

TOWN OF BRECKENRIDGE
OPEN SPACE ADVISORY COMMISSION
Monday, March 21, 2011
150 Ski Hill Road

- 5:30 Call to Order, Roll Call
- 5:35 Discussion/approval of Minutes – February 28, 2010
- 5:40 Discussion/approval of Agenda
- 5:45 Public Comment (Non-Agenda Items)
- 5:50 Staff Summary
- Trail Use Data
- 6:15 Open Space and Trails
- Swan Mountain Recpath Contribution
 - Cucumber Gulch Preserve Management Plan
 - Cucumber Gulch Preserve Monitoring Program
 - Department of Justice/ Americans with Disabilities Act Trail Evaluation
- 8:00 Adjourn

For further information, please contact the Open Space and Trails Program at 970-547-3155 (Scott) or 970-453-3371 (Chris).

Memorandum

To: Breckenridge Open Space Advisory Commission
From: Open Space Staff
Re: March 21, 2010 meeting

Staff Summary**Trail Use Data**

Attached, please find more trail use data information from select trail access points.

Open Space and Trails**Swan Mountain Recpath Contribution**

In 2004, Summit County Open Space staff presented the concept of the Swan Mountain Recpath to BOSAC, and requested Town financial support for the project. At the time, BOSAC recommended a \$100,000 total donation to the project. \$10,000 was contributed as seed money for the first phase (Lowry) and the remaining \$90,000 was earmarked in the Open Space pro forma for the Blue River Phase (between Sapphire Point and Farmer's Korner) to be completed in the future.

Since that time, Summit County Government has made significant progress on the ambitious recpath project. The first three phases of the recpath are complete and the Town has fulfilled its \$10,000 commitment for the Lowry phase. Grade-separated pathway now connects Summit Cove to Sapphire Point, and all that remains to "Circle the Summit" is construction of the Blue River section. Summit County Government is currently evaluating the possibility of widening Swan Mountain Road to accommodate uphill recpath traffic in the northeast-bound lane. This action would be in lieu of a grade-separated pathway, would be more cost efficient, and would address other winter safety issues on the route.

Summit County staff will be present at the meeting to update BOSAC on the latest design and schedule of the proposed construction project. County staff seeks BOSAC's confirmation of the \$90,000 contribution to this section of recpath construction. Any expenditure recommendation from BOSAC will also be presented to Council for approval.

Questions:

- 1) Does BOSAC confirm the \$90,000 contribution to the Swan Mountain Recpath project?***
- 2) Does Summit County's uphill lane widening proposal fulfill the Blue River section intent?***

Cucumber Gulch Preserve Management Plan

Based on the recurring Cucumber Gulch Preserve management discussions and the document date of the Cucumber Gulch Recreation Master Plan (2003), staff proposes to create the Cucumber Gulch Preserve Management Plan. Typically, a management plan provides broad policy goals and specific management directives for a given open space area, so that staff and the public have clear understanding of the area's management and use.

The intent of this proposed revision process is to:

1. Consolidate and update the existing plan.
2. Provide background regarding existing policy direction and ordinances.
3. Broaden the scope of the plan to outline all open space management elements, including resource protection, recreational access, concessionaires and events, gondola operation, monitoring, interpretation, forest health, etc.
4. Clarify and memorialize the monitoring program goals.

Staff has begun outlining the proposed revision and seeks BOSAC input regarding the scope of the document (attached). Please review the existing Recreation Master Plan and consider any pertinent past history related to Cucumber Gulch Preserve management. Hopefully, we can help clarify management goals for both the staff and public.

Questions:

- 1) *Does BOSAC support staff's proposal to create a revised Cucumber Gulch Management Plan document?*
- 2) *If so, which specific topics does BOSAC want to see covered in the document?*
- 3) *What policies and other decisions would BOSAC want memorialized in this revised document?*

2011 Cucumber Gulch Preserve Monitoring

Staff seeks BOSAC direction regarding the scope of 2011 Cucumber Gulch monitoring program.

Background

At its December 20, 2010 meeting, BOSAC reviewed the 2010 Cucumber monitoring program and prioritized 2011 monitoring goals. Council reviewed the monitoring program at its January 11, 2011 meeting and also offered feedback.

Monitoring priorities recommended by both BOSAC and Council included:

- Continued monitoring of water quality, avian population, amphibian, and vegetation elements (including weed and willow surveys) with no significant changes.
- Expanded use of motion detection cameras to evaluate the impact of trail use on ungulates and other large mammals. (The trailside cameras will also provide

To accomplish the 2011 monitoring goals, staff has solicited three proposals requesting contracts to conduct different components of the desired monitoring priorities. Full copies of these proposals are included for your review.

Dr. Christy Carello, PhD

As in past years, Dr. Christy Carello submitted a proposal to conduct much of the wildlife and vegetative monitoring in Cucumber Gulch. Staff supports the majority of Dr. Carello's proposal, which is based on previous BOSAC and Council input. Staff supports retaining Dr. Carello to provide services for monitoring avian and amphibian populations, monitoring vegetation elements (including weed and willow surveys), motion detection camera analysis, and analyzing the impact of trail recreation on wildlife.

Dr. Carello also included a "baseline avian monitoring in the gondola corridor" proposal to repeat the gondola corridor evaluation from 2010. This research component would allow for a true treatment and control evaluation of avian presence when the gondola is running (2010) and not running (2011). In 2010, Dr. Carello's research into the impacts of gondola operation on avian species was somewhat compromised when, during the 'control' period, the gondola was operated for maintenance purposes. Performing the same survey in 2011 when the gondola will not run at all will provide a more accurate control for hypothesis testing. Unlike 2010, Breckenridge Ski Resort would not help pay for the proposed research costs in 2011.

Questions:

- 1) Is BOSAC supportive of the scope of the wildlife and vegetative monitoring program for 2011?***
- 2) Does BOSAC support adding the "baseline avian monitoring in the gondola corridor" research element?***

EcoMetrics, LLC and Johnson Environmental Consulting, LLC

EcoMetrics, an environmental consulting firm based in Fairplay, CO, submitted a proposal to oversee the water quality element of the 2011 Cucumber Gulch monitoring program. Staff solicited a proposal from EcoMetrics to replace ERO Resources' role for two primary reasons:

1. EcoMetrics' strength is an wetland evaluation (FACwet-
<http://rydberg.biology.colostate.edu/FACWet/>) that provides an overall bill of health, and then prioritizes specific wetland threats and potential responses.
2. EcoMetrics is locally-based and can respond onsite quickly when Cucumber-related issues arise, including significant weather occurrences or maximum snowmelt flows.

EcoMetrics' proposal is divided into three tasks.

Task 1: FACwet Assessment and Plan Development

The first task involves assembling and reviewing all relevant past data and studies, reviewing existing wetlands delineation and fen mapping, geographically dividing the Gulch into separate wetland assessment areas, and using past data and on-site observations to document stressors acting on each assessment area.

Task 2: Implementation and initiation of monitoring in 2011

For this task, EcoMetrics works in the field collecting data to monitor surface and ground waters. They also propose to coordinate with Dr. Carello on wildlife and vegetation monitoring.

Task 3: Wetland Delineation

As the third task, EcoMetrics proposes to conduct a wetland delineation of Cucumber Gulch. They believe a delineation will allow comparisons with past delineations to track changes in wetland size and distribution over time. They also point out the wetland delineation can be conducted while they are in the field conducting other monitoring research. This approach would make a wetland delineation more cost effective now than at a later date. The delineation is considered a one-time cost because once the wetland boundary is fully established, it can be monitored every few years without a complete delineation process. The goal is to set a benchmark, then document changes in the wetland boundary over time, which might indicate threats to wetland health.

Task 1 is the holistic ‘patient assessment’ that will provide an overall bill of health, help refine and streamline the monitoring program, and identify specific wetland threats to be addressed. Task 2 is essentially replacing the water quality monitoring role ERO has played since 2007. Task 3, the proposal to conduct a wetland delineation, was unanticipated, but could provide valuable benchmarking information for measuring the long term growth or contraction of the Cucumber Gulch wetland complex. Staff supports tasks 1 and 2 of Eco Metrics’ proposal and seeks direction from BOSAC regarding a wetland delineation as part of the 2011 monitoring program.

