



# Boulder River Trail Master Plan and Feasibility Study



| August 2020 | Submitted By:



# Boulder River Trail

## Acknowledgements

Invaluable to this master plan's preparation was the input received from Boulder's engaged citizens and community groups.

### City of Boulder Council

Russell S. Giulio, Mayor  
Drew Dawson, President  
Gayle Nix  
Sherry Lepley  
Mike Taylor

### City of Boulder Planning Board

LaDana Hintz, Chair  
Sherry Lepley  
Cliff Mendenhall  
Dennis Wortman  
Susan Pasini  
Rodger Johnson  
Larry Bagwell

### City of Boulder Staff

Ellen Harne, City Clerk  
Dennis Wortman, Public Works Director



# Boulder River Trail

## Table of Contents

- Executive Summary..... 1
- Master Plan Overview..... 3
  - Downtown Master Plan ..... 3
  - Public Involvement ..... 4
  - Field Work and Data Gathering ..... 4
  - Trail Corridor Mapping..... 4
  - Identification of Sites for Trailheads, Public Access, and Recreation Areas ..... 5
  - Facility Design ..... 5
  - Cost Estimates and Phasing ..... 5
  - Funding, Timeline, and Administration Recommendations ..... 6
- Site and Environmental Characteristics ..... 7
  - Terrain..... 7
  - Geology ..... 7
  - Soils ..... 7
  - Plants and Wildlife ..... 8
  - Points of Interest..... 9
    - Fairgrounds ..... 9
    - Parks and Schools..... 9
    - Radon Gas Mines ..... 10
    - Hot Springs..... 10
    - Ghost Towns ..... 10
- Existing Trails and Pedestrian Facilities ..... 11
- Facility Design ..... 12
  - Overview ..... 12
  - Trail Design..... 12
    - Asphalt ..... 12
    - Crushed Stone ..... 13

# Boulder River Trail

- Master Plan ..... 14
  - Boulder River Trail..... 15
  - Riverfront Park Trail ..... 16
  - Eastside Trail ..... 17
  - Boulder Sidewalks ..... 19
  - Fairgrounds Trail ..... 21
  - Capitol Hill Trail ..... 22
  - Highway 91 Trail..... 24
  - Cattle Drive Trail ..... 25
- Implementation ..... 26
  - Cost Estimates..... 26
  - Priorities..... 26
  - Right of Way Acquisition..... 27
  - Trail Operation and Maintenance..... 28
    - Timing and Frequency of Inspections ..... 29
- Funding Options ..... 30
  - Local Options..... 30
    - City General Funds ..... 30
    - General Obligation Bonds ..... 30
    - Tax Increment Financing..... 30
    - Special Improvement Districts ..... 30
  - Grant Options..... 31
    - Transportation Alternatives (TA) ..... 31
    - Montana State Parks Recreational Trails Program Grant ..... 31
    - Land & Water Conservation Fund (LWCF) Grants..... 32
    - Montana Fish, Wildlife & Parks Community Pond Program ..... 32
    - People for Bikes Community Grants ..... 33
    - USDA Community Facilities Direct Loan & Grant Program ..... 33
    - Elkhorn Community Foundation ..... 33
  - Grant Funding Summary ..... 34
- Conclusion..... 35



# Boulder River Trail



## Attachments

Boulder River Trail Master Plan

Trail Segment Cost Estimates

Boulder River Trail Construction Plans

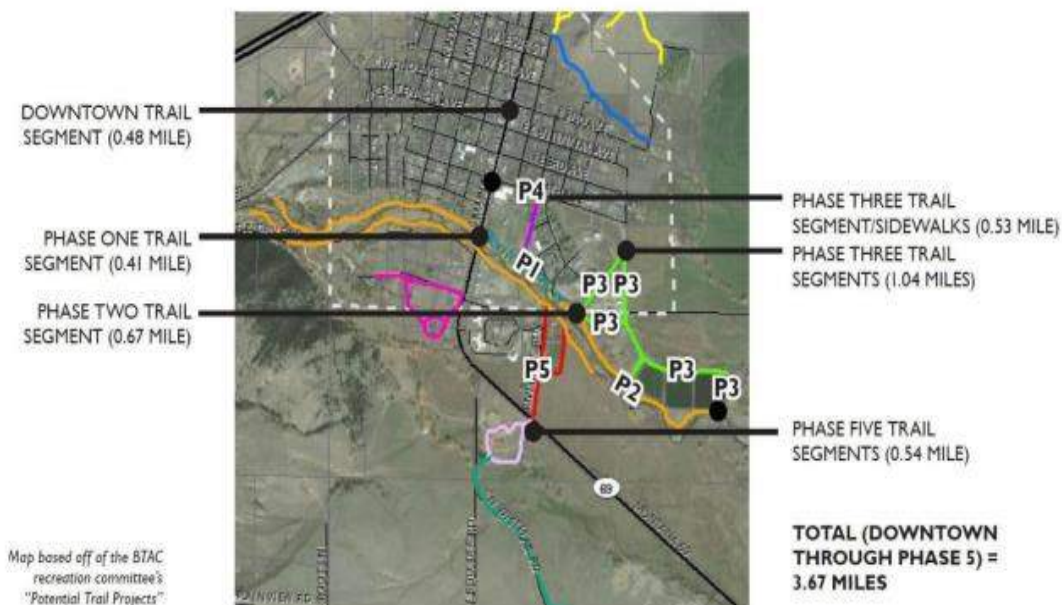
# Boulder River Trail

## Executive Summary

The Boulder River is a remarkable asset to the City of Boulder, and a riverfront park and trail system would allow this precious resource to be used and enjoyed by residents and visitors alike. Connecting the trail system to downtown Boulder with paths adjoining downtown sidewalks and signage directing individuals to the riverfront area would promote the investment the community is making to improve access to recreational sites along the river.

The Boulder, Montana Growth Policy Update, adopted in 2018, identifies “a city-wide bike and pedestrian trail system for all ages and abilities that can be used year-round” as a goal for Health and Recreation Opportunities. More specifically, to “create a trail system that is designed for walking, running, wheelchairs, bicycling, and includes workout stations” and “create a park and trail system with public access along the Boulder River”.

The Boulder Transition Advisory Committee (BTAC) provided a map of the Boulder Trail Related Recommendations and Potential Trail Projects to be used for future trail related projects, for inclusion in the Growth Policy Update. This map, shown below, was the jumping off point for this Boulder River Trail Master Plan.



Creating a Master Plan for Boulder trails has taken a high priority from the community to create local recreational opportunities and spur economic development in the region. The Plan is funded by the Boulder Development Fund, administered by the Boulder Planning Board with assistance from the Jefferson Local Development Corporation (JLDC). Each of these entities, along with interested members of the community, have contributed to this plan by attending meetings to set priorities and providing comment on components of the plan.

## Boulder River Trail



Plan components are Site and Environmental Characteristics, an overview of Existing Trails and Pedestrian Facilities, options for Facility Design, a Master Plan detailing the priorities for future projects, an Implementation Plan to move projects forward, and information on potential Funding Options that can be used toward accomplishing the goals of the plan. It is the intention of the plan to provide the community with a logical and achievable approach to the development of an improved multi-use trail system that takes advantage of the natural amenities Boulder has to offer. In addition to providing recreational opportunities and attracting economic development opportunities, benefits such as community health improvement and wider community pride in an aesthetically pleasing atmosphere will also be attained.

# Boulder River Trail

## Master Plan Overview

Recreational trails contribute to the natural landscape and quality of life for citizens and visitors to Boulder. Parks and trail facilities are essential components of a vibrant community. Creating and maintaining these resources requires planning and financial commitments. This master plan provides a planning document that outlines goals, objectives, and a recommended course of action for the future.

### Downtown Master Plan

In 2018, the City of Boulder undertook an effort to develop a Downtown Master Plan which reviewed its downtown area and established actions to address current and projected challenges the City faces. Within this plan, the City of Boulder identified destinations and priorities for various interconnections throughout the City.





# Boulder River Trail

## Public Involvement

Throughout development of the Plan, the engineering consultant and the City of Boulder Planning Board have met in work sessions and provided opportunity for public input on the feasibility of the locations anticipated to site the trails. The workshops were advertised through the Boulder Monitor and were fairly well attended with an engaged community, meeting in spring of 2020 on February 24<sup>th</sup> and the first week of March. Comments and input expressed by the community was received and integrated into this master plan.

A draft Boulder River Trails Master Plan was provided to the City for review in August of 2020. That draft plan was also available in electronic form on the City's web site and on the Stahly Engineering & Associates' web site with opportunity for the public to comment on its contents. With those comments delivered, the consultant completed the final Boulder River Trails Master Plan in September 2020 and the plan was recommended by the Planning Board and adopted by the Boulder City Council in September of 2020.

## Field Work and Data Gathering

This Master Plan considers the existing trails and other pedestrian facilities in Boulder along with the general environmental conditions present that may affect decisions regarding trail design and location. Minor field survey was conducted along with in-house evaluation of potential trail routes on available cadastral maps. This information helped identify land ownership, stakeholder groups, and topography that assisted in determining the feasibility and trail design components of each segment of the Boulder River Trails. The focus was to develop options for trails that would allow for recreational activities in and around the community that interconnect

## Trail Corridor Mapping

Maps of the proposed trail route are provided in the Master Plan section of this document and are provided in electronic form, compatible with GIS mapping standards to the Planning Board. The maps show:

- State of Montana right-of-way in the vicinity of the proposed trail and the limits of associated easements and federal property.
- Other existing easements for trail development, access, and utilities.
- Jurisdictional boundaries.
- Public roads in the vicinity of the proposed trail that could potentially be used for public access to the trail.
- Existing and planned trails that could potentially be connected to the Boulder River Trail.
- Parcels adjacent to Boulder River (with ownership information) that could be developed as trail access facilities or open space nodes.
- Locations where the acquisition of additional easements and/or Boulder River right-of-way will be required to accommodate the trail.
- The results and recommendations of other related planning and design studies.

# Boulder River Trail

## Identification of Sites for Trailheads, Public Access, and Recreation Areas

The Master Plan has identified connectivity of the Boulder River Trails with existing and potential future recreational facilities (parks, day use camping) and City sidewalks that also provide public access to the trails. The Plan also shows connectivity with local businesses (i.e. private campgrounds) that will benefit from access to the multi-use trail system. The Downtown Master Plan supports connecting trails within this plan to its concept of providing improvements such as signage, Veterans Park improvements, façade improvements, and pocket parks to improve the overall attraction to the Boulder downtown.



From City of Boulder Downtown Master Plan

## Facility Design

Design standards that include options and recommendations for materials, typical sections, accessibility, slopes, and features are included within this Master Plan. As future projects are prioritized and planned by the community, appropriate design standards will be drafted for each segment of the trail with consideration given to environmental conditions of each trail segment location, future maintenance, and cost.

For the purposes of this report, path or pathway may refer to either a sidewalk or a trail. A sidewalk is defined as a portion of a highway, road, or street intended for pedestrians. A trail is defined as a path of travel for recreation and/or transportation within a park, natural environment, or designated corridor that is not classified as a highway, road, or street. A Shared-use path is defined as a trail permitting more than one type of user, such as a trail specifying both pedestrians and bicyclists as designated users. An equestrian-only trail would not be considered a shared-use path.

## Cost Estimates and Phasing

As part of the Implementation section of this document, preliminary cost estimates are provided for each identified trail segment of the Boulder River Trail system. These estimates include all anticipated construction components of each section identified in the plan. Engineering and other administrative costs that are anticipated are also included. Local in-kind contributions to

# Boulder River Trail

the trail will help make projects more affordable. These estimates and funding information will aid in the community's prioritizing in which order additional trails will be constructed.

## Funding, Timeline, and Administration Recommendations

Funding each trail segment will require careful planning to meet local budget and grant funding agency deadlines. Potential sources of funding or local mechanisms for generating revenue to build projects are included in this Master Plan. Embarking on this effort to plan for Boulder's future trail projects is a first step in acquiring outside funding. Most funding applications request recap of planning efforts that involve the community in the decision-making process. Having preliminary plans and cost estimates will provide the information needed to request financial assistance and implement the Master Plan.

The City of Boulder prioritized the Boulder River Trail of the Boulder River Trails Master Plan in 2020. This is the segment of trail from Highway 69 east along the North side of the Boulder River to Elder Street. Plans for construction were completed in July 2020 and construction of the initial Boulder River Trail segment is anticipated to begin as early as fall 2020. Timelines for future projects will depend upon funding availability, right-of-way acquisition, and permitting requirements.

The success of completing all segments of the Master Plan is dependent on the City's financial commitment, including a commitment to future maintenance. It will also depend on the cooperative nature of local landowners and stakeholders and the success of receiving outside funding to assist in paying for these improvements. It is recommended that the Planning Board Trails Committee continue to their work to gain support and provide planning guidance to the Boulder City Council as they work toward achieving the goals of the Boulder River Trail Master Plan.

