

Characteristics and Preferences of Mountain Bikers on Boulder County Parks and Open Space



A report to Boulder County Parks and Open Space
submitted by

STACEY SCHULTE
PLANNING ALTERNATIVES
402 MAXWELL #1
BOULDER, CO 80304
303-449-1068
STACEY.SCHULTE@COLORADO.EDU

December 30, 2003

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1. INTRODUCTION

The popularity of mountain biking has increased dramatically in the past decade; it is now among the fastest growing outdoor sports in the United States (International Mountain Biking Association, 2002). Mountain biking is the third most popular outdoor activity among Coloradans after hiking and skiing (Outdoor Industry Association, 2002). With over 328,000 estimated mountain bike visits in 2002, Boulder County Parks and Open Space (POS) properties are among the most popular biking destinations in the area. Approximately 35% of all POS visitors in 2002 were mountain bikers¹. A county-wide telephone survey conducted in February 2003 indicates that 23% of residents ride on POS properties several times per year or more.

The following document provides detailed information about mountain bikers on POS properties. The results of the study are based on 506 surveys completed by visitors at six trailheads in 2003. The six trailheads were selected because, based on POS annual visitor studies, they account for the majority of mountain biking on POS properties. An additional six POS trailheads that allow mountain biking were not surveyed and therefore the survey should not be considered completely representative of POS mountain bikers.

BACKGROUND

The study was conducted by Stacey Schulte, an environmental planner and policy researcher in Boulder and supervised by Pascale Fried, Interpretive Services Coordinator at POS. In the fall of 2002, POS solicited small-grant proposals for a study on the demographic characteristics of mountain bikers and subsequently selected Ms. Schulte's proposal. The proposal, survey and report were developed by Ms. Schulte with the input of POS staff.

OBJECTIVES

The objectives of this report are to:

1. Create a profile of mountain bikers, including demographics and skill level.
2. Determine visitor preference for trail types.
3. Generate suggestions and visitor input on the existing state of POS mountain bike trails & facilities.

¹ POS Visitor Study, 2002

SUMMARY OF KEY FINDINGS

The results of the survey show that the overall demographic profile of the most typical rider on the six POS properties is a working, male in his 20s or 30s from the city of Boulder. The majority of respondents has a fairly high self-rated skill level (3.48 on a scale of 1-5) and generally prefers long, fairly technical, singletrack riding. On average, visitors are quite satisfied with trail quality (3.84 on a scale of 1-5) and somewhat satisfied with trail quantity (2.92 on a scale of 1-5). The most frequently suggested improvement is for more trails. Other frequent comments and suggestions regard creating specific trail types, reducing visitor conflict, and establishing or opening more trails near the city of Boulder.

OBSERVATIONS ON RESPONDENTS

The most striking quality of the mountain bikers surveyed was their willingness to take the survey. A small number of respondents clearly feel marginalized and were wary that the survey would be used against mountain bikers. Yet, these riders and others were very appreciative that the survey was being conducted. In addition to several written thanks, many respondents expressed heartfelt appreciation, i.e. "I am glad someone cares!"

LITERATURE REVIEW

Four studies were reviewed in which mountain bikers were surveyed to create a demographic profile and determine preferences for trail type (Hollenhurst, et. al., 1995a, 1995b; Symmonds, et. al., 2000; Sumathi and Berard, 1997). These studies show that, nationally, young males with a high skill level dominate mountain biking; yet, trail preference was not as uniform. The results of this report are similar though trail preference is more uniform than found in other studies.

2. METHODS

SURVEY DESIGN

Survey data was collected via a three-page, self-administered survey that was distributed at six trailheads from May to September 2003. The survey was designed in conjunction with POS staff with guidance from previous national mountain biking surveys. The survey was pre-tested on likely respondents. Please see Appendix A for a copy of the survey instrument.

SAMPLING & DATA COLLECTION PROCEDURE

Surveys were distributed at the six POS properties most frequently visited by mountain bikers (see Table 1). In order to get a representative sample, each property was surveyed on both weekends and during the week; in the spring, summer, and fall; and at different times of day. 506 mountain bikers responded to the survey (see Table 2). Only four people who were approached refused to fill out the survey. The high compliance rate provides a very good sample of the population. Even though the number of respondents varies among properties, the distribution is fairly proportional to the number of bikers at the six locations (see Table 1).

TABLE 1: OBSERVED MOUNTAIN BIKE VISITS COMPARED TO NUMBER SURVEYED

Property	Bikers observed in 2002 ²	Bikers surveyed
Heil Valley Ranch	4,000	107
Hall Ranch	3,262	157
Walker Ranch Loop	2,180	117
Betasso Preserve	919	69
Rabbit Mountain	635	41
Meyer's Gulch	367	15

² Based on sample of bikers observed as a part of POS's 2002 visitor study.

TABLE 2: SURVEY SCHEDULE AND SURVEYS COLLECTED

Property	Survey Date	Day	Shift	Hours	Surveys Collected
Betasso Preserve	07/17/03	weekday	afternoon	1.5	9
Betasso Preserve	08/02/03	weekend	morning	3	26
Betasso Preserve	08/21/03	weekday	evening	1.5	16
Betasso Preserve	08/24/03	weekend	afternoon	2	18
				8	69
Hall Ranch	05/24/03	weekend	afternoon	3	38
Hall Ranch	06/19/03	weekday	evening	2	35
Hall Ranch	07/18/03	weekday	afternoon	2	25
Hall Ranch	09/07/03	weekend	morning	3	59
				10	157
Heil Valley Ranch	06/19/03	weekday	evening	2	24
Heil Valley Ranch	08/02/03	weekend	morning	2.5	34
Heil Valley Ranch	09/12/03	weekday	afternoon	2	30
Heil Valley Ranch	09/20/03	weekend	afternoon	2	19
				8.5	107
Rabbit Mountain	06/20/03	weekday	afternoon	2	0
Rabbit Mountain	08/23/03	weekend	morning	2	5
Rabbit Mountain	09/14/03	weekend	morning	2.5	20
Rabbit Mountain	09/20/03	weekend	afternoon/ evening	2	16
				8.5	41
Walker Ranch Loop	05/14/03	weekend	morning	3.5	47
Walker Ranch Loop	07/21/03	weekday	afternoon	2	34
Walker Ranch Loop	09/11/03	weekday	evening	2	11
Walker Ranch Loop	09/21/03	weekend	evening	2.5	25
				10	117
Meyer's Gulch	06/14/03	weekend	evening	1	0
Meyer's Gulch	09/14/03	weekend	morning	2.5	9
Meyer's Gulch	09/20/03	weekend	afternoon	2	6
				4.5	15
TOTAL				49.5	506

3. RESULTS

The remainder of this report is an analysis of the survey results. In each section a frequency graph is shown along with a discussion and any relevant correlations to other variables. Significant correlations are relationships between variables that deviate substantially from the average. Several of the results are also compared to the findings of the 2003 county-wide telephone survey. Please note that throughout this section totals may not equal 100% due to incomplete responses.

Although Meyer's Gulch and Walker Ranch Loop are on the same property they are considered separately in this report because of the different type of riding at each trail. Due to the insufficient sample size from Meyer's Gulch (15 respondents) these results were not analyzed individually but are included in the overall statistics.

The results are divided into nine sections.

- A. Property Profiles
- B. Demographics
- C. Ride frequency
- D. Skill level
- E. Trail preferences
- F. Reasons for biking
- G. Visitor satisfaction
- H. Suggested improvements
- I. Additional comments

A. PROPERTY PROFILES

Table 3 displays key variables listed by individual property. The box below highlights the characteristics of respondents at each property in the cases in which they are significantly different from the overall averages. For an individual property, the variables *not* noted in the box below match fairly closely the overall averages found in the subsequent sections. Although additional variation is apparent on Table 3, these differences are not statistically significant when taking into account sample size and the degree of variation. The significant differences listed below tend to highlight those areas in which individual trails are unique. Although the report highlights *differences* among properties, it is equally interesting that the majority of qualities and preferences are fairly uniform. It should be noted that although respondents were surveyed at a specific park they were answering several questions about the entire POS system and not the specific park.

Significant differences by property

Betasso Preserve

Respondents want less rugged trail surface and shorter trails. This would seem to reflect the fact that Betasso is the shortest of the surveyed trails.

Hall Ranch

Respondents prefer longer single track with longer climbs and descents and are less satisfied with quality of trails and facilities. The fact that Hall Ranch attracts riders who prefer longer, steeper riding is consistent with the fact that Hall Ranch is one of the more difficult trails in the system.

Heil Valley Ranch

Respondents rate quality of trails and facilities more highly and have lower self-rated skill level.

Rabbit Mountain

Respondents prefer smoother, shorter, wider and flatter trails. They also have a lower self-rated skill level and are more often children. More are from Longmont and fewer from outside Boulder County. Rabbit Mountain sticks out as the area that attracts riders who prefer easier trails which reflects the fact that it is arguably the easiest riding of the six properties.