Questions:

- 1) Is BOSAC supportive of switching the water monitoring from ERO Resources to EcoMetrics as outlined above?***
- 2) Does BOSAC support funding the proposed wetland delineation in 2011?***

ERO Resources Corporation

ERO has overseen the Town’s water quality testing in Cucumber Gulch since 2007. This year, ERO scaled down its proposal because Barbara Galloway agreed with staff that 2011 is a good opportunity to enlist a local, holistic and solution-oriented consultant to manage the water quality monitoring program. ERO’s 2011 proposal is somewhat

redundant of EcoMetrics' task 2 proposal, but does not include the data collection, digging of datalogging wells, or "on-call" elements. In 2009 and 2010, annual consulting costs for ERO's water quality monitoring averaged \$23,000. Staff believes that ERO can play a positive role by helping update EcoMetrics on the previous Cucumber Gulch data. ERO has also offered to also continue housing the water quality database, at least for 2011, until another entity (the Town or EcoMetrics) could assume that role.

Staff recommends limiting ERO's consulting role to transitional duties, including providing all pertinent data to EcoMetrics and transferring the database within a reasonable timeframe so that the data is housed with the Town and EcoMetrics.

Question:

1. Is BOSAC comfortable reducing ERO's role as outlined above?

2011 Monitoring Budget

Based on BOSAC's monitoring recommendations, Town Council earmarked a budget of \$80,000 for 2011 efforts (\$70,000, same as previous year's budget, plus an additional \$10,000 specifically focused on human/wildlife trail impacts). The total cost of Dr. Carello's recommended services is \$56,836 and the total cost for EcoMetrics' tasks 1 & 2 is \$31,350. The cost of these services total \$88,186, \$8,186 over what was budgeted for 2011. If the wetland delineation is recommended, the total cost is raised to \$106,446, \$26,446 over budget. Any transitional role played by ERO would also have to be included in the budget, and would likely be less than \$2,000.

Approximately \$30,584 of the expenses listed above are associated with one-time or periodic costs. Of these one-time costs, \$8,664 is budgeted in Dr. Carello's proposal for additional motion sensing camera equipment for the wildlife/trail impact study. The purchase of this additional equipment will help provide additional data for at least ten years. In Eco Metrics' proposal, the entire cost of task 1 (\$16,720) is a one-time cost for assembling and reviewing relevant past water quality data and completing the Cucumber Gulch FACwet assessment. Staff believes that the FACwet assessment will provide a holistic, systems level evaluation of the wetlands in Cucumber Gulch Preserve. Also, in task 2 of Eco Metrics' proposal (annual monitoring and reporting), there is a one-time cost of \$3,200 for digging new datalogging wells necessary to implement the water quality testing program.

The proposed wetland delineation being considered (task 3- \$18,260) is not proposed to be an annual study. Rather, once the wetland boundary is defined, that boundary can be monitored for change without the same level of analysis as required for a full delineation. Finally, the \$2,000 for ERO's transitional role would not be repeated in future years.

Given the gap between the 2011 budget, the proposals, and the monitoring options staff seeks BOSAC direction prior to presenting the monitoring proposals to Council.

Questions:

- 1) *Does BOSAC support the additional funding request, including the one-time costs, to improve the Cucumber Gulch monitoring program?*
- 2) *What other recommendations regarding the Cucumber Gulch Preserve monitoring program does BOSAC have for Council's consideration?*

Department of Justice/ Americans with Disabilities Act Trail Evaluation

Recently, the U.S. Department of Justice (DOJ) issued a ruling on “nondiscrimination on the basis of disability in state and local government services”. This ruling requires the Town and other municipalities to:

1. Allow individuals with mobility disabilities to use wheelchairs and manually powered mobility aids in any areas open to pedestrian use.
2. Make reasonable modifications to its policies, practices and procedures to permit the use of other power-driven mobility devices (OPDMD) by individuals with mobility disabilities. Exceptions to the power-driven mobility device directive must be based on assessment factors that the DOJ provided.

Based on this directive, staff has been working cooperatively with Summit County Government to assess all Town-managed and joint Town-County managed trails and roads for compliance with this ruling. Attached are the results of that analysis, which was developed in time to meet the 3/15/11 deadline set by the DOJ.

Please review the attached analysis and provide any general feedback regarding staff's work on this project.

Questions:

- 1) *Does BOSAC agree with the Assessment Factors table outlining the evaluation process used by staff?*
- 2) *Does BOSAC agree with the table that analyzes each individual trail in the Town's system?*

Roll Call

Jeff Cospolich called the February 28, 2011 BOSAC meeting to order at 5:33 pm. Other BOSAC members present included Scott Yule, and Devon O'Neil. Erin Hunter arrived at 5:43. Staff members present were Scott Reid, Peter Grosshuesch, Chris Kulick, Mike Barney and Mark Truckey. Brian Lorch from Summit County and Turk Montepare were also present.

Approval of Minutes

The minutes were approved as presented.

Approval of Agenda

The agenda was approved as presented

Public Comments

There were no public comments.

Staff Summary

Cucumber Gulch Nighttime Operations

Staff summarized that the Daytons agreed to Council's conditions for conducting nighttime snowshoe tours. So far only six tours have been booked this year.

Mr. Cospolich: Is Josie's cabin in good shape or has it been vandalized again?

Mr. Reid: Yes it is in good shape with no recent vandalism. We will install a combination lock to better secure the cabin after hours.

Mr. Truckey: Council also expressed some concern about nighttime skiers in Cucumber Gulch Preserve.

Mr. Cospolich: Did you get a sense that the night time snowshoeing operation was below the Dayton's expectations in terms of interest?

Mr. Reid: The Daytons have stated that they like to offer a full entrée of options at the Nordic center, and don't expect this program to ever attract huge participation.

Open Space and Trails

Forest Health Update

Staff outlined the progress that has occurred in since 2008 regarding forest health and mountain pine beetle management on open space parcels. Town had completed work on most of the recommended parcels and is on the verge of meeting the "three year" goal. By the end of 2011, 95 percent of the work outlined in the 2008 plan will have been completed. Additional work will occur this year in the Golden Horseshoe. Much of the work completed thus far has been grant funded and the 2011 grant application has been submitted. This year's cuts will be very visible and are intended to improve forest health and establish a functional fuel brake with other work already completed and scheduled. Part of the goal is to prevent a fire from the backcountry spreading to the populated areas and vice versa.

Mr. Cospolich: Where exactly are the Detroit Placer and Trapper's Glen cuts?

Mr. Reid: The Detroit Placer cut includes the power line chipping that was done last year by Xcel and was planned to include the power line cut. The Trapper's Glen cut is just below the ski area maintenance building.

Mr. Truckey: To clarify, Dry Gulch is our property just above John Cooney's property.

Mr. Yule: Who are we contracting for these cuts?

Mr. Reid: Due to the scale of these properties we likely need a large scale logger. Many local contractors may not have the capacity for a project of this scale. We are hoping for a cost savings per acre due to the size of the job.

Mr. Montepare: Who does Vail Resorts use for the massive clearings like the ski runs on Peak 7 (No one knew the answer to this question.

Mr. Lorch: At the Mesa Cortina parcel we contracted a larger scale operation similar to what VR has historically used.

Mr. Cospolich: This is all under the forest treatment line item in the pro-forma?

Mr. Truckey: Yes, a good portion of the money we are spending for these treatments is getting reimbursed back through grants.

Mr. Reid: Most of these grants are funded through the State. However, this funding may dry up quickly due to budget cuts at the State level.

Mr. Yule: What kind of calls or complaints are we getting due to these types of cuts?

Mr. Reid: We are getting all types of responses, good and bad. Overall we have not received as many responses as you would expect. I think people are starting to better understand that we are trying to manage a forest in transition.

Trail Use Data

Staff explained that Tony Overlock put the trail data together with graphic aids. Staff outlined where the various counters are located and the use patterns of the various trails. Staff emphasized that it is important to count the number of passes rather than the number of individual users. The biggest usage numbers are at the Peabody trailhead. Additionally both Sallie Barber & B&B Trails are getting a lot of use. B&B use has grown from last year.

Mr. O'Neil: Where is the Sallie Barber counter located?

Mr. Reid: At the gate on the Lincoln Townsite side.

Mr. Cospolich: Are all the counters being used?

Mr. Reid: Yes, they are all in use but will all be relocated to Cucumber Gulch this summer. We could use more counters to better see year to year change in usage. Counts provide useful information for management, grant writing, etc.

Pro Forma

We have to be conservative with acquisitions going forward in 2011. We have less than \$330,000 budgeted in acquisitions for 2011. The MBJ acquisition is absorbed into the pro-forma, if we put the Wedge back in the pro-forma it will put us deep into the negative. However, if the Wedge and Claimjumper become available, the Council may decide to loan the open space fund money from a different Town fund. Looking to the future we can adjust the pro-forma to decrease anticipated forest health costs. However, an increase in clean-up costs at the B&B parcel is also expected. In the future, we may have to establish a special fund to pay for replacement costs for the treatment plant.

Mr. Montepare: Is the plant producing any positive results? Could we shut the plant down if we continue to not see any positive results?

