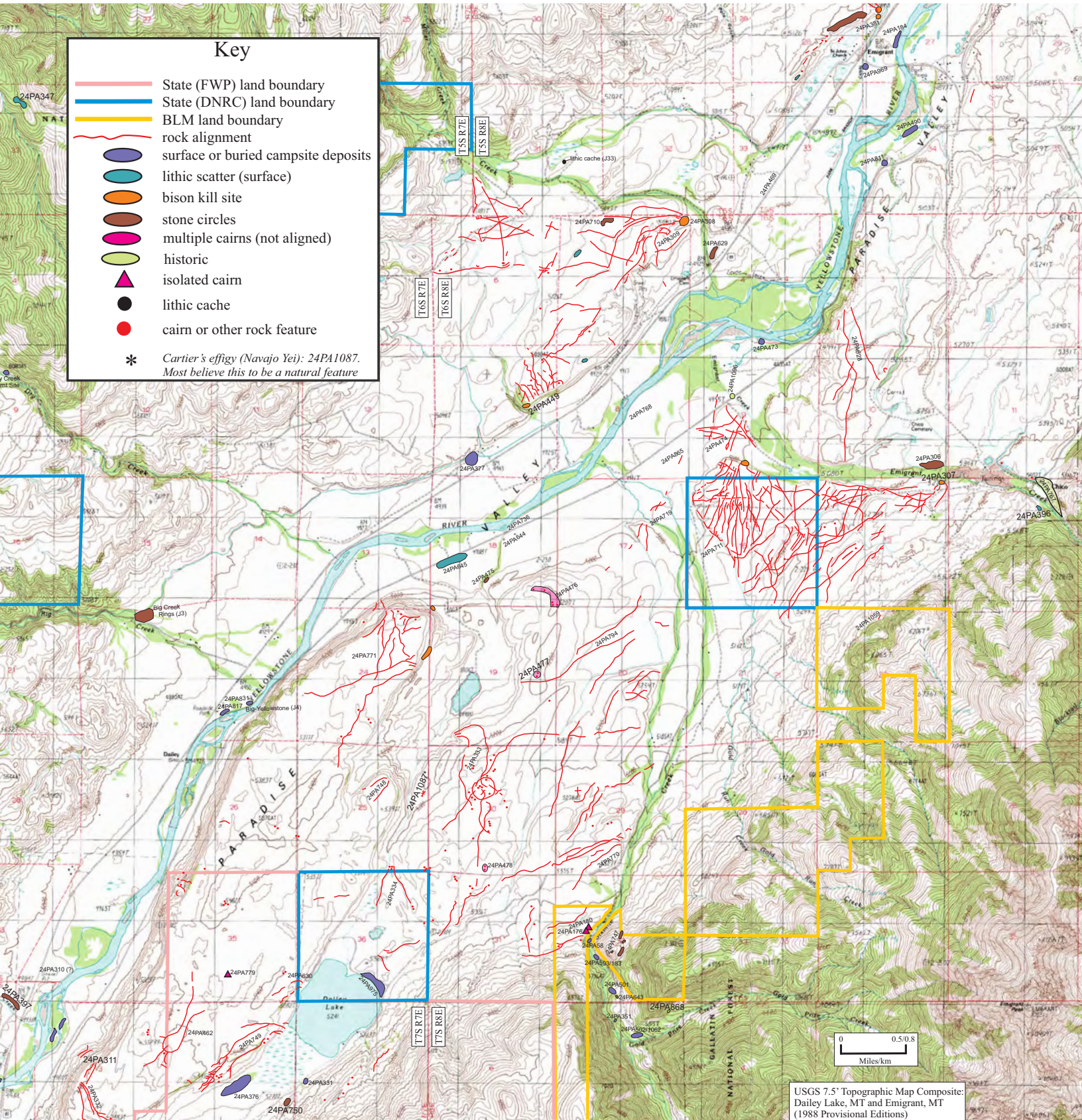
### Livingston to Gardiner Railroad

With the establishment of Yellowstone National Park in 1872, a National Park branch of the Northern Pacific Railroad was built and completed in 1883, and finally extended to the town of Gardiner in 1903. The railroad ran from Livingston, through Paradise Valley, and terminated at the Park’s northern entrance. The rail line transformed visitor access to Yellowstone National Park and it continued to transport visitors to the north entrance from the turn of the century until 1948, with charter trains operating until 1955. Agricultural communities in the valley were also served by the railroad during this time. Yet, the discontinuation of the railroad came as result of an increase in personal automobile access to the park. With the abandonment of the rail line, the railroad easement land was eventually sold back to private



↑ 1885 Map of the Northern Pacific Railroad Park Branch Line Through Paradise Valley, by Rand McNally & Co



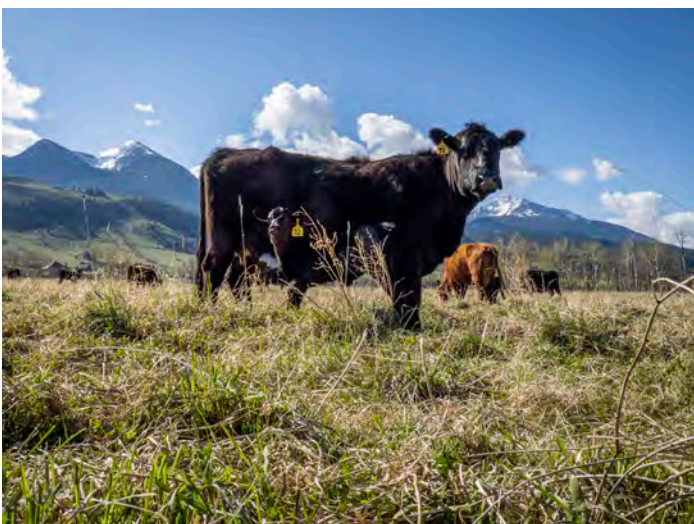


↑ MAP 2. Map Depicting Historic Sites of Native Peoples in Paradise Valley, Provided by Shane Doyle





170 EMIGRANT GULCH MINING AND CIRCO CITY, MONTANA, 1905. By the time Haynes visited Circo, very little remained of the once booming town whose economy depended on placer deposits discovered in 1864. The few resident families in 1905 continued to work old gold places.



landowners. During its existence, the railroad helped shape the communities we see in the valley today and established pivotal public access to Yellowstone National Park for the first half of the 20th century.

### Population Settlement

With the discovery of gold in Emigrant Gulch in 1864 and completion of the Northern Pacific Railroad across Montana in the early 1880s, Park

↑ Clockwise From Top Left: Photograph of Emigrant Gulch (1905) by Frank Jay Haynes; Old postcard of the Gardiner Train Station and Gateway Arch; Photograph of Cattle in Paradise Valley



County grew from a settlement of 500 people to over 6,900. Much of that population centered in and near the City of Livingston. The introduction of the railroad led to the development of sheep and cattle ranching, mining, and homesteading.

### Ranching

As the settlement continued south of Livingston, sheep ranching began in the early 1880s. The railroad allowed for wool shipments out of the valley, allowing the industry to flourish. Cattle

Photograph of Fishing on the Yellowstone River in Paradise Valley by Lumpyptrout, Under a Creative Commons Attribution-Share Alike 3.0 Unported License. →





ranches started during this period as well, as large herds were driven north from Texas into this area.

## Tourism

When Yellowstone National Park was signed into existence by President Grant in 1872, the development of the infrastructure began to support travelers visiting the Park. Tourists boarded the Northern Pacific's Northern Coast Limited and changed trains in Livingston to travel via the Park Branch to Gardiner. The railroad operated for 43 years as the primary means to access Yellowstone National Park. In 1902, the Northern Pacific Railroad opened the Livingston depot, their largest depot west of the Mississippi River. Railroad development spurred tourism in Paradise Valley, the original gateway and only year-round access to Yellowstone National Park. Tourism continued to grow from there as personal

vehicles became popular and desire for recreation within the valley began to grow.

## Recreation

For years, Paradise Valley has provided access to the Yellowstone River and the surrounding national forest land for a wide variety of recreationalists to enjoy. As the longest undammed river in the continental United States, the Yellowstone River is widely known for its world class fly fishing and has drawn anglers from all over the world to the Paradise Valley. The river is also frequently boated by rafters, kayakers, and canoers. In addition, the valley is home to many public trailheads that provide access to the surrounding Absaroka Range, Gallatin Range, Yellowstone National Park, and Absaroka-Beartooth Wilderness. The extensive public trail systems accessed via Paradise Valley are very popular for hiking, backpacking, camping,





hunting, and mountain biking.

## 2.2 Relation to Existing and Future Trails

### Highway 89 Pedestrian Path in Livingston

The Highway 89 Pedestrian Path was constructed in 2015. The original trail started near downtown Livingston on North 5th Street and ran along the former railroad corridor parallel to Highway 89, ending at the intersection of Highway 89 and East River Road. More recently, the path was extended from the East River Road intersection to the intersection of Highway 89 and Old Yellowstone Trail North Road. The 5.5-mile paved path is popular amongst walkers, runners, and bikers.

### Old Yellowstone Trail South Corridor Study

The counterpart to the Yellowstone Heritage Trail (North) Feasibility Study was conducted in

2020 as the Old Yellowstone Trail South (OYTS) Corridor Study. The OYTS Corridor Study examined a 21.1-mile stretch of land in the southern portion of the Paradise Valley on the west side of the Yellowstone River. The OYTS northern terminus is located at the Point of Rocks Fishing Access and its southern terminus is located at the Roosevelt Arch Monument in Gardiner — the historic entrance into Yellowstone National Park.

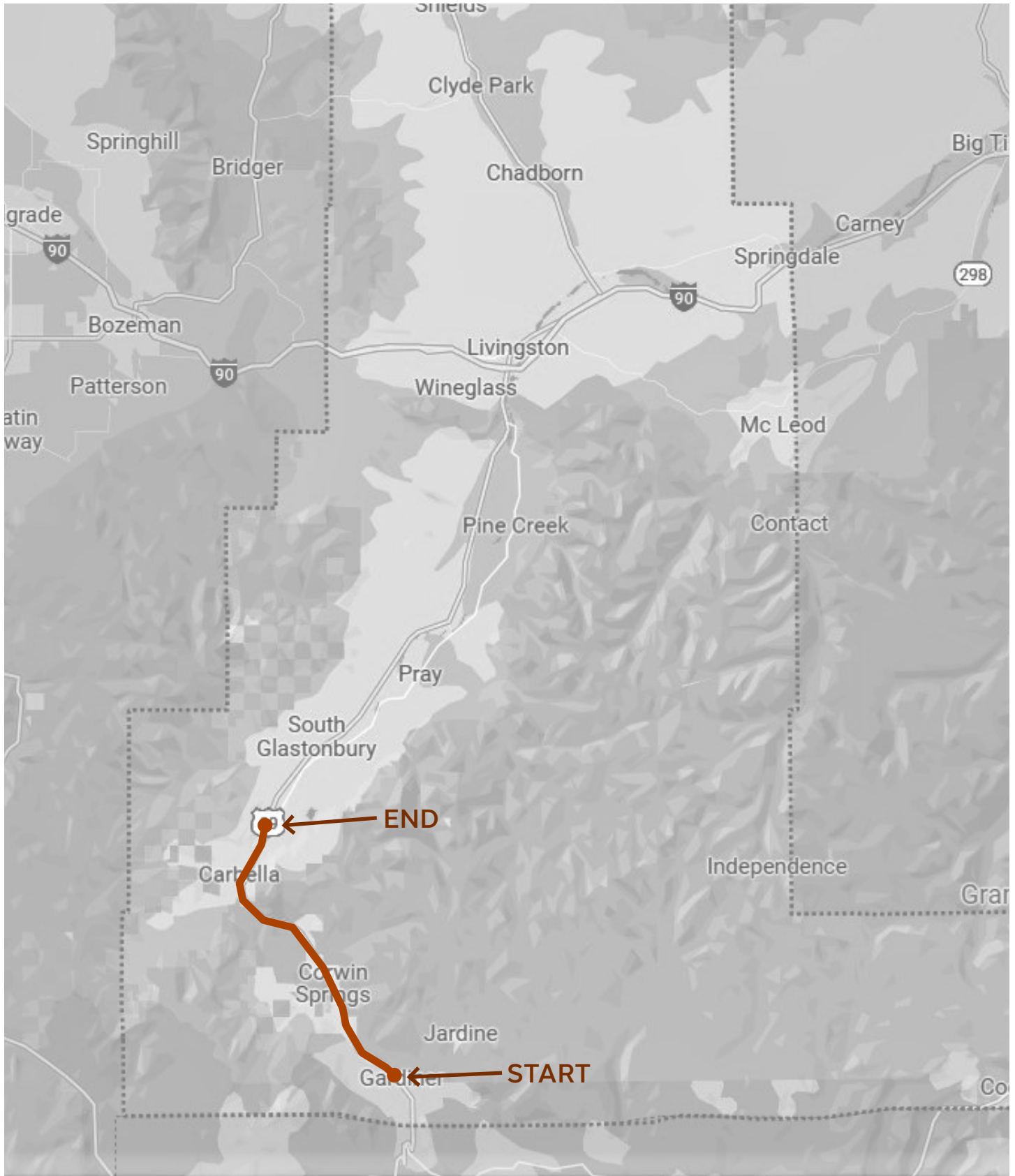
The study's goal was to evaluate future opportunities that could improve the existing state of the OYTS corridor. The study found that the Old Yellowstone Trail within the study area provides a great opportunity to formally establish a multi-use recreation corridor that has been previously used on an informal basis by recreationalists. The study recommended the improvement of the current trail conditions and establishment of continued maintenance of the path. In addition, restoration of the road through the corridor to ensure safe emergency access in all seasons was recommended.

Presently, some of the improvements to the road and trail detailed in the OYTS Corridor Study have received funding from the Federal Lands Access Program (FLAP), a program of the Federal Highway Administration, and portions of the project are in design.

### Gardiner to Livingston Route

Implementation of the Yellowstone Heritage Trail (North) would continue the existing Highway 89 Pedestrian Path along the former railroad corridor in Paradise Valley and connect with the OYTS trail. With full implementation, the Yellowstone Heritage Trail (North) would establish a complete and continuous 56-mile multi-use path from Livingston to Gardiner and the north entrance of Yellowstone National Park, officially connecting a vital section of the Great American Rail-Trail.





↑ MAP 3. Study Area of the Old Yellowstone Trail South Corridor Study of 2020



# 03 | Existing Conditions



## 3.1 Rail Alignment

When Burlington Northern Railroad abandoned the rail line in 1981, it removed the tracks, ties, and other structures, leaving the built-up railbed in place. The land dedicated to the railroad use was generally 30 feet in width, with the built-up bed approximately 16 feet wide. Once the structural elements were removed, the railroad sold the right-of-way to adjacent property owners along the corridor.

The former railroad corridor is vacant and unused for approximately 60 percent of the corridor. In other locations, it is used as ranch access roads and driveways serving adjacent residences. In one location, a private Federal Aviation Administration approved airstrip occupies the rail alignment. Over the years, several residential structures have been built within the alignment.

## 3.2 Land Ownership

The ownership of the rail alignment is segmented and fractured, as a result of Burlington Northern selling the right-of-way to adjacent property owners beginning in the early 1980s. Approximately 76 different properties contain the former rail alignment. Several owners own multiple properties, resulting in 53 separate owners.

Although some legal descriptions contain reference to the abandoned right-of-way, these property owners own this land as private property, with no grant of access to the public, the railroad, or any other entity. The result is that for a rail-trail to be completed, individual property owners would need to be an active participant in the development of the final alignment. Ultimately, property owners interested in advancing the completion of this section of the Yellowstone Heritage Trail (North) would work with a local agency or non-profit to grant an easement, sell or gift the property to create a trail section through their property.





### 3.3 Existing Transportation Network

The study area is dominated by US Route 89 (Highway 89), a federal highway that runs 404 miles in Montana from the boundary of Yellowstone National Park to the Canadian border. It provides access to the only entrance into Yellowstone National Park that is open year-round. The highway is generally a two-lane highway, with turn lanes at selected intersections. The roadway surface is approximately 32 feet wide, and the right-of-way varies from 80 feet to 165 feet wide. Meaning, there is generally between 25 feet and 70 feet of unused right-of-way on either side of the built roadway.

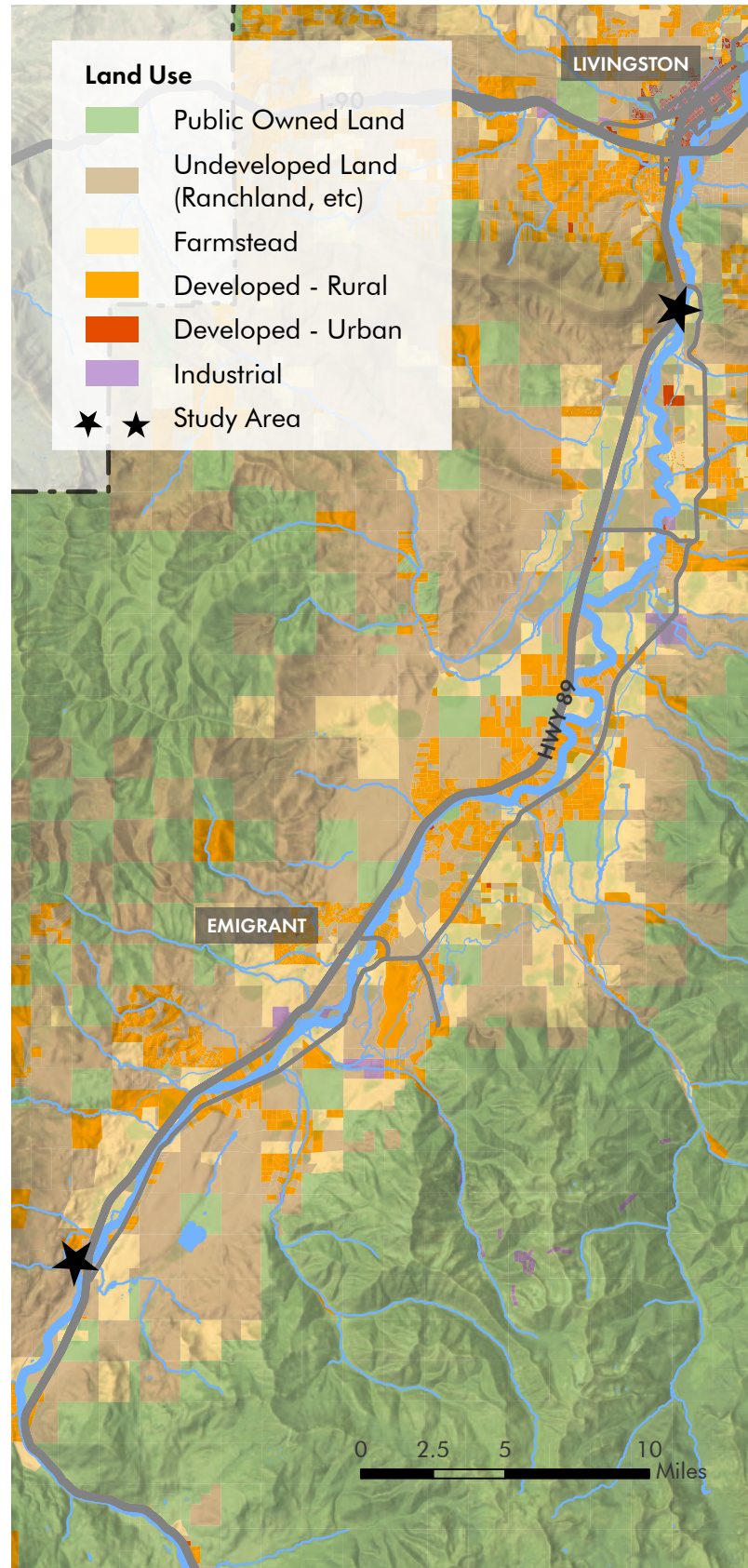
Other roadways in the area include Montana State Highway 540 (East River Road) and 571 (Murphy Lane). These secondary highways through Paradise Valley do not generally have their own designated right-of-way. Instead, they are located within public access road easements that are often much narrower than that of other highway right-of-way widths (generally 60 feet or less), leaving little extra public-accessible land adjacent to the roadway.

### 3.4 General Land Uses

Land uses along the rail alignment vary from large ranch properties to small residential lots and a small commercial area within the community of Emigrant.

### 3.5 Environmental Summary

Weston Solutions completed an environmental scan of the Yellowstone Heritage Trail (North) corridor, identifying and documenting the resources present within the area. The scan also identified potential impacts, applicable regulations, and recommendations to consider as



↑ MAP 5. Land Use Map

the development of the trail corridor progresses.

The following is a summary of the key findings. The complete document is included as Appendix C.

## Surface Water

The study area parallels the Yellowstone River, with Highway 89 separating the rail corridor from the river. Several smaller creeks flow into the Yellowstone, crossing the rail corridor. Several irrigation ditches also flow along the rail corridor, crossing the alignment in several locations. The Park Branch Canal starts approximately three miles south of Emigrant, crossing under Highway 89 just north of the Emigrant General Store, and continues north for an additional 20 miles. The canal parallels and crosses the rail alignment several times before ultimately traversing west near the Mallards Rest Campground.

## Ground Water

The area includes several aquifers that are sources for 46 residential wells in the area. Montana Department of Environmental Quality requires a 100-foot setback from public water supplies for any construction. In certain locations of the trail, this distance may have impact on the trail alignment.

## Floodplain

According to the Federal Emergency Management Agency (FEMA), there are several areas where floodplains are present. Future development will need to be reviewed by the County Floodplain Administrator to determine potential impacts to public health.

## Historical and Archaeological Resources

The Montana State Historic Preservation Office (SHPO) considers any structure over fifty years of age as historic and potentially eligible for listing in the National Register of Historic Places.

Within the region of the study, 143 previously recorded sites, including historic railroads, ranches, residences, irrigation systems, and precontact materials were identified to be present. In addition, the SHPO indicated the remains of the Northern Pacific Railroad (24PA1120) is considered eligible for listing in the National Register of Historic Places. Lastly, many archaeological sites were deemed present within the proposed corridor. Any further development would require field work and coordination with SHPO.

## 3.6 Geotechnical Reconnaissance

SK Geotechnical performed a geotechnical reconnaissance to observe the overall trail corridor and identify areas of potential geotechnical concern. The following is a summary of the key findings. The complete document is included as Appendix D.

The project geotechnical concerns observed along the alignment can be divided into two categories, minor and moderate. A minor geotechnical concern is a relatively commonplace issue that will need to be addressed with additional geotechnical fieldwork but will have a relatively straightforward solution. Minor geotechnical concerns have a relatively low impact on the overall constructability, and the solution will likely be readily apparent after performing additional fieldwork. Moderate geotechnical considerations will need to be addressed through additional fieldwork and the solutions typically have multiple options to consider.

### Minor Geotechnical Concerns

**Soft Subgrades.** The presumed project alignment passes through multiple soil types and drainage areas. Evidence of high groundwater or wet soils are seen through the presence of lush vegetation, groundwater-fed ponds, and spring-fed channels.





**Cuts and Fills Less Than 15 Feet.** The new multi-use path will assumed to be generally constructed on the previous railroad embankment but may require some areas of new embankment construction or widening.

## Moderate Geotechnical Concerns

**Larger Culverts and Bridges.** Based on the geotechnical reconnaissance, it appears four locations will require relatively large structures, such as a box culvert or bridge. Large structures require foundations, and site-specific geotechnical investigations will be required to determine appropriate design requirements.

**Cut and Fill Slopes over 15 Feet.** Cut and fill slopes taller than 15 feet are a moderate geotechnical concern due the difficulty of providing a 3:1 slope

in areas of limited ROW availability or in areas of constraining geometry.

**Embankment through Pond.** Just south of Emigrant, about 1/4 mile of the former railroad corridor passes through a pond with standing water on both sides of the embankment. Additionally, a power line is situated along the top of the existing embankment. The presence of the power line makes placing the new trail on top of the existing embankment difficult, and the standing water makes placing new fill next to the existing embankment difficult. The power poles will also present an obstacle to trail users. If this area of the railroad alignment cannot be bypassed with a detour along the paved road to the west, or if the power line cannot be rerouted, new embankment fill will be necessary.











### 3.7 Wildlife Considerations

The greater Yellowstone region is home to numerous species of birds, fish, amphibians, and mammals. The Highway 89 corridor has seen increasing wildlife-vehicle conflicts, as both the number of visitors to the area has increased and the habitat for wildlife has been affected by human development. The introduction of an active transportation trail in the area highlights the need to understand potential conflicts with trail users and wildlife, as well as potential mitigation opportunities.

According to Montana Department of Transportation, vehicle-wildlife crashes within this section of Highway 89 represent over 60% of all crashes from 2016-2020. These crashes impact wildlife and people in numerous ways. From wildlife deaths and vehicle damage, these crashes can also cause injury to drivers and passengers in vehicles, damage to infrastructure and fencing, and affect the larger wildlife populations.

A group of concerned residents established Yellowstone Safe Passages in 2021 to learn about, research, and identify solutions to reducing wildlife-human conflicts, particularly wildlife-vehicle crashes. The organization has partnered with the Center for Large Landscape Conservation and the Western Transportation Institute at Montana State University to develop an assessment of Highway 89. This assessment will identify the areas with the greatest need to address wildlife-vehicle conflict and develop recommendation for actions to make the corridor safer for people and wildlife. As the Yellowstone Heritage Trail (North) progresses through feasibility and into design, working with property owners and government agencies to develop solutions for a safer corridor for all users will be an important aspect of the design.





# 04 | Alignment

In order to determine feasibility for the trail, it was necessary to evaluate potential trail alignments. Understanding if a continuous trail was possible to construct through the length of the corridor is a key contribution to understanding the feasibility of the trail itself.

## 4.1 Alignments Considered

An initial evaluation of a potential alignment considered the former railroad corridor, as well as right-of-way associated with the roadway network. Ultimately, three initial scenarios were evaluated. These include developing a trail (1) along the former railroad corridor, (2) along the Highway 89 right-of-way, and (3) along other minor roads in the area. These initial alignments were evaluated for opportunities and challenges and measured against the overall project goals. A summary of each alignment that was considered is detailed in the next pages.

### 1. Former Railroad Corridor

Abandoned railroad corridors are great opportunities for trail alignment. Railroad beds

are already graded to be flat or gently sloping, cleared of any big environmental obstacles, and are typically uninterrupted with few street crossings, creating an ideal location to build an accessible multi-use trail when rail use is no longer viable. The bed of the old Yellowstone Railroad that once ran from Livingston to Gardiner provides a great potential corridor for the future Yellowstone Heritage Trail (North).

#### OPPORTUNITIES:

1. Flat, wide bed corridor (already graded)
2. Accessible alignment through the valley (mostly adjacent to Highway 89)
3. Corridor free of obstacles with limited crossings

#### CHALLENGES:

1. All sections would require public access easements on private property
2. Railbed is legally used for ranch roads, driveways, etc. on some private properties







## 2. Highway 89 Right-Of-Way

Typically, federal highway rights-of-way are at least 80 feet in width, while the road surface itself only takes up a portion of this width. The average road surface width of Highway 89 is 32 feet throughout Paradise Valley, leaving excess right-of-way on one or both sides of many sections of the highway. This vacant right-of-way land provides an opportunity to construct a multi-use path that parallels Highway 89. However, inconsistent widths in the right-of-way parcels along Highway 89 can pose challenges for creating uninterrupted trails in the rights-of-way.

### OPPORTUNITIES:

1. Public right-of-way requires no access easements
2. Location next to Highway 89 makes it easily accessible

### CHALLENGES:

1. Inconsistent right-of-way widths, including narrow sections along the western boundary of the right-of-way
2. Many intersecting roadways, would require safe crossings
3. Increased safety concern with trail closer to the fast-moving traffic of Highway 89
4. Approval by Montana Department of Transportation required

## 3. Minor roads

Old Yellowstone Trail Road North and East River Road loosely parallel Highway 89. They were reviewed for potential alignment options. With the roadways already established as a public amenity and mostly situated along parcel boundaries,

easements could be expanded for the already publicly accessed roads to accommodate the Yellowstone Heritage Trail (North).

### OPPORTUNITIES:

1. Alignment is north-south through Paradise Valley

### CHALLENGES:

1. Minor roads have no or limited right-of-way
2. River Road right-of-way is only 40-foot wide, which is insufficient for the addition of a trail
3. Old Yellowstone Trail is provided by easement only, there is no dedicated right-of-way
4. Either route would require public access easements on private property
5. No clear alignment path or existing bed
6. Fewer opportunities to connect to existing public amenities

## 4.2 Feasibility Criteria

A number of factors were considered when evaluating the feasibility of constructing a multi-use trail in this section of the Great American Rail-Trail. Physical space availability for a trail, obstructions within the former railroad right-of-way, and safety - including potential conflicts with vehicle traffic, were all considered as part of the feasibility study. Qualitative assessments including community support and property owner interest were also evaluated. Results of these assessments formed the foundation of the preferred alignment.

