

Helena to Great Falls Bicycle and Pedestrian Path Feasibility Study



January 2009

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Executive Summary

■ Overview

This study was conducted by the Montana Department of Transportation (MDT) in response to a request by the Montana State Legislature. Interest from recreational, area property owner, and economic development stakeholders in establishing a bicycle and pedestrian corridor between Helena and Great Falls prompted the Senate Highways and Transportation Committee to ask MDT to explore the feasibility of a bicycle and pedestrian path within public road right-of-way between the two cities.

The study followed MDT's corridor analysis process as a planning tool in determining the feasibility of a bicycle and pedestrian path. It is not meant to be a detailed engineering project plan for improved bicycle and pedestrian facilities along the 80 mile long corridor.

The process involved:

1. Establishing a technical advisory committee that included bicycle and pedestrian advocates, property owners, and state and local government representatives;
2. Analyzing alternative routes; assessing existing roadway conditions; and considering environmental, demographic, and socio-economic factors; and
3. Evaluating possible implementation strategies.

The selected corridor begins at Lincoln Road (Secondary 279) north of Helena and follows Chevallier Drive (county road along Little Prickly Pear Creek) and Recreation Road (frontage road paralleling Interstate 15) ending at Gore Hill Interchange near Great Falls International Airport.

The report also acknowledges public interest in pursuing a bicycle and pedestrian path on the existing BNSF Railway line that travels through the corridor. However, this option was not analyzed in this report because:

1. The Legislative Committee specifically directed MDT to examine public rights-of-way along public roads;
2. BNSF Railway is not interested in changing the status of this line (BNSF Railway's most recent letter, dated September 12, 2008, can be viewed in Appendix 11B).

The study concludes that a continuous separated path along the entire corridor is not feasible on existing public road rights-of-way due to the presence of multiple chokepoints and obstructions. However, shorter stand-alone segments that have independent utility are feasible.

There are no funding commitments associated with this study. However, local and state agencies and/or other entities can use the study results to inform efforts to provide additional bicycle and pedestrian facilities within the corridor.

■ Background

This study analyzes the potential for a bicycle and pedestrian path between Helena and Great Falls. The Montana Department of Transportation (MDT) completed the study between September 2007 and September 2008 in response to legislative direction from the Senate Highways and Transportation Committee. MDT addressed the legislature's request as outlined in Senate Bill 190, which specified a focus on public road right-of-way. There are no funding commitments associated with this study.

Preparation of this report involved the following tasks:

- ✓ technical advisory group formed,
- ✓ public lands inventoried,
- ✓ physical conditions reviewed,
- ✓ operational conditions reviewed,
- ✓ safety constraints identified,
- ✓ pathway configuration parameters developed,
- ✓ utilities identified and assessed,
- ✓ screening criteria developed,
- ✓ most feasible routes identified,
- ✓ environmental information analyzed,
- ✓ economic and demographic information analyzed,
- ✓ report drafted,
- ✓ public informed and input gathered,
- ✓ public comments addressed, and
- ✓ final report developed

■ Study Parameters

The study analyzed a 20 mile wide corridor on either side of I-15 between Helena and Great Falls. Specifically, the route termini were Lincoln Road (Secondary 279) near Helena, and Gore Hill, near Great Falls International Airport. The termini were selected to provide the greatest flexibility for cyclist and pedestrian access into the cities.

Safety was a governing concern. The study sought to minimize areas where the path would require crossing roadways. Interstate 15 and its right-of-way were not evaluated for a separated path due to safety concerns, but Montana does allow riding on interstate shoulders.

Major Study Parameters:

- *20 mile wide corridor between Helena and Great Falls*
- *Paved and Connecting routes*
- *Lincoln Road and Gore Hill Termini*
- *Safety considerations*

The study was informed throughout by a technical advisory group of stakeholder representatives. The group included a representative of each county government; the trails coordinator from Montana Fish, Wildlife, and Parks; landowners from Cascade and Lewis and Clark Counties; and a representative of bicycle clubs in Helena and Great Falls.

■ Data Sources

A base map has been developed that includes public, connecting paved routes and selected gravel roads. This data was used when working with the technical advisory group to create parameters delineating the study. Spatial data acquired included;

- ✓ towns & political boundaries;
- ✓ rights-of-way;
- ✓ environmental;
- ✓ utilities;
- ✓ hydrology;
- ✓ recreational sites
- ✓ historically & culturally significant sites;
- ✓ aerial imagery; and
- ✓ other visually required conditions.

■ Environmental Scan

An environmental scan gathered and assessed a wide variety of data. Wetlands and rivers are present along the selected route and would need further detailed evaluation to determine any mitigation that a path or widened shoulders may require. Utilities exist both within and outside public right-of-way, but it appears that none would require relocation or significant accommodations to create a path. Historical properties exist along the corridor but remain on private land. Certain historical or archeological sites could be used as a side feature to promote use of a path.

Environmental data analyzed:

- *Land use*
- *Farm land*
- *Social, economic, and demographic impacts*
- *Relocation*
- *Pedestrians and bicyclists*
- *Air and water quality*
- *Noise*
- *Permits*
- *Wetlands, water bodies, and rivers*
- *Floodplains*
- *Threatened and endangered species*
- *Historical and archeological sites*
- *Hazardous waste*
- *Utilities*

■ Socio-economic and Demographic Impacts

Case studies uniformly report positive local economic outcomes from developing bicycling facilities. Bicycling is a complimentary activity to fishing and boating which are already important and popular activities along the corridor.

In terms of general economic effects, studies suggest that development of road bicycling facilities generates local business growth in lodging, dining, sales and rental of gear and provisions, and related services, as well as a general boost from the spillover effects from these activities. Road biking facilities also enhance the overall appeal of and quality of life in the communities they run through. In terms of effects on values of adjacent and nearby properties, studies that have assessed these impacts generally find positive effects.

Whether the local businesses and communities take initiative to develop potential economic opportunities is significant to positive economic impacts. Successful bicycle developments uniformly report that initiative on the part of business and economic development leaders was important to realizing the economic potentials.

A 2005 survey by the Montana Institute for Tourism and Recreation Research (ITRR) found that five percent of Montana households reported recreational road biking, which represents about a 48,000 household in-state market. In comparison, eight percent of all surveyed respondents report mountain biking. Nationally, more people report road biking than mountain biking.

A survey by the national Outdoor Industry Association notes an upward trend in the proportion of road bicyclists living in the western US; as of 2005, 41 percent of the nation's road bicyclists lived in western states.

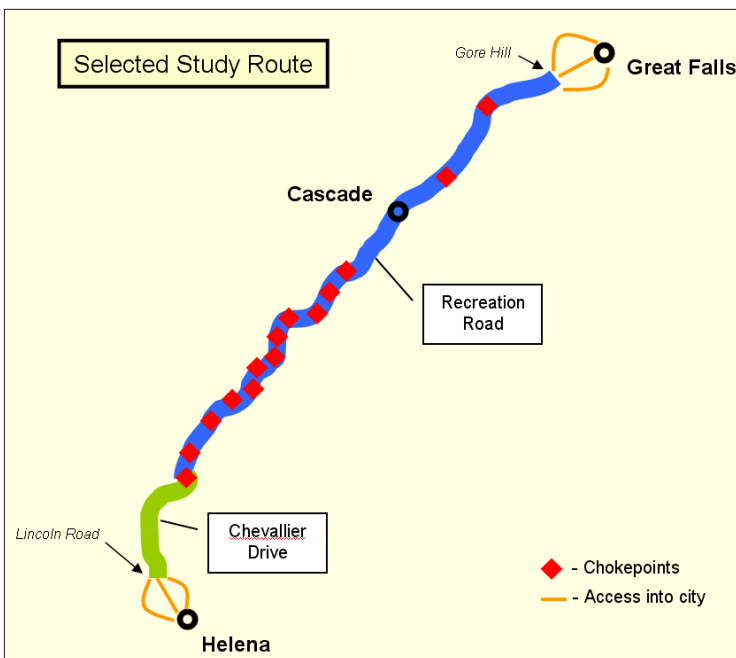
■ Route Selection

Based on a review of the entire study area, professional judgment, and advisory committee recommendations, a single route is selected for more detailed assessment. That route consists of Recreation Road (frontage road) from Gore Hill to the Spring Creek Interchange (I-15 exit 219), and Chevallier Drive from Sieben Interchange (exit 216) to Lincoln Road at Silver City.

Selected Routes

- *Chevallier Drive*
- *Recreation Road*

A three mile stretch of I-15 between Sieben Interchange and Spring Creek Interchange presents a barrier to completion of a continuous pathway between Helena and Great Falls.



Safety concerns preclude consideration of some segments of I-15 as a demarcated bicycle and pedestrian way, and there are no other alternatives available within public right-of-way. While the study focused on existing public road rights-of-way, the study included an inventory of public lands within the corridor to inform other studies.

Physical conditions of the selected route were further examined, including grades, bridges, and roadway

characteristics. This included operational conditions of the route, average annual daily

traffic, and population centers through which the roads pass. Safety data included crash locations and frequency, guardrails, number of lanes, and the availability of passing lanes. Existing bicycle and pedestrian facilities are limited, but a multi-use path (“Joe’s Trail”) runs along two segments (north of Cascade and south of Ulm). There are also sidewalks within Cascade and under I-15 in Ulm.

■ Existing Roadway Conditions

Chevallier Drive is a Lewis and Clark County-maintained road connecting Lincoln Road at Silver City (near Helena) with I-15 at the Sieben Interchange. This 12.9 mile route is flat and passes through a hilly area. The road has a gravel surface for 10.9 miles and pavement for the northern two miles. There is a low average annual daily traffic volume of 40 vehicles. Vehicles typically travel at low speeds. The right-of-way is narrow – about 20 feet on both sides of the centerline. There are two bridges and three railroad crossings along Chevallier Drive.

Recreation Road is a state-maintained off-system road running north from the Spring Creek Interchange (exit 219 on I-15) in the canyon clear to Gore Hill (exit 277 in Great Falls). This portion of the route is 63.6 miles long and generally parallels the Little Prickly Pear Creek and the Missouri River. In some areas, the road runs alongside I-15. The entire route is paved. Shoulder widths are typically less than one foot through its entire length. The width of the right-of-way varies, but it is typically 30-60 feet each direction from the road’s centerline. Except when it passes through towns along the way, rural speed limits range from 55 to 70 miles per hour. Traffic ranges from a low of 320 to a high of 750 vehicles per day depending on location. There are 20 bridges along this portion of the route, of which seven feature I-15 crossing overhead. There are no rail crossings.

■ Path Viability

MDT used a route segmentation process to identify different levels of path viability based on roadway attributes. Five different viability levels were developed and assigned to roadway segments along the corridor.

MDT identified segments where development of an eight to ten-foot paved separated pathway for two-way use is possible based on roadway characteristics and right of way availability.

Approximately 36 miles of the route fall into this category.

Where current conditions do not permit a viable separated pathway, widening road shoulders by three to five feet on both sides of the roadway was considered. Approximately 63 miles of the route fell into this category. Both of these categories –separated pathway and widened shoulder segments – are further rated in terms of anticipated ease of construction (whether complex engineering solutions would be needed).

Viability Levels

- *Separated path*
 - *Easy to construct*
 - *More difficult to construct*
- *Widened shoulders (3-5 feet wide)*
 - *Easy to construct*
 - *More difficult to construct*
- *Chokepoints (no path or widening option identified)*

Rugged physical terrain along some portions of the route makes construction of dedicated bicycling facilities very difficult. The fifth level identified areas along the corridor were “chokepoints” existed and any engineering solution would be prohibitively difficult and costly.

Chokepoints are areas that prevent widening of the roadway to accommodate a minimum of three foot shoulders on both sides. Such areas are characterized by rock cliffs, rivers, and bridges. These chokepoints are typically short, but collectively account for over 2.8 miles. These obstructions will be difficult to resolve, but in time some might be ameliorated in conjunction with other transportation improvement efforts along the route.

Chokepoints

- 22 locations
- 2.8 miles affected



A chokepoint south of Wolf Creek.

Independent Utility / Potential Phasing

The notion of “independent utility” describes segments of a project that can provide value in and by themselves. The idea is commonly used to help complete large projects in manageable phases. In this study, the segmentation analysis identified lengths of over one mile that have the potential to create stand-alone recreational amenities with parking areas on either end.

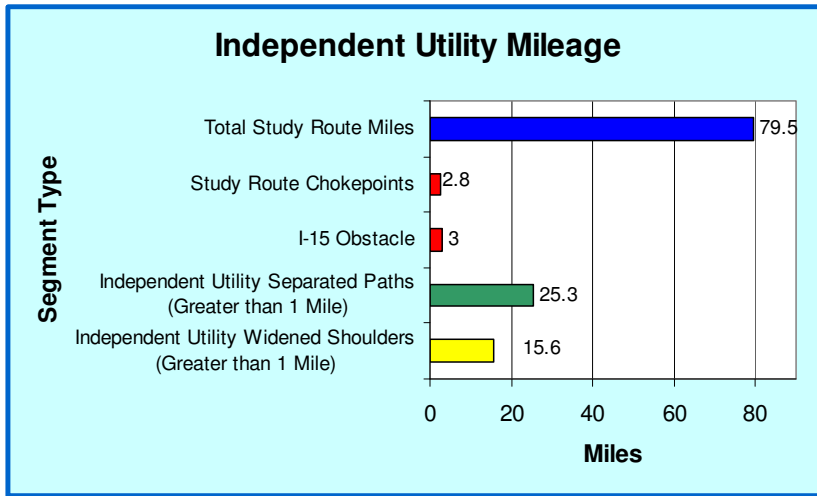
This report considers independent utility as one possible strategy to implement a bicycle and pedestrian path as outlined by Montana’s Senate Highways and Transportation Committee. As part of this process, MDT targeted easy to construct areas with recreational attractiveness as a first phase for this strategy. Seven potential segments suitable for separated pathways within the corridor were identified. These include:

7 possible separated path segments totaling 25.3 miles were identified

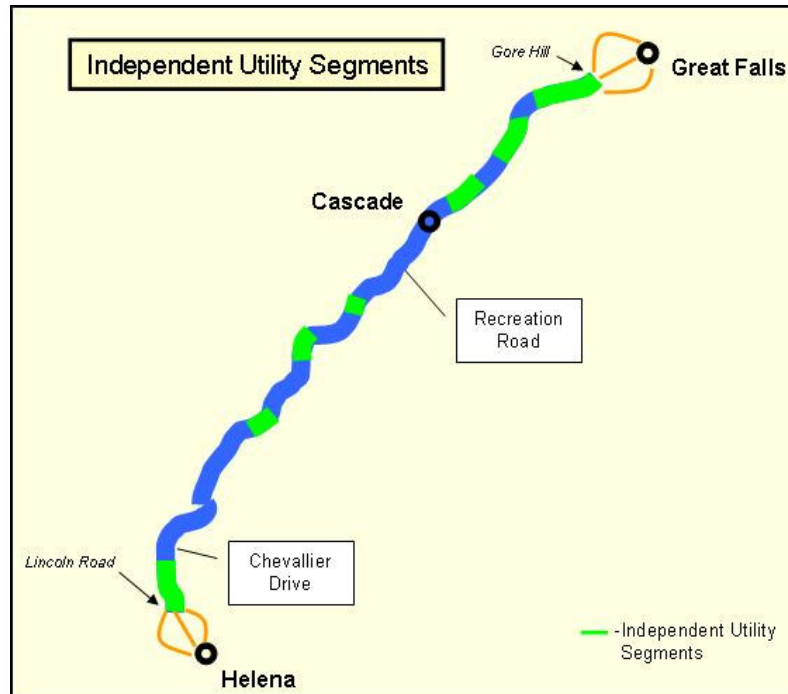
- ✓ Gore Hill to Ulm,
- ✓ Stickney Creek fishing access south to the I-15 underpass,
- ✓ North of Cascade -connect with Joe’s Trail,
- ✓ South of Ulm-connect with Joe’s Trail - (a tight curve exists halfway between the communities),
- ✓ around the Canyon Access I-15 interchange,
- ✓ north of Wolf Creek Bridge, and
- ✓ the southern portion of Chevallier Drive.

Although less desirable by bicycle and pedestrian enthusiasts, five widened shoulder segments for a total of 15.6 miles that also have independent utility as described above were identified within the corridor. These include:

- ✓ the Local Access interchange north to the I-15 underpass,
- ✓ Table Rock to Lichen Creek fishing access site,
- ✓ Wolf Creek Bridge south through Wolf Creek to the Table Rock fishing access site,
- ✓ north of Wolf Creek Bridge, and
- ✓ north and south of the Craig bridge.



Independent Utility Segment Locations:



■ Cost Estimates

There are no funding commitments at this time for a bicycle path along this corridor. The following cost estimates provide interested parties with the information necessary to assess future funding and construction phasing options.

These figures reflect best estimates of per-mile costs based on MDT experience and the aggregate level analysis reflected in this study. More detailed engineering and environmental analysis would identify specific areas of greater or lesser unit cost. An estimated total cost would depend on the selection of segments and their lengths. All costs are in 2008 dollars.

Cost Estimates for Separated Path and Widened Shoulder Segments

Type of Path	Base Cost per Mile	Miles	Total Cost
➤ Separated path, all segments (10 feet wide)	\$170,000 +	35.6	\$5,340,000 +
➤ Independent utility separated path	\$170,000	25.3	~ \$3,795,000
➤ Widened shoulder, all segments (3-5 feet)	\$200,000 +	63.6	\$12,720,000 +
➤ Independent utility widened shoulder	\$200,000	15.6	~ \$3,120,000
➤ Chokepoints	very costly	2.8	N/A

Possible Path – all segments
 Independent Utility Path Segment

Note: Planning level estimates only -- not based on engineering and environmental survey. Excludes engineering and contingency costs.

■ Public Participation, Comments, and MDT Responses

MDT held a public meeting in Cascade on June 9th, 2008 to present the preliminary study findings and gather public input. Approximately 30 people attended the meeting. In addition to the public involvement meeting, MDT placed the preliminary study findings on MDT's website.

A total of 41 individuals provided comments. Twenty comments were supportive of an independent utility approach and fifteen comments were in favor of a path on the existing BNSF Railway bed. These individuals also suggested the study consider economic and demographic conditions as those might inform the market and economic development impact of such a facility. One commenter was opposed to a path regardless of location or type, another was opposed to the study in general and three commented on other issues.

BNSF states "...the Great Falls to Helena line is an important asset to BNSF if traffic between western Canada and the western United States returns to levels that would justify reopening the line to accommodate future growth."

In response, the study team has included a socio-economic analysis, and asked the private railway owner, BNSF, for an update on its willingness to consider other uses for this rail segment. BNSF indicated that although this segment of railway is not currently carrying freight, the company has no plan to close the line as it remains an important link between

western Canada and the western United States. BNSF also indicated it will retain ownership of the line in the event it is needed for future volume increases of rail shipping (BNSF letter can be found in Appendix 11B). All public comments received were included into this report.

■ Findings

This analysis stays within the parameters of the legislative request and analyzes only the feasibility of creating a bicycle path on public rights-of-way adjoining county and state roads. It is not meant to be a detailed engineering project plan for improved bicycle and pedestrian facilities along the 80 mile long corridor. This study makes no assumptions about funds available to construct a path.

The scan of environmental information identified no major barriers. The socio-economic assessment suggests that a completed facility could generate ample use, and that such facilities elsewhere have generated substantial economic benefits for the communities along them.

The major obstacles to a continuous pathway are in the landscape. Several areas exist where pathway construction would be difficult and costly due to obstructions including cliffs,

waterways, and existing infrastructure. A three mile section where I-15 is the only public road available is another obstacle to a continuous path as this area contains a long, narrow bridge with narrow shoulders.

- *Chokepoints inhibit a continuous bicycle and pedestrian path*
- *Up to 25.3 miles of separated path with amenities appear to be buildable with minimal engineering*
- *Phased path implementation is possible*

A technical advisory committee guided this process along the way, and public participation was also vital to strengthening the substance of this report. Some of the findings reached through this study's analysis are:

- 1) Multiple locations exist where chokepoints and obstacles in their current state would limit a contiguous separated path;
- 2) 25.3 miles of separated path is feasible with a minimal amount of complex engineering solutions;
- 3) 15.6 miles of widened shoulders along the existing roadway is feasible with a minimal amount of complex engineering solutions;
- 4) A phased implementation of path segments as stand-alone amenities can be accomplished with local and state agencies and/or other entities using the study results to inform efforts to provide additional bicycle and pedestrian facilities within the corridor.

Background

The bicycle and pedestrian path feasibility study between Helena and Great Falls came about from direction received through Senate Bill 190 and the 2007 Montana Legislature. The bill was introduced to improve recreational opportunities for Montanans, promote tourism, and increase public safety. This study will evaluate the suitability of public right-of-way adjoining county and state roads for development of a bicycle and pedestrian path between the Lincoln Road and Interstate 15 (I-15) interchange (exit 200) north of Helena and the Gore Hill Interchange at 31st Street West and I-15 (exit 277) in Great Falls. The goals of the study are to promote tourism, recreation, and public safety. Please refer to Appendix 1 and 2 for a copy of SB 190 and a letter from Senator Lewis and the Senate Highways and Transportation Committee to MDT Director Jim Lynch.