Mr. Reid: It is functioning as expected so far, but we are still working within the EPA's performance period. We will have to see how well it functions over time, then discuss any potential operational changes with the EPA. Most likely, there are other sources of heavy metals in the drainage that are also going into French Creek.

Mr. Truckey: Overall, the current pro-forma is good shape for the next ten years.

Ms. Hunter: Are we getting a good interest rate on ours notes?

Mr. Montepare: Tim Gagen watches those rates like a hawk; we have good interest rates on our notes.

Mr. Cospolich: Looks like there is place holder for the Wellington Bridge.

Mr. Reid: We were going to delay any construction or even discussion of the Wellington Bridge until more of the Wellington Neighborhood units are constructed.

Executive Session

Devon O'Neil motioned to enter into Executive Session to discuss property acquisition. Mr. Yule seconded the motion. The motion passed unanimously. BOSAC entered into Executive Session at 6:22 pm. Ms. Hunter made a motion to exit Executive Session; Mr. Cospolich seconded the motion. BOSAC came out of Executive Session at 7:00 pm.

Commissioner Issues

Mr. Reid: Tim Gagen has requested BOSAC look at big picture items instead of airing commissioner issues at the end of BOSAC meetings. If the commissioners have issues in the future, please contact staff directly. Staff will either handle the issue, or schedule it on the agenda for a future BOSAC discussion.

Next Meeting

The next regularly scheduled meeting is on March 21, 2011 at 5:30 pm in the Administrative Conference Room in the Breckenridge Town Hall (150 Ski Hill Road).

Mr. Yule motioned to adjourn the meeting and Mr. O'Neil seconded. The meeting was adjourned at 7:05 p.m.

Jeff Cospolich, Vice Chair

Trail Traffic Counts

2011/2010 February 14th-March14th

Town of Breckenridge Open Space and Trails

The tables below display total traffic counts on monitored routes with number of days with data and average counts per day. Table 1 and Table 2 compare the 2010 and 2011 events that occurred between February 14th and March 14th.

Table 1 2011

<u>Site Name</u>	<u>Number of Counts</u>	<u>Days with Data</u>	<u>Average Counts per Day</u>
Gold Run Road	2323	29	80
Peabody Trailhead	1972	29	68
HooDoo VooDoo Exit*	306	29	11
Sallie Barber	1654	29	57
B&B Trail	899	29	31

*One way Trail

Table2. 2010

<u>Site Name</u>	<u>Number of Counts</u>	<u>Days with Data</u>	<u>Average Counts per Day</u>
Gold Run Road #1	2079	29	72
Gold Run #2	1338	19	70
HooDoo VooDoo Exit*	198	18	11
Sallie Barber	1262	29	44
B&B Trail #1	955	26	36
B&B Trail #2	899	29	31

*One way Trail

Chart 1-4: Compares the 2010 and 2011 events that occurred at a particular site from February 14th-March14th.

Chart 1: Gold Run Road

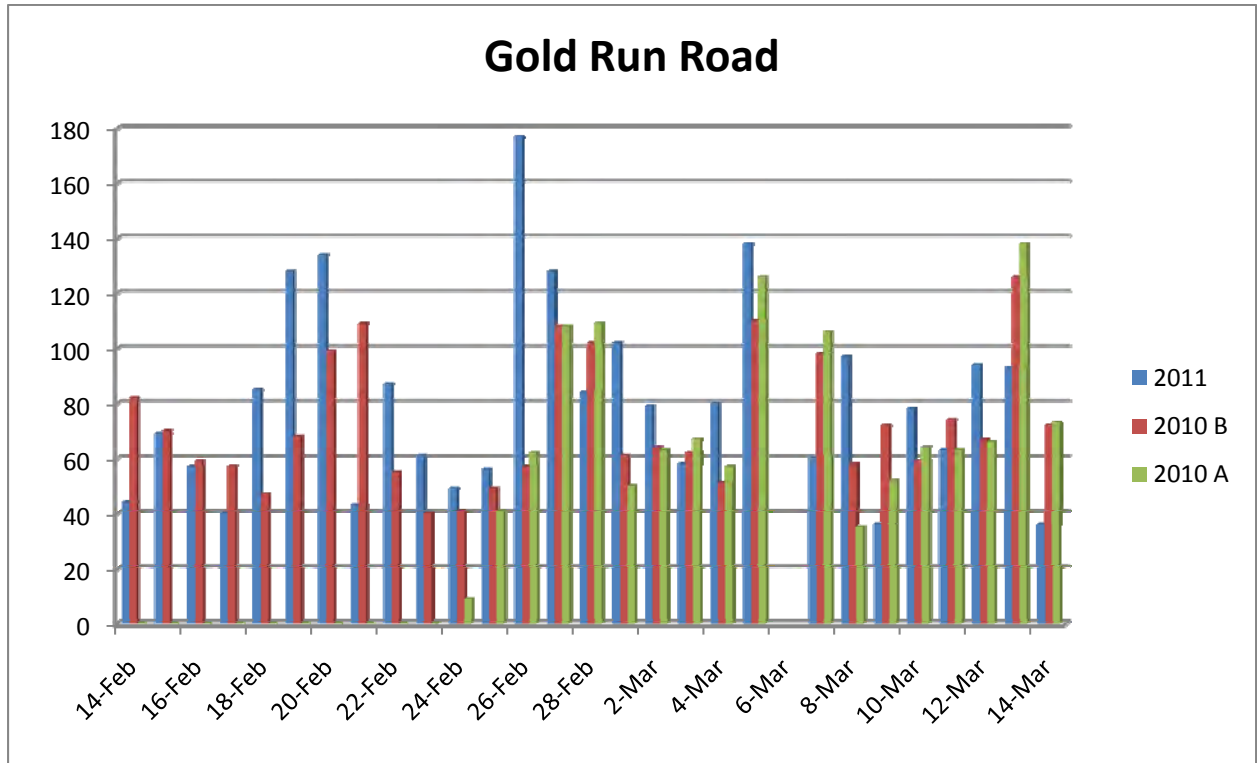
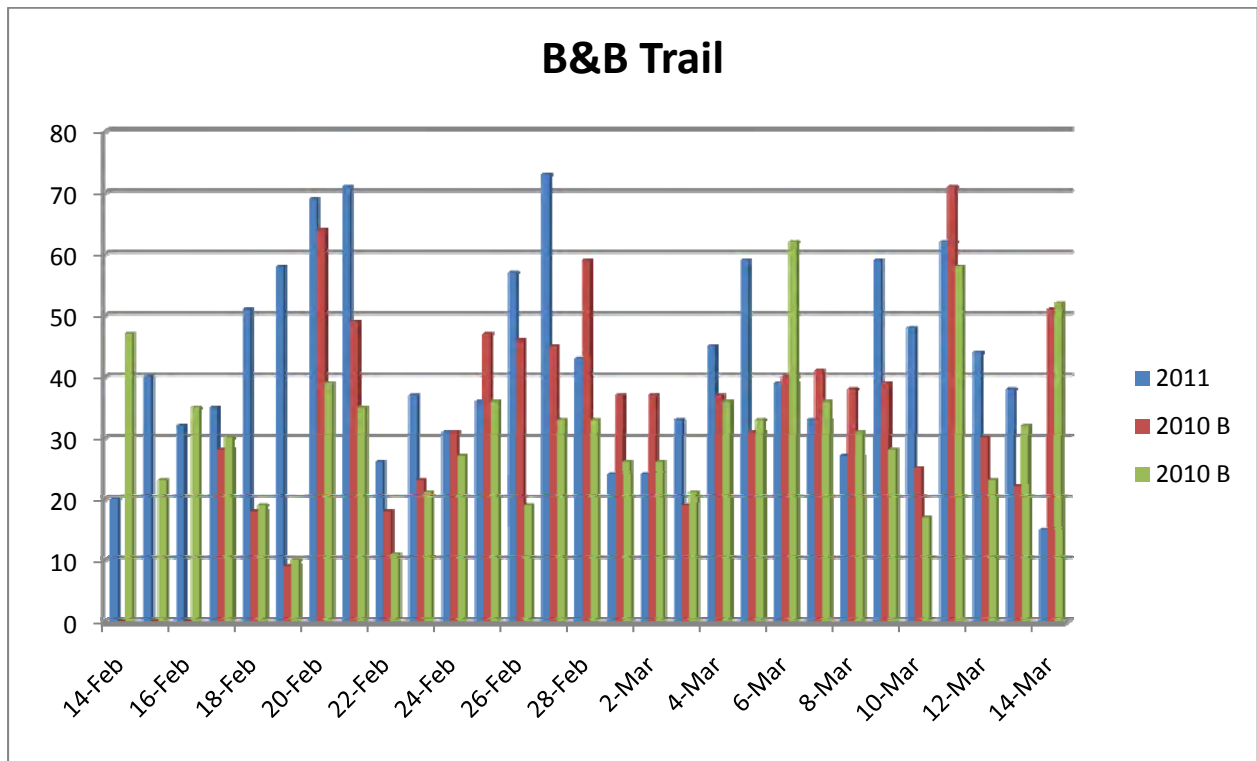