# Boulder River Trail

## Site and Environmental Characteristics

### Terrain

Boulder lies at an elevation of 4,990 feet above sea level and is on the north bank of the Boulder River. The Boulder City Recreational Trails Master Plan area is generally located on lands which are flat with little slope. Topographic contours run perpendicular to the river channel in this vicinity resulting in a wide but shallow flood plain.

### Geology

The City of Boulder is strategically placed in the heart of what is known as the Boulder Batholith within the Elkhorn Mountains Volcanics. From about 81 to 74 million years ago, molten magma or melted rock reached the surface to create the enormous Elkhorn Mountain Volcanics which is roughly 100 miles in diameter and up to 3 miles thick. After the pile of volcanic rocks got so thick, magma stopped going all the way to the surface and just accumulated near the bottom of the pile, forming a body of granitic rock which extends from Helena to Butte and is known as the Boulder Batholith. As the granite cooled, it cracked and the hot solutions which filled the cracked formed mineral veins bearing gold and other metals. Some of the richest gold, silver and copper mines in Montana are located on the Boulder Batholith.

Current surficial geology of the Boulder recreational planning area consists primarily of one to three feet of topsoil underlain by thick layers of variable thickness alluvial river gravels. The seismic design category for this location is high or “D”, with seismic risk zones having a range from low “A” to maximum “E”.

### Soils

A soil survey provided through the Natural Resources Conservation Service (NRCS) indicates that the areas where recreational improvements are anticipated consists of many different soil types. Improvements along the Boulder River will primarily encounter Riverwash and, generally, improvements within town will encounter Ryell-Riverrun Complex.

Other soil types within the planning area anticipated to be encountered are provided below.

- Beaverell, Very Stony-Beaverell-Sieberell, Stony
- Riverrun Gravelly Sandy Loam
- Riverrun, Handke, and Ryell
- Connieo, Bouldery-Crackerville-Rock Outcrop Complex
- Farnuf-Placerton Sandy Clay Loams



# Boulder River Trail

## Plants and Wildlife

The Montana Natural Heritage Program (MNHP) is Montana’s source for reliable, object information and expertise to support stewardship of the state’s native species and habitats. The program collects and publishes data on plants and wildlife which is useful in determining a project’s potential environmental impact.

A search was performed through the MNHP database to identify any plant and wildlife species of concerns within the planning area. Species of concern (SOC) are species which have been determined to be at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. SOCs are ranked through a state system ranging from 1 to 5, with 1 being the of the highest risk and greatest concern.

The search provided 20 animal species of concern and 4 plant species of concern. A table summarizing plant/animal species of concern can be found below.

PLANT/ANIMAL SPECIES OF CONCERN		
Category	Species (Common Name)	Risk Factor
<b>Mammals</b>	Wolverine	S3
	Hoary Bat	S3
	Little Brown Myotis	S3
	Fringed Myotis	S3
	Grizzly Bear	S2S3
<b>Birds</b>	Bald Eagle	S4
	Great Blue Heron	S3
	Veery	S3B
	Brown Creeper	S3
	Evening Grosbeak	S3
	Pileated Woodpecker	S3
	Cassin's Finch	S3
	Black Rosy-Finch	S2
	Lewis's Woodpecker	S2B
	Clark's Nutcracker	S3
	Green-tailed Towhee	S3B
	Pacific Wren	S3
<b>Amphibians</b>	Western Toad	S2
<b>Fish</b>	Westslope Cutthroat Trout	S2
<b>Invertebrates</b>	Boreal Whiteface	S1
	Western Pearlshell	S2
<b>Plant Species</b>	Moonworts	S1S3
	Whitebark Pine	S3
	Musk-root	S3
	Round-headed Cryptantha	SH

# Boulder River Trail

## Points of Interest

Established in the early 1860s as a stagecoach station, Boulder’s downtown offers a rustic charm and many services such as bars, restaurants and a bowling alley. In addition to businesses downtown, the City of Boulder planning area provides a wide variety of outdoor recreational facilities and other points of interests, which would benefit from access to a trail network.

### Fairgrounds

The Jefferson County Recreation Park is nearby and hold many annual events such as the ‘A Fair of the Heart’ and the Jefferson County Rodeo and attract visitors from throughout the state. Throughout the year the park is open to the public and offers picnic tables, swings, volleyball and miniature golf course. Three buildings in the park are available for the public to rent for special functions and events.



### Parks and Schools

Schools located within the City of Boulder include Boulder Elementary and Jefferson High School. Both are located along the downtown corridor and would benefit from the increased interconnectivity of an expanded recreational trail system.



The City of Boulder has many parks throughout the community, notably Centennial Park and Gopher Stadium, Eastside Park, a skate park and Veterans Memorial Park and Pool. These parks provide grassed recreational areas, picnic tables, RV Parking, a fenced baseball field, swings and play equipment, skateboarding activities, swimming as well as public restrooms.

# Boulder River Trail

## *Radon Gas Mines*

There are many mines throughout the area around Boulder which have become attractions from visitors throughout the world to bask in radioactive radon gas and drink radioactive water to improve their health. The health mines opened in the early 1950's and many visitors stay for a week or two.

## *Hot Springs*

The Boulder Hot Springs is a large Spanish mission like building where Boulder partied throughout much of its past, especially throughout the 1930s big band era. Renovated and restored, the springs switched to a health-conscious resort providing an outdoor swimming pool, steam rooms and indoor hot springs to guests.



## *Ghost Towns*

Nearby Elkhorn is an abandoned mining town and has been a ghost town attraction for over 75 years. It produced over 14-million dollars in gold and silver from its beginnings in 1870 and still attracts tourists to see its cemetery, school, hotel and saloon.



# Boulder River Trail

## Existing Trails and Pedestrian Facilities

The City of Boulder currently has two trail and pedestrian facilities within the community. The primary one is sidewalks along Main Street (Highway 69) from West Hauser street to the south of the bridge crossing the Boulder River. These sidewalks are ADA compliant and facilitate safe pedestrian travel throughout the downtown business area.



The multi-use path along the south side of Highway 69, from the south side of the Boulder River to Little Boulder Road, was constructed along with the reconstruction of Highway 69 to provide a safe and effective route to the fairgrounds. The path was constructed by the Montana Department of Transportation and has been dedicated to the remembrance of Boulder resident Carol LeRoux, who passed away in 2011.

The trail is in excellent condition and is not anticipated to require any significant maintenance in the near future. The trail terminates at the intersection of HW69 and Whitetail Drive, without providing a complete trail crossing. A safe crossing from this route into the fairgrounds property is considered as one of the higher priority projects within this feasibility study.



## Facility Design

### Overview

This master plan provides guidelines for the design of a variety of improvements throughout the City of Boulder area. These guidelines focus on the improvement's materials, dimensions and consider the construction and maintenance of the recreational improvements suggested throughout this plan. Types of improvements proposed include concrete sidewalk, gravel trail, asphalt/millings trails, pedestrian bridges, campgrounds, and recreational water bodies.

### Trail Design

Sidewalks and trails are considered fundamental services to the public because they provide essential pedestrian access to schools, government offices, businesses, and recreational areas. As such, they should be designed to meet the needs of the widest possible range of users and be ADA accessible.

Accessible sidewalks and trails enrich a community's quality of life on many levels and are cost-effective due by promoting independence for people with disabilities and reducing the need for social services. Current *ADA Accessibility Guidelines (ADAAG)* do not specifically address sidewalk and trail design, although it does contain applicable provisions to sidewalks and trails. Sidewalks and trails proposed have incorporated ADAAG guidelines as well as best management practices recommended through the Federal Highway Association's (FHWA) *Designing Sidewalks and Trails for Access*.

### *Asphalt*

Asphalt is a typical surface used for shared-use paths in order to maximize the longevity of the shared-use path surface and promote bicycle use. Surfacing significantly affects which user groups will be capable of negotiating the terrain and paved surfaces should be provided in areas that are subject to flooding or drainage problems, in areas with steep terrain and in areas where bicyclists are the primary users.

High use trails passing through developed areas or fragile environments are typically surfaced with asphalt. Paved recreation trail surfaces such as asphalt will be firm and stable in both wet and dry conditions and are also considered fairly slip resistant in dry conditions.

# Boulder River Trail

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## *Crushed Stone*

As the need of users dictates the selection of a trail's surface, some trail surfaces may be desired to utilize crushed stone or native soils mixed with stabilizing agents. Crushed stone is typically firm and stable under most conditions when placed over geotextile fabric to prevent vegetation growth and adequately compacted. The base material must be compacted with the correct moisture content and proper surfacing material selected.

Desired uses of future phases of the City's trail system should be considered in selection of surface materials.

# Boulder River Trail

## Master Plan

The proposed trail system for the City of Boulder consists of eight trail segments within and adjacent to the City, providing connectivity to each other and to existing sidewalks and trails. Each trail segment is detailed within this section of the report and an overall exhibit of the Master Plan can be found within this report’s attachments.

A summary of the proposed trail segments is provided below and identifies the location of the trail segment, its length, and any connectivity to existing trails, parks or other trails proposed in this Master Plan.

SUMMARY OF MASTER PLAN PROPOSED TRAILS			
Trail Segment	Extents of Trail	Trail Length Feet (miles)	Connectivity
Boulder River Trail	City	2,285 (0.43)	Connection to existing sidewalk along Main Street.
Riverfront Park Trail	City	6,320 (1.20)	Connection to Boulder River Trail
Eastside Trail	City	4,230 (0.80)	Connection to Boulder River Trail and Riverfront Park Trail, connection to sidewalk on East 4 <sup>th</sup> Avenue, and connection to Capitol Hill Trail.
Boulder Sidewalks	City	7,220 (1.37)	Connection to existing City sidewalks, connect to Boulder River, Riverfront Park, Capitol Hill and Highway 91 Trails.
Fairgrounds Trail	County	5,870 (1.11)	Connect to existing trail along MT-69 and to Boulder River Trail.
Capitol Hill Trail	City / County / Private	7,050 (1.34)	Connection to Eastside Trail and Boulder Sidewalks.
Highway 91 Trail	City / County / Private	6,280 (1.19)	Connect to Cattle Drive Trail, proposed private campground, city sidewalks and downtown Boulder.
Cattle Drive Trail	City / County / Private	5,570 (1.05)	Connect to existing trail along MT-69 and utilize existing roadway.

# Boulder River Trail

## Boulder River Trail

Identified within the City's Downtown Master Plan in 2018, the Boulder River Trail segment has been prioritized by the Boulder Community as the inaugural segment of the system to be constructed. As such, a limited field survey was performed along the segment's alignment and detailed construction plans have been prepared as part of this study. This segment was presented at public meetings and the community was supportive of the proposed improvements.



As the launching point for the City of Boulder's trail system, additional segments in the future will provide essential interconnections to recreational facilities throughout the City such as Eastside Park, nearby fields and the county fairgrounds. The Boulder River Trail further provides an ideal location for new recreational facilities to branch out along the Boulder River in the future.



The Boulder River Trail is proposed to begin on North Main Street, near the north end of the bridge crossing the Boulder River and continue east along the river to the existing Montana Developmental Center property. Connecting to an existing sidewalk along Main Street, the trail crosses Running Bear Street and will tie into an existing trail on the State of Montana property, ending at the property line on the east.



# Boulder River Trail

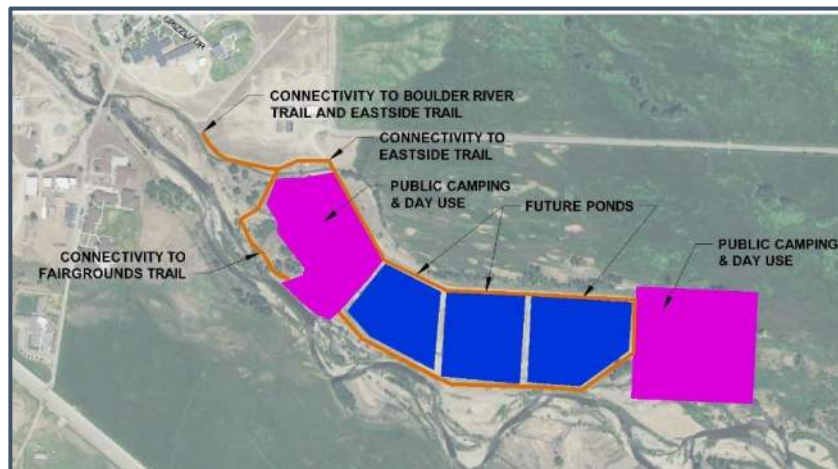
The trail will be constructed as an eight-foot asphalt shared use path and to be placed at existing grade to ensure no adverse flood plain impacts. Additional benefits to an at-grade trail are reduced costs of fill material or excavation. This segment's Proximity and connectivity to downtown Boulder will enable those enjoying the historic town to easily enjoy this 2,300-foot scenic path along the Boulder River.