## Easement Potential

Identifying a continuous route for the trail was a key factor in determining feasibility of different route alternatives. Creating a trail with a clearly defined and straightforward route increases the ability of users to follow the trail. It also reduces the likelihood of conflict, misdirection, and trespassing on adjoining properties. However, natural, and man-made barriers often constrain the route. To a certain extent, these constraints can be addressed through design. For example, bridges and culverts can carry users over obstacles such as streams and canals, and boardwalks can navigate wet areas.

## Obstructions

Each option that was considered and evaluated have elements that obstruct a clear and direct

pathway through the corridor. Obstructions such as built elements within the alignment, intersections with driveways and roadways that reduce the continuity of the trail, and natural land features that restrict or limit a trail corridor were all evaluated during the review process.

## Safety

Throughout discussions with property owners and community members, safety along the trail was a common theme. Safety considerations include potential conflicts between users of the trail and vehicular traffic, wildlife, and nearby ranching activities. Additionally, landowners identified safety concerns of the public accessing private property. Feasibility of each alignment identified potential safety issues for trail users, including separation







from vehicular traffic, crossing of Highway 89 and other roads, as well as potential conflict areas with wildlife and domestic animals.

### **Property Owner Interest and Support**

Development of the Yellowstone Heritage Trail (North) will require significant support and cooperation with the property owners along the alignment. Understanding the needs and securing support of the adjacent property is critical to undertaking design and completing the trail alignment.

During the project process, the consultant team met with property owners along the corridor. Views of the proposed trails are mixed, often depending on the proximity and use of the rail alignment within their property. While ownership and support

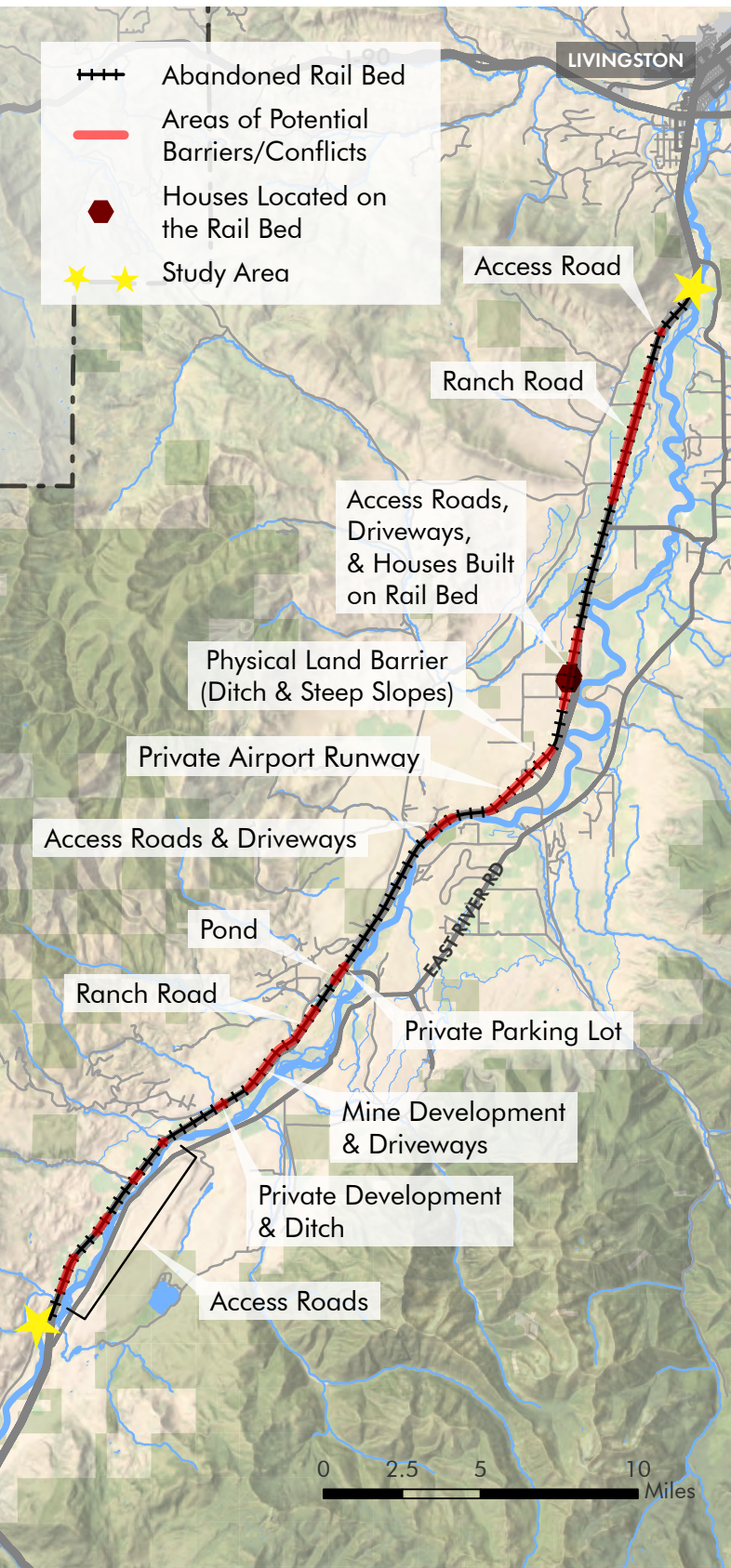
can change over time, a current owner that is not interested in a potential trail section through their property does not necessarily mean the alignment is not feasible. Instead, understanding landowner interest allows implementation of the trail to be focused on areas where owners are interested in completing the trail.

### **Community Support**

This project will ultimately be envisioned, designed, funded, and completed by the local community. Support of the community will be essential to build and maintain momentum through what can often be a very slow process. Throughout this process, community members had an opportunity to review information, attend an open house, and complete an online survey. Those that completed the survey







were overwhelmingly supportive of the project. Complete results of the public engagement are found in the Appendix A.

### 4.3 Preferred Alignment

Evaluation of all alignments using the feasibility criteria identified that none of the three options alone provided a preferred alignment. However, the minor road alignments were the least to meet the criteria and were eliminated from consideration. As the former railroad alignment was reviewed, a fourth option was developed. That option created preference for using the former railroad corridor as the primary route, with alternate routes in locations where obstructions and other necessities dictate a diversion off the former railroad corridor.

#### Alignment Summary

The physical advantages of the former railroad corridor alignment sets it apart from the right-of-way and minor road options. Because the former railroad corridor once accommodated continuous train travel to and from Livingston and Gardiner, the railbed infrastructure that is still largely intact lends itself as a great foundation for a multi-use trail. The alignment of the old railroad that was graded to be a level base for train tracks would require less labor to install an accessible path as the ground is already generally flat. In addition, the former railroad corridor is free of large prohibitive physical obstacles and barriers such as cliffs, large bodies of water, or steep grades, as any barriers that may have been present in the past were removed at the time of the railroad construction. Moreover, with this alignment not being directly adjacent to a roadway, there are far fewer points of intersection with roads, creating a safer environment for trail users. Although separate from Highway 89 and its right-of-way, the former railroad corridor alignment is still very accessible to get to from Highway 89, the most frequented road in the valley.





However, exclusively using the former railroad corridor is not a flawless solution. This is due to specific anomalous barriers that would prevent continuous trail construction on the corridor. Because the former railroad corridor is now largely owned by private landowners, there are a variety of instances where property owners have adapted it for their own use or developed on that land. For example, several ranchers have converted the former railroad corridor into operational ranch roads to improve access on their land, many residences use it as a driveway, houses and structures have been built on the corridor, and a section of the former railroad corridor currently functions as a private airplane runway. These alignment conflicts can be seen in Map 6 on page 23. Because it is unlikely that these improvements will be removed or modified to an extent to permit a trail to use the former railroad corridor, alternative alignments were considered in these locations.

These divergent routes were chosen on a case-by-case basis and generally utilized the Highway 89 right-of-way for their alignment when it was possible. If the right-of-way did not accommodate the alternative route, creative solutions were devised that took advantage of minor road and canal easements and parcel boundaries.

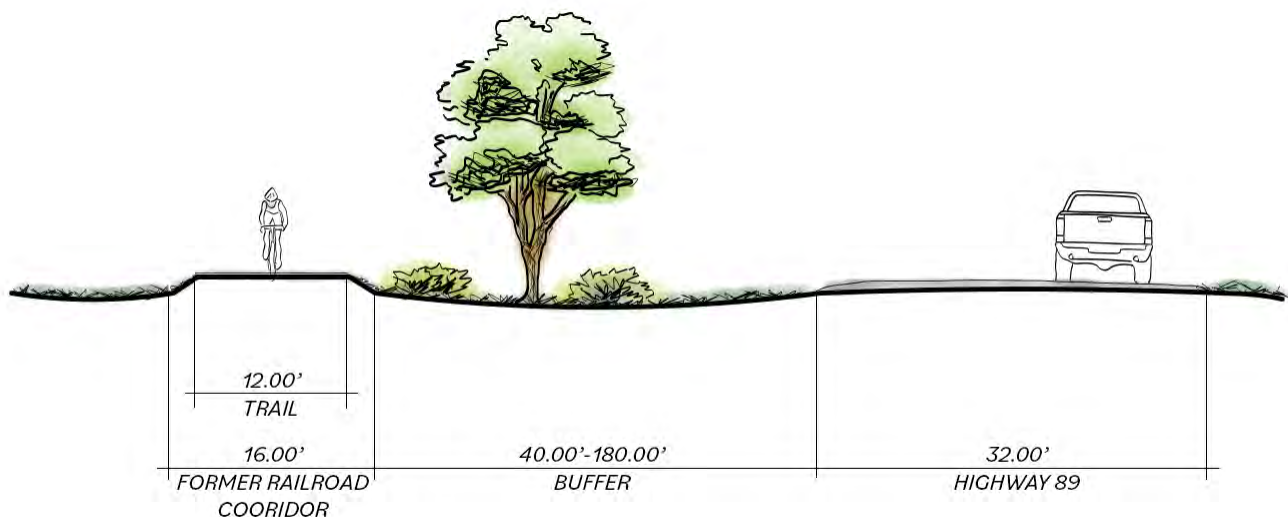
The preferred Yellowstone Heritage Trail (North) alignment and its alternative alignments can be seen in the series of maps on the following pages.

## Design

With varying conditions along the preferred trail corridor, trail design will differ to accommodate the physical context of specific stretches of the path. A few suggested trail designs are seen detailed below and on the following pages.

### EMIGRANT OPPORTUNITY:

Trail advocates have been working to transform the former railroad corridor along a 3-mile stretch through Emigrant into a section of the Yellowstone Heritage Trail (North). Emigrant is a tourist hub to Yellowstone National Park, and as more national parks experience a record-breaking number of visitors, gateway communities are tapping into their own assets. Reconstructing the former railroad corridor into a dynamic trail for the community would provide economic benefits with new job opportunities and increased tourism.



↑ Cross Section A: Trail (on the Former Railbed) - Buffer - Highway. This is the Most Common Cross Section Proposed for the Preferred Trail Alignment

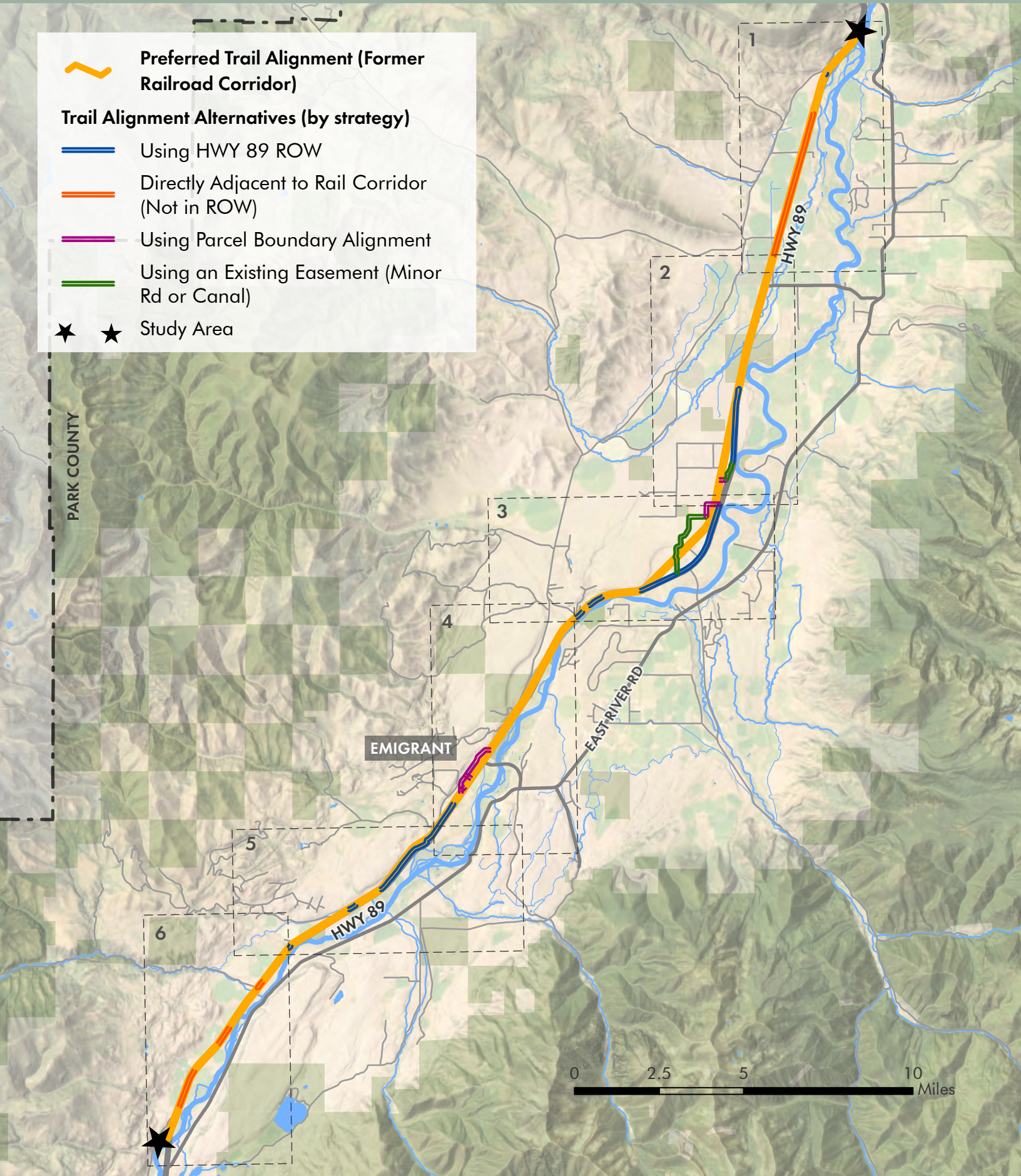


**Preferred Trail Alignment (Former Railroad Corridor)**

**Trail Alignment Alternatives (by strategy)**

- Using HWY 89 ROW
- Directly Adjacent to Rail Corridor (Not in ROW)
- Using Parcel Boundary Alignment
- Using an Existing Easement (Minor Rd or Canal)

★ ★ Study Area

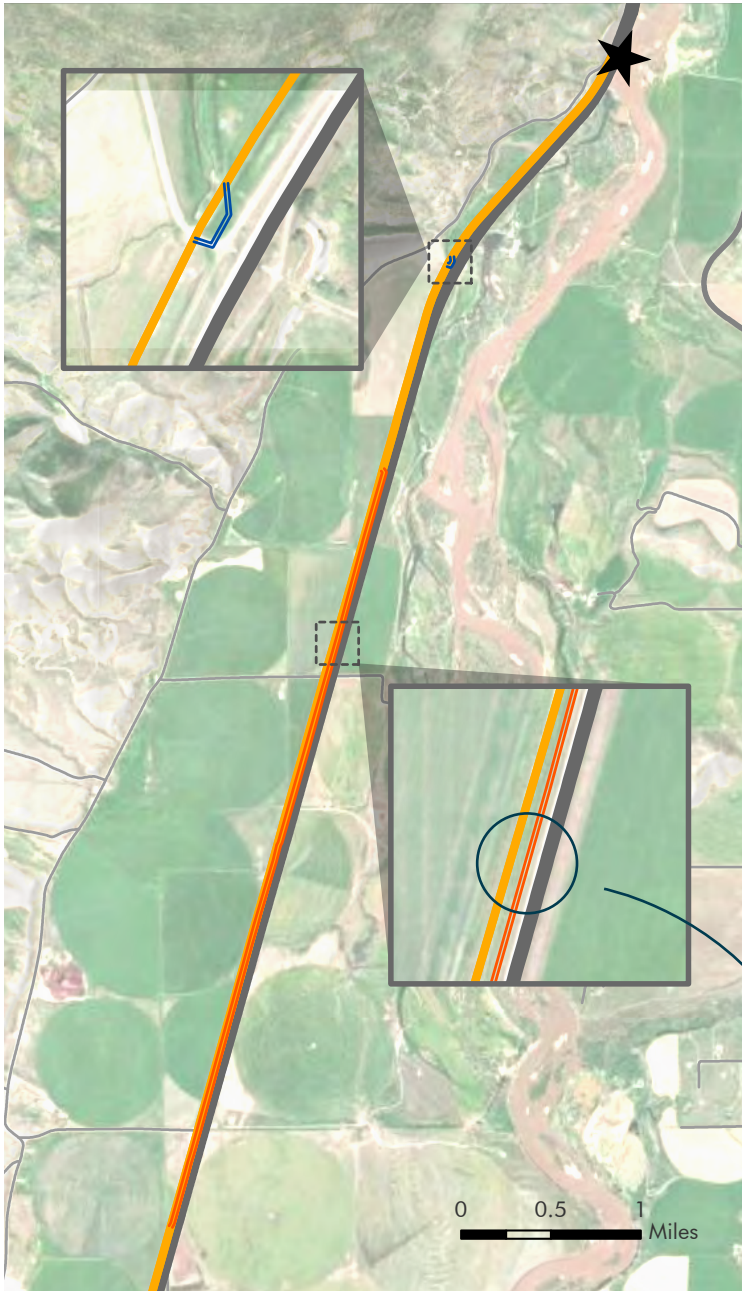




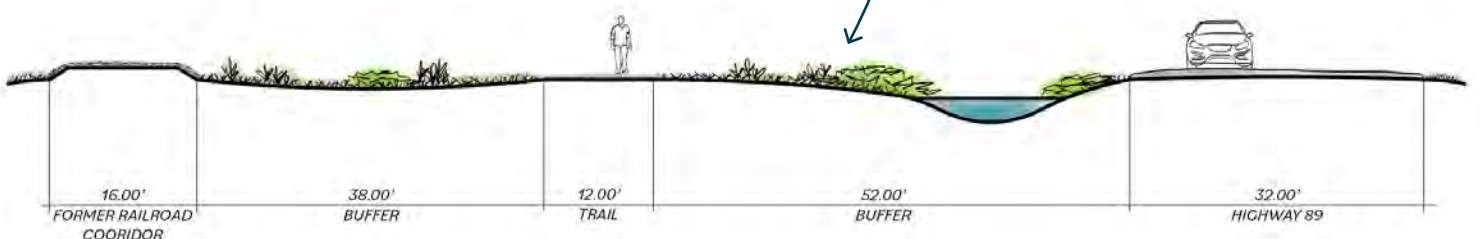


## SUB MAP: 1

- » Circumstance: Deviations from former railroad corridor due to current use as ranch road
- » Alternative: Place the trail between the Highway 89 ROW and the former railroad corridor or adjacent to Highway 89 itself
- » Considerations: Efforts should be taken to minimize impacts to cultural or environmental resources
- » Final alignment would be in cooperation with property owners



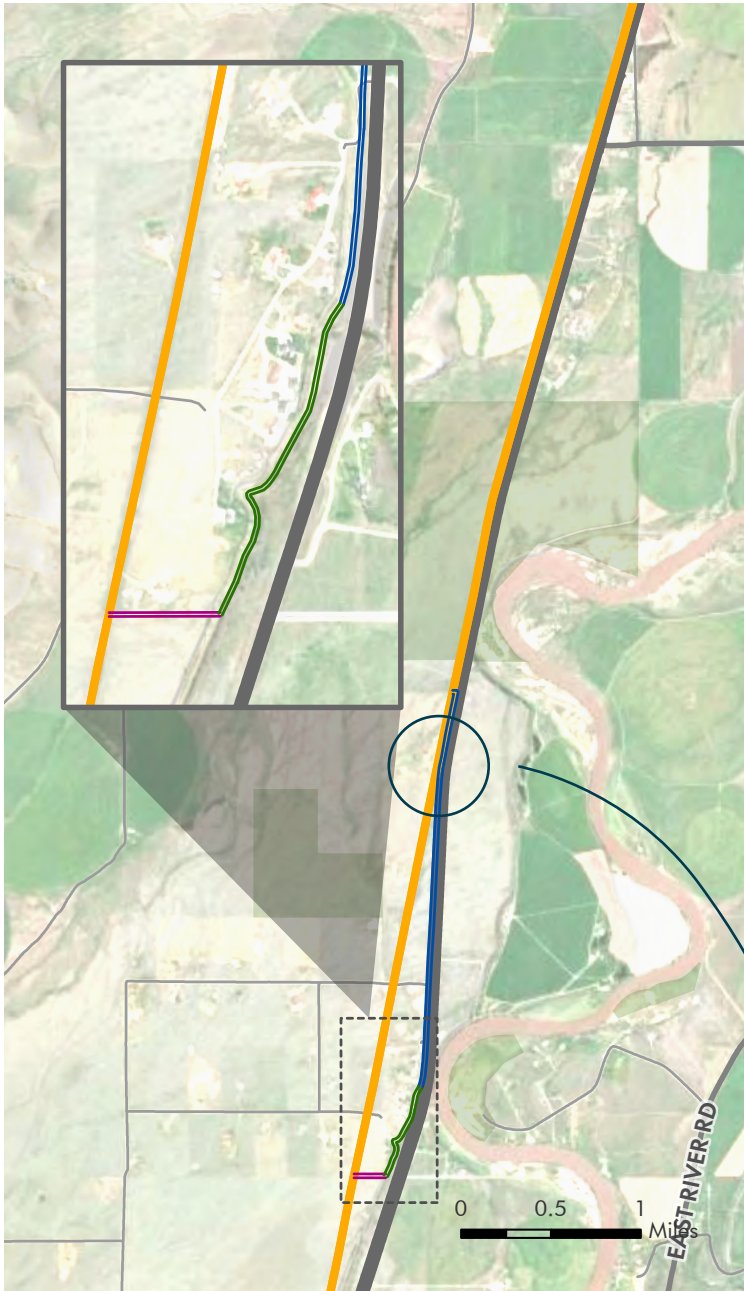
### Trail Section Example



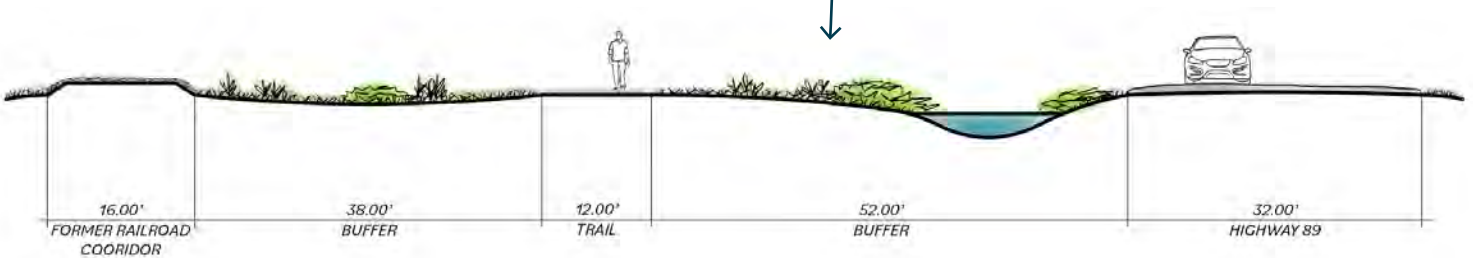
↑ Cross Section B: Former Railbed - Buffer - Trail (in Hwy Right-of-Way or Other Easement) - Buffer - Highway

## SUB MAP: 2

- » Circumstance: Deviations from former railroad corridor due to driveway access
- » Alternative: Multiple strategies for the alignment are shown. Place the trail along Highway 89, use existing public access easements on adjacent properties, and aligning along parcel boundaries
- » Considerations: Efforts should be taken to minimize impacts to adjacent properties
- » Final alignment would be in cooperation with property owners



### Trail Section Example



↑ MAP 9. Alignment Sub Map 2

27 ↑ Cross Section B: Former Railbed - Buffer - Trail (in Hwy Right-of-Way or Other Easement) - Buffer - Highway





## SUB MAP: 3

- » Circumstance: Former railroad corridor is currently used as roadway and a private landing strip
- » Alternative: Multiple strategies for the alignment are shown. One strategy is to place the trail along Highway 89 along the entire section. The other strategy proposed to use existing public access easements on adjacent properties, aligning along parcel

boundaries with a portion connecting along Highway 89

- » Considerations: Efforts should be taken to minimize impacts to adjacent properties. If the trail is placed along Highway 89, efforts should be made to maximize safety and comfort for trail users
- » Final alignment would be in cooperation with property owners



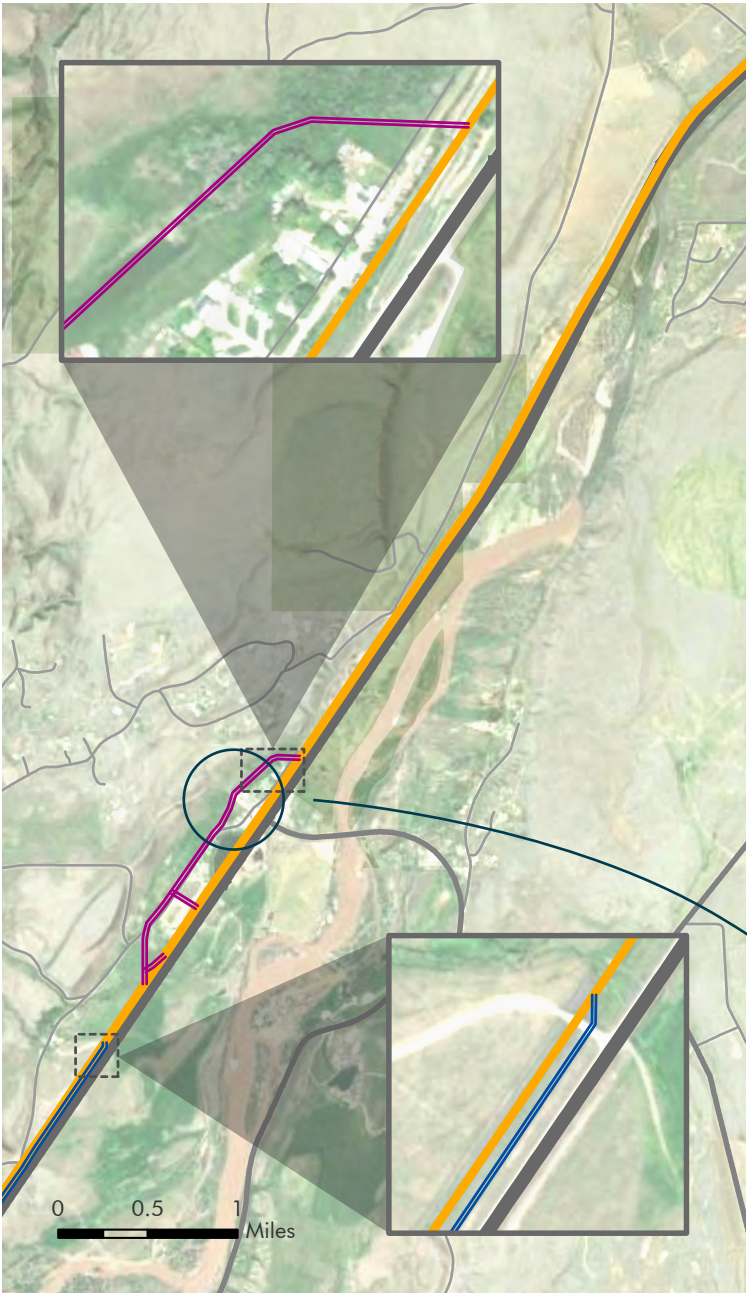
↑ MAP 10. Alignment Sub Map 3

↑ Cross Section C: Minor Street - Trail (Within the Minor Street Right-of-Way/Easement)

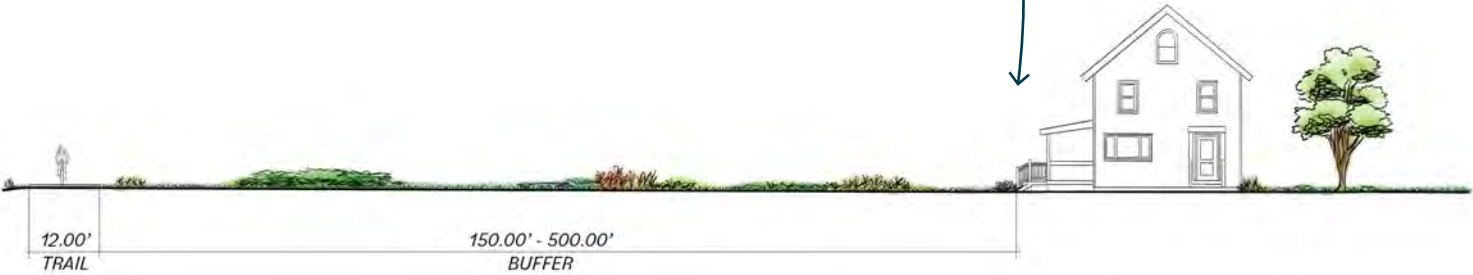
↑ Cross Section D: Trail (in Easement) - Buffer - Residential