Walker Ranch Loop

Respondents prefer more rugged, longer single track and tend to ride more for sport/challenge. They are less satisfied with quantity of trails and facilities and have higher self-rated skill level. They are less likely to be from Longmont. The characteristics of respondents at Walker Ranch Loop are consistent with the fact that it is the longest and arguably the most difficult of the six trails.

TABLE 3: RIDER CHARACTERISTICS & VISITOR SATISFACTION BY PROPERTY

	Betasso Preserve	Hall Ranch	Heil Valley	Rabbit Mountain	Walker Ranch Loop
SURVEYS COLLECTED	69	157	107	41	117
AGE (as percent of total)					
under 20	3	3	6	12	4
20-29	30	34	31	29	36
30-39	43	42	38	34	41
40-49	14	15	17	15	15
50-59	7	6	4	5	3
60+	0	0	1	2	0
GENDER (as percent of total)					
Female	23	22	21	27	16
Male	75	78	76	71	81
RESIDENCE (as percent of total)					
city of Boulder	49	39	40	20	44
Longmont	14	13	9	46	3
SE communities	13	11	9	5	9
Other Boulder County	0	4	0	2	4
Outside Boulder County	20	27	30	12	24
SKILL LEVEL (on a scale of 1-5)					
	3.26	3.61	3.82	3.10	3.82
SATISFACTION W/ QUALITY (on a scale of 1-5)					
	3.94	3.72	4.13	3.59	3.77
SATISFACTION W/ QUANTITY (on a scale of 1-5)					
	3.14	2.81	3.10	3.17	2.64

B. DEMOGRAPHICS

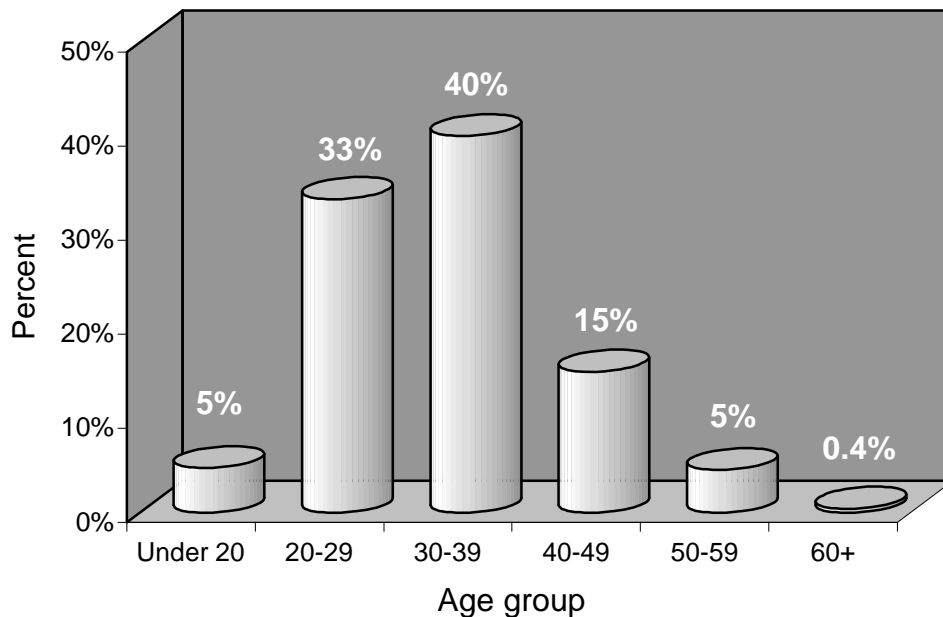
Age

Question #13 – “Age”

Respondents were asked their age by decade. Over 70% of all respondents are in their 20s and 30s. Just over 20% are in their 40s and only 5% are less than twenty. Of those respondents less than twenty years old, about half are K-12 students. Two percent did not respond to this question.

Significant Correlations

- Men are more likely to be in their 40s than women.
- More respondents in their 20s are from the city of Boulder than elsewhere.
- Respondents at Rabbit Mountain are more likely to be under 20 or retired.



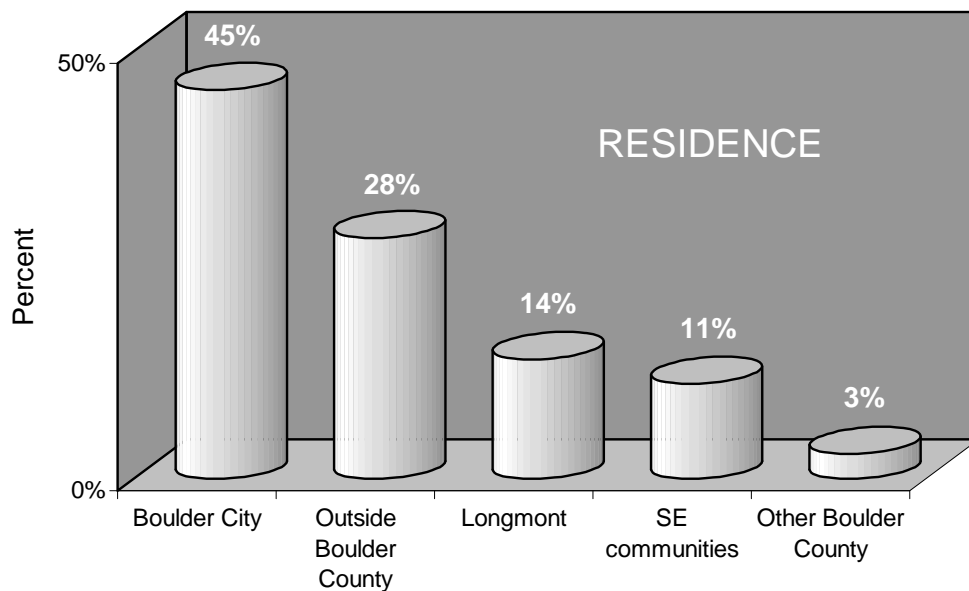
Residence

Question #17 – “What is your zip code?”

Residence is derived from zip code. Residence is divided into five categories, the city of Boulder, Longmont, southeast Boulder County communities³, other Boulder County communities and communities outside Boulder County. The largest category of respondents are from the city of Boulder (45%) and the second largest category are from outside Boulder County (28%). Residents from all other Boulder County communities comprise 28% of total respondents. Over 72% of respondents are from Boulder County and 28% are from outside the County. Almost 10% of total respondents did not provide their zip code. Percentages below are based on the total who did respond. See Table 4 for a full residential breakdown.

Significant Correlations

- Respondents from Boulder County are less likely to ride at Rabbit Mountain. They rate quality and quantity of trails and facilities lower and have higher self-rated skill level.
- Respondents from Longmont are more likely to ride at Rabbit Mountain and less likely to ride at Walker Ranch Loop. They have a lower self-rated skill level and are less likely to be in their 20s.
- Respondents from outside Boulder County are less likely to ride at Rabbit Mountain and rate quality and quantity of trails and facilities more highly.



³ SE Boulder County communities are Erie, Lafayette, Louisville and Superior.

TABLE 4: RESIDENTIAL BREAKDOWN

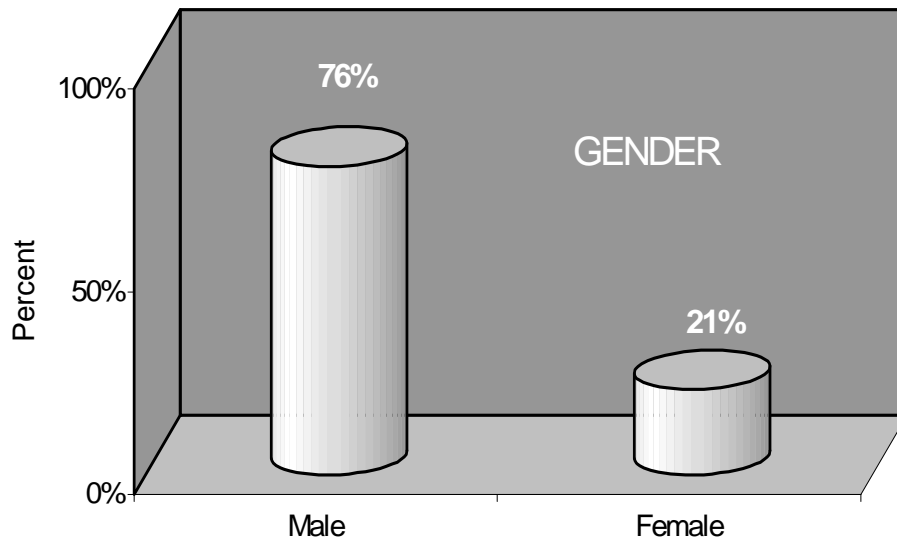
Location	Total Respondents
Boulder	205
Longmont	63
Denver	43
Lafayette	20
Louisville/Superior	18
Out of state	17
Westminster	15
Erie	12
Lyons	8
Golden	7
Loveland	6
Littleton	5
Broomfield	3
Fort Collins	3
Nederland	3
Colorado springs	2
Englewood	2
Evergreen	2
Glenwood Springs	2
Greeley	2
Palmer Lake	2
Arvada	1
Aurora	1
Brighton	1
Crested Butte	1
Dillion	1
Eldorado Springs	1
Firestone	1
Gunnison	1
Lamar	1
Platteville	1
Vail	1
Ward	1
Total	452*

*Number does not equal total number of respondents (506) because of incomplete responses.