■ Technical Advisory Group

A technical advisory group was formed to assist MDT with the study. Group members consisted of one landowner each from Cascade County and Lewis and Clark County; the trails coordinator from Montana Fish, Wildlife, and Parks; a representative each from the two county governments; and a representative from the Helena Bicycle Club and one from the Great Falls Bicycle Club. Advisory group members met on February 19 and March 20, 2008 to discuss the study parameters, review existing conditions data, and discuss possible path implementation strategies. The advisory group also reviewed and commented on the public workshop presentation and the report draft prior to their release.

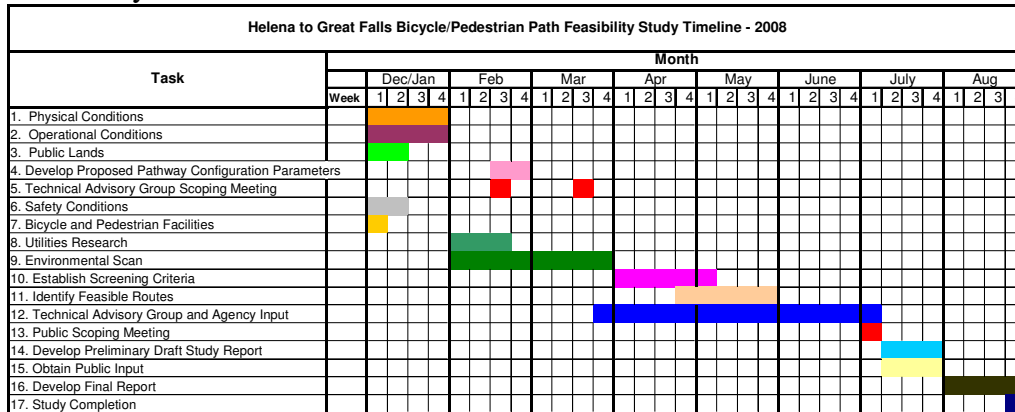
■ Rail Line

This study focuses on the legislative request to analyze the use of public land adjacent to public roadways. While there are many supporters of a path using the Burlington Northern Santa Fe Railway (BNSF) bed, this study does not address the potential for a rail trail for a variety of reasons. This study does not analyze the use of private property, including the rail line, for creation of a path as this is inconsistent with the legislative directive and the railway has clearly stated that it currently has no plans to abandon its line between Helena and Great Falls. The Montana Department of Transportation (MDT) has been involved in other rails-to-trails conversions and understands the economic, aesthetic, and safety benefits associated with these paths. The department will continue to communicate with BNSF Railway about its plans for this and other rail lines and respond appropriately to any changes in status. This study is to determine if there is an option of entirely using public land to create a path in the absence of railroad abandonment. A letter from BNSF dated September 12, 2008 regarding the line can be found in Appendix 11B.

■ Project Timeline

This feasibility study was conducted between September 2007 and August 2008 with a public meeting held in Cascade on July 9th, 2008. The final report was submitted to the 2009 Montana Legislature. A timeline of project activities is as follows. The scope of work and a more detailed description of timeline activities can be found in Appendix 3.

Figure 1: Study Timeline



■ Key Definitions

- **Bicycle path or shared use path:** A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. This is a bi-directional path on one side of a road.*
- **Bicycle lane:** A portion of roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.*
- **Shared roadway:** A roadway which is open to both bicycle and motor vehicle travel. This may be an existing roadway, street with wide curb lanes, or road with paved shoulders.*
- **Viability:** A rough gauge of constructability based on right-of-way, topography, and physical obstructions.
- **Independent utility:** A segment of the corridor where a separated path (or widened shoulders) can be developed as a stand-alone amenity with areas that allow for vehicle parking.

*Source: American Association of State Highway and Transportation Officials (AASHTO)

■ Case Study Examples

Four case studies from Montana and the Northwest are provided in Appendix 7 for use as examples and for comparative costs between projects. The examples include the Centennial Trail in Idaho and Washington, the River's Edge Trail in Great Falls, the Kiwanis/Dutcher Trail in Billings, and Missoula area paths. A cost estimate for trails in the study area is also provided using examples from the Montana Department of Transportation.

Study Parameters

The route and identified route segments were created by synthesizing a variety of information with field observations to determine levels of potential viability for a path along the corridor. Acquired data included spatial (roadway, bridge, other); environmental; utility; right-of-way; hydrology; and fishing access site, toilet facility, and park information. Aerial imagery was also utilized and the data that was gathered was verified through windshield surveys conducted by planners and engineers. This information was used in the process of creating parameters to bound the study.

■ Establishing a Study Boundary

The study corridor will be 40 miles in width and consist of all public roads within 20 miles of either side of Interstate 15 between Helena and Great Falls. The corridor width was established to allow a variety of route options while maintaining a reasonable distance from the I-15 corridor for bicycle and pedestrian travel between the two cities.

30 Mile Corridor

The initial study area was proposed to be a corridor 30 miles in width and covered I-15 and frontage roads within the canyon (see Figure 2).

40 Mile Corridor

The boundary was later expanded by five miles on each side to fully encompass the Lincoln Road (Secondary 279) and Montana 200 route options (see Figure 3).

■ Route Selection

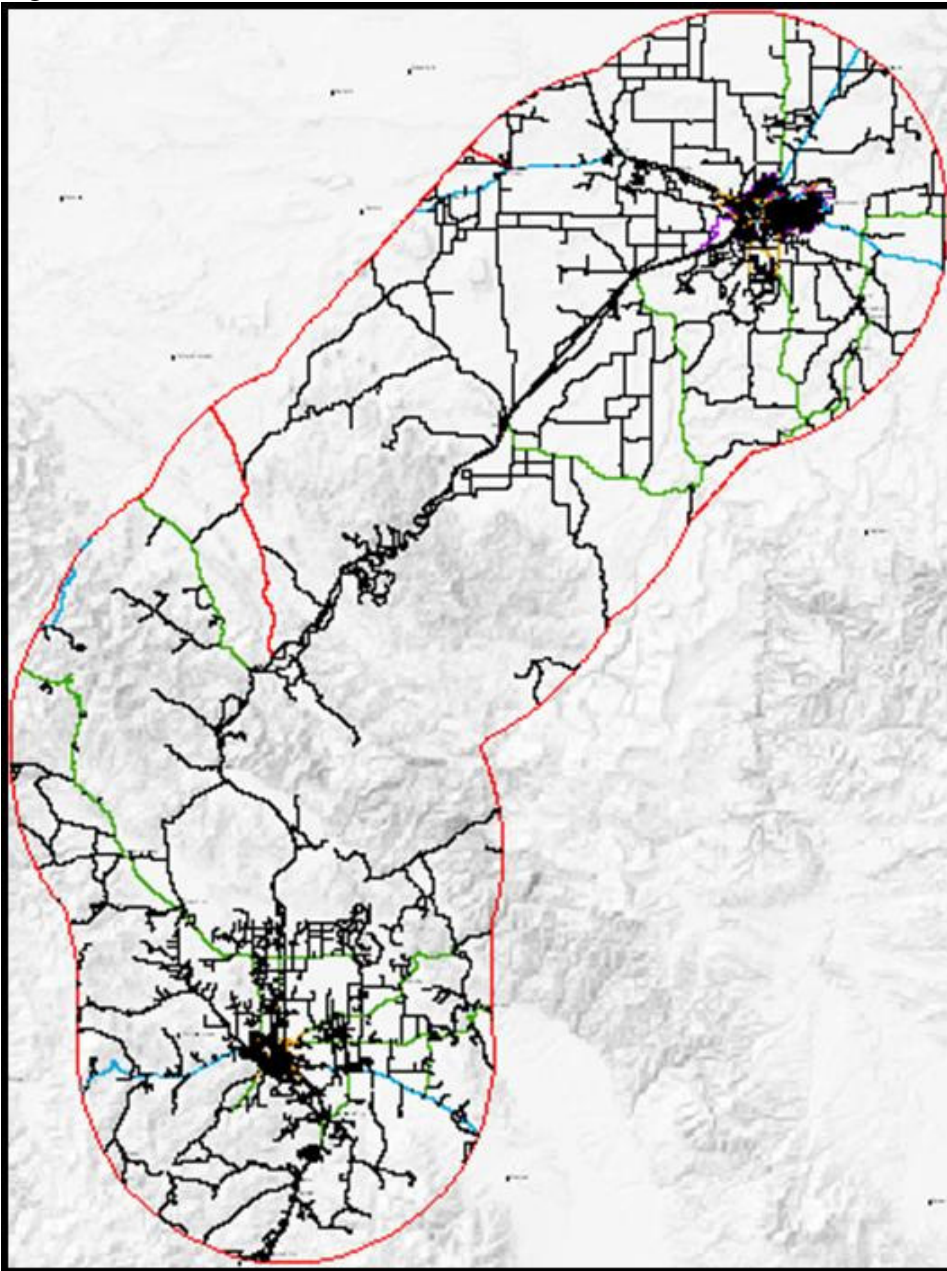
The routes selected for study are within a reasonable distance (20 miles) of the most direct route between Helena and Great Falls (I-15). Other routes could be taken which will indirectly take the user to his or her destination, but these roads are not efficient as a non-motorized transportation option. These other routes were designed to primarily connect Helena or Great Falls to other cities, rather than each other directly. One example is the more circuitous US-12 to US-89 route which extends from Helena through Townsend, White Sulphur Springs, Neihart, Belt and other communities prior to reaching Great Falls.

■ Base Map

An initial base map of the study area was created in September of 2007 using ArcMap 9.2 and this map was used to evaluate all public roads within the corridor boundaries. The analysis of this map showed that the corridor should be expanded to cover 40 miles to allow for greater route selection. All applicable roads were compiled from the

Montana Department of Transportation (MDT)'s list of roads open to public travel within the corridor.

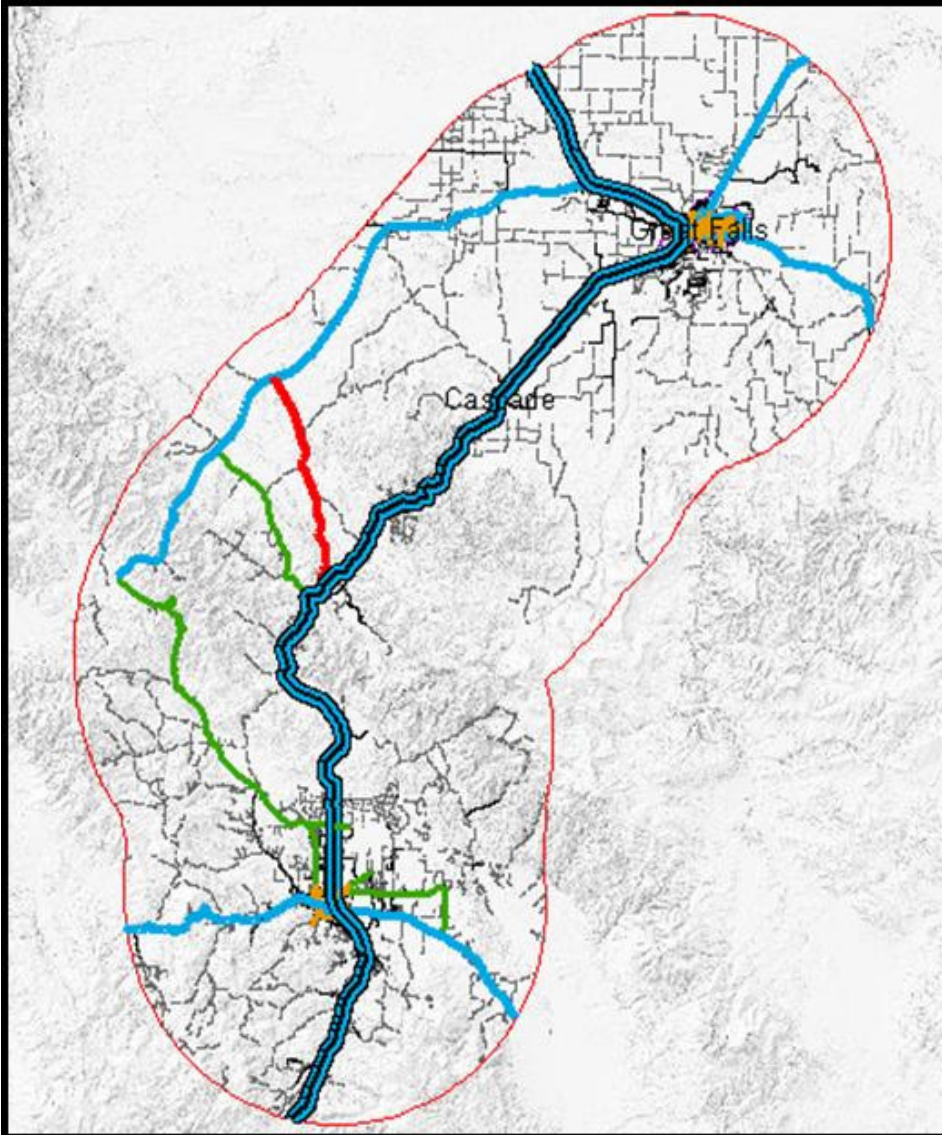
Figure 2: All Public Roads - 30 Mile Wide Corridor



First Map Iteration

These roads were further broken down into paved and unpaved categories. Unpaved roads included gravel, graded, bladed, and unspecified surface types.

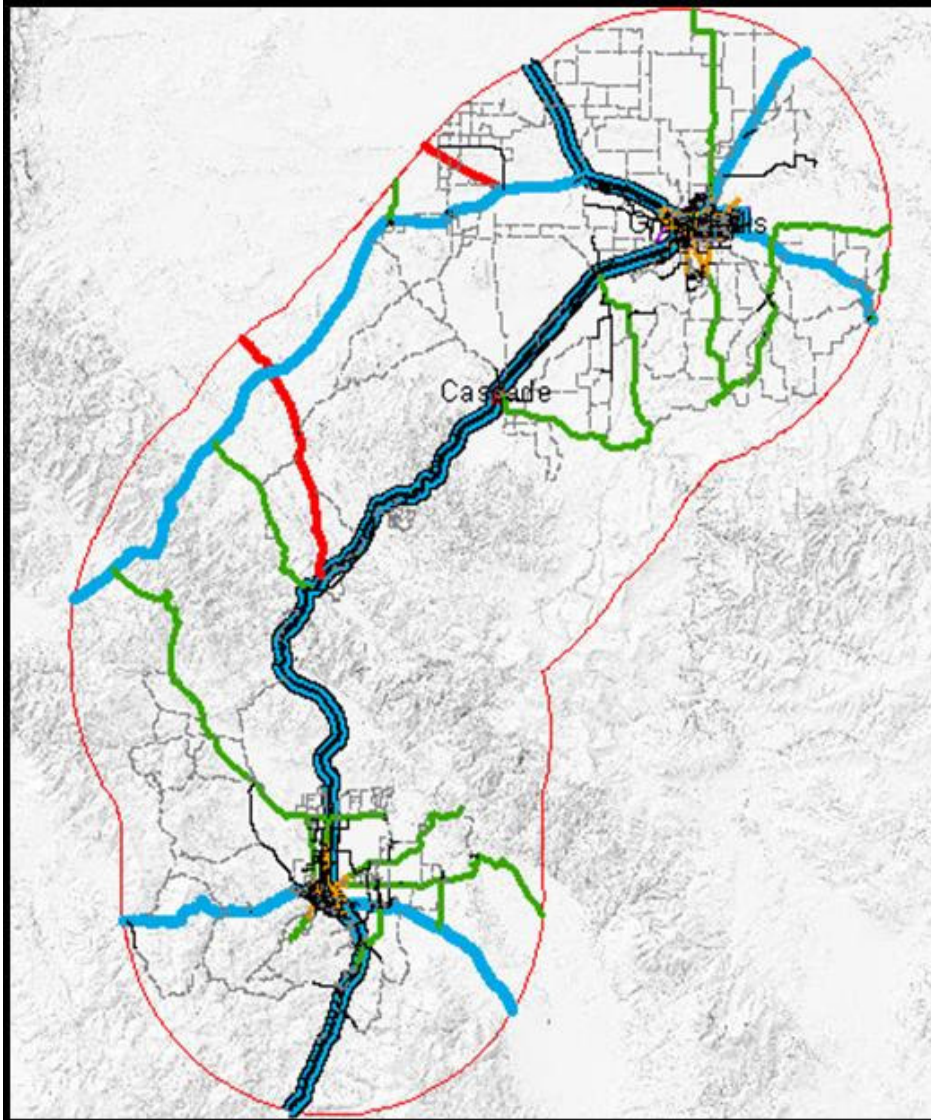
Figure 3: All Public Roads: 40 Mile Wide Corridor-Paved and Unpaved



Second Map Iteration

The map was further refined by removing routes and route segments limited to dead-end roads that would not provide any positive gain in traveling between the two endpoint cities along with road segments extending beyond the last connection point for continuous travel along the route (roads that “dead-end” at the corridor boundary).

Figure 4: All Connecting Routes



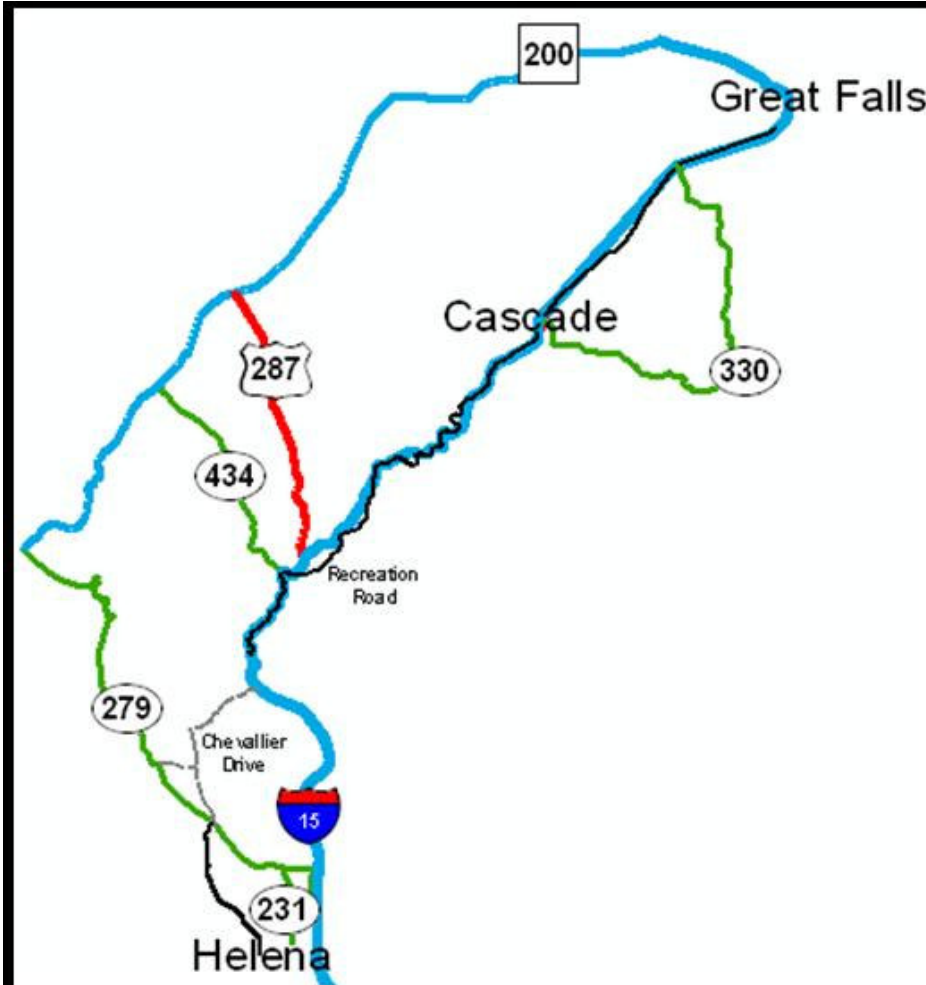
Third Map Iteration

Roads at each end of the corridor (northeast of Great Falls and south of Helena) that require backtracking and travel away from the destination city were also removed. To reduce map clutter and improve readability, some minor roads within Helena and Great Falls were also removed. A preference was given to paved routes whenever possible and all but one gravel road was removed in this iteration. Chevallier Drive is the gravel road that remained as it provides an alternative to Interstate 15 between Lincoln Road and the Sieben interchange. This iteration designated six major corridors between the two cities.