# SUB MAP: 4

- » Circumstance: Deviations from former railroad corridor due to driveways and structures
- » Alternative: Multiple strategies for the alignment are shown. One strategy is to place the trail along Highway 89 for a partial section. The other strategy proposed is to align along parcel boundaries
- » Considerations: Efforts should be taken to minimize impacts to adjacent properties. If the trail is placed along Highway 89, efforts should be made to maximize safety and comfort for trail users
- » Final alignment would be in cooperation with property owners



**Trail Section Example**



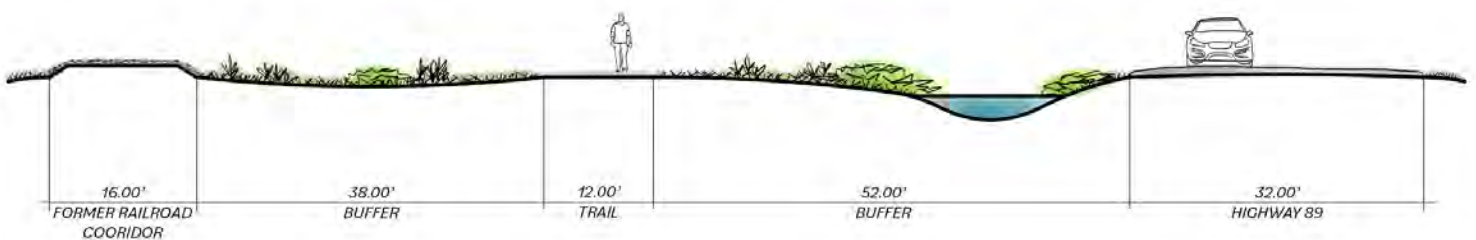




## SUB MAP: 5

- » Circumstance: Deviations from former railroad corridor due to driveways, structures, or private development
- » Alternative: Place the trail between the Highway 89 ROW and the former railroad corridor or adjacent to Highway 89 itself
- » Considerations: Efforts should be taken to minimize impacts to cultural or environmental resources
- » Final alignment would be in cooperation with property owners

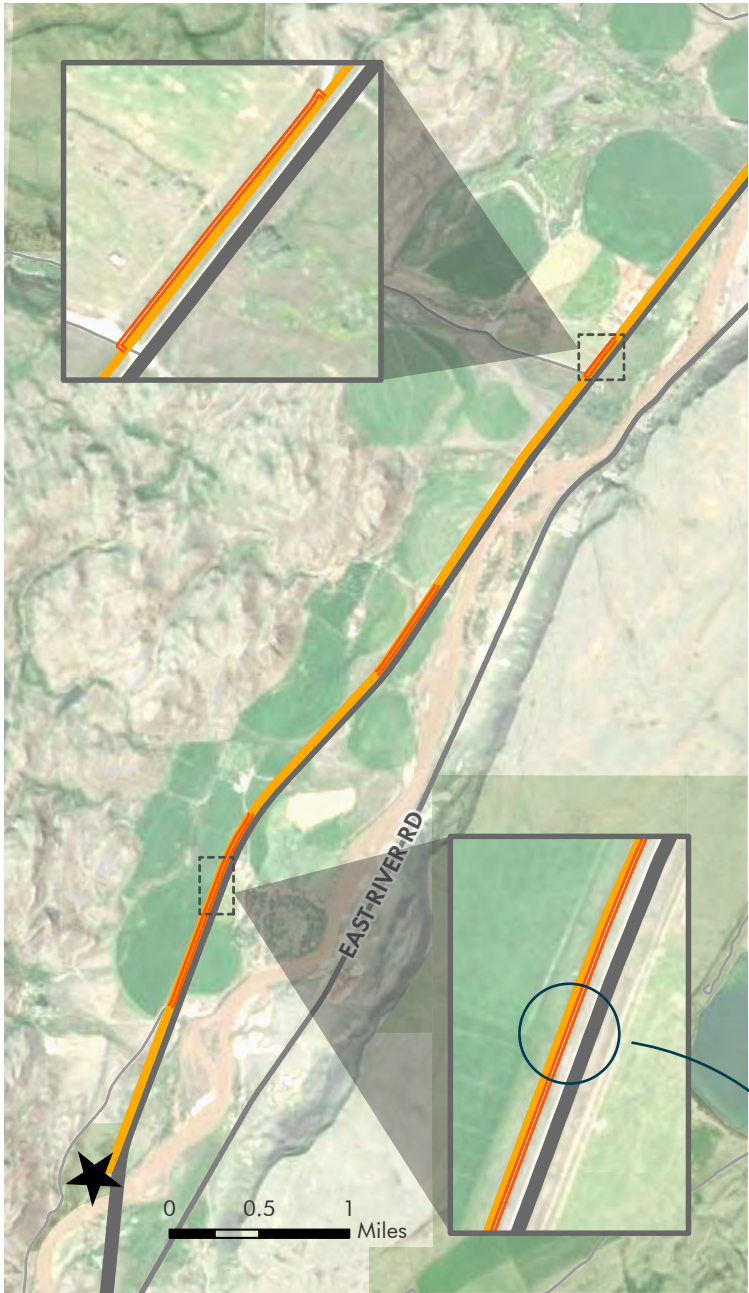
### Trail Section Example



↑ MAP 12. Alignment Sub Map 5

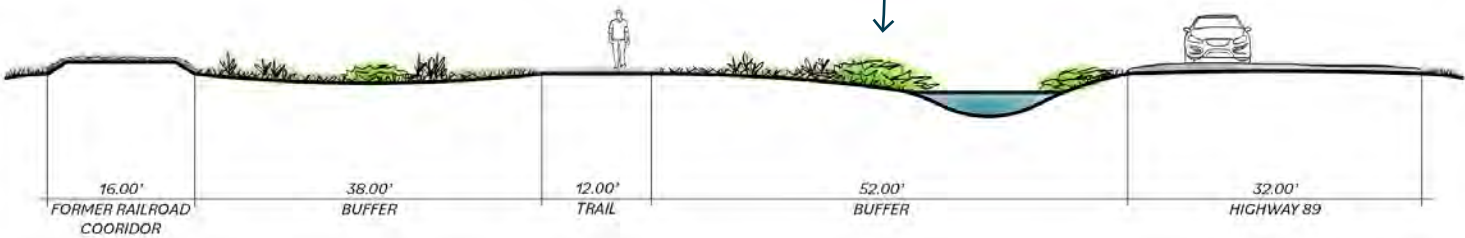
↑ Cross Section B: Former Railbed - Buffer - Trail (in Hwy Right-of-Way or Other Easement) - Buffer - Highway

# SUB MAP: 6



- » Circumstance: Deviations from former railroad corridor due to driveways, structures, or private development
- » Alternative: Place the trail between the Highway 89 ROW and the former railroad corridor or adjacent to Highway 89 itself
- » Considerations: Efforts should be taken to minimize impacts to cultural or environmental resources
- » Final alignment would be in cooperation with property owners

**Trail Section Example**







## Safety and Security

Property owners and some members of the public expressed concerns regarding a multi-use trail in the rail corridor operating through private property. Concerns were related to trespassing onto private property, trash, vandalism, harassment of domestic livestock, and decreasing privacy of landowners. As plans for the trail continue to progress, these concerns should continue to be explored and understood.

Research conducted in association with the National Park Service, examined crime on 372 rail trails over a two year-period. The research included

over 1,100 miles of trail with an estimated 14 million users. The report found only six incidents of major crime over two years. Minor crimes reported largely affected the trail itself (litter, graffiti, sign damage) and not the adjacent properties.

## Planning Level Cost estimates

To help provide an overall understanding of potential costs of the trail, a planning level cost estimate has been completed. This estimate is preliminary due the limited availability of project details and is intended as a tool to assist with future planning. It is based on construction costs for recently completed projects within Montana that have similar design aspects. In general, construction costs increase annually, so future adjustments should be anticipated.

This estimate includes construction costs only; easement or property acquisition costs are not included and should be considered, as sections of the trail move forward into design phases.

The estimates assume a gravel base and pavement surface. Variations in site conditions, including soil type, wetlands, vegetation, and grades will all affect the final cost of individual sections of the trail. Future planning should also consider price escalation for materials and labor.

Elements	Quantity	Unit	Cost/Unit	Total Cost
Paved Path	24.13	miles	\$1,500,000.00	\$36,195,000.00
Wetlands Path	4	miles	\$3,000,000.00	\$12,000,000.00
Stream Crossings	5	crossings	\$200,000.00	\$1,000,000.00
Irrigation Crossings	4	crossings	\$40,000.00	\$160,000.00
			<b>TOTAL COST</b>	<b>\$49,355,000.00</b>
			<b>COST/MILE</b>	<b>\$1,754,532.53</b>
			Total Cost with 15% Contingency	\$56,758,250.00
			Cost/Mile with 15% Contingency	\$2,017,712.41

# 05 | Recommendations

## 5.1 Implementation

The construction and completion of part or all the rail-trail within this study area will need to be a partnership of landowners, local trail advocates, and permitting agencies. Because there is no remaining public right-of-way along the rail alignment, phasing and development of the trail will be contingent upon interest of private landowners to work with local partners to design and create the alignment. The following are key elements necessary to advance the development of the rail-trail.

### Local Partners

The Great American Rail-Trail will be a continuous route of non-motorized trails and greenways, hosted by over 150 different local trail partners. Across the country, parts of the Great American Rail-Trail are managed by organizations including local city and county governments, local non-profit trail alliances, state Departments of Transportation, and other governmental agencies.

While this Study is focused on feasibility and early steps to ultimately build the trail, it is not too early

to plan for long-term ownership and maintenance of the trail facilities.

It is recommended that Park County lead the effort to implement, build and maintain the Yellowstone Heritage Trail (North). On-going support and partnership with local non-profit organizations can also aid in the advancement of the trail development.

### Easement and Land Acquisition

No trail will be constructed on private property without property owner participation. This participation can take a variety of forms, depending on the interest of the landowners. Understanding individual owners and their interest in collaborating with local partners to complete this trail is an important early task. Within this feasibility study, owners of larger properties were contacted, and several meetings took place to introduce the project and discuss specific concerns. Additionally, letters were sent to all property owners of record along the preferred alignment. Continuing this outreach to identify and map easement and land purchase opportunities will help identify sections of the trail that could be completed earlier than others.







## 5.2 Best Practices

### Trail Design

Similar to many regional trail corridors, this trail includes several challenges associated with constructing a regional trail where trail right-of-way doesn't exist, providing access across natural areas, and balancing safety, public expectations, and private property impacts.

The final design and construction of the trail should consider property owner expectations and needs, user needs, industry standards, and financial responsibility. The following trail design and amenity recommendations are intended to provide a framework for how the trail can be constructed to meet these needs.

All portions of the trail should be designed as an off-road, 12-foot wide, non-motorized paved multi-use path. In some locations, it may be appropriate or necessary to reduce the width to 10-feet to accommodate physical constraints or to minimize impacts to environmentally sensitive areas. Additionally, a natural surface, gravel, or boardwalk may also be appropriate in certain sections. Where appropriate, a narrow natural-surfaced trail can be located directly adjacent to the Yellowstone Heritage Trail to accommodate equestrian users.

In locations with street or driveway crossings, curb ramps should be used, with a maximum trail grade of 5 percent.

Much of the trail corridor is envisioned to be an independent corridor separated from the roadway. In areas where the trail will need be located adjacent to Highway 89, a physical barrier along sections that are directly adjacent to the highway should be considered.

### Amenities

While the physical trail infrastructure is the top priority when it comes to implementing a new



↑ Bikers using the Highway 89 Pedestrian Path





trail system, investing in strategically placed trail amenities can elevate a path from simply a recreation location to a highly valued community asset. Various trail system amenities that would specifically enhance the Yellowstone Heritage Trail (North) are described below.

### **Wayfinding:**

Wayfinding is an essential trail amenity when it comes to effectively orienting and informing the trail user while they are recreating. Two distinct types of wayfinding should be constructed along the Yellowstone Heritage Trail (North): navigational signage and educational signage.

Navigational wayfinding effectively guides all users

from place to place along the trail and surrounding areas by clearly identifying the route, directions, distances, and destinations. This type of wayfinding can look like signage, monuments, or kiosks that may include easy-to-read maps, locational information, points of interest, mile markers, and signage that marks public versus private lands.

Educational wayfinding gives the trail user an opportunity to learn about the significance of the trail, the land they are recreating on, and the Paradise Valley as a whole through the lens of history, culture, and the environment. Educational signage should inform trail users on a range of topics including Native Peoples' history and relationship with the Paradise Valley, more recent





history of agriculture and development in the valley, the history of the Park Branch railroad, the significance of a variety of points of interest along the trail corridor, wildlife presence and interaction with the area, and important physical and geological features seen from the trail.

### **Parking:**

Establishing designated parking areas along the trail corridor will be important to ensure safe and seamless access to the trail. Designated parking areas also ensures that users of the trail have reliable access to the trail, without parking illegally or parking on private property.

### **Fencing:**

While fencing is not expected along the entire length of the trail corridor, there may be areas where fencing is desirable. Fencing may be

requested or required by adjacent property owners or as a safety precaution to delineate publicly accessible areas and private property. Although fencing would only take place on a case-by-case basis, fencing would help protect the private property of adjacent landowners and reduce public misuse and potential user-landowner conflicts by eliminating confusion where access is permitted and where it is not. Coordinating with those adjacent property owners would be recommended in those instances.

### **Partnering with Wildlife Crossing Efforts:**

As local initiatives invest in safe wildlife crossings along the Highway 89 corridor, coordination efforts with the Yellowstone Heritage Trail (North) must take place in order to establish where highway crossings can extend to ensure safe wildlife crossings through the trail corridor as well. Investing in these crossing endeavors will help protect the important wildlife populations in the Paradise Valley.

### **Waste Receptacles:**

Placing waste receptacles periodically along the trail will help keep the corridor and its surroundings clean, more enjoyable for trail users, and help preserve the natural state of the valley. Installing waste receptacles will also make the trail more friendly and accessible to pet owners. Waste receptacles would be installed in high traffic locations with easy access for maintenance crews (e.g., trailheads, designated parking areas).

### **Benches:**

Benches, although not essential, are a highly desired facility along pathway corridors. They give trail users a place to rest, socialize, and enjoy the beautiful Paradise Valley. Bench installation throughout the trail corridor should be considered.



## Management and Maintenance

Trail segments are managed by local entities and can often have shared responsibilities with multiple entities. It is possible that management of the trail could involve multiple partners, and then is transferred over to the appropriate jurisdictions at the appropriate time, depending on what works best for implementation.

An operations and maintenance (O&M) plan should be in place prior to trail construction, in order to provide a framework for future activities related to trail maintenance and upkeep. An O&M plan describes tasks of work to be performed, policies and programs that will be undertaken, and responsibilities for each party to ensure the operations and maintenance of the trail. The O&M plan should identify routine and remedial maintenance activities and responsibilities.

## 5.3 Funding

Funding for the development of the trail will likely be from a variety of sources. A complete summary of potential funding sources is included as Appendix B. Below is a summary of project funding package strategies.

### Non-Profit Support

Local non-profits are often able to provide support early in a project, focusing on development of an overall vision for the trail corridor, landowner engagement, concept trail design, land acquisition, and funding options.

Non-profits engaged in this work within Park County include Park County Environmental Council, Gallatin Valley Land Trust, and more.







## Federal and State Government Grant Programs

Federal and state funding opportunities created specifically as a part of the \$1.2 trillion infrastructure bill passed in 2021, are available to offset the costs associated with expansive multi-modal transportation connections and enhancements. Programs such as Active Transportation Infrastructure Investment Program (ATIIP), Recreational Trails Program (RTP), Transportation Alternatives, and many others have designated funding available each fiscal year and must be applied for through a grant application process. Federal and state level funding is expected to be available continuously over the long term and would provide a valuable source for awarded funding. While these grants are competitive, with requested amounts far exceeding funding reserve totals, Park County has a successful

history in securing grant funds for many projects and programs. It is recommended that a grants manager be identified early the development process, to ensure efficient and effect management of the grant process.

Additional federal funding can be found on the Rails-to-Trails Conservancy website. Access to multiple funding agencies in conjunction with a phased build-out approach will likely be required to spread out the overall costs. Although federal funding exists, the grant process is extremely competitive and current funding requests for trails, walking, and biking are at an unprecedented level.





# Appendix A

## Community Engagement





# Appendix A | Community Engagement

## Public Feedback

A public feedback survey was created to distribute at the community open house to gather people's thoughts and questions about the study after they had the chance to walk through the presentation materials. The open house presentation boards and the survey were then posted on the Yellowstone Heritage Trail's (North) project website to collect additional community comments virtually. The open house and online survey were advertised via personal emails, a printed announcement in The Livingston Enterprise newspaper, and through interested local non-profits via email list servs, newsletters and social media outreach. In total, 303 unique surveys were completed. The results and key takeaways from the survey's eight questions are summarized in the following section.

## Survey Results

**Q1. The Yellowstone Heritage Trail/ Great American Rail-Trail is an opportunity to diversify recreation within the Paradise Valley. (303 responses)**

Agree	288	95.05%
Disagree	10	3.30%
Neutral	4	1.32%
No Response	1	0.33%

**Q2. I would use the Yellowstone Heritage Trail. (303 responses)**

Agree	265	87.46%
Disagree	11	3.63%
Neutral	25	8.25%
No Response	2	0.66%

**Q3. A trail with clear signage marking private property and public access would discourage trespassing. (303 responses)**

Agree	269	88.78%
Disagree	14	4.62%
Neutral	19	6.27%
No Response	1	0.33%

**Q4. Opportunities to learn about the history of the land is an important part of the Yellowstone Heritage Trail development. (303 responses)**

Agree	266	87.79%
Disagree	7	2.31%
Neutral	30	9.90%

**Q5. I understand that the Yellowstone Heritage Trail would only be built on private property with consent from the owner. (303 responses)**

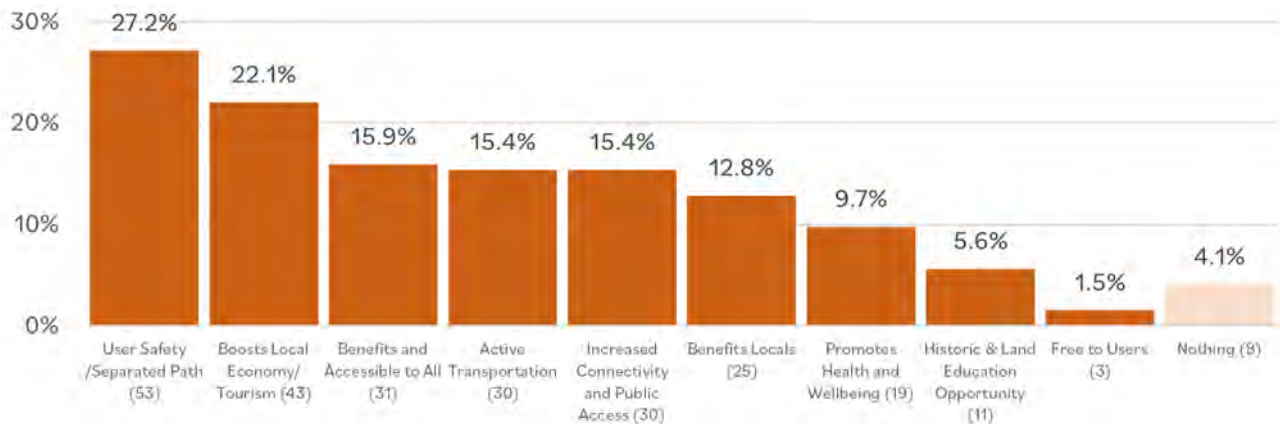
Agree	269	88.78%
Disagree	10	3.30%
Neutral	21	6.93%
No Response	3	0.99%





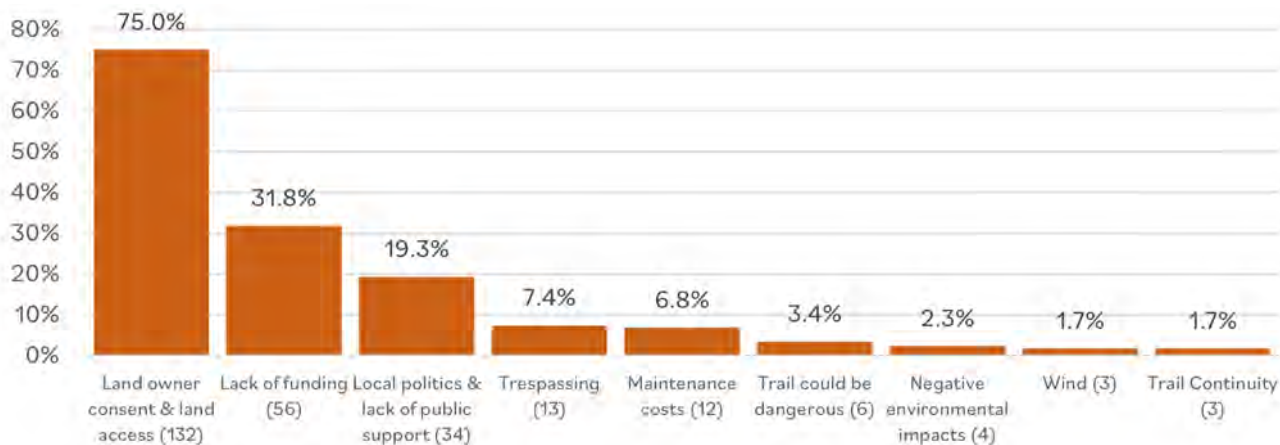
## Q6. What do you like about the opportunity to build the Yellowstone Heritage Trail? (Open ended question, 195 responses)

A content analysis was performed on the 195 open ended responses to question 6. Key themes in the public comments were identified and their frequency was calculated. For example, many people cited that they thought the Yellowstone Heritage Trail would provide a safe environment for users due to the path being physically separated from vehicle roadways. Out of the 195 responses, 53 responses (or 27.2% of all responses) cited user safety or physical separation as something that they liked about the trail. The identified themes with their corresponding response frequency are shown in the chart below.



## Q7. What challenges would prevent the Yellowstone Heritage Trail from being completed? (Open ended question, 176 responses)

A content analysis was performed on the 176 open ended responses to question 7. Key themes in the public comments were identified and their frequency was calculated. For example, many people cited that they thought obtaining land owner consent and public access on private land could present a challenge to the realization of the Yellowstone Heritage Trail. Out of the 176 responses, 132 responses (or 75.0% of all responses) cited land owner consent and land access as a potential challenge. The identified key themes with their corresponding response frequency are shown in the chart below.



## Q8. Other questions or comments? (Open ended question, 82 responses)

1. This is very exciting!! Thank you!
2. Really excited to see the project be even a small possibility and I hope it pans out!!
3. I would like to see this project come together in partnership with large landowners in the valley to include limited rights of way to connect public lands via walking paths crossing private land. Let's hear from landowners about what controls, restrictions, assurances, and/or compensation they would like to have to allow public paths to cross their private property. I would gladly pay more taxes or buy a membership in a local organization that would allow me greater access to trails in the valley. It's great to have trails on public lands but getting to them involves 20 to 60 minutes of driving and those less physically able can't go far in the mountains or can't go at all in winter. Thanks for pursuing this great idea to promote community health and access to outdoor recreation.
4. I'm happy that this conversation has been started in earnest, and I look forward to having/seeing more about it in the future. It could be another economic boon for the area through tourism.
5. Explore excursion trail along right-of-way. Would like to see how you could cobble together the trail utilizing E River Road and W. Yellowstone Trail complete to Gardiner.
6. I'd love to see some agricultural conservation easements worked into the plan as well. The trail would be amazing, but we also need to preserve the open working landscapes that make Paradise Valley a place people want to walk/bike through.
7. Let's get it built!
8. I don't know much about this project.
9. I am a landowner, and the proposed trail would pass through my property. I am not sure that this wouldn't negatively affect my property values. What's to stop people from camping in my yard?
9. Keep up the good work.
10. Concerned about additional development / infrastructure in the flood plain depending on final design.  
Fencing would probably be necessary in order to discourage trespassing.
11. Let's make it happen!
12. Try to partner w/unexpected barriers. Can horses use the trail?
13. Identify access points the trail (trailheads) w/ adequate parking. Fencing or physical barriers would be ideal to discourage trespassing.
14. Greater emphasis on Ag Community will be helpful in securing support. They hold the keys and ownership. How does this serve them?
15. What's Next?
16. Why is it that people are offended about these types of trails when in reality, this is how we originally moved around before automobiles? I heard a person at the open house mention conflicts with wildlife - are you kidding me - guess what the major highways and minor collector roads do to wildlife!?! Why is it that people are offended that they have to look at bikers and walkers traveling down and enjoying the valley when they constantly deal with heavy automobile traffic? Why is it that the people who have moved here to enjoy the beautiful scenery and recreation access don't feel they should share with others? This project will be a great investment for our future generations, and we should be happy to provide such a great amenity for all to enjoy. Thanks for you hard work on a great assessment of a future potential trail system!!!
17. Just good luck and it would be a Great





- accomplishment and exciting project to see completed.
18. One might assume that a project like this would not be completed all at once, instead small sections could be more appropriate. With that in mind I would like to see the focus to be from Point of rocks north to Old Yellowstone Trail North. If a trail were available here, one could feasibly travel from Livingston to Gardiner without traveling on a busy, narrow highway, 89 or East River road. Just a thought.
  19. Excited to see the progress, happy to support forward momentum.
  20. Good luck and thank you for working on such a great project which will enhance our county greatly!
  21. I appreciate all of your efforts so far!
  22. Thanks for your hard work!
  23. Our place has always been open to people who want to fish our stream or walk on our ridges. We hope enough people in the Paradise Valley feel the same way.
  24. Would be a fabulous project as 89 s is not safe for bike riding or driving for that matter!!
  25. Yay!
  26. show the economic value
  27. Thanks
  28. Please, please consider adding a bike lane to East River Road 9the old highway)!
  29. Start building the trail now
  30. I would be an important and beneficial service to the community.
  31. None
  32. None
  33. I am very concerned that the old railroad bed section through Yankee Jim Canyon may be opened for vehicular traffic. I've heard the County is still weighing its options on this and I wish the County would be more forthcoming on their plans. I would like to see this section - an area with unstable rock that is prone to sliding - just be used for pedestrian and bike traffic and necessary emergency vehicles. I would NOT like this section to be made 20' wide, as described in some County plans. Last I heard, the County pulled the plans for the trails when submitting their overall OYTS plans for FLAP funding and are just concentrating on roads. This I feel is a gross waste of money and resources. We do need a new Carbella bridge to access Tom Miner from the south (probably coming through FEMA funding); we need funding to keep Old Yellowstone Trail So in good shape; we need to repair Old Yellowstone Trail So where it was damaged from the floods; we DON'T, however, need to improve roads to peoples' vacation cabins. I am not trusting the County to provide funds for trails since they pulled this from their recent plans to focus on providing access to things that don't need it and I am apprehensive that the County may indeed turn that stretch through Yankee Jim into a road open to vehicular traffic.  
THANKS SO MUCH FOR ASKING!
  34. I'm really excited this project is in the works. In my younger days I did quite a bit of long-distance biking, and rail-trails were always the best experience -- a lot better than being on a narrow highway and having double gravel trucks barrel by you blaring their horn. Now that I have a four-year-old son, I look forward to passing on the joys of bike travel in a safer way.
  35. Other regions have developed similar bicycling opportunities with the aid of local philanthropists (NW Arkansas and the Walton Foundation, for example). Many similar philanthropists have a connection to the region. Can they be engaged to further this effort?