Gender

Question #15 – “Gender”

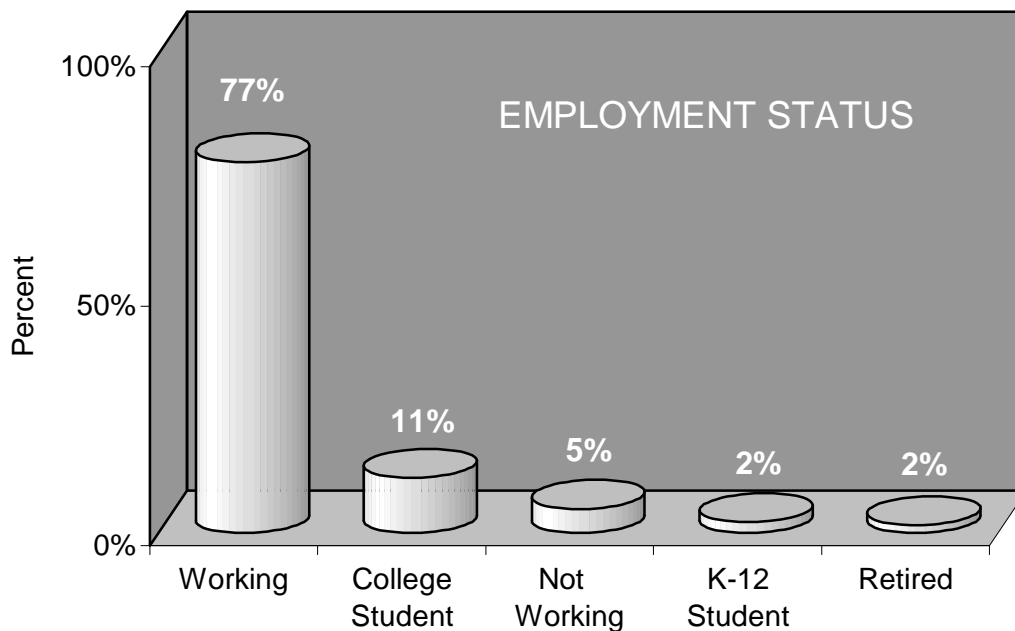
The overwhelming majority of respondents are men, although nationally mountain biking is the third fastest growing sport among women (Outdoor Industry Association, 2002).



Employment

Questions #16 – “Primary employment status”

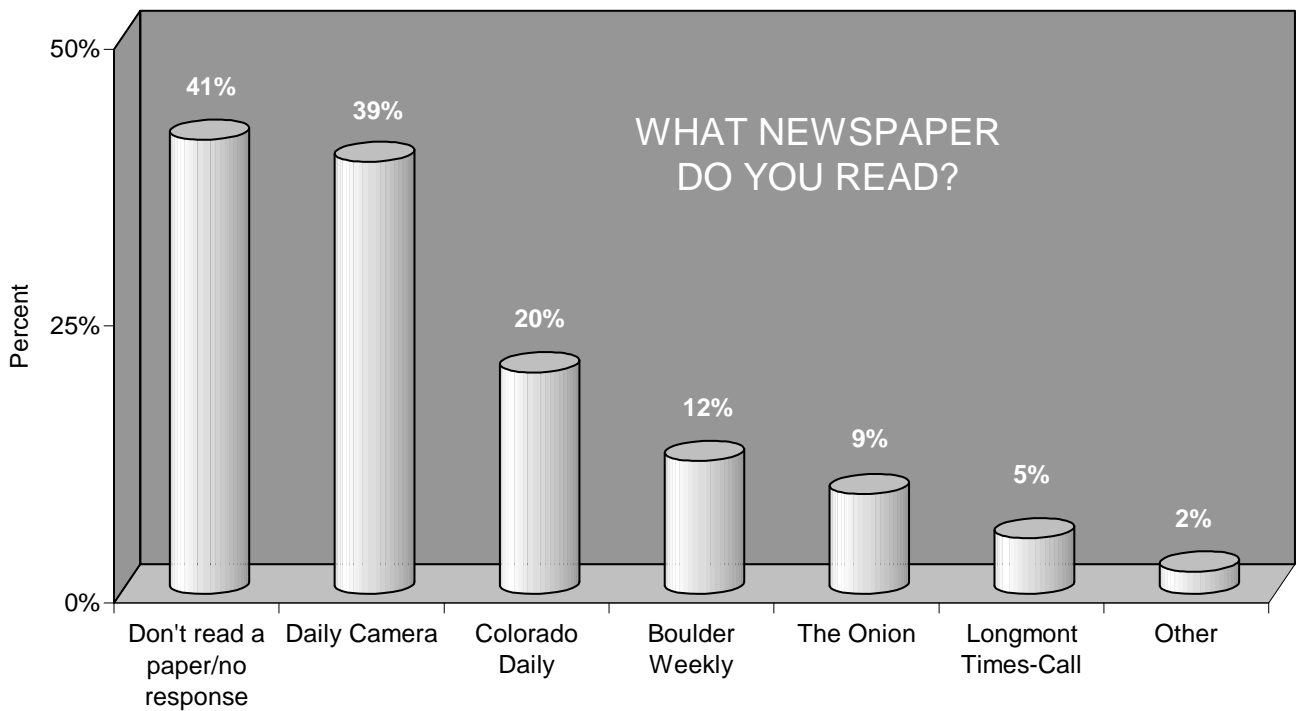
Seventy-seven percent of all respondents are working. Eleven percent are college students. The remaining nine percent are not working, K-12 students or retired. Less than three percent did not respond to this question.



Newspaper

Question #14 “What local paper do you read regularly?”

Thirty-nine percent of respondents read the Daily Camera. It is assumed that people who did not respond to this question don't read a local paper. Therefore, “Don't read a local paper” (29%) and no response (12%) are combined into one category. The high percentage in this category may be accounted for by the number of non-local residents who responded to the survey (28%). Totals below are more that 100% because many respondents read more than one newspaper.



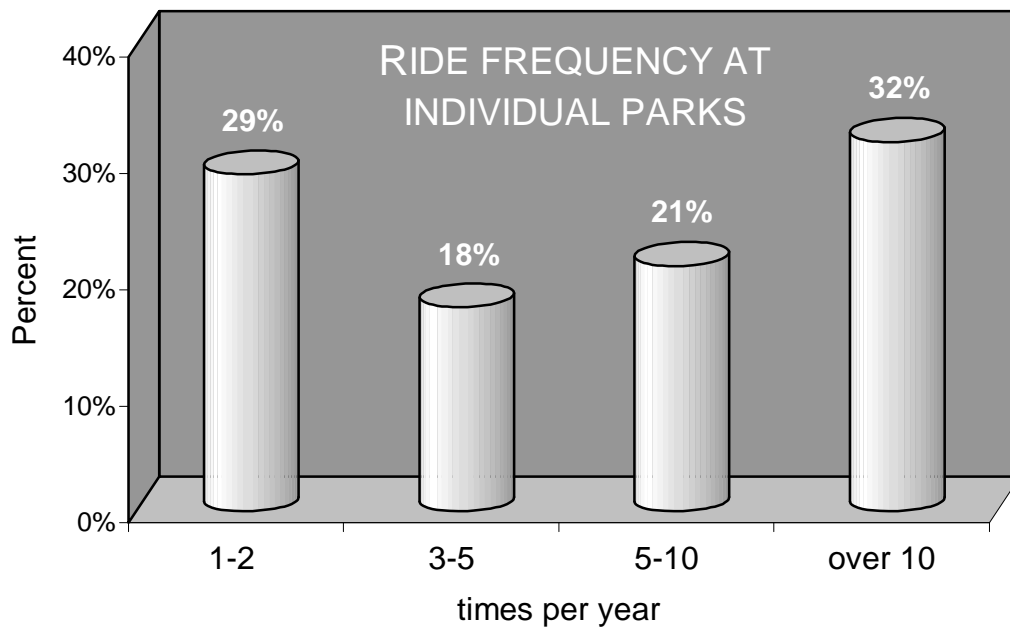
C. RIDE FREQUENCY

Question #1 - "How often do you mountain bike at this park?"

Thirty-two percent of respondents ride "over 10 times per year" at the property at which they were surveyed but the second most frequent response was only 1-2 times per year. Ride frequency is fairly consistent across parks.