Chart2: B&B Trail



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Chart: 3 Sallie Barber Road

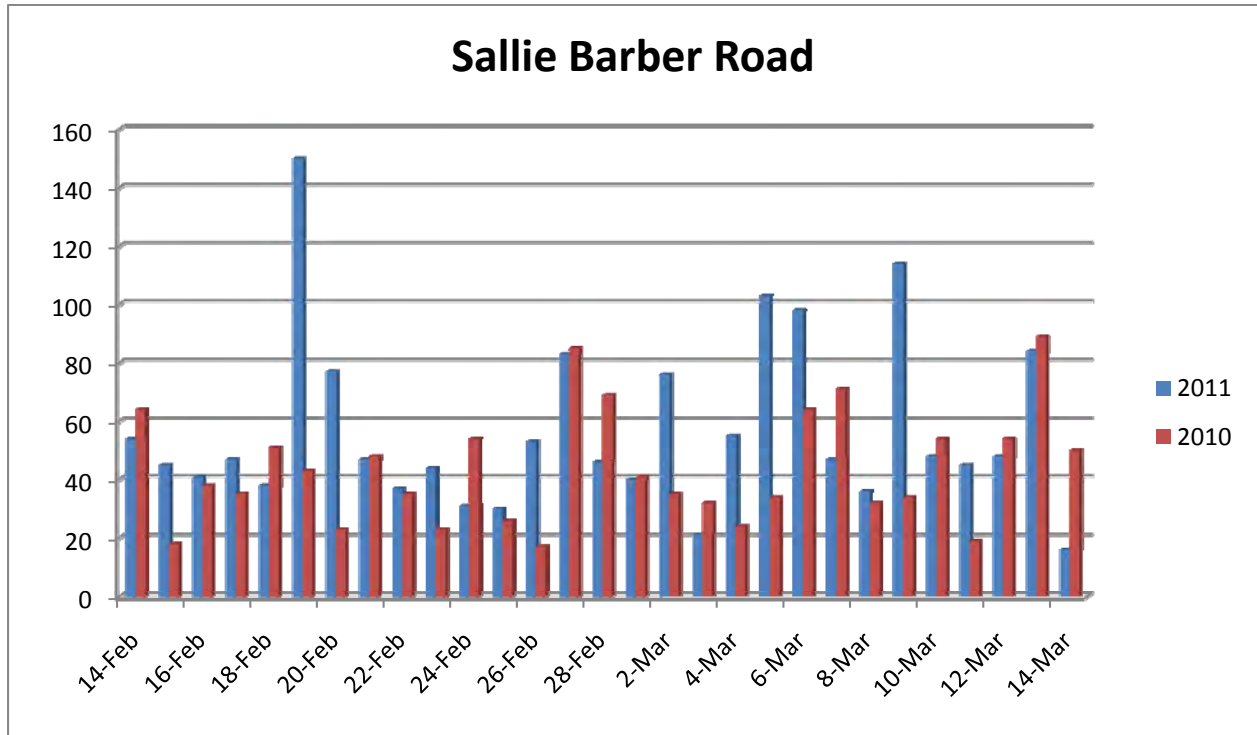
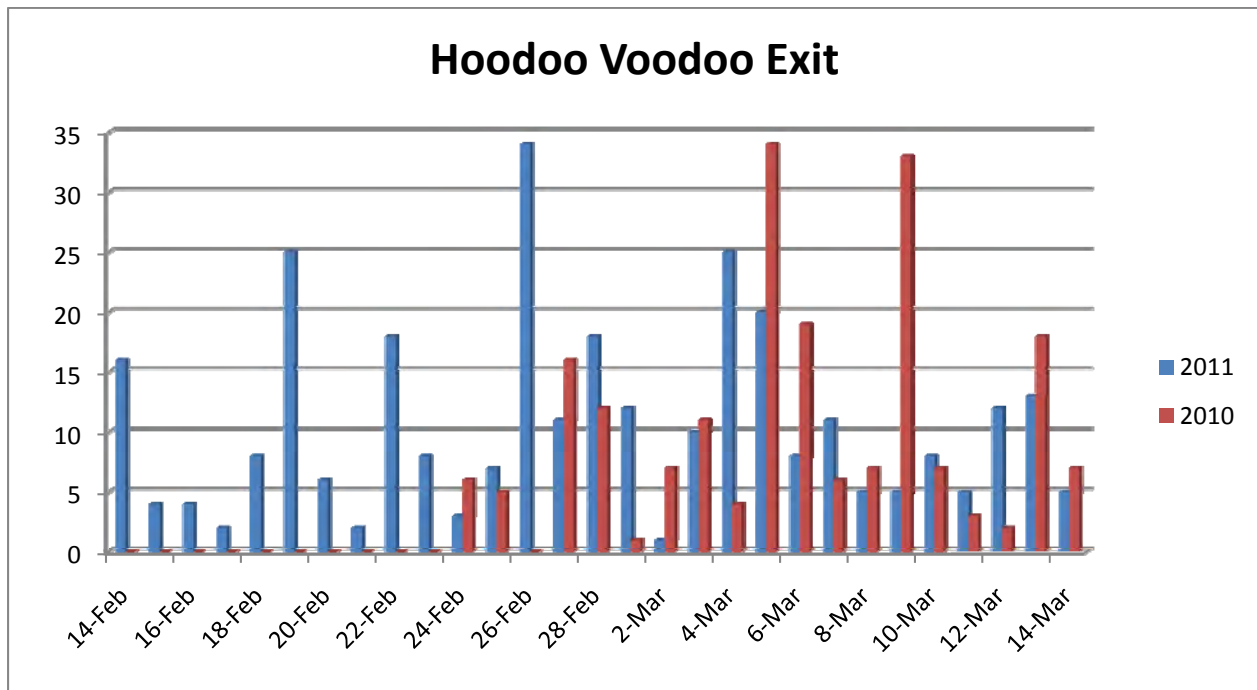


Chart 4: Hoodoo Voodoo Exit



*The 2010 traffic data that occurred from February 14th-24th were skewed and event totals for that day were replaced with zeros.

Proposed Cucumber Gulch Management Plan outline:

I. INTRODUCTION

- A. Executive Summary
- B. Purpose of the Management Plan
- C. History of Cucumber Gulch Preserve
- D. Management Objectives

II. PROPERTY DESCRIPTION

- A. Location and Regional Context
- B. Property Boundaries and Adjacent Land Uses
- C. Existing Public Use Features

III. STEWARDSHIP ISSUES

- A. Protection of Sensitive Habitat
- B. Minimizing Impacts of Public Access
- C. Determining Low Intensity Uses
- D. Interface with Adjacent Development

IV. USE OBJECTIVES & IMPLEMENTATION

- A. Resource Protection
- B. Public Access

V. MANAGEMENT POLICY

VI. ACKNOWLEDGEMENTS

VII. APPENDIX

Christy Carello PhD(\$), Audrey Hoffa Eric Thomas Catherine Kleier PhD Nels Gervstad PhD (\$ Total

Avian Population Monitoring					
Monthly May-	48	24	48		5040
Dusk Survey	12	12	12		1440
Data Analysis	12		6		960
Owl Surveys	12		12		1080
Data Analysis	2		1	5	460
Avian Total					8980

Amphibia					
June-August	4		12		520
Data Analysis	2				140
Amphibia Total					660

Beaver Lodge Survey					
Field Observa	6		6		540
Analysis	2		2		180
Beaver Lodge Total					720

Vegetation Analysis					
Field survey (16	16	25	20	3300
Data Analysis	4		4	5	660
Vegetation Total					3960

Weed Survey					
Iventory (Jun	6			6	780
Research and	2			3	320
Data Analysis	2				140
Weed Total					1240

Willow Exclosure					
Exclosure con	16	8	16	16	2640
Field Measure	8	8		8	1280
data analysis				5	600
Willow Total				5	4520

Photo documentation					
Field work (M	6				420
Photo Organiz	3				210
Photos documentation total					630

Existing Motion sensor cameras (5 original cameras in place throughout year)

Field mainten	30	30	2700
Photo Organiz	10	40	1900
Motion sensor camera total			4600

Community Outreach

Town Meeting	12		840
Public Educati	6		420
Community Total			1260

Water Quality Sampling

Bottle and eq	3	3	270
Field sampling	14	35	1680
Total Water			1950

NEW: impact of trail recreation on wildlife

Avian Point cc	10	10	20	1400
Scoping for ca	4		4	360
Camera config	10		10	900
Camera main	12		32	1480
Data Manager	4		16	600
Data Analysis	4			880
			10	
Total trail impacts				5620