Major corridors included:

- Lincoln Road (Secondary 279) / Montana 200
- Interstate 15 / Recreation Road / Secondary 434 / Montana 200
- Interstate 15 / US-287 / Montana 200
- Interstate 15 the entire length
- Interstate 15 / Recreation Road
- Chevallier Drive / Recreation Road

Figure 5: Major Corridors



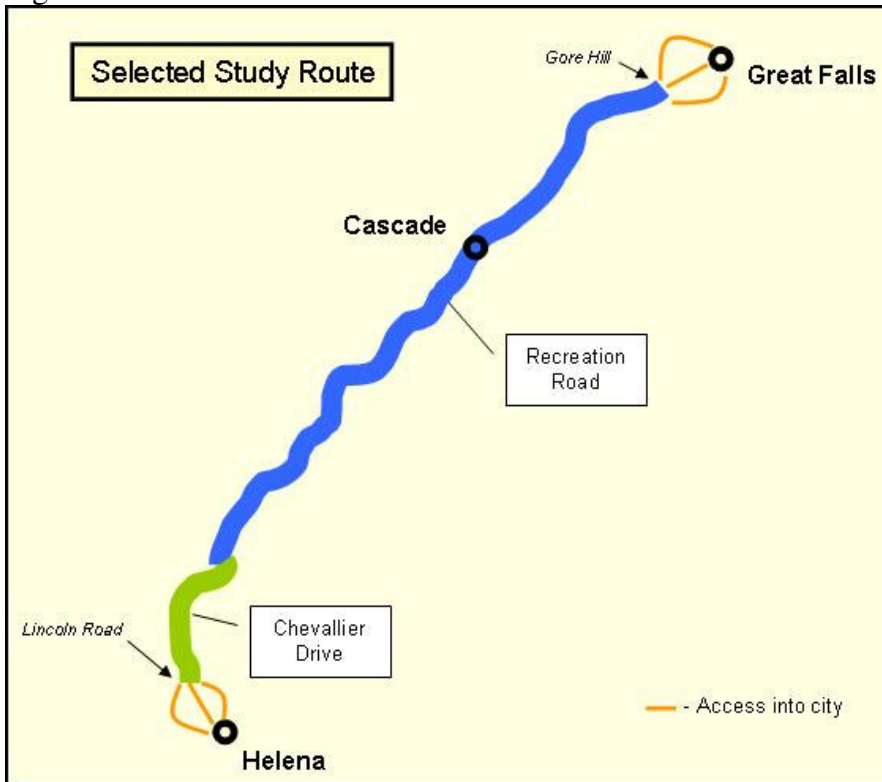
Fourth Map Iteration

Following the Technical Advisory Group’s recommendations, potential routes within the canyon containing Interstate 15 were identified.

These routes included:

- Chevallier Drive / Interstate 15 (three mile stretch) / Recreation Road
- Interstate 15 / Recreation Road

Figure 6: Identified Routes



A multitude of route choices exist from the urban edge to destinations within the urban area once a user enters either city. Even more route options are available to users within city limits. The amount of urban choices and the nature of the study to analyze a path between the cities delineated the study nodes as Lincoln Road/Secondary 279 in the northern Helena valley and the Gore Hill interchange on Interstate 15 (airport exit) in Great Falls. A plethora of route options exist south of Lincoln Road into Helena including some stretches of an existing bicycle path along North Montana Avenue and existing share the road signage along Birdseye Road. Gore Hill is located on the urban fringe of Great Falls and is also the access point to the city's international airport.

■ General Route Characteristics

Recreation Road

The frontage road from Spring Creek Interchange (exit 219) to the Gore Hill Interchange in Great Falls is a continuous 63.6 mile paved route. It generally follows Little Prickly Pear Creek and the Missouri River. The shoulders on this route are generally less than one foot the entire length. Right-of-way varies along the route and is generally 30 to 60 feet from centerline. There are places with as little as 15 feet from centerline and up to 120 feet or more where the road is within the interstate right-of-way. Ownership of this route remains with the State of Montana. Rural speed limits vary between 55 and 70 miles per hour and annual average daily traffic on roads with count operations ranges from 320 to 750 vehicles per day.



Recreation Road Images

Interstate 15 (three miles: exit 216 to exit 219)

This three mile segment of Interstate 15 is a paved road that connects Sieben and Chevallier Drive (exit 216) with Recreation Road (exit 219). At the present time, this is the only public road of any type that connects these two points. This segment was not evaluated due to safety concerns but must be included to maintain continuity between Lincoln Road and Gore Hill. Shoulders are 8-10 feet wide except for a 526 foot bridge segment chokepoint with a 2 foot wide shoulder. The right-of-way is state owned and the annual average daily traffic is 4,190 vehicles per day. The bridge over Little Prickly Pear Creek is a major chokepoint and to avoid this section of highway the old US Highway 91 alignment would need to be used for 0.38 miles.



I-15 bridge chokepoint

Chevallier Drive

This road is a non-interstate, low traffic alternative route connecting Silver City/Lincoln Road to Sieben. The route is 12.9 miles generally following Little Prickly Pear Creek and the Burlington Northern Santa Fe Railway line between Helena and Great Falls. The northern two miles from the Sieben Interchange are paved. The remaining 10.9 miles have a gravel surface. The road is owned by Lewis and Clark County with generally 20-25 feet of right-of-way from centerline (right-of-way will need to be verified with the county). The annual average daily traffic for the road is 40 vehicles per day.



Gravel portion of Chevallier Drive

Interstate 15 (Lincoln Road Interchange to Sieben Interchange)

This is the other public route between Lincoln Road and Sieben. The route is paved with an 8-10 foot shoulder the entire length and the right-of-way is owned by the State of Montana. This route was not evaluated for this study due to safety concerns.



I-15 between Lincoln Road and Sieben

■ Developing Proposed Pathway Configuration Parameters

Study Parameters

The selected criteria include three levels of feasibility. The levels are stretches of road and right-of-way where a separated eight to ten foot trail could be constructed, areas where three to five foot shoulders could be added, and remaining areas where less than three feet of unhindered land is available for trail construction or roadway enhancement. Areas where additional shoulder or a path could be feasible following engineering work were also delineated.

Additional options that were considered include a no build option, instillation of share the road signs, and shoulder paving of less than three feet where geography dictates only a smaller width of pavement can be accommodated. The termini at Gore Hill and Lincoln Road was to remain unchanged. The corridor for analysis was determined to be the canyon containing both Interstate 15 and Recreation Road (frontage road).

Due to the nature of creating a bike path with all user groups in mind, routes within the corridor were narrowed down to the frontage road (Recreation Road) from Gore Hill in Great Falls to its southernmost point at the I-15 exit 219 interchange. Between exit 219 and exit 216 (Sieben), the interstate is the only public road available for consideration. Chevallier Drive from exit 216 (Sieben) south to Lincoln Road remained as an alternative route to I-15 between Lincoln Road and Sieben.

The focus on more direct routes between Helena and Great Falls led to Secondary 330 and routes connecting to and including Montana 200 to Great Falls to be removed from consideration. Analysis on the corridor routes was then performed to evaluate the viability of separated bike path segments or areas where widened shoulders could be implemented.

After the second technical advisory group meeting, segments where a path or widened shoulder were possible were analyzed to identify portions along the corridor that could have independent utility based on the type of infrastructure improvement and the availability of parking areas on both ends or in the middle (especially around towns and

the city of Cascade). The use of independent utility is but one idea for a proposed implementation strategy for a path. Please see independent utility section for more information on this strategy.

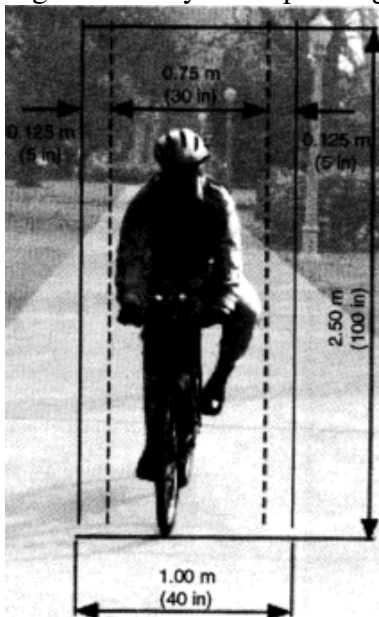
Federal (AASHTO) and State (MDT) Design Recommendations

The American Association of State Highway and Transportation Officials (AASHTO) has created guidelines and definitions concerning bicycle and pedestrian multi-use path construction parameters. While this entity is not the only one to create guides and terminology, it is the one that was used during this study. The Montana Department of Transportation meets or exceeds federal guidelines as conditions allow. Definitions relevant to this study come from the AASHTO publication *Guide for the Development of Bicycle Facilities* and include bicycle paths, bicycle lanes, and shared roadways.

- A bicycle path or shared use path is: A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users.
- A bicycle lane is: A portion of roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.
- Shared roadway: A roadway which is open to both bicycle and motor vehicle travel. This may be an existing roadway, street with wide curb lanes, or road with paved shoulders.

A bicyclist's profile requires a minimum of a 40 inch wide operating space to safely accommodate both vehicle and body. Paved bicycle facilities therefore have a recommended minimum width of four feet.

Figure 9: Bicyclist Operating Space



Source: AASHTO *Guide for the Development of Bicycle Facilities*

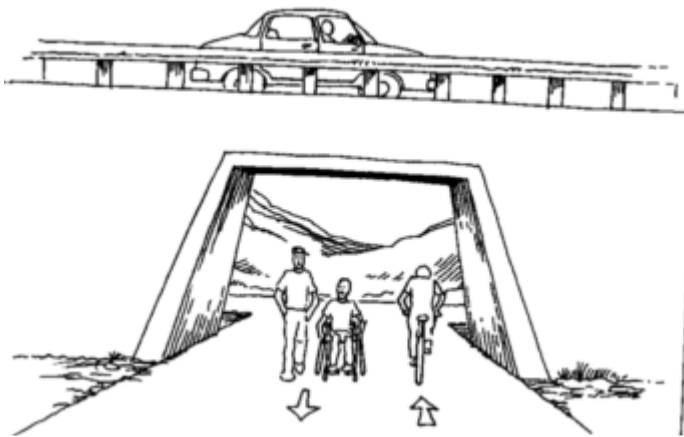
Based on these guidelines, bicycle path width to accommodate two-way traffic is recommended to be five to six feet at minimum, with eight feet the recommended width and ten feet most desirable for separated paths. A four foot buffer distance between the edge of the road pavement and the path's edge is also desirable by MDT.

For separated paths, AASHTO recommends having a two to three foot graded area with a slope no greater than 1:6 on either side of the path. To accommodate bicyclists and pedestrians, a design speed of 20 miles per hour should be used with 30 miles per hours on slopes greater than 4 percent. Avoiding grades over five percent is desirable whenever possible. If a guardrail, fence, or other safety or separation barrier is constructed, its height should be a minimum of 42 inches.

Widening shoulders to better accommodate bicycles and foot traffic should involve a minimum of four feet, and preferably five feet or more, of paved shoulder wherever conditions allow. These recommended widths are the same whether the shoulder is designated and marked as a bicycle lane or unmarked. It is recognized that any added shoulder width is better than none for both non-motorized and vehicular traffic.

The guidelines call for a vertical clearance of ten feet with eight feet as a suggested minimum for tunnels and underpasses and a minimum width of 12 feet.

Figure 10: Bicycle and Pedestrian Underpass



Source: AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities

During a visual inspection of current conditions, bridge underpasses were reported at actual height where posted and clearances greater than ten feet where acquired from the MDT bridge database. Any underpasses with less than ten feet of clearance are recorded at actual height.

A third method that is used when creating or designating bicycle and pedestrian routes is the erecting of “bike route” or “share the road” signage. This option incurs minimal cost but does not expand any existing infrastructure for non-motorized uses. The effectiveness of this technique is limited to informing bicyclists and pedestrians of a preferred route and providing extra notification to motorists that non-motorized users

may be present. Signage of this type may be combined with the creation of a separated path or extended shoulder paving (AASHTO Bicycle and Pedestrian Guides). These numbers are guidelines assuming good construction conditions and may be altered to meet physical and cultural constraints. Even when recommended construction parameters cannot be met, something is better than nothing as far as bicycles and pedestrians are concerned.

This study is evaluating the feasibility of a shared bicycle and pedestrian path. While Americans with Disabilities Act (ADA)-dependent users will not be prohibited, the study findings will consider, but not necessarily be based on, ADA considerations. If a paved bicycle/pedestrian path were to be constructed to current ADA guidelines, the minimum path width would need to be 42 inches to accommodate a wheelchair and slopes should be two to three percent or less and should not exceed five percent to allow wheelchair users to push themselves uphill. ADA compliant paths that are wide enough for single-lane traffic are often constructed with “passing lanes” every so often to allow wheelchair and other users to pass one another while traveling in opposite directions.

Data Sources

■ Creation of the Right-of-way Layer

The right-of-way layer and coordinating data was compiled for each route being studied. Right-of-way location and extent were obtained from the most current right-of-way plans available in MDT's Right-of-way Bureau. Recreation Road (interstate frontage road) required a mixture of original right-of-way plans produced from 1929 to 1931 and an alignment plat from 1922 for unaltered sections of the route alignment, as-built construction plans when original right-of-way plans were unavailable, and interstate plans from 1957, 1960, and 1964 to 1967 where the frontage road was realigned or had right-of-way added due to interstate land acquisition.

In areas where two routes and their right-of-way(s) overlap, the entire right-of-way was included if it was adjacent to the route. Where a frontage road (like Recreation Road) overlaps interstate right-of-way or the old route was realigned and now lies in interstate right-of-way, the combined right-of-way was included in the right-of-way map and data. Total right-of-way in overlapped areas do not guarantee that all right-of-way can be used for the study road, as the interstate or other roads may exist in the combined right-of-way. When right-of-way is interrupted by water and no specific distance from the road centerline is specified on existing maps or deeds, the right-of-way is depicted as following the river's edge based on current riverbank location. The current and past location of river banks may differ owing to shifts in a river's course.

Color aerial National Agriculture Imagery Program (NAIP) photos from 2005 were used to plot the current edge of the river at a scale of 1:1,000 or 1:1,500. Following the water's edge does not preclude the construction or extension of needed infrastructure over water. Certain sections of right-of-way are delineated as following railroad right-of-way. The mapped boundary was created by measuring the line from the rail bed and using the remaining distance between rail and road as the road right-of-way. The railroad information was gathered using the state rail map in conjunction with NAIP imagery.

The right-of-way shapefile was digitized using a combination of steps. The study route was mapped by first using MDT's road database to isolate the complete road. Next, a buffer around the road was created at an estimated average right-of-way distance (60 feet for this route). The buffer was manipulated to show changes in right-of-way distance by measuring the correct distance from the road using the distance measuring tool and repositioning the buffer point at that distance.

Distances and irregular boundary lines are shown as they should appear on a survey. The correct distances are figured by measuring the distance and geographic location of intersection along the road from the section line(s) or from the previous point on the plan, measuring out the correct right-of-way distance, converting to the actual linear distance according to the plan's scale, and measuring actual distances with the measure tool on the computer. Right-of-way for this project and study will also delineate tracts of land that

are currently under state and local government ownership even though they are not strictly part of the road right-of-way.

Right-of-way information for Chevallier Drive is difficult to acquire. As an older Lewis and Clark County road, county records would be required to determine exact right-of-way and ownership. A preliminary search of public records mentions a road twice, but neither document lists right-of-way widths or the exact type of ownership. A more extensive search of the county records will be required if this route is selected and ownership data is required. The Interstate 15 plans show a small portion of the road connecting to the Sieben interchange during realignment. For 700 feet west of the I-15 centerline, the state has right-of-way for a width of 50 feet on either side of the realigned centerline. This plan indicates the previous right-of-way width is 25 feet from centerline within the same area. This study is assuming that the county retains 25 feet from centerline along the entire stretch of Chevallier Drive.

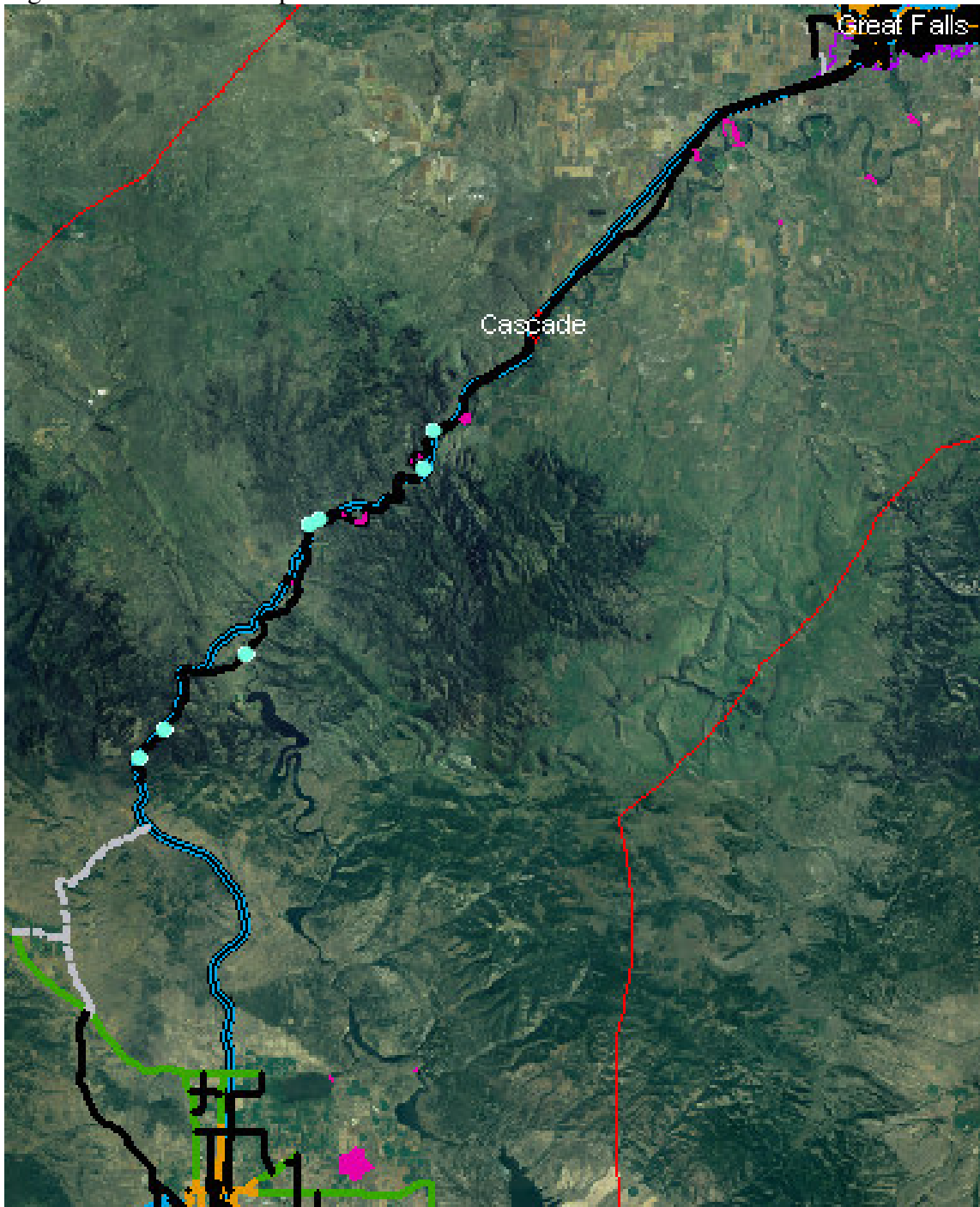
■ **Route considerations**

The Helena to Great Falls corridor includes all roads open to public travel as Montana law gives bicycle riders the right to travel on any public roadway. Pedestrians have the right to travel on any public road as long as there is not a sidewalk or shared use path that permits pedestrians adjacent to the public road.

The northern, mountainous climate and winter weather including snow and ice may make road or path use unsafe or impractical for non-motorized transportation users during parts of the year. Users should be prepared for changing and adverse weather in any month and proper precautions and preparations should be made prior to traveling this corridor or other routes in the state of Montana.

The base map for this phase will include aerial imagery, the corridor boundary, existing state and local roads with surface type, bridges (overpasses and underpasses), fishing access sites, and public toilets.

Figure 8: Final Base Map



- Public Restrooms
- Fishing Access Sites
- Paved Roads
- Unpaved Roads
- NHS Interstate
- NHS Non-Interstate
- Primary
- Secondary
- Urban
- Study Boundary
- City Boundaries

■ Physical Conditions

Road Grades

Steeper road grades exist within the study corridor along the interstate. A section of freeway north of the Lincoln Road/Secondary 279 exit has a grade over seven percent.

Bridges

Bridges can affect the feasibility of creating a non-motorized path due to their design characteristics. Underpass bridges were analyzed and inspected to include overhead clearance, paved shoulder width, presence of guardrails, and distance from roadbed to support pillars or earthen embankments. Overpass bridges were inventoried to include location, shoulder width, presence of an edge barrier, land between pavement and bridge edge (if applicable), presence of guardrails extending beyond the bridge deck, bridge deck length for longer bridges, and the material used and river/stream name when easily discernable.

Visual verification of bridges along study routes was completed as a supplement to available MDT bridge data. Bridges located on routes within the study boundary and previously removed from consideration are not included on maps or in data tables. Interstate Bridges were analyzed using department bridge data and visual images from the Image Viewer system.

The frontage road route from the Spring Creek interchange (I-15 exit 219) to the Gore Hill interchange goes by several names along its length. From south to north, those names are: Recreation Road, Old Highway 91, Montana Highway 68/1st Street (in Cascade), Frontage Road, Secondary 330, Ulm North Frontage Road.