Significant Correlation

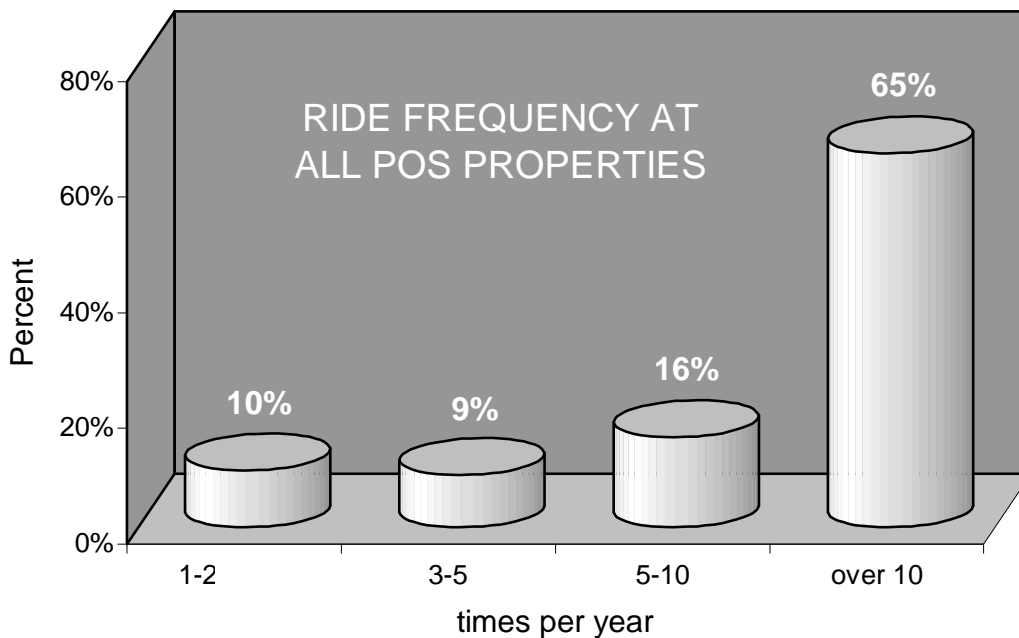
- Respondents at Rabbit Mountain tend to ride less frequently at Rabbit Mountain than do respondents at other properties.



Question #2 – “How often do you ride at this property and other Boulder County Parks and Open Space properties combined?”

The majority of people who ride on POS trails do so over ten times per year. My conversations with respondents indicated that a considerable number of these people ride over 30 times per year. Thirty-five percent of respondents ride ten or fewer times per year. Less than one percent did not respond to this question.

The 2003 county-wide telephone survey conducted shows a considerably different distribution of ride frequency on POS properties. Among these mountain bikers, 22% rode dozens of times a year, 28% rode several times per year, 31% rode 1-2 times per year and 18% never rode on POS properties.



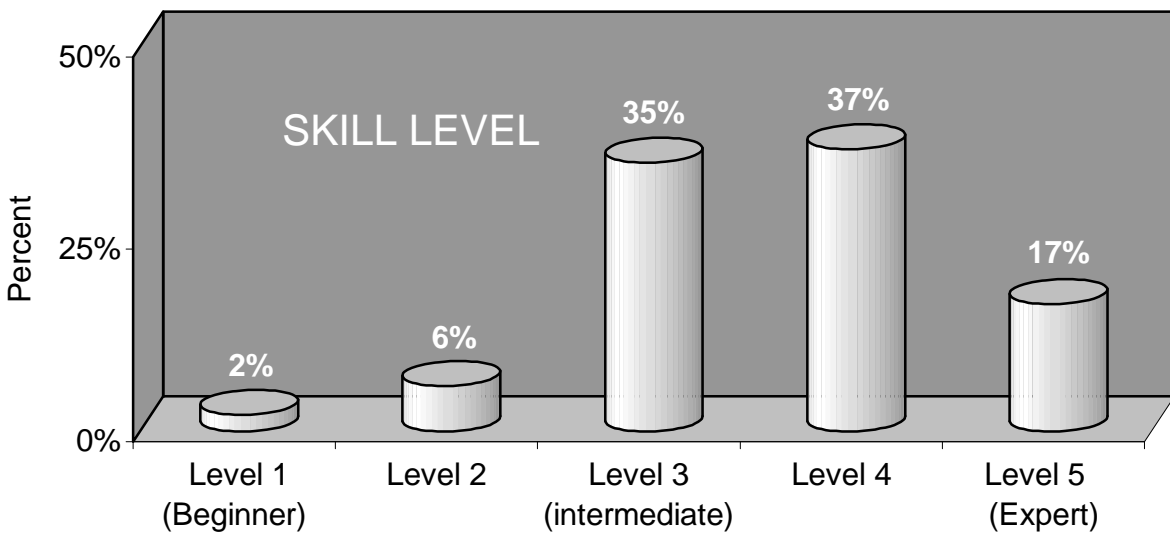
D. SKILL LEVEL

Question #10 – “Please rate your skill level” (on a scale of 1-5)

The average self-rated skill level on a scale of 1-5 is 3.48. Almost 90% of respondents rate themselves as an intermediate rider or above. Only eight percent say they are less than an intermediate rider. Less than four percent did not respond.

Significant Correlations

- Men have a higher self-rated skill level than women.
- Respondents from the city of Boulder have a higher self-rated skill level.
- Respondents from Walker Ranch Loop have a higher self-rated skill level.
- Respondents from Heil Valley Ranch & Rabbit Mountain have lower self-rated skill level.



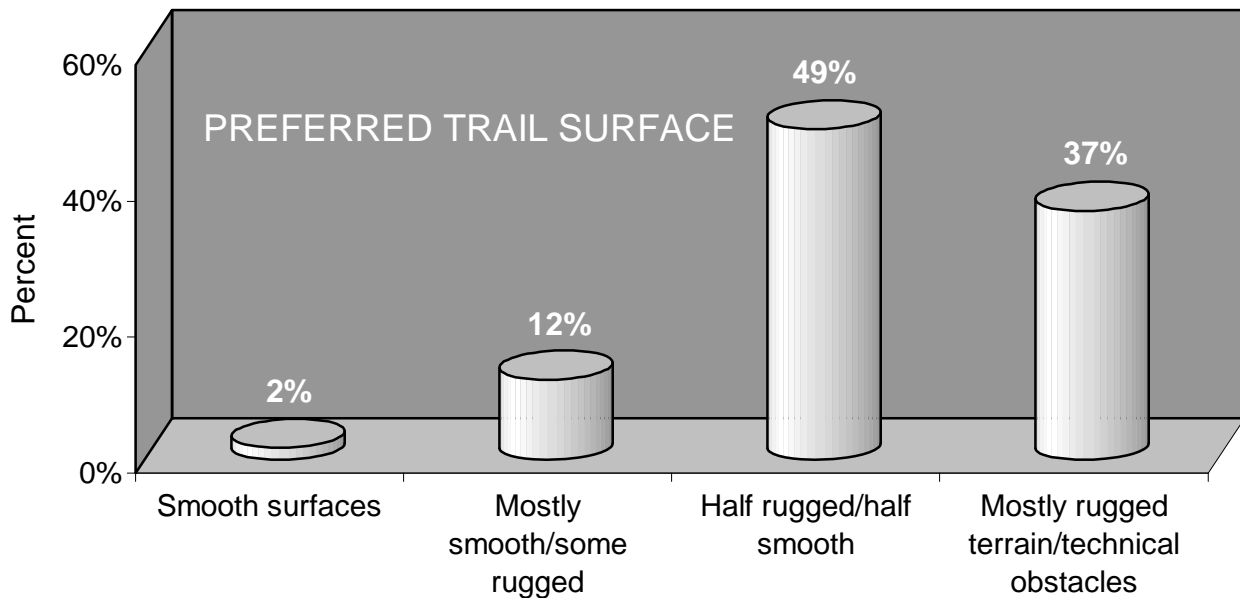
E. TRAIL PREFERENCES

Questions 3-6 asked respondents what types of trails they prefer. Longer, more technical, single track with short climbs and descents are preferred by over 60% of all respondents. As skill level increases so does the preference for more difficult trails.

Trail surface

Question #3 – “What type of trail surface do you most enjoy riding?”

