AGENDA
CARBONDALE BOARD OF TRUSTEES
WORK SESSION
THIRD STREET CENTER
OCTOBER 17, 2017
6:00 P.M.

TIME*		ITEM	DESIRED OUTCOME
6:00	1.	Joint Meeting with Pitkin County Commissioners and Pitkin County Open Space and Trails Board – Crested Butte Trail	ATTACHMENT A Discussion
8:00	2.	Budget – Overall Review Department Review – Parks/Recreation	ATTACHMENT B Discussion
9:00	3.	Adjourn	

*** Please Note Times Are Approximate**

TOWN OF CARBONDALE
511 Colorado Avenue
Carbondale, CO 81623
www.carbondalegov.org
(970) 963-2733 Fax: (970) 963-9140

MEMORANDUM

Date: **October 11, 2017**

To: **Dan Richardson Town Mayor**
Jay Harrington Town Manager

From: **Mark O'Meara, Utility Director**

Subject: Crystal Valley Trail Alignment/Nettle Creek Transmission Main Conflicts

The Town of Carbondale Utility Department has reviewed the proposed alignment alternatives for the Crystal Valley Trail proposed by Pitkin County Trails and Open Space. The alternatives A, B and BR in the vicinity of 7 Oaks, Crystal River Parcel 1, Nettle Creek and Bridge Option have been reviewed for placement of the trail and conflicts with the Towns Nettle Creek water distribution main. The Nettle Creek transmission main is the primary water supply to the Town throughout the year. Service disruptions on this line affect 48 customers which have no other means to obtain water if this line fails.

Option A of the plan has no direct impact to the Town distribution main. Options B and BR could potentially impact 3,400 feet of the transmission main. In addition to the main, the project could potentially impact our pressure reducing valve and drain/bypass vaults in the vicinity of these two options.

The 10-inch main line in the area is cast iron which is makes it susceptible to stress related failures. This line is bedded in native material and has shallow bury depth 4 feet +/- 0.5 ft. Placement of a trail in close proximity to or on top of this line could potentially negatively impact the integrity of the line along with the increasing the challenges posed by maintenance and repair of the line. The drain/bypass system would be impacted in a similar manner.

The trail documentation used for description can be accessed here: Crystal Valley Trail in the trail alternatives page.

Meeting materials are posted on the OST website link below.

http://pitkincounty.com/1017/Meeting-Agendas

Select the drop-down associated with the 10/17 meeting date. Then, select the agenda packet.

November 15, 2015

Pitkin County BOCC
Pitkin County OST
Dale Will
Gary Tennenbum

Dear All:

I have been contemplating writing you a letter for quite some time and decided I should do so. My name is Kevin Wright and I have lived in the Roaring Fork Valley for over 30 years. I worked for the Colorado Division of Wildlife (now CPW) as a District Wildlife Manager for 31 years serving the Carbondale and Aspen Districts my entire career before retiring in July 2015. I have witnessed a lot of changes over the years and have always strived to represent wildlife and our natural values and help minimize impacts to wildlife.

I have become very concerned the way our valley is progressing with respect to recreational pressures and its impact on our wildlife resources. It seems that it has become recreation at all costs with very little regard to the impacts it is having on our wildlife resources and their habitat. The dramatic increase in recreation and endless trail building is having significant negative impacts to wildlife. Impacts are often considered but are often dismissed as non-significant or believed they can be “mitigated”.

Obviously, it is not just recreational pressures that are having an impact. Our human base population has grown significantly and with that comes loss of habitat to development. Combine that with the maturation or aging of our habitat and inability to significantly manipulate it to set back succession to provide better forage conditions is having its impact. Much of our winter range is over-mature and becoming decadent but it is difficult to manipulate it due to costs, funding, and the encroachment of human development. We have made some strides with habitat work in places such as Light Hill, William’s Hill, Arbaney-Kittle, Basalt Mountain to name just a few. But the most significant change in the last 5-10 years is the dramatic increase in recreational pressure.

As evidence of this observation are the declining trend of young to adult females in our mule deer and elk populations. Both populations have declined and mule deer are close to the lowest population level they have ever been in over 40 years. In the past, the DOW has always been able to recover the mule deer population after a hard winter but this is no longer the case. In addition, the elk population is at the bottom of the population objective. Please consider the following:

Mule Deer – current population is hovering around 6,050 with an objective of 7,500-8,500. This objective was lowered from the more historical objective in the 80’s and 90’s of 11,100, which is no longer achievable and unrealistic.

Fawn:Doe ratios are 50.4 fawns:100 does. This ratio should be closer to 70-75:100 for healthy population.

Elk – current population estimate is 3,650 with an objective of 3,800-5,400. In order to stabilize the population the calf ratio should approach 47:100 and to increase the population it should approach 50:100. Calf:Cow ratios have steadily declined:

1980's – 58.5 calves:100 cows
1990's – 49.0
2000's – 41.5
2010 – 2014 – 35.1
last 3 yr average – 33.7

This is a very disturbing trend and is indicative that something is wrong or askew in the system. It is telling us that the populations are not healthy as some believe.

As stated earlier, one of the most significant changes has been the increase in recreational pressure. We are continually building more and more trails, placing these trails where there has never been trails and fragmenting the habitat, and placing more and more people where there were few before. We now ski, snowshoe, hike, bike (with and without dogs; with and without dogs on leash) throughout our important winter ranges, production areas, and summer solitude areas. We also are now using fat tire bikes to ride winter ranges. Wildlife has little places they can go to escape the pressures.

Impacts from trail building and resulting recreational pressure include the following:

1. habitat fragmentation – carving up the habitat blocks into smaller and smaller pieces and increasing the zone of influence.
2. changes in species diversity, density, and abundance. More parasitic bird species come in to the areas along new trails displacing native species.
3. Increase in stress, disturbance, harassment, and displacement. Many believe that as they recreate, especially in winter, if the elk or deer does not flee but just stands/remains in place there is no impact. But what really happens is the animals must make a decision whether to flee or stay. Which utilizes less energy - running through 2-3' of snow or standing there with the disturbance. If they stand there, stress increases, metabolic rates increase, and more energy is utilized.
4. Decrease in reproductive success
5. Lower population levels

These impacts have been determined through various research activities such as Dr. Richard Knight, the Vail elk production study, and the various studies referenced/summarized in Montana Chapter of the Wildlife Society literature review on recreational impacts, and studies referenced in the elk-roads-logging symposium just to name a few. Yet, we still seem to ignore these impacts and

information when it comes to recreational activity, its promotion, and resulting trail building.

We are always compromising wildlife values for peoples' benefit and then we compromise the compromise. Very seldom are we proactive and actually prevent these impacts. Wildlife and their habitat are always losing, piece by piece. We MUST start to look at the cumulative impacts, not just the impacts of one particular project.

Shouldn't it be time to take a step back and re-evaluate? The public does not need to have a trail built into every piece of public land. I propose there is already sufficient, adequate access and trails to our public lands without the need to build more and more.

It was once thought and even brought up at a meeting in Snowmass Village that if we encourage more trail building on ski areas where there is the infrastructure that it would help curtail other trail building and bandit trail building. Ski areas have become more or less sacrifice areas in terms of wildlife. But constructing more trails here has NOT stopped or reduced trail and bandit trail building in other areas important to wildlife.

Sometimes we justify new trail construction in important wildlife habitat by conducting habitat improvement projects to help mitigate impacts. These habitat improvement projects can be helpful to wildlife but does it really offset or "mitigate" the negative impacts of fragmentation, increased stress and disturbance, and displacement? Habitat improvement may not help that much if wildlife species are displaced from all of the new human activity. We also try to place certain restrictions on new trails such as seasonal closures. These measures are only as effective as they are **aggressively** enforced. People just do not always comply. As specific examples one only has to look at the trail closure violations in the East Village area of TOSV. There is a seasonal closure for elk production with signage, education, and physical gates. Yet, there is a fair amount of noncompliance with people going around gates, lifting bikes over gates, creating new trails around them. Almost every year in the winter there are either ski tracks or snowmobile tracks up on Sky Mountain Park as I have witnessed while conducting aerial game census.

A few of the questions that I have asked in the past:

1. When is enough enough? When will we have enough trails?
2. What trails are at or over capacity now, which should dictate if new trails are needed?
3. Where is the NEED versus the DESIRE? There may be the desire and expectation for new trails but is there really a NEED? Especially if one considers the negative impacts to our natural resources, wildlife, and their habitat just so we can have another trail. Is it really worth it??

4. Where is the guarantee that there will **always be adequate** enforcement and funding for this enforcement into the future 10, 20, 50 years down the road? Once a trail is built it will most likely remain forever.

Throughout my career part of my job was to review projects and recommend mitigation to help minimize impacts. Pitkin County has one of the strongest land use codes for wildlife in the Colorado and has been very good at implementing the code for private development. It has been a leader for others to follow.

But, it appears that there is a different practice in place when the county purchases a property for open space and then builds a public trail encouraging use. If a private citizen wished to do the same and construct a trail through winter range, winter concentration area, severe winter range, production areas, or riparian areas and the DOW recommended against it, it most likely would not be approved to be built. It appears the same standards are not applied.

We should not be purchasing property and then building trails through or connecting to public land if this compromises winter range or other important wildlife values. This definitely should not be done when there is no formal public land trail where the county's trail would connect. This only encourages increased impacts, bandit trail building, and pressure to build new trails on public land when there are other access points and trails. There may be a public expectation that because the county purchased the property there has to be a trail and public use. There is tremendous value to having a parcel preserved for its wildlife and open space value. There does not always have to be a new trail or active public use.

I do not say these things lightly. I am very concerned with the direction this valley is going. There needs to be a **balance** but right now there is **no balance**. I hope what I have said makes you think, sit back, and evaluate. Do not just think of the benefits to active recreation and believe it is OK if we put a few restrictions in place or do a little habitat improvement. We need to strongly consider what these actions are doing to our wildlife resource and their habitat.

I hope what I have tried to express is taken seriously and not just dismissed. If I have made a few of you hesitate and think, then that is a very good thing. Change is hard for us all, even harder for wildlife who cannot speak for themselves. Wildlife is an important resource and enhances the quality of life for us all.

Thank you for listening.

Respectively,

Kevin Wright

OST Memorandum

TO: Pitkin County Board of County Commissioners, Pitkin County Open Space and Trails Board, Town of Carbondale Mayor and Trustees

FROM: Open Space & Trails Staff

SUBJECT: Carbondale to Crested Butte Trail Planning and Crystal Valley Environmental and Engineering Reports

DATE: 10/17/17

Meeting Goals: Provide an update to the Town of Carbondale and public regarding the planning process for the proposed Carbondale to Crested Butte Trail, and to make available the wildlife and engineering consultants available to answer any technical questions on the background reports. It is also an opportunity for the public to ask questions and comment in a public forum.

History and context of the trail: In 1873 the survey teams of Ferdinand Hayden were allowed access into the Crystal Valley by the Ute tribe. At that time, the western fifth of our State was within their reservation. Hayden documented a "hardened" trail running the length of the Crystal Valley, from Schofield Pass to the confluence with the Roaring Fork and on down the "Grand River" valley. In his 1874 report to Congress, Hayden summarized all travel routes in the Colorado Territory and concludes that the Ute Trail down the Crystal was '"one of the principal Indian trails in the (Colorado) Territory."

With the completion of a railroad and then a State Highway, the non-motorized travel way was lost. This problem was recognized in 1994 by the Pitkin County Open Space and Trails Board in its Crystal River Valley Bicycle Trail Feasibility Study (1994). Two years later, Club 20 identified this need in its "Missing Links" Report (1996). The West Elk Historic and Scenic Byway then echoed this need in its Strategic Plan (2000), followed by their Crested Butte to Carbondale Trail Feasibility Study (2004). Both Carbondale's Recreation Master Plan (2003) and Pitkin County's Crystal River Master Plan (2003) had also identified as a priority the trail project. Based on these plans, Carbondale and Pitkin County partnered with GOCO and Garfield County to extend the Town's existing trail 5.3 miles upriver, reaching the BRB in 2009.

Carbondale's Parks Recreation and Trails Master Plan was revised in 2015, with input from the Town's Trails Commission, with continuing goals to:

1. **Improve the Bicycle and Pedestrian Network:** Fill in the gaps in the bicycle and pedestrian network with priority given to creating connectivity to public buildings, parks and major trail networks.
2. **Enhance Gateways:** Enhance and beautify the Town's gateway outdoor spaces, welcoming visitors and residents.
3. **Broaden, Enhance and Promote Recreation Opportunities**: Develop strategic partnerships to increase program and activity offerings to underserved user groups.

Pitkin County's Crystal Valley Caucus Master Plan (2016) was also updated with the following goals:

> Recreation and Open Space: The Caucus supports expanding non- motorized recreational activities, which maintain the integrity of the Valley's ecosystems (refer to the Environment Section.) Access for residents and visitors to these varied recreational activities should be maintained and improved. Trails should be designed to protect human safety and utility while minimizing impact upon wildlife, habitat, and stream health and integrity.
>
> To achieve these goals, the Caucus supports:
>
> >Extending the existing bicycle and pedestrian (or multi- use) path in the Crystal River Valley to be part of the West Elk Loop and Scenic Byway. The trail shall be designed for user safety, wildlife and habitat protection and consider best science, other available information and input from landowners along proposed routes.
>
> >The acquisition and designation of Open Spaces should be balanced between wildlife habitat and recreational use.
>
> >Sustainable wildlife management on Open Space lands, in co-ordination with the Colorado Parks and Wildlife.
>
> >Encourage cross-country skiing, hiking, horseback riding, hunting, fishing, rafting, kayaking and other non- motorized uses on public lands, which are consistent with sustainable conservation practices.
>
> Members are enthusiastic about the initial 6 mile bicycle and pedestrian trail from Carbondale South to the Campground for its design, separation from the highway and functionality. The Caucus recognizes that it may not be feasible to continue such a trail within the Hwy 133 right of way the entire distance to McClure Pass.

The Crystal Valley Caucus created a Trails Committee. The Trails Committee's conducted a public opinion survey last spring, with 143 people responding, strongly supporting the concept of this trail, and expressing diverse and interesting views on alignments, wildlife, user experience, seasonal closures, impact on property value, and etc.

Also last year, The Carbondale to Crested Butte Trail was placed on a priority list of statewide trail connections by Governor Hickenlooper, now known as "The Colorado 16." In response, the Pitkin County Open Space Department partnered with GOCO to undertake the first thorough studies of both the environmental and engineering realities of the Crystal River corridor. In March, Pitkin County selected, through a competitive bid process, ERO and Loris and Associates to develop environmental and engineering feasibility reports. ERO was selected

OST Memorandum

for environmental services by a review committee comprised of members from: Pitkin County, CPW, White River NF, GMUG NF, Town of Crested Butte, Gunnison County and two members of the Crystal Caucus. Loris and Associates was selected by a review committee with members from Pitkin County and the Crystal Caucus.

The goal for the reports is to inform the Carbondale to Crested Butte Trail plan discussion and decisions. The environmental and engineering information that was presented at two meetings in September, as well as the information that has been and will be available on the www.pitkinostprojects.com website was all based on the data gathered by ERO and Loris.

AGENDA
OPEN SPACE AND TRAILS BOARD OF TRUSTEES
October 17, 2017
JOINT MEETING WITH CARBONDALE TOWN COUNCIL AND PITKIN COUNTY BOARD OF COUNTY COMMISSIONERS
Third Street Center - Gym/Event Center
520 South Third Street, Carbondale

All times are subject to variation without notice.

6:00 PM	**JOINT MEETING INTRODUCTIONS**
	Carbondale to Crested Butte Trail project process update - Pitkin Open Space & Trails Staff
	Reference Materials
	Crystal Valley Environmental Narrative Report by ERO Resources Corporation Carbondale to Crested Butte Trail-Engineering Feasibility Report by Loris and Associates, Inc.
	CARBONDALE TOWN COUNCIL QUESTIONS & COMMENTS
	PUBLIC COMMENT
	Adjourn

Carbondale to Crested Butte Trail

Engineering Feasibility Report

Pitkin County Open Space and Trails

Engineer:

Loris and Associates, Inc.

100 Superior Plaza Way, Suite 220
Superior, CO 80027
(303) 444-2073

October 9, 2017

LORIS

October 9, 2017

Ms. Lindsey Utter
Planning and Outreach Manager
Pitkin County Open Space and Trails
806 West Hallam Street (Forest Service Building)
Aspen, CO 81611

Re: **Carbondale to Crested Butte Trail**
Engineering Feasibility Study

Dear Lindsey:

Loris and Associates, Inc. (LORIS) has completed the initial Engineering Feasibility Study for this project which analyzes and evaluates trail alignment options for the extension of the Carbondale to Crested Butte Trail from the terminus of the existing Crystal Valley Trail at the KOA campground to Redstone. This study identifies feasible trail alignments along State Highway 133 and off the highway and calculates likely construction costs for these alignments. This information has been presented to the public for feedback and comment over the course of two public meetings in September 2017. The study and public comments will be presented to the Pitkin County Open Space & Trails Board to aid their selection of a preferred alternative.

Please call or email me to discuss report modifications.

Respectfully submitted,

The Office of
Loris and Associates, Inc.

Derek T. Webb, P.E
Senior Project Engineer/Project Manager

Reviewed by:

Peter J. Loris, P.E
President

LORIS

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LORIS

LORIS

Introduction

PROJECT PURPOSE

The purpose of this engineering feasibility study is to analyze and evaluate trail alignment options for an extension of the Carbondale to Crested Butte Trail from the existing trail terminus of the Crystal Valley Trail at the Carbondale/Crystal River KOA campground south to the top of McClure Pass at the Pitkin County line. This portion of trail is Pitkin County's part of the larger 83-mile long Carbondale to Crested Butte Trail that will ultimately connect Carbondale to Crested Butte.

The project is approximately 10.5 miles in length from the KOA campground to Redstone, and approximately another 5.5 to 8 miles from Redstone to McClure Pass depending on trail alignment. The project is divided into two segments based on trail types – multi-use trail and singletrack trail. The multi-use trail segment is located between the KOA campground and Redstone, and the singletrack trail segment is located from Redstone to McClure Pass. Within each segment are two alternative trail alignments:

- **Alternative A**: Alternative A is located along State Highway 133
- **Alternative B**: Alternative B is located off State Highway 133

These alignments were further divided into segments. The trail segments are generally defined by engineering, environmental and land ownership constraints. Several of these limits were adjusted by LORIS during the course of this feasibility study for engineering-related reasons. One of the main goals of this study is to further refine the Alternative A and Alternative B trail alignments on a segment by segment basis, and for comparison purposes this study assumes a multi-use trail with an asphalt surface.

Trail segments for the multi-use trail are as follows (listed from north to south):

- **7 Oaks**
- **Crystal River Parcel**
- **Nettle Creek**
- **Red Wind Point**
- **Crystal River Country Estates**
- **Andrews**
- **Perham**
- **Janeway North**
- **Janeway South**
- **Avalanche**
- **Narrows**
- **Filoha**
- **Wild Rose**
- **Redstone**

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Trail segments for the singletrack trail are as follows (listed from north to south):

- **Castle**
- **Hawk Creek**
- **Hays Falls**
- **Bear Creek**
- **Placita**
- **McClure Pass**
- **Top of McClure**

The ultimate trail is likely to be a combination of Alternative A and Alternative B based on the most feasible alignment per trail segment. For ease of reference in this report, a trail along the Alternative A alignment in the 7 Oaks segment is referred to as "7 Oaks A" (similar for the other combinations of trail segments and alignments).

This report will provide a detailed discussion of the many trail typical sections available to construct a trail through the project corridor. The typical sections will be presented graphically along with example photos of completed trails using similar typical sections. Once the different typical sections have been introduced, additional elements impacting the trail design process will be reviewed, followed by an in-depth segment-by-segment analysis of existing conditions and design constraints for Alternative A and Alternative B trail alignments. Photos will be provided to reinforce specific areas of concern (where accessible). Lastly is an overview of how the construction cost estimates were compiled for each multi-use trail typical section and trail segment, and a summary of these costs will be presented for an asphalt surface trail. Costs for a concrete surface trail and a crusher fines surface trail (Alternative B only) are also presented.

LORIS

Figure 1 – Project Location, Multi-Use Trail Segments (KOA Campground to Redstone)

Figure 2 – Project Location, Singletrack Trail Segments (Redstone to McClure Pass)

Trail Typical Sections

To understand the engineering feasibility and approximate the costs to construct each alignment, trail typical sections were developed based on existing topography and available space for a trail platform. These typical sections vary based on engineering and/or construction difficulty and range from simple trails on flat existing grades (i.e. old railroad grade) to very complex structural trails on steep slopes (between the highway and the river). Other typical sections represent river crossings comprised of a prefabricated steel truss pedestrian bridge or multiple bridge spans.

Each typical section is assigned a unique name (i.e., TS-1, TS-2, etc.), has an associated cost ($/linear foot), and is assigned to the different segments in each of the alignments based on engineering judgement and experience on similar projects or similar topography. Each typical section is also assigned a color to quickly identify the locations along each alignment where that typical section is applied. A complete set of trail typical sections developed in this study is located in **Appendix A**.

The overall goal is to apply these typical trail sections in a manner that will minimize the visual and environmental impacts while trying to preserve the character of the river valley. Where retaining walls are necessary, rock walls made from locally derived or on-site materials blend well with the surroundings and are generally cheaper to construct. Where retaining walls are taller than the limits of a rock wall, an engineered approach may be required, such as ground nail, mechanically stabilized earth (MSE) or reinforced concrete walls. These walls typically have a more urban look with concrete blocks or panels; however, they can be stained or treated to have a more natural color or to mimic a rock face that better blends with the existing landscape.

For a full explanation of the application of the following trail typical sections, see the Analysis of Trail Segment Alternatives section of this report.

TYPICAL SECTION 0 (TS-0)

Typical Section 0 (TS-0) is not a standard trail typical section, but rather a hybrid of an existing low volume roadway modified to be shared with trail users. It typically consists of minor grading and preparation of the existing soft surface (dirt, gravel or base course) road, addition of aggregate base course and paving with asphalt. In most cases the width would remain as exists currently, resulting in minor disturbance to adjacent properties, but in some cases widening and more extensive grading may be required for extremely narrow roads or areas of limited sight distance. The estimated cost of a TS-0 trail is $110 per linear foot. For additional cost details see Appendix B.

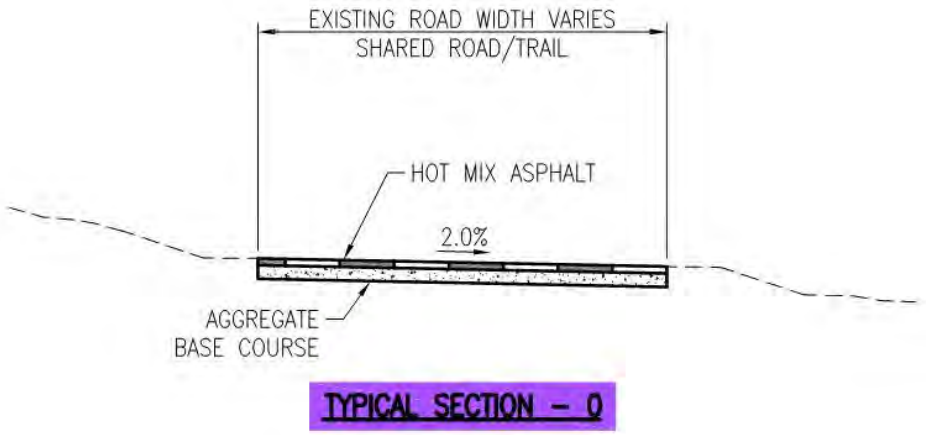


Figure 3 – Typical Section 0 (TS-0)

TYPICAL SECTION 1 (TS-1)

Typical Section 1 (TS-1) is simple and relatively straightforward to construct. It typically consists of minor grading, resulting in minimal disturbance (up to approximately 20 feet wide), and placement of aggregate base course followed by the trail surface (asphalt, concrete or crusher fines) and revegetation. TS-1 is generally the least expensive trail to construct due to its simplicity. The estimated cost of a TS-1 trail is $90 per linear foot. For additional cost details see Appendix B.

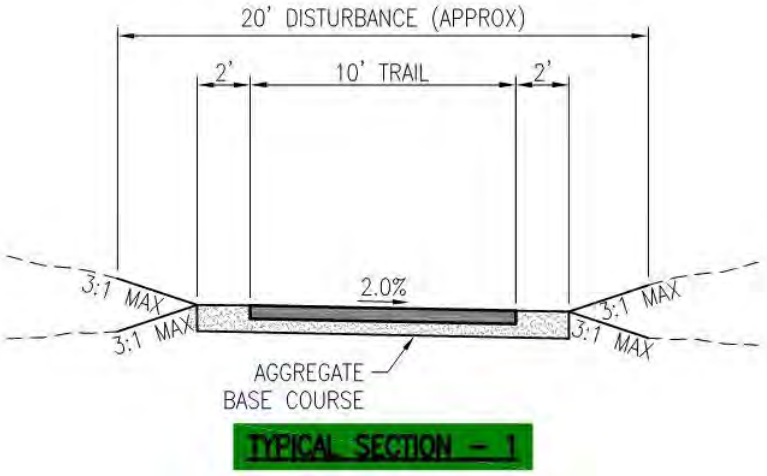


Figure 4 – Typical Section 1 (TS-1)

Figure 5 – Example of TS-1 (Rio Grande Trail, Carbondale, CO)

TYPICAL SECTION 2 (TS-2)

Typical Section 2 (TS-2), like TS-1, is also simple and relatively straightforward to construct. It typically consists of minor grading, resulting in minimal disturbance (up to approximately 30 feet wide), and placement of aggregate base course followed by the trail surface (asphalt, concrete or crusher fines) and revegetation. TS-2 costs slightly more to construct than TS-1 due to its increased disturbance width and/or amount of grading. The estimated cost of a TS-2 trail is $130 per linear foot. For additional cost details see Appendix B.

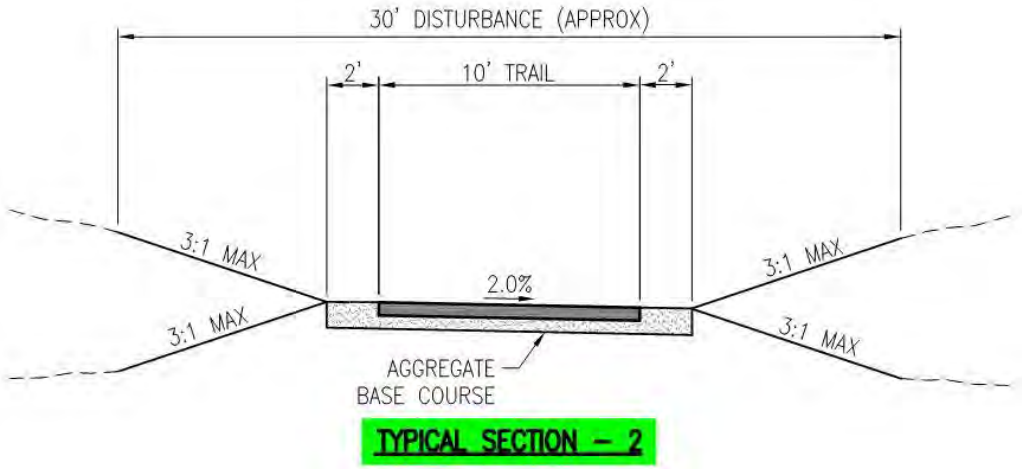


Figure 6 – Typical Section 2 (TS-2)

TYPICAL SECTION 3A (TS-3A)

Typical Section 3A (TS-3A) trail sections generally require more extensive grading to create a bench or platform wide enough to construct the trail. This typically results in the introduction of retaining walls up to four feet tall constructed of stacked rock or other similar gravity-type walls. The walls are necessary to limit the extents of grading that would otherwise create a much wider disturbance uphill of the trail from a cut slope. Pedestrian railing generally isn't necessary on the downhill side of the trail unless the existing slope on that side of the trail is steep enough to require a railing of if there were a hazard in the vicinity. The estimated cost of a TS-3A trail is $340 per linear foot. For additional cost details see Appendix B.

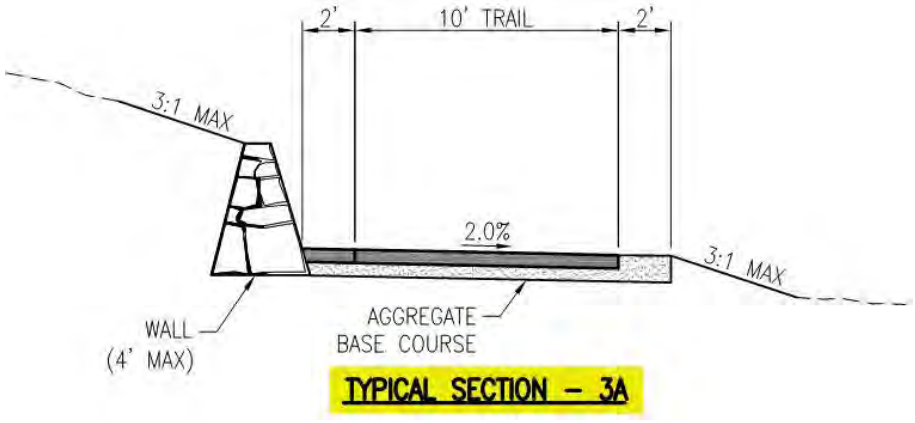


Figure 7 – Typical Section 3A (TS-3A)

TYPICAL SECTION 3B (TS-3B)

Typical Section 3B (TS-3B) is similar to TS-3A except in this case the wall is in fill rather than cut. The walls are necessary to limit the extents of grading that would otherwise create a much wider disturbance downhill of the trail from a fill slope. Due to the introduction of a retaining wall on the downhill side of the trail, TS-3B requires pedestrian railing on top of the wall for fall

protection. The estimated cost of a TS-3B trail is $430 per linear foot. For additional cost details see Appendix B.

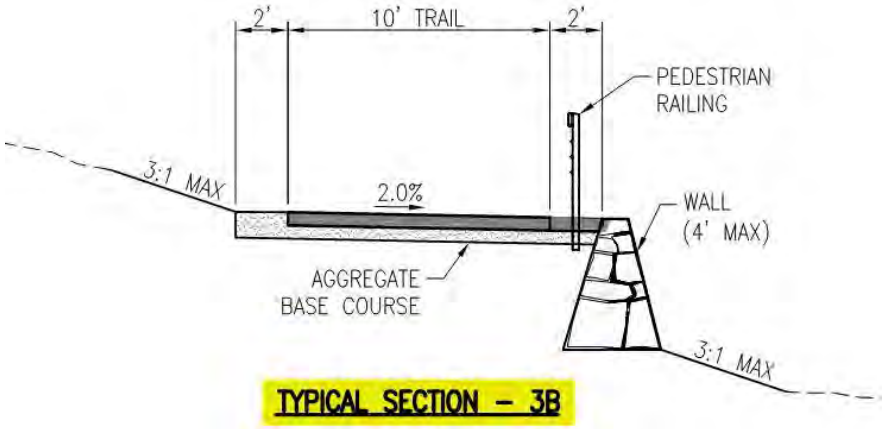


Figure 8 – Typical Section 3B (TS-3B)

TYPICAL SECTION 4A (TS-4A)

Typical Section 4A (TS-4A) is similar to TS-3A except the retaining walls are taller (up to 8 feet high) and generally more complex to construct than those of TS-3A. The estimated cost of a TS-4A trail is $630 per linear foot. For additional cost details see Appendix B.

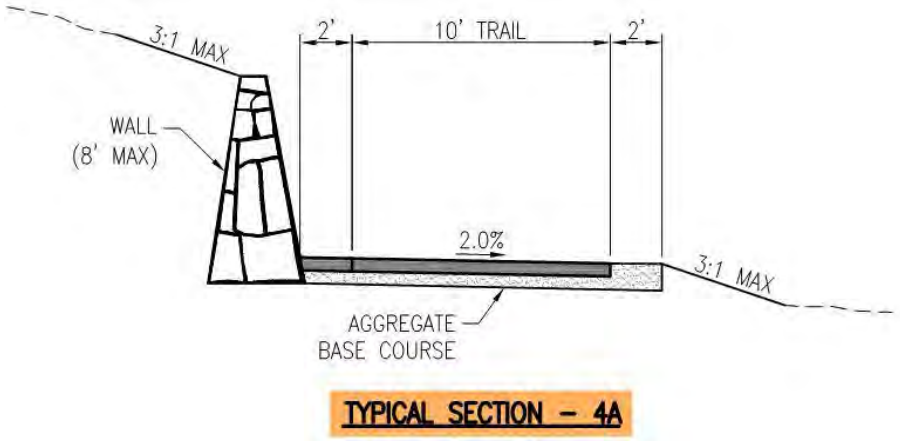


Figure 9 – Typical Section 4A (TS-4A)

TYPICAL SECTION 4B (TS-4B)

Typical Section 4B (TS-4B) is similar to TS-4A except in this case the wall is in fill rather than cut. The walls are necessary to limit the extents of grading that would otherwise create a much wider disturbance downhill of the trail from a fill slope. Due to the introduction of a retaining wall on the downhill side of the trail, TS-4B requires pedestrian railing on top of the wall for fall protection. The estimated cost of a TS-4B trail is $690 per linear foot. For additional cost details see Appendix B.

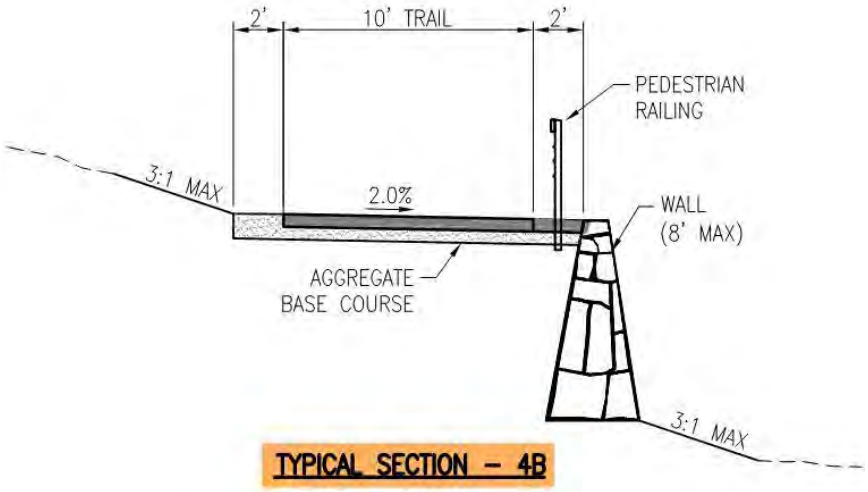


Figure 10 – Typical Section 4B (TS-4B)

TYPICAL SECTION 5A (TS-5A)

Typical Section 5A (TS-5A) is similar to TS-3A, except that the trail is adjacent to the highway and guardrail separates the highway from the trail. The estimated cost of a TS-5A trail is $390 per linear foot. For additional cost details see Appendix B.

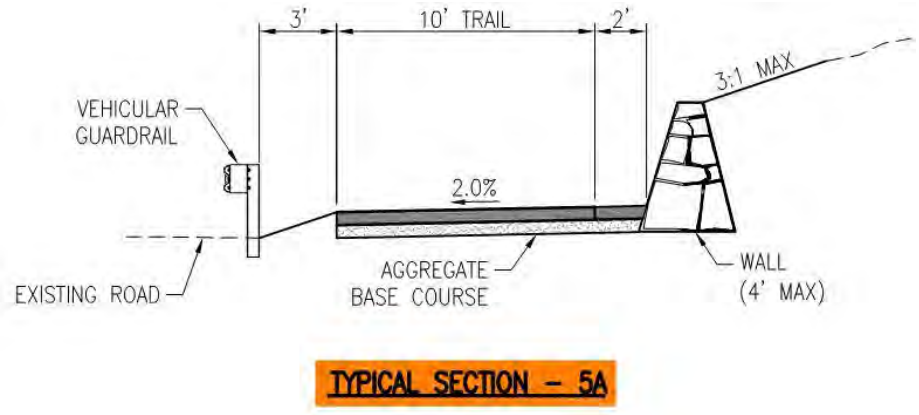


Figure 11 – Typical Section 5A (TS-5A)

TYPICAL SECTION 5B (TS-5B)

Typical Section 5B (TS-5B) is similar to TS-3B, except in this case the wall is in fill rather than cut. The estimated cost of a TS-5B trail is $480 per linear foot. For additional cost details see Appendix B.

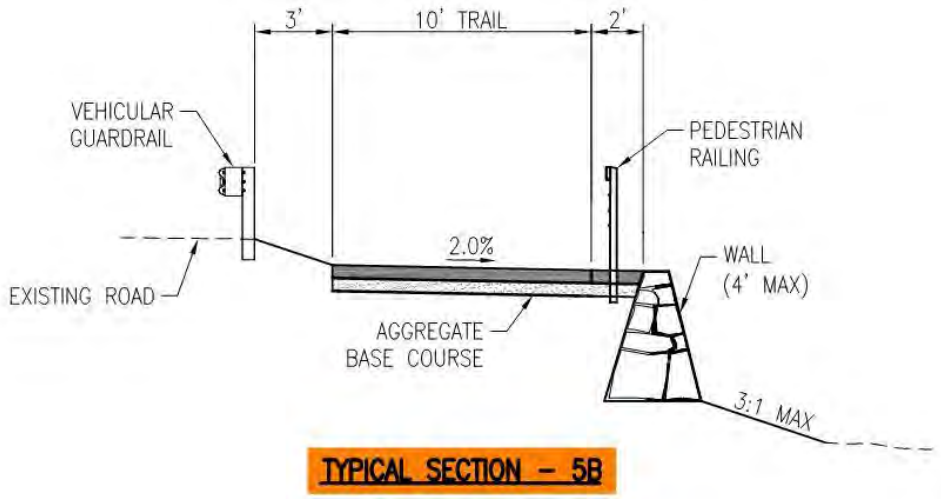


Figure 12 – Typical Section 5B (TS-5B)

Figure 13 – Example of TS-5B (Peaks to Plains Trail, Jefferson County, CO)

TYPICAL SECTION 6A (TS-6A)

Typical Section 6 consists of a series of complex structures – trail on structure – that could be applied in different scenarios along Alternative A trail alignments. They are meant to creatively create a trail platform where none currently exists. The trail surface for these typical sections must be concrete since the structures are primarily reinforced concrete and using asphalt pavement or crusher fines is not feasible.

Typical Section 6A (TS-6A) is the most commonly used trail structure consisting of a trail on top of a fill wall between the highway and the river. It does; however, have the potential to create long, linear disturbances and river impacts due to the length of the walls and required excavation for foundations. It also is likely to create floodplain impacts by reducing the cross-sectional area of the river. Wall types for TS-6A can vary, but most often gravity or mechanically stabilized earth (MSE) are used. Other types of walls include reinforced concrete with either deep or shallow foundations depending on soil type, scour potential, construction phasing and other factors. Riprap scour protection below the structure along the river would generally be required for the length of the wall. Of the four Typical Section 6's, TS-6A is the least expensive (MSE wall was assumed for costing purposes). The estimated cost of a TS-6A trail is $2,100 per linear foot. For additional cost details see Appendix B.

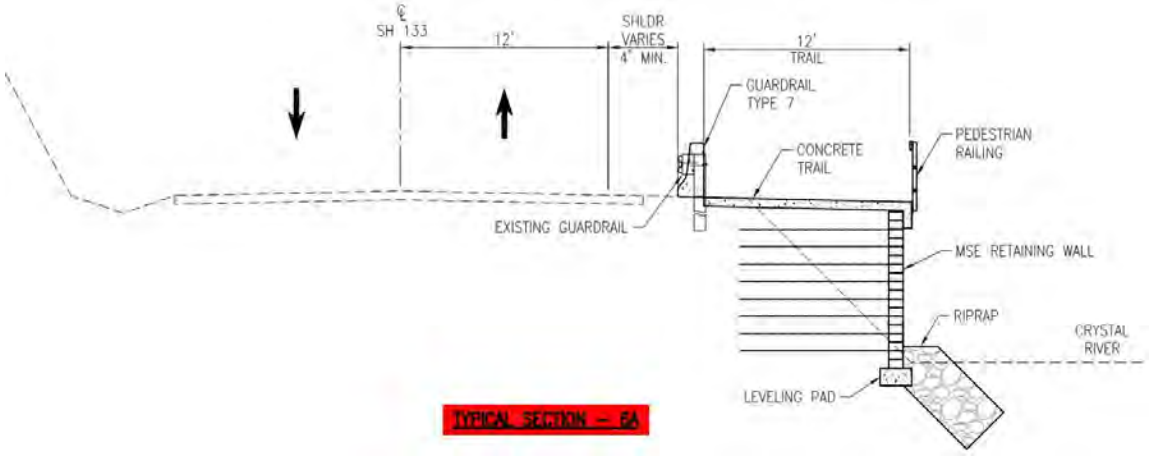


Figure 14 – Typical Section 6A (TS-6A)

TYPICAL SECTION 6B (TS-6B)

Typical Section 6B (TS-6B) is another wall structure, consisting of a trail at the bottom, or on the footing, of a cut wall between the highway and the river. Like TS-6A it has the potential to create long, linear disturbances and river impacts due to the length of the walls and required excavation for foundations. However, due to this being a cut-type wall it has the potential to actually decrease the cross-sectional area of the river that typically causes floodplain issues. TS-6B is a reinforced concrete structure that would require extensive temporary excavation into the limits of the highway or temporary shoring in order to construct. Riprap scour protection below the structure along the river would generally be required for the length of the wall. The estimated cost of a TS-6B trail is $2,500 per linear foot. For additional cost details see Appendix B.

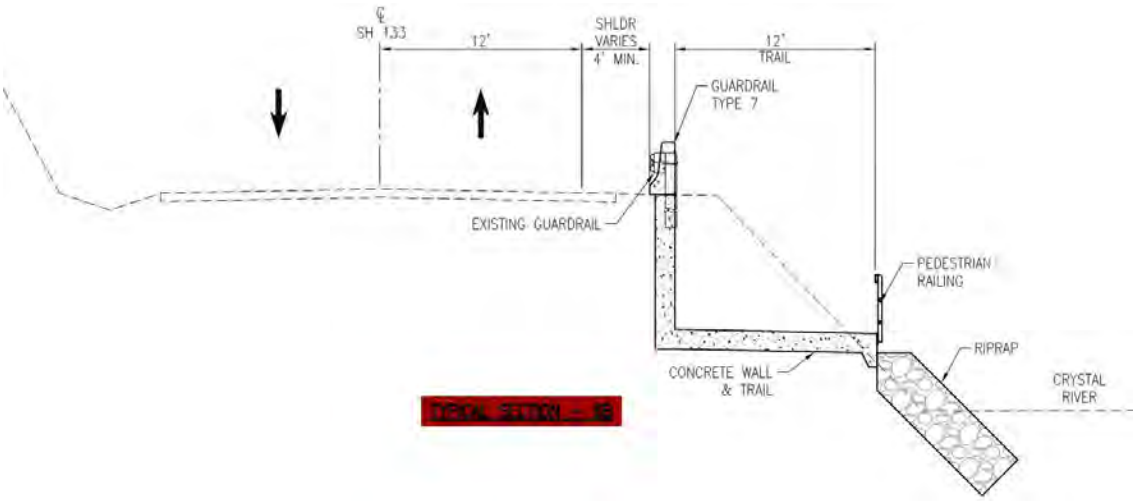


Figure 15 – Typical Section 6B (TS-6B)

TYPICAL SECTION 6C (TS-6C)

Typical Section 6C (TS-6C) is a unique trail structure in that it incorporates a portion of the highway pavement to allow for a cantilevered trail to be constructed over the steep river bank. The structure is a reinforced concrete slab that extends to the center line of SH 133, replacing the northbound asphalt pavement, and then overlaid by a layer of asphalt pavement to yield a continuous asphalt pavement wearing surface as exists today. Along with the weight of the concrete slab, either continuous footings or micro-piles are used to help resist vertical forces to allow the trail to be cantilevered out over the river and river bank. Concrete guardrail would separate the highway from the cantilevered trail that has continuous pedestrian railing incorporated on the edge of the structure. The estimated cost of a TS-6C trail is $2,400 per linear foot. For additional cost details see Appendix B.

This type of structure results in little to no disturbance to the existing river bank as well as no permanent river impacts since there are no structural supports below the trail or on the slope of the river bank. It would; however, require temporary structural supports beneath the overhanging portions of trail to construct. Constructing this type of trail typical section would result in the need for long-term one-lane temporary traffic conditions along the stretch of the structure, likely using a temporary traffic signal on both ends of the construction zone.

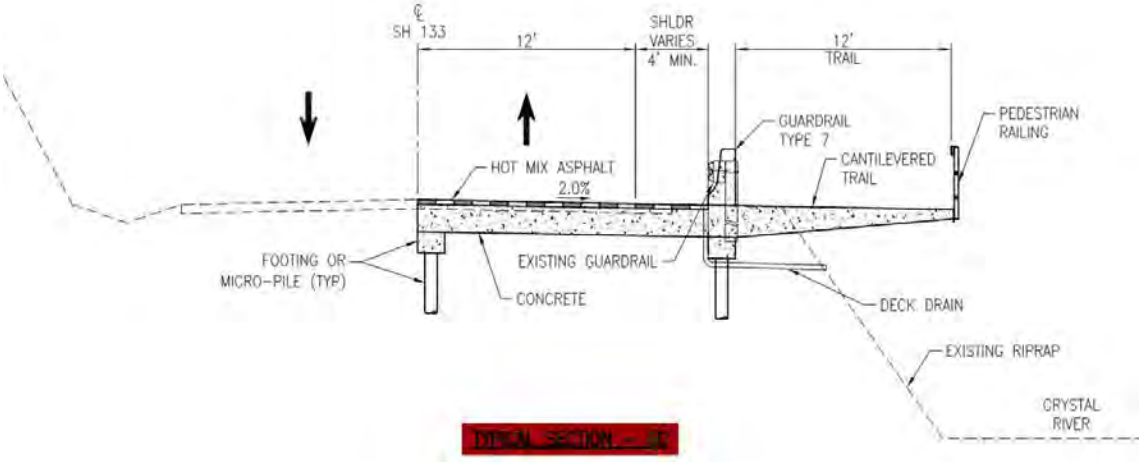


Figure 16 – Typical Section 6C (TS-6C)

TYPICAL SECTION 6D (TS-6D)

Typical Section 6D (TS-6D) is another unique trail structure that incorporates a series of precast concrete bridge slabs founded on asymmetrical, hammerhead-type bridge piers installed on the upper portion of the river bank. The trail is physically separated from both SH 133 and the river bank, allowing roadway drainage to occur as it currently exists and flow beneath the structure – no roadway drainage flows onto the trail. Also, since it is not connected to SH 133, highway snow removal operations are less likely to impact the trail. Pedestrian railing is required on both sides of the trail since it is an isolated trail structure. The estimated cost of a TS-6D trail is $2,700 per linear foot. For additional cost details see Appendix B.

Like TS-6C, TS-6D it is meant to minimize permanent impacts to the river or river banks since there are only minimal structural supports beneath the trail or along the river edge and no continuous longitudinal structures. Another advantage is that permanent impacts along the river bank are only intermittent where piers are present (spacing to be determined during final design, but likely on the order of 50 feet). Impacts to SH 133 should only be temporary – one-lane traffic during active construction, reopened to two-lanes of traffic at the end of the day.

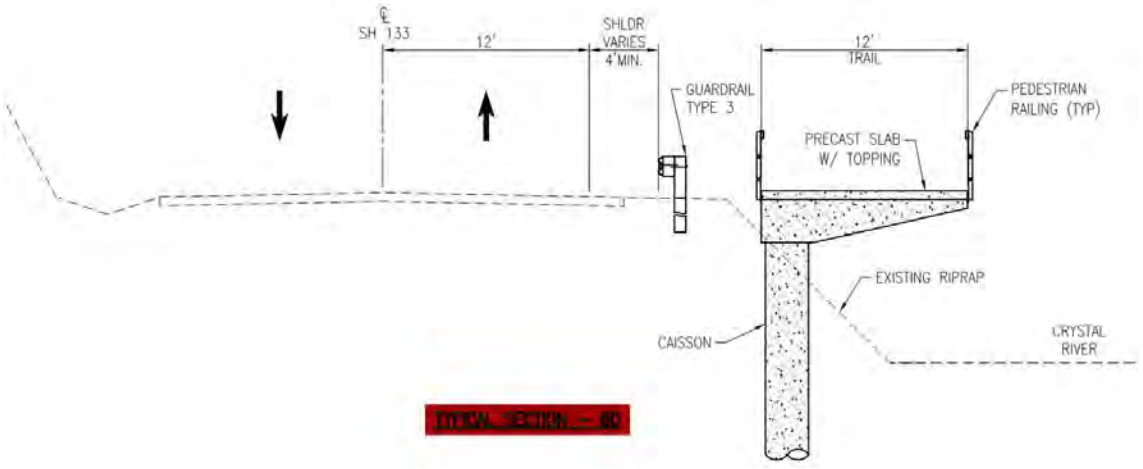


Figure 17 – Typical Section 6D (TS-6D)

Figure 18 – Examples of completed TS-6D (Colorado River Trail, Moab, UT)

Figure 19 – Example of TS-6D during construction (Colorado River Trail, Moab, UT)

TYPICAL SECTION 7A (TS-7A)

Typical Section 7A (TS-7A) consists of a single-span prefabricated steel truss bridge with relatively simple construction. The estimated cost of a TS-7A trail bridge is $2,400 per linear foot. For additional cost details see Appendix B.

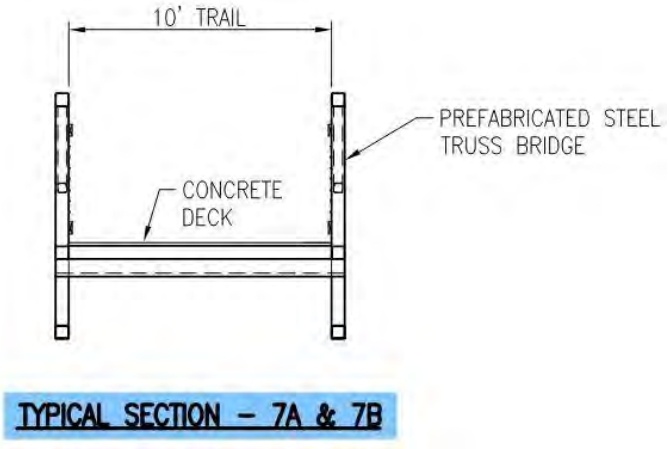


Figure 20 – Typical Section 7A (TS-7A)

Figure 21 – Example of TS-7A (Peaks to Plains Trail, Jefferson County, CO)

TYPICAL SECTION 7B (TS-7B)

Typical Section 7B (TS-7B) consists of a multi-span prefabricated steel truss bridge or a complex or longer single-span bridge. The actual trail/bridge typical section for TS-7B is similar to TS-7A, but may be actually be stronger and therefore more expensive. The estimated cost of a TS-7A trail bridge is $3,500 per linear foot. For additional cost details see Appendix B.

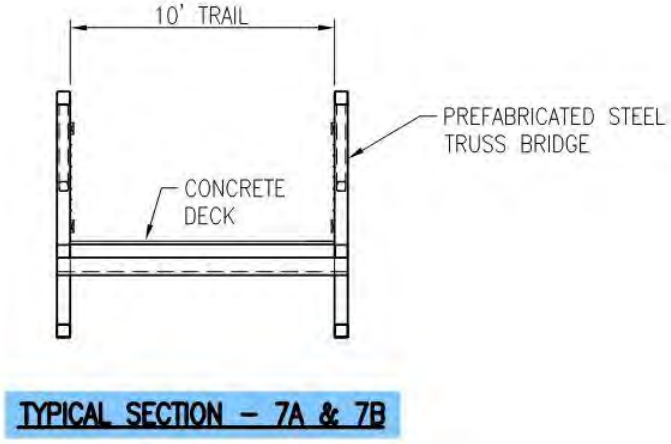


Figure 22 – Typical Section 7B (TS-7B)

TYPICAL SECTION 8 (TS-8)

Typical Section 8 (TS-8) is not a trail typical section, but rather a roadway bridge typical section. This typical section was developed specifically where a new roadway bridge is necessary for a shared roadway & trail. No graphical typical section was developed since roadway bridges can vary greatly based on structure type, span, width, etc. The estimated cost of a TS-8 roadway bridge is $8,300 per linear foot. For additional cost details see Appendix B.

TYPICAL SECTION 10 (TS-10)

Typical Section 10 (TS-10) is not a trail typical section, but rather a roadway typical section that could be used during final design as a potential mitigation measure in lieu of constructing an expensive trail typical section alongside the highway. This typical section was developed specifically for Alternative A trail where very complex and expensive trail typical sections, specifically TS-6A – 6D, are identified in an attempt to lessen the cost per linear foot in these areas. TS-10 physically shifts or realigns a portion of existing SH 133 away from the Crystal River in order to provide a platform that accommodates a simpler and less costly trail typical section such as TS-1 or TS-2 – ultimately creating a hybrid highway & trail typical section that is cheaper to construct than TS-6A – 6D trails. The estimated cost of a TS-10 highway realignment is $350 per linear foot. For additional cost details see Appendix B.

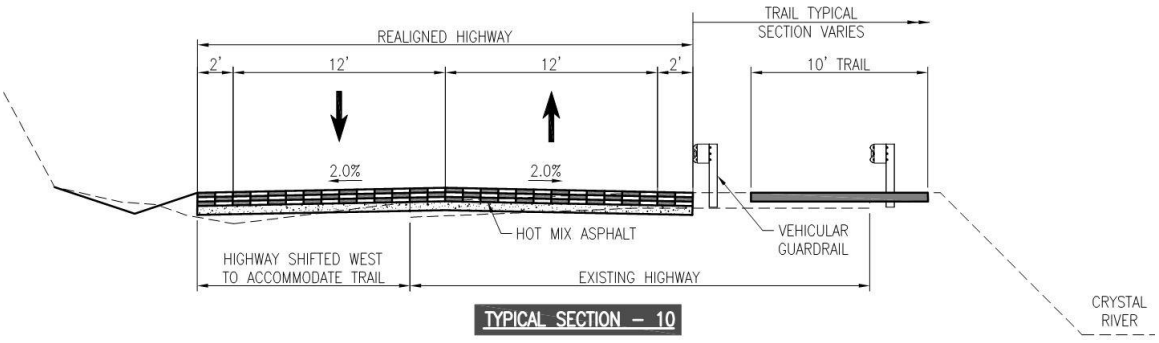


Figure 23 **– Typical Section 10 (TS-10)**

In order for TS-10 to be feasible and cost effective, there must be physical space and right of way available on the west side of SH 133 to shift the highway enough and still create a "cheap" trail platform that can be used for a simple trail typical section. Having to acquire right of way, impact a large number of trees or create large areas of rock cut would prohibit shifting the highway and therefore the use of TS-10.

LOW SINGLETRACK TRAIL TYPICAL SECTION

This section characterizes both new or improved singletrack. The cost per linear foot of ranges from $6 in areas where the trail is largely existing and requires only minor improvements to for long-term sustainability to $20 per linear foot for more complex sections or new trail sections. The cross-section is a 3-foot natural surface trail platform for hiking, mountain biking and equestrian use. Improvements may include drainage improvements, vegetation removal, or added undulation or minor reroutes to enhance the trail experience. The construction work could largely be completed by hand with volunteer labor for a hand-built trail experience. This designation also captures areas adjacent to the highway where new trail segments would be relatively easy and inexpensive to construct and sufficient space is available to accommodate a trail. Additional cost may be incurred due to unforeseen highway build requirements and the possibility of encountering utilities along the roadway.

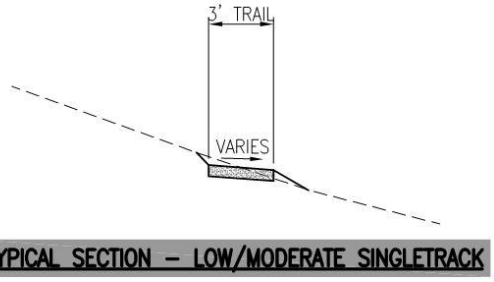


Figure 24 – Typical Section Low/Moderate Singletrack

MODERATE SINGLETRACK TRAIL TYPICAL SECTION

This designation is used for trail segments where no existing trail is present and new trail would need to be constructed. The section is a 3-foot natural surface trail platform for hiking, mountain biking and equestrian use and would cost approximately $20 to $35 per linear foot to construct. Although the trail design is the same as the "Low" designation, the "Moderate" designation, in areas adjacent to the highway, indicates that construction would be more challenging including working within a constrained right-of-way or sections that may require additional fill or the removal of materials to construct a sustainable trail platform. In areas where this section is applied to off-highway routes, it identifies sections that would require structural additions or modifications to the existing route such as rustic bridges to cross a drainage pathway or wash.

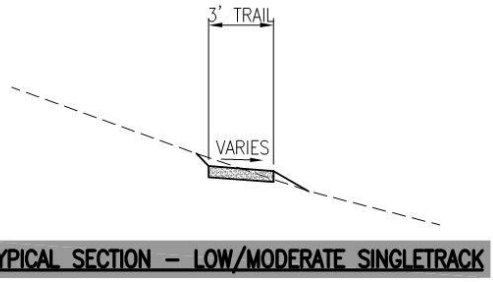


Figure 25 – Typical Section Low/Moderate Singletrack

HIGH SINGLETRACK TRAIL TYPICAL SECTION

The "High" designation identifies trail segments where no existing trail is present and new trail would require a structural solution. This section is only applied to the Hawk Creek segment where the constrained right-of-way and steep cliffs leave limited options for accommodating a trail. The section identifies a 5-foot trail platform with minor fill and a crusher fines surface with a steel pedestrian railing and a concrete guardrail to separate the trail user from vehicular traffic. The cost for this section of trail is approximately $260 per linear foot.

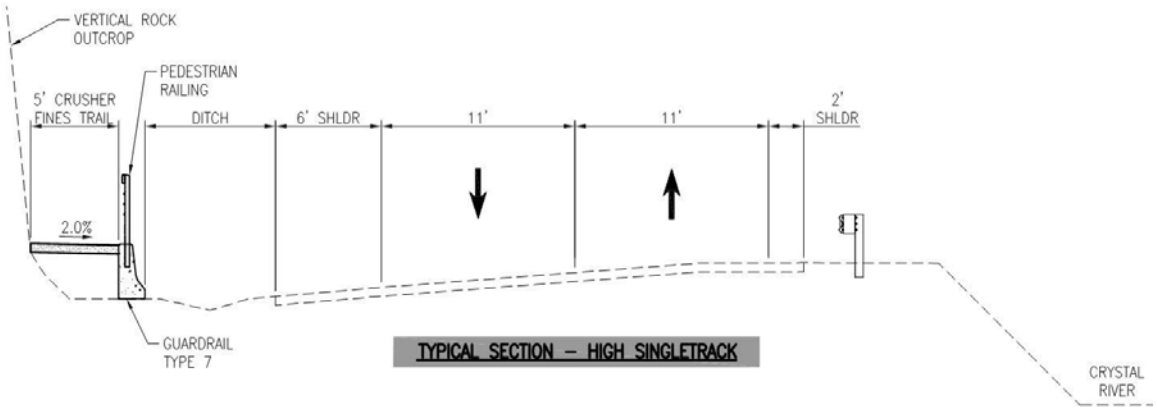


Figure 26 – Typical Section High Singletrack

Bridge Crossings

Bridge crossings are anticipated to be a critical element of the Carbondale to Crested Butte Trail since the trail is likely to cross the Crystal River in at least several locations once the final alignment is determined. As was previously described in this report, the limits of trail segments are generally defined by a bridge crossing – either an existing roadway bridge or a proposed pedestrian bridge. In some instances, the trail may continue on either the Alternative A or Alternative B alignment as it reaches the end of a segment; however, for one reason or another the trail may need to cross the river to get to the alignment on the opposite side. The alignments described later in this feasibility report include the use of existing roadway bridges, replacement of existing roadway bridges, modifications to existing roadway bridges, or new pedestrian bridges to cross the river.

It is generally easier and less expensive to utilize an existing bridge to cross the river; however, if that opportunity does not exist a new trail bridge must be constructed. Once this need for a new bridge crossing is determined, the specific location of the proposed bridge needs to be identified. The bridge must me located where the river is as narrow as possible in order to reduce the span length of the bridge, thereby reducing the cost of the bridge. Trail approaches leading up to the bridge are also very important. In constrained locations the approaches are likely to be quite abrupt, or sharp, with very small radius curves at either end of the bridge. In areas where there is more room these approaches are likely to be more gradual or the bridge may be skewed to the river to allow for smoother transitions to the bridge. Once the ultimate trail alignment is chosen and the trail is in final design, the actual bridge orientation and trail approaches to the bridge will be more refined and better oriented. As will be seen later in this report the bridge crossings shown have attempted to accommodate several trail alignment alternatives, resulting in some bridges or bridge approaches that appear to unnecessarily go "out of the way" or out of alignment with the corridor.

The location must also be conducive to the physical construction of a new bridge, its abutments and erecting the bridge superstructure, so having relatively flat areas on one or both sides of the bridge allows a crane (or cranes) to be staged for erecting the bridge is critical. Many of the bridge crossing locations proposed in this feasibility study take advantage of existing pullouts along SH 133, but some locations do not. Those locations attempt to utilize whatever wide areas or flat slopes are available and some may require grading for setting a crane; however, creating platforms is generally not ideal as it oftentimes creates excessive disturbance to the river, vegetation, or to highway traffic. The highway itself may also be used as a crane location or temporary staging area for assembling the bridge superstructure and would require careful coordination with CDOT.

Figure 27 – Example of Pedestrian Bridge (Peaks to Plains Trail, Jefferson County, CO)

Trail Surface

The northern portion of this project is envisioned as a multi-use trail. Pitkin County strives to provide a dual surface multi-use trail when possible. A dual surface trail is composed of a hard-surface primary trail with an adjacent secondary trail or a widened shoulder surfaced with crusher fines or native soil. The ability to provide a dual surface trail may be dictated by available width, the likelihood it may be impacted by floodwaters, trail grade or other unique circumstances. A secondary preference for trail surface is a hard-surface trail. Asphalt is Pitkin County Open Space and Trails' standard for a hard-surface trail material; however, hard trail surfaces often aren't the preferred surface for some users such as equestrian or runners. Concrete trails are used extensively by many jurisdictions due to its durability; however, concrete is generally more expensive than asphalt. Concrete trails can be colored to blend into the surrounding landscape if that is desired. This can be an integral color as part of the concrete mix or the trail can be constructed using standard concrete followed by stain or surface treatment to give the gray concrete a more natural appearance. A soft surface trail constructed of crusher fines or similar material is by far the least expensive surfacing material; however, it generally requires more maintenance than hard surfaces in order to address erosion and rutting.

Trail width is ideally at least 10 feet for the primary surface; however, in constrained areas the width can be narrowed to 8 feet. Shoulders along the sides of the trail are typically up to 2 feet wide where space allows. Other ways to obtain a wider trail while taking advantage of available width is by narrowing the shoulders on one or both sides of the trail or eliminating the shy distance along structures or railings.

In many cases there are no options other than a concrete trail, such as when the trail is an integral part of a structure. Trails on top of MSE walls are most often reinforced concrete. Trails that run alongside or are integrated with reinforced concrete walls are also most often concrete since there are already significant concrete elements on the project it more cost effective to use concrete rather than some other material. When the trail is on a prefabricated steel truss pedestrian bridge, the surface or "deck" can be constructed of timber or concrete that are installed after the bridge has been erected in place. Concrete decks generally require a stronger superstructure due to the weight of the concrete and any reinforcing steel and are relatively low-maintenance. Timber decks are lighter and may require a leaner superstructure, but may also require more maintenance – either of individual timbers or timber connectors. Timber decks are also more susceptible to damage by snow removal equipment. Bridge deck material is often dictated by the project owner or chosen as a function of cost. Trails on structures typically have additional width to accommodate shoulder or shy distance along railings, and therefore trails on structures are likely to be 12 feet wide, unless costs or other factors dictate that the trail structure needs to be narrower.

The southern portion of this project is envisioned as a singletrack trail. Singletrack trails are most commonly natural surface trails composed of native dirt, soil, rock, etc. rather than an engineered pavement surface. The singletrack trail would primarily have a natural trail surface that is carefully cut into the topography where the only real construction cost is for grading of the trail. Width of singletrack trails varies greatly, but for the purpose of this study it ranges from 3 to 5 feet. A small percentage of this segment is likely to be on a manmade bench likely surfaced with crusher fines that is easy to work with and grade. Another portion of this segment is likely to be on an existing soft surface road sharing the road with other users such as motorized vehicles and pedestrians that currently use the road.

Figure 28 – Example of a Dual Surface Trail (Pitkin County, CO)

Figure 29 – Example of an Asphalt Trail Surface (Rio Grande Trail, Carbondale, CO)

Figure 30 – Example of a Stained Concrete Trail Surface (Peaks to Plains Trail, Jefferson County, CO)

Utilities

As in most railroad and highway corridors, there are a variety of existing utilities within the project corridor, including overhead electric and communications lines, underground fiber optics and communications lines. Many existing trail corridors within Pitkin County contain underground utilities beneath or alongside the trail. A thorough utility investigation was not performed as part of the engineering analysis; however, observations of existing utility features – marker posts, poles, boxes, pedestals, etc. – were noted during the field work and will ultimately come into play with analysis of specific trail segments. Existing drainage facilities such as pipes and culverts were also observed during field work, but in many instances, are less impactful to the trail alignments. Irrigation ditches and irrigation pipes are also present in many locations throughout the corridor and must be considered an obstacle since they are gravity fed and often very difficult to relocate, and in some cases, may also be considered a historic feature (historic significance not addressed as part of the engineering feasibility study).

Some of these utilities are likely to be directly impacted by the construction of the trail, such as shallow underground utility lines in areas of cut. Others could pose an obstacle for construction equipment and impact constructability, such as overhead power lines in an area where cranes are needed to erect a bridge or construct a retaining wall. While existing utilities are a temporary

obstacle during construction of the trail and can usually be relocated beforehand, they should not be considered a permanent roadblock for construction of the trail.

Figure 31 – Underground Fiber Optics Marker in Narrows B

Figure 32 – Telephone Pedestal in Andrews B

Figure 33 – Overhead Electric in Narrows B (looking south)

Hydraulics and Floodplain

Our hydraulics and drainage subconsultant, River Restoration, performed a preliminary analysis of river geomorphology and floodplain impacts at five bridge locations, including Bridge Crossings 6, 9, 12 and two others that became optional bridge locations within the Andrews and Janeway South trail segments. Also analyzed was one location where a trail on a longitudinal fill wall between the highway and river (Typical Section 6A) is proposed in 7 Oaks A. These analyses assisted us in determining anticipated bridge span lengths, bridge elevations (based on freeboard) and determining the best bridge locations based on river behavior and geomorphology.

Another critical location that was not looked at by River Restoration, but was observed during the field work, is that of Avalanche Creek in the Avalanche-B. Field work was performed during the highest runoff of the season and Avalanche Creek was overtopping upstream of the trail alignment, creating multiple smaller secondary channels or fingers that required crossing on foot very challenging. While this likely only occurs seasonally during high runoff, it is something that needs to be investigated further should a trail be preferred through this area. Options to mitigate this seasonal overflow of water in the area include a raised trail with multiple culverts at these secondary channels, or an elevated boardwalk-type trail over the length of the overflow fingers since it appears these may change seasonally.

All rivers and creeks are susceptible to flooding, and the Crystal River is no exception. The Federal Emergency Management Agency (FEMA) produces Flood Insurance Study's (FIS) and Flood Insurance Rate Maps (FIRM) to determine areas that may be impacted during a 100-year (in some places 500-year) storm event, or has a 0.01% probability of occurring in any given year.

Any construction occurring along the Crystal River, such as constructing a new trail bridge, modifying an existing roadway bridge or constructing a trail on fill walls along the river, has the potential to impact the river or floodplain. It will be a goal of the project to not cause a negative impact to the river or floodplain; however, should an impact occur that causes a rise to the floodplain this would require a revision to the FIRM maps through a Letter of Map Revision process. Specific impacts to the river and floodplain will be investigated further once a preferred trail alignment is selected and additional engineering is completed.

Figure 34 – Roadway Bridge over the Crystal River to 7 Oaks B (looking east)

Right of Way

Right of Way plans for SH 133 within the project corridor were developed by Pitkin County's on-call surveyor, SGM. These plans assisted LORIS in determining right of way and ownership for certain areas of the project. While right of way and land ownership are ultimately a very important aspect of this and any project, for this engineering feasibility study right of way was not taken into account for the engineering analysis, meaning that one area was looked at differently just because it

was on private property instead of CDOT Right of Way, for example. If preferred trail alignments happen to run through private property, Pitkin County will begin appropriate discussions with the affected landowner in an attempt to obtain trail easement or other right to construct a trail on or through the property. It should be noted; however, that the goal of Alternative A is to remain within the existing highway right of way.

It should also be mentioned that during the field work portion of this study LORIS was able to access all public lands, including CDOT Right of Way, US Forest Service land, Pitkin County Open Space parcels, and any private land where the County had received land owner approval. Engineering assessment of private lands where no ground access was available was done using Google Earth imagery and Pitkin County GIS.

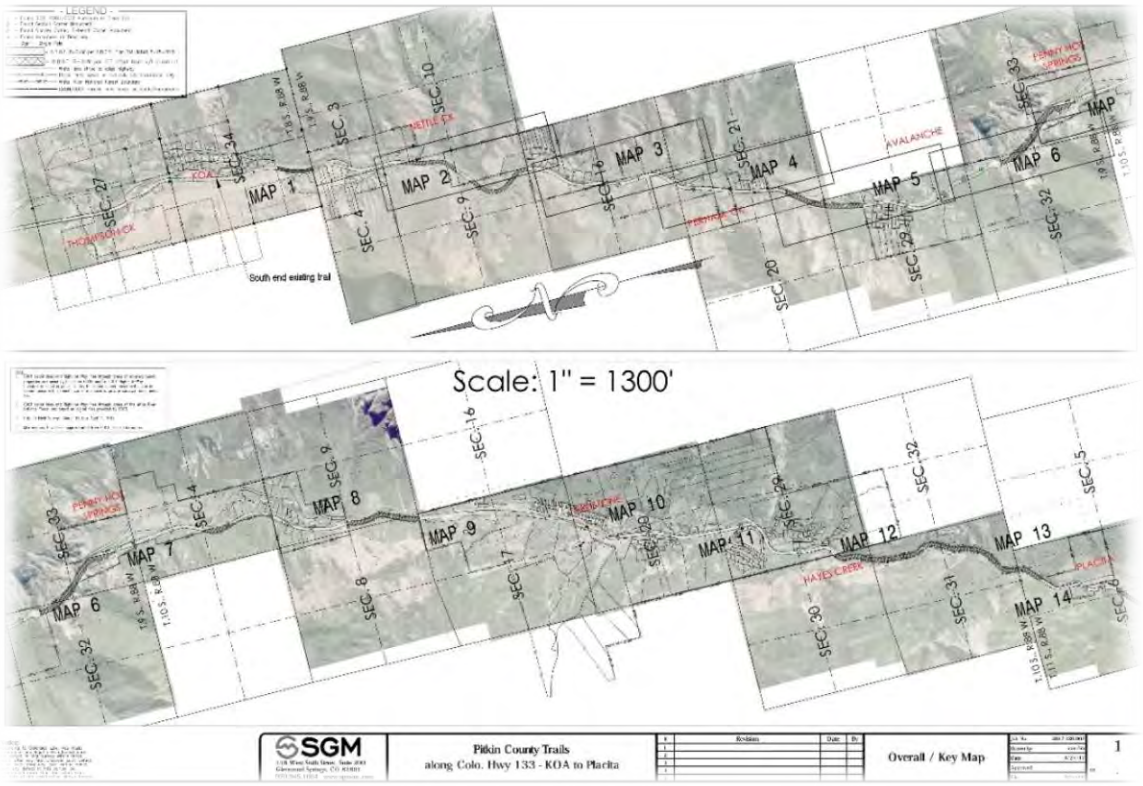


Figure 35 – Right of Way Plan from SGM

Environmental

An environmental assessment was not a part of this engineering feasibility study, but rather was done concurrently under a separate contract by ERO Resources (ERO). ERO's environmental study should be referenced for environmental impacts such as wetlands, historic and cultural resources, threatened and endangered species, and other protected wildlife and biologic resources.

Geotechnical

A geotechnical assessment was not performed as part of this engineering feasibility study. Detailed geotechnical investigations will be completed during each trail design phase once a preferred alignment has been selected. However, in some areas of certain alignments it is readily-apparent that there are existing geologic or geotechnical hazards present that might impact a trail – in these cases the hazards were included as part of this engineering study.

Analysis of Trail Segment Alternatives

FIELD WORK

The field work for this engineering feasibility study took place in late June, 2017. During this time the air temperature was well above average for the area – approximately 95 degrees. As a result, snowmelt was occurring quickly and the Crystal River was running very high, as was Avalanche Creek. Observing the Crystal River at a high-water level was advantageous since it allowed LORIS to develop a good mental picture of what a trail along the river might look like during high water, or what a bridge span might need to be during seasonal high runoff conditions or flood events.

Existing field conditions were documented by photographs, field notes and measurements. To supplement the on-the-ground field work and to "truth" the office analysis performed prior to the field work, Google Earth aerial imagery, Google Street View imagery and Pitkin County GIS contour data was used to assist in determining the existing elevations, topography, ground features, etc.

STATE HIGHWAY 133

Colorado State Highway 133 (SH 133) runs the length of the project and the Crystal River generally parallels the highway, with only minor separations away from it. SH 133 is a rural, two-lane, minor arterial highway that, depending on location, carries up to 2,800 vehicles per day with 3% to 4.4% trucks based on current data available from the Colorado Department of Transportation (CDOT). The highway is asphalt-paved, has a posted speed limit of 50 miles per hour and is designated as a Colorado Scenic Byway – West Elk Loop. Steel w-beam guardrail is present in many locations along the east side of the highway, and some locations contain precast concrete barrier.

CDOT maintains SH 133, which includes general pavement maintenance, traffic signage, snow removal, and rockfall and mudslide debris removal. CDOT completed a resurfacing project approximately 2 years ago from milepost 52 to the Town of Carbondale. Another resurfacing project is planned for 2018 from milepost 43 to 52. For reference, the North Segment (to be discussed further below) stretches from approximate milepost 53 to approximate milepost 61.75, and Redstone is situated at approximate milepost 51.50. CDOT has recently indicated several active rockfall zones, including Penny Hot Springs (approximate milepost 55.20) and the "Meatgrinder" (approximate milepost 53.40), for which they have no plans for permanent fixes. Guardrail and pavement in the area of Meatgrinder is heavily damaged as a result of rockfall from the west side of the highway.

MULTI-USE TRAIL SEGMENTS

The Multi-Use Trail Segments of the project runs from the existing Crystal Valley Trail terminus at the Carbondale/Crystal River KOA campground to Redstone, approximately a 9-mile corridor.

Utilizing the available opportunities that currently exist is the optimal way to construct a trail. Such available opportunities include the existing old railroad grade, existing roads, existing bridges, the historic Rock Creek County Road alignment and other areas where a trail platform currently exists. These are opportunities to design a trail with minimal effort and construct a trail in a less expensive manner. Where these types of existing opportunities do not exist, the trail platform must be created by introducing additional bench width with grading, retaining walls or trail structures. Generally, the more grading that is required or the more walls that are introduced or the more complex a trail structure, the more the trail will cost to construct.

The study area is divided into the same named segments previously described. Each trail segment alternative is described below in detail from north to south. It should be noted that the alignments shown for each segment may be modified during final design once a detailed topographic survey is performed and more detailed design takes place.

7 OAKS

The 7 Oaks segment begins at the current terminus of the Crystal Valley Trail at the Carbondale/Crystal River KOA campground.

The **7 Oaks A** trail alignment is approximately 0.36 miles long and runs along SH 133 and the west side of the Crystal River. It begins at the current terminus of the Crystal Valley Trail at the KOA campground and runs south through a wide and flat informal parking area where construction is expected to be quite simple using TS-1. Continuing south the available space for a trail gradually gets narrower, where retaining walls are likely needed (TS-5B), and then disappears to a very constrained area between the highway guardrail and the river. This constrained section is quite typical for approximately 1,400 feet and require fill walls along the river in order to construct the trail (TS-6A). This alignment ends where the river diverges from the highway leaving a wide and vegetated area to continue the trail in easy construction south in the next segment or to a bridge crossing over the river (Bridge 2).

Bridge 1 lies between 7 Oaks A and 7 Oaks B and is an existing roadway bridge that is in poor condition. It is proposed to be replaced if the ultimate trail alignment follows that of 7 Oaks B into the 7 Oaks subdivision.

Bridge 2 is somewhat of a unique bridge crossing as compared to others that will be described later in this report since it, and the trail approaches to it, stretch the length of the next trail segment, Crystal River Parcel 1. Further investigation into this bridge crossing should occur during final design if this bridge is located on the ultimate trail alignment.

The **7 Oaks B** trail alignment is approximately 0.42 miles long and begins east of the bridge crossing to the 7 Oaks subdivision. The existing subdivision roads are unpaved and vary in width and grade – generally wider & flatter on the north end near the river and narrower & steeper further south and away from the river. Vegetation alongside the existing roads also increase further away from the river. The subdivision road would be resurfaced with new asphalt pavement and the trail would share the road with local traffic for approximately 2,200 feet (TS-0). An existing roadway bridge at a major drainageway should be replaced with a new 30-foot span bridge (TS-8) about midway through the subdivision. Minor drainage improvements, roadway signing and driveway tie-ins may also be required. Trail users need to pay special attention in this segment

because of the approximate 20 residential driveways and vehicles they are sharing the trail alignment with. This segment ends at the southern end of the subdivision boundary at Pitkin County Open Space land. It should be noted that, unlike all other Alternative B trails to be described in this report, 7 Oaks B does not connect to a bridge crossing.

Figure 36 – Current terminus of the Crystal Valley Trail (looking north)

Figure 37 – 7 Oaks A, along SH 133 (looking south)

Figure 38 – 7 Oaks B, subdivision road (looking south)

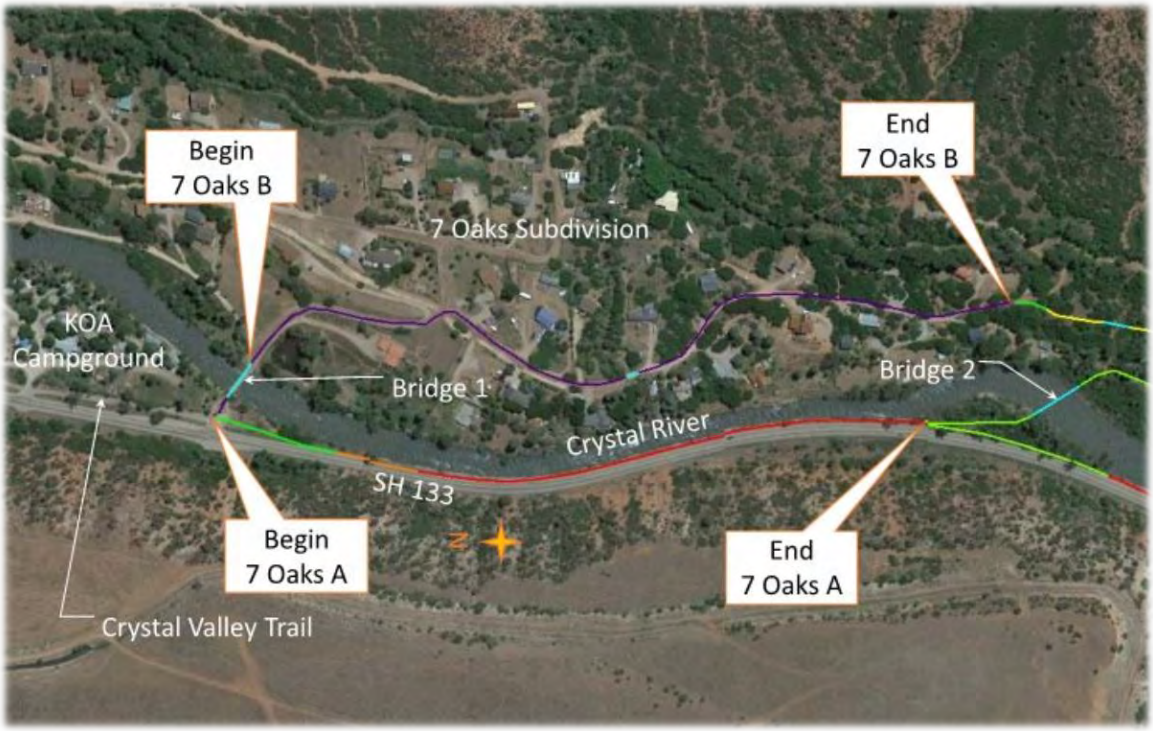


Figure 39 – 7 Oaks A

CRYSTAL RIVER PARCEL 1

The **Crystal River Parcel 1 A** trail alignment is approximately 0.29 miles long and runs along SH 133 and the west side of the Crystal River. This segment begins at the southern end of 7 Oaks A in a wide, vegetated area to allowing the trail to be easily constructed (TS-2) to the south through a heavily vegetated area for about 500 feet. Where the river converges again with the highway there is no room to construct a trail, so for the next 400 feet the trail is constructed on a fill wall along the river (TS-6A) until it reaches another wide and heavily vegetated areas allowing for simple trail construction (TS-2) for another 400 feet. From here the trail can continue with easy construction south in the next segment or to a bridge crossing over the river (Bridge 3).

The **Crystal River Parcel 1 B** trail alignment is approximately 0.22 miles long and begins at the southern end of 7 Oaks B approximately where the subdivision road ends. From here the trail runs through remnants of the old Rock Creek County Road (TS-1) for approximately 90 feet and then into a heavily vegetated slope for approximately 400 feet (TS-3), crossing several incised drainages, one requiring a 65-foot bridge crossing (TS-7A). The trail continues to wind through the vegetation using the old road as much as possible (TS-2) for another 600 feet and down a moderate slope to the old railroad grade at the end of this segment. From here the trail can either continue south to the next segment on the old railroad grade or cross the river with a bridge crossing (Bridge 3). Due to the amount of vegetation in this segment – large trees and scrub oak – a large amount of clearing and grubbing is anticipated. In addition, several cross culverts may be needed to accommodate the several drainages along the segment.

As was briefly touched upon in the 7 Oaks trail segment discussion, the Bridge 2 crossing is a unique crossing that could connect 7 Oaks A and Nettle Creek B, completely bypassing Crystal

River Parcel 1 B, potentially creating an alternative alignment for the Crystal River Parcel 1 segment. This bridge crossing may require further investigation during selection of the ultimate trail alignment.

Figure 40 – Crystal River Parcel 1 A, constrained section (looking south)

Figure 41 – Crystal River Parcel 1 B, old railroad grade (looking south)

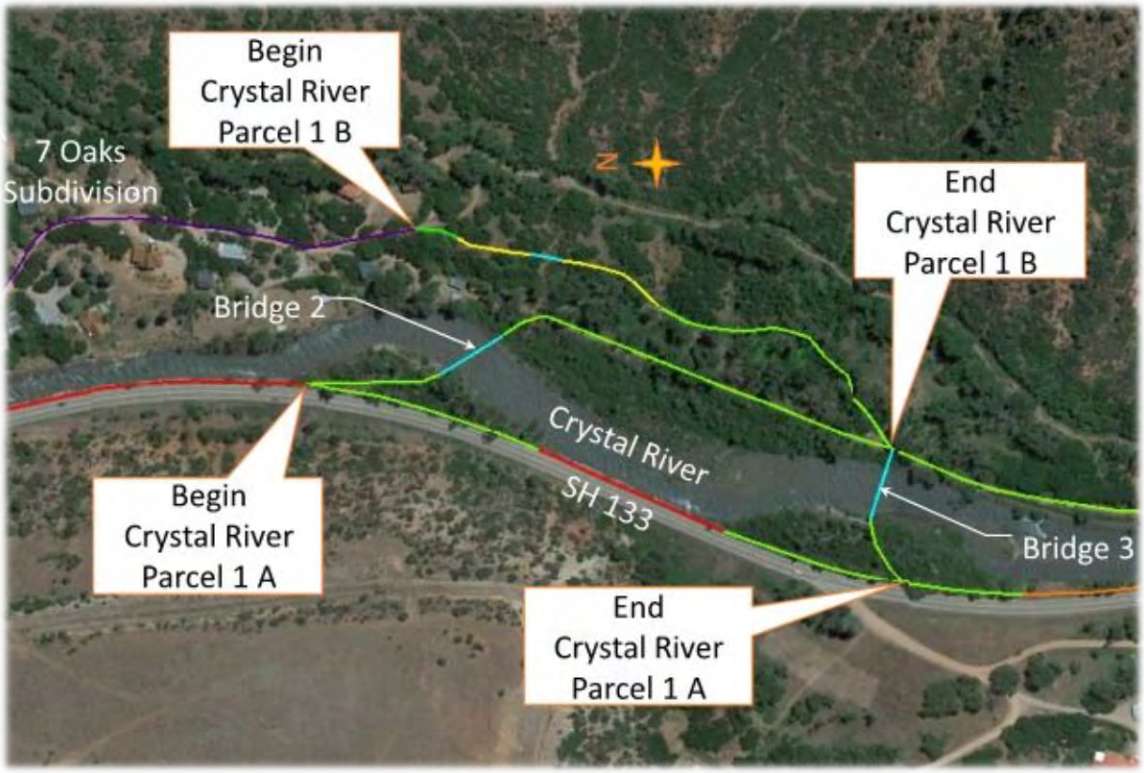


Figure 42 – Crystal River Parcel 1

NETTLE CREEK

The **Nettle Creek A** trail alignment is approximately 0.84 miles long and runs along SH 133 and the west side of the Crystal River. The northern and central portions of this segment are generally wide and moderately to highly vegetated, while the remaining portions are unvegetated or sparsely vegetated and very constrained where the river parallels highway. This segment begins with 250 feet of relatively easy trail (TS-2) constructed from the southern end of Crystal River Parcel 1 A through a wide and heavily vegetated area, followed by another 250 feet of trail with wall (TS-5B) before approaching a constrained section approximately 450 feet long where the trail would be on a wall along the edge of the river (TS-6A) until reaching a long, wide stretch where the river departs from the highway. In this area trail can be easily constructed near grade on either end (TS-2) for about 150 to 200 feet, with a trail on short fill walls (TS-5B) for about 700 feet between them – one driveway exists through this section. Continuing south the trail immediately approaches a narrow, constrained section where trail again needs to be constructed on above a wall running along the edge of the river (TS-6A) or a short wall above the river (TS-5B) for approximately the next 1,750 feet until reaching an area wide enough to construct 320 feet of simple trail (TS-2) alongside the highway. The remaining 415 feet of trail is constructed through a constrained section where the trail would be constructed above a wall alongside the river (TS-6A) until the end of the segment at a proposed bridge crossing (Bridge 4) north of an existing road bridge.

The **Nettle Creek B** trail alignment is approximately 0.86 miles long and begins at the southern end of the Crystal River Parcel 1 B. From here the trail runs along the flat bench of the old railroad grade/Rock Creek County Road platform along the highly vegetated eastern bank of the

Crystal River for approximately 2,000 feet (TS-2) and then another 1,250 feet (TS-1). Near the southern end are several residential driveways and access roads, where the trail would utilize a soft surface driveway resurfaced with asphalt pavement (TS-0) for 1,200 feet before it approaches the end of the segment near an existing road bridge where 200 feet of trail (TS-1) can be constructed between a shared driveway and the river. From here the trail can continue south with simple construction or immediately cross the river with a new trail bridge (Bridge 4). Since much of this alignment shares existing access driveway, new signage and minor drainage improvements are likely necessary. LORIS did not access Nettle Creek B during the field work.

Figure 43 – Nettle Creek A, constrained section (looking north)

Figure 44 – Nettle Creek

RED WIND POINT

The **Red Wind Point A** trail alignment is approximately 0.93 miles long and runs along SH 133 and the west side of the Crystal River. The northern half of this segment is generally sparsely vegetated and very constrained where the river parallels highway, while the southern half is much wider and highly vegetated. This segment begins with 1,700 feet of trail on wall adjacent to the edge of river (TS-6A) due to tight space constraints. Following this is approximately 900 feet of trail on a short fill wall (TS-3B) where the trail is less constrained by the river. Approaching the large curve in the river and highway near the cliffs of Red Wind Point is another vertically constrained section of trail (TS-6A) for about 350 feet followed by a large pullout that allows ample room to construct an easy segment of trail (TS-2) for 1,350 feet along the pullout and then through a moderately vegetated river bank below the highway. The trail then gradually climbs back up to the highway level over the next 500 feet (TS-3B, TS-5B and TS-2) until reaching the end of the segment at a wide, paved pullout near an existing road bridge to Crystal River Country Estates. From here the trail can either continue south along the highway in a simply constructed trail or cross the river on a new pedestrian bridge (Bridge 5) to the Crystal River Country Estates subdivision.

The **Red Wind Point B** trail alignment is approximately 0.95 miles long and begins at the southern end of Nettle Creek B. From here the trail runs along the flat bench of the old railroad grade that shares a driveway for about 100 feet (TS-1), crosses a drainage with a new roadway bridge (TS-8) and then runs between the river and irrigation ditch for approximately 1,400 feet on the old railroad grade (TS-2) and then another 1,400 feet on the old railroad grade (TS-2) adjacent to the river. Then, below the red cliffs of Red Wind Point the space available for the trail narrows where it must be constructed on a fill wall (TS-4B) for almost 900 feet. The remaining 1,200 feet of trail are simply constructed (TS-2) on the old railroad grade to north of an existing road bridge at Crystal River Country Estates, where the trail can cross the river on a new bridge (Bridge 5) to the highway or continue south into the Country River Country Estates subdivision. Areas of geotechnical concern within this segment include potential rockfall from the cliffs at Red Wind

Point. Where trail runs between the river and the irrigation ditch, additional pedestrian railing may need to be considered depending on available width.