An inventory of bridges and their condition includes (list is in order from Helena towards Great Falls):

Chart 1: Interstate Frontage Road-Helena to Great Falls (Recreation Road)

Route Name	Shoulder (feet)	Clearance Under (feet/inch)	Bridge Deck Width	Side Room (feet)	Railing/ Guardrail	Crossing Type	Material Type
Recreation Road	1		22	0		Sheep Creek	
Recreation	0		21.1	0		cattle	
Recreation	0		21.5	0		cattle	
Recreation	0	15'	20	0	Yes	Missouri River	metal
Recreation	0		21.5	0		cattle	
Recreation	0		21	0		cattle	
Recreation	1		21.2	0		cattle	
Recreation	0		20.4	0		Wegner Creek	stone
Recreation	1	13'8"		5	Yes	Under I-15	concrete
Recreation	1		28	1-2		Stickney Creek	
Recreation	3	15'3"		0	Yes	Under I-15	concrete
Old Hwy. 91	1	16'7"			Yes	Under I-15	concrete
Old 91	0	13'9"	19.8	0	Yes	Missouri River	metal
Old 91	0		22	0		Prewett Creek	stone
Old 91	3	14'10"			Yes	Under I-15	concrete
Frontage Road	1	14'2"		5	Yes	Under I-15	concrete
Frontage	3	15'11"		8-10	Yes	Under I-15	concrete
Frontage	0		20	0		Little Muddy Creek	
Frontage	0		20.34	0		creek	
S-330	1	14'6"		8	Yes	Under I-15	concrete

Chart 2: Chevallier Drive-Silver City to Sieben

Route Name	Shoulder (feet)	Clearance Under (feet/inch)	Bridge Deck Width	Side Room (feet)	Railing/ Guardrail	Crossing Type	Material Type
Chevallier Drive	0	12'3"	4.785	0	Yes	Little Prickly Pear Cr.	metal/wood & metal deck
Chevallier	0		4.846	0	Yes	Little Prickly Pear Cr.	metal/wood deck

Chart 3: Interstate 15-Helena to Recreation Road

Route Name	Shoulder (feet)	Clearance Under (feet/inch)	Bridge Deck Width	Side Room (feet)	Railing/ Guardrail	Crossing Type	Material Type
I-15		17'9"			Yes	Under Lincoln Road	
I-15			38		Yes	Over Gates of the Mountains	
I-15			38		Yes	Over Sieben Interchange	
I-15	1-2		28.5		Yes	Over Little Prickly Pear Creek	concrete
I-15		17'5"			Yes	Under Gore Hill	
I-15			29.5		Yes	Recreation Rd./BNSF	

The frontage road between I-15 exit 219 and Gore Hill has a total of 20 bridges along its length. Seven of these bridges are interstate overpasses. The remaining bridges are at-grade crossings over rivers or cattle paths.

Chevallier Drive has two one-lane bridges spanning the Little Prickly Pear Creek and three at-grade rail crossings. Both bridges have a metal frame with the northern one having a wooden deck and the southern one featuring a wood deck with metal tire plates. The rail line is currently being used for railcar storage and not through traffic.

Roadway Characteristics

Other data on the study routes is available in Appendix 5 (Route Data) and was developed using MDT's Road Log system. This system provides information on reference points, departmental route numbers, pavement type, number of lanes, surface width, estimated shoulder width, and traffic volumes. Shoulder width is estimated based on design criteria for different width roadways and may not accurately reflect all points along a road. Shoulder widths were checked in the field or using MDT's image viewer

system. All of this information is broken down into segments based on major changes in one or more data points.

Chevallier Drive is unpaved for the majority of its length except for the far northern end extending southwest from the Sieben interchange. Heading south towards Lincoln Road and Silver City, the first 0.18 miles are paved and striped. The road is hard-surfaced for the next 1.964 miles before turning to gravel/dirt. A total of 1.982 miles of the 12.86 mile road is surfaced. There are two bridges and three at-grade railway crossings along its length.

Future Conditions

There are two known upcoming projects that will be occurring within public right-of-way between Cascade and Ulm. The first is in Cascade and consists of rebuilding or enhancing the existing roadway facilities. Certain sections are proposed for widening of the driving and parking lanes and new curbs and gutters along with sidewalks will be installed on various blocks depending on roadway characteristics and the need for ADA accessible facilities. The installation of rumble strips has been proposed for the rural sections outside of the city limits in addition to widening the driving lane and adding two foot paved shoulders. The Cascade project’s construction is estimated to be completed in 2011 or early 2012.

The second project is for a plastic natural gas main within the right-of-way between Cascade and Ulm. This main is largely to be constructed on the southeast side of the frontage road by the end of 2008 or during 2009. The pipe will be located between the existing paved Joe’s Trail bicycle path (addressed further in the following section of the report) and the roadway or at the outer edge of the right-of-way. This main will not prohibit the instillation of any future bicycle and pedestrian path or change preferred routing or design features for a path. A path of any material (including pavement) may be installed above the gas main anywhere along its length.

■ Operational Conditions

Annual average daily traffic (AADT) for the study routes varies greatly between the different types of roads and along different stretches of highway. AADT counts are broken down by route or route segment as follows (all routes are listed from Helena towards Great Falls):

Chart 4: AADT

Route Name	Segment Location	AADT
Recreation Road	I-15 Exit 219-Beartooth Rd.	330
Recreation Road	Beartooth Road to Craig	750
Recreation Road	Craig to Hardy	320
Frontage Road	Hardy to Cascade	No data available
Montana 68 (in Cascade)	Cascade	990
Frontage Road	Cascade to Ulm	No data available

Secondary 330	Ulm	220
Ulm North Frontage Road	Ulm to Gore Hill	No data available
Chevallier Drive	Silver City to Sieben	40
Interstate 15	Lincoln Rd. Jct. to Ulm Jct.	4190

Route Communities

There are multiple small cities and towns along the study routes which create more urban conditions and route options for non-motorized transportation users. Increased localized population will create more traffic in the community area as well as more potential users of a path and services and amenities for persons traveling the path. Of the seven communities between the Lincoln Road interchange and Gore Hill, one is an incorporated city and the rest are unincorporated towns. Five of these towns are not reflected in census population data and the remaining one is reported as a census designated place. The most current 2007 population estimates were used for all communities within the corridor except for Ulm which only has a 2000 population figure.

Chart 5: Community Populations

Community Name	Population
City of Cascade	772
Ulm	750 (2000)
City of Helena	28,726
City of Great Falls	58,827
Lewis and Clark County	59,998
Cascade County	81,775

Communities without reported population numbers include: Craig, Dearborn, Mid-Canon, Wolf Creek, Hardy. Population and the street grid are not the only factors that can affect route choices and function within corridor communities. The configuration parameters developed for this study are used to evaluate urban route options. Along Chevallier Road, Sieben is a ranch and Silver City is unincorporated. Neither place has a reported population (Census). Lewis and Clark County and Cascade County populations are included as the host counties for this study and their respective population estimates are 59,998 for Lewis and Clark and 81,775 for Cascade County.

■ Safety Conditions

A map of reported vehicle crash locations along each route shows a relatively low reported accident rate for non-interstate routes with a few cluster areas. The area around Wolf Creek Bridge, north of Craig, in Cascade, and in Ulm have the highest concentrations of wrecks along Recreation Road. The majority of crashes occurred on I-15 with large concentrations on the pass north of the Helena valley and the curvy section

containing the narrow bridge south of the Recreation Road interchange (exit 219). All crashes shown span three years of data from 2005 to 2007.

Chevallier Drive has the lowest crash numbers with three total and an average of one per year. Interstate 15 between exits 200 (Lincoln Road) and exit 219 (Recreation Road) had 87 wrecks over three years for an average of 29 per year. The three mile segment of I-15 between exits 216 and 219 saw 27 accidents for 9 per year. Recreation Road was broken into two segments with Montana 68 through Cascade as a separately reported road. Montana 68 had five incidents for an average of one and two thirds per year. The rest of the frontage road (Recreation Road) saw 43 total crashes for fourteen and one third per year. None of the vehicle crashes along any of the study routes involved bicyclists or pedestrians. All crash locations can be seen in Appendix 4.

■ Bicycle and Pedestrian Facilities

Limited bicycle and pedestrian facilities do exist along analyzed routes within the corridor. There are four segments of infrastructure-two mixed-use paths and two sidewalks.

Joe's Trail on Frontage Road

Two segments of a shared use path referred to as Joe's Trail currently exist between the communities of Cascade and Ulm. The trail segments exist on the east side of Frontage Road between the road and the rail bed. The portion that extends northeast from Cascade's city limits towards Ulm is paved, eight feet wide, signed, and extends for 1.79 miles. Both endpoints have parking and easy road access. The Ulm section has a gravel surface and extends 1.86 miles southwest from the first commercial building on the western edge of town. Signage in Ulm has the bike/pedestrian path on gravel and horses/other transportation methods on grass separated from the gravel path. Ulm also has a 345 foot long concrete sidewalk in town on the west side of Secondary 330 under I-15. Sidewalks also exist on one or both sides of Montana 68/1st Street within the city limits of Cascade.

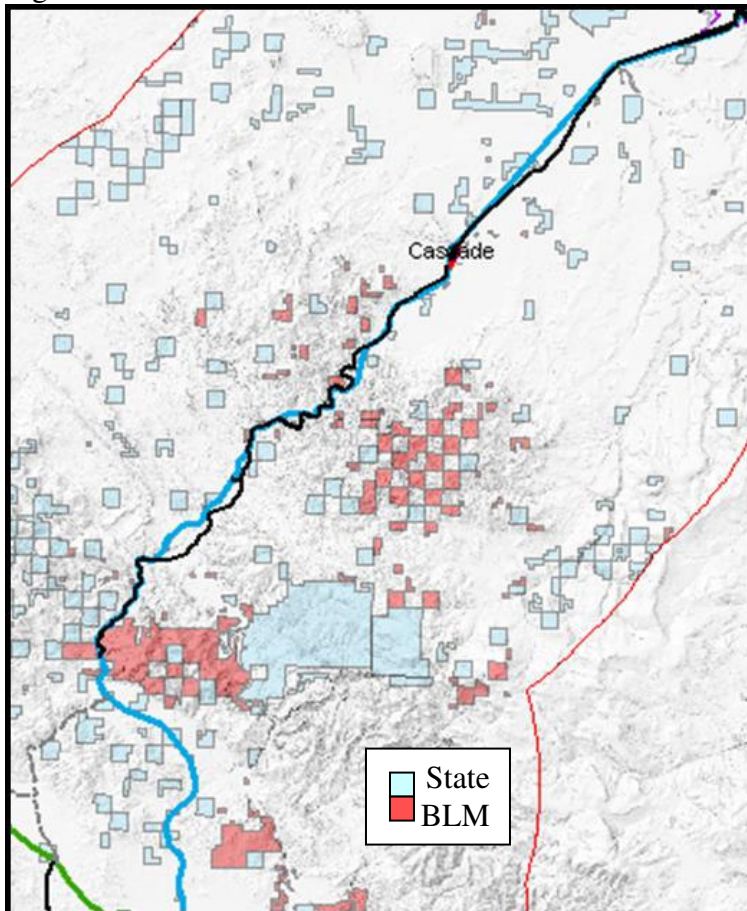
Joe's Trail has a motto of "Joe's Trail-*Blazing a Trail from Cascade to Ulm,*" and a mission statement that proclaims "To develop a safe, off-road trail as an alternative mode of travel and recreation for bicyclists and pedestrians" (Cascade Montana).

The listed segments of preexisting bicycle/pedestrian infrastructure do not include infrastructure between the study termini and destination cities. Examples of facilities not included are the bicycle path and sidewalk segments alongside North Montana Avenue between the Helena city limits and Lincoln Road and a path that runs west from that intersection along Lincoln Road to Applegate Drive. This segment along Lincoln Road includes a four foot wide bicycle/pedestrian bridge and a signed roadway crossing.

■ Public Lands

Public Lands along the corridor have been mapped and their ownership data obtained through cadastral mapping from the State of Montana. With the land ownership requirements of this study being state and local government property; only state, county, and existing right-of-way land is being analyzed. Using existing road right-of-way and public lands decreases the cost associated with implementing an infrastructure project, reduces the time and labor necessary to begin construction, and could make a proposed project more feasible. Only five percent of the Recreation Road right-of-way abuts public land.

Figure 11: Public Lands



Environmental Scan

Land Use

A path or widened shoulder along the corridor as analyzed in this study will remain within public right-of-way and not adversely affect neighboring or existing land uses. Land uses outside the right-of-way area are primarily agricultural, open land, railroad, and rural residential. Route sections within urban areas (Wolf Creek, Cascade, and Ulm) will remain within the right-of-way and not negatively affect the surrounding homes and businesses.

Farm Land

Farm land impacts are not of concern under the scope of this study as a bike path or route will remain on public land. Some ranch land exists outside the right-of-way but does not encroach upon public land. A bicycle/pedestrian path will not have adverse effects on surrounding agricultural land. If the study parameters were to be expanded to include either private land or non-right-of-way land, potential farmland impacts might need to be analyzed to ensure compliance with the Farmland Protection Policy Act of 1981. This act is designed 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.”

Information was obtained on soils to determine the presence of prime and unique farmland in the study area. A soil survey is available for many areas along the proposed route. Information regarding areas of prime farmland in the corridor area was compiled from the Natural Resource Conservation Service (NRCS). Project activities associated with the construction of a bicycle/pedestrian path may create impacts to the soil map units with prime and important farmland status, and an AD-1006 Farmland Conversion Impact Rating Form from NRCS may need to be completed. Soil map units found within the project area have been classified as prime and important farmlands.

Social Implications

A bicycle and pedestrian facility will provide exercise, recreation, and entertainment for residents and visitors to the corridor. The likelihood of social interactions will increase along the route especially in and around communities along the way. The potential will exist for residents of Ulm and Great Falls to commute by bicycle to the other community.

Relocation

Any improvements for non-motorized traffic within the corridor will remain in the public domain, work with the existing terrain, and not require any relocation of people or private structures. No additional land will be required based on the parameters of this study.

Pedestrian and Bicycle Considerations

The nature of any study area project will be for the direct benefit of bicyclists and pedestrians. This study will work with existing infrastructure to expand opportunities and safety for this user group. Improved route and travel options will positively benefit the bicycle and pedestrian community.

Air Quality

Post construction, a path or widened shoulder will have no negative impact on air quality along the study corridor. Some impact could occur if path users drive to and from their starting point for partial use of the trail. Any increased use by non-motorized transportation-especially in and around communities-will help improve air quality by providing an alternative to vehicle use for trips.

Noise

The path itself will have no adverse noise affects as bicycles and humans are quiet compared to vehicles on the road. Any reduced vehicle use as a result of a path will lower noise generated along the route.

Water Quality

The study area overlies the Madison Aquifer, which is the largest artesian aquifer in the United States. The Madison Aquifer consists of limestone and dolomite of the Lodgepole and Mission Canyon formations of the Mississippian age Madison Group. All proposed projects receiving federal funds are subject to review to ensure they do not endanger this water source.

Cascade County and Lewis and Clark County currently do not have Local Water Quality Districts. If these districts were to be established, they would act to protect, preserve, and improve the quality of surface water and groundwater within the district. Each district would be formed pursuant to 701304501 et. Seq., MCA by the respective county government. Montana Department of Environmental Quality (DEQ) provides support to district programs, but does not have an active management role in their activities. Districts serve as local government districts with a governing board of directors and funding obtained from fees collected annually with county taxes. A significant component of selected district programs is the ability to participate in the enforcement of the Montana Water Quality Act and related rules. In the event a district was to be created prior to path construction, any new local rules would need to be followed in addition to applicable state and federal requirements.

Permits

Entities sponsoring projects will be responsible for all permits, authorizations, and environmental clearances for the project. The required permits and authorizations are

dependant on the impacts to the various resources, source of funding, and the project sponsor (private, local, state, or federal government).

The project sponsor must contact the various local, state, and federal agencies with jurisdiction over resources to determine the appropriate permit or authorization necessary. Listed below are the resources that may require permits and some of the agencies to contact for verification.

Wetlands, water bodies, streams, rivers, and irrigation ditches.

- Montana Department of Environmental Quality
- Montana Department of Fish Wildlife & Parks
- Montana Department of Natural Resources
- U.S. Army Corps of Engineers

Stormwater

- Montana Department of Environmental Quality
- Local Government

Historic Properties

- Montana State Historic Preservation Office

Roadways

- Montana Department of Transportation
- Local Road Department

Wetland Impacts

The U.S. Army Corps of Engineers (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, and similar areas.

The study area encompasses portions of the Missouri River, Prickly Pear Creek, several tributaries, and irrigation ditches which all have wetland areas associated with them. Wetland areas were identified along Prickly Pear Creek, the Missouri River, and several other spots along the proposed project. Potential wetlands were identified using maps and windshield observations. Formal wetland delineations and wetland jurisdictional determination will be conducted according to standard USACE defined procedures during the National Environmental Policy Act (NEPA) process.

Wetland impacts will be avoided to the greatest extent practicable. All unavoidable wetland impacts will be mitigated according to Federal Highway Administration (FHWA) and MDT policies, and in accordance with consultation with USACE.

Water Body Modification and Wildlife

Biological Resources

Biological resources in the study area were identified using maps; aerial photographs; the endangered, threatened, proposed, and candidate species list for Montana counties (March 2008) from the U.S. Fish and Wildlife Service; Montana Natural Heritage Program data; and windshield surveys of the project site. A complete biological survey of the study area will be done in accordance with accepted MDT practices during the NEPA process.

General Fish and Wildlife

The Missouri River, Prickly Pear Creek, and their associated riparian and river habitats should be avoided to the greatest extent practicable. Fish and wildlife species use the Missouri River corridor during all life stages. Encroachment into the wetted width of the river and the associated riparian habitat should be avoided. Prickly Pear Creek is an important spawning tributary of the Missouri and should not be impacted. Montana Fish, Wildlife, and Parks should be involved during the design stage for their local expertise within the study corridor.

If any fencing will be used in association with the proposed project it should be wildlife friendly fencing so that no wildlife migration will be impacted. Any proposed stream crossings should span the ordinary high water mark so that fish passage is perpetuated throughout the proposed project.

Vegetation

Native vegetation in the study area generally consists of wetlands and riparian forests along the Missouri River, Prickly Pear Creek, and the many tributaries to the Missouri River. The remaining vegetation primarily consists of cultivated crop land.

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. There are 27 noxious weeds in Montana, as designated by the Montana Statewide Noxious Weed List. The study area will be surveyed for noxious weeds during the NEPA process prior to path implementation.

To reduce the spread and establishment of noxious weeds and to re-establish permanent vegetation, disturbed areas will be seeded with desirable plant species as recommended by the MDT Reclamation specialist.

Construction activities in the Study Area should also abide by the MDT “Roadside Vegetation Management Plan – Integrated Weed Management Component” produced in

April of 2006. Path work should also be coordinated with the weed control supervisors of each county.

Surface Water

The Missouri River flows along the study corridor. There are many tributaries to the Missouri River within the canyon including Little Prickly Pear Creek.

The project area travels through the Missouri-Sun-Smith Watershed (Hydrologic Unit Code: 10030102). Information on the Missouri River and its tributaries within the study area was obtained from the Montana DEQ website. Section 303, subsection “d” of the Clean Water Act requires the State of Montana to develop a list, subject to U.S. EPA approval, of water bodies that do not meet water quality standards. When water quality fails to meet state water quality standards, Montana DEQ determines the causes and sources of pollutants in a sub-basin assessment and sets maximum pollutant levels, called total maximum daily loads (TMDL’s).

A TMDL sets maximum pollutant levels allowed in a watershed. The TMDL’s become the basis for implementation plans to restore the water quality to a level that supports its designated beneficial uses. The implementation plans identify and describe pollutant controls and management measures to be undertaken (such as best management practices), the mechanisms by which the selected measures would be put into action, and the individuals and entities responsible for implementation projects.

The Missouri-Sun-Smith watershed is listed in the 2006 Integrated 303(d)/305(b) Water Quality Report for Montana by DEQ. The water bodies within the Missouri-Sun-Smith Watershed that are located in the study area are all Category 5 water bodies. Category 5 water bodies are waters where one or more applicable beneficial use has been assessed as being impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat. No TMDL’s have yet been written for water bodies in this watershed. According to Appendix F of the Water Quality Report, the Missouri-Sun-Smith Watershed TMDL’s are under development and their expected completion is between 2007 and 2009. When TMDL’s are prepared and implementation plans are in place, any construction practices would have to comply with the requirements set forth in the plan.

Section 303(d) listed water bodies within the Missouri-Sun-Smith Watershed that are located in the study area are:

- Missouri River (Holter Dam to Little Prickly Pear Creek)
- Missouri River (Little Prickly Pear Creek to Sheep Creek)
- Missouri River (Sheep Creek to the Sun River)
- Little Prickly Pear Creek (North and South Forks to Clark Creek)
- Little Prickly Pear Creek (Clark Creek to the mouth of the Missouri River)

Floodplain

Federal Emergency Management Agency (FEMA) maps from 1985 (some revised in 2002) are available for portions of Lewis and Clark County and Cascade County. A review of Montana's floodplain mapping was completed using FEMA's Map Service Center website (FEMA). This review identified Federal Insurance Rate Maps (FIRM's) which referenced sites within the proposed project.

FEMA has delineated 100-year floodplains for the Missouri River within the corridor. The county floodplain ordinances regulate the 100-year floodplains in Lewis and Clark County and Cascade County. A permit is required for development activities within a floodplain, including the instillation of buildings, bridges, culverts, wells, fill, or any other alteration of the 100-year floodplain.

Executive Order (EO) 11988, Floodplain Management, requires federal agencies to avoid direct or indirect support of floodplain development whenever a practicable alternative exists. EO 11988 and 23 CFR 650 Part A requires an evaluation of project alternatives to determine the extent of any encroachment into the base floodplain. The base flood (100-year flood) is the regulatory standard used by federal agencies and most states to administer floodplain management programs. A "floodplain" is defined as lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, with a one percent or greater chance of flooding in a given year. As described in the Federal Highway Administration's floodplain regulation (23 CFR 650 Part A), floodplains provide natural and beneficial values serving as areas for fish, wildlife, plants, open space, natural flood moderation, water quality maintenance, and groundwater recharge.

Wild and Scenic Rivers

No wild and scenic rivers lie within the study corridor. The portion of the Missouri River that is a wild and scenic river lies to the northeast of Great Falls. A bicycle and pedestrian path from Helena to Great Falls will not affect any protected river.