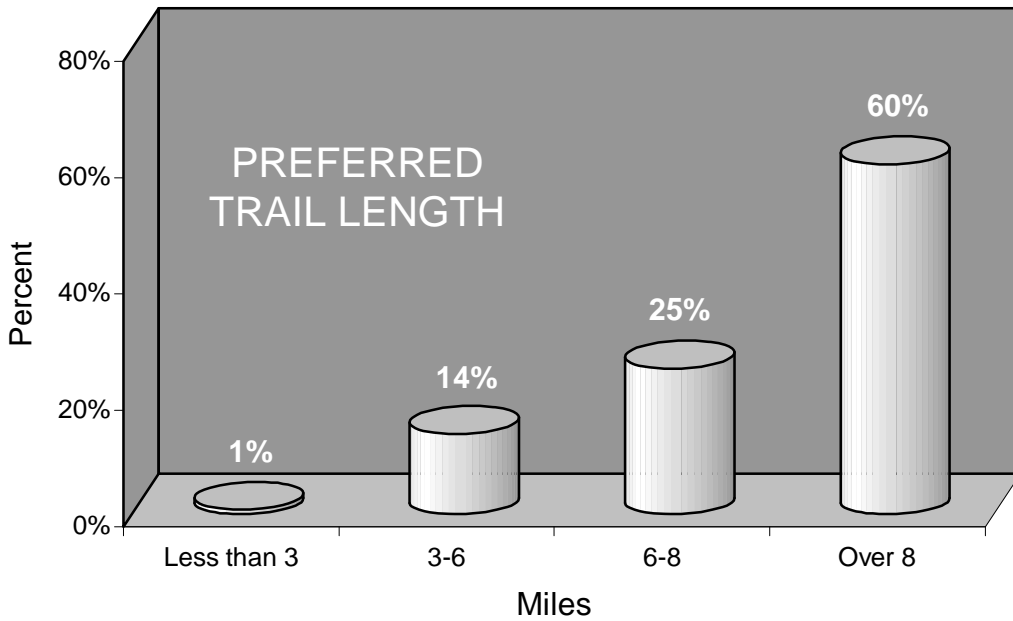
The majority of respondents said that they prefer a combination of rugged and smooth terrain. Over 86% prefer trails with at least half rugged/technical terrain. Only 14% prefer smooth or mostly smooth trails.



Trail length

Question #4 - "What round trip trail length do you most enjoy riding?"

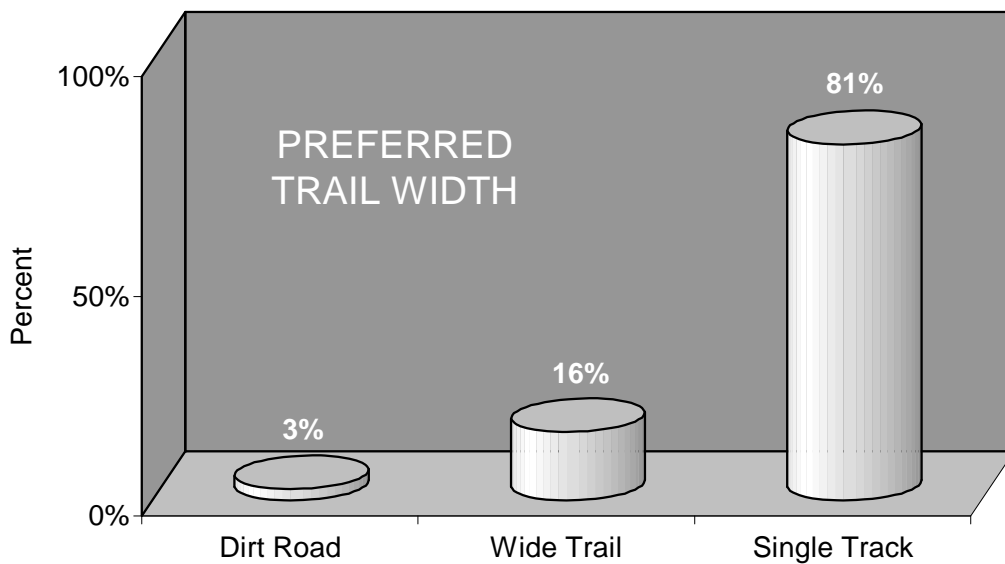
Over 60% of respondents prefer trails over eight miles. Forty percent prefer trails eight miles or less.



Trail width

Question #5 - "What trail width do you most enjoy riding?"

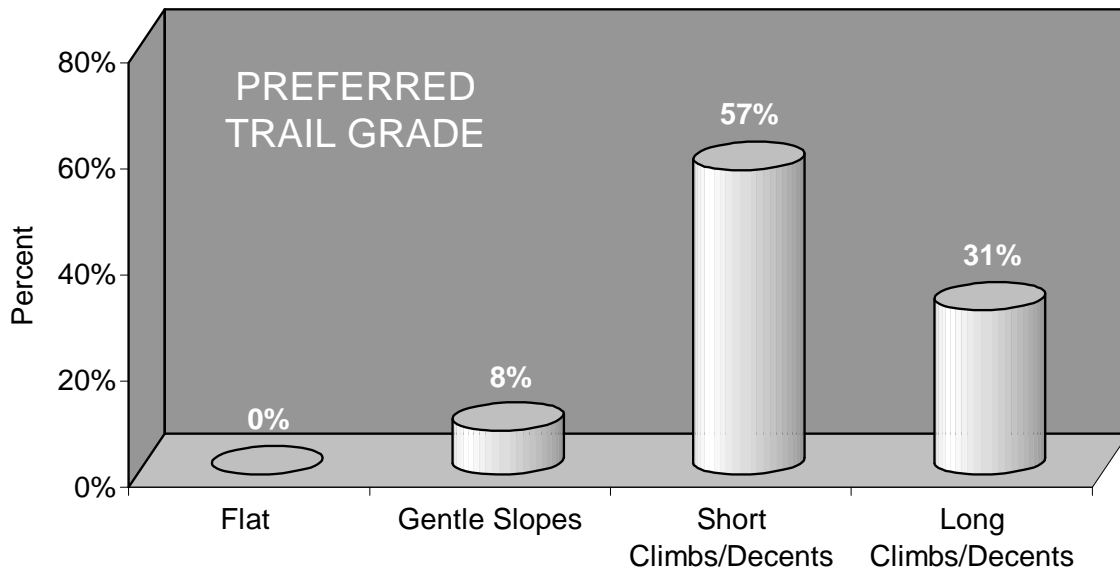
Eighty-one percent of respondents prefer singletrack trails.



Trail grade

Question #6 – “What trail grade do you most enjoy riding?”

Fifty-seven percent of respondents want short climbs and descents though many people commented that they want a variety of terrain. No respondent prefers flat trails.



F. REASONS FOR BIKING

Question #7

“Of the choices below, please rank the top 3 reasons why you enjoy mountain biking”

By quite a wide margin, exercise, nature/scenery, and sport/challenge are the top three qualities that respondents enjoy about the sport. Sixty-one people responded incorrectly to this question⁴ and 36 people did not respond at all. The percentages in Table 5 are based on the remaining 409 responses.

TABLE 5: SUMMARY OF REASONS FOR BIKING

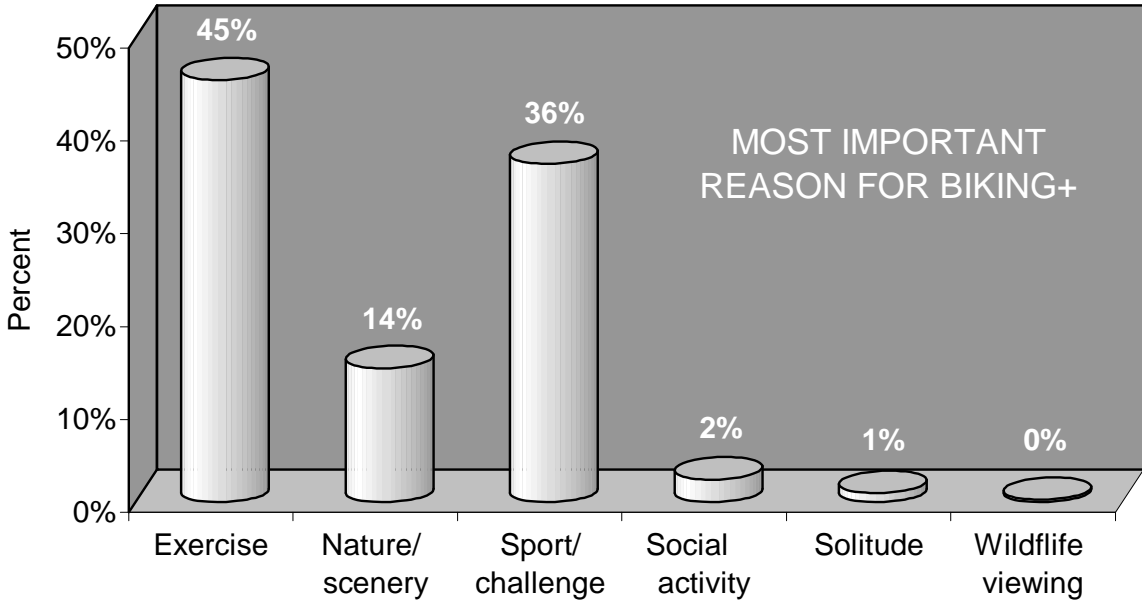
Reason	Most Important	Somewhat Important	Less Important	Some Importance
Exercise	45%	31%	17%	94%
Nature/ scenery	14%	41%	26%	82%
Sport/challenge	36%	17%	27%	80%
Social activity	2%	6%	19%	27%
Solitude	1%	4%	8%	13%
Wildlife viewing	0%	1%	3%	5%
Total	100%	100%	100%	