Figure 45 – Red Wind Point A (looking north)

Figure 46 – Red Wind Point B, old railroad grade (looking east)

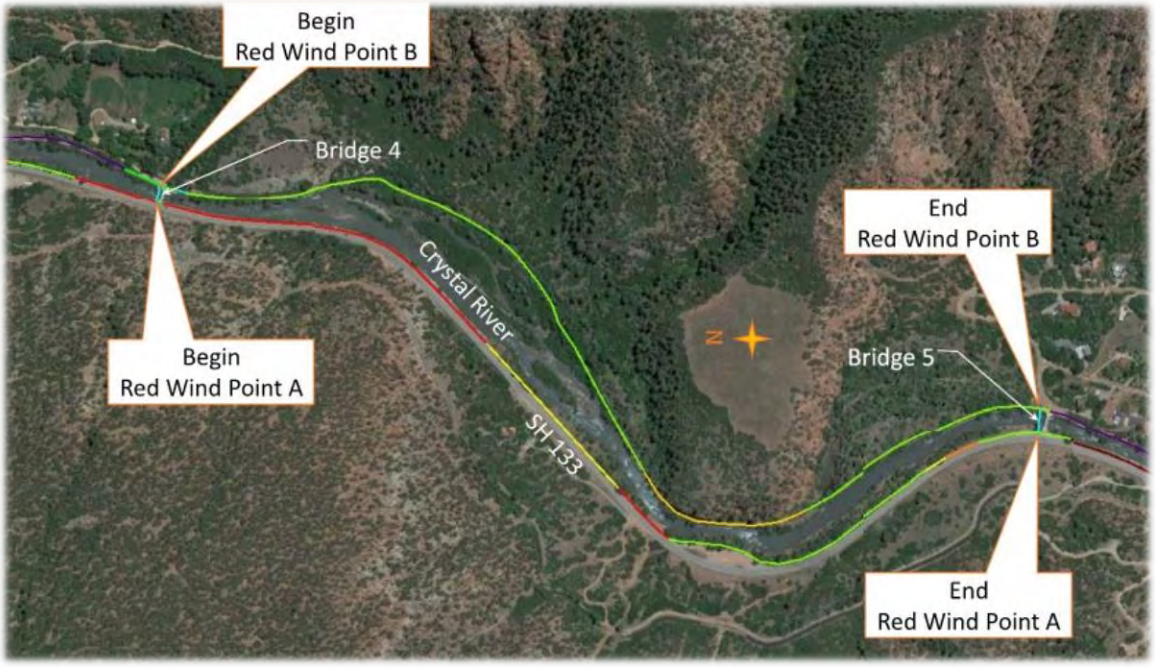


Figure 47 – Red Wind Point

CRYSTAL RIVER COUNTRY ESTATES

The **Crystal River Country Estates A** trail alignment is approximately 0.45 miles long and runs along SH 133 and the west side of the Crystal River. The northern approximately three-quarters of this segment is in a highly constrained, sparsely vegetated strip that is paralleled by the river and partially protected by guardrail, while the remaining southern portion is much wider, flatter and moderately vegetated. This segment begins at the paved bridge approach to the Crystal River Country Estates with a short 150 feet of easily constructed trail at grade (TS-2). Immediately south begins a long, constrained segment of trail approximately 1,625 feet in length behind guardrail where the trail needs to be either atop a fill wall along the river edge (TS-6A) or on another such trail on structure above the river bank/highway embankment (TS-6B, 6C, or 6D). As the river pulls away from the highway the trail transitions from a complex structure onto a short fill wall (TS-5B) and then onto 550 feet of trail on grade (TS-2) between the highway and large grove of trees before approaching the end of the segment. At this point the trail may continue south along a simple trail alignment or cross the river with a bridge crossing (Bridge 6).

The **Crystal River Country Estates B** trail alignment is approximately 0.61 miles long and begins at the southern end of Red Wind Point B. From here the trail runs along the flat bench of the old railroad grade that is also a subdivision road (TS-0) of Crystal River Country Estates, paralleling the river for approximately 1,700 feet then turning southeast up the hill further into the neighborhood and past approximately 8 residential driveways for an additional 800 feet while staying on the road alignment (TS-0) until approaching the driveway and garage of a private residence. At this point the trail is constructed near existing grade (TS-1) on an existing driveway to a vacant lot and then begins to drop in grade with moderate slopes (TS-4A & 4B) for approximately 500 feet down to the old railroad grade adjacent to the east river bank to complete this segment. Specific alignment and grade in this last section will need to be studied carefully during final design due to the elevation change down to the railroad grade adjacent to the river.

Once the trail connects with the railroad grade it can continue to run on that grade south for the next segment or jog north along the railroad grade to a bridge crossing over the river (Bridge 6).

Figure 48 – Crystal River Country Estates A, constrained section (looking north)

Figure 49 – Crystal River Country Estates, subdivision road on old railroad grade (looking east)

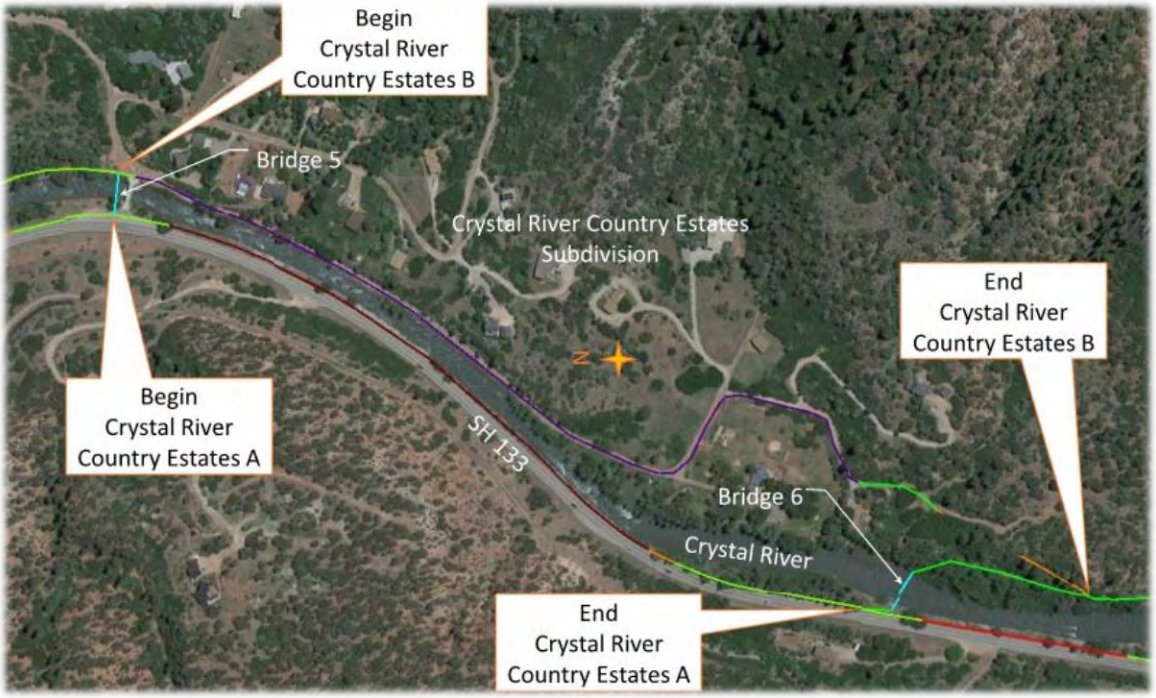


Figure 50 – Crystal River Country Estates

ANDREWS

The **Andrews A** trail alignment is approximately 0.61 miles long and runs along SH 133 and the west side of the Crystal River. This segment begins in a relatively wide, flat and generally unvegetated area off the shoulder of the highway where approximately 150 feet of trail can be constructed to the south at or near grade (TS-2) before transitioning into a 560-foot long straight and constrained stretch requiring the trail be constructed on top of a fill wall along the river edge (TS-6A). Following this difficult trail is a relatively simple 700-foot long trail constructed near grade (TS-2) alongside the highway beneath tall trees. After taking advantage of simple construction for a good distance, 1,700 feet of constrained trail likely constructed on top of a wall at the edge of the river behind guardrail (TS-6A) follows before a short 100-foot simple trail (TS-2) ends this alignment at a driveway just north of a roadway bridge and irrigation diversion structure. From this point, the trail can continue running south along relatively simple trail, or turn east and cross the river on a new pedestrian bridge (Bridge 7).

The **Andrews B** trail alignment is approximately 0.47 miles long and begins at the southern end of Crystal River Country Estates B on the old railroad grade along the highly vegetated eastern bank of the Crystal River. From here the trail continues to run south along the flat bench of the old railroad grade while generally paralleling the river for approximately 1,700 feet (either TS-1 or TS-2). It crosses a major drainageway with a 65-foot long pedestrian bridge (TS-7A) and another minor drainageway before approaching the end of the segment just north of an existing roadway bridge. From here the trail can continue south on relatively simple, flat alignment (TS-2) or cross the river at a new bridge crossing (Bridge 7).

Figure 51 – Andrews A, constrained section (looking west)

Figure 52 – Andrews B, old railroad grade (looking south)

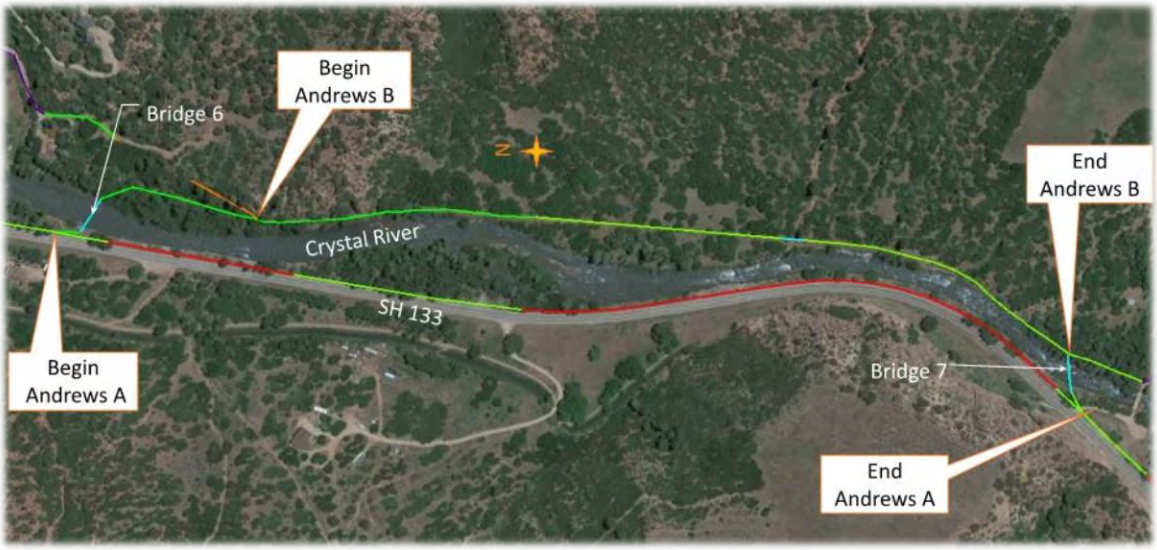


Figure 53 – Andrews

PERHAM

The **Perham A** trail alignment is approximately 0.40 miles long and runs along SH 133 and the west side of the Crystal River. This segment begins in a relatively wide, flat driveway and pullout area along the edge of the highway (TS-2) and runs 260 feet until approaching steeper slopes along the diversion canal of the river where locating the trail on a wall is most feasible (TS-6A). Continuing south the slopes become flatter and the river pulls away from the highway, along trail to be constructed on shorter fill walls close to the highway (TS-5B) for about 100 feet, and then a bit further from the highway (TS-3B or 3A) over the next 1,550 feet to the end of the segment at a driveway. Some of the trail along this last stretch may be in cut due to the existing topography. From this point the trail can continue south along the east side of the highway or turn and run down the driveway toward a bridge crossing (Bridge 8).

The **Perham B** trail alignment is approximately 0.34 miles long and begins at the southern end of Andrews B and runs on the old railroad grade (TS-2) south to near the existing road bridge. South of the bridge the trail shares an existing private driveway to be resurfaced in asphalt (TS-0) for the next 1,060 feet, pulling away from the river and running along several ponds and fields before dropping off the flat driveway and grade down more substantial grades requiring cut walls on the river side (TS-4A) for almost 500 feet to approximately the old railroad grade that has been all or partially obliterated over time. From here the trail can continue south along the alignment of the old railroad, or it can cross the river at a new bridge crossing (Bridge 8) and head toward the highway. This segment is almost entirely on private property and was not accessed as part of the field work.

Figure 54 – Perham A, constrained section (looking north)

Figure 55 – Perham B, old railroad grade (opposite side of fence) (looking south)

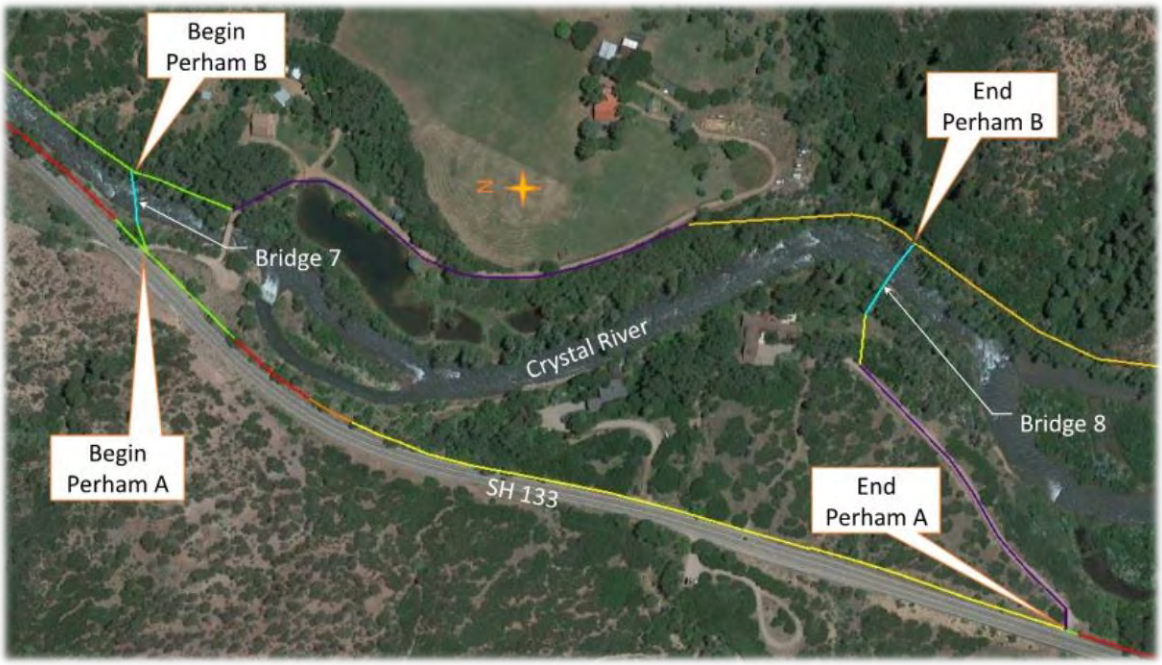


Figure 56 – Perham

JANEWAY NORTH

The **Janeway North A** trail alignment is approximately 0.51 miles long and runs along SH 133 and the west side of the Crystal River. This segment begins with the trail crossing a relatively wide, flat driveway (TS-2) and then immediately running south into an area with steep, highly vegetated embankment slopes requiring significant fill walls (TS-6) to minimize disturbance as much as possible for approximately 590 feet. Once this section of walls ends near a private driveway, the trail can be easily constructed using minimal fill and grading (TS-2) for the next 1,200 feet. At this point the river is well away from the highway, separated by wide highway right of way and a long row of homes. The trail crosses approximately 10 driveways over this stretch, but the straight alignment and relatively wide-open sight distance should not pose a problem for trail users or vehicles using the driveways. A short 150 foot transition section of trail (TS-3B) requires minor fill walls before the river joins back up with the highway and creates a constrained section for the trail alignment. Alternating moderately difficult (TS-5B) to difficult (TS-6A) trail on walls along the river over the next 500 feet are required before the trail section ends in 250 feet of easily-constructed trail (TS-2) as it approaches and runs through an existing unpaved pullout. At the pullout the trail can either continue south between the highway and the river or head southeast over the river with a new bridge crossing (Bridge 9).

The **Janeway North B** trail alignment is approximately 0.72 miles long and begins at the southern end of Perham B where the trail runs south along the partially obliterated old railroad grade for the next 930 feet. A portion of the railroad grade has been eroded by the river in this area, so the trail can either run along the bank using fill walls (TS-4A) or take an alignment further away from the river on flatter ground requiring less work to obtain a trail platform (TS-2). Further investigation and detailed topographic survey will be required in this area during final design to determine the

optimal trail alignment. The trail then continues over a half-mile south through a highly vegetated area along the east bank of the river on the old railroad grade (TS-2) before it pulls away from the river into the open and sparsely vegetated Janeway meadow and runs straight along the railroad grade to the end of the segment. From here the trail can continue running straight south on the railroad grade or head northwest toward a bridge crossing over the river (Bridge 9). This segment was not accessed as part of the field work.

Figure 57 – Janeway North A, wide right of way along homes (looking north)

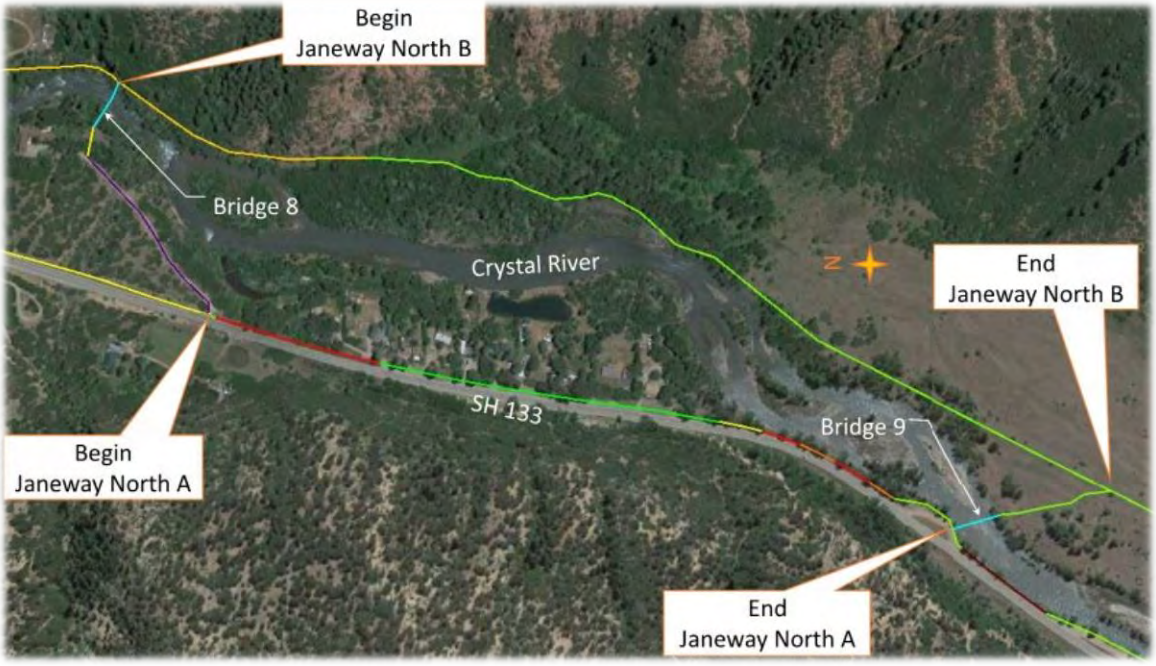


Figure 58 – Janeway North

JANEWAY SOUTH

The **Janeway South A** trail alignment is approximately 0.59 miles long and runs along SH 133 and the west side of the Crystal River. The river is just below highway grade for much of this segment. This segment begins at an existing flat pullout where a short segment (75 feet) of simple trail (TS-2) that immediately changes to a very constrained, 250 feet of trail requiring a complex structure due to the proximity of the highway to the river. A trail on fill wall along the edge of the river (TS-6A) is likely the simplest of structures possible here. This structure runs south into another long unpaved pullout where simple trail (TS-2) can again be constructed for approximately 520 feet until the width disappears and requires the trail to be on structure (TS-6A) for another 385 feet. Then 425 feet of less complicated trail on a short fill wall (TS-5B) can be constructed where there is more width available; however, once the river begins to run against the highway again another 550 feet of trail on structure is needed (TS-6A) until yet another pullout becomes available to allow for 375 feet of simple trail (TS-1). From this pullout to the south, approximately 285 feet of trail needs to be constructed in this constrained corridor (TS-6A) along the edge of the river until the approach to the end of the segment at Avalanche Creek Rd. allows for 120 feet of easy trail (TS-2). From here the trail can continue east over the river using the existing roadway bridge on Avalanche Creek Rd. (Bridge 10) or continue south with simply-constructed trail along the highway.

Bridge 10 is an existing roadway bridge on Avalanche Creek Rd. that is likely to require upgrades in order to accommodate trail usage. These improvements include but may not be limited to, deck and railing work. A full inspection of the existing bridge structure should be performed if this bridge is part of the ultimate trail alignment.

The **Janeway South B** trail alignment is approximately 0.48 miles long and begins at the southern end of Janeway North B where the trail runs south along the very straight and generally unvegetated old railroad grade/Rock Creek County Road (TS-2) for 1,700 feet. The trail then approaches and follows the base of a steep hillside, where 140 feet of minor cut walls (TS-3A) and 225 feet of fill walls along the river (TS-6A) are required to create a wide enough trail bench along the existing railroad grade. In this area, the railroad grade has likely been filled in and narrowed over time possibly by rockfall or erosion. The trail then continues east along the alignment of existing singletrack trail on Open Space land until it reaches the end of the segment at a small trailhead at Avalanche Creek Rd. From this point the trail can continue east along Avalanche Creek Rd. or west down Avalanche Creek Rd. toward the existing roadway bridge (Bridge 10).

Figure 59 – Janeway South A (looking south)

Figure 60 – Janeway South B, old railroad grade (looking north)

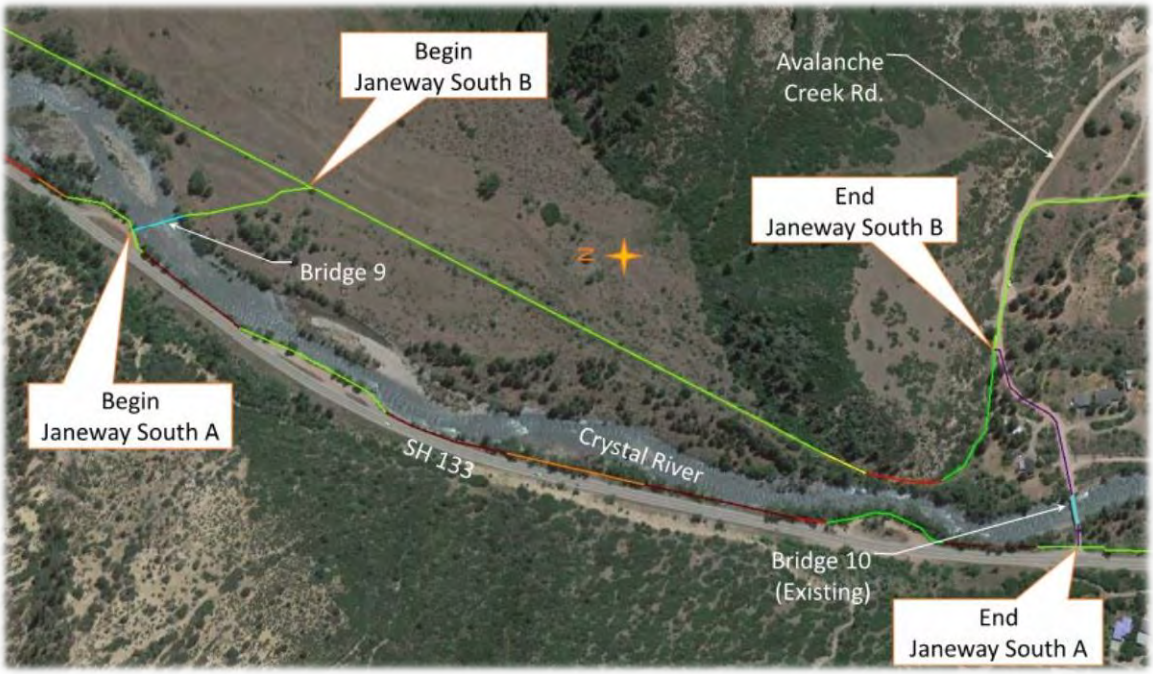


Figure 61 – Janeway South

AVALANCHE

The **Avalanche A** trail alignment is approximately 0.97 miles long and runs along SH 133 and the west side of the Crystal River. The river is well below highway grade for much of this segment and is generally located away from the highway. The roadside is moderately to heavily vegetated. The segment begins at the Avalanche Creek Rd. intersection running south approximately 550 feet through a moderately sized pullout with generous room for a trail (TS-2). The next 350 feet of trail is somewhat constrained, requiring trail above a fill wall (TS-6A) along the river edge followed by 400 feet of trail in cut (TS-5A) where the river pulls away from the highway. South of here is a short 240-foot section of more difficult trail on fill wall (TS-6A) followed by less complicated 225 feet of trail on short fill walls adjacent to the highway (TS-5B). The next 525 feet is ideal trail construction on a very wide shoulder (TS-2) where the trail could be separated from the highway and run along the edge of trees at the top of the slope with little to no impacts to vegetation. Following this is 260 feet of potentially difficult trail constructed on a fill wall along a steep slope (TS-6A) which transitions abruptly to 1,175 feet of simple trail construction runs alongside the highway in a wide shoulder area (TS-2). At the southern limits of this section is a driveway to a home below that the trail must cross. The remaining difficult section of trail runs through a heavily vegetated slope requiring a fill wall along the slope for approximately 1,000 feet. Avalanche A ends at a very large pullout that is perched high above the Crystal River below where 650 feet of trail running along the outer edge of this pullout would be constructed at grade (TS-1). From this pullout, the trail would continue south along the southern edge of the pullout or continue over the river on a new pedestrian bridge (Bridge 11). In the southern portion of the segment, overhead utilities run parallel to the highway midway down the river bank and also cross the highway in one location.

The **Avalanche B** trail alignment is approximately 1.35 miles long and is perhaps one of the more unique alignments of the project, departing from the river more than all other segments. It begins at the southern end of Janeway South B at an existing trailhead and runs 2,960 feet along Avalanche Creek Rd. and onto an abandoned US Forest Service campground road that likely follows the old Rock Creek County Road alignment (TS-2). This area has been impacted by floods and debris flows in the past. Trail grades would be relatively flat to moderately steep approaching Avalanche Creek. At Avalanche Creek, a 140-foot span bridge (TS-7A) would cross the main channel followed by 625 feet of a raised trail across the remaining width of the Avalanche Creek floodplain to avoid impacts from meandering secondary channels that form during high runoff from Avalanche Creek as was observed during the field work. A boardwalk-type trail structure (a variation of TS-7A) is likely for this area along the old road grade. Once out of the area prone to flooding, the trail climbs on grade (TS-1) with a moderate to steep grade toward the base of Elephant Mountain and then drops down into a pristine meadow with moderate to steep grades (depending on actual alignment) for 1,475 feet. At the base of this meadow the trail climbs about 200 feet out of a narrow ravine requiring short fill walls (TS-3B) to join with the old railroad grade. As the trail runs along the railroad grade for 475 feet minor grading is likely required to obtain proper width for the trail (TS-2). The trail abruptly encounters a heavily-vegetated narrow rock cut with vertical walls through the base of Elephant Mountain, likely requiring minor walls to support the trail (TS-3A or 3B) on either ends of the rock cut area. Immediately south of this section is a wide-open railroad grade bench (TS-2) ideal for the next 720 feet of trail followed by 230 feet of easily constructed trail on old railroad grade (TS-1). At this location, the trail can continue south on the existing railroad grade or west toward a bridge crossing of the Crystal River (Bridge 11). Potential geologic hazards in this segment are possible rockfall in the rock cut of Elephant Mountain as well as anywhere the trail runs below a large scree slope such as the southernmost

section of trail. Both underground and overhead utilities present in the southern portion of this alignment pose potential obstacles to the trail in some locations.

Figure 62 – Avalanche A, unconstrained section (looking north)

Figure 63 – Avalanche B, old Rock Creek County Road grade (looking north)

Figure 64 – Avalanche B, meadow area (looking west)

Figure 65 – Avalanche B, old railroad grade (looking north)

Figure 66 – Avalanche

NARROWS

The **Narrows A** trail alignment is approximately 0.58 miles long and runs along a constrained stretch of SH 133 between the Crystal River and the highway. This is perhaps some of the more challenging alignments due to the proximity of the highway to the adjacent river, where it runs very straight, narrow and steep with very large rapids during high water. Guardrail is present along the very constrained sections of highway, with the northernmost guardrail between the northern pullouts being precast concrete barrier. This segment is a combination of alternating very simple and very difficult trail sections due to several pullouts that interrupt quite constrained sections. It begins along the outer edge of the large pullout at the south end of the Avalanche A segment with 115 feet of trail on the pullout grade (TS-1) and immediately runs into a very complex and constrained alignment where the trail is perched high above the river for 460 feet requiring construction of a structural trail possibly cantilevered over the slope (TS-6A, 6C or 6D) until a widening at the next pullout allows for 300 feet of trail to be easily constructed at the outer edge of the pullout (TS-2). South of this pullout the trail once again encounters a very complex and constrained alignment where a moderately wide shoulder exists along the highway then drops off sharply for approximately 725 feet requiring another structural trail (TS-6A, 6C or 6D) before the trail approaches a long, narrow pullout where 400 feet of trail can be constructed along its outside edge (TS-2). After this pullout, one final very constrained alignment runs for 1,000 feet. This is probably the narrowest and most constrained section of trail in the entire project, where the trail must be on a complex and likely cantilevered structure (TS-6C or 6D) for the entire length. At the south end of this segment the trail transitions to a wider area along the highway for 80 feet with a minor fill wall (TS-3B) where it may continue south for a short distance on similar type of trail (TS-3B) or cross the river on a new pedestrian bridge (Bridge 12) toward the meadow of Filoha.

The **Narrows B** trail alignment is approximately 0.50 miles long. Like Avalanche B, it is also a very unique alignment in that it is perched above the Crystal River on one, or potentially two, old railroad grades. It begins at the southern end of Avalanche B where the old railroad grade splits as it heads south. At this point the trail can take one of two alignments – along the lower railroad

grade or along the upper railroad grade – that are separated by up to 20 feet vertically and horizontally. The lower railroad grade ultimately disappears approximately 2,000 feet to the south where it would need to ramp up to the upper grade for the remainder of the segment. Vegetation along both old railroad grades is sparse to moderate and many trees on or along the grades appear to be relatively young. There are many existing utility poles along both railroad grades, as well as underground fiber optic on the upper grade and likely another communications line along the lower grade. Almost the entire segment is easily constructed on the existing upper railroad grade (TS-1), with only the southernmost 75 feet requiring slightly more grading to construct the trail (TS-2). If the lower railroad grade is preferred, additional fall protection may be necessary along the edge of the trail closest to the river. Potential geotechnical hazards exist along the entire segment due to the scree slope on the mountainside above; however, some areas are more protected than others and the lower railroad grade being farther away from the slope may have less rockfall danger. The lower grade shows some signs of potential instability along the slope down to the river. Geotechnical evaluation of the entire area will be required during final design. At the south end of the segment the trail either continues south into Filoha meadows or crosses a new bridge crossing of the river (Bridge 12) toward the highway and the Penny Hot Springs area.

Figure 67 – Narrows A, constrained section (looking south)

Figure 68 – Narrows B, old railroad grades and existing utilities (looking north)

Figure 69 – Narrows B, old (upper) railroad grade and existing utilities (looking south)

Figure 70 – Narrows B, old (lower) railroad grade and existing utilities (looking south)

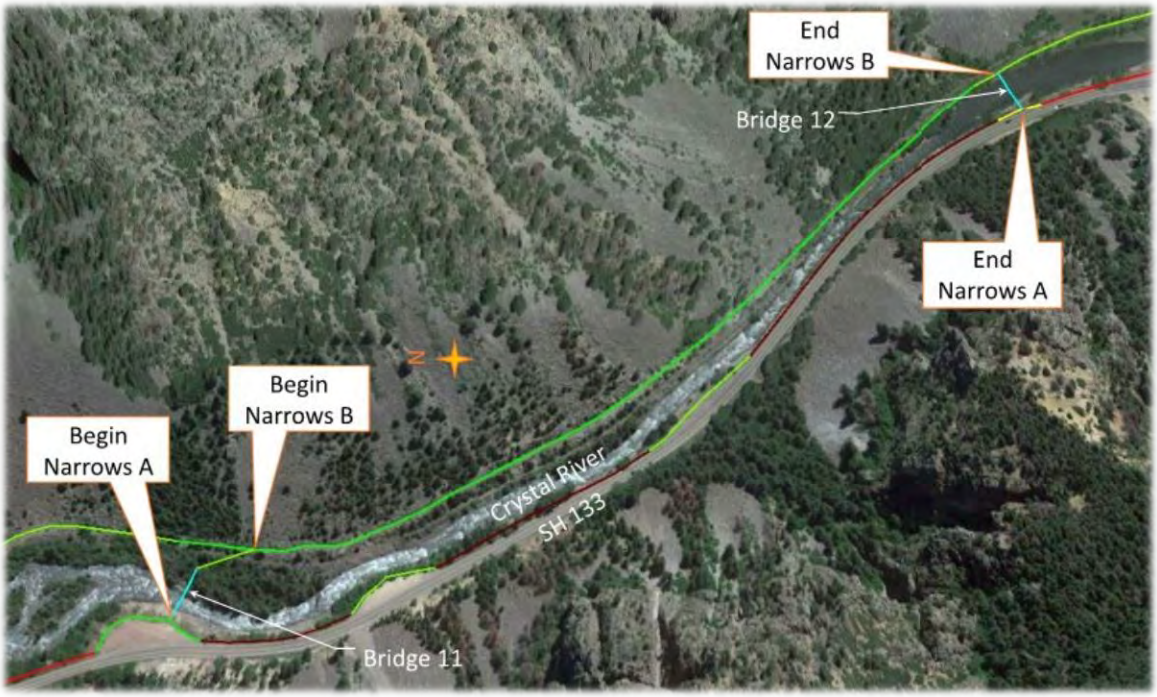


Figure 71 – Narrows

FILOHA

The **Filoha A** trail alignment is approximately 1.04 miles long and runs along the east side of SH 133 and only occasionally along the west side of the Crystal River since the river is situated away from the highway in much of this segment. This segment begins at the south end of Narrows A, just north of Penny Hot Springs with about 50 feet of trail on a somewhat wide, unvegetated area requiring short fill walls along the trail (TS-3B). Running south behind guardrail, the trail encounters a constrained area on steep embankment slopes (TS-6A) for approximately 1,200 feet. Midway within this 1,200 feet is a paved pullout serving Penny Hot Springs. This is an informal parking area provides pedestrian access via a steep slope to the hot springs at the edge of the river below. Vehicle access at the hot springs pullout has not been formalized and vehicles were observed to park parallel along the outer edge, diagonal or head-in toward the river at the outer edge. Improvements to this pullout are envisioned and this could potentially become a formal trailhead; however, this is not addressed as part of this study. Across the highway from the Penny Hot Springs pullout is a very large rockfall area separated from the highway by temporary concrete barrier. Immediately north of the pullout at the hot springs is a USGS river gauging station. The Penny Hot Springs area is the only stretch of this segment where the river parallels the highway. Further south as the river pulls away from the highway, the topography changes and the highway runs in cut for about 1,000 feet between two driveways, leaving a bench along the east side of the highway perfect for a trail alignment on top (TS-2) while staying physically above the highway with some amazing views. Continuing south the highway is back in fill and gentle slopes allow for 285 feet of trail on short fill walls (TS-5B) followed by approximately 800 feet of steeper slopes where trail behind guardrail on taller walls (TS-6A) is required as the river runs closer to the highway. Of this, about 200 feet of trail near the southern one-third will likely require a more complex structure (TS-6C or 6D) due to steepening of grades below the highway. The next 375 feet of trail is located behind guardrail on short to moderate fill walls (TS-5B) and (TS-6A) in an unvegetated area before approaching a driveway. Between this driveway and the next is 550 feet of easily constructed trail on flat shoulder and embankment slopes (TS-2). On the south side of the driveway the slopes adjacent to the highway steepen and shoulder widens a bit, requiring the trail to be constructed on variable height fill walls (TS-5B) for the next 1,100 feet. Approaching the south end of this segment is approximately 115 feet of trail on fill wall (TS-3B). From the end of the segment the trail can either continue south along the highway on the same type of trail or turn east down the hill to a new bridge crossing (Bridge 13) toward the south end of Filoha meadow.

The **Filoha B** trail alignment is approximately 1.18 miles long and begins at the southern end of Narrows B where the Filoha meadow begins to widen out. It runs entirely on the old railroad grade (TS-2) through Filoha meadow which is Pitkin County Open Space. The meadow is unvegetated with the exception of dense grasses and sparse trees. Similar to Avalanche B, Filoha B departs from the Crystal River by a great distance. Longitudinal grades on the railroad grade are very flat. There is very little vegetation other than grasses and the occasional trees along the railroad grade. The segment ends where the alignment intersects with a driveway serving one home. At this location, the trail can either turn northwest toward a bridge crossing of the river (Bridge 13) or continue south along the driveway alignment into the Wild Rose B segment.

Figure 72 – Filoha A, pullout and rockfall zone at Penny Hot Springs (looking south)

Figure 73 – Filoha A, south of Penny Hot Springs (looking north)

Figure 74 – Filoha B (looking north)

Figure 75 – Filoha

WILD ROSE

The **Wild Rose A** trail alignment is approximately 1.22 miles long and runs along SH 133 and the west side of the Crystal River. This segment begins at the south end of Filoha A with 350 feet of trail on short fill wall (TS-3B) until a residential driveway where approximately 400 feet of trail adjacent to the highway on fill wall (TS-5B) is constructed up to a series of four gravel driveways that create a wide highway shoulder. On this shoulder 300 feet of simple trail (TS-2) can be constructed at grade. For the next 630 feet, the trail continues to head south along a moderately-sloped embankment lined with dense vegetation where short fill walls are needed along the trees (TS-5B). Another wide driveway approach (175 feet wide) creates opportunity for a simple trail (TS-1) to be constructed across it before 550 feet of trail is constructed into a cut slope (TS-5A) alongside the highway up to the next driveway that allows 50 feet of simple trail (TS-1). 385 feet of trail on fill wall (TS-5B) runs to wide shoulder and a small pullout where trail can be constructed along the outer edge on grade (TS-2). Before another small pullout allows for 225 feet of easy trail (TS-1), comes a more difficult 230-feet of trail on fill wall (TS-6A). Approaching a very constrained trail alignment is a 130-foot long transition of trail on a short wall behind the existing guardrail (TS-5B). The next section begins another of the most constrained and difficult sections of trail in the corridor. Here, approximately 2,100 feet of trail on structure is anticipated where available space behind the guardrail is little to none, and the slopes to the river below are exceedingly steep and rocky. This area is also plagued by mud and debris flows and rockfall from the opposite side of the highway and the existing steel guardrail is heavily damaged as a result. The trail here is likely to be on a complex reinforced concrete structure (TS-6B, 6C or 6D) likely for the entire stretch. The construction is likely to be very difficult due to the narrow and physically constrained highway, rockfall hazard, and boulders that may be encountered in excavations. Once out of this difficult area where there is more room between the highway and river, the remainder approximately 800 feet of trail can be constructed behind the existing guardrail in front of the trees near the top of the slope. This segment ends at the roadway bridge for Redstone Blvd. where the trail would share this bridge and continue south on the road.

The **Wild Rose B** trail alignment is approximately 1.27 miles long. The trail generally follows the old railroad grade and unpaved local subdivision roads for the length of the segment. The northern two-thirds of the segment meander through highly vegetated areas of old railroad grade and Wild Rose subdivision roads, while the southern one-third parallels the east bank of the Crystal River. This segment begins at the southern end of Filoha B. From here the trail runs 530 feet south along the alignment of an existing residential driveway that would be resurfaced and shared with the homeowner (TS-0). Continuing south along a double track trail, the trail would require minimal grading (TS-2) for this 1,880-foot stretch before intersecting again with the soft-surfaced subdivision and US Forest Service roads of Wild Rose. From this point the road would be resurfaced with asphalt (TS-0) for the remaining 4,300 feet of this segment until it intersects with Redstone Blvd. There are approximately 15 driveways that serve residential structures along this entire alignment. Minor drainage improvements, roadway signing and driveway tie-ins may also be required. Trail users should pay special attention in this segment because of the many driveway approaches and vehicles they are sharing the trail alignment with. This segment ends at Redstone Blvd. where the trail would continue south on the existing road.

Figure 76 – Wild Rose A, constrained section (looking north)

Figure 77 – Wild Rose A, damaged guardrail along constrained section (looking south)

Figure 78 – Wild Rose B (looking south)

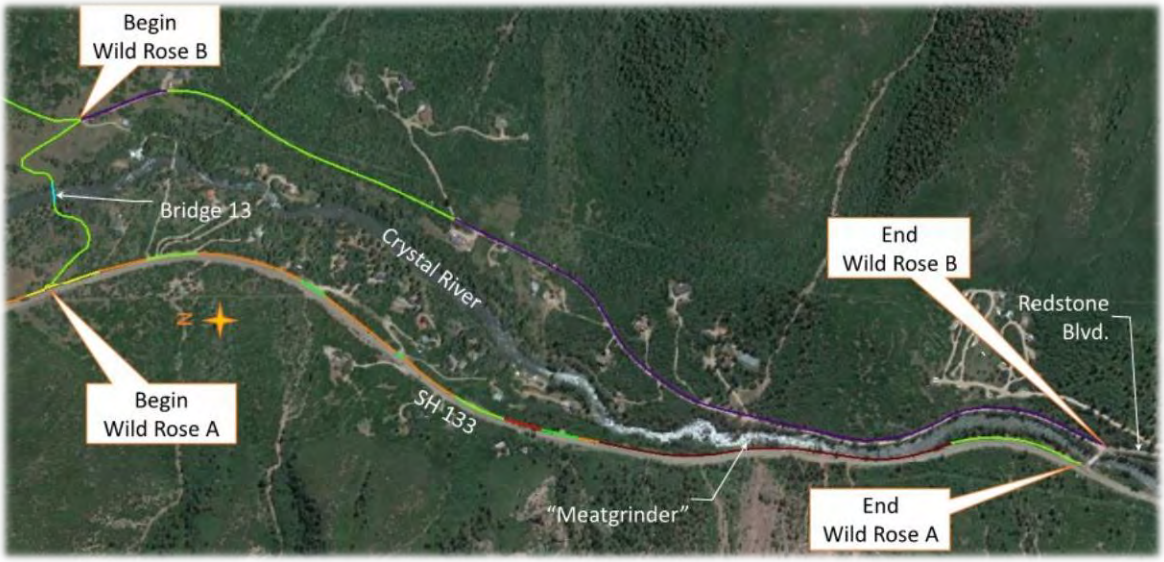


Figure 79 – Wild Rose

REDSTONE

The **Redstone** trail segment will share Redstone Blvd. with vehicles for the next 1.5 miles. This alignment is essentially an Alternate B alignment, in that is runs on the opposite, or east, side of the Crystal River and not along the highway. Redstone Blvd. is paved and approximately 20 feet wide. The northern half of Redstone Blvd. is highly vegetated along both sides of the road and several driveways serve homes, businesses and a campground. The southern half is lined on both sides of the road with homes and businesses, with the Redstone Inn at the far south end. Several speed humps help to calm traffic along Redstone Blvd. Minor roadway signing may be necessary along Redstone Blvd., in addition to possibly pavement markings, to formalize the trail route through this segment. This segment will be similar in look and feel to the trail immediately north in Wild Rose B (TS-0); however, it will generally be wider. There is no Alternate A alignment along the highway for the Redstone segment.

Figure 80 – Redstone B (looking south)

SINGLETRACK TRAIL SEGMENTS

The southern segments of the project run from Redstone to the Pitkin County line at the top of McClure Pass. Depending on the route the mileage varies from approximately 5.5-miles for the off-highway or 8-miles for the on-highway route. These trail segments have been conceptualized as a natural-surface singletrack trail, which could include at-grade crossings of HWY 133 depending on the final alignment.

The segments are presented from north to south. The alignments for each singletrack segment may be modified during final design following a detailed topographic survey and more detailed design.

Pitkin County OST staff reviewed the potential off-highway alignments for the singletrack segments, while Loris evaluated the on-highway routes, information from both studies is provided below. Similar to the Typical Sections assigned to each of the multi-use trail segments, each

singletrack segment was assigned a Low, Moderate, or High ranking for design or construction difficulty, which informs the anticipated cost of construction.

CASTLE

The **Castle A** segment is approximately 0.98 miles long, beginning at the southern Redstone Bridge over the Crystal River connecting to SH 133. An at-grade crossing of SH 133 would be required to get to the west side of the highway where the singletrack would run south along the highway right of way or within the parallel Open Space properties including the Redstone Coke Ovens and the Drool. Road crossings would be required at Coal Creek Road and the access roads to the Elk Mountain and Crystal River Park subdivisions as well as one driveway crossing. At the southern limit of this segment, the trail can either continue south along the highway or cross the river with a new pedestrian bridge (Bridge Option 14) to the east.

Figure 81 – Castle A (looking south)

The **Castle B** segment is approximately 1.01 miles long and follows the existing Redstone Castle Dr. This is an unpaved road that follows the Crystal River until it approaches the Redstone Castle where it runs on the existing double track trail below the Redstone Castle for the southern part of the segment. This segment may require some minor improvements to the existing road, repair of damage to the railroad bed, or improved drainage. At the southern limits of this segment, the trail either continues south connecting to the Hawk Creek B segment or crosses the river on a new pedestrian bridge to the west (Bridge Option 14) to access the Hawk Creek A segment along the highway.

Figure 82 – Castle B (looking south)

Figure 83 – Castle

HAWK CREEK

The **Hawk Creek A** segment is approximately 0.48 miles long, beginning at the south end of Castle A and following the west side of SH 133. The majority of the trail segment would require the "High" design/construction difficulty section. Where the trail approaches a tall cliff along the inside of a curve, the trail could be constructed on a raised structure running below the cliff to provide trail user safety and separation from vehicular traffic. This portion of trail would have a 5-foot trail platform surfaced with crusher fines supported by a concrete guardrail with a pedestrian railing on top. From the southern limit of the trail section, the trail would have an at-grade crossing and then would follow the east side of SH 133 along the Hays Falls A segment.

The **Hawk Creek B** segment is approximately 0.53 miles long and would be a combination of "Low" and "Moderate" design/construction difficulty sections. The segment follows an existing singletrack trail perched along a sandstone cliff before joining a double track trail and crossing over Hawk Creek. Shortly after crossing Hawk Creek, where a new pedestrian bridge would likely be required, the trail would follow the existing, unsurfaced county subdivision roads Beaver Drive and Antelope Drive before connecting back to SH 133 over the existing bridge. At the southern terminus of the Hawk Creek B segment, the trail would cross the existing bridge and continue along the east side of SH 133 on the Hays Falls A segment. (Portions of the trail on private property were analyzed through aerial photography rather than walking the potential alignment and would require on-the-ground analysis.)

Figure 84 – Hawk Creek A (looking south)

Figure 855 – Hawk Creek B (looking south)

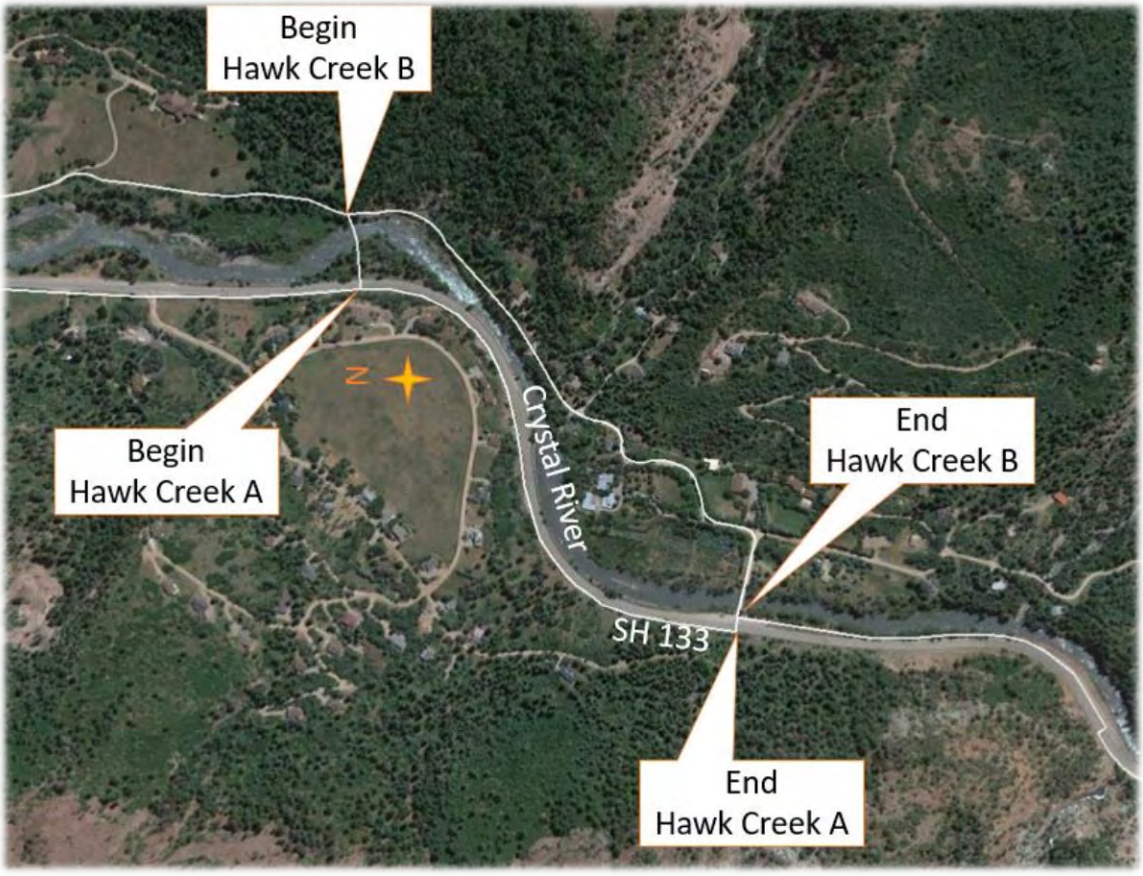


Figure 86 – Hawk Creek

HAYS FALLS

The **Hays Falls A** segment is approximately 0.57 miles long and follows SH 133 on the east and west side of the highway. Approximately midway through this segment, where the road curves, an at-grade crossing of SH 133 would be needed just north of Hays Falls. Following this crossing, the trail runs along the west side of the highway to the end of the segment. The trail would be a "Moderate" difficulty design/construction requiring hand-build methods to construct new trail within the highway right-of-way. From the southern limit of this segment, the route could continue along the highway following Bear Creek A or could pull away from the highway to the west along Bear Creek B, which follows an existing route.

There is no Alternative B alignment for this segment. OST staff looked for a potential off-highway alignment beginning from Hays Creek to connect to the Bear Creek segment to the west of the highway on USFS lands; however, the steep side slope and terrain do not support an off-highway alignment for this section.

Figure 87 – Hays Falls A

Figure 87 – Hays Falls

BEAR CREEK

The **Bear Creek A** segment is approximately 1.40 miles long and follows the west side of SH 133. This section would be "Moderate" to "High" difficulty to construct due to the steep side slope and challenging construction environment adjacent to the highway. From the southern end of this segment, the trail could cross SH 133 at-grade and continue along the west side on the Placita alignment.

The **Bear Creek B** segment is approximately 1.45 miles long and follows the existing Rock Creek County Road cut on the slope above and west of SH 133. The route follows a USFS decommissioned route that still sees social use though it is not an officially maintained trail. The beginning of the trail is relatively flat with a 0-3% grade, which quickly transitions to a 9% grade. The first 900 feet passes three major and one minor wash, which would require bridge structures to pass comfortably. Due to the structural needs of the bridges, this first portion of the trail is characterized with a "Moderate" design/construction difficulty rating. An additional portion of "Moderate" trail is located towards the southern end of the segment where a narrow bench passes along a steep side-slope which would require some retaining or support walls on the downhill side. The rest of the segment would require minimal improvements and is largely useable in its current condition, the slopes range from moderate and flat to 5-15% grades in some sections. A bridge may be constructed at the Bear Creek crossing; however, it is also possible to easily cross at grade. In the future, a full road to trail conversion could be implemented to enhance the trail experience. From the southern end of this segment the trail would continue along the west side of SH 133 on the Placita A alignment.

Figure 88 – Bear Creek

Figure 90 – Bear Creek A (looking south)

Figure 91 – Bear Creek B (looking south)

PLACITA

The **Placita A** segment is approximately 0.64 miles long and could follow either the east or the west side of SH 133. This segment is identified as a Moderate difficulty design/construction project due to the need for new trail within a tight highway corridor. From the southern terminus of this segment the route could follow McClure Pass A along the highway or could turn to the east to follow McClure Pass B which follows the existing Rock Creek County Road alignment.

There is no Alternative B alignment for this segment.

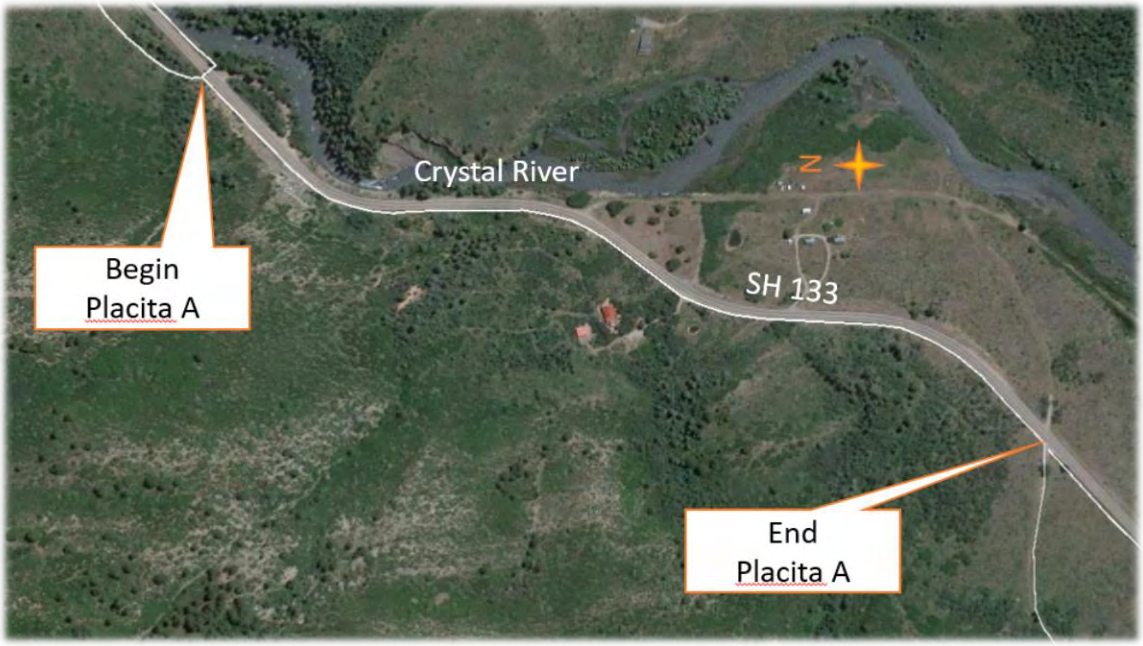


Figure 89 – Placita

Figure 93 – Placita A (looking south)

MCCLURE PASS

The **McClure Pass A** segment is approximately 4.27 miles long and follows the west side of SH 133 going passed the Pitkin County boundary into Gunnison County where the road switchbacks from south to north and re-enters Pitkin County. The segment would follow the uphill traffic lane. The segment is ranked as "Moderate" design/construction difficulty due to the need for new trail construction. Alternatively, a larger shoulder for the climbing route may be an acceptable alternative to a singletrack trail if this alignment is chosen.

The **McClure Pass B** segment is approximately 2.52 miles long and follows the old HWY 133 switch backs up the west hillside to where the historic alignment meets the existing SH 133. The existing route is ranked with a "Low" design/construction difficulty as the route is already used as a trail and would require minimal improvements to make a more sustainable trail platform. In the future, a full road to trail conversion introducing choke and corral features, undulation, and revegetation could enhance the trail experience, though this would require a greater investment. From the pullout to the east of the top of the pass where the existing grade meets SH 133, the trail would pull away to the north/east of the highway on a new singletrack alignment where a series of switchbacks allow for a reasonable grade to be achieved before the trail descends back to the highway at Huntsman Ridge Road. From the end of this segment, the route would follow the Top of McClure A segment to the top of the pass.

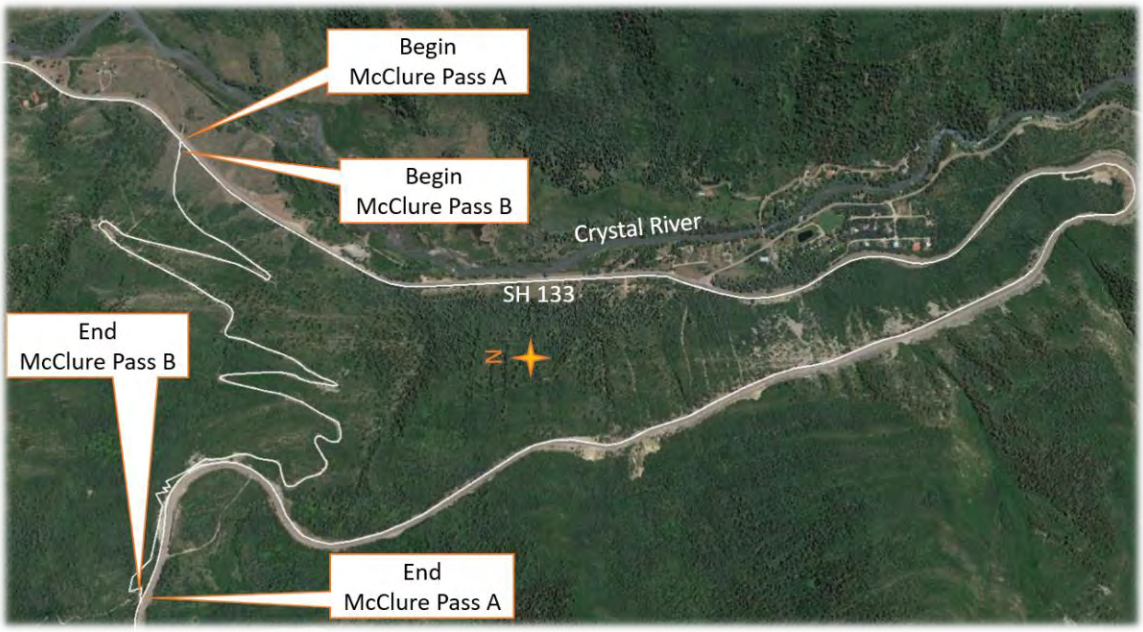


Figure 90 – McClure Pass

Figure 95 – McClure Pass A (looking south)

Figure 96 – McClure Pass B (looking south)

TOP OF MCCLURE

The **Top of McClure A** segment is approximately 0.27 miles long and follows the west side of SH 133 along a section that has a substantial shoulder. The trail may require a physical barrier to separate the trail user from vehicular traffic and would utilize the existing road platform to cross the creek near the top of the pass. A highway crossing would take place at the existing parking area

at top of the pass where the route would continue along McClure Pass South Road before connecting to the Raggeds Trail.

There is no Alternative B alignment for this segment. OST staff walked a potential off-highway alignment for this upper portion of trail; however, to meet a reasonable grade the trail would be over twice as long as the on-highway route and would require extensive new trail construction in largely undisturbed forest requiring a bridge crossing a deep ravine.

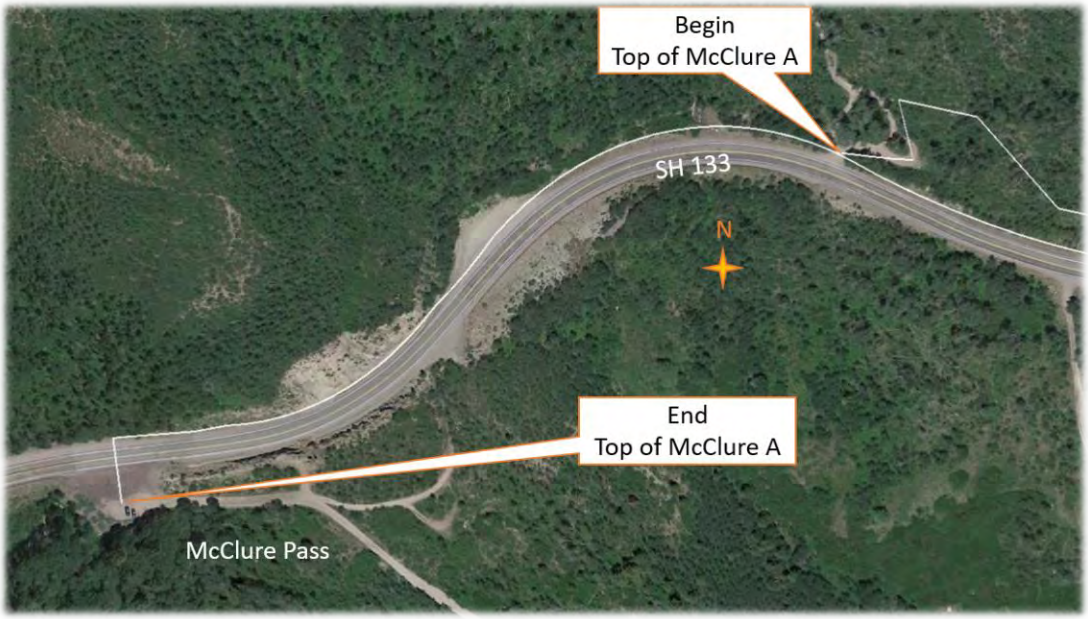


Figure 91 – Top of McClure

Figure 98 – Top of McClure A (looking west)

Cost Analysis

To analyze the cost associated with each alignment, LORIS generated per linear foot construction cost estimates for each trail typical section and then applied these costs to the length of each typical section per trail segment to come up with a cost for each alignment in each trail segment.

CONSTRUCTION COSTS

LORIS developed preliminary construction cost estimates for the multi-use trail alignments studied and presented in this report. All costs were developed based on 2017 construction costs for this region of Colorado; however, they may need to be adjusted for inflation based on when construction is projected to occur.

Base contract item costs are those that are directly drawn from each typical section applied over the segment length to which it applies. These are items such as trail surfacing, aggregate base course, pedestrian railing, retaining walls, grading, revegetation, etc. Other miscellaneous costs are those items that apply across the entire segment and not necessarily by typical section type, which include tree removal, traffic control, erosion control, utility relocations, contingencies, etc. that are not easily determined at this level of design.

A summary of the costs per linear foot and total segment costs for asphalt trail surface is shown in the following figure, and full detailed costs for asphalt, concrete and crusher fines (Alternative B only) trail surfaces are presented in **Appendix B**. Pitkin County Open Space and Trails standard material for a hard-surface trail is asphalt, therefore costs are primarily focused on an asphalt trail. Also, cost estimates were only developed for the multi-use trail segments indicated and not for the Redstone segment or the singletrack trail segments.

	ALTERNATIVE A (Highway Side / West of River) Trail Surface Type: Asphalt		ALTERNATIVE B (Opposite Side / East of River) Trail Surface Type: Asphalt		BRIDGE CROSSINGS Trail Surface Type: Asphalt	
TRAIL SEGMENT	LENGTH (MILES)	COST	LENGTH (MILES)	COST	LENGTH (MILES)	COST
Bridge #1	-	-	-	-	0.02	$1,513,187
7 Oaks	0.36	$5,828,861	0.42	$935,910	-	-
Bridge #2	-	-	-	-	0.24	$954,427
Crystal River Parcel 1	0.29	$1,976,876	0.22	$799,635	-	-
Bridge #3	-	-	-	-	0.06	$709,919
Nettle Creek	0.84	$9,908,676	0.86	$943,521	-	-
Bridge #4	-	-	-	-	0.02	$365,976
Red Wind Point	0.93	$9,810,034	0.95	$2,255,690	-	-
Bridge #5	-	-	-	-	0.02	$477,563
Crystal River Country Estates	0.45	$8,144,590	0.61	$856,118	-	-
Bridge #6	-	-	-	-	0.13	$659,604
Andrews	0.61	$9,410,595	0.47	$793,859	-	-
Bridge #7	-	-	-	-	0.03	$484,691
Perham	0.40	$2,185,668	0.34	$746,825	-	-
Bridge #8	-	-	-	-	0.05	$1,016,320
Janeway North	0.51	$2,199,618	0.72	$1,722,610	-	-
Bridge #9	-	-	-	-	0.11	$778,029
Janeway South	0.59	$8,097,627	0.48	$1,355,195	-	-
Bridge #10	-	-	-	-	0.00	$366,574
Avalanche	0.97	$8,096,086	1.35	$5,058,441	-	-
Bridge #11	-	-	-	-	0.07	$1,242,334
Narrows	0.58	$10,838,585	0.50	$442,822	-	-
Bridge #12	-	-	-	-	0.02	$606,372
Filoha	1.04	$10,474,103	1.18	$1,460,428	-	-
Bridge #13	-	-	-	-	0.30	$871,193
Wild Rose	1.22	$13,615,192	1.27	$1,321,909	-	-
Totals	8.80	$100,586,510	9.38	$18,692,062	1.06	$8,533,002

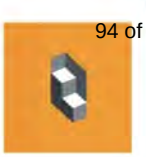
Figure 99 – Summary of Alignment Alternative Costs by Segment (asphalt trail surface)

LORIS

Appendices

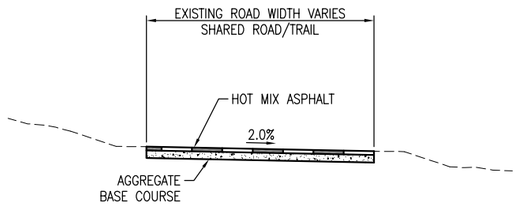
APPENDIX A: TRAIL TYPICAL SECTIONS

APPENDIX B: CONSTRUCTION COST ESTIMATES



LORIS

APPENDIX A: TRAIL TYPICAL SECTIONS



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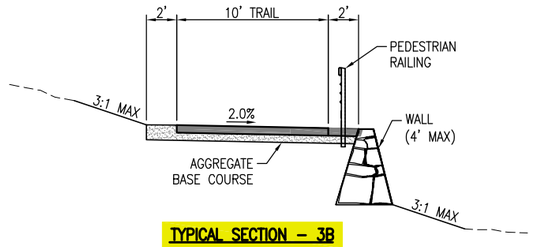

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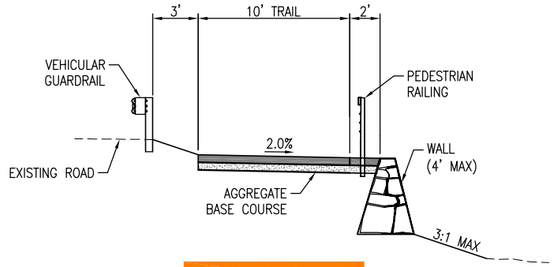

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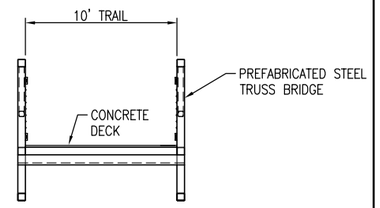

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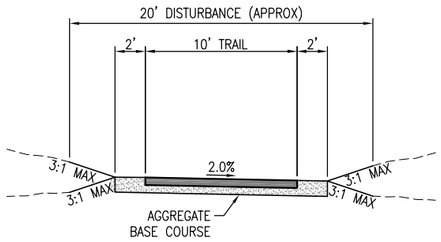

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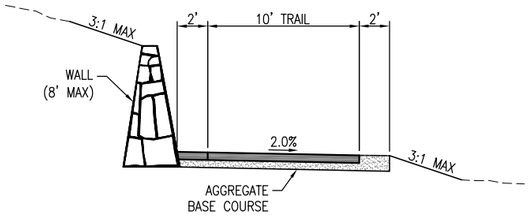

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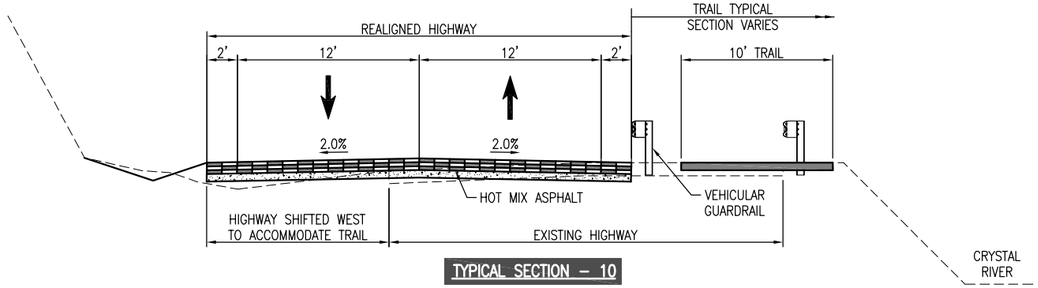

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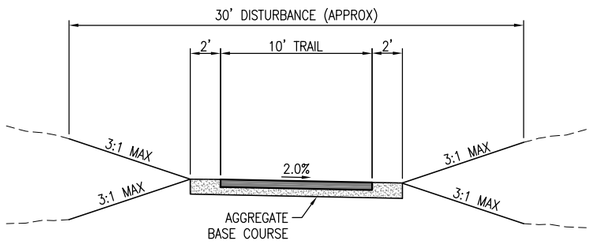

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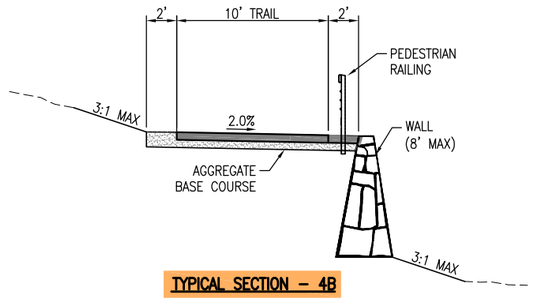

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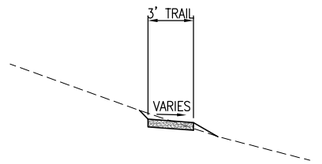
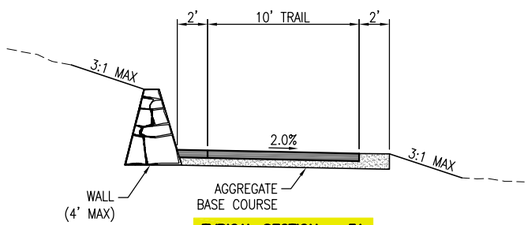


TYPICAL SECTION – LOW/MODERATE SINGLETRACK



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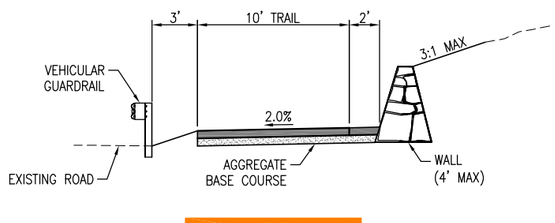

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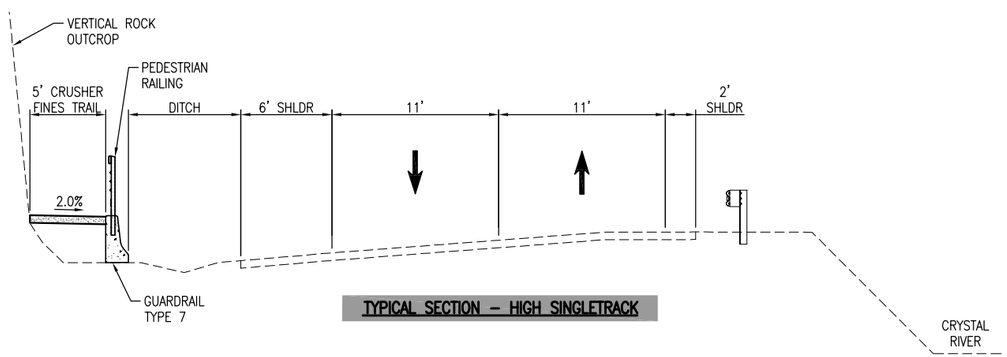

TYPICAL SECTION – HIGH SINGLETRACK

NOTES:

1. SEE SHEET 2 OF 2 FOR TYPICAL SECTION 6A TO 6D.
2. COLOR OF TYPICAL SECTION APPLIES TO THE LOCATIONS SHOWN ON THE TRAIL ALIGNMENTS.

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION

COMPUTER FILE INFORMATION			SHEET REVISIONS		
Creation Date:	Initials:				
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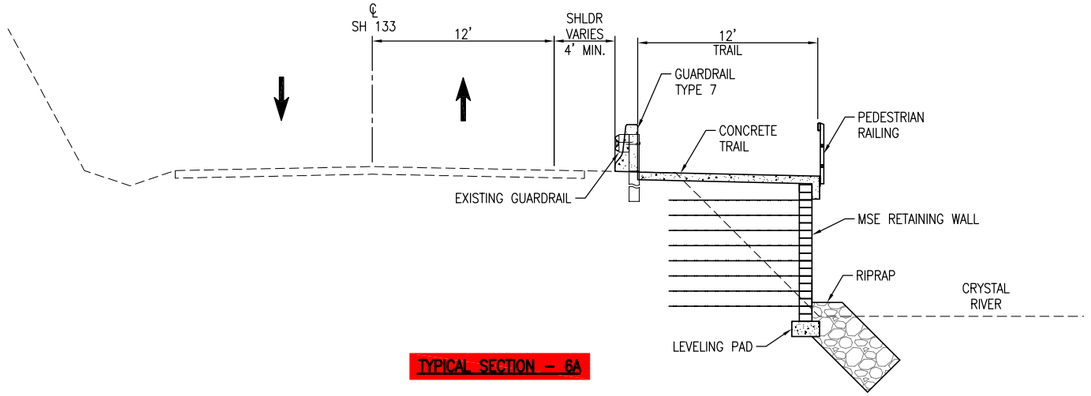
OPEN SPACE & TRAILS · PITKIN COUNTY

–	
No Revisions:	
Revised:	
Void:	

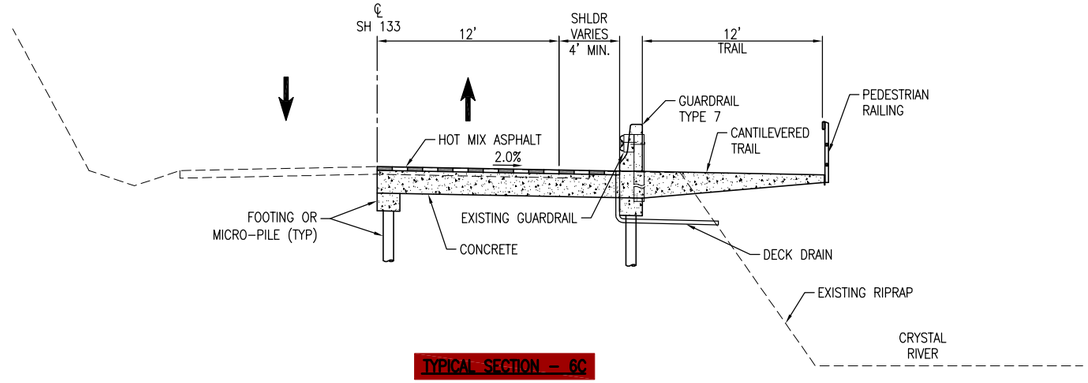
CARBONDALE TO CRESTED BUTTE TRAIL
TYPICAL SECTIONS

ISSUED BY: LORIS AND ASSOCIATES, INC.		
Project No. 275–17110	Revised:	
Sheet Subset:	Subset Sheets: 1 OF 2	

Project No./Code
275
17110
Sheet Number:



TYPICAL SECTION – 6A



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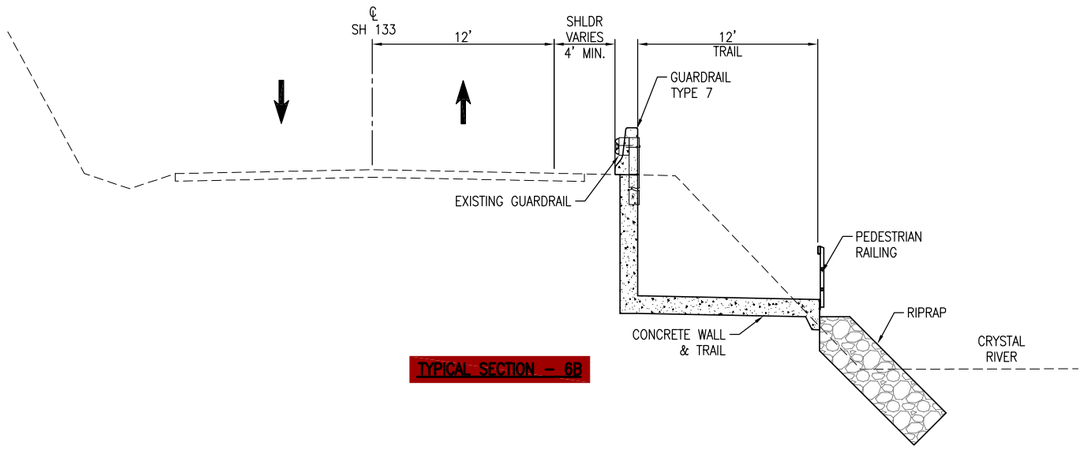
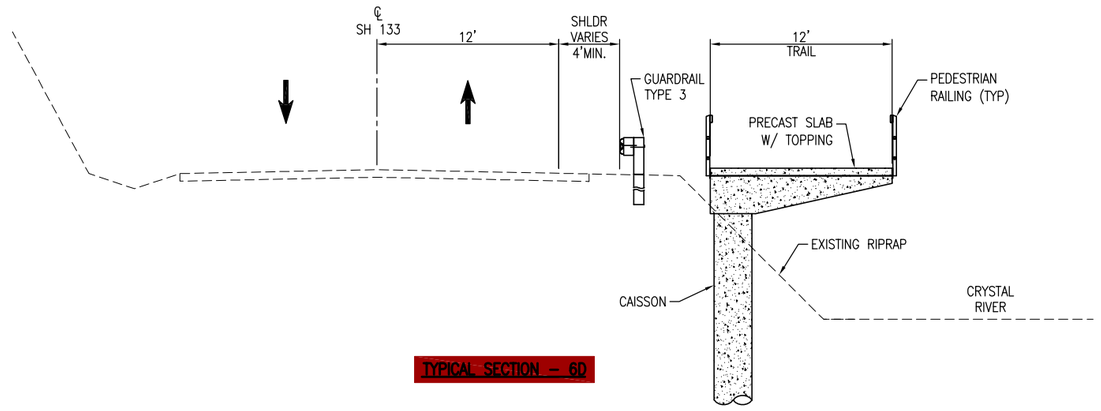


TYPICAL SECTION – 6B



TYPICAL SECTION – 6D

NOTES:

1. FREEBOARD AND FLOODWAY REQUIREMENTS MAY DICTATE APPLICABILITY OF CERTAIN STRUCTURE TYPES.
2. COLOR OF TYPICAL SECTION APPLIES TO THE LOCATIONS SHOWN ON THE TRAIL ALIGNMENTS.