While some wetlands are present along the Boulder River, this trail segment's alignment avoids wetland areas and is located within City and County property. Coordination with Jefferson County and the school district will be required.

## Riverfront Park Trail

The proposed Riverfront Park Trail continues the Boulder River Trail eastward and would provide a looped trail around future ponds and camping/day use areas. As an extension of the Boulder River Trail, it is anticipated to have a similar section as an eight-foot wide shared use path. Through the Boulder River Trail, the Riverfront Park Trail will provide connectivity from the proposed recreation areas to downtown Boulder.



# Boulder River Trail

This trail segment would continue to utilize the recreational benefits of the Boulder River and considers the potential recreational use of existing City property. Formerly the site of the City’s wastewater treatment facility, the lagoons were abandoned and mitigated through Montana DEQ. The repurposing of the property into a recreational facility was presented as a unique and sustainable approach in repurposing the property. Excavated material from future ponds are anticipated to be suitable fill to raise associated recreational facilities such as campsites above the water table and designed accordingly.

The segment and associated recreational facility would be located wholly within City property and more than likely require a fairly significant design process to address wetland and flood plain impacts. While not anticipated to be insurmountable, proper hydraulic design of permanently wet ponds and consideration of a currently unstudied flood plain would be required. Additionally, the design of such a facility should mitigate two specific concerns which was voiced by the community, odor and mosquitoes.

An adjacent landowner expressed concerns over potential conflicts associated with increased public use within the area as well as the proliferation of noxious weeds. While this study did not investigate the presence of noxious weeds throughout the City, the City should be aware of the concern expressed.

This trail’s anticipated costs have been estimated without consideration to the future facility’s amenities.

## Eastside Trail

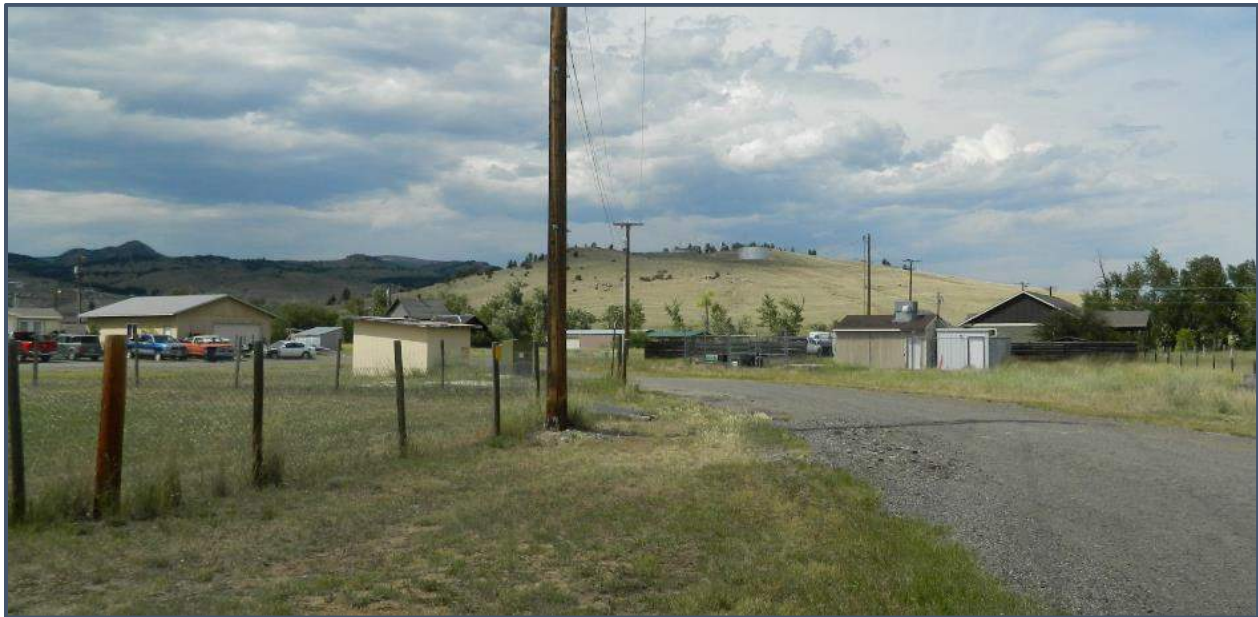
Eastside Trail is also planned as an eight-foot wide shared use path and connects to the east end of Boulder River Trail, as well as the northern portion of Riverfront Park, near Muskrat Lane. From here, the trail continues north along Sherman Street, adjacent and connecting to the existing baseball field, ending at East 2nd Avenue, which is also the beginning of the Capitol Hill Trail.



# Boulder River Trail



Upon direction from opinions expressed through the public workshops, this segment has been planned to utilize a portion of former Montana Development Center (MDC) property, which the City/County are currently negotiating to acquire from the State. The MDC property contains existing trails which may be utilized for future trail interconnectivity projects.



The remaining portions of this segment are found within City right of way and not anticipated to require the acquisition of any easements. This segment was generally well received by the public with the exception of the concerns of an adjacent landowner over potential conflicts associated with increased public use and the proliferation of noxious weeds.



# Boulder River Trail

## Boulder Sidewalks

Although not identified within the 2018 Downtown Master Plan, several segments of sidewalk have been identified which may benefit recreational interconnectivity within the City of Boulder. As these segments are primarily within developed portions of town and provide access to essential community and government



facilities, they have been planned to be five-foot wide concrete sidewalks providing ADA access. These segments are proposed to be located within existing City right-of-way and were generally well received by the community.

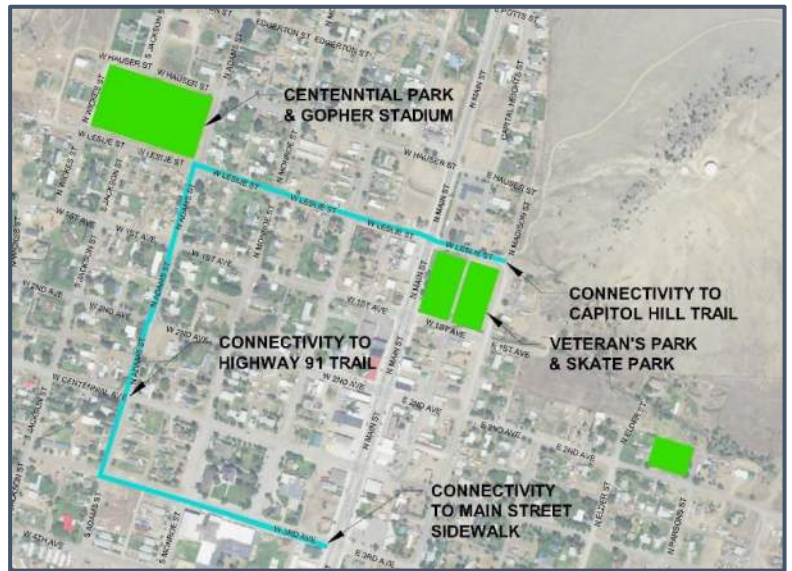
The southern section of Boulder Sidewalks are proposed to connect Boulder River Trail to 4<sup>th</sup> Avenue and extend eastward from Jefferson High School towards the baseball field and Big Boulder Residences apartment complex ultimately connecting to the planned Eastside Trail.



A segment of sidewalk extending eastward from the high school would greatly benefit the community. It is understood that the nearby schools have expressed interest in utilizing the former MDC facilities and a sidewalk extension along 4th Avenue would enhance pedestrian interconnectivity as well as providing an accessible route for those with disabilities.

# Boulder River Trail

The northern section of Boulder Sidewalks will connect to existing sidewalk along Main Street. Beginning at the corner of Main Street and West 3rd Avenue, the sidewalk will be constructed for three blocks along West 3rd Avenue before turning north onto Adams Street. The sidewalk will then proceed north for four blocks along Adams Street to Leslie Street, at which point it turns east and follows Leslie Street to North Madison, and the end of the Capitol Hill trail. The portion of proposed sidewalk runs adjacent to the Jefferson County Courthouse, the Boulder Elementary School, an existing baseball field and Veterans Park.



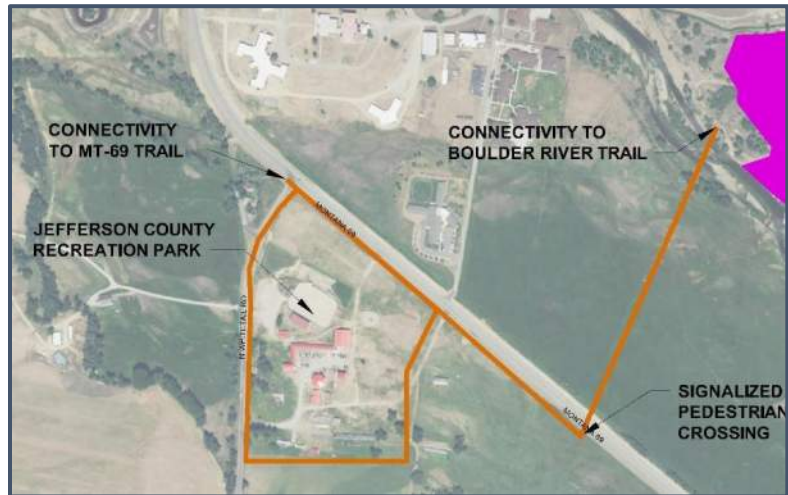


# Boulder River Trail

## Fairgrounds Trail

The Fairgrounds Trail has been proposed to provide connectivity from the City of Boulder to the Jefferson County Recreation Park, which hosts the Jefferson County Fair and Jefferson County Rodeo and is home to a number of additional community events.

An asphalt shared use path currently exists from the City, along MT-69, to its intersection with Whitetail Road. The proposed Fairgrounds Trail would begin at MT-69 and run south along Whitetail Road encompassing the County fairgrounds. The trail would then extend southeasterly along MT-69 until turning north, crossing MT-69 ultimately connecting to a segment of trail associated with the Riverfront Park Trail previously described.



This segment is planned as an eight-foot shared use trail will provide connectivity from the future public camping and day use areas adjacent to the Riverfront Park Trail, as well as connectivity from downtown Boulder. Trail extensions along MT-69 should match existing trail sections to maintain a consistency along the roadway. This will allow residents and visitors access to the Park by foot or bicycle, potentially alleviating parking congestion during large events. Additionally, the construction of a pedestrian bridge will be required to cross the river and interconnect into the expanded trail system.

# Boulder River Trail

While originally shown and planned to utilize Riverside Road’s right-of-way to interconnect with the Boulder River Trail, it is understood that there are concerns of introducing a recreational trail near the state’s correctional and treatment facilities. Rather than utilize Riverside Road’s ROW, an alternative connection route through state lands may be considered a beneficial alternative and would require an easement from the state to be secured. A preliminary alignment following an existing irrigation ditch towards Boulder River was considered for planning purposes.

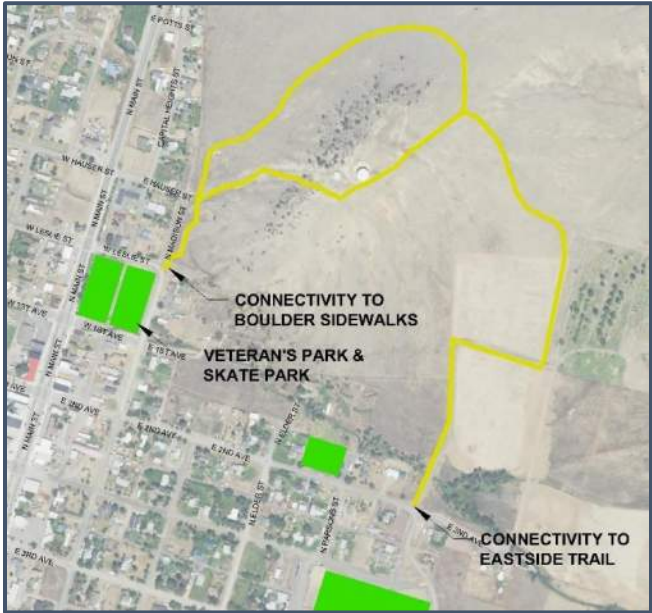


This trail segment is located within State and Jefferson County property, requiring proper coordination and potential easements. The State of Montana also owns the property east MT-69 crossing shown.

When presented, the public expressed an interest to ensure several safety considerations were integrated such a project for the pedestrian crossing. Some suggestions were to reduce the speed limit in front of the fair grounds on 69 and to provide rapid flashing pedestrian crossing signage.