Significant Correlations

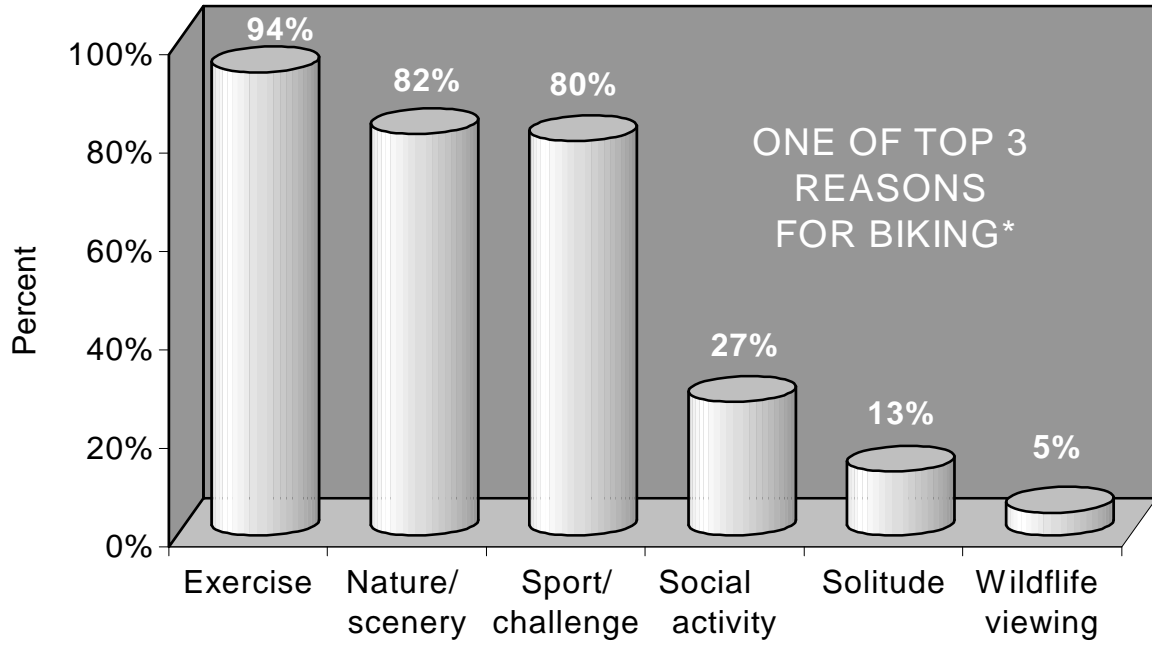
- Respondents in their 30s rate nature/scenery more highly.
- Respondents in their 20s rate social activity more highly.
- Men rate solitude more highly than women.
- Respondents at Walker Ranch Loop rate sport/challenge more highly.
- Respondents with a higher skill level rate exercise more highly.

A similar question was asked to respondents in the 2003 county-wide telephone survey. The question was asked to all mountain bikers, not just those riding on POS trails. The results of that survey show that that similar percentages of county-wide mountain bikers attach some importance to both exercise (97%) and nature (84%). Of telephone respondents, 42% attached some importance to wildlife viewing whereas only 5% did so in this study and 63% attached some importance to the social nature of mountain biking whereas only 27% did so in this study.

⁴ These respondents simply checked responses instead of numbering them.



+ Graph refers to the first column in Table 5.



*Graph refers to the last column in Table 5.

G. VISITOR SATISFACTION

Quality of trails and facilities

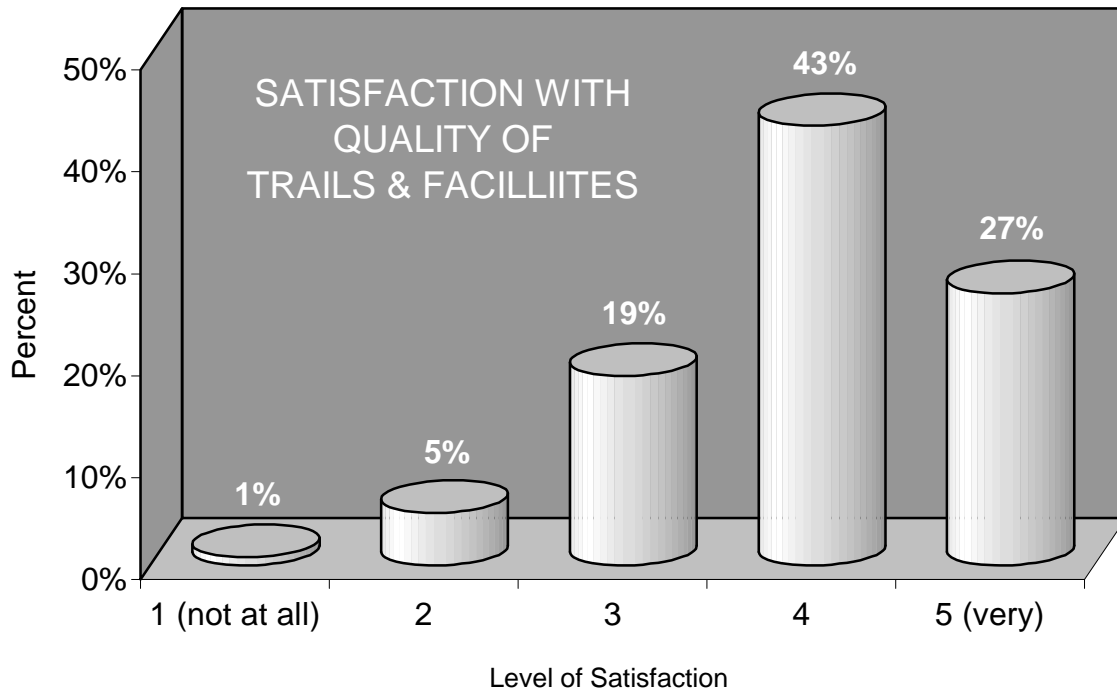
Question #8 – “How satisfied are you with the quality of mountain biking trails and facilities currently available to you on Boulder County Parks and Open Space properties?”

(scale of 1-5).

Overall satisfaction with trails quality is quite high. The average satisfaction on a scale of 1-5 is 3.84. Over 72% of respondents rated trail quality as a 4 or 5 and only 7% rated trail quality as a 1 or 2. Three percent did not respond.

Significant Correlations

- Respondents at Hall Ranch are less satisfied with quality.
- Respondents at Heil Valley Ranch are more satisfied with quality.
- Respondents from the city of Boulder are less satisfied with quality.
- Respondents from outside Boulder County are more satisfied with quality.
- Respondents with a higher skill level are more satisfied with quality.



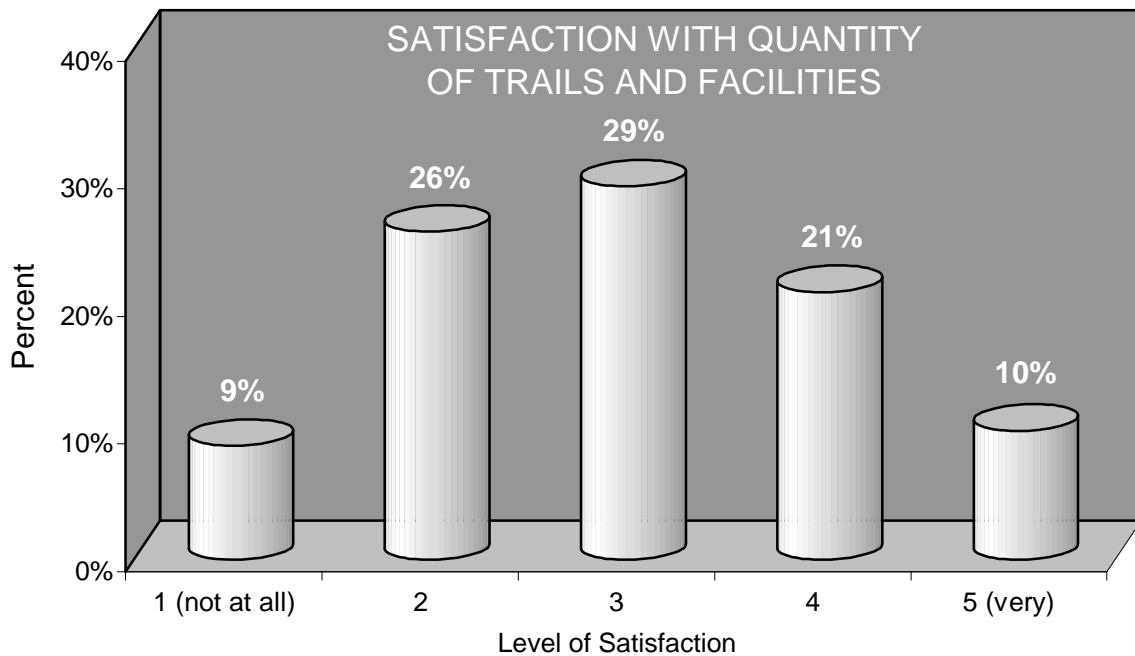
Quantity of trails and facilities

Question #9 -- “How satisfied are you with the quantity of mountain biking trails and facilities currently available to you on Boulder County Parks and Open Space properties?” (scale of 1-5)

Average satisfaction with quantity of trails and facilities is 2.92. The satisfaction with quantity of trails and facilities is fairly evenly distributed. Thirty-five percent gave trails quantity a 1 or 2 and 32% gave it a 4 or 5. Three percent did not respond.