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION

COMPUTER FILE INFORMATION			SHEET REVISIONS		
Creation Date:	Initials:				
Last Modification Date:	Initials:				
Full Path:					
Drawing File Name:					
Acad Ver. 2017	Scale: AS NOTED	Units: ENGLISH			

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–	CARBONDALE TO CRESTED BUTTE TRAIL TYPICAL SECTIONS	Project No./Code
No Revisions:		275
Revised:	ISSUED BY: LORIS AND ASSOCIATES, INC.	17110
Void:	Project No. 275-17110 Revised:	
	Sheet Subset: Subset Sheets: 2 OF 2	Sheet Number:

G:\12 Clients\275 - Pitkin County\17110 - Carbondale to CBT Plan\50 DWG\17110-Typical Sections - Color.dwg Oct 09, 2017 - 8:36am

LORIS

APPENDIX B: CONSTRUCTION COST ESTIMATES

L O R I S

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

8/31/2017
AP/DW/PL

In providing opinions of probable construction cost, the Client understands that Loris and Associates has no control over costs of the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. Loris and Associates make no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

	ALTERNATIVE A (Highway Side / West of River)		ALTERNATIVE B (Opposite Side / East of River)		BRIDGE CROSSINGS		
	Trail Surface Type: Asphalt		Trail Surface Type: Asphalt		Trail Surface Type: Asphalt		
TRAIL SEGMENT	**LENGTH (MILES)**	**COST**	**LENGTH (MILES)**	**COST**	**LENGTH (MILES)**	**COST**	**NOTES**
Bridge #1	-	-	-	-	0.02	$1,513,187	Replacement of existing roadway bridge
7 Oaks	0.36	$5,828,861	0.42	$935,910	-	-	
Bridge #2	-	-	-	-	0.24	$954,427	
Crystal River Parcel 1	0.29	$1,976,876	0.22	$799,635	-	-	
Bridge #3	-	-	-	-	0.06	$709,919	
Nettle Creek	0.84	$9,908,676	0.86	$943,521	-	-	
Bridge #4	-	-	-	-	0.02	$365,976	
Red Wind Point	0.93	$9,810,034	0.95	$2,255,690	-	-	
Bridge #5	-	-	-	-	0.02	$477,563	
Crystal River Country Estates	0.45	$8,144,590	0.61	$856,118	-	-	
Bridge #6	-	-	-	-	0.13	$659,604	
Andrews	0.61	$9,410,595	0.47	$793,859	-	-	
Bridge #7	-	-	-	-	0.03	$484,691	
Perham	0.40	$2,185,668	0.34	$746,825	-	-	
Bridge #8	-	-	-	-	0.05	$1,016,320	
Janeway North	0.51	$2,199,618	0.72	$1,722,610	-	-	
Bridge #9	-	-	-	-	0.11	$778,029	
Janeway South	0.59	$8,097,627	0.48	$1,355,195	-	-	
Bridge #10	-	-	-	-	0.00	$366,574	Upgrades to existing roadway bridge
Avalanche	0.97	$8,096,086	1.35	$5,058,441	-	-	
Bridge #11	-	-	-	-	0.07	$1,242,334	
Narrows	0.58	$10,838,585	0.50	$442,822	-	-	
Bridge #12	-	-	-	-	0.02	$606,372	
Filoha	1.04	$10,474,103	1.18	$1,460,428	-	-	
Bridge #13	-	-	-	-	0.30	$871,193	
Wild Rose	1.22	$13,615,192	1.27	$1,321,909	-	-	
Totals	**8.80**	**$100,586,510**	**9.38**	**$18,692,962**	**1.06**	**$8,533,002**	
Million $ per mile:		$11.44		$2.00		-	

TYPICAL SECTION	DESCRIPTION
TS 0	TRAIL SHARES EXISTING ROAD, MINOR GRADING POSSIBLE
TS 1	10' TRAIL, MINOR GRADING
TS 2	10' TRAIL, MODERATE GRADING
TS 3A	10' TRAIL, MODERATE GRADING W/ MINOR STRUCTURES, < 4' CUT WALLS
TS 3B	10' TRAIL, MODERATE GRADING W/ MINOR STRUCTURES, < 4' FILL WALLS
TS 4A	10' TRAIL, SIGNIFICANT GRADING, < 8' CUT WALLS, BARRIER AND/OR PED RAIL
TS 4B	10' TRAIL, SIGNIFICANT GRADING, < 8' FILL WALLS, BARRIER AND/OR PED RAIL
TS 5A	10' ATTACHED TRAIL, 2' BUFFER, GUARDRAIL, <4' CUT WALL
TS 5B	10' ATTACHED TRAIL, 2' BUFFER, GUARDRAIL, <4' FILL WALL
TS 6A	12' TRAIL ON MSE FILL WALL STRUCTURE
TS 6B	12' TRAIL ON CONCRETE L-WALL STRUCTURE
TS 6C	12' TRAIL ON CANTILEVER SLAB STRUCTURE
TS 6C	12' TRAIL ON PRECAST SLAB AND PIER STRUCTURE
TS 7A	10' PREFABRICATED PEDESTRIAN BRIDGE, SINGLE SPAN
TS 7B	10' PREFABRICATED PEDESTRIAN BRIDGE, MULTI-SPAN, COMPLEX INSTALLATION
TS 8	ROADWAY/VEHICLE BRIDGE

L O R I S

Carbondale to Crested Butte Trail

8/31/2017
AP/DW/PL

OPINION OF PROBABLE COST

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TRAIL WIDTH (FT) 10
TOPSOIL THICKNESS (IN) 6

				TS 0		TS 1		TS 2		TS 3A		TS 3B		TS 4A		TS 4B		TS 5A		TS 5B	
				SHARED ROADWAY		10' TRAIL, MNR GRADING		10' TRAIL, MOD GRADING													
				4:1 SIDESLOPES		4:1 SIDESLOPES		4:1 SIDESLOPES		ROCK WALL < 4' (CUT)		ROCK WALL < 4' (FILL)		ROCK WALL < 8' (CUT)		ROCK WALL < 8' (FILL)		ATTACHED 4' WALL (CUT)		ATTACHED 4' WALL (FILL)	
				DIST. WIDTH 25		DIST. WIDTH 20		DIST. WIDTH 30		DIST. WIDTH 30		DIST. WIDTH 30		DIST. WIDTH 25		DIST. WIDTH 25		DIST. WIDTH 25		DIST. WIDTH 25	
				SURF WIDTH 15		SURF WIDTH 10		SURF WIDTH 10		SURF WIDTH 12		SURF WIDTH 12		SURF WIDTH 12		SURF WIDTH 12		SURF WIDTH 12		SURF WIDTH 12	
						SURF TYPE Asphalt		SURF TYPE Asphalt		SURF TYPE Asphalt		SURF TYPE Asphalt		SURF TYPE Asphalt		SURF TYPE Asphalt		SURF TYPE Asphalt		SURF TYPE Asphalt	
ITEM	CONTRACT ITEM	UNIT	UNIT COST (PRELIM)	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF
201	CLEARING AND GRUBBING	SF	$0.25	25.00	$6.25	20.00	$5.00	30.00	$7.50	30.00	$7.50	30.00	$7.50	25.00	$6.25	25.00	$6.25	25.00	$6.25	25.00	$6.25
202	REMOVAL OF ASPHALT MAT	SF	$0.80		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
202	REMOVAL OF ASPHALT MAT (PLANING)	SF	$0.30		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
203	UNCLASSIFIED EXCAVATION/ EMBANKMENT MATERIAL	CY	$50.00	0.37	$18.52	0.37	$18.52	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04
206	STRUCTURE EXCAVATION	CY	$75.00		$0.00		$0.00		$0.00	0.44	$33.33		$0.00	0.89	$66.67		$0.00	0.44	$33.33		$0.00
206	STRUCTURE BACKFILL	CY	$55.00		$0.00		$0.00		$0.00	0.22	$12.22	0.44	$24.44	0.44	$24.44	0.89	$48.89	0.22	$12.22	0.44	$24.44
207	TOPSOIL	CY	$50.00	0.19	$9.26	0.19	$9.26	0.37	$18.52	0.33	$16.67	0.33	$16.67	0.24	$12.04	0.24	$12.04	0.24	$12.04	0.24	$12.04
208	EROSION CONTROL	LF	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50
210	RELAY RIPRAP	CY	$50.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
212	SEEDING	AC	$3,500.00	0.00023	$0.80	0.00023	$0.80	0.00046	$1.61	0.00041	$1.45	0.00041	$1.45	0.00030	$1.04	0.00030	$1.04	0.00030	$1.04	0.00030	$1.04
213	MULCHING	AC	$2,500.00	0.00023	$0.57	0.00023	$0.57	0.00046	$1.15	0.00041	$1.03	0.00041	$1.03	0.00030	$0.75	0.00030	$0.75	0.00030	$0.75	0.00030	$0.75
216	SOIL RETENTION BLANKET	SF	$0.60		$0.00		$0.00		$0.00	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80
304	CRUSHER FINES TRAIL (6 INCH)	SF	$1.50		$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00
304	AGGREGATE BASE COURSE (CLASS 6) (6" SECTION)	CY	$65.00	0.28	$18.06	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85
403	HOT MIX ASPHALT (2" OVERLAY)	SF	$1.60		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (3" SECTION)	SF	$2.30	15.00	$34.50	10.00	$23.00	10.00	$23.00	12.00	$27.60	12.00	$27.60	12.00	$27.60	12.00	$27.60	12.00	$27.60	12.00	$27.60
403	HOT MIX ASPHALT (9" SECTION)	SF	$6.90		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
403	ASPHALT PATCHING	SF	$7.50		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00	2.00	$15.00	2.00	$15.00
503	DRILLED CAISSON (36 INCH)	LF	$900.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
503	MICROPILE (8 INCH)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (1' - 4' EXPOSED)	SF	$35.00		$0.00		$0.00		$0.00	4.00	$140.00	4.00	$140.00		$0.00		$0.00	4.00	$140.00	4.00	$140.00
504	ROCK RETAINING WALL (4' - 8' EXPOSED)	SF	$45.00		$0.00		$0.00		$0.00		$0.00		$0.00	8.00	$360.00	8.00	$360.00		$0.00		$0.00
504	MSE RETAINING WALL	SF	$60.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL)	LF	$100.00		$0.00		$0.00		$0.00		$0.00	1.00	$100.00		$0.00	1.00	$100.00		$0.00	1.00	$100.00
514	RAILING (STEEL) (SIDE MOUNT)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
601	CONCRETE CLASS D	CY	$900.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
602	REINFORCING STEEL (EPOXY COATED)	LF	$2.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 3	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00	1.00	$35.00	1.00	$35.00
606	GUARDRAIL TYPE 7 (STYLE CA)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
606	BRIDGE RAIL TYPE 7 / GUARDRAIL TYPE 7 (STYLE CE)	LF	$175.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE BIKEWAY (6 INCH)	SF	$8.00		$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00
608	CONCRETE CURB AND GUTTER	LF	$25.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE THICKENED EDGE	LF	$40.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
613	LIGHTING	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
618	PRECAST CONCRETE DECK SLAB PT (12")	SF	$60.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
628	PEDESTRIAN BRIDGE (SINGLE SPAN LT. 100') (SIMPLE INSTALLATION)	LF	$2,000.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
628	PEDESTRIAN BRIDGE (MULTI-SPAN or GT 100') (DIFFICULT INSTALLATION)	LF	$3,000.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
628	ROADWAY BRIDGE (SINGLE SPAN)	LF	$7,500.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
	Subtotal of Bid Items				**$95.46**		**$81.51**		**$113.16**		**$305.99**		**$384.88**		**$564.98**		**$622.76**		**$349.42**		**$428.31**
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	10%		$9.55		$8.15		$11.32		$30.60		$38.49		$56.50		$62.28		$34.94		$42.83
	TOTAL / LF				**$105.01**		**$89.66**		**$124.48**		**$336.59**		**$423.37**		**$621.48**		**$685.03**		**$384.36**		**$471.14**
				Rounded	**$110.00**	Rounded	**$90.00**	Rounded	**$130.00**	Rounded	**$340.00**	Rounded	**$430.00**	Rounded	**$630.00**	Rounded	**$690.00**	Rounded	**$390.00**	Rounded	**$480.00**

L O R I S

Carbondale to Crested Butte Trail

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TRAIL WIDTH (FT) 10
TOPSOIL THICKNESS (IN) 6

				TS 6A		TS 6B		TS 6C		TS 6D		TS 7A		TS 7B		TS 8		TS 10	
				TRAIL ON MSE WALL (FILL)		TRAIL ON L-WALL (CUT)		TRAIL ON CANTILEVER SLAB		TRAIL ON PT BRIDGES		SINGLE SPAN BRIDGE		MULTI-SPAN BRIDGE		ROADWAY BRIDGE		REALIGNMENT OF SH 133 (FULL WIDTH/DEPTH R&R)	
				DIST. WIDTH 20 SURF WIDTH 12		DIST. WIDTH 20 SURF WIDTH 12		DIST. WIDTH 10 SURF WIDTH 12		DIST. WIDTH 5 SURF WIDTH 12		DIST. WIDTH 15 SURF WIDTH 10		DIST. WIDTH 15 SURF WIDTH 10		DIST. WIDTH 40 SURF WIDTH 30		DIST. WIDTH 40 SURF WIDTH 28	
ITEM	CONTRACT ITEM	UNIT	UNIT COST (PRELIM)	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF
201	CLEARING AND GRUBBING	SF	$0.25	20.00	$5.00	20.00	$5.00	10.00	$2.50	5.00	$1.25	15.00	$3.75	15.00	$3.75	20.00	$5.00	20.00	$5.00
202	REMOVAL OF ASPHALT MAT	SF	$0.80	6.00	$4.80	6.00	$4.80	0.00	$0.00	0.00	$0.00		$0.00		$0.00		$0.00	28.00	$22.40
202	REMOVAL OF ASPHALT MAT (PLANING)	SF	$0.30	10.00	$3.00	10.00	$3.00	0.00	$0.00	10.00	$3.00		$0.00		$0.00		$0.00		$0.00
203	UNCLASSIFIED EXCAVATION/ EMBANKMENT MATERIAL	CY	$50.00		$0.00		$0.00	0.19	$9.26		$0.00		$0.00		$0.00		$0.00	0.74	$37.04
206	STRUCTURE EXCAVATION	CY	$75.00	3.28	$245.83	4.61	$346.04	1.06	$79.17	0.00	$0.00		$0.00		$0.00		$0.00		$0.00
206	STRUCTURE BACKFILL	CY	$55.00	3.87	$212.87	1.56	$85.65	0.00	$0.00	0.00	$0.00		$0.00		$0.00		$0.00		$0.00
207	TOPSOIL	CY	$50.00	0.15	$7.41	0.15	$7.41	0.00	$0.00	0.00	$0.00	0.09	$4.63	0.09	$4.63	0.19	$9.26	0.22	$11.11
208	EROSION CONTROL	LF	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50
210	RELAY RIPRAP	CY	$50.00	1.48	$74.07	1.48	$74.07	0.00	$0.00	0.74	$37.04		$0.00		$0.00		$0.00		$0.00
212	SEEDING	AC	$3,500.00		$0.00		$0.00		$0.00		$0.00	0.00011	$0.40	0.00011	$0.40	0.00023	$0.80	0.00028	$0.96
213	MULCHING	AC	$2,500.00		$0.00		$0.00		$0.00		$0.00	0.00011	$0.29	0.00011	$0.29	0.00023	$0.57	0.00028	$0.69
216	SOIL RETENTION BLANKET	SF	$0.60	2.00	$1.20	2.00	$1.20	1.00	$0.60		$0.00		$0.00		$0.00		$0.00		$0.00
304	CRUSHER FINES TRAIL (6 INCH)	SF	$1.50	0.11	$0.17	0.11	$0.17	0.11	$0.17		$0.00		$0.00		$0.00		$0.00		$0.00
304	AGGREGATE BASE COURSE (CLASS 6) (6" SECTION)	CY	$65.00	0.00	$0.00	0.00	$0.00	0.11	$7.22		$0.00		$0.00		$0.00		$0.00	0.52	$33.70
403	HOT MIX ASPHALT (2" OVERLAY)	SF	$1.60	12.00	$19.20	12.00	$19.20	16.00	$25.60		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (3" SECTION)	SF	$2.30		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (9" SECTION)	SF	$6.90	6.00	$41.40	6.00	$41.40		$0.00		$0.00		$0.00		$0.00		$0.00	28.00	$193.20
403	ASPHALT PATCHING	SF	$7.50		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
503	DRILLED CAISSON (36 INCH)	LF	$900.00		$0.00		$0.00		$0.00	1.25	$1,125.00		$0.00		$0.00		$0.00		$0.00
503	MICROPILE (8 INCH)	LF	$125.00		$0.00		$0.00	0.00	$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (1' - 4' EXPOSED)	SF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (4' - 8' EXPOSED)	SF	$45.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	MSE RETAINING WALL	SF	$60.00	8.00	$480.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL)	LF	$100.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL) (SIDE MOUNT)	LF	$125.00	1.00	$125.00	1.00	$125.00	1.00	$125.00	2.00	$250.00		$0.00		$0.00		$0.00		$0.00
601	CONCRETE CLASS D	CY	$900.00	0.35	$313.47	1.00	$903.63	1.26	$1,133.33	0.19	$175.00		$0.00		$0.00		$0.00		$0.00
602	REINFORCING STEEL (EPOXY COATED)	LF	$2.00	62.25	$124.51	200.81	$401.61	314.81	$629.63	46.30	$92.59		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 3	LF	$35.00		$0.00		$0.00		$0.00	1.00	$35.00		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 7 (STYLE CA)	LF	$125.00	1.00	$125.00		$0.00	1.00	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00
606	BRIDGE RAIL TYPE 7 / GUARDRAIL TYPE 7 (STYLE CE)	LF	$175.00		$0.00	1.00	$175.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE BIKEWAY (6 INCH)	SF	$8.00		$0.00		$0.00		$0.00		$0.00	10.00	$80.00	10.00	$80.00	0.00	$0.00		$0.00
608	CONCRETE CURB AND GUTTER	LF	$25.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE THICKENED EDGE	LF	$40.00	1.00	$40.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
613	LIGHTING	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
618	PRECAST CONCRETE DECK SLAB PT (12")	SF	$60.00		$0.00		$0.00		$0.00	12.00	$720.00	0.00	$0.00	0.00	$0.00	0.00	$0.00		$0.00
628	PEDESTRIAN BRIDGE (SINGLE SPAN LT. 100') (SIMPLE INSTALLATION)	LF	$2,000.00		$0.00		$0.00		$0.00		$0.00	1.00	$2,000.00		$0.00		$0.00		$0.00
628	PEDESTRIAN BRIDGE (MULTI-SPAN or GT 100') (DIFFICULT INSTALLATION)	LF	$3,000.00		$0.00		$0.00		$0.00		$0.00		$0.00	1.00	$3,000.00	0.00	$0.00		$0.00
628	ROADWAY BRIDGE (SINGLE SPAN)	LF	$7,500.00		$0.00		$0.00		$0.00		$0.00		$0.00	0.00	$0.00	1.00	$7,500.00		$0.00
	Subtotal of Bid Items				**$1,830.43**		**$2,200.68**		**$2,144.98**		**$2,446.38**		**$2,096.57**		**$3,096.57**		**$7,523.14**		**$311.60**
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	10%		$183.04		$220.07		$214.50		$244.64		$209.66		$309.66		$752.31		$31.16
	TOTAL / LF				**$2,013.48**		**$2,420.75**		**$2,359.48**		**$2,691.02**		**$2,306.23**		**$3,406.23**		**$8,275.45**		**$342.77**
				Rounded	**$2,100.00**	Rounded	**$2,500.00**	Rounded	**$2,400.00**	Rounded	**$2,700.00**	Rounded	**$2,400.00**	Rounded	**$3,500.00**	Rounded	**$8,300.00**	Rounded	**$350.00**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #1** **(Replacement of Existing Roadway Bridge)** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	65	$7,150
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TS 8	LF	$8,300	110	$913,000
	TOTAL LENGTH (FEET)			**175**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$92,015
	Subtotal of Trail Typical Section Items				**$1,012,165**
	TRAFFIC CONTROL	LS	10%		$101,217
	UTILITY RELOCATION	LS	5%		$50,608
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$151,825
	SUBTOTAL				**$1,315,815**
	DESIGN / ENGINEERING	LS	7%		$92,107
	CONSTRUCTION MANAGEMENT	LS	8%		$105,265
	TOTAL				**$1,513,187**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**7 Oaks Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	334	$30,060
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	218	$104,640
	TS 6A	LF	$2,100	1,360	$2,856,000
	TS 7A	LF	$2,400	-	
	TS 7B	LF	$3,500	-	
	TOTAL LENGTH (FEET)			**1,912**	
	TOTAL LENGTH (MILES)			**0.36**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$750,900
	Subtotal of Trail Typical Section Items				**$3,754,500**
	TRAFFIC CONTROL	LS	15%		$563,175
	UTILITY RELOCATION	LS	5%		$187,725
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$563,175
	SUBTOTAL				**$5,068,575**
	DESIGN / ENGINEERING	LS	7%		$354,800
	CONSTRUCTION MANAGEMENT	LS	8%		$405,486
	TOTAL				**$5,828,861**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**7 Oaks Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	2,198	$241,780
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TS 8	LF	$8,300	31	$257,300
	TOTAL LENGTH (FEET)			**2,198**	
	TOTAL LENGTH (MILES)			**0.42**	
	LOCAL ROADWAY CROSSING		$10,000	2	$20,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	24	$20,400
	CROSSWALK STRIPING		$1,200	2	$2,400
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$59,188
	Subtotal of Trail Typical Section Items				**$651,068**
	TRAFFIC CONTROL	LS	5%		$32,553
	UTILITY RELOCATION	LS	5%		$32,553
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$97,660
	SUBTOTAL				**$813,835**
	DESIGN / ENGINEERING	LS	7%		$56,968
	CONSTRUCTION MANAGEMENT	LS	8%		$65,107
	TOTAL				**$935,910**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Bridge #2

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	1,141	$148,330
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	151	$362,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,292**	
	TOTAL LENGTH (MILES)			**0.24**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$127,683
	Subtotal of Trail Typical Section Items				**$638,413**
	TRAFFIC CONTROL	LS	10%		$63,841
	UTILITY RELOCATION	LS	5%		$31,921
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$95,762
	SUBTOTAL				**$829,936**
	DESIGN / ENGINEERING	LS	7%		$58,096
	CONSTRUCTION MANAGEMENT	LS	8%		$66,395
	TOTAL				**$954,427**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Parcel 1 Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	1,116	$145,080
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	416	$873,600
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,532**	
	TOTAL LENGTH (MILES)			**0.29**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$254,670
	Subtotal of Trail Typical Section Items				**$1,273,350**
	TRAFFIC CONTROL	LS	15%		$191,003
	UTILITY RELOCATION	LS	5%		$63,668
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$191,003
	SUBTOTAL				**$1,719,023**
	DESIGN / ENGINEERING	LS	7%		$120,332
	CONSTRUCTION MANAGEMENT	LS	8%		$137,522
	TOTAL				**$1,976,876**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Parcel 1 Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	84	$7,560
	TS 2	LF	$130	611	$79,430
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	382	$164,260
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	67	$160,800
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,144**	
	TOTAL LENGTH (MILES)			**0.22**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.35		$144,218
	Subtotal of Trail Typical Section Items				**$556,268**
	TRAFFIC CONTROL	LS	5%		$27,813
	UTILITY RELOCATION	LS	5%		$27,813
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$83,440
	SUBTOTAL				**$695,334**
	DESIGN / ENGINEERING	LS	7%		$48,673
	CONSTRUCTION MANAGEMENT	LS	8%		$55,627
	TOTAL				**$799,635**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #3** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	153	$19,890
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	150	$360,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**303**	
	TOTAL LENGTH (MILES)			**0.06**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$94,973
	Subtotal of Trail Typical Section Items				**$474,863**
	TRAFFIC CONTROL	LS	10%		$47,486
	UTILITY RELOCATION	LS	5%		$23,743
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$71,229
	SUBTOTAL				**$617,321**
	DESIGN / ENGINEERING	LS	7%		$43,212
	CONSTRUCTION MANAGEMENT	LS	8%		$49,386
	TOTAL				**$709,919**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Nettle Creek Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	926	$120,380
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	1,473	$707,040
	TS 6A	LF	$2,100	2,035	$4,273,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**4,434**	
	TOTAL LENGTH (MILES)			**0.84**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,276,480
	Subtotal of Trail Typical Section Items				**$6,382,400**
	TRAFFIC CONTROL	LS	15%		$957,360
	UTILITY RELOCATION	LS	5%		$319,120
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$957,360
	SUBTOTAL				**$8,616,240**
	DESIGN / ENGINEERING	LS	7%		$603,137
	CONSTRUCTION MANAGEMENT	LS	8%		$689,299
	TOTAL				**$9,908,676**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Nettle Creek Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	1,193	$131,230
	TS 1	LF	$90	1,430	$128,700
	TS 2	LF	$130	1,902	$247,260
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**4,525**	
	TOTAL LENGTH (MILES)			**0.86**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$131,273
	Subtotal of Trail Typical Section Items				**$656,363**
	TRAFFIC CONTROL	LS	5%		$32,818
	UTILITY RELOCATION	LS	5%		$32,818
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$98,454
	SUBTOTAL				**$820,453**
	DESIGN / ENGINEERING	LS	7%		$57,432
	CONSTRUCTION MANAGEMENT	LS	8%		$65,636
	TOTAL				**$943,521**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #4** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	85	$204,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**85**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$40,800
	Subtotal of Trail Typical Section Items				**$244,800**
	TRAFFIC CONTROL	LS	10%		$24,480
	UTILITY RELOCATION	LS	5%		$12,240
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$36,720
	SUBTOTAL				**$318,240**
	DESIGN / ENGINEERING	LS	7%		$22,277
	CONSTRUCTION MANAGEMENT	LS	8%		$25,459
	TOTAL				**$365,976**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Red Wind Point Alternative A

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	29	$2,610
	TS 2	LF	$130	1,628	$211,640
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	1,030	$442,900
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	158	$75,840
	TS 6A	LF	$2,100	2,052	$4,309,200
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**4,897**	
	TOTAL LENGTH (MILES)			**0.93**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,263,773
	Subtotal of Trail Typical Section Items				**$6,318,863**
	TRAFFIC CONTROL	LS	15%		$947,829
	UTILITY RELOCATION	LS	5%		$315,943
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$947,829
	SUBTOTAL				**$8,530,464**
	DESIGN / ENGINEERING	LS	7%		$597,133
	CONSTRUCTION MANAGEMENT	LS	8%		$682,437
	TOTAL				**$9,810,034**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Red Wind Point Alternative B

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	85	$7,650
	TS 2	LF	$130	4,055	$527,150
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	858	$540,540
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	41	$143,500
	TOTAL LENGTH (FEET)			**5,039**	
	TOTAL LENGTH (MILES)			**0.95**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$371,022
	Subtotal of Trail Typical Section Items				**$1,607,762**
	TRAFFIC CONTROL	LS	2%		$32,155
	UTILITY RELOCATION	LS	5%		$80,388
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$241,164
	SUBTOTAL				**$1,961,470**
	DESIGN / ENGINEERING	LS	7%		$137,303
	CONSTRUCTION MANAGEMENT	LS	8%		$156,918
	TOTAL				**$2,255,690**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Bridge #5

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	121	$290,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**121**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$29,040
	Subtotal of Trail Typical Section Items				**$319,440**
	TRAFFIC CONTROL	LS	10%		$31,944
	UTILITY RELOCATION	LS	5%		$15,972
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$47,916
	SUBTOTAL				**$415,272**
	DESIGN / ENGINEERING	LS	7%		$29,069
	CONSTRUCTION MANAGEMENT	LS	8%		$33,222
	TOTAL				**$477,563**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Country Estates Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	685	$89,050
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	78	$37,440
	TS 6A	LF	$2,100	-	$0
	TS 6B	LF	$2,500	1,623	$4,057,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,386**	
	TOTAL LENGTH (MILES)			**0.45**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,049,223
	Subtotal of Trail Typical Section Items				**$5,246,113**
	TRAFFIC CONTROL	LS	15%		$786,917
	UTILITY RELOCATION	LS	5%		$262,306
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$786,917
	SUBTOTAL				**$7,082,252**
	DESIGN / ENGINEERING	LS	7%		$495,758
	CONSTRUCTION MANAGEMENT	LS	8%		$566,580
	TOTAL				**$8,144,590**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Country Estates Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	2,469	$271,590
	TS 1	LF	$90	238	$21,420
	TS 2	LF	$130	49	$6,370
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	479	$229,920
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,235**	
	TOTAL LENGTH (MILES)			**0.61**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	5	$25,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.05		$28,360
	Subtotal of Trail Typical Section Items				**$595,560**
	TRAFFIC CONTROL	LS	5%		$29,778
	UTILITY RELOCATION	LS	5%		$29,778
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$89,334
	SUBTOTAL				**$744,450**
	DESIGN / ENGINEERING	LS	7%		$52,112
	CONSTRUCTION MANAGEMENT	LS	8%		$59,556
	TOTAL				**$856,118**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #6** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	571	$51,390
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	120	$288,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**691**	
	TOTAL LENGTH (MILES)			**0.13**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$101,817
	Subtotal of Trail Typical Section Items				**$441,207**
	TRAFFIC CONTROL	LS	10%		$44,121
	UTILITY RELOCATION	LS	5%		$22,060
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$66,181
	SUBTOTAL				**$573,569**
	DESIGN / ENGINEERING	LS	7%		$40,150
	CONSTRUCTION MANAGEMENT	LS	8%		$45,886
	TOTAL				**$659,604**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Andrews Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	936	$121,680
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	22	$15,180
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	2,244	$4,712,400
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,202**	
	TOTAL LENGTH (MILES)			**0.61**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,212,315
	Subtotal of Trail Typical Section Items				**$6,061,575**
	TRAFFIC CONTROL	LS	15%		$909,236
	UTILITY RELOCATION	LS	5%		$303,079
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$909,236
	SUBTOTAL				**$8,183,126**
	DESIGN / ENGINEERING	LS	7%		$572,819
	CONSTRUCTION MANAGEMENT	LS	8%		$654,650
	TOTAL				**$9,410,595**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Andrews Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	819	$73,710
	TS 2	LF	$130	1,613	$209,690
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	66	$158,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,498**	
	TOTAL LENGTH (MILES)			**0.47**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$110,450
	Subtotal of Trail Typical Section Items				**$552,250**
	TRAFFIC CONTROL	LS	5%		$27,613
	UTILITY RELOCATION	LS	5%		$27,613
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$82,838
	SUBTOTAL				**$690,313**
	DESIGN / ENGINEERING	LS	7%		$48,322
	CONSTRUCTION MANAGEMENT	LS	8%		$55,225
	TOTAL				**$793,859**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #7** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	64	$8,320
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	114	$273,600
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**178**	
	TOTAL LENGTH (MILES)			**0.03**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$42,288
	Subtotal of Trail Typical Section Items				**$324,208**
	TRAFFIC CONTROL	LS	10%		$32,421
	UTILITY RELOCATION	LS	5%		$16,210
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$48,631
	SUBTOTAL				**$421,470**
	DESIGN / ENGINEERING	LS	7%		$29,503
	CONSTRUCTION MANAGEMENT	LS	8%		$33,718
	TOTAL				**$484,691**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Perham Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	262	$34,060
	TS 3A	LF	$340	704	$239,360
	TS 3B	LF	$430	847	$364,210
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	103	$49,440
	TS 6A	LF	$2,100	202	$424,200
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,118**	
	TOTAL LENGTH (MILES)			**0.40**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	3	$15,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$281,568
	Subtotal of Trail Typical Section Items				**$1,407,838**
	TRAFFIC CONTROL	LS	15%		$211,176
	UTILITY RELOCATION	LS	5%		$70,392
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$211,176
	SUBTOTAL				**$1,900,581**
	DESIGN / ENGINEERING	LS	7%		$133,041
	CONSTRUCTION MANAGEMENT	LS	8%		$152,046
	TOTAL				**$2,185,668**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Perham Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	1,060	$116,600
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	227	$29,510
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	493	$310,590
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,780**	
	TOTAL LENGTH (MILES)			**0.34**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	2	$10,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$70,005
	Subtotal of Trail Typical Section Items				**$536,705**
	TRAFFIC CONTROL	LS	5%		$26,835
	UTILITY RELOCATION	LS	1%		$5,367
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$80,506
	SUBTOTAL				**$649,413**
	DESIGN / ENGINEERING	LS	7%		$45,459
	CONSTRUCTION MANAGEMENT	LS	8%		$51,953
	TOTAL				**$746,825**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Bridge #8

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	711	$78,210
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	106	$36,040
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	179	$429,600
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**996**	
	TOTAL LENGTH (MILES)			**0.05**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$135,963
	Subtotal of Trail Typical Section Items				**$679,813**
	TRAFFIC CONTROL	LS	10%		$67,981
	UTILITY RELOCATION	LS	5%		$33,991
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$101,972
	SUBTOTAL				**$883,756**
	DESIGN / ENGINEERING	LS	7%		$61,863
	CONSTRUCTION MANAGEMENT	LS	8%		$70,701
	TOTAL				**$1,016,320**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Janeway North Alternative A

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	1,189	$107,010
	TS 2	LF	$130	272	$35,360
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	153	$65,790
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	817	$392,160
	TS 6A	LF	$2,100	277	$581,700
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,708**	
	TOTAL LENGTH (MILES)			**0.51**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$184,803
	Subtotal of Trail Typical Section Items				**$1,416,823**
	TRAFFIC CONTROL	LS	15%		$212,523
	UTILITY RELOCATION	LS	5%		$70,841
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$212,523
	SUBTOTAL				**$1,912,711**
	DESIGN / ENGINEERING	LS	7%		$133,890
	CONSTRUCTION MANAGEMENT	LS	8%		$153,017
	TOTAL				**$2,199,618**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway North Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	2,882	$374,660
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	927	$584,010
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,809**	
	TOTAL LENGTH (MILES)			**0.72**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$239,668
	Subtotal of Trail Typical Section Items				**$1,198,338**
	TRAFFIC CONTROL	LS	5%		$59,917
	UTILITY RELOCATION	LS	5%		$59,917
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$179,751
	SUBTOTAL				**$1,497,922**
	DESIGN / ENGINEERING	LS	7%		$104,855
	CONSTRUCTION MANAGEMENT	LS	8%		$119,834
	TOTAL				**$1,722,610**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #9** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	398	$51,740
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	167	$400,800
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**565**	
	TOTAL LENGTH (MILES)			**0.11**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$67,881
	Subtotal of Trail Typical Section Items				**$520,421**
	TRAFFIC CONTROL	LS	10%		$52,042
	UTILITY RELOCATION	LS	5%		$26,021
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$78,063
	SUBTOTAL				**$676,547**
	DESIGN / ENGINEERING	LS	7%		$47,358
	CONSTRUCTION MANAGEMENT	LS	8%		$54,124
	TOTAL				**$778,029**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway South Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	374	$33,660
	TS 2	LF	$130	713	$92,690
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	423	$203,040
	TS 6A	LF	$2,100	374	$785,400
	TS 6B	LF	$2,500	1,218	$3,045,000
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,102**	
	TOTAL LENGTH (MILES)			**0.59**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,043,173
	Subtotal of Trail Typical Section Items				**$5,215,863**
	TRAFFIC CONTROL	LS	15%		$782,379
	UTILITY RELOCATION	LS	5%		$260,793
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$782,379
	SUBTOTAL				**$7,041,414**
	DESIGN / ENGINEERING	LS	7%		$492,899
	CONSTRUCTION MANAGEMENT	LS	8%		$563,313
	TOTAL				**$8,097,627**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway South Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	447	$40,230
	TS 2	LF	$130	1,733	$225,290
	TS 3A	LF	$340	140	$47,600
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	225	$472,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,545**	
	TOTAL LENGTH (MILES)			**0.48**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$157,124
	Subtotal of Trail Typical Section Items				**$942,744**
	TRAFFIC CONTROL	LS	5%		$47,137
	UTILITY RELOCATION	LS	5%		$47,137
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$141,412
	SUBTOTAL				**$1,178,430**
	DESIGN / ENGINEERING	LS	7%		$82,490
	CONSTRUCTION MANAGEMENT	LS	8%		$94,274
	TOTAL				**$1,355,195**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #10** **(Avalanche Creek Roadway)** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	602	$66,220
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$1,100	-	$0
	TS 8	LF	$1,660	88	$146,080
	TOTAL LENGTH (FEET)			**602**	
	TOTAL LENGTH (MILES)			**0.00**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	4	$20,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.00		$0
	Subtotal of Trail Typical Section Items				**$245,200**
	TRAFFIC CONTROL	LS	10%		$24,520
	UTILITY RELOCATION	LS	5%		$12,260
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$36,780
	SUBTOTAL				**$318,760**
	DESIGN / ENGINEERING	LS	7%		$22,313
	CONSTRUCTION MANAGEMENT	LS	8%		$25,501
	TOTAL				**$366,574**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Avalanche Alternative A

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	266	$23,940
	TS 2	LF	$130	2,232	$290,160
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	395	$154,050
	TS 5B	LF	$480	394	$189,120
	TS 6A	LF	$2,100	1,844	$3,872,400
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**5,131**	
	TOTAL LENGTH (MILES)			**0.97**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$680,201
	Subtotal of Trail Typical Section Items				**$5,214,871**
	TRAFFIC CONTROL	LS	15%		$782,231
	UTILITY RELOCATION	LS	5%		$260,744
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$782,231
	SUBTOTAL				**$7,040,075**
	DESIGN / ENGINEERING	LS	7%		$492,805
	CONSTRUCTION MANAGEMENT	LS	8%		$563,206
	TOTAL				**$8,096,086**

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8/31/2017

Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Avalanche Alternative B

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	1,705	$153,450
	TS 2	LF	$130	4,153	$539,890
	TS 3A	LF	$340	207	$70,380
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	320	$153,600
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	768	$1,843,200
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**7,153**	
	TOTAL LENGTH (MILES)			**1.35**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$832,026
	Subtotal of Trail Typical Section Items				**$3,605,446**
	TRAFFIC CONTROL	LS	2%		$72,109
	UTILITY RELOCATION	LS	5%		$180,272
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$540,817
	SUBTOTAL				**$4,398,644**
	DESIGN / ENGINEERING	LS	7%		$307,905
	CONSTRUCTION MANAGEMENT	LS	8%		$351,892
	TOTAL				**$5,058,441**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #11** **(Upgrades to Existing Roadway Bridge** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	185	$24,050
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	169	$591,500
	TOTAL LENGTH (FEET)			**354**	
	TOTAL LENGTH (MILES)			**0.07**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.35		$215,443
	Subtotal of Trail Typical Section Items				**$830,993**
	TRAFFIC CONTROL	LS	10%		$83,099
	UTILITY RELOCATION	LS	5%		$41,550
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$124,649
	SUBTOTAL				**$1,080,290**
	DESIGN / ENGINEERING	LS	7%		$75,620
	CONSTRUCTION MANAGEMENT	LS	8%		$86,423
	TOTAL				**$1,242,334**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Narrows Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	113	$10,170
	TS 2	LF	$130	703	$91,390
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	78	$33,540
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 6B	LF	$2,500	2,178	$5,445,000
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,072**	
	TOTAL LENGTH (MILES)			**0.58**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,396,275
	Subtotal of Trail Typical Section Items				**$6,981,375**
	TRAFFIC CONTROL	LS	15%		$1,047,206
	UTILITY RELOCATION	LS	5%		$349,069
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$1,047,206
	SUBTOTAL				**$9,424,856**
	DESIGN / ENGINEERING	LS	7%		$659,740
	CONSTRUCTION MANAGEMENT	LS	8%		$753,989
	TOTAL				**$10,838,585**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Narrows Alternative B

Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	2,551	$229,590
	TS 2	LF	$130	77	$10,010
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,628**	
	TOTAL LENGTH (MILES)			**0.50**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$63,125
	Subtotal of Trail Typical Section Items				**$315,625**
	TRAFFIC CONTROL	LS	2%		$6,313
	UTILITY RELOCATION	LS	5%		$15,781
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$47,344
	SUBTOTAL				**$385,063**
	DESIGN / ENGINEERING	LS	7%		$26,954
	CONSTRUCTION MANAGEMENT	LS	8%		$30,805
	TOTAL				**$442,822**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #12** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	-	$0
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	130	$312,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**130**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$93,600
	Subtotal of Trail Typical Section Items				**$405,600**
	TRAFFIC CONTROL	LS	10%		$40,560
	UTILITY RELOCATION	LS	5%		$20,280
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$60,840
	SUBTOTAL				**$527,280**
	DESIGN / ENGINEERING	LS	7%		$36,910
	CONSTRUCTION MANAGEMENT	LS	8%		$42,182
	TOTAL				**$606,372**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Filoha Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	1,548	$201,240
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	167	$71,810
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	1,654	$793,920
	TS 6A	LF	$2,100	1,937	$4,067,700
	TS 6B	LF	$2,500	185	$462,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**5,491**	
	TOTAL LENGTH (MILES)			**1.04**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	5	$25,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$1,124,434
	Subtotal of Trail Typical Section Items				**$6,746,604**
	TRAFFIC CONTROL	LS	15%		$1,011,991
	UTILITY RELOCATION	LS	5%		$337,330
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$1,011,991
	SUBTOTAL				**$9,107,915**
	DESIGN / ENGINEERING	LS	7%		$637,554
	CONSTRUCTION MANAGEMENT	LS	8%		$728,633
	TOTAL				**$10,474,103**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Filoha Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	6,252	$812,760
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,252**	
	TOTAL LENGTH (MILES)			**1.18**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$203,190
	Subtotal of Trail Typical Section Items				**$1,015,950**
	TRAFFIC CONTROL	LS	5%		$50,798
	UTILITY RELOCATION	LS	5%		$50,798
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$152,393
	SUBTOTAL				**$1,269,938**
	DESIGN / ENGINEERING	LS	7%		$88,896
	CONSTRUCTION MANAGEMENT	LS	8%		$101,595
	TOTAL				**$1,460,428**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #13** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	1,463	$190,190
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	115	$276,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,578**	
	TOTAL LENGTH (MILES)			**0.30**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$116,548
	Subtotal of Trail Typical Section Items				**$582,738**
	TRAFFIC CONTROL	LS	10%		$58,274
	UTILITY RELOCATION	LS	5%		$29,137
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$87,411
	SUBTOTAL				**$757,559**
	DESIGN / ENGINEERING	LS	7%		$53,029
	CONSTRUCTION MANAGEMENT	LS	8%		$60,605
	TOTAL				**$871,193**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Wild Rose Alternative A** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$90	443	$39,870
	TS 2	LF	$130	1,394	$181,220
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	351	$150,930
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	531	$207,090
	TS 5B	LF	$480	1,434	$688,320
	TS 6A	LF	$2,100	233	$489,300
	TS 6B	LF	$2,500	2,081	$5,202,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,467**	
	TOTAL LENGTH (MILES)			**1.22**	
	LOCAL ROADWAY CROSSING		$10,000	2	$20,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	6	$30,000
	CURB RAMP		$850	5	$4,250
	CROSSWALK STRIPING		$1,200	2	$2,400
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,753,970
	Subtotal of Trail Typical Section Items				**$8,769,850**
	TRAFFIC CONTROL	LS	15%		$1,315,478
	UTILITY RELOCATION	LS	5%		$438,493
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$1,315,478
	SUBTOTAL				**$11,839,298**
	DESIGN / ENGINEERING	LS	7%		$828,751
	CONSTRUCTION MANAGEMENT	LS	8%		$947,144
	TOTAL				**$13,615,192**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Wild Rose Alternative B** Trail Surface Type: Asphalt

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	4,814	$529,540
	TS 1	LF	$90	-	$0
	TS 2	LF	$130	1,880	$244,400
	TS 3A	LF	$340	-	$0
	TS 3B	LF	$430	-	$0
	TS 4A	LF	$630	-	$0
	TS 4B	LF	$690	-	$0
	TS 5A	LF	$390	-	$0
	TS 5B	LF	$480	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,694**	
	TOTAL LENGTH (MILES)			**1.27**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	1	$850
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$83,599
	Subtotal of Trail Typical Section Items				**$919,589**
	TRAFFIC CONTROL	LS	5%		$45,979
	UTILITY RELOCATION	LS	5%		$45,979
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$137,938
	SUBTOTAL				**$1,149,486**
	DESIGN / ENGINEERING	LS	7%		$80,464
	CONSTRUCTION MANAGEMENT	LS	8%		$91,959
	TOTAL				**$1,321,909**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

8/31/2017
AP/DW/PL

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	ALTERNATIVE A (Highway Side / West of River)		ALTERNATIVE B (Opposite Side / East of River)		BRIDGE CROSSINGS		
	Trail Surface Type: Concrete		Trail Surface Type: Concrete		Trail Surface Type: Concrete		
TRAIL SEGMENT	**LENGTH (MILES)**	**COST**	**LENGTH (MILES)**	**COST**	**LENGTH (MILES)**	**COST**	**NOTES**
Bridge #1	-	-	-	-	0.02	$1,513,187	Replacement of existing roadway bridge
7 Oaks	0.36	$5,903,847	0.42	$935,910	-	-	
Bridge #2	-	-	-	-	0.24	$1,082,361	
Crystal River Parcel 1	0.29	$2,106,820	0.22	$934,081	-	-	
Bridge #3	-	-	-	-	0.06	$727,075	
Nettle Creek	0.84	$10,216,595	0.86	$1,328,448	-	-	
Bridge #4	-	-	-	-	0.02	$365,976	
Red Wind Point	0.93	$10,164,916	0.95	$2,819,841	-	-	
Bridge #5	-	-	-	-	0.02	$477,563	
Crystal River Country Estates	0.45	$8,234,945	0.61	$936,311	-	-	
Bridge #6	-	-	-	-	0.13	$737,286	
Andrews	0.61	$9,522,996	0.47	$1,070,776	-	-	
Bridge #7	-	-	-	-	0.03	$491,293	
Perham	0.40	$2,454,522	0.34	$823,844	-	-	
Bridge #8	-	-	-	-	0.05	$1,032,167	
Janeway North	0.51	$2,498,579	0.72	$2,149,925	-	-	
Bridge #9	-	-	-	-	0.11	$819,085	
Janeway South	0.59	$8,288,914	0.48	$1,607,855	-	-	
Bridge #10	-	-	-	-	0.00	$366,574	Upgrades to existing roadway bridge
Avalanche	0.97	$8,467,034	1.35	$5,801,662	-	-	
Bridge #11	-	-	-	-	0.07	$1,264,736	
Narrows	0.58	$10,946,386	0.50	$764,091	-	-	
Bridge #12	-	-	-	-	0.02	$606,372	
Filoha	1.04	$10,884,615	1.18	$2,134,472	-	-	
Bridge #13	-	-	-	-	0.30	$1,035,231	
Wild Rose	1.22	$14,152,299	1.27	$1,500,274	-	-	
Totals	**8.80**	**$103,842,468**	**9.38**	**$22,807,489**	**1.06**	**$9,005,719**	
Million $ per mile:		$11.81		$2.44		-	

TYPICAL SECTION	DESCRIPTION
TS 0	TRAIL SHARES EXISTING ROAD, MINOR GRADING POSSIBLE
TS 1	10' TRAIL, MINOR GRADING
TS 2	10' TRAIL, MODERATE GRADING
TS 3A	10' TRAIL, MODERATE GRADING W/ MINOR STRUCTURES, < 4' CUT WALLS
TS 3B	10' TRAIL, MODERATE GRADING W/ MINOR STRUCTURES, < 4' FILL WALLS
TS 4A	10' TRAIL, SIGNIFICANT GRADING, < 8' CUT WALLS, BARRIER AND/OR PED RAIL
TS 4B	10' TRAIL, SIGNIFICANT GRADING, < 8' FILL WALLS, BARRIER AND/OR PED RAIL
TS 5A	10' ATTACHED TRAIL, 2' BUFFER, GUARDRAIL, <4' CUT WALL
TS 5B	10' ATTACHED TRAIL, 2' BUFFER, GUARDRAIL, <4' FILL WALL
TS 6A	12' TRAIL ON MSE FILL WALL STRUCTURE
TS 6B	12' TRAIL ON CONCRETE L-WALL STRUCTURE
TS 6C	12' TRAIL ON CANTILEVER SLAB STRUCTURE
TS 6C	12' TRAIL ON PRECAST SLAB AND PIER STRUCTURE
TS 7A	10' PREFABRICATED PEDESTRIAN BRIDGE, SINGLE SPAN
TS 7B	10' PREFABRICATED PEDESTRIAN BRIDGE, MULTI-SPAN, COMPLEX INSTALLATION
TS 8	ROADWAY/VEHICLE BRIDGE

L O R I S

Carbondale to Crested Butte Trail

8/31/2017
AP/DW/PL

OPINION OF PROBABLE COST

In providing opinions of probable construction cost, the Client understands that Loris and Associates has no control over costs of the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. Loris and Associates make no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

				TS 0		TS 1		TS 2		TS 3A		TS 3B		TS 4A		TS 4B		TS 5A		TS 5B	
				SHARED ROADWAY		10' TRAIL, MNR GRADING		10' TRAIL, MOD GRADING													
				4:1 SIDESLOPES		4:1 SIDESLOPES		4:1 SIDESLOPES		ROCK WALL < 4' (CUT)		ROCK WALL < 4' (FILL)		ROCK WALL < 8' (CUT)		ROCK WALL < 8' (FILL)		ATTACHED 4' WALL (CUT)		ATTACHED 4' WALL (FILL)	
				DIST. WIDTH	25	DIST. WIDTH	20	DIST. WIDTH	30	DIST. WIDTH	30	DIST. WIDTH	30	DIST. WIDTH	25	DIST. WIDTH	25	DIST. WIDTH	25	DIST. WIDTH	25
		TRAIL WIDTH (FT)	10	SURF WIDTH	15	SURF WIDTH	10	SURF WIDTH	10	SURF WIDTH	12	SURF WIDTH	12	SURF WIDTH	12	SURF WIDTH	12	SURF WIDTH	12	SURF WIDTH	12
		TOPSOIL THICKNESS (IN)	6			SURF TYPE	Concrete	SURF TYPE	Concrete	SURF TYPE	Concrete	SURF TYPE	Concrete	SURF TYPE	Concrete	SURF TYPE	Concrete	SURF TYPE	Concrete	SURF TYPE	Concrete
ITEM	**CONTRACT ITEM**	**UNIT**	**UNIT COST (PRELIM)**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**	**Q / LF**	**$ / LF**
201	CLEARING AND GRUBBING	SF	$0.25	25.00	$6.25	20.00	$5.00	30.00	$7.50	30.00	$7.50	30.00	$7.50	25.00	$6.25	25.00	$6.25	25.00	$6.25	25.00	$6.25
202	REMOVAL OF ASPHALT MAT	SF	$0.80		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
202	REMOVAL OF ASPHALT MAT (PLANING)	SF	$0.30		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
203	UNCLASSIFIED EXCAVATION/ EMBANKMENT MATERIAL	CY	$50.00	0.37	$18.52	0.37	$18.52	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04
206	STRUCTURE EXCAVATION	CY	$75.00		$0.00		$0.00		$0.00	0.44	$33.33		$0.00	0.89	$66.67		$0.00	0.44	$33.33		$0.00
206	STRUCTURE BACKFILL	CY	$55.00		$0.00		$0.00		$0.00	0.22	$12.22	0.44	$24.44	0.44	$24.44	0.89	$48.89	0.22	$12.22	0.44	$24.44
207	TOPSOIL	CY	$50.00	0.19	$9.26	0.19	$9.26	0.37	$18.52	0.33	$16.67	0.33	$16.67	0.24	$12.04	0.24	$12.04	0.24	$12.04	0.24	$12.04
208	EROSION CONTROL	LF	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50
210	RELAY RIPRAP	CY	$50.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
212	SEEDING	AC	$3,500.00	0.00023	$0.80	0.00023	$0.80	0.00046	$1.61	0.00041	$1.45	0.00041	$1.45	0.00030	$1.04	0.00030	$1.04	0.00030	$1.04	0.00030	$1.04
213	MULCHING	AC	$2,500.00	0.00023	$0.57	0.00023	$0.57	0.00046	$1.15	0.00041	$1.03	0.00041	$1.03	0.00030	$0.75	0.00030	$0.75	0.00030	$0.75	0.00030	$0.75
216	SOIL RETENTION BLANKET	SF	$0.60		$0.00		$0.00		$0.00	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80
304	CRUSHER FINES TRAIL (6 INCH)	SF	$1.50		$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00
304	AGGREGATE BASE COURSE (CLASS 6) (6" SECTION)	CY	$65.00	0.28	$18.06	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85	0.26	$16.85
403	HOT MIX ASPHALT (2" OVERLAY)	SF	$1.60		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (3" SECTION)	SF	$2.30	15.00	$34.50	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00
403	HOT MIX ASPHALT (9" SECTION)	SF	$6.90		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
403	ASPHALT PATCHING	SF	$7.50		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00	2.00	$15.00	2.00	$15.00
503	DRILLED CAISSON (36 INCH)	LF	$900.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
503	MICROPILE (8 INCH)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (1' - 4' EXPOSED)	SF	$35.00		$0.00		$0.00		$0.00	4.00	$140.00	4.00	$140.00		$0.00		$0.00	4.00	$140.00	4.00	$140.00
504	ROCK RETAINING WALL (4' - 8' EXPOSED)	SF	$45.00		$0.00		$0.00		$0.00		$0.00		$0.00	8.00	$360.00	8.00	$360.00		$0.00		$0.00
504	MSE RETAINING WALL	SF	$60.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL)	LF	$100.00		$0.00		$0.00		$0.00		$0.00	1.00	$100.00		$0.00	1.00	$100.00		$0.00	1.00	$100.00
514	RAILING (STEEL) (SIDE MOUNT)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
601	CONCRETE CLASS D	CY	$900.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
602	REINFORCING STEEL (EPOXY COATED)	LF	$2.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 3	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00	1.00	$35.00	1.00	$35.00
606	GUARDRAIL TYPE 7 (STYLE CA)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
606	BRIDGE RAIL TYPE 7 / GUARDRAIL TYPE 7 (STYLE CE)	LF	$175.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE BIKEWAY (6 INCH)	SF	$8.00		$0.00	10.00	$80.00	10.00	$80.00	12.00	$96.00	12.00	$96.00	12.00	$96.00	12.00	$96.00	12.00	$96.00	12.00	$96.00
608	CONCRETE CURB AND GUTTER	LF	$25.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE THICKENED EDGE	LF	$40.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
613	LIGHTING	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
618	PRECAST CONCRETE DECK SLAB PT (12")	SF	$60.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
628	PEDESTRIAN BRIDGE (SINGLE SPAN LT. 100') (SIMPLE INSTALLATION)	LF	$2,000.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
628	PEDESTRIAN BRIDGE (MULTI-SPAN or GT 100') (DIFFICULT INSTALLATION)	LF	$3,000.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
628	ROADWAY BRIDGE (SINGLE SPAN)	LF	$7,500.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
	Subtotal of Bid Items				**$95.46**		**$138.51**		**$170.16**		**$374.39**		**$453.28**		**$633.38**		**$691.16**		**$417.82**		**$496.71**
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	10%		$9.55		$13.85		$17.02		$37.44		$45.33		$63.34		$69.12		$41.78		$49.67
	TOTAL / LF				**$105.01**		**$152.36**		**$187.18**		**$411.83**		**$498.61**		**$696.72**		**$760.27**		**$459.60**		**$546.38**
				Rounded	**$110.00**	Rounded	**$160.00**	Rounded	**$190.00**	Rounded	**$420.00**	Rounded	**$500.00**	Rounded	**$700.00**	Rounded	**$770.00**	Rounded	**$460.00**	Rounded	**$550.00**

L O R I S

Carbondale to Crested Butte Trail

8/31/2017
AP/DW/PL

OPINION OF PROBABLE COST

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TRAIL WIDTH (FT) 10
TOPSOIL THICKNESS (IN) 6

				TS 6A		TS 6B		TS 6C		TS 6D		TS 7A		TS 7B		TS 8		TS 10	
				TRAIL ON MSE WALL (FILL)		TRAIL ON L-WALL (CUT)		TRAIL ON CANTILEVER SLAB		TRAIL ON PT BRIDGES		SINGLE SPAN BRIDGE		MULTI-SPAN BRIDGE		ROADWAY BRIDGE		REALIGNMENT OF SH 133 (FULL WIDTH/DEPTH R&R)	
				DIST. WIDTH 20 SURF WIDTH 12		DIST. WIDTH 20 SURF WIDTH 12		DIST. WIDTH 10 SURF WIDTH 12		DIST. WIDTH 5 SURF WIDTH 12		DIST. WIDTH 15 SURF WIDTH 10		DIST. WIDTH 15 SURF WIDTH 10		DIST. WIDTH 40 SURF WIDTH 30		DIST. WIDTH 40 SURF WIDTH 28	
ITEM	CONTRACT ITEM	UNIT	UNIT COST (PRELIM)	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF
201	CLEARING AND GRUBBING	SF	$0.25	20.00	$5.00	20.00	$5.00	10.00	$2.50	5.00	$1.25	15.00	$3.75	15.00	$3.75	20.00	$5.00	20.00	$5.00
202	REMOVAL OF ASPHALT MAT	SF	$0.80	6.00	$4.80	6.00	$4.80	0.00	$0.00	0.00	$0.00		$0.00		$0.00		$0.00	28.00	$22.40
202	REMOVAL OF ASPHALT MAT (PLANING)	SF	$0.30	10.00	$3.00	10.00	$3.00	0.00	$0.00	10.00	$3.00		$0.00		$0.00		$0.00		$0.00
203	UNCLASSIFIED EXCAVATION/ EMBANKMENT MATERIAL	CY	$50.00		$0.00		$0.00	0.19	$9.26		$0.00		$0.00		$0.00		$0.00	0.74	$37.04
206	STRUCTURE EXCAVATION	CY	$75.00	3.28	$245.83	4.61	$346.04	1.06	$79.17	0.00	$0.00		$0.00		$0.00		$0.00		$0.00
206	STRUCTURE BACKFILL	CY	$55.00	3.87	$212.87	1.56	$85.65	0.00	$0.00	0.00	$0.00		$0.00		$0.00		$0.00		$0.00
207	TOPSOIL	CY	$50.00	0.15	$7.41	0.15	$7.41	0.00	$0.00	0.00	$0.00	0.09	$4.63	0.09	$4.63	0.19	$9.26	0.22	$11.11
208	EROSION CONTROL	LF	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50
210	RELAY RIPRAP	CY	$50.00	1.48	$74.07	1.48	$74.07	0.00	$0.00	0.74	$37.04		$0.00		$0.00		$0.00		$0.00
212	SEEDING	AC	$3,500.00		$0.00		$0.00		$0.00		$0.00	0.00011	$0.40	0.00011	$0.40	0.00023	$0.80	0.00028	$0.96
213	MULCHING	AC	$2,500.00		$0.00		$0.00		$0.00		$0.00	0.00011	$0.29	0.00011	$0.29	0.00023	$0.57	0.00028	$0.69
216	SOIL RETENTION BLANKET	SF	$0.60	2.00	$1.20	2.00	$1.20	1.00	$0.60		$0.00		$0.00		$0.00		$0.00		$0.00
304	CRUSHER FINES TRAIL (6 INCH)	SF	$1.50	0.11	$0.17	0.11	$0.17	0.11	$0.17		$0.00		$0.00		$0.00		$0.00		$0.00
304	AGGREGATE BASE COURSE (CLASS 6) (6" SECTION)	CY	$65.00	0.00	$0.00	0.00	$0.00	0.11	$7.22		$0.00		$0.00		$0.00		$0.00	0.52	$33.70
403	HOT MIX ASPHALT (2" OVERLAY)	SF	$1.60	12.00	$19.20	12.00	$19.20	16.00	$25.60		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (3" SECTION)	SF	$2.30		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (9" SECTION)	SF	$6.90	6.00	$41.40	6.00	$41.40		$0.00		$0.00		$0.00		$0.00		$0.00	28.00	$193.20
403	ASPHALT PATCHING	SF	$7.50		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
503	DRILLED CAISSON (36 INCH)	LF	$900.00		$0.00		$0.00		$0.00	1.25	$1,125.00		$0.00		$0.00		$0.00		$0.00
503	MICROPILE (8 INCH)	LF	$125.00		$0.00		$0.00	0.00	$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (1' - 4' EXPOSED)	SF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (4' - 8' EXPOSED)	SF	$45.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	MSE RETAINING WALL	SF	$60.00	8.00	$480.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL)	LF	$100.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL) (SIDE MOUNT)	LF	$125.00	1.00	$125.00	1.00	$125.00	1.00	$125.00	2.00	$250.00		$0.00		$0.00		$0.00		$0.00
601	CONCRETE CLASS D	CY	$900.00	0.35	$313.47	1.00	$903.63	1.26	$1,133.33	0.19	$175.00		$0.00		$0.00		$0.00		$0.00
602	REINFORCING STEEL (EPOXY COATED)	LF	$2.00	62.25	$124.51	200.81	$401.61	314.81	$629.63	46.30	$92.59		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 3	LF	$35.00		$0.00		$0.00		$0.00	1.00	$35.00		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 7 (STYLE CA)	LF	$125.00	1.00	$125.00		$0.00	1.00	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00
606	BRIDGE RAIL TYPE 7 / GUARDRAIL TYPE 7 (STYLE CE)	LF	$175.00		$0.00	1.00	$175.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE BIKEWAY (6 INCH)	SF	$8.00		$0.00		$0.00		$0.00		$0.00	10.00	$80.00	10.00	$80.00	0.00	$0.00		$0.00
608	CONCRETE CURB AND GUTTER	LF	$25.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE THICKENED EDGE	LF	$40.00	1.00	$40.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
613	LIGHTING	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
618	PRECAST CONCRETE DECK SLAB PT (12")	SF	$60.00		$0.00		$0.00		$0.00	12.00	$720.00	0.00	$0.00	0.00	$0.00	0.00	$0.00		$0.00
628	PEDESTRIAN BRIDGE (SINGLE SPAN LT. 100') (SIMPLE INSTALLATION)	LF	$2,000.00		$0.00		$0.00		$0.00		$0.00	1.00	$2,000.00		$0.00		$0.00		$0.00
628	PEDESTRIAN BRIDGE (MULTI-SPAN or GT 100') (DIFFICULT INSTALLATION)	LF	$3,000.00		$0.00		$0.00		$0.00		$0.00		$0.00	1.00	$3,000.00	0.00	$0.00		$0.00
628	ROADWAY BRIDGE (SINGLE SPAN)	LF	$7,500.00		$0.00		$0.00		$0.00		$0.00		$0.00	0.00	$0.00	1.00	$7,500.00		$0.00
	Subtotal of Bid Items				**$1,830.43**		**$2,200.68**		**$2,144.98**		**$2,446.38**		**$2,096.57**		**$3,096.57**		**$7,523.14**		**$311.60**
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	10%		$183.04		$220.07		$214.50		$244.64		$209.66		$309.66		$752.31		$31.16
	TOTAL / LF				**$2,013.48**		**$2,420.75**		**$2,359.48**		**$2,691.02**		**$2,306.23**		**$3,406.23**		**$8,275.45**		**$342.77**
				Rounded	**$2,100.00**	Rounded	**$2,500.00**	Rounded	**$2,400.00**	Rounded	**$2,700.00**	Rounded	**$2,400.00**	Rounded	**$3,500.00**	Rounded	**$8,300.00**	Rounded	**$350.00**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #1** **(Replacement of Existing Roadway Bridge)** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	65	$7,150
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TS 8	LF	$8,300	110	$913,000
	TOTAL LENGTH (FEET)			**175**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$92,015
	Subtotal of Trail Typical Section Items				**$1,012,165**
	TRAFFIC CONTROL	LS	10%		$101,217
	UTILITY RELOCATION	LS	5%		$50,608
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$151,825
	SUBTOTAL				**$1,315,815**
	DESIGN / ENGINEERING	LS	7%		$92,107
	CONSTRUCTION MANAGEMENT	LS	8%		$105,265
	TOTAL				**$1,513,187**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**7 Oaks Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	334	$53,440
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	218	$119,900
	TS 6A	LF	$2,100	1,360	$2,856,000
	TS 7A	LF	$2,400	-	
	TS 7B	LF	$3,500	-	
	TOTAL LENGTH (FEET)			**1,912**	
	TOTAL LENGTH (MILES)			**0.36**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$760,560
	Subtotal of Trail Typical Section Items				**$3,802,800**
	TRAFFIC CONTROL	LS	15%		$570,420
	UTILITY RELOCATION	LS	5%		$190,140
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$570,420
	SUBTOTAL				**$5,133,780**
	DESIGN / ENGINEERING	LS	7%		$359,365
	CONSTRUCTION MANAGEMENT	LS	8%		$410,702
	TOTAL				**$5,903,847**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**7 Oaks Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	2,198	$241,780
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TS 8	LF	$8,300	31	$257,300
	TOTAL LENGTH (FEET)			**2,198**	
	TOTAL LENGTH (MILES)			**0.42**	
	LOCAL ROADWAY CROSSING		$10,000	2	$20,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	24	$20,400
	CROSSWALK STRIPING		$1,200	2	$2,400
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$59,188
	Subtotal of Trail Typical Section Items				**$651,068**
	TRAFFIC CONTROL	LS	5%		$32,553
	UTILITY RELOCATION	LS	5%		$32,553
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$97,660
	SUBTOTAL				**$813,835**
	DESIGN / ENGINEERING	LS	7%		$56,968
	CONSTRUCTION MANAGEMENT	LS	8%		$65,107
	TOTAL				**$935,910**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #2** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	1,141	$216,790
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	151	$362,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,292**	
	TOTAL LENGTH (MILES)			**0.24**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$144,798
	Subtotal of Trail Typical Section Items				**$723,988**
	TRAFFIC CONTROL	LS	10%		$72,399
	UTILITY RELOCATION	LS	5%		$36,199
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$108,598
	SUBTOTAL				**$941,184**
	DESIGN / ENGINEERING	LS	7%		$65,883
	CONSTRUCTION MANAGEMENT	LS	8%		$75,295
	TOTAL				**$1,082,361**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Parcel 1 Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	1,116	$212,040
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	416	$873,600
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,532**	
	TOTAL LENGTH (MILES)			**0.29**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$271,410
	Subtotal of Trail Typical Section Items				**$1,357,050**
	TRAFFIC CONTROL	LS	15%		$203,558
	UTILITY RELOCATION	LS	5%		$67,853
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$203,558
	SUBTOTAL				**$1,832,018**
	DESIGN / ENGINEERING	LS	7%		$128,241
	CONSTRUCTION MANAGEMENT	LS	8%		$146,561
	TOTAL				**$2,106,820**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Parcel 1 Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	84	$13,440
	TS 2	LF	$190	611	$116,090
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	382	$191,000
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	67	$160,800
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,144**	
	TOTAL LENGTH (MILES)			**0.22**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.35		$168,466
	Subtotal of Trail Typical Section Items				**$649,796**
	TRAFFIC CONTROL	LS	5%		$32,490
	UTILITY RELOCATION	LS	5%		$32,490
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$97,469
	SUBTOTAL				**$812,244**
	DESIGN / ENGINEERING	LS	7%		$56,857
	CONSTRUCTION MANAGEMENT	LS	8%		$64,980
	TOTAL				**$934,081**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #3** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	153	$29,070
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	150	$360,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**303**	
	TOTAL LENGTH (MILES)			**0.06**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$97,268
	Subtotal of Trail Typical Section Items				**$486,338**
	TRAFFIC CONTROL	LS	10%		$48,634
	UTILITY RELOCATION	LS	5%		$24,317
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$72,951
	SUBTOTAL				**$632,239**
	DESIGN / ENGINEERING	LS	7%		$44,257
	CONSTRUCTION MANAGEMENT	LS	8%		$50,579
	TOTAL				**$727,075**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Nettle Creek Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	926	$175,940
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	1,473	$810,150
	TS 6A	LF	$2,100	2,035	$4,273,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**4,434**	
	TOTAL LENGTH (MILES)			**0.84**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,316,148
	Subtotal of Trail Typical Section Items				**$6,580,738**
	TRAFFIC CONTROL	LS	15%		$987,111
	UTILITY RELOCATION	LS	5%		$329,037
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$987,111
	SUBTOTAL				**$8,883,996**
	DESIGN / ENGINEERING	LS	7%		$621,880
	CONSTRUCTION MANAGEMENT	LS	8%		$710,720
	TOTAL				**$10,216,595**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Nettle Creek Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	1,193	$131,230
	TS 1	LF	$160	1,430	$228,800
	TS 2	LF	$190	1,902	$361,380
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**4,525**	
	TOTAL LENGTH (MILES)			**0.86**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$184,828
	Subtotal of Trail Typical Section Items				**$924,138**
	TRAFFIC CONTROL	LS	5%		$46,207
	UTILITY RELOCATION	LS	5%		$46,207
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$138,621
	SUBTOTAL				**$1,155,172**
	DESIGN / ENGINEERING	LS	7%		$80,862
	CONSTRUCTION MANAGEMENT	LS	8%		$92,414
	TOTAL				**$1,328,448**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #4** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	85	$204,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**85**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$40,800
	Subtotal of Trail Typical Section Items				**$244,800**
	TRAFFIC CONTROL	LS	10%		$24,480
	UTILITY RELOCATION	LS	5%		$12,240
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$36,720
	SUBTOTAL				**$318,240**
	DESIGN / ENGINEERING	LS	7%		$22,277
	CONSTRUCTION MANAGEMENT	LS	8%		$25,459
	TOTAL				**$365,976**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Red Wind Point Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	29	$4,640
	TS 2	LF	$190	1,628	$309,320
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	1,030	$515,000
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	158	$86,900
	TS 6A	LF	$2,100	2,052	$4,309,200
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**4,897**	
	TOTAL LENGTH (MILES)			**0.93**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,309,490
	Subtotal of Trail Typical Section Items				**$6,547,450**
	TRAFFIC CONTROL	LS	15%		$982,118
	UTILITY RELOCATION	LS	5%		$327,373
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$982,118
	SUBTOTAL				**$8,839,058**
	DESIGN / ENGINEERING	LS	7%		$618,734
	CONSTRUCTION MANAGEMENT	LS	8%		$707,125
	TOTAL				**$10,164,916**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Red Wind Point Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	85	$13,600
	TS 2	LF	$190	4,055	$770,450
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	858	$600,600
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	41	$143,500
	TOTAL LENGTH (FEET)			**5,039**	
	TOTAL LENGTH (MILES)			**0.95**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$463,815
	Subtotal of Trail Typical Section Items				**$2,009,865**
	TRAFFIC CONTROL	LS	2%		$40,197
	UTILITY RELOCATION	LS	5%		$100,493
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$301,480
	SUBTOTAL				**$2,452,035**
	DESIGN / ENGINEERING	LS	7%		$171,642
	CONSTRUCTION MANAGEMENT	LS	8%		$196,163
	TOTAL				**$2,819,841**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #5** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	121	$290,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**121**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$29,040
	Subtotal of Trail Typical Section Items				**$319,440**
	TRAFFIC CONTROL	LS	10%		$31,944
	UTILITY RELOCATION	LS	5%		$15,972
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$47,916
	SUBTOTAL				**$415,272**
	DESIGN / ENGINEERING	LS	7%		$29,069
	CONSTRUCTION MANAGEMENT	LS	8%		$33,222
	TOTAL				**$477,563**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Country Estates Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	685	$130,150
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	78	$42,900
	TS 6A	LF	$2,100	-	$0
	TS 6B	LF	$2,500	1,623	$4,057,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,386**	
	TOTAL LENGTH (MILES)			**0.45**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,060,863
	Subtotal of Trail Typical Section Items				**$5,304,313**
	TRAFFIC CONTROL	LS	15%		$795,647
	UTILITY RELOCATION	LS	5%		$265,216
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$795,647
	SUBTOTAL				**$7,160,822**
	DESIGN / ENGINEERING	LS	7%		$501,258
	CONSTRUCTION MANAGEMENT	LS	8%		$572,866
	TOTAL				**$8,234,945**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Country Estates Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	2,469	$271,590
	TS 1	LF	$160	238	$38,080
	TS 2	LF	$190	49	$9,310
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	479	$263,450
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,235**	
	TOTAL LENGTH (MILES)			**0.61**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	5	$25,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.05		$31,017
	Subtotal of Trail Typical Section Items				**$651,347**
	TRAFFIC CONTROL	LS	5%		$32,567
	UTILITY RELOCATION	LS	5%		$32,567
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$97,702
	SUBTOTAL				**$814,183**
	DESIGN / ENGINEERING	LS	7%		$56,993
	CONSTRUCTION MANAGEMENT	LS	8%		$65,135
	TOTAL				**$936,311**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #6** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	571	$91,360
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	120	$288,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**691**	
	TOTAL LENGTH (MILES)			**0.13**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$113,808
	Subtotal of Trail Typical Section Items				**$493,168**
	TRAFFIC CONTROL	LS	10%		$49,317
	UTILITY RELOCATION	LS	5%		$24,658
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$73,975
	SUBTOTAL				**$641,118**
	DESIGN / ENGINEERING	LS	7%		$44,878
	CONSTRUCTION MANAGEMENT	LS	8%		$51,289
	TOTAL				**$737,286**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Andrews Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	936	$177,840
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	22	$16,940
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	2,244	$4,712,400
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,202**	
	TOTAL LENGTH (MILES)			**0.61**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,226,795
	Subtotal of Trail Typical Section Items				**$6,133,975**
	TRAFFIC CONTROL	LS	15%		$920,096
	UTILITY RELOCATION	LS	5%		$306,699
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$920,096
	SUBTOTAL				**$8,280,866**
	DESIGN / ENGINEERING	LS	7%		$579,661
	CONSTRUCTION MANAGEMENT	LS	8%		$662,469
	TOTAL				**$9,522,996**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Andrews Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	819	$131,040
	TS 2	LF	$190	1,613	$306,470
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	66	$158,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,498**	
	TOTAL LENGTH (MILES)			**0.47**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$148,978
	Subtotal of Trail Typical Section Items				**$744,888**
	TRAFFIC CONTROL	LS	5%		$37,244
	UTILITY RELOCATION	LS	5%		$37,244
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$111,733
	SUBTOTAL				**$931,109**
	DESIGN / ENGINEERING	LS	7%		$65,178
	CONSTRUCTION MANAGEMENT	LS	8%		$74,489
	TOTAL				**$1,070,776**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #7** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	64	$12,160
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	114	$273,600
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**178**	
	TOTAL LENGTH (MILES)			**0.03**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$42,864
	Subtotal of Trail Typical Section Items				**$328,624**
	TRAFFIC CONTROL	LS	10%		$32,862
	UTILITY RELOCATION	LS	5%		$16,431
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$49,294
	SUBTOTAL				**$427,211**
	DESIGN / ENGINEERING	LS	7%		$29,905
	CONSTRUCTION MANAGEMENT	LS	8%		$34,177
	TOTAL				**$491,293**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Perham Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	262	$49,780
	TS 3A	LF	$420	704	$295,680
	TS 3B	LF	$500	847	$423,500
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	103	$56,650
	TS 6A	LF	$2,100	202	$424,200
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,118**	
	TOTAL LENGTH (MILES)			**0.40**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	3	$15,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$316,203
	Subtotal of Trail Typical Section Items				**$1,581,013**
	TRAFFIC CONTROL	LS	15%		$237,152
	UTILITY RELOCATION	LS	5%		$79,051
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$237,152
	SUBTOTAL				**$2,134,367**
	DESIGN / ENGINEERING	LS	7%		$149,406
	CONSTRUCTION MANAGEMENT	LS	8%		$170,749
	TOTAL				**$2,454,522**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Perham Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	1,060	$116,600
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	227	$43,130
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	493	$345,100
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,780**	
	TOTAL LENGTH (MILES)			**0.34**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	2	$10,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$77,225
	Subtotal of Trail Typical Section Items				**$592,055**
	TRAFFIC CONTROL	LS	5%		$29,603
	UTILITY RELOCATION	LS	1%		$5,921
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$88,808
	SUBTOTAL				**$716,386**
	DESIGN / ENGINEERING	LS	7%		$50,147
	CONSTRUCTION MANAGEMENT	LS	8%		$57,311
	TOTAL				**$823,844**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #8** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	711	$78,210
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	106	$44,520
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	179	$429,600
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**996**	
	TOTAL LENGTH (MILES)			**0.05**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$138,083
	Subtotal of Trail Typical Section Items				**$690,413**
	TRAFFIC CONTROL	LS	10%		$69,041
	UTILITY RELOCATION	LS	5%		$34,521
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$103,562
	SUBTOTAL				**$897,536**
	DESIGN / ENGINEERING	LS	7%		$62,828
	CONSTRUCTION MANAGEMENT	LS	8%		$71,803
	TOTAL				**$1,032,167**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Janeway North Alternative A

Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	1,189	$190,240
	TS 2	LF	$190	272	$51,680
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	153	$76,500
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	817	$449,350
	TS 6A	LF	$2,100	277	$581,700
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,708**	
	TOTAL LENGTH (MILES)			**0.51**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$209,921
	Subtotal of Trail Typical Section Items				**$1,609,391**
	TRAFFIC CONTROL	LS	15%		$241,409
	UTILITY RELOCATION	LS	5%		$80,470
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$241,409
	SUBTOTAL				**$2,172,677**
	DESIGN / ENGINEERING	LS	7%		$152,087
	CONSTRUCTION MANAGEMENT	LS	8%		$173,814
	TOTAL				**$2,498,579**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway North Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	2,882	$547,580
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	927	$648,900
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,809**	
	TOTAL LENGTH (MILES)			**0.72**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$299,120
	Subtotal of Trail Typical Section Items				**$1,495,600**
	TRAFFIC CONTROL	LS	5%		$74,780
	UTILITY RELOCATION	LS	5%		$74,780
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$224,340
	SUBTOTAL				**$1,869,500**
	DESIGN / ENGINEERING	LS	7%		$130,865
	CONSTRUCTION MANAGEMENT	LS	8%		$149,560
	TOTAL				**$2,149,925**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #9** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	398	$75,620
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	167	$400,800
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**565**	
	TOTAL LENGTH (MILES)			**0.11**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$71,463
	Subtotal of Trail Typical Section Items				**$547,883**
	TRAFFIC CONTROL	LS	10%		$54,788
	UTILITY RELOCATION	LS	5%		$27,394
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$82,182
	SUBTOTAL				**$712,248**
	DESIGN / ENGINEERING	LS	7%		$49,857
	CONSTRUCTION MANAGEMENT	LS	8%		$56,980
	TOTAL				**$819,085**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway South Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	374	$59,840
	TS 2	LF	$190	713	$135,470
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	423	$232,650
	TS 6A	LF	$2,100	374	$785,400
	TS 6B	LF	$2,500	1,218	$3,045,000
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,102**	
	TOTAL LENGTH (MILES)			**0.59**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,067,815
	Subtotal of Trail Typical Section Items				**$5,339,075**
	TRAFFIC CONTROL	LS	15%		$800,861
	UTILITY RELOCATION	LS	5%		$266,954
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$800,861
	SUBTOTAL				**$7,207,751**
	DESIGN / ENGINEERING	LS	7%		$504,543
	CONSTRUCTION MANAGEMENT	LS	8%		$576,620
	TOTAL				**$8,288,914**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway South Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	447	$71,520
	TS 2	LF	$190	1,733	$329,270
	TS 3A	LF	$420	140	$58,800
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	225	$472,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,545**	
	TOTAL LENGTH (MILES)			**0.48**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$186,418
	Subtotal of Trail Typical Section Items				**$1,118,508**
	TRAFFIC CONTROL	LS	5%		$55,925
	UTILITY RELOCATION	LS	5%		$55,925
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$167,776
	SUBTOTAL				**$1,398,135**
	DESIGN / ENGINEERING	LS	7%		$97,869
	CONSTRUCTION MANAGEMENT	LS	8%		$111,851
	TOTAL				**$1,607,855**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #10** **(Avalanche Creek Roadway)** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	602	$66,220
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$1,100	-	$0
	TS 8	LF	$1,660	88	$146,080
	TOTAL LENGTH (FEET)			**602**	
	TOTAL LENGTH (MILES)			**0.00**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	4	$20,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.00		$0
	Subtotal of Trail Typical Section Items				**$245,200**
	TRAFFIC CONTROL	LS	10%		$24,520
	UTILITY RELOCATION	LS	5%		$12,260
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$36,780
	SUBTOTAL				**$318,760**
	DESIGN / ENGINEERING	LS	7%		$22,313
	CONSTRUCTION MANAGEMENT	LS	8%		$25,501
	TOTAL				**$366,574**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Avalanche Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	266	$42,560
	TS 2	LF	$190	2,232	$424,080
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	395	$181,700
	TS 5B	LF	$550	394	$216,700
	TS 6A	LF	$2,100	1,844	$3,872,400
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**5,131**	
	TOTAL LENGTH (MILES)			**0.97**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$711,366
	Subtotal of Trail Typical Section Items				**$5,453,806**
	TRAFFIC CONTROL	LS	15%		$818,071
	UTILITY RELOCATION	LS	5%		$272,690
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$818,071
	SUBTOTAL				**$7,362,638**
	DESIGN / ENGINEERING	LS	7%		$515,385
	CONSTRUCTION MANAGEMENT	LS	8%		$589,011
	TOTAL				**$8,467,034**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Avalanche Alternative B

Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	1,705	$272,800
	TS 2	LF	$190	4,153	$789,070
	TS 3A	LF	$420	207	$86,940
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	320	$176,000
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	768	$1,843,200
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**7,153**	
	TOTAL LENGTH (MILES)			**1.35**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$954,273
	Subtotal of Trail Typical Section Items				**$4,135,183**
	TRAFFIC CONTROL	LS	2%		$82,704
	UTILITY RELOCATION	LS	5%		$206,759
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$620,277
	SUBTOTAL				**$5,044,923**
	DESIGN / ENGINEERING	LS	7%		$353,145
	CONSTRUCTION MANAGEMENT	LS	8%		$403,594
	TOTAL				**$5,801,662**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #11** **(Upgrades to Existing Roadway Bridge** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	185	$35,150
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	169	$591,500
	TOTAL LENGTH (FEET)			**354**	
	TOTAL LENGTH (MILES)			**0.07**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.35		$219,328
	Subtotal of Trail Typical Section Items				**$845,978**
	TRAFFIC CONTROL	LS	10%		$84,598
	UTILITY RELOCATION	LS	5%		$42,299
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$126,897
	SUBTOTAL				**$1,099,771**
	DESIGN / ENGINEERING	LS	7%		$76,984
	CONSTRUCTION MANAGEMENT	LS	8%		$87,982
	TOTAL				**$1,264,736**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Narrows Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	113	$18,080
	TS 2	LF	$190	703	$133,570
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	78	$39,000
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 6B	LF	$2,500	2,178	$5,445,000
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,072**	
	TOTAL LENGTH (MILES)			**0.58**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,410,163
	Subtotal of Trail Typical Section Items				**$7,050,813**
	TRAFFIC CONTROL	LS	15%		$1,057,622
	UTILITY RELOCATION	LS	5%		$352,541
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$1,057,622
	SUBTOTAL				**$9,518,597**
	DESIGN / ENGINEERING	LS	7%		$666,302
	CONSTRUCTION MANAGEMENT	LS	8%		$761,488
	TOTAL				**$10,946,386**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Narrows Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	2,551	$408,160
	TS 2	LF	$190	77	$14,630
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,628**	
	TOTAL LENGTH (MILES)			**0.50**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$108,923
	Subtotal of Trail Typical Section Items				**$544,613**
	TRAFFIC CONTROL	LS	2%		$10,892
	UTILITY RELOCATION	LS	5%		$27,231
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$81,692
	SUBTOTAL				**$664,427**
	DESIGN / ENGINEERING	LS	7%		$46,510
	CONSTRUCTION MANAGEMENT	LS	8%		$53,154
	TOTAL				**$764,091**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #12** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	-	$0
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	130	$312,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**130**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$93,600
	Subtotal of Trail Typical Section Items				**$405,600**
	TRAFFIC CONTROL	LS	10%		$40,560
	UTILITY RELOCATION	LS	5%		$20,280
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$60,840
	SUBTOTAL				**$527,280**
	DESIGN / ENGINEERING	LS	7%		$36,910
	CONSTRUCTION MANAGEMENT	LS	8%		$42,182
	TOTAL				**$606,372**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Filoha Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	1,548	$294,120
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	167	$83,500
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	1,654	$909,700
	TS 6A	LF	$2,100	1,937	$4,067,700
	TS 6B	LF	$2,500	185	$462,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**5,491**	
	TOTAL LENGTH (MILES)			**1.04**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	5	$25,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$1,168,504
	Subtotal of Trail Typical Section Items				**$7,011,024**
	TRAFFIC CONTROL	LS	15%		$1,051,654
	UTILITY RELOCATION	LS	5%		$350,551
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$1,051,654
	SUBTOTAL				**$9,464,882**
	DESIGN / ENGINEERING	LS	7%		$662,542
	CONSTRUCTION MANAGEMENT	LS	8%		$757,191
	TOTAL				**$10,884,615**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Filoha Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	6,252	$1,187,880
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,252**	
	TOTAL LENGTH (MILES)			**1.18**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$296,970
	Subtotal of Trail Typical Section Items				**$1,484,850**
	TRAFFIC CONTROL	LS	5%		$74,243
	UTILITY RELOCATION	LS	5%		$74,243
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$222,728
	SUBTOTAL				**$1,856,063**
	DESIGN / ENGINEERING	LS	7%		$129,924
	CONSTRUCTION MANAGEMENT	LS	8%		$148,485
	TOTAL				**$2,134,472**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #13** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	1,463	$277,970
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	115	$276,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,578**	
	TOTAL LENGTH (MILES)			**0.30**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$138,493
	Subtotal of Trail Typical Section Items				**$692,463**
	TRAFFIC CONTROL	LS	10%		$69,246
	UTILITY RELOCATION	LS	5%		$34,623
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$103,869
	SUBTOTAL				**$900,201**
	DESIGN / ENGINEERING	LS	7%		$63,014
	CONSTRUCTION MANAGEMENT	LS	8%		$72,016
	TOTAL				**$1,035,231**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Wild Rose Alternative A** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	-	$0
	TS 1	LF	$160	443	$70,880
	TS 2	LF	$190	1,394	$264,860
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	351	$175,500
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	531	$244,260
	TS 5B	LF	$550	1,434	$788,700
	TS 6A	LF	$2,100	233	$489,300
	TS 6B	LF	$2,500	2,081	$5,202,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,467**	
	TOTAL LENGTH (MILES)			**1.22**	
	LOCAL ROADWAY CROSSING		$10,000	2	$20,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	6	$30,000
	CURB RAMP		$850	5	$4,250
	CROSSWALK STRIPING		$1,200	2	$2,400
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$1,823,163
	Subtotal of Trail Typical Section Items				**$9,115,813**
	TRAFFIC CONTROL	LS	15%		$1,367,372
	UTILITY RELOCATION	LS	5%		$455,791
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$1,367,372
	SUBTOTAL				**$12,306,347**
	DESIGN / ENGINEERING	LS	7%		$861,444
	CONSTRUCTION MANAGEMENT	LS	8%		$984,508
	TOTAL				**$14,152,299**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Wild Rose Alternative B** Trail Surface Type: Concrete

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$110	4,814	$529,540
	TS 1	LF	$160	-	$0
	TS 2	LF	$190	1,880	$357,200
	TS 3A	LF	$420	-	$0
	TS 3B	LF	$500	-	$0
	TS 4A	LF	$700	-	$0
	TS 4B	LF	$770	-	$0
	TS 5A	LF	$460	-	$0
	TS 5B	LF	$550	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,694**	
	TOTAL LENGTH (MILES)			**1.27**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	1	$850
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$94,879
	Subtotal of Trail Typical Section Items				**$1,043,669**
	TRAFFIC CONTROL	LS	5%		$52,183
	UTILITY RELOCATION	LS	5%		$52,183
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$156,550
	SUBTOTAL				**$1,304,586**
	DESIGN / ENGINEERING	LS	7%		$91,321
	CONSTRUCTION MANAGEMENT	LS	8%		$104,367
	TOTAL				**$1,500,274**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

8/31/2017
AP/DW/PL

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	ALTERNATIVE B (Opposite Side / East of River)		BRIDGE CROSSINGS		
	Trail Surface Type: Crusher Fines		Trail Surface Type: Crusher Fines		
TRAIL SEGMENT	**LENGTH (MILES)**	**COST**	**LENGTH (MILES)**	**COST**	**NOTES**
Bridge #1	-	-	0.02	$1,501,429	Replacement of existing roadway bridge
7 Oaks	0.42	$553,596	-	-	
Bridge #2	-	-	0.24	$890,459	
Crystal River Parcel 1	0.22	$738,563	-	-	
Bridge #3	-	-	0.06	$701,342	
Nettle Creek	0.86	$553,797	-	-	
Bridge #4	-	-	0.02	$365,976	
Red Wind Point	0.95	$1,983,765	-	-	
Bridge #5	-	-	0.02	$477,563	
Crystal River Country Estates	0.61	$415,093	-	-	
Bridge #6	-	-	0.13	$637,410	
Andrews	0.47	$677,476	-	-	
Bridge #7	-	-	0.03	$481,390	
Perham	0.34	$525,674	-	-	
Bridge #8	-	-	0.05	$864,222	
Janeway North	0.72	$1,517,281	-	-	
Bridge #9	-	-	0.11	$757,502	
Janeway South	0.48	$1,242,845	-	-	
Bridge #10	-	-	0.00	$267,575	Upgrades to existing roadway bridge
Avalanche	1.35	$4,740,170	-	-	
Bridge #11	-	-	0.07	$1,231,133	
Narrows	0.50	$349,294	-	-	
Bridge #12	-	-	0.02	$606,372	
Filoha	1.18	$1,123,406	-	-	
Bridge #13	-	-	0.30	$789,173	
Wild Rose	1.27	$395,392	-	-	
Totals	**9.38**	**$14,816,352**	**1.06**	**$8,070,116**	
Million $ per mile:		$1.59		-	

TYPICAL SECTION	DESCRIPTION
TS 0	TRAIL SHARES EXISTING ROAD, MINOR GRADING POSSIBLE
TS 1	10' TRAIL, MINOR GRADING
TS 2	10' TRAIL, MODERATE GRADING
TS 3A	10' TRAIL, MODERATE GRADING W/ MINOR STRUCTURES, < 4' CUT WALLS
TS 3B	10' TRAIL, MODERATE GRADING W/ MINOR STRUCTURES, < 4' FILL WALLS
TS 4A	10' TRAIL, SIGNIFICANT GRADING, < 8' CUT WALLS, BARRIER AND/OR PED RAIL
TS 4B	10' TRAIL, SIGNIFICANT GRADING, < 8' FILL WALLS, BARRIER AND/OR PED RAIL
TS 5A	10' ATTACHED TRAIL, 2' BUFFER, GUARDRAIL, <4' CUT WALL
TS 5B	10' ATTACHED TRAIL, 2' BUFFER, GUARDRAIL, <4' FILL WALL
TS 6A	12' TRAIL ON MSE FILL WALL STRUCTURE
TS 6B	12' TRAIL ON CONCRETE L-WALL STRUCTURE
TS 6C	12' TRAIL ON CANTILEVER SLAB STRUCTURE
TS 6C	12' TRAIL ON PRECAST SLAB AND PIER STRUCTURE
TS 7A	10' PREFABRICATED PEDESTRIAN BRIDGE, SINGLE SPAN
TS 7B	10' PREFABRICATED PEDESTRIAN BRIDGE, MULTI-SPAN, COMPLEX INSTALLATION
TS 8	ROADWAY/VEHICLE BRIDGE

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Carbondale to Crested Butte Trail

8/31/2017
AP/DW/PL

OPINION OF PROBABLE COST

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TRAIL WIDTH (FT) 10
TOPSOIL THICKNESS (IN) 6

				TS 0 SHARED ROADWAY 4:1 SIDESLOPES DIST. WIDTH 25 SURF WIDTH 15		TS 1 10' TRAIL, MNR GRADING 4:1 SIDESLOPES DIST. WIDTH 20 SURF WIDTH 10		TS 2 10' TRAIL, MOD GRADING 4:1 SIDESLOPES DIST. WIDTH 30 SURF WIDTH 10		TS 3A ROCK WALL < 4' (CUT) DIST. WIDTH 30 SURF WIDTH 12		TS 3B ROCK WALL < 4' (FILL) DIST. WIDTH 30 SURF WIDTH 12		TS 4A ROCK WALL < 8' (CUT) DIST. WIDTH 25 SURF WIDTH 12		TS 4B ROCK WALL < 8' (FILL) DIST. WIDTH 25 SURF WIDTH 12		TS 5A ATTACHED 4' WALL (CUT) DIST. WIDTH 25 SURF WIDTH 12		TS 5B ATTACHED 4' WALL (FILL) DIST. WIDTH 25 SURF WIDTH 12	
ITEM	CONTRACT ITEM	UNIT	UNIT COST (PRELIM)	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF
201	CLEARING AND GRUBBING	SF	$0.25	0.00	$0.00	20.00	$5.00	30.00	$7.50	30.00	$7.50	30.00	$7.50	25.00	$6.25	25.00	$6.25	25.00	$6.25	25.00	$6.25		
202	REMOVAL OF ASPHALT MAT	SF	$0.80		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
202	REMOVAL OF ASPHALT MAT (PLANING)	SF	$0.30		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
203	UNCLASSIFIED EXCAVATION/ EMBANKMENT MATERIAL	CY	$50.00	0.00	$0.00	0.37	$18.52	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04	0.74	$37.04		
206	STRUCTURE EXCAVATION	CY	$75.00		$0.00		$0.00		$0.00	0.44	$33.33		$0.00	0.89	$66.67		$0.00	0.44	$33.33		$0.00		
206	STRUCTURE BACKFILL	CY	$55.00		$0.00		$0.00		$0.00	0.22	$12.22	0.44	$24.44	0.44	$24.44	0.89	$48.89	0.22	$12.22	0.44	$24.44		
207	TOPSOIL	CY	$50.00	0.00	$0.00	0.19	$9.26	0.37	$18.52	0.33	$16.67	0.33	$16.67	0.24	$12.04	0.24	$12.04	0.24	$12.04	0.24	$12.04		
208	EROSION CONTROL	LF	$7.50	0.00	$0.00	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50		
210	RELAY RIPRAP	CY	$50.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
212	SEEDING	AC	$3,500.00	0.00000	$0.00	0.00023	$0.80	0.00046	$1.61	0.00041	$1.45	0.00041	$1.45	0.00030	$1.04	0.00030	$1.04	0.00030	$1.04	0.00030	$1.04		
213	MULCHING	AC	$2,500.00	0.00000	$0.00	0.00023	$0.57	0.00046	$1.15	0.00041	$1.03	0.00041	$1.03	0.00030	$0.75	0.00030	$0.75	0.00030	$0.75	0.00030	$0.75		
216	SOIL RETENTION BLANKET	SF	$0.60		$0.00		$0.00		$0.00	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80	8.00	$4.80		
304	CRUSHER FINES TRAIL (6 INCH)	SF	$1.50		$0.00	10.00	$15.00	10.00	$15.00	12.00	$18.00	12.00	$18.00	12.00	$18.00	12.00	$18.00	12.00	$18.00	12.00	$18.00		
304	AGGREGATE BASE COURSE (CLASS 6) (6" SECTION)	CY	$65.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00		
403	HOT MIX ASPHALT (2" OVERLAY)	SF	$1.60		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
403	HOT MIX ASPHALT (3" SECTION)	SF	$2.30	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00		
403	HOT MIX ASPHALT (9" SECTION)	SF	$6.90		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
403	ASPHALT PATCHING	SF	$7.50		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00	2.00	$15.00	2.00	$15.00		
503	DRILLED CAISSON (36 INCH)	LF	$900.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
503	MICROPILE (8 INCH)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
504	ROCK RETAINING WALL (1' - 4' EXPOSED)	SF	$35.00		$0.00		$0.00		$0.00	4.00	$140.00	4.00	$140.00		$0.00		$0.00	4.00	$140.00	4.00	$140.00		
504	ROCK RETAINING WALL (4' - 8' EXPOSED)	SF	$45.00		$0.00		$0.00		$0.00		$0.00		$0.00	8.00	$360.00	8.00	$360.00		$0.00		$0.00		
504	MSE RETAINING WALL	SF	$60.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
514	RAILING (STEEL)	LF	$100.00		$0.00		$0.00		$0.00		$0.00	1.00	$100.00		$0.00	1.00	$100.00		$0.00	1.00	$100.00		
514	RAILING (STEEL) (SIDE MOUNT)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
601	CONCRETE CLASS D	CY	$900.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
602	REINFORCING STEEL (EPOXY COATED)	LF	$2.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
606	GUARDRAIL TYPE 3	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00	1.00	$35.00	1.00	$35.00		
606	GUARDRAIL TYPE 7 (STYLE CA)	LF	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
606	BRIDGE RAIL TYPE 7 / GUARDRAIL TYPE 7 (STYLE CE)	LF	$175.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
608	CONCRETE BIKEWAY (6 INCH)	SF	$8.00		$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00	0.00	$0.00		
608	CONCRETE CURB AND GUTTER	LF	$25.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
608	CONCRETE THICKENED EDGE	LF	$40.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
613	LIGHTING	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
618	PRECAST CONCRETE DECK SLAB PT (12")	SF	$60.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
628	PEDESTRIAN BRIDGE (SINGLE SPAN LT. 100') (SIMPLE INSTALLATION)	LF	$2,000.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
628	PEDESTRIAN BRIDGE (MULTI-SPAN or GT 100') (DIFFICULT INSTALLATION)	LF	$3,000.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
628	ROADWAY BRIDGE (SINGLE SPAN)	LF	$7,500.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		
	Subtotal of Bid Items				**$0.00**		**$56.66**		**$88.31**		**$279.54**		**$358.43**		**$538.53**		**$596.30**		**$322.97**		**$401.86**		
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	10%		$0.00		$5.67		$8.83		$27.95		$35.84		$53.85		$59.63		$32.30		$40.19		
	TOTAL / LF				**$0.00**		**$62.32**		**$97.14**		**$307.49**		**$394.27**		**$592.38**		**$655.93**		**$355.27**		**$442.05**		
				Rounded	**$0.00**	Rounded	**$70.00**	Rounded	**$100.00**	Rounded	**$310.00**	Rounded	**$400.00**	Rounded	**$600.00**	Rounded	**$660.00**	Rounded	**$360.00**	Rounded	**$450.00**		

L O R I S

Carbondale to Crested Butte Trail

8/31/2017
AP/DW/PL

OPINION OF PROBABLE COST

In providing opinions of probable construction cost, the Client understands that Loris and Associates has no control over costs of the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. Loris and Associates make no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

TRAIL WIDTH (FT) 10
TOPSOIL THICKNESS (IN) 6

				TS 6A		TS 6B		TS 6C		TS 6D		TS 7A		TS 7B		TS 8		TS 10	
				TRAIL ON MSE WALL (FILL)		TRAIL ON L-WALL (CUT)		TRAIL ON CANTILEVER SLAB		TRAIL ON PT BRIDGES		SINGLE SPAN BRIDGE		MULTI-SPAN BRIDGE		ROADWAY BRIDGE		REALIGNMENT OF SH 133 (FULL WIDTH/DEPTH R&R)	
				DIST. WIDTH 20 SURF WIDTH 12		DIST. WIDTH 20 SURF WIDTH 12		DIST. WIDTH 10 SURF WIDTH 12		DIST. WIDTH 5 SURF WIDTH 12		DIST. WIDTH 15 SURF WIDTH 10		DIST. WIDTH 15 SURF WIDTH 10		DIST. WIDTH 40 SURF WIDTH 30		DIST. WIDTH 40 SURF WIDTH 28	
ITEM	CONTRACT ITEM	UNIT	UNIT COST (PRELIM)	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF	Q / LF	$ / LF
201	CLEARING AND GRUBBING	SF	$0.25	20.00	$5.00	20.00	$5.00	10.00	$2.50	5.00	$1.25	15.00	$3.75	15.00	$3.75	20.00	$5.00	20.00	$5.00
202	REMOVAL OF ASPHALT MAT	SF	$0.80	6.00	$4.80	6.00	$4.80	0.00	$0.00	0.00	$0.00		$0.00		$0.00		$0.00	28.00	$22.40
202	REMOVAL OF ASPHALT MAT (PLANING)	SF	$0.30	10.00	$3.00	10.00	$3.00	0.00	$0.00	10.00	$3.00		$0.00		$0.00		$0.00		$0.00
203	UNCLASSIFIED EXCAVATION/ EMBANKMENT MATERIAL	CY	$50.00		$0.00		$0.00	0.19	$9.26		$0.00		$0.00		$0.00		$0.00	0.74	$37.04
206	STRUCTURE EXCAVATION	CY	$75.00	3.28	$245.83	4.61	$346.04	1.06	$79.17	0.00	$0.00		$0.00		$0.00		$0.00		$0.00
206	STRUCTURE BACKFILL	CY	$55.00	3.87	$212.87	1.56	$85.65	0.00	$0.00	0.00	$0.00		$0.00		$0.00		$0.00		$0.00
207	TOPSOIL	CY	$50.00	0.15	$7.41	0.15	$7.41	0.00	$0.00	0.00	$0.00	0.09	$4.63	0.09	$4.63	0.19	$9.26	0.22	$11.11
208	EROSION CONTROL	LF	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50	1.00	$7.50
210	RELAY RIPRAP	CY	$50.00	1.48	$74.07	1.48	$74.07	0.00	$0.00	0.74	$37.04		$0.00		$0.00		$0.00		$0.00
212	SEEDING	AC	$3,500.00		$0.00		$0.00		$0.00		$0.00	0.00011	$0.40	0.00011	$0.40	0.00023	$0.80	0.00028	$0.96
213	MULCHING	AC	$2,500.00		$0.00		$0.00		$0.00		$0.00	0.00011	$0.29	0.00011	$0.29	0.00023	$0.57	0.00028	$0.69
216	SOIL RETENTION BLANKET	SF	$0.60	2.00	$1.20	2.00	$1.20	1.00	$0.60		$0.00		$0.00		$0.00		$0.00		$0.00
304	CRUSHER FINES TRAIL (6 INCH)	SF	$1.50	0.11	$0.17	0.11	$0.17	0.11	$0.17		$0.00		$0.00		$0.00		$0.00		$0.00
304	AGGREGATE BASE COURSE (CLASS 6) (6" SECTION)	CY	$65.00	0.00	$0.00	0.00	$0.00	0.11	$7.22		$0.00		$0.00		$0.00		$0.00	0.52	$33.70
403	HOT MIX ASPHALT (2" OVERLAY)	SF	$1.60	12.00	$19.20	12.00	$19.20	16.00	$25.60		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (3" SECTION)	SF	$2.30		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
403	HOT MIX ASPHALT (9" SECTION)	SF	$6.90	6.00	$41.40	6.00	$41.40		$0.00		$0.00		$0.00		$0.00		$0.00	28.00	$193.20
403	ASPHALT PATCHING	SF	$7.50		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
503	DRILLED CAISSON (36 INCH)	LF	$900.00		$0.00		$0.00		$0.00	1.25	$1,125.00		$0.00		$0.00		$0.00		$0.00
503	MICROPILE (8 INCH)	LF	$125.00		$0.00		$0.00	0.00	$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (1' - 4' EXPOSED)	SF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	ROCK RETAINING WALL (4' - 8' EXPOSED)	SF	$45.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
504	MSE RETAINING WALL	SF	$60.00	8.00	$480.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL)	LF	$100.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
514	RAILING (STEEL) (SIDE MOUNT)	LF	$125.00	1.00	$125.00	1.00	$125.00	1.00	$125.00	2.00	$250.00		$0.00		$0.00		$0.00		$0.00
601	CONCRETE CLASS D	CY	$900.00	0.35	$313.47	1.00	$903.63	1.26	$1,133.33	0.19	$175.00		$0.00		$0.00		$0.00		$0.00
602	REINFORCING STEEL (EPOXY COATED)	LF	$2.00	62.25	$124.51	200.81	$401.61	314.81	$629.63	46.30	$92.59		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 3	LF	$35.00		$0.00		$0.00		$0.00	1.00	$35.00		$0.00		$0.00		$0.00		$0.00
606	GUARDRAIL TYPE 7 (STYLE CA)	LF	$125.00	1.00	$125.00		$0.00	1.00	$125.00		$0.00		$0.00		$0.00		$0.00		$0.00
606	BRIDGE RAIL TYPE 7 / GUARDRAIL TYPE 7 (STYLE CE)	LF	$175.00		$0.00	1.00	$175.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE BIKEWAY (6 INCH)	SF	$8.00		$0.00		$0.00		$0.00		$0.00	10.00	$80.00	10.00	$80.00	0.00	$0.00		$0.00
608	CONCRETE CURB AND GUTTER	LF	$25.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
608	CONCRETE THICKENED EDGE	LF	$40.00	1.00	$40.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
613	LIGHTING	LF	$35.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00		$0.00
618	PRECAST CONCRETE DECK SLAB PT (12")	SF	$60.00		$0.00		$0.00		$0.00	12.00	$720.00	0.00	$0.00	0.00	$0.00	0.00	$0.00		$0.00
628	PEDESTRIAN BRIDGE (SINGLE SPAN LT. 100') (SIMPLE INSTALLATION)	LF	$2,000.00		$0.00		$0.00		$0.00		$0.00	1.00	$2,000.00		$0.00		$0.00		$0.00
628	PEDESTRIAN BRIDGE (MULTI-SPAN or GT 100') (DIFFICULT INSTALLATION)	LF	$3,000.00		$0.00		$0.00		$0.00		$0.00		$0.00	1.00	$3,000.00	0.00	$0.00		$0.00
628	ROADWAY BRIDGE (SINGLE SPAN)	LF	$7,500.00		$0.00		$0.00		$0.00		$0.00		$0.00	0.00	$0.00	1.00	$7,500.00		$0.00
	Subtotal of Bid Items				**$1,830.43**		**$2,200.68**		**$2,144.98**		**$2,446.38**		**$2,096.57**		**$3,096.57**		**$7,523.14**		**$311.60**
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	10%		$183.04		$220.07		$214.50		$244.64		$209.66		$309.66		$752.31		$31.16
	TOTAL / LF				**$2,013.48**		**$2,420.75**		**$2,359.48**		**$2,691.02**		**$2,306.23**		**$3,406.23**		**$8,275.45**		**$342.77**
				Rounded	**$2,100.00**	Rounded	**$2,500.00**	Rounded	**$2,400.00**	Rounded	**$2,700.00**	Rounded	**$2,400.00**	Rounded	**$3,500.00**	Rounded	**$8,300.00**	Rounded	**$350.00**