36. I hope it happens!  
I'll volunteer for some shovel work!
37. I really love the project.
38. I greatly appreciate all the effort that has been put into this!!!!
39. Thank you!
40. I am looking forward to this trail!
41. As a Livingston resident, and supporter of alternative transportation, I fully endorse this project getting done.
42. Could be a long, unshaded, very hot trail in summer and a long, windy trail in winter
43. Would love to see this happen. We have toured by bicycle for thousands of miles in the US but find it unsafe to do it in Park County on the main roads anymore. If you build it people will come and spend \$ throughout Park County, on food and accommodation, way more than the automobile tourist that just buys gas and goes.
44. timeline is disappointing. 5 years until construction?
45. Stay positive, long term!
46. Let's make this happen. Thanks for getting it rolling.
47. The potential for the restoration of passenger rail service to Livingston combined with this trail would be such an amazing experience for national and international visitors. Add the surge of e-bikes to this idea and it's exciting to think about how accessible Yellowstone would be via bicycles for a broader demographic of young and older visitors. Imagine the cafés, lunch stops, small lodging options, bike rental and service shops, wayside exhibits, guided activities, educational opportunities along the trail....and all of that BEFORE one even gets to the park!
48. This information is REALLY well designed. Made it easy for me to see the options/ pros & cons with maps and pertinent info in a way that was easy to navigate! Great work! Let's make this happen!  
Thank you for your efforts, this would be a really great opportunity for Park County.
49. This project would condemn the residents of this valley to years of on-going road construction on their single route in and out of the valley. Last summer the repaving of only 3 miles just south of the city of Livingston forced commuters to endless extra hours away from their families in hot dusty lines along with the heavy summer tourist traffic.  
We are not a Disney land ride. We are real families and businesses getting on with life where the beauty of nature can also be a natural disaster in action. Don't sell our homes and way of life as your fund-raising gimmick. Do you plan to fill our night skies and views with new traffic lights necessary for your "trail" to crisscross 89-S? The stop and go of backed-up tourists from these lights will magnify the traffic problems we already have. If private property owners wish to pave their land that is their business but don't pave public lands or rights-of-way.
50. Excited for the possibility of this project going through!
51. I am 100% in favor of this development. I would support an increase in taxes to fund this project
52. Would love to see the trail come to reality!
53. I think it's a good idea, I hope we can move it forward.
54. I think it's a good idea, I hope we can move it forward.
55. Love the idea of Montana taking part in the completion of the Great Heritage Trail.
56. Would want to be sensitive to riparian habitat on the Yellowstone river. Also please a voice large ugly building or paved parking lots.





- Preserve and don't disturb natural habitat
57. It's ideas like this that show just how out of touch people are. With so many other real problems that can, unfortunately, only be solved by money, this is what the so-called enlightened elite are focused on. This is unnatural and anti-human.
58. Thank you for your efforts and keep up the good work. A trail through Paradise Valley would be such a wonderful improvement and could become the model for similar trails elsewhere.  
This would be a good time to think about wildlife crossings, too. During construction of the trail, underpasses could be put in, using all the equipment already deployed. Reduce costs and kill two birds with one stone.
59. Thank you Rails to Trails for taking on this project. I hope to see the completed Upper East/West trail in my lifetime!
60. Good luck! I would love to see the trail happen.
61. How could we assure that the trail does not lead to human/wildlife conflicts? There's a lot of wildlife in Paradise valley and Cinnabar Basin and they would often be on the trail. Some animals could be dangerous and trail users may not understand that.
62. I think the trail should be built on the old railroad bed. Who owes this property now? Did the landowners along the way buy it from the railroad?  
Giving pedestrians access to the highway pull-off area is too dangerous for everyone. Distracted drivers at 70+ mph is a real danger. We would need to install a secure barrier between the traffic and pedestrians. Reducing the speed limit would also help.
63. Walking or riding alongside Highway 89 is an unacceptable alternative. A roadside route along the East River Road is better but would still be dangerous. This document starts off talking about using the old railroad bed, but it ends with public roadways--extremely confusing. I urge you to revise your copy to clarify that ambiguity.
64. There's also the matter of the request for post-it notes. When I came to that, I was completely confused. Was I supposed to print the page as a screenshot and then scan it? If so, then do what with it. To find this form, I had to go back to the beginning. Your design needs revision.
65. I guess I find your plan a little presumptuous, in that you want to appropriate trails that are already being used by locals - such as that segment through Yankee Jim Canyon, which is already being used by hikers, horseback riders and other recreational users. Hunters camp there in the fall and use the trail for their pack trains. I am not optimistic that your initiative would make this experience better. It would add to the traffic and degrade the experience. There is a large cultural site along the trail through Yankee Jim Canyon. It seems likely that this site will be damaged and vandalized over time by increasing numbers of trail users. People don't just stay on a trail because a sign says not to.  
We are already seeing massive increases in the use of trails and local roads by more road bikes, hikers, E-bikers, mountain bikers, 4-wheelers, off-road enthusiasts, snowmobiles, horse-mounted guided "experiences", commercial tours, etc. How is your plan something better?  
Much as in the past history of Montana, industrial development (then in terms of mining and logging, now in terms of industrial recreation) was imposed on the people of this state by outside interests. Now, we have industrial recreational development being incrementally increased year-by-year, as if there can never be enough. As before, the quality of life for local residents goes down

and the local wildlife lose vital winter habitat. When will this stop? When can we finally say, enough is enough?

With this survey, you (as an outside interest) are acting like our input could actually affect the future of this project. But it seems that this project is a foregone conclusion (i.e., you just purchased a section of private land north of Emigrant) and, thus, it further seems that this survey is not a sincere attempt at planning. It is placation, dotting the necessary "i"s and crossing the necessary "t"s. If others protested this, would you actually stop? Where are any alternatives to this plan? The East River Road is NOT a viable alternative; it is very dangerous; it has no shoulders; the amount of traffic (especially between Mill Creek Bridge and Emigrant Bridge) is very high, and people travel at very high (sometimes up to 60-70 mph) speeds. It is not an old railroad grade.

If you look at places like Colorado and California, where a never-ending in-flux of people occurred over the last 50+ years, the recreational experiences there have been, as a general consensus, degraded. Those same processes that compromised the quality of life in those states, are happening here in Montana. So much for "The Last Best Place!" Thank-you for the opportunity to comment

66. I think it is a great idea, a great way to help promote movement and the outdoors among the community, and a great way to promote outdoor tourism.

67. Hope it comes to pass.

68. I am so excited to dream about this possibility - I want my kids to be able to bike to Gardiner with me someday from town!

69. I just want to help make this thing a reality.

70. Are there any way residents can help with this project?

71. The trail doesn't need to be paved. If it is

paved, there could also be a gravel/single track implemented within the same corridor/right of way.

72. Important to have signage that talks about the geology of the Valley since it is SO unique. Also, to tell a story about animal migration paths and the old railroad tracks into the Park. In addition, include the story of the Native Americans using this Valley, old Buffalo Jumps, other ancient sites and stories of the early gold miners and the Emigrants that helped build the infrastructure. Could this trail be used by horses?

73. Brilliant.

Thanks to all involved for getting the project this far. Let me know next steps and/or how to share the flipbook. I'd be happy to carry around some copies to the usual spots I end up at (meetings, book-clubs, presentations, etc.) Let me know if you have some printed, otherwise, will print some myself.

Make sure all PR involves words to the effect of lower impact, ed on local lands issues, wildlife safety, etc

Is this survey best served shared? For how long?

Thanks!

74. It would be nice if it could be constructed along Old Yellowstone Trail instead of 89. It would be quieter and more peaceful and less intrusive.

75. This is unnecessary!

76. Will this trail also be used by motor cross bikes or snowmobiles? Will this trail be intersecting with already established parking areas? Will there be campsites and picnic areas considered?

77. I reject the idea of this trail passing anywhere near my property. I will prevent it, resist it, and fight to prevent it. There is PLENTY of public land to hike. No more violations, molestations, and infringements on Private





Property. Tourists have demonstrated ZERO respect for local landowners.

78. Will we have the opportunity to help with this project in any way??
79. thank you. I didn't attend the meeting as I was gone
80. thank you for your work to envision this important project
81. GO FOR IT!!! Thank you for doing this collaborative work
82. I am shocked you haven't spoken to us property owners to get our opinions. I am also quite disappointed no one has returned my email and phone call.



# Appendix B

## Funding Sources





# Appendix B | Funding Sources

The following funding resources offer a short summary of information about potential funding opportunities for trails and active transportation. A variety of federal and state programs are available to support the construction of multi-use trails. These programs can change, and new ones can become available, so availability of those listed below should be evaluated when a section of the route is considered for construction.

In recent years, funding for trails and active transportation programs has substantially increased. In November 2021, Congress passed the Infrastructure Jobs and Investment Act (IIJA)— also known as the Bipartisan Infrastructure Law (BIL)— that included the five-year reauthorization of federal surface transportation programs. This bill increased funds for trails and active transportation programs, bolstering familiar, long-standing programs and added new funding opportunities for trails, walking and biking. Those applicable programs, as well as others, are listed below.

## Active Transportation Infrastructure Investment Program (ATIIP)

The Active Transportation Infrastructure Investment program was part of the Fiscal Year 2023 Omnibus Appropriations bill passed in December 2022. This new grant program provides funding for active transportation networks and trail spines that link communities and regions together. The program is anticipated to be appropriated \$200 million in FY 2024.

The ATIIP provides direct funding to local and state governments or organizations to build safe and connected active transportation networks.

## Recreational Trails Program (RTP)

The Recreational Trails Program was established in 1992 and is administered by the U.S. Department of Transportation Federal Highway Administration (FHWA). \$84 million in annual funding is made

available by gas taxes paid by off road vehicles.

The following project types are eligible for funding:

- » Maintenance of existing trails
- » Development and rehabilitation of trailside and trailhead facilities
- » Construction of new trails
- » Acquisition of easements or property for trail usage
- » Accessibility and maintenance assessments of trail conditions
- » Developing and disseminating publications and operation of educational programs for safety and environmental protection
- » Administrative costs (up to 7% of funds)

The RTP provides funds to each State to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses.

## Transportation Alternatives (TA)

The Transportation Alternatives program was established in 1991 and is administered by the U.S. Department of Transportation Federal Highway Administration (FHWA). Currently, the TA is the nation's largest dedicated federal funding source for trails and active transportation. Funding is allocated to states who in turn administer their own competitive process for funding allocation. The national TA apportionment was \$850 million from FY 2018-2020.

## Community Development Block Grant (CDBG)

CDBG is a federally funded program that helps communities for projects such as public facilities, economic development, and planning grants.

## Transportation Alternatives Program

The Fixing America's Surface Transportation





(FAST) Act eliminates the MAP-21 Transportation Alternatives Program (TAP) and replaces it with a set-aside of Surface Transportation Block Grant (STBG) program funding for transportation alternatives (TA). These set-aside funds include all projects and activities that were previously eligible under TAP. The law requires selection of projects through a competitive process.

<https://www.mdt.mt.gov/mdt/ta-application.aspx>

### **RAISE Discretionary Grants**

RAISE discretionary grants help project sponsors at the State and local levels, including municipalities, Tribal governments, counties, and others complete critical freight and passenger transportation infrastructure projects. The eligibility requirements of RAISE allow project sponsors to obtain funding for projects that are harder to support through other U.S. DOT grant programs.

<https://www.transportation.gov/RAISEgrants>

### **Safe Streets and Roads for All (SS4A)**

The Bipartisan Infrastructure Law (BIL) established the new Safe Streets and Roads for All (SS4A) discretionary program with \$5 billion in appropriated funds over 5 years. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

The SS4A program supports the National Roadway Safety Strategy goal of zero deaths and serious injuries on our nation's roadways.

<https://www.transportation.gov/grants/SS4A>

### **Rural Surface Transportation Grant**

<https://www.transportation.gov/grants/rural-surface-transportation-grant>

The Rural Surface Transportation Grant Program supports projects that improve and expand the

surface transportation infrastructure in rural areas. Projects that are supported by this program increase connectivity, improve the safety and reliability of the movement of people and freight, and generate regional economic growth and improve quality of life.

### **Congestion Mitigation and Air Quality Improvement Program (CMAQ)**

Reauthorized in 1998 under the Transportation Equity Act for the 21st Century (TEA-21) and again as part of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, the CMAQ program provides over \$8.1 billion dollars in funds to State DOTs, MPOs, and transit agencies to invest in projects that reduce emissions from transportation-related sources. Since 1991, the program has provided funding to over 16,000 projects.

<https://www.transportation.gov/sustainability/climate/federal-programs-directory-congestion-mitigation-and-air-quality-cmaq>

### **Land and Water Conservation Fund (LWCF)**

The LWCF State and Local Assistance Program (often referred to as "LWCF Stateside") is administered by the National Park Service, and provides matching grants to state, local and tribal governments to create and expand parks, develop recreation facilities, and further local recreation plans. Each year, funds are distributed to every U.S. state and territory using a population-based formula. Ranging from active recreation facilities to natural areas, these funds are a vitally important tool to renovate existing sites, develop new facilities, acquire land for state and local parks and promote statewide recreation planning.

<https://lwcfcoalition.org/state-and-local-assistance>

## National Highway Performance Program (NHPP)

The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS.

NHPP funds may be obligated only for a project on an "eligible facility" that is a project, part of a program of projects, or an eligible activity supporting progress toward the achievement of national performance goals for improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the NHS. Projects must be identified in the Statewide Transportation Improvement Program (STIP)/Transportation Improvement Program (TIP) and be consistent with the Long-Range Statewide Transportation Plan and the Metropolitan Transportation Plan(s).

<https://www.fhwa.dot.gov/specialfunding/nhpp/>

## Environmental Protection Agency's Brownfields Program

Provides grants and technical assistance to communities to assess, clean up, and reuse brownfields. The EPA specifically recognizes underutilized or abandoned railroad right-of-way as a type of brownfield. Grants for technical assistance are also available. Grants are typically awarded annually, with deadlines in December of each year.

<https://www.epa.gov/brownfields>

## The Montana Arts Council

Cultural and Aesthetic Project Grants program can support a cultural wayfinding program along

the trail. The program is funded biannually, with a match required. Examples of government sponsors are county art or historical museums, public libraries, public educational institutions or school districts, state agencies, city arts commissions, parks and recreation departments, and tribal cultural or educational committees.

<https://art.mt.gov/>

## Montana Trail Stewardship Program

State of Montana program that provides funding for the development, renovation, and maintenance of motorized and non-motorized recreational trails. Eligible funding areas include new trails and shared-use path construction, renovation and maintenance of trails and shared-use paths, and construction and maintenance of trailside and trailhead facilities.

<https://fwp.mt.gov/aboutfwp/grant-programs/trail-stewardship>

## Earmarks

Congressionally directed federal funds that benefit community-supported local projects specific to a state, locality, or district. Individual lawmakers determine the application process but typically waive any requirement to go through a statutory or administrative competitive application process.

<https://www.railstotrails.org/policy/funding/earmarks/>





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# Appendix C

## Environmental Scan Report





**ENVIRONMENTAL SCAN REPORT**  
**YELLOWSTONE HERITAGE TRAIL ALONG HISTORIC ELK RIVER**

Prepared for



**rails-to-trails**  
conservancy

Prepared by

**WESTON SOLUTIONS, INC.**



**July 2023**



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## APPENDICES

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Appendix A	SHPO Sites
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## LIST OF ACRONYMS

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FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
LUST	leaking underground storage tank
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MDEQ	Montana Department of Environmental Quality
MFWP	Montana Fish, Wildlife and Parks
MNHP	Montana Natural Heritage Program
NAAQS	National Ambient Air Quality Standards
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
SHPO	State Historic Preservation Office
SPA	Stream Protection Act
UBC	Uniform Building Code
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
USGS	United States Geologic Survey

# 1 INTRODUCTION

The Rails-to-Trails Conservancy, in partnership with Park County, is completing a feasibility study (Study) for a proposed trail corridor known as the Yellowstone Heritage Trail along Historic Elk River, located in Paradise Valley, from Point of Rocks to Livingston, Montana. This trail corridor is part of the Great America Rail Trail. Park County intends to complete 49 miles of trail between Gardiner and Livingston by either acquiring easements along the former rail corridor where property owners are amenable or, where easements cannot be obtained, building a trail along U.S. Highway 89 or the Old Yellowstone Trail. A study for the 21-mile southern half of this trail corridor from Roosevelt Arch Monument to Point of Rocks was completed by Park County in 2020. Full design of the southern portion is underway and construction funding is anticipated in 2023 or 2024. This Study addresses the remaining 28-miles in the northern portion of the overall trail corridor.

The primary objective of this Environmental Scan Report is to identify and document the resources present within the Study area and to determine potential impacts, applicable regulations, and recommended avoidance, minimization, and mitigation measures.

## 1.1 Study Area

The approximate 28-mile Study area of the northern portion of this trail is located along the former rail corridor from Point of Rocks (south of Emigrant) to Livingston in Park County, Montana (**Figure 1-1**). The Study area is limited to the west side of U.S. Highway 89 and within 100 feet of the existing alignment of the abandoned railroad bed. The general Study area is shown in **Figure 1-2**.



## 2 PHYSICAL ENVIRONMENT

The following section summarizes the physical environment for the Study area and corresponding findings.

### 2.1 Air Quality

The U.S. Environmental Protection Agency (USEPA) sets primary National Ambient Air Quality Standards (NAAQS) for the protection of public health along with secondary NAAQS to protect plants, forests, crops and materials from damage. The six criteria pollutants that have been linked to adverse health effects include particulate matter, ozone, nitrogen oxides, sulfur oxides, carbon monoxide, and lead. Federal law requires that all states attain the NAAQS.

In Montana, air quality problems are usually related to urban areas and areas sensitive to temperature inversions, such as mountainous regions or river valleys. The two criteria pollutants known to have the greatest adverse impact on Montana’s air quality are particulate matter and carbon monoxide. Particulate matter generally comes from residential wood burning, vehicles traveling on unpaved roads, and sand and gravel from winter traction material. Likewise, carbon monoxide comes primarily from residential wood burning and motor vehicles.

The USEPA designates certain geographical regions that violate the NAAQS as “non-attainment areas.” Non-attainment areas receive special attention and mitigation efforts to improve the ambient air quality to the established standards. The Study area is located outside of a non-attainment or maintenance area, so no special design considerations or mitigation efforts are required.

### 2.2 Soil Resources and Prime Farmland

The purpose of the Farmland Protection Policy Act of 1981 (Title 7 United States Code, Chapter 73) is to, “minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland.” Farmland is defined by the Act in Section 4201 as including prime farmland, unique farmland, and farmland, other than prime or unique farmland, that is of statewide or local importance.

Information on soils from the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) was obtained to determine the presence of prime and unique farmland in the Study area. The soil surveys indicate the predominant soil types in the Study area are loams, sandy loams, and gravelly loams. Prime farmland, as well as farmland of statewide and local importance, exists within the Study area. **Figure 2-1** illustrates the farmland classifications present in the Study area.

The Form NRCS-CPA-106: Farmland Conversion Impact Rating for Corridor Type Projects is a way for the NRCS to keep inventory of the Prime and Important farmlands within the state. If a study option is advanced to project development, project activities associated with the construction of the trail in the Study area may create impacts to the soil map units with prime and important farmland status; thus, completion of an NRCS-CPA-106 Form may be required. The process for completing this form requires mapping of the prime and important farmlands to be converted to non-farmable land, coordination with the NRCS, and final completion of the conversion form. Impacts to these resources should be avoided and minimized to the extent practicable.

### 2.3 Geologic Resources

The Study area is located in Paradise Valley which is a north-south trending valley between the Absaroka and the Gallatin Mountain ranges. The Paradise Valley is located along the north-west trending Cooke City structural zone. According to a U.S. Geological Survey (USGS) report, bedrock consists predominantly of Cenozoic dacitic to andesitic volcanic rocks as well as Paleozoic rocks associated with a fold thrust belt. These older geologic features are overprinted with more recent glacial deposits from the Wisconsinan Glacial Stage. The average elevation along the Study area corridor ranges from approximately 4,600 to 4,900 feet above mean sea level with the higher elevations to the south and the lower elevations to the north.

Seismic information in this area was reviewed for fault lines and seismic hazard areas. This geologic information can help determine potential design and construction issues related to geologic hazards. According to the USGS Interactive Fault Map, there is late Quaternary fault trending Southwest to Northeast along the eastern side of the valley at the foot of the Absaroka Range. A map showing the fault location is provided in **Figure 2-2**. The state of Montana adopted the seismic standards set by the Uniform Building Code (UBC), which establishes

building design standards used by architects and engineers to assess the seismic risk in Montana. These standards were adopted to provide earthquake design standards for regional construction. The Study area appears to be predominantly classified as zone 2 on the UBC seismic risk scale of 0 (low risk) to 4 (high risk).

## 2.4 Water Resources

### 2.4.1 Surface Water

The Study area roughly parallels the western shore of the Yellowstone River (Historic Elk River) in the Paradise Valley of southern Montana. The Yellowstone River flows from south to north. The proposed trail follows the Yellowstone River and is between 0.75 miles and 100-feet from the river. Several smaller creeks cross the proposed trail area and flow into the Yellowstone River including Big Creek, Dry Creek, Frindley Creek, Eightmile Creek, and Trail Creek, as well as several irrigation ditches. All surface water flows in the Paradise Valley discharge to the Yellowstone River before Livingston, Montana. According to Montana Department of Environmental Quality's (MDEQ) Clean Water Act Information Center, the Yellowstone River is listed as not fully supporting aquatic life in the Study area. This assessment was made for 119 miles of the Yellowstone River from Reese Creek to Bridger Creek. The cause for this status is cited as alteration in stream-side or littoral vegetative covers and physical substrate habitat alterations. If a Study option is advanced to project development, impacts to surface waters will need to be evaluated and permitting requirements determined.

For discharges of fill material to waters of the United States, permitting under Section 404 of the Clean Water Act from the United States Army Corps of Engineers (USACE) may be required. Under this program, impacts to surface waters must be avoided and minimized to the maximum extent practicable. Unavoidable stream and wetland impacts may require compensatory mitigation. Additional permitting may also be required under the Montana Natural Streambed and Land Preservation Act (also referred to as the 310 law), which is intended to ensure soil erosion and sedimentation is minimized and streams and rivers are preserved in their natural or existing state. Any private, nongovernmental individual or entity proposing construction in a perennial stream must apply for a 310 permit through the local conservation district.

Alternatively, any governmental entity proposing construction that may affect the beds or banks of streams in Montana must obtain a Stream Protection Act (SPA) 124 authorization from



Montana Fish Wildlife and Parks (MFWP). The SPA 124 authorization is intended to protect and preserve fish and wildlife resources and maintain streams and rivers in their natural or existing state. For any instream work conducted during construction activities, a short-term water quality standard for turbidity, referred to as a 318 authorization, is required from MDEQ.

#### *2.4.2 Groundwater*

Groundwater resources in the Study area include an unconsolidated aquifer hosted in Pleistocene to Holocene age Glacial Outwash and alluvium as well as a bedrock aquifer hosted in crystalline metamorphic rock and Paleozoic sedimentary rocks. All groundwater in the Study area flows towards and discharges into the Yellowstone River.

Based on information obtained from the Montana Bureau of Mines and Geology Groundwater Information Center, approximately 46 residential water wells are included in the Study area. Almost all of the residential wells are completed in alluvium, alluvial fan, glacial till, and glacial outwash sediments within Paradise Valley. Potential impacts to these wells are not expected because the trail construction is expected to be limited to the old railroad bed or in near proximity. However, a setback of 100-feet from public water supplies wells is required under state law. As such, consideration of trail placement will need to consider this requirement.

#### *2.4.3 Irrigation*

There are roughly 25,000 acres of irrigated pasture and hay in Paradise Valley. Based on analysis of aerial imagery, numerous irrigation features are present within the Study area, including center-pivot irrigation systems, irrigation ditches and canals. A map of the irrigation features is shown in **Figure 2-3**. The proposed project could potentially impact irrigation features in the Study area. Impacts should be avoided and minimized. Consultation with the owners of these systems may be needed to limit impacts to agricultural operations. In certain instances, irrigation ditches in the Study area may also be considered jurisdictional waterways; therefore, permits as described in **Section 2.4.1** above may be required.

#### *2.4.4 Wetlands*

The USACE defines wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do

support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, fens, and other similar areas.

National Wetland Inventory (NWI) Mapping is available for the Study area. Wetlands identified in Study area are shown in **Figure 2-4**. Although the NWI maps were reviewed for general wetland locations present in the Study area, it is important to note that these maps are not accurate or detailed enough for project wetland identification and delineation. The NWI map is not intended to be a complete identification and/or delineation of wetlands present in the Study area. NWI maps are typically generated based on aerial and satellite imagery.

Formal wetland delineations will need to be conducted according to standard USACE defined procedures if trail development is finalized. Jurisdictional determinations of wetlands will also need to be conducted during the project development process. Wetland impacts should be avoided and minimized to the maximum extent practicable. All unavoidable wetland impacts will need to be mitigated as required by the USACE. Potential mitigation sites should be investigated and constructed prior to project impacts. The USACE generally requires that compensatory mitigation occur in the same watershed as the impacts.

#### *2.4.5 Wild and Scenic Rivers*

The Wild and Scenic Rivers Act (Title 16 United States Code, Chapter 28), created by Congress in 1968, provides for the protection of certain selected rivers, and their immediate environments, that possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. Under the Act, rivers are classified as wild, scenic, or recreational. The National Wild and Scenic River System website was consulted to determine if Wild and Scenic River Systems were included in the Study area. The only designated Wild and Scenic River in southern Montana is the East Rosebud River in the Absaroka-Beartooth Wilderness which is outside of the Study area. There are no impacts anticipated since the resource is not present within the Study area.

## 2.5 Floodplains and Floodways

The Federal Emergency Management Agency (FEMA) Flood Map Service Center was reviewed to determine if portions of the Study area are within a designated floodplain. According to the interactive Geographic Information System (GIS) viewer on their website, there are several areas

where floodplains are present in the Study area. The FEMA flood hazard features for the Study area are shown in **Figure 2-5**. The figure shows the 100- and 500-year floodplains as well as the regulatory floodways. If development is proposed within these areas, the local floodplain administrator should be contacted, and a County Floodplain Development Permit obtained. The purpose of this permit is to promote public health, safety and general welfare of residents and to minimize public and private losses due to flood conditions in regulated flood hazard areas.

## 2.6 Hazardous Substances

MDEQ’s GIS database was searched for releases of petroleum and hazardous substances within the Study area. This search comprised cleanup and remediation sites, which includes abandoned mine areas, petroleum releases, opencut mining sites, state Superfund facilities, institutional control areas, and Federal Superfund site boundaries. In addition, the search included waste management sites comprised of solid waste sites, junk vehicle sites, and hazardous waste handlers. The only sites identified in the Study area were petroleum releases from leaking underground storage tanks (LUSTs). The identified LUSTs are summarized in **Table 2-1** below and are shown in **Figure 2-6**.

Due to the resolved status of these petroleum releases(s), it is not anticipated that these LUST sites would adversely impact the proposed project if a Study option is advanced to project development. Further review and potential investigation may be necessary if the trail alignment changes or as the Study progresses to design.

**Table 2-1 Petroleum Release Sites in Study Area**

Facility Name	Facility Address	Facility ID	Release ID	Release Date	Status
Zip Trip 47	101 Centennial Drive, Livingston	26145	4471	02/23/06	Resolved 09/10/12
Town Pump Inc Livingston 3	2200 Park Street S, Livingston	26162	4140	08/01/02	Resolved 01/14/03
Emigrant General Store	3 Murphy Lane, Emigrant	26035	3099	01/07/97	Resolved 05/12/97



### **3 BIOLOGICAL RESOURCES**

Biological resources in the Study area were identified using maps, aerial photographs, Montana Natural Heritage Program (MNHP) data, and the endangered, threatened, proposed, and candidate species list for Montana counties. This limited survey is not intended to be a complete and accurate biological survey of the Study area. Rather, a complete biological survey of the Study area would be conducted in accordance with accepted practices if a Study option is advanced to project development.

#### **3.1 Fish and Wildlife**

The Yellowstone Heritage Trail roughly parallels the Yellowstone River. According to MNHP, fish species commonly occurring within the Yellowstone River are arctic grayling, cutthroat trout, mountain whitefish, and a variety of sucker species. There are also numerous non-native species including brook trout, brown trout, and rainbow trout. On dry land along the trail corridor, bald eagles, loons, mergansers, waterfowl species, and numerous mammals including deer, elk, and moose have been documented.

Riparian and river, stream or creek habitats should be avoided to the maximum extent practicable. Fish and wildlife species use waterway corridors during all life stages. Encroachment into the wetted width of a waterway and its associated riparian habitat should be minimized to the extent possible if a Study option is advanced to project development. Soils, vegetation, and flooding data can be utilized in determining the extent of riparian habitat.

##### ***3.1.1 Threatened and Endangered Species***

A federal list of threatened and endangered species is maintained by the U.S. Fish and Wildlife Service (USFWS). Species on this list receive special protections under the Endangered Species Act (Title 16 United States Code, Chapter 35). An ‘endangered’ species is one that is in danger of extinction throughout all or a significant portion of its range. A ‘threatened’ species is one that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species that are candidates or proposed for possible addition to the federal list.

According to the USFWS Information for Planning and Consultation website, the Study area includes the threatened Canada Lynx, the threatened Grizzly Bear, the proposed threatened North American Wolverine, and the candidate Monarch Butterfly. The critical habitat for the three

mammal species includes dense conifer forests and little human presence. The Study area consists predominantly of agricultural and riparian areas with little or no trees, so it is unlikely to possess suitable habitat. Monarch Butterflies lay their eggs on obligate milkweed host plants, which make those plants important habitat. Disturbance of milkweed plants should be avoided to the extent practicable. Further evaluation of potential impacts to all threatened, endangered, proposed, or candidate species will need to be conducted during the project development process if a Study option is advanced. Updated critical habitat maps should be consulted during the project development process.