## Capitol Hill Trail

Capitol Hill Trail is a proposed gravel trail that would provide a dedicated path where currently an unimproved route is utilized for recreational purposes. Connecting on the north to West Hauser Street, running adjacent to Boulder Cemetery Road and ending at East 2nd Avenue, where it will connect to the Eastside Trail. This is a popular area for residents to hike and mountain bike and providing an improved gravel trail will likely increase use.



## Boulder River Trail

This trail segment is planned to be located primarily through two to three private properties, which would require the securing of appropriate easements. When presented to the public, the trail segment was received well. Interest to provide a fence around the City's water tank was expressed and should be considered if this project is pursued.

Integrated with the Eastside Trail segment, the Capital Hill Trail would complete a recreational trail loop from the southern downtown area, accessed at Boulder River Trail, to the northern downtown area, accessed near Veterans Park. A trailhead located near the skate park and the City's interstate access could welcome visitors and provide an accessible introduction to the Boulder Trail system. Signage, trail corridor maps or facilities educating visitors of Boulder's long and storied past may also be placed here.





# Boulder River Trail

## Highway 91 Trail

The Highway 91 trail will begin at the west end of the Cattle Drive Trail and require a pedestrian bridge to cross the Boulder River before it continues along the south side of Old Highway 91. The trail will continue north along the highway, which turns into Centennial Avenue, and will end at the intersection with Main Street.



The owner of private property adjacent to the trail segment expressed an interest to the development of a private campground and recreational facility in the future. The Highway 91 trail, which is planned to be an eight-foot shared use path, will run adjacent to the campground, providing access to downtown Boulder and the Boulder River by users of the campground as well as potential connectivity to the Cattle Drive Trail.

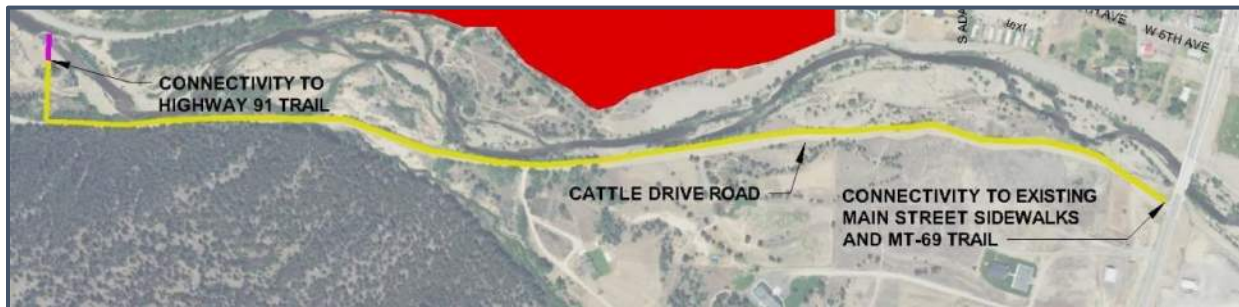
Primarily located within public right-of-way, an easement will be required to be secured from the private landowner to construct a pedestrian bridge. Wetlands are not anticipated to be a critical issue for this project but flood plain permitting will need to be considered for the design and construction of a pedestrian bridge to cross the Boulder River.

# Boulder River Trail

## Cattle Drive Trail

The Cattle Drive Trail is proposed to utilize Cattle Drive Road, which is an existing gravel roadway that closely parallels the Boulder River on the south. While field investigations found speed limit signage and the road appeared maintained, the public use of Cattle Drive Road is understood to be a contentious issue within the community, and public comment was received indicating opposition to such a trail segment.

Preliminary record research indicates that the State of Montana owns the road tract by deed and is labeled as an access road within MDT right of way plans. No use restrictions were discovered within the research, but the investigation was not exhaustive.



While a portion of the riverside property near the MT-69 intersection is owned by Jefferson County, the majority of this trail segment would require the determination and establishment of public use and access along the existing roadway or the securement of easements from four private properties as well as the Bureau of Land Management. Either process is anticipated to require fairly extensive coordination and planning and should be considered when establishing this trail segment as a priority. Additional public discussion is recommended to establish the community's need and desire for such a project.



# Boulder River Trail

## Implementation

Residents of the City of Boulder, in addition to seasonal tourists and recreationists, will benefit from the proposed trails system identified within this Master Plan. The trails will provide access to outdoor resources, improve access to popular area destinations, connect users from downtown Boulder to the river front park, and help shape overall community growth. A non-motorized transportation network will provide safe and efficient bicycle and pedestrian connections between downtown, residential neighborhoods, schools, the Boulder River, and the Jefferson County Fairgrounds.

## Cost Estimates

Cost estimates have been prepared to aid the community in establishing priorities for future trail construction and are summarized below. Cost estimates do not include any costs associated with right-of-way acquisition.

SUMMARY OF TRAIL COST ESTIMATES			
Trail Segment	Extents of Trail	Trail Length Feet (miles)	Cost Estimate
Boulder River Trail	City	2,285 (0.43)	\$92,855
Riverfront Park Trail	City	6,320 (1.20)	\$185,985
Eastside Trail	City	4,230 (0.80)	\$117,604
Boulder Sidewalks	City	7,220 (1.37)	\$560,310
Fairgrounds Trail	County / State	6,455 (1.22)	\$525,4044
Capitol Hill Trail	City / County / Private	7,050 (1.34)	\$153,458
Highway 91 Trail	City / County / Private	6,280 (1.19)	\$186,075
Cattle Drive Trail	City / County / Private	5,570 (1.05)	\$298,188

## Priorities

Through a series of public meetings and work sessions, it was determined that the Boulder River Trail was the highest priority for the community. This decision was based on estimated project costs, ease of construction, and community need. Construction plans for this segment have been prepared as part of this study, as the community begins its recreational trail program.

The remainder of the trails and improvements identified in the Master Plan section of this document have not been prioritized at this time. It is recommended for the remaining projects to be prioritized in the future through public input and by the City of Boulder, taking into account grant funding opportunities, available local funds, and importance of the trail to the community.

# Boulder River Trail

From the feedback received and known history of the public’s use of cattle drive road, Implementation of the Cattle Drive Trail can be anticipated to be a controversial effort and will require significant planning. While there appears to be justifiable arguments for public use, the City should understand this before pursuing. It should also be noted that the recreational benefit of the Highway 91 Trail is heavily connected to the interconnectivity provided for a future Cattle Drive Trail and should be considered in future segment selection.

## Right of Way Acquisition

One of the challenges to developing a new trail system is acquiring permission and right-of-way to locate trails on private land. Easements that will allow public access need to be negotiated with each landowner involved, and may require considerable time and effort to secure. For this reason, trails located on City or County land, or within public ROW may be given higher priority over those crossing privately owned land.

Trail Segment	Land Ownership
Boulder River Trail	State of Montana, City of Boulder, Jefferson County, and Jefferson County High School
Riverfront Park Trail	State of Montana, City of Boulder, existing street ROW
Eastside Trail	State of Montana, City of Boulder, existing street ROW
Boulder Sidewalks	Jefferson County and existing street ROW
Fairgrounds Trail	State of Montana, City of Boulder, Jefferson County
Capital Hill Trail	Existing ROW, Private Land
Cattle Drive Trail	Existing road ROW, BLM, Private Land, Jefferson County
Highway 91 Trail	Existing ROW & Private land, BLM

# Boulder River Trail

## Trail Operation and Maintenance

Trail operation and maintenance activities are an important part of a successful trail system, protecting the initial investment of the trail and ensuring safe and enjoyable use by the public.

Operational needs include items such as trash collection, debris removal and condition monitoring. Maintenance activities on trails includes both recurring maintenance items and larger capital projects. Recurring maintenance items may include weed abatement, brush removal, drainage improvements, or repair of cracks. Larger capital projects would entail seal coating of asphalt trails, asphalt overlays, or resurfacing of gravel trails. Major trail rehabilitation should be planned for on a revolving schedule.

Asphalt may require sealing or recoating at periodic intervals for maintenance and should be inspected for conditions that are likely to inhibit access or cause user injuries.

The following is a list of maintenance items:

- Step Separation
  - A Vertical displacement of 0.5-inch or greater at any point on the path that could cause users to trip or prevent the wheels of a wheelchair, bicycle, or strollers from rolling smoothly.
- Badly Cracked Pavement
  - Holes and rough spots ranging from hairline cracks to indentations wider than 0.5-inch.
- Spalled Areas
  - Fragments of placement or other building materials detached from larger structures.
- Settled areas that trap water
  - Depressions, reverse cross slopes, or other indentations that make the path lower in specific areas. These depressions trap silt and water on the path surface.
- Tree root damage
  - Roots from trees growing in adjacent landscaping which cause the surface to buckle and crack.
- Vegetation overgrowth
  - Ground cover, trees, or shrubs on properties or setbacks adjacent to the path that have not been pruned can encroach onto the path and create obstacles.

# Boulder River Trail



## *Timing and Frequency of Inspections*

In addition to maintaining the physical characteristics of a path or trail is the maintenance of information regarding trail conditions. Regular recreational trail inspections are essential in identifying maintenance needs and public safety concerns. Development of a system to catalog inspection assessments should be utilized and having a comprehensive list of sites needing maintenance aids managers to prioritize and budget for repair and improvement projects.

Trails and paths should be regularly assessed to verify that conditions haven't changed. Generally, unpaved trails should be reassessed every three years as well as after a catastrophic event.

It is also recommended to establish a method for citizens to provide maintenance input. Citizen report programs can provide agencies with an efficient way of maintaining facilities, as users can often identify issues quicker than agencies.

# Boulder River Trail

## Funding Options

### Local Options

A number of options are available to leverage local financing to fund portions of the proposed trail system. In addition, these resources are important as most grant funding requires a match from the local government.

#### *City General Funds*

Each year the City Council establishes a budget for the distribution and expenditure of general funds. The City Council can direct general funds towards implementing the Boulder River Trail Master Plan.

#### *General Obligation Bonds*

The sale of general obligation bonds can be used to finance public improvements in Boulder. State statutes limit the level of bonded indebtedness to 2.5% of the total assessed value of taxable property within the City, as ascertained by the last assessment for state and county taxes.

#### *Tax Increment Financing*

Tax increment financing (TIF) is a tool used by municipal governments to finance investments using the anticipation of future tax revenue resulting from new development. The funds raised through a TIF district is invested in projects that will encourage development. This would primarily be appropriate for the improvement or installation of sidewalk segments of the trail system.

#### *Special Improvement Districts*

A Special Improvement District (SID) is a collection of properties where owners make payments for public improvements. The Montana Code Annotated (MCA) Section 7-12-41 describes SIDs in more detail. This would primarily be appropriate for the improvement or installation of sidewalk segments of the trail system.





# Boulder River Trail

## Grant Options

There are a number of grant funding options that can be used to finance the design and construction of the trails identified in this Master Plan.

### *Transportation Alternatives (TA)*

[https://www.mdt.mt.gov/mdt/ta\\_application.shtml](https://www.mdt.mt.gov/mdt/ta_application.shtml)

The Fixing America's Surface Transportation (FAST) Act provides funding for Transportation Alternatives (TA) through the Surface Transportation Block Grant (STBG) program. These funds are available for on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation, recreation trail program projects, safe routes to school projects, and projects for the planning, design or construction of boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.



Montana Department of Transportation (MDT) Consultant Design Bureau will administer most TA projects; however, some projects may be administered by in-house MDT Engineering staff. Traditional TA projects are capped at \$1.5 million, which includes all phases of the project. Projects with funding requests above this amount must secure additional funds to finance the project.

Entities eligible to apply for the funds include local governments, school districts, public land agencies, and other local government entities with the responsibility for oversight of transportation or recreational trails. TA projects must benefit the general public and require a local cash match of 13.42% of the project cost.

### *Montana State Parks Recreational Trails Program Grant*

<http://stateparks.mt.gov/recreation/rtpGrants.html>



A Recreational Trails Program (RTP) grant, administered by Montana State Parks, is available to federal, tribal, state, county or city agencies, private associations and clubs. RTP provides funds to develop and maintain recreational trails and trail related facilities in Montana. Eligible projects include urban trail development, development of trailside facilities, trail restoration, and educational and safety projects related to trails.

## Boulder River Trail

The RTP is a federally funded grant program, with funds obtained from the Federal Highway Trust Fund, and is a portion of the motor fuel excise tax collected from nonhighway recreational fuel use. RTP grants require a local match of 20% of the total project cost, which may be captured in cash or documented volunteer hours.

There are two funding categories: Standard Grant Requests and Big Grant Requests. The Standard Grant category is for projects totaling \$10,000 to \$69,999, and the Big Grant is for projects totaling \$70,000-\$100,000, which is the maximum amount of the grant. The Committee may award up to six Big Grants per grant cycle.