Significant Correlations

- Respondents at Walker Ranch Loop are less satisfied with quantity.
- Men are less satisfied with quantity.
- Respondents from Boulder are less satisfied with quantity.
- Respondents from outside Boulder County are more satisfied with quantity.



H. SUGGESTED IMPROVEMENTS

Question #11

“What is the ONE thing that would most improve your mountain biking experience on Boulder County Parks and Open Space properties?”

365 respondents, or 72%, responded to this open-ended question. Please see Table 6 for a summary of comments and Appendix B for full quotations. A similar question was asked on the 2003 county-wide telephone survey in which the top category of responses were similar to those of this survey: more open trails (12%), suggestions for trail type (5%), mountain bike only trails (9%), connect trails (6%).

No Response/Nothing

The highest percentage of respondents, 30%, left this questions blank (141 respondents) or wrote that they had no suggestions (12 respondents). POS staff feel that leaving this question blank is an indication that the respondent is happy with things as they are. This category was not compared to the visitor satisfaction responses on quality or quantity.

More trails/more trail access

The second most frequent suggestion regards more trails and/or access. The 24% listed in Table 6 under “more trails/more access” are those comments that *only* suggested more trails. The total number of people who suggested more trails/ and/or access as one of their *multiple* suggestions is about 55%⁵. My conversations with respondents indicate that they want more trails both to reduce crowds and to have more options for local rides. In the 2003 county-wide survey (of mountain bikers and non-bikers) 16% felt POS needs more trails.

⁵ While the question asked for only ONE suggestion, about half of the respondents included more than one suggestion. When another suggestion was included with “more trails,” I included that entire comment in another section so that no single respondent was counted more than once.

TABLE 6: SUMMARY OF SUGGESTED IMPROVEMENTS

Response categories	Number of respondents	Percent of total respondents
1. No response/nothing	153	30%
2. More trails/more access	123	24%
More trails/options	115	
Open trails	8	
3. Suggestions for trail type	58	11%
More technical trails	16	
Longer trails	14	
More loop trails	13	
More variety of trail types	6	
More trail connections	5	
Create more trails like Hall Ranch/Walker Ranch	4	
4. Visitor conflict	56	11%
Crowd reduction	22	
Improve etiquette	11	
Horse complaints	10	
More dog access	8	
Dog complaints	5	
5. More trails near town (mostly city of Boulder)	28	6%
6. More trail maintenance	16	3%
7. Site-specific suggestions	16	3%
Other	7	
Connect Heil/Hall Ranch	4	
Connect Eldorado/Walker Ranch	2	
Re-open Betasso full time	3	
8. Bike only trails/days	14	3%
9. Better trail info -- Signs, maps, the website	13	3%
Better/more available maps	10	
Signage	3	
10. Facilities	11	2%
More parking	5	
Drinking water at trailheads	5	
Bathrooms at trailheads	1	
11. Other	11	2%
12. Compliments	7	1%
	506	100%

Trail type

The third most frequent suggestion has to do with specific trail types. Many of these suggestions are for *more* trails of a specific kind. More loop trails and longer trails are also common suggestions. Those who suggested trail variety generally wanted more beginner and intermediate trails. Several respondents would like to see existing trails connected (see also suggestions under “site specific comments”).

TABLE 7: SUMMARY OF SUGGESTIONS REGARDING TRAIL TYPE

Response categories	Number of respondents
More technical trails	16
Longer trails	14
More loops	13
More variety of trail type	6
Connect trails	5
More trails like Hall Ranch/Walker Ranch	4
Total	58

Visitor conflict

Fifteen percent of comments address various types of visitor conflict. Most frequent of these are suggestions to reduce crowds. Many of these comments suggest having more trails to reduce crowds on individual trails.

TABLE 8: SUMMARY OF SUGGESTIONS REGARDING VISITOR CONFLICT

Response categories	Number of respondents
Crowd reduction	22
Improve etiquette	11
Horse complaints	10
Increase dog access	8
Dog complaints	5
Total-	56

More (open) trails near “town”/Boulder

Eight percent of those with comments said they would like to see trails closer to “town”, generally the city of Boulder. While some of these responses indicate that the respondent didn’t understand that the survey only addressed only POS land, I talked to many people who understood the distinction between city and county land but wrote down that comment anyway. Some respondents did not seem to believe that city and county open space were completely administratively separate.

More trail maintenance

Suggestions for trail maintenance focus on erosion control and the removal of obstacles, most often the removal of large or small rocks.

Bike only trails/days

This response is related to visitor conflict and the suggestion for more trails.

Site specific suggestions

A small number of comments suggested trails and improvements on specific properties.

Enhanced facilities

Suggestions for better facilities are few, mirroring the high rating for satisfaction with the quality of trails and facilities in Question #7. About five people each want more parking and drinking water at trailheads.

I. ADDITIONAL COMMENTS

Question #12 “Other comments?”

The largest category of additional comments are compliments. The other top comments mirrored the responses to Question #11 (i.e. suggestions for trail type, trails near town, site specific suggestions, and bike only days). Please see full quotations in Appendix C.

TABLE 9: SUMMARY OF ADDITIONAL COMMENTS

Response categories	Number of respondents	Percent of total respondents
Compliments	23	19%
More trails/access	17	14%
Suggestions for trail type	16	13%
Trails near town	10	8%
Survey appreciation	10	8%
Site specific suggestions	8	7%
Jeffco comparisons	6	5%
Bike only days/trails	6	5%
Visitor conflicts	5	4%
Facilities improvements	5	4%
Other	5	4%
Knapweed control	3	2%
Classes	3	2%
Trail info	2	2%
Volunteer offers	2	2%
Fees	2	2%
Total-	123	100%

4. CONCLUSION

As the popularity of mountain biking grows so does the importance of understanding the mountain biking population. This study presents baseline information about riders on the most popular Boulder County Parks and Open Space properties and reveals trends in demographics, visitor satisfaction and desired improvements. The study is not intended to provide complete information for management decisions related to mountain biking. On POS properties and in all land use decisions, many factors must be considered when arriving at the best overall planning and management strategy. Understanding the characteristics and preferences of mountain bikers is one piece of the puzzle that will be balanced with the long term goals and values of the open space program.

The primary limitation of the study is that not all mountain biking areas in the county were surveyed. Six POS properties were not surveyed because, based on POS annual visitor studies, they are the properties least used by mountain bikers. It is important to note that the properties that were not surveyed are easier trails that likely attract a different kind of rider than do the surveyed properties. The majority of riding on POS properties takes place on more difficult trails. The typical profile presented here of the young, male with a high skill level and desire for more, difficult trails reflects this distribution.

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Appendix A

Survey Instrument

- Open up all closed trails. more single track. open trails for night riding.

3. Suggestions for trail type (58)

More technical trails (16)

- Hills, large rocks (?)
- Stop removing the obstacles
- Less eradication of natural obstacles on the original trails
- More trails of a difficult nature less groomed boring trails and more night riding trails
- More tech sections
- More technical sections and log obstacles (or optional offshoots for technical sections) let natural sections be natural not so much maintained
- More technical trails, less crowds
- More single track and less of the "making trails easier" by the county
- More technical trails aka Moab, Fruita, Lynn Woods MA
- More technical trails to improve my skills quit removing obstacles i.e. Walker Ranch.
- Narrower, more technical trails
- More trails, more single track, leave the obstacles
- More variety in technical terrain
- More trails and harder trails
- More variety, grading at Walker was HORRIBLE, uni-direction loops, give other users there own trails
- Less maintenance on rugged trails they are getting easier all the time which is unfortunate

Longer trails (14)

- More trails, longer trails
- Trails need to be longer
- More trails, longer trails, remote trails
- More long trails, 15+ miles
- Longer, joined trails
- Longer distances
- Longer joining trails, choice of alternative routes around very technical sections.
- Longer single track
- Longer trails
- Longer trails
- Longer trails (12-20 miles more technical more trails less traffic
- More single track trails and longer trails
- More single track trails with longer rides
- More rides, longer rides

More loop trails (13)

- More trails, different loops
- More loop trails
- More loops off main trails
- Loops and more accessible trails closer to Longmont
- Have some longer loops, 15-25 miles
- Trail loops with one way direction could change direction with arrows at intersection

- Wide trail is multi use, single track if Mb only and one way
- More trails, more loops off main trails
- More trails, particularity loops
- More one way trails
- Longer loops
- Longer trails. More loop options
- More one way loop trails

More variety of trail types (6)