### *3.1.2 Species of Concern*

Montana Species of Concern are native animals within the state that are “at risk” due to declining population trends, threats to their habitats, and/or restricted distribution. Designation as a Montana Animal Species of Concern is not a statutory or regulatory classification. Instead, these designations provide a basis for resource managers and decision-makers to direct limited resources to priority data collection needs and address conservation needs proactively. Each species is assigned a state rank that ranges from S1 (greatest concern) to S5 (least concern). Other state ranks include SU (unrankable due to insufficient information), SH (historically occurred), and SX (believed to be extinct). State ranks may be followed by modifiers, such as B (breeding) or N (non-breeding).

**Table 3-1** lists 45 animal species of concern that the MNHP has records of in the Study area. The results of a data search reflect the current status of their data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys. On-site surveys would need to be completed if a Study option advances to project development. No mitigation measures are expected at this time because the proposed trail construction is limited to the existing railroad bed or near proximity.

**Table 3-1 Montana Animal Species of Concern**

<b>Group</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>State Rank</b>
Mammals	<i>Bos Bison</i>	Bison	S2
	<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	S3
	<i>Euderma maculatum</i>	Spotted Bat	S3
	<i>Gulo gulo</i>	Wolverine	S3
	<i>Lasiurus borealis</i>	Eastern Red Bat	S3B
	<i>Lasiurus cinereus</i>	Hoary Bat	S3B
	<i>Lynx canadensis</i>	Canada Lynx	S3
	<i>Myotis evotis</i>	Long-eared Myotis	S3
	<i>Myotis lucifugus</i>	Little Brown Myotis	S3
	<i>Myotis volans</i>	Long-legged Myotis	S3
	<i>Sorex merriami</i>	Merriam's Shrew	S3
	<i>Ursus arctos</i>	Grizzly Bear	S2S3
Birds	<i>Accipiter gentilis</i>	Northern Goshawk	S3
	<i>Anthus spragueii</i>	Sprague's Pipit	S3B
	<i>Aquila chrysaetos</i>	Golden Eagle	S3
	<i>Ardea herodias</i>	Great Blue Heron	S3
	<i>Artemisiospiza nevadensis</i>	Sagebrush Sparrow	S3B
	<i>Botaurus lentiginosus</i>	American Bittern	S3B
	<i>Buteo regalis</i>	Ferruginous Hawk	S3B
	<i>Catharus fuscescens</i>	Veery	S3B
	<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	S2
	<i>Certhia americana</i>	Brown Creeper	S3
	<i>Coccothraustes vespertinus</i>	Evening Grosbeak	S3
	<i>Cygnus buccinator</i>	Trumpeter Swan	S3
	<i>Dryocopus pileatus</i>	Pileated Woodpecker	S3
	<i>Gymnorhinus cyanocephalus</i>	Pinyon Jay	S3
	<i>Haemorhous cassinii</i>	Cassin's Finch	S3
	<i>Histrionicus histrionicus</i>	Harlequin Duck	S2B
	<i>Ixoreus naevius</i>	Varied Thrush	S3B
	<i>Leucosticte atrata</i>	Black Rosy-Finch	S2
	<i>Nucifraga columbiana</i>	Clark's Nutcracker	S3
	<i>Numenius americanus</i>	Long-billed Curlew	S3B
	<i>Oreoscoptes montanus</i>	Sage Thrasher	S3B
	<i>Pipilo chlorurus</i>	Green-tailed Towhee	S3B
	<i>Rhynchophanes mccownii</i>	Thick-billed Longspur	S3B
	<i>Spizella breweri</i>	Brewer's Sparrow	S3B
	<i>Strix nebulosa</i>	Great Gray Owl	S3
	<i>Troglodytes pacificus</i>	Pacific Wren	S3
Amphibians	<i>Anaxyrus boreas</i>	Western Toad	S2



Group	Scientific Name	Common Name	State Rank
Fish	<i>Oncorhynchus clarkii bouvieri</i>	Yellowstone Cutthroat Trout	S2
	<i>Oncorhynchus clarkii lewisi</i>	Westslope Cutthroat Trout	S2
Invertebrates - Insects	<i>Rhyacophila alexanderi</i>	Alexander's Rhyacophilan Caddisfly	S2
	<i>Isocapnia integra</i>	Alberta Snowfly	S2
Invertebrates - Mollusks	<i>Discus shimekii</i>	Striate Disc	S1
	<i>Oreohelix strigosa berryi</i>	Berry's Mountainsnail	S1S2

### 3.1.3 Migratory Birds

The Migratory Bird Treaty Act (MBTA) makes it illegal to take, possess, or sell/purchase any migratory bird or its parts. Impacts to nesting birds, their nests, eggs, or young are prohibited. Any tree or shrub removal and other construction activity must be conducted in compliance with the MBTA. Compliance includes timing restrictions, typically between April 15<sup>th</sup> and August 15<sup>th</sup>, on activities that have the potential to impact nesting birds.

### 3.1.4 Bald and Golden Eagles

The Bald and Golden Eagle Protection Act prohibits anyone from “taking” or disturbing bald or golden eagles without a permit issued by the Secretary of the Interior. Bald and Golden Eagles are year-round residents within the range of the project study area. The species are considered secure globally and the bald eagle is ranked as secure in Montana, and the golden eagle may be at limited risk. The Study Area is expected to be limited to the existing railroad bed and near proximity. If a Study option is forwarded to project development, a survey of nesting sites should be conducted, and impacts avoided.

### 3.1.5 Sage Grouse

According to the open data provided by the Montana Sage Grouse Habitat Conservation Program, the Study area is outside of the sage grouse general and core areas. No sage grouse leks are reported. As such, no impacts to sage grouse or sage grouse habitat would be expected.

## 3.2 Vegetation

The Study area is largely comprised of montane grasslands, irrigated agricultural grasslands, steppe shrubland, and wetland/riparian systems. The montane grasslands are dominated by foothill

and valley species, the irrigated agricultural lands are predominantly hay and pasture, the steppe shrubland is dominated by sagebrush, and the wetland/riparian systems are predominantly cottonwood trees and herbaceous marsh species.

### 3.2.1 *Threatened and Endangered Species*

As discussed in **Section 3.1.1**, the federal list of threatened and endangered species is maintained by the USFWS. Species on this list receive special protections under the Endangered Species Act. The threatened, endangered, proposed, and candidate plant species list for Montana counties was consulted. This list generally identifies the counties where one would reasonably expect the species to occur, not necessarily every county where the species is listed.

According to the USFWS, one plant species is listed as proposed threatened in the Study area: the Whitebark Pine (*Pinus albicaulis*). The habitat for this species is generally limited to high elevation alpine habitats, which are not found in the Study Area. An evaluation of potential impacts to all threatened, endangered, proposed, or candidate species would need to be conducted during the project development process.

### 3.2.2 *Species of Concern*

Montana Species of Concern are native plants in the state that are considered to be “at risk” due to declining population trends, threats to their habitats, and/or restricted distribution. As described in **Section 3.1.2**, designation of a species as a Montana Species of Concern is not a statutory or regulatory classification. Instead, these designations provide a basis for resource managers and decision-makers to direct limited resources to priority data collection needs and address conservation needs proactively.

**Table 3-2** lists the plant species of concern that the MNHP has records of within the Study area. The results of a data search reflect the current status of their data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys. On-site surveys would need to be completed during the project development process.

**Table 3-2 Montana Plant Species of Concern**

<b>Group</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>State Rank</b>
Ferns and Fern Allies	<i>Equisetum pratense</i>	Meadow Horsetail	S2
	<i>Polystichum kruckebergii</i>	Kruckeberg's Swordfern	S2S3
Gymnosperm (Conifer)	<i>Pinus albicaulis</i>	Whitebark Pine	S3
Flowering Plants - Dicots	<i>Ammannia robusta</i>	Scarlet Ammannia	S2
	<i>Aquilegia formosa</i>	Sitka Columbine	S3
	<i>Atriplex truncata</i>	Wedge-leaf Saltbush	S3
	<i>Pleiacanthus spinosus</i>	Spiny Skeletonweed	S2S3
	<i>Thelypodium paniculatum</i>	Northwestern Thelypody	S1
	<i>Triodanis leptocarpa</i>	Slim-pod Venus'-looking-glass	S3
Flowering Plants - Monocots	<i>Carex stenoptila</i>	Small-winged Sedge	S2S3

### 3.2.3 Noxious Weeds

Noxious weeds degrade habitat, choke streams, crowd native plants, create fire hazards, poison and injure livestock and humans, and foul recreation sites. Areas with a history of disturbance are at particular risk of weed encroachment. According to the MFWP website, the following noxious weeds have been identified as present in Park County: Spotted Knapweed, Rush Skeleton Weed, Blue Weed, Leafy Spurge, Canada Thistle, St. Johnswort, Yellow Toadflax, Yellow Star Thistle, Knot Weed Complex, Dalmation Toadflax, and Death Camas. If a Study option is forwarded into project development, the Study area will need to be surveyed for noxious weeds and a weed control plan developed.



## 4 SOCIAL AND CULTURAL RESOURCES

### 4.1 Demographic Information

To provide context in which to evaluate social impacts, demographic information was obtained from the U.S. Census Bureau. This information is presented in **Tables 4-1** and **4-2**, below.

**Table 4-1 2020 U.S. Census Bureau Demographic Information**

Area	Population	Median Household Income	Percent of Persons below Poverty
Park County	17,191	\$53,082	12.0%
Montana	1,084,225	\$63,249	11.9%

As shown in **Table 4-1**, the median household income for Park County was estimated to be \$53,082 in 2020, which is below the median for the state of Montana. The percent of persons living below the poverty line was nearly the same as the state of Montana.

### 4.2 Environmental Justice

Title VI of the U.S. Civil Rights Act of 1964, as amended, and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, require that no minority, or by extension, low-income person shall be disproportionately adversely impacted by projects receiving federal funds. For transportation projects, this means that no particular minority or low-income person may be disproportionately isolated, displaced, or otherwise subjected to adverse effects.

**Table 4-2 Population Data**

Race	Park County Percent (%) of Population (2020)	State of Montana Percent (%) of Population (2020)
White alone, Not Hispanic or Latino	90.9	83.1
African American	0.4	0.5
American Indian/Alaska Native	0.9	6.2
Asian	0.4	0.8
Native Hawaiian/Pacific Islander	0.0	0.1
Hispanic/Latino	3.0	4.2
Two or more races	5.3	6.6

Within Park County, approximately 90.9% of the population is white, 0.4% is African American, 0.9% is Native American, 0.4% is Asian, 3.0% is Hispanic, and 5.3% are of two or more races. This composition is similar but less diverse to the composition of the state of Montana, with slightly higher percentage of the population categorized as white and slightly lower percentages across the other ethnicities in Park County.

### 4.3 Historical and Archeological Resources

The Montana State Historic Preservation Office (SHPO) was contacted to determine the presence of known historic or archaeological sites within the Study area. The file search yielded 143 previously recorded sites, including historic railroads, ranches, residences, irrigation systems, and precontact materials. A list of the previously recorded sites is contained in **Appendix A**. SHPO considers any structure over fifty years of age as historic and potentially eligible for listing on the National Register of Historic Places. If structures are to be altered and are over fifty years old, SHPO recommends that they be recorded, and a determination of their eligibility be made prior to disturbance. SHPO has indicated that the remains of the Northern Pacific railroad (24PA1120) itself is considered eligible for listing in the National Register of Historic Places. Additionally, there are many archaeological sites located within the proposed corridor, so ground disturbance would need to be carefully reviewed. If a Study option is forwarded into project development, on the ground fieldwork and coordination with SHPO will be necessary to determine specific locations of these resources.

If federal funds are used to construct the project, a cultural resource survey of the Area of Potential Effect as specified in Section 106 of the National Historic Preservation Act (Title 16 United States Code, Chapter 1) will be required. Section 106 requires Federal agencies to “take into account the effects of their undertakings on historic properties that could be affected by the undertaking, assess the effects of the project, and investigate methods to avoid, minimize, or mitigate any adverse effects on historic properties.”

### 4.4 Land Ownership/Land Use

To assess the amount of area in the Study corridor that is public versus privately owned, GIS-based information was reviewed in Montana Cadastral. The land ownership is primarily private,

with small sections that are State Trust Land and MFWP. The land ownership map for the Study area is shown in **Figure 3-1**.

The land use is mostly agricultural, with some rural residential development, which includes commercial and residential properties. Park County has designated the entire Study area as zone “no off-premise signs,” which is under the Park County U.S. Highway 89 S-E River Road-Old Yellowstone Trail zoning district. This zoning district applies for  $\frac{3}{4}$  of a mile from either side of U.S. Highway 89 from city limits of Livingston and terminating at the north edge of the Gardiner Resort Tax Area District boundary.

#### 4.5 Protected Resources

Reviews were also conducted to determine the presence of known Section 6(f) and Section 4(f) properties with the Study Area.

##### 4.5.1 6(f) Resources

Section 6(f) of the Land and Water Conservation Funds (LWCF) Act (Title 16 United States Code, Chapter 1) applies to all projects that impact recreational lands purchased and/or improved with land and water conservation funds. The Secretary of the Interior must approve any conversion of property acquired or developed with assistance under this Act to other public recreation use. A search of the LWCF Past Projects map identified no Section 6(f) properties in the Study area. If Section 6(f) resources are identified in the future, impact to those resources should be avoided. Any conversion of land would need to be approved and mitigation provided.

##### 4.5.2 4(f) Resources

Section 4(f) refers to the original section within the Department of Transportation Act of 1966 (Title 49 United States Code, Chapter 3), which set the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. Prior to approving a project that “uses” a Section 4(f) resource, there must be a finding that there is no prudent or feasible alternative that completely avoids 4(f) resources. “Use” can occur when a project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under 4(f) are “substantially impacted”. There are numerous potential section 4(f) resources within the Study area. These 4(f) resources include any historic or archeological sites on or eligible for inclusion in the National



Register, as well as significant publicly-owned parks, recreational areas, and wildlife or waterfowl refuges. **Table 4-3** below lists the likely 4(f) resources within the Study area.

**Table 4-3 Study Area Section 4(f) Resources**

<b>Name</b>	<b>Type of 4(f) Resource</b>	<b>Location</b>	<b>Latitude/Longitude</b>
Point of Rocks Fishing Access Site	Public Recreational Area	T7S, R7E, Sec 4	45.25383/ -110.87065
Historic Railroad	Historic Site	Entire Study Area	N/A

Additional eligible historic sites were identified (**Appendix A**), although their exact location is unknown. If a Study option is forwarded into project development, a cultural resource survey of the area will need to be completed to identify eligible sites and locations and to determine if they are 4(f) resources.

#### 4.6 Noise

If a Study option is advanced to project development, the need for a noise study would need to be considered. A noise study identifies where noise-sensitive land uses are located, what existing noise levels those areas are experiencing, and estimates future noise levels as a result of the project. Given the types of uses anticipated for this trail project, it not expected that a noise analysis would be required.

#### 4.7 Visual Resources

Visual resources refer to the landscape character, visual sensitivity, scenic integrity, and landscape visibility of a geographically defined viewshed. The Study area is within the Yellowstone River valley, flanked by the Gallatin Range on the west and the Absaroka Range on the east known as the Paradise Valley. The Study area is known for its scenery and open spaces and is a travel corridor to Yellowstone National Park’s north entrance. The blended landscape of the Study area is along the edge of the scenic Yellowstone River and is mostly agricultural land with some mild development. No impact to visual resources is anticipated.

## 5 INFORMATION SOURCES

FEMA Floodplain Map Service Center, November 9, 2022.

<https://msc.fema.gov/portal/search?AddressQuery=emigrant%20montana#searchresultsanchor>

Land and Water Conservation Fund Past Projects Map, [Past projects – The Land and Water Conservation Fund \(tplgis.org\)](#), accessed October 31, 2022.

Montana Department of Environmental Quality Clean Water Act Information Center,

<https://clean-water-act-information-center-mtdeq.hub.arcgis.com/>

Montana Historical Society State Preservation Office Cultural Resource Information Systems Report, November 1, 2022.

Montana Natural Heritage Map Viewer, NHP Land Cover, <http://mtnhp.org/mapviewer/?t=1>.

Montana Natural Heritage Program, Species of Concern Report – Animals and Plants, November 10, 2022. <https://mtnhp.org/>

National Wetland Inventory Mapper – Surface Waters and Wetlands, November 9, 2022.

<https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

National Wild and Scenic Rivers System, <https://www.rivers.gov/montana.php>.

Recreation.gov, accessed November 10, 2022. <https://www.recreation.gov/>

Rails to Trail Conservancy, accessed November 4, 2022.

<https://www.railstotrails.org/greatamericanrailtrail/route/>

U.S. Fish & Wildlife Services, Information for Planning and Consultation, Endangered Species List, November 10, 2022.

<https://ipac.ecosphere.fws.gov/location/K3Y4DITGQZDGBGNX2HLGJDQGP/resources>

Upper Yellowstone Watershed Group website <https://www.upperyellowstone.org/single-post/ditches-and-canals-of-paradise-valley>

USGS Interactive Fault Map, GIS Viewer, November 10, 2022

<https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf>

Web Soil Survey - Area of Interest Interactive Map. November 9, 2022.

<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

United States Census Bureau, Data,

<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

United States Department of Transportation, Federal Highway Administration, Section 4(f),

<https://www.environment.fhwa.dot.gov/legislation/section4f.aspx>.

United States Environmental Protection Agency, Environmental Justice,

<https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice>.

United States National Park Service, Wild and Scenic Rivers,

<https://www.nps.gov/orgs/1912/index.htm>.

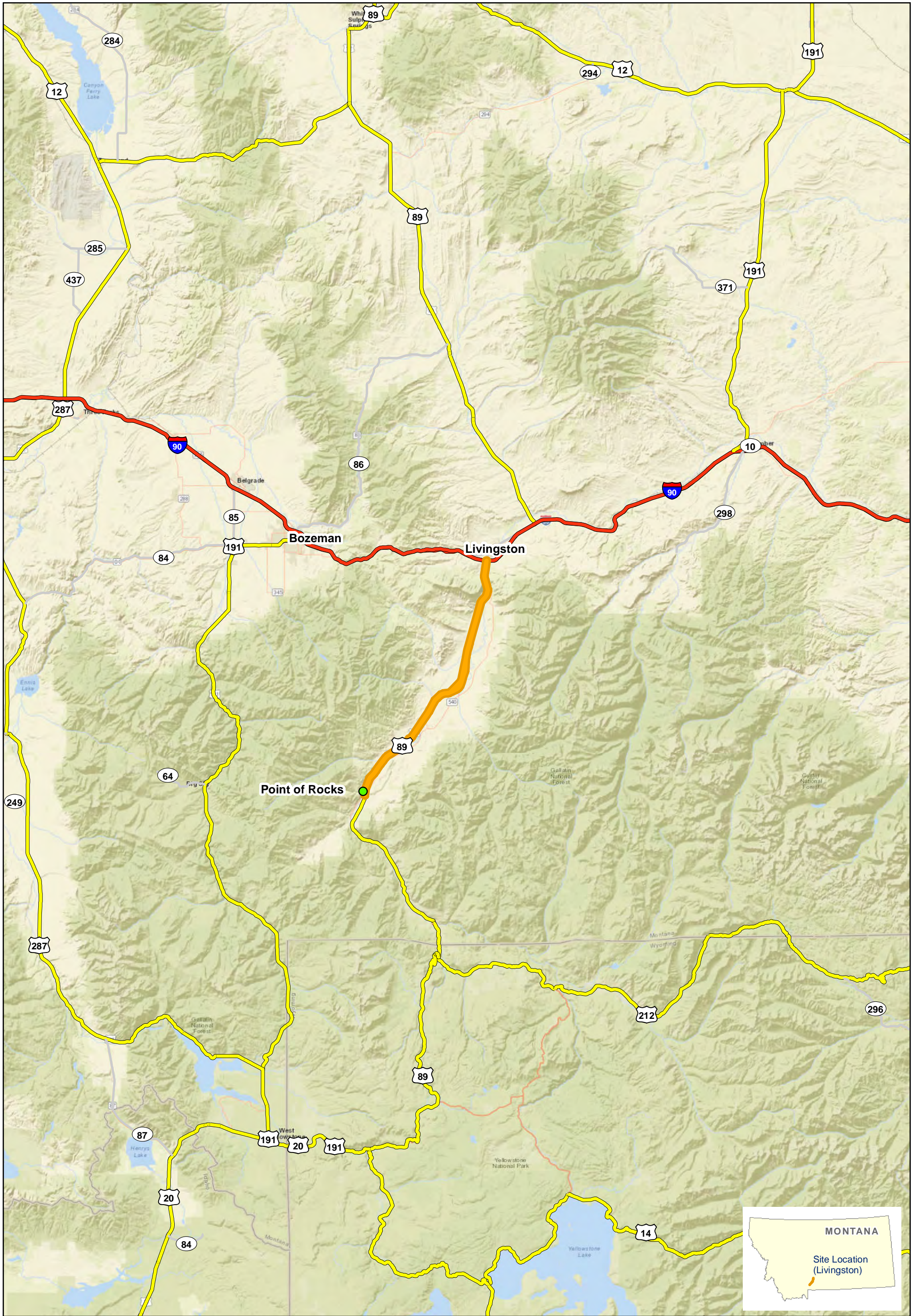


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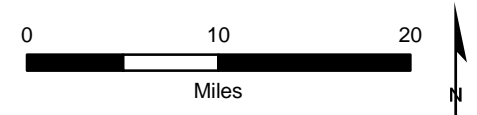
## **FIGURES**

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- Legend**
- Approximate Study Area
  - Interstate
  - US Highway
  - State Highway

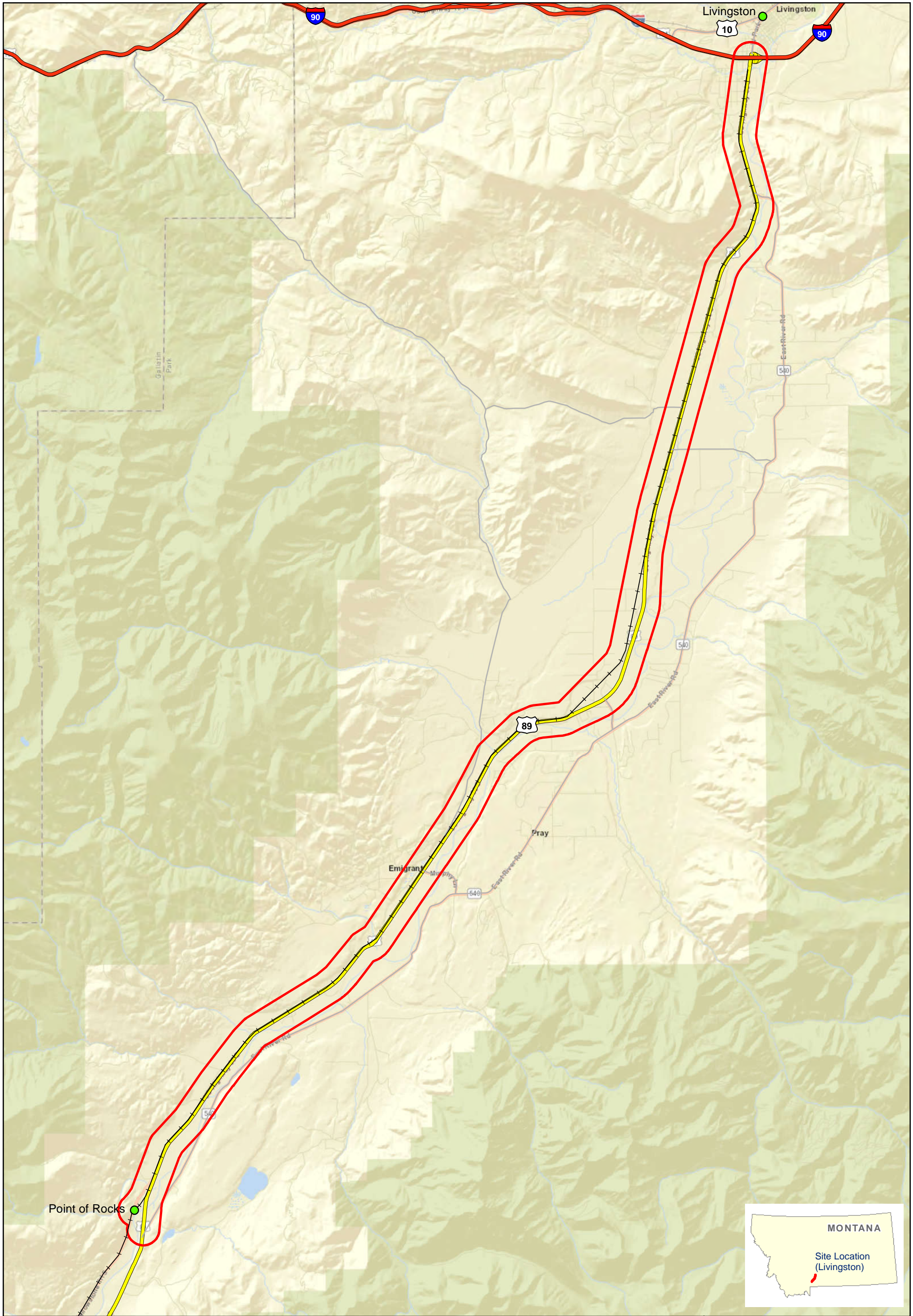


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

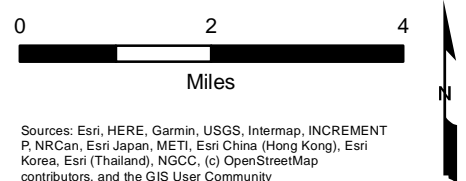
**Figure 1-1**  
**Study Location**

Yellowstone Heritage Trail  
along Historical Elk River  
Park County, Montana





- Legend**
- Approximate Study Area
  - Interstate
  - US Highway
  - Local Road
  - Abandoned Rail



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



**Figure 1-2  
Study Area**

Yellowstone Heritage Trail  
along Historical Elk River  
Park County, Montana



**Legend**

Interstate

US Highway

Local Road

AbandonedRail

**NRCS Soil Classification**

302A, Glendive-Meadowcreek-Clunton complex\_ 0 to 4 percent slopes\_ occasionally flooded

GP, Gravel pit

**Urbanland/Rangeland**

11A, Urban land-Glendive\_ occasionally flooded-Rivra \_ occasionally flooded complex\_ 0 to 2 percent slopes

**Cropland**

202C, Cozdome-Vendome-Vendome\_ extremely stoney complex\_ 2 to 8 percent slopes

22A, Verson silty clay loam\_ 0 to 2 percent slopes

23C, Trimad-Binna complex\_ 2 to 8 percent slopes

25B, Cozdome-Cozberg complex\_ 0 to 4 percent slopes

302A, Glendive-Meadowcreek-Clunton complex\_ 0 to 4 percent slopes\_ occasionally flooded

321B, Beaverell\_ stony-Attewan complex\_ 0 to 4 percent slopes

421A, Beaverell cobbly loam\_ 0 to 2 percent slopes

4B, Kremlin-Rothiemy complex\_ 0 to 4 percent slopes

57B, Kremlin clay loam\_ 0 to 4 percent slopes

58A, Beaverell-Beavwan complex\_ 0 to 2 percent slopes

5A, Richey clay\_ 0 to 2 percent slopes

720B, Cozdome-Vendome loams\_ 0 to 4 percent slopes

721A, Beaverell-Attewan complex\_ 0 to 4 percent slopes

725C, Cozdome-Beaverell complex\_ 0 to 8 percent slopes

820C, Sixbeacon-Cetrack complex\_ 0 to 8 percent slopes

**Rangeland**

1218B, Vendome-Meadowcreek complex\_ 0 to 4 percent slopes

2203C, Reyecreek\_ frequently flooded-Thibadeau-Clunton complex\_ 0 to 6 percent slopes

220F, Sixbeacon-Vendome complex\_ 35 to 60 percent slopes

2303C, Beaverell-Vendome-Cozdome complex\_ 2 to 8 percent slopes

3306C, Flintcreek-Chinook-Clunton complex\_ 0 to 4 percent slopes

3402C, Beaverell\_ extremely stony-Attewan-Beaverell\_ very stony complex\_ 0 to 8 percent slopes

3405D, Sixbeacon\_ extremely bouldery-Chinook complex\_ 2 to 35 percent slopes

3407D, Rock outcrop-Castner\_ very stony\_ complex\_ 0 to 15 percent slopes

3501E, Varney\_ very bouldery-Gnojek\_ bouldery-Chinook\_ bouldery complex\_ 2 to 45 percent slopes

3511E, Shawmut\_ very stony-Wimper\_ extremely bouldery-Gnojek\_ bouldery complex\_ 4 to 35 percent slopes

3518C, Martinsdale-Wimper\_ extremely stony-Turner complex\_ 0 to 8 percent slopes

3526E, Maciver very bouldery - Copenhagen stony complex\_ 4 to 35 percent slopes

3608F, Whitlash\_ very stony-Bowery-Shawmut\_ very stony complex\_ 2 to 70 percent slopes

4502E, Whitecow-Windham complex\_ very stony\_ 15 to 35 percent slopes

4703F, Whitecow-Lap-Rock Outcrop-Windham extremely stony complex\_ 35 to 70 percent slopes