Threatened or Endangered Species

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. There are no endangered, threatened, proposed, or candidate plant species listed for Cascade County or Lewis and Clark County, and none are currently expected to occur in the project area.

Montana 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. Designation of a species as a Montana Plant Species of Concern is not a statutory or regulatory classification. 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 (not rankable 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).

Chart 5 lists the plant species of concern that the Montana Heritage Program has records of in Cascade County and Chart 6 lists the species of concern in Lewis and Clark County. The results from the Montana Natural Heritage Program reflect the current status of their data collection efforts. An on-site survey would be completed prior to path construction.

Chart 5: Montana Plant Species of Concern in Cascade County

Scientific Name	Common Name	State Rank
<i>Entosthodon rubiginosus</i>	---	SH
<i>Funaria Americana</i>	---	SH
<i>Cirsium longistylum</i>	Long-styled Thistle	S3
<i>Psilocarphus brevissimus</i>	Dwarf Woolly-heads	S1
<i>Chenopodium subglabrum</i>	Smooth Goosefoot	S1
<i>Elatine californica</i>	California Waterwort	SU
<i>Psoralea hypogaea</i>	Little Indian Breadroot	S2S3
<i>Phlox kelseyi</i> var. <i>missoulensis</i>	Missoula Phlox	S2
<i>Centunculus minimus</i>	Chaffweed	S2
<i>Bacopa rotundifolia</i>	Roundleaf Water-hyssop	S1
<i>Mimulus ringens</i>	Square-stem Monkeyflower	S1
<i>Carex crawei</i>	Crawe's Sedge	S2
<i>Carex sychnocephala</i>	Many-headed Sedge	S1
<i>Cyperus schweinitzii</i>	Schweinitz' Flatsedge	S2
<i>Eleocharis rostellata</i>	Beaked Spikerush	S2
<i>Juncus hallii</i>	Hall's Rush	S2
<i>Najas guadalupensis</i>	Guadalupe Water-nymph	S1
<i>Goodyera repens</i>	Northern Rattlesnake- plantain	S2S3
<i>Elymus innovatus</i>	Northern Wild-rye	S1

Chart 6: Montana Plant Species of Concern in Lewis and Clark County

Scientific Name	Common Name	State Rank
<i>Scorpidium scorpioides</i>	---	S2
<i>Sphagnum fimbriatum</i>	Fringed Bog Moss	S1
<i>Tetraplodon angustatus</i>	---	S1
<i>Tetraplodon mnioides</i>	---	S1
<i>Cirsium longistylum</i>	Long-styled Thistle	S3
<i>Erigeron lackschewitzii</i>	Lackschewitz' Fleabane	S2
<i>Saussurea densa</i>	Dwarf Saw-wort	S1S2

<i>Cardamine rupicola</i>	Cliff Toothwort	S3
<i>Draba densifolia</i>	Dense-leaf Draba	S2
<i>Lesquerella klausii</i>	Divide Bladderpod	S3
<i>Downingia laeta</i>	Great Basin Downingia	S1
<i>Atriplex truncate</i>	Wedge-leaved Saltbush	S1
<i>Drosera anglica</i>	English Sundew	S2S3
<i>Drosera linearis</i>	Linear-leaved Sundew	S1
<i>Astragalus convallarius</i>	Lesser Rushy Milkvetch	S2
<i>Gentianopsis macounii</i>	Macoun's Gentian	S1
<i>Polygonum austiniiae</i>	Austin's Knotweed	S2S3
<i>Phlox kelseyi</i> var. <i>missoulensis</i>	Missoula Phlox	S2
<i>Potentilla quinquefolia</i>	Five-leaf Cinquefoil	S1
<i>Mimulus suksdorfii</i>	Suksdorf Monkeyflower	S3
<i>Carex livida</i>	Pale Sedge	S3
<i>Eleocharis rostellata</i>	Beaked Spikerush	S2
<i>Scirpus subterminalis</i>	Water Bulrush	S2
<i>Amerorchis rotundifolia</i>	Round-leaved Orchis	S2S3
<i>Cypripedium parviflorum</i>	Small Yellow Lady's-slipper	S3
<i>Cypripedium passerinum</i>	Sparrow's-egg Lady's-slipper	S2
<i>Epipactis gigantea</i>	Giant Helleborine	S2
<i>Botrychium ascendens</i>	Upward-lobed Moonwort	S1S2

Historic and Archeological Preservation

Sieben Ranch (24LC692)

Former American Fur Company trader Malcolm Clarke established the ranch in 1864. It was strategically located just south of the head of Wolf Creek Canyon on the Mullan Military Road (later the Benton Road). Clarke was killed by some Blackfeet in 1869 and the ranch was sold to a succession of owners until about 1900 when Henry Sieben purchased it. His descendants (now the Baucus family) still own the ranch, which includes several historic buildings.

Recreation Road/Old US Highway 91 (unrecorded historic district)

The historic road segment begins at I-15 exit 219 and proceeds to the northwest approximately 51 miles to the I-15 interchange in Ulm (exit 270). The road consists of a two-lane facility that was constructed between 1930 and 1933. Interstate 15 was built as a bypass between 1965 and 1972. Recreation Road is a nearly pristine example of a Great Depression era roadway that has not been significantly altered since its construction.

Although not evaluated for its National Register of Historic Places eligibility, it would qualify for the National Register under Criteria A and C. Criteria A is for properties associated with events that have made a significant contribution to the broad patterns of U.S. history. Criteria C is for properties that embody the distinctive characteristics of a type, period, or method of construction or represents the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity whose components lack individual distinction. There are nine historic bridges that are part of the roadway. All of them would contribute to the historic roadway designation and two are independently eligible for the National Register. The historic bridges from south to north are:

- Sheep Creek Bridge (24LC1157)
 - Timber Bridge (24LC381)
 - Missouri River Bridge (24LC131)*
 - Timber Bridge (unrecorded)
 - Timber Bridge (Unrecorded)
 - Wegner Creek Bridge (24LC133)
 - Novak Creek Bridge (24CA394)
 - Prewett Creek Bridge (24CA642)
 - Hardy Bridge (24CA389)*
- *independently eligible bridges

Other historic features likely exist that are not discernable through a windshield survey. Possibilities include retaining walls and other as yet unknown features that would contribute to the roadway's historic significance.

Wolf Creek Canyon (historically Prickly Pear Canyon) itself is an historic travel corridor that began in 1860 when Lieutenant John Mullan constructed a road between Walla Walla, Washington and Fort Benton, Montana. A toll road also traversed the canyon from 1864 to 1872 and, thereafter, the Benton Road passed through. A county-built and maintained road was also constructed through the canyon circa 1890. There are segments of historic roadway remaining in the canyon adjacent to the existing Recreation Road.

Along with the Recreation Road/US Highway 91, the Montana Central Railroad (unrecorded) parallels the roadway for its entire length. The railroad was constructed in 1887 and acquired by the Great Northern Railway in 1907.

There is also an unrecorded charcoal kiln located in the canyon adjacent to the Recreation Road about three miles south of Wolf Creek on the east side of the roadway. Three communities and one park along the route contain historic properties. These properties by area from south to north include:

Wolf Creek

- Historic Service Station and Tourist Cabins (Montana River Outfitters/unrecorded)
- Oasis Bar and Cafe
- Frenchy's Motel and Tourist Cabins (unrecorded)

Hardy

- Residence (27 Willington Lane)
- Residence (2608 Old US Highway 91)

Tower Rock (24CA643)

This site is listed on the National Register of Historic Places and is now a Montana Fish, Wildlife, and Parks state park.

Ulm

- Residence (4 Old US Highway 91)
- Residence (14 Old US Highway 91)
- Residence (34 Old US Highway 91)
- Residence (2 Lake Street)
- Residence (46 Old US Highway 91)
- Residence (3 Old US Highway 91)
- Residence (11 1st Avenue)
- Residence (5 Collins Road)
- Residence (7 Collins Road)
- Residence (8 Collins Road)
- Residence (18 Collins Road)
- Residence (22 Collins Road)
- Residence (24 Collins Road)
- Residence (25 Collins Road)
- Residence (32 Collins Road)
- The Supper Club/Restaurant on Ulm North Frontage Road is also likely of historic age)

Hazardous Waste and Material Sites

A search for hazardous or contaminated sites in the vicinity of the study area was performed using the Montana Natural Resource Information System (NRIS) database. The types of sites researched included underground storage tanks (UST), leaking underground storage tanks (LUST), abandoned mines, remediation response sites, landfills, National Priority List/Superfund (NPL) sites, and Toxic Release Inventory (TRI) sites. The search results have been summarized below.

UST Sites

There were approximately 149 Underground Storage Tanks identified in the vicinity of the study area. These UST sites are located at a variety of properties including single-family residences; farms; ranches; private businesses; commercial fueling facilities; and city, county, state, and federal facilities. The USTs are primarily used to store gasoline, diesel, and heating oil. The tanks range in size from small residential heating oil tanks to large tanks associated with commercial fueling facilities. The majority of these sites are located in the communities of Wolf Creek, Craig, Cascade, and Ulm.

LUST Sites

Approximately 32 of the previously discussed UST sites have leaked. These leaks range in size from small spills that are easily cleaned up to large-scale releases that involve subsurface investigations and cleanup activities.

Abandoned Mines

Approximately 22 abandoned mine sites were identified in the vicinity of the study area. These mine sites are identified as quarries, placer mines, underground or surface mines, mines/mills, or coal inventory sites. The extent of the mines and/or prospects associated with these sites is unknown.

Remediation Response Sites

Two remediation response sites were identified in the vicinity of the northern terminus of the study area. Both sites are located at the Montana Air National Guard (MANG) facility which is adjacent to Great Falls International Airport (IAP).

The first site involves historic waste disposal practices at Great Falls IAP. Subsurface contaminants at this site include petroleum hydrocarbons, volatile organic compounds (VOC's), chlorinated hydrocarbons, polycyclic aromatic hydrocarbons (PAH's), and metals. The Department of Defense (DoD) is conducting ongoing investigation and cleanup activities at this facility.

The second site involved a spill of approximately 380 gallons of diesel fuel in 1991. The contaminated soils associated with this spill were excavated and land farmed at the MANG facility. The cleanup at this site was completed in 1994 and the Montana Department of Environmental Quality (DEQ) issued a No Further Action letter and delisted the site from the state's Comprehensive Environmental Cleanup and Responsibility Act (CECRA) priority list.

Landfills

The Ulm landfill was the only one identified and was located approximately one mile northeast of Ulm. According to the NRIS database, this landfill was closed in 1993.

No National Priority List (Superfund) or Toxic Release Inventory sites were found in the vicinity of the study area.

It is unlikely that contaminants from any of these sites would be encountered during construction of a bicycle/pedestrian path due to the limited footprint and excavation depths of a trail. There may be a need to further evaluate specific sites for determining possible hazardous materials involvement when designing a path.

Visual

This project will be at ground level and will not add any horizontal sight disruptions. A path would be a ribbon of asphalt within the right-of-way and might be visible when traversing undulating terrain. A widened shoulder would just add to existing roadway by a few feet.

Energy

Energy and fuel would be required while installing a path or shoulder. This facility would neither create nor consume energy once construction is complete. Any trips that will be taken on new facilities by bicycle or non-motorized transportation in lieu of driving will reduce energy use.

Construction

Path construction would involve work in the right-of-way but off the roadway. Shoulder work will cause more of a disruption but could be done one side at a time to minimize motorist delays. Work will be of a much smaller scale than that required of road building. Some grading and earthmoving may be involved but the effects will be minimal.

Section 4(f) and 6(f) properties

A review of the corridor was conducted to determine the presence of Section 4(f) and Section 6(f) properties within the vicinity of the frontage road. These properties could include parks and recreation land, historic properties or land, or National Land and Water Conservation Fund funded areas. Properties analyzed were fishing access sites near, or adjacent to, the right-of-way but not on land impacted by this study. Of the 18 sites, 11 are affected. None of these sites are directly affected under the parameters of this study. The proximity of a bicycle/pedestrian path to a subject site should enhance-not detract-from the recreational nature or public, outdoor recreational use of these fishing areas.

Section 4(f) refers to the original section within the Department of Transportation Act of 1966 (49 U.S.C. 303), 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, the Federal Highway Administration (FHWA) must find that there is no prudent or feasible alternative that completely avoids 4(f) resources. “Use” can occur when land is permanently incorporated into a transportation facility or when there is a temporary occupancy of the land that is adverse to a 4(f) resource. Constructive “use” can also 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”.

Section 6(f) of the Land and Water Conservation Funds Act (LWCF) applies to all projects that impact recreational lands purchased 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 than public, outdoor recreational use. A path in the vicinity of these lands should not affect LWCF status or require federal approval.

Chart 7: Recreation Road Fishing Access Sites with LWCF Funding

Site Name	LWCF Number	Section 6(f) Site
Prickly Pear FAS	30-00126	Yes
Lichen Cliff FAS	--	No
Table Rock FAS	--	No
Wolf Creek Bridge FAS	30-00126	Yes
Craig FAS	30-00126	Yes
Stickney Creek FAS	30-00126	Yes
Spite Hill FAS	30-00126	Yes
Dearborn FAS	30-00126	Yes
Eagle Island FAS	--	No
Mid Canon FAS	30-00126	Yes
Devil's Kitchen FAS	--	No
Mountain Palace FAS	30-00126	Yes
Hardy Bridge FAS	30-00126	Yes
Prewett Creek FAS	30-00126	Yes
Pelican Point FAS	30-00607	Yes
Wing Dam FAS	--	No
Dunes FAS	--	No
Ulm Bridge FAS	--	No

Utilities

Utilities in the Helena to Great Falls bicycle and pedestrian path study area include telephone, electricity, and some natural gas. Location and type of utility was gathered through windshield surveys by MDT planning and utility staff. Electricity and/or telephone poles and lines are prevalent along the corridor. These poles should not constitute a hazard or hindrance to path implementation. They are located in areas outside the right-of-way, areas not suitable for path construction, or areas where a path could negotiate around or between poles. Some wires and cables are buried at a depth and/or location where a path would not affect them. The respective utility companies need to be contacted if moving or altering any poles is required prior to construction. A buried natural gas transmission line also occurs in two places within the corridor. The middle segment of the Chevallier Drive route has a portion of the gas line within the right of way and one underground crossing. The second segment of gas pipeline is in the northern vicinity of Hardy. Neither pipeline area would be affected by path construction as the path's depth and weight load will remain shallow enough to stay above the gas line.

Other Plans

At this time, there are no local government agency plans for development within the study rights-of-way or changes to the routes selected.

Socio-economic and Demographic Impacts

Road bicycling facilities include roadways and paved trails designed specifically for bicycle and pedestrian use. Road bicycling facilities are usually as flat and smooth as possible, given the terrain, and are appropriate for use by lighter-weight bicycles. By contrast, mountain bicycling typically involves unpaved routes, more precipitous paths and sturdier equipment. The design of road bicycling facilities typically considers amenities such as resting areas and lodging/camping facilities.

■ Economic Effects of Road Biking Facilities

Case studies uniformly report positive local economic outcomes from developing road biking facilities. In terms of general economic effects, the studies suggest that development of road bicycling facilities generates local business growth in lodging, dining, sales and rental of gear and provisions, and related services, as well as a general boost from the spillover effects from these activities. Road biking facilities also enhance the overall appeal of and quality of life in the communities they run through. In terms of effects on values of adjacent and nearby properties, studies that have assessed these impacts generally find positive effects.

The quality of bicycling facilities appears to be an important factor, but it is not determinate. The dedicated bicycle pathways in northern Idaho are an instance where design has been a major factor in market attraction; these facilities are brownfield redevelopments that pass through scenic but historically industrial areas. Facilities in North Carolina and Wisconsin, however, are on-road facilities, and these are also noted to attract many users, in part due to the areas' relatively high amenity values. No studies were identified that explicitly differentiated the effects of on-road versus dedicated road bicycling pathways, so any conclusions about this are tentative.

Also significant is whether the local businesses and communities take initiative to develop potential economic opportunities. Successful bicycle developments uniformly report that initiative on the part of business and economic development leaders was important to realizing the economic potentials. This, too, appears to be a necessary but not sufficient condition.

Other attractions available to road bicyclists appear to add leverage to the economic opportunities. The national case studies suggest no set mix of activities; however, providing a variety of activity options attractive to the market appears to be important (see the demographics section for potential ancillary activities of interest to this market).

Road bicycling facilities can play a significant role in attracting people from outside the area. (Generally, non-local users are the focus of economic impact analysis because they bring outside money into the area and so add to economic growth.) A study by the South Carolina Department of Transportation about the bicycling facilities found that 43 percent of visitors to coastal areas rated biking facilities as an important factor in deciding to visit; and 53 percent of repeat visitors said the same. A study of the 72-mile

Hiawatha trail and the associated bicycling trails around Kellogg, Idaho estimates that those facilities generated about 110,000 users per year.

Some studies estimate the economic impacts of road bike facilities. The economic effects of those visits are estimated at \$15,000,000 annually, a total impact of about \$136 per-user. In other places, direct spending (excluding multiplier effects) by users is estimated in the range of \$1 to \$75 per user depending on the distance of the ride, quality of facilities, and local/non-local origin of the users. Non-local users (as compared to local users) tend to spend more per outing. In general, a trail can be estimated to bring at least one million dollars annually to a community, depending on how well the town embraces the trail. Please refer to Appendix 9 for more case study information.

The Idaho case suggests that dedicated bicycling trails are more attractive to families with younger children. However, on-road facilities in both Wisconsin and North Carolina also appear to attract young families. System design appears to be significant in attractiveness across the market mix but does not determine it. Attractiveness is also influenced by vehicle volume and speed, facility design, ancillary amenities, and communication between businesses and the public.

■ Demographics

A 2005 survey by the Montana Institute for Tourism and Recreation Research (ITRR) found that five percent of Montana households reported recreational road biking, meaning that the in-state market is about 48,000 households. In comparison, eight percent of all surveyed respondents report mountain biking.

A survey by the national Outdoor Industry Association notes an upward trend in the proportion of road bicyclists living in the western US; as of 2005, 41 percent of the nation's road bicyclists lived in western states.

Montana Fish, Wildlife, and Parks conducted a two-phase mail survey in developing the Montana Outdoor Recreation Trail User Study 2005-2006 which identified who uses trails, how trails are used, how use may affect other trail users, and the expectation and preferences of users. Each phase was used to determine trail use of the previous six months and was followed up by telephone surveys of non-respondents of the 3,000 households surveyed.

Some of the study's results include:

- 19 percent reported participating in bicycling.
- Trail users are split almost equally in half between males and females.
- Participants varied significantly on levels of educational attainment.
 - 59.2 percent of mountain biking participants have completed college.
 - 56.4 percent of road biking participants have completed college.
- The average age of adult trail users was found to be in the late 30's to early 40's.
 - Average age of mountain biking participants was found to be 36.1 years.

- Average age of road biking participants was found to be 38.5 years.
- Recreational bicyclists spend a median of ten days engaged in this activity.
- Bicyclists prefer hard surface trails, roads, public trails, and city park trails for bicycling.
- 53 percent of participants agreed trail location information is needed
- 60 percent agreed roads and highways should be made safer for bicyclists (Montana).

The national Outdoor Industry Association survey notes that the proportion of men who report bicycle sports has risen to 58 percent, reflecting a decline in the share of female participants. In 1998, the national figures were 50-50; however, Montana data suggests a more even gender split. Please refer to Appendix 10 for more information on the *National Sporting Goods Association 2003 Survey*.

The Outdoor Industry Foundation administers the *Outdoor Recreation Participation Study* by region. The western region includes Montana along with Arizona, California, Colorado, Idaho, New Mexico, Oregon, Utah, Washington, and Wyoming. The 2008 study indicates that 41 percent of westerners are paved road bikers compared with 35 percent of the population nationally. The ages of western road bikers are 29 percent between 16 and 29, 21 percent between 25 and 34, 24 percent between 35 and 44, and 27 percent are 45 and above. Participant income varies among riders and cohorts with 40 percent of western road bikers' household incomes fall within the \$40-\$79,000 range (Outdoor).

The Montana Institute for Tourism and Recreational Research tabulated data for road bicyclists from its 2006 survey Montana-resident travelers. Respondents that participated in road bicycling also reported participating in the following activities "within the last seven days": day hiking, mountain biking, wildlife watching, picnicking, driving for pleasure, tent camping, nature photography.¹ (Road bicyclists responding to this question were relatively unlikely to have participated in: golfing, theme/amusement parks, off-road ATV or 4WD driving, participating in a sporting event, birding.²) Top activities on "most recent pleasure trip" included: day hiking, rural sightseeing, boating or water sports, backpacking, wildlife watching, visiting historic sites and museums.

Non-local visitors tend to bring more spending (and economic impact) into communities, so we wanted to glean information about the proportion of nonlocal riders. Participants' zip codes were provided by the Helena Bicycle Club, which annually organizes a 100 mile-or 100 kilometer-ride along this route. That data indicates that about 40 percent of participants came from outside the Helena-Great Falls corridor. Less than one percent of participants were from the small communities along the route. As of 2008, participation in the event has grown fairly steadily to about 150 riders.

¹ "Shopping for pleasure" was the threshold measure of attractiveness; activities scoring higher than shopping are reported here.

² Winter activities are excluded, although cross-country and downhill skiing and snowmobiling ranked higher on this question than did other winter activities.