### *Land & Water Conservation Fund (LWCF) Grants*

<http://stateparks.mt.gov/recreation/lwcf.html>

The LWCF provides is a federal grants program established by the Land & Water Conservation Fund Act of 1965 and provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program grants are administered by the

The maximum grant per project is capped at \$250,000 and may be up to 50% of the total project cost. Typical projects that have been previously funded include facilities such as public parks, picnic facilities, walking trails and open space acquisitions, in addition to facilities directly supporting outdoor recreation areas such as restrooms and maintenance sheds.



### *Montana Fish, Wildlife & Parks Community Pond Program*

<http://fwp.mt.gov/fishAndWildlife/habitat/fish/communityPond/>

Montana Fish, Wildlife & Parks (FWP) sponsors the Community Pond Program to enhance fishing opportunities in Montana communities by providing funds to construct or improve public fishing ponds. The funds may be used for design costs, construction, repair or enhancement of ponds for which public fishing is a primary purpose. Funds may not be used for acquisition of property.

Applicants are required to match 30% of the costs associated with the project with either cash or in-kind contributions, such as materials, equipment and labor. Program funding can vary but is typically \$25,000 annually.

# Boulder River Trail



## *People for Bikes Community Grants*

<https://peopleforbikes.org/our-work/community-grants/>

The PeopleForBikes Community Grant Program provides funding for projects that build momentum for bicycling in communities across the United States, including Helena, Missoula, Billings and Arlee in Montana. These projects include bike paths and trails, as well as mountain bike trails and bike parks. The program is funded by partners in the bicycle industry and will fund requests up to \$10,000 with at least 50% project match. There are typically one or two grant cycles per year.

## *USDA Community Facilities Direct Loan & Grant Program*

<https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program>

This grant program provides affordable funding to develop essential community facilities in rural areas, identified as areas with less than 20,000 residents. Funds can be used to purchase, construct and/or improve essential community facilities, purchase equipment, and pay related project expenses. Essential community facilities include those relating to public safety, transportation facilities, and community services. Required matching funds are on a graduated scale based on population and median household income.

## *Elkhorn Community Foundation*

<https://www.mtcf.org/About/Local-Community-Foundations/Elkhorn-Community-Foundation>

The Elkhorn Community Foundation provides grants to charitable projects in the Jefferson High School District of Jefferson County, Montana. The foundation was started by individuals in the Boulder area interested in creating a permanent funding source for community projects, as well as a way for people to give back to their communities. Grant applications are accepted in April yearly.

# Boulder River Trail

## Grant Funding Summary

Grant Funding Summary				
Funding Source	Funding Amount	Required Match	Trail Element	Application Due Date
Transportation Alternatives (TA)	\$1.5 million	13.42% of the project cost, cash only	Trails, sidewalks, bicycle lanes, easement acquisition, landscaping, signals, lighting	Pending program funding
Montana State Parks Recreational Trails Program Grant (RTP)	\$100,000	20% of the project cost, cash or volunteer hours	Trail development, trailside facilities, trail restoration and trail maintenance.	(Annually) January
Land & Water Conservation Fund (LWCF)	\$250,000	50% of the project cost, cash or allowable supplemental grant funds	Trails, parks, picnic facilities, restrooms.	(Annually) Fall
FWP Community Pond Program	\$25,000	30% of the project cost, cash or in-kind contributions	Community ponds as part of the proposed Riverfront Park area	(Annually) February 1
People for Bikes Community Grants	\$10,000	50% of the project cost	Bicycle trails and lanes, bike racks, bike parking, and bike repair stations.	(Annually) Spring
USDA Community Facilities Direct Loan & Grant Program	\$50,000, or 50% of the annual state allocation (whichever is greater)	Based on median household income	Transportation facilities, community services, public safety.	Year round
Elkhorn Community Foundation	\$1,000	\$0	Any project that benefits citizens of the Jefferson High School District.	As funding is available

# Boulder River Trail

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## Conclusion

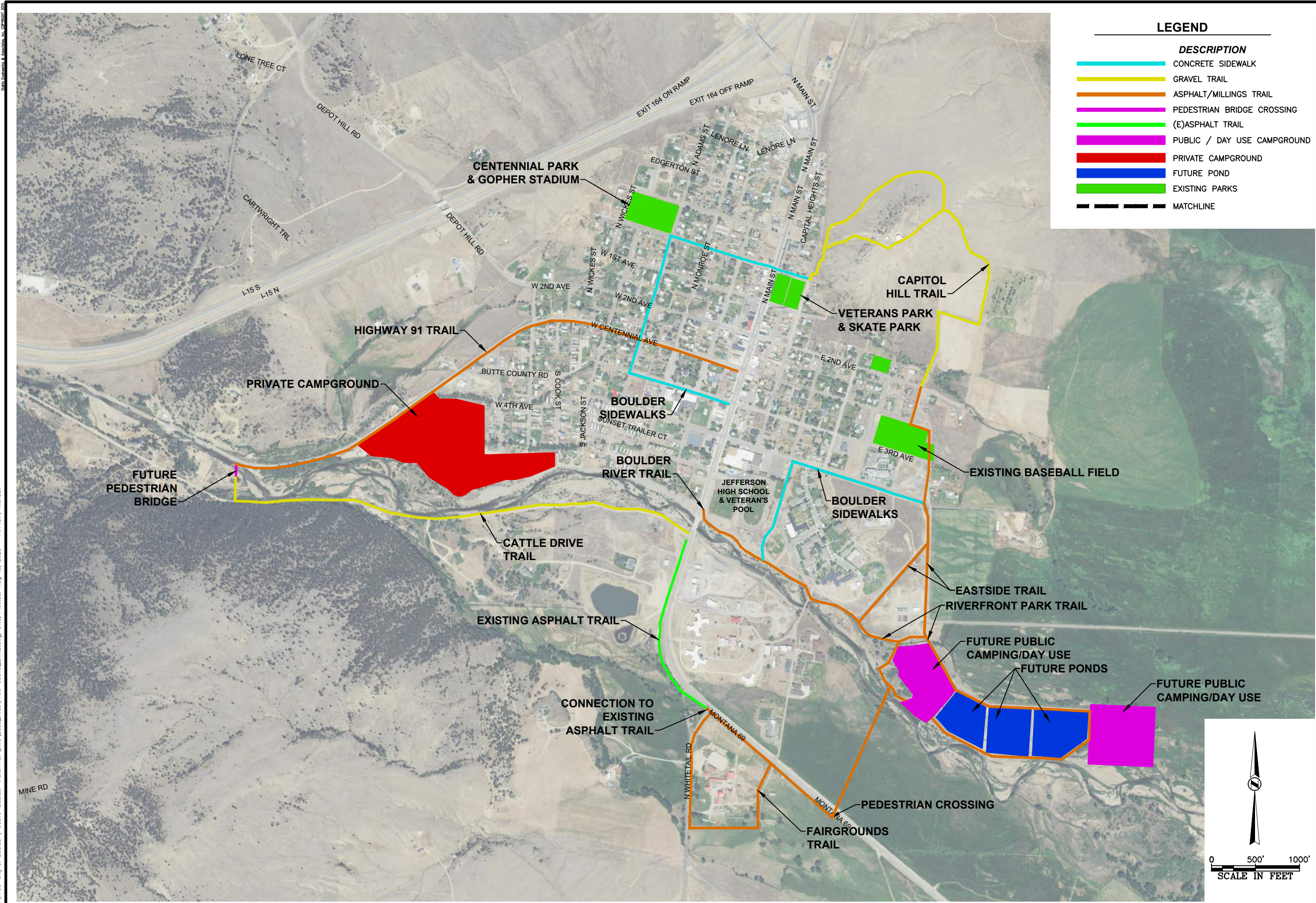
Following the design guidelines and implementation strategy outlined in this Master Plan, a successful trail system can be established for the City of Boulder. The trails will be designed with a wide range of users in mind, including pedestrians and bicyclists, and will be ADA compliant.

The inaugural Boulder River Trail will provide easy access to the Boulder River and can be tied to the downtown area by signing or sidewalk stamps to ensure visitors to downtown are aware of the opportunity to visit the river area.

This Plan will serve as a guideline for future trail planning and construction. It should be viewed as a living document that may be modified to coordinate with ever-changing budgets, grant funding, and public opinion.

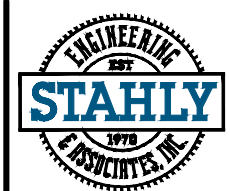
While this study identified the feasibility of various trail segments to construct to the future, we hope these materials provide the City of Boulder a foundation to build a recreational trail system the City is proud of.





**LEGEND**

DESCRIPTION	DESCRIPTION
	CONCRETE SIDEWALK
	GRAVEL TRAIL
	ASPHALT/MILLINGS TRAIL
	PEDESTRIAN BRIDGE CROSSING
	(E)ASPHALT TRAIL
	PUBLIC / DAY USE CAMPGROUND
	PRIVATE CAMPGROUND
	FUTURE POND
	EXISTING PARKS
	MATCHLINE



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 Phone: (406)442-8594  
 Fax: (406)442-8557  
 851 BRIDGER DR. STE. 1 BOZEMAN, MT 59715  
 Phone: (406)522-8594  
 Fax: (406)522-9528

ISSUE/REVISION		
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DESCRIPTION		

**BOULDER RIVER TRAIL MASTER PLAN AND FEASIBILITY STUDY**  
 BOULDER, MT

**MASTER PLAN OVERALL SITE PLAN**

DESIGNED: CBS  
 DRAWN: ECO  
 DATE: 1.28.2020

SHEET **ATTACH 1**



# Boulder River Trail Master Plan

## Boulder River Trail

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$500.00	\$500.00
1.02	1	LS	Excavation & Embankment	\$500.00	\$500.00
1.03	339	cy	Trail Base Course	\$30.00	\$10,155.56
1.04	227	ton	Plant Mix Asphalt	\$105.00	\$23,885.87
1.05	339	cy	Topsoil Replacement	\$5.00	\$1,692.59
1.06	0.94	ac	Seeding & Fertilization	\$1,500.00	\$1,416.32
1.07	790	LF	Remove Existing Fence	\$3.00	\$2,370.00
1.08	750	LF	New Chain Link Fence	\$19.00	\$14,250.00
1.09	1	LS	Vehicle & ADA Gate	\$5,000.00	\$5,000.00
1.10	1	each	Signage	\$500.00	\$500.00
				<b>Subtotal</b>	<b>\$60,270.34</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3	1	LS	Traffic Control	\$1,000.00	\$1,000.00
4			Bonding and Insurance (5%)		\$3,013.52
				<b>Sub-Total Construction</b>	<b>\$74,283.85</b>
				Survey & Construction Administration (15%)	\$ 11,143
				Contingency (10%)	\$ 7,428
<b>TOTAL PROJECT ESTIMATE</b>					<b>\$92,854.82</b>

# Boulder River Trail Master Plan

## Riverfront Park Trail

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$1,000.00	\$1,000.00
1.02	1	LS	Excavation & Embankment	\$1,000.00	\$1,000.00
1.03	936	cy	Trail Base Course	\$30.00	\$28,088.89
1.04	629	ton	Plant Mix Asphalt	\$105.00	\$66,065.07
1.05	936	cy	Topsoil Replacement	\$5.00	\$4,681.48
1.06	2.61	ac	Seeding & Fertilization	\$1,500.00	\$3,917.36
<b>Subtotal</b>					<b>\$104,752.79</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3			Bonding and Insurance (5%)		\$5,237.64
<b>Sub-Total Construction</b>					<b>\$119,990.43</b>
				\$	29,998
				\$	35,997
<b>TOTAL PROJECT ESTIMATE</b>					<b>\$185,985.17</b>

*\*Additional Contingency is provided in consideration of the selection of trail amenities, to be decided by the community*

# Boulder River Trail Master Plan

## Eastside Trail

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$1,000.00	\$1,000.00
1.02	1	LS	Excavation & Embankment	\$1,000.00	\$1,000.00
1.03	627	cy	Trail Base Course	\$30.00	\$18,800.00
1.03	89	cy	Trail Gravel Surfacing	\$40.00	\$3,555.56
1.04	302	ton	Plant Mix Asphalt	\$105.00	\$31,673.60
1.05	627	cy	Topsoil Replacement	\$5.00	\$3,133.33
1.06	1.75	ac	Seeding & Fertilization	\$1,500.00	\$2,621.90
				<b>Subtotal</b>	<b>\$61,784.39</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3	1	LS	Traffic Control	\$1,000.00	\$1,000.00
4			Bonding and Insurance (5%)		\$3,089.22
				<b>Sub-Total Construction</b>	<b>\$75,873.61</b>
Survey, Engineering & Construction Administration (25%)				\$	18,968
*Contingency (30%)				\$	22,762
<b>TOTAL PROJECT ESTIMATE</b>				<b>\$117,604.09</b>	