Baseline Avian monitoring in the gondola cooridor

Avian Point C	20	20	40	2800
Data Manager	4			280
Data Analysis				420
			7	
Total gondola monitoring				3500

Report Preparation

Report Prep	110	30	5	8625
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Total Direct Costs				46,265.00
Indirect Costs (administrative costs)				4,626.50
Batteries				500.00
exclosure construction supplies				1,000.00
New Camera costs				8,664.00

Total Monitoring Costs 61055.50

Proposal for the assessment, delineation, and continued monitoring of Cucumber Gulch Wetlands

for: Town of Breckenridge

by: EcoMetrics, LLC and Johnson Environmental Consulting, LLC

date: March 16, 2011

To aid the management and protection of Cucumber Gulch Wetlands, the Town of Breckenridge has been carefully monitoring wildlife, habitat, and other indicators of ecological health. We propose to integrate the results of monitoring efforts to date with new observations of other ecological driving factors and impacts to complete a broad-scoped holistic assessment of wetland function for Cucumber Gulch. The purpose of an assessment of this type is to make an appraisal of the overall ecological health of the system and to identify past, present, and future threats so that these may be better managed. We agree with the Town that an overarching broad-scope assessment of the system is especially useful at this time as it provides a context, or framework, for applying the results of past and future monitoring efforts, assuring that these efforts are appropriately interpreted in terms of impacts that can be managed.

Our proposal for the functional assessment of Cucumber Gulch Wetlands consists of three tasks. A detailed description of each task and a proposed budget are provided in appendices 1-3: **(1) Functional assessment** using the FACWet protocol to systematically evaluate of 9 state variables and 7 specific wetland functions based on the nature of human impacts, **(2) Continued monitoring**, and **(3) Delineation** of the wetland boundaries and identification of individual assessment areas according to USACE guidelines for jurisdictional wetlands. Monitoring in 2011 should involve continuation of the ongoing wildlife, vegetation and habitat studies by Christy Carello and her crew. We propose that EcoMetrics and JEC work with ERO and Dr. Carello to take over water quality and hydrology aspects of monitoring. The results from all of these studies would be synthesized in a report that culminates in a set of recommendations for management actions and for refining future monitoring efforts.

Our proposed strategy is best understood with an analogy from the medical field. The assessment phase is basically like a thorough physical exam. By reviewing past medical records and making specific observations (signs, symptoms, etc.), the doctor can make a pretty good assessment of a person's overall health and identify a list of specific health risks. The physician's assessment of risks is the basis for helping that person maintain his or her health through prescriptions or treatments (direct management), knowing what specific activities to limit or avoid (regulation), and what things to keep an eye on (monitoring). Similarly, we feel that a systematic functional assessment of the Cucumber Gulch Wetland is valuable for making appropriate management or regulatory recommendations and to customize an efficient monitoring program that tracks the right parameters.

Our initial impression is that Cucumber Gulch is generally in good health but that it has specific acute risks resulting, primarily, from upstream development that is either already built or is planned. Our assessment will show clearly what those risks are and how they relate to overall health and functioning of the system. Based on this, we will identify specific management priorities as well as which

parameters need to be carefully monitored to determine whether regulatory criteria are being met, whether wetland health is being maintained, or whether management or direct intervention is necessary. Specifically, we are aware of water quality issues identified by ERO such as elevated salt concentrations and possible water source issues that may directly affect wetland function. In the assessment phase, we will focus on identifying the sources of these known impacts and finding practical solutions for addressing them.

We understand the importance of maintaining continuity with previous and existing monitoring efforts. Still, we suspect that significant portions of the wetland monitoring program can eventually be streamlined while still achieving all programmatic goals. By identifying the important impacts and threats, the program can take on a more pro-active and problem-oriented role towards management and monitoring. Our philosophy is that for every measurement that involves significant effort or expense, there should be a specific hypothesis to test and a direct management application or desired outcome.

Cost and contracting

Our typical approach on complex projects such as this, is to work on a “time and materials” basis within an agreed-upon “not-to-exceed” budget. Total project expenditures would not exceed these budgets without written authorization from the Town. We acknowledge that in order to successfully execute such programs, task descriptions must be reactive and adapted to the circumstances as encountered during project execution. In this regard, our approach emphasizes flexibility which allows the Town to provide continual direction and to incorporate adaptive management recommendations into the program.

EcoMetrics would be the primary contractor with the Town of Breckenridge, and JEC would be a sub-contractor to EcoMetrics. Our fee schedule is outlined below:

Dr. Brad Johnson, PhD, Senior scientist	\$ 110/hr
Mark Beardsley, M.S., Senior scientist	\$ 90/hr
Jessica Doran, B.S., Ecological technician	\$ 70/hr
Per diem/travel*	\$ 100/day (prorated for non-overnight) \$ 0.50/mile
Indirect Costs	10% of direct costs

**Per diem applies to site visits by Brad Johnson. Mark and Jessica are local, so per diem does not apply.*

The assessment and delineation tasks (1 and 3) are essentially one-time costs since these activities would not have to be repeated regularly. Continued monitoring (task 2) includes both one-time costs for additional monitoring equipment and annual costs as part of the existing monitoring program.

Appendix 1: Functional assessment using FACWet

1. Background and familiarization
 - 1.1. Assemble and review all relevant past data and studies.
2. FACWet assessment
 - 2.1. Document stressors acting on each Assessment Area (AA) - use past data in conjunction with remote and on-site observations to document extent and severity.
 - 2.2. Assess state variables for each AA - apply existing data and on-site observations
 - 2.2.1. Habitat connectivity - neighboring wetland habitat loss
 - 2.2.2. Habitat connectivity - migration/dispersal barriers
 - 2.2.3. Buffer capacity
 - 2.2.4. Water source
 - 2.2.5. Water distribution
 - 2.2.6. Water outflow
 - 2.2.7. Chemical environment
 - 2.2.8. Geomorphology
 - 2.2.9. Vegetation structure
 - 2.3. Score wetland functionality by AA
 - 2.3.1. Support of characteristic wildlife habitat
 - 2.3.2. Support of characteristic fish/aquatic habitat
 - 2.3.3. Flood attenuation
 - 2.3.4. Short- and long-term water storage
 - 2.3.5. Water quality
 - 2.3.6. Sediment retention/shoreline or bank stability
 - 2.3.7. Production/food web support

Dr. Brad Johnson, PhD, Senior scientist	60 hr	\$ 110/hr	\$6,600
Mark Beardsley, M.S., Senior scientist	60 hr	\$ 90/hr	\$5,400
Jessica Doran, B.S., Ecological technician	30 hr	\$ 70/hr	\$2100
Per diem/travel	6 day 1000 mi	\$ 100/day \$ 0.50/mile	\$ 600 \$ 500
Total Direct Costs			\$15,200
Indirect Costs	10% of direct costs		\$1,520
Total estimate			\$16,720

Appendix 2: Monitoring and reporting

1. Data collection - Specific parameters, locations, and frequency of measurements would be determined in the assessment phase. Some monitoring activities that are likely to be prescribed are outlined below.
 - 1.1. Approximately 5 routine site visits by a senior scientist or technician to document direct observations specific impacts
 - 1.2. Hydrograph monitoring by Tetrattech supplemented by datalogging shallow groundwater wells in strategic locations
 - 1.3. Water quality lab samples from select existing locations for laboratory analysis of important salts and/or metals
2. Database/archiving - Quantitative data would be organized and stored in spreadsheets for ease of use.
3. Reporting – Monitoring results will be summarized along with delineation and assessment results in one overall report. Beyond simple data and results, our reports focus on analysis and implications of the data towards specific management activity.
4. Consultation - The ultimate goal of this program is for the Town to have access to the information necessary to manage and maintain the health of Cucumber Gulch. For this reason, we would remain "on-call" to explain results, to address specific concerns, or to testify directly on your behalf.

This budget includes estimated labor costs and on-time costs for installing four datalogging wells and interface. The labor costs are primarily for analysis and generating the annual report. Most monitoring site visits can be accomplished while on site for the delineation and assessment tasks.

Brad Johnson, Ph.D., P.W.S. Senior scientist	20 hr	\$ 110/hr	\$2,200
Mark Beardsley, M.S., Senior scientist	20 hr	\$ 90/hr	\$1,800
Jessica Doran, B.S., Ecological technician	30 hr	\$ 70/hr	\$2,100
Per diem/travel	0 day 0 mi	\$ 100/day \$ 0.50/mile	\$ 0 \$ 0
Datalogging wells	4 new wells	\$ 800 ea.	\$ 3,200
Lab analysis	2 sample events	\$ 2,000 ea.	\$ 4,000
Total Direct Costs			\$13,300
Indirect Costs (10% direct costs)			\$ 1,330
Estimated cost			\$14,630

Appendix 3: Delineation and identification of assessment areas

We understand that all, or portions, of the Cucumber Gulch wetland boundary has been previously mapped. There are a number of advantages to mapping wetland boundaries at this point.