Current usage estimates for the Recreation Road route were provided by the Helena Bicycle Club and the Great Falls Bicycle Club. Daily bicycle road use is estimated to be around 20 riders a day during the summer with higher weekend volumes in some areas. Spring and summer use of the route exists, but the bicycle traffic volumes are reduced from the summer peak. Individual use is estimated to be one to three times per year for each rider and observed riders tend to be of adult age.

Path Viability

■ Analysis Process

The final selection of routes was evaluated using the configuration parameters developed by the advisory group and the public along with right-of-way information and technical data on existing infrastructure and environmental constraints. The first iteration of the segmentation map for the frontage road (Recreation Road) and Chevallier Drive evaluated physical constraints and right-of-way width against the configuration parameters to denote areas with existing infrastructure, the possibility of an eight-to-ten foot path on one or two sides, the ability for widened shoulders on both sides, and existing constraints where less than three foot shoulders on both sides are feasible.

■ Route Segmentation

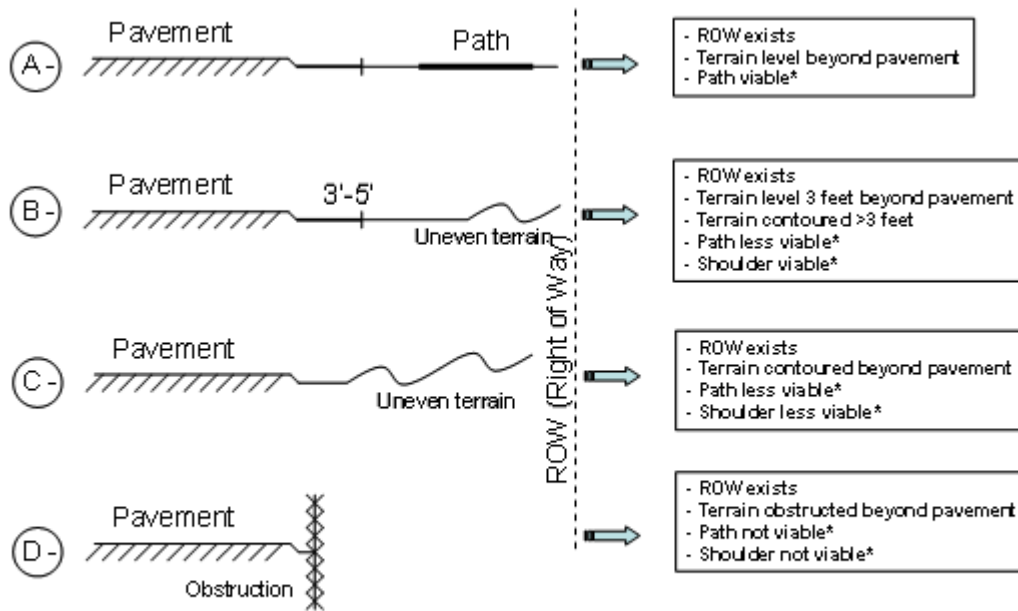
For this study, the definition of a segment is: A continuous section of road with similar properties (shoulder widths, right-of-way, and topography for example).

Five different segment types were identified:

- separated path (A)
- Widened shoulders (both directions) (B)
- Less viable separated path (C1)
- Less viable widened shoulders (C2)
- Chokepoints: bridges, cliffs, guardrails (D)

The process of smoothing was used to determine the length of each segment. Very short segments of roadway having a slight variance in physical attribution were incorporated into a longer segment for purposes of maintaining continuity.

Figure 12: Segment Types



*Viable: A rough gauge of path or shoulder constructability based on right-of-way, topography, and physical obstructions.



■ Segmentation Descriptions

Segment Type A-Separated Path

Segments in this category are areas where a physically separated path can potentially be added without a lot of grading, earthwork, or engineering. Enough right-of-way exists to allow an eight to ten foot wide two-way path with a four to five foot separation from the roadway.

Figure 13: Type A Photo



Segment Type B-Widened Shoulders

These road segments exhibit topographical characteristics that potentially allow extra paved shoulder width on both sides of the road without roadbed or shoulder modifications. Enough right-of-way exists to allow the additional paving.

Figure 14: Type B Photo



Segment Type C1-Less Viable Separated Path

These areas have the right-of-way and are free of chokepoints but construction requires grading, earthwork, or engineering solutions to allow a separated path.

Figure 15: Type C1 Photo



Segment Type C2-Less Viable Widened Shoulders

Segments of this type will require shoulder and roadbed modifications to allow a paved shoulder on each side of the road. This type has enough right-of-way to accommodate increased shoulder widths.

Figure 16: Type C2 Photo



Segment Type D-Chokepoints: Bridges, Cliffs, and Guardrails

These are areas where physical barriers prevent a separated path, a minimum of three feet of additional paved shoulder width on both sides, or any addition of shoulder width. Sufficient right-of-way in these areas may or may not exist. Special permitting, excavation, large retaining walls, blasting rock walls, or additional bridges may be required to construct a path or widened shoulders.

Figure 17: Type D Photos



■ Locations of Segmentation Types

Segments were mapped using global positioning system (GPS) coordinates based on their beginning and ending points as observed during windshield surveys. The following figure is a close-up of the segmentation map showing the different color schemes and how they are portrayed graphically.

Figure 18: Example Route Section Showing Recreation Road Segmentation Analysis



The color scheme is:

- Light green-separated path
- Dark green-less viable separated path
- Yellow-widened shoulder
- Orange-less viable widened shoulder
- Red-chokepoint

The entire segmentation analysis also includes gray and black lines representing Joe's Trail by existing surface type. Gray denotes gravel and black indicates pavement.

The location of the lines shows what side or sides of the roadway correspond with each individual color-coded segment type. A colored line running down the middle of the road means that segment type applies to both sides of the road. A line offset from the roadway means that segment type applies to that side only. It is possible for a segment to

show up to three different possibilities in a given stretch of the route. For example, a segment might have the potential for a separated path on the east side, a less viable separated path on the west side, and the possibility for widened shoulders along the road itself. Please refer to Appendix 12 for expanded route segmentation.

Figure 19: Recreation Road Complete Segmentation Analysis

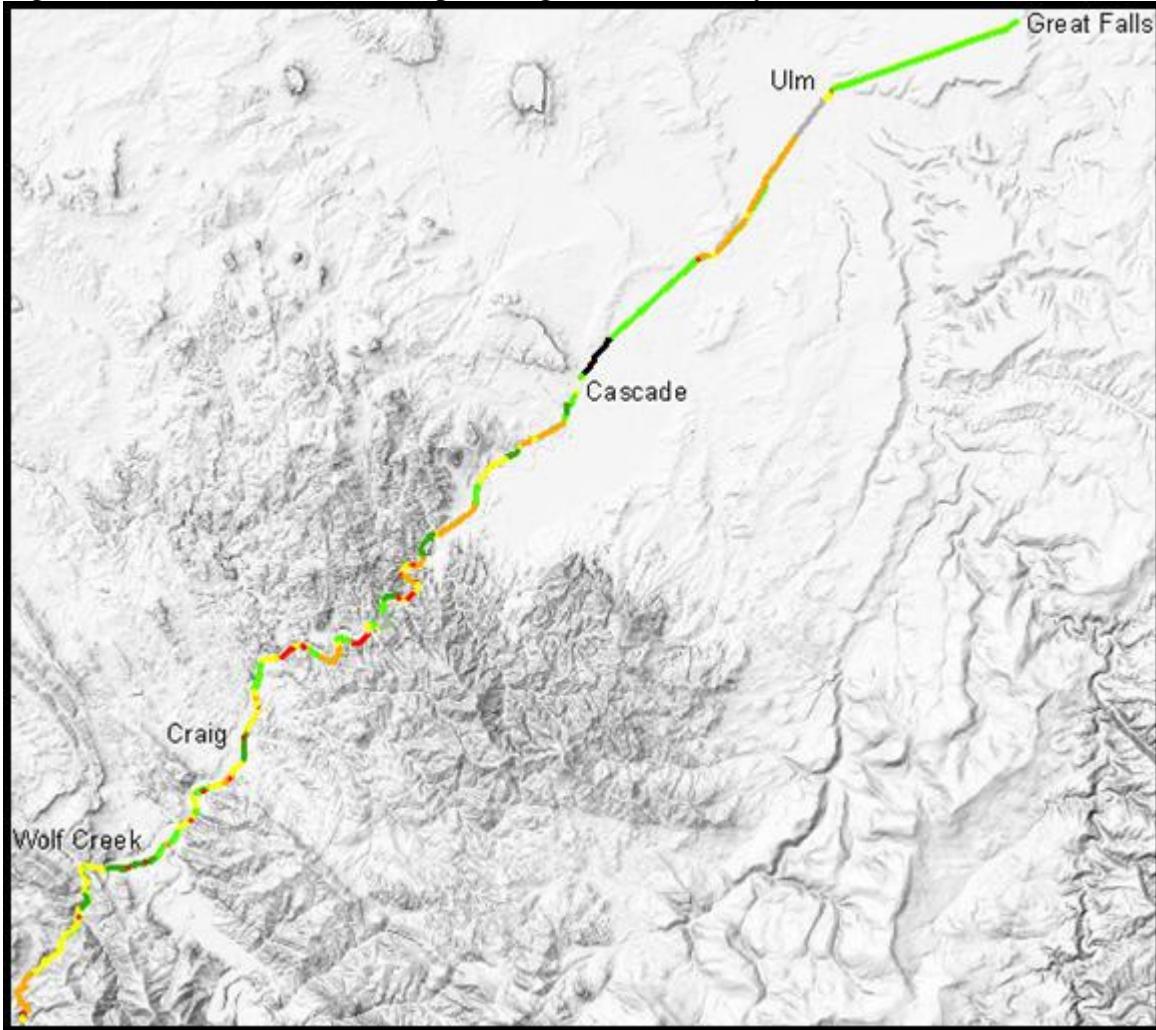
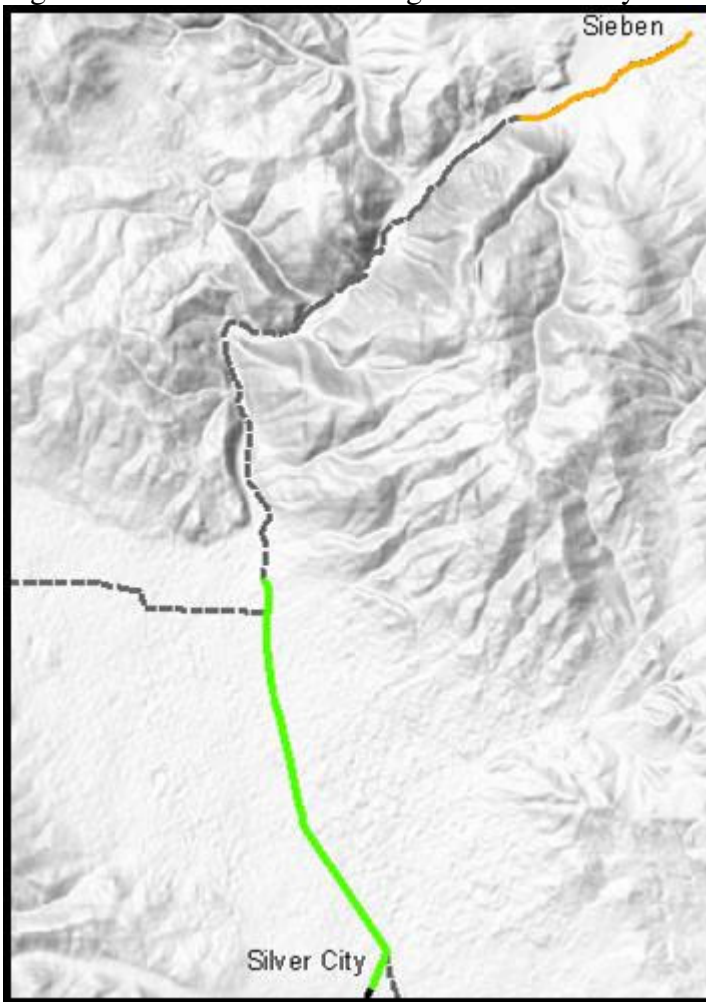


Figure 20: Chevallier Drive Segmentation Analysis



The results of the segmentation analysis indicate that a continuous separated path the entire distance is not possible due to significant chokepoints. Continuity can be maintained with a mix of segment types (separated paths and widened shoulders) but will require multiple roadway crossings. This study did not include the cost or viability of removing chokepoints. There are a total of 22 locations along the route where chokepoints exist. The total affected distance is 2.8 miles with a majority of chokepoints consisting of short bridges or cattle underpasses.

If segment length is not a consideration, there are a total of 53 segments that have the possibility of a separated path. If these were all utilized, there would be 52 roadway crossings required when transitioning from a path to widened shoulders or a chokepoint. The total distance for paths in this scenario is 35.6 miles out of 62.6 for Recreation Road as a whole. Only considering path segments greater than one half mile yields 35 segments with 34 crossings for 33.5 miles of path. Increasing the length of potential path segments to one mile or greater produces 12 possibilities with 11 crossings for a combined distance of 26.5 miles. The possibility of having widened shoulders of three to five feet on each side of the road for the entire length of Recreation Road is also not possible due to chokepoints.

Independent Utility / Potential Phasing

There are infinite methods for implementing a bicycle and pedestrian path within the Helena to Great Falls corridor. One possible strategy for a phased approach is using independent utility as the primary consideration for determining path segments.

Independent utility is being defined as a segment of the corridor where a separated path (or widened shoulders) can be developed as a stand-alone amenity with areas that allow for vehicle parking. This strategy focuses on recreation, the “ease” of path construction, tourism, and public safety. The same route segmentation previously described was compared to the criteria of having vehicle parking areas on either end and being greater than one mile in length.

■ Locations of Independent Utility Scenarios

Four scenarios exist for independent utility along the corridor. There are two separated path scenarios (A1 and A2) and two widened shoulders scenarios (B1 and B2).

Scenario A1-Path

The first path scenario has existing staging/parking areas on both ends of the segment. Two segments are included in this scenario: Ulm to Gore Hill, I-15 underpass north to the Stickney Creek fishing access site. Neither portion of the existing Joe’s Trail is included.

Figure 21: A1 Path Locations

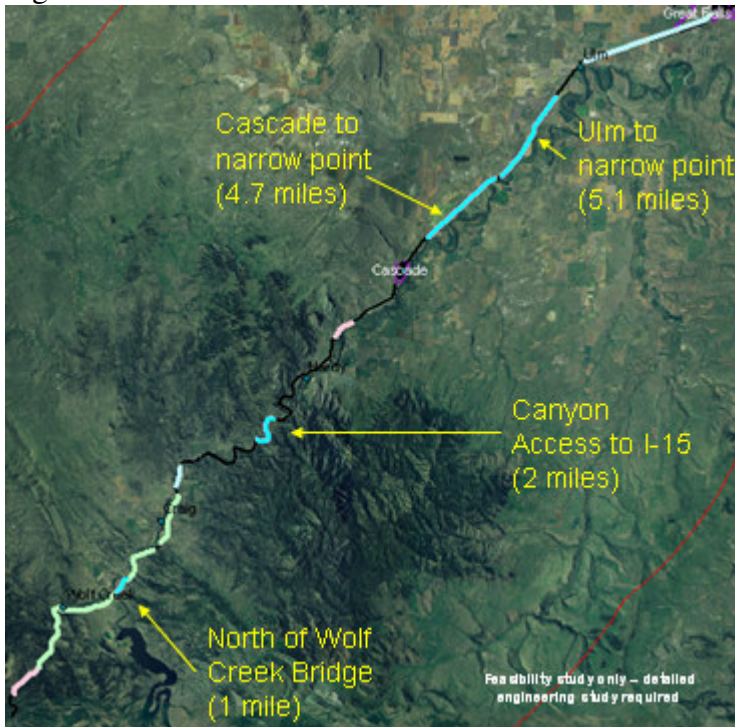


Scenario A2-Path

The second path scenario requires the addition of at least one staging/parking area. Four segments are included in this scenario: north of Wolf Creek Bridge, I-15 to the Canyon Access interchange, continuing north from Joe’s Trail (Cascade portion) to the narrow

point on Frontage Road, the narrow point on Frontage Road north to Joe's Trail (Ulm portion).

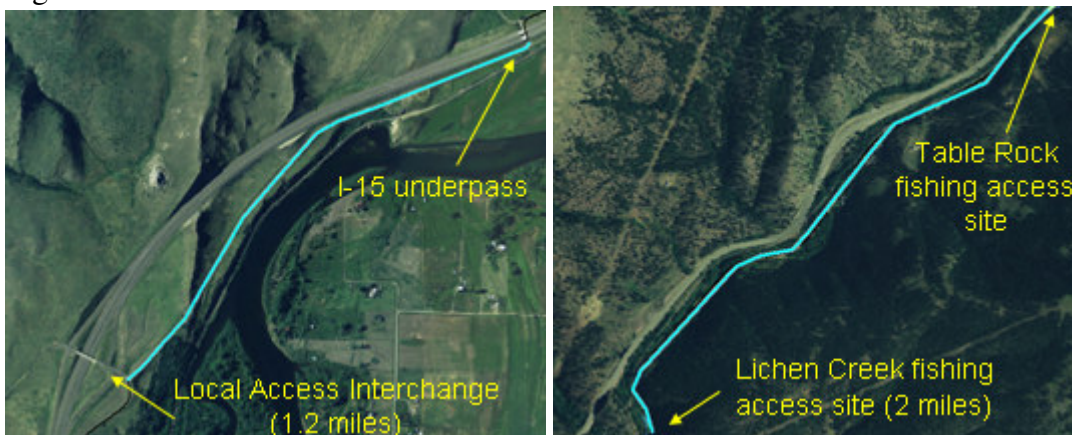
Figure 22: A2 Path Locations



Scenario B1-Shoulders

The first widened shoulders scenario has existing staging/parking areas on both ends of the segment. This scenario has two candidate segments: the Local Access interchange to the interstate underpass (south of Cascade), the Lichen Creek fishing access site north to the Table Rock fishing access site.

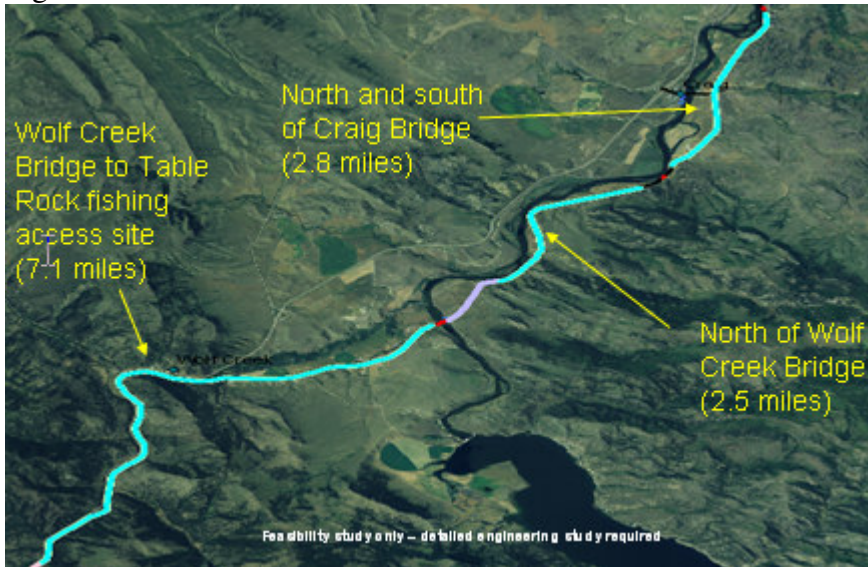
Figure 23: B1 Shoulders Locations



Scenario B2-Shoulders

The second widened shoulders scenario requires the addition of at least one staging/parking area and the route segment may contain short and narrow bridges. A total of three segments qualify under this scenario: the Table Rock fishing access site to Wolf Creek Bridge, north of Wolf Creek Bridge, north and south of the Craig junction.

Figure 24: B2 Shoulders Locations



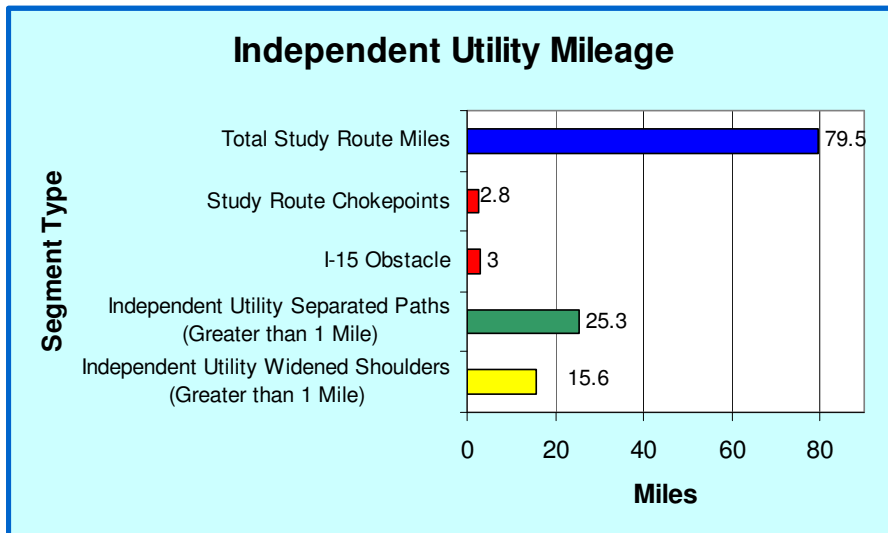
Chevallier Drive

Chevallier Drive has one location on its southern end with the potential for a 4.4 mile separated path (scenario A2) extending north from Silver City when using the independent utility criteria.