L O R I S

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8/31/2017

Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #1** **(Replacement of Existing Roadway Bridge)** Trail Surface Type: Crusher Fines

In providing opinions of probable construction cost, the Client understands that Loris and Associates has no control over costs of the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. Loris and Associates make no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	65	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TS 8	LF	$8,300	110	$913,000
	TOTAL LENGTH (FEET)			**175**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$91,300
	Subtotal of Trail Typical Section Items				**$1,004,300**
	TRAFFIC CONTROL	LS	10%		$100,430
	UTILITY RELOCATION	LS	5%		$50,215
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$150,645
	SUBTOTAL				**$1,305,590**
	DESIGN / ENGINEERING	LS	7%		$91,391
	CONSTRUCTION MANAGEMENT	LS	8%		$104,447
	TOTAL				**$1,501,429**

L O R I S

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8/31/2017

Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**7 Oaks Alternative B** Trail Surface Type: Crusher Fines

In providing opinions of probable construction cost, the Client understands that Loris and Associates has no control over costs of the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. Loris and Associates make no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	2,198	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TS 8	LF	$8,300	31	$257,300
	TOTAL LENGTH (FEET)			**2,198**	
	TOTAL LENGTH (MILES)			**0.42**	
	LOCAL ROADWAY CROSSING		$10,000	2	$20,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	24	$20,400
	CROSSWALK STRIPING		$1,200	2	$2,400
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$35,010
	Subtotal of Trail Typical Section Items				**$385,110**
	TRAFFIC CONTROL	LS	5%		$19,256
	UTILITY RELOCATION	LS	5%		$19,256
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$57,767
	SUBTOTAL				**$481,388**
	DESIGN / ENGINEERING	LS	7%		$33,697
	CONSTRUCTION MANAGEMENT	LS	8%		$38,511
	TOTAL				**$553,596**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #2** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	1,141	$114,100
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	151	$362,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,292**	
	TOTAL LENGTH (MILES)			**0.24**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$119,125
	Subtotal of Trail Typical Section Items				**$595,625**
	TRAFFIC CONTROL	LS	10%		$59,563
	UTILITY RELOCATION	LS	5%		$29,781
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$89,344
	SUBTOTAL				**$774,313**
	DESIGN / ENGINEERING	LS	7%		$54,202
	CONSTRUCTION MANAGEMENT	LS	8%		$61,945
	TOTAL				**$890,459**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Parcel 1 Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	84	$5,880
	TS 2	LF	$100	611	$61,100
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	382	$152,800
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	67	$160,800
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,144**	
	TOTAL LENGTH (MILES)			**0.22**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.35		$133,203
	Subtotal of Trail Typical Section Items				**$513,783**
	TRAFFIC CONTROL	LS	5%		$25,689
	UTILITY RELOCATION	LS	5%		$25,689
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$77,067
	SUBTOTAL				**$642,229**
	DESIGN / ENGINEERING	LS	7%		$44,956
	CONSTRUCTION MANAGEMENT	LS	8%		$51,378
	TOTAL				**$738,563**

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Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Bridge #3

Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	153	$15,300
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	150	$360,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**303**	
	TOTAL LENGTH (MILES)			**0.06**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$93,825
	Subtotal of Trail Typical Section Items				**$469,125**
	TRAFFIC CONTROL	LS	10%		$46,913
	UTILITY RELOCATION	LS	5%		$23,456
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$70,369
	SUBTOTAL				**$609,863**
	DESIGN / ENGINEERING	LS	7%		$42,690
	CONSTRUCTION MANAGEMENT	LS	8%		$48,789
	TOTAL				**$701,342**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Nettle Creek Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	1,193	$0
	TS 1	LF	$70	1,430	$100,100
	TS 2	LF	$100	1,902	$190,200
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**4,525**	
	TOTAL LENGTH (MILES)			**0.86**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$77,050
	Subtotal of Trail Typical Section Items				**$385,250**
	TRAFFIC CONTROL	LS	5%		$19,263
	UTILITY RELOCATION	LS	5%		$19,263
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$57,788
	SUBTOTAL				**$481,563**
	DESIGN / ENGINEERING	LS	7%		$33,709
	CONSTRUCTION MANAGEMENT	LS	8%		$38,525
	TOTAL				**$553,797**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #4** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	85	$204,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**85**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$40,800
	Subtotal of Trail Typical Section Items				**$244,800**
	TRAFFIC CONTROL	LS	10%		$24,480
	UTILITY RELOCATION	LS	5%		$12,240
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$36,720
	SUBTOTAL				**$318,240**
	DESIGN / ENGINEERING	LS	7%		$22,277
	CONSTRUCTION MANAGEMENT	LS	8%		$25,459
	TOTAL				**$365,976**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Red Wind Point Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	85	$5,950
	TS 2	LF	$100	4,055	$405,500
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	858	$514,800
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	41	$143,500
	TOTAL LENGTH (FEET)			**5,039**	
	TOTAL LENGTH (MILES)			**0.95**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	1	$5,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$326,295
	Subtotal of Trail Typical Section Items				**$1,413,945**
	TRAFFIC CONTROL	LS	2%		$28,279
	UTILITY RELOCATION	LS	5%		$70,697
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$212,092
	SUBTOTAL				**$1,725,013**
	DESIGN / ENGINEERING	LS	7%		$120,751
	CONSTRUCTION MANAGEMENT	LS	8%		$138,001
	TOTAL				**$1,983,765**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #5** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	121	$290,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**121**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$29,040
	Subtotal of Trail Typical Section Items				**$319,440**
	TRAFFIC CONTROL	LS	10%		$31,944
	UTILITY RELOCATION	LS	5%		$15,972
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$47,916
	SUBTOTAL				**$415,272**
	DESIGN / ENGINEERING	LS	7%		$29,069
	CONSTRUCTION MANAGEMENT	LS	8%		$33,222
	TOTAL				**$477,563**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Crystal River Country Estates Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	2,469	$0
	TS 1	LF	$70	238	$16,660
	TS 2	LF	$100	49	$4,900
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	479	$215,550
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,235**	
	TOTAL LENGTH (MILES)			**0.61**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	5	$25,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.05		$13,751
	Subtotal of Trail Typical Section Items				**$288,761**
	TRAFFIC CONTROL	LS	5%		$14,438
	UTILITY RELOCATION	LS	5%		$14,438
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$43,314
	SUBTOTAL				**$360,951**
	DESIGN / ENGINEERING	LS	7%		$25,267
	CONSTRUCTION MANAGEMENT	LS	8%		$28,876
	TOTAL				**$415,093**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #6** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	571	$39,970
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	120	$288,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**691**	
	TOTAL LENGTH (MILES)			**0.13**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$98,391
	Subtotal of Trail Typical Section Items				**$426,361**
	TRAFFIC CONTROL	LS	10%		$42,636
	UTILITY RELOCATION	LS	5%		$21,318
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$63,954
	SUBTOTAL				**$554,269**
	DESIGN / ENGINEERING	LS	7%		$38,799
	CONSTRUCTION MANAGEMENT	LS	8%		$44,342
	TOTAL				**$637,410**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Andrews Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	819	$57,330
	TS 2	LF	$100	1,613	$161,300
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	66	$158,400
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,498**	
	TOTAL LENGTH (MILES)			**0.47**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$94,258
	Subtotal of Trail Typical Section Items				**$471,288**
	TRAFFIC CONTROL	LS	5%		$23,564
	UTILITY RELOCATION	LS	5%		$23,564
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$70,693
	SUBTOTAL				**$589,109**
	DESIGN / ENGINEERING	LS	7%		$41,238
	CONSTRUCTION MANAGEMENT	LS	8%		$47,129
	TOTAL				**$677,476**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #7** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	64	$6,400
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	114	$273,600
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**178**	
	TOTAL LENGTH (MILES)			**0.03**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$42,000
	Subtotal of Trail Typical Section Items				**$322,000**
	TRAFFIC CONTROL	LS	10%		$32,200
	UTILITY RELOCATION	LS	5%		$16,100
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$48,300
	SUBTOTAL				**$418,600**
	DESIGN / ENGINEERING	LS	7%		$29,302
	CONSTRUCTION MANAGEMENT	LS	8%		$33,488
	TOTAL				**$481,390**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Perham Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	1,060	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	227	$22,700
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	493	$295,800
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,780**	
	TOTAL LENGTH (MILES)			**0.34**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	2	$10,000
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$49,275
	Subtotal of Trail Typical Section Items				**$377,775**
	TRAFFIC CONTROL	LS	5%		$18,889
	UTILITY RELOCATION	LS	1%		$3,778
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$56,666
	SUBTOTAL				**$457,108**
	DESIGN / ENGINEERING	LS	7%		$31,998
	CONSTRUCTION MANAGEMENT	LS	8%		$36,569
	TOTAL				**$525,674**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #8** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	711	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	106	$32,860
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	179	$429,600
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**996**	
	TOTAL LENGTH (MILES)			**0.05**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$115,615
	Subtotal of Trail Typical Section Items				**$578,075**
	TRAFFIC CONTROL	LS	10%		$57,808
	UTILITY RELOCATION	LS	5%		$28,904
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$86,711
	SUBTOTAL				**$751,498**
	DESIGN / ENGINEERING	LS	7%		$52,605
	CONSTRUCTION MANAGEMENT	LS	8%		$60,120
	TOTAL				**$864,222**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway North Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	2,882	$288,200
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	927	$556,200
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**3,809**	
	TOTAL LENGTH (MILES)			**0.72**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$211,100
	Subtotal of Trail Typical Section Items				**$1,055,500**
	TRAFFIC CONTROL	LS	5%		$52,775
	UTILITY RELOCATION	LS	5%		$52,775
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$158,325
	SUBTOTAL				**$1,319,375**
	DESIGN / ENGINEERING	LS	7%		$92,356
	CONSTRUCTION MANAGEMENT	LS	8%		$105,550
	TOTAL				**$1,517,281**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #9** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	398	$39,800
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	167	$400,800
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**565**	
	TOTAL LENGTH (MILES)			**0.11**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.15		$66,090
	Subtotal of Trail Typical Section Items				**$506,690**
	TRAFFIC CONTROL	LS	10%		$50,669
	UTILITY RELOCATION	LS	5%		$25,335
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$76,004
	SUBTOTAL				**$658,697**
	DESIGN / ENGINEERING	LS	7%		$46,109
	CONSTRUCTION MANAGEMENT	LS	8%		$52,696
	TOTAL				**$757,502**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Janeway South Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	447	$31,290
	TS 2	LF	$100	1,733	$173,300
	TS 3A	LF	$310	140	$43,400
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	225	$472,500
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,545**	
	TOTAL LENGTH (MILES)			**0.48**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.20		$144,098
	Subtotal of Trail Typical Section Items				**$864,588**
	TRAFFIC CONTROL	LS	5%		$43,229
	UTILITY RELOCATION	LS	5%		$43,229
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$129,688
	SUBTOTAL				**$1,080,735**
	DESIGN / ENGINEERING	LS	7%		$75,651
	CONSTRUCTION MANAGEMENT	LS	8%		$86,459
	TOTAL				**$1,242,845**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #10** **(Avalanche Creek Roadway)** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	602	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$1,100	-	$0
	TS 8	LF	$1,660	88	$146,080
	TOTAL LENGTH (FEET)			**602**	
	TOTAL LENGTH (MILES)			**0.00**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	4	$20,000
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.00		$0
	Subtotal of Trail Typical Section Items				**$178,980**
	TRAFFIC CONTROL	LS	10%		$17,898
	UTILITY RELOCATION	LS	5%		$8,949
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$26,847
	SUBTOTAL				**$232,674**
	DESIGN / ENGINEERING	LS	7%		$16,287
	CONSTRUCTION MANAGEMENT	LS	8%		$18,614
	TOTAL				**$267,575**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Avalanche Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	1,705	$119,350
	TS 2	LF	$100	4,153	$415,300
	TS 3A	LF	$310	207	$64,170
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	320	$144,000
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	768	$1,843,200
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**7,153**	
	TOTAL LENGTH (MILES)			**1.35**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$779,676
	Subtotal of Trail Typical Section Items				**$3,378,596**
	TRAFFIC CONTROL	LS	2%		$67,572
	UTILITY RELOCATION	LS	5%		$168,930
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$506,789
	SUBTOTAL				**$4,121,887**
	DESIGN / ENGINEERING	LS	7%		$288,532
	CONSTRUCTION MANAGEMENT	LS	8%		$329,751
	TOTAL				**$4,740,170**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #11** **(Upgrades to Existing Roadway Bridge** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	185	$18,500
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	169	$591,500
	TOTAL LENGTH (FEET)			**354**	
	TOTAL LENGTH (MILES)			**0.07**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.35		$213,500
	Subtotal of Trail Typical Section Items				**$823,500**
	TRAFFIC CONTROL	LS	10%		$82,350
	UTILITY RELOCATION	LS	5%		$41,175
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$123,525
	SUBTOTAL				**$1,070,550**
	DESIGN / ENGINEERING	LS	7%		$74,939
	CONSTRUCTION MANAGEMENT	LS	8%		$85,644
	TOTAL				**$1,231,133**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Narrows Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	2,551	$178,570
	TS 2	LF	$100	77	$7,700
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**2,628**	
	TOTAL LENGTH (MILES)			**0.50**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	2	$1,700
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$49,793
	Subtotal of Trail Typical Section Items				**$248,963**
	TRAFFIC CONTROL	LS	2%		$4,979
	UTILITY RELOCATION	LS	5%		$12,448
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$37,344
	SUBTOTAL				**$303,734**
	DESIGN / ENGINEERING	LS	7%		$21,261
	CONSTRUCTION MANAGEMENT	LS	8%		$24,299
	TOTAL				**$349,294**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Bridge #12** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	-	$0
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	130	$312,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**130**	
	TOTAL LENGTH (MILES)			**0.02**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.30		$93,600
	Subtotal of Trail Typical Section Items				**$405,600**
	TRAFFIC CONTROL	LS	10%		$40,560
	UTILITY RELOCATION	LS	5%		$20,280
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$60,840
	SUBTOTAL				**$527,280**
	DESIGN / ENGINEERING	LS	7%		$36,910
	CONSTRUCTION MANAGEMENT	LS	8%		$42,182
	TOTAL				**$606,372**

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Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Filoha Alternative B** Trail Surface Type: Crusher Fines

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ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	6,252	$625,200
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,252**	
	TOTAL LENGTH (MILES)			**1.18**	
	LOCAL ROADWAY CROSSING		$10,000	-	$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	-	$0
	CURB RAMP		$850	-	$0
	CROSSWALK STRIPING		$1,200	-	$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$156,300
	Subtotal of Trail Typical Section Items				**$781,500**
	TRAFFIC CONTROL	LS	5%		$39,075
	UTILITY RELOCATION	LS	5%		$39,075
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$117,225
	SUBTOTAL				**$976,875**
	DESIGN / ENGINEERING	LS	7%		$68,381
	CONSTRUCTION MANAGEMENT	LS	8%		$78,150
	TOTAL				**$1,123,406**

L O R I S

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8/31/2017

Carbondale to Crested Butte Trail
Conceptual Project Planning
OPINION OF PROBABLE COST

Bridge #13

Trail Surface Type: Crusher Fines

In providing opinions of probable construction cost, the Client understands that Loris and Associates has no control over costs of the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. Loris and Associates make no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	-	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	1,463	$146,300
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	115	$276,000
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**1,578**	
	TOTAL LENGTH (MILES)			**0.30**	
	LOCAL ROADWAY CROSSING		$10,000		$0
	RESIDENTIAL DRIVEWAY CROSSING		$5,000		$0
	CURB RAMP		$850		$0
	CROSSWALK STRIPING		$1,200		$0
	CONSTRUCTION ACCESS MULTIPLIER		1.25		$105,575
	Subtotal of Trail Typical Section Items				**$527,875**
	TRAFFIC CONTROL	LS	10%		$52,788
	UTILITY RELOCATION	LS	5%		$26,394
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$79,181
	SUBTOTAL				**$686,238**
	DESIGN / ENGINEERING	LS	7%		$48,037
	CONSTRUCTION MANAGEMENT	LS	8%		$54,899
	TOTAL				**$789,173**

L O R I S

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8/31/2017

Carbondale to Crested Butte Trail **Conceptual Project Planning** **OPINION OF PROBABLE COST**	**Wild Rose Alternative B** Trail Surface Type: Crusher Fines

In providing opinions of probable construction cost, the Client understands that Loris and Associates has no control over costs of the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. Loris and Associates make no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

ITEM	TRAIL TYPICAL SECTION	UNIT	UNIT COST	QUANTITY	TOTAL
	TS 0	LF	$0	4,814	$0
	TS 1	LF	$70	-	$0
	TS 2	LF	$100	1,880	$188,000
	TS 3A	LF	$310	-	$0
	TS 3B	LF	$400	-	$0
	TS 4A	LF	$600	-	$0
	TS 4B	LF	$660	-	$0
	TS 5A	LF	$360	-	$0
	TS 5B	LF	$450	-	$0
	TS 6A	LF	$2,100	-	$0
	TS 7A	LF	$2,400	-	$0
	TS 7B	LF	$3,500	-	$0
	TOTAL LENGTH (FEET)			**6,694**	
	TOTAL LENGTH (MILES)			**1.27**	
	LOCAL ROADWAY CROSSING		$10,000	1	$10,000
	RESIDENTIAL DRIVEWAY CROSSING		$5,000	10	$50,000
	CURB RAMP		$850	1	$850
	CROSSWALK STRIPING		$1,200	1	$1,200
	CONSTRUCTION ACCESS MULTIPLIER		1.10		$25,005
	Subtotal of Trail Typical Section Items				**$275,055**
	TRAFFIC CONTROL	LS	5%		$13,753
	UTILITY RELOCATION	LS	5%		$13,753
	MISCELLANEOUS ITEMS & CONTINGENCIES	LS	15%		$41,258
	SUBTOTAL				**$343,819**
	DESIGN / ENGINEERING	LS	7%		$24,067
	CONSTRUCTION MANAGEMENT	LS	8%		$27,506
	TOTAL				**$395,392**

ERO

Consultants in Natural Resources and the Environment

Carbondale to Crested Butte Trail Study – Crystal River Section Environmental Review

Prepared for—
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October 2017

Contents

Tables

Figures

List of Acronyms and Abbreviations

Crystal Valley or valley	Crystal River Valley
CWA	Clean Water Act
DAU	Data Analysis Unit
ESA	Endangered Species Act
FQA	Floristic Quality Assessment
FSM	Forest Service Manual
FSS species	Forest Service Sensitive species
ILBT	Interagency Lynx Biology Team
IPaC	Information for Planning and Conservation database
Listed species	ESA-listed species
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OAHP	Colorado Office of Archeology and Historic Preservation
OST	Pitkin County Open Space and Trails
PCA	Potential Conservation Area
Rare species	CNHP-tracked species
RFTA	Roaring Fork Transportation Authority
Sensitive species	FSS species
SH 133	State Highway 133
SHPO	Colorado State Historic Preservation Office
TNW	Traditionally Navigable Waterway
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Society
WRNF	White River National Forest

Executive Summary

The Crystal River Valley extends from the headwaters of the Crystal River south of Redstone, to its confluence with the Roaring Fork River at Carbondale. The valley has been a travel and transportation corridor for centuries, with trails established before European settlement by the Ute, wagon trails used by European settlers in the 19th and 20th centuries, and an historic railroad grade. Today State Highway 133 (SH 133) through the Crystal River Valley connects the Roaring Fork Valley to the North Fork Valley. The valley floor is shared by humans and wildlife, with small communities and residential areas adjacent to habitat for Rocky Mountain bighorn sheep, elk, and numerous native bird, bat, large and small mammal, amphibian, and insect species. The Crystal River Valley is also a recreation corridor, as pre-historic and historic routes are now official and unofficial trails used by residents and visitors, providing access to natural areas on U.S. Forest Service (USFS) lands and Pitkin County Open Spaces.

Pitkin County (County) is considering trail alternatives with the objective of establishing a multi-use trail that would connect Carbondale to Crested Butte, through the Crystal River Valley. The two trail alternatives under consideration begin at the Crystal River KOA Campground and go over McClure Pass. Alternative A would mostly follow SH 133 and remain on the west side of the Crystal River. Alternative B would mostly follow routes that have been used as a wagon road, rail road grades, OST or USFS system trails, social trails, and existing roads. Any combination of segments from Alternative A and Alternative B could be adopted by County as the proposed trail alignment.

The purpose of this Environmental Review is to inform the public and County about the potential impacts of the possible trail alternatives; and to inform the trail planning process so that environmental impacts are minimized. This report summarizes the existing environmental conditions of the areas where the trail alternatives would intersect; and analyzes the potential impacts the trail would have on wildlife, vegetation, in-stream, and cultural resources within the "zone of influence" or "area of potential effects" for each resource.

The impact analysis for each resource is based on review of existing data and information about the Crystal Valley's ecology, habitat, and context; a reconnaissance-level field review for each resource during June 2017; engagement with scientific literature; and consultation with resource experts. Design measures to avoid, reduce, and mitigate impacts from trail implementation are considered in the analysis.

Environmental impacts of both trail alternatives were analyzed for each of the 21 segments within the Crystal Valley (see Figure 1). The analyses resulted three categories of impacts (see Table 17):

- **Minor Impacts** are those that are detectable, but would not result in long-term degradation to resources at a local scale or within the overall Crystal Valley study area
- **Moderate Impacts** are those that would result in detectable impacts to sensitive resources at a local scale, but would not result in long-term degradation or changes to that resource within the overall Crystal Valley study area

- **High Impacts** are those that would result in substantial, long-term impacts to sensitive resources, significant degradation to local areas, or adverse impacts to the resource throughout the Crystal Valley study area.

The vegetation and wildlife impact analyses include consideration of suitable habitat for Endangered Species Act (ESA)-listed species, Region 2 Forest Service Sensitive (FSS) species, Colorado state species of concern, and rare species. The cultural resources impact analysis includes consideration of impacts to historical resources that meet the criteria for significance under the National Historic Preservation Act (NHPA).

Vegetation Resources Analysis includes the area within 25 feet from the proposed trail alignments where ground disturbance is likely to take place. The analysis found that impacts to vegetation resources are potentially greatest in areas where the native plant community is diverse and healthy, where suitable habitat for listed, sensitive, and rare species is present, and where potential intersections with wetlands and riparian areas occur. Much of the trail alternatives correspond with previously disturbed areas, where social or system trails are already present. Along Alternative B, high quality vegetation communities where moderate impacts from trail implementation are most likely include Janeway North and the Narrows. The area south of Avalanche Creek along Trail Alternative B may experience greater impacts.

Minimizing vegetation removal; using best management practices (BMPs) for weed control and revgetetation; and exploring opportunities to improve in-stream, riparian, and native plant community quality along the trail corridor would reduce or avoid impacts to vegetation along most of the trail alignment. Delineation of wetlands that intersect the trail, and clearance surveys within suitable habitat for ESA-listed and FSS species should be completed before ground disturbance occurs.

Wildlife Analysis includes a 100-meter zone of influence wherein wildlife are likely to experience disturbance from recreation activities. Habitat within ½ of the trail alternatives was considered during the field review. The analysis considers impacts to suitable habitat for listed, sensitive, or rare wildlife species; areas with high quality habitat for a variety of species; landscape-scale disturbances present in the valley, and the potential for new disturbance from the trail alternatives; potential impacts to wildlife from recreation that may result from the trail alternatives. Potential impacts to bighorn sheep, elk, peregrine falcon, lynx, and other sensitive wildlife are considered.

The analysis considers existing disturbances to wildlife from the human population within the valley, SH 133, and the current use of roads, social trails, or system trails. Areas where there is little existing disturbance are likely to experience greater levels of new disturbance from trail implementation. These low disturbance areas include Janeway North, Filoha Meadows, and the section south of Avalanche Creek. Potential moderate wildlife impacts may occur at Crystal River OST Parcel, Red Wind Point, Janeway North, the Narrows, and Filoha Meadows. The area south of Avalanche Creek, along Alternative B, may experience a high level of impact from trail implementation.

Mitigation for potential disturbances may include monitoring bighorn sheep usage at Red Wind Point, expanding and continuing to enforce seasonal closures and restrictions on use within critical wildlife

habitat, and exploring opportunities to research and improve the health of bighorn sheep and elk populations and habitat within the valley.

Cultural Resources Analysis includes a 100-foot area of potential effects wherein potential significant historic properties were identified and documented. Six significant historical sites were documented. The analysis considered any activity that may alter the characteristics of a site that make it significant. This includes physical destruction of the resource, alterations that are not consistent with its history, removal from its original location, change in the character of its use or setting, or introduction of any elements that negatively impact the integrity of the site.

Potential moderate impacts to cultural resources may occur from trail implementation at Bridge Option 2, along Trail Alternative B at the Crystal River OS Parcel, Red Wind Point, Avalanche Creek, the Narrows, Filoha Meadows, and the Castle.

Mitigation measures for reducing or avoiding impacts to cultural resources may include limiting visitors to the trail footprint where significant cultural resources are present and vulnerable; and stabilizing and/or restoring significant historic features that would be impacted by visitation. Portions of the resources that have integrity may be preserved through a combination of interpretive signage and more detailed documentation (that could include measured drawings of significant features and high-quality photographs)

Introduction

Pitkin County Open Space and Trails (OST) is proposing to construct a multi-use path between the Crystal River KOA Campground and the top of McClure Pass, along the Crystal River Valley (Crystal Valley, valley) (Figure 1). Two possible trail alternatives have been identified. Alternative A would mostly follow State Highway 133 (SH 133) and remain on the west side of the Crystal River. Alternative B would mostly follow routes that have been used as a wagon road, rail road grades, OST or U.S. Forest Service (USFS) system trails, social trails, and existing roads. Any combination of segments from Alternative A and Alternative B could be adopted by Pitkin County (County) as the proposed trail alignment.

The objectives of this report are to inform the County and public about the potential impacts of the possible trail alternatives; and to inform the trail planning process so that environmental impacts are minimized. This report summarizes the existing environmental conditions of the areas where the trail alternatives would intersect; and analyzes the potential impacts the trail would have on wildlife, vegetation, in-stream, and cultural resources. The possible environmental impacts of Alternative A and Alternative B are analyzed as 21 different segments (Figure 2).

Study Approach

Both desktop reviews of existing environmental data and background information, and reconnaissance-level field reviews of the valley were completed in 2017. A reconnaissance-level field review is limited to the areas and issues that are relevant to trail planning and design, and is intended to provide data that support the planning process and the subsequent USFS National Environmental Policy Act (NEPA) analysis. The field reviews described in this report were limited in scope, constrained by timing, and designed to focus on the trail alternatives' areas of influence. This study is not intended to provide a comprehensive inventory of the Crystal Valley, but rather to provide a baseline understanding of environmental resources, identify salient issues for trail design, and inform analysis of potential impacts and impact mitigation/avoidance along the trail alternative corridors.

Typical corridor along Highway 133. Red Wind Point is seen in the background.

Context and Study Area

The Crystal Valley is located south of Carbondale in Pitkin County, Colorado. The Crystal River flows through the valley, from its headwaters north of Marble to its confluence with the Roaring Fork River in

Carbondale. The Crystal River is intersected by several tributary creeks and streams including Nettle Creek, Perham Creek, Avalanche Creek, Coal Creek, and Hayes Creek. The Crystal Valley is characterized as a canyon with steep cliff walls. The valley floor is punctuated with woodlands, meadows, wetlands, and shrublands.

The trail alternatives begin at the terminus of the existing Crystal Valley Trail along SH 133, just south of mile post 62 and near the mouth of the canyon at the Crystal River KOA campground; and ends at the summit of McClure Pass, at mile post 43. Elevations range from about 6,425 feet to about 8,990 feet. For general planning and analysis purposes, the overall study area consists of the valley floor and includes an area of approximately ½ mile from the trail alternatives. For wildlife-specific analysis, the study area includes a disturbance buffer between 100 meters and ½ mile from the trail alternatives.

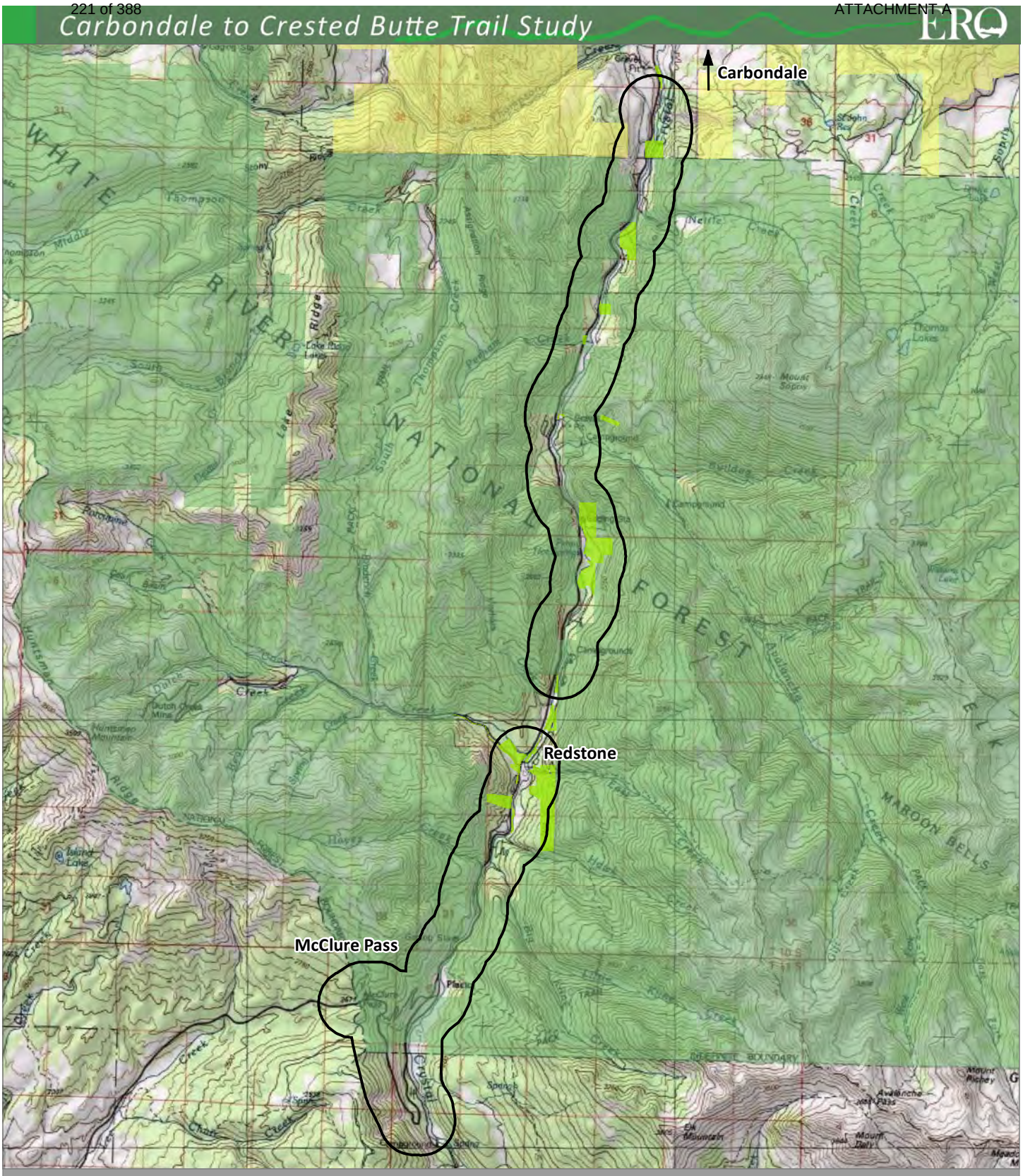

Figure 1. Study area

For vegetation resources, the study area includes a 25-foot disturbance buffer from the trail alternatives. Analysis for in-stream impacts includes the Crystal River, its tributaries and associated floodplains, wetlands, and banks. For cultural resources, the study area varies based on the potential area of impact, which varies throughout the corridor.

Existing Studies and Data Review

Before the field reviews were conducted, a detailed review of the existing environmental resources studies and data listed below was completed.

Trail Planning Studies

- Crystal River Valley Bicycle Trail Study (Haefeli 1994)
- West Elk Loop Scenic and Historic Byway Crested Butte to Carbondale Feasibility Study (Colorado Scenic and Historic Byway Commission 2004)

Environmental Resource Studies

- Roaring Fork Watershed Biological Inventory (CNHP 1999)
- Crystal River Caucus Wildlife and Habitat Report, 2007 (Crystal River Caucus 2007)
- Wildlife and Riparian Impacts of the Crystal River Trail Construction, Prince Creek to Seven Oaks Subdivision (BRB Campground) (Crystal River Caucus Trail Task Force 2010)
- White River National Forest Rare Plant Survey, Colorado Natural Heritage Program, (CNHP 2006)
- State of the Roaring Fork Watershed Report (Roaring Fork Conservancy 2008)
- Wetland Mapping and Fen Survey in the White River National Forest (CNHP 2011)
- Crystal River Management Plan (Roaring Fork Conservancy 2016)
- Crystal River Trail Preliminary Wildlife Analysis, Wilderness Workshop (Thompson 2017)
- Potential Conservation Area (PCA) Reports (CNHP 2017a)

Pitkin County Open Space and Trails Documents

- Filoha Meadows Nature Preserve Resource Management Plan (Pitkin County 2008)
- Red Wind Point Management Plan (Pitkin County 2005)
- Redstone Management Plan (Pitkin County 2010)

State Species of Concern Population Data from Colorado Parks and Wildlife

- Avalanche Creek Elk Herd E-15 Data Analysis Unit Plan (CPW 2013)
- Colorado Bighorn Sheep Management Plan, 2009-2019 (CPW 2009)
- Colorado Parks and Wildlife – Species Activity Data for state species of concern habitat GIS data (CPW 2016)

General Ecological Information Sources

- U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey database, to evaluate the geologic context of the Crystal Valley for specific sensitive species habitat requirements (USDA 2017a)

- U.S. Geological Society (USGS) GAP Land Cover Data, which provides descriptions of vegetation and land use patterns, and provides information on vegetation types, elevation, soils, slope, and aspect (USDA-NRCS 2007)
- CNHP ecological community descriptions, which provides detailed descriptions of vegetation and land use patterns in Colorado and tools for assessing the quality of ecological communities (CNHP 2005)
- CNHP Floristic Quality Assessment (FQA) Indices, which provides an efficient method for assessing the quality of native plant and ecological communities (CNHP 2012 and 2017b)
- USFWS National Wetlands Inventory (NWI) database to identify where jurisdictional waters, wetlands, and riparian habitat areas are likely to be present (USFWS 2017a)
- CNHP Wetland Information Center, which provides location-specific information and characteristics of wetlands (CNHP 2017c)
- Aerial photographs and imagery of the Crystal Valley

Cultural Resources Studies and Information

- Colorado Office of Archaeology and Historic Preservation (OAHP) site files
- USFS White River National Forest site files
- Aerial photographs, historical maps, and other archival sources

Listed, Sensitive, and Rare Species Information

The vegetation and wildlife studies included review of suitable habitat for Endangered Species Act-listed (ESA-listed, or listed) species, U.S. Forest Service (USFS) sensitive (FSS, or sensitive) species, and Colorado Natural Heritage Program (CNHP) ranked and tracked (or rare) species.

ESA-Listed Species

The ESA is intended to provide a program to protect and recover imperiled species and the ecosystems upon which they depend (16 U.S.C. Section 1531 et seq. 1973). The ESA was implemented in 1973 by Congress, which recognized that many of our nation's native plants and animals were in danger of becoming extinct, and that this would result in a loss of the aesthetic, ecological, educational, recreational, and scientific value of our natural heritage. Terrestrial and freshwater species protection under ESA is administered by the U.S. Fish and Wildlife Service (USFWS).

Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. Species may be candidates for listing, or proposed for listing, which means they are under review by the USFWS. ESA-listed species may include subspecies, varieties, and, for vertebrates, distinct population segments of a species.

The ESA requires federal agencies and states to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of listed species. The USFWS uses a variety of tools and incentives for private land owners to manage for conservation of listed species' habitat as well.

The USFWS maintains a list of species protected under the ESA, including endangered, threatened, proposed, and candidate species (USFWS 2017b). A list of ESA species with potential to occur or with habitat in an area can be accessed from the USFWS' Information for Planning and Conservation (IPaC) database website: https://ecos.fws.gov/ipac/.

Forest Service Sensitive Species

The USFS designates sensitive species when there are concerns about a species' population status, trends, and habitat conditions (Forest Service Manual (FSM) 2672.11). USFS policy requires that the agency biologists conduct a review of proposed actions on their lands to comply with the ESA and ensure that "actions do not contribute to loss of viability of native or desired non-native plant or animal species, or cause a trend towards listing under the ESA" (FSM 2670.3). In other words, the Forest Service must consider sensitive species and their habitat when they review projects and analyze whether the project will affect the species, resulting in decline of the species and the need for the species to be protected by the ESA. Usually, a project can be modified during the design phase to reduce potential negative effects to sensitive species or their habitats. If surveys are not conducted but habitat is present, species' presence is assumed and the project effects are analyzed and documented. Each USFS region maintains a list of FSS species that are known, have potential to occur, or are likely to occur on each forest. The White River National Forest (WRNF) is within the USFS Region 2. FSS species with potential to occur include those on the Region 2 FSS species list, with habitat present in the Crystal Valley (USFS 2017). A list of the USFS Region 2 FSS species can be accessed from the Rocky Mountain Region's land and resource management website: https://www.fs.usda.gov/main/r2/landmanagement.

For this analysis, habitat for FSS species was considered throughout the study area, not just on Forest Service land. FSS species with the potential to occur in the Crystal Valley study area are presented in in Table 4 in the *Wildlife Resources* section. The potential presence of Forest Service sensitive species along the trail alternative corridors means that the plant or animal should be considered when planning the trail, developing the alternatives, and designing modifications to minimize impacts to the species.

Colorado Natural Heritage Program Tracked Species

The CNHP tracks and ranks Colorado's rare and imperiled species and habitat and provides scientific information and expertise to promote the conservation of the state's biological resources and diversity, on coordination with the Werner College of Natural Resources at Colorado State University (CNHP 2017d). CNHP-tracked species are considered rare but are not necessarily protected under federal, state, or agency programs. The CNHP provides information on the status of rare and sensitive native species through an online database, various publications, and partnerships with researchers and stakeholders. CNHP-tracked species and ecological communities are evaluated and ranked based on their global, national, and state significance and their importance to Colorado's biological diversity. Species occurrences with Colorado's counties and USGS 7.5 minute quads can be accessed from the CNHP website: http://www.cnhp.colostate.edu/download/gis.asp.

Within the Crystal Valley, CNHP has mapped several Potential Conservation Areas (PCAs) that support the long-term survival of tracked species or natural communities; and tracks habitat and occurrences for native and rare plants and wildlife species. These are: Avalanche Creek, East Creek, Big Kline Creek, and McClure Pass. The tracked species and communities within these PCAs are incorporated into the

vegetation and wildlife assessments elsewhere in this report. A complete list of species and PCAs can be accessed at the CNHP website: http://www.cnhp.colostate.edu/.

Colorado Wildlife Species of Concern and CPW-Tracked Species

Colorado Parks and Wildlife (CPW) tracks and monitors several wildlife species that are considered important to the state's ecology and economy, including game birds and big game species with habitat and populations within the Crystal Valley.

CPW tracks and manages Rocky Mountain bighorn sheep, elk, black bear, moose, wild turkey, mule deer, bald eagle, and peregrine falcon. Some of these species are also sensitive, including Rocky Mountain bighorn sheep (FSS sensitive). A list of Colorado's species of concern and descriptions of the habitat requirements can be accessed from CPW's website: http://cpw.state.co.us/learn/Pages/SpeciesProfiles.aspx.

Colorado Department of Agriculture has identified noxious weed species that are of concern for biodiversity and native species habitat, including wildlife and plant communities. Noxious weeds are exotic plant species that can either directly or indirectly cause damage to natural resources, public health, or the environment, as defined under the Federal Plant Protection Act (7 U.S.C. Section 7701 et seq. 2000). Noxious weeds populations are able to establish on a broad range of sites, spread rapidly, and disrupt native plant communities and ecosystems, which may result in degradation of native wildlife habitat (USDA 2017b). A list of Colorado's noxious plant species can be accessed from the state Department of Agriculture website: https://www.colorado.gov/pacific/agconservation/noxious-weed-species.

2017 Field Review

From June 19 to 23, 2017, a team of resource specialists conducted a reconnaissance-level field review (field review) of biological and cultural resources for the entire study area between the Crystal River KOA and McClure pass. Specialists included two plant ecologists, two wildlife biologists, and one

Existing Trail along the Rock Creek wagon road, looking north.

archaeologist. The team walked all segments of the trail alternatives except where access was not granted to private land parcels.

Survey methods and approaches were developed with input and concurrence from resource specialists with WRNF, and were informed by the existing data and information review. General field approaches are described below.

- Wildlife resources field approach – Wildlife biologists documented suitable habitat for listed, sensitive, or rare wildlife species; areas with high quality habitat for a variety of species; evidence of wildlife use; and incidental observations of specific species. Limited owl surveys and acoustic monitoring for bat activity was conducted at a few key locations. A broad corridor (up to ½ mile) was considered for wildlife habitat observations.
- Vegetation resources field approach – Plant ecologists documented general vegetation communities; suitable habitat for listed, sensitive or rare, plant species; areas with high quality plant communities; wetland, riparian, and water resources; and noxious weeds. The vegetation survey included the area within 25 feet from the proposed trail alignments.
- Cultural resources field approach – An archaeologist conducted a Class II pedestrian survey of the trail alternatives, identifying and documenting potential historic properties within the area of potential effect for the trail alternatives. A 100-foot wide corridor was surveyed.

Carbondale to Crested Butte Trail Study

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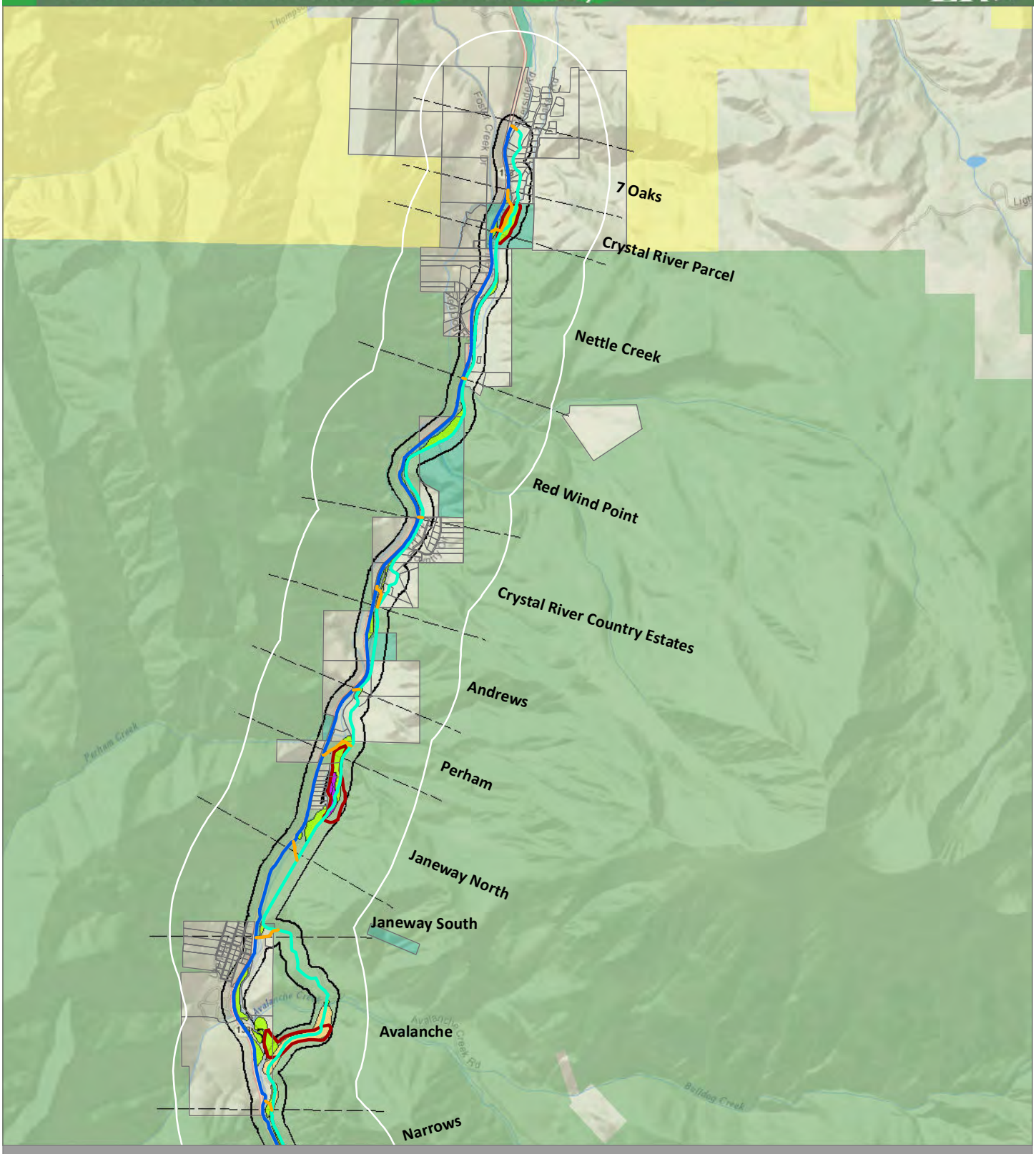

Figure 2. High Quality Habitat and Vegetation

0 2,000 4,000 feet

October 9, 2017

- Trail Study Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- 100m Trail Impact Area
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Carbondale to Crested Butte Trail Study

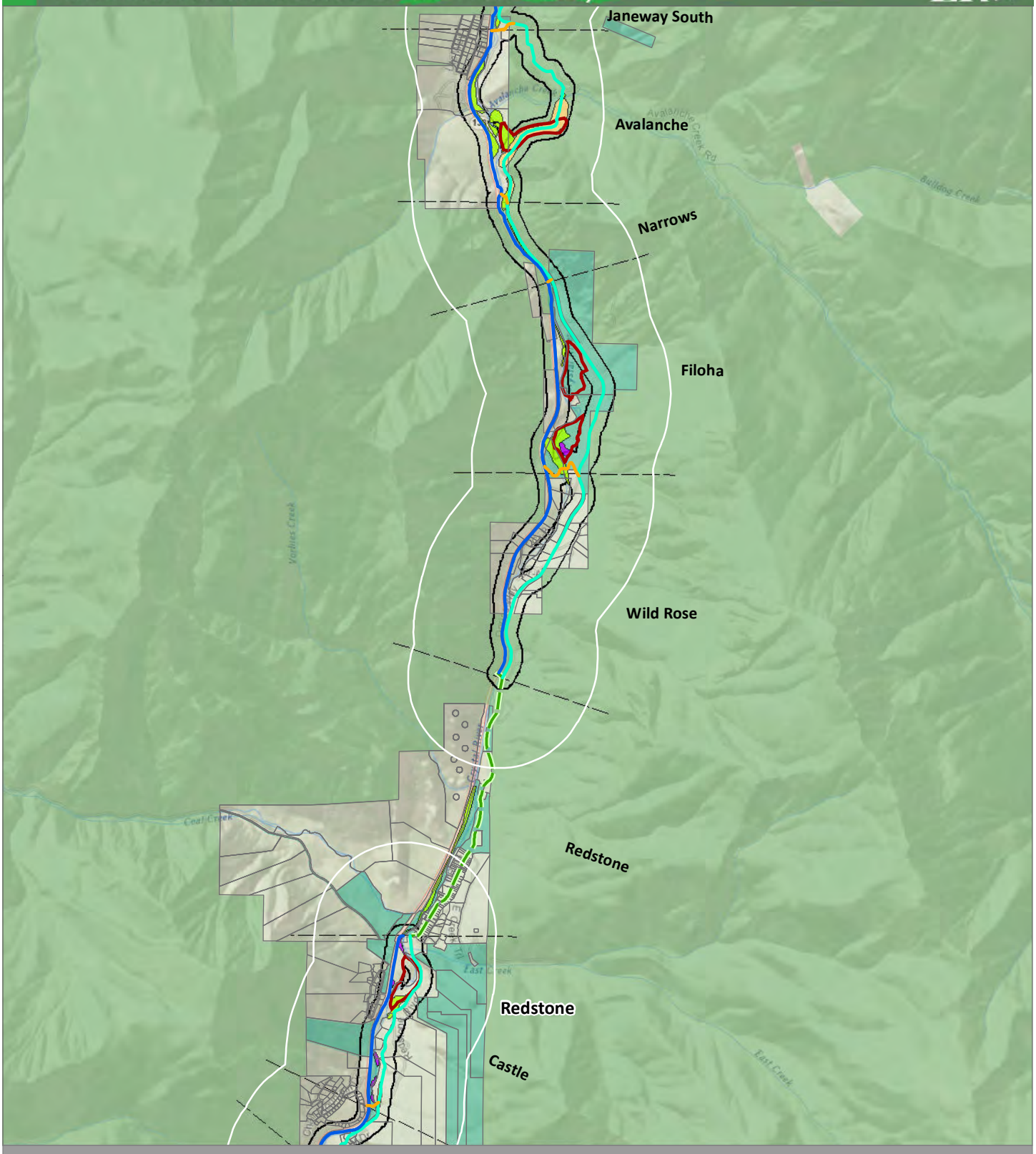

Figure 2. High Quality Habitat and Vegetation

0 2,000 4,000 feet

October 9, 2017

- Trail Study Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
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- State of Colorado
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Carbondale to Crested Butte Trail Study

ERO

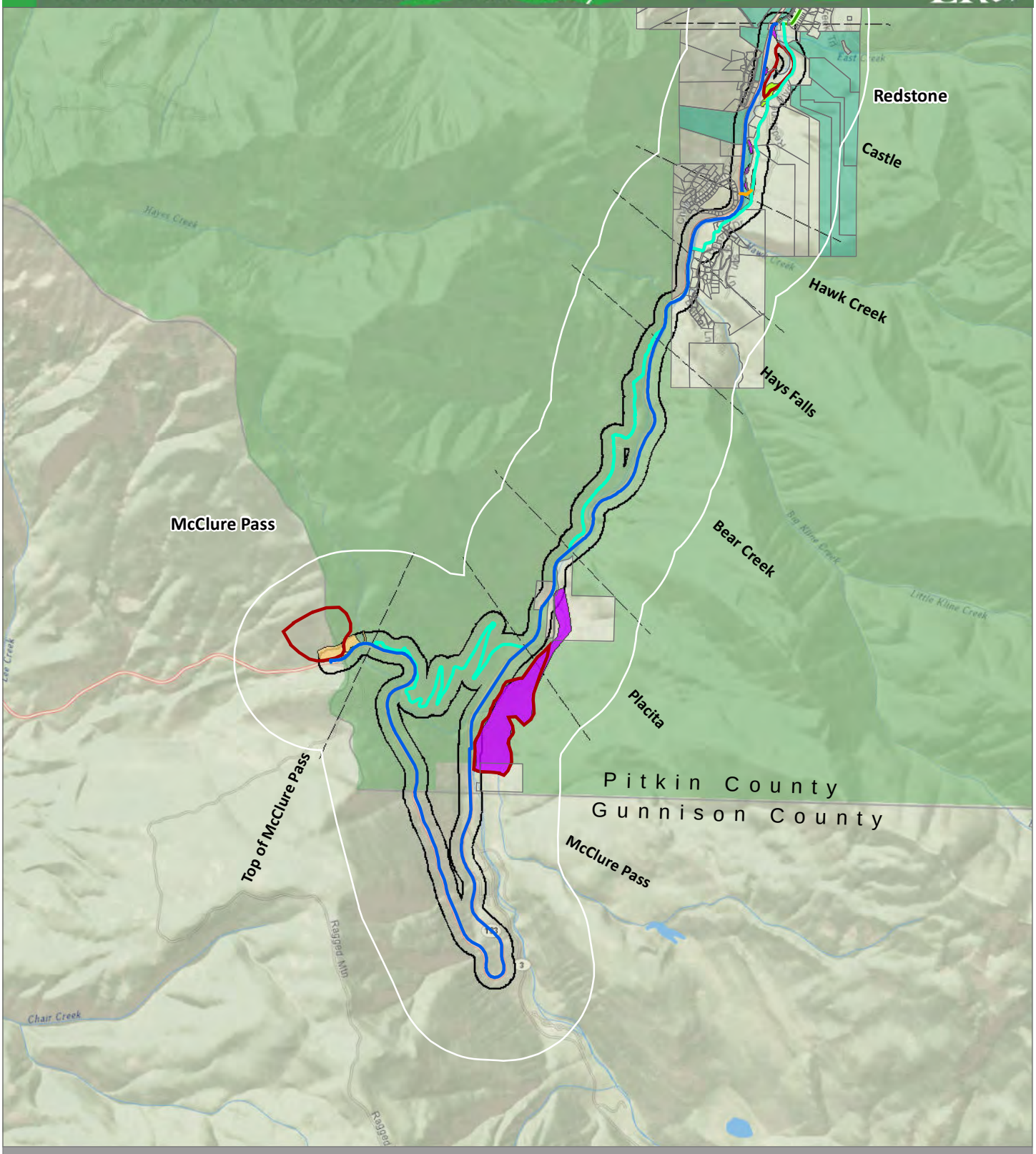

Figure 2. High Quality Habitat and Vegetation

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October 9, 2017

- Trail Study Area
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- Option A Alignment
- Option B Alignment
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- Other Riparian
- High Quality Vegetation
- 100m Trail Impact Area
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Vegetation Resources

The vegetation field review gathered a broad range of information about the ecological communities that intersect with and may be affected by the possible trail alternatives. Areas may require more additional surveys for specific species or resources. In areas where wetlands or open waters intersect the trail alternatives, detailed delineations and permitting under the Clean Water Act (CWA) may be required if disturbance is anticipated.

To support the trail planning process, the vegetation study has the following objectives:

- Describe general vegetation communities
- Identify high-quality and sensitive vegetation communities
- Identify suitable habitat for ESA-listed, FSS, and CNHP-tracked species
- Identify wetland and riparian vegetation communities

The pre-field review of existing data and studies resulted in a refined list of ESA-listed, FSS, and CNHP-tracked plant species with potential to occur in the Crystal Valley; a familiarity with existing information about the Crystal Valley's ecological communities; and a reconnaissance-level methodology to evaluate the ecological communities and sensitive plant habitat within the alignment and disturbance buffer. A list of plant species observed during the field review is in Appendix A. Listed, sensitive, and rare species are listed in Appendix B.

Field Review Methods

The vegetation field review included the following elements:

- Characterization of general plant communities and mapping of transitions between ecological communities
- Documentation of species diversity and dominant species
- Evaluation of vegetation community structure (forest, shrubland, grassland, etc.)
- Evaluation of habitat characteristics for listed and sensitive species
- Identification of wetland and riparian areas
- Documentation of noxious weeds and non-native species

Species diversity, structure, and composition data were collected at ½ mile intervals, or where dominant plant communities transitioned. Noxious weed species were documented wherever observed.

The following factors were given consideration when evaluating a segment's vegetation community:

- Habitat requirements for sensitive species, such as soil and geological characteristics, wetland or upland associations, and elevation ranges
- Unique or diverse native vegetation community characteristics
- Proximity to and characteristics of PCAs
- Proximity to known occurrences of listed, sensitive, and rare species
- Plant species and communities that support specific sensitive wildlife habitat (such as milkweed, which is a necessary component of FSS monarch butterfly habitat).

General Vegetation Communities

The Crystal Valley's ecological context includes both native and introduced species, and is characterized by Rocky Mountain, Southern Rocky Mountain, Colorado Plateau, and Inter-Mountain Basins ecological communities (USGS 2017). Vegetation within the valley varies between montane wetland, riparian, and upland communities. The wetlands and riparian shrublands and woodlands along the Crystal River provide habitat for a rich diversity of native plant and wildlife species. Upland vegetation communities include a mosaic of shrublands, woodlands, and forests. Disturbed, or "ruderal" vegetation communities occur throughout the valley along roadsides, neighborhoods, and other areas where past and present development is located. The footprints of the trail alternatives are predominately within areas where ground disturbance has occurred, such as along roadsides (Alternative A) or within the footprint of the wagon trail, railroad grade, existing roads, and/or trails (Alternative B). Major vegetation communities are described below (CNHP 2005; NatureServe 2009; USGS 2016 and 2017).

- **Colorado Plateau Pinyon-Juniper Woodland** – Occupies the lower and mid segments of the Crystal Valley. It is dominated by Rocky Mountain juniper (*Juniperus scopulorum*), one-seed juniper (*Juniperus monosperma*), and two-needle pinyon (*Pinus edulis*) intermingled with Gambel oak (*Quercus gambelii*) shrublands.
- **Southern Rocky Mountain Dry-Mesic and Mesic Montane Mixed Conifer Forest and Woodlands** – Occurs throughout the entire corridor in upland areas in mosaic with quaking aspen (*Populus tremuloides*), Gambel oak, and pinyon-juniper woodlands. Coniferous dry-mesic forests are lower in elevation than the mesic forest, which are found around McClure Pass and Placita areas. Forests are dominated by white fir and Douglas fir (*Pseudotsuga menziesii*), and interspersed with Engelmann spruce (*Picea engelmannii*), quaking aspen, blue spruce (*Picea pungens*), ponderosa pine (*Pinus ponderosa*), bigtooth maple (*Acer grandidentatum*), Rocky Mountain maple (*Acer glabrum*), box elder (*Acer negundo*), Gambel oak, mountain snowberry (*Symphoricarpos oreophilus*), thinleaf alder (*Alnus incana*), water birch (*Betula occidentalis*), redosier dogwood (*Cornus sericea*), blueberry (*Vaccinium* spp.), common juniper (*Juniperus communis*), twinberry honeysuckle (*Lonicera involucrata*), shrubby cinquefoil (*Dasiphora fruticosa*), mountain mahogany (*Cerocarpus* spp.), meadowrue (*Thalictrum* spp.), among other species.

Riparian and mesic mixed conifer vegetation along the Crystal River, looking south.

- **Rocky Mountain Gambel Oak-Mixed Montane Shrubland –** Occupies areas along the extent of the corridor, on lower mountain slopes and often interspersed with pinyon-juniper woodlands. The understory is composed of other shrubs including serviceberry (*Amelanchier* spp.), sagebrush (*Artemesia* spp.), snowberry, mountain mahogany, chokecherry (*Prunus virginianis*), and cliffrose (*Purshia* spp.).
- **Rocky Mountain Montane Riparian Woodlands and Shrubland** – Includes vegetated areas along watercourses and water bodies, within flood plains and near streambanks, where soils and hydrology support riparian vegetation. The riparian corridor within the valley is characterized by dense willow (*Salix* spp.), cottonwood (*Populus* spp.), and conifer vegetation at or near the Crystal River's banks and within its flood plain.
- **Rocky Mountain Herbaceous Wetland** – Occupies areas near the Crystal River where the ground is saturated at least part of the year and wetland vegetation is dominant and soils are hydric (developed through anaerobic conditions). Patches of wetlands occur throughout the corridor, including at Filoha Meadows, Red Wind Point, Castle, Placita, Redstone, Janeway North, Rose Bud, and McClure Pass.
- **Rocky Mountain Aspen Forest and Woodland** – Occupies Placita and the top of McClure Pass, within a mosaic of shrublands, wetlands, and mesic coniferous forests. Common shrubs include Rocky Mountain maple, serviceberry, sagebrush, common juniper, chokecherry, Woods' rose (*Rosa woodsia*), snowberry, and blueberry. The grasses and forbs in the understory are diverse and dense.
- **Ruderal, or Disturbed Areas** – Occurs in areas where disturbance has occurred and where regrowth of native and non-native species is occurring. Present throughout the corridor along the highway, adjacent and within residential areas, and along the railroad grade.
- **Low- and Medium-Intensity Developed** – Areas with a mixture of constructed materials, including impervious surfaces such as roads and driveways, and both native or introduced ornamental vegetation. Present within subdivisions and developed residential or low-intensity commercial sites. Developed areas are characterized by having at least part of their surface developed and impermeable (for example, paved or under buildings or structures).

High Quality Vegetation Communities

ERO identified high quality vegetation areas using data from the field review, existing information, the CNHP Floristic Quality Assessment (FQA) Indices (CNHP 2012, CNHP 2017), and CNHP's criteria for ranking ecological system quality (CNHP 2005).

CNHP FQA Indices provide an efficient method for assessing the quality of native plant and ecological communities. Data from the field review was used to evaluate the native plant community quality of a segment using the FQA Index calculator (CNHP 2017), which ranks species on a scale of 0 to 10 based on their ecological significance. Non-native species are ranked as "0", while very rare, endemic, and sensitive species (including some ESA-listed and FSS sensitive species) are given higher scores. High values are assigned to species which are likely to occur in only high-quality areas and cannot tolerate habitat degradation; while low values are assigned to species with a wide tolerance to human disturbance (CNHP 2007). High quality vegetation areas were identified where:

- multiple species ranking 7 or higher on the FQA index were present
- ecological communities were dominated by diverse native species, and/or
- habitat for ESA-listed and/or FSS species was present

High quality vegetation areas are described below in Table 1, based on the study segment in which they were found (Figure 2).

Table 1. High Quality Vegetation Communities within the Crystal Valley Trail Corridor

Trail Segment	Vegetation Communities	Description
Andrews Alternative B	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland Rocky Mountain Gambel Oak-Mixed Montane Shrubland	Diverse native upland shrubland/forest dominated by oak, spruce, fir, cottonwood, snowberry, and serviceberry. Shrubs/forbs include meadow-rue, lupine (*Lupinus* sp.), beardtongue (*Penstemon* spp.), Indian paintbrush (*Castelleja* sp.), scarlet gilia (*Ipomopsis aggregate*), strawberry (*Frageria* sp.); suitable Harrington's penstemon (FSS) and Grand Mesa penstemon (CNHP) habitat
Janeway North Alternative B	Rocky Mountain Montane Riparian Woodlands and Shrubland Rocky Mountain Wetland- Herbaceous	Diverse riparian forest and wetlands dominated by cottonwood, twinberry, and alder; species include wintergreen (*Pyrola* sp.), redosier dogwood, starry lily of the valley (*Maianthemum stellatum)*, several orchids (Orchidaceae genuses), several milkvetches (*Astragalus* spp.); suitable dwarf raspberry (FSS), American cranberry (FSS), park milkvetch habitat (FSS), and Ute Ladies' Tresses orchid (ESA)
Avalanche Alternative B	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland Rocky Mountain Gambel Oak-Mixed Montane Shrubland Colorado Plateau Pinyon-Juniper Woodland	Diverse native montane forest dominated by mixed conifer, aspen, Gambel oak; suitable Harrington's penstemon (FSS), large flower globemallow (CNHP), and Grand Mesa penstemon (CNHP) habitat
Narrows Alternative B	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland Rocky Mountain Gambel Oak-Mixed Montane Shrubland	Diverse native montane forest dominated by mixed conifer, aspen, Gambel oak, with oceanspray (*Holodiscus discolor*), saxifrage (*Saxifraga* sp.) throughout. The slope is primarily scree and sparsely vegetated; suitable Harrington's penstemon (FSS) and Grand Mesa penstemon (CNHP) habitat
Filoha Alternative B	Rocky Mountain Wetland- Herbaceous	Disturbed herbaceous wetland area where past occurrences of Ute Ladies' Tresses orchid (ESA) have been documented

Trail Segment	Vegetation Communities	Description
Castle Alternative A	Rocky Mountain Wetland- Herbaceous Rocky Mountain Montane Riparian Woodlands and Shrubland	Diverse riparian forest dominated by cottonwood and narrowleaf willow; suitable dwarf raspberry (FSS), American cranberry (FSS), park milkvetch habitat (FSS), and Ute Ladies' Tresses orchid (ESA) within wetland areas
Castle Alternative B uplands	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland Rocky Mountain Gambel Oak-Mixed Montane Shrubland	Diverse native montane forest dominated by mixed conifer, aspen, Gambel oak, snowberry, and twinberry honeysuckle; monkeyflowers (*Mimulus* sp.) are present on the cliffside seeps along the trail; suitable Harrington's penstemon (FSS) and Grand Mesa penstemon (CNHP) habitat
Castle Alternative B riparian and wetland	Rocky Mountain Wetland- Herbaceous Rocky Mountain Montane Riparian Woodlands and Shrubland	Subalpine riparian willow carr and bar wetlands with suitable dwarf raspberry (FSS), American cranberry (FSS), park milkvetch habitat (FSS), and Ute Ladies' Tresses orchid (ESA) within wetland areas
Placita Alternative B	Rocky Mountain Wetland- Herbaceous Rocky Mountain Montane Riparian Woodlands and Shrubland	Diverse montane wetland and riparian shrubland dominated by narrowleaf willow; suitable dwarf raspberry (FSS), American cranberry (FSS), park milkvetch habitat (FSS), and Ute Ladies' Tresses orchid (ESA) within wetland areas
Top of McClure Pass Alternative B	Rocky Mountain Aspen Forest and Woodland	Diverse native subalpine aspen forest, with willow and birch understory; bracken fern (*Pteridium aquilinum*) and known Grand Mesa penstemon (CNHP) documented in area

Listed, Sensitive, and Rare Plants

ESA-Listed Species

The only ESA-listed plant species with potential to occur within the study area is the threatened Ute Ladies'-tresses orchid (*Spiranthes diluvialis*). The orchid grows in small, sporadic microhabitats with calcareous, wet-mesic, temporarily-inundated meadows in shallow wetlands. It occurs along riparian edges, gravel bars, old oxbows, high flow channels, and moist to wet meadows along perennial streams. An orchid population has been observed in the lower wetland portion of Filoha Meadows.


Ute Ladies-tresses Orchid (credit: S. Puniabi. CNHP)

FSS Species

USFS Region 2 FSS plant species with the potential to occur in the study area include:

Harrington's penstemon (*Penstemon harrintonii*) - Occurs among sagebrush often surrounded by pinon-juniper woodlands and thrives in disturbed areas along roads and trails at elevations between 6,400 and 9,400 feet.


Harrington's Penstemon

Dwarf raspberry (*Rubus arcticus* ssp. *acaulis*) - Grows in montane willow shrublands and boggy woods, marshes, mountain meadows, and alpine tundra at elevations between 7,000 and 9,720 feet.

American cranberry bush (*Viburnum opulus* var. *americanum*) - Usually found adjacent to reliable water sources, but not restricted to wetland areas, and is often found in aspen forests at elevations below 6,000 feet. This species is typically not listed as part of the Colorado flora and is not known to occur in the state, although it is possible that it does occur and unconfirmed occurrences have been noted.

Park milkvetch (*Astragalus leptaleus*) - Grows in sedge-grass meadows, swales and hummocks, and among streamside willows at elevations between 6,600 and 9,500 feet. It may often occupy the ecotone between soils saturated with water throughout the growing season and adjacent dry uplands.

Yellow lady's slipper orchid (*Cypripedium parviflorum*) - Grows in a variety of habitats from shady, damp forest understory of mixed deciduous and coniferous forests to open meadows and along streams in acidic soils between 5,800 and 12,600 feet in elevation.

CNHP-Tracked Species

Rare plant species that are known to occur near the study area include:

Large-flowered globemallow (*Iliamna grandiflora*) - Grows in desert, semi-desert, prairies, grasslands, scrub, pinyon-juniper, and sagebrush plant communities and often on dry roadsides, disturbed areas and dry slopes; known to occur within the Avalanche PCA.

Grand Mesa penstemon (*Penstemon mensarum*) - Occurs among oaks, aspens, sagebrush, and in meadows; and thrives in disturbed areas along roads and trails; known to occur at McClure Pass and within the Avalanche PCA.

Grand Mesa Penstemon

Wetlands, Riparian Communities, and Aquatic Resources

Wetlands and in-stream habitats are protected under Section 404 of the CWA. Any anticipated impacts to these resources must be permitted by the U.S. Army Corps of Engineers (USACE). Impacts may include loss of wetland area; stabilization of streambanks; channelization of streams and rivers; and dredging and filling of waters or wetlands. Impacts may be temporary, such as short-term increased sedimentation from construction activities; or permanent, such as bank stabilization or permanent loss of aquatic habitat and function.

A wetland or water body is considered jurisdictional (that is, protected under of Section 404 of the CWA) if it has a surface hydrological connection to a traditionally navigable waterway (TNW). The Crystal River, and all its associated tributaries and wetland areas, would be considered jurisdictional because it is a secondary tributary to the Colorado River, which is a TNW. The field review did not include delineation of wetlands or water ways, but identified areas that would require delineation and permitting if impacts were to take place within them.

Wetlands and Riparian Shrublands and Forests

The field review was focused to evaluate potential wetlands and riparian areas where disturbance from the trail alternatives would be most likely: near potential bridge locations, along the actual footprint of the alignment, and in areas where construction in floodplains and stabilization of streambanks would potentially occur. Thirty-one wetland and riparian areas were identified, including the high-quality areas described in Table 1 (Figures 6 through 14). Riparian and wetland areas are vital to the functioning of aquatic systems and in-stream habitat.

In-stream and Aquatic Habitat

Existing stream impairments in the valley are generally attributable to roads, the existing railroad grade, and bridges that bisect historical floodplains and limit the potential for bankfull flows into off-channel riparian habitat. Reduction in stream flow from diversions, and loss of effective floodplain width further

limits the quality and extent of terrestrial and aquatic habitat (Roaring Fork Conservancy 2016). Several listed and sensitive aquatic and wetland obligate species are known to occur in the Roaring Fork watershed, which includes the Crystal River Valley (Appendix B and Appendix C).

Several recent studies have evaluated the current ecological health of the Crystal River's in-stream and riparian habitats. The 2016 Crystal River Management Plan incorporates findings of the 2014 Crystal River FACStream Assessment. Both are summarized below.

Crystal River Management Plan

The Crystal River Management Plan evaluated the river's functional health with consideration of flow, sediment, water quality, floodplain connectivity, riparian vegetation, debris supply, morphology, stability, physical structure, and biotic structure. Above Placita the Crystal River's function has few impairments. The function of the reaches within the study area – extending from Placita downstream to Potato Bill Creek – becomes increasingly constrained from development and surface water diversions. Some of the key stressors include the loss of floodplain connectivity, channel stability, and riparian vegetation loss (Roaring Fork Conservancy 2016). Considering all variables, the functional condition of the Crystal River is mildly to significantly impaired at Placita; severely impaired at Redstone; mildly to significantly impaired at Avalanche Creek; and significantly to severely impaired downstream to Thompson Creek and Carbondale.

Crystal River FACStream Assessment

The 2014 Crystal River FACStream Assessment examined a range of specific variables that affect riparian and stream health including watershed function (water supply, sediment supply, chemical supply), riparian function (vegetation and debris supply), and structural/physical function (floodplain connectivity, stream stability, physical structure, and biotic structure). For each variable, individual reaches of the Crystal River were evaluated and assigned a functional score between 100 (high function) and 50 (severely impaired function) (Beardsley and Johnson 2014).

The overall condition assessment scores for the reaches within the study area are summarized in Table 2. The overall impairment of each reach ranged from negligible to mild when all variables were considered together. For each reach, watershed function impairment ranged from negligible to mild, while riparian function impairment and structural/physical function impairment both ranged from mild to severe. The reaches near Placita (south) and Redstone scored lowest for these variables, with drainage and restriction of the floodplain, clearing of riparian vegetation, channel stabilization, elevated sediment supply, and noxious weeds and non-native vegetation dominance being noted (Beardsley and Johnson 2014).

Table 2. Crystal River FACStream Assessment Results

Trail Segment	FACStream Reach	Score	Overall Impairment	Notes
Placita (south)	12	87	Mild	Pasture clearing and floodplain drying; straightened channel and floodplain cut off
Placita (north)	13	94	Negligible	Similar to reach 12, but few floodplain impacts
Hayes Falls	14	90	Negligible	Road and ranching impacts on left floodplain area

Trail Segment	FACStream Reach	Score	Overall Impairment	Notes
Hayes Falls	15	86	Mild	Road encroachment and hardening in confined valley; constriction at bridges
Redstone (south)	16	89	Mild	Impacts from valley bottom residential development and bridges
Redstone (north)	17	81	Mild	Similar to reach 16; Sediment from Coal Creek; bridges, levee, valley bottom development, and roads
Wild Rose	18	87	Mild	Acute impacts from road encroachment, otherwise minimal impairment
Filoha	19	86	Mild	Pasture clearing and floodplain drying on right side
Narrows	20	92	Negligible	Confined reach with few impacts
Avalanche	21	84	Mild	Floodplain development, including residential, pond, levee, roads, and hardening
Janeway	22	89	Mild	Confined reach with few impacts
Janeway North	23	85	Mild	Road fill, pasture clearing, and floodplain development
Perham	24	83	Mild	Road fill, pasture clearing, floodplain development, and ditch diversion
Andrews	25	85	Mild	Confined reach with few impacts
Red Wind Point	26	82	Mild	Road fill and hardening
7 Oaks	27	81	Mild	Road fill and hardening

Source: Beardsley and Johnson 2014

The Crystal River along SH 133 has been stabilized using riprap, retaining walls, and fill with vegetation. New impacts to stream habitat resulting from the trail alternatives could result from the following:

- Installation of additional narrow bridges which would further constrict the floodplain
- Installation of piers, retaining walls, riprap or other hardened structures along or within the streambed which would further constrict stream morphology and function, and result in increased channelization
- Removal or fragmentation of high-quality floodplain riparian habitats due to trail construction and hardening
- Further dissection of floodplain connections due to new construction

Based on the proposed alignment locations and typical design standards, the trail segments that could result in impacts to stream habitat and function are summarized in the following table.

Table 3. Possible Impacts to Stream Habitat

Trail Segment or Bridge Option Trail Alternative	Type of Impact	Notes
Bridge Option 1	Existing bridge improvements	No new impacts
7 Oaks Alternative A	Wall, riprap, or piers along or within streambed	About 1,300 feet along highway embankment
Crystal River Parcel Alternative A	Wall, riprap, or piers along or within streambed	About 400 feet along highway embankment

Trail Segment or Bridge Option Trail Alternative	Type of Impact	Notes
Bridge Option 2	New bridge construction, riparian vegetation removal	Bridge width and impacts undefined
Bridge Option 3	New bridge construction, riparian vegetation removal	Bridge width and impacts undefined
Nettle Creek Alternative A	Wall, riprap, or piers along or within streambed	About 1,800 feet along highway embankment
Bridge Option 4	New bridge construction	Bridge width and impacts undefined
Red Wind Point Alternative A	Wall, riprap, or piers along or within streambed	About 1,700 feet along highway embankment
Crystal River Country Estates Alternative A	Wall, riprap, or piers along or within streambed	About 2,000 feet along highway embankment
Bridge Option 5	New bridge construction	Bridge width and impacts undefined
Bridge Option 6	New bridge construction	Bridge width and impacts undefined
Andrews Alternative A	Wall, riprap, or piers along or within streambed	About 1,000 feet along highway embankment
Bridge Option 7	New bridge construction	Bridge width and impacts undefined
Perham Alternative A	Wall, riprap, or piers along or within streambed	About 1,000 feet along highway embankment
Bridge Option 8	New bridge construction	Bridge width and impacts undefined
Janeway North Alternative A	Wall, riprap, or piers along or within streambed	About 300 feet along highway embankment
Janeway North Alternative B	Trail through high quality floodplain riparian area	About 1,500 feet of impacts through riparian area
Janeway South Alternative A	Wall, riprap, or piers along or within streambed	About 1,500 feet along highway embankment
Bridge Option 9	New bridge construction	Bridge width and impacts undefined
Bridge Option 10	Existing bridge	No new impacts
Avalanche Alternative A	Wall, riprap, or piers along or within streambed	About 1,900 feet along highway embankment
Avalanche Alternative B	New bridge construction across Avalanche Creek, riparian vegetation removal	Bridge width and impacts undefined
Bridge Option 11	New bridge construction	Bridge width and impacts undefined
Bridge Option 12	New bridge construction	Bridge width and impacts undefined
Narrows Alternative A	Wall, riprap, or piers along or within streambed	About 2,200 feet along highway embankment
Filoha Alternative A	Wall, riprap, or piers along or within streambed	About 2,100 feet along highway embankment
Bridge Option 13	Wall, riprap, or piers along or within streambed	Bridge width and impacts undefined
Wild Rose Alternative A	Wall, riprap, or piers along or within streambed	About 2,300 feet along highway embankment
Bridge Option 14	Wall, riprap, or piers along or within streambed	Bridge width and impacts undefined

Potential In-stream and Riparian Impacts


Riparian vegetation at Red Wind Point, looking south.

Trail construction along Alternative A, and in some segments of Alternative B would require some additional stabilization of the Crystal River bank along the highway (Alternative A), and some bridge construction within either of the alternatives. Bridge options depend on the final trail design, which may be a combination of the alternatives. While the Crystal River has already been stabilized with riprap (loose stones and rocks) and walls throughout much of the valley, new impacts would be most significant if they further impact process-based functions, such as floodplain connectivity, channel stability, and riparian vegetation health, which are discussed above (USACE 2003).

Trail design solutions along the Crystal River stream bank in Alternative A would include additional slope stabilization along about 11,300 feet of streambank. This could result in additional physical alteration of the streambank which can further reduce natural channel evolution and riparian succession processes. A USACE review of scientific literature describes the potential impacts of slope stabilization along river banks, particularly when riprap is the dominant material used (Fischenich 2003). Impacts to aquatic organisms and in-stream function include:

- **Morphology**: Stabilization generally reduces channel evolution through migration, and can reduce riparian succession processes unless they incorporate vegetation as a component of the slope stabilization.
- **Hydrologic balance**: Stabilization generally has little local effect on water storage or exchange processes, and its impact upon hydrodynamics are generally associated with change in resistance to water flow.
- **Sedimentation**: Stabilization generally reduces local bank erosion, but can induce local scouring and local sediment deposition, usually on and within riprap material if used.
- **Habitat**: Stabilization often results in a reduction of streamside vegetation, which can result in adverse impacts to riparian flora and fauna. Design features that include vegetation as a key component of the slope stabilization generally have lower impacts. Stabilization may result in adverse impacts to cutthroat trout, which is not known to occur in the Crystal River, but is present in the Roaring Fork Valley. Subspecies of cutthroat are both listed and sensitive.
- **Chemical processes**: Stabilization usually has only limited impacts on water quality. Long reaches of continuous riprap can increase stream temperatures due to solar radiation, and can

diminish nutrient loading because of the elimination of riparian vegetation, but these impacts are generally minor. Nutrient dynamics are less affected in slope stabilization projects when vegetation is used to stabilize the upper slopes.

Intermittent flow deflection structures (such as piers and bridge pilings) that extend outward from the river bank generally have minor to negligible impacts to aquatic habitat, in-stream processes, and riparian vegetation (Fischenich 2003).

Design Measures to Mitigate In-stream and Riparian Impacts

The riparian vegetation communities along the Crystal River are in many areas fragmented by development, encroached upon by non-native vegetation, and restricted by the highway, roads, and residential areas. Many segments of trail Alternative A (Table 3) would require additional riprap, walls, or piers to stabilize the river bank and establish a platform for the trail (Loris 2017). Approximately two miles (11,300 linear feet) of the Crystal River along SH 133 would require additional stabilization. These areas, however, are already stabilized and additional stabilization from Alternative A would not likely result in significant localized impacts to in-stream processes.

In some locations, trail and bridge implementation has the potential to reduce existing impacts or potentially improve stream and habitat conditions (Crystal River Management Plan; Roaring Fork Conservancy 2016; Fischenich 2003). Trail and bridge design measures to minimize impacts or improve stream and riparian conditions include:

- Avoid removal of riparian vegetation whenever possible
- Incorporate riparian and upland vegetation as appropriate into stabilization design to support and increase habitat and hydrologic balance
- Design bridges with the maximum feasible width to minimize floodplain constriction and promote channel migration, hydrological balance, and riparian habitat succession
- Replace existing narrow bridges with wider structures to withstand bankfull flows and minimize flow deflection
- Avoid and minimize the use of impermeable materials along the river bank to support hydrological balance
- Design piers and bridges so that flow deflection from pilings or structures is minimized.

Riparian health in the valley may be improved through restoration of native vegetation along the Crystal River, the control and elimination of noxious weeds, and support of riparian succession in areas where fragmentation has occurred. Segments where this may be effective include the Crystal River Parcel, Filoha Meadows, and north of Avalanche Creek.

In addition, there is potential to for breaching railroad grade or other confining structures at key locations (such as Red Wind Point), thus re-establishing floodplain connectivity, increasing the potential for channel migration, improving hydrologic balance, and enhancing aquatic and riparian habitat (Roaring Fork Conservancy 2016). The reaches below Red Wind Point where river processes are impaired (Table 2), for example, may benefit from floodplain restoration at this location. The process for

breaching the grade and restoring the floodplain would require additional surveys, compliance with the ESA, and permitting by the USACE.

Wildlife Resources

The overall assessment of potential impacts to wildlife focused on the following components:

- Rare and sensitive wildlife (based on USFWS, Forest Service, and field reviews)
- High quality wildlife habitat areas (based on existing documentation and field reviews)
- Seasonal activity areas for bighorn sheep and elk (based on CPW mapping and data)
- Landscape-scale impacts to undisturbed habitat (based on GIS mapping of existing disturbance)
- Review of impacts from trails and recreation, potential for unauthorized secondary trails, and the effectiveness of seasonal closures

Each of these elements are described in the following sections.

Wildlife Assessment Methodology

The Crystal Valley is home to a wide variety of wildlife species that are common to Colorado's montane valleys, forests, and stream corridors. Commonly observed wildlife in the region include large ungulates such as mule deer and elk; carnivores such as black bear, coyote, mountain lion, and fox; and a host of small mammals, birds, amphibians, and aquatic species. While common species are an important part of the Crystal Valley ecosystem, this analysis focuses more specifically on species and habitats that are rare, sensitive, or are otherwise indicators for ecosystem health.

The assessment of wildlife resources and potential impacts to wildlife within the Crystal Valley study area began with a review of existing studies and documents and meetings with local agency staff with Colorado Parks and Wildlife (CPW) and the WRNF. This included reviewing USFWS, CPW, and CNHP databases; reviewing the current USFS Region 2 sensitive wildlife species list; and obtaining additional input from the WRNF wildlife biologist. A multi-faceted approach to analyzing wildlife resources and potential impacts was developed based on existing information and resources, field surveys, wildlife cameras, and analyses of potential impacts to wildlife using multiple variables.

Black bear captured by a wildlife near Red Wind Point, looking south.

Field surveys were conducted from June 19-23, 2017, and included a reconnaissance-level review of all trail alternative corridors. The objectives were to:

- confirm existing information on typical and sensitive wildlife habitat
- identify suitable habitat or occurrences for rare or sensitive wildlife species
- identify areas with high-quality wildlife habitat attributes, and
- identify area of potential impact or those that would require more detailed surveys during the design and implementation process.

Field reviews considered wildlife habitat and conditions over a broad area, encompassing most of the Crystal River Valley floor and adjacent slopes.

This reconnaissance-level review was not designed or intended to provide a comprehensive wildlife inventory of the Crystal River Valley. Such inventories are typically geographically specific, intensive, and can take many months or years to complete. Instead, this review was designed to provide a uniform, baseline understanding of wildlife resources, issues, and potential impacts at a level of detail that is appropriate to support trail planning and evaluation and subsequent USFS NEPA analysis.

The potential impacts to mapped wildlife habitat areas were evaluated based on the trail alternatives and a 100-meter zone of influence. The 100-meter zone of influence distance is based on scientific literature pertaining to the impacts of recreation and human development on wildlife (see *Summary of Impacts from Trails and Recreation* discussion below). The "zone of influence" is the area around a trail or recreation area in which human presence or activity affect wildlife behavior. While the actual zone of influence may vary widely by location, terrain, species, and levels of habituation, 100-meters is a commonly-accepted distance and is used as the quantitative standard for this study.

Listed and Sensitive Wildlife

The Crystal Valley contains known or suitable habitat for a number of listed, sensitive, and rare, wildlife species (Appendix C). Suitable habitat areas were identified based on field reviews and a review of existing documents to understand where suitable habitat exists for these species or where they are known to occur. The evaluation considered listed, sensitive, and CPW-tracked species. The potential presence of rare and listed wildlife species within the study area is summarized in Table 4.

ESA-Listed Species

ESA-listed species with the potential to occur within the Crystal Valley study area are the Canada lynx (*Lynx Canadensis*) and Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), both listed as Threatened (USFWS 2017a).

Canada Lynx

Canada lynx was listed as a threatened species on March 24, 2000 (65 Federal Register (FR) 16051). The historical distribution of Canada lynx extends from Alaska across much of Canada (except for coastal forests) and south into parts of the western U.S., the Great Lakes states, and New England. Lynx distribution is aligned with the presence of their primary prey, the snowshoe hare (*Lepus americanus*). (Ruggiero et al. 2000). Between 1999 and 2006, 218 Canada lynx were reintroduced into Colorado by CPW. In 2010, CPW determined that a viable, self-sustaining breeding population of Canada lynx had reestablished in the southern Rockies (Interagency Lynx Biology Team (ILBT) 2013; Theobald and Shenk 2011).

In the southern Rockies, lynx occur largely in conifer stands within the subalpine and upper montane forest zones, typically above 9,500 feet in elevation in Colorado. In the higher elevations, suitable lynx forest habitat is typically dominated by subalpine fir (*Abies lasiocarpa*) and Engelmann spruce that transition to aspen vegetation types (e.g., lodgepole pine/aspen/Douglas-fir). Lynx use riparian habitats during the fall months, and occasionally use lower montane forests (e.g., ponderosa pine and pinyon pine/juniper communities) and montane shrublands (ILBT 2013). Lynx normally use coniferous or deciduous vegetation less than 6 feet in height with a closed canopy for traveling (USFS 2002). Females seem to select dense mature forest habitats that contain large woody debris, such as fallen trees or upturned stumps, as denning habitat. Typically, kittens are born between May and July. Den sites tend to be in mature or old growth stands with a high density of logs (Ruediger et al. 2000; Ruggiero et al. 2000). Foraging areas include early successional forests with a high density of stems and branches that protrude above the snow.

The primary limiting factor for lynx populations is the abundance of snowshoe hare and alternative prey species, which in turn is limited by availability of winter habitat (Ruggiero et al. 2000; Ruediger et al. 2000). Home range sizes vary from 12 to 83 square miles and are influenced by availability of prey, the season, the lynx's gender and age, and the density of the population (USFWS 2017b). Lynx rarely venture into open areas. Movement corridors consisting of continuous coniferous forests are critical for lynx travel and dispersal (Tanimoto 1998).

Critical habitat was revised on September 12, 2014 for the contiguous United States distinct population segment of Canada lynx (USFWS 2014a). Approximately 1.1 million acres of suitable denning, winter, matrix, foraging, and linkage habitat for lynx is mapped within the WRNF (USFS 2002c). Lynx is known to occur within the study area, and mapped linkage habitat is identified at McClure Pass (Table 4). There is no critical habitat designated on the WRNF. The valley bottom is primarily used as a movement corridor for the lynx, and does not provide denning or foraging habitat (ILBT 2013). Linkage areas are broad areas of habitat where animals can find food, shelter, and security. Linkage areas are relatively unfragmented, and provide movement opportunities for lynx. Linkage areas are important because they provide landscape connectivity between blocks of habitat that are separated by intervening areas of non-habitat (USFS 2008).

Western Yellow-Billed Cuckoo

On October 3, 2014, the USFWS listed the western yellow-billed cuckoo as threatened (79 F.R. 192). In the United States, the western yellow-billed cuckoo is known to occur in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming. This species is a large late-breeding migratory bird, usually arriving to Colorado in July and departing between late-July and early-September. The western yellow-billed cuckoo nests almost exclusively in multistoried dense vegetation riparian woodlands composed of cottonwood and willow, and occasionally tamarisk that is 12 acres (5 ha) or greater in extent. The western yellow-billed cuckoo's elevation range is generally below 6,000 feet within arid to semiarid landscapes, although it may occur at elevations up to 8,500 feet (Hughes 1999). It is a foliage gleaner of large insects.

Larger habitat patches are necessary for breeding, although breeding pairs have been observed in in smaller habitat patches (NatureServe 2017). Dense riparian understory foliage is an important factor in

nest site selection, while cottonwood trees are an important component of foraging habitat within (USFWS 2011). Stopover habitat may include smaller patches of riparian habitat such as those found Crystal River Open Space Parcel and in Janeway North.

The decline of the western yellow-billed cuckoo population is primarily attributable to habitat loss, degradation, and fragmentation resulting from human activities. Overgrazing, encroachment of tamarisk and non-native plants on native riparian woodland species, and river management (including altered flow and sediment regimes), and flood control practices (such as channelization and bank protection) are identified as major causes of population declines (USFWS 2001).

Western yellow-billed cuckoo is not known to occur in the Crystal Valley or on the WRNF, but known populations occur to the south in the North Fork Valley near Paonia (Table 4). Suitable cuckoo habitat exists in two areas within the study area: at the Crystal River Open Space Parcel and in Janeway North.