5604E, Bigbear-Bacbuster-Vershal complex\_ 4 to 45 percent slopes

5617F, Reedwest\_ extremely stony-Shawmut\_ stony-Cabba\_ stony complex\_ 15 to 60 percent slopes

5619F, Bacbuster-Sawicki-Corbly complex\_ 15 to 60 percent slopes

5635E, Wimper-Meagher-Windham extremely bouldery complex\_ 8 to 45 percent slopes

724D, Beavwan-Nebies\_ very stony-Chinook complex\_ 2 to 15 percent slopes

745E, Sixbeacon-Kremlin-Cozberg complex\_ 0 to 25 percent slopes

824E, Notter-Kremlin-Chinook complex\_ 2 to 25 percent slopes

8611F, Winspect\_ Stony - Castner\_ Very Stony Complex\_ 15 to 60 percent slopes\_ Warm

8614F, Rock outcrop-Rubble land-Corbly complex\_ 25 to 60 percent slopes

**Rangeland-Grass**

5602F, Cabba-Doney-Rock outcrop complex\_ 15 to 60 percent slopes

**Forest Land**

3619F, Booneville-Odark complex\_ 15 to 60 percent slopes

5618F, Booneville-Tiban\_ extremely bouldery-Rocko\_ extremely stony\_ complex\_ 15 to 60 percent slopes

3610F, Vershal\_ extremely stony-Biton\_ very stony-Rock Outcrop complex\_ 25 to 60 percent slopes

4604F, Windham-Whitecow-Rock Outcrop-Lap extremely stony complex\_ 15 to 60 percent slopes

4702F, Hanson\_ stony - Kitchell\_ extremely stony - Hardhart\_ stony Complex\_ 35 to 70 percent slopes

5621F, Wineglass-Booneville\_ complex\_ extremely bouldery\_ 15 to 60 percent slopes

**Riparian**

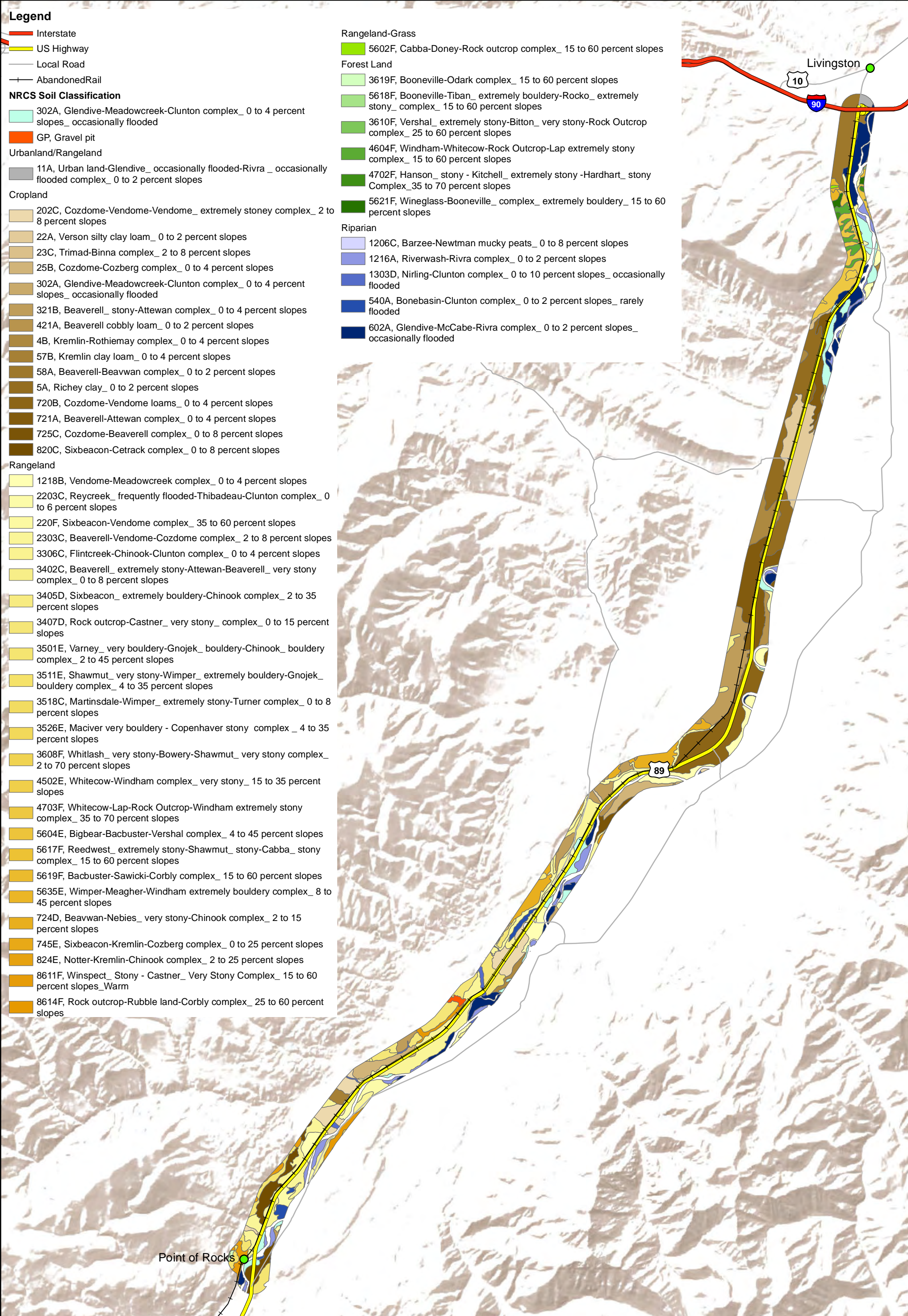
1206C, Barzee-Newman mucky peats\_ 0 to 8 percent slopes

1216A, Riverwash-Rivra complex\_ 0 to 2 percent slopes

1303D, Nirling-Clunton complex\_ 0 to 10 percent slopes\_ occasionally flooded

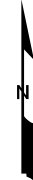
540A, Bonebasin-Clunton complex\_ 0 to 2 percent slopes\_ rarely flooded

602A, Glendive-McCabe-Rivra complex\_ 0 to 2 percent slopes\_ occasionally flooded



Point of Rocks

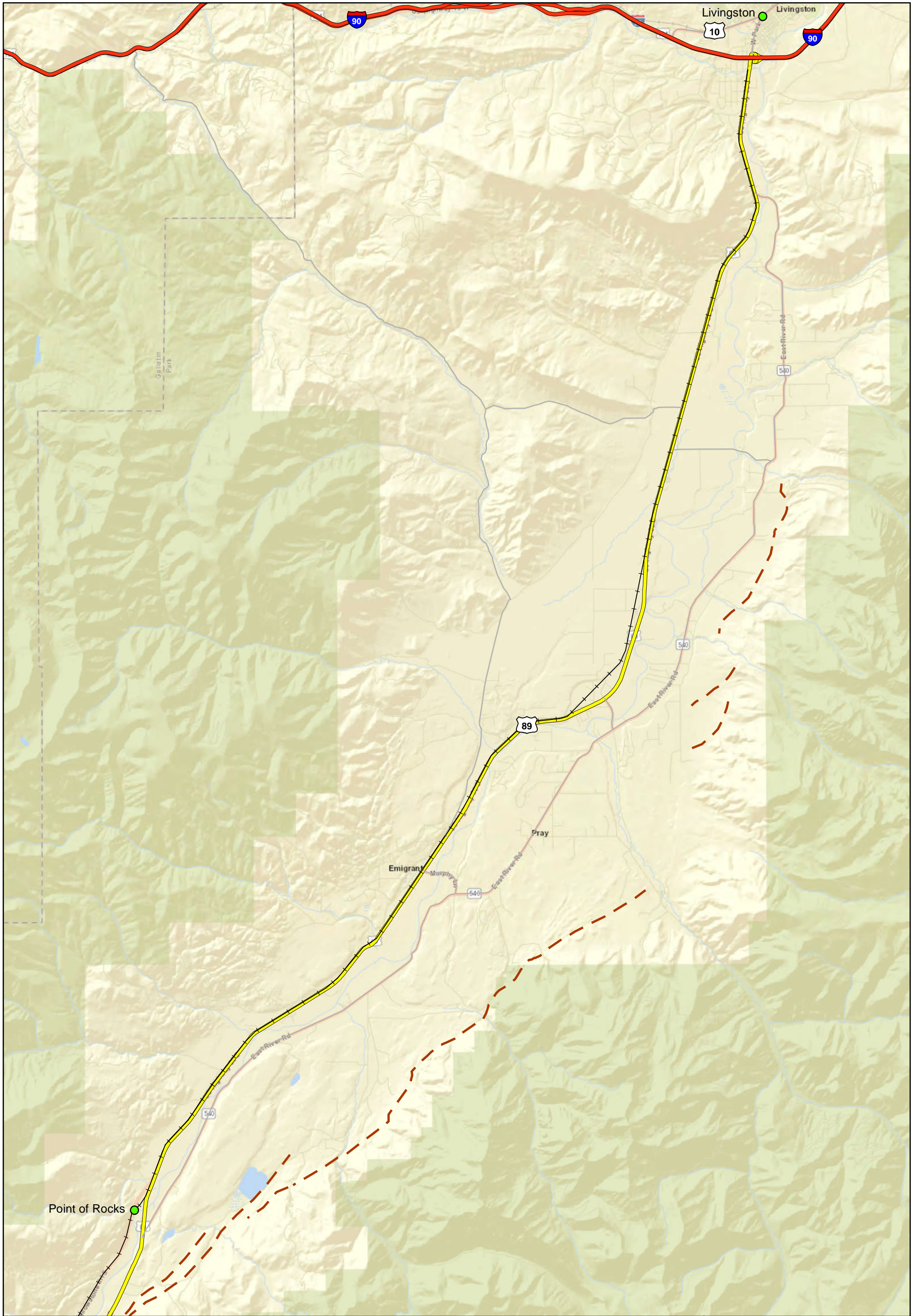
Livingston



**Figure 2-1  
Prime Farmland**

Yellowstone Heritage Trail  
along Historical Elk River  
Park County, Montana





- Legend**
- Interstate
  - US Highway
  - Local Road
  - Abandoned Rail
  - - - Emigrant Fault



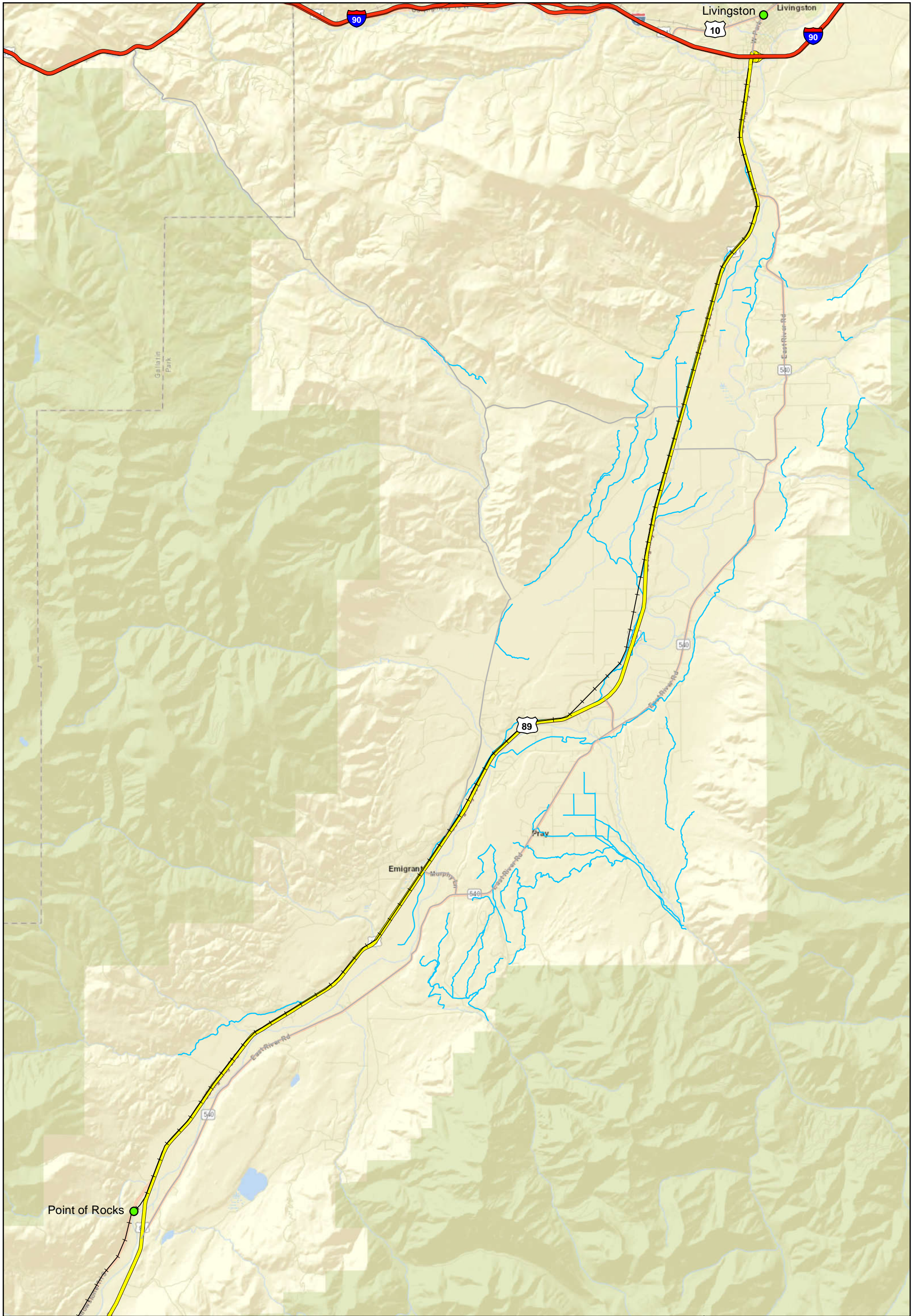
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



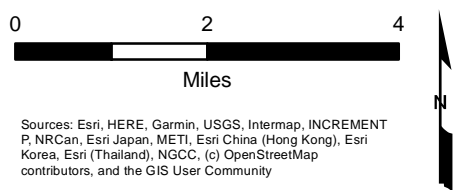
**Figure 2-2  
USGS Fault Map**

Yellowstone Heritage Trail  
along Historical Elk River  
Park County, Montana



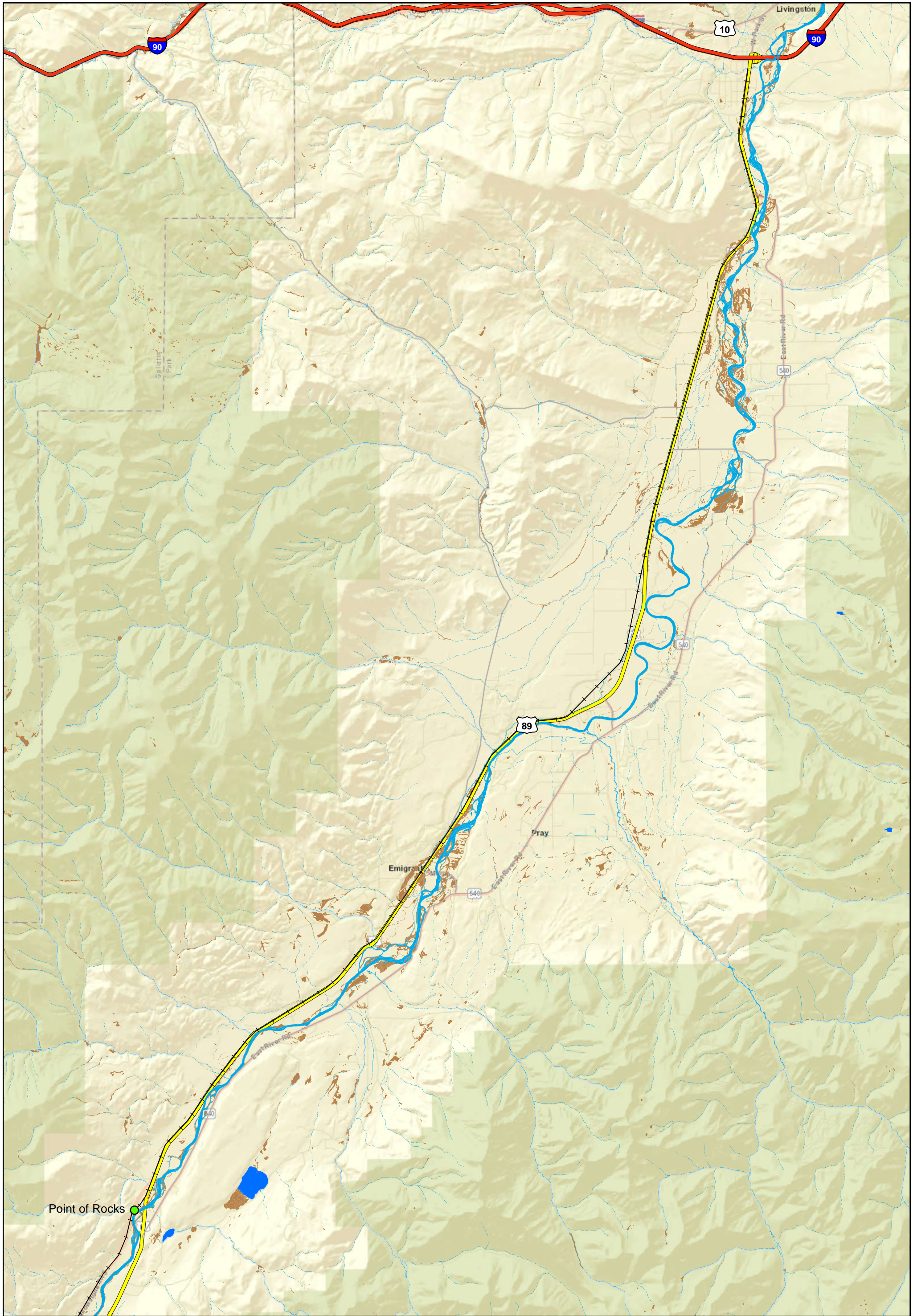


- Legend**
- Interstate
  - US Highway
  - Local Road
  - +— Abandoned Rail
  - Canal/Ditch



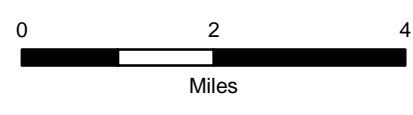
**Figure 2-3**  
**Irrigation Features**  
 Yellowstone Heritage Trail  
 along Historical Elk River  
 Park County, Montana





**Legend**

- Interstate
- US Highway
- Local Road
- Abandoned Rail
- Marine
- Estuarine
- Palustrine
- Riverine
- Lacustrine



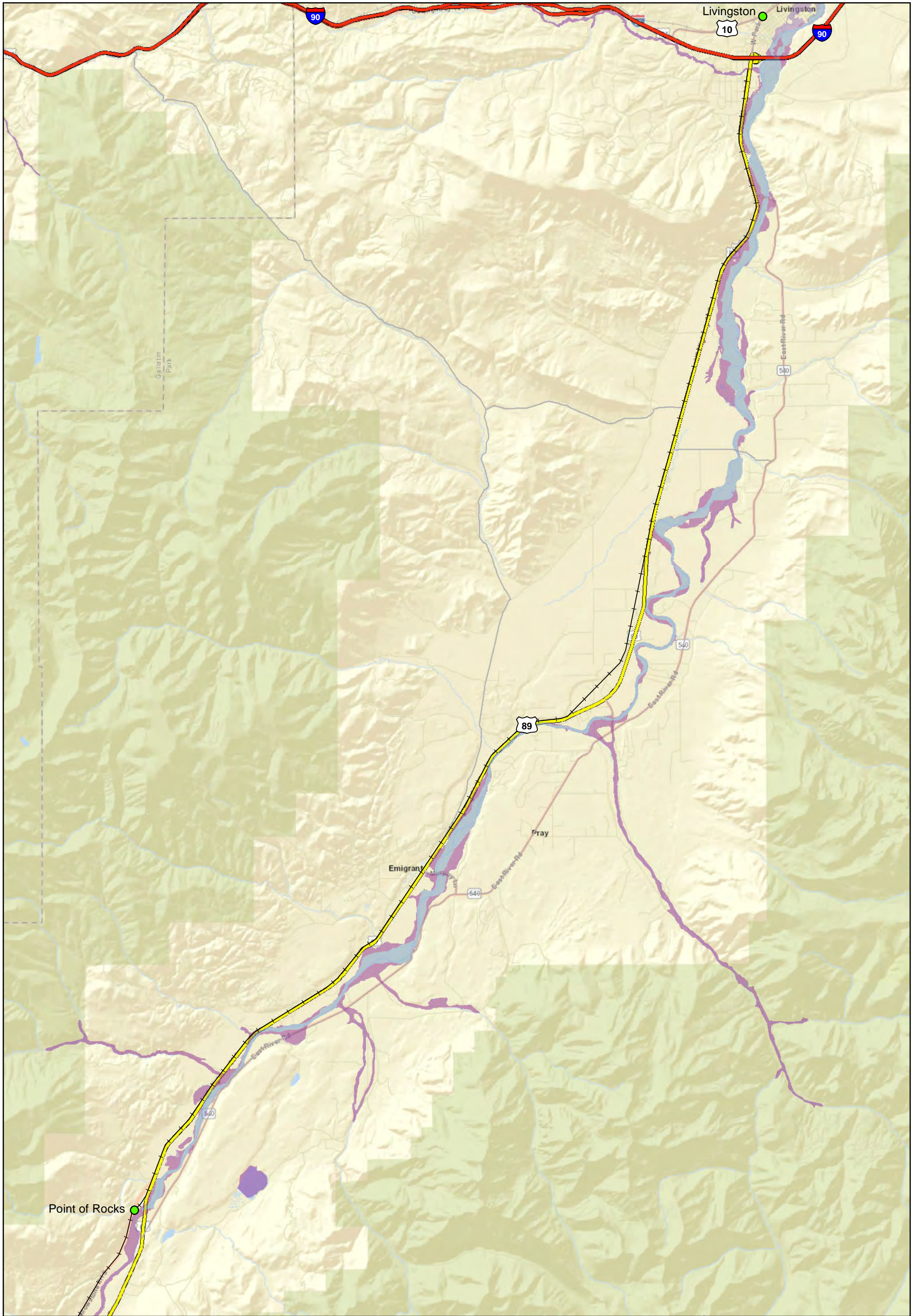
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



**Figure 2-4  
Wetlands Inventory Map**

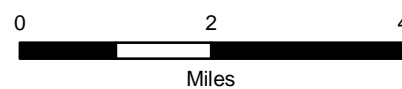
Yellowstone Heritage Trail  
along Historical Elk River  
Park County, Montana





**Legend**

- Interstate
- US Highway
- Local Road
- Abandoned Rail
- 100-Year Floodplain
- 500-Year Floodplain
- Regulatory Floodway



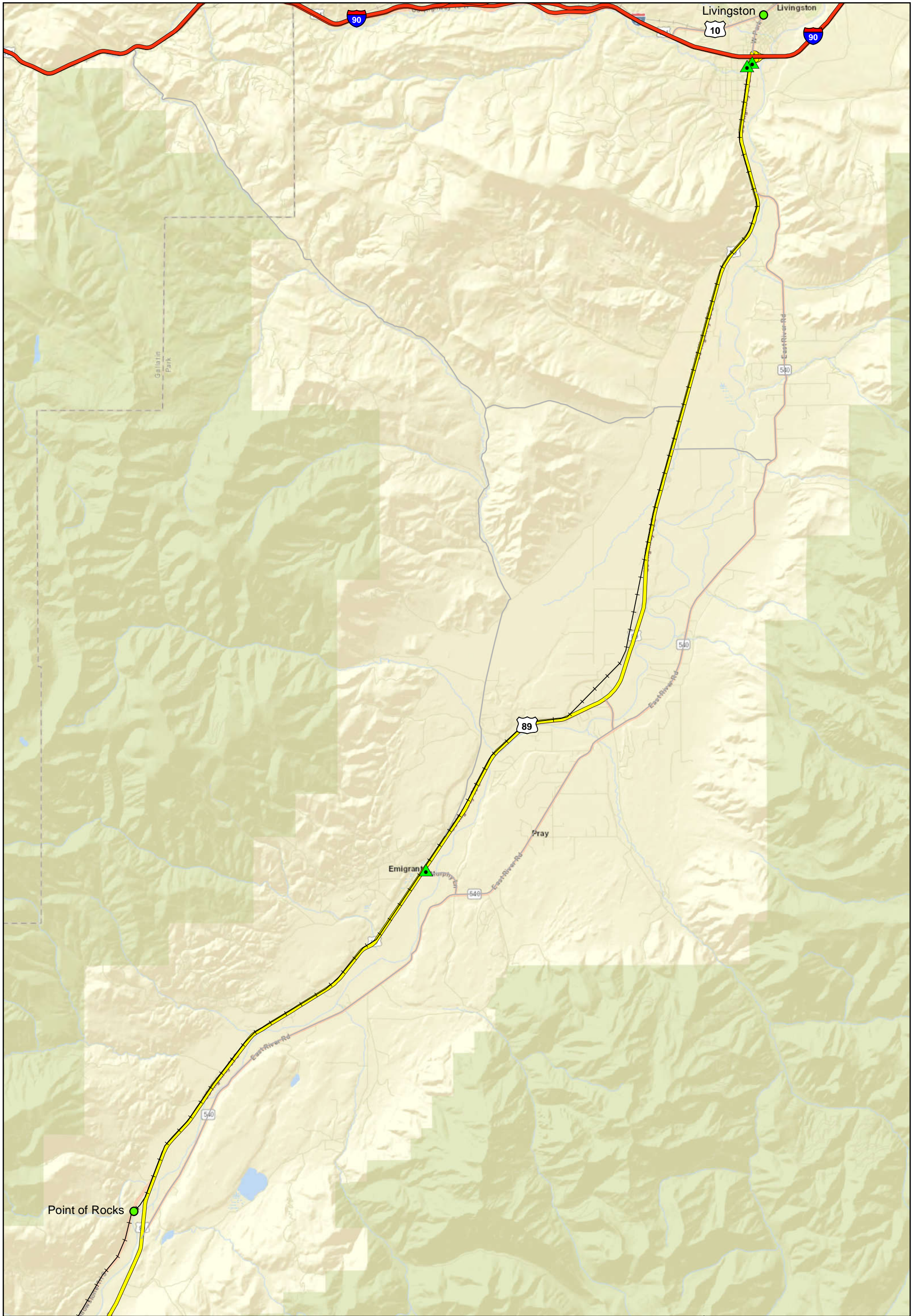
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



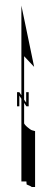
**Figure 2-5  
FEMA Flood Hazard Map**

Yellowstone Heritage Trail  
along Historical Elk River  
Park County, Montana





- Legend**
- ▲ Petroleum Releases (Montana DEQ, 2022)
  - Interstate
  - US Highway
  - Local Road
  - + Abandoned Rail