*\*Additional Contingency is provided in consideration of the selection of trail amenities, to be decided by the community*

# Boulder River Trail Master Plan

## Boulder Sidewalks

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$1,000.00	\$1,000.00
1.02	1	LS	Excavation & Embankment	\$1,000.00	\$1,000.00
1.03	36100	sf	Concrete Sidewalk	\$8.00	\$288,800.00
1.03	11	each	ADA Crossings with Detectable Warning Devices	\$3,500.00	\$38,500.00
1.04	1	LS	Topsoil Replacement	\$2,500.00	\$2,500.00
1.05	1	LS	Seeding & Fertilization	\$2,000.00	\$2,000.00
				<b>Subtotal</b>	<b>\$333,800.00</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3	1	LS	Traffic Control	\$1,000.00	\$1,000.00
3			Bonding and Insurance (5%)		\$16,690.00
				<b>Sub-Total Construction</b>	<b>\$361,490.00</b>
					\$ 90,373
					\$ 108,447
					<b>\$560,309.50</b>
<b>TOTAL PROJECT ESTIMATE</b>					<b>\$560,309.50</b>

*\*Additional Contingency is provided in consideration of the selection of trail amenities, to be decided by the community*



# Boulder River Trail Master Plan

## Fairgrounds Trail

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$1,000.00	\$1,000.00
1.02	1	LS	Excavation & Embankment	\$1,000.00	\$1,000.00
1.03	956	cy	Trail Base Course	\$30.00	\$28,688.89
1.04	643	ton	Plant Mix Asphalt	\$105.00	\$67,476.27
1.05	956	cy	Topsoil Replacement	\$5.00	\$4,781.48
1.05	2.67	ac	Seeding & Fertilization	\$1,500.00	\$4,001.03
1.05	1	LS	Signalized Street Crossing	\$8,500.00	\$8,500.00
1.06	1	LS	Pedestrian Bridge	\$195,000.00	\$195,000.00
				<b>Subtotal</b>	<b>\$310,447.67</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3	1	LS	Traffic Control	\$3,000.00	\$3,000.00
4			Bonding and Insurance (5%)		\$15,522.38
				<b>Sub-Total Construction</b>	<b>\$338,970.05</b>
Survey, Engineering & Construction Administration (25%)				\$	84,743
*Contingency (30%)				\$	101,691
					<hr/>
<b>TOTAL PROJECT ESTIMATE</b>					<b>\$525,403.58</b>

*\*Additional Contingency is provided in consideration of the selection of trail amenities, to be decided by the community*

# Boulder River Trail Master Plan

## Capital Hill Trail

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$1,000.00	\$1,000.00
1.02	1	LS	Excavation & Embankment	\$1,000.00	\$1,000.00
1.03	1393	cy	Trail Base Course	\$30.00	\$41,777.78
1.04	522	cy	Trail Gravel Surfacing	\$20.00	\$10,444.44
1.05	1044	cy	Topsoil Replacement	\$5.00	\$5,222.22
1.05	2.91	ac	Seeding & Fertilization	\$1,500.00	\$4,369.83
1.06	1	LS	ADA Parking & Trailhead	\$20,000.00	\$20,000.00
				<b>Subtotal</b>	<b>\$83,814.28</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3	1	LS	Traffic Control	\$1,000.00	\$1,000.00
3			Bonding and Insurance (5%)		\$4,190.71
				<b>Sub-Total Construction</b>	<b>\$99,004.99</b>
Survey, Engineering & Construction Administration (25%)				\$	24,751
*Contingency (30%)				\$	29,701
					<hr/>
<b>TOTAL PROJECT ESTIMATE</b>					<b>\$153,457.74</b>

*\*Additional Contingency is provided in consideration of the selection of trail amenities, to be decided by the community*

# Boulder River Trail Master Plan

## Highway 91 Trail

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$1,000.00	\$1,000.00
1.02	1	LS	Excavation & Embankment	\$1,000.00	\$1,000.00
1.03	930	cy	Trail Base Course	\$30.00	\$27,911.11
1.04	625	ton	Plant Mix Asphalt	\$105.00	\$65,646.93
1.05	1	LS	Topsoil Replacement	\$2,500.00	\$2,500.00
1.06	2.60	ac	Seeding & Fertilization	\$1,500.00	\$3,892.56
				<b>Subtotal</b>	<b>\$101,950.61</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3	1	LS	Traffic Control	\$3,000.00	\$3,000.00
4			Bonding and Insurance (5%)		\$5,097.53
				<b>Sub-Total Construction</b>	<b>\$120,048.14</b>
Survey, Engineering & Construction Administration (25%)				\$	30,012
*Contingency (30%)				\$	36,014
<b>TOTAL PROJECT ESTIMATE</b>					<b>\$186,074.61</b>

*\*Additional Contingency is provided in consideration of the selection of trail amenities, to be decided by the community*

# Boulder River Trail Master Plan

## Cattle Drive Trail

### City of Boulder, Montana

Opinion of Probable Cost (OPC)

Item No.	Est. Quan.	Unit	Description	Unit Price	Total Price
1.01	1	LS	Clearing & Grubbing	\$1,000.00	\$1,000.00
1.02	1	LS	Excavation & Embankment	\$1,000.00	\$1,000.00
1.03	1100	cy	Trail Base Course	\$30.00	\$33,007.41
1.04	413	cy	Trail Gravel Surfacing	\$20.00	\$8,251.85
1.05	825	cy	Topsoil Replacement	\$5.00	\$4,125.93
1.06	2.30	ac	Seeding & Fertilization	\$1,500.00	\$3,452.48
1.07	1	LS	Pedestrian Bridge	\$120,000.00	\$120,000.00
<b>Subtotal</b>					<b>\$170,837.66</b>
2	1	LS	Mobilization and Demobilization	\$10,000.00	\$10,000.00
3	1	LS	Traffic Control	\$3,000.00	\$3,000.00
3			Bonding and Insurance (5%)		\$8,541.88
<b>Sub-Total Construction</b>					<b>\$192,379.55</b>
Survey, Engineering & Construction Administration (25%)				\$	48,095
*Contingency (30%)				\$	57,714
<b>TOTAL PROJECT ESTIMATE</b>					<b>\$298,188.30</b>

*\*Additional Contingency is provided in consideration of the selection of trail amenities, to be decided by the community*

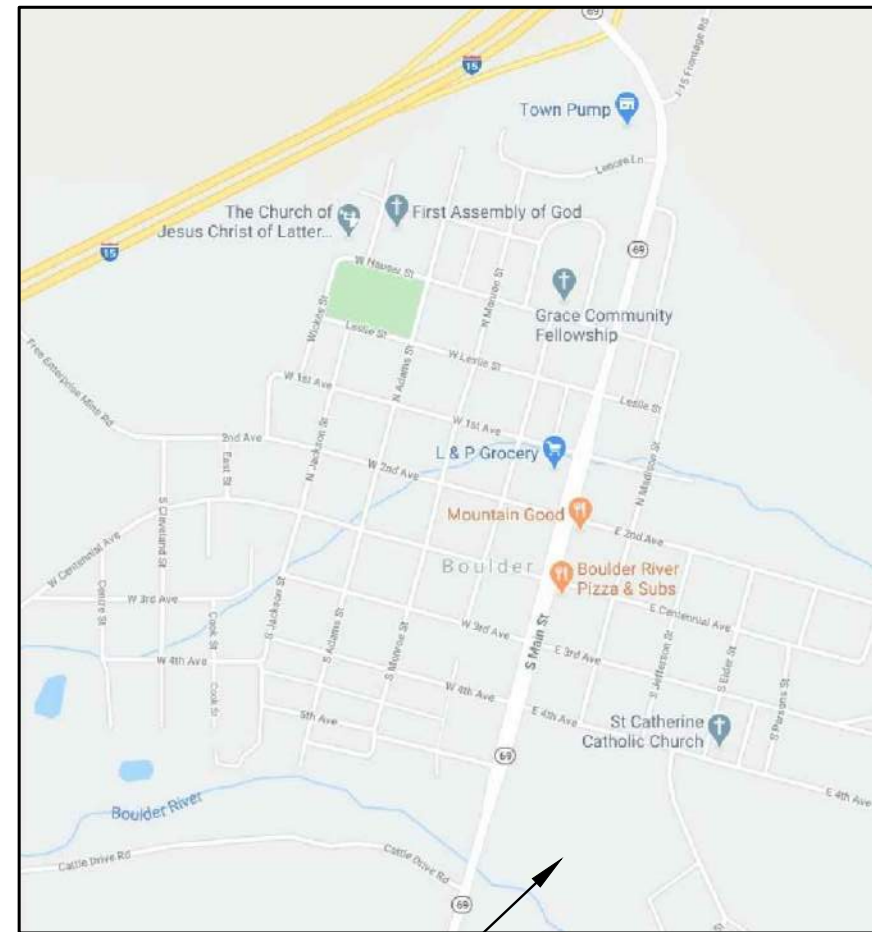
# BOULDER RIVER TRAIL

## CITY OF BOULDER

BOULDER, MONTANA

CIVIL DRAWINGS

TITLE SHEET	T1.0
SPECIFICATIONS	C1.0
DETAILS	C1.1
PLAN & PROFILES	C1.2- C1.4



PROJECT LOCATION

SUMMARY OF ESTIMATED TRAIL PLAN QUANTITIES							
	TOPSOIL SALVAGE & REPLACE (CU.YD.)	CRUSHED BASE COURSE (CU.YD.)	CHAIN LINK FENCE REMOVAL (LIN.FT.)	CHAIN LINK FENCE INSTALL (LIN.FT.)	ADA 8-FOOT GATE (EACH)	PLANT MIX ASPHALT (TONS)	SEEDING & FERTILIZING (ACRE)
TOTAL	207	443	790	730	1	235	0.25

**PROJECT CONTACTS:**

City of Boulder Mayor Russell S. Giulio
Public Works Director Dennis Wortman 225-3381
Project Engineer Stahly Engineering & Associates Clint Smith 442-8594



**STAHLY ENGINEERING & ASSOCIATES**

PROFESSIONAL ENGINEERS & SURVEYORS  
www.seeng.com

2223 MONTANA AVE. STE. 201  
BILLINGS, MT 59101  
Phone: (406)601-4055  
Fax: (406)601-4062

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Phone: (406)442-8594  
Fax: (406)442-8557

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ENGINEER OF RECORD: \_\_\_\_\_ PE

QUALITY CONTROL REVIEWER: *Kathy Thompson*

DESIGNED: TJC  
DRAWN: TJC  
DATE: 7/24/20

SHEET  
**T1.0**



**TECHNICAL SPECIFICATIONS**

ALL WORK SHALL BE DONE IN ACCORDANCE WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS) 6TH EDITION DESIGN STANDARDS.

SOME ITEMS OF MPWSS ARE HIGHLIGHTED FOR IMPORTANCE BELOW. TECHNICAL SPECIFICATIONS ARE AMENDED TO INCLUDE THE NOTES BELOW:

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

- SECTION 01090 REFERENCES
- SECTION 01300 SUBMITTALS
- SECTION 01400 CONTRACTOR QUALITY CONTROL & OWNER QUALITY ASSURANCE
  - 1. QUALITY CONTROL SUBMITTALS AND TESTING REQUIREMENTS ARE SHOWN ON THIS SHEET.
  - 2. THE CITY OF BOULDER WILL BE THE FUTURE OWNER AND MAY PERFORM QUALITY ASSURANCE TESTS.
- SECTION 01500 CONSTRUCTION AND TEMPORARY FACILITIES
- SECTION 01570 CONSTRUCTION TRAFFIC CONTROL
- SECTION 02234 SUB BASE COURSE
  - 1. SUB BASE COURSE SHALL BE 4" MINUS.
- SECTION 02235 CRUSHED BASE COURSE
  - 1. CRUSHED BASE COURSE SHALL BE 3/4" MINUS.
- SECTION 02502 ASPHALT PRIME AND/OR TACK COAT
- SECTION 02510 ASPHALT CONCRETE PAVEMENT
  - 1. SURFACE COURSE AGGREGATE SHALL BE TYPE B.
  - 2. ASPHALT BINDER MATERIAL SHALL BE (PGAB) PG 58-28
- SECTION 02910 SEEDING
- SECTION 02920 HYDRAULIC SEEDING