Figure 25: Chevallier Drive A2 Path Location



Figure 26: Independent Utility Mileage Chart



Cost Estimates

There are no funding commitments at this time for a bicycle path along this corridor. The following cost estimates provide interested parties with the information necessary to assess future funding and construction phasing options.

These figures reflect best estimates of base per-mile costs based on MDT experience and the aggregate level analysis reflected in this study. More detailed engineering and environmental analysis would identify specific areas of greater or lesser unit cost. An estimated total cost would depend on the selection of segments and their lengths. All costs are in 2008 dollars. Additional cost estimate information can be found in Appendix 8.

Chart 8: Cost Estimates for Separated Path and Widened Shoulder Segments

Type of Path	Base Cost per Mile	Miles	Total Cost
➤ Separated path, all segments (10 feet wide)	\$170,000 +	35.6	\$5,340,000 +
➤ Independent utility separated path	\$170,000	25.3	~ \$3,795,000
➤ Widened shoulder, all segments (3-5 feet)	\$200,000 +	63.6	\$12,720,000 +
➤ Independent utility widened shoulder	\$200,000	15.6	~ \$3,120,000
➤ Chokepoints	very costly	2.8	N/A

Possible Path – all segments
 Independent Utility Path Segment

Note: Planning level estimates only -- not based on engineering and environmental survey. Excludes engineering and contingency costs.

Public Participation, Comments, and MDT Responses

Public comments and suggestions were received until August 11th, 2008 following the July 9th meeting in Cascade and reviewed with respect to the study as presented. Public input that pertained to analysis performed within the scope of the study was favorable. No changes to the selected routes or level of feasibility for individual segments were made. No alternate implementation strategies were broached and the independent utility analysis was retained and received support as a means to build parts of a path sooner with the phased approach. Please refer to Appendix 11 for a detailed list of public comments and the number of respondents who had the same comment.

■ Summary of Public Comments

Comments were received from the public during and after the Cascade meeting in the form of letters, emails, and testimony submitted during the meeting. A total of 41 people commented prior to the deadline. Included below are summaries of comments grouped by theme and any action or response by MDT to address or clarify the issue.

In general, the study elicited positive comments regarding the concept of having a bicycle and pedestrian facility along the Prickly Pear Creek/Missouri River corridor between Helena and Great Falls. However, there was some disagreement from several respondents to the scope of the legislatively mandated study to only look at path options within public right-of-way along public roadways. The comments have been grouped by the following themes: path alignment, safety, economic impact, costs, and other.

Path Alignment:

Comments under this theme include: satisfaction with the current alignment, not ignoring BNSF Railway line as an alternative, independent utility is a good idea, preference for longer independent utility segments, extending termini into the cities, possibility of a path adjacent to the rail line on BNSF property.

Action and/or clarification: Many comments included recommendations for acquiring and using the BNSF Railway line along this corridor as a stand-alone bicycle and pedestrian facility. The 2007 Montana Legislature specifically requested that the study only look at path options within public right-of-way along public roadways between Helena and Great Falls. The Montana Department of Transportation (MDT) agrees that a separated bicycle and pedestrian path the length of the corridor would be a preferable alternative. This is usually achieved through rails-to-trails corridor programs where a rail line has been abandoned by the railroads. At this time, the BNSF line is being utilized and remains private property. While the railway has stated that currently they have no intention of abandoning the line, this study does not preclude this option should circumstances change in the future.

The termini were selected by taking into the variety of options for getting into the respective cities without selecting a “preferred” route.

Safety:

Comments under this theme include: concern that a path would not be safe for all users, not widening the shoulders, small or no rumble strips, perform a speed study, install warning devices/signs for motorists.

Action and/or clarification: Safety is a major concern for MDT and possible path configuration was analyzed with safety in mind. Identifying separated path segments and independent utility aim to address this issue by creating paths wherever possible and reducing the number of roadway crossings.

Additional signing for motorists and other users is an option that has been considered within this study.

Recreation Road was not constructed with rumble strips and there is no plan to install any at this time.

The process for a speed study begins by receiving a request from a local official or a member of the public.

Economic/Demographic Impact:

Comments under this theme include: economic effects and opportunities for route communities, user demographics and potential ridership, would the cost be justified.

Action and/or clarification: Expanded economic impact and demographic and ridership analyses were performed and these sections have been added to the report per requests by members of the public.

Current estimated costs provided in this study are meant as a guide to give an idea of what a path or expanded shoulders might cost. No cost determination has been made and this would occur at a later time as the legislative direction did not address cost, only if a path is or is not feasible.

Funding:

Comments under this theme include: consider bed tax funding, Joe’s Trail funds, tax assessments.

Action and/or clarification: Potential funding ideas have been recorded in the report but funding was not looked at as part of the analysis.

Other:

Comments under this theme may not pertain to the study directive or execution and include: When a formal environmental analysis [Environmental Assessment (EA) or Environmental Impact Statement (EIS)] is performed, when National Environmental Policy Act (NEPA) and Montana Environmental Policy Act (MEPA) assessments would

be conducted, consideration of a path along the Rocky Mountain front instead, every rebuilt road in Montana should have a bike path alongside it.

Action and/or clarification: *It is unknown at this time if an EA or EIS will be required.*

The next step for a project like this would be determining the feasibility from an MDT district and cost standpoint.

The environmental process dictates if a path is possible alongside a rebuilt or new road.

Findings

This analysis responds to a legislative request that MDT conduct a study to “determine the feasibility of creating a bicycle path on public rights-of-way adjoining county and state roads between Helena and Great Falls.” This study takes no assumptions about funds available to construct a path. Rather, it focuses on determining feasibility within the identified parameters.

The scan of environmental information identified no major barriers. The socio-economic assessment suggests that a complete facility could generate ample use, and that such facilities elsewhere have generated substantial economic benefits for the communities along them.

The major obstacles to a continuous pathway are in the landscape. Several areas exist where pathway construction would be difficult and costly due to cliffs, waterways, and existing facilities. A three mile section where I-15 is the only public road available is another obstacle to a continuous path as this area contains a long, narrow bridge and cliffs are in close proximity.

A technical advisory committee guided this process along the way, and public participation was also vital to strengthening the substance of this report.

Some of the findings reached through this study’s analysis are that 25.3 miles of additional separated path is feasible with a minimal amount of complex engineering solutions. 15.6 miles of widened shoulders along the existing roadway is feasible with a minimal amount of complex engineering solutions, multiple locations exist where chokepoints and obstacles in their current state would limit a contiguous separated path. A phased implementation of path segments as stand-alone amenities can be accomplished. However, local and state agencies and/or other entities can use the study results to inform efforts to provide additional bicycle and pedestrian facilities within the corridor.

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Appendix

Appendix 1: Senate Bill Number 190

Appendix 2: Letter from Senator Lewis to Jim Lynch, MDT Director

Appendix 3: Scope of Work

Appendix 4: Crash Locations

Appendix 5: Route Data

Appendix 6: Advisory Group Members

Appendix 7: Case Studies

Appendix 8: Cost Estimates

Appendix 9: Economic Impacts

Appendix 10: Demographics

Appendix 11: Public Comments

Appendix 11B: BNSF Letter to MDT Regarding the Status of the Rail Line

Appendix 12: Route Segmentation

Appendix 1: Senate Bill Number 190

60th Legislature

SB0190.01

1

SENATE BILL NO. 190

2

INTRODUCED BY D. LEWIS

3

4

A BILL FOR AN ACT ENTITLED: "AN ACT CREATING AN INTERIM STUDY TO BE CONDUCTED BY THE
DEPARTMENT OF TRANSPORTATION TO DETERMINE THE FEASIBILITY OF CREATING A BICYCLE PATH
BETWEEN HELENA AND GREAT FALLS; AND PROVIDING AN IMMEDIATE EFFECTIVE DATE."

7

8

WHEREAS, the Legislature recognizes the importance of Montana's natural wonders to Montana citizens
and the value of their opportunity to recreate within those wonders; and

10

WHEREAS, the Legislature recognizes the importance of tourism to Montana's economy; and

11

WHEREAS, it is the duty of the Legislature to promote public safety whenever possible.

12

13

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MONTANA:

14

15

NEW SECTION. **Section 1. Interim study.** The department of transportation shall conduct a study
during the biennium beginning July 1, 2007, to determine the feasibility of creating a bicycle path on public
right-of-ways adjoining county and state roads between Helena in Lewis and Clark County and Great Falls in
Cascade County. The department shall make its findings available to the 2009 legislature as provided in
5-11-210.

20

21

NEW SECTION. **Section 2. Effective date.** [This act] is effective on passage and approval.

22

- END -



Appendix 2: Letter from Senator Lewis to Jim Lynch, MDT Director



60th Montana Legislature
Senate Highways and Transportation Committee

PO BOX 201706
Helena, MT 59620-1706
(406) 444-3684
FAX (406) 444-3030

February 12, 2007

Jim Lynch
Montana Department of Transportation
2701 Prospect Avenue
P.O. Box 201001
Helena, MT 59620-1001

Dear Mr. Lynch,

This letter is a follow-up to the hearing on January 19th for Senate Bill 190, sponsored by Senator Lewis. The Committee wishes to express appreciation to yourself and the Transportation Department for your participation in the discussion to study the proposed bike path from Helena to Great Falls, as proposed by Senator Lewis' Bill. It is the consensus of the Committee that your offer to conduct the study within the Department's current planning workload, as part of your public testimony, brings a solution to the issue Senator Lewis was trying to resolve.

Therefore, please accept this letter as a formal request from the Senate Highways and Transportation Committee to commence a study as called for in Senate Bill 190, with the understanding that the report, and any findings there within, be reported to the 61st Legislature. If there is any additional information your staff will need to bring this process, please feel free to contact myself or members of the Committee.

Sincerely,

Handwritten signature of Senator Gerald Pease in cursive.

Senator Gerald Pease
Chairman

Handwritten signature of Senator Dave Lewis in cursive.
Senator Dave Lewis
Sponsor, SB 190

Appendix 3: Scope of Work

Helena to Great Falls Bicycle/Pedestrian Path Feasibility Study Scope of Work

1. Background

This study will evaluate the suitability of public right-of-ways adjoining county and state roads for development of a bicycle and pedestrian path between the Lincoln Road and Gore Hill Interchanges on Interstate 15 between Helena and Great Falls. The study is in response to direction from the 2007 Legislature to conduct a study consistent with Senate Bill 190 and report the findings of the study to the 61st Legislature.

2. Project Tasks

Task 1 – Initiate Stakeholder Outreach and Establish Study Parameters

- A. Establish Technical Advisory Group and Set Up Meeting
- B. Create a Base Map
- C. Develop Configuration Parameters
- D. Technical Advisory Group Meeting

Task 2 – Research Existing Conditions

- A. Physical Conditions
- B. Operational Conditions
- C. Safety Conditions
- D. Bicycle and Pedestrian Facilities
- E. Public Lands

Task 3 – Document Existing and Projected Environmental, Social, and Land Use Conditions

- A. Environmental Scan

Task 4 – Route Analysis

- A. Advisory Group Meeting to Establish Preliminary Screening Criteria
- B. Identify Feasible Routes

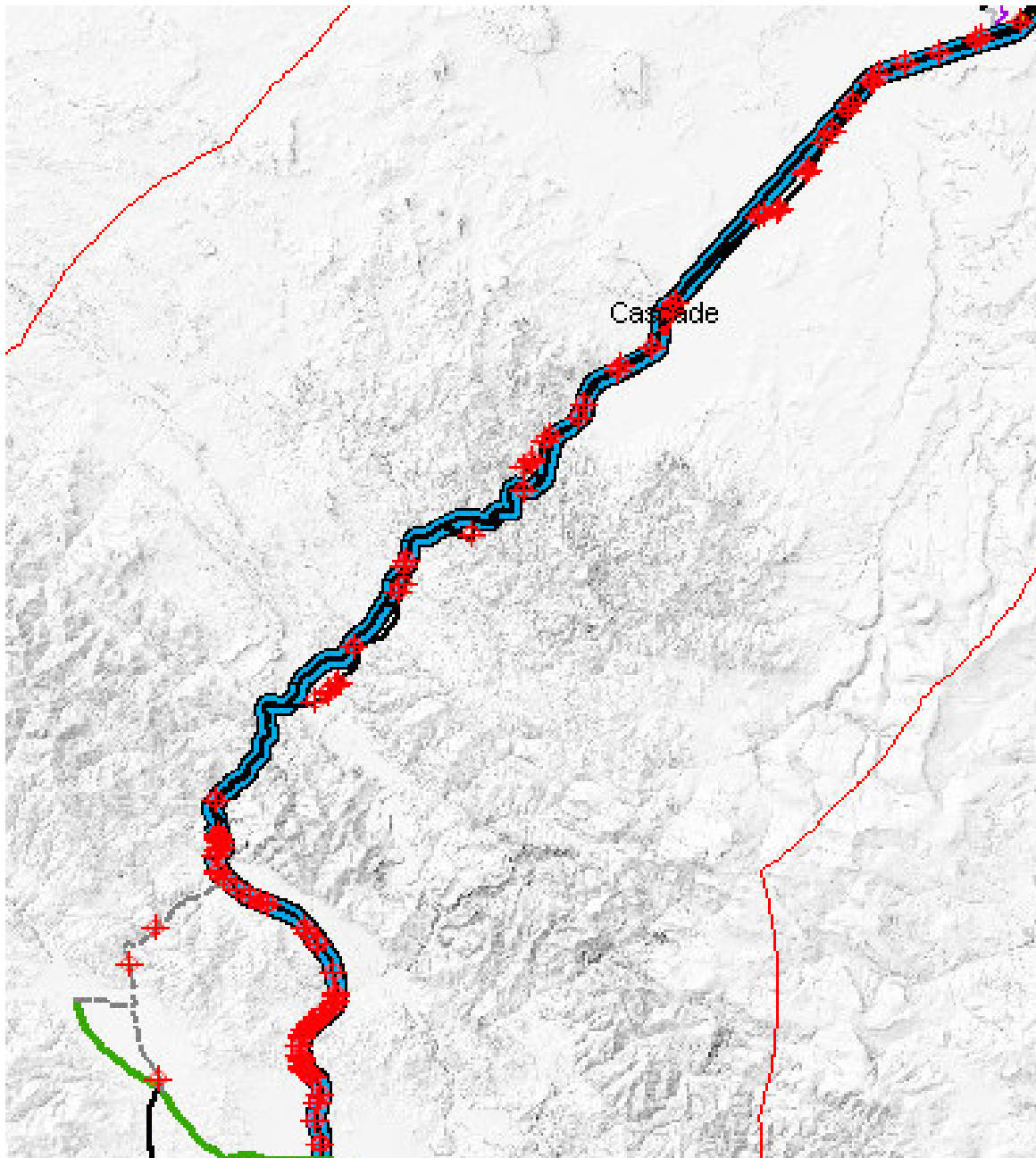
Task 5 – Public Outreach

- A. Develop Public Presentation
- B. Obtain Public Input

Task 6 – Report

- A. Develop Final Report

Appendix 4: Crash Locations



Appendix 5: Route Data

Helena-Great Falls Bicycle Path Route Data

Road Name	Reference Marker	Length (Miles)	Corridor	Route Number	Direction	Surface	Lanes	Surface Width	Shoulder	Ownership	AADT
I-15 (South Hills Int.)	190+0.541	27.925	C000015	I-15	North	Paved	2	38	10	State	10970
I-15	218+0.466	10.633	C000015	I-15	North	Paved	2	34	6	State	4190
I-15	229+0.099	9.095	C000015	I-15	North	Paved	2	36	8	State	
I-15	238+0.194	0.536	C000015	I-15	North	Paved	2	32	4	State	
I-15	238+0.730	5.686	C000015	I-15	North	Paved	2	36	8	State	
I-15	244+0.416	1.976	C000015	I-15	North	Paved	2	32	4	State	
I-15	246+0.392	1.423	C000015	I-15	North	Paved	2	36	8	State	
I-15	247+0.815	42.865	C000015	I-15	North	Paved	2	38	10	State	
I-15 (MT-200 Jct.)	290+0.680	N/A	C000015	I-15	North	Paved	2	38	10	State	
I-15 (MT-200 Jct.)	290+0.680	43.368	C000015	I-15	South	Paved	2	38	10	State	
I-15	247+0.312	1.187	C000015	I-15	South	Paved	2	36	8	State	
I-15	246+0.125	2.073	C000015	I-15	South	Paved	2	32	4	State	
I-15	244+0.052	5.858	C000015	I-15	South	Paved	2	36	8	State	
I-15	238+0.194	1.862	C000015	I-15	South	Paved	2	32	4	State	
I-15	236+0.332	7.766	C000015	I-15	South	Paved	2	36	8	State	
I-15	228+0.566	10.258	C000015	I-15	South	Paved	2	34	6	State	
I-15	218+0.308	27.565	C000015	I-15	South	Paved	2	38	10	State	
I-15 (South Hills Int.)	190+0.541	N/A	C000015	I-15	South	Paved	2	38	10	State	
S-279/Lincoln Rd.	000+0.000	0.423	C000279	S-279	North	Paved	2	24	0	State	
S-279/Lincoln Rd.	000+0.423	8.59	C000279	S-279	North	Paved	2	22	0	State	
S-279/Lincoln Rd.	009+0.013	7.436	C000279	S-279	North	Paved	2	28	2	State	
S-279/Lincoln Rd.	016+0.449	6	C000279	S-279	North	Paved	2	26	1	State	
S-279/Lincoln Rd.	022+0.449	8.276	C000279	S-279	North	Paved	2	27	1	State	
S-279/Lincoln Rd.	030+0.725	8.266	C000279	S-279	North	Paved	2	24	0	State	
S-453/Lincoln Rd.	000+0.000	5.135	C000453	S-453	East	Paved	2	24	0	State	1570
Glass Dr.	000+0.000	2.751	N/A	L-25-1549	North	Unpaved	2 ?		0	L&C County	600
Frontage Rd.	000+0.000	7.492	C025295	X-25295 & L-25-295	North	Paved	2	24	0	L&C County	
Recreation Rd./CR-3	000+0.000	22.8	C081003	X-81003	North	Paved	2	24	0	State maintained	
Recreation Rd./CR-3	022+0.800	16.061	C081003	X-81003	North	Paved	2	22	0	State maintained	
MT-68 (in Cascade)	000+0.000	0.085	C000068	P-68	North	Paved	2	30	3	State	990
MT-68	000+0.085	1.095	C000068	P-68	North	Paved	2	24	0	State	
MT-68	001+0.180	0.399	C000068	P-68	North	Paved	2	30	3	State	
Frontage Rd.	000+0.000	0.052	N/A	M-19-11	North	Paved	2	24	0	Cascade City	
Frontage Rd. (Ulm S.)	000+0.000	14.204	C007603	X-07603	North	Paved	2	22	0	Cascade County	
Frontage Rd. (Ulm S.)	014+0.204	N/A	C007603	X-07603	North	Paved	2	22	0	Cascade County	
Ulm North Frontage Rd.	000+0.000	7.309	C007602	X-07602	North	Paved	2	22	0	Cascade County	
Ulm North Frontage Rd.	007+0.309	N/A	C007602	X-07602	North	Paved	2	22	0	Cascade County	
Chevallier Dr./CR-5	000+0.000	4.1	C025005	X-25005	South	Unpaved	2	22	N/A	L&C County	40
Chevallier Dr./CR-5	004+0.100	2.9	C025005	L-25-5	South	Unpaved	2	20	N/A	L&C County	
Chevallier Dr./CR-5	007+0.000	5.8	C025005	L-25-5	South	Unpaved	2	24	N/A	L&C County	
Chevallier Dr./CR-5	012+0.800	0.381	C025005	L-25-5	South	Unpaved	2	22	N/A	L&C County	
Duffy Ln.	000+0.000	2.915	C025200	L-25-200	East	Unpaved	2	22	N/A	L&C County	40
Birdseye Rd./CR-602	000+0.000	11.13	C025602	L-25-602	South	Paved	2	24	0	L&C County	880
Green Meadow Dr.	000+0.500	2.536	C000231	S-231	North	Paved	2	40	8	State	4380
Green Meadow Dr.	003+0.036	3.153	C000231	S-231	North	Paved	2	24	0	State	
N. Montana Av.	004+0.790	2.571	C005809	S-229	North	Paved	2	24	0	State	4140
N. Montana Av.	000+0.000	0.02	C005809	U-5809	North	Paved	4	35	0	State	
N. Montana Av.	000+0.020	0.023	C005809	U-5809	North	Paved	4	42	0	State	
N. Montana Av.	000+0.043	0.567	C005809	U-5809	North	Paved	4	52	2	State	
N. Montana Av.	000+0.610	0.674	C005809	U-5809	North	Paved	4	44	0	State	
N. Montana Av.	001+0.284	0.146	C005809	U-5809	North	Paved	2	42	8	State	
N. Montana Av.	001+0.430	0.337	C005809	U-5809	North	Paved	2	26	1	State	
N. Montana Av.	001+0.767	0.137	C005809	U-5809	North	Paved	3	59	8	State	
N. Montana Av.	001+0.904	0.394	C005809	U-5809	North	Paved	2	47	8	State	
N. Montana Av.	002+0.298	0.065	C005809	U-5809	North	Paved	2	63	8	State	
N. Montana Av.	002+0.363	0.291	C005809	U-5809	North	Paved	2	47	8	State	
N. Montana Av.	002+0.654	0.055	C005809	U-5809	North	Paved	2	63	8	State	
N. Montana Av.	002+0.709	0.008	C005809	U-5809	North	Paved	2	47	8	State	
N. Montana Av.	002+0.717	0.078	C005809	U-5809	North	Paved	2	52	8	State	
N. Montana Av.	002+0.795	0.076	C005809	U-5809	North	Paved	2	78	8	State	
N. Montana Av.	002+0.871	1.17	C005809	U-5809	North	Paved	2	52	8	State	
N. Montana Av.	004+0.041	0.282	C005809	U-5809	North	Paved	2	24	0	State	
N. Montana Av.	004+0.323	0.467	C005809	U-5809	North	Paved	2	26	1	State	

Appendix 6: Advisory Group Members

Group and Representative

1. FWP..... Clint Blackwood
2. Land Owners
 - Lewis and Clark County..... Mary Ann Fiehrer
 - Cascade County..... Stan Peck
3. Local Governments
 - Lewis and Clark County..... Rebecca Shaw
 - Cascade County..... Chair Lance Olson
4. Bicycle/Pedestrian Advocate Groups
 - Lewis and Clark County..... Mark Reinsel/Doug Brown
 - Cascade County..... Brin Grossfield
5. MDT-Great Falls..... Christie McOmber

Case Study Examples

North Idaho Centennial Trail/Spokane River Centennial Trail

The Centennial Trail is a 61 mile non-motorized path extending from Higgins Point in Coeur d'Alene Parkway State Park (six miles east of Coeur d'Alene, Idaho) to Sontag Park in Nine Mile Falls, Washington (Spokane, Washington). The trail distance between the two downtowns is 44 miles. Large sections of the trail follow the Spokane River and therefore increase the path length by eleven miles over the direct Interstate 90 route distance. The trail is paved and mostly a Class I separated path with some urban Class II bike lanes running through cities or along neighborhood streets. Urban sections consist of a separated, delineated path on road shoulders. The route is marked with signage and pavement markings.