- Many of the requirements of mapping overlap those of functional assessment. Carrying out both tasks at once is probably about 70% more efficient than completing the tasks on an individual basis.
- To the extent that historical mapping data are available, boundaries can be compared to identify changes in wetland extent over time. Such changes can then be attributed to specific natural or human-induced causes.
- If historical mapping is limited or non-existent, boundary mapping would provide an extremely important benchmark for future comparisons.

Brad Johnson, Ph.D., P.W.S. Senior scientist	70 hr	\$ 110/hr	\$7,700
Mark Beardsley, M.S., Senior scientist	50 hr	\$ 90/hr	\$4,500
Jessica Doran, B.S., Ecological technician	50 hr	\$ 70/hr	\$3,500
Per diem/travel	5 day 600 mi	\$ 100/day \$ 0.50/mile	\$ 500 \$ 300
Supplies (misc.)		\$100	\$100
Total Direct Costs			\$16,600
Indirect Costs (10% direct costs)			\$1,660
Approximate predicted cost			\$18,260



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February 18, 2011

To: Scott Reid, Town of Breckenridge

From: Barbara Galloway, ERO Resources Corporation

Subject: Approach to Addressing Water Quality Issues in Cucumber Gulch in 2011

As discussed with you by telephone recently, and in the 2010 Cucumber Gulch Annual Conservation Monitoring Report, the previous few years of water quality monitoring at Cucumber Gulch have shown that certain areas within the Gulch are being impacted by human activities outside the Gulch. The most significant issue is the increasing salt concentrations that have been occurring in 2008 through 2010 at a few locations. Other issues include reduced ground water levels, turbidity, metal concentrations that occasionally exceed water quality standards, and phosphorus concentrations that exceed EPA's recommended limit for phosphorus in streams. The consequences of degraded surface and/or ground water quality or reduction in water supply in Cucumber Gulch are a decline in species diversity and a reduction in the health of the floral and faunal communities in Cucumber Gulch.

Due to the desire by the Town of Breckenridge to maintain the ecological integrity of Cucumber Gulch and, therefore, eliminate the sources of water quality contamination to the Gulch, as well as prevent any possible surface or ground water supply reductions to the Gulch, additional on-site investigations are needed. It is recommended to continue monitoring existing sites to provide a long-term history of water quality changes in the Gulch, but also to begin monitoring surface runoff entering the Gulch and monitor fen wetlands of particular concern to try to determine the source of the contaminants entering the Gulch via untreated runoff from developed areas. One known source is the water entering the Gulch below the Peak 7 retention ponds, which can be eliminated by installing permanent BMPs below the ponds, such as a vegetated berm, that would prevent this water from flowing into the Gulch.

ERO understands that it will be important to have a hydrologist/water quality specialist located nearby who can quickly access the Cucumber Gulch area during runoff events (snowmelt and large summer storms) to document and sample runoff directly entering the Gulch at various locations that may be potentially laden with sediment or other contaminants. This person would also complete the long-term surface and ground water quality sampling at existing sites in the Gulch, and evaluate potential new sites to monitor at fen wetlands of particular concern. In addition, this person should be present to observe any human activities that might be affecting or could affect the Gulch, such as the new building at Peak 7. This person also would attend any meetings with the Town of Breckenridge to address water quality and water supply issues and concerns. Mark Beardsley with Ecometrics, who resides in Fairplay, appears to be a good candidate to fill this role. ERO does not know of any other nearby hydrologists/water quality experts other than staff at Tetra Tech in Breckenridge, who currently are employed by Vail Associates in a similar role.

In 2011, ERO believes that its role should be to assist in addressing water quality/supply issues in Cucumber Gulch as follows:

- Oversee the surface and ground water sampling events, coordinate with the laboratory, review the data results, and notify the Town of any immediate concerns;
- Manage the water quality database and update it as new data are received, including data from Tetra Tech (Peak 7 and 8 monitoring);
- Provide the updated database to the Town at the end of 2011 in pdf format (this format was agreed upon previously by the Town, but can be changed if requested);
- Assist with preparation of the 2011 Cucumber Gulch Annual Conservation Monitoring Report; and
- Provide recommendations for protecting the Gulch.

ERO's estimated labor costs are \$6,000 for 2011, and the estimated per sample event laboratory cost is \$2,500. This includes analyses for nitrogen, phosphorus, suspended solids, hardness, sodium, chloride, calcium, magnesium, copper, lead and zinc at 7 surface water and 4 ground water sites. ERO has a long history of working with Accutest Laboratory on this and other projects, and would work with the lab to ensure a high level of quality assurance/quality control of the water quality results. In addition, if the Town of Breckenridge decides that it would like to install monitoring wells in new locations at fen wetlands of particular concern, ERO has expertise in hand-installing wells within wetlands in a manner that would prevent disturbance of the wetland soil and vegetation (and thus prevent the need for permitting by the USACOE). The installation of these wells, which would be about 3 feet deep, could be completed in one day. If requested, ERO can provide a cost for materials and labor to install these wells.

Trail Name	Assessment Factors					Comments/ Notes/ Rationale	Assessment (PDMD Allowed)
	i	ii	iii	iv	v		
B&B Trail	x		x	x	x	18 + inch tread surface, accesses cultural sites	Type I
Barney Ford	x		x	x	x	18 inch tread surface, portion of trail on USFS where TMP is non-motorized.	Type I
Betty's Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
B-Line	x		x	x	x	18 inch tread surface, narrow corridor, technical trail features that narrow to 8 inches	Type I
Blue River Recpath	x	x	x	x	x	All uses currently allowed	Type I and Type III
Bonanza	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Carter Park	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Columbine	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Corkscrew	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Discovery Ridge	x		x	x	x	18 inch tread surface, narrow corridor	Type I
F&D Placer	x		x	x	x	36 inch crusher fines tread surface. ADA access through out. erodible surface adjacent to wetlands	Type I and Type III
Four O'clock	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Freeride Park	x		x	x	x	18 inch tread surface, narrow corridor, technical trail features that narrow to 8 inches	Type I
French Creek	x		x	x	x	36 inch crusher fines tread surface. ADA access through out. erodible surface adjacent to wetlands	Type I and Type III
Gold Digger	x		x	x	x	18 inch tread surface, wetlands adjacent	Type I
Hermit Placer	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Illinois Creek	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Iowa Hill	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Jack's Cruel Joke	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Lincoln Trail	x		x	x	x	Narrow staircase	Type I
Lower Flume	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Main Street Junction	x		x	x	x	36 inch crusher fines tread surface. ADA access through out. Erodible surface.	Type I

Middle Flume	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Mike's Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Minnie Mine	x		x	x	x	18 inch tread surface, narrow corridor, accesses cultural sites	Type I
Moonstone	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Morning Thunder	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Nightmare on Baldy	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Peaks Connect	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Pence Miller	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Pump Track	x		x	x	x	18 inch tread surface, wetlands adjacent	Type I
Reiling Dredge	x		x	x	x	36 inch crusher fines tread surface. ADA access to viewing platform	Type I and Type III
Reservoir	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
River Trail	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Sawmill	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Select 10	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Shock Hill	x		x	x	x	18 inch tread surface, wetlands adjacent	Type I
Ski Hill Road Recpath	x		x	x	x	All uses currently allowed	Type I and Type III
Southside	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Sunbeam	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Toad Alley	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Tom's Baby	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Troll Forest	x		x	x	x	18 inch tread surface	Type I
Turk's Trail	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Upper Flume	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Vista Point	x		x	x	x	36 inch crusher fines tread surface. ADA access through out. Erodible surface.	Type I and Type III
Warrior's Mark	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Washington Trail	x		x	x	x	Staircase. Crusher fine trail tread. Erodible surface.	Type I
X10U8	x		x	x	x	18 inch tread surface, narrow corridor, accesses cultural sites	Type I