**CONSTRUCTION NOTES**

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND/OR FACILITIES ARE DEPICTED BASED ON INFORMATION PROVIDED BY OTHERS AND SHOULD BE CONSIDERED APPROXIMATE. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.
2. PRIOR TO ANY EXCAVATION, THE CONTRACTOR IS RESPONSIBLE FOR LOCATING, OR HAVING LOCATED, ALL UNDERGROUND FACILITIES SHOWN OR INDICATED IN THE PLANS AND/OR CONTRACT DOCUMENTS. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXCAVATING NEAR UNDERGROUND FACILITIES.
3. ANY DAMAGE TO ABOVE OR BELOW GROUND UTILITIES AND/OR FACILITIES SHALL BE IMMEDIATELY REPORTED TO THE UTILITY COMPANY AND THE ENGINEER. ALL SHOWN OR MARKED UTILITIES OR FACILITIES DAMAGED BY THE CONTRACTOR OR ITS SUBCONTRACTOR SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.
4. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS FOR CONSTRUCTION.
5. IMPROVEMENTS SHALL NOT BE COVERED UNTIL INSPECTED BY THE ENGINEER.
6. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY ITEMS DAMAGED DURING CONSTRUCTION.
7. RESTORE ALL SURFACED AREAS DAMAGED DURING CONSTRUCTION TO EQUAL OR BETTER CONDITIONS AS DETERMINED BY THE ENGINEER.
8. ALL AREAS NOT LANDSCAPED OR ANY NON-SURFACED AREAS DISTURBED DURING CONSTRUCTION ARE TO BE RESTORED TO THE ORIGINAL GRADE, PREPARED FOR SEEDING AND DRYLAND SEED APPLIED ACCORDING TO THE CITY OF HELENA STANDARDS.
9. MAXIMUM GRADING SLOPES TO BE 3:1.
10. PROJECT HORIZONTAL DATUM IS THE WORLD GEODETIC SYSTEM 1984 (WGS84) AND VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

Control Point Table				
Point #	Northing	Easting	Elevation	Description
1	732699.54'	1307356.88'	4894.11'	1/2" REBAR STAHLY"
2	733559.98'	1305706.80'	4906.32'	2" ALUMC 37G MDT 2002"
100	732410.36'	1307420.67'	4888.75'	2IN-AC-M&M CONTROL
101	732658.71'	1306856.27'	4899.05'	YPC-9962-DLAY

**SURVEY NOTES:**

1. DATE OF SURVEY- JUNE 2, 2020
2. UTILITIES ARE APPROXIMATE AND SHOWN BASED ON ONE CALL UTILITY LOCATE #20044623 AND VISIBLE ABOVE GROUND EVIDENCE.
- 2.1. SEWER, WATER AND STORM WERE NOT LOCATED AS A PART OF THIS SURVEY; SEWER MAN HOLES EXIST NEAR THE PROPOSED TRAIL ROUTE.
3. A BOUNDARY SURVEY WAS NOT CONDUCTED AS A PART OF THIS SURVEY.

**BASIS OF BEARING**  
 U.S. STATE PLANE, MONTANA 2500, NAD83(2011)  
 CONVERTED TO GROUND UNITS AT:  
 NORTH LATITUDE- 46°13'45.82128"  
 WEST LONGITUDE- 112°06'50.78239"  
 ELLIPSOID HEIGHT- 4853.376 USFT  
 CONVERGENCE ANGLE- -1°54'44"

**BASIS OF VERTICAL**  
 NAVD88(GEOD18)

**MINIMUM QUALITY CONTROL SUBMITTALS AND TESTING REQUIREMENTS**

**MATERIALS SUBMITTALS REQUIRED**

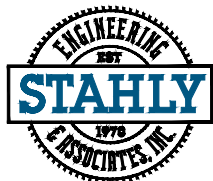
PRODUCT	PARTY RESPONSIBLE FOR SUBMITTAL	REQUIRED SUBMITTALS PRIOR TO MOBILIZATION	REQUIRED SUBMITTALS DURING CONSTRUCTION
SUB BASE COURSE	CONTRACTOR	GRADATIONS, PROCTOR, LIQUID/PLASTIC LIMITS, PLASTIC INDEX	ONE REPRESENTATIVE SAMPLE OF MATERIAL IMPORTED TO SITE
CRUSHED BASE COURSE	CONTRACTOR	GRADATIONS, PROCTOR, LIQUID/PLASTIC LIMITS, PLASTIC INDEX, FRACTURED FACES, WEAR	ONE REPRESENTATIVE SAMPLE OF MATERIAL IMPORTED TO SITE
ASPHALT CONCRETE PAVEMENT	CONTRACTOR	PROJECT MIX DESIGN FROM SUPPLIER	SEE MATERIALS TESTING
ASPHALT PRIME AND OR TACK COAT	CONTRACTOR	PROJECT MIX DESIGN FROM SUPPLIER	NONE

**ON-SITE MATERIALS TESTING**

PRODUCT	PARTY RESPONSIBLE TO OBTAIN TESTS	TEST FREQUENCY	TEST REQUIREMENT & STANDARD
SUB BASE COURSE	CONTRACTOR	ONE TEST PER 100 LINEAR FEET	TEST PER AASHTO T310. OBTAIN 95% BY AASHTO T99
CRUSHED BASE COURSE	CONTRACTOR	ONE TEST PER 100 LINEAR FEET	TEST PER AASHTO T310. OBTAIN 95% BY AASHTO T99
ASPHALT CONCRETE PAVEMENT	CONTRACTOR	ONE TEST PER 100 LINEAR FEET**	93% BY ASTM D2041 PER MPWSS

\*ADDITIONAL TESTS REQUIRED FOR EVERY BACKFILL MATERIAL CHANGE.

\*\*CONTRACTOR SHALL ESTABLISH A ROLLING PATTERN EARLY IN THE PAVEMENT PROCESS BY TAKING A TEST FOR EVERY PASS AND RECORDING THE PERCENT OF MAXIMUM DENSITY. AT A MINIMUM THAT PATTERN SHALL BE MAINTAINED THROUGHOUT THE ENTIRE PROJECT.



**STAHLY ENGINEERING & ASSOCIATES**

PROFESSIONAL ENGINEERS & SURVEYORS  
 www.seceeng.com

2223 MONTANA AVE.  
 STE. 201  
 BILLINGS, MT 59101  
 Phone: (406)601-4055  
 Fax: (406)601-4062

3530 CENTENNIAL DR.  
 HELENA, MT 59601  
 Phone: (406)442-8594  
 Fax: (406)442-8557

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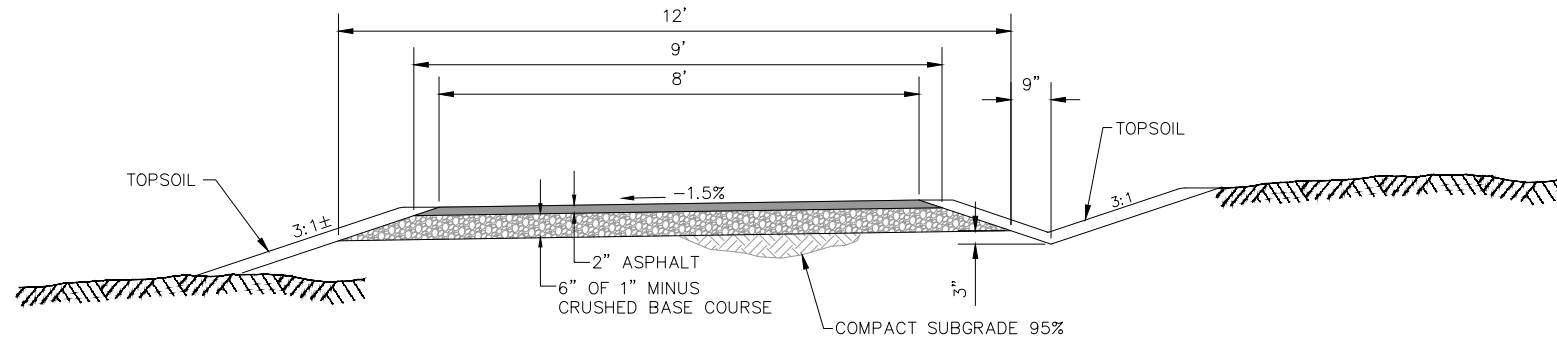
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**BOULDER RIVER TRAIL  
CITY OF BOULDER**

**SPECIFICATIONS**

DESIGNED: TJC  
 DRAWN: TJC  
 DATE: 7/24/20

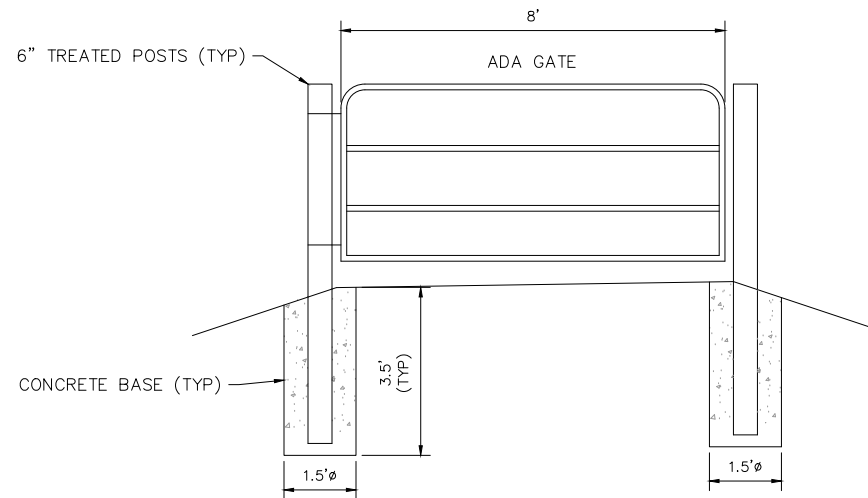
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**PATH TYPICAL SECTION**  
AHEAD ON LINE

**NOTES:**

1. THE CONTRACTOR SHALL APPLY A GRANULAR SOIL STERILANT, ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS. APPLY STERILANT TO PREPARED SUBGRADE AND FOLLOW ALL REQUIREMENTS TO ACTIVATE. SUBMITTAL REQUIRED ON MATERIAL TO BE USED. STERILANT IS CONSIDERED INCIDENTAL AND SHOULD BE ABSORBED IN OTHER BID ITEMS.
2. TOPSOIL DEPTH IS ESTIMATED AT 4" DEPTH.



**ELEVATION WIDENED PATH STA. 1+60±**  
AHEAD ON LINE

**NOTES:**

**NOTES:**

1. CONCRETE, POSTS, LATCH, HINGES, AND INSTALLATION ALL TO BE CONSIDERED INCIDENTAL TO ADA 8-FOOT GATE BID ITEM.
2. THE CONTRACTOR SHALL SUPPLY ADA GATE AND HINGES BY HAMILTON HINGE COMPANY OAE. INSTALL GATE PER MANUFACTURERS RECOMMENDATIONS. RE-INSTALL CHAIN LINK FENCE THAT IS IMPACTED WITH TRAIL AND GATE CONSTRUCTION.
3. CONTRACTOR TO SUBMIT FENCING/GATE LAYOUT AND PLAN TO ENGINEER AND CITY FOR APPROVAL PRIOR TO DEMOLITION OF EXISTING FENCE.



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www.seeng.com

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STE. 201  
BILLINGS, MT 59101  
Phone: (406)601-4055  
Fax: (406)601-4062