Table 4. Listed and Sensitive Species Habitat and Suitable to Occur in the Study Area

Species	Status	Suitable Habitat and Potential to Occur	7 Oaks – Nettle Creek	Red Wind – Andrews	Perham – Janeway South	Avalanche – Narrows	Filoha	Wild Rose	Redstone – Hawk Creek	Hayes Falls – Bear Creek	Placita – McClure
Key: ● indicates that suitable habitat is present ★ indicates that species presence was confirmed											
MAMMALS											
American marten *Martes americana*	FSS	Suitable habitat in subalpine fir-spruce forests		●	●	●			●	●	
Canada lynx *Lynx canadensis*	ESA Threatened Critical Habitat	Suitable winter, denning, and other habitat; primarily movement corridors between higher-elevation areas		●	●	●		●		●	●
Fringed myotis *Myotis thysanodes*	FSS	Suitable roosting and foraging habitat; acoustic monitoring detection in Janeway Meadow	●	●	★	●	●	●	●	●	
Hoary bat *Lasiurus cinereus*	FSS	Roosting and foraging habitat; acoustic monitoring detections in Janeway and Filoha meadows	●	●	★	●	★	●	●	●	●
North American wolverine *Gulo gulo luscus*	ESA Proposed Threatened	No suitable habitat present									
Pygmy shrew *Sorex hoyi montanus*	FSS	Suitable habitat in coniferous forested Crystal River corridor	●	●	●	●	●	●	●	●	
River otter *Lontra canadensis*	FSS	No known populations in the Crystal River									
Rocky Mountain bighorn sheep *Ovis canadensis canadensis*	FSS	Seasonal winter and summer ranges on west-facing slopes		★	●	★	★		●	★	
Townsend's big-eared bat *Corynorhinus townsendii townsendii*	FSS	Roosting and foraging habitat; known populations above Filoha Meadow and acoustic monitoring detection at Janeway and Filoha	●	●	★	●	★	●	●	●	

Species	Status	Suitable Habitat and Potential to Occur	7 Oaks – Nettle Creek	Red Wind – Andrews	Perham – Janeway South	Avalanche – Narrows	Filoha	Wild Rose	Redstone – Hawk Creek	Hayes Falls – Bear Creek	Placita – McClure
BIRDS											
American bittern *Botaurus lentiginosus*	FSS	Suitable habitat in large emergent wetland areas; not known to occur					●				
American peregrine falcon *Falco peregrinus anatum*	FSS	Known and suitable nests in multiple locations on cliffs high above the valley floor	●	●	●	★	●	●	★	●	
Bald eagle *Haliaeetus leucocephalus*	FSS	Suitable winter roosting, foraging and nesting habitat; historic presence in valley	●	●	●	●	●	●	●	●	
Black swift *Cypseloides niger*	FSS	Suitable breeding habitat at Bulldog Creek above Avalanche Creek and Hayes Falls; suitable foraging habitat in meadows			●	★	●			★	
Boreal owl *Aegolius funereus*	FSS	Suitable forest habitat, but below elevation range; previously documented in Middle Thompson Creek PCA									
Brewer's sparrow *Spizella breweri*	FSS	Very little suitable habitat									●
Flammulated owl *Otus flammeolus*	FSS	Suitable habitat in mature forest areas				●		●	●	●	●
Lewis' woodpecker *Melanerpes lewis*	FSS	Suitable habitat along Crystal River	●	●	●	●	●	●	●	●	
Northern goshawk *Accipiter gentilis*	FSS	Suitable breeding habitat in coniferous forest patches				●		●		●	●
Northern harrier *Circus cyaneus*	FSS	Suitable habitat in Janeway, Filoha, and Placita meadows and wetlands			●		●				●
Olive-sided flycatcher *Contopus cooperi*	FSS	Suitable breeding habitat in forest patches near Avalanche and Bear Creeks				●				●	

Species	Status	Suitable Habitat and Potential to Occur	7 Oaks – Nettle Creek	Red Wind – Andrews	Perham – Janeway South	Avalanche – Narrows	Filoha	Wild Rose	Redstone – Hawk Creek	Hayes Falls – Bear Creek	Placita – McClure
Purple martin *Progne subis*	FSS	Suitable breeding habitat in aspen forest at top of McClure Pass									★
Western Yellow-billed Cuckoo *Coccyzus americanus occidentalis*	ESA Threatened	Suitable habitat in riparian areas in Crystal River Open Space and Janeway North areas	●		●						
INSECTS											
Monarch butterfly *Danaus plexippus*	FSS	Suitable habitat (milkweed) in Crystal River Open Space and Narrows area	●			●					
Western bumblebee *Bombus occidentalis*	FSS	Suitable habitat in Janeway, Avalanche, and Filoha meadows, and along wagon road near Bear Creek			●	●	●			●	
AMPHIBIANS											
Boreal toad *Bufo boreas*	FSS	Suitable habitat in wetlands south of Redstone and north of Placita							●		
Northern leopard frog *Rana pipiens*	FSS	Suitable habitat along Crystal River, and wetlands in Filoha Meadows, Redstone south, and Placita areas	●	●	●	●	●		●	●	

FSS Species

FSS species include a number of mammal, bird, amphibian, and insect species that are known to occur or have suitable habitat within the Crystal Valley (Table 4 and Appendix C). Habitat for these species was evaluated and the presence of several species in the study area was confirmed during the field review. Species for which targeted surveys were completed, or had presence confirmed during the field surveys, are briefly discussed below. Peregrine falcon is discussed in greater depth because it is both a FSS species and Colorado species of concern.

Bats

The survey area was assessed for FSS bat habitat during the field review, and acoustic surveys for bats were conducted over three nights in suitable habitat at Janeway South and Filoha Meadows in July 2017. Hoary bat, Townsend's big-eared bat, and fringed myotis were all confirmed as present at Janeway South. Hoary bat and fringed myotis were confirmed at Filoha Meadows. Bat sign was recorded at Filoha Meadows within an existing cabin structure. Habitat and occurrences of these species is described below.

- Fringed myotis occur primarily at middle elevations in desert, riparian, grassland, and woodland habitats, but have been known to occur at elevations up to 8,200 feet. They roost in caves, mines, cliff faces, rock crevices, old buildings, bridges, snags, and other sheltered sites. In Colorado, most maternity roosts have been observed in crevices of rock faces, sometimes in abandoned mines or in an abandoned cabin. In spring and summer, males roost separately and are rarely found in nursery colonies. Winter habits are poorly known; hibernacula include caves, mines, and buildings (NatureServe 2016). Fringed myotis suitable habitat is present between Placita and 7 Oaks.
- Hoary bat suitable habitat primarily consists of deciduous and coniferous forests and woodlands, including areas altered by humans. Foraging habitat includes various open areas, including spaces over water and along riparian corridors. Individuals may forage around lights in rural settings. Roost sites are usually in large deciduous or coniferous trees, near the end of branches 10 to 60 feet above ground, with dense foliage above and open flying room below, often at the edge of a clearing and commonly in hedgerow trees. Sometimes these bats roost in rock crevices or other sites, but rarely in caves. Individuals have a low level of roost fidelity. Hibernating individuals have been found in a variety of locations including tree trunks, tree cavities, in a squirrel's nest, and in a clump of Spanish-moss (NatureServe 2017). Hoary bat suitable habitat is present throughout the study area.
- Townsend's big-eared bat prefers relatively cold places for hibernation, often near entrances of structures and caves and in well-ventilated areas. It uses caves, buildings, and tree cavities for night roosts. Throughout much of its known range, this bat commonly occurs in mesic habitats characterized by coniferous and deciduous forests (NatureServe 2016). Townsend's big-eared bat suitable habitat is present in the study area between Placita and 7 Oaks.

The trail alternatives are not likely to result in impacts to bat species as their roosting habitat would not be impacted. Caves and structures would not be altered, and tree removal would be avoided when

possible and would not occur if bats are determined to be roosting. The trail is not likely to impact in loss of foraging habitat.

Nesting Birds

Black swifts forage over forests and in open areas and nests in dark inaccessible sites with unobstructed flight paths, such as nests behind or next to waterfalls and wet cliffs, and occasionally in limestone caves (NatureServe 2016). Black swift suitable habitat is present at Janeway South, above Avalanche Creek at Bulldog Creek, at Filoha Meadows, and at Hayes Falls. Black swifts were observed near Avalanche Creek and at Hayes Falls.

Purple martens occupy a wide variety of open and partly open habitats, frequently near water in mature aspen stands. Birds nest in abandoned woodpecker holes in trees. In Colorado, purple martins are semi-colonial, with multiple pairs of martins nesting in the same tree stand. They feed in open areas, especially near water (NatureServe 2016). Purple martens were confirmed as present at McClure Pass, where suitable nesting habitat occurs.

Owls and Raptors

Filoha Meadows, looking north at bat. peregrine falcon and bighorn sheep habitat.

Assessment of habitat for boreal owls and flammulated owls was completed during the field review. The study area is below the elevation range for boreal owls which generally occur in forested habitat at elevations above 10,000 feet in Colorado (Hayward and Hayward 1993). Flammulated owl habitat includes open montane mid-elevation conifer forests containing mature coniferous and mixed coniferous forests with some brush or saplings, in cooler semiarid climate, with a high abundance of nocturnal arthropod prey and some dense foliage for roosting. It nests in abandoned tree cavities in large-diameter pine, Douglas-fir, or aspen trees at. They nest between April and June (NatureServe 2016).

Suitable habitat for flammulated owls was observed at Avalanche, the Narrows, and from Hawk Creek to McClure Pass. The study area is below the elevation at which boreal owls occur. One night of surveys for owls was completed in suitable habitat at McClure Pass and Bear Creek, no owls were detected. The

field review occurred after the owl survey season, and the survey was not adequate to confirm presence or absence.

American Peregrine Falcon

Peregrine falcons use cliffs from 160 feet to 660 feet in height for nesting (White et al. 2002) and primarily nest on the upper half of vertical cliffs with the nest site having a southerly exposure (Craig and Enderson 2004; Wickersham 2016). An estimated 77 to 99 percent (by frequency of species eaten, not biomass) of the peregrine falcon diet consists of smaller passerine birds and small geese. Occasionally small mammals and rarely amphibians, fish, and insects are eaten (White et al. 2002). Cliff-dwelling white-throated swifts, rock pigeons, and mourning doves are the most important prey items for falcons in Colorado (Craig and Enderson 2004; Wickersham 2016). Most prey is captured in the air while the falcon is in flight, also from surface of water or on the ground (White et al. 2002). Thompson (2017) suggests that all habitat within 10-miles of a nesting cliff needs to be considered essential hunting habitat. However, the large hunting range of peregrine falcons indicates that they use many different plant communities opportunistically within foraging ranges and no single local hunting area is thought to be critical to existence of any individual pair of birds (Craig and Enderson 2004).

Peregrine nest sites are located within the Crystal River Valley, and historic presence is documented. The Crystal River Valley provides abundant hunting and nesting habitat for peregrine falcons on both sides of the river and adjacent to SH 133, as documented in Thompson, 2017. The large cliff faces, with proximity to the Crystal River, have been known to support falcon nesting in the past and present. CPW data shows that one peregrine falcon nesting area occurs near Hayes Falls and Hawk Creek. A nesting area includes suitable nesting sites and contains one or more active or inactive nest locations. Nesting area boundaries are mapped based on professional judgment to include most known nesting habitat in the vicinity, which usually includes a 0.5-mile buffer surrounding cliffs (CPW 2017).

One peregrine falcon potential nesting area (at Potato Bill Creek) occurs within 0.5-mile of the trail, and two additional potential nesting areas (east of the Redstone Open Space and west of the KOA campground) occur within two miles of the trail. Potential nesting areas include the necessary components for peregrine falcon nesting, but in which no known active or inactive nest sites are present (CPW 2017). No falcon activity was observed at the Potato Bill Creek, Hayes Falls, or Redstone Open Space sites during the field review. A complete raptor survey was not conducted, and could is recommended for spring 2018 at locations where the trail alternatives intersect or are near potential nesting areas. Falcons often use different ledges on the same cliff band for nesting year-to-year.

During the field review, and during a follow up visit on August 21, 2017, wildlife biologists observed a pair of peregrine falcons perching and flying on cliffs on the west side of SH 133 approximately 0.3-mile northwest of the Penny Hot Springs pull-off, and 5 miles north of the CPW mapped nesting area at Hayes and Hawk Creek. The birds were observed using the middle to upper cliff bands across from a pull off and near a known rock climbing area on the east side of SH 133. An active nest was not located, but it is likely that one exists since the birds were seen on multiple days in the same area. A large concentration of white-throated swifts was observed directly south of the birds on the upper cliffs, providing a potential localized food source. Rock climbing anchors and ropes were observed several

hundred feet south of the area the birds were using. Existing disturbances include SH 133, the road pull off, Penny Hot Springs pull off, and rock climbing evidence in proximity.

Pairs of birds vary greatly in their responsiveness to human activities, depending on individual characteristics, period of their breeding cycle, and partly on environmental circumstances (Cade 1960 in White et al. 2002). Pairs of birds in remote locations are most reactive while pairs in urban or frequently visited areas become habituated to close human activities (White et al. 2002). Therefore, it is possible that this pair has some tolerance to existing disturbance.

The WRNF Resource Management Plan (USFS 2002) recommends that human activities be restricted within one-half (½) mile of occupied peregrine falcon areas between March 15 and July 31 for nest sites, or July 1 to September 15 for hack sites (artificial nesting sites where young are trained to hunt). Distances may vary depending on local topography, potential for disturbance, and the location of important habitat requirements.

CPW (2008) recommends the same restrictions around occupied habitat. It is likely that potential disturbance from intermittent pedestrian or bike traffic on a trail across the SH 133 and the Crystal River would be negligible due to the existing disturbances, and the vertical distance between the valley floor and the height at which the birds were observed (300 to 500 feet). The trail would not be expected to cause abandonment of a nest site.

Mule deer captured by a wildlife camera in the Narrows, looking south.

Peregrine falcons are protected by the Migratory Bird Treaty Act, which prevents the direct killing of young or individuals, but does not protect their habitat itself nor address disturbance from human activities unless it results in killing birds. Spatial and seasonal buffers are used to address the sensitivity of raptors to disturbances, thereby reducing the chances of affecting peregrine breeding activities.

CPW-Tracked Species

In addition to the listed and sensitive species described above, the primary wildlife species of conservation and management interest within the Crystal Valley are bighorn sheep and elk, which use areas within or adjacent to the trail alternative corridors for seasonal (winter and spring) range. Other species tracked by CPW were also evaluated based on CPW mapping, including mule deer, moose, black bear, wild turkey, bald eagle, and peregrine falcon (discussed above). Wildlife cameras placed by OST at Red Wind Point, the Narrow, and Filoha Meadows show that mule deer, bears, turkeys, coyotes, and elk are present in these locations.

Seasonal ranges for bighorn sheep and elk are areas of concern and potential impacts were specifically evaluated based on input from CPW and previous documentation. Evaluation of potential impacts to

both species was based on the overlap of seasonal habitat areas and a 100-meter zone of influence from the potential trail alternatives. Impact findings also considered positive and negative influences of the landscape context, existing seasonal closures, and concerns documented by previous studies and experts. For both species, the following discussion includes a brief background on their habitat requirements and documented facts about the local herds. In addition, specific locations where trail alternatives could potentially impact these species are described.

Bighorn Sheep

Rocky Mountain bighorn sheep (*Ovis canadensis*) range from central British Columbia to Mexico, and from California east to western North Dakota and New Mexico. Bighorn sheep is both a FSS species and a CPW-tracked species. Colorado is home to the largest population of the species (CPW 2015). In Colorado, bighorn sheep prefer steep, high-visibility habitat dominated by grass, low shrubs, rock cover, and topographic relief (Armstrong et al. 2011). Bighorn are primarily grazers, feeding in meadows, open woodlands, and alpine tundra. They forage on grasses and forbs in summer. Grasses eaten by bighorn sheep include bluegrass, sedges, wheat grass, bromes and fescues (USFS 1997). Suitable escape terrain that bighorn sheep use to avoid predators (e.g., cliffs and talus slopes) is an important feature of habitat (CPW 2009, NatureServe 2017). Sheep use primarily alpine tundra and associated rocky cliff areas during summer. In winter, they use lower-elevation open, grassy benches and southerly slopes, with some herds wintering on windswept ridges at high elevations. Most sheep have different summer ranges, while some stay in south-facing winter range all year (CPW 2009).

In Colorado, the statewide bighorn population has been steady at about 7,000 animals in 79 herds (CPW 2009). Across the west, the main reason for bighorn sheep population declines has been bacterial pneumonia (also called “pasteurellosis”). These infections, which stem primarily from exposure to domestic sheep and goats on summer ranges, can cause die offs of sheep of all ages, and low lamb recruitment. Bighorn sheep often appear to habituate fairly well to human activity. However, stress associated with human or other disturbances could increase the susceptibility to diseases in individual animals, contributing to epidemics in some situations (CPW 2009).

West Snowmass Herd

The bighorn herd in the study area is within the Snowmass, West management Unit (S25). This herd encompasses the West Elk Mountain Range, to the east of the Crystal River, including the slopes of Mount Sopris and the upper Avalanche Creek basin. Summer range is concentrated on the high-elevation slopes in the upper Avalanche Creek basin, while winter range is concentrated on the west and south-facing slopes above the Crystal River, Redstone, and Marble (Figure 2) (CPW 2016). Conditions for bighorn populations throughout Colorado, including the West Snowmass Herd, are described in the statewide management plan for the species (CPW 2009). Nine local populations in Colorado have herd-specific management plans. CPW does not have a herd-specific management plan for this herd.

The West Snowmass population is believed to be in poor condition, primarily due to disease and exposure to domestic sheep on summer ranges. Disease has resulted in high lamb mortality (up to 95 percent) (Groves 2017). Population estimates since 1986 show a downward population trend, with about 200 animals in 1992 declining to about 125 in 2006, and 75 in 2007 (CPW 2009). The most recent

population estimate was in 2012, and the current herd size is estimated to be about 45 to 50 animals (Groves 2017).

Habitat in the Crystal Valley

Within the lower elevations of the Crystal Valley, most of the west and southwest-facing slopes above the valley floor are considered winter range for bighorn sheep. These slopes generally consist of steep, rocky slopes with high winter sun exposure and favorable escape terrain for bighorn. CPW has identified Severe Winter Range and Winter Concentration Areas at several specific sites, including the slopes above Red Wind Point, Avalanche Creek, Filoha Meadows, and Redstone. Production (lambing) areas have been identified on the slopes above Red Wind Point and the Crystal River Estates Subdivision, Avalanche Creek, Wild Rose Subdivision, and Redstone. Mineral licks used by bighorn to supplement dietary intake have been identified above Avalanche Creek, along the river at Filoha Meadows, and high on the slopes southeast of Redstone (CPW 2016).

The amount of mapped seasonal habitat for bighorn within the Crystal Valley study area is summarized in Table 5, and is shown on Figure 3. Habitat within specific trail segments is shown on Figures 6 through 14. Note that the study area is defined to be within ½ mile of the trail alternative corridors.

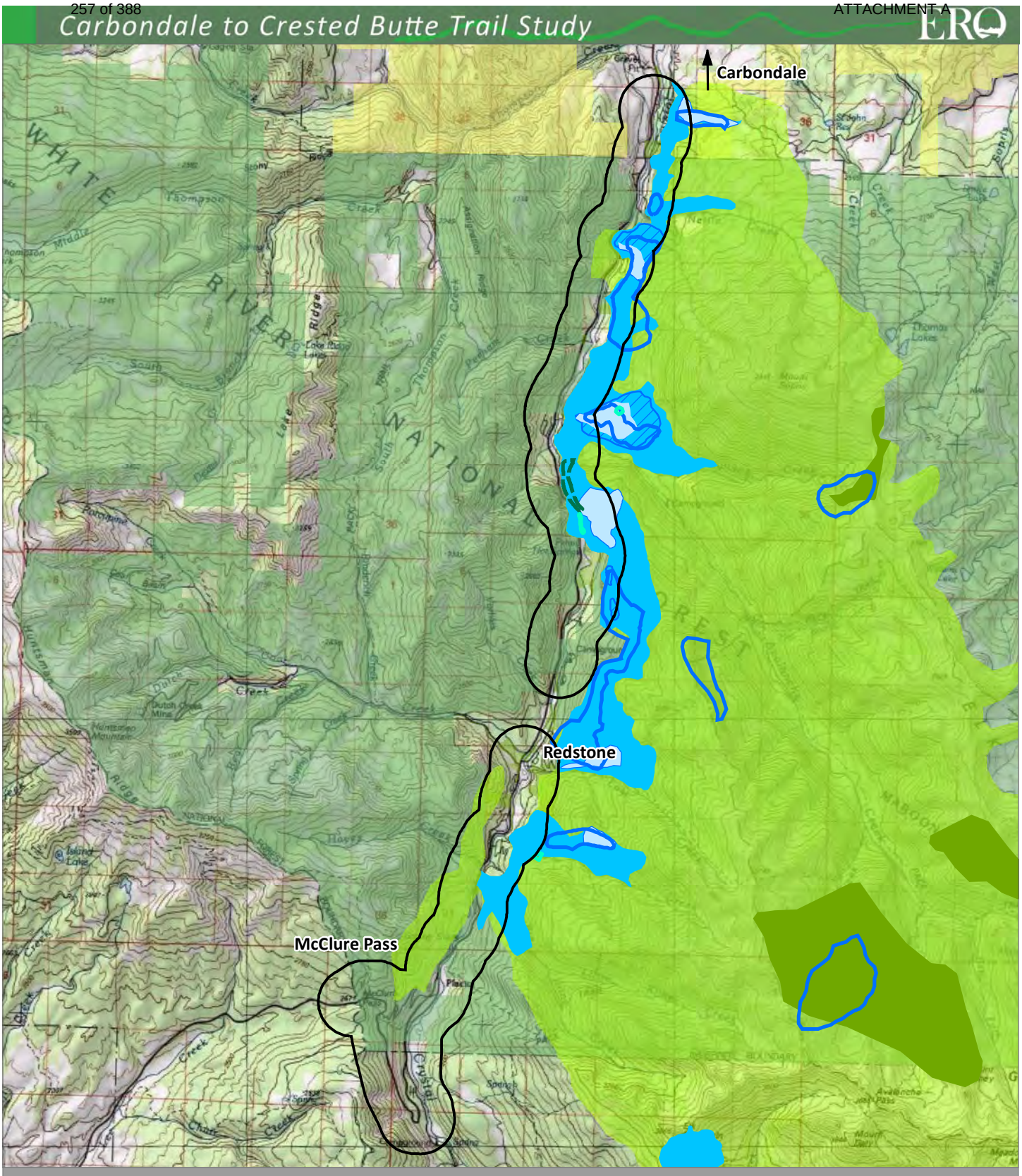

Figure 3. CPW Bighorn Sheep

- Trail Study Area
- Bighorn Mineral Lick
- Bighorn Migration Corridor
- Bighorn Production Area
- Bighorn Severe Winter Range
- Bighorn Winter Concentration Area
- Bighorn Winter Range
- Bighorn Summer Concentration Area
- Bighorn Summer Range
- BLM
- USFS
- Pitkin County Open Space

0 5,000 10,000 feet

October 5, 2017

Table 5. Bighorn Sheep Habitat Areas within the Study Area

Seasonal Habitat Area – Bighorn Sheep	Total Acres	Location
Production Area	433	Rocky, west-facing slopes between Red Wind Point and Redstone
Winter Range	2,340	Valley floor and west facing slopes
Winter Concentration Area	477	Slopes above Red Wind Point, Avalanche Creek, and Filoha Meadows
Severe Winter Range	289	Slopes above Red Wind Point, Avalanche Creek, and Filoha Meadows
Migration Corridor	n/a	Lower slopes between Avalanche Creek and Filoha Meadows
Mineral Lick	4	East riverbank near Penny Hot Springs/Filoha Meadows

Source: CPW 2014

Areas of Concern

The following specific locations have been identified as areas of concern, where trail alternative corridors intersect or may come into proximity to mapped or known bighorn habitat areas. These locations are:

- Red Wind Point - Production and Winter Concentration Areas
- Avalanche Creek - Winter Concentration Area and Severe Winter Range
- Narrows - Migration Corridor
- Filoha Meadows - Migration Corridor, Production Area, Winter Concentration Area, and Mineral Lick

Elk

Rocky Mountain Elk occupy most habitat types in the Colorado mountains, ranging from shrublands to semi-open forests, meadows, and alpine areas. In general, elk prefer open woodlands and avoid dense unbroken forests (Armstrong et al. 2011). Elk are considered generalist feeders (grazers and browsers), foraging on a variety of grasses, forbs, and shrubs throughout the year. Forage preferences vary among seasons, habitats, and years, and are influenced by plant species availability, phenology, and palatability. Winter snow conditions can have a major influence on forage availability. As snow depth increases, elk decrease their use of low-growing herbs and shrubs and increase their use of tall shrubs, conifers, and arboreal lichens. In spring, elk shift their foraging to grasses, forbs, and low shrubs (Cook 2002). Breeding in Colorado occurs during mid-September to mid-October, with females giving birth in late May to early June the following spring. Females with calves tend to isolate themselves from the herd for the first two to three weeks, seeking solitude in dense forest or shrubland areas (Armstrong et al. 2011).

Elk in the project area are within the Avalanche Creek Elk Data Analysis Unit (DAU) E-15. This DAU encompasses all of the Crystal Valley, the eastern slopes of the Thompson Divide, and the Roaring Fork Valley south of Highway 82. The most recent (2013) population estimate was about 4,500 elk, while CPW's population objective ranges between 3,600 and 5,400 animals (CPW 2013).

A limiting factor for this population is the availability of winter range. Winter range within the DAU E-15 is considered to be in poor condition due to vegetation changes and land development. Vegetation changes have resulted from long-term fire suppression and limited habitat management that has resulted in older, denser, and less productive forage for elk. In addition, higher populations in recent decades have resulted in heavy browsing of shrubs, though warmer and drier winters in recent years have allowed elk to use mid-elevation habitats that were historically transitional range in the early and late winter, reducing the intensity on traditional winter range (CPW 2013).

Human development has been another major factor contributed to the loss of winter range. While most of the DAU is public land (76 percent), about half of the lower-elevation winter range is private and continues to be lost to development. With the development has come an increasing demand for trails and outdoor recreation, which adds to the disturbance of elk throughout their range, but particularly in winter and transitional ranges. The combined effect of reduced winter range and increased human disturbance have threatened the quality and quantity of habitat in the region (CPW 2013).

Within the Crystal Valley study area, nearly all of the valley floor is winter range for elk, creating a narrow sliver of habitat extending south from the Crown/Carbondale/Thompson Divide areas. Winter Concentration Areas and Severe Winter Range are found in the Janeway/Avalanche Creek, Filoha Meadows, Redstone, and Placita area. Production (calving) habitat is found on the higher-elevation slopes above Avalanche Creek, Redstone, and Bear Creek. Existing seasonal habitat areas published by CPW are described in Table 6 and are shown on Figure 3.

In addition, at least two areas have been reported to provide calving or rearing habitat for elk:

- Riparian areas on Filoha Meadows were reported to be used to shelter young calves in 2003 and 2004 (Pitkin County 2008)
- Just south of Redstone, conifer-dominated habitat and islands have also been reported by locals to be a common location for elk cows to shelter their young after calving (McCormick 2017).

These areas are not identified in CPW mapping, but both are identified as High-Quality Wildlife Habitat Areas for these and other habitat attributes (see discussion below).

Table 6. Elk Seasonal Habitat Areas in the Study Area

Seasonal Habitat Area - Elk	Total Acres	Location
Production Area	562	Upper slopes above Avalanche Creek, Redstone, and Bear Creek
Winter Range	9,281	Entire Crystal Valley study area
Winter Concentration Area	946	Slopes above Janeway meadow and Avalanche Creek, Filoha Meadow, slopes above Redstone, and slopes above Placita
Severe Winter Range	719	Slopes above Avalanche Creek, Filoha Meadow, slopes above Redstone, and slopes above Placita
Highway Crossing	n/a	Highway 133 near Filoha Meadow and Placita

Carbondale to Crested Butte Trail Study

ERO

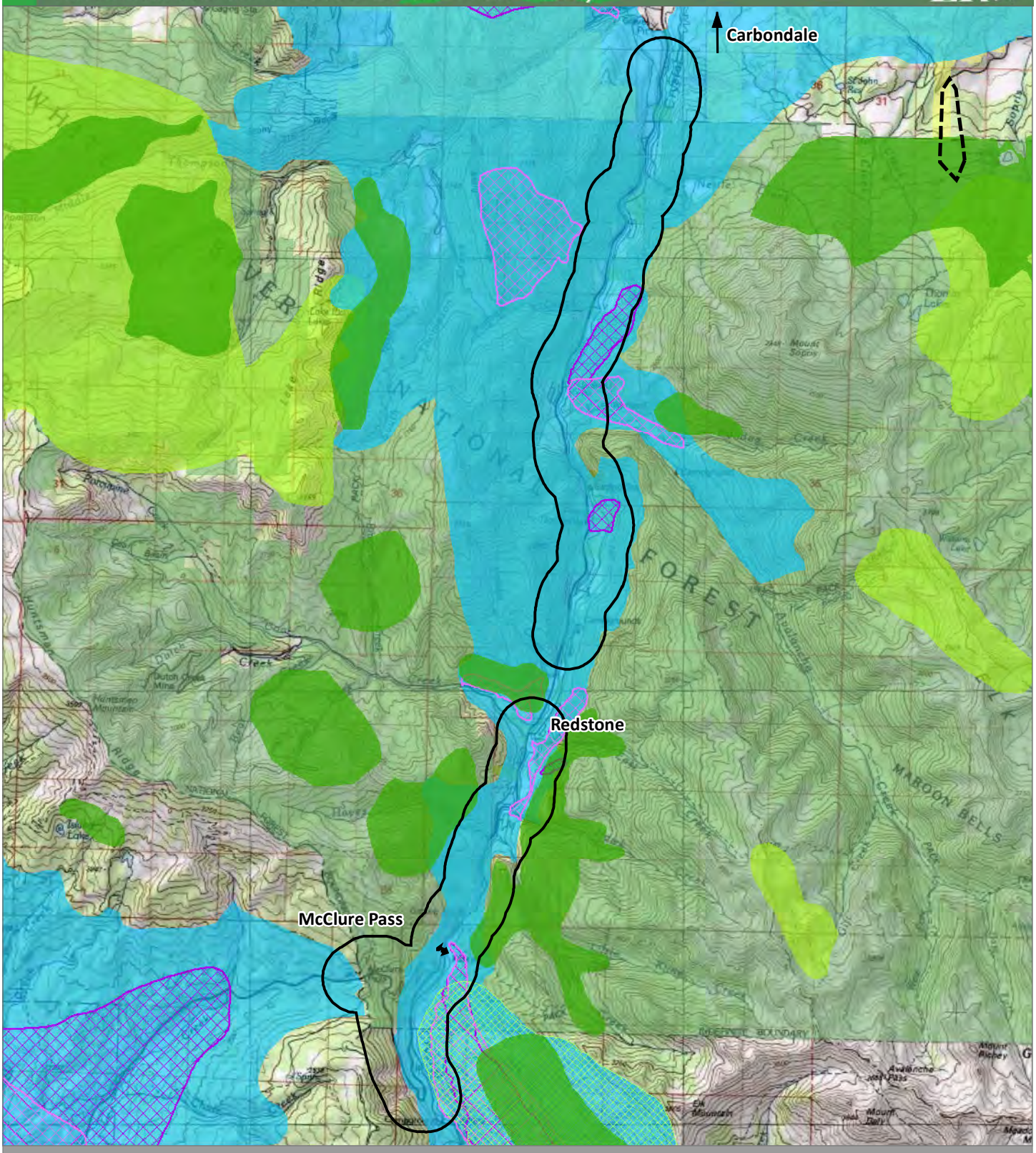

Figure 4. CPW Elk

0 5,000 10,000 feet

October 5, 2017

- Trail Study Area
- Elk Migration Corridor
- Elk Production Area
- Elk Resident Population Area
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Elk Winter Range
- Elk Summer Concentration Area
- BLM
- USFS
- Pitkin County Open Space

High Quality Wildlife Habitat Areas

Based on field observations, ERO ecologists identified eight distinct habitat patches within the study area that possess high-quality habitat value. These areas were identified based on the following factors:

- Species composition, vegetative cover, distance from disturbance, and vegetative structure of habitat that is favored by rare or tracked wildlife species
- Landscape setting that favors wildlife use (e.g., transitional habitat or movement corridors)
- Field observations of wildlife use (e.g., scat, game trails, nests)
- Contiguous, intact patch of habitat possessing the above attributes.

Each area, and the rationale for their identification, are briefly described in Table 7.

Table 7. High Quality Habitat Areas and Attributes

Segment	Wildlife Habitat Attributes
Crystal River Open Space Parcel	Broad, multi-storied riparian habitat supported by ditches and the Crystal River; suitable habitat for yellow-billed cuckoo; large cottonwoods with cavities for nesting/roosting; existing social trails and human use.
Janeway North	Large area of multi-storied riparian habitat between the Crystal River, cliff areas, and upland hillsides; diverse understory with high-quality wetlands and oxbows; suitable habitat for YB Cuckoo and other species; frequent signs of wildlife use, minimal evidence of human use.
Avalanche South	Undisturbed valley with diverse vegetation communities; good habitat for bird and bat foraging, lynx, ungulate, and bear corridors, and several USFS sensitive species such as Northern goshawk and flammulated owl.
Filoha Wetlands A	Large, undisturbed wetlands on the lower terraces adjacent to the Crystal River; diverse plant species and wildlife use supported by warm springs; beaver use and high insect diversity supports birds, bats, waterfowl, and other wildlife.
Filoha Wetlands B	Large, undisturbed wetlands on the lower terraces adjacent to the Crystal River; diverse plant species and wildlife use supported by warm springs; beaver use and high insect diversity supports birds, bats, waterfowl, and other wildlife.
Redstone North	Broad floodplain, with natural habitat structure of multiple channels, islands, and benches and unique conifer wetlands; Reported use as elk rearing area on islands; multiple big game trails cross the road and go down to the river.
Placita Wetlands	Broad floodplain with diverse wetland and riparian habitat; beaver-supported wetlands; known habitat for amphibians, waterfowl, heron, moose, and many others.
McClure Pass	Large, undisturbed aspen forest; habitat for birds including Cooper's hawk, sharp-shinned hawk, Northern goshawk and flammulated owls; habitat for Canada lynx, ungulates, and bear; movement corridor between Huntsman Ridge and Raggeds.

Possible impacts to these areas were evaluated based on the potential for direct disturbance that would result from a potential trail alignment as well as disturbance to areas within a 100-meter zone of influence from the trail.

Landscape Disturbance

A landscape-scale analysis of existing human development and disturbance in the Crystal Valley was conducted to understand where human development and presence currently impacts or influences wildlife habitat, and where wildlife habitat is truly free from human disturbance. Habitat areas that have low levels of human use and disturbance are considered to be more vulnerable to new impacts resulting from trail alternatives. The evaluation of impacts to undisturbed habitat, moderately disturbed habitat, and undisturbed river frontage are factors that contributed to the overall assessment of impacts to wildlife.

Understanding Existing Wildlife Habitat Disturbance

This analysis is based on the understanding that rural fringe, or "exurban" development has direct impacts to wildlife use, patterns, and diversity in the surrounding habitat. These impacts include habitat loss and alteration in the immediate homesite and surrounding area (e.g., driveways, outbuildings, yards, landscape areas), and secondary impacts due to habitat fragmentation, human occupation and presence, and disturbance or predation from domestic pets. While developed areas tend to favor common species that are easily-habituated to humans or find benefits (food and refuge) in developed areas, sensitive species or those with specialized habitat requirements are adversely impacted (Odell and Knight 2001, Hansen et al. 2005, Maestas et al. 2003, Theobald et al. 1997, Goad et al. 2014, NRCS 2007). The distance in which these impacts from developments occur can vary from 50 to 500 meters or greater, based on species and habitat type, and other factors (Theobald et al. 1997, Odell and Knight 2001, Hansen et al. 2005). For this analysis, an impact buffer from development of 100 meters was used to account for the potentially greater level of habituation associated with long-established subdivisions, and to be consistent with the impact buffer used for new impacts, described below under *Summary of Impacts from Trails and Recreation*.

Existing human disturbance areas were identified based on a GIS analysis of high, moderate and low disturbance areas. For the high and moderate disturbance areas, a 100-meter buffer of influence was applied to identify the areas within which wildlife habitat is compromised or wildlife behavior is altered due to human development.

- **High Disturbance Areas** – Existing homes/subdivisions, campgrounds, and highway (plus 100-meter zone of influence). These are areas where human development and use is frequent and heavy, wildlife habitat and behavior are substantially altered, and new impacts from trail development would be minimal.
- **Moderate Disturbance Areas** – Private parcels, secondary roads, trails, and concentrated recreation areas (plus 100-meter zone of influence). These are areas where human use or occupation is prevalent but less intense, wildlife habitat is intact but is somewhat altered or degraded, and new impacts from trail development may further degrade habitat quality.
- **Low Disturbance Areas** – National Forest lands, open space, and other areas not otherwise classified. These are areas where human use or occupation is low, and wildlife habitat and behavior is largely uninhibited by humans. New impacts from trail development would be greater in these areas.

Existing disturbance areas are shown on Figure 4. Note that this analysis is based on Pitkin County GIS data sets, including existing structures, roads, trails and other features identified specifically for this project. While most data errors have been accounted for, some anomalies may exist. In addition, landscape factors such as vegetation, topography, or the "refuge effect" of the Crystal River are not accounted for. This analysis does, however, provide a high-level indication of areas that are currently influenced by human disturbance and occupation, and areas that may be more vulnerable to new disturbances.

Existing Low Disturbance Areas

Based on the landscape analysis described above, the following areas were identified as having low levels of human disturbance. These areas could be more susceptible to new wildlife impacts resulting from trail development and use.

- **Janeway North** – The meadow and wetland complex at the northern end of the Janeway area is a low to moderate disturbance area, at the interface between the Crystal River and extensive national forest land. The railroad grade through this area is a publicly-accessible route, but human access is limited in the northern half of the meadow.
- **Avalanche South** – Despite the presence of the historic Rock Creek County Road, the valley south of Avalanche Creek currently has little to no human disturbance or occupation.
- **Filoha Meadows** – While the existing railroad grade and trail is subject to seasonal human access and use, this area otherwise provides extensive, undisturbed habitat from the banks of the Crystal River to upper ridges to the east.

New Disturbance Analysis

The evaluation of potential wildlife impacts included an analysis of new impacts that would be created from each of the trail alternatives. This is based on new impacts to undisturbed and moderately disturbed habitat areas, also assuming a 100-meter zone of influence from the trail. In addition, the analysis considered impacts to undisturbed river frontage, where broad areas of undisturbed habitat interface with the Crystal River.

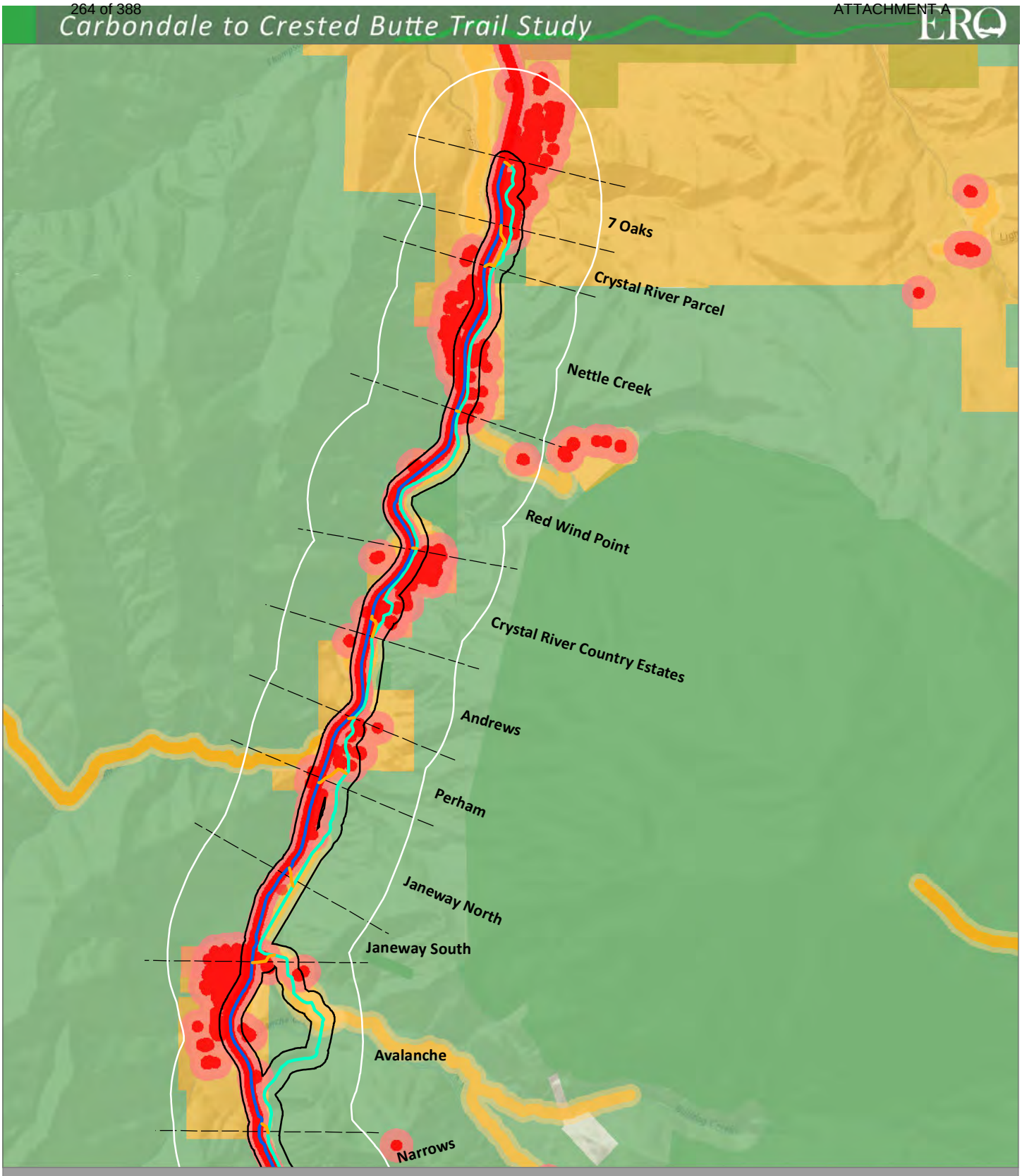

Figure 5. Landscape Disturbance

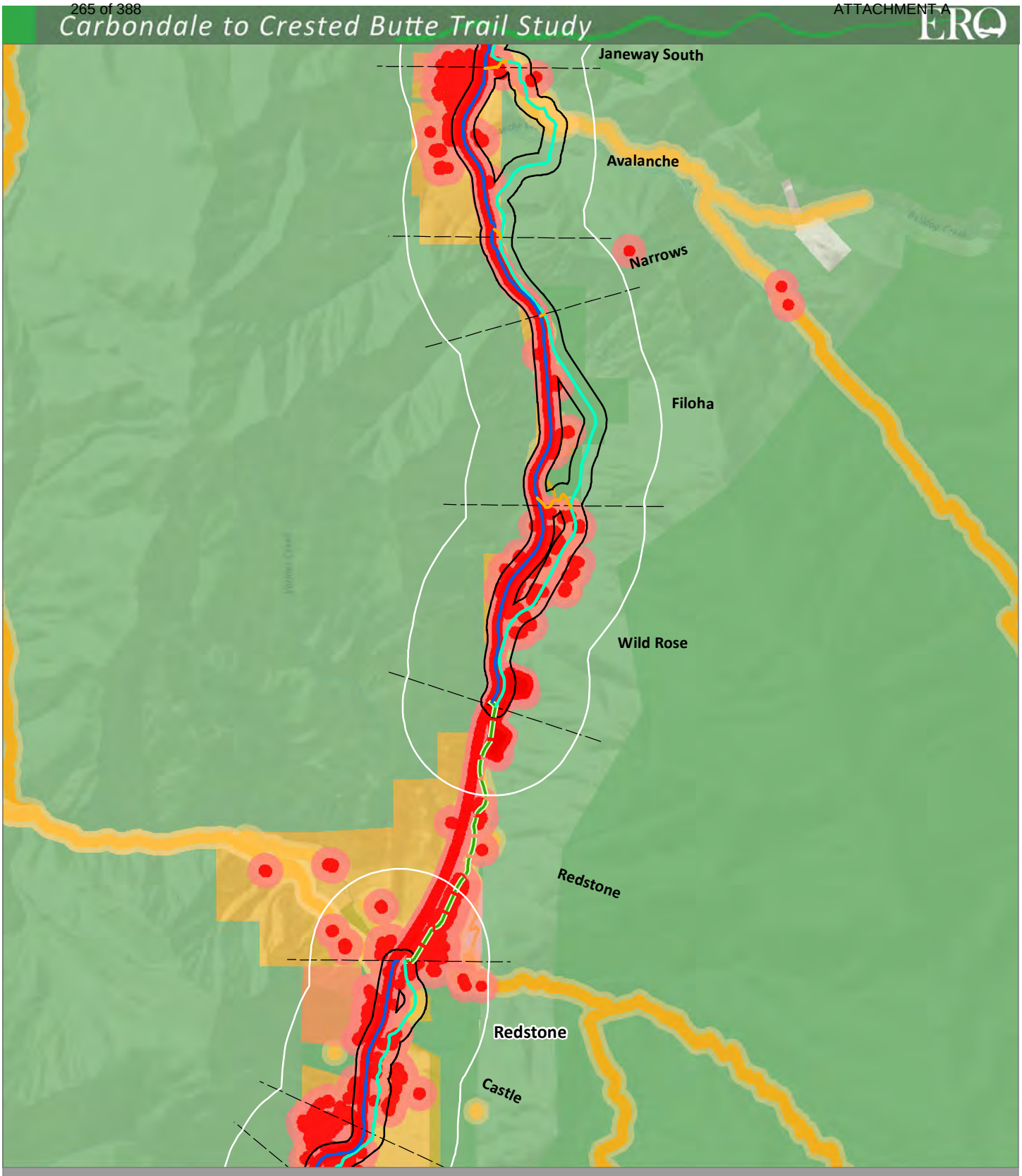

Figure 5. Landscape Disturbance

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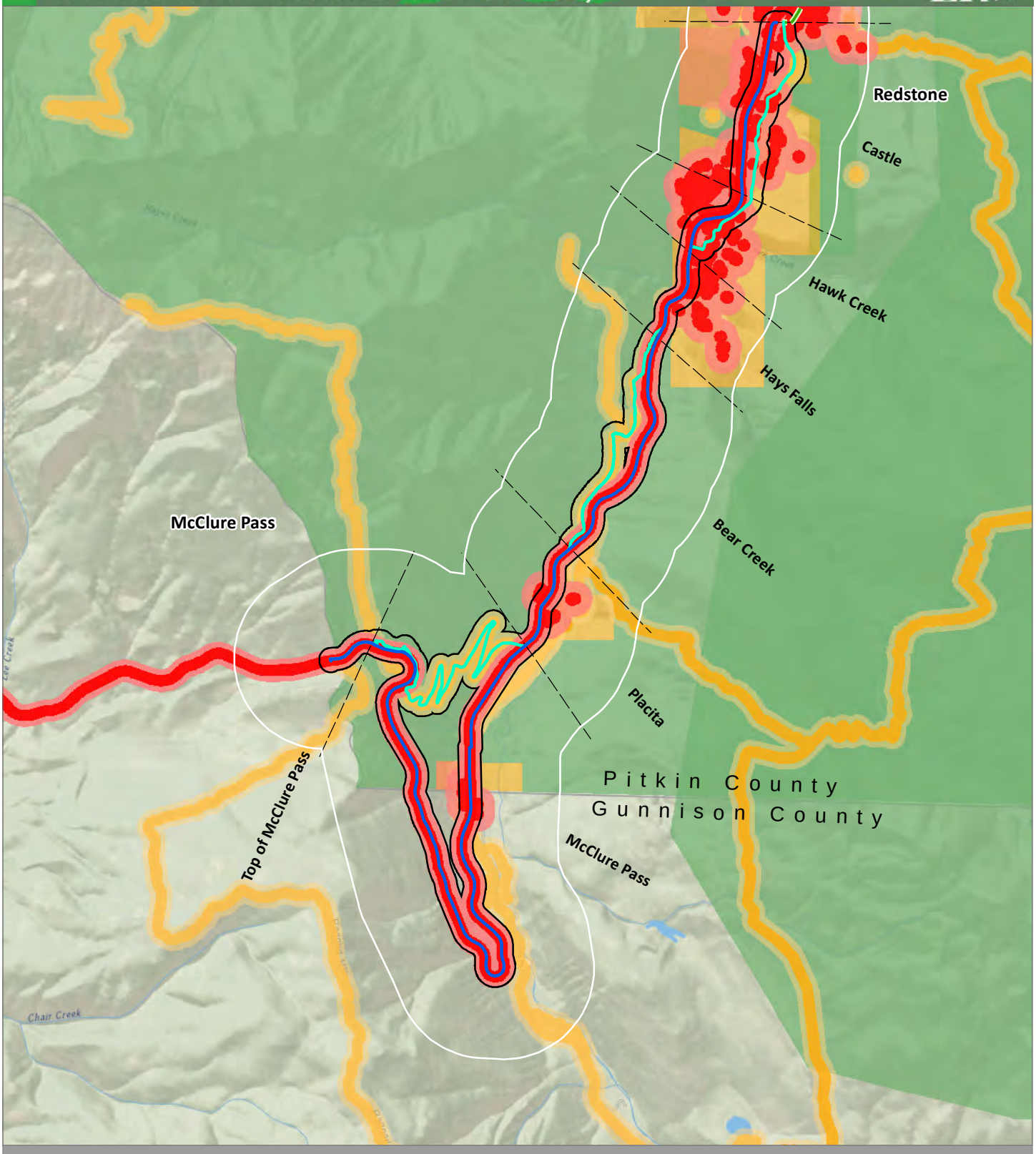

Figure 5. Landscape Disturbance

0 2,000 4,000 feet

October 9, 2017

- Trail Study Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- 100m Trail Impact Area
- High Disturbance
- Medium Diisturbance
- Low Disturbance

Summary of Impacts from Trails and Recreation

Outdoor recreation in natural areas provides a broad range of human benefits that are gained by interacting with the natural world. These benefits include the enjoyment of solitude and natural quiet, opportunities for exercise and physical challenge, opportunities to observe wildlife and learn about the environment, and opportunities to enjoy the outdoors with friends and family. However, all forms of outdoor recreation in the natural environment inherently result in some level of impacts to natural resources due to the construction of trails and facilities, and the presence of humans in the natural environment. These impacts range from localized trampling of vegetation to the abandonment of habitat areas by certain wildlife species (Knight and Cole 1995, Jordan 2000).

One of the purposes of this study is to recognize and understand these tradeoffs, so that the community can make informed decisions about the implementing a regional trail connection that minimizes impacts while providing desired recreational access and experiences. Recognizing these values and goals, the following concepts were considered in the development and evaluation of potential trail alternatives.

Habitat Fragmentation – Large, contiguous blocks of undisturbed habitat are important for the long-term conservation of many plant and wildlife species. Habitat fragmentation reduces the size and overall integrity of these areas, and may be detrimental to some species (Noss and Cooperrider 1994). Fragmentation can occur as a result of large-scale land conversion, urban or industrial development, transportation corridor development, as well as smaller-scale disturbances include the construction and use of recreational trails.

Disturbance Impacts of Trails – The presence of humans along trail corridors can have the greatest impact of wildlife, by creating a "zone of influence" within which human disturbance may alter wildlife behavior. The effects of vary by species and individual animal, and can range from no effect, interruption of activity, flight, to abandonment of breeding or foraging sites. This zone of influence can range from 30 to 400 meters or more, depending on terrain, context, species, and levels of use and habituation (Miller et al. 2001; Taylor and Knight 2003; Stankowich 2008; Cassirer et al. 1992; George and Crooks 2006).

The actual zone of influence, and subsequent impact on wildlife, varies widely based on several factors, including the following:

- Development Context – Levels of existing human development and trail use can greatly influence wildlife responses. In areas with high levels of human development and/or existing trails and recreational uses, most wildlife are habituated to predictable and recurrent human use patterns and no longer see those activities as a threat (Knight and Cole 1995, Taylor and Knight 2003, George and Crooks 2006). In many developed, "front country" settings, wildlife in otherwise natural habitats will not react to recreationists along existing trails, sometimes within 10 meters of the trail. In more remote "back country" settings, wildlife are alert to human presence at a much greater distance (up to 400 meters or more), and will perceive any human intrusion or approach as a threat.

- On-trail vs. Off-trail use – Human presence along existing trails will typically effect wildlife less than off-trail activity, since that use is predictable and recurrent and wildlife in the area are habituated to those patterns (Knight and Cole 1995, Whittaker and Knight 1999, Taylor and Knight 2003, Naylor et al. 2009, Malone and Emerick 2003). This is also true for the predictability of vehicles along roads and highways. However, off-trail or off-road travel or visitors who stop and approach wildlife will often elicit a flushing response, since an otherwise predictable encounter can become threatening (Stankowich 2008, Knight and Cole 1995, Spahr 1990, Jordan 2000).
- Terrain and vegetation – The relative openness or density of terrain and vegetation can influence wildlife responses to human disturbance (Knight and Cole 1995, Taylor and Knight 2003). Areas with substantial topographic relief, (such as canyons or undulating ridges), terrain features (broad rivers), or dense vegetation are generally less prone to disturbance, due to the visual screening and separation. Conversely, open terrain such as large meadows or alpine tundra are more prone to disturbance, since human intrusions are evident and may pose a threat to wildlife at a greater distance.
- Species, groups, and individual animals – The response of wildlife to human intrusion also varies widely by species, species groups, and individual animals (Knight and Cole 1995). In general, large mammals and carnivores are affected at a greater distance from disturbance, while the sensitivity to disturbance of many birds and small mammals is limited to a smaller area (Malone and Emerick 2003). However, as discussed previously, in many areas large mammals are habituated to predictable and recurrent human use of trails and developments, while some specialized bird species remain sensitive to repeated disturbance.
- Season – Many wildlife species, particularly ungulates, are more sensitive to disturbance during the winter and spring. Birds are most sensitive during the nesting seasons (spring-early summer). Larger mammals, including mid-sized carnivores and ungulates, are vulnerable to increased stress during the winter period, where the preservation of energy reserves can influence survival and fleeing from a perceived threat can expend those resources (Freddy et al. 1986, Canfield et al. 1999, Olliff et al. 1999, Knight and Cole 1995b)
- Type of human use – While some variation in wildlife response between recreation types (e.g., hiking, biking, equestrian use, wildlife viewing, ORV use) has been documented (Taylor and Knight 2003, George and Crooks 2006, Stake 2000, Stankowich 2008, Naylor et al. 2009, Knight and Cole 1995), the overall effect of human visitation is more important than the nuances of different user behaviors. One distinction that is important to note is the presence of domestic dogs as a recreation partner. It is well documented and understood that the effects of human use on wildlife are likely to be exacerbated by the presence of dogs (Lenth et al. 2008; Miller et al. 2001; Reed and Merendlender 2011, Bekoff and Ickes 1999).

Wildlife flight distances, or the "zone of influence" is discussed in numerous studies on this topic. Considering the myriad of variables involved, the findings vary by species, location, and context. Examples include the following:

- Naylor et al. (2009) observed a zone of influence up to 500-meters for hikers and over 1,000-meter for mountain bikers in an enclosed research reserve with otherwise limited recreation (e.g., limited habituation).
- Cassirer et al. (1992) found flight distances for wintering elk in Yellowstone National Park ranged from 400 meters in remote area, to 15 meters in developed areas.
- Taylor and Knight (2003) found a flight distance of 150 meters from hikers and 120 meters from bikers in a controlled study of mule deer, pronghorn, and bison on Antelope Island in Utah
- Miller et al. (1998) found the zone of influence of trails in Boulder open space to be about 75 meters for several bird species.
- Sisk, (1989) observed that mule deer in their natural habitat outside of Boulder, Colorado would flush at a distance of about 30-40 yards.
- Miller et al. (2001) found the flight distance from pedestrians on-trail to be about 34 meters for mule deer, and 31 meters for western meadowlark in open space near Boulder.
- Malone and Emerick 2003 estimated a zone of influence of 30 meters for birds, small mammals, and carnivores at three sites within the Roaring Fork Valley.

Considering this range of impact distances, the existing development and topographical context of the Crystal River Valley, as well as the factors described above, a zone of influence of **100 meters** is used as the quantitative standard for wildlife impacts in this analysis. This standard applies to impacts from existing use and development, as well as new impacts that may occur as a result of trail implementation and use.

Potential Impacts from Secondary Trail Development

During the public and stakeholder outreach processes, concerns were raised about the potential wildlife impacts resulting from the development and use of secondary, non-system trails that could spur from the Crystal River Trail alternatives. These concerns are typically associated with the development of unsanctioned mountain bike routes, but could also be extended to rock climbing access, mountain climbing access, or local neighborhood access. Considering the topography of the valley, which is bounded by steep slopes, loose rocky terrain, and cliffs, few secondary trails have been established in the past in places where access is available.

While the possibility, location, and impacts of future non-system trail development is speculative, this analysis attempts to identify areas where new impacts from such trail connections have the potential to occur. These include trail segments that are:

- Directly adjacent to public lands, primarily WRNF
- Currently inaccessible or difficult to access for the public, and would be "opened up" by trail development.

Specific areas where new trail development could facilitate non-system secondary trails are described below, along with additional factors that could facilitate or limit the potential for unsanctioned secondary trail development. Conversely, potential secondary trail development corridors that are

currently readily accessible are not listed, since their development (and subsequent impacts) would not be contingent on the implementation of any Crystal Valley Trail segments.

- **Crystal River Parcel/Nettle Creek** – At this location, trail Alternative B crosses County OST land which abuts WRNF land. The WRNF ownership extends for miles along the north slopes of Mount Sopris. Several informal trails exist in this area, but are generally used by neighboring residents since access is through private subdivision roads. Steep, rocky slopes in this area would impede, if not, preclude the development of a substantial new trail connection. This area is winter range for both bighorn sheep and elk.
- **Andrews** – At this location, Alternative B crosses a narrow section of WRNF land, which is contiguous to other forest lands and wilderness area. This band of WRNF land is very steep and rocky, and is generally not favorable for trail development. This area is winter range for bighorn sheep and elk, and is also a production area for bighorn.
- **Janeway North** – In this area, Alternative B is entirely on WRNF land, but could provide easier access to a narrow side canyon that could potentially provide a route up the southwest slopes of Mount Sopris. (This area is currently accessible to the public via Avalanche Creek Road and Janeway Meadow, but the access is difficult). While this small canyon is narrow, steep, and densely vegetated and would not be suitable for trail development, it could be enticing as a climbing route on Mount Sopris. This area is winter range for bighorn sheep and elk, and is a winter concentration area for elk. It is also subject to a USFS seasonal closure.
- **Avalanche South** – In this area, Alternative B crosses Avalanche Creek to provide access to the valley at the base of Elephant Mountain. (This area is currently accessible to the public via Filoha Meadows or a low-water ford of Avalanche Creek, but these access routes are long or difficult). The slopes above this valley are incredibly steep and rocky, and would not be appealing for new recreational routes. This area is winter range for both bighorn and elk.

Background on Existing Seasonal Closures

Considering the seasonal sensitivity of wildlife to recreational access and use – particularly for bighorn sheep and elk – the presence and effectiveness of seasonal trail closures is an important topic for this study. Several areas within the Crystal Valley study area are currently subject to administrative seasonal closures to public recreational access, as follows:

- **Red Wind Point** – The existing railroad grade is managed as a county open space trail, and is subject to a seasonal closure from December 1 to April 30. The upper slopes of the open space property are permanently closed to public access.
- **Janeway Meadow** – All National Forest lands north of Avalanche Creek Road, including the Janeway Meadow, are closed to all human occupancy from November 23 to April 30. County OST access from the road match this restriction.
- **Avalanche Creek** – All National Forest lands on both sides of Avalanche Creek Road are closed to dogs from November 23 to April 30. (The road itself is closed to vehicles but remains open to non-motorized access, without dogs, during this period).
- **Filoha Meadows** – The existing railroad grade is managed as a county open space trail, and is subject to a seasonal closure from December 1 through June 30. During the open period,

pedestrian access is limited to the trail itself, with the exception of guided interpretive access. Dogs and bike access are prohibited year-round.

During the public and stakeholder outreach process, some community members have questioned the effectiveness of seasonal closures as a tool to limit impacts to wildlife. Based on the following examples from the Crystal and Roaring Fork Valleys, seasonal closures have been effective in locations where access points are limited and not easily accessed by the public; and where they are clearly and consistently enforced. Closures in areas where there is limited enforcement capacity or multiple access points from private land (Red Wind Point and Avalanche Creek) are have been less effective. While closures are not impervious to violations, the County has demonstrated the ability to effectively implement seasonal closures on its properties and trails.

Rio Grande Trail Wildlife Monitoring Report

Beginning in 2007, the Roaring Fork Transportation Authority (RFTA) implemented a robust program to monitor the ecological management of the Rio Grande Trail corridor along the Roaring Fork River between the Catherine Store Bridge and the Rock Bottom Ranch. Monitoring has included field surveys and deployment of motion sensitive cameras.

This area is subject to a seasonal closure from December 1 through April 30. Dogs are prohibited on this section of trail year-round. Violations of the closure do occur, and some are documented in the wildlife cameras. While the number of dogs and people recorded by the cameras during the winter closure has increased, the total annual number of violations remains relatively low.

The report states that the results of the seven-year monitoring effort suggest current management strategies are exceeding expectations in minimizing the effects of recreation on wildlife. Herons, other waterbirds, songbirds, deer, elk, and other mammals all seem to have adapted to the increased recreational activity and are benefiting from the winter closure. The report further states that wintering animals are benefiting from the reduction in human disturbance due to the trail closure (Lowsky 2014).

Red Wind Point Closures

The existing railroad grade trail at Red Wind Point is subject to a seasonal closure, while the remainder of the property is closed permanently. County OST staff report that trail closure violations are infrequent, but do occur. In addition, illegal access to the upper sections of the property have also been observed, originating from the adjacent subdivision (Groves 2017).

Avalanche and Janeway Closures

Seasonal closures of USFS lands north of Avalanche Creek Road have been established by the USFS. The area is closed to dogs year-round. While enforcement is limited, the seasonal closure north of the road appears to be effective, largely due to steep terrain and dense vegetation. The restriction on dogs, however, has been less effective. The area south of the road functions as a local dog run and appears to be used year-round for this purpose.

Filoha Meadows Closures

The seasonal closure of Filoha Meadows is in place December 1 through June 30. This closure is clearly marked at the only public access point, and is strictly enforced by Pitkin County and CPW. These factors, in additional to the visibility from Highway 133, has made this closure successful with few violations (Thompson 2017).

Sky Mountain Park

Sky Mountain Park is seasonally closed for the protection of wildlife from December 1st through May 15th. OST monitors the closure with five different wildlife cameras both to track wildlife use and any closure violations. Violations average less than 10 per year and are usually within the first 2 weeks and last 2 weeks of the closure. OST will issue tickets based on images from the cameras. The property is closed year-round to dogs and seems to have minimal violations.

North Star Nature Preserve

The back side of North Star, west of the river, is completely closed to the public unless part of a permitted educational tour. About a once a winter, skiers coming down from Aspen Mountain are caught on the back side of North Star. Summers are pretty much free of violators. North Star is bordered by private property to the north and south. Documented violations from the private property are rare. North Star is closed to dogs year-round and has minimal violations.

Glassier Open Space

Glassier Open Space is seasonally closed for the protection of wildlife from December 1st through May 15th. The adjacent BLM property has a shorter closure. OST monitors the trails with two cameras. Almost all closure violations are in the spring within two to three weeks of the opening date. The difference in closure timeframes between the OST and BLM lands does create confusion and better signage is in the works. Glassier is closed to dogs year-round. Dog violations are seen when the property is open; they are minimal.

Cultural Resources

The Crystal River Valley has a rich history and has served as an important transportation corridor both prehistorically by native groups such as the Ute Indians and historically by European settlers; many of the historic trails and roads likely followed trails established by native peoples. The river provided water for ranching and agriculture. Coal and later marble became important resources in the development of historical settlement in the valley. John Cleveland Osgood, the founder of the Colorado Fuel and Iron Company, created Redstone as a company town to house and support company miners who worked the coal mines in Coalbasin, located to the west of Redstone. Marble from Marble, Colorado also led to settlement and development in the northern portion of the valley. All of these activities are represented by the cultural resources documented during the 2017 fieldwork.

National Register of Historic Places (NRHP) defines an archaeological site as "the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains" (Little, et al. 2000). Cultural resources may consist of buildings, structures, objects, or sites and can include districts, cultural landscapes, and traditional cultural properties and are typically 50 years or older.

The NRHP summarized significant cultural resources as representing American history, architecture, archaeology, and culture, which is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. Significant cultural resources are

a) associated with events that have made a significant contribution to the broad patterns of our history; or
b) associated with the lives of persons significant in the past; or
c) embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic value, or that represent a significant or distinguishable entity whose components may lack individual distinction; or
d) likely to yield information important in prehistory or history.

Certain kinds of properties are not usually considered for listing in the National Register: religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties achieving significance within the past fifty years" (National Park Service 1998). In order for a property to be eligible under a criteria consideration, the property must still qualify for one of the four criteria and must possess integrity. Historical sites representative of the built environment (i.e., buildings, structures, and engineered features) typically are considered significant.

If a site is significant under one of these criteria, it must also possess physical integrity. For example, if a historic road has been completely upgraded (widened and/or paved), it is unlikely to be considered significant even if it is associated with important historic events.

Cultural Review Methodology

A file search for known documented cultural resources was completed before the field review. During the field review, all cultural resources that overlap the trail alternatives were documented regardless of significance. The survey for cultural resource provides compliance under Section 106 of the National Historic Preservation Act (NHPA) by undertaking a "reasonable and good faith effort" to identify historic properties (defined as listed in or eligible for listing on the NRHP) within the defined APE. Identification and documentation standards conform to the federal land managing agency and secondly to those stipulated for by the State Historic Preservation Officer (SHPO).

Cultural resources are documented according to a standardized approach. In the age of digital photography, site overview photographs are taken from multiple perspectives, and all significant tools, diagnostic artifacts, and features are photographed to scale. Individual sites are mapped. Elements of the site map include all cultural features, field specimens, artifact concentrations, major vegetation breaks and contour topography, and modern features and disturbances.

Archaeologist conducting a field inventory.

Thirteen cultural resources along the trail alternative corridors were documented. All are historical and most are products of late 1800s/early 1900s Euro-American activity in the Crystal River Valley. Six historic transportation corridors are located within or cross the trail alternatives: the Rock Creek County Wagon Road, the Crystal River and San Juan Railroad, SH 133, a segment of SH 133 no longer used as a highway, Redstone Boulevard, and the Road to Redstone Castle. The Wagon Road, railroad grade, and old segments of SH 133 are used today as trails at various portions of the valley, and between Hayes Falls and McClure Pass. Other resources include a bridge, a hydroelectric station, three ditches, a stage stop, and a trash dump. Although proposed trail alignment goes through the Janeway townsite, no evidence of structures or features were found within the survey corridor.

Significant Sites

Six of the 13 recorded sites are significant:

- **The Rock Creek County Wagon Road** appears to be the first formalized transportation corridor in the Crystal River Valley that extended from Carbondale to Marble and was built in the 1880s.

Portions of this alignment is only visible as a slight swale while other portions are now part of county and private roads that have been enlarged and graded and are still in use by pedestrians and vehicular traffic. Some sections of this line were replaced by the railroad in the early 1890s. Other sections are now part of SH 133 and the north portion of Redstone Boulevard. Sections that have been upgraded have little physical integrity and are not significant. Sections that are intact or have intact features are considered significant.

- **The Crystal River and San Juan Railroad** is a railroad grade that extended from the Denver & Rio Grande depot in Carbondale up the Crystal River Valley to the base of McClure Pass. It was built after the wagon road and followed the same general corridor, obliterating the road at some points. The section of grade to Penny Hot Springs was completed by March 1893 by the Crystal River Railway. By 1898, the rails reached Redstone and Placita. It was used until 1942 at which point it was dismantled and no longer used as a railroad corridor. Outside of the grade, no significant features of the railroad remain. The majority of the trail alternatives that are not within the SH 133 right-of-way) follow the railroad grade.
- **Road to Redstone Castle** extends from the Redstone Inn south to Cleveholm (Redstone Castle; J.C. Osgood's third residence); a section that is no longer used for vehicle travel continues south of the Castle to Osgood's first residence, the Crystal River Ranch. The road is associated with J.C. Osgood who was probably the most important person in the development of the railroad, mining, and settlement in the Crystal River Valley and the founder of Redstone.
- **The East Mesa and Bane & Thomas Ditches** are active water conveyance resources that are maintained and still in use. The East Mesa Ditch was built around 1894 and the Bane & Thomas Ditch was built around 1886; both likely contributed to early settlement and agriculture in the valley. These resources are earthen U-shaped ditches.
- **The Filoha Meadows (or Penny Hot Springs) stage stop** was first built by H.D. Penny in the 1880s; some of the buildings were built later in the 1940s. During the 2017 site visit, only the bunkhouse and barn were revisited; all other structures were well outside of the project area to the west. The bunkhouse, which is the closest feature of the site to the trail alternative, has collapsed since the 1999 documentation of the site. This feature is located approximately 75 feet west of the trail alternative. The barn is still standing but deteriorated; the center of the roof is sagging. This feature is located about 200 feet west of the trail alternative.

Impacts to Cultural Resources

Impacts to cultural resources can be anything that alters the characteristics of a site that make it significant. This includes physical destruction of the resource, alterations that are not consistent with its history, removal from its original location, change in the character of its use or setting, or introduction of any elements that negatively impact the integrity of the site. For the three transportation cultural resources (Rock Creek County Wagon Road, the Crystal River and San Juan Railroad, and the Road to Redstone Castle), paving sections of these resources that have not been previously upgraded and paved would not be consistent with their historic integrity.

Summary of Potential Impacts by Segment

Impacts to environmental resources are analyzed below by segment and by the trail alignment alternative. Impacts are assessed for each segment and alternative, considering the vegetation, wildlife, and cultural resources described in the previous sections. For each segment, an overall assessment level is presented as the combined summary of the individual resource factors considered. The level of impacts are defined as follows:

- **Minor Impacts** are those that are detectable, but would not result in long-term degradation to resources at a local scale or within the overall Crystal Valley study area
- **Moderate Impacts** are those that would result in detectable impacts to sensitive resources at a local scale, but would not result in long-term degradation or changes to that resource within the overall Crystal Valley study area
- **High Impacts** are those that would result in substantial, long-term impacts to sensitive resources, significant degradation to local areas, or adverse impacts to the resource throughout the Crystal Valley study area

Depending on the resource and the availability of data, impacts were assessed using both quantitative and qualitative information. In addition, several design measures and management parameters are assumed to be part of the trail implementation and management. These are described below.

General Design and Implementation Measures

Design measures that are intended to eliminate or reduce the severity of impacts are considered in the analysis of environmental impacts. The County uses restrictions on OST areas that reduce impacts to wildlife and vegetation (such as the seasonal closures discussed above), as well as best management practices (BMPs) when construction or maintenance of OST property. General design measures and BMPs include:

- Clearance surveys for listed, sensitive, and rare species before any ground disturbing activities or construction takes place
- Specific BMPs for construction, which include storm water control during construction activities and weed management after ground disturbing activities
- Seasonal construction windows in wildlife habitat to eliminate impacts during critical times of year when habitat is occupied
- Enforcement of existing seasonal closures in areas where critical and important wildlife habitat is present
- Enforcement of existing restrictions in areas that are designated as dog-free and/or bike-free
- Avoidance of wetland areas whenever possible, and mitigation for impacts if avoidance is not possible
- Minimization of vegetation removal, especially in riparian corridors and in high-quality native vegetation communities
- Design of trails and OST infrastructure so that environmental resources are conserved and preserved.

These design measures and BMPs are integrated into the impact analysis. For example, areas with a that have a high degree of seasonal wildlife impact but are subject to existing seasonal closures would have a reduced impact determination due to the closures. Additional measures to reduce or mitigate impacts are identified at the end of this section, under *Impact Mitigation Measures*.

7 Oaks to Nettle Creek

Table 8. Summary of Impacts: 7 Oaks to Nettle Creek

	Vegetation	Wildlife	Cultural Resources
Segment: 7 Oaks			
Alternative A	No significant vegetation impacts Additional stabilization along about 1,300 feet of the Crystal River	Minor impact to elk and mule deer winter range	No impact
Alternative B	No significant vegetation impacts	Minor impact to elk and mule deer winter range	Minor impacts to Rock Creek County Road
Bridge #1	No significant vegetation impacts	Minor impact to elk winter range	No Impact
Bridge #2	Minor impact to riparian vegetation	Minor impact to high quality riparian habitat	Moderate impact to RR grade
Segment: Crystal River Parcel			
Alternative A	No significant vegetation impacts Additional stabilization along about 400 feet of the Crystal River	Minor impact to elk and mule deer winter range	No impact
Alternative B	Moderate impact to riparian and wetland vegetation May impact FSS Harrington's penstemon and Grand Mesa penstemon habitat	Minor impact to high quality habitat and undisturbed river frontage (impacts reduced by design measures)	Moderate impact to the RR Grade, Rock Creek County Road, and the Bane and Thomas Ditch
Bridge #3	Minor impact to riparian vegetation	Minor impact to elk winter range	Moderate impact to RR grade
Segment: Nettle Creek			
Alternative A	No significant vegetation impacts Additional stabilization along about 1,800 feet of the Crystal River	Minor impact to elk winter range	No impact

	Vegetation	Wildlife	Cultural Resources
Alternative B	No significant vegetation impacts	Minor impact to elk winter range	Unknown; Not surveyed
Bridge #4	No significant vegetation impacts	Minor impact to elk winter range	Minor impact to RR grade

Vegetation and In-stream Impacts

Alternative A follows the existing road where vegetation is disturbed or ruderal, and no new impacts to vegetation communities would occur. Impacts to in-stream habitat and riparian vegetation are possible, as the streambed would require additional stabilization along approximately 3,500 feet of the Crystal River/highway embankment. The bank is already stabilized, and no additional constraints on the physical characteristics of the of the river are anticipated. Some removal of riparian vegetation is possible, but would be minimized.

Alternative B follows existing social trails or roads where vegetation is disturbed and no new impacts to vegetation communities would occur, including to riparian vegetation. In the Crystal River Open Space Parcel, the Alternative B would pass through an upland area with a diverse native plant community, where a social trail currently exists. The fringe wetlands along the ditch may be avoided using bridges or other trail design criteria. The alignment may cross through FSS Harrington's penstemon and Grand Mesa penstemon habitat, but there is a low risk of impacts to these species. No new impacts to in-stream habitat or riparian or wetlands along the Crystal River is expected.

Bridge 1 would be a replacement of the existing bridge, and would have no impact; Bridges 2 and 3 may result in some removal of riparian vegetation. Bridge 4 is currently in use as a dirt road, and would have no impact.

Wildlife Impacts

Within the 7 Oaks subdivision area, both alternatives are located along existing road corridors with high levels of existing human disturbance and use, and no new impacts to wildlife would occur. Likewise, both alternatives through the Nettle Creek area would have minor impacts to elk winter range.

Alternative B through the Crystal River Open Space parcel would fragment high quality wildlife habitat potentially supporting the federally-listed yellow-billed cuckoo. This area has existing social trails and recreational use from nearby subdivisions, which may diminish its value (and subsequent impacts) to some species. The impact to the high-quality habitat area, with a 100-meter impact buffer, would affect the entire habitat area.

Cultural Resource Impacts

The proposed location for Alternative A for all three of these sections of trail is on the east side of SH 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B through the 7 Oaks subdivision would follow an existing dirt subdivision road (South Bill Creek Road). Sections of this road may have once been part of the Rock Creek County Road or the Crystal River Railroad. No physical evidence of an association with either of these linear resources could be definitively determined with the exception of a small undeveloped portion of the Rock Creek County Road at the extreme southern end that is currently in use as a social trail from the subdivision into the Crystal River Parcel. No impact to cultural resources is expected for the section of Alternative B that follows the current developed South Bill Creek Road. Paving and/or widening of the intact portion of the Rock Creek County road would be considered an impact.

The proposed trail joins the abandoned railroad grade in the Crystal River Parcel and follows the grade through Nettle Creek. The grade is intact through this section although no railroad ties or rails remain; this area has existing social trails and recreational use from nearby subdivisions. No expansion of the grade is planned; however, paving the grade would be considered an impact. The railroad grade crosses over the Bane and Thomas Ditch via an existing culvert with 4-by-4 milled lumber supports. The culvert appears to be an old crossing and may have historical significance; its replacement is a potential impact to the railroad grade. Additional new crossings over the ditch are also potential impacts to the ditch.

Bridge 1 will have no impact; bridges 2 and 3 would impact the railroad grade. The railroad grade at Bridge 4 is currently in use as a dirt road; impacts would be minor.

Carbondale to Crested Butte Trail Study

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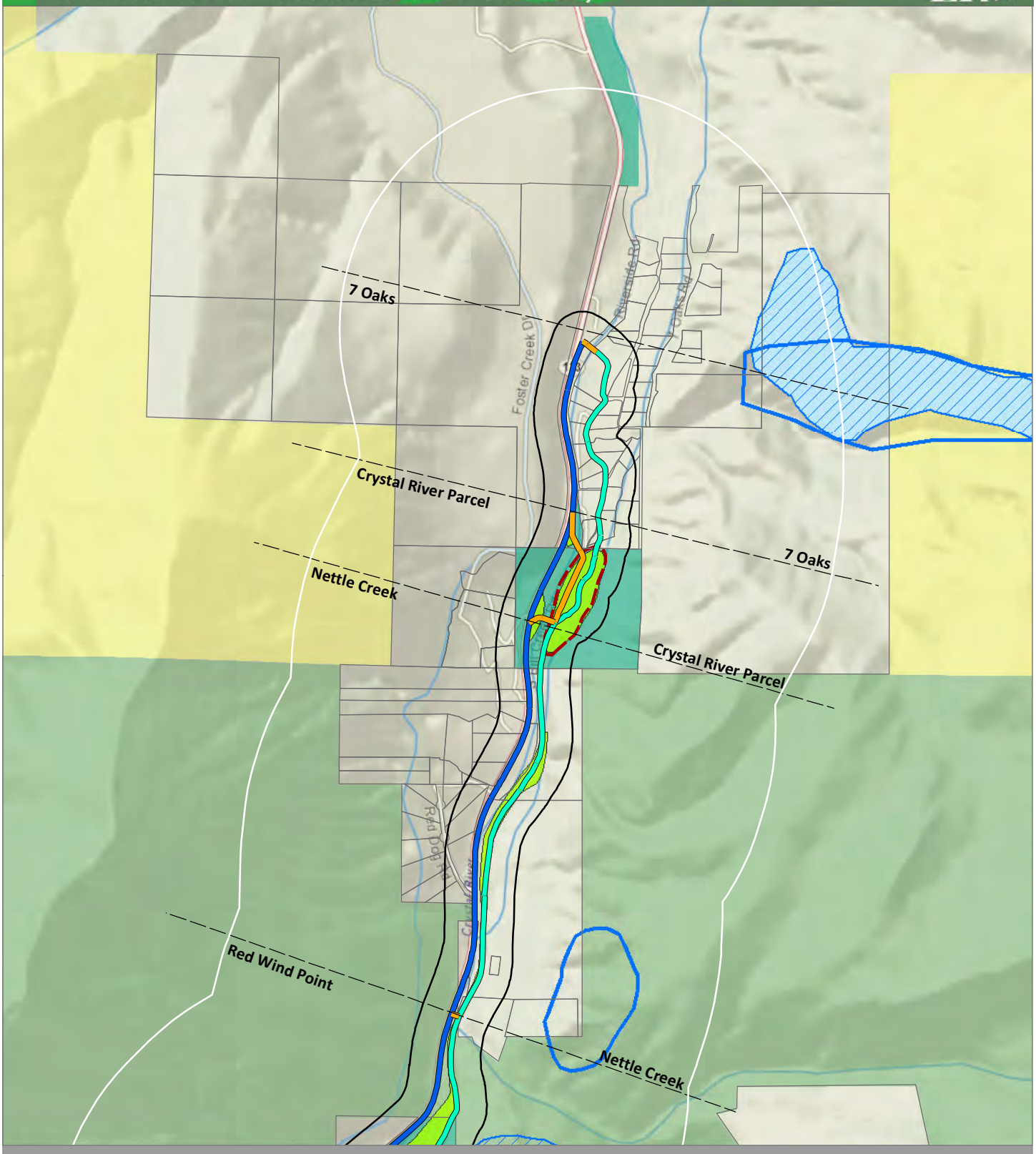

Figure 6. 7 Oaks to Nettle Creek

0 750 1,500 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Red Wind Point to Andrews

Table 9. Summary of Impacts: Red Wind Point to Andrews

	Vegetation	Wildlife	Cultural Resources
Segment: Red Wind Point			
Alternative A	No significant vegetation impacts Additional stabilization along about 1,700 feet of the Crystal River	Minor impact to elk winter range	No impact
Alternative B	No significant vegetation impacts; wetlands would be avoided where possible, and any impacts would be mitigated	Impact to undisturbed habitat and river frontage, and proximity to bighorn production area	Moderate impact to East Mesa Ditch and the RR grade
Bridge #5	No significant vegetation impacts	Minor impact to elk winter range	Minor impact to RR grade
Segment: Crystal River Country Estates			
Alternative A	No significant vegetation impacts Additional stabilization along about 2,000 feet of the Crystal River	Minor impact to elk winter range	No impact
Alternative B	No significant vegetation impacts	Minor impact to elk winter range	No impact
Bridge #6	Minor impact to native vegetation community	Minor impact to elk winter range	Minor impact to RR grade
Segment: Andrews			
Alternative A	No significant vegetation impacts Additional stabilization along about 1,000 feet of the Crystal River	Minor impact to elk winter range	No impact
Alternative B	Habitat for FSS Grand Mesa penstemon is present, and Harrington's penstemon is likely within the alignment. Mitigation for impacts to FSS species, if present, would reduce impacts.	Minor impact to undisturbed river frontage	Moderate impact to RR grade
Bridge #7	Bridge may result in removal of riparian vegetation on east side of river	Minor impact to elk winter range	Minor impact

Vegetation Impacts

Alternative A follows existing road where vegetation is disturbed, and no significant new impacts to vegetation communities would occur. Impacts to in-stream habitat and riparian vegetation are possible, as the streambed would require additional stabilization along approximately 4,700 feet of the Crystal River/highway embankment. The bank is already stabilized, and no additional constraints on the physical characteristics of the of the river are anticipated. Some removal of riparian vegetation is possible, but would be minimized.

Alternative B follows existing trail/railroad grade and construction footprint would be limited to trail when possible. Minimal native and riparian vegetation would be removed. Weed control best management practices would reduce the risk of noxious weeds spreading. Wetlands would be avoided where possible, and any impacts would be mitigated. Removal of trees would be avoided if possible. Riparian vegetation is adjacent to the alignment, but would not be disturbed. Habitat for FSS Grand Mesa penstemon is present, and it is likely that Harrington's penstemon is present within the alignment at the Andrews Open Space Parcel. Surveys and mitigation for impacts to FSS species, if present, would reduce impacts.

Bridges would use existing ROW where vegetation is disturbed or ruderal, and no new impacts to vegetation communities would occur. Bridge 6 would cross an undisturbed treed area with sparse vegetation and no wetlands or riparian vegetation. Tree removal would be minimized to the extent possible, and the area may be replanted with native trees after construction if necessary. The eastern bank of the river is a high quality diverse native vegetation community (Andrews Alternative B).

Wildlife Impacts

Red Wind Point Bighorn Impacts. Most of the impacts in this area would relate to bighorn seasonal habitat near Red Wind Point. For bighorn, the greatest concern is related to proximity to winter range, winter concentration areas, and severe winter range. The area of possible impact, based on a 100-meter zone of influence on the trail alternatives, ranges from 4 to 15 percent of the habitat within the planning segment. However, continuation of the existing seasonal closure to April 30 would significantly reduce these impacts.

For the bighorn production area (or lambing habitat) at Red Wind Point, there is no overlap between the 100-meter zone of influence of Alternative B (railroad grade) and the production area mapped by CPW. (The distance from the trail alignment to the production area is about 175 meters). However, CPW and others have expressed concerns about the interface between a trail along the railroad grade and the production area, for three primary reasons:

- The Red Wind Point area is heavily used by bighorn from Mid-November through spring; while lambing typically mid-May through about June 20 (Groves 2017); even with the seasonal closure in place, this presents a seven-week gap where impacts could occur.
- Some bighorn have been reported to use the lower areas/railroad grade during the winter; presumably to access surface water (OST 2005; Groves 2017)
- Unauthorized access above the trail or during seasonal closures could increase impacts during bighorn lambing season

In terms of the proximity of this impact, it is important to consider the topography of Red Wind Point. Trail Alternative B follows the railroad grade, and is about 170 vertical feet below the top of the bluff and about 575 feet (155 meters) laterally from the edge of the Production Area. The north-facing slopes of the bluff are dominated by dense conifer and riparian woodland vegetation, which is generally not favored by bighorn, while the south-facing slopes are dominated by sparse, pinyon juniper woodland and rock outcrops, which is favored by bighorn. In 2017, the County installed a wildlife camera along the railroad grade north of the bluff between June 1 and July 31; no bighorn use was documented during this period.

Considering the above factors, the presence of the trail along the railroad grade (Alternative B) is not expected to result in significant disturbance to bighorn production habitat, largely due to the vertical, lateral, and visual separation between those areas. In essence, trail users would not be visible to bighorn on the top of the bluff, and their sense of security and access to escape cover would be preserved. However, implementation of the trail along the railroad corridor could potentially disrupt access to water in the Crystal River during the late lambing season, a period of about 7 weeks. While access to free water is not a limiting factor for bighorn survival, some individual ewes may be adversely impacted by this disturbance and alter their behavior or seek alternate water sources. For this reason, Alternative B is considered to potentially have a moderate impact to bighorn.

Human encroachment onto the upper slopes of Red Wind Point is a current problem, which could be exacerbated by new trail implementation. If Alternative B is implemented, additional mitigation and enforcement measures should be implemented to discourage unauthorized access, and improve compliance with closures. These measures would reduce impacts of violations, and could potentially improve effectiveness of closures compared to existing conditions.

Other Impacts. Both Alternatives A and B would equally impact winter range for elk throughout this section, while Alternative B would also have a minor impact to mule deer winter range. However, the seasonal closure for Alternative B in the Red Wind Point area would significantly reduce the impact to elk and deer winter range. At a landscape scale, Alternative B at Red Wind Point and the Andrews Open Space area would result in new impacts to moderately disturbed wildlife habitat and river frontage.

Cultural Resource Impacts

The proposed location for Alternative A for all three of these sections of trail is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B through the Red Wind Point and Andrews sections would follow undeveloped portions of the railroad grade; the grade is intact through this section although no railroad ties or rails remain. Both of these sections have existing social trails and recreational use from nearby subdivisions. Modifying and paving the grade would be considered an impact. The railroad grade parallels and crosses over the East Mesa Ditch. Additional new crossings or expansion of existing crossings over the ditch are potential impacts to the ditch.

A large portion of Alternative B through the Crystal River Country Estates section follows the railroad grade; this section of grade has been converted into a dirt road for the subdivision and is no longer physically intact.

Bridges 5, 6, and 7 will have minor impacts to the railroad grade.

Carbondale to Crested Butte Trail Study

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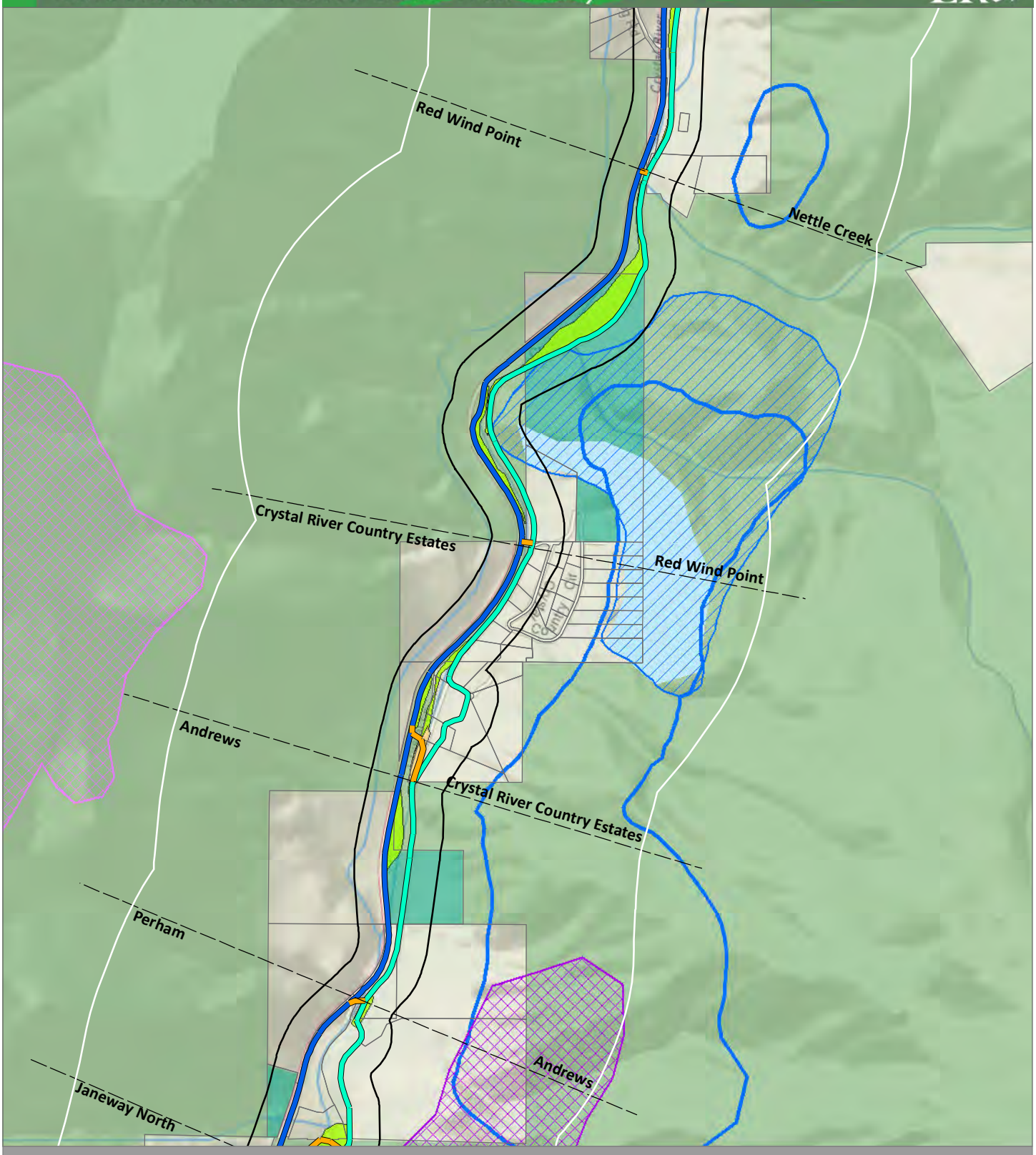

Figure 7. Red Wind Point to Andrews

0 750 1,500 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Perham to Janeway South

Table 10. Summary of Impacts: Perham to Janeway South

	Vegetation	Wildlife	Cultural Resources
Segment: Perham			
Alternative A	No significant vegetation impacts Additional stabilization along about 1,000 feet of the Crystal River	Minor impact to elk winter range	No Impact
Alternative B	No significant vegetation impacts	Minor impact to elk winter range	Minor Impact to RR grade
Bridge #8	Bridge may result in minimal removal of riparian vegetation on both sides of river	Minor impact to elk winter range	Minor impact to RR grade
Segment: Janeway North			
Alternative A	No significant vegetation impacts Additional stabilization along about 300 feet of the Crystal River	Minor buffer impacts to elk and bighorn winter range	No Impact
Alternative B	Impact to high quality, diverse riparian forest with habitat for federally-listed and FSS species. Impacts to wetlands would be avoided if possible, and mitigated if necessary. Removal of trees and native species is likely, and the trail would result in permanent loss of riparian vegetation.	Impact to high quality, undisturbed habitat including potential T&E/FSS species	Moderate Impact to RR grade, potential impact to Rock Creek County Road
Bridge #9	No significant vegetation impacts	No impact	Moderate impact to the Rock Creek County Road and minor impact to RR grade.
Segment: Janeway South			
Alternative A	No significant vegetation impacts Additional stabilization along about 1,500 feet of the Crystal River	Minor buffer impacts to elk and bighorn winter range	No Impact
Alternative B	Minor new vegetation impacts (reduced by design criteria)	Minor impact to undisturbed habitat and river frontage	Moderate Impact to RR grade
Bridge #10	No significant vegetation impacts	No impact	No Impact

Vegetation Impacts

Alternative A follows existing road where vegetation is disturbed, and no new impacts to vegetation communities would occur. Impacts to in-stream habitat and riparian vegetation are possible, as the streambed would require additional stabilization along approximately 2,800 feet of the Crystal River/highway embankment. The bank is already stabilized, and no additional constraints on the physical characteristics of the of the river are anticipated. No removal of riparian vegetation is likely.