TRAIL NAME	i	ii	iii	iv	v	COMMENTS/ASSESSMENT/RATIONAL NOTES	ASSESSMENT
Little Corporal Trail	x		x	x	x	Short section (~80 ft) of 18 inch trail SCG/TOB, majority of trail is on NF land-motor vehicles prohibited.	Type I
Fall Classic Trail	x		x	x	x	18 inch tread surface, trail passes through USFS where TMP is nonmotorized. Narrow corridor with natural obstructions.	Type I
Sisler Trail	x		x	x	x	18 inch tread surface, trail passes through USFS where TMP is nonmotorized. Narrow corridor with natural obstructions.	Type I
Fuller Trail	x		x	x	x	18-30 inch tread surface, section of trail is on USFS where TMP is dirt bike, narrow corridor with natural obstructions.	Type I and Type II
Last Chance Trail	x		x	x	x	18-30 inch tread surface, section of trail is on USFS where TMP is dirt bike, narrow corridor with natural obstructions.	Type I and Type II
Half Pipe Trail	x		x	x	x	18-30 inch tread surface, section of trail is on USFS where TMP is dirt bike, narrow corridor with natural obstructions.	Type I and Type II
Governor King Trail	x		x	x	x	18-30 inch tread surface, section of trail is on USFS where TMP is dirt bike, narrow corridor with natural obstructions.	Type I and Type II
Wire Patch Loop Trail	x		x	x	x	18-30 inch tread surface, section of trail is on USFS where TMP is dirt bike, narrow corridor with natural obstructions.	Type I and Type II
Slalom Singletrack Trail	x		x	x	x	Short section (~80 ft) of 18 inch trail SCG/TOB, majority of trail is on NF land-motor vehicles prohibited.	Type I
Barney Ford Trail	x		x	x	x	18 inch tread surface, portion of trail on USFS where TMP is nonmotorized.	Type I
Little French Flume Trail	x		x	x	x	18 inch tread surface, narrow corridor, trail starts and ends on USFS where TMP is nonmotorized.	Type I
Middle Flume Trail	x		x	x	b	18 inch tread surface, narrow corridor,	Type I
Toxic Forest Trail	x		x	x	x	18 inch tread surface, majority of trail is on USFS where TMP is nonmotorized.	Type I
B&B Trail	x		x	x	ab	18 + inch tread surface, accesses cultural sites	Type I
Reiling Dredge Trail	x		x	x	ab	36 inch crusher fines tread surface. ADA access to viewing platform	Type I and Type III
X10U8	x		x	x	ab	18 inch tread surface, accesses cultural sites, narrow corridor	Type I
Minnie Mine	x		x	x	ab	18 inch tread surface, accesses cultural sites, narrow corridor	Type I
Nightmare on Baldy	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Doig Meadow	x		x	x	x	18 inch tread surface in critical wildlife range/habitat	
Straight Creek	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Lillie Pad Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Forest Park	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Old Keystone Golf Course	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Soda Creek	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Whispering Pines	x		x	x	x	18 inch tread surface	Type I
Shane Court	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized	Type I
Wintergreen	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Tenderfoot	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Caravelle	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Settlers Creek						18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Fishhook	x		x	x	x	18 inch tread surface, wetlands adjacent	Type I
Tenderfoot Meadows	x		x	x	x	18 inch tread surface	Type I
Seasons	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Masontown	x		x	x	x	18 inch tread surface, narrow corridor, must cross USFS to access trail-TMP is nonmotorized	Type I
Cabernet	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Burgundy	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Buffalo Mtn	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Gore Range	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Rainbow Lake Connection	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized	Type I
Four Mile	x		x	x	x	18 inch tread surface, wetlands adjacent	Type I
Swan's Nest North	x		x	x	x	18 inch tread surface, wetlands adjacent	Type I
Horseshoe Dredge	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Juniatia	x		x	x	x	18 inch tread surface, narrow corridor, bridge structure	Type I

Wakefield Blue River	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Clinton Reservoir Trail	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Freemont RR Grade	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Oro Grande Trl	x		x	x	x	18-30 inch tread surface, motorized use currently allowed	Type I, Type II and Type III
Landfill Upper Trl	x		x	x	x	18-30 inch tread surface, motorized use currently allowed	Type I, Type II and Type III
Aspen Grove	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Swans Nest	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Colorado Trail	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Mesa Cortina	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Willow Creek Stockponds	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized, wetlands adjacent	Type I
Sidedoor Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Preston Way Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Draw Road	x		x	x	x	Motorized use currently allowed	Type I, Type II, Type III and Type IV
Sawmill Road	x		x	x	x	Motorized use currently allowed	Type I, Type II, Type III and Type IV
Lincoln Park Road	x		x	x	x	Motorized use currently allowed	Type I, Type II, Type III and Type IV
Humbug Hill Road	x		x	x	x	Motorized use currently allowed	Type I, Type II, Type III and Type IV
Sallie Barber Road							
Prospect Gulch Trail	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized	Type I
Golden Gate Loop						All uses currently allowed	Type IV
Peabody Placer Road						All uses currently allowed	Type IV
Upper Preston Way Trail						All uses currently allowed	Type IV
Rich Gulch Road						All uses currently allowed	Type IV
Georgia Gulch Road						All uses currently allowed	Type IV
Forest Queen Road						All uses currently allowed	Type IV
Jesse Road						All uses currently allowed	Type IV
French Gulch Road upper							
Summit Gulch Road						All uses currently allowed	Type IV
Tiger Road East							
Tiger Road							
Prospect Hill Road						All uses currently allowed	Type IV
Spruce Road						All uses currently allowed	Type IV
Rock Island Road						All uses currently allowed	Type IV
South Fork of Swan Road						All uses currently allowed	Type IV
Gold Run Gulch Road						All uses currently allowed	Type IV
Royal Tiger Trail	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
French Gulch Road lower						All uses currently allowed	Type IV
French Gulch Road middle						All uses currently allowed	Type IV

Yellowbrick Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Gold Run Jesse Connect						All uses currently allowed	Type IV
Extension Mill Road						All uses currently allowed	Type IV
Sidewinder Road						All uses currently allowed	Type IV
American Gulch Road						All uses currently allowed	Type IV
American Gulch Spur						All uses currently allowed	Type IV
Summit Galena Connection						All uses currently allowed	Type IV
Parkville Road						All uses currently allowed	Type IV
Trail of Tears	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized	Type I
True Romance Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Jumbo Mine Road						All uses currently allowed	Type IV
Galena Gulch Rd.						All uses currently allowed	Type IV
Galena Gulch Road Upper						All uses currently allowed	Type IV
Rock Island Trail	x		x	x	x	18 inch tread surface, narrow corridor	Type I
Royal Tiger Trail Phase 2	x		x	x	x	18 inch tread surface, narrow corridor, wetlands adjacent	Type I
Extension Mill Road Upper	x		x	x	x	18 inch tread surface, narrow corridor, trail leads to USFS where TMP is nonmotorized	Type I
Galena Gulch Alternate						All uses currently allowed	Type IV
Recpath	x		x	x	x	Recpath on USFS where TMP is nonmotorized	Type I, Type III
Recpath Bills Ranch						All uses currently allowed	Type IV
Recpath Miners Creek						All uses currently allowed	Type IV