3530 CENTENNIAL DR.  
HELENA, MT 59601  
Phone: (406)442-8594  
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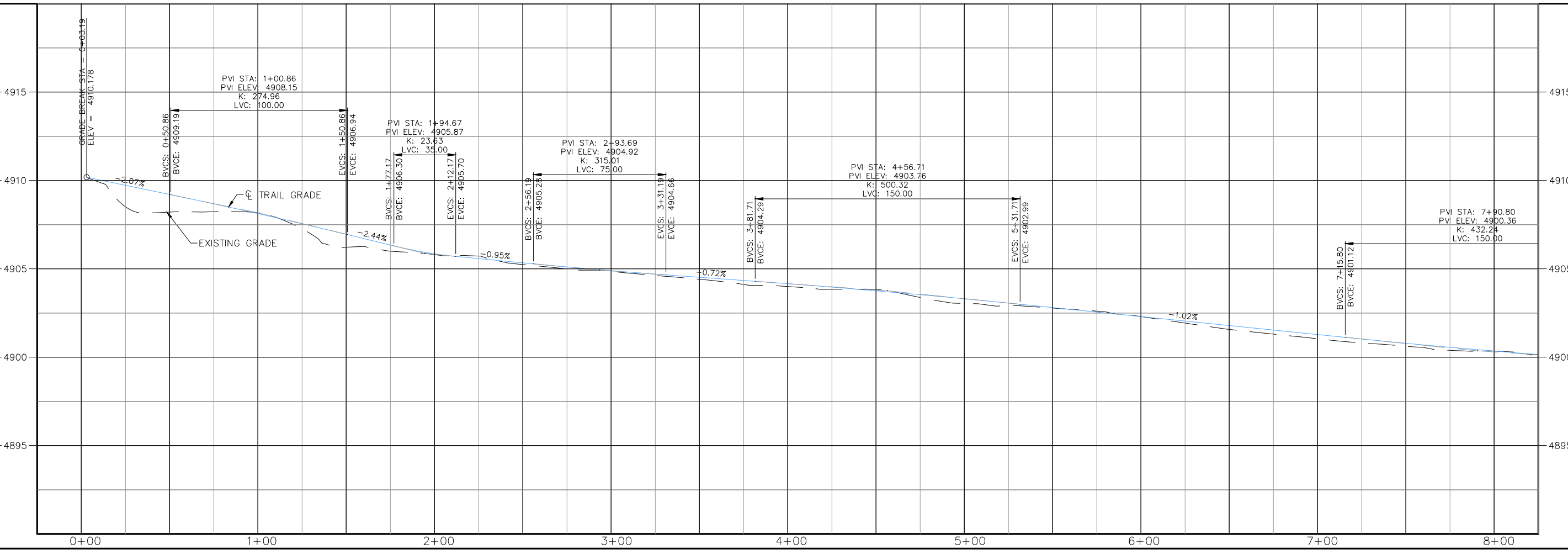
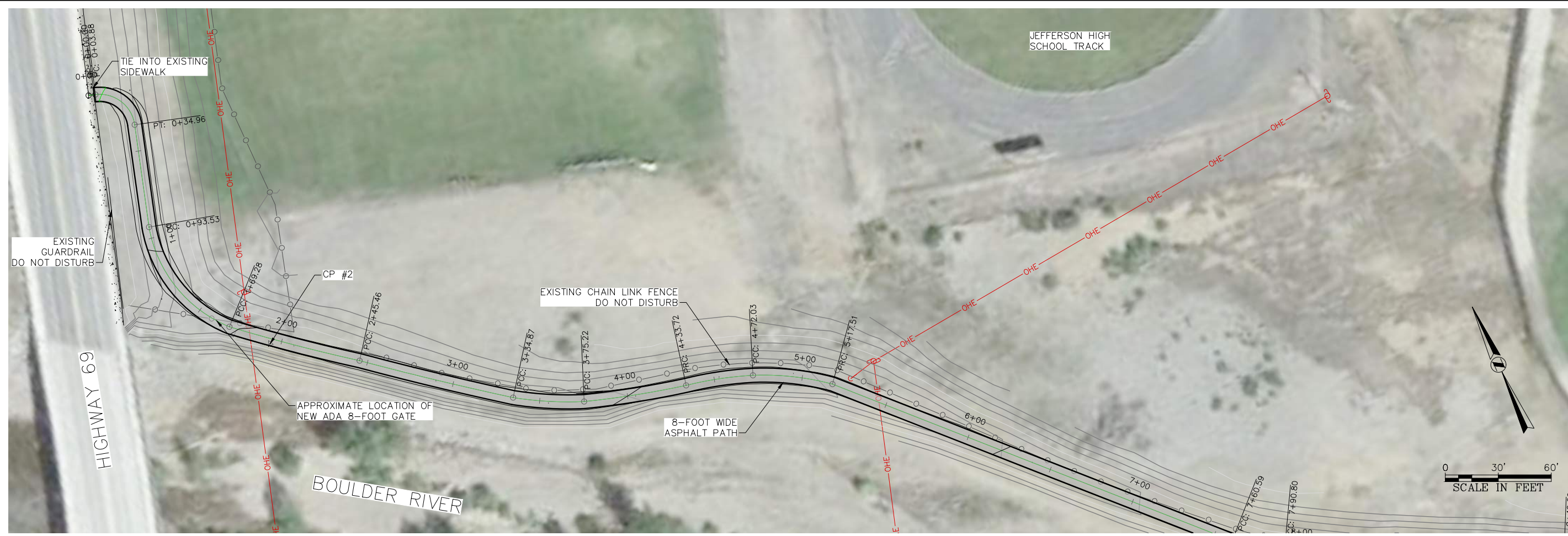
**BOULDER RIVER TRAIL  
CITY OF BOULDER**

**DETAILS**

DESIGNED: TJC  
DRAWN: TJC  
DATE: 7/24/20

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 PROFESSIONAL ENGINEERS & SURVEYORS  
 www.seeng.com  
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 BILLINGS, MT 59101  
 Phone: (406)601-4055  
 Fax: (406)601-4062  
 3530 CENTENNIAL DR.  
 HELENA, MT 59601  
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**BOULDER RIVER TRAIL**  
**CITY OF BOULDER**

**PLAN & PROFILE**

DESIGNED: TJC  
 DRAWN: TJC  
 DATE: 7/24/20

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Stahly Engineering & Associates, Inc. 07/24/2020



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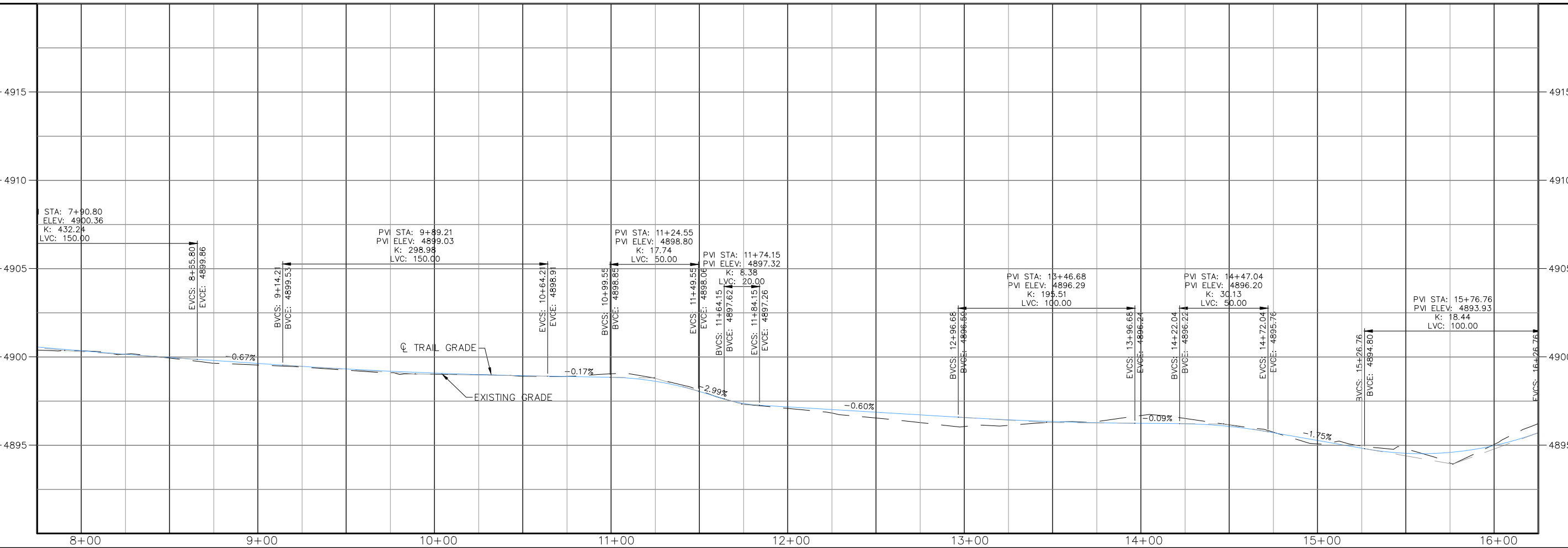
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**BOULDER RIVER TRAIL  
CITY OF BOULDER**

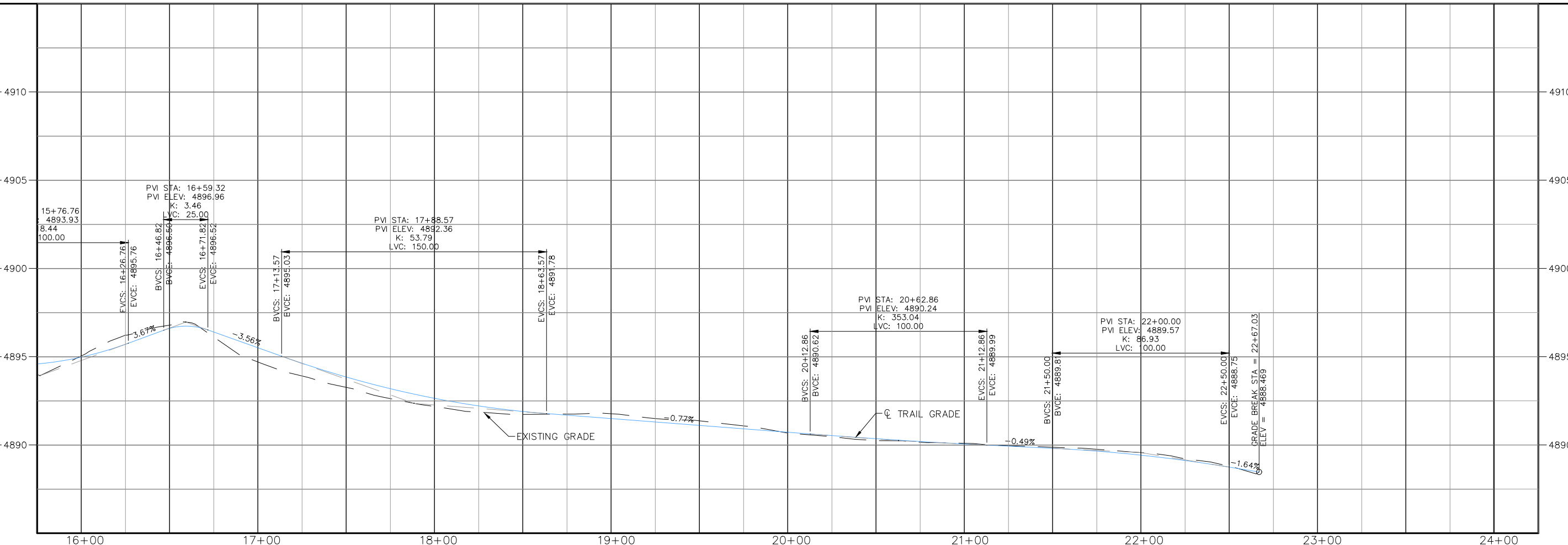
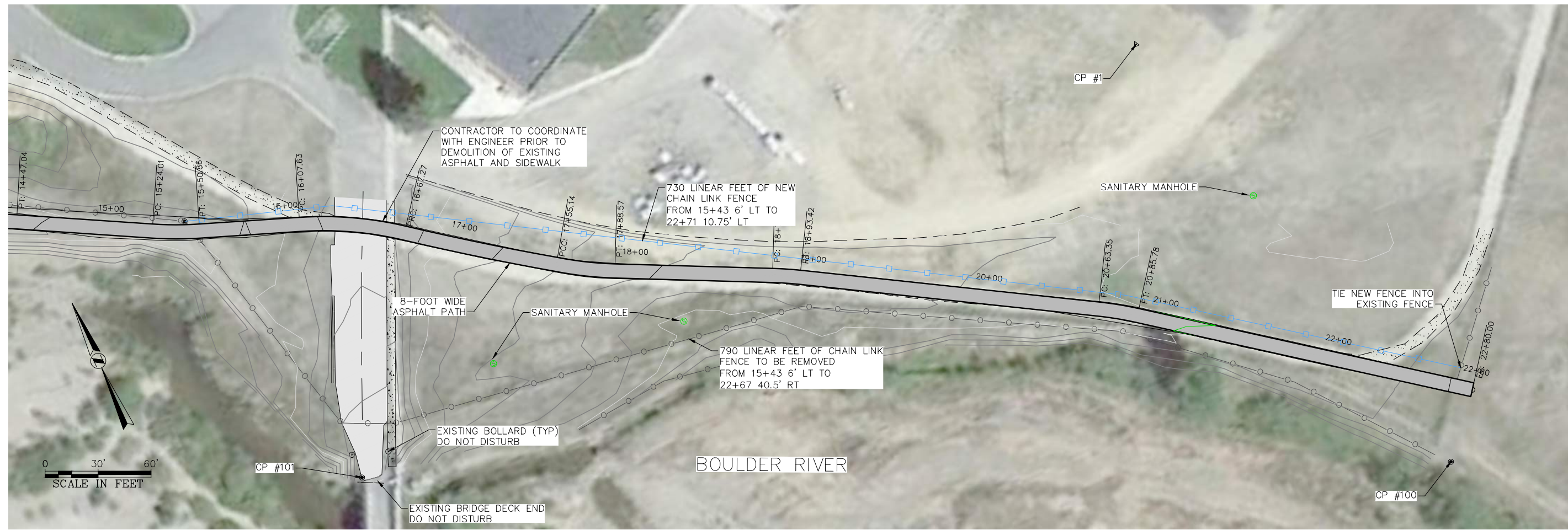
**PLAN & PROFILE**

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**BOULDER RIVER TRAIL**  
**CITY OF BOULDER**

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