Alternative B at Janeway North intersects a high quality, diverse riparian forest with habitat for federally-listed and FSS species. Footprint of trail would be limited to the existing trail/railroad grade, and disturbance to wetlands would be avoided. Impacts to wetlands would be avoided if possible, and mitigated if necessary. Removal of trees and native species is likely, and the trail would result in permanent loss of riparian vegetation along the trail width. Tree removal would be avoided to the extent possible. Weed control best management practices would reduce the risk that noxious weeds would increase from construction or trail use.

Sunrise in Janeway Meadow.

At Janeway South, Alternative B is adjacent to riparian area on south side, but would not result in new impacts to vegetation. No wetlands are within the alignment. The plant community is diverse and dominated by natives, with noxious weeds present. Design criteria would reduce or eliminate impacts by containing the trail footprint and construction activities to the existing railroad grade.

Bridges may result in minimal removal of riparian vegetation on both sides of river. Design criteria would include limiting new disturbance to the footprint of the trail, removing vegetation only when necessary, and weed control. Bridge 9 would cross upland dominated by a mix of native and non-native species. Design criteria would include limiting new disturbance to the footprint of the trail, removing vegetation only when necessary, and weed control.

Wildlife Impacts

Within the Perham area, impacts would be limited to minor additional disturbance to elk winter range along both trail alternatives.

Most of the wildlife impacts through this area would occur in the Janeway North area. This large wetland/riparian complex has been identified as a high-quality habitat area with suitable habitat for yellow-billed cuckoo, and other sensitive or tracked wildlife species. The trail corridor through this area would bisect the habitat patch, resulting in an indirect wildlife impact to most of the riparian area.

Implementation of Alternative B through the Janeway North area would have high impacts to wildlife habitat in this area, and are among the greatest possible impacts observed in the entire study area.

The slopes above Janeway Meadow are Winter Range for bighorn sheep, while those slopes and the meadow itself provide elk Winter Range and is documented to be a Winter Concentration Area for elk. These areas are within the 100-meter zone of influence for Alternative B, which includes the railroad grade and trail alignment is along the edge of these mapped habitat area. However, the continuation of existing seasonal closures through April 30 would significantly reduce these impacts.

From a landscape disturbance perspective, Alternative B through the Janeway area would result in new disturbance and fragmentation of habitat and wildlife access to the east bank of the Crystal River. Alternative B though both Janeway North and South areas would result in 0.28 miles of new disturbance, impacting about 22 acres of wildlife habitat (with a 100-meter zone of influence; affecting the entire habitat area) and creating a new barrier to the river for some species. Those impacts would be partially reduced by seasonal closures, but would continue to impact other species through the remainder of the year. Implementation of Alternative B in Janeway South only would substantially reduce this impact.

The impacts to wildlife habitat in the Janeway North area from Alternative B would be severe for some individual habitat elements, and would be moderate overall. Other impacts through this area, from both alternatives, would be minor.

Cultural Resource Impacts

The proposed location for Alternative A for all three of these sections of trail is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B through all three sections would follow the railroad grade; the grade is intact through this section although no railroad ties or rails remain. Aerial imagery indicates that the railroad grade through the Perham section has been converted into a dirt road for the subdivision and is no longer physically intact. The proposed trail would have no impact.

The railroad grade through the Janeway North and Janeway South sections has not been modified since its abandonment in 1942; it is currently used for recreation. A small portion of the grade (approximately 500 feet) has been washed away by the river. Modifying and paving the grade would be considered an impact. An intact, significant portion of the Rock Creek County Road is located downslope to the northeast of Alternative B in the southern portion of Janeway South; impacts to this portion of the resource could easily be avoided.

Bridges 8 and 9 will have minor impacts to the railroad grade as a result of connecting new trail to the railroad grade. Bridge 9 will cross over an intact portion of the Rock Creek County Road. The road through this area is a slightly raised grade approximately 12 feet wide and is significant. Construction of

a 4 to 5 foot long section of trail that bisects the site will constitute an impact to the resource. Bridge 10 will not require new construction and will not impact cultural resources.

Carbondale to Crested Butte Trail Study

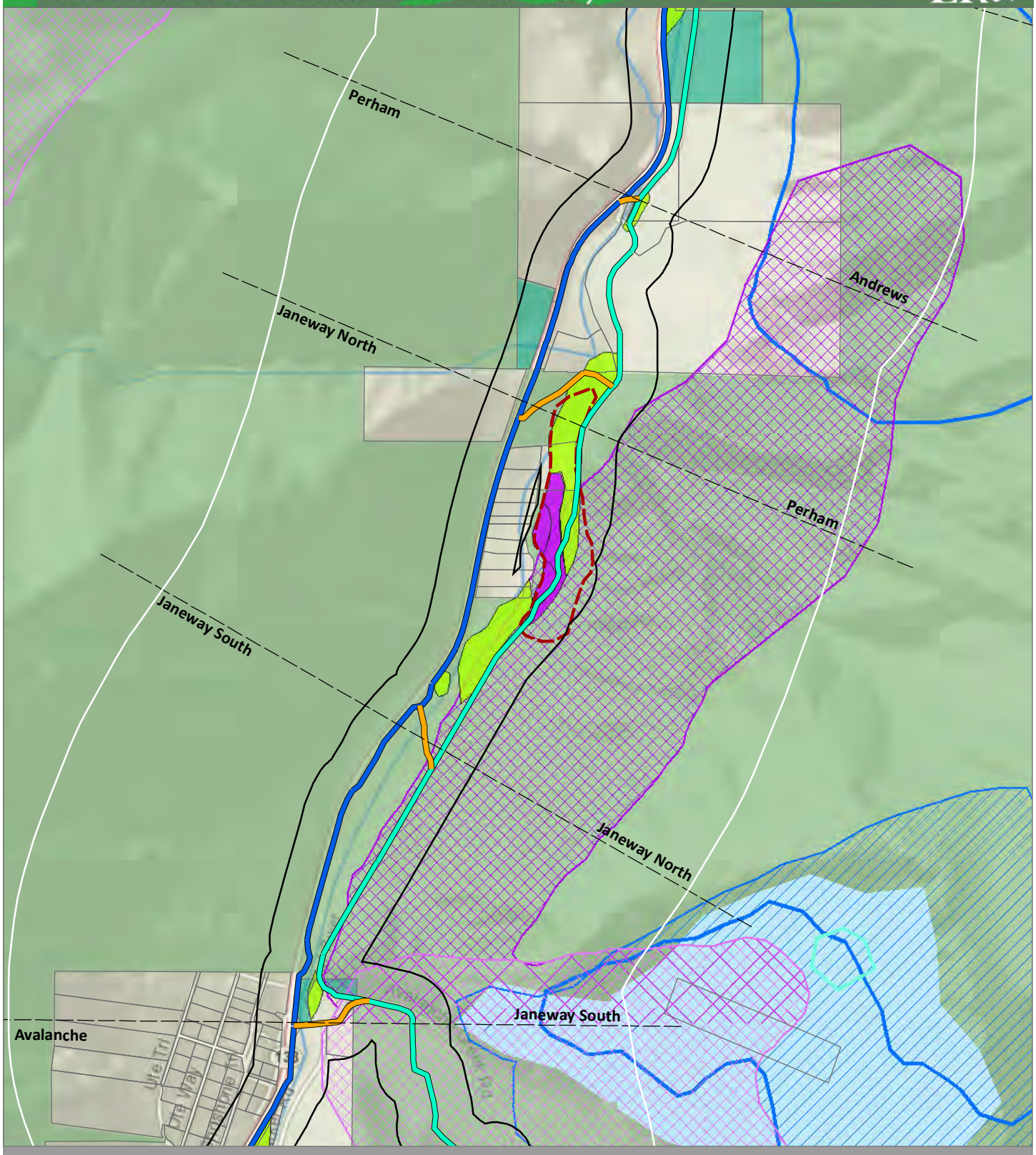

Figure 8. Perham to Janeway South

0 600 1,200 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Avalanche to Narrows

Table 11. Summary of Impacts: Avalanche to Narrows

	Vegetation	Wildlife	Cultural Resources
Segment: Avalanche			
Alternative A	No significant vegetation impacts. Additional stabilization along about 1,900 feet of the Crystal River	Minor impact to elk winter range and potential lynx habitat	No Impact
Alternative B	No new vegetation impacts north of Avalanche Creek. Impacts south of Avalanche Creek in a diverse and mostly-native plant community with several CNHP species and a variety of forbs, shrubs, and trees. High quality habitat for native species and for FSS Harrington's penstemon and Grand Mesa penstemon, as well as the rare plant large flower globemallow are present throughout the area.	Impact to elk winter range, bighorn migration corridor, and undisturbed high-quality habitat	Moderate impact to RR grade and Rock Creek County Road
Bridge #11	Bridge would cross riparian area, and it is likely that some vegetation would be removed. The native plant community supports habitat for FSS Harrington's penstemon and Grand Mesa penstemon, as well as the rare plant large flower globemallow.	Minor impact to elk winter range and potential lynx habitat	Minor impact to RR grade

	Vegetation	Wildlife	Cultural Resources
Segment: Narrows			
Alternative A	No significant vegetation impacts. Additional stabilization along about 2,200 feet of the Crystal River	Minor impact to elk winter range	No Impact
Alternative B	Alignment would follow the existing trail/railroad grade and construction footprint would be limited to the existing trail. Habitat for FSS Harrington's penstemon and Grand Mesa penstemon is present, but it is not likely that these species, if present, would be impacted.	Impact to winter ranges, bighorn migration corridor, and undisturbed habitat	Moderate impact to RR grade and Rock Creek County Road
Bridge #12	Bridge would cross riparian area, and it is likely that some vegetation would be removed	Impact to edge of bighorn winter range and migration corridor	Minor impact to RR grade

Vegetation Impacts

Alternative A follows existing road where vegetation is disturbed, and no new impacts to vegetation communities would occur. Impacts to in-stream habitat and riparian vegetation are possible, as the streambed would require additional stabilization along approximately 4,100 feet of the Crystal River/highway embankment. The bank is already stabilized, and no additional constraints on the physical characteristics of the of the river are anticipated. Some removal of riparian vegetation is possible, but would be minimized.

Alternative B north of Avalanche Creek is in an area that is currently heavily disturbed by mud flows, social trails, mining activity, and recreational use, and would not result in new disturbance. Alternative B south of Avalanche Creek intersects a diverse and mostly-native plant community with several CNHP species and a variety of forbs, shrubs, and trees. High quality habitat for native species and for FSS Harrington's penstemon and Grand Mesa penstemon, as well as the rare plant large flower globemallow are present throughout the area.

Alternative B along the Narrows would follow the existing railroad grade and construction footprint would be limited to the existing disturbance. High quality vegetation, which is characterized by sparse native shrubs and trees, is present along the alignment but would not be removed or disturbed. Weed control best management practices would be used to reduce risk of noxious weeds spreading. Habitat for FSS Harrington's penstemon and Grand Mesa penstemon is present, but it is not likely that these species, if present, would be impacted by the trail.

Bridge 10 would use existing ROW where vegetation is disturbed, and no new impacts to vegetation communities would occur. Bridge 11 would cross riparian area, and it is likely that some vegetation would be removed. The native plant community supports habitat for FSS Harrington's penstemon and Grand Mesa penstemon, as well as the rare plant large flower globemallow. Design criteria would

include limiting new disturbance to the footprint of the trail, removing vegetation only when necessary, and weed control.

Wildlife Impacts

Within this segment, Alternative B would have a substantial impact on bighorn sheep winter range and a migration corridor, with smaller impacts (up to 3 percent of the habitat within the 100-meter zone of influence) to other bighorn seasonal ranges. Impacts to elk Winter Range, Winter Concentration Area, and Severe Winter Range in this area would be greater, affecting up to half of the mapped sensitive ranges within the 100-meter impact zone. The area north of Avalanche Creek currently has year-round recreational access and use, except for dog closures that are currently in place.

South of Avalanche Creek, the undisturbed valley at the base of Elephant Mountain has been identified as a high-quality habitat area. Alternative B would pass through and fragment this area, impacting up to about 26 acres of high-quality habitat (with the 100-meter zone of influence). These impacts would also possibly affect lynx habitat and FSS species including Northern goshawk, Flammulated owl, and olive-sided flycatcher.

Existing railroad grade through the Narrows, looking south.

Bighorn Habitat in the Narrows Area. The Narrows area is where the Crystal River, Highway 133, and historic railroad grades pass through a tight canyon for about ¾ mile along the base of Elephant Mountain. Trail Alternative B follows the existing railroad grade and consists of two parallel and vertically offset grades. For bighorn, this area is within the mapped Winter Range, and is also known to be a migration corridor between other habitats to the south (Filoha Meadows) and to the north (Avalanche Creek area). Bighorn use of the railroad grade (located at the lower edge of the migration corridor) has been reported to be greatest through the winter (through April 30) with the greatest ram use during the early winter (November 15 to December 31) (Thompson 2017). Human access to this area is currently limited by seasonal closures at Filoha Meadows – December 1 through June 30. Pitkin County installed a wildlife camera along this corridor between June 1 and July 31, 2017. No bighorn use was documented during this period.

Alternative B is along railroad grade, which is the bighorn migration corridor, and new human use of this corridor could disrupt bighorn use and movement patterns. Such impacts would be the greatest in the late fall (November) and early spring (May) when typical bighorn and human use periods overlap. However, those impacts would generally not occur during sensitive winter seasons and if so, would occur at the base of the corridor allowing bighorn to retain access to abundant and secure escape terrain (steep slopes, cliffs and talus fields), which is favored by the species.

Potential impacts to bighorn habitat in the Narrows area could be reduced or mitigated with additional design and management considerations:

- Establishment and enforcement of seasonal closures (December 1 through April 30). This would reduce all human access in the area, would mitigate for impacts to Winter Range, and would minimize impacts to bighorn migration patterns.
- Construction of the trail along the lower railroad grade. This would reduce disturbance to bighorn, by placing human use on a lower terrace and retaining a corridor and escape terrain for bighorn on the upper railroad grade that is topographically and visually separated from much of the trail.

Other Impacts. From a landscape perspective, Alternative B would result in substantial new impacts to an otherwise undisturbed area south of Avalanche Creek. These impacts, combined with the loss of undisturbed wildlife access to both the Crystal River and Avalanche Creek, would be a major impact to landscape habitat contiguity in this area.

The overall combined impacts of Alternative B on elk winter range, bighorn migration corridor, and undisturbed high-quality habitat would be high, mainly due to the new disturbance to the area south of Avalanche Creek. These impacts would be among the highest in the entire study area. The impacts to wildlife within the Narrows area would be moderate, resulting primarily from disturbance of a bighorn migration corridor and an impact to undisturbed river frontage. The impacts of Alternative A on wildlife habitat would be minor.

Cultural Resource Impacts

The proposed location for Alternative A is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B through the portion of the Avalanche section north of Avalanche Creek follows the alignment of the Rock Creek County Road; this portion of the road has been upgraded and widened and is no longer retains historical integrity. The proposed trail would have no impact. Alternative B through the portion of the Avalanche section south of Avalanche Creek follows an undeveloped portion of the Rock Creek County Road that retains physical integrity; modifications and paving of this section would constitute an impact to the resource.

At the southern end of the Avalanche section and through the Narrows, the proposed trail follows the railroad grade; modifying and paving the grade would be considered an impact. Bridges 11 and 12 will have minor impacts to the railroad grade as a result of connecting new trail to the railroad grade.

Carbondale to Crested Butte Trail Study

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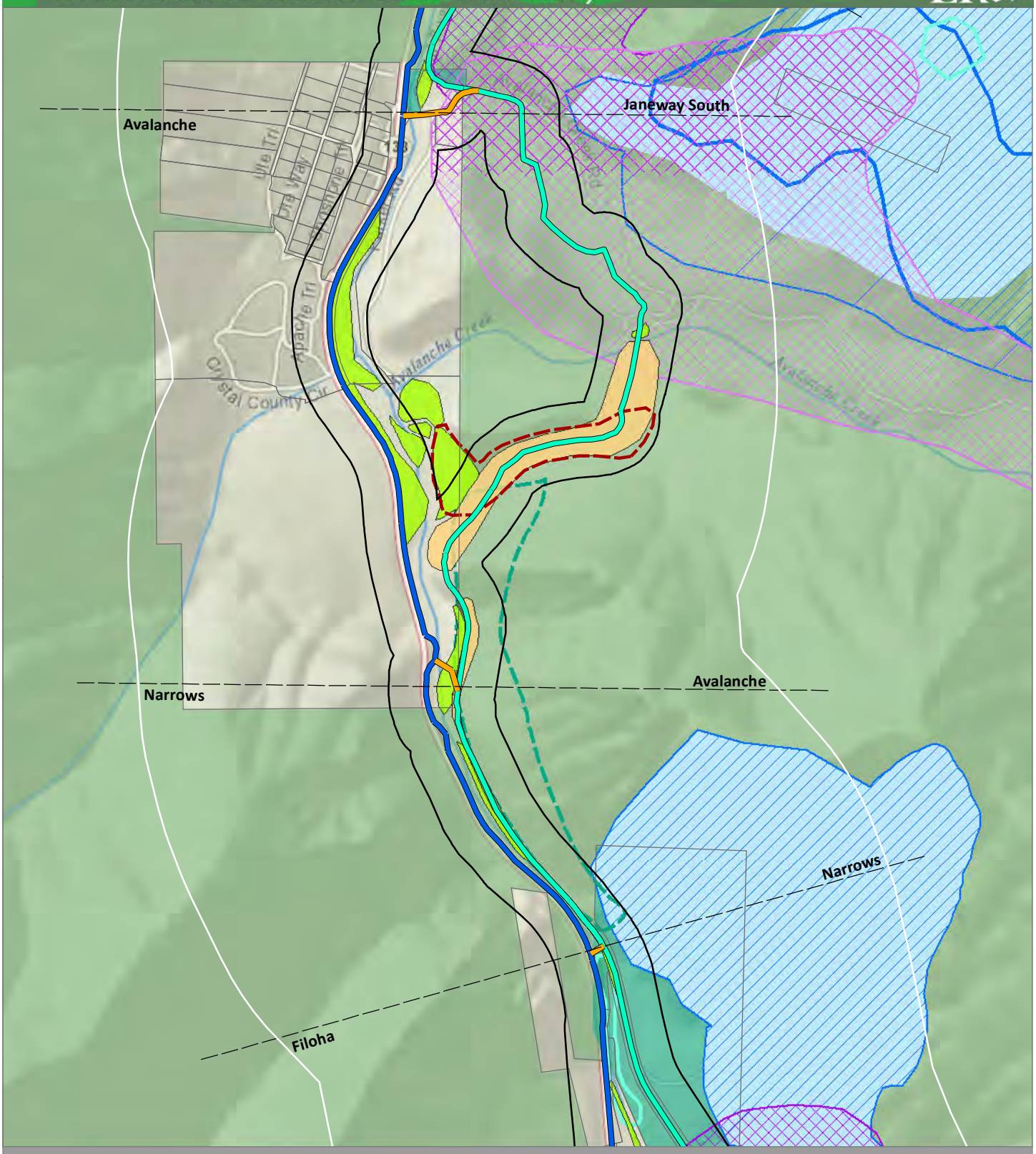

Figure 9. Avalanche to Narrows

0 600 1,200 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Filoha

Table 12. Summary of Impacts: Filoha

	Vegetation	Wildlife	Cultural Resources
Segment: Filoha			
Alternative A	No significant vegetation impacts Additional stabilization along about 2,100 feet of the Crystal River	Minor impact to elk winter range and highway crossing	No impact
Alternative B	Previous disturbances and the alignment's distance from wetlands and riparian areas would minimize impacts to vegetation community	Impact to undisturbed habitat and bighorn mineral lick	Moderate impact to Rock Creek County Road and Stage stop
Bridge #13	Bridge construction may require removal of riparian vegetation	Minor impact to undisturbed habitat and elk highway crossing	No impact

Vegetation Impacts

Alternative A follows existing road where vegetation is disturbed, and no significant new impacts to vegetation communities would occur. Impacts to in-stream habitat and riparian vegetation are possible, as the streambed would require additional stabilization along approximately 2,100 feet of the Crystal River/highway embankment. The bank is already stabilized, and no additional constraints on the physical characteristics of the of the river are anticipated. Removal of riparian vegetation is not likely.

Alternative B follows existing trail/railroad grade through degraded vegetation community dominated by non-native species and noxious weeds. Previous disturbances and the alignment's distance from wetlands and riparian areas would minimize impacts to vegetation community. Weed control best management practices would be used, and any revegetation/restoration after construction activities would use native vegetation. This may have the potential to improve vegetation community characteristics from the current condition.

Bridge construction may require removal of riparian vegetation, but the area is not a high-quality riparian community. Design criteria will include minimizing construction and bridge alignment footprint and weed control.

Wildlife Impacts

Filoha Meadows is recognized for its wildlife value, and is currently managed by Pitkin County to protect those values. This management includes an extensive seasonal closure from December 1 to June 30. Both alternatives A and B avoid impacts to the high-quality habitat areas associated with the wetlands and riparian areas along the Crystal River. With that avoidance, the primary impact concerns are related to seasonal ranges for bighorn sheep and elk, and landscape connectivity.

Bighorn Impacts. All of Filoha Meadows is Winter Range for bighorn, while the upper, southwest-facing slopes above the meadows are considered Winter Concentration Area and Severe Winter Range. The warm springs along the banks of the Crystal River in the northwest corner are used as a mineral lick, and bighorn are known to congregate in the meadow through much of the winter and spring.

Besides general winter range, the trail alignment does not intersect any seasonal ranges or production areas for bighorn, though the 100-meter zone of influence does overlap with Severe Winter Range/Winter Concentration Area and a Mineral Lick area. Bighorn use of Filoha is the greatest in the winter and spring, during the seasonal closure period. Continued successful enforcement of this closure significantly reduces the potential impact of Alternative B on bighorn.

Elk Impacts. Proposed trail alignment B along the railroad grade would intersect Winter Range and Winter Concentration Area for elk in Filoha Meadows. In addition, Bridge Option 13, and its approaches, would potentially impact potential elk rearing habitat along the Crystal River and a known highway crossing corridor. However, except for the highway crossing, the continuation of the existing seasonal closures (December 1 – June 30) substantially reduce the potential for impacts to elk.

Landscape Disturbance. Implementation of Alternative B though Filoha Meadows would introduce a new disturbance to the area, fragmenting a large section of relatively undisturbed habitat between the Crystal River and the high mountain ridge to the east. This impact would be considered high. Proposed bridge option 13 would also have habitat fragmentation impacts, but at a much smaller and more localized scale. These impacts would not be substantially reduced by the existing seasonal closures.

The overall combined impacts of Alternative B on would be moderate, considering the negative impacts on landscape-scale habitat and the benefits of existing seasonal closures. The impacts of Alternative A and bridge option 13 on wildlife habitat would be minor.

Cultural Resource Impacts

The proposed location for Alternative A is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B through Filoha Meadows follows the railroad grade; modifying and paving the grade would be considered an impact. The Filoha Meadows Stage Stop is located adjacent and west of the railroad. A formal trail would likely increase visitor impacts to the site. Bridge 13 would follow a small (approximately 100 feet) intact portion of the Rock Creek County Road and would constitute an impact.

Carbondale to Crested Butte Trail Study

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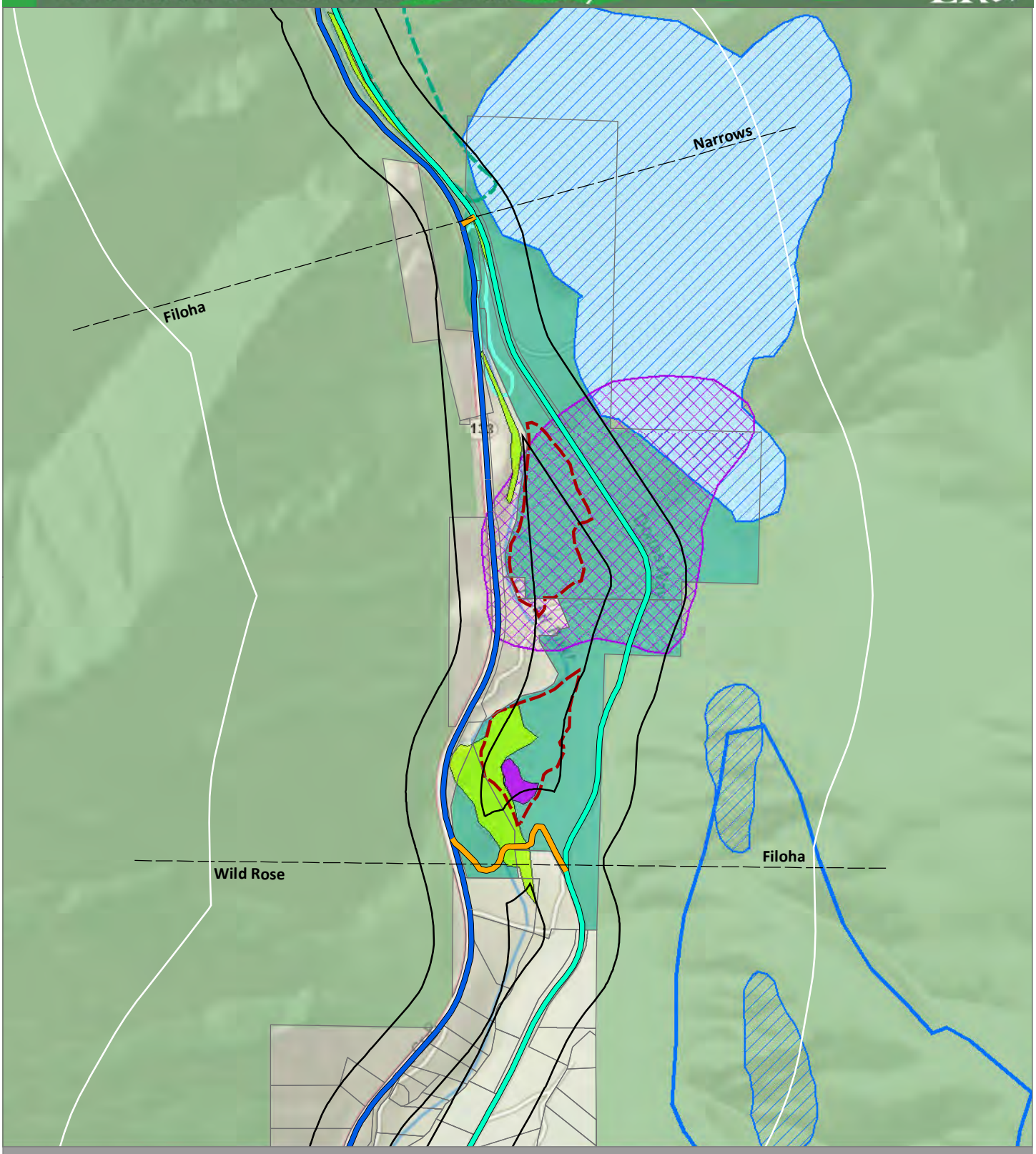

Figure 10. Filoha

0 600 1,200 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Wild Rose

Table 13. Summary of Impacts: Wild Rose

	Vegetation	Wildlife	Cultural Resources
Segment: Wild Rose			
Alternative A	No new vegetation impacts Additional stabilization along about 2,300 feet of the Crystal River	Minor impact to elk highway crossing and potential lynx habitat	No impact
Alternative B	No significant vegetation impacts	Minor impact to elk winter range and potential lynx habitat	Minor impact

Vegetation Impacts

Both alternatives follow existing roads where vegetation is disturbed, and no new impacts to vegetation communities would occur.

Alternative A may have impacts to in-stream habitat and riparian vegetation, as the streambed would require additional stabilization along approximately 2,300 feet of the Crystal River/highway embankment. The bank is already stabilized, and no additional constraints on the physical characteristics of the of the river are anticipated. Some removal of riparian vegetation is possible, but would be minimized.

Wildlife Impacts

Both trail alternatives are along existing road corridors adjacent to subdivisions. New impacts to wildlife would be localized and would be limited to an elk highway crossing area (Alternative A) and elk winter range (Alternative B). Overall wildlife impacts of both are minor.

Cultural Resource Impacts

The proposed location for Alternative A is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B follows the railroad grade; the grade has been converted into a dirt road for the subdivision and no longer retains historical physical integrity. The proposed trail would have minimal impact.

Carbondale to Crested Butte Trail Study

ERO

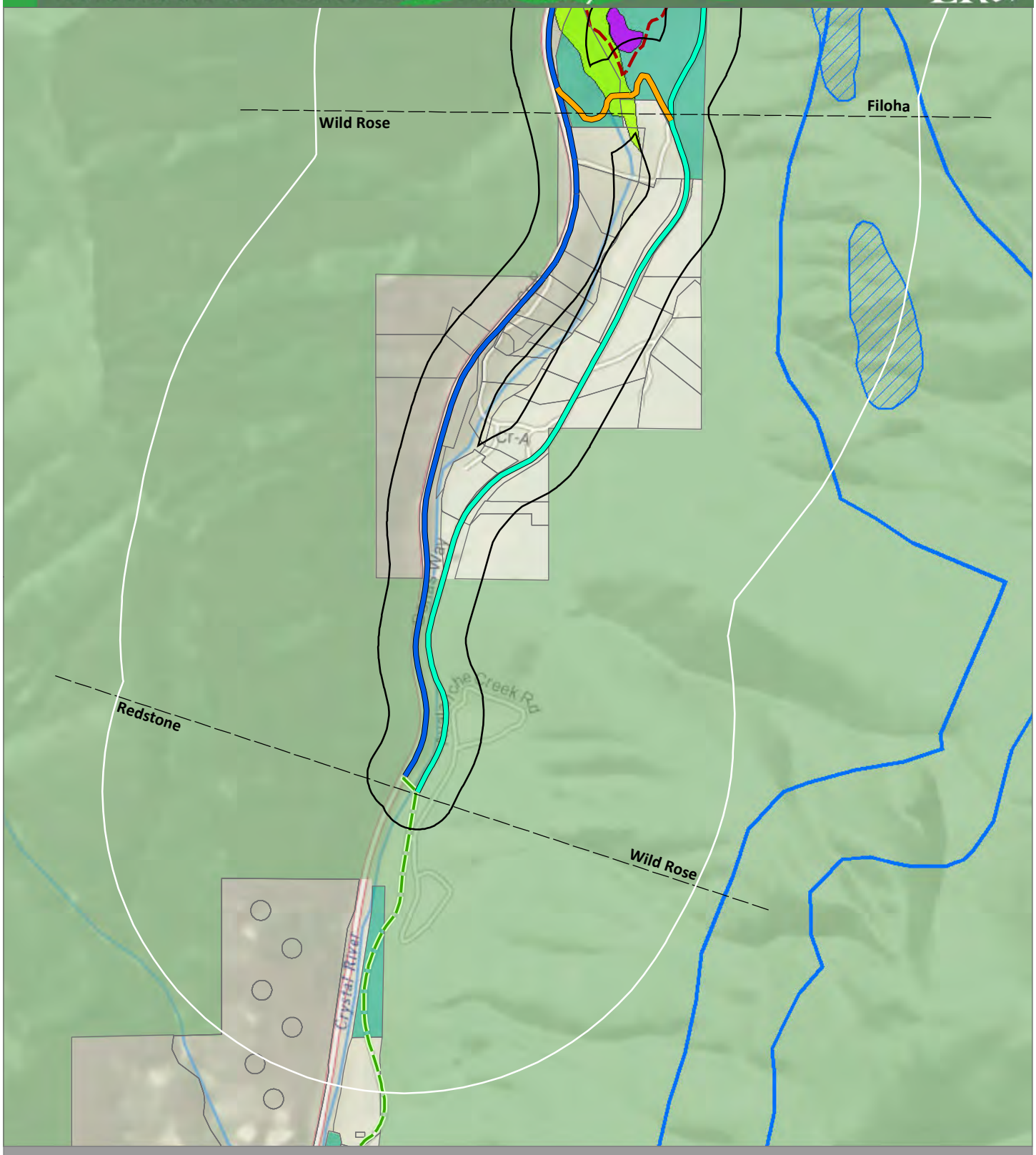

Figure 11. Wild Rose

0 600 1,200 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Redstone to Hawk Creek

Table 14. Summary of Impacts: Redstone to Hawk Creek

	Vegetation	Wildlife	Cultural Resources
Segment: Castle			
Alternative A	No significant vegetation impacts	Minor impact to elk winter range and potential lynx habitat	No impact
Alternative B	No significant vegetation impacts	Minor buffer impact to high quality habitat area	Minor impact Road to Redstone Castle
Bridge #14	Bridge would span an area where wetlands are present, but would be designed to avoid impacts	Minor impact to elk winter range	No impact
Segment: Hawk Creek			
Alternative A	No significant vegetation impacts	Minor impact to elk winter range and potential lynx habitat	No impact
Alternative B	No significant vegetation impacts	Minor impact to elk winter range and potential lynx habitat	No impact

Vegetation Impacts

Alternative A follows existing road where vegetation is disturbed, and no new impacts to vegetation communities would occur. No impacts to in-stream habitat and riparian vegetation are likely, as the alignment follows the existing highway, and crosses to the west side of the highway and away from the Crystal River after Redstone. No riparian vegetation removal is anticipated. A willow riparian area is located adjacent to the trail south of Redstone, but would not be impacted. Impacts would be minimized or avoided through trail design.

Alternative B follows existing road, and existing trail/wagon road grade for most of its length. It parallels but avoids wetlands along the river. The alignment is adjacent to a high-quality area near the Castle, but because it would be contained within the existing road and trail, new disturbance would be minimal. No tree and minimal vegetation removal would be required for trail construction.

Wildlife Impacts

Both alternatives through this area follow existing trails, roads, or other disturbances. Alternative A is located along the highway, while Alternative B is located along existing roads and trails. Both alternatives are near high-quality riparian habitat in the Crystal River floodplain, and the 100-meter zone of influence would potentially affect these areas. However, given the location of the trail alternative alignments along existing disturbance corridors and likely habituation of wildlife to those human use patterns and corridors, new impacts to this area would be minor.

Both alternatives would result in disturbance impacts (within the 100-meter zone of influence) to Winter Range, Winter Concentration Area, and Severe Winter Range for elk. These seasonal ranges are located on the forested slopes above the east bank of the Crystal River. Actual impacts from Alternative A are not likely since the alignment is along the existing highway right-of-way. Actual impacts from Alternative B may be diminished since the trail corridor currently exists and currently has some recreational use, and most of the seasonal habitat ranges are separated from the trail corridor by development (e.g., Redstone Castle) or sheer cliffs above the trail corridor. Nonetheless, Alternative B is considered to have a moderate impact on elk due to these impacts (but minor impacts to wildlife overall).

Cultural Resource Impacts

The proposed location for Alternative A is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B follows the Road to the Redstone Castle; the road retains historical physical integrity. The proposed trail would be single track dirt trail and would have minimal impact to the resource.

Carbondale to Crested Butte Trail Study

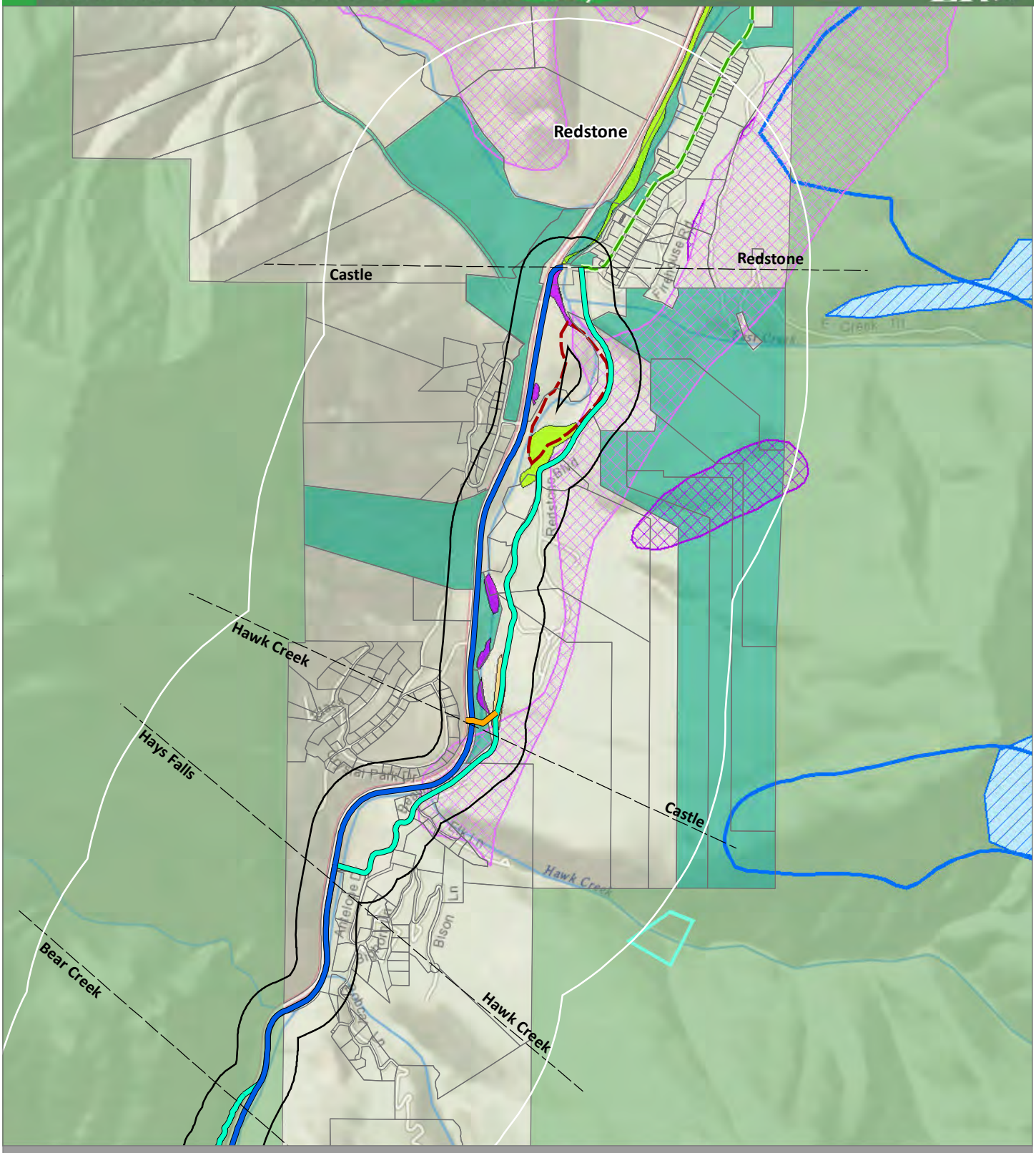

Figure 12. Redstone to Hawk Creek

0 750 1,500 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Hays Falls to Bear Creek

Table 15. Summary of Impacts: Hays Falls to Bear Creek

	Vegetation	Wildlife	Cultural Resources
Segment: Hayes Falls			
Alternative A	No significant vegetation impacts	Minor impact to elk winter range and potential lynx habitat	No impact
Segment: Bear Creek			
Alternative A	No significant vegetation impacts	Minor impact to elk winter range and potential lynx habitat	No impact
Alternative B	Alignment follows existing grade through a diverse vegetation community where habitat for FSS Harrington's penstemon is present. Disturbance would be limited, and little if any vegetation would be removed.	Buffer impact to potential lynx/FSS habitat (reduced by design measures/surveys)	Minor impact

Vegetation Impacts

Alternative A follows existing road where vegetation is disturbed, and no new impacts to vegetation communities would occur. No impacts to in-stream habitat and riparian vegetation are likely, as the alignment follows the west side of the existing highway, away from the Crystal River. No riparian vegetation removal is anticipated.

At Bear Creek, Alternative B follows existing social trail/road through a diverse vegetation community where habitat for FSS Harrington's penstemon is present (but no individuals were observed during surveys). Disturbance would be limited to existing trail footprint, and little if any vegetation would be removed.

Wildlife Impacts

Alternative A is along the existing highway corridor. While it would intersect habitat for elk, lynx, and other species, new impacts to those species would be minimal since it is along an existing highway corridor.

Alternative B follows the historic Rock Creek County Wagon Road, on the forested bench to the west of (and above) the Crystal River. The wagon road is currently used as a singletrack trail route and would require minimal new trail construction. Implementation of this trail alignment would entail minor tread improvements and a general increase in human use of the corridor.

Both alternatives intersect winter range for elk, resulting in moderate impact. Actual impacts would be greater for Alternative B (wagon road) because it is less disturbed and less frequently used than the highway corridor. In addition, Alternative B passes through suitable habitat for lynx, as well as several FSS species including hoary bat, peregrine falcon, flammulated owl, and Northern goshawk. Depending on the presence and location of sensitive species in those habitats, Alternative B could result in a moderate impact. However, considering the presence of the existing trail/use corridor along the wagon road, and the likelihood that winter use of a trail would be limited, the overall new impacts to wintering elk and other sensitive species would be minor.

Cultural Resource Impacts

The proposed location for Alternative A is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B follows the Rock Creek County Road; the road retains historical physical integrity. The wagon road is currently used as a singletrack trail route and would require minimal new trail construction. The proposed trail would have minimal impact to the resource.

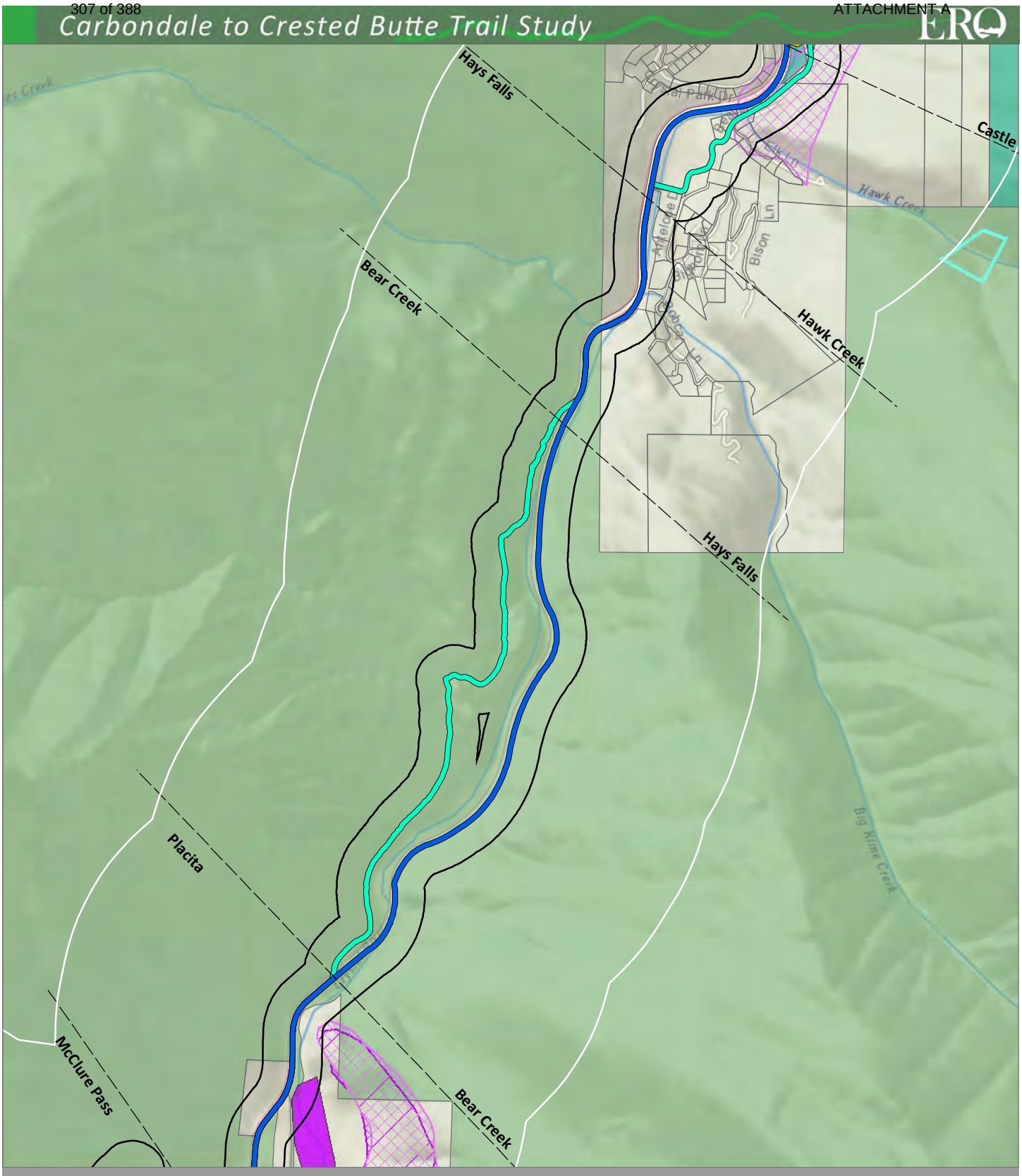

Figure 13. Hays Falls to Bear Creek

Placita to Top of McClure Pass

Table 16. Summary of Impacts: Placita to Top of McClure Pass

	Vegetation	Wildlife	Cultural Resources
Segment: Placita			
Alternative A	No significant vegetation impacts	Minor impact to elk winter range and migration corridor, and potential lynx habitat	No impact
Segment: McClure Pass			
Alternative A	No significant vegetation impacts	Minor impact to potential lynx habitat	No impact
Alternative B	No significant vegetation impacts	Minor impact to elk migration corridor and potential lynx habitat	No impact
Segment: Top of McClure Pass			
Alternative A	No significant vegetation impacts	Minor impact to habitat for lynx and FSS species	No impact

Vegetation Impacts

Alternative A follows existing road where vegetation is disturbed, and no new impacts to vegetation communities would occur. No impacts to in-stream habitat and riparian vegetation are likely, as the alignment follows the existing highway, which turns away from the Crystal River after Placita. No riparian vegetation removal is anticipated.

At Placita, Alignment B follows existing trail/wagon road grade for most of its length. It would cross Harrington's penstemon habitat (none were observed during surveys). Impacts would be minimized or avoided by trail design criteria.

Wildlife Impacts

Alternative A is along the existing highway corridor. While it would intersect habitat for elk, lynx, and other species, new impacts to those species would be minimal.

Alternative B largely follow the old McClure Pass road, which climbs with multiple switchbacks up the slopes above Placita. The old pass road is currently used as a singletrack trail route and would require minimal new trail construction. Similar to the previous segment, implementation of this trail alignment would entail minor tread improvements and a general increase in human use of the corridor.

Both alternatives intersect winter range for elk, resulting in moderate impact. Actual impacts would be greater for Alternative B (old pass road) because it is less disturbed and less frequently used than the highway corridor. In addition, Alternative B passes through suitable habitat for lynx. Considering the presence of the existing trail/use corridor along the old pass road, and the likelihood that winter use of a

trail would be limited, the overall new impacts to wintering elk and other sensitive species would be minor.

Cultural Resource Impacts

The proposed location for Alternative A is on the east side of Highway 133. Because the highway has been systematically upgraded since its first construction, it is recommended not significant to the history of the valley because it no longer retains physical integrity. Construction of the trail along the side of the highway would not constitute an impact to cultural resources.

Alternative B follows an abandoned section of McClure Pass road. The section is not recommended as a significant resource; there are no impacts.

Carbondale to Crested Butte Trail Study

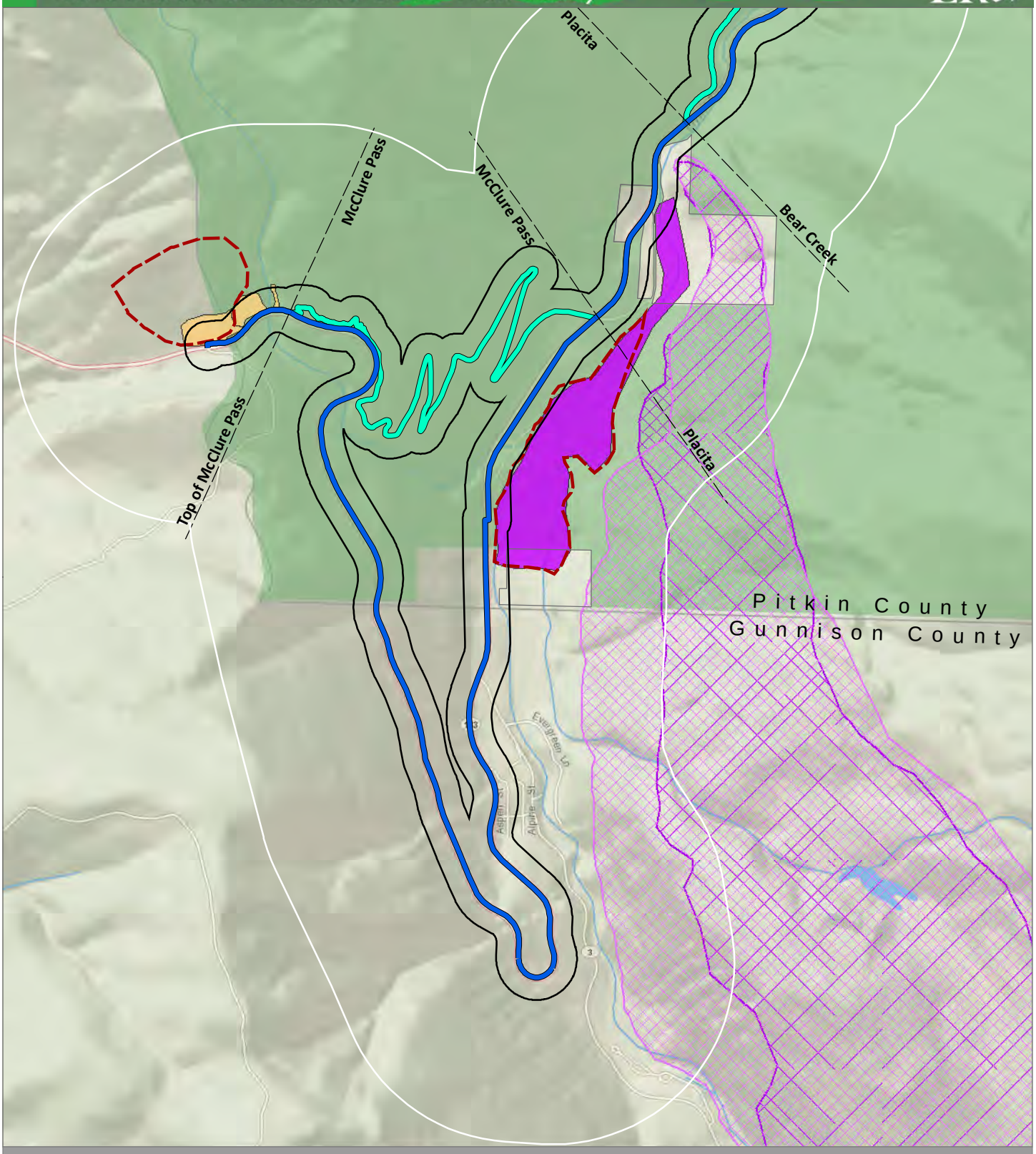

Figure 14. Placita to Top of McClure Pass

0 1,000 2,000 feet

October 9, 2017

- Trail Study Area
- 100m Trail Impact Area
- Bridge Option
- Option A Alignment
- Option B Alignment
- Existing Redstone Trail Alignment
- High Quality Wildlife Habitat
- High Quality Riparian
- Other Riparian
- High Quality Vegetation
- Elk Severe Winter Range
- Elk Winter Concentration Area
- Bighorn Mineral Lick
- Bighorn Production Area
- Bighorn Migration Corridor
- Bighorn Winter Concentration Area
- Bighorn Severe Winter Range
- Pitkin County Open Space
- BLM
- State of Colorado
- USFS

Summary of Impacts by Trail Segment

Table 17. Summary of Impacts by Segment

Segment	Vegetation Impacts	Wildlife Impacts	Cultural Resource Impacts
7 Oaks			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Minor Impact
Bridge Option #1	Minor Impact	Minor Impact	No Impact
Bridge Option #2	Minor Impact	Minor Impact	Moderate Impact
Crystal River Parcel			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Moderate Impact	Moderate Impact
Bridge Option #3	Minor Impact	Minor Impact	Minor Impact
Nettle Creek			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	*Not surveyed*
Bridge Option #4	Minor Impact	Minor Impact	Minor Impact
Red Wind Point			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Moderate Impact	Moderate Impact
Bridge Option #5	Minor Impact	Minor Impact	Minor Impact
Crystal River Country Estates			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Minor Impact
Bridge Option #6	Minor Impact	Minor Impact	Minor Impact
Andrews			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Minor Impact
Bridge Option #7	Minor Impact	Minor Impact	Minor Impact
Perham			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	*Not surveyed*
Bridge Option #8	Minor Impact	Minor Impact	Minor Impact
Janeway North			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Moderate Impact	Moderate Impact	Minor Impact
Bridge Option #9	Minor Impact	Minor Impact	Minor Impact
Janeway South			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Minor Impact
Bridge Option #10	Minor Impact	Minor Impact	No Impact
Avalanche			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	High Impact	High Impact	Moderate Impact
Bridge Option #11	Moderate Impact	Minor Impact	Minor Impact

Segment	Vegetation Impacts	Wildlife Impacts	Cultural Resource Impacts
Narrows			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Moderate Impact	Moderate Impact	Moderate Impact
Bridge Option #12	Minor Impact	Minor Impact	Minor Impact
Filoha			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Moderate Impact	Moderate Impact
Bridge Option #13	Minor Impact	Minor Impact	Minor Impact
Wild Rose			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Minor Impact
Castle			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Moderate Impact
Bridge Option #14	Minor Impact	Minor Impact	Minor Impact
Hawk Creek			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	No Impact
Hayes Falls			
Alternative A	Minor Impact	Minor Impact	No Impact
Bear Creek			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Minor Impact
Placita			
Alternative A	Minor Impact	Minor Impact	No Impact
McClure Pass			
Alternative A	Minor Impact	Minor Impact	No Impact
Alternative B	Minor Impact	Minor Impact	Minor Impact
Top of McClure Pass			
Alternative A	Minor Impact	Minor Impact	No Impact

Impact Mitigation Measures


Existing railroad grade at the base of Red Wind Point, looking north.

As described previously several design measures and BMPs are integrated into the trail alignment alternatives, and are considered in the impact determinations. These include adherence to existing seasonal closures and trail use restrictions, listed and sensitive species clearance surveys, minimization of vegetation removal and ground disturbance in native plant communities, and other BMPs. In addition to design measures, there are practices that would reduce or mitigate environmental impacts that may occur as a result of trail implementation and use. These potential mitigation measures are listed below, by resource topic.

Vegetation Impact Mitigation

- Avoidance of wetland and riparian areas wherever possible, and mitigation for wetland and riparian loss if impacts occur. Delineations of wetland areas and consultation with the USACE would be required if impacts are anticipated.
- Potential restoration of floodplain connectivity, wetlands, and riparian habitat by breaching the railroad grade at Red Wind Point and other possible locations along the Crystal River
- Potential improvement of native vegetation communities and habitat quality through restoration of areas adjacent to the trail
- Avoidance of impacts to listed species and mitigation of impacts to sensitive or rare species.

Wildlife Impact Mitigation

- Avoidance of impacts to wildlife through expanding and continuing to enforce seasonal closures and restrictions
- Avoidance of impacts and improvement of bighorn sheep habitat at and near Red Wind Point through:
    - Permanently closing upper bluffs to humans
    - Installing a stock tank to provide supplemental water for bighorn
    - Expanding seasonal closures to match other areas with similar management concerns (closed to people Dec 1st – May 1st)

- Improvement to open space management in sensitive wildlife areas through monitoring and collecting additional wildlife presence and disturbance data:
    - Monitoring annual patterns of use by bighorn sheep ewes and lambs at Red Wind Point and re-evaluating and revising closures and restrictions based on data. Continue or expand closures if ewes with lambs use area, or relax seasonal closures if they do not.
    - Assisting CPW with the development and implementation of a management plan for West Snowmass bighorn sheep herd
    - Exploring possible avenues to research and improve the condition and health of bighorn sheep and elk populations in the Crystal Valley.

Cultural Resource Impact Mitigation

- Avoidance of impacts to cultural resources through limiting visitors to the trail footprint where significant cultural resources are present and vulnerable
- Reduction of potential impacts from increased visitation by stabilizing and/or restoring significant historic features that would be impacted by visitation
- Preservation of portions of the resources that have integrity through a combination of interpretive signage and more detailed documentation (that could include measured drawings of significant features and high-quality photographs).

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Appendix A: Plant Species Observed during Field Review

Scientific Name	Common Name	Status	Type	FQA Value
Abies concolor	white fir	Native	Tree	5
Acer glabrum	rocky mountain maple	Native	Tree	7
Acer negundo	boxelder maple	Non-Native	Tree	0
Achillea millefolium	common yarrow	Native	Forb	4
Achnatherum hymenoides	Indian ricegrass	Non-Native	Grass	5
Agropyron cristatum	crested wheatgrass	Non-Native	Grass	0
Agropyron desertorum	desert wheatgrass	Non-Native	Grass	0
Allium spp.	wild onion	Native	Forb	Unknown
Alnus incana	thinleaf alder	Native	Tree	6
Amelanchier utahensis	serviceberry	Native	Shrub	6
Anaphalis margaritacea	western pearly everlasting	Native	Forb	4
Anemone cylindrica	anemone	Native	Forb	5
Apocynum cannabinum	Indian hemp	Native	Forb	2
Arctium minus	common burdock	Noxious	Forb	0
Arnica cardifolia	heart-leafed arnica	Native	Forb	7
Artemisia frigida	prairie sagewort	Native	Forb	4
Artemisia ludoviciana	white sagebrush	Native	Shrub	4
Artemisia tridentada	big sagebrush	Native	Shrub	4
Asclepias speciosa	showy milkweed	Native	Forb	3
Asclepias spp.	milkweed	Native	Forb	Unknown
Asparagus officinalis	wild asparagus	Non-Native	Forb	0
Astragulus miser	timber milkvetch	Native	Forb	6
Astragulus spp.	milkvetch	Native	Forb	Unknown
Betula glandulosa	resin birch	Native	Tree	9
Betula occidentalis	water birch	Native	Tree	8
Bromus inermis	smooth brome	Non-Native	Grass	0
Bromus japonicum	Japanese brome	Non-Native	Grass	0
Bromus tectorum	downy brome	Noxious	Grass	0
Calamagrostis canadensis	bluejoint	Native	Grass	6
Camelina microcarpa	littlepod false flax	Non-Native	Forb	0
Carduus nutans	musk thistle	Noxious	Forb	0
Carex mycroptera	smallwing sedge	Native	Grass	5
Carex spp.	sedge	Other	Grass	Unknown
Carex aquatilis	water sedge	Native	Forb	6

Scientific Name	Common Name	Status	Type	FQA Value
Castilleja chromosa	colorful Indian paintbrush	Native	Forb	7
Ceanothus fendleri	Fendler's ceanothus	Native	Shrub	7
Cercocarpus montanus	mountain mahogany	Native	Shrub	6
Chamerion angustivolium	fireweed	Native	Forb	4
Chenopodium album	lambsquarters	Native	Forb	0
Chrysanthemum leucanthemum	oxeye daisy	Noxious	Forb	0
Chrysothamnus greenii	Greene's rabbitbrush	Native	Shrub	6
Cirsium arvensis	Canada thistle	Noxious	Forb	0
Cirsium spp.	thistle	Unknown	Forb	Unknown
Cirsium undulatum	wavy-leaf thistle	Native	Forb	5
Clematis spp.	clematis	Unknown	Vine	Unknown
Comandra umbellata	bastard-toadflax	Native	Forb	5
Conioselinum scopulorum	Rocky mountain hemlock parsley	Native	Forb	7
Conium maculatum	poison hemlock	Non-Native	Forb	0
Cornus sericea	redosier dogwood	Native	Tree	7
Cynoglossum officianale	hound's tongue	Noxious	Forb	0
Dactylis glomerata	orchard grass	Non-Native	Grass	0
Dasiphora fructicosa	shrubby cinquefoil	Native	Shrub	4
Delphinium spp.	Larkspur	Native	Forb	Unknown
Distichlis stricata	Indian saltgrass	Native	Grass	4
Dracocephelum spp.	dragonhead	Non-Native	Forb	3
Echinacea spp.	coneflower	Native	Forb	0
Elaeagnus angustifolia	Russian olive	Noxious	Tree	0
Elymus elemoides	squirreltail	Native	Grass	4
Elymus glauca	blue wildrye	Native	Grass	7
Elymus trachycaulus	slender wheatgrass	Native	Grass	4
Elymus lanceolatus	wild-rye	Native	Grass	4
Epilobium brachycarpum	tall annual willowherb	Native	Forb	2
Equisetum hyemale	scouringbrush horsetale	Native	Forb	4
Ericameria nauseosa	rubber rabbitbrush	Native	Shrub	3
Erigeron divergens	spreading fleabane	Native	Forb	4
Erigeron spp.	fleabane	Unknown	Forb	Unknown
Eriogonum spp.	buckwheat	Unknown	Forb	Unknown
Eriogonum umbellatum	sulphur flower	Native	Forb	6
Erodium cicutarium	redstem filaree	Noxious	Forb	0

Scientific Name	Common Name	Status	Type	FQA Value
Fragaria virginiana	wild strawberry	Native	Forb	5
Geranium richardsonii	Richardson geranium	Native	Forb	6
Geum macrophyllum	big leaf avens	Native	Forb	6
Grindelia spp.	gumweed	Native	Forb	Unknown
Helianthus spp.	sunflower	Unknown	Forb	Unknown
Heracleum maximum	cow parsnip	Native	Forb	6
Hesperostipa comata	needle-and-thread grass	Native	Grass	6
Heterotheca villosa	hairy false golden aster	Native	Forb	3
Holodiscus discolor	rock spirea	Native	Shrub	8
Ipomopsis aggregata	scarlet gilia	Native	Forb	5
Iris pseudacorus	yellow flag iris	Noxious	Forb	0
Iris missouriensis	wild iris	Native	Forb	4
Juniperus communis	common juniper	Native	Tree	6
Juniperus monosperma	One-seed juniper	Native	Tree	6
Juniperus scopulorum	Rocky Mountain juniper	Native	Tree	5
Koeleria machanthra	prairie junegrass	Native	Grass	6
Ligusticum porteri	Poter's licorice-root	Native	Forb	7
Linaria vulgaris	yellow toadflax	Noxious	Forb	0
Linum lewissi	prairie flax	Native	Forb	4
Linum spp.	flax	Unknown	Forb	Unknown
Lonicera involucrata	twinberry honeysuckle	Native	Shrub	7
Lupinus spp.	lupine	Native	Forb	Unknown
Machaeranthera coloradoensis	Colorado tansyaster	Native	Forb	6
Mahonia repens	creeping barberry	Native	Forb	5
Maianthemum stellatum	starry false lily of the valley	Native	Forb	7
Medicago lupulina	black medic	Non-Native	Forb	0
Medicago sativa	yellow flower alfalfa	Non-Native	Forb	0
Melilotus albus	white sweet clover	Non-Native	Forb	0
Melilotus officianale	yellow sweet clover	Non-Native	Forb	0
Mertensia ciliata	chiming bells	Native	Forb	7
Nassella veridula	green needlegrass	Native	Grass	4
Ocopordum acanthium	scotch thistle	Noxious	Forb	0
Oenothera latifolia	mountain evening primrose	Native	Forb	5
Opuntia fragilis	brittle prickly pear	Native	Cactus	3
Oxytropis lambertii	purple locoweed	Native	Forb	5

Scientific Name	Common Name	Status	Type	FQA Value
Packera spp.	groundsel	Native	Forb	Unknown
Pedicularis spp.	Louseworts	Other	Forb	8
Penstemon barbatus	scarlet penstemon	Native	Forb	6
Penstemon mensarum	Grand Mesa penstemon	Native	Forb	5
Penstemon spp.	beardtongue	Native	Forb	Unknown
Phleum pretense	timothy grass	Non-Native	Grass	0
Phlox spp.	phlox	Unknown	Forb	Unknown
Picea englemannii	Engelmann spruce	Native	Tree	5
Picea pungens	Colorado spruce	Native	Tree	6
Pinus edulis	Two-needle pine	Native	Tree	6
Pinus ponderosa	Ponderosa pine	Native	Tree	5
Piptatherum micranthum	little ricegrass	Native	Grass	7
Plantago lanceolata	narrowleaf plantain	Non-Native	Forb	0
Poa bulposa	bulbous bluegrass	Noxious	Grass	0
Poa compressa	Canada bluegrass	Non-Native	Grass	0
Poa fendleriana	muttongrass	Native	Grass	7
Poa pratensis	Kentucky bluegrass	Other	Grass	0
Populus angustifolia	narrowleaf cottonwood	Native	Tree	5
Populus tremuloides	aspen	Native	Tree	5
Potentilla arguta	tall cinquefoil	Native	Shrub	7
Potentilla pensylvanica	Pennsylvania cinquefoil	Native	Forb	6
Potentilla spp.	cinquefoil	Unknown	Forb	Unknown
Prunus virginiana	chokecherry	Native	Shrub	4
Pseudoroegneria spicata	bluebunch wheatgrass	Native	Grass	7
Pseudotsuga menziesii	Douglas fir	Native	Tree	5
Pteridium aquilinum	bracken fern	Native	Forb	5
Purshia tridentata	antelope bitterbrush	Native	Shrub	6
Pyrola asarifolia	liverleaf wintergreen	Native	Forb	8
Quercus gambelii	Gambel oak	Native	Shrub	5
Ribes spp.	gooseberry	Native	Shrub	Unknown
Rosa woodsii	Woods rose	Native	Shrub	5
Rubus idaeus	American red raspberry	Native	Shrub	5
Rubus parviflorus	thimbleberry	Native	Shrub	7
Rumex accetacella	common sheep sorrel	Native	Shrub	0
Salix exigua	narrowleaf willow	Native	Shrub	3

Scientific Name	Common Name	Status	Type	FQA Value
Saxifraga spp.	saxifrage	Native	Forb	Unknown
Schedonorus arundinaceus	tall fescue	Non-Native	Grass	0
Senecio spp.	ragwort	Unknown	Forb	Unknown
Senecio triangularis	arrowleaf ragwort	Native	Forb	7
Silene cserii	Balkan catchfly	Non-Native	Forb	0
Sisyrinchium montanum	strict blue-eyed grass	Native	Grass	6
Solidago spp.	goldenrod	Unknown	Forb	Unknown
Sphaeralcea cocinia	scarlet globemallow	Native	Forb	4
Sporobolus cryptandrus	sand dropseed	Native	Grass	2
Symphoricarpos rotundifolius	mountain snowberry	Native	Shrub	5
Taraxacum officianale	dandelion	Other	Forb	0
Tetradymia canescens	spineless horsbrush	Native	Forb	6
Thalactrum fendleri	Fendler's meadow-rue	Native	Shrub	6
Tragopogon dubius	yellow salsify	Non-Native	Forb	0
Trifolium pratense	red clover	Non-Native	Forb	0
Trifolium repens	white Dutch clover	Non-Native	Forb	0
Vaccinium myrtillus	mountain blueberry	Native	Shrub	6
Verascum thapsus	common mullein	Noxious	Forb	0
Vicia americana	American vetch	Native	Forb	5
Wyenthia amplexicaulis	mule's ears	Native	Forb	3
Mimulus spp.	monkey flower	Native	Forb	Unknown

Appendix B: ESA-listed and USFS Region 2 Sensitive Plant Species with Potential to Occur

Species	Status	Habitat Description
Ferns and Allies		
Triangle globe moonwort *Botrychium ascendens*	Sensitive Presence: Possible Habitat: Yes	Triangle globe moonwort is known to occur on the WRNF, within short and tall riparian willow communities with significant moss, gravel, and cobble ground cover on volcanic or granitic alluvium at 8,000 to 10,900 feet in elevation (Beatty et al. 2003) or previously disturbed sites. Suitable habitat may occur in the southern area of the corridor up to McClure Pass.
Angiosperms- Monocots		
Lesser yellow lady's slipper *Cypripedium parviflorum*	Sensitive Presence: Possible Habitat: Yes	This species grows in a variety of habitats from shady, damp forest understory of mixed deciduous and coniferous forests to open meadows and along streams in acidic soils. In Colorado, this species has been reported between 5,800 and 12,600 feet in elevation (Mergen 2006). Suitable habitat may occur in the corridor.
Giant helleborine *Epipactis gigantea*	Sensitive Presence: Possible Habitat: Yes	Giant helleborine grows from southern British Columbia to northern Mexico and eastward in the U.S. to South Dakota and Texas. Throughout its wide range, it occurs infrequently but can be locally abundant. This species must have a permanent and constant source of water at the roots. In Colorado, this species occupies seeps, streambanks, and hanging gardens between 4,800 and 6,500 feet in elevation (Rocchio et al. 2006). Although there are no known occurrences of this species in the WRNF, habitat is present and occurrences are possible.
Slender cottongrass *Eriophorum gracile*	Sensitive Presence: Possible Habitat: Yes	Slender cottongrass is known to occur in the mountainous areas of Colorado and Wyoming and the Sandhills region of north-central Nebraska and southern South Dakota. It inhabits fens and subalpine wet meadows with saturated soils. Elevations of occurrences range from 7,000 to 11,140 feet in Colorado. It is not known to occur in Pitkin County (Decker et al. 2006c). No fens are located within or near the corridor, but suitable habitat within wet meadows may be present at Filoha Meadow (although elevation may limit habitat).
Ute ladies'-tresses orchid *Spiranthes diluvialis*	Threatened Presence: Known Habitat: Yes	Ute ladies'-tresses orchid is a perennial herb that occurs at elevations below 6,500 feet in moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes (USFWS 1995). A population is known at Filoha Meadows and it may be present elsewhere where habitat is present.
Angiosperms- Dicots		
Park milkvetch *Astragalus leptaleus*	Sensitive Presence: Possible Habitat: Possible	Park milkvetch is known from western Montana to east-central Idaho and south to the Rocky Mountains in Colorado. This species occurs in sedge-grass meadows, swale, hummocks at the edges of meandering mountain brooks, and among streamside willows at elevations between 6,600 and 9,500 feet. This species is known in Summit County but not known in Pitkin County (NatureServe 2016). The corridor occurs within the elevation range of this species and suitable habitat could be present.

Species	Status	Habitat Description
Hall's Fescue (plains rough fescue) *Festuca hallii*	N/A, Rare Presence: Not suspected Habitat: Possible	Known only from five occurrences in Colorado within Park, Larimer, Huerfano, and Custer Counties, Hall's fescue is extremely rare. Seventeen occurrences have been documented in Region 2 (ten of which are on the Shoshone NF in northwestern Wyoming) (Anderson 2006). Habitat requirements are poorly known, but include Alpine tundra, subalpine grasslands, meadows, grassy slopes, woodland margins (NatureServe 2017). Historic accounts suggest that it occurs at elevations between 6,800 and 11,500 feet. It is not knows if it still occurs in Colorado and has not been documented on the WRNF (Anderson 2006).
Colorado tansyaster *Machaeranthera coloradoensis*	Sensitive Presence: Possible Habitat: Yes	This species occurs in small populations in Colorado and Wyoming, in subalpine and alpine environments in meadows, openings, gravelly places, or rock outcrops (often on sandstone or limestone), and tundra at elevations above 8,500 feet (NatureServe 2016). Habitat for this species may occur at and near McClure Pass.
Kotzebue's grass of Parnassus *Parnassia kotzebuei*	Sensitive Presence: Not suspected Habitat: Possible	This obligate wetland species is grows in mesic to wet, arctic, and alpine habitats and is found in scattered locations at high elevations in Washington, Nevada, Idaho, Wyoming, and Colorado. This species can occur in tundra and moist to wet rocky places, moss mats, and along streams, lakes shores, ponds, seeps, and creeks. It is found primarily above tree line but also in subalpine forest openings, on rocky coniferous slopes, and in deep spruce forests. Elevation ranges are between 9,400 and 12,280 feet. Occurrences are usually in remote, infrequently visited areas, and none are known in Pitkin County (Panjabi and Anderson 2007). Habitat for this species may be present, but is not likely, in the corridor at and near McClure Pass.
Harrington's beardtongue *Penstemon harringtonii*	Sensitive Presence: Possible Habitat: Yes	This is a Colorado endemic species known from Grand, Eagle**,** Routt, Garfield, Pitkin, and Summit Counties. This species occurs in sagebrush flats with some scattered pinyon-juniper in rocky loam and alluvially derived soils, at elevations between 6,400 and 9,400 feet (NatureServe 2016). Habitat for this species may be present in sagebrush flats with scattered pinyon-juniper at Placita, Janeway, and other scattered locations.
Dwarf raspberry *Rubus arcticus* ssp. *acaulis*	Sensitive Presence: Possible Habitat: Yes	Dwarf raspberry is known from mountainous areas in Colorado and Wyoming. In USFS Region 2, this species grows in montane and subalpine environments at elevations between 7,000 and 9,720 feet. It grows in the upper montane willow zone and has been reported to grow in boggy woods, marshes, mountain meadows, and alpine tundra. In Colorado, it is only reported in Grand, Jackson, and Park Counties (Ladyman 2006). Although habitat may be present in the corridor, this species has not been documented in the WRNF.
American cranberry bush *Viburnum opulus* var. *americanum*	Sensitive Presence: Not suspected Habitat: Yes	American cranberry bush is classified as a wetland plant. In Colorado, this species is typically not listed as part of the flora and is not known to occur in the state, although it is possible that it does occur and unconfirmed occurrences have been noted (NatureServe 2016), some of which are in the Roaring Fork watershed. It has been observed at elevations between 4,200 and 5,000 feet in Wyoming. The corridor may have suitable habitat for this species in wetland areas below 5,000 feet.

Appendix C: ESA-Listed and USFS Region 2 Sensitive Species with Potential to Occur

Species	Status	Habitat Description	Field Review Approach
Canada lynx *Lynx canadensis*	Threatened with Final Critical Habitat Presence: Known Habitat: Yes	In the southern Rocky Mountains, Canada lynx occur within subalpine and upper montane forest zones, usually above 8,000 feet in elevation. Lynx use riparian areas during the fall. Known lynx populations are located in the potential action area, and the McClure Pass area is a lynx linkage area. Because the McClure Pass area is a lynx linkage area, additional coordination and possible consultation with the USFWS may be required, under the 2014 Lynx Conservation Plan update.	Consider year-round conditions including winter, and potential impact, both of proposed project and cumulative, in analysis
North American wolverine *Gulo gulo luscus*	Proposed Threatened Presence: Not Suspected Habitat: Yes	North American wolverines use arctic, subarctic, and alpine habitats receiving ample snow that persists into the spring. Habitat for the wolverine is located within the action area, yet none are currently known to occur in Colorado.	Not likely an issue
Fringed myotis *Myotis thysanodes*	Sensitive Presence: Possible Habitat: Yes	Fringed myotis occur primarily at middle elevations in desert, riparian, grassland, and woodland habitats, but have been known to occur at elevations up to 8,200 feet. They roost in caves, mines, cliff faces, rock crevices, old buildings, bridges, snags, and other sheltered sites. In Colorado, most maternity roosts have been observed in crevices of rock faces, sometimes in abandoned mines or in an abandoned cabin. In spring and summer, males roost separately and are rarely found in nursery colonies. Winter habits are poorly known; hibernacula include caves, mines, and buildings (NatureServe 2016).	Document potential habitat and conduct nighttime acoustic surveys within habitat
Hoary bat *Lasiurus cinereus*	Sensitive Presence: Likely Habitat: Yes	Hoary bat habitat primarily consists of deciduous and coniferous forests and woodlands, including areas altered by humans. Foraging habitat includes various open areas, including spaces over water and along riparian corridors. Individuals may forage around lights in nonurban situations. Roost sites are usually in foliage of large deciduous or coniferous trees, near the end of branches 3-19 meters above ground, with dense foliage above and open flying room below, often at the edge of a clearing and commonly in hedgerow trees. Sometimes these bats roost in rock crevices or other sites, rarely in caves. Individuals have a low level of roost fidelity. Hibernating individuals have been found in various situations, such as on tree trunks, in a tree cavity, in a squirrel's nest, and in a clump of Spanish-moss (NatureServe 2017).	Document potential habitat and conduct nighttime acoustic surveys within habitat
Spotted bat *Euderma maculatum*	Sensitive Presence: Possible Habitat: Yes	This solitary rapid-flying bat occurs in various habitats from desert to montane coniferous stands, including open ponderosa pine, pinyon-juniper woodland, canyon bottoms, riparian and river corridors, meadows, open pasture, and hayfields. Active foraging may be mostly in open terrain, including forest clearings, meadows, and open wetlands, sometimes in open areas near buildings (NatureServe 2016).	Document potential habitat and conduct nighttime acoustic surveys within habitat

Species	Status	Habitat Description	Field Review Approach
Townsend's big-eared bat *Corynorhinus townsendii townsendii*	Sensitive Presence: Possible Habitat: Yes	This species prefers relatively cold places for hibernation, often near entrances of structures and caves and in well-ventilated areas. It uses caves, buildings, and tree cavities for night roosts. Throughout much of its known range, this bat commonly occurs in mesic habitats characterized by coniferous and deciduous forests (NatureServe 2016).	Document potential habitat and conduct nighttime acoustic surveys within habitat
American marten *Martes americana*	Sensitive Presence: Possible Habitat: Yes	American martens occur in dense deciduous, mixed, or coniferous upland and lowland forest. When inactive, martens occupy holes in dead or live trees or stumps, abandoned squirrel nests, conifer crowns, rock piles, burrows, and snow cavities. In winter, they use mainly subnivean sites, often associated with coarse woody debris. Young are born in a den, usually in a hollow tree but sometimes in rock. The adult diet consists mainly of small mammals, birds, insects, and carrion. Berries and other vegetable matter is eaten in season. Foraging occurs in trees and on the ground. Martens track prey, ambush, rob nests, excavate burrows, and use hunting perches. They also exploit subnivean prey (e.g., voles and squirrels) (NatureServe 2016).	Document habitat and any incidental observation of sign or presence
Pygmy shrew *Microsorex hoyi*	Sensitive Presence: Possible Habitat: Possible	Pygmy shrew habitat includes moist coniferous forest, late-seral stands, and mosaics of wet and dry forest types. Plant species in pygmy shrew habitat generally include Engelmann spruce, subalpine fir, aspen, riparian willows, sphagnum, and/or sedges. An abundance of coarse woody debris on the ground likely enhances the habitat for pygmy shrews (NatureServe 2016). The species appears to be limited to specific high-quality bogs, wetlands, and wet meadows in subalpine spruce-fir forests of Colorado. Populations are small, isolated, and vulnerable to injurious habitat modification.	Document any incidental observation of sign or presence, and habitat; not likely to occur due to elevation
River otter *Lontra canadensis*	Sensitive Presence: Not suspected Habitat: Yes	This species is found in streams, lakes, ponds, swamps, marshes, estuaries (in some areas), and beaver flowages. When inactive, otters occupy hollow logs, space under roots, logs, or overhang, abandoned beaver lodges, dense thickets near water, or burrows of other animals. Such sites also are used for rearing young. River otters may travel long distances overland, particularly in snow (NatureServe 2016).	Document any incidental observation of sign or presence, and habitat; known in the Crystal River at the confluence with the Roaring Fork, but not in the Crystal River Valley
Rocky Mountain bighorn sheep *Ovis canadensis canadensis*	Sensitive, MIS Presence: Not suspected Habitat: No	Bighorn sheep occur in mesic to xeric, alpine to desert grasslands or shrub-steppe in mountains, foothills, or river canyons. Many of these grasslands are fire-maintained. Suitable escape terrain (e.g., cliffs and talus slopes) is an important feature of sheep habitat (NatureServe 2016). Sheep use primarily alpine tundra and associated rocky cliff areas during summer. In winter, they use lower-elevation open, grassy benches and southerly slopes, with some herds wintering on windswept ridges at high elevations.	Engage with best available science, recent studies, and historic and recent accounts for analysis. Record incidental observations.

Species	Status	Habitat Description	Field Review Approach
Western Yellow-billed Cuckoo *Coccyzus americanus occidentalis*	Threatened Presence: Possible Habitat: Unknown	The western yellow-billed cuckoo nests almost exclusively in multistoried dense vegetation riparian woodlands composed of cottonwood and willow, and occasionally tamarisk or other riparian woodland species that is 12 acres (5 ha) or greater in extent. (USFWS 2013). Elevation range is generally below 6,000 feet (1,830 meters) within arid to semiarid landscapes, although it may occur at elevations up to 8,500 feet (2,590 meters). Habitat patches as small as 1.2 acres (0.5 hectares) can support one or two breeding pairs. Nests are typically placed in trees where the plant growth is most dense, where trees and shrubs have vegetation near ground level, and where there is a low-density canopy (USFWS 2013). Migrants may stopover in small riparian patches that would be unsuitable for breeding (NatureServe 2017).	Document any potential habitat in the corridor for analysis or further review or dismissal
American bittern *Botaurus lentiginosus*	Sensitive Presence: Not suspected Habitat: Yes	This species uses primarily large freshwater marshes, including lake and pond edges where cattails, sedges, or bulrushes are plentiful and marshes where there are patches of open water and aquatic-bed vegetation. It also occurs in other areas with dense herbaceous cover, such as shrubby marshes, bogs, wet meadows, and less commonly in hayfields. American bitterns nest primarily in inland freshwater wetlands, sparsely vegetated wetlands, or dry grassy uplands. Breeding occurs primarily in wetlands with tall emergent vegetation (NatureServe 2016; Cornell Lab of Ornithology 2016).	Document any incidental observation of sign or presence, and habitat
Northern harrier *Circus cyaneus*	Sensitive Presence: Not Suspected Habitat: Yes	This species breeds in marshes, meadows, grasslands, and cultivated fields. It nests on the ground, commonly near low shrubs, in tall weeds or reeds, in bogs, on higher shrubby ground near water, or on dry marsh vegetation. Northern harriers use agricultural fields and wetlands as hunting and nonbreeding territory (NatureServe 2016). Breeding habitat is located within the WRNF, and parts of the action area overlap wetlands and open fields around waterbodies that would provide habitat for northern harriers.	Document any observations; conduct general raptor surveys in habitat
American peregrine falcon *Falco peregrinus anatum*	Sensitive, MIS Presence: Possible Habitat: Yes	This species is found across a wide variety of open habitats including tundra, moorlands, steppe, and seacoasts (especially where there are suitable nesting cliffs) to mountains, open forested regions, and human population centers. The falcon nests on cliff ledges and rocky crags. When not breeding, this species occurs in areas where prey concentrate, including farmlands, marshes, lakeshores, river mouths, tidal flats, dunes and beaches, broad river valleys, cities, and airports (NatureServe 2016). Peregrine nest sites are located within the Crystal River Valley, and historic presence is documented. Peregrine nest sites and foraging habitat are located within the Crystal River Valley, and historic presence is documented.	Survey known nest sites; document any observations; conduct general raptor surveys in habitat

Species	Status	Habitat Description	Field Review Approach
Bald eagle *Haliaeetus leucocephalus*	Sensitive, MIS Presence: Possible Habitat: Yes	This species' breeding habitat most commonly includes areas within 2.5 miles of waterbodies that reflect the general availability of primary food sources including fish, waterfowl, and carrion. Bald eagles usually nest in tall trees or on pinnacles or cliffs near water. Tree species used for nesting vary regionally and may include pine, spruce, fir, cottonwood, poplar, willow, sycamore, oak, beech, and others (NatureServe 2016). Bald eagles occur on the WRNF and are known to nest at sites immediately adjacent to large streams or rivers and some large lakes. Bald eagle nesting and foraging habitat are located within the Crystal River Valley, and historic presence is documented.	Document any observations; conduct raptor surveys in habitat.
Boreal owl *Aegolius funereus*	Sensitive Presence: Possible Habitat: Yes	This species inhabits dense coniferous forest, mixed forest, and thickets of alder, aspen, or stunted spruce, most commonly in proximity to open grassy areas and muskeg bogs. In the Rockies, it occurs generally in mature multilayered spruce-fir forest. Boreal owls roost in dense cover by day and in cool microsites in summer, and frequently change roosting sites. They nest between April and June (NatureServe 2016).	Document potential habitat and conduct nighttime acoustic surveys within habitat
Black swift *Cypseloides niger*	Sensitive Presence: Not suspected Habitat: No	This species forages over forests and in open areas and nests in dark inaccessible sites with unobstructed flight paths, such as nests behind or next to waterfalls and wet cliffs, and occasionally in limestone caves (NatureServe 2016). Black swifts are known to occur on the WRNF, and the Crystal Valley may provide suitable waterfall or wet cliff habitat.	Document incidental observations and presence of habitat; consider in analysis
Brewer's sparrow *Spizella breweri*	Sensitive Presence: Possible Habitat: Not likely	This species is a sagebrush obligate and prefers extensive open sagebrush (*Artemesia* spp.) habitats. They are tied to sagebrush for food, nesting, and roosting (Cornell Lab of Ornithology 2016). Its breeding season begins in May and continues through June (NatureServe 2016). The corridor has patches of sagebrush at Janeway, Placita and elsewhere, but it may not be adequate in size to sustain populations.	Document sage brush habitat if present, and any incidental observations
Columbian sharp-tailed grouse *Tympanuchus phasianellus columbianus*	Sensitive Presence: Not likely Habitat: Not likely	This species nests and breeds in native bunchgrass and shrub-steppe communities. Deciduous shrubs are critical for winter food and escape cover and bunchgrasses and perennial forbs are important components of nesting and brood-rearing habitat (NatureServe 2016). The proposed action is outside of the current range of the species (USFS 2008b).	Document suitable habitat and incidental observations

Species	Status	Habitat Description	Field Review Approach
Ferruginous hawk *Buteo regalis*	Sensitive Presence: Not suspected Habitat: No	This species occupies open country including prairies, plains, and badlands; and sagebrush, saltbush-greasewood shrubland on the periphery of pinyon-juniper and other woodlands, and deserts. It nests in tall trees or willows along streams or on steep slopes, in junipers, on cliff ledges, river-cut banks, hillsides, on power line towers, sometimes on sloped ground on the plains or on mounds in open desert. It generally avoids areas of intensive agriculture or human activity (NatureServe 2016). This species occurs incidentally during migration on the WRNF (USFS 2008b).	Consider impacts for species during winter
Flammulated owl *Otus flammeolus*	Sensitive Presence: Possible Habitat: Yes	This species' habitat includes open montane conifer forests containing mature ponderosa and Jeffery pine with some brush or saplings, in cooler semiarid climate, with a high abundance of nocturnal arthropod prey and some dense foliage for roosting. It nests in abandoned tree cavities in large-diameter pine, Douglas-fir, or aspen trees. They nest between April and June (NatureServe 2016). Forest types preferred by owls occur within the project area, and potential nesting territories for flammulated owls could overlap the action area.	Document potential habitat and conduct nighttime acoustic surveys within habitat
Lewis' woodpecker *Melanerpes lewis*	Sensitive Presence: Possible Habitat: Yes	This species occupies open forest and woodland, often logged or burned, including oak, coniferous forest, primarily ponderosa pine, riparian woodland and orchards, and less commonly in pinyon-juniper. Its distribution is closely associated with open ponderosa pine forest in western North America and is strongly associated with fire-maintained old-growth ponderosa pine. Important habitat features include an open tree canopy, a brushy understory with ground cover, dead trees for nest cavities and dead or downed woody debris, perch sites, and abundant insects (NatureServe 2016).	This species is very likely to occur; document habitat and conduct a thorough evaluation of habitat for presence
Northern goshawk *Accipiter gentilis*	Sensitive Presence: Possible Habitat: Not likely	In the western U.S., this species characteristically nests in coniferous forests including those dominated by ponderosa or lodgepole pine, or in mixed forests dominated by various coniferous species including fir, Douglas-fir, cedar, hemlock, spruce, and larch. Goshawks also nest in deciduous forests dominated by aspen, paper birch, or willow. Nesting occurs between late-April and August (NatureServe 2016). Goshawks have been documented throughout the WRNF in suitable habitat.	Document suitable habitat and incidental observations
Olive-sided flycatcher *Contopus cooperi*	Sensitive Presence: Possible Habitat: Yes	Olive-sided flycatchers breed in various forest and woodland habitats, subalpine coniferous forest, mixed coniferous-deciduous forest, burned-over forest, spruce bogs and other forested wetlands, and along the forested edges of lakes, ponds, and streams. Most nesting sites contain dead standing trees, which are used as singing and feeding perches. Nests are placed most often in conifers, on horizontal limbs 2 to 15 meters from the ground (NatureServe 2016). The proposed activity locations may have habitat for this species.	Document suitable habitat and incidental observations

Species	Status	Habitat Description	Field Review Approach
Purple martin *Progne subis*	Sensitive Presence: Possible Habitat: Yes	This species occupies a wide variety of open and partly open habitats, frequently near water in mature aspen stands. Birds nest in abandoned woodpecker holes in trees. In Colorado, purple martins are semicolonial, with multiple pairs of martins nesting in the same tree stand. They feed in open areas, especially near water (NatureServe 2016). The Crystal River Valley may have suitable habitat.	Document suitable habitat and incidental observations
Sage Sparrow *Amphispiza bellii*	Sensitive Presence: Possible Habitat: Yes	A sagebrush obligate, this species is closely tied to sagebrush shrub-steppe, and may occupy pinyon-juniper woodlands. generally prefers a relatively high percentage of shrub cover, a high percentage of bare ground, and horizontal patchiness in the shrub community. It prefers as nest sites taller shrubs with larger canopies. Sage sparrow's prefer large patches of sagebrush (CPW 2005). While there are patches of sagebrush in the Crystal River Valley, notably at Placita, they are not likely adequate to support sage sparrow breeding or foraging.	Document suitable habitat and incidental observations
Monarch butterfly *Danaus plexippus*	Sensitive Presence: Possible Habitat: Yes	This species breeds in areas that are milkweed patches (*Asclepia spp.*) in North America and some other regions. The critical conservation feature for North American populations is the overwintering habitats in certain high-altitude Mexican conifer forests or coastal California conifer or Eucalyptus groves as identified in literature. (NatureServe 2017).	Document and map any observation of milkweed within the corridor, and any incidental observations
Western bumblebee *Bombus occidentalis*	Sensitive Presence: Possible Habitat: Yes	This species was widespread and common throughout the western United States and western Canada before 1998, when it experienced a population crash. Viable populations are still present in Colorado. Bumblebees are generalists that adapt to local climate conditions and will visit a range of different plant species and are important generalist pollinators of a wide variety of flowering plants and crops (USFS 2010).	Plant community structure and diversity will inform the analysis of potential habitat
Boreal toad *Bufo boreas*	Sensitive, MIS Presence: Possible Habitat: Yes	Boreal toads occur in mountain wetlands. Their range includes various upland habitats around ponds, lakes, reservoirs, and slow-moving rivers and streams. Breeding boreal toads are known to occur on the WRNF (USFS 2008b) and several project activities occur near waterbodies with potential habitat (e.g., Roaring Fork River, Hunter Creek, and Lost Man Reservoir).	Document suitable habitat and incidental observations
Northern leopard frog *Lithobates pipiens*	Sensitive Presence: Possible Habitat: Yes	Northern leopard frogs live near springs, slow streams, marshes, bogs, ponds, canals, floodplains, reservoirs, and lakes; usually they are in or near permanent water with rooted aquatic vegetation. In summer, they commonly inhabit wet meadows and fields. Two populations are known on the WRNF (USFS 2002b).	Document suitable habitat and incidental observations

Board of Trustees Agenda Memorandum

Meeting Date: 10.17.17

TITLE: 2018 Town of Carbondale Proposed Municipal Budget

SUBMITTING DEPARTMENT: Town Manager/Finance

ATTACHMENTS: 2018 Proposed Budget Spreadsheet, Town of Carbondale Mission Statement, Budget Highlights, Projected Fund Balances, Fund Summaries, Budget Calendar

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BACKGROUND: Attached is the draft of the 2018 Town of Carbondale Proposed Municipal Budget. This represents budgets prepared by the Department Heads and reviewed by the Town Manager, reflecting anticipated needs to continue municipal operations in 2018.