Assessment Factor	Criteria	Notes/Concerns/Rational	Assessment
(i) The type, size, weight, dimensions, and speed of the device;			
Type	<ul style="list-style-type: none"> Is the device motor electric/battery or internal combustion? Is the device motor less than 1 horsepower? Is the device manufactured for indoor use? Is the device manufactured for both indoor and outdoor use? Does the device produce noise levels above 60 decibels? 	<ul style="list-style-type: none"> Rapid acceleration and speeds in excess of 20 mph from internal combustion engines motors greater than 1 horsepower are more damaging (spinning tires and compaction forces). Internal combustion engines release fuel unburned and into the air. Devices manufactured for both indoor and outdoor use not OPDMD. Noises louder than 60 decibels cause immediate harm to wildlife in vicinity. 	Devices with: <ul style="list-style-type: none"> motors equal or less than 1 horsepower can be accommodated on nonmotorized single track trails and recpaths. motors greater than 1 horsepower can be accommodated on motorized single track trails.
Size	<ul style="list-style-type: none"> Does the device have wheel diameter less than 12 inches? Is the device tire tread width less than 6 inches? Less than 12 inches? Is the total width of the device less than 30 inches? Less than 36 inches? 	<ul style="list-style-type: none"> Devices with tire tread width greater than 6 inches will not fit in natural surface tread without causing damage such as widening and braiding of the trail. Devices with tire tread surface contact width greater than 12 inches will not fit in motorized dirt bike trail tread without causing damage such as widening and braiding of the trail. Devices wider than 30 inches will not fit on natural surface trails due to natural obstructions such as trees and rocks. Devices wider than 36 inches will take up the whole travel lane on the recpath, creating safety issues with other users. 	Devices with: <ul style="list-style-type: none"> tire tread surface contact width equal or less than 6 inches, total width equal to or less than 30 inches and wheel diameter greater than 12 inches can be accommodated on nonmotorized single track trails. Devices with: <ul style="list-style-type: none"> tire tread surface contact width equal to or less than 12 inches and total width equal to or less than 30 inches can be accommodated on motorized single track trails. Devices with: <ul style="list-style-type: none"> total width equal to or less than 36 inches can be accommodated on the recpath.
Weight	<ul style="list-style-type: none"> Is the total weight of the device less than 100 lbs (without rider/operator)? 	<ul style="list-style-type: none"> Devices more than 100 lbs increase compaction and decrease infiltration, preventing revegetation and increased sediment yield and runoff, and increase channeling on natural surface trails. 	Devices: <ul style="list-style-type: none"> equal or less than 100 lbs total weight without rider/operator can be accommodated on nonmotorized single track trails.
Dimensions	<ul style="list-style-type: none"> Does the device have two (2) wheels in tandem wheels, or are the wheels side-by-side? Is the device width less than or greater than 30 inches? 36 inches? 	<ul style="list-style-type: none"> Side by side vehicles do not fit on natural surface trail tread prism due to natural obstructions such as trees and rocks and will widen the trail tread. Devices wider than 36 inches will take up the whole travel lane on recpaths and create safety issues with other users. 	Devices with; <ul style="list-style-type: none"> two (2) wheels in tandem and less than 30 inches total width can be accommodated on nonmotorized and motorized single track trails. Devices with: <ul style="list-style-type: none"> two (2) wheels in tandem and equal or less than 36 inches total width can be accommodated on the recpath.
Speed	<ul style="list-style-type: none"> Is the device capable of exceeding 20 mph maximum power driven speed? Is the device capable of spinning wheels on dry, level and clean pavement? Does the device have brakes that enable the operator to make the wheels skid on dry, level and clean pavement? 	<ul style="list-style-type: none"> Speeds in excess of 20 mph could create safety issues with other users. Spinning wheels are more damaging to natural surface trails leading to displacement of tread material, mud holes and soil erosion. Devices without brakes are unsafe to operate on 	Devices with: <ul style="list-style-type: none"> maximum power driven speed equal or less than 20 mph and with brakes that enable the operator to make the wheels skid on dry, level and clean pavement can be accommodated on nonmotorized natural surface trails

		natural surface trails, repaths and roads.	and repaths. Devices with: <ul style="list-style-type: none"> brakes can be accommodated on motorized single track trails.
(ii) The facility's volume of pedestrian traffic (which may vary at different times of the day, week, month, or year);			
< 100 users per week			
101-500 users per week		Average daily use on repath is 230-497/day	
> 500 users per week			
(iii) The facility's design and operational characteristics (e.g., whether its service, program, or activity is conducted indoors, its square footage, the density and placement of stationary devices, and the availability of storage for the device, if requested by the user);			
Single Track (12-18 in)	<ul style="list-style-type: none"> Is the facility designed to handle devices over 30 inches wide? Is the facility designed for speeds in excess of 15 mph? Is the facility surface designed to handle devices more than 100 lbs? 	<ul style="list-style-type: none"> Trails are designed and constructed to a width of 12-18 inches, with 30 inch corridor width. Tread surface is native, usually dirt and rock. Trails are curvi-linear designed for 15 mph speeds. Obstructions include trees and rocks. Devices more than 100 lbs can cause increased compaction and decreased infiltration, preventing revegetation and increased sediment yield and runoff. Constructed feature include bridges, boardwalks, steps/stairs, water-bars and drainage dips that have specific tolerance limits. 	Devices with: <ul style="list-style-type: none"> total width equal or less than 30 inches, two (2) wheels in tandem, weight equal or less than 100 lbs, motor less than 1 horsepower, tire tread width equal or less than 6 inches, wheel diameter equal or greater than 12 inches and maximum power driven speed of 20 mph can be accommodated on nonmotorized single trail trails.
Single Track (18-30 in)	<ul style="list-style-type: none"> Is the facility designed to handle devices up to 30 inches total width? Is the facility designed to handle devices with two (2) wheels in tandem? 	<ul style="list-style-type: none"> Trails are designed and constructed to a width of 18-30 inches. Tread surface is native, usually dirt and rock. Trails are curvi-linear designed for 15 mph speeds. Obstructions include trees and rocks. Constructed feature include bridges, boardwalks, steps/stairs, water-bars and drainage dips that have specific tolerance limits. 	Devices with: <ul style="list-style-type: none"> total width equal or less than 30 inches, two (2) wheels in tandem and tire tread surface contact width equal or less than 12 inches can be accommodated on motorized trails.
Repath (12 ft)	<ul style="list-style-type: none"> Is the facility designed to handle devices over 36 inches wide? Is the facility designed for speeds in excess of 20 mph? 	<ul style="list-style-type: none"> Repath is 12 feet wide, with 2 lanes of travel at 5-6 feet wide. Surface is asphalt, design speed is 20 mph. 	Devices with: <ul style="list-style-type: none"> total width equal or less than 36 inches, motor less than 1 horsepower and maximum power driven speed of 20 mph can be accommodated on the repath.
8-10 ft road	<ul style="list-style-type: none"> Is the facility designed to handle devices over 90 inches wide? Is the facility designed for speeds in excess of 20 mph? 	<ul style="list-style-type: none"> Roads are upwards of 8-10 feet wide. Surface is hardened/compacted native. 	Devices with: <ul style="list-style-type: none"> brakes that enable the operator to make the wheels skid on dry, level and clean pavement can be accommodated on roads.

(iv) Whether legitimate safety requirements can be established to permit the safe operation of the other power-driven mobility device in the specific facility; and			
	Can legitimate safety requirements be established to permit the safe operation of the device on natural surface trails? On recpaths? On roads?	Examples: speed limit, hours of operation, lights/flags/signs on vehicle, brakes	Devices that: <ul style="list-style-type: none"> • have brakes that enable the operator to make the wheels skid on dry, level and clean pavement are required for any device operated on nonmotorized and motorized single track trails, recpaths and roads.
(v) Whether the use of the other power-driven mobility device creates a substantial risk of serious harm to the immediate environment or natural or cultural resources, or poses a conflict with Federal land management laws and regulations.			
Natural Resources	a) Does use of the device create a substantial risk of serious harm to the immediate environment or natural resources?	<ul style="list-style-type: none"> • Devices with noise levels greater than 60 decibels have negative impact on wildlife, causing stress to animals. • Seasonal disturbances can be a problem, such as during calving and breeding season, or nesting seasons. • Devices with total width wider than trail tread will lead to trail widening, soil erosion, gulying and devegetation. • Devices with tire tread width greater than 6 inches will not fit in natural surface tread without causing damage such as widening, mud holes, and braiding of the trail. • Spinning wheels are more damaging to natural surface trails. 	<ul style="list-style-type: none"> • Devices that do not create a substantial risk of serious harm to the immediate natural resource can be accommodated.
Cultural Resource	b) Does use of the device create a substantial risk of serious harm to the immediate environment or cultural resources?	<ul style="list-style-type: none"> • Ease of access to cultural sites creates conditions where individuals can pick up artifacts on the ground surface, dig for artifacts below surface and intentionally deface or destroy features and structures. 	<ul style="list-style-type: none"> • Devices that do not create a substantial risk of serious harm to the immediate cultural resource can be accommodated.
Conflict with Federal land management rules/regulations	c) Does use of the device pose a conflict with Federal land management laws and regulations?	<ul style="list-style-type: none"> • Motorized use on sections of recpath on National Forest conflicts with USFS laws and regulations as it is identified as non-motorized in the White River National Forest TMP. • Routes in Golden Horseshoe were analyzed as part of White River National Forest TMP process. • Motorized use on SCG routes that connect to and are part of the TMP conflict with Federal laws/regulations. 	<ul style="list-style-type: none"> • Use of devices that do not pose a conflict with Federal land management laws and regulations can be accommodated.

Power-Driven Mobility Device (PDMD) Types

Devices must meet all of the following criteria. Non-qualifying devices prohibited.

Type I:

Battery powered

≤ 1 hp motor

≤ 30 inches total vehicle width

≤ 6 inches tire tread width (total width of ground contact)

≥ 12 inches wheel diameter

≤ 100 pounds net weight without operator

≤ 20 miles per hour maximum power-driven speed

Brakes that enable the operator to make the wheels skid on dry, level and clean pavement

≤ 2 wheels in tandem

Type II:

≤ 30 inches total vehicle width

≤ 12 inches tire tread width (total width of ground contact)

Brakes that enable the operator to make the wheels skid on dry, level and clean pavement

≤ 2 wheels in tandem

Type III:

≤ 36 inches total vehicle width

≤ 1 hp motor

≤ 20 miles per hour maximum power-driven speed

Brakes that enable the operator to make the wheels skid on dry, level and clean pavement

Type IV:

All power-driven mobility devices