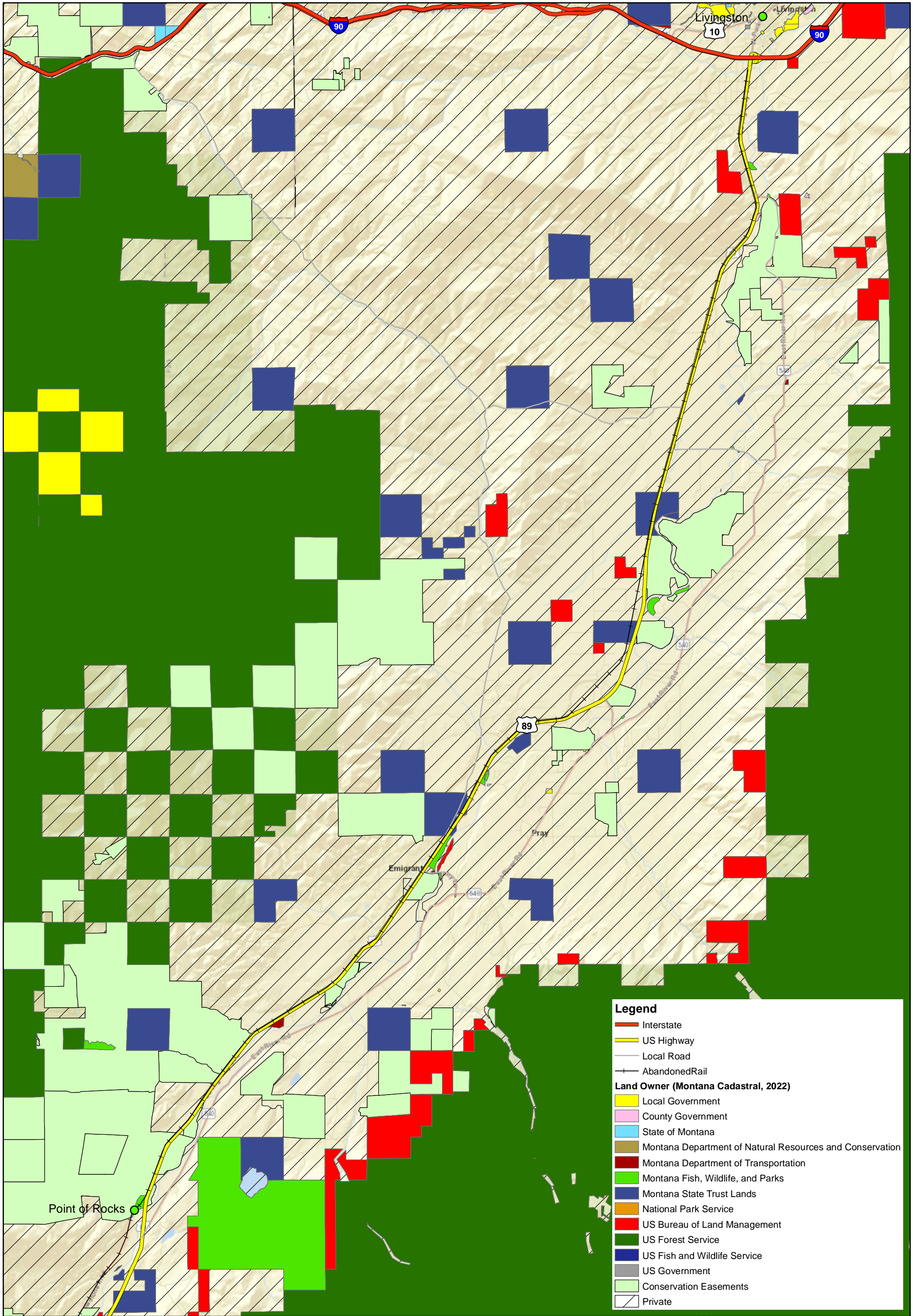


**Figure 2-6  
Hazardous Substances Sites**

Yellowstone Heritage Trail  
along Historical Elk River  
Park County, Montana

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



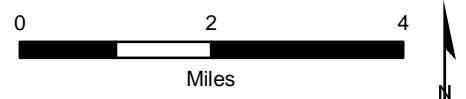


**Legend**

- Interstate
- US Highway
- Local Road
- Abandoned Rail

**Land Owner (Montana Cadastral, 2022)**

- Local Government
- County Government
- State of Montana
- Montana Department of Natural Resources and Conservation
- Montana Department of Transportation
- Montana Fish, Wildlife, and Parks
- Montana State Trust Lands
- National Park Service
- US Bureau of Land Management
- US Forest Service
- US Fish and Wildlife Service
- US Government
- Conservation Easements
- Private



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

**Figure 3-1**  
**Land Ownership Map**  
 Yellowstone Heritage Trail  
 along Historical Elk River  
 Park County, Montana

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**APPENDIX A  
SHPO SITES**

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# STATE HISTORIC PRESERVATION OFFICE

## Cultural Resource Information Systems

### CRIS Township, Range, Section Report

Report Date:11/1/2022

Site #	Twp	Rng	Sec	Qs	Site Type 1	Site Type 2	Time Period	Owner	NR Status
24PA1164	5S	8E	27	Comb	Historic Irrigation System		Historic More Than One Decade	MDOT	Unresolved
24PA0184	5S	8E	27	SW	Precontact Lithic Material Concentration		No Indication of Time	State Owned	Undetermined*
24PA0308	6S	8E	5	NE	Precontact Bison Jump		No Data	Private	Undetermined*
24PA0309	6S	8E	5	NE	Precontact Bison Jump		No Data	Private	Undetermined*
24PA0310	6S	7E	34	SW	Precontact Lithic Material Concentration		No Data	No Data	Undetermined*
24PA0312	4S	9E	9	SW	Precontact Rock Shelter or Cave		No Data	No Data	Undetermined*
24PA0316	3S	9E	2	SE	Precontact Lithic Material Concentration		No Data	Private	Undetermined*
24PA0319	2S	9E	26	NW	Precontact Lithic Material Concentration		No Data	Private	Undetermined*
24PA0322	3S	9E	11	SW	Precontact Lithic Material Concentration		No Data	Private	Undetermined*
24PA0377	6S	8E	7	SW	Precontact Lithic Material Concentration		Prehistoric More Than One Period	Private	Undetermined*
24PA0381	5S	8E	27	NW	Precontact Kill Site/Trap		Prehistoric Late Period	No Data	Undetermined*
24PA0397	7S	7E	4	NE	Precontact Lithic Material Concentration		Prehistoric Middle Period	Private	Undetermined*
24PA0449	6S	8E	7		Precontact Bison Jump		No Data	No Data	Undetermined*
24PA0473	6S	8E	4	SE	Precontact Lithic Material Concentration		No Indication of Time	No Data	Undetermined*
24PA0499	5S	8E	27	SW	Historic Irrigation System		Historic More Than One Decade	Private	Undetermined*
24PA0499	5S	8E	28	SE	Historic Irrigation System		Historic More Than One Decade	Private	Undetermined*
24PA0503	3S	9E	22		Precontact Rock Shelter or Cave	JJ	Historic Period	Private	Undetermined*
24PA0505	3S	9E	22			JJ	No Data	Private	Undetermined*
24PA0629	6S	8E	4	NW	Precontact Stone Circle		Prehistoric More Than One Period	Private	Undetermined*
24PA0629	6S	8E	5	NE	Precontact Stone Circle		Prehistoric More Than One Period	Private	Undetermined*
24PA0657	5S	8E	11	NW	Precontact Rock Alignment(s)		Prehistoric Middle Period	Private	Undetermined*
24PA0702	3S	9E	2	Comb	Historic Irrigation System		1930-1939	Private	Eligible
24PA0702	3S	9E	11	SE	Historic Irrigation System		1930-1939	Private	Eligible
24PA0702	2S	9E	35	SW	Historic Irrigation System		1930-1939	Private	Eligible
24PA0702	2S	9E	26	NW	Historic Irrigation System		1930-1939	Private	Eligible
24PA0705	6S	8E	7	NE	Precontact Bison Jump		Prehistoric Late Period	Private	Undetermined*
24PA0705	6S	8E	8	NW	Precontact Bison Jump		Prehistoric Late Period	Private	Undetermined*
24PA0705	6S	8E	5	comb	Precontact Bison Jump		Prehistoric Late Period	Private	Undetermined*
24PA0709	5S	8E	11		Precontact Stone Circle		No Indication of Time	Private	Undetermined*
24PA0710	6S	8E	5	NW	Precontact Stone Circle		Prehistoric More Than One Period	Private	Undetermined*
24PA0715	5S	8E	11	SW	Precontact Rock Cairn(s)		No Indication of Time	Private	Undetermined*
24PA0718	5S	8E	22	SE	Historic Trash Dump		Historic Period	Private	Undetermined*
24PA0721	5S	8E	27	SW	Historic Church		Historic More Than One Decade	Private	Undetermined*
24PA0721	5S	8E	28	SE	Historic Church		Historic More Than One Decade	Private	Undetermined*



# STATE HISTORIC PRESERVATION OFFICE

## Cultural Resource Information Systems

### CRIS Township, Range, Section Report

Report Date:11/1/2022

24PA0740	5S	8E	28	NE	Historic Vehicular/Foot Bridge		1940-1949	No Data	Undetermined*
24PA0768	6S	8E	7	SW	Historic Stock Raising	Historic Cattle Camp	1860-1869	Private	Undetermined*
24PA0817	6S	7E	23	SW	Precontact Lithic Material Concentration		No Indication of Time	MDOT Other	Eligible
24PA0831	6S	7E	23	SW	Precontact Lithic Material Concentration		No Indication of Time	MDOT Other	Undetermined*
24PA0865	6S	8E	8	SE	Precontact Rock Alignment(s)		No Indication of Time	Private	Unresolved
24PA0969	5S	8E	27	NW	Precontact Lithic Material Concentration		No Indication of Time	No Data	Eligible
24PA0999	5S	8E	28	SE	Historic Residence		Historic More Than One Decade	Private	Undetermined*
24PA1057	4S	9E	29		Precontact Lithic Material Concentration		No Indication of Time	Private	Undetermined*
24PA1114	4S	9E	4	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	4S	9E	9		Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	4S	9E	16		Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	4S	9E	21		Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	9E	5	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	9E	6	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	9E	7	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	6S	8E	4	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	8E	14	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	8E	22	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	8E	27	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	8E	33	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	4S	9E	28	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	4S	9E	29	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	4S	9E	32	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	8E	11	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1114	5S	8E	12	Comb	Historic Irrigation System		Historic More Than One Decade	Combination	Eligible
24PA1120	6S	8E	4	NW	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	6S	8E	5	SE	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	6S	8E	7	comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	2S	9E	26	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	2S	9E	35	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	3S	9E	22	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	3S	9E	27	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	3S	9E	34	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible





# STATE HISTORIC PRESERVATION OFFICE

## Cultural Resource Information Systems

### CRIS Township, Range, Section Report

Report Date:11/1/2022

24PA1120	6S	7E	34		Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	3S	9E	2	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	3S	9E	11	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	3S	9E	14	Comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	6S	8E	8	comb	Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	6S	7E	13		Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	6S	7E	23		Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	6S	7E	26		Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1120	6S	7E	27		Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1136	6S	7E	23	SE	Historic Outbuildings		Historic More Than One Decade	Private	NR Listed
24PA1144	6S	8E	8	SE	Historic Irrigation System		Historic More Than One Decade	Private	Unresolved
24PA1165	6S	8E	4	SE	Historic Irrigation System		Historic More Than One Decade	Private	Unresolved
24PA1169	5S	8E	33	SE	Historic Road		Historic More Than One Decade	Other	Unresolved
24PA1169	6S	7E	13	comb	Historic Road		Historic More Than One Decade	Other	Unresolved
24PA1169	6S	7E	23	comb	Historic Road		Historic More Than One Decade	Other	Unresolved
24PA1169	6S	8E	4	SE	Historic Road		Historic More Than One Decade	Other	Unresolved
24PA1191	6S	7E	23	NE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1193	6S	7E	23	SE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1194	6S	7E	23	SE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1195	6S	7E	23	SE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1196	6S	7E	23	SE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1197	6S	7E	23	SE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1198	6S	7E	23	SE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1198	6S	7E	26	NE	Fossil Mammal		Tertiary	Private	Undetermined*
24PA1199	6S	7E	34	NE	Fossil Mammal		Tertiary	Combination	Undetermined*
24PA1200	6S	7E	34	NE	Precontact Lithic Material Concentration		Prehistoric Late Period	Private	Eligible
24PA1201	7S	7E	4	SE	Historic Agriculture		Historic More Than One Decade	Private	Ineligible
24PA1253	5S	8E	23	SW	Precontact Rock Cairn(s)		No Indication of Time	Private	Undetermined*
24YE0015	7S	7E	4	SE	Historic Railroad		1880-1889	National Park	Eligible
24PA1345	6S	7E	23	comb	Historic Homestead/Farmstead		Historic Period	Private	Undetermined*
24PA1371	6S	7E	23	SE	Precontact Lithic Material Concentration	Precontact Firehearths or Roasting Pits, FCR	No Indication of Time	Private	Undetermined*
24PA1389	6S	7E	23	NE	Historic Vehicular/Foot Bridge		1960-1969	MDOT	Ineligible
24PA1390	6S	7E	23	NE	Historic Irrigation System		1940-1949	Private	Ineligible
24PA0198	5S	9E	7		Historic Campsite		Historic Period	Private	Undetermined*
24PA1506	6S	8E	7	NE	Precontact Stone Circle		Prehistoric More Than One Period	Private	Undetermined*
24PA1509	6S	8E	7	NE	Historic Residence	Historic Ranch	Historic More Than One Decade	Private	NR Listed
24PA1517	2S	9E	26	SE	Historic Ranch		1900-1909	Private	Eligible



# STATE HISTORIC PRESERVATION OFFICE Cultural Resource Information Systems

## CRIS Township, Range, Section Report

Report Date: 11/1/2022

24PA1518	2S	9E	26	SE	Historic Residence		1960-1969	Private	Undetermined*
24PA1519	2S	9E	35	NE	Historic Ranch		1930-1939	Private	Undetermined*
24PA1520	2S	9E	35	NE	Historic Residence		Historic More Than One Decade	Private	Undetermined*
24PA1521	2S	9E	35	NE	Historic Residence		1960-1969	Private	Undetermined*
24PA1523	2S	9E	35	NE	Historic Residence		1940-1949	Private	Undetermined*
24PA1524	2S	9E	35	SE	Historic Residence		1940-1949	Private	Undetermined*
24PA1525	2S	9E	35	SE	Historic Residence		1940-1949	Private	Undetermined*
24PA1526	3S	9E	2		Historic Residence		1950-1959	Private	Undetermined*
24PA1527	3S	9E	2	NE	Historic Residence		1950-1959	Private	Undetermined*
24PA1528	3S	9E	2	NE	Historic Residence		1950-1959	Private	Eligible
24PA1529	3S	9E	2	NE	Historic Commercial Development		1960-1969	Private	Undetermined*
24PA1530	3S	9E	2	NE	Historic Commercial Development		1930-1939	Private	Undetermined*
24PA1531	3S	9E	2	NE	Historic Residence		1960-1969	Private	Undetermined*
24PA1532	3S	9E	2	NE	Historic Residence		1950-1959	Private	Undetermined*
24PA1533	3S	9E	2	NE	Historic Residence		1960-1969	Private	Undetermined*
24PA1534	3S	9E	2	NE	Historic Residence		Historic Period	Private	Undetermined*
24PA1535	3S	9E	2	NE	Historic Residence		Historic Period	Private	Undetermined*
24PA1536	3S	9E	2	SE	Historic Residence		Historic More Than One Decade	Private	Eligible
24PA1537	3S	9E	2	SE	Historic Ranch		1890-1899	Private	Undetermined*
24PA1538	3S	9E	2	SE	Historic Residence		1970-1979	Private	Undetermined*
24PA1539	2S	9E	26	Comb	Historic Irrigation System		Historic More Than One Decade	Private	Undetermined*
24PA1539	2S	9E	35	Comb	Historic Irrigation System		Historic More Than One Decade	Private	Undetermined*
24PA1547	5S	8E	22	NW	Precontact Rock Cairn(s)	Precontact Rock Alignment(s)	Prehistoric More Than One Period	State Owned	Undetermined*
24PA1548	5S	8E	22	NW	Precontact Rock Cairn(s)	Precontact Rock Alignment(s)	Prehistoric More Than One Period	State Owned	Undetermined*
24PA1549	5S	8E	22	NE	Historic Trash Dump		Historic More Than One Decade	State Owned	Ineligible
24PA1550	5S	8E	22	NE	Historic Fence		Historic More Than One Decade	State Owned	Ineligible
24PA1551	5S	8E	22	SW	Precontact Stone Circle		Prehistoric More Than One Period	State Owned	Undetermined*
24PA1552	5S	8E	22	SW	Precontact Stone Circle		Prehistoric More Than One Period	State Owned	Undetermined*
24PA1553	5S	8E	22	SW	Precontact Rock Cairn(s)		Prehistoric More Than One Period	State Owned	Undetermined*





# STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

## CRABS Township, Range, Section Results

Report Date: 11/1/2022

Township: 3 S Range: 9 E Section: 11

### SMITH CHARLINE G.

4/19/1985 REPORT OF CULTURAL RESOURCE RECONNAISSANCE LIVINGSTON SO. - SLIDE AREA  
CRABS Document Number: PA 4 6473 Agency Document Number: RRS11-1(11)49

Township: 6 S Range: 7 E Section: 23

### MUNSON GENE

7/1/1988 SUBSURFACE TESTING OF THE EMIGRANT REST AREA SITE 24PA817  
CRABS Document Number: PA 4 6478 Agency Document Number: F11-1(12)24

Township: 4 S Range: 9 E Section: 16

### PASSMANN DORI

5/23/1984 NELLIE DURGAN RANGE RENOVATION  
CRABS Document Number: PA 5 6488 Agency Document Number:

Township: 5 S Range: 8 E Section: 22

### DEAVER SHERRI

11/1/1985 CLYDE PARK - EMIGRANT TRANSMISSION LINE; ATTACHED IS THE JANUARY 1986 CLYDE-PARK EMIGRANT TRANSMISSION LINE REPORT SUBMITTED TO THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION BY SHERRI DEAVER  
CRABS Document Number: PA 5 6492 Agency Document Number:

Township: 4 S Range: 9 E Section: 28

### LAHREN LARRY A.

4/17/1979 CULTURAL RESOURCE INSPECTIONS OF THE LOCK LEVEN FISHING ACCESS SITE, LIVINGSTON, MONTANA  
CRABS Document Number: PA 6 6500 Agency Document Number:

Township: 5 S Range: 8 E Section: 14

### LAHREN LARRY A.

4/17/1979 CULTURAL RESOURCE INSPECTIONS OF THE CHICORY FISHING ACCESS SITE, EMIGRANT, MONTANA  
CRABS Document Number: PA 6 6501 Agency Document Number:

Township: 5 S Range: 8 E Section: 27

### LAHREN LARRY A.

4/17/1979 CULTURAL RESOURCE INSPECTIONS OF THE EMIGRANT FISHING ACCESS SITE, EMIGRANT, MONTANA  
CRABS Document Number: PA 6 6502 Agency Document Number:

Township: 4 S Range: 9 E Section: 16

### LAHREN LARRY A.

4/17/1979 CULTURAL RESOURCE INSPECTIONS OF THE MALLARD'S REST FISHING ACCESS SITE, LIVINGSTON, MONTANA  
CRABS Document Number: PA 6 6503 Agency Document Number:

Township: 5 S Range: 8 E Section: 14

### AABERG STEPHEN A.

2/4/1984 GRAY OWL FISHING ACCESS SITE  
CRABS Document Number: PA 6 6511 Agency Document Number:

Township: 5 S Range: 8 E Section: 11

### HOWARD ELAINE F.

3/1/1986 SUPPLEMENT CULTURAL RESOURCES INVENTORY REPORT CLYDE PARK - EMIGRANT TRANSMISSION LINE  
CRABS Document Number: PA 6 6516 Agency Document Number:

Township: 4 S Range: 9 E Section: 4

### FREDLUND LYNN B.

4/1/1987 CULTURAL RESOURCE INVENTORY AND ASSESSMENT: ROYAL TETON RANCH DEVELOPMENT  
CRABS Document Number: PA 6 6517 Agency Document Number:

Township: 6 S Range: 8 E Section: 7

### HOWARD ELAINE F.

1/22/1990 PARADISE VALLEY SURVEY UPDATE  
CRABS Document Number: PA 6 6521 Agency Document Number:



# STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

## CRABS Township, Range, Section Results

Report Date: 11/1/2022

Township: 4 S Range: 9 E Section: 3

### **BERGSTROM MICHAEL W.**

1/31/1990 CULTURAL RESOURCE INVENTORY FOR SIX CANDIDATE GWEN (GROUND WAVE EMERGENCY NETWORK) SITES NEAR LIVINGSTON, MONTANA  
CRABS Document Number: PA 6 6522 Agency Document Number:

Township: 4 S Range: 9 E Section: 32

### **TAYLOR JOHN F.**

1/28/1985 WIRTH II LAND EXCHANGE  
CRABS Document Number: ZZ 2 10783 Agency Document Number: 84-MT-070-076-01

Township: 5 S Range: 8 E Section: 28

### **FREDLUND LYNN B.**

11/1/1990 SITE FOR THE NEW POST OFFICE IN EMIGRANT, MONTANA  
CRABS Document Number: PA 6 11588 Agency Document Number:

Township: 5 S Range: 8 E Section: 27

### **LAHREN LARRY A.**

1/1/1990 CULTURAL RESOURCE EVALUATION PARK ELECTRIC CO-OP EMIGRANT ROUTE  
CRABS Document Number: PA 6 11925 Agency Document Number:

Township: 5 S Range: 8 E Section: 28

### **LAHREN LARRY A.**

1/1/1990 CULTURAL RESOURCE EVALUATION PARK ELECTRIC CO-OP EMIGRANT ROUTE  
CRABS Document Number: PA 6 11925 Agency Document Number:

Township: 5 S Range: 8 E Section: 33

### **LAHREN LARRY A.**

1/1/1990 CULTURAL RESOURCE EVALUATION PARK ELECTRIC CO-OP EMIGRANT ROUTE  
CRABS Document Number: PA 6 11925 Agency Document Number:

Township: 5 S Range: 9 E Section: 5

### **ARTHUR GEORGE W.**

5/1/1962 THE EMIGRANT DRIVES OF PARADISE VALLEY, MONTANA  
CRABS Document Number: PA 6 12242 Agency Document Number: AIM MEMOIR NO.1:16-27

Township: 6 S Range: 8 E Section: 5

### **WIRTH CONRAD**

1/1/1964 BUFFALO JUMPS OF THE HIGH PLAINS  
CRABS Document Number: ZZ 6 12550 Agency Document Number:

Township: 6 S Range: 8 E Section: 5

### **MEDICINE CROW JOE**

11/1/1978 NOTES ON CROW INDIAN BUFFALO JUMP TRADITIONS  
CRABS Document Number: XX 6 13608 Agency Document Number: PA 23-82 (PT2):

Township: 6 S Range: 8 E Section: 5

### **DAVIS LESLIE B.**

11/1/1978 THE 20TH CENTURY COMMERCIAL MINING OF NORTHERN PLAINS BISON KILLS  
CRABS Document Number: ZZ 6 13612 Agency Document Number: PA 23-82 (PT2):

Township: 4 S Range: 9 E Section: 16

### **PASSMANN DORI**

10/15/1992 DOUBLE AA LAND EXCHANGE  
CRABS Document Number: PA 5 14380 Agency Document Number:

Township: 4 S Range: 9 E Section: 16

### **LAHREN LARRY A.**

5/26/1993 INVESTIGATIONS OF THE DOUBLE AA LAND EXCHANGE  
CRABS Document Number: PA 5 15065 Agency Document Number:





# STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

## CRABS Township, Range, Section Results

Report Date: 11/1/2022

Township: 6 S Range: 8 E Section: 5

### **NAPTON L. KYLE**

1/1/1966 CANYON AND VALLEY: PRELIMINARY ARCHAEOLOGICAL SURVEY IN THE GALLATIN AREA  
CRABS Document Number: ZZ 6 15683 Agency Document Number: MA THESIS

Township: 5 S Range: 8 E Section: 28

### **FREDLUND LYNN B., ET AL.**

2/1/1991 REEVALUATION OF THE COTTAGE HOTEL  
CRABS Document Number: PA 6 16610 Agency Document Number:

Township: 3 S Range: 9 E Section: 2

### **WALKER-KUNTZ PATRICK J., ET AL.**

10/21/1997 DEVIL'S ELBOW LAND EXCHANGE: INVENTORY #1  
CRABS Document Number: BW 2 19854 Agency Document Number: 98-MT-070-075-01

Township: 6 S Range: 7 E Section: 13

### **ALLEN WALTER E.**

2/15/1998 GALLATIN NATIONAL FOREST ANNUAL REPORT ON HERITAGE RESOURCES  
CRABS Document Number: GA 1 21862 Agency Document Number:

Township: 5 S Range: 8 E Section: 27

### **AXLINE JON A.**

9/7/1999 TURNBAY-EMIGRANT  
CRABS Document Number: PA 4 22400 Agency Document Number: NH 11-1(34)31

Township: 5 S Range: 8 E Section: 28

### **AXLINE JON A.**

9/7/1999 TURNBAY-EMIGRANT  
CRABS Document Number: PA 4 22400 Agency Document Number: NH 11-1(34)31

Township: 6 S Range: 8 E Section: 8

### **AXLINE JON A.**

11/1/2000 STRUCTURES - SOUTH OF PRAY  
CRABS Document Number: PA 4 23255 Agency Document Number: BRSHO-KID7

Township: 4 S Range: 9 E Section: 29

### **WALKER-KUNTZ SUNDAY A. AND PATRICK KUNTZ**

6/28/2001 G.M. SELBY CELL TOWERS: CULTURAL RESOURCE INVENTORY, MONTANA  
CRABS Document Number: ZZ 6 23724 Agency Document Number:

Township: 6 S Range: 8 E Section: 5

### **WALKER-KUNTZ SUNDAY A. AND PATRICK KUNTZ**

6/28/2001 G.M. SELBY CELL TOWERS: CULTURAL RESOURCE INVENTORY, MONTANA  
CRABS Document Number: ZZ 6 23724 Agency Document Number:

Township: 6 S Range: 8 E Section: 5

### **ARTHUR GEORGE W.**

10/1/1968 EXCERPTS FROM EMIGRANT BISON DRIVES OF PARADISE VALLEY MONTANA  
CRABS Document Number: XX 6 24083 Agency Document Number: TROWEL AND SCREEN 9(10)

Township: 6 S Range: 7 E Section: 13

### **DICKERSON KEN**

12/15/2001 EAST RIVER ROAD HIGHWAY RECONSTRUCTION PROJECT STPS 540-1(20)0 PARK COUNTY MONTANA: CULTURAL RESOURCE INVENTORY AND EVALUATION  
CRABS Document Number: PA 4 24320 Agency Document Number: STPS 540-1(10)0

Township: 6 S Range: 7 E Section: 23

### **DICKERSON KEN**

12/15/2001 EAST RIVER ROAD HIGHWAY RECONSTRUCTION PROJECT STPS 540-1(20)0 PARK COUNTY MONTANA: CULTURAL RESOURCE INVENTORY AND EVALUATION



# STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

## CRABS Township, Range, Section Results

Report Date: 11/1/2022

CRABS Document Number: PA 4 24320 Agency Document Number: STPS 540-1(10)0

Township: 6 S Range: 8 E Section: 4

### DICKERSON KEN

12/15/2001 EAST RIVER ROAD HIGHWAY RECONSTRUCTION PROJECT STPS 540-1(20)0 PARK COUNTY MONTANA: CULTURAL RESOURCE INVENTORY AND EVALUATION

CRABS Document Number: PA 4 24320 Agency Document Number: STPS 540-1(10)0

Township: 6 S Range: 8 E Section: 8

### DICKERSON KEN

12/15/2001 EAST RIVER ROAD HIGHWAY RECONSTRUCTION PROJECT STPS 540-1(20)0 PARK COUNTY MONTANA: CULTURAL RESOURCE INVENTORY AND EVALUATION

CRABS Document Number: PA 4 24320 Agency Document Number: STPS 540-1(10)0

Township: 5 S Range: 8 E Section: 27

### PASSMANN DORI

4/25/2003 CULTURAL RESOURCES INVENTORY OF THE EMIGRANT EXCHANGE IN PARK COUNTY MONTANA

CRABS Document Number: PA 6 25984 Agency Document Number:

Township: 5 S Range: 8 E Section: 27

### DICKERSON KEN

9/26/2003 CULTURAL RESOURCES INVENTORY AND EVALUATION OF MURPHY PROPERTY WETLAND MITIGATION FEASIBILITY STUDY, PARK COUNTY MONTANA

CRABS Document Number: PA 4 26433 Agency Document Number: RTI#02-034

Township: 5 S Range: 8 E Section: 28

### DICKERSON KEN

9/26/2003 CULTURAL RESOURCES INVENTORY AND EVALUATION OF MURPHY PROPERTY WETLAND MITIGATION FEASIBILITY STUDY, PARK COUNTY MONTANA

CRABS Document Number: PA 4 26433 Agency Document Number: RTI#02-034

Township: 5 S Range: 8 E Section: 33

### DICKERSON KEN

9/26/2003 CULTURAL RESOURCES INVENTORY AND EVALUATION OF MURPHY PROPERTY WETLAND MITIGATION FEASIBILITY STUDY, PARK COUNTY MONTANA

CRABS Document Number: PA 4 26433 Agency Document Number: RTI#02-034

Township: 6 S Range: 7 E Section: 23

### BEERY DEREK AND JANENE M. CAYWOOD

1/30/2004 CULTURAL RESOURCE INVENTORY OF MDT'S EAST RIVER ROAD-SOUTH OF EMIGRANT PROJECT AREA IN PARK COUNTY MONTANA

CRABS Document Number: PA 4 26733 Agency Document Number: STPS 540-1(10)0 CONTROL # 3885

Township: 6 S Range: 7 E Section: 26

### BEERY DEREK AND JANENE M. CAYWOOD

1/30/2004 CULTURAL RESOURCE INVENTORY OF MDT'S EAST RIVER ROAD-SOUTH OF EMIGRANT PROJECT AREA IN PARK COUNTY MONTANA

CRABS Document Number: PA 4 26733 Agency Document Number: STPS 540-1(10)0 CONTROL # 3885

Township: 6 S Range: 7 E Section: 27

### BEERY DEREK AND JANENE M. CAYWOOD

1/30/2004 CULTURAL RESOURCE INVENTORY OF MDT'S EAST RIVER ROAD-SOUTH OF EMIGRANT PROJECT AREA IN PARK COUNTY MONTANA

CRABS Document Number: PA 4 26733 Agency Document Number: STPS 540-1(10)0 CONTROL # 3885

Township: 7 S Range: 7 E Section: 4

### BEERY DEREK AND JANENE M. CAYWOOD

1/30/2004 CULTURAL RESOURCE INVENTORY OF MDT'S EAST RIVER ROAD-SOUTH OF EMIGRANT PROJECT AREA IN PARK COUNTY MONTANA

CRABS Document Number: PA 4 26733 Agency Document Number: STPS 540-1(10)0 CONTROL # 3885

Township: 4 S Range: 9 E Section: 4

### AXLINE JON

9/1/2004 CULTURAL RESOURCE INVENTORY OF TURN BAY - 13 KM SOUTH OF LIVINGSTON IN PARK COUNTY, MONTANA

CRABS Document Number: PA 4 27564 Agency Document Number: NH 11-1 (43)43

Township: 4 S Range: 9 E Section: 9

### AXLINE JON





# STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

## CRABS Township, Range, Section Results

Report Date: 11/1/2022

9/1/2004 CULTURAL RESOURCE INVENTORY OF TURN BAY - 13 KM SOUTH OF LIVINGSTON IN PARK COUNTY, MONTANA

CRABS Document Number: PA 4 27564 Agency Document Number: NH 11-1 (43)43

Township: 5 S Range: 8 E Section: 23

**FERGUSON DAVID M.**

8/23/2006 A CLASS II CULTURAL RESOURCE INVENTORY OF THE PROPOSED YELLOWSTONE RIVER RANCH ESTATES, PHILLIPS COUNTY, MONTANA

CRABS Document Number: PA 6 28243 Agency Document Number:

Township: 5 S Range: 8 E Section: 23

**KRIGBAUM DAGNY AND JERRY BREKKE**

1/1/2006 HISTORICAL INVESTIGATIONS OF THE CHICORY TO CHICO AND CHICORY TO EMIGRANT ROADS LOCATED IN PARK COUNTY, MONTANA

CRABS Document Number: PA 6 28244 Agency Document Number:

Township: 5 S Range: 8 E Section: 23

**FERGUSON DAVID**

2/1/2006 AN HISTORICAL ASSESSMENT OF FOUR ROAD SEGMENTS PETITIONED FOR ABANDONMENT IN PARK COUNTY, MONTANA

CRABS Document Number: PA 6 28245 Agency Document Number:

Township: 6 S Range: 8 E Section: 4

**LAHREN LARRY A.**

3/29/2006 CULTURAL RESOURCE EVALUATIONS OF THE SOUTH FORK OF FRIDLEY CREEK IRRIGATION MODIFICATION PROJECT IN PARK COUNTY, MONTANA

CRABS Document Number: PA 6 28425 Agency Document Number:

Township: 3 S Range: 9 E Section: 22

**CARPENTER SCOTT**

1/1/2008 INTERIM PROJECT OVERVIEW CULTURAL RESOURCE INVESTIGATIONS OF THE AMEYA PRESERVE DEVELOPMENT PARK COUNTY, MONTANA

CRABS Document Number: PA 6 30010 Agency Document Number:

Township: 7 S Range: 7 E Section: 4

**FERGUSON DAVID**

6/2/2008 CLASS III CULTURAL RESOURCE INVENTORY OF PROPOSED POINT OF ROCKS FISHING ACCESS SITE, PARK COUNTY, MONTANA

CRABS Document Number: PA 6 30219 Agency Document Number:

Township: 4 S Range: 9 E Section: 28

**FERRIMAN COLIN R**

12/14/2010 A CLASS III CULTURAL RESOURCE INVENTORY OF THE NATIONAL ECOLOGICAL OBSERVATORY NETWORK (NEON) DOMAIN 12 CORE SITE, LOCH LEVEN, PA CO., MT

CRABS Document Number: PA 6 32735 Agency Document Number:

Township: 6 S Range: 7 E Section: 13

**ALLEN WALTER E.**

6/22/1998 LOWER BIG CREEK PRESCRIBED BURN

CRABS Document Number: PA 1 34912 Agency Document Number: 98-GA-2-09

Township: 2 S Range: 9 E Section: 26

**DRIVER CHRISTIAN**

7/24/2015 PROPOSED MT8 WINEGLASS CELLULAR TELECOMMUNICATIONS PROJECT, 163 MILLER DRIVE, LIVINGSTON.