DISCUSSION: Tuesday night's meeting will commence with an overall review of the proposed 2018 budget and then a departmental review of Parks & Recreation. Future meetings have been scheduled to review other departmental budgets, capital acquisitions and community requests.

RECOMMENDATION: We will continue to monitor and refine current and proposed revenues and expenditures during the budget process until the budget is adopted by the Board on December 12, 2017.

Prepared By: Jay Harrington, Renae Gustine

JH
Town Manager

TOWN OF CARBONDALE
511 COLORADO AVENUE
CARBONDALE, CO 81623

Board of Trustees Work Session Agenda Memorandum

Item No: 2

Meeting Date: October 17, 2017

TITLE: Parks & Recreation 2018 Budget Review Page Numbers

SUBMITTING: Parks & Recreation Department

ATTACHMENTS: 2018 Draft Budget

PURPOSE: Review of Parks & Recreation Department Budget 2018

BACKGROUND: The Parks & Recreation Department's Budget Goals and Objectives were previously presented to the BOT prior to the finalization of the draft budget.

DISCUSSION: This is an opportunity to go through the line-item budget to align the draft budget with the Parks & Recreation Department's Goals and overall Trustee goals. Sections of the budget pertaining to the Parks & Recreation Department will be:

Prepared By: Eric Brendlinger, Recreation Center Manager

JH
Town Manager

TOWN OF CARBONDALE MISSION STATEMENT

To maintain and enhance an environmentally sensitive, culturally diverse, family oriented small town with town government providing quality service to the Carbondale community.

Goal: To support the existence of an ethnically and culturally diverse community.

Objectives:

1) Support activities that involve the interaction of ethnic groups by:
   a) Encouraging cross cultural interaction among various ethnic groups.
   b) Encouraging ethnic group participation in Town government.
   c) Encouraging other community groups to enroll ethnic groups in their activities.

Goal: To preserve and enhance access to the local decision making process.

Objectives:

1) Maintain and develop outreach programs with the Town Board.

2) Convey information to increase public awareness, understanding and participation in Town government.

Goal: To protect the physical and natural environment.

Objectives:

1) Reduce emissions from solid fuel burning devices.

2) Create a land use code that has environmental protection as a major priority.

3) Preserve river corridors in a predominantly natural state and provide or acquire access to these corridors.

4) Preserve and acquire open space.

5) Maintain water quality and quantity.

6) Encourage solar and renewable energy sources and minimize waste of natural resources.

7) Protect and improve viewscapes – underground powerlines and reduce man made impacts on viewsheds.

8) Continue efforts to work toward reduction of solid waste and increase recycling efforts.

9) Support development of mass transit alternatives in the Roaring Fork Valley.

10) Encourage alternatives to automobile use, more particularly, non-motorized transport systems and associated trails.

Goal: To keep the diversity of population in Carbondale that make the Town the quality progressive place that it is.

Objectives:

1) Maintain socioeconomic diversity by enhancing broad range of economic opportunities, housing types and range of affordability.

2) Work to reduce potential for community members to be forced out because of lack of opportunities in employment, housing and social mixing.

3) Enhance opportunities for people to work together and to solve problems on their own.

Goal: Maintain and/or create a diversity of housing types through land use codes and planning goals.

Objectives:

1) Require diverse mix of housing types in new development.

2) Encourage the development of rental housing.

Goal: To broaden and enhance recreational opportunities and facilities in the community.

Objectives:

1) Support community group efforts to provide recreation opportunities and facilities.

2) Utilize citizen committees to evaluate the recreational needs and priorities and obtain input from the community

Goal: To maintain the importance of the individual in the community and the ability of the individual to make a difference.

Goal: To facilitate and enhance opportunity for people to work together and preserve community networking systems.

Goal: To maintain and promote a high level of community volunteerism.

Town of Carbondale
2018 Proposed Draft Budget

Highlights:

General Fund

Revenues
Conservative Revenue Estimate- Revenues for 2017 are projected to finish the year at 8.9% above budgeted 2017 revenues. 2018 revenues are projected with a 5.2% decrease for all revenues. Changes to the 2018 revenues:

1. 6.9% increase in Property Taxes
2. The Excise & Sales Tax for Retail Marijuana is predicted to be flat for 2018.
3. 2% increase from sales tax over budgeted 2017. Projected actual ending 2017 revenues for sales tax is 3.4%.
4. Mineral Leasing and Severance Tax are predicted to be flat in 2018. They were up 56.8% over what was budgeted in 2017.
5. The county is expected to continue the Road and Bridge in the same amount of funding received in 2017.

Expenditures:

1. **Attorney**-Includes $3,000 to research voluntary RETA for the town.
2. **Wages**-Salaries adjusted with 3% COLA.
3. **Board of Trustees**- New tables for the board room $5,000.
4. **Court**-Salary allocation of the Municipal Court Clerk/Intern is 25%. 75% of the salary goes to Town Manager/Clerk department.
5. **Gateway RV Park-**$12,000 for water distribution work.
6. **Carbondale Affordable Housing-**$30,000 transfer for surveys, committees and building fund balance.
7. **General Reserve-**Transfer to Capital Construction Fund of $500,000.

The 2018 proposed draft budget is over by $456,101 from being a balanced budget. The projected revenues cover the expenditures except for the Capital Fund Transfer. Projected revenues in total for the General Fund are $6,507,069. Of this revenue, $4,116,244 is transferred from the Sales Tax Fund (revenues from sales taxes, use taxes, and Garfield County vehicle use tax), administration fees from Wastewater, water and recreation ($408,400). Included in the expenditures are transfers of $500,000 to the Capital Fund and $30,000 to the Housing Fund. The estimated ending 2018 reserves will remain at approximately 75% of expenditures. A balanced budget is where revenues equal expenditures. The town will use reserves to cover the transfer to the Capital Fund. Reserves will be used to balance the 2018 budget. The estimated ending fund balance will be $5.0 million.

Wastewater Fund:

- **Revenues** – Based on new rate structure adopted in 2017.
- **Wages** - Salaries adjusted with 3% COLA. $17,000 is for certification adjustments in the ranges.
- **Building Construction** – Clarifier Project $1,016,545. DOLA Grant will be applied for again, Grit system replacement $140K
- **Vehicle Purchase –** Truck to Replace #502 $35K
- **Repair and install Storm Water Drywells -** $55,000
- **Main Replacement** -$200,000

Water Fund:

- **Revenues –** Based on new rate structure adopted in 2017.
- **Wages –** Salaries adjusted with 3% COLA. $17,000 is for certification adjustments in the ranges.
- **Vehicle Purchase –** Truck to Replace #509 & Gator $57,500
- **Main Replacement -** $250,000
- **Capital Improvements –** per Master Plan
  - Hydro Feasibility$15K,
  - Generator back up power supply Crystal well $50K
  - Crystal River Plan - $15K
  - Ditch improvements bypass piping Meadowood Drive to Roaring Fork Avenue $10 K

Development Dedication Fee Fund:

Funds remaining are dedicated for Park

- **Capital Project –** Possible Red Hill acquisition $50,000

Streetscape Fund:

- **Capital –** North 3rd Street Improvements - $125,000

Capital Construction Fund:

- **Revenues -** will be $500,000 from General Fund Reserves.
- **Energy Funding -** $30,000 for Carbondale specific projects.
- **Street Resurfacing -** $175,000 for chip/crack seal program.
- **Vehicles -** 1 police car $50,000, $110,000 for new 5yd dump truck, $25,000 for small truck with plow for parks.

Recreation Sales & Use Tax Fund:

- **Wages -** Salaries adjusted with 3% COLA.
- **Capital Outlay -** $11,170 for new heater at pool, $9,695 for new large cover.

Sales Tax Fund:

- **Revenues –** revenues are from sales taxes, use taxes and vehicle use tax.

Town of Carbondale
Projected Fund Balances

	2017 Estimated	2018 Projected
General Fund		
Fund Balance Beginning	5,473,569	5,496,095
Projected Revenues	6,859,785	6,507,069
Projected Expend	6,837,259	6,963,170
Revenue less Expend	22,526	(456,101)
Projected Ending Fund Balance	5,496,095	5,039,994
Expenditures using Reserves		
Conservation Trust Fund		
Fund Balance Beginning	106,054	96,345
Projected Revenues	63,523	65,025
Projected Expend	73,231	76,540
Revenue less Expend	(9,709)	(11,515)
Projected Ending Fund Balance	96,345	84,831
Expenditures using Reserves		
Victims Assistance Fund		
Fund Balance Beginning	(367)	(512)
Projected Revenues	16,570	15,000
Projected Expend	16,715	15,000
Revenue less Expend	(145)	-
Projected Ending Fund Balance	(512)	(512)
Lodging Tax Fund		
Fund Balance Beginning	9,085	-
Projected Revenues	95,000	100,000
Projected Expend	104,085	100,000
Revenue less Expend	(9,085)	-
Projected Ending Fund Balance	-	-
Expenditures using Reserves		
Waste Reduction Fund		
Fund Balance Beginning	40,024	38,549
Projected Revenues	19,000	19,000
Projected Expend	20,475	20,475
Revenue less Expend	(1,475)	(1,475)
Projected Ending Fund Balance	38,549	37,074
Expenditures using Reserves		
Arts Fund		
Fund Balance Beginning	17,108	17,208
Projected Revenues	3,100	2,000
Projected Expend	3,000	5,000
Revenue less Expend	100	(3,000)
Projected Ending Fund Balance	17,208	14,208
Expenditures using Reserves		
Energy Efficient Bldg Fund		
Fund Balance Beginning	8,268	8,268
Projected Revenues	-	-
Projected Expend	-	3,000
Revenue less Expend	-	(3,000)
Projected Ending Fund Balance	8,268	5,268
Expenditures using Reserves		

Town of Carbondale
Projected Fund Balances

Wastewater Fund		
Fund Balance Beginning	4,643,227	4,933,908
Projected Revenues	1,434,992	1,639,600
Projected Expend	1,144,311	2,494,884
Revenue less Expend	290,681	(855,284)
Projected Ending Fund Balance	4,933,908	4,078,623
Expenditures using Reserves		
Water Fund		
Fund Balance Beginning	2,512,446	2,358,296
Projected Revenues	1,495,074	1,458,401
Projected Expend	1,649,224	1,919,980
Revenue less Expend	(154,150)	(461,579)
Projected Ending Fund Balance	2,358,296	1,896,717
Expenditures using Reserves		
Housing Fund		
Fund Balance Beginning	284,277	357,382
Projected Revenues	108,605	94,120
Projected Expend	35,500	85,500
Revenue less Expend	73,105	8,620
Projected Ending Fund Balance	357,382	366,002
Development Fund		
Fund Balance Beginning	312,518	342,637
Projected Revenues	30,119	25,100
Projected Expend	-	50,000
Revenue less Expend	30,119	(24,900)
Projected Ending Fund Balance	342,637	317,737
Expenditures using Reserves		
Streetscape Fund		
Fund Balance Beginning	812,703	492,959
Projected Revenues	204,756	218,136
Projected Expend	524,500	129,500
Revenue less Expend	(319,744)	88,636
Projected Ending Fund Balance	492,959	581,595
Expenditures using Reserves		
Capital Construction Fund		
Fund Balance Beginning	533,745	606,842
Projected Revenues	675,097	500,120
Projected Expend	602,000	445,000
Revenue less Expend	73,097	55,120
Projected Ending Fund Balance	606,842	661,962
Recreation Tax Fund		
Fund Balance Beginning	937,618	1,107,006
Projected Revenues	1,111,535	1,284,413
Projected Expend	942,147	1,173,990
Revenue less Expend	169,388	110,423
Projected Ending Fund Balance	1,107,006	1,217,430
Expenditures using Reserves		

Town of Carbondale
Projected Fund Balances

Community Enhancement Fund		
Fund Balance Beginning	7,012	(19,180)
Projected Revenues	6,516	6,500
Projected Expend	32,708	-
Revenue less Expend	(26,192)	6,500
Projected Ending Fund Balance	(19,180)	(12,680)
Sales & Use Tax Fund		
Fund Balance Beginning	418,665	418,665
Projected Revenues	4,258,514	4,124,744
Projected Expend	4,258,514	4,124,744
Revenue less Expend	-	-
Projected Ending Fund Balance	418,665	418,665
Bond Fund		
Fund Balance Beginning	34,207	38,207
Projected Revenues	217,600	217,600
Projected Expend	213,600	212,160
Revenue less Expend	4,000	5,440
Projected Ending Fund Balance	38,207	43,647
Bond Reserve Fund		
Fund Balance Beginning	173,618	173,618
Projected Revenues	-	-
Projected Expend	-	-
Revenue less Expend	-	-
Projected Ending Fund Balance	173,618	173,618
Total Town Budget		
Fund Balance Beginning	16,323,777	16,466,294
Projected Revenues	16,599,786	16,276,828
Projected Expend	16,457,269	17,818,943
Revenue less Expend	142,517	(1,542,114)
Projected Ending Fund Balance	16,466,294	14,924,179
Expenditures using Reserves		
Total Fund Balance	16,466,294	14,924,179
Total Revenues	16,599,786	16,276,828
Total Expendures	16,457,269	17,818,943

Revenues and Expenditures
All Funds

	Audit 2014	Audit 2015	Audit 2016	Estimated Actual 2017	Proposed Budget 2018	Revenue vs Exp 2018
General Fund						
Revenues	6,637,514	6,764,146	6,664,759	6,859,785	6,507,069	
Expenditures	5,700,611	5,546,962	5,754,225	6,162,259	6,463,170	
Transfers	1,200,000	900,000	1,075,000	675,000	500,000	(456,101)
Conservation Trust Fund						
Revenues	62,819	62,723	73,260	63,523	65,025	
Expenditures	68,913	59,482	57,326	73,231	76,540	(11,515)
Victims Assistance Fund						
Revenues	12,124	12,237	12,202	16,570	15,000	
Expenditures	24,317	18,033	15,464	16,715	15,000	-
Lodging Tax Fund						
Revenues	73,251	85,527	100,085	95,000	100,000	
Expenditures	71,645	86,208	99,476	104,085	100,000	-
Disposable Bag Fund						
Revenues	16,663	17,224	18,754	19,000	19,000	
Expenditures	4,700	15,535	12,162	20,475	20,475	(1,475)
Arts Fund						
Revenues	5,905	59,155	13,279	3,100	2,000	
Expenditures	11,500	48,029	20,365	3,000	5,000	(3,000)
Energy Efficient Bldg Fund						
Revenues	830	-	-	-	-	
Expenditures	-	-	-	-	3,000	(3,000)
Wastewater Fund						
Revenues	1,418,743	1,491,510	1,419,937	1,434,992	1,639,600	
Expenditures	1,314,789	1,381,686	1,445,359	1,144,311	2,494,884	(855,284)
Water Fund						
Revenues	1,319,331	1,440,226	1,413,237	1,495,074	1,458,401	
Expenditures	1,248,123	1,301,462	1,169,288	1,649,224	1,919,980	(461,579)
Housing Fund						
Revenues	309,666	52,245	71,575	108,605	94,120	
Expenditures	8,461	271,038	6,140	35,500	85,500	8,620
Development Fund						
Revenues	58,034	35,997	39,610	30,119	25,100	
Expenditures	175,000	175,000	135,000	-	50,000	(24,900)
Streetscape Fund						
Revenues	160,770	160,143	201,110	204,756	218,136	
Expenditures	3,028	3,033	50,464	524,500	129,500	88,636
Capital Construction Fund						
Revenues	2,103,482	1,400,840	1,075,084	675,097	500,120	
Expenditures	2,193,928	1,289,663	415,912	602,000	445,000	55,120
Recreation Tax Fund						
Revenues	992,222	1,128,625	1,099,344	1,111,535	1,284,413	
Expenditures	1,058,857	937,199	1,157,745	942,147	1,173,990	110,423
Community Enhancement Fund						
Revenues	6,300	6,338	6,242	6,516	6,500	
Expenditures	-	23,000	-	32,708	-	6,500
Sales & Use Tax Fund						
Revenues	3,750,688	3,912,779	3,982,682	4,258,514	4,124,744	-
Expenditures	3,691,052	3,847,675	4,011,846	4,258,514	4,124,744	-
Bond Fund						
Revenues	217,500	217,600	217,600	217,600	217,600	
Expenditures	210,923	216,098	215,113	213,600	212,160	5,440
		16,847,314		16,599,786	16,276,828	
		15,220,104		16,457,269	17,818,943	(1,542,114)

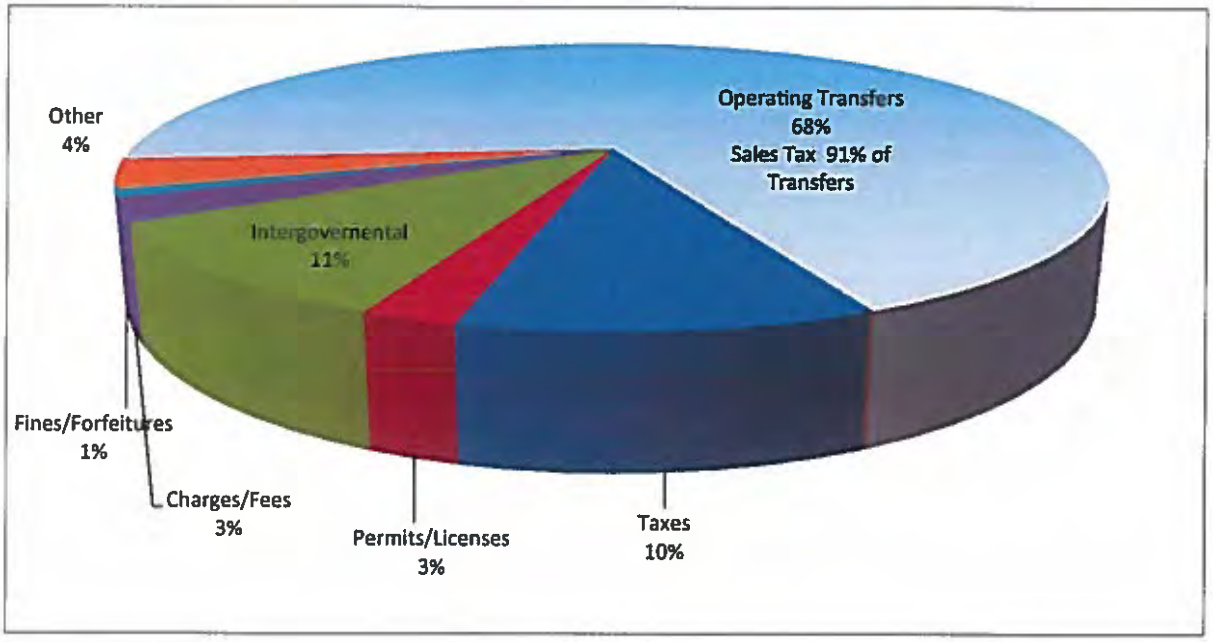
TOWN OF CARBONDALE, COLORADO
2018 MUNICIPAL BUDGET
Projected Ending Fund Balance for 2018

Fund	Estimated Beginning Fund Balance	Revenue	Total Available Revenue	Expenditures	Ending Fund Balance
General	5,496,095	6,507,069	12,003,164	6,963,170	5,039,994
Conservation Trust	96,345	65,025	161,370	76,540	84,831
Victims Assistance	(512)	15,000	14,488	15,000	(512)
Lodging Tax	-	100,000	100,000	100,000	-
Disposable Bag Fee	38,549	19,000	57,549	20,475	37,074
1% For The Arts	17,208	2,000	19,208	5,000	14,208
Energy Efficient Building Code	8,268	-	8,268	3,000	5,268
Wastewater	4,933,908	1,639,600	6,573,508	2,494,884	4,078,623
Water	2,358,296	1,458,401	3,816,697	1,919,980	1,896,717
Carbondale Housing Fund	357,382	94,120	451,502	85,500	366,002
Development Dedication	342,637	25,100	367,737	50,000	317,737
Streetscape	492,959	218,136	711,095	129,500	581,595
Capital Construction	606,842	500,120	1,106,962	445,000	661,962
Recreation Sales & Use Tax	1,107,006	1,284,413	2,391,420	1,173,990	1,217,430
Community Enhancement	(19,180)	6,500	(12,680)	-	(12,680)
Sales & Use Tax	418,665	4,124,744	4,543,409	4,124,744	418,665
Bond and Interest	38,207	217,600	255,807	212,160	43,647
Bond Reserve	173,618	-	173,618	-	173,618
Total	16,466,294	16,276,828	32,743,122	17,818,943	14,924,179

TOWN OF CARBONDALE
2018 PROPOSED BUDGET
GENERAL FUND HISTORY, ESTIMATED, PROPOSED

General Fund	Audited 2012	Audited 2013	Audited 2014	Audited 2015	Audited 2016	2017 Estimated	2018 Proposed
Taxes	513,961	612,064	500,845	546,006	655,847	679,141	686,895
Permits/Licenses	112,352	151,746	228,304	237,139	210,566	179,700	160,700
Intergovernental	1,080,489	903,627	1,167,420	1,050,302	680,093	805,615	682,080
Charges/Fees	139,365	157,371	190,818	182,875	187,471	189,850	167,250
Fines/Forfeitures	77,086	89,711	55,599	55,137	63,133	60,000	60,000
Other	197,210	264,829	200,872	253,274	316,267	269,065	215,500
Operating Transfers	3,715,626	3,648,732	4,267,463	4,416,281	4,546,500	4,658,414	4,524,644
Sale of Fixed Assets	-	17,433	26,193	23,132	4,883	18,000	10,000
Total Revenues	**5,836,089**	**5,845,513**	**6,637,514**	**6,764,146**	**6,664,759**	**6,859,785**	**6,507,069**
Attorney	140,544	141,663	127,849	146,577	134,188	125,000	150,000
Municipal Elections	11,033	1,976	6,858	405	12,128	-	16,000
Board of Trustees	86,045	82,933	81,559	86,900	128,340	119,807	126,290
Town Manager	236,887	260,965	278,079	282,374	298,604	345,183	387,811
Community Requests	55,150	64,348	52,179	58,000	62,000	70,500	70,500
Total Administration	**529,659**	**551,885**	**546,524**	**574,256**	**635,261**	**660,490**	**750,601**
Administrative Services	356,079	397,627	469,140	401,898	368,375	379,310	376,800
Finance	358,439	405,414	293,728	295,481	305,471	333,516	402,142
Sales Tax Administration	33,496	33,838	50,022	41,319	39,591	32,414	36,527
Data Processing	56,542	50,310	48,264	42,459	48,962	68,950	79,990
Building Operations	73,836	79,337	78,372	63,630	69,545	259,325	90,441
Communications	36,290	38,541	40,909	48,119	54,726	37,100	83,000
Affordable Housing	59,447	28,000	28,000	28,000	28,000	78,000	60,000
Municipal Court	28,388	26,133	28,786	52,045	42,386	41,671	40,056
Total Administrative Services	**1,002,516**	**1,059,201**	**1,037,220**	**972,952**	**957,056**	**1,230,285**	**1,168,957**
Planning	250,088	292,598	304,654	328,387	297,494	309,999	315,132
Building Inspection	130,831	141,435	146,307	152,541	166,516	172,874	189,374
Economic Development	81,114	30,900	30,000	23,115	26,536	21,500	22,000
Total Community Development	**462,033**	**464,932**	**480,961**	**504,043**	**490,546**	**504,374**	**526,507**
Police	1,413,413	1,514,911	1,438,095	1,535,676	1,517,581	1,626,732	1,714,537
Ordinance Control	53,520	70,654	71,511	80,709	84,902	94,563	99,544
Total Public Safety	**1,466,933**	**1,585,565**	**1,509,606**	**1,616,385**	**1,602,482**	**1,721,295**	**1,814,081**
Environmental Health	121,448	52,243	57,797	44,440	44,528	47,000	48,000
Motor Pool	210,905	227,316	267,847	222,128	224,271	214,152	240,103
Streets	742,236	600,000	631,353	629,721	674,239	683,441	795,490
Public Works Administration	207,415	227,298	294,507	246,099	312,135	206,275	208,283
Gateway River Park RV Park	24,796	23,377	25,836	49,310	32,335	40,115	45,012
Gateway River Park Boat Ramp	386	751	20,688	1,378	-	8,594	5,000
Parks & Cemeteries	329,683	316,277	276,081	331,527	404,719	396,832	458,648
Total Public Works	**1,636,868**	**1,447,262**	**1,574,110**	**1,524,603**	**1,692,227**	**1,596,409**	**1,800,536**
Recreation	274,203	286,796	287,190	354,823	376,653	449,405	402,489
Total Recreation	**274,203**	**286,796**	**287,190**	**354,823**	**376,653**	**449,405**	**402,489**
Subtotal Budget							
*Capital Reserve Transfer	526,595	750,000	1,465,000	900,000	1,075,000	675,000	500,000
Total General Fund Budget	**5,898,807**	**6,145,641**	**6,900,611**	**6,447,062**	**6,829,225**	**6,837,259**	**6,963,170**
Change to General Fund Balance	**(62,718)**	**(300,128)**	**(263,097)**	**317,084**	**(164,466)**	**22,526**	**(456,101)**

Revenue Sources for General Fund



TAXES:
PROPERTY TAXES
SPECIFIC OWNERSHIP TAX
FRANCHISE TAX
DELINQUENT TAX
INTEREST ON DELINQUENT TAX
ABATEMENT INTEREST
Excise Tax Recreational Marijuana

INTERGOVERNMENTAL:
CIGARETTE TAX
GRANTS
GRANTS - TREES
GRANTS - STATE OF COLORADO
GRANTS - PUBLIC SAFETY
GRANTS - FEDERAL
GRANTS - PLANNING
MOTOR VEHICLE SPEC ACCESS
HIGHWAY USERS TAX
MINERAL LEASING
MINERAL SEVERANCE TAX
ROAD & BRIDGE
GARFIELD SALES TAX

FINES AND FORFEITURES:
COURT FINES
ASSET FORFEITURE

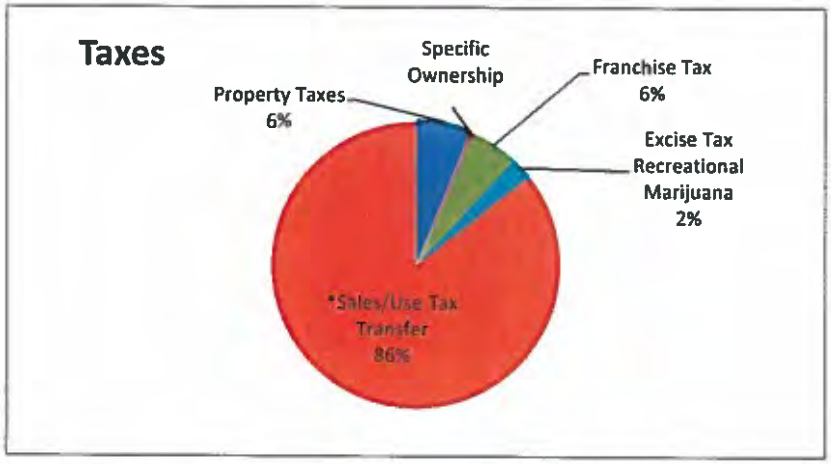
OPERATING TRANSFERS:
Sales Tax OPERATING TRANSFER
ADM SVC FEE - WATER
ADM SVC FEE - WASTEWATER
TRANSFER DEV DED FEES
ADMIN FEE-RECREATION S&U TAX

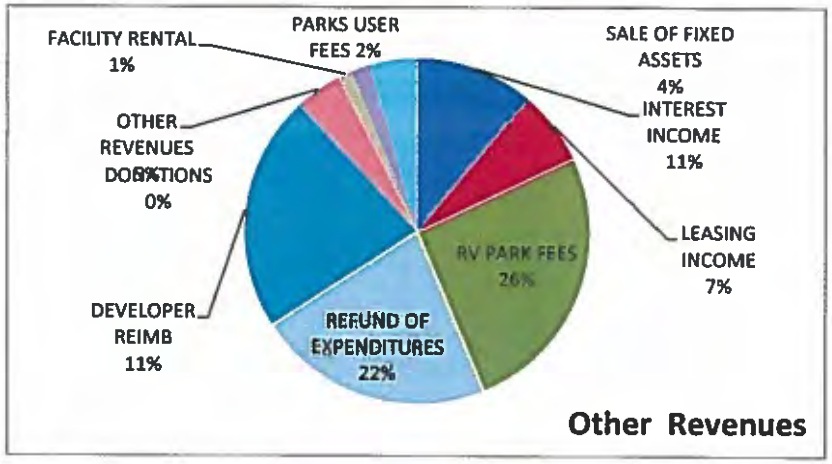
PERMITS & LICENSES:
LIQUOR LICENSES
LIQUOR LICENSE EDUCATION FUND
SALES TAX LICENSES
CONTRACTOR LICENSES
MEDICAL MARIJUANA LICENSING
MEDICAL MARIJUANA EDUCATION FUND
RETAIL MARIJUANA LICENSING
MOBILE HOME PARK LICENSES
BUILDING PERMIT FEES
DOG LICENSES
EXCAVATION PERMITS
TRASH HAULER PERMIT

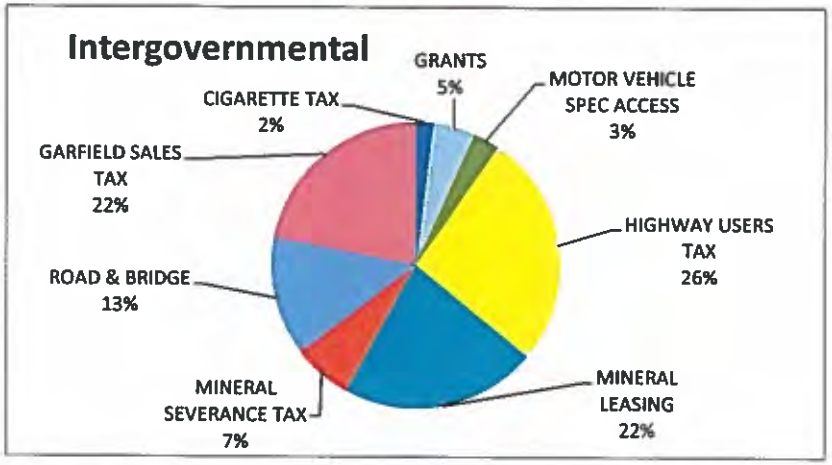
CHARGES AND FEES:
CONSTRUCTION INSPECTION FEES
ZONING, VARIANCE, SUBDIV
PLAN CHECK FEES
CEMETERY FEES
RECREATION FEES
POLICE SERVICE FEES
DANDELION DAY REVENUE

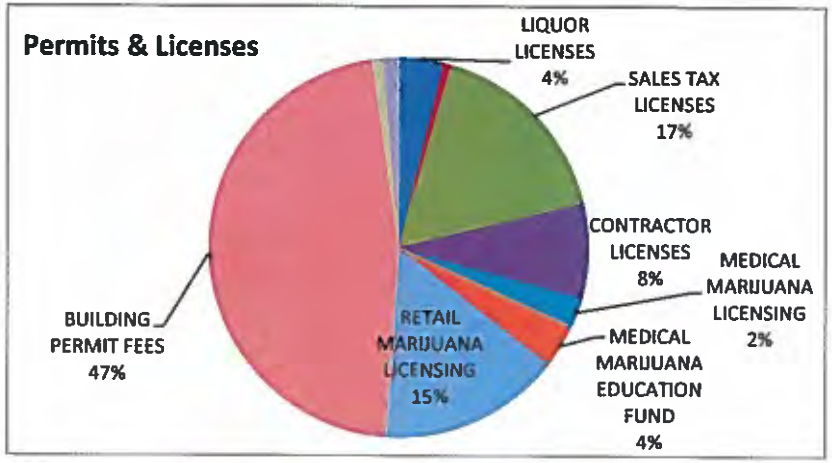
OTHER REVENUES:
INTEREST INCOME
LEASING INCOME
RV PARK FEES
REFUND OF EXPENDITURES
DEVELOPER REIMBURSEMENT
CASH DONATIONS (TREES)
DONATIONS
OTHER REVENUES
FACILITY RENTAL
PARKS/GAZEBO USER FEES
SALE OF FIXED ASSETS

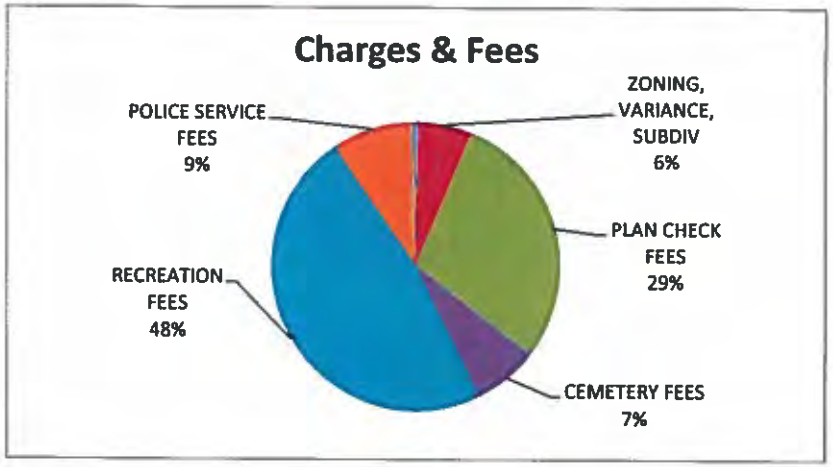
Detail Revenue Sources for General Fund-2018 Projected

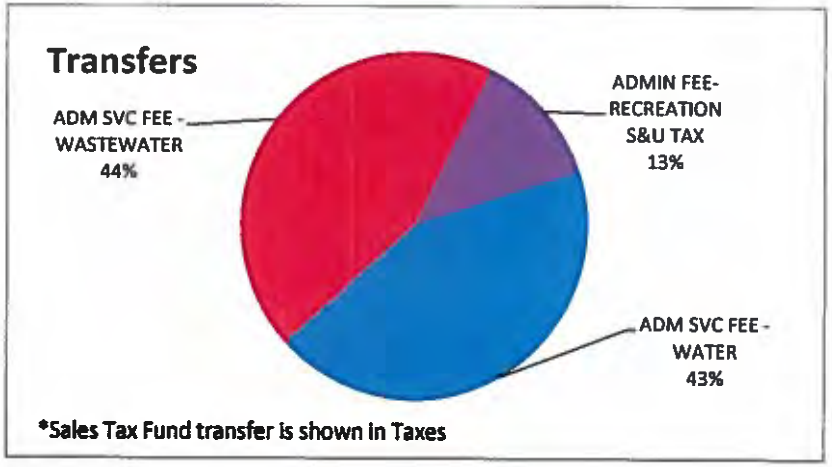






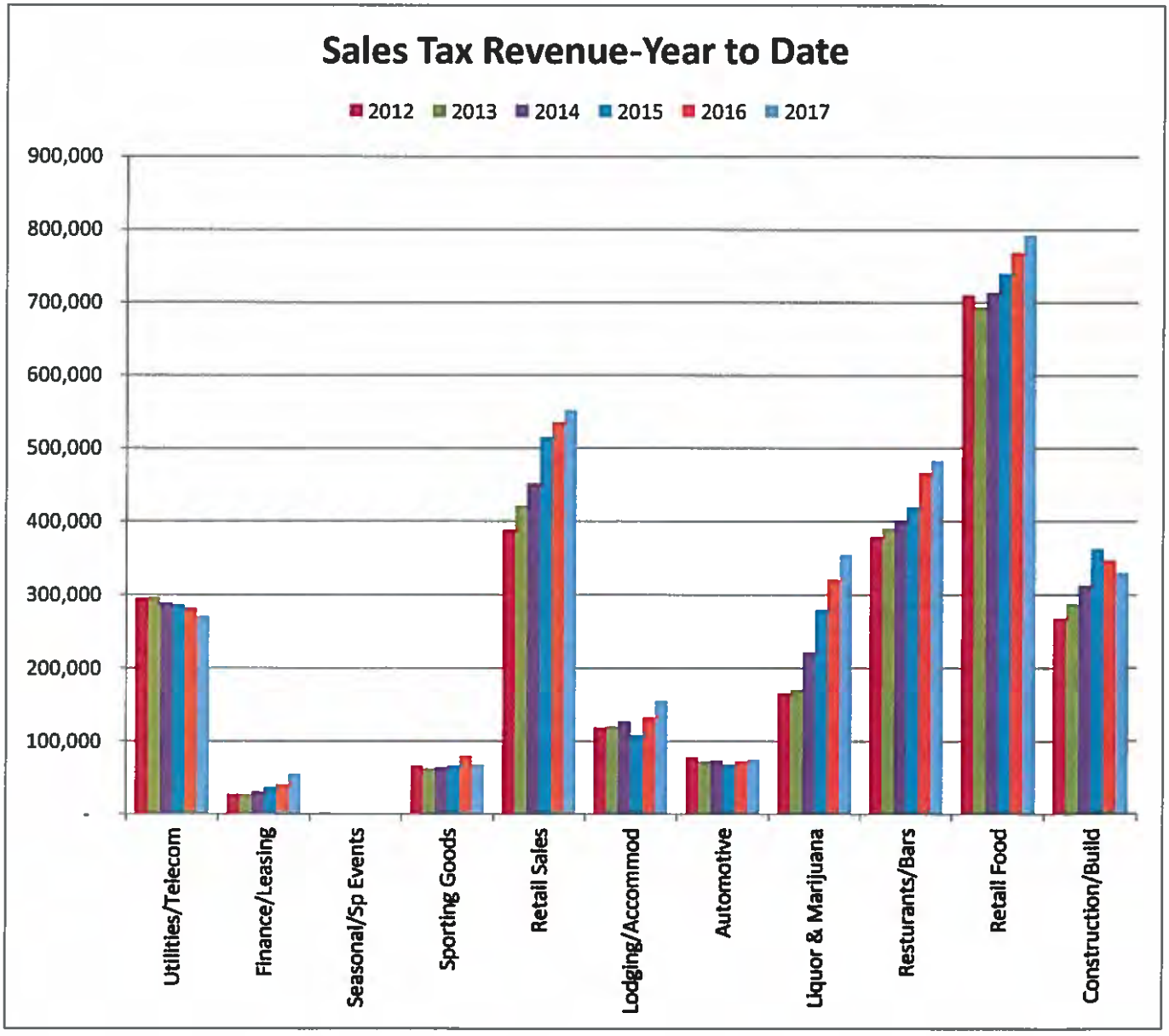






Town of Carbondale
January - August

Year to Date	2012	2013	2014	2015	2016	2017	% of Total
Utilities/Telecom	294,927	297,334	288,847	286,575	281,593	270,685	9.2%
Finance/Leasing	26,893	27,100	30,639	37,268	40,869	55,302	1.3%
Seasonal/Sp Events	1,984	820	1,426	1,006	299	67	0.0%
Sporting Goods	66,038	62,727	63,871	67,376	80,009	68,306	2.6%
Retail Sales	388,992	421,997	452,129	515,444	536,078	552,085	17.6%
Lodging/Accommod	118,877	120,356	127,376	108,346	132,752	155,624	4.4%
Automotive	78,733	72,808	74,042	68,587	73,305	75,561	2.4%
Liquor & Marijuana	166,068	170,926	222,129	279,917	321,434	354,928	10.5%
Resturants/Bars	379,178	391,225	401,806	419,805	467,197	483,550	15.3%
Retail Food	710,659	694,067	714,404	740,329	768,536	793,045	25.2%
Construction/Build	268,576	288,452	313,583	362,858	347,581	330,103	11.4%
Total	2,500,925	2,547,813	2,690,251	2,887,512	3,049,655	3,139,256	100.0%

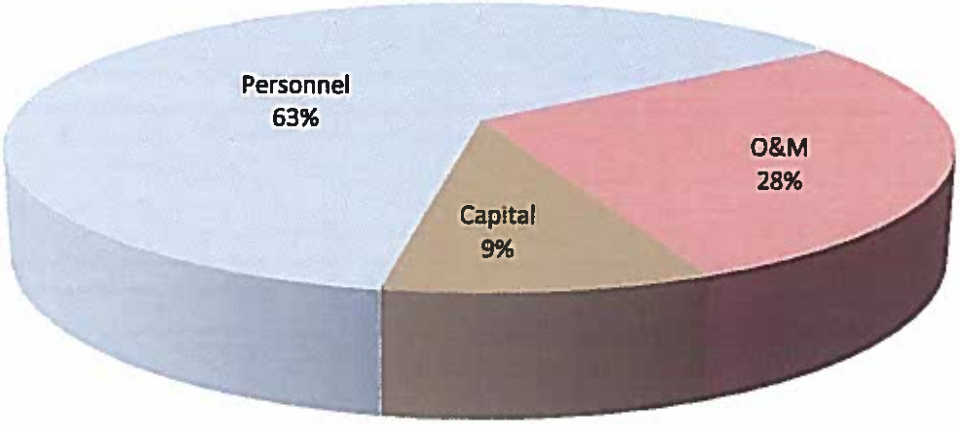


TOWN OF CARBONDALE
2018 PROPOSED BUDGET
DEPARTMENTAL SUMMARY

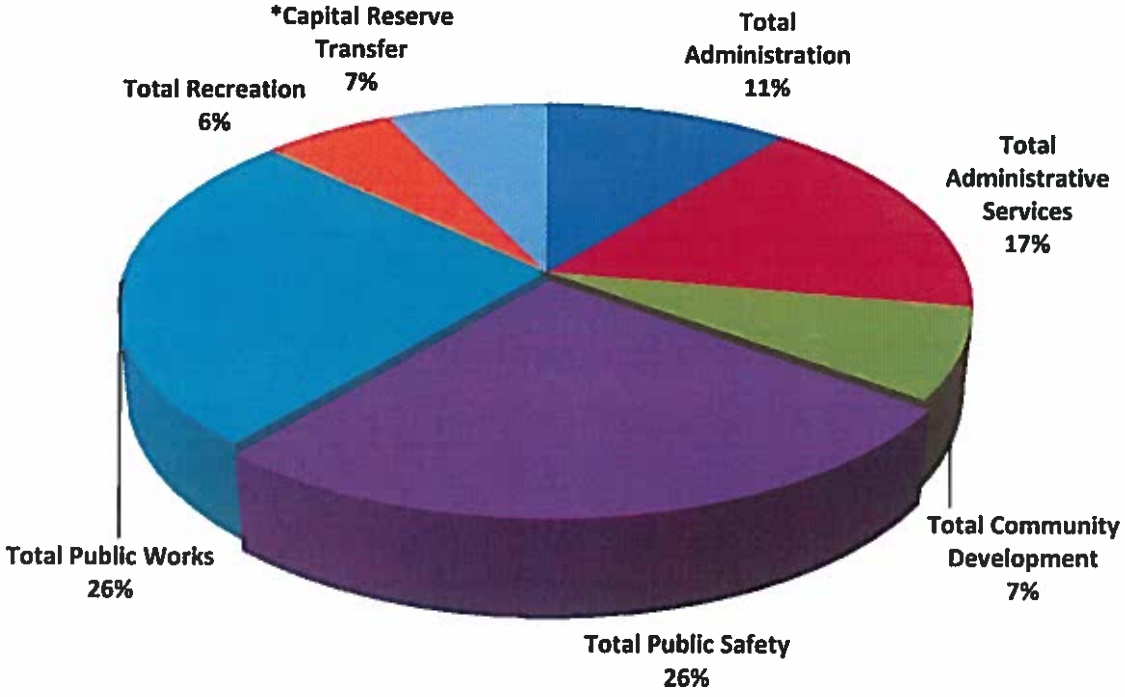
General Fund:				Proposed Total
Budget by Department 2018	**Personnel**	**O&M**	**Capital**	**Expenditures**
Attorney	-	150,000	-	150,000
Municipal Elections	-	16,000	-	16,000
Board of Trustees	84,290	37,000	5,000	126,290
Town Manager	368,461	15,150	4,200	387,811
Community Requests	-	70,500	-	70,500
Total Administration	452,751	288,650	9,200	750,601
Administrative Services	-	376,300	500	376,800
Finance	357,542	41,400	3,200	402,142
Sales Tax Administration	20,152	16,275	100	36,527
Data Processing	-	69,990	10,000	79,990
Building Operations	25,741	63,200	1,500	90,441
Communications	-	25,500	57,500	83,000
Affordable Housing	-	60,000	-	60,000
Municipal Court	14,831	25,225	-	40,056
Total Administrative Services	418,267	677,890	72,800	1,168,957
Planning	268,952	45,980	200	315,132
Building Inspection	176,174	13,000	200	189,374
Economic Development	-	22,000	-	22,000
Total Community Development	445,127	58,980	400	504,507
Police	1,606,887	85,150	22,500	1,714,537
Ordinance Control	86,494	13,050	-	99,544
Total Public Safety	1,693,381	98,200	22,500	1,814,081
Environmental Health	-	48,000	-	48,000
Motor Pool	96,303	139,900	3,900	240,103
Streets	498,390	281,600	15,500	795,490
Public Works Administration	158,433	44,350	5,500	208,283
Gateway River Park RV Park	-	39,012	6,000	45,012
Gateway River Park Boat Ramp	-	5,000	-	5,000
Parks & Cemeteries	353,958	83,290	21,400	458,648
Total Public Works	1,107,084	641,152	52,300	1,800,536
Recreation	242,669	159,820	-	402,489
Total Recreation	242,669	159,820		402,489
Subtotal Budget	4,359,278	1,946,692	157,200	6,463,170
*Capital Reserve Transfer	-	-	500,000	500,000
Total General Fund Budget	**4,359,278**	**1,946,692**	**657,200**	**6,963,170**

TOWN OF CARBONDALE
2018 PROPOSED BUDGET
GENERAL FUND EXPENDITURE SUMMARY

General Fund Expenditures by Classification



General Fund Expenditures by Service



TOWN OF CARBONDALE
2018 PROPOSED BUDGET
DEPARTMENTAL SUMMARY

Other Funds: Budget by Department 2018	Personnel	O&M	Capital	Proposed Total Expenditures
Conservation Trust	**57,540**	**19,000**	**-**	**76,540**
Victims Assistance	**-**	**15,000**	**-**	**15,000**
Lodging Tax	**-**	**100,000**	**-**	**100,000**
Disposable Bag Fee	**-**	**20,475**	**-**	**20,475**
1% For The Arts	**-**	**3,000**	**2,000**	**5,000**
Energy Efficient Building	**-**	**3,000**	**-**	**3,000**
Total Wastewater Fund	**459,864**	**511,550**	**1,523,470**	**2,494,884**
WasteWater	459,864	511,550	1,463,470	2,434,884
Storm Water	-	-	60,000	60,000
Total Water Fund	**607,070**	**609,810**	**703,100**	**1,919,980**
Total Administration	555,352	553,930	63,925	1,173,207
Total Capital Outlay	-	-	619,175	619,175
Total Ditch System	51,718	55,880	20,000	127,598
Carbondale Housing Fund	**-**	**85,500**	**-**	**85,500**
Development Dedication	**-**	**-**	**50,000**	**50,000**
Streetscape	**-**	**4,500**	**125,000**	**129,500**
Capital Construction	**-**	**-**	**445,000**	**445,000**
Total Recreation Sales & Use Tax Fund	**506,430**	**463,525**	**204,035**	**1,173,990**
Total Recreation Center	332,147	145,350	17,500	494,997
Total Swimming Pool	92,211	40,375	26,535	159,121
Total Recreation Facilities	82,072	277,800	160,000	519,872
Community Enhancement	**-**	**-**	**-**	**-**
Sales & Use Tax	**-**	**4,124,744**	**-**	**4,124,744**
Bond, Interest & Reserve		**212,160**		**212,160**

Town of Carbondale
2018 Municipal Budget

ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
01-31-10	PROPERTY TAX	267,493	273,031	273,031	349,453	291,870	352,947	356,477	363,606	370,879	378,296
01-31-20	SPECIFIC OWNERSHIP TAX	12,958	14,075	16,000	14,353	15,000	14,640	14,933	15,232	15,536	15,847
01-31-60	FRANCHISE TAX	263,929	264,885	264,885	270,181	265,000	275,585	281,097	286,719	292,453	298,302
01-31-92	INTEREST ON DELINQUENT TAX	299	-	225	-	25	-	-	-	-	-
01-31-50	Excise & Sales Tax Retail Marijuana	111,169	65,000	125,000	30,000	115,000	30,000	30,000	30,000	30,000	30,000
	TOTAL TAXES	655,847	616,991	679,141	663,987	686,895	673,173	682,507	695,557	708,868	722,445
01-32-11	LIQUOR LICENSES	6,299	5,000	7,500	5,000	6,000	5,000	5,000	5,000	5,000	5,000
01-32-12	LIQUOR LICENSE EDUCATION	1,175	1,000	1,500	500	1,000	500	500	500	500	500
01-32-14	SALES TAX LICENSES	29,090	24,000	24,000	24,000	27,000	24,000	24,000	24,000	24,000	24,000
01-32-16	CONTRACTOR LICENSES	17,766	12,000	18,000	12,000	13,000	12,000	12,000	12,000	12,000	12,000
01-32-17	MEDICAL MARIJUANA LICENSING	4,500	3,500	4,050	4,000	4,000	4,000	4,000	4,000	4,000	4,000
01-32-18	MEDICAL MARIJUANA EDUCATION	6,400	4,000	6,000	4,000	6,000	4,000	4,000	4,000	4,000	4,000
01-32-23	RETAIL MARIJUANA LICENSING	40,150	37,000	35,000	13,000	25,000	13,000	13,000	13,000	13,000	13,000
01-32-21	BUILDING PERMIT FEES	100,856	65,000	80,000	35,000	75,000	35,000	35,000	35,000	35,000	35,000
01-32-27	DOG LICENSES	1,460	1,000	1,800	1,000	1,500	1,000	1,000	1,000	1,000	1,000
01-32-28	EXCAVATION PERMITS	2,570	2,000	1,550	2,000	2,000	2,000	2,000	2,000	2,000	2,000
01-32-29	TRASH HAULER PERMIT	300	300	300	1,500	200	1,500	1,500	1,500	1,500	1,500
	TOTAL PERMITS AND LICENSES	210,566	154,800	179,700	104,050	160,700	102,000	102,000	102,000	102,000	102,000
01-33-28	CIGARETTE TAX	13,736	12,700	12,000	12,700	13,000	12,600	12,500	12,400	12,300	12,200
01-33-29	GRANTS	35,837	-	144,500	-	30,000	-	-	-	-	-
01-33-43	GRANTS - FEDERAL	8,534	3,000	5,500	10,000	2,500	10,000	10,000	10,000	10,000	10,000
01-33-51	MOTOR VEHICLE SPEC ACCESS	23,441	21,750	20,000	22,250	20,000	22,500	22,750	23,000	23,250	23,500
01-33-52	HIGHWAY USERS TAX	178,345	186,626	178,520	173,693	179,580	177,170	180,710	184,325	188,015	191,775
01-33-58	MINERAL LEASING	126,097	100,000	149,253	100,000	150,000	85,000	75,000	65,000	50,000	50,000
01-33-59	MINERAL SEVERANCE TAX	50,747	25,000	46,839	80,000	45,000	25,000	25,000	25,000	25,000	25,000
01-33-71	ROAD & BRIDGE	95,905	96,000	94,003	156,060	92,000	80,000	80,000	50,000	50,000	50,000
01-33-72	GARFIELD SALES TAX	147,451	156,955	155,000	160,092	150,000	163,295	166,560	169,890	173,290	176,755
	TOTAL INTERGOVERNMENTAL	680,093	602,031	805,615	714,795	682,080	575,564	572,521	539,615	531,855	539,230
01-34-10	CONSTRUCTION INSPECTION FEES	450	500	500	500	500	500	500	500	500	500
01-34-13	ZONING, VARIANCE, SUBDIV	15,255	10,000	16,000	3,500	10,000	3,500	3,500	3,500	3,500	3,500
01-34-14	PLAN CHECK FEES	59,199	42,250	52,000	15,000	48,750	15,000	15,000	15,000	15,000	15,000
01-34-42	AR INTEREST PENALTY	913	-	-	4,000	-	-	-	-	-	-
01-34-60	CEMETERY FEES	13,550	6,500	24,000	6,000	12,000	10,000	6,000	6,000	6,000	6,000
01-34-73	RECREATION FEES	81,067	70,000	80,000	67,000	80,000	70,000	70,000	70,000	70,000	70,000
01-34-75	POLICE SERVICE FEES	15,621	12,000	16,000	10,000	15,000	11,000	12,000	13,000	14,000	15,000
01-34-76	DANDELION DAY REVENUE	1,395	1,500	1,350	3,600	1,000	1,500	1,500	1,500	1,500	1,500
	TOTAL CHARGES AND FEES	187,471	142,750	189,850	109,600	167,250	111,500	108,500	109,500	110,500	111,500

Town of Carbondale
2018 Municipal Budget

ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
01-35-10	COURT FINES	63,133	46,000	60,000	45,000	60,000	65,000	65,000	65,000	65,000	65,000
	TOTAL FINES AND FORFEITURES	63,133	46,000	60,000	45,000	60,000	65,000	65,000	65,000	65,000	65,000
01-36-10	INTEREST INCOME	20,376	12,000	28,000	10,000	25,000	15,000	15,000	18,000	18,000	18,000
01-36-12	REVOLVING INTEREST/PENALTIES	872	-	-	-	-	-	-	-	-	-
01-36-20	LEASING INCOME	16,611	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500
01-36-22	RV PARK FEES	60,698	55,000	65,000	48,000	58,000	55,000	55,000	55,000	55,000	55,000
01-36-42	REFUND OF EXPENDITURES	132,194	25,000	87,000	25,000	50,000	25,000	25,000	25,000	25,000	25,000
01-36-43	DEVELOPER REIMBURSEMENT	57,554	85,000	30,000	10,000	50,000	10,000	10,000	10,000	10,000	10,000
01-36-51	CASH DONATIONS (TREES)	5,603	-	1,065	-	-	-	-	-	-	-
01-36-52	DONATIONS	100	-	18,000	-	-	-	-	-	-	-
01-36-80	OTHER REVENUES	12,714	5,000	15,000	2,500	10,000	5,000	5,000	7,500	7,500	10,000
01-36-82	FACILITY RENTAL	5,115	3,000	5,000	2,500	3,000	3,000	3,000	3,500	3,500	3,500
01-36-84	PARKS/GAZEBO USER FEES	4,430	3,000	4,500	3,000	4,000	3,000	3,000	3,000	3,000	3,000
	TOTAL OTHER	316,267	203,500	269,065	116,500	215,500	131,500	131,500	137,500	137,500	140,000
01-37-40	Sales Tax OPERATING TRANSFER	4,003,100	3,992,102	4,250,014	3,946,356	4,116,244	4,179,641	4,128,754	4,128,754	4,128,754	4,128,754
01-37-41	ADM SVC FEE - WATER	176,900	176,900	176,900	178,746	176,900	180,000	182,000	183,000	184,000	185,000
01-37-45	ADM SVC FEE - WASTEWATER	179,500	179,500	179,500	195,241	179,500	196,000	197,000	198,000	199,000	200,000
01-37-46	TRANSFER DEV DED FEES	135,000	125,000	-	100,000	-	-	-	-	-	-
01-37-47	ADMIN FEE-RECREATION S&U TAX	52,000	52,000	52,000	50,000	52,000	50,000	50,000	50,000	50,000	50,000
	TOTAL OPERATING TRANSFERS	4,546,500	4,525,502	4,658,414	4,470,343	4,524,644	4,605,641	4,557,754	4,559,754	4,561,754	4,563,754
01-39-11	SALE OF FIXED ASSETS	4,883	10,000	18,000	-	10,000	5,000	5,000	5,000	5,000	5,000
	TOTAL	4,883	10,000	18,000	-	10,000	5,000	5,000	5,000	5,000	5,000
	TOTAL REVENUE/TRANSFERS	6,664,759	6,301,574	6,859,785	6,224,275	6,507,069	6,269,378	6,224,782	6,213,926	6,222,478	6,248,930
	PRIOR YEAR CARRY OVER	5,638,035	5,609,981	5,473,569	4,941,863	5,496,095	5,039,994	3,978,517	2,747,668	6,213,926	6,222,478
	TOTAL AVAILABLE REVENUE	12,302,794	11,911,555	12,333,354	11,166,138	12,003,164	11,309,373	10,203,298	8,961,594	12,436,404	12,471,408
	LESS EXPENDITURES/TRANSFERS	6,829,225	6,801,173	6,837,259	6,323,903	6,963,170	7,330,856	7,455,630	2,747,668	6,213,926	6,222,478
	BALANCE DECEMBER 31	5,473,569	5,110,382	5,496,095	4,842,235	5,039,994	3,978,517	2,747,668	6,213,926	6,222,478	6,248,930
	ATTORNEY										
01-4012-3520	ATTORNEY FEES	96,210	100,000	85,000	120,000	110,000	120,000	120,000	120,000	120,000	120,000
01-4012-3521	ATTORNEY REIMBURSEABLE	37,978	25,000	40,000	25,000	40,000	25,000	25,000	25,000	25,000	25,000
	TOTAL ATTORNEY	134,188	125,000	125,000	145,000	150,000	145,000	145,000	145,000	145,000	145,000
	ELECTIONS										
01-4025-2100	POSTAGE	71	-	-	-	-	-	-	-	-	-

Town of Carbondale
2018 Municipal Budget

ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
01-4025-2110	ELECTION SUPPLIES	83	50	-	1,000	500	400	400	400	400	400
01-4025-3310	ADVERTISING	333	300	-	500	500	100	100	100	100	100
01-4025-3770	ELECTION EXPENSE	11,641	8,200	-	8,500	15,000	2,500	2,500	2,500	2,500	2,500
	TOTAL ELECTIONS	12,128	8,550	-	10,000	16,000	3,000	3,000	3,000	3,000	3,000
	BOARD OF TRUSTEES										
01-4111-1120	SALARIES & WAGES	60,450	72,000	72,900	82,800	78,300	82,800	82,800	82,800	82,800	82,800
01-4111-1440	FICA	4,680	5,508	5,577	6,334	5,990	6,334	6,334	6,334	6,334	6,334
	TOTAL PERSONNEL SERVICES	65,130	77,508	78,477	89,134	84,290	89,134	89,134	89,134	89,134	89,134
01-4111-2100	POSTAGE & OFFICE SUPPLIES	928	-	500	155	500	500	500	500	500	500
01-4111-2400	MISCELLANEOUS EXPENSE	3,531	3,500	3,000	4,100	3,500	3,500	3,500	3,500	3,500	3,500
01-4111-2401	BROADCAST SERVICES	9,163	13,000	18,820	15,000	15,000	15,000	15,000	15,000	15,000	15,000
01-4111-2403	REGIONAL COLLABORATION	487	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
01-4111-3300	DUES AND PUBLICATIONS	9,546	10,000	10,000	13,500	13,000	13,500	13,500	13,500	13,500	13,500
01-4111-3700	TRAVEL AND CONFERENCE	651	2,000	2,000	1,000	2,000	1,000	1,000	1,000	1,000	1,000
	TOTAL O & M	24,306	31,500	37,320	36,755	37,000	36,500	36,500	36,500	36,500	36,500
01-4111-9420	COMPUTER EQUIP/SOFTWARE	33,986	-	10	-	-	-	-	-	-	-
01-4111-9470	OFFICE EQUIPMENT	4,919	4,000	4,000	-	5,000	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	49,589	4,000	4,010	-	5,000	-	-	-	-	-
	TOTAL BOARD OF TRUSTEES	128,340	113,008	119,807	125,889	126,290	125,634	125,634	125,634	125,634	125,634
	MUNICIPAL COURT										
01-4121-1110	COURT FULL TIME WAGES	1,043	-	11,172		11,590					
01-4121-1120	COURT PART TIME WAGES	12,513	12,733	-	12,362	-	12,362	12,362	12,362	12,362	12,362
01-4121-1200	COLA/MERIT	-	-	-	-	348	-	-	-	-	-
01-4121-1430	OTHER EXPENSE (INSURANCE)	2,924	2,832	5,029	3,173	1,427	71	-	-	-	4
01-4121-1440	FICA	1,028	1,003	814	946	887	946	946	946	946	946
01-4121-1460	RETIREMENT	678	656	559	618	580	618	618	618	618	618
	TOTAL PERSONNEL SERVICES	18,187	17,224	17,574	17,098	14,831	13,997	13,925	13,925	13,925	13,929
01-4121-2100	POSTAGE	10	50	30	100	50	50	50	50	50	50
01-4121-2110	OFFICE SUPPLIES	54	50	16	700	100	100	100	100	100	100
01-4121-3300	DUES AND SUBSCRIPTIONS	20	25	-	50	25	25	25	25	25	25
01-4121-3700	TRAVEL AND CONFERENCE	-	300	300	300	300	300	300	300	300	300
01-4121-3940	JURY TRIAL COSTS	-	500	-	500	500	500	500	500	500	500
01-4121-3942	INTERPRETER	1,200	2,050	2,250	2,050	2,250	2,250	2,250	2,250	2,250	2,250
01-4121-3980	CONTRACT LABOR	22,915	21,500	21,500	21,500	21,500	21,500	21,500	21,500	21,500	21,500
01-4121-3981	ALTERNATE JUDGE	-	500	-	500	500	500	500	500	500	500
	TOTAL O & M	24,189	24,925	24,097	25,700	25,225	25,175	25,175	25,175	25,175	25,175

Town of Carbondale
2018 Municipal Budget

ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
	TOTAL COURT	42,386	42,199	41,671	42,798	40,056	39,222	39,150	39,150	39,150	39,154
	TOWN MANAGER										
01-4132-1110	MANAGER FULL TIME WAGES	205,570	217,260	240,500	199,565	259,374	267,155	275,169	283,425	291,927	300,685
01-4132-1120	PART TIME WAGES	8,987	-	-	12,362		-	-			
01-4132-1200	COLA/MERIT	-	6,900	-	-	7,781	8,015	8,255	8,503	8,758	9,021
01-4132-1430	OTHER EXPENSE (INSURANCE)	47,410	51,632	59,410	57,847	67,511	70,887	74,431	78,153	82,060	86,163
01-4132-1440	FICA	14,771	17,119	18,398	16,212	20,437	21,050	21,682	22,332	23,002	23,692
01-4132-1460	RETIREMENT	10,728	11,189	12,025	10,596	13,358	13,758	14,171	14,596	15,034	15,485
	TOTAL PERSONNEL SERVICES	287,467	304,100	330,333	296,581	368,461	380,865	393,709	407,009	420,782	435,047
01-4132-2100	POSTAGE	203	405	200	260	200	200	200	200	200	200
01-4132-2110	OFFICE SUPPLIES	263	100	250	470	250	250	250	250	250	250
01-4132-2400	MISCELLANEOUS EXPENSE	159	200	200	200	200	200	200	200	200	200
01-4132-2402	COMMUNITY PARTNERSHIP	-	1,000	500	1,075	1,000	1,000	1,000	1,000	1,000	1,000
01-4132-3300	DUES AND PUBLICATIONS	1,897	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
01-4132-3541	OTHER PROFESSIONAL SERVICES	7,075	6,500	7,800	6,000	7,000	7,000	7,000	7,000	7,000	7,000
01-4132-3630	EQUIP MAINT AND REPAIR	-	550	550	540	500	500	500	500	500	500
01-4132-3700	TRAVEL AND CONFERENCE	1,351	2,000	2,100	2,000	3,500	2,500	2,500	2,500	2,500	2,500
	TOTAL O & M	10,323	13,255	14,100	13,045	15,150	14,150	14,150	14,150	14,150	14,150
01-4132-9420	COMPUTER EQUIP/SOFTWARE	-	-	-	-	4,000	-	-	-	-	-
01-4132-9470	OFFICE EQUIPMENT	190	-	750	-	200	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	1,541	-	750	-	4,200	-	-	-	-	-
	TOTAL TOWN MANAGER	298,604	317,355	345,183	309,626	387,811	395,015	407,859	421,159	434,932	449,197
	ADMINISTRATIVE SERVICES										
01-4150-1410	UNEMPLOYMENT COSTS	-	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
01-4150-1420	WORKER'S COMPENSATION	77,757	100,000	90,000	110,000	85,000	85,000	85,000	85,000	85,000	85,000
01-4150-1421	WORKERS COMP DEDUCTIBLE	17,434	7,500	14,000	7,500	10,000	10,000	10,000	10,000	10,000	10,000
01-4150-1500	EAP PROGRAM	2,358	2,800	2,800	2,800	3,000	3,000	3,000	3,000	3,000	3,000
01-4150-2000	Wage & Salary Adjustments	-	25,000	-	-	-	50,000	50,000	50,000	50,000	50,000
01-4150-2050	Enforcement & Education Recreational	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
01-4150-2100	POSTAGE	222	400	400	400	400	400	400	400	400	400
01-4150-2110	OFFICE SUPPLIES	2,490	3,500	3,000	3,500	3,500	3,500	3,500	3,500	3,500	3,500
01-4150-2400	MISCELLANEOUS EXPENSE	105	500	-	500	500	500	500	500	500	500
01-4150-3300	DUES AND MEMBERSHIPS	10,586	5,500	5,500	5,500	7,500	7,500	7,500	7,500	7,500	7,500
01-4150-3310	ADVERTISING	2,621	2,000	2,000	2,100	2,000	2,100	2,100	2,100	2,100	2,100
01-4150-3311	RECRUITING EXPENSES	14,709	6,000	14,000	4,000	10,000	10,000	10,000	10,000	10,000	10,000
01-4150-3312	DOCUMENT RECORDING FEES	203	750	300	600	500	600	600	600	600	600

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01-4150-3314	DOCUMENT MANAGEMENT	463	700	2,000	700	2,000	2,000	2,000	2,000	2,000	2,000
01-4150-5100	MUNICIPAL INSURANCE	185,082	181,133	181,310	188,000	186,900	190,000	190,000	190,000	190,000	190,000
01-4150-5140	DEDUCTIBLE EXPENSE	3,000	2,500	3,000	2,500	3,000	3,000	3,000	3,000	3,000	3,000
01-4150-5310	OFFICE EQUIPMENT RENTAL	8,351	10,000	8,500	11,000	10,000	11,000	11,000	11,000	11,000	11,000
01-4150-5320	MERCHANT FEE	10,994	11,000	12,000	10,000	12,000	12,000	12,000	12,000	12,000	12,000
	TOTAL O & M	207,428	399,283	378,810	389,100	376,300	430,600	430,600	430,600	430,600	430,600
01-4150-9420	COMPUTER EQUIP/SOFTWARE	2,000	-	-	-	-	-	-	-	-	-
01-4150-9470	OFFICE EQUIPMENT	-	500	500	500	500	500	500	500	500	500
	TOTAL CAPITAL PURCHASES	2,000	500	500	500	500	500	500	500	500	500
	TOTAL ADMINISTRATIVE SERVICES	368,375	399,783	379,310	389,600	376,800	431,100	431,100	431,100	431,100	431,100
	FINANCE										
01-4151-1110	FINANCE FULL TIME WAGES	184,988	208,551	214,964	175,483	251,299	258,838	266,603	274,369	282,367	290,598
01-4151-1120	FINANCE PART TIME WAGES	21,501	-	-	24,723		-	-	-	-	-
01-4151-1200	COLA/MERIT	-	6,257	-	-	7,539	7,765	7,765	7,998	8,231	8,471
01-4151-1430	OTHER EXPENSE (INSURANCE)	36,580	39,608	52,500	44,376	65,961	69,259	72,722	76,358	80,176	84,185
01-4151-1440	FICA	15,652	15,954	16,344	15,316	19,801	20,395	20,395	20,989	21,601	22,231
01-4151-1460	RETIREMENT	10,324	10,428	6,784	10,010	12,942	13,330	13,330	13,718	14,118	14,530
	TOTAL PERSONNEL SERVICES	269,045	280,798	290,591	269,908	357,542	369,588	380,816	393,432	406,493	420,014
01-4151-2100	POSTAGE	1,178	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
01-4151-2110	OFFICE SUPPLIES	916	750	750	775	775	775	775	775	775	775
01-4151-2400	MISCELLANEOUS EXPENSE	113	-	25	50	50	50	50	50	50	50
01-4151-3100	TREASURER FEE	10,223	15,000	13,000	15,000	13,000	14,000	14,000	14,000	14,000	14,000
01-4151-3300	DUES AND PUBLICATIONS	260	250	250	300	275	300	300	300	300	300
01-4151-3540	AUDIT EXPENSE	23,300	23,500	24,000	22,900	24,500	25,000	25,000	25,000	25,000	25,000
01-4151-3630	EQUIP MAINT AND REPAIR	286	300	-	-	300	300	300	300	300	300
01-4151-3700	TRAVEL AND CONFERENCE	150	1,000	1,200	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	TOTAL O & M	35,247	42,300	40,725	41,525	41,400	41,425	41,425	41,425	41,425	41,425
01-4151-9420	COMPUTER EQUIP/SOFTWARE	-	1,500	1,500	1,000	3,000	1,000	1,000	1,000	1,000	1,000
01-4151-9470	OFFICE EQUIPMENT	-	200	700	200	200	200	200	200	200	200
	TOTAL CAPITAL PURCHASES	-	1,700	2,200	1,200	3,200	1,200	1,200	1,200	1,200	1,200
	TOTAL FINANCE	305,471	324,798	333,516	312,633	402,142	414,213	425,441	438,057	451,118	464,639
	SALES TAX COLLECTION										
01-4152-1120	SALES TAX PART TIME WAGES	22,931	26,130	15,154	17,000	18,720	18,720	18,720	18,720	18,720	18,720
01-4152-1440	FICA	1,754	1,999	1,159	1,301	1,432	1,432	1,432	1,432	1,432	1,432
	TOTAL PERSONNEL SERVICES	24,685	28,129	16,314	18,301	20,152	20,152	20,152	20,152	20,152	20,152

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01-4152-2100	POSTAGE	63	250	100	500	250	250	250	250	250	250
01-4152-2110	OFFICE SUPPLIES	154	150	150	200	100	150	150	150	150	150
01-4152-2290	GENERAL SUPPLIES	-	100	100	100	50	100	100	100	100	100
01-4152-3300	DUES AND PUBLICATIONS	-	50	50	150	25	150	150	150	150	150
01-4152-3560	SOFTWARE SERVICES	14,688	15,000	15,000	15,000	15,600	16,000	16,000	16,000	16,000	16,000
01-4152-3700	TRAVEL & CONFERENCE	-	500	500	500	250	250	250	250	250	250
	TOTAL O & M	14,906	16,050	15,900	16,450	16,275	16,900	16,900	16,900	16,900	16,900
01-4152-9420	COMPUTER EQUIP/SOFTWARE	-	-	-	-		1,000	-	-	-	1,000
01-4152-9470	OFFICE EQUIPMENT	-	200	200	200	100	200	200	200	200	200
	TOTAL CAPITAL PURCHAES	-	200	200	200	100	1,200	200	200	200	1,200
	TOTAL SALES TAX COLLECTION	39,591	44,379	32,414	34,951	36,527	38,252	37,252	37,252	37,252	38,252
	PLANNING & ZONING										
01-4191-1110	PLANNING FULL TIME WAGES	178,424	178,349	184,134	178,349	189,210	194,887	200,733	206,755	212,958	219,347
01-4191-1200	COLA/MERIT	-	5,350	-	-	5,676	5,847	6,022	6,203	6,389	6,580
01-4191-1210	OVERTIME WAGES	-	2,000	-	-	-	-	-	-	-	-
01-4191-1430	OTHER EXPENSE (INSURANCE)	52,998	57,238	56,972	62,021	49,413	51,883	54,477	57,201	60,061	63,064
01-4191-1440	FICA	12,962	14,206	13,108	13,644	14,909	15,356	15,817	16,291	16,780	17,283
01-4191-1460	RETIREMENT	8,927	9,185	9,185	8,917	9,744	10,037	10,338	10,648	10,967	11,296
	TOTAL PERSONNEL SERVICES	253,312	266,328	263,399	262,931	268,952	278,009	287,387	297,098	307,155	317,571
01-4191-2100	POSTAGE	25	100	100	300	300	300	300	300	300	300
01-4191-2110	OFFICE SUPPLIES	140	400	400	530	530	540	540	540	540	540
01-4191-2400	MISCELLANEOUS EXPENSE	552	400	750	425	425	425	425	425	425	425
01-4191-3210	PRINTING EXPENSE	182	500	600	550	1,000	550	550	550	550	550
01-4191-3300	DUES AND PUBLICATIONS	524	500	600	600	600	600	600	600	600	600
01-4191-3310	ADVERTISING	416	650	600	700	700	700	700	700	700	700
01-4191-3560	SOFTWARE SERVICES	835	4,000	3,600	3,700	3,700	3,700	3,700	3,700	3,700	3,700
01-4191-3570	CONSULTANT FEE	2,114	5,000	4,000	5,000	3,000	5,100	-	-	-	-
01-4191-3541	PLANNING SERVICES	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
01-4191-3571	DEVELOPER REIMBURSABLE	25,014	60,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
01-4191-3572	CHPC	1,221	6,000	15,000	1,500	9,000	1,500	1,500	1,500	1,500	1,500
01-4191-3574	LAND USE CODE	7,740	5,000	5,000	-	10,000	-	-	-	-	-
01-4191-3700	TRAVEL AND CONFERENCE	686	2,000	2,000	2,050	2,050	2,050	2,050	2,050	2,050	2,050
01-4191-3820	BOOKS	-	150	150	175	175	175	175	175	175	175
01-4191-3980	CONTRACT LABOR	-	1,000	1,000	-	2,000	-	-	-	-	-
	TOTAL O & M	41,949	88,200	46,300	28,030	45,980	28,140	23,040	23,040	23,040	23,040
01-4191-9420	COMPUTER EQUIP/SOFTWARE	2,233	-	-	-		-	-	-	-	-

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01-4191-9470	OFFICE EQUIPMENT	-	150	300	200	200	200	200	200	200	200
	TOTAL CAPITAL PURCHASES	2,233	150	300	200	200	200	200	200	200	200
	TOTAL PLANNING & ZONING	297,494	354,678	309,999	291,161	315,132	306,349	310,627	320,338	330,395	340,811
	DATA PROCESSING										
01-4192-2100	POSTAGE	31	-	-	-	-	-	-			
01-4192-2110	OFFICE SUPPLIES	1,114	500	500	1,000	1,000	1,000	1,000	1,000	1,000	1,000
01-4192-3560	SOFTWARE SERVICES	15,774	17,950	17,950	15,000	20,950	17,950	17,950	17,950	17,950	17,950
01-4192-3561	TOWN NETWORK	8,910	18,000	18,000	18,000	19,000	19,000	19,000	19,000	19,000	19,000
01-4192-3630	COMPUTER MAINTENANCE	18,000	25,000	25,000	25,000	29,040	29,040	29,040	29,040	29,040	29,040
	TOTAL O & M	43,829	61,450	61,450	59,000	69,990	66,990	66,990	66,990	66,990	66,990
01-4192-9420	COMPUTER EQUIP/SOFTWARE	5,134	7,500	7,500		10,000	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	5,134	7,500	7,500	-	10,000	-	-	-	-	-
	TOTAL DATA PROCESSING	48,962	68,950	68,950	59,000	79,990	66,990	66,990	66,990	66,990	66,990
	BUILDING OPERATIONS										
01-4194-1110	SALARIES & WAGES	16,358	16,274	16,762	16,274	17,265	17,783	18,317	18,866	19,432	20,015
01-4194-1200	COLA/MERIT	-	488	-	-	518	533	549	566	583	600
01-4194-1430	OTHER EXPENSE (INSURANCE)	9,357	10,105	10,059	11,322	5,708	5,994	6,293	6,608	6,939	7,285
01-4194-1440	FICA	1,147	1,282	1,166	1,245	1,360	1,401	1,443	1,487	1,531	1,577
01-4194-1460	RETIREMENT	814	838	838	814	889	916	943	972	1,001	1,031
	TOTAL PERSONNEL SERVICES	27,676	28,987	28,825	29,654	25,741	26,627	27,546	28,498	29,485	30,509
01-4194-2290	GENERAL SUPPLIES	3,156	3,000	3,000	3,200	3,200	3,200	3,200	3,200	3,200	3,200
01-4194-2292	CLOTHING ALLOWANCE	7	-	-	250	-	-	-	-	-	-
01-4194-3410	UTILITIES	22,142	28,982	25,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
01-4194-3631	MAINTENANCE CONTRACT	2,527	1,900	2,500	1,900	2,500	2,500	2,500	2,500	2,500	2,500
01-4194-3660	BLDG MAINTENANCE EXPENSE	3,124	17,500	25,000	5,575	7,500	7,500	7,500	7,500	7,500	7,500
	BLDG MAINTENANCE EXPENSE-LIBF	-	-	12,000	12,000	15,000	12,000	12,000	12,000	12,000	12,000
01-4194-3662	BLDG MAINTENANCE EXPENSE-THC	8,148	-	151,000		5,000	5,000	5,000	5,000	5,000	5,000
01-4194-3980	CUSTODIAL EXPENSE	-	-	-	150	-	-	-	-	-	-
	TOTAL O & M	39,104	51,382	218,500	53,075	63,200	60,200	60,200	60,200	60,200	60,200
01-4194-9200	BUILDING IMPROVEMENTS	2,765	1,500	12,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500
	TOTAL CAPITAL PURCHASES	16,564	1,500	12,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500
	TOTAL BUILDING OPERATIONS	69,545	81,869	259,325	84,229	90,441	88,327	89,246	90,198	91,185	92,209
	MOTOR POOL										

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01-4195-1110	MOTOR POOL FULL TIME WAGES	55,851	55,851	57,527	55,244	59,252	61,030	62,861	64,747	66,689	68,690
01-4195-1200	COLA/MERIT	-	1,676	-	-	1,778	1,831	1,886	1,942	2,001	2,061
01-4195-1210	OVERTIME WAGES	-	500	-	500	-	500	500	500	500	500
01-4195-1430	OTHER EXPENSE (INSURANCE)	22,593	24,400	27,310	27,337	27,653	28,930	30,377	31,896	33,491	35,165
01-4195-1440	FICA	3,946	4,401	4,039	4,264	4,669	4,809	4,953	5,102	5,255	5,412
01-4195-1460	RETIREMENT	2,760	2,876	2,876	2,787	3,051	3,143	3,237	3,334	3,434	3,538
	TOTAL PERSONNEL SERVICES	85,150	89,704	91,752	90,133	96,303	100,243	103,814	107,521	111,369	115,365
01-4195-2200	DRUG & ALCOHOL TESTING	729	1,120	1,000	1,140	1,000	1,000	1,000	1,000	1,000	1,000
01-4195-2250	SAFETY EQUIPMENT	204	500	500	500	500	500	500	500	500	500
01-4195-2290	GENERAL SUPPLIES	2,617	2,250	2,000	2,275	2,250	2,290	2,290	2,290	2,290	2,290
01-4195-2292	CLOTHING ALLOWANCE	721	350	350	350	350	350	350	350	350	350
01-4195-2310	ADMINISTRATION FUEL	363	300	300	300	300	300	300	300	300	300
01-4195-2311	POLICE FUEL	13,009	18,000	15,000	20,000	16,000	16,000	16,000	16,000	16,000	16,000
01-4195-2312	ORDINANCE FUEL	303	1,800	1,000	1,800	1,000	1,000	1,000	1,000	1,000	1,000
01-4195-2313	BUILDING INSPECTION FUEL	187	300	250	300	300	300	300	300	300	300
01-4195-2314	STREETS FUEL	15,282	20,000	16,000	20,000	18,000	20,000	20,000	20,000	20,000	20,000
01-4195-2315	PARKS FUEL	7,334	11,000	8,000	11,000	10,000	11,000	11,000	11,000	11,000	11,000
01-4195-2316	RECREATION FUEL	3,664	3,900	3,500	3,900	3,700	3,900	3,900	3,900	3,900	3,900
01-4195-2317	PUBLIC WORKS ADMINISTRATN FUE	160	500	200	1,000	500	1,000	1,000	1,000	1,000	1,000
01-4195-2320	ADMINISTRATION MAINTENANCE	1,271	700	700	650	700	650	650	650	650	650
01-4195-2321	POLICE MAINTENANCE	18,467	19,000	19,000	21,000	18,000	21,000	21,000	21,000	21,000	21,000
01-4195-2322	ORDINANCE MAINTENANCE	-	500	700	500	700	500	500	500	500	500
01-4195-2323	BUILDING INSPECTION MAINTENANC	114	550	250	575	500	575	575	575	575	575
01-4195-2324	STREETS MAINTENANCE	51,043	38,600	35,000	25,000	43,100	50,000	50,000	50,000	50,000	50,000
01-4195-2325	PARKS MAINTENANCE	15,087	8,000	6,500	7,200	8,000	12,000	12,000	12,000	12,000	12,000
01-4195-2326	RECREATION MAINTENANCE	1,380	4,500	4,500	3,000	10,700	7,500	7,500	7,500	7,500	7,500
01-4195-2327	PUBLIC WORKS MAINTENANCE	139	500	1,800	500	750	500	500	500	500	500
01-4195-2330	TOOLS AND EQUIPMENT	1,651	1,125	1,100	1,150	1,000	1,000	1,000	1,000	1,000	1,000
01-4195-3630	PARKS PORT. EQUIPMENT MAINTEN	1,143	1,300	750	1,350	1,300	1,400	1,400	1,400	1,400	1,400
01-4195-3631	ST. PORT. EQUIPMENT MAINTENANC	1,911	1,500	500	1,500	750	750	750	750	750	750
01-4195-3632	GATEWAY PORT. EQUIPMENT MAIN	10	-	-	-	-	-	-	-	-	-
01-4195-3700	TRAINING	368	1,000	500	1,000	500	500	500	500	500	500
	TOTAL O & M	137,159	137,295	119,400	125,990	139,900	154,015	154,015	154,015	154,015	154,015
01-4195-9410	TOOLS AND EQUIPMENT	1,962	3,900	3,000	2,040	3,900	4,000	4,000	4,000	4,000	4,000
	TOTAL CAPITAL PURCHASES	1,962	3,900	3,000	2,540	3,900	4,500	4,500	4,500	4,500	4,500
	TOTAL MOTOR POOL	224,271	230,899	214,152	218,663	240,103	258,758	262,329	266,036	269,884	273,880
	POLICE										
01-4210-1110	POLICE FULL TIME WAGES	957,824	983,849	1,030,221	987,458	1,027,534	1,058,360	1,090,110	1,122,814	1,156,498	1,191,193

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01-4210-1120	POLICE PART TIME WAGES	9,666	-	5,210	-	-	-	-	-	-	-
01-4210-1200	COLA/MERIT	-	29,515	-	-	30,826	31,751	32,703	33,684	34,695	35,736
01-4210-1210	OVERTIME WAGES	15,359	20,000	15,409	25,000	20,000	25,000	25,000	25,000	25,000	25,000
01-4210-1211	HOLIDAY OVERTIME WAGES	13,766	18,000	12,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
01-4210-1430	OTHER EXPENSE (INSURANCE)	264,320	289,824	284,119	343,654	361,341	379,409	398,379	418,298	439,213	461,173
01-4210-1440	FICA	9,444	6,737	9,987	7,000	6,438	7,000	7,000	7,000	7,000	7,000
01-4210-1441	MEDICARE ADJ	7,866	14,097	7,593	14,898	12,094	15,807	16,281	16,769	17,272	17,790
01-4210-1450	FRINGE BENEFITS	-	-	-	-	-	-	-	-	-	-
01-4210-1460	RETIREMENT	47,396	50,668	50,462	51,373	52,918	54,506	56,141	57,825	59,560	61,346
01-4210-1461	PENSION/DISABILITY	72,953	71,977	78,962	75,089	80,737	80,477	83,093	85,788	88,563	91,422
	TOTAL PERSONNEL SERVICES	1,398,594	1,484,667	1,493,962	1,519,472	1,606,887	1,667,308	1,723,707	1,782,178	1,842,801	1,905,661
01-4210-2100	POSTAGE	1,126	1,000	1,200	900	1,000	1,000	1,000	1,000	1,000	1,000
01-4210-2110	OFFICE SUPPLIES	8,537	7,000	5,000	9,000	7,000	7,000	7,000	7,000	7,000	7,000
01-4210-2200	DRUG AND ALCOHOL TESTING	145	500	500	1,000	500	500	500	500	500	500
01-4210-2290	GENERAL SUPPLIES	1,462	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
01-4210-2291	INVESTIGATION EXPENSE	3,436	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
01-4210-2292	CLOTHING ALLOWANCE	14,157	8,500	11,000	7,500	11,500	8,500	8,500	8,500	8,500	8,500
01-4210-2400	MISCELLANEOUS EXPENSE	998	1,000	2,200	650	1,000	1,000	1,000	1,000	1,000	1,000
01-4210-2401	SEIZED FUNDS PROGRAM	-	-	1,320	-	-	-	-	-	-	-
01-4210-3300	DUES AND PUBLICATIONS	1,021	950	950	950	950	950	950	950	950	950
01-4210-3310	ADVERTISING	-	200	2,000	200	200	200	200	200	200	200
01-4210-3360	PUBLIC EDUCATION	1,689	1,100	1,100	600	1,500	1,500	1,500	1,500	1,500	1,500
01-4210-3630	EQUIP MAINT AND REPAIR	1,878	2,500	1,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
01-4210-3700	TRAVEL AND CONFERENCE	29,057	14,500	30,000	12,500	15,000	15,000	15,000	15,000	15,000	15,000
01-4210-3920	PRISONER BOARD	-	500	-	500	500	500	500	500	500	500
01-4210-3980	OTHER SERVICES	13,125	12,000	15,000	10,000	15,000	15,000	15,000	15,000	15,000	15,000
01-4210-3981	TOWING	18,975	18,000	20,000	16,000	20,000	20,000	20,000	20,000	20,000	20,000
01-4210-8000	FEDERAL GRANT EXPENSE	7,572	2,500	5,000	5,000	2,500	2,500	2,500	2,500	2,500	2,500
	TOTAL O & M	103,177	76,250	102,770	73,300	85,150	82,150	82,150	82,150	82,150	82,150
01-4210-9410	POLICE EQUIPMENT	11,990	24,500	24,500	10,000	20,000	10,000	10,000	10,000	10,000	10,000
01-4210-9420	COMPUTER EQUIP/SOFTWARE	3,210	4,500	4,500	4,000	1,500	4,000	4,000	4,000	4,000	4,000
01-4210-9470	OFFICE EQUIPMENT	609	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	TOTAL CAPITAL PURCHASES	15,810	30,000	30,000	15,000	22,500	15,000	15,000	15,000	15,000	15,000
	TOTAL POLICE	1,517,581	1,590,917	1,626,732	1,607,772	1,714,537	1,764,458	1,820,857	1,879,328	1,939,951	2,002,811
	COMMUNICATIONS										
01-4215-3450	TELEPHONE COSTS	23,157	20,000	20,000	17,000	20,000	20,000	20,000	20,000	20,000	20,000
01-4215-3690	MAINTENANCE RADIOS	4,451	3,000	3,100	3,000	3,000	3,000	3,000	3,000	3,000	3,000
01-4215-3691	TELEPHONE MAINTENANCE	1,041	2,500	1,500	2,750	2,500	2,750	2,750	2,750	2,750	2,750

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	TOTAL O & M	28,649	25,500	24,600	22,750	25,500	25,750	25,750	25,750	25,750	25,750
01-4215-9450	RADIO EQUIPMENT	22,272	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
01-4215-9460	PHONE EQUIPMENT	3,805	2,500	2,500	2,500	47,500	2,500	2,500	2,500	2,500	2,500
	TOTAL CAPITAL PURCHASES	26,077	12,500	12,500	12,500	57,500	12,500	12,500	12,500	12,500	12,500
	TOTAL COMMUNICATIONS	54,726	38,000	37,100	35,250	83,000	38,250	38,250	38,250	38,250	38,250
	BUILDING INSPECTION										
01-4242-1110	BLDG FULL TIME WAGES	109,965	109,545	112,831	109,545	116,216	119,703	123,294	126,993	130,802	134,727
01-4242-1200	COLA/MERIT	-	3,286	-	-	3,486	3,591	3,699	3,810	3,924	4,042
01-4242-1430	OTHER EXPENSE (INSURANCE)	33,889	36,600	36,413	38,898	41,329	43,396	45,565	47,844	50,236	52,748
01-4242-1440	FICA	7,710	8,632	8,089	8,380	9,157	9,432	9,715	10,006	10,307	10,616
01-4242-1460	RETIREMENT	5,487	5,642	5,641	5,477	5,985	6,165	6,350	6,540	6,736	6,938
	TOTAL PERSONNEL SERVICES	157,050	163,705	162,974	162,300	176,174	182,286	188,623	195,193	202,005	209,070
01-4242-2100	POSTAGE	56	100	100	100	100	100	100	100	100	100
01-4242-2110	OFFICE SUPPLIES	303	500	500	500	500	500	500	500	500	500
01-4242-2250	SAFETY EQUIPMENT	209	200	200	300	200	300	300	300	300	300
01-4242-2251	SAFETY COMMITTEE	-	-	-	-	-	-	-	-	-	-
01-4242-2292	CLOTHING ALLOWANCE	211	300	300	300	300	300	300	300	300	300
01-4242-2400	MISCELLANEOUS EXPENSE	40	500	500	500	200	200	200	200	200	200
01-4242-3300	DUES AND MEMBERSHIPS	99	500	500	500	500	500	500	500	500	500
01-4242-3560	SOFTWARE SERVICES	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700
01-4242-3570	PLAN REVIEW FEES	-	3,000	-	-	2,000	2,000	2,000	2,000	2,000	2,000
01-4242-3700	TRAVEL AND CONFERENCE	2,303	3,000	2,000	3,500	3,000	3,500	3,500	3,500	3,500	3,500
01-4242-3820	BOOKS	1,045	3,000	1,600	1,000	2,000	2,000	2,000	2,000	2,000	2,000
01-4242-3570	CONSULTANT	-	-	-	1,000	-	-	-	-	-	-
01-4242-3210	SCANNING/PRINTING	-	1,000	1,500	1,000	1,500	1,500	1,500	1,500	1,500	1,500
01-4242-3980	CONTRACT LABOR	-	500	-	-		-	-	-	-	-
	TOTAL O & M	6,966	15,300	9,900	11,400	13,000	13,600	13,600	13,600	13,600	13,600
01-4242-9420	COMPUTER EQUIP/SOFTWARE	2,207	-	-	-	-	-	-			
01-4242-9470	OFFICE EQUIPMENT	293	200	-	200	200	200	200	200	200	200
	TOTAL CAPITAL PURCHASES	2,500	200	-	200	200	200	200	200	200	200
	TOTAL BUILDING INSPECTION	166,516	179,205	172,874	173,900	189,374	196,086	202,423	208,993	215,805	222,870
	ORDINANCE CONTROL										
01-4298-1110	ORDINANCE FULL TIME	42,752	42,367	44,855	58,592	46,247	47,634	49,063	50,535	52,051	53,613
01-4298-1200	COLA/MERIT	-	1,271	-	-	1,387	1,429	1,472	1,516	1,562	1,608
01-4298-1210	OVERTIME WAGES	6,592	5,000	10,000	2,000	10,000	2,000	2,000	2,000	2,000	2,000