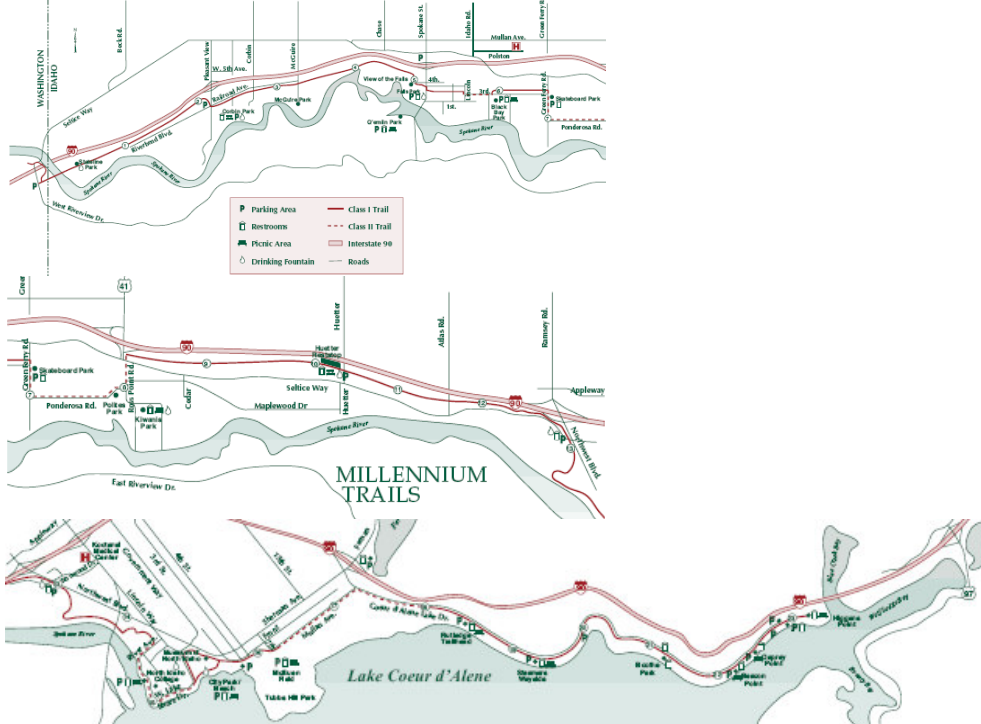
Figure 1: Overview of the Complete Centennial Trail



Source: Trails From Rails

The Idaho segment of the trail is 24 miles long and was constructed between 1987 and 1996 using dedicated public funds from a U.S. Forest Service grant through the congressional appropriations committee and some state money for purchase of a railroad right-of-way section. The total cost for construction was 2.6 million dollars. The current Idaho estimate for Class I trail-only development is \$125,000 per mile when built on raw land. The majority of the trail is located on right-of-way owned by the State of Idaho and the cities of Post Falls and Coeur d'Alene (North Idaho Centennial Trail).

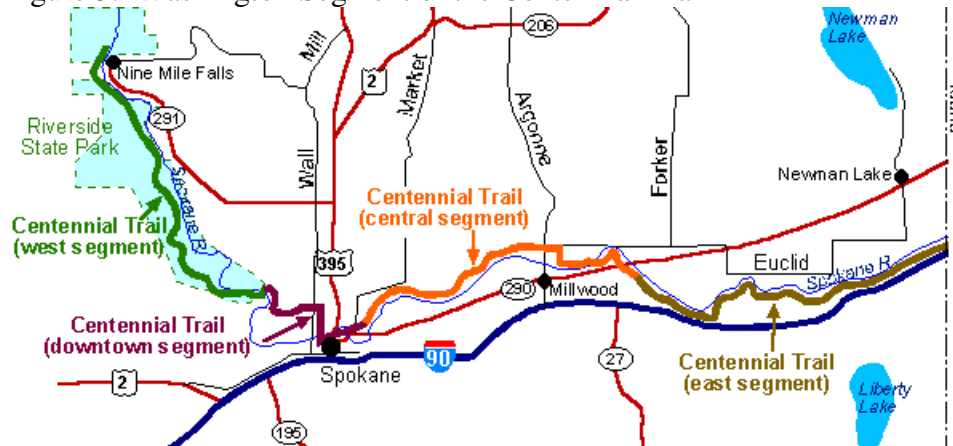
Figure 2: Idaho Segment of the Centennial Trail



Source: North Idaho Centennial Trail Foundation

The Washington side was completed earlier using a mix of federal, local, and private funding and the 37 miles there were dedicated in 1989. The rural portions of the Washington trail are 12 feet in width and were constructed by Washington State Parks as the 372 acre day-use Centennial Trail State Park. As a state park, the trail was eligible to seek federal and state funding sources. When constructed, needed land parcels that were not already a designated park were donated or purchased by the state. Some of the trail does follow abandoned rail bed. Management and maintenance of the current trail within this state is a partnership between local governments (city and county) and the State Parks (Friends of the Centennial Trail and Bill Fraser). The estimated total trail construction cost in early 1988 was \$13.3 million and this included design, administration, construction, taxes, contingencies, and inflation. The entire route was designed to be handicapped accessible (Flores, 6-14).

Figure 3: Washington Segment of the Centennial Trail



Source: Friends of the Centennial Trail

Montana bicycle and pedestrian path examples

Montana has multiple existing paved bicycle and pedestrian paths and trails throughout the state. None of them to date exist along an entire corridor connecting two cities. The Montana examples are useful in providing same-state examples and cost estimates.

River's Edge Trail in Great Falls

The River's Edge Trail in Great Falls, Montana is a trail network that follows the Missouri River through the city and northwest out to Sulphur Spring. The trail consists of 13 paved miles and 17 gravel or dirt track miles. The paved sections extend from Odd Fellows Park on the banks of the Missouri west of downtown to Crooked Falls east of Rainbow Dam. Trail development began in 1989 and continues today (River's Edge). Funding sources for trail construction have come from city funds including tax increment financing, federal and state money, and private donations. The paved portions are asphalt and are ten feet wide. Initial construction-only costs in the early 1990's were around \$85,000 per mile and that amount has increased to around \$185,000 per mile today. The trail is located on public roadway right-of-way, publicly-owned land, or easements on private land (Rangel).

Kiwannis/Dutcher Trail in Billings

The Kiwannis and Dutcher Trails in Billings, Montana form a continuous, paved, non-motorized path extending north from Mystic Park on the Yellowstone River east of downtown under Interstate 90 to Mary Street in the heights of northeast Billings. The entire path comprises 6.5 miles of pavement and is constructed on an old rail bed (Multi-Use). At the time of construction, the former rail right-of-way within the city limits was municipally-owned and trail construction costs consisted of new infrastructure only. Trail funding consisted of federal and state money with matching local funds and private donations. The Kiwannis/Dutcher Trail is Class I, made of concrete, and ten feet wide and the current cost estimate for concrete or asphalt trails of this width is \$300,000-\$350,000 per mile (this includes engineering, planning, and associated work) (Tussing).

There is a name change at the northern edge of Two Moon Park with Kiwannis Trail to the north of the park and Dutcher Trail within and to the south of the park (BikeNet).

Missoula Area Paths

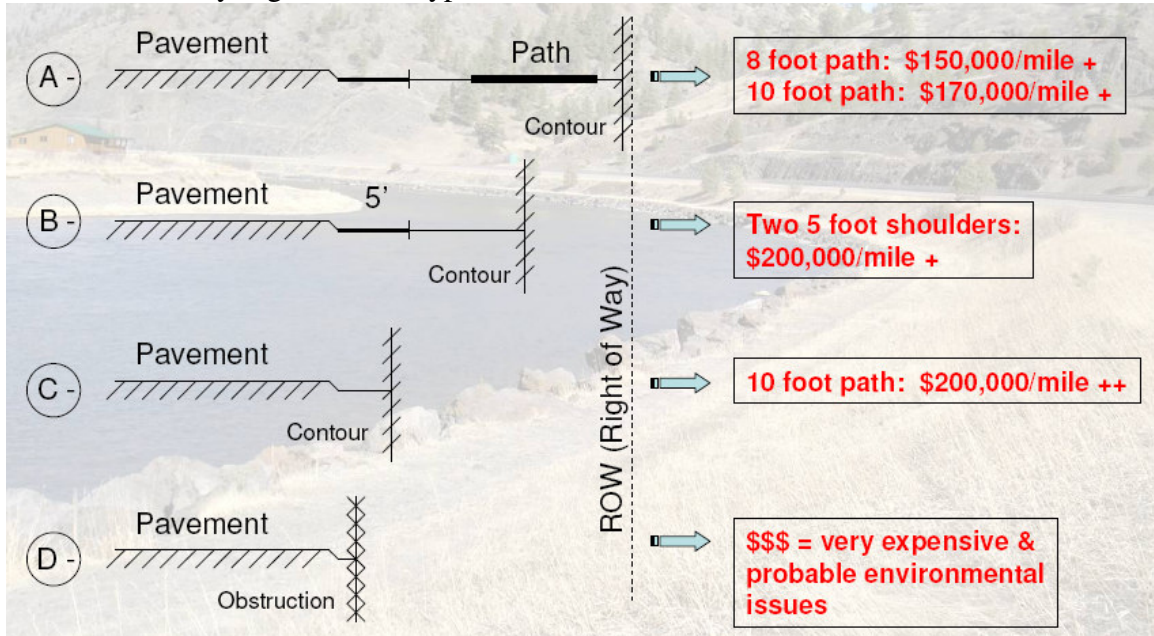
Missoula, Montana has numerous non-motorized paths both within the city limits and on outlying county land. Within the city boundaries, most bicycle/pedestrian ways are Class II bicycle lanes or streets designated as bicycle routes. Class I non-motorized trails exist within the urban area but tend to be located in the outer portions of the city or beyond the municipal limit. Funding for city trails is primarily through federal and state sources. Missoula strives to make all trails ADA compliant. Path construction is on public right-of-way, city-owned land, or easements which are donated or purchased. Trail development costs in the Missoula area run between \$200,000 and \$300,000 per mile inclusive of engineering, planning, and related work (Shaw).

Appendix 8: Cost Estimates

Montana Department of Transportation Cost Estimate Examples

The Great Falls District of the Montana Department of Transportation (MDT) encompasses both Cascade County and Lewis and Clark County. This district provided some cost estimates in 2008 dollars for the construction of a separated path or a widened shoulder. The information from this district includes eight and ten foot wide paved and separated paths on level ground, five foot paved shoulders on level ground, and a ten foot paved path on contoured ground. On level ground, an eight foot path begins at \$150,000 a mile, a ten foot path begins at \$170,000 a mile, two five foot shoulders begin at \$200,000 a mile, and a ten foot path on contoured ground begins at \$200,000. The upper range will depend on difficulty of construction.

Cost estimates by segmentation type



All estimates are in 2008 dollars

Cost Estimate Table

Type	Unit Cost per Mile	Miles	Total Cost
1. All independent utility path segments	\$150,000	25.3	\$3,795,000
2. Independent utility shoulder segments	\$200,000	15.6	\$3,120,000
3. 8 foot path only-all segments	\$150,000	35.6	\$5,340,000
4. 8 foot path only-greater than 1/2 mile	\$150,000	33.5	\$5,025,000
5. 8 foot path only-greater than 1 mile	\$150,000	26.5	\$3,975,000
6. All shoulders (3-5 feet)	\$200,000	62.6	\$12,520,000
7. Chokepoints	\$=very expensive	2.8	?

Note: Planning level estimates only - not based on detailed engineering and environmental survey, construction engineering, and contingencies.

Appendix 9: Economic Impacts

Economic Attraction of Recreational Bicycle Facilities

Idaho's panhandle features a recreational trail system which includes the 72-mile Trail of the Coeur d'Alenes paved path, the 24-mile North Idaho Centennial Trail multi-use paved trail, the 14-mile Route of the Hiawatha gravel trail, and the 11.7 mile Northern Pacific Trail multi-use compact gravel trail. This system is comprised of paved trail, multi-use trail, and gravel roads. Several trail head access points are located off of paved roadways or exits on Interstate 90.

While there has been no formal economic impact of the recreational trails of Idaho's panhandle, business for lodging facilities and restaurants has increased according to the Idaho Department of Parks and Recreation. In the first year of operation the Trail of the Coeur d'Alenes received 100,000 visitors. Businesses have seen commerce double and communities have seen revitalization in the years since the opening. The trail system has become a destination with a week draw – people are coming and staying a week. About 110,000 people from all around the world will use the trail in 2008 according to the Trail of the Coeur d'Alenes' park manager. Some businesses along the route have reported that over half their summer traffic is from bike riders coming off the trail or the nearby Route of the Hiawatha (Building).

The Root River Trail in Southeastern Minnesota is an often-cited example of the economic impact a trail can have. Pre-and post-trail Lanesboro, a town along the trail with about 800 residents, differ dramatically. Pre-trail Lanesboro was most notable for its historic setting and the home of Buffalo Bill Cody. Post-trail Lanesboro boasts 12 B&Bs (with year-long waiting lists), eight restaurants, an art gallery, a museum, and a thriving community theater well-off enough to offer housing to its actors. One year, a small "mom and pop" business in Lanesboro sold 60 tandem bicycles in a single year - more than the Twin Cities largest multi-store bike retailer. Tandem bicycle purchasers did not travel specifically to Lanesboro to acquire their tandems, but purchased tandems because they were in Lanesboro. This is a good indicator that people are willing to spend money to ensure a quality outdoor bicycling experience. This kind of "impulse" purchase is significant for retailers along trails. For a town like Lanesboro, a trail can mean an annual economic impact of more than five million dollars (National).

Appendix 10: Demographics

Demographics of Recreational Bicyclists

The most recently available statistical data on sports participation is presented in the *National Sporting Goods Association 2003 Survey* and is a primary tool to understand user trends. This analysis considers recreation participants' current, historic, and future needs and desires for programs and activities.

Participation was defined as taking part in the activity six times or more in a year. Activities measured included aerobic exercise, bicycle riding, exercise walking, exercising with equipment, running/jogging, step aerobics, swimming, and weight-lifting. Table 1 illustrates the results of this study with activities listed in descending order by total participation.

According to the study, direct trail activities such as exercise walking and bicycle riding increased from 2003 to 2004 by 3.8% and 5.3%, respectively. Additionally, trail-related activities like camping increased significantly over the same time period.

Table 1: Top Ten Activities for National Recreation Participation in 2004
Activity Total Participation (in Millions)

Percent Change
2003 – 2004

Exercise Walking	84.7	3.8%
Camping (vacation/overnight)	55.3	3.5%
Swimming	53.4	2.2%
Exercising with Equipment	52.2	3.9%
Bowling	43.8	4.6%
Fishing	41.2	-3.6%
Bicycle Riding	40.3	5.3%
Billiards/Pool	34.2	3.7%
Workout at Club	31.8	8.0%
Aerobic Exercising	29.5	5.1%

Source: National Sporting Goods Association, 2005.

Increasing participation in activities like exercise walking, bicycling, and day hiking, as indicated in Table 1, is a strong indicator for the demand of trails, which is growing rapidly in communities throughout the country. Also, there are increases in activities like camping, snowshoeing, and water-based recreation, which are often done in conjunction with trail use, and utilize trails for access to these recreation amenities.

Appendix 11: Public Comments

Theme	Frequency	Questions and Comments
1. Study Alignment	17	Happy MDT is looking at other (non-railbed) options and realistic alternatives/support path.
	9	Good study as presented/like current alignment.
	2	Extend the path to Helena (or Great Falls) to avoid driving to starting point.
	1	Against a path as proposed.
	1	Connect to River's Edge Trail in Great Falls (perhaps along Flood Road).
	7	Segments and separated paths where possible are a good idea.
	1	Look at paralleling the Rocky Mountain front instead of going from Helena to Great Falls.
	1	Study not worth being undertaken.
	1	Good outhouses and parking areas already exist.
	3	Prefer longer segments of path (15-20 miles if possible) for distances.
	1	Use Chevallier Drive as a share the road route with or without a path.
2. Safety	1	Reduce the speed limits or perform a speed study.
	1	Smaller rumble strips are better for bicyclists.
	1	Do not widen shoulders.
	1	Close the interstate to truck and automobile traffic (allow non-motorized travel only).
	1	Install warning lights and signs for vehicles/trucks to move over.
10	Concerned a path would not be safe for some or all users, skilled bicyclists will ride on the road anyway.	
3. General Comments	1	Every rebuilt road in Montana should have a separated bike path alongside.
4. Questions	1	Is the "Recreation Road" any different from a normal road?
	1	Environmental analysis performed prior to study completion?
	1	Will an EIS or EA be required?
	1	What funding sources might be available?
	1	When would NEPA/MEPA analyses begin for this type of project?
1	First study like this done by MDT?	
5. Economics/Users	7	Economic opportunities for route communities will occur.
	2	Demographics will be those well off with available time, bicycle tourists, or serious recreational riders.
	1	Look more in depth at demographics for this study and add to report.
	1	Local communities will not receive significant positive impact.
	8	Would the cost to build be justified?/Don't build if very expensive.
1	Would like to see Recreation Road closed for a day to gauge ridership.	
6. Financing	1	Use portion of Bed Tax to help finance.
	1	Possibility of contributing Joe's Trail "slush fund" money to paving Ulm portion of Joe's Trail.
	1	Willing to pay for path through tax assessments.
7. Rail Line	4	Realize BNSF is not selling soon, if ever.
	1	Compare the study feasibility with a rail trail.
	18	Do not ignore the rail line, look at possibility of acquiring the line (including incentives/inducements to sell).
	3	Against the rail line being used as a path.

A total of 41 people submitted comments on the study as it was presented at the Cascade meeting. Out of the total comments, 20 were favorable to the study and analysis, while 17 were not in favor or spoke to a rail bed trail. Three people made comments or had questions not directly related to the study and one person expressed support for some aspects of the study and no support for other aspects. Of the 41 total comments, 33 were received via email, letter, and fax during the open comment period following the meeting.

Appendix 11B: BNSF Letter to MDT Regarding the Status of the Rail Line



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September 12, 2008

Mr. Dick Turner, Chief
Multimodal Planning Bureau
Montana Department of Transportation
P.O. Box 201001
Helena, MT 59620-1001

Dear Mr. Turner:

I understand that the Montana Department of Transportation is completing a study on the feasibility of a bicycle/pedestrian path on public road right-of-way between Helena and Great Falls. As you have received a number of public comments regarding a rails-to-trails conversion of BNSF's rail line as an alternative corridor for the trail, I wanted to provide you with the current status of our line.

We continue to review our lines in Montana to determine current and future potential. In 2005, we conducted an in-depth study of the Great Falls to Helena line in an effort to determine its long-run role with the broader BNSF network. We evaluated a wide range of potential outcomes that ranged from immediately restoring the line for service to filing for abandonment and then disposing of the track-related assets and underlying real property.

We concluded that, while currently out of service, the Great Falls to Helena line is an important asset to BNSF if traffic between western Canada and the western United States returns to levels that would justify reopening the line to accommodate future growth. We continue to see overall rail traffic growth in the area and region – not enough to restore this line for service, but certainly sufficient to assure us our plans to retain the line in the event it is needed for future rail freight capacity is the right and prudent course for our customers. Accordingly, we will continue to keep the Great Falls to Helena line in-place but out-of-service.

If in the future the line no longer fits our long-range plans, we will keep other interests in mind.

Sincerely,

Peter Rickershauser