CRABS Document Number: PA 6 38031 Agency Document Number:

Township: 6 S Range: 7 E Section: 23

**AXLINE JON**

3/16/2015 LEFT TURN LANE EMIGRANT REST AREA

CRABS Document Number: PA 4 37709 Agency Document Number: HSIP 11-1(74)24

Township: 5 S Range: 8 E Section: 27

**BRYANT NICHOLAS G.**

6/1/2014 A CLASS III CULTURAL RESOURCE INVENTORY FOR THE EMIGRANT FISHING ACCESS SITE IMPROVEMENT PROJECT IN PARK COUNTY, MONTANA (FWP NO. 7133401)

CRABS Document Number: PA 6 37410 Agency Document Number: 7133401

Township: 6 S Range: 8 E Section: 5



# STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

## CRABS Township, Range, Section Results

Report Date: 11/1/2022

### LAHREN LARRY A. AND JERRY BREKKE

8/21/2016 A PRELIMINARY OVERVIEW OF THE PREHISTORIC, ETHNOHISTORIC AND HISTORIC CONTEXT AND SIGNIFICANCE OF THE EMIGRANT BISON KILL COMPLEX, PARK COUNTY, MONTANA

CRABS Document Number: PA 6 38397 Agency Document Number:

Township: 6 S Range: 8 E Section: 7

### LAHREN LARRY A. AND JERRY BREKKE

8/21/2016 A PRELIMINARY OVERVIEW OF THE PREHISTORIC, ETHNOHISTORIC AND HISTORIC CONTEXT AND SIGNIFICANCE OF THE EMIGRANT BISON KILL COMPLEX, PARK COUNTY, MONTANA

CRABS Document Number: PA 6 38397 Agency Document Number:

Township: 6 S Range: 8 E Section: 8

### LAHREN LARRY A. AND JERRY BREKKE

8/21/2016 A PRELIMINARY OVERVIEW OF THE PREHISTORIC, ETHNOHISTORIC AND HISTORIC CONTEXT AND SIGNIFICANCE OF THE EMIGRANT BISON KILL COMPLEX, PARK COUNTY, MONTANA

CRABS Document Number: PA 6 38397 Agency Document Number:

Township: 4 S Range: 9 E Section: 32

### LEE JENNIFER B.

7/22/2015 PROPOSED NATIONAL ECOLOGICAL OBSERVATORY NETWORK'S DOMAIN 12- NORTHERN ROCKIES RELOCATABLE SITE- PARADISE VALLEY PROJECT

CRABS Document Number: PA 5 37947 Agency Document Number:

Township: 6 S Range: 8 E Section: 7

### WOOD GARVEY C.

8/31/2016 STORY GRAVEL SOURCE

CRABS Document Number: PA 5 38720 Agency Document Number:

Township: 6 S Range: 8 E Section: 8

### WOOD GARVEY C.

8/31/2016 STORY GRAVEL SOURCE

CRABS Document Number: PA 5 38720 Agency Document Number:

Township: 2 S Range: 9 E Section: 26

### FANDRICH BLAIN

3/1/2017 LIVINGSTON SOUTH ALONG THE EAST SIDE OF US HIGHWAY 89 BETWEEN REFERENCE POSTS 49.7 & 52.5

CRABS Document Number: PA 4 38891 Agency Document Number: NH 11-1(84)40 UPN 8790000

Township: 2 S Range: 9 E Section: 35

### FANDRICH BLAIN

3/1/2017 LIVINGSTON SOUTH ALONG THE EAST SIDE OF US HIGHWAY 89 BETWEEN REFERENCE POSTS 49.7 & 52.5

CRABS Document Number: PA 4 38891 Agency Document Number: NH 11-1(84)40 UPN 8790000

Township: 3 S Range: 9 E Section: 2

### FANDRICH BLAIN

3/1/2017 LIVINGSTON SOUTH ALONG THE EAST SIDE OF US HIGHWAY 89 BETWEEN REFERENCE POSTS 49.7 & 52.5

CRABS Document Number: PA 4 38891 Agency Document Number: NH 11-1(84)40 UPN 8790000

Township: 3 S Range: 9 E Section: 11

### FANDRICH BLAIN

3/1/2017 LIVINGSTON SOUTH ALONG THE EAST SIDE OF US HIGHWAY 89 BETWEEN REFERENCE POSTS 49.7 & 52.5

CRABS Document Number: PA 4 38891 Agency Document Number: NH 11-1(84)40 UPN 8790000

Township: 5 S Range: 8 E Section: 22

### RENNIE PATRICK J.

11/1/2018 AGGREGATE ASSESSMENT LOCALITY NEAR EMIGRANT

CRABS Document Number: PA 5 39607 Agency Document Number: 2018-3-12

Township: 4 S Range: 9 E Section: 3

### AXLINE JON, ET AL.

8/2/2019 PINE CREEK ROAD (2-575)

CRABS Document Number: PA 4 40020 Agency Document Number: STPS 575-1(1)0



# STATE HISTORIC PRESERVATION OFFICE Montana Cultural Resource Database

## CRABS Township, Range, Section Results

Report Date: 11/1/2022

Township: 6 S Range: 8 E Section: 5

### **BROWN BARNUM**

1/1/1932 THE BUFFALO DRIVE: AN ECHO OF A WESTERN ROMANCE

CRABS Document Number: PA 6 40025 Agency Document Number: AMERICAN MUSEUM NATURAL HISTORY 32(1), 75-82

Township: 6 S Range: 8 E Section: 7

### **BROWN BARNUM**

1/1/1932 THE BUFFALO DRIVE: AN ECHO OF A WESTERN ROMANCE

CRABS Document Number: PA 6 40025 Agency Document Number: AMERICAN MUSEUM NATURAL HISTORY 32(1), 75-82

Township: 6 S Range: 8 E Section: 8

### **BROWN BARNUM**

1/1/1932 THE BUFFALO DRIVE: AN ECHO OF A WESTERN ROMANCE

CRABS Document Number: PA 6 40025 Agency Document Number: AMERICAN MUSEUM NATURAL HISTORY 32(1), 75-82

Township: 3 S Range: 9 E Section: 22

### **LAHREN LARRY A.**

8/10/2021 CULTURAL RESOURCE EVALUATIONS AND RECOMMENDATIONS FOR PROJECT AREA 1: BULLIS CREEK STREAM REHABILITATION PROJECT. PARK COUNTY, MT.

CRABS Document Number: PA 6 41087 Agency Document Number: NWO-2021-00781-MTH

Township: 4 S Range: 9 E Section: 16

### **RENNIE PATRICK J.**

12/1/2021 A CULTURAL AND PALEONTOLOGIC RESOURCES INVENTORY OF THE MALLARDS REST AGGREGATE ASSESSMENT LOCALITY.

CRABS Document Number: PA 5 41166 Agency Document Number: 2021- 3- 13





# Appendix D

## Geotechnical Report





2511 Holman Avenue  
P. O. Box 80190  
Billings, Montana 59108-0190  
p: 406.652.3930; f: 406.652.3944  
[www.skgeotechnical.com](http://www.skgeotechnical.com)

February 22, 2023

Project 22-4229G

Ms. Lauren Waterton, Associate Principal  
Sanderson Stewart  
Via Email: [lwaterton@sandersonstewart.com](mailto:lwaterton@sandersonstewart.com)

Dear Ms. Waterton:

Re: Geotechnical Reconnaissance and Feasibility Study, Proposed Rails to Trails Feasibility Study, Point of Rocks to Emigrant, Park County, Montana.

We have completed the following geotechnical reconnaissance as part of the feasibility study for the Point of Rocks to Emigrant section of the Rails to Trails project. The scope for the feasibility study and reconnaissance was included in our proposal dated June 3, 2022. The purpose of the geotechnical reconnaissance was to observe the overall proposed alignment of the Rails to Trails multi-use path and to identify areas of potential geotechnical concern.

## **Background**

The Great American Rail-Trail project involves converting existing or abandoned railroad right-of-ways into multi-use trails. The project intends to connect Washington D.C. to Seattle, Washington, with a 3,700-mile multi-use trail. The Great American Rail-Trail project is approximately 53 percent complete, with some remaining segments in planning development while others are unplanned.

This feasibility and geotechnical reconnaissance report addresses the section between the Point of Rocks and Emigrant, Montana. The proposed alignment starts at the Point of Rocks and runs parallel to US Highway 89 for about 9 miles north to Emigrant, Montana. The approximate alignment of the proposed multi-use path and abandoned railroad alignment is indicated in red on the attached site location sketch. The proposed path alignment was obtained from the Rails-to-Trails online interactive map. We have assumed the trail will be constructed over a new or rehabilitated embankment on or near the abandoned railroad alignment.

Our proposed scope of services included a geotechnical reconnaissance of the Rails to Trails alignment from Gardiner to Emigrant, Montana. However, a separate feasibility study had already been performed for the section between Gardiner, Montana, and the Point of Rocks. Therefore, our reconnaissance of this section has not been included, and this report only addresses the 9 mile long section between the Point of Rocks and Overlook Road on the south side of Emigrant, Montana



## **Field Procedure**

The geotechnical reconnaissance was performed by Mr. Cory G. Rice, PE, a senior geotechnical engineer with our firm, and Mr. Brett M. Warren, PE, a geotechnical engineer with our firm on October 21, 2022. The geotechnical reconnaissance consisted of observing the proposed alignment indicated on the Great American Rail-Trail Online GIS Map. This map indicates the proposed trail will primarily be placed directly adjacent to Old Yellowstone Trail Road south of the Point of Rocks, and along the previous railroad alignment north of the Point of Rocks where the trail parallels Highway 89. Due to the private ownership of the previous railroad right-of-way (ROW), the entire trail alignment was observed from Highway 89.

While traveling the alignment, areas of geotechnical concern were noted. The geotechnical concerns ranged from minor to moderate. Multiple photos, including aerial imagery, was obtained with an aerial drone while on site but were primarily obtained near the more significant geotechnical concerns south of the Point of Rocks.

## **Document Review**

**Topography.** The project is located within the Yellowstone River Valley and is generally about 1/4 mile west of the Yellowstone River. However, in places, the proposed alignment is as close as 200 feet and as far as 2,000 feet away from the river. The overall alignment and river valley is relatively flat, with an elevation drop of about 100 feet along the proposed alignment. The proposed trail alignment generally parallels Highway 89 and varies between 50 to 300 feet west of Highway 89.

Two notable features along the alignment include the likely presence of an underground spring near Bottler Springs Road and the Black Diamond Quarry/Gravel Pit. Near the Bottler Spring Road Area, lush vegetation indicates a spring emanating from the hillside about 500 feet west of the proposed alignment. The spring water appears to travel east along several channels before reaching the old railroad alignment. The spring-fed water is then carried north next to the old railroad alignment about 3/4 mile before reaching a culvert and passing beneath the proposed alignment. Where the water is traveling adjacent to the proposed alignment, there will be a risk of wet, unstable subgrades, as discussed later in the report. The second notable feature is the Black Diamond Quarry, located about 2 1/2 miles south of Emigrant, Montana. The primary quarry operations appear to occur about 1/3 miles west of the proposed alignment, however, considerable earthwork and road building has occurred near the proposed alignment. Some slope instability can be seen in roadway cut slopes created to access the quarry. The primary slope instability appears to be about 600 feet west of the proposed trail alignment, and does not appear to affect the proposed trail alignment.

**Geology.** The project is located primarily within the recent alluvium of the Yellowstone River. Between Bottler Springs Road and the Fridley Creek Arch culvert, the proposed alignment is located within Glacial Till Deposits, and the Black Diamond Quarry is located within a Basalt Deposit. A portion of the Gardiner 30' x 60' Quadrangle by Berg Et. Al., 1999, is included in the appendix.

Additionally, the proposed project is generally located within 5 miles of the Emigrant Fault. The Emigrant Fault is a normal fault that generally runs northeast along the eastern edge of the Yellowstone River valley. The fault is mapped as active during the latest Quaternary period (last 15,000 years) and included in the National Seismic Hazard Model (NSHM) active fault database. The presence of this fault will have impacts on potential bridge structures, depending on the specifications used for the design. The AASHTO LRFD Bridge Design Specifications require a site-specific procedure to be used to characterize seismic hazards for bridges along the project.

## **Reconnaissance Results**

**General.** The project geotechnical concerns observed along the alignment can be divided into two categories, minor and moderate. Compared to the significant geotechnical challenges present between Gardiner and the Point of Rocks, the geotechnical challenges present along this section are much more manageable. For this report, a minor geotechnical concern is a relatively commonplace issue that will need to be addressed with additional geotechnical fieldwork but will have a relatively straightforward solution. Minor geotechnical concerns have a relatively low impact on the overall constructability, and the solution will likely be readily apparent after performing additional fieldwork. The cost to address minor concerns are likely to be low on a per-case basis, with the total impact to the project cost depending on the final number of areas identified.

Moderate geotechnical considerations will need to be addressed through additional fieldwork and the solutions typically have multiple options to consider. The cost implications are typically higher than minor geotechnical concerns on a per-case basis.

**Minor Geotechnical Concern - Soft Subgrades.** The presumed project alignment passes through multiple soil types and drainage areas. Evidence of high groundwater or wet soils are seen through the presence of lush vegetation, groundwater-fed ponds, and spring-fed channels. These can be seen in Photos 1, and 2 and the attached alignment maps. The areas of suspected poor subgrades are shown in yellow on the attached maps. In these areas, the subgrade will likely be weak and saturated and will generally be unsuitable for direct support of either the proposed trail embankment or the culverts that will be required across the project. In problem areas, the soft subgrade soils will make construction activities slower and more expensive.

For a low-demand project such as multi-use trails, the soft subgrades are more of an issue for supporting

the construction equipment rather than supporting the final product. Therefore, these areas need to be designed for the much heavier construction load rather than the anticipated service loads. For this feasibility study, the soft subgrade soils are considered a minor geotechnical issue because the likely alternative for dealing with these problems consists of a subexcavation with gravel backfill. In some instances, geotextile fabric and/or geogrid are utilized at the bottom of the subexcavation to help reduce gravel thicknesses and better bridge over soft subgrades. The cost to stabilize any one area is relatively low, but these types of subexcavations can add significant cost to the project when considering the overall volume of material needed to construct the proposed pathway.

The full extent of soft subgrade areas will be identified through a combination of additional geotechnical fieldwork, including drilling and reconnaissance. For preliminary planning purposes, we recommend assuming approximately 20 percent of the proposed alignment will need subgrade improvement measures. The likely areas of unstable subgrades are shown in yellow on the attached sketches. The subgrade improvement will likely consist of a 2-foot subexcavation and replacement with select gravel backfill.

We estimate that between 10 and 20 small diameter (less than 36 inches in diameter) culverts will be required along the proposed alignment. For planning purposes, we recommend assuming that 5 of these culverts will require subgrade preparation consisting of a 2-foot subexcavation and replacement with select gravel backfill over a geotextile fabric.

**Minor Geotechnical Concerns - Cuts and Fills Less Than 15 Feet.** We have assumed that the new multi-use path will generally be constructed on the previous railroad embankment but may require some areas of new embankment construction or widening. For new cuts and fills less than 15 feet in depth and/or height, we recommend side slopes no steeper than 3H:1V (horizontal: vertical). These flatter slopes are the practical maximum for maintenance operations, erosion control, roadside safety, and reduced snow drifting. If slopes steeper than a 3:1 are required due to other project constraints, then geotechnical fieldwork and analysis will be likely be required at these locations to evaluate the stability of steeper slopes.

**Moderate Geotechnical Concern - Larger Culverts and Bridges.** Based on our geotechnical reconnaissance, it appears four locations will require a relatively large structure, such as a box culvert or bridge. These areas are:

- Big Creek - 90-foot bridge, Photo 3
- Dry Creek – box culvert
- Fridley Creek - large arch culvert, Photo 4
- Story Road area - box culvert, Photo 5

The existing Fridley Creek arch culvert is approximately 10 feet wide and 15 feet tall, while no culvert currently exists near the Story Road area, as seen in photo 5. We anticipate that a new box culvert will be needed near the Story Road and Dry Creek areas (approximately 5-foot by 5-foot) and that a similar-sized



culvert can be used if the Fridley Creek arch culvert needs to be replaced. The final culvert dimension will need to be determined by hydraulic analysis. Also, we did not evaluate the condition of the existing arch culvert, but it is likely beyond its design life. We anticipate that the three box culverts can likely be supported on spread footing foundations, with the possible need for a subexcavation and replacement with select gravel backfill.

We estimate the bridge over Big Creek will be approximately 90 feet long. A bridge of this length is a significant structure and will likely have higher foundation loads and may need to be constructed in place. Additional geotechnical fieldwork and drilling will be required at each of these structures. This bridge is about 3 1/2 miles west of the Emigrant Fault, and depending on the required design standards, a site-specific seismic analysis may be required. Driven pile foundations are likely for the Big Creek Bridge, but spread footing foundations can also be considered if scour concerns can be mitigated.

**Moderate Geotechnical Concern - Cut and Fill Slopes over 15 Feet.** Cut and fill slopes taller than 15 feet are a moderate geotechnical concern due to the difficulty of providing a 3:1 slope in areas of limited ROW availability or in areas of constraining geometry. Using slopes steeper than 3:1 are likely preferred from a trail layout perspective. However, tall, steep slopes are a moderate geotechnical concern due to the potential for slope instability or failure. It is difficult to estimate how many new cut and fill slopes of this size will be required due to the preliminary nature of the proposed alignment. However, we anticipate between one to three such slopes may be required, and additional geotechnical fieldwork and analysis will be required at each. Two potential larger slopes may be needed as the proposed trail passes near the Black Diamond gravel pit or near an existing slope just north of Fridley Creek. The presence of existing slope instability near the gravel pit access roads also makes this area a moderate geotechnical concern.

**Moderate Geotechnical Concern - Embankment through Pond.** Just south of Emigrant, about 1/4 mile of the old railroad embankment passes through a pond with standing water on both sides of the embankment. Additionally, a power line is situated along the top of the existing embankment. The presence of the power line makes placing the new trail on top of the existing embankment difficult, and the standing water makes placing new fill next to the existing embankment difficult. The power poles will also present an obstacle to trail users. If this area of the railroad alignment cannot be bypassed with a detour along the paved road to the west, or if the power line cannot be rerouted, we anticipate that placing new embankment fill will be necessary.

Construction of the additional embankment can likely be accomplished by placing a geosynthetic stabilization fabric along the bottom of the pond adjacent to the railroad embankment and placing fill using the end dump method to displace the water. Select gravel backfill and higher-strength geosynthetics will likely be required. This method of embankment construction will be slow and relatively costly. Additional geotechnical fieldwork and evaluation, including slope stability analysis of the new embankment, will be required.

## General

The observations and preliminary conceptual repair alternatives submitted in this reconnaissance report are based on our observations of the alignment at the time of our fieldwork. No established national standards exist for geotechnical reconnaissance. We have used the methods and procedures described in this report. Other firms may use different procedures to evaluate areas of geotechnical concerns. It is our opinion the services performed by our geotechnical engineers for this project have been conducted in a manner consistent with that level and care and skill ordinarily exercised by members of our profession currently practicing in this area under similar budget and time restraints. No warranty expressed or implied is made. We appreciate the opportunity to provide these services. If you would like to discuss the project further, please contact us at your convenience.

Sincerely,



Brett M. Warren, PE  
Geotechnical Engineer



Cory G. Rice, PE  
Reviewing Engineer

### Attachments:

Site Location Sketch  
Detailed Site Location Sketch  
Geologic Map  
Photos (2)



**PROJECT OVERVIEW**  
**SITE LOCATION SKETCH**  
 Geotechnical Reconnaissance  
**Rails to Trails Feasibility Study – Point of Rocks to Emigrant**  
**Park County, Montana**

Drawn by:	Google/SK Geo	Date	1/10/23
Project:	22-4229g		
Scale:	n/a		FIGURE
Sheet	1	of	3
			1





**DETAIL LOCATION SKETCH**  
**Geotechnical Reconnaissance**  
**Rails to Trails Feasibility Study – Point of Rocks to Emigrant**  
**Park County, Montana**

Drawn by:	Google/SK Geo	Date	1/10/23
Project:	22-4229g		
Scale:	n/a		FIGURE
Sheet	2	of	3
			1

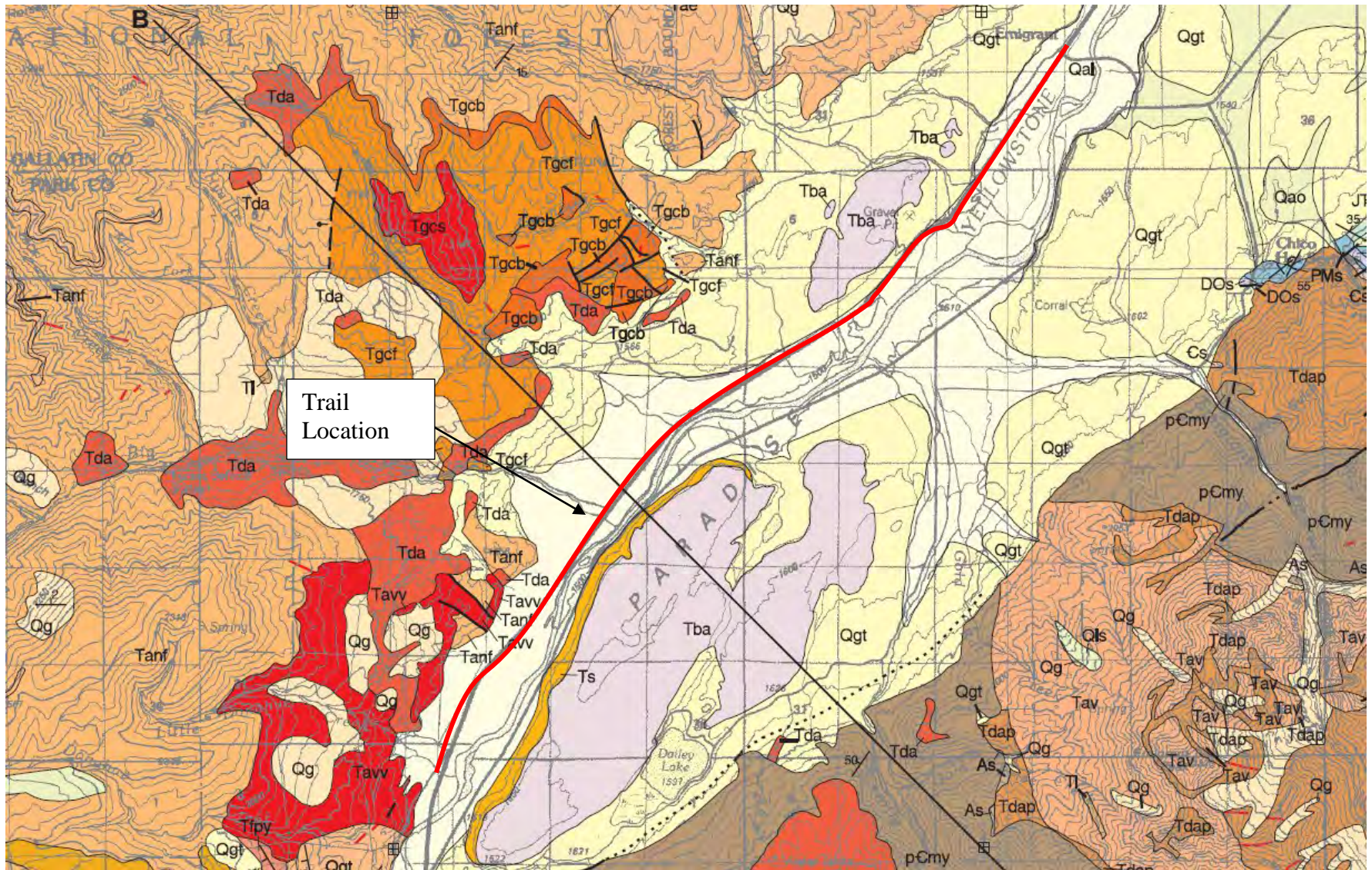




**DETAIL LOCATION SKETCH**  
**Geotechnical Reconnaissance**  
**Rails to Trails Feasibility Study – Point of Rocks to Emigrant**  
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Drawn by:	Google/SK Geo	Date	1/10/23
Project:	22-4229g		
Scale:	n/a		FIGURE
Sheet	3	of	3
			1





Qal Alluvium of modern channels
  Qgt Glacial till
  Tba Basalt



**GEOLOGIC MAP**  
**Geotechnical Reconnaissance**  
**Rails to Trails Feasibility Study – Point of Rocks to Emigrant**  
**Park County, Montana**

Drawn by: MTBMG	Date: 1/10/23
Project: 22-4229g	
Scale: n/a	FIGURE
Sheet 3 of 3	1





**Photo 1. Area of high groundwater**



**Photo 2. Area of potential seepage and soft subgrades**



**Photo 3. Big Creek bridge area.**



**Photo 4. Fridley Creek, large railroad arch culvert**





**Photo 5. Story road area. Box culvert needed, soft subgrade likely.**



**Photo 6. Embankment through pond with powerline, looking west.**



**Photo 7. Embankment through pond with powerline, looking south.**



**B** Arthur M. Blank  
Family Foundation



SANDERSON  
STEWART 