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01-4298-1430	OTHER EXPENSE (INSURANCE)	18,600	20,211	20,118	22,644	22,833	23,975	25,174	26,432	27,754	29,142
01-4298-1440	FICA	3,599	3,338	4,119	4,635	3,644	3,753	3,866	3,982	4,101	4,224
01-4298-1460	RETIREMENT	1,704	2,182	2,222	3,030	2,382	2,453	2,527	2,603	2,681	2,761
	TOTAL PERSONNEL SERVICES	73,247	74,369	81,313	90,900	86,494	81,245	84,102	87,068	90,149	93,349
01-4298-2100	POSTAGE	296	200	200	100	200	200	200	200	200	200
01-4298-2110	OFFICE SUPPLIES	-	200	900	400	200	200	200	200	200	200
01-4298-2290	GENERAL SUPPLIES	288	300	300	300	300	300	300	300	300	300
01-4298-2292	CLOTHING ALLOWANCE	-	300	300	300	300	300	300	300	300	300
01-4298-3310	ADVERTISING	-	300	300	300	300	300	300	300	300	300
01-4298-3510	EUTHANASIA	-	-	-	-		-	-	-	-	-
01-4298-3700	TRAINING	1,555	1,750	1,250	1,000	1,750	1,750	1,750	1,750	1,750	1,750
01-4298-5310	DOG POUND BOARDING	7,108	15,000	10,000	15,000	9,000	15,000	15,000	15,000	15,000	15,000
01-4298-5311	CAT ORDINANCE ENFORCEMENT	2,408	2,000	-		1,000					
	TOTAL O & M	11,655	20,050	13,250	17,400	13,050	17,350	17,350	17,350	17,350	17,350
	TOTAL ORDINANCE CONTROL	84,902	94,419	94,563	108,300	99,544	99,295	102,152	105,118	108,199	111,399
	STREETS										
01-4310-1110	STREETS FULL TIME	248,786	277,221	266,260	236,311	291,501	300,246	309,253	318,531	328,086	337,929
01-4310-1120	PART TIME WAGES	-	27,000	10,000	-	17,000	-	-	-	-	-
01-4310-1200	COLA/MERIT	-	8,317	-	-	8,745	9,007	9,278	9,556	9,843	10,138
01-4310-1210	OVERTIME WAGES	16,848	10,000	11,225	10,000	10,000	10,000	10,000	10,000	10,000	10,000
01-4310-1430	OTHER EXPENSE (INSURANCE)	101,384	114,109	108,428	92,621	133,163	139,821	146,812	154,153	161,861	169,954
01-4310-1440	FICA	21,119	24,038	20,057	18,843	22,969	23,658	24,368	25,099	25,852	26,627
01-4310-1460	RETIREMENT	13,702	14,277	13,121	12,316	15,012	15,463	15,927	16,404	16,896	17,403
	TOTAL PERSONNEL SERVICES	401,839	474,962	429,091	370,090	498,390	498,195	515,637	533,742	552,538	572,051
01-4310-2110	OFFICE SUPPLIES	26	-	-	-	-	-	-	-	-	-
01-4310-2250	SAFETY EQUIPMENT	1,184	2,200	2,000	1,625	2,500	2,500	2,500	2,500	2,500	2,500
01-4310-2290	GENERAL SUPPLIES	1,674	2,500	2,000	2,500	2,000	2,500	2,500	2,500	2,500	2,500
01-4310-2292	CLOTHING ALLOWANCE	1,853	1,500	1,500	1,500	1,750	1,750	1,750	1,750	1,750	1,750
01-4310-2420	SIGN PURCHASES	8,293	10,000	6,500	10,000	12,000	12,000	12,000	12,000	12,000	12,000
01-4310-3300	DUES AND PUBLICATIONS	182	150	150	200	400	400	400	400	400	400
01-4310-3360	PUBLIC EDUCATION	-	250	-	250	250	250	250	250	250	250
01-4310-3410	UTILITIES	86,521	70,000	70,000	70,000	75,000	80,000	80,000	80,000	80,000	80,000
01-4310-3550	TREE MAINTENANCE	17,991	18,000	18,000	15,000	18,000	18,000	18,000	18,000	18,000	18,000
01-4310-3580	MAPS/SURVEYING	-	5,000	1,000	-	1,000	5,000	5,000	5,000	5,000	5,000
01-4310-3581	LANDFILL FEES	7,396	10,000	9,000	4,000	8,000	8,000	8,000	8,000	8,000	8,000
01-4310-3680	DOWNTOWN ENHANCEMENTS	5,724	10,000	10,000	6,000	10,000	7,500	7,500	7,500	7,500	7,500
01-4310-3681	SNOW REMOVAL	32,683	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000
01-4310-3682	STREET LIGHT MAINTENANCE	8,614	8,000	5,000	5,500	8,000	9,000	9,000	9,000	9,000	9,000

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01-4310-3683	STREET MAINTENANCE	45,287	35,000	35,000	22,000	45,000	45,000	45,000	45,000	45,000	45,000
01-4310-3684	SIDEWALK MAINTENANCE	12,619	10,000	11,000	10,000	15,000	20,000	20,000	20,000	20,000	20,000
01-4310-3685	DRAINAGE MAINTENANCE	6,798	3,000	3,000	3,000	5,000	5,000	5,000	5,000	5,000	5,000
01-4310-3686	133 R.O.W. MAINTENANCE	-	5,000	5,000	-	6,000	6,000	6,000	6,000	6,000	6,000
01-4310-3700	TRAINING	170	4,000	4,000	-	4,000	4,000	4,000	4,000	4,000	4,000
01-4310-3820	BOOKS	77	225	200	225	200	200	200	200	200	200
01-4310-3982	TEMP SERVICES	8,724	10,000	8,500	15,400	8,000	10,000	10,000	10,000	10,000	10,000
01-4310-5310	MISCELLANEOUS RENTAL	69	7,000	5,000	1,800	6,000	7,000	7,000	7,000	7,000	7,000
01-4310-7262	PUBLIC ARTS PROGRAM	18,282	18,000	18,000	14,300	18,500	18,500	18,500	18,500	18,500	18,500
	TOTAL O & M	264,167	264,825	249,850	218,300	281,600	297,600	297,600	297,600	297,600	297,600
01-4310-9200	BUILDING IMPROVEMENTS	-	1,000	500	1,000	1,500	1,000	1,000	1,000	1,000	1,000
01-4310-9360	BIKE AND PEDESTRIAN PATHS	2,567	10,000	1,000	5,000	10,000	5,000	5,000	5,000	5,000	5,000
01-4310-9410	TOOLS AND EQUIPMENT	5,666	5,000	3,000	3,000	4,000	3,000	3,000	3,000	3,000	3,000
01-4310-9440	VEHICLE PURCHASE	-	-	-	30,000	-	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	8,233	16,000	4,500	39,000	15,500	9,000	9,000	9,000	9,000	9,000
	TOTAL STREETS	674,239	755,787	683,441	627,390	795,490	804,795	822,237	840,342	859,138	878,651
	PUBLIC WORKS ADMINISTRATION										
01-4318-1110	PUBLIC WORKS FULL TIME	195,994	112,066	115,848	155,766	118,891	122,458	126,132	129,916	133,813	137,827
01-4318-1200	COLA/MERIT	-	3,362	-	-	3,567	3,674	3,784	3,897	4,014	4,135
01-4318-1210	OVERTIME WAGES	332	2,000	722	2,000	-	2,000	2,000	2,000	2,000	2,000
01-4318-1430	OTHER EXPENSE (INSURANCE)	32,863	32,337	26,825	45,726	20,484	21,509	22,584	23,713	24,899	26,144
01-4318-1440	FICA	13,443	8,983	8,769	12,069	9,368	9,649	9,939	10,237	10,544	10,860
01-4318-1460	RETIREMENT	9,782	5,871	5,771	7,888	6,123	6,307	6,496	6,691	6,891	7,098
	TOTAL PERSONNEL SERVICES	252,415	164,619	157,935	223,449	158,433	165,596	170,934	176,454	182,162	188,064
01-4318-2100	POSTAGE	36	100	50	105	50	50	50	50	50	50
01-4318-2110	OFFICE SUPPLIES	284	1,000	750	1,050	600	700	700	700	700	700
01-4318-2290	GENERAL SUPPLIES	416	1,000	100	1,050	750	1,050	1,050	1,050	1,050	1,050
01-4318-2400	MISCELLANEOUS EXPENSE	116	-	-	-	175	-	-	-	-	-
01-4318-2252	SAFETY COMMITTEE	1,718	1,500	2,000	1,600	1,750	1,750	1,750	1,750	1,750	1,750
01-4318-3300	DUES AND PUBLICATIONS	75	1,500	250	500	200	200	200	200	200	200
01-4318-3310	ADVERTISING	2,628	1,500	4,000	1,500	1,200	1,500	1,500	1,500	1,500	1,500
01-4318-3400	RENTAL PROPERTY EXPENSE	6,120	5,400	8,140	5,400	6,150	5,400	5,400	5,400	5,400	5,400
01-4318-3560	SOFTWARE SERVICES	1,953	2,400	2,400	2,000	3,000	4,150	4,150	4,150	4,150	4,150
01-4318-3570	CONSULTANT FEE	3,521	5,000	3,000	5,000	4,000	5,000	5,000	5,000	5,000	5,000
01-4318-3571	SURVEYING & MAPPING	672	2,000	2,000	-	2,000	2,000	2,000	2,000	2,000	2,000
01-4318-3572	TREE BOARD	135	1,000	750	1,000	1,000	1,000	1,000	1,000	1,000	1,000
01-4318-3630	EQUIP MAINT AND REPAIR	2,922	1,000	3,000	1,000	3,000	2,000	2,000	2,000	2,000	2,000

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01-4318-3660	BLDG MAINTENANCE EXPENSE	5,270	1,700	5,900	1,700	8,725	5,000	5,000	5,000	5,000	5,000
01-4318-3700	TRAVEL AND CONFERENCE	144	1,000	1,000	1,000	750	1,000	1,000	1,000	1,000	1,000
01-4318-8000	TOWN CLEANUP	16,219	10,000	10,000	8,000	11,000	12,000	12,000	12,000	12,000	12,000
	TOTAL O & M	42,229	36,100	43,340	30,905	44,350	42,800	42,800	42,800	42,800	42,800
01-4318-9200	BUILDING IMPROVEMENTS	11,520	4,000	-	-	4,000	13,800	-	-	-	-
01-4318-9420	COMPUTER EQUIP/SOFTWARE	5,972	2,500	5,000	-	1,500	-	2,500	-	-	2,500
01-4318-9470	OFFICE EQUIPMENT	-	-	-	-	-	1,200	-	-	-	-
	TOTAL CAPITAL PURCHASES	17,492	6,500	5,000	-	5,500	15,000	2,500	-	-	2,500
	TOTAL PUBLIC WORKS ADMINISTRA	312,135	207,220	206,275	254,354	208,283	223,396	216,234	219,254	224,962	233,364
	RECREATION										
01-4500-1110	REC FULL TIME WAGES	138,356	186,281	181,989	138,282	142,665	146,945	151,353	155,894	160,571	165,388
01-4500-1120	REC PART TIME WAGES	21,970	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
01-4500-1200	COLA/MERIT	-	5,588	-	-	4,280	4,408	4,541	4,677	4,817	4,962
01-4500-1210	OVERTIME WAGES	163	500	-	500	500	500	500	500	500	500
01-4500-1430	OTHER EXPENSE (INSURANCE)	32,862	51,632	47,468	40,027	55,105	57,861	60,754	63,791	66,981	70,330
01-4500-1440	FICA	11,740	16,246	15,452	12,147	12,771	11,579	11,926	12,284	12,652	13,032
01-4500-1460	RETIREMENT	6,914	10,618	9,099	6,939	7,347	7,568	4,677	4,817	4,962	5,110
	TOTAL PERSONNEL SERVICES	212,005	290,865	274,009	217,895	242,669	81,915	82,397	86,069	89,912	93,934
01-4500-1921	UMPIRE EXPENSE	2,890	3,500	3,500	3,500	3,000	4,000	4,000	4,000	4,000	4,000
01-4500-2100	POSTAGE	721	1,300	1,300	1,400	1,000	1,500	1,600	1,600	1,600	1,600
01-4500-2110	OFFICE SUPPLIES	1,009	600	600	270	600	280	290	290	290	290
01-4500-2240	BALLFIELD EQUIPMENT	2,347	1,700	1,700	700	700	800	900	900	900	900
01-4500-2241	TROPHIES	1,347	950	1,200	1,000	1,200	1,050	1,100	1,100	1,100	1,100
01-4500-2243	UNIFORMS	7,988	6,000	6,000	5,200	6,000	5,300	5,400	5,400	5,400	5,400
01-4500-2244	PROGRAM SUPPLIES	14,401	12,000	13,000	12,000	12,000	14,300	14,400	14,400	14,400	14,400
01-4500-2250	SAFETY EQUIPMENT	-	50	50	50	50	50	50	50	50	50
01-4500-2290	GENERAL SUPPLIES	28	550	550	600	500	650	700	700	700	700
01-4500-2292	CLOTHING ALLOWANCE	812	650	750	675	650	700	725	725	725	725
01-4500-2400	MISCELLANEOUS EXPENSE	-	100	900	100	100	100	100	100	100	100
01-4500-3210	PRINTING EXPENSE	4,360	6,000	4,500	6,100	5,000	6,200	6,300	6,300	6,300	6,300
01-4500-3300	DUES AND MEMBERSHIPS	3,314	2,650	4,400	2,700	2,700	2,750	2,800	2,800	2,800	2,800
01-4500-3310	ADVERTISING	2,331	1,600	2,100	1,700	2,500	1,800	1,900	1,900	1,900	1,900
01-4500-3350	LEAGUE & TOURNEY FEES	50	150	150	150	50	150	150	150	150	150
01-4500-3410	UTILITIES	6,139	7,600	7,000	7,700	7,000	7,800	7,900	7,900	7,900	7,900
01-4500-3460	TOILET RENTAL	12,973	8,700	13,000	7,200	10,000	7,300	7,400	7,400	7,400	7,400
01-4500-3560	SOFTWARE SERVICES	2,755	3,100	3,000	3,200	3,200	3,300	3,400	3,400	3,400	3,400
01-4500-3630	EQUIP MAINT AND REPAIR	127	500	500	525	500	550	575	575	575	575
01-4500-3650	SKATEBOARD MAINTENANCE	697	1,600	750	1,700	1,600	1,800	1,900	1,900	1,900	1,900

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01-4500-3651	RIDING ARENA MAINTENANCE	13,227	11,100	12,500	7,200	11,100	7,300	7,400	7,400	7,400	7,400
01-4500-3652	BBALL/SOCCER FIELD MAINTENANC	3,395	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
01-4500-3653	TENNIS MAINTENANCE	849	1,500	3,000	1,100	1,500	1,200	1,300	1,300	1,300	1,300
01-4500-3654	COMMUNITY GARDEN	1,122	2,100	2,300	2,200	2,100	2,300	2,400	2,400	2,400	2,400
01.4500.3655	BIKE PARK MAINTENANCE	5,953	5,000	5,000	3,200	5,000	3,300	3,400	3,400	3,400	3,400
01-4500-3660	BLDG MAINTENANCE EXPENSE	481	400	300	500	400	600	700	700	700	700
01-4500-3700	TRAVEL AND CONFERENCE	1,574	1,700	1,700	1,800	1,700	1,900	2,000	2,000	2,000	2,000
01-4500-3980	CONTRACT LABOR	8,156	9,100	9,100	9,200	9,100	9,300	9,400	9,400	9,400	9,400
01-4500-3982	TEMP SERVICES	2,414	4,500	10,500	3,000	5,000	3,000	3,000	3,000	3,000	3,000
01-4500-5310	FACILITY RENTAL	200	200	-	200		200	200	200	200	200
01-4500-8000	SELF FUNDED SPECIAL EVENTS	5,152	4,000	5,200	2,000	5,000	2,100	2,200	2,200	2,200	2,200
01-4500-8200	SENIOR PROGRAMS	81	500	97	550	400	600	650	650	650	650
01-4500-8201	SPECIAL PROGRAMS	54,055	55,170	55,000	55,170	55,170	55,170	55,170	55,170	55,170	55,170
	TOTAL O & M	160,948	159,570	174,647	147,590	159,820	70,370	70,620	70,620	70,620	70,620
01-4500-9411	RECREATION FACILITIES/EQUIPMEN	3,700	-	-	-		-	-	-	-	-
01-4500-9470	OFFICE EQUIPMENT	-	2,100	750	-		-	-	-	-	-
	TOTAL CAPITAL PURCHASES	3,700	2,100	750	-	-	-	-	-	-	-
	TOTAL RECREATION	376,653	452,535	449,405	365,485	402,489	401,210	408,160	416,373	424,893	433,732
	PARKS & CEMETERIES										
01-4520-1110	PARKS FULL TIME WAGES	139,571	159,051	179,810	141,496	187,440	193,064	198,855	204,821	210,966	217,295
01-4520-1120	PARKS PART TIME WAGES	58,748	73,440	41,641	65,000	65,000	65,000	65,000	65,000	65,000	65,000
01-4520-1200	COLA/MERIT	-	4,772	-	-	5,623	5,792	5,966	6,145	6,329	6,519
01-4520-1210	OVERTIME WAGES	431	500	843	500	500	500	500	500	500	500
01-4520-1430	OTHER EXPENSE (INSURANCE)	41,871	52,718	58,973	51,661	65,961	69,259	72,722	76,358	80,176	84,185
01-4520-1440	FICA	15,643	18,189	16,674	15,835	19,780	20,223	20,680	21,150	21,634	22,132
01-4520-1460	RETIREMENT	7,010	8,216	8,991	7,100	9,653	9,943	10,241	10,548	10,865	11,191
	TOTAL PERSONNEL SERVICES	263,273	316,886	306,931	281,592	353,958	363,781	373,964	384,522	395,469	406,822
01-4520-2110	OFFICE SUPPLIES	43	170	-	175	170	175	175	175	175	175
01-4520-2250	SAFETY EQUIPMENT	644	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
01-4520-2292	CLOTHING ALLOWANCE	1,332	1,250	1,000	1,300	1,620	1,300	1,300	1,300	1,300	1,300
01-4520-2380	SPRINKLER SYSTEM MAINTENANCE	17,252	14,000	14,000	8,500	14,000	8,500	8,500	8,500	8,500	8,500
01-4520-2440	PARK MAINTENANCE SUPPLIES	11,845	12,000	10,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
01-4520-2441	CEMETERY MAINT & SUPPLIES	141	5,000	2,500	1,400	2,500	1,400	1,400	1,400	1,400	1,400
01-4520-3300	DUES AND PUBLICATIONS	91	330	100	350	100	350	350	350	350	350
01-4520-3410	UTILITIES	9,347	7,500	9,000	5,700	9,000	5,750	5,750	5,750	5,750	5,750
01-4520-3550	TREE MAINTENANCE	7,589	10,000	5,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500
01-4520-3555	TURF MANAGEMENT	5,169	7,500	5,000	11,500	6,500	11,500	11,500	11,500	11,500	11,500

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01-4520-3600	PARKS MAINTENANCE	5,609	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
01-4520-3630	PLAYGROUND EQUIPMENT MAINT.	724	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
01-4520-3660	BLDG MAINTENANCE EXPENSE	3,459	20,000	15,000	5,750	5,000	5,750	5,750	5,750	5,750	5,750
01-4520-3670	ELECTRICAL WORK	65	3,500	150	4,000	1,000	4,050	4,050	4,050	4,050	4,050
01-4520-3671	PUMP MAINTENANCE	2,060	4,000	2,000	4,000	4,000	5,000	5,000	5,000	5,000	5,000
01-4520-3684	TRAILS MAINTENANCE	2,041	2,050	2,000	2,100	1,000	2,100	2,100	2,100	2,100	2,100
01-4520-3686	TREE REPLACEMENT	518	1,500	1,500	-	1,500	-	-	-	-	-
01-4520-3687	HIGHWAY 133 MAINTENANCE	16,045	5,000	1,000	-	2,000	-	-	-	-	-
01-4520-3685	LANDSCAPING	1,225	2,250	1,000	2,290	2,000	2,290	2,290	2,290	2,290	2,290
01-4520-3810	TRAINING	910	2,000	500	1,000	1,500	1,000	1,000	1,000	1,000	1,000
01-4520-3982	TEMP SERVICES	604	-	500	40,000	1,000	40,000	40,000	40,000	40,000	40,000
01-4520-5330	RENTALS	-	560	250	560	500	575	575	575	575	575
	TOTAL O & M	86,714	109,010	80,900	118,525	83,290	45,965	45,965	45,965	45,965	45,965
01-4520-9360	PARK IMPROVEMENTS/EQUIPMENT	51,540	-	1,500	12,500	14,900	12,500	12,500	12,500	12,500	12,500
01-4520-9362	TREE PURCHASE	1,396	2,800	2,800	-	2,800	2,800	2,800	2,800	2,800	2,800
01-4520-9370	CEMETERY IMPROVEMENT/MAINTEI	431	-	1,200	1,800	1,200	1,800	1,800	1,800	1,800	1,800
01-4520-9410	TOOLS AND EQUIPMENT	1,365	4,300	3,500	2,850	2,500	1,500	1,500	1,500	1,500	1,500
	TOTAL CAPITAL PURCHASES	54,732	7,100	12,250	17,150	21,400	18,600	18,600	18,600	18,600	18,600
	TOTAL PARKS & CEMETERIES	404,719	432,996	396,832	417,267	458,648	502,021	512,204	522,762	533,709	545,062
	GATEWAY RIVER PARK										
01-4525-2110	RV PARK OFFICE SUPPLIES	147	580	355	580	250	600	600	600	600	600
01-4525-2250	RV PARK SAFETY EQUIPMENT	54	162	-	165	162	165	165	165	165	165
01-4525-2440	RV PARK MAINTENANCE SUPPLIES	1,378	1,560	1,560	1,590	1,600	1,620	1,620	1,620	1,620	1,620
01-4525-3310	RV PARK ADVERTISING	4,242	4,225	4,500	3,200	4,500	3,200	3,200	3,200	3,200	3,200
01-4525-3410	RV PARK UTILITIES	9,366	10,000	10,000	8,000	10,000	8,000	8,000	8,000	8,000	8,000
01-4525-3600	RV PARK MAINTENANCE	1,503	5,300	8,200	5,400	17,000	5,400	5,400	5,400	5,400	5,400
01-4525-3660	RV PARK BLDG MAINTENANCE EXP	2,030	3,000	2,000	3,000	1,500	3,000	3,000	3,000	3,000	3,000
01-4525-3685	RV PARK LANDSCAPING	-	2,000	500	-	2,000	-	-	-	-	-
01-4525-3982	RV PARK TEMP SERVICES	-	1,500	2,000	1,500	2,000	1,500	1,500	1,500	1,500	1,500
	TOTAL O & M	18,719	28,327	29,115	23,435	39,012	23,485	23,485	23,485	23,485	23,485
01-4525-9360	RV PARK IMPROVEMENTS/EQUIPME	13,165	10,000	11,000	-	6,000	-	-	-	-	-
01-4525-9420	COMPUTER EQUIPMENT/SOFTWARI	452	500	-	-	-	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	13,616	10,500	11,000	-	6,000	-	-	-	-	-

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	TOTAL RV PARK	32,335	38,827	40,115	23,435	45,012	88,050	88,050	88,050	88,050	88,050
	GATEWAY RIVER PARK BOAT RAMP										
01-4526-3410	BOAT RAMP UTILITIES	-	800	2,000	800	2,000	1,500	1,500	1,500	1,500	1,500
01-4526-3600	BOAT RAMP MAINTENANCE	-	-	-	-	3,000	-	-	-	-	-
	TOTAL O & M	-	800	2,000	800	5,000	1,500	1,500	1,500	1,500	1,500
01-4526-9360	BOAT RAMP IMPROVEMENTS/EQUIP	-	4,000	6,594	-	-	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	-	4,000	6,594	-	-	-	-	-	-	-
	TOTAL BOAT RAMP	-	4,800	8,594	800	5,000	1,500	1,500	1,500	1,500	1,500
	CARBONDALE AFFORDABLE HOUSING										
01-4634-2500	REGIONAL HOUSING ADMINISTRATI	28,000	30,000	28,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
01-4634-9000	AFFORDABLE HOUSING ACQUISITION		50,000	50,000	-	30,000	50,000	50,000	50,000	50,000	50,000
	TOTAL O & M	28,000	80,000	78,000	30,000	60,000	80,000	80,000	80,000	80,000	80,000
	TOTAL AFFORDABLE/ATTAINABLE H	28,000	80,000	78,000	30,000	60,000	80,000	80,000	80,000	80,000	80,000
	ECONOMIC DEVELOPMENT										
01-4652-3571	BUSINESS DEVELOPMENT	25,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
01-4652-3704	ECONOMIC DEVELOPMENT FUNDIN	1,536	1,500	1,500	1,500	2,000	2,000	2,000	2,000	2,000	2,000
	TOTAL O & M	26,536	21,500	21,500	21,500	22,000	22,000	22,000	22,000	22,000	22,000
	TOTAL ECONOMIC DEVELOPMENT	26,536	21,500	21,500	21,500	22,000	22,000	22,000	22,000	22,000	22,000
	ENVIRONMENTAL HEALTH										
01-4717-2400	ENVIRONMENTAL BOARD EXPENSE	2,184	5,000	2,000	5,000	2,000	2,000	2,000	2,000	2,000	2,000
01-4717-3530	TRASH COLLECTION	16,217	12,000	15,000	9,500	15,000	15,000	15,000	15,000	15,000	15,000
01-4717-3980	RECYCLING OPERATIONS	1,126	6,000	5,000	5,400	6,000	6,000	6,000	6,000	6,000	6,000
01-4717-7200	ENERGY PLAN	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
	TOTAL O & M	44,528	48,000	47,000	44,900	48,000	48,000	48,000	48,000	48,000	48,000
	TOTAL ENVIRONMENTAL HEALTH	44,528	48,000	47,000	44,900	48,000	48,000	48,000	48,000	48,000	48,000
	COMMUNITY AFFAIRS										
01-4900-3700	Education	-	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500
01-4900-7201	COMMUNITY REQUESTS	62,000	62,000	62,000	56,500	62,000	56,500	56,500	56,500	56,500	56,500

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01-4900-7242	CONTINGENCY	-	-	-							
	TOTAL O & M	62,000	70,500	70,500	65,000	70,500	65,000	65,000	65,000	65,000	65,000
	TOTAL COMMUNITY AFFAIRS	62,000	70,500	70,500	65,000	70,500	65,000	65,000	65,000	65,000	65,000
	GENERAL RESERVE			-							
01-4910-2500	TRANSFER TO CAPITAL CONSTRUC	1,075,000	675,000	675,000	525,000	500,000	750,000	750,000	1,000,000	1,000,000	1,000,000
	TOTAL O & M	1,075,000	675,000	675,000	525,000	500,000	750,000	750,000	1,000,000	1,000,000	1,000,000
	TOTAL CONTINGENCY RESERVE	1,075,000	675,000	675,000	525,000	500,000	750,000	750,000	1,000,000	1,000,000	1,000,000
	TOTAL GENERAL FUND EXPENDITUI	6,829,225	6,801,173	6,837,259	6,323,903	6,963,170	7,330,856	7,455,630	7,853,820	8,010,034	8,175,490
	CONSERVATION TRUST FUND										
	REVENUE										
10-33-58	INTERGOVERNMENTAL REVENUE	73,118	65,000	63,500	62,000	65,000	65,000	65,000	65,000	65,000	65,000
10-36-10	INTEREST INCOME	141	10	23	10	25	25	25	25	25	25
	TOTAL REVENUE/TRANSFERS	73,260	65,010	63,523	62,010	65,025	65,025	65,025	65,025	65,025	65,025
	PRIOR YEAR CARRY OVER	90,121	91,860	106,054	55,532	96,345	84,831	70,609	54,664	41,928	32,332
	TOTAL AVAILABLE REVENUE	163,380	156,870	169,577	117,542	161,370	149,856	135,634	119,689	106,953	97,357
	LESS EXPENDITURES/TRANSFERS	57,326	91,799	73,231	81,782	76,540	79,246	80,971	77,761	74,621	76,552
	BALANCE DECEMBER 31	106,054	65,071	96,345	35,760	84,831	70,609	54,664	41,928	32,332	20,805
	EXPENDITURES										
10-4800-1110	PARKS FULL TIME WAGES	26,320	45,040	33,540	26,227	27,922	28,760	29,623	30,512	31,427	32,370
10-4800-1120	PARKS PART TIME WAGES	-	-	10,000	-	10,000	10,000	10,000	10,000	10,000	10,000
10-4800-1200	COLA/MERIT	-	1,351	-	-	838	863	889	915	943	971
10-4800-1210	OVERTIME WAGES	437	600	235	600	600	600	600	600	600	600
10-4800-1430	OTHER EXPENSE (INSURANCE)	11,296	17,863	16,184	11,561	13,776	14,465	15,188	15,948	16,745	17,583
10-4800-1440	FICA	1,887	3,595	2,584	2,052	2,965	3,077	3,145	3,215	3,287	3,361
10-4800-1460	RETIREMENT	1,316	2,350	1,689	1,341	1,438	1,481	1,526	1,571	1,618	1,667
10-4800-2000	Wage & Salary Adjustment	-	-	-	-	-	-				
	TOTAL PERSONNEL SERVICES	41,255	70,799	64,231	41,782	57,540	59,246	60,971	62,761	64,621	66,552
10-4800-3600	PARKS MAINTENANCE	-	6,000	1,500	10,000	9,000	10,000	10,000	10,000	10,000	10,000
10-4800-3982	TEMP SERVICES	10,367	15,000	7,500	30,000	10,000	10,000	10,000	5,000	-	-
	TOTAL O & M	10,367	21,000	9,000	40,000	19,000	20,000	20,000	15,000	10,000	10,000
10-4800-9363	EQUIPMENT	5,704	-	-	-	-	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	5,704	-	-	-	-	-	-	-	-	-

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	TOTAL CONSERVATION TRUST	57,326	91,799	73,231	81,782	76,540	79,246	80,971	77,761	74,621	76,552
	VICTIMS ASSISTANCE FUND										
	REVENUE										
12-35-12	FINES SURCHARGE	12,202	12,000	16,570	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	TOTAL REVENUE/TRANSFERS	12,202	12,000	16,570	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	PRIOR YEAR CARRY OVER	2,895	12,132	(367)	5,490	(512)	(512)	(512)	(512)	(512)	(512)
	TOTAL AVAILABLE REVENUE	15,097	24,132	16,203	20,490	14,488	14,488	14,488	14,488	14,488	14,488
	LESS EXPENDITURES/TRANSFERS	15,464	16,000	16,715	16,000	15,000	15,000	15,000	15,000	15,000	15,000
	BALANCE DECEMBER 31	(367)	8,132	(512)	4,490	(512)	(512)	(512)	(512)	(512)	(512)
	EXPENDITURES										
12-4210-3360	VICTIM'S ASSISTANCE	8,000	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500
12-4210-3700	POLICE TRAINING	7,464	7,500	8,215	7,500	6,500	7,500	7,500	7,500	7,500	7,500
	TOTAL O & M	15,464	16,000	16,715	16,000	15,000	16,000	16,000	16,000	16,000	16,000
	TOTAL FUND EXPENDITURES	15,464	16,000	16,715	16,000	15,000	16,000	16,000	16,000	16,000	16,000
	LODGING TAX FUND										
	REVENUE										
14-31-34	LODGING TAX	100,085	95,000	95,000	88,226	100,000	100,000	100,000	100,000	100,000	100,000
	TOTAL REVENUE/TRANSFERS	100,085	95,000	95,000	88,226	100,000	100,000	100,000	100,000	100,000	100,000
	PRIOR YEAR CARRY OVER	8,476	-	9,085	-	-	-	-	-	-	-
	TOTAL AVAILABLE REVENUE	108,561	95,000	104,085	88,226	100,000	100,000	100,000	100,000	100,000	100,000
	LESS EXPENDITURES/TRANSFERS	99,476	95,000	104,085	88,226	100,000	100,000	100,000	100,000	100,000	100,000
	BALANCE DECEMBER 31	9,085	-	-	-	-	-	-	-	-	-
	EXPENDITURES										
14-4800-7000	CHAMBER OF COMMERCE	99,476	95,000	104,085	88,226	100,000	100,000	100,000	100,000	100,000	100,000
	TOTAL O & M	99,476	95,000	104,085	88,226	100,000	100,000	100,000	100,000	100,000	100,000
	TOTAL FUND EXPENDITURES	99,476	95,000	104,085	88,226	100,000	100,000	100,000	100,000	100,000	100,000
	DISPOSABLE BAG FEE FUND										

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
	REVENUE										
15-34-61	DISPOSABLE BAG FEE	18,754	18,000	19,000	13,000	19,000	20,000	21,000	22,000	23,000	24,000
	TOTAL REVENUE/TRANSFERS	18,754	18,000	19,000	13,000	19,000	20,000	21,000	22,000	23,000	24,000
	PRIOR YEAR CARRY OVER	33,433	33,433	40,024	31,744	38,549	37,074	36,574	37,049	38,499	40,924
	TOTAL AVAILABLE REVENUE	52,187	51,433	59,024	44,744	57,549	57,074	57,574	59,049	61,499	64,924
	LESS EXPENDITURES/TRANSFERS	12,162	20,000	20,475	13,000	20,475	20,500	20,525	20,550	20,575	20,600
	BALANCE DECEMBER 31	40,024	31,433	38,549	31,744	37,074	36,574	37,049	38,499	40,924	44,324
	EXPENDITURES										
15-4800-7500	ADMINISTRATION FEE	-	-	475	-	475	500	525	550	575	600
15-4800-2400	MISCELLANEOUS EXPENSE	12,162	20,000	20,000	13,000	20,000	20,000	20,000	20,000	20,000	20,000
	TOTAL O & M	12,162	20,000	20,475	13,000	20,475	20,500	20,525	20,550	20,575	20,600
	TOTAL FUND EXPENDITURES	12,162	20,000	20,475	13,000	20,475	20,500	20,525	20,550	20,575	20,600
	1% FOR THE ARTS FUND										
	REVENUE										
16-36-52	DONATIONS	13,279	2,000	3,100	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	TOTAL REVENUE/TRANSFERS	13,279	2,000	3,100	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	PRIOR YEAR CARRY OVER	24,194	17,946	17,108	19,900	17,208	16,208	16,208	16,208	16,208	16,208
	TOTAL AVAILABLE REVENUE	37,473	19,946	20,208	21,900	19,208	18,208	18,208	18,208	18,208	18,208
	LESS EXPENDITURES/TRANSFERS	20,365	2,000	3,000	2,000	5,000	2,000	2,000	2,000	2,000	2,000
	BALANCE DECEMBER 31	17,108	17,946	17,208	19,900	14,208	16,208	16,208	16,208	16,208	16,208
	EXPENDITURES										
16-4800-2400	MISCELLANEOUS EXPENSE		-	3,000	-	3,000	-	-	-	-	-
	TOTAL O & M		-	3,000		3,000	-	-	-	-	-
16-4800-9360	PROJECTS	20,365	2,000	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	TOTAL CAPITAL PURCHASES	20,365	2,000	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	TOTAL FUND EXPENDITURES	20,365	2,000	3,000	2,000	5,000	2,000	2,000	2,000	2,000	2,000
	ENERGY EFFICIENT BLDG FUND										

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
	REVENUE										
18-32-21	BUILDING PERMIT FEES	-	-	-	1,000	-	-	-	-	-	-
	TOTAL REVENUE/TRANSFERS	-	-	-	1,000	-	-	-	-	-	-
	PRIOR YEAR CARRY OVER	8,268	8,268	8,268	4,268	8,268	5,268	5,268	5,268	5,268	5,268
	TOTAL AVAILABLE REVENUE	8,268	8,268	8,268	5,268	8,268	5,268	5,268	5,268	5,268	5,268
	LESS EXPENDITURES/TRANSFERS	-	-	-	3,000	3,000	-	-	-	-	-
	BALANCE DECEMBER 31	8,268	8,268	8,268	2,268	5,268	5,268	5,268	5,268	5,268	5,268
	EXPENDITURES										
18-4242-3572	EFFICIENT BUILDING CODE	-	-	-	3,000	3,000	-	-	-	-	-
	TOTAL O & M	-	-	-	3,000	3,000	-	-	-	-	-
	TOTAL FUND EXPENDITURES	-	-	-	3,000	3,000	-	-	-	-	-
	WASTEWATER FUND										
	REVENUE										
31-33-41	GRANTS	-	-	-	-	200,000	-	-	-	-	-
31-34-41	SEWER SERVICE FEES	1,193,966	1,201,635	1,196,799	1,260,579	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115
31-34-42	INTEREST PENALTY	7,786	3,350	3,350	3,400	3,400	3,570	3,749	3,936	4,133	4,339
31-34-43	TAP FEES	132,941	130,000	155,000	50,000	100,000	75,000	75,000	75,000	75,000	75,000
31-34-45	STORM WATER FEE	59,714	50,800	60,085	50,800	60,000	63,000	66,150	69,458	72,930	76,577
31-36-10	INTEREST ON INVESTMENTS	6,186	8,000	7,058	8,000	10,000	10,000	10,000	10,000	10,000	10,000
31-36-42	REFUND OF EXPENDITURES	12,509	-	5,000	-	2,000	-	-	-	-	-
31-36-80	OTHER REVENUES	6,836	19,200	7,700	-	4,200	4,200	4,200	4,200	4,200	4,200
	TOTAL REVENUE/TRANSFERS	1,419,937	1,412,985	1,434,992	1,372,780	1,639,600	1,478,770	1,548,249	1,621,201	1,697,801	1,778,231
	PRIOR YEAR CARRY OVER	4,668,650	4,661,313	4,643,227	4,707,537	4,933,908	4,078,623	4,436,192	4,867,003	5,334,471	5,881,666
	TOTAL AVAILABLE REVENUE	6,088,586	6,074,298	6,078,219	6,080,316	6,573,508	5,557,393	5,984,440	6,488,204	7,032,272	7,659,897
	LESS EXPENDITURES/TRANSFERS	1,445,359	1,524,148	1,144,311	1,143,680	2,494,884	1,121,201	1,117,438	1,153,733	1,150,606	1,188,077
	BALANCE DECEMBER 31	4,643,227	4,550,150	4,933,908	4,936,637	4,078,623	4,436,192	4,867,003	5,334,471	5,881,666	6,471,820
	EXPENSES										
31-4335-1110	WASTE WATER FULL TIME	375,742	305,858	370,218	347,124	321,781	331,435	341,378	351,619	362,168	373,033
31-4335-1200	COLA/MERIT	-	9,176	-	-	9,653	-	-	-	-	-
31-4335-1210	OVERTIME WAGES	8,806	6,000	7,816	6,000	6,000	9,943	10,241	10,549	10,865	11,191
31-4335-1430	OTHER EXPENSE (INSURANCE)	84,320	90,718	81,401	116,816	80,044	84,046	88,249	92,661	97,294	102,159
31-4335-1440	FICA	26,642	24,559	28,499	27,014	25,814	26,115	26,899	27,706	28,537	29,393

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31-4335-1460	RETIREMENT	14,794	16,052	17,509	17,656	16,572	16,572	17,581	18,108	18,652	19,211
31-4335-1470	ACCRUED VACATION	21,825	-	-	-	-	-	-	-	-	-
	TOTAL PERSONNEL SERVICES	532,129	452,363	505,442	514,610	459,864	468,111	484,348	500,643	517,515	534,987
31-4335-2100	POSTAGE	5,423	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700
31-4335-2110	OFFICE SUPPLIES	987	1,350	700	1,380	1,400	1,380	1,380	1,380	1,380	1,380
31-4335-2111	LAB SUPPLIES	6,529	4,000	5,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
31-4335-2200	DRUG & ALCOHOL TESTING	542	800	650	815	800	815	815	815	815	815
31-4335-2210	CHEMICALS	23,357	24,000	21,000	21,600	21,600	21,600	21,600	21,600	21,600	21,600
31-4335-2250	SAFETY EQUIPMENT	1,241	2,135	2,135	2,175	2,100	2,175	2,175	2,175	2,175	2,175
31-4335-2251	IMMUNIZATION	-	320	300	320	320	320	320	320	320	320
31-4335-2290	GENERAL SUPPLIES	2,209	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
31-4335-2292	UNIFORMS	3,052	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
31-4335-2310	VEHICLE FUEL	8,772	14,000	9,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
31-4335-2320	VEHICLE MAINTENANCE	3,843	6,000	8,500	8,000	8,000	8,000	8,000	8,000	8,000	8,000
31-4335-2380	PLANT MAINTENANCE	43,516	25,000	20,000	50,000	45,000	50,000	50,000	50,000	50,000	50,000
31-4335-2381	SLUDGE DISPOSAL	35,979	23,000	40,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
31-4335-2383	COLLECTION SYSTEM MAINTENANC	14,613	16,000	30,000	16,250	16,250	16,250	16,250	16,250	16,250	16,250
31-4335-2384	LAB EQUIPMENT MAINTENANCE	8,735	2,000	2,500	2,000	2,000	2,000	2,000	2,000	2,000	2,000
31-4335-2385	SCADA MAINTENANCE	13,687	10,000	10,000	5,300	5,300	5,300	5,300	5,300	5,300	5,300
31-4335-3300	DUES AND PUBLICATIONS	-	200	100	200	200	200	200	200	200	200
31-4335-3311	RECRUITING EXPENSES	1,423	400	3,500	400	400	400	400	400	400	400
31-4335-2000	Wage & Salary Adjustments	-	5,000	-	-	-	-	-	-	-	-
31-4335-3410	UTILITIES	73,895	90,000	95,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000
31-4335-3520	ATTORNEY FEES	-	2,080	-	2,080	2,080	2,100	2,100	2,100	2,100	2,100
31-4335-3560	SOFTWARE SERVICES	10,465	10,500	10,745	8,000	12,000	12,000	12,000	12,000	12,000	12,000
31-4335-3570	DESIGN ENGINEER CONSULTANT	15,724	6,600	1,500	1,600	1,600	1,600	1,600	1,600	1,600	1,600
31-4335-3575	UTILITY BILL OUTSOURCING	2,814	3,200	3,200	3,250	3,250	3,250	3,250	3,250	3,250	3,250
31-4335-3580	PERMIT AND LAB FEES	2,737	5,800	3,000	5,900	5,900	5,900	5,900	5,900	5,900	5,900
31-4335-3581	HAZARDOUS WASTE DAY	1,281	20,000	20,000	-	-	20,000	-	20,000		20,000
31-4335-3630	COMPUTER EQUIPMENT & MAINT.	70	3,200	1,000	3,200	-	3,200	3,200	3,200	3,200	3,200
31-4335-3632	OFFICE EQUIPMENT MAINTENANCE	-	200	200	200	200	200	200	200	200	200
31-4335-3660	BLDG MAINTENANCE EXPENSE	353	3,000	1,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
31-4335-3661	GENERAL MAINTENANCE & REPAIR	368	1,600	1,539	1,600	5,350	1,600	1,600	1,600	1,600	1,600
31-4335-3810	TRAINING	8,616	9,000	9,000	7,000	8,000	7,000	7,000	7,000	7,000	7,000
31-4335-3982	TEMP SERVICES	-	2,500	-	5,000	-	5,000	5,000	5,000	5,000	5,000
31-4335-5310	OFFICE EQUIPMENT RENTAL	1,018	1,500	1,200	1,500	1,500	1,500	1,500	1,500	1,500	1,500
31-4335-5320	MERCHANT FEE	15,810	12,000	16,500	8,500	16,500	8,500	8,500	8,500	8,500	8,500
31-4335-7200	ENERGY PLAN	10,000	10,000	10,000	10,000	5,000	10,000	10,000	10,000	10,000	10,000
31-4335-7500	ADMINISTRATIVE FEES	179,500	179,500	179,500	179,500	179,500	179,500	179,500	179,500	179,500	179,500
	TOTAL O & M	496,559	506,185	518,069	513,070	511,550	537,090	517,090	537,090	517,090	537,090

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
31-4335-9000	HOUSING	24,950	-	-	-	-	-	-	-	-	-
31-4335-9350	MAPPING	305	1,000	10,000	1,000	5,000	1,000	1,000	1,000	1,000	1,000
31-4335-9360	LAB EQUIPMENT	-	-	-	-	12,200	-	-	-	-	-
31-4335-9410	TOOLS AND EQUIPMENT	3,421	8,000	4,000	3,150	3,150	3,150	3,150	3,150	3,150	3,150
31-4335-9420	COMPUTER EQUIP/SOFTWARE	1,497	1,500	1,800	315	300	315	315	315	315	315
31-4335-9440	VEHICLE PURCHASE	120,355	35,000	33,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000
31-4335-9450	RADIO EQUIPMENT	-	100	100	1,000	1,000	1,000	1,000	1,000	1,000	1,000
31-4335-9460	PHONE EQUIPMENT	-	-	-	260	-	260	260	260	260	260
31-4335-9470	OFFICE EQUIPMENT	-	-	-	275	275	275	275	275	275	275
	TOTAL CAPITAL PURCHASES	591,131	45,600	48,900	41,000	56,925	41,000	41,000	41,000	41,000	41,000
	TOTAL ADMINISTRATION	1,179,216	1,004,148	1,121,311	1,068,680	1,028,339	1,046,201	1,042,438	1,078,733	1,075,606	1,113,077
31-4337-3570	DESIGN ENGINEERING CONSULTAN	10,997	10,000	10,000	5,000	50,000	5,000	5,000	5,000	5,000	5,000
31-4337-7220	BUILDING CONSTRUCTION	614	300,000	-	-	1,016,545	-	-	-	-	-
31-4337-9220	PLANT IMPROVEMENTS	253,994	45,000	-	-	140,000	-	-	-	-	-
31-4337-9341	MAIN REPLACEMENT	-	150,000	-	50,000	200,000	50,000	50,000	50,000	50,000	50,000
	TOTAL CAPITAL OUTLAY	635,884	505,000	10,000	55,000	1,406,545	50,000	50,000	50,000	50,000	50,000
	STORM WATER										
31-4339-3570	CONSULTANT	-	-	-	5,000	-	5,000	5,000	5,000	5,000	5,000
	TOTAL O & M	-	-	-	5,000	-	5,000	5,000	5,000	5,000	5,000
31-4339-7200	IMPROVEMENTS	-	15,000	13,000	15,000	55,000	15,000	15,000	15,000	15,000	15,000
31-4339-9350	MAPPING	-	-	-	-	5,000	-	-	-	-	-
31-4339-9410	TOOLS & EQUIPMENT	539	-	-	-	-	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	539	15,000	13,000	15,000	60,000	15,000	15,000	15,000	15,000	15,000
	TOTAL STORM WATER	539	15,000	13,000	20,000	60,000	75,000	75,000	75,000	75,000	75,000
	TOTAL WASTEWATER EXPENSES	1,445,359	1,524,148	1,144,311	1,143,680	2,494,884	1,121,201	1,117,438	1,153,733	1,150,606	1,188,077
	WATER FUND										
	REVENUE										
41-33-41	STATE GRANT	-	118,153	118,000	-	-	-	-	-	-	-
41-34-16	WATER RIGHTS DEDICATION FEE	55,242	10,000	63,000	10,000	50,000	10,000	10,000	10,000	10,000	10,000
41-34-19	METER SALES	15,350	15,000	12,000	5,150	9,000	7,500	7,500	7,500	7,500	7,500
41-34-41	WATER SALES	1,137,489	1,102,200	1,103,724	1,295,854	1,197,701	1,271,160	1,349,309	1,432,461	1,520,986	1,615,120

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41-34-42	INTEREST PENALTY	8,581	7,650	7,650	7,878	7,600	7,600	7,600	7,600	7,600	7,600
41-34-43	TAP FEES	170,057	124,000	170,000	35,775	185,000	185,000	185,900	186,900	187,800	214,000
41-36-10	INTEREST INCOME	2,555	2,000	3,200	2,000	3,000	3,000	3,000	3,000	3,000	3,000
41-36-30	BOND INTEREST INCOME	-	-	-	-	-	-	-	-	-	-
41-36-42	REFUND OF EXPENDITURES	2,308	100	1,500	100	100	100	100	100	100	100
41-36-71	DEVELOPER CONTRIBUTION	-	-	-	-	-	-	-	-	-	-
41-36-80	OTHER REVENUES	23,886	14,200	16,000	10,000	6,000	4,200	4,200	4,200	4,200	4,200
41-39-11	GAIN ON SALE OF ASSETS	(2,231)	-	-	-	-	-	-	-	-	-
	TOTAL REVENUE/TRANSFERS	1,413,237	1,393,303	1,495,074	1,366,757	1,458,401	1,488,560	1,567,609	1,651,761	1,741,186	1,861,520
	PRIOR YEAR CARRY OVER	2,268,498	2,269,098	2,512,446	2,092,844	2,358,296	1,896,717	1,017,472	200,765	(461,056)	(1,021,467)
	TOTAL AVAILABLE REVENUE	3,681,735	3,662,401	4,007,520	3,459,601	3,816,697	3,385,277	2,585,081	1,852,526	1,280,130	840,053
	LESS EXPENDITURES/TRANSFERS	1,169,288	2,129,000	1,649,224	2,065,911	1,919,980	2,367,806	2,384,315	2,313,582	2,301,597	2,318,259
	BALANCE DECEMBER 31	2,512,446	1,533,401	2,358,296	1,393,690	1,896,717	1,017,472	200,765	(461,056)	(1,021,467)	(1,478,206)
	EXPENSES										
41-4336-1110	WATER FULL TIME WAGES	255,814	341,496	329,550	283,735	369,745	380,837	392,263	404,030	416,151	392,263
41-4336-1200	COLA/MERIT	-	10,245	-	-	11,092	11,425	11,768	12,121	12,485	11,768
41-4336-1210	OVERTIME WAGES	7,942	7,000	12,000	7,000	9,000	7,000	7,000	7,000	7,000	7,000
41-4336-1430	OTHER EXPENSE (INSURANCE)	66,083	73,750	77,120	99,846	118,741	124,679	130,912	137,458	144,331	151,548
41-4336-1440	FICA	19,405	27,444	26,129	22,241	28,286	30,544	31,444	32,371	33,326	31,444
41-4336-1460	RETIREMENT	12,449	17,937	16,478	14,537	18,487	19,613	20,202	20,808	21,432	20,202
41-4336-1470	ACCRUED VACATION	(1,860)	-	-	-	-	-	-	-	-	-
	TOTAL PERSONNEL SERVICES	359,834	477,872	461,276	427,359	555,352	574,098	593,588	613,788	634,725	614,223
41-4336-2100	POSTAGE	4,151	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200
41-4336-2110	OFFICE SUPPLIES	583	1,150	500	1,200	1,200	1,200	1,200	1,200	1,200	1,200
41-4336-2111	LAB SUPPLIES	3,305	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600
41-4336-2200	DRUG & ALCOHOL TESTING	404	550	550	540	540	540	540	540	540	540
41-4336-2210	CHEMICALS	9,803	9,500	9,000	9,500	9,500	9,500	9,500	9,500	9,500	9,500
41-4336-2250	SAFETY EQUIPMENT	1,272	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
41-4336-2251	IMMUNIZATION	-	100	300	100	100	100	100	100	100	100
41-4336-2290	GENERAL SUPPLIES	1,542	1,500	1,200	1,500	1,500	1,500	1,500	1,500	1,500	1,500
41-4336-2292	UNIFORMS	1,578	1,250	1,400	1,250	1,250	1,250	1,250	1,250	1,250	1,250
41-4336-2310	VEHICLE FUEL	8,608	10,000	6,900	10,000	10,000	10,000	10,000	10,000	10,000	10,000
41-4336-2320	VEHICLE MAINTENANCE	20,063	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
41-4336-2380	PLANT & INTAKE MAINTENANCE	16,059	13,500	12,500	13,500	22,500	13,500	13,500	13,500	13,500	13,500
41-4336-2381	METER MAINTENANCE	27	-	-	-	-	-	-	-	-	-
41-4336-2382	HYDRANT MAINTENANCE	634	1,100	1,300	1,100	1,100	1,100	1,100	1,100	1,100	1,100
41-4336-2383	DISTRIBUTION MAINTENANCE	41,324	45,000	40,000	40,000	60,000	40,000	40,000	40,000	40,000	40,000

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41-4336-2384	LAB EQUIPMENT MAINTENANCE	426	4,775	3,000	4,775	4,775	4,775	4,775	4,775	4,775	4,775
41-4336-2385	SCADA MAINTENANCE	18,097	23,500	23,500	13,500	53,500	13,500	13,500	13,500	13,500	13,500
41-4336-2386	WELL FIELD MAINTENANCE	-	1,100	-	1,100	2,500	1,100	1,100	1,100	1,100	1,100
41-4336-3300	DUES AND PUBLICATIONS	3,650	4,245	4,500	4,330	4,330	4,330	4,330	4,330	4,330	4,330
41-4336-3310	ADVERTISING	2,393	2,500	-	1,000	1,000	1,000	1,000	1,000	1,000	1,000
41-4336-3311	RECRUITING EXPENSES	70	1,050	100	1,050	1,050	1,050	1,050	1,050	1,050	1,050
41-4336-3360	PUBLIC EDUCATION	-	2,000	-	-	-	-	-	-	-	-
41-4336-3410	UTILITIES	52,859	50,000	60,000	55,000	60,000	55,000	55,000	55,000	55,000	55,000
41-4336-3520	ATTORNEY FEES	8,220	5,300	4,700	5,400	20,000	5,400	5,400	5,400	5,400	5,400
41-4336-3560	SOFTWARE SERVICES	10,465	10,500	10,500	2,550	10,500	2,550	2,550	2,550	2,550	2,550
41-4336-3570	ENGINEERING/CONSULTING	14,358	13,500	13,500	10,000	10,000	10,000	10,000	10,000	10,000	10,000
41-4336-3571	MAPPING	612	3,000	10,000	3,060	5,000	3,060	3,060	3,060	3,060	3,060
41-4336-3575	UTILITY BILL OUTSOURCING	2,815	3,200	4,000	3,200	3,200	3,200	3,200	3,200	3,200	3,200
41-4336-3580	PERMIT AND LAB FEES	19,057	31,000	20,000	6,300	27,000	16,300	16,300	16,300	16,300	16,300
41-4336-3630	COMPUTER EQUIPMENT & MAINT.	1,666	3,400	2,000	3,400	3,400	3,400	3,400	3,400	3,400	3,400
41-4336-3631	PLANT MAINTENANCE CONTRACT	227	-	-	-	-	-	-	-	-	-
41-4336-3632	OFFICE EQUIPMENT MAINTENANCE	-	195	195	200	200	200	200	200	200	200
41-4336-3660	BLDG MAINTENANCE EXPENSE	820	265	1,800	270	270	270	270	270	270	270
41-4336-3683	STREET MAINTENANCE	451	1,500	-	1,500	3,750	1,500	1,500	1,500	1,500	1,500
41-4336-3687	NETTLE CREEK ROAD/BRIDGE MAIN	-	11,000	-	11,000	11,000	11,000	11,000	11,000	11,000	11,000
41-4336-3690	MAINTENANCE RADIOS	(628)	1,050	500	1,050	1,050	1,050	1,050	1,050	1,050	1,050
41-4336-3810	TRAINING	6,257	5,300	5,500	5,400	5,400	5,400	5,400	5,400	5,400	5,400
41-4336-5310	OFFICE EQUIPMENT RENTAL	1,018	1,000	1,000	115	115	115	115	115	115	115
41-4336-5320	MERCHANT FEE	15,810	10,000	16,000	8,800	16,000	8,800	8,800	8,800	8,800	8,800
41-4336-7200	ENERGY PLAN CONSERVATION	15,000	15,000	15,000	15,000	10,000	15,000	15,000	15,000	15,000	15,000
41-4336-7500	ADMINISTRATIVE FEES	176,900	176,900	176,900	176,900	176,900	176,900	176,900	176,900	176,900	176,900
	TOTAL O & M	459,895	480,230	461,645	428,890	553,930	438,890	438,890	438,890	438,890	438,890
41-4336-9000	HOUSING	24,950	-	-	-	-	-	-	-	-	-
41-4336-9360	LAB EQUIPMENT	-	4,200	4,200	4,300	4,300	4,300	4,400	4,400	4,400	4,400
41-4336-9410	TOOLS AND EQUIPMENT	1,820	475	1,600	475	475	475	475	475	475	475
41-4336-9420	COMPUTER EQUIP/SOFTWARE	8,040	1,500	3,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500
41-4336-9440	VEHICLE PURCHASE	-	25,000	22,200	-	57,500	35,000	-	35,000	-	35,000
41-4336-9470	OFFICE EQUIPMENT	-	150	150	150	150	150	150	150	150	150
	TOTAL CAPITAL PURCHASES	34,810	31,325	31,150	6,425	63,925	41,425	6,525	41,525	6,525	41,525
	TOTAL ADMINISTRATION	854,539	989,427	954,071	862,674	1,173,207	1,054,413	1,039,003	1,094,203	1,080,140	1,094,638
41-4337-3520	WATER AUGMENTATION	903	5,000	2,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
41-4337-3521	PURCHASE WATER RIGHTS	65,479	75,000	70,000	75,000	70,000	75,000	75,000	75,000	75,000	75,000
41-4337-3570	DESIGN AND ENGINEERING	31,301	133,153	60,000	2,070	-	-	130,000	2,070	2,070	2,070
41-4337-4500	NETTLE CREEK PLANT CONSTRUCT	-	-	-	-	-	100,000	-	-	-	-

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41-4337-7200	PLANT CONSTRUCTION	7,338	250,000	250,000	750,000	200,000	750,000	750,000	750,000	750,000	750,000
41-4337-7220	BUILDING CONSTRUCTION	2,346	-	-	-	-	-	-	-	-	-
41-4337-9340	MAIN CONSTRUCTION	30,191	250,000	-	250,000	250,000	250,000	250,000	250,000	250,000	250,000
41-4337-9341	MAIN REPLACEMENT	-	-	-	-	-	-	-	-	-	-
41-4337-9342	METERS	39,615	30,000	33,000	6,200	26,000	6,200	6,200	6,200	6,200	6,200
41-4337-9344	HYDRANTS	2,375	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
41-4337-9410	TOOLS & SHOP EQUIPMENT	246	3,075	3,075	3,075	3,075	3,100	3,100	3,100	3,100	3,100
41-4337-9430	WELL FIELD IMPROVEMENTS	65,601	100,000	150,000	13,000	50,000	13,000	13,000	13,000	13,000	13,000
41-4337-9440	EQUIPMENT PURCHASE	-	5,000	5,000	5,100	5,100	5,100	5,100	5,100	5,100	5,100
41-4337-9450	WATER CONSTRUCTION	-	-	-	-	-	-	-	-	-	-
	TOTAL CAPITAL OUTLAY	245,394	861,228	583,075	1,119,445	619,175	1,217,400	1,247,400	1,119,470	1,119,470	1,119,470
41-4338-1110	FULL TIME WAGES	21,869	23,088	2,000	23,566	25,000	25,750	26,523	27,318	28,138	28,982
41-4338-1120	TEMP MAINTENANCE	-	-	-	-	-	-	-	-	-	-
41-4338-1200	COLA/MERIT	-	693	-	-	750	773	796	820	844	869
41-4338-1210	OVERTIME WAGES	586	3,000	-	3,000	3,000	3,000	3,000	3,000	3,000	3,000
41-4338-1430	OTHER EXPENSE (INSURANCE)	10,849	12,126	1,050	11,466	19,482	20,456	21,478	22,552	23,680	24,864
41-4338-1440	FICA	1,595	2,049	153	2,032	2,199	2,258	2,319	2,382	2,447	2,513
41-4338-1460	RETIREMENT	1,086	1,339	100	1,328	1,288	1,326	1,366	1,407	1,449	1,493
	TOTAL PERSONNEL SERVICES	35,986	42,295	3,303	41,392	51,718	53,563	55,482	57,479	59,558	61,721
41-4338-2250	SAFETY EQUIPMENT	-	150	-	150	150	150	150	150	150	150
41-4338-2290	GENERAL SUPPLIES	-	100	75	100	100	100	100	100	100	100
41-4338-2310	VEHICLE FUEL	349	2,100	1,500	2,100	2,100	2,100	2,100	2,100	2,100	2,100
41-4338-2320	VEHICLE MAINTENANCE	2,226	-	1,000	-	-	-	-	-	-	-
41-4338-2380	DITCH MAINTENANCE	6,449	150,000	20,000	5,070	20,000	5,100	5,100	5,100	5,100	5,100
41-4338-2383	DITCH REHABILITATION	6,938	-	-	-	-	-	-	-	-	-
41-4338-3525	MOSQUITO ABATEMENT PROGRAM	6,500	6,700	6,700	6,530	6,530	6,530	6,530	6,530	6,530	6,530
41-4338-3550	DESIGN AND ENGINEERING	1,013	15,000	5,000	1,050	15,000	1,050	1,050	1,050	1,050	1,050
41-4338-3982	TEMP SERVICES	9,896	12,000	14,500	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	TOTAL O & M	33,369	186,050	48,775	27,000	55,880	27,030	27,030	27,030	27,030	27,030
41-4338-7200	PIPED SYSTEM CONSTRUCTION	-	-	-	5,400	10,000	5,400	5,400	5,400	5,400	5,400
41-4338-9340	CAPITAL IMPROVEMENTS	-	50,000	60,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
	TOTAL CAPITAL PURCHASES	-	50,000	60,000	15,400	20,000	15,400	15,400	15,400	15,400	15,400
	TOTAL DITCH SYSTEM	314,750	278,345	112,078	83,792	127,598	95,993	97,912	99,909	101,988	104,151
	TOTAL WATER FUND EXPENSES	1,169,288	2,129,000	1,649,224	2,065,911	1,919,980	2,367,806	2,384,315	2,313,582	2,301,597	2,318,259
	CARBONDALE HOUSING FUND										

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
	REVENUE										
71-33-41	GRANTS		-	15,000	-	10,000	-	-	-	-	-
71-34-19	Real Estate Transfer Assesment	19,130	-	11,790	-	-	-	-	-	-	-
71-36-20	LEASING INCOME	52,445	46,800	46,800	46,800	54,120	54,120	54,120	54,120	54,120	54,120
71-36-80	OTHER REVENUES	-	-	15	-	-	-	-	-	-	-
71-39-10	FANNIE MAE MORTGAGE FEE	-	-	-	1,100	-	1,100	1,100	1,100	1,100	1,100
71-36-30	Transfer from General Fund	-	50,000	50,000	-	30,000	-	-	-	-	-
	TOTAL REVENUE/TRANSFERS	71,575	96,800	108,605	47,900	94,120	55,220	55,220	55,220	55,220	55,220
	PRIOR YEAR CARRY OVER	218,841	272,921	284,277	291,545	357,382	366,002	400,722	435,442	470,162	504,882
	TOTAL AVAILABLE REVENUE	290,416	369,721	392,882	339,445	451,502	421,222	455,942	490,662	525,382	560,102
	LESS EXPENDITURES/TRANSFERS	6,140	23,000	35,500	8,000	85,500	20,500	20,500	20,500	20,500	20,500
	BALANCE DECEMBER 31	284,277	346,721	357,382	331,445	366,002	400,722	435,442	470,162	504,882	539,602
	EXPENDITURES										
71-4632-2400	MISCELLANEOUS EXPENSE	-	15,000	15,000	-	15,000	15,000	15,000	15,000	15,000	15,000
71-4632-3400	RENTAL PROPERTY EXPENSE	5,036	7,500	5,000	7,500	5,000	5,000	5,000	5,000	5,000	5,000
71-4632-3410	UTILITIES	1,103	500	500	500	500	500	500	500	500	500
	Grant			15,000		65,000					
	TOTAL FUND EXPENDITURES	6,140	23,000	35,500	8,000	85,500	20,500	20,500	20,500	20,500	20,500
	DEVELOPMENT DEDICATION FEE FUND										
	REVENUE										
72-34-18	GENERAL DEVELOPMENT FEES	39,548	24,000	30,000	24,000	25,000	25,000	25,000	25,000	25,000	25,000
72-36-10	INTEREST INCOME	62	100	119	100	100	100	100	100	100	100
	TOTAL REVENUE/TRANSFERS	39,610	24,100	30,119	24,100	25,100	25,100	25,100	25,100	25,100	25,100
	PRIOR YEAR CARRY OVER	407,908	338,969	312,518	215,176	342,637	317,737	342,837	367,937	393,037	418,137
	TOTAL AVAILABLE REVENUE	447,518	363,069	342,637	239,276	367,737	342,837	367,937	393,037	418,137	443,237
	LESS EXPENDITURES/TRANSFERS	135,000	135,000	-	100,000	50,000	-	-	-	-	-
	BALANCE DECEMBER 31	312,518	228,069	342,637	139,276	317,737	342,837	367,937	393,037	418,137	443,237
	EXPENDITURES										
72-4800-7201	CAPITAL PROJECTS					50,000					
72-4700-2500	TRANSFER TO GENERAL FUND	135,000	135,000	-	100,000	-	-	-	-	-	-
	TOTAL FUND EXPENDITURES	135,000	135,000	-	100,000	50,000	-	-	-	-	-

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	STREETSCAPE FUND										
	REVENUE										
73-31-10	PROPERTY TAX	191,613	195,581	195,581	201,695	209,076	212,212	209,844	-	-	-
73-31-20	SPECIFIC OWNERSHIP TAX	9,282	8,200	9,000	8,300	9,000	8,400	8,400	-	-	-
73-31-90	DELINQUENT TAX	-	12	-	12	-	12	12	-		
73-31-92	INTEREST ON DELINQUENT TAX	215	60	175	60	60	60	60	-		
	TOTAL REVENUE/TRANSFERS	201,110	203,853	204,756	210,067	218,136	220,684	218,316	-	-	-
	PRIOR YEAR CARRY OVER	662,058	785,006	812,703	661,812	492,959	581,595	48,080	-	-	-
	TOTAL AVAILABLE REVENUE	863,168	988,859	1,017,459	871,879	711,095	802,280	266,395	-	-	-
	LESS EXPENDITURES/TRANSFERS	50,464	504,000	524,500	4,100	129,500	754,200	266,395	-	-	-
	BALANCE DECEMBER 31	812,703	484,859	492,959	867,779	581,595	48,080	-	-	-	-
	EXPENDITURES										
73-4800-3100	TREASURER FEE	3,837	4,000	4,500	4,100	4,500	4,500	4,500	-	-	-
	TOTAL O & M	3,837	4,000	4,500	4,100	4,500	4,500	4,500	-	-	-
73-4800-7200	STREETSCAPE IMPROVEMENTS	46,628	500,000	520,000	-	125,000	750,000	261,895	-	-	-
	TOTAL CAPITAL OUTLAY	46,628	500,000	520,000	-	125,000	750,000	261,895	-	-	-
	TOTAL FUND EXPEDITURES	50,464	504,000	524,500	4,100	129,500	754,500	266,395	-	-	-
	CAPITAL CONSTRUCTION FUND										
	REVENUE										
74-36-10	INTEREST INCOME	84	-	97	5	120	120	120	120	120	120
74-36-20	TRANSFER IN	1,075,000	675,000	675,000	525,000	500,000	675,000	675,000	675,000	675,000	675,000
	TOTAL REVENUE/TRANSFERS	1,075,084	675,000	675,097	525,005	500,120	675,120	675,120	675,120	675,120	675,120
	PRIOR YEAR CARRY OVER	(125,428)	457,397	533,745	111,987	606,842	661,962	937,082	1,212,202	1,487,322	1,762,442
	TOTAL AVAILABLE REVENUE	949,656	1,132,397	1,208,842	636,992	1,106,962	1,337,082	1,612,202	1,887,322	2,162,442	2,437,562
	LESS EXPENDITURES/TRANSFERS	415,912	616,500	602,000	425,000	445,000	400,000	400,000	400,000	400,000	400,000
	BALANCE DECEMBER 31	533,745	515,897	606,842	211,992	661,962	937,082	1,212,202	1,487,322	1,762,442	2,037,562
74-4337-3572	ENGINEERING	474	-	-	-	-	-	-	-	-	-

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	TOTAL O & M	474	-	-	-	-	-	-	-	-	-
74-4337-7100	PROPERTY ACQUISITION	5,000	-	-							
74-4337-7202	ENERGY	48,976	50,000	50,000	50,000	30,000	50,000	50,000	50,000	50,000	50,000
74-4337-7203	STREET RESURFACING	144,567	212,500	200,000	250,000	175,000	250,000	250,000	250,000	250,000	250,000
74-4337-7205	HIGHWAY 133 CONSTRUCTION	94,600	120,000	120,000	-	-	-	-	-	-	-
74-4337-7206	SIDEWALK CONSTRUCTION	48,201	55,000	56,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
74-4337-7208	LANDFILL RECLAMATION	6,025	50,000	55,000	-	5,000	-	-	-	-	-
74-4337-7300	PARK IMPROVEMENTS/EQUIPMENT		38,000	36,000		-					
74-4337-9440	VEHICLES	68,068	91,000	85,000	75,000	185,000	50,000	50,000	50,000	50,000	50,000
	TOTAL CAPITAL OUTLAY	415,912	616,500	602,000	425,000	445,000	400,000	400,000	400,000	400,000	400,000
	TOTAL FUND EXPENDITURES	415,912	616,500	602,000	425,000	445,000	400,000	400,000	400,000	400,000	400,000
	RECREATION SALES & USE TAX FUND										
	REVENUE										
75-31-30	SALES TAX REVENUE	561,449	555,013	555,013	555,012	566,113	577,436	588,984	600,764	612,779	625,035
75-31-31	USE TAX - BUILDING PERMITS	29,632	46,414	22,510	37,142	25,000	25,500	26,010	26,530	27,061	27,602
75-31-32	GARCO VEHICLE USE TAX REVENUE	73,996	42,800	60,000	43,658	60,000	50,000	50,000	50,000	50,000	50,000
75-33-29	GRANTS	15,250	73,900	73,900	-	110,000	-	-	-	-	-
75-33-59	GOCO GRANT	-	-	-	-	45,000	-	-	-	-	-
75-34-72	SWIMMING FEES	47,985	45,000	56,012	49,000	52,000	52,000	52,000	52,000	52,000	52,000
75-34-73	ENTRANCE FEES	260,121	230,000	260,000	208,000	240,000	240,000	240,000	240,000	240,000	240,000
75-34-74	CONCESSION FEES	2,816	-	2,300	2,900	2,500	2,900	2,900	2,900	2,900	2,900
75-34-75	OTHER RECREATION CTR REVENUE	38,510	44,000	36,000	54,000	38,000	38,000	38,000	38,000	38,000	38,000
75-36-10	INTEREST INCOME	1,465	1,000	2,300	1,000	2,000	2,000	2,000	2,000	2,000	2,000
75-36-42	REFUND OF EXPENDITURES	1,351	2,000	1,500	2,000	1,000	1,000	1,000	1,000	1,000	1,000
75-36-52	DONATIONS	750	-	-	-	-	-	-	-	-	-
75-36-80	OTHER REVENUES	970	500	750	500	600	600	600	600	600	600
75-36-82	FACILITY RENTAL	38,873	40,000	40,000	40,000	40,000	42,000	42,000	42,000	42,000	42,000
75-36-91	SALES TAX PENALTIES	924	765	950	780	900	900	900	900	900	900
75-36-92	INTEREST ON DELINQUENT TAX	253	255	300	260	300	300	300	300	300	300
	TOTAL REVENUE/TRANSFERS	1,099,344	1,081,647	1,111,535	994,252	1,284,413	1,032,636	1,044,694	1,056,994	1,069,540	1,082,337
	PRIOR YEAR CARRY OVER	996,019	813,857	937,618	687,882	1,107,006	1,217,430	1,222,227	1,227,213	1,232,196	1,236,975
	TOTAL AVAILABLE REVENUE	2,095,363	1,895,504	2,049,153	1,682,134	2,391,420	2,250,065	2,266,922	2,284,207	2,301,736	2,319,312
	LESS EXPENDITURES/TRANSFERS	1,157,745	1,132,505	942,147	1,050,009	1,173,990	1,027,838	1,039,709	1,052,011	1,064,761	1,077,976
	BALANCE DECEMBER 31	937,618	762,999	1,107,006	632,126	1,217,430	1,222,227	1,227,213	1,232,196	1,236,975	1,241,336

Town of Carbondale
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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
	EXPENDITURES										
75-4500-1110	RECREATION CTR FULL TIME WAGE	155,449	164,267	156,098	160,040	156,098	160,781	165,604	170,573	175,690	180,961
75-4500-1120	RECREATION CTR PART TIME WAGI	104,527	106,000	99,262	106,000	105,000	106,000	106,000	106,000	106,000	106,000
75-4500-1200	COLA/MERIT	-	4,928	-	-	4,683	4,823	4,968	5,117	5,271	5,429
75-4500-1430	OTHER EXPENSE (INSURANCE)	56,997	56,151	40,804	61,465	37,995	39,894	41,889	43,983	46,183	48,492
75-4500-1440	FICA	19,246	21,052	16,573	20,352	20,332	20,778	21,158	21,549	21,952	22,368
75-4500-1460	RETIREMENT	8,998	8,460	6,082	8,002	8,039	8,280	8,529	8,784	9,048	9,319
	TOTAL PERSONNEL SERVICES	345,651	360,858	285,094	355,859	332,147	340,557	348,148	356,007	364,144	372,568
75-4500-2100	PRINTING/POSTAGE	52	1,200	500	1,300	500	500	500	500	500	500
75-4500-2110	OFFICE SUPPLIES	2,110	2,100	2,100	2,200	2,200	2,200	2,200	2,200	2,200	2,200
75-4500-2244	PROGRAM SUPPLIES	6,687	4,500	7,000	4,600	5,500	5,500	5,500	5,500	5,500	5,500
75-4500-2290	GENERAL SUPPLIES	10,718	9,000	9,600	9,000	10,000	10,000	10,000	10,000	10,000	10,000
75-4500-2292	CLOTHING ALLOWANCE	-	550	500	575	550	550	550	550	550	550
75-4500-2500	CONCESSION PURCHASES	519	1,000	750	1,000	500	500	500	500	500	500
75-4500-3210	PRINTING EXPENSE	1,350	3,600	3,000	3,600	3,600	3,600	3,600	3,600	3,600	3,600
75-4500-3310	ADVERTISING	6,341	9,500	8,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500
75-4500-3311	RECRUITING EXPENSES	2,331	2,000	2,500	2,200	2,500	2,500	2,500	2,500	2,500	2,500
75-4500-3410	UTILITIES (ELECTRIC)	9,741	14,000	8,500	20,400	10,000	10,000	10,000	10,000	10,000	10,000
75-4500-3450	UTILITIES	8,836	13,500	8,865	13,500	10,000	10,000	10,000	10,000	10,000	10,000
75-4500-3530	EQUIP MAINTENANCE & REPAIR	10,950	11,000	11,000	7,000	11,000	13,500	13,500	13,500	13,500	13,500
75-4500-3560	SOFTWARE SERVICES	-	1,500	-	1,500	-	500	500	500	500	500
75-4500-3630	COMPUTER MAINT AND REPAIR	936	520	520	520	500	500	500	500	500	500
75-4500-3660	BLDG MAINTENANCE & GROUNDS	14,063	11,000	16,000	9,000	15,000	18,000	18,000	18,000	18,000	18,000
75-4500-3700	TRAINING & TRAVEL	609	1,500	1,500	1,500	3,000	3,000	3,000	3,000	3,000	3,000
75-4500-3980	CONTRACT LABOR	40,424	38,000	38,000	35,000	42,000	42,000	42,000	42,000	42,000	42,000
75-4500-5310	OFFICE EQUIPMENT RENTAL	4,005	4,000	4,000	3,500	4,000	4,000	4,000	4,000	4,000	4,000
75-4500-5320	MERCHANT FEE	12,509	12,000	13,500	9,200	15,000	15,000	15,000	15,000	15,000	15,000
	TOTAL O & M	132,181	140,470	136,434	135,095	145,350	151,350	151,350	151,350	151,350	151,350
75-4500-8000	PROGRAMS	-	-	-	880	500	500	500	500	500	500
75-4500-9410	REC FACILITIES/EQUIPMENT	126,051	10,000	7,500	57,000	14,000	20,000	20,000	20,000	20,000	20,000
75-4500-9420	COMPUTER EQUIP/SOFTWARE	-	8,000	8,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
	TOTAL CAPITAL PURCHASES	126,051	18,000	15,500	62,566	17,500	25,186	25,186	25,186	25,186	25,186
	TOTAL RECREATION CENTER	603,884	519,328	755,847	553,520	494,997	517,093	524,684	532,543	540,680	549,104
75-4512-1110	SALARIES & WAGES	11,169	22,145	23,494	21,500	23,494	24,198	24,924	25,672	26,442	27,236
75-4512-1120	POOL PART TIME WAGES	46,280	55,000	53,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000
75-4512-1200	COLA/MERIT	-	664	-	-	705	726	748	770	793	817

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
75-4512-1430	OTHER EXPENSE (INSURANCE)	4,777	10,319	5,140	11,561	5,833	6,125	6,431	6,753	7,091	7,445
75-4512-1440	FICA	4,338	5,952	5,852	5,852	6,005	6,114	6,171	6,230	6,291	6,354
75-4512-1450	FRINGE BENEFITS	-	-	-	-	-	-	-	-	-	-
75-4512-1460	RETIREMENT	554	1,140	1,175	1,075	1,175	1,246	1,284	1,322	1,362	1,403
	TOTAL PERSONNEL SERVICES	67,117	95,220	55,984	94,989	92,211	93,410	94,559	95,748	96,979	98,254
75-4512-2110	OFFICE SUPPLIES	133	350	1,500	375	350	375	375	375	375	375
75-4512-2210	CHEMICALS	10,021	10,000	13,000	7,500	12,000	7,500	7,500	7,500	7,500	7,500
75-4512-2290	GENERAL SUPPLIES	1,048	1,300	1,600	1,350	1,300	1,350	1,350	1,350	1,350	1,350
75-4512-2292	GUARD UNIFORMS	1,844	1,800	1,700	1,450	1,800	1,450	1,450	1,450	1,450	1,450
75-4512-2400	MISCELLANEOUS EXPENSE	8	150	150	200	150	200	200	200	200	200
75-4512-2500	CONCESSION PURCHASES	220	150	276	150	150	150	150	150	150	150
75-4512-3210	PRINTING EXPENSE	-	225	200	250	225	250	250	250	250	250
75-4512-3410	UTILITIES	10,950	10,500	10,500	11,000	10,500	11,000	11,000	11,000	11,000	11,000
75-4512-3560	SOFTWARE SERVICES	248	300	300	300	300	300	300	300	300	300
75-4512-3660	BLDG MAINTENANCE & GROUNDS	4,470	4,750	11,000	5,000	4,750	5,000	5,000	5,000	5,000	5,000
75-4512-3661	GENERAL MAINTENANCE & REPAIRS	17,781	3,750	7,000	4,000	4,650	4,000	4,000	4,000	4,000	4,000
75-4512-3810	RED CROSS CERTIFICATION	1,693	1,900	1,500	2,000	1,900	2,000	2,000	2,000	2,000	2,000
75-4512-3980	CONTRACT LABOR	1,050	1,300	2,700	1,350	1,300	1,350	1,350	1,350	1,350	1,350
75-4512-8000	SPECIAL EVENTS	422	1,000	1,500	825	1,000	825	825	825	825	825
	TOTAL O & M	49,888	37,475	52,926	35,750	40,375	35,750	35,750	35,750	35,750	35,750
75-4512-9360	POOL EQUIPMENT	120	10,000	14,000	-	22,000	-	-	-	-	-
75-4512-9361	SWIM LESSON EQUIPMENT	556	400	900	450		450	450	450	450	450
75-4512-9362	UMBRELLAS	174	1,300	1,700	250	2,035	250	250	250	250	250
75-4512-9420	COMPUTER EQUIP/SOFTWARE	1,031	-	-	-	2,500	-	-	-	-	-
	TOTAL CAPITAL PURCHASES	1,880	11,700	16,600	700	26,535	700	700	700	700	700
	TOTAL SWIMMING POOL	244,937	144,395	214,169	131,439	159,121	129,860	131,009	132,198	133,429	134,704
75-4800-1110	RECREATION FULL TIME WAGES	44,673	44,290	46,987	49,440	46,987	48,397	49,849	51,344	52,885	54,471
75-4800-1200	COLA/MERIT	-	1,329	-	-	1,410	1,452	1,495	1,540	1,587	1,634
75-4800-1430	OTHER EXPENSE (INSURANCE)	19,980	24,400	24,276	13,556	27,553	28,930	30,377	31,896	33,491	35,165
75-4800-1440	FICA	3,159	3,490	3,938	3,782	3,702	3,813	3,928	4,046	4,167	4,292
75-4800-1460	RETIREMENT	2,214	2,281	2,776	2,472	2,420	2,492	2,567	2,644	2,724	2,805
	TOTAL PERSONNEL SERVICES	70,027	75,790	86,570	69,250	82,072	85,085	88,216	91,470	94,852	98,368
75-4800-2400	MISCELLANEOUS EXPENSE	-	2,000	-	2,000	-	2,000	2,000	2,000	2,000	2,000
75-4800-2500	TRANSFER OUT	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600
75-4800-3310	ADVERTISING	-	500	-	500	-	500	500	500	500	500

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
75-4800-3410	UTILITIES	212	200	200	200	200	200	200	200	200	200
75-4800-3450	TELEPHONE COSTS	-	500	-	500	-	500	500	500	500	500
75-4800-3530	EQUIPMENT MAINTENANCE	2,828	2,500	2,500	2,500	-	2,500	2,500	2,500	2,500	2,500
75-4800-3660	FACILITIES MAINTENANCE	189	5,000	5,000	5,000	3,000	5,000	5,000	5,000	5,000	5,000
75-4800-3980	CONTRACT LABOR	-	1,000	1,000	1,000	-	1,000	1,000	1,000	1,000	1,000
75-4800-7500	ADMINISTRATION FEE	52,000	52,000	52,000	50,000	52,000	50,000	50,000	50,000	50,000	50,000
75-4800-8000	PROGRAMS	-	-	-	-	5,000	-	-	-	-	-
	TOTAL O & M	272,829	281,300	278,300	279,300	277,800	279,300	279,300	279,300	279,300	279,300
75-4800-9360	PARK IMPROVEMENTS	15,834	6,000	400	6,000	25,000	6,000	6,000	6,000	6,000	6,000
75-4800-9361	PARK & REC FACILITIES/CENTER	9,172	10,292	-	2,000	60,000	2,000	2,000	2,000	2,000	2,000
75-4800-9362	TRAIL IMPROVEMENTS	5,000	2,000	8,000	2,000	50,000	2,000	2,000	2,000	2,000	2,000
75-4800-9365	PARK & REC FACILITIES	-	40,000	30,500	2,000	25,000	2,000	2,000	2,000	2,000	2,000
75-4800-9366	RIDING ARENA	61,954	50,900	22,000	2,000	-	2,000	2,000	2,000	2,000	2,000
75-4800-9367	CARBONDALE NATURE PARK	161	-	-	-		-	-	-	-	-
75-4800-9368	GATEWAY PARK	-	2,000	2,000	2,000	-	2,000	2,000	2,000	2,000	2,000
75-4800-9410	EQUIPMENT	-	500	-	500	-	500	500	500	500	500
	TOTAL CAPITAL OUTLAY	92,121	111,692	62,900	16,500	160,000	16,500	16,500	16,500	16,500	16,500
	TOTAL RECREATION FACILITIES	434,976	398,763	505,747	365,050	519,872	380,885	384,016	387,270	390,652	394,168
	TOTAL FUND EXPENDITURES	1,157,745	1,132,505	942,147	1,050,009	1,173,990	1,027,838	1,039,709	1,052,011	1,064,761	1,077,976
	COMMUNITY ENHANCEMENT FUND										
	REVENUE										
76-36-50	COMMUNITY ENHANCEMENT	6,242	6,100	6,516	5,950	6,500	6,500	6,500	6,500	6,500	6,500
	TOTAL REVENUE/TRANSFERS	6,242	6,100	6,516	5,950	6,500	6,500	6,500	6,500	6,500	6,500
	PRIOR YEAR CARRY OVER	770	7,108	7,012	11,900	(19,180)	(12,680)	(6,180)	320	6,820	13,320
	TOTAL AVAILABLE REVENUE	7,012	13,208	13,528	17,850	(12,680)	(6,180)	320	6,820	13,320	19,820
	LESS EXPENDITURES/TRANSFERS	-	13,208	32,708	-	-	-	-	-	-	-
	BALANCE DECEMBER 31	7,012	-	(19,180)	17,850	(12,680)	(6,180)	320	6,820	13,320	19,820
76-4700-9000	COMMUNITY PROJECTS	-	13,208	32,708	-	-	-	-	-	-	-
	TOTAL CAPITAL OUTLAY	-	13,208	32,708	-	-	-	-	-	-	-
	TOTAL FUND EXPENDITURES	-	13,208	32,708	-	-	-	-	-	-	-

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
	SALES & USE TAX FUND										
	REVENUE										
77-31-30	SALES TAX REVENUE	3,392,018	3,392,602	3,527,690	3,597,826	3,598,244	3,670,211	3,743,617	3,818,493	3,894,863	3,972,761
77-31-31	USE TAX - BUILDING PERMITS	177,728	250,000	135,000	100,000	120,000	175,000	175,000	175,000	175,000	175,000
77-31-32	GARCO VEHICLE USE TAX REVENUE	404,970	350,000	582,529	246,897	400,000	406,000	412,091	418,274	424,548	430,919
77-36-91	SALES TAX PENALTIES	6,447	5,000	10,968	6,468	5,000	5,000	5,000	5,000	5,000	5,000
77-36-92	INTEREST ON DELINQUENT TAX	1,519	1,500	2,326	2,165	1,500	1,500	1,500	1,500	1,500	1,500
	TOTAL REVENUE/TRANSFERS	3,982,682	3,999,102	4,258,514	3,953,356	4,124,744	4,257,711	4,337,208	4,418,268	4,500,912	4,585,180
	PRIOR YEAR CARRY OVER	447,830	-	418,665	-	418,665	418,665	418,665	418,665	418,665	418,665
	TOTAL AVAILABLE REVENUE	4,430,511	3,999,102	4,677,179	3,953,356	4,543,409	4,676,376	4,755,873	4,836,933	4,919,577	5,003,845
	LESS EXPENDITURES/TRANSFERS	4,011,846	3,999,102	4,258,514	3,953,356	4,124,744	4,257,711	4,337,208	4,418,268	4,500,912	4,585,180
	BALANCE DECEMBER 31	418,665	-	418,665	-	418,665	418,665	418,665	418,665	418,665	418,665
	EXPENDITURES										
77-4500-5320	MISCELLANEOUS EXPENSE	8,746	7,000	8,500	7,000	8,500	8,500	9,000	9,000	9,000	10,000
77-4700-2501	TRANSFER TO GENERAL FUND	4,003,100	3,992,102	4,250,014	3,953,356	4,116,244	4,249,211	4,328,208	4,409,268	4,491,912	4,575,180
	TOTAL TRANSFERS	4,011,846	3,999,102	4,258,514	3,953,356	4,124,744	4,257,711	4,337,208	4,418,268	4,500,912	4,585,180
	TOTAL FUND EXPENDITURES	4,011,846	3,999,102	4,258,514	3,953,356	4,124,744	4,257,711	4,337,208	4,418,268	4,500,912	4,585,180
	BOND & INTEREST FUND										
	REVENUE										
78-36-20	TRANSFER IN	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600
	TOTAL REVENUE/TRANSFERS	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600	217,600
	PRIOR YEAR CARRY OVER	31,720	33,807	34,207	17,417	38,207	43,647	41,149	41,424	45,111	46,878
	TOTAL AVAILABLE REVENUE	249,319	251,407	251,807	235,017	255,807	261,247	258,749	259,024	262,711	264,478
	LESS EXPENDITURES/TRANSFERS	215,113	213,993	213,600	212,160	212,160	220,098	217,325	213,913	215,833	214,426
	BALANCE DECEMBER 31	34,207	37,414	38,207	22,857	43,647	41,149	41,424	45,111	46,878	50,052
78-4700-6103	2004 BOND INTEREST	169,075	-	169,000	-	-	-	-			
78-4700-6104	2006 BOND INTEREST	45,438	-	44,000	-	-	-	-			
78-4700-6202	2004 BOND PRINCIPAL	-	212,993	-	211,160	211,160	219,098	216,325	212,913	214,833	213,426
78-4700-6400	AGENTS FEE	600	1,000	600	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	TOTAL DEBT SERVICE	215,113	213,993	213,600	212,160	212,160	220,098	217,325	213,913	215,833	214,426
	TOTAL FUND EXPENDITURES	215,113	213,993	213,600	212,160	212,160	220,098	217,325	213,913	215,833	214,426
	BOND RESERVE FUND										

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ACCOUNT NO.	ACCOUNT DESCRIPTION	2016 Actual	2017 Adopted Budget	2017 Estimated	2018 Projected Budget	2018 Proposed Budget	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
	TOTAL REVENUE/TRANSFERS	-	-	-	-	-	-	-	-	-	-
	PRIOR YEAR CARRY OVER	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618
	TOTAL AVAILABLE REVENUE	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618
	LESS EXPENDITURES/TRANSFERS	-	-	-	-	-	-	-	-	-	-
	BALANCE DECEMBER 31	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618	173,618

October 2017

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10 Trustee Meeting Proposed 2018 Budget Public Works/ Utilities	11	12	13	14
15 **Deadline for Delivery of Budget to BOT**	16	17 Special Meeting Budget Review– Recreation/Parks Police	18	19	20	21
22	23	24 Trustee Meeting Budget Review Capital Project	25	26	27	28
29	30	31 				

November 2017

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10 	11
12	13	14 Trustee Meeting – Community Requests	15	16	17	18
19	20	21 Trustee Meeting -Work Session	22	23  Happy Thanksgiving	24	25
26	27	28 Trustee Meeting— Budget Review	29	30		

December 2017

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5 Special Meeting– Budget Review if Necessary	6	7	8	9
10	11	12 Trustee Meeting Adopt Budget	13	14	15 Deadline for Budget Adoption	16
17	18	19	20	21	22	23
24 	25	26 Trustee Meeting	27	28	29	30
31						