- More trail access for bikes (more intermediate trails)
- Create variety of trails
- Trails more suited to my level (skill level 2)
- More intermediate trails
- More diverse trails
- More gentle slopes

More trail connections (5)

- Join all the trails together
- Connect them so you can make longer rides if loop make uni-directional
- More connected trails
- It would be great to have connector trails linking Boulder county parks with other Boulder county/state/city parks
- Maybe tie some parks together

Create more trails like Hall Ranch/Walker (4)

- Hall and Walker ranches are excellent- more trails like these with longer ride/multiple loop
- More trails on parks like Hall ranch
- More trails like Hall Ranch
- More trails like Hall Ranch

4. User conflicts/regulations (56)

Crowd reduction (22)

- More isolation
- Fewer crowds
- Fewer hikers
- Fewer people
- Less people
- Less people
- Less people but I know this isn't realistic
- My only complaint is crowded trails but I am happy to share
- More trails for crowd control
- Fewer people, more trails
- Less people. Longer/more trails
- Less volume more trails
- More trails to lessen congestion

- More trails less people
- More trails = less crowding=less passing of hikers horses
- If there were more trails open it would spread out the cyclist and improve everyone's experience
- More trails longer as well. That might address the problem of congestion and occasional bad manners
- Open more trails to bikes so that it is less crowded and more access
- User distribution
- More trails so people are spread out
- Give mt bikers and hikers wider space
- Temporal distribution of hiker and bikers on *some* trails
- Get rid of hiking and horse trails.
- Separate horse use and mountain biking use on trails

Improve etiquette (11)

- Other bike riders attitudes
- Trails knowledge, use rules. Make trail etiquette more prominent
- Teach other trails users etiquette (yield to climbers)
- Improved etiquette of other riders example- lower speed, yielding right of way, etc.
- Trail etiquette and the preservation of single track
- Nicer people would be sweet. For some reason hiker and biker courtesy is lacking from people on the trails
- Mostly I think more cyclist education about trail etiquette. I enjoy when everyone's polite about trail use. Often it seems some cyclist have ruined other users opinions of our sport
- Mt bikers need to be more courteous to other trail users
- More trails, everybody share and be nice.
- Communication between user groups
- Less conflict with hikers who act like MTB is evil.

Horse complaints (10)

- No horses!
- No horses!!!!!!!!!!!!!!
- Exclude horses on some trails
- Less horses
- Less horses, pick up poop
- Less horses, pick up poop
- No horse shit on the trail
- No horses or they have to clean up their droppings
- Horse poop removal
- Remove horse piles

More dog access (8)

- A place where dogs off leash can co-exist
- Allow dogs off leash
- Allow dogs to be off leash
- Allow dogs with no leash

- More dogs allowed so they can exercise with you
- Rides for dogs
- More open trails for dogs to run when biking
- More of them and ones that allow dogs

Dog complaints (5)

- Clean up dog mess
- Dog clean up
- No dogs!
- No dogs!
- No cows, leash law

5. More trails near town (28)

- More trails in town (near down town Boulder)
- More trails closer to Boulder. What we have now is great but restricted
- If there were trails within reasonable biking distance of Boulder (i.e. Not over flagstaff road, but 20 min ride away)
- More accessible trails form town (Boulder) to bike to.
- More riding closer to city (riding distance)
- Open parks to bikes in city
- More cross-county single track more trails/local close to Boulder
- Rides closer to town
- Rides closer to town
- More single track trails close to Boulder
- More single track trails close to Boulder County
- If "they" let mt bikes on the mesa and other front range trails
- More mt bike accessible trail near town
- Trails closer to Boulder so I don't have to drive to bike!
- A bike trail (single track) in Boulder perhaps open mesa trail to mtn bikers or other trails around NCAR that would allow mtn biking.
- Be able to start mountain biking from downtown using single track
- Open more parks to mt bikes in Boulder city
- More access closer to town
- Have more trails close to Boulder. Now you have to take your car first and THEN ride your bike more good trails within biking distance of city of Boulder
- More trails more options closer to town
- More trails available especially in city of Boulder
- More trails close to Boulder
- More trails close to Boulder
- More trails closer to Boulder if possible
- More trails closer to dwtn and south Boulder
- More trails closer to town - even if you had designated no riding days like Betasso.
- More trails outside of Boulder!
- More trails that can be accessed from town and connection of trails

6. More trails maintenance (16)

- More trail maintenance
- Remove some of the large boulders on steep drop-offs rocks on trails
- Better trail maintenance the water bars and ---should be less steep more gradual right now they are too steep and dangerous to ride
- Better trail maintenance. A good job was recently done at Heil.
- Less large logs
- More trails that are better designed to deal with erosion. Evergreen trails are a great example
- Try to less erosion of trails due to mountain biking
- Keeping the trails clear
- Rock removal
 - Less Rocks
 - Take out the rocks, remove the rocks from trails
 - Don't like rocks at Heil
 - Fewer rocks
 - Less loose stones
 - Keep paths more clear of larger loose rocks or where quantities of loose rocks are greater
 - Less loose rocks
 - Maintenance on long ride remove small rocks

7. Site-specific responses (16)

Other (7)

- More mileage. More trails, open new trail at top of Hall ranch loop
- More rides less people expand Hall ranch
- More trail access so I can ride from home (Superior)
- Please open additional trails how about Anne B White?
- More trails along the front range
- More trails in east county Lafayette
- More trails at Heil Ranch

Re-open Betasso full time (3)

- Betasso closing weds/sat was unfair
- Open Betasso preserve 7 days a week
- No off days

Connect Heil/Hall (4)

- Connect Hall and Heil
- Linked trails Heil-Hall
- More trails - complete Heil to Hall
- More trails, advanced trails, linking Hall to Heil

Connect Eldorado/Walker (2)

- To be able to ride on the Eldorado trail btw. Eldorado and Walker ranch, so if you live in Eldo you don't have to drive your car to Walker plus both ends allow bikes. So why not the link?
- Connect Eldo trail to Walker Ranch Loop

8. Bike only trails/days (14)

- Bike only trails
- Dedicated mnt biking trails
- Dedicated trails to any activity. Biking hiking and horses on their own trails. Safer for everyone
- More trails, new trails just for bikes - this would cut down on user conflicts
- Trails that are bikes only
- Trails that only allow bikes
- More trail options trails that allow only mt. Bikes no hikers for instance Hall ranch has a hiking trail, keeps the hikers on their designated trails that mnt bikers aren't allowed on
- More trails that are biking only at least certain days of the week
- Designate more trails/day for biking only
- More trails open to Mnt bikers and for alternate routes to biker/hikers (such as Hall Ranch)
- Have bike only trails.
- have bike only days.
- Trails restricted to biking ONLY
- Maybe open additional trails under a bike day/hike day system like at Betasso.

9. Better Trail info -- Signs, maps, the website (13)

Maps (10)

- A comprehensive trail map of all trails at most trails signs
- Better maps
- Better maps
- Better maps available on the web
- Better signs, better maps, better info about direction to trail heads, trails difficulty etc. The web site needs work.
- Well labeled trails, maps, website info
- Knowing where to find maps
- Maps
- More/better maps, IMBA map isn't great
- If there were a good map of mt biking trails available to students at CU

Signage (3)

- More/better path/trail signage
- Signage
- Post rules that uphill has right of way

10. Facilities (11)

Parking (5)

- More parking

- More parking at Heil ranch. Otherwise fantastic job.
- More parking fewer people,
- More parking, longer trails
- Parking at trailheads

Water (5)

- Water at the parking lot
- Water at trail heads
- Water fountains
- Water fountains
- Water stops

Bathrooms at bottom

11. Other (11)

- More parks and open space the better
- Less regulation
- First aid kit at trail head
- More bike time- women's class
- More girl bikers!
- More women riders
- Mountain bike park
- Lots of downhill
- More secondary trails off main trail
- Changing booth
- Numerous things are needed: (1) lack of trails close to Boulder city - 99% of trails are driven to, (2) LACK OF QUANTITY, THERE IS A TINY % OF TRAILS PER MNT biker compared to other places in the front Range, (3) The trails that are open to bikes are too short making us do laps and constantly passing the same slower trails users - this creates an atmosphere where trails conflicts happen more, (4) I think there is also a lack of understanding about "how" bikers ride: this is not about getting somewhere or riding to the top. -- look at the west and end magnolia trails that the Mt bikers built, look at the Buffalo Creek trails on the Colorado Trails, we ride to be riding, loops aren't our first choice, winding trails that are long and go no where are great - spreads out the trail users as well.

12. Compliments (7)

- Very happy with System
- Can't think of a thing!
- There just fine
- I think it is fine
- I would not change anything
- We have the best nothing to improve
- In am satisfied with what there is

Appendix C – Full quotation additional comments

Question #12

1. More trails/access (17)

- Mtbs should be allowed everywhere horses are.
- More plains trails
- More trails, more trails, more trails
- It is ridiculous that Boulder, home of IMBA, has two trails to ride
- Many trails are not open to bikes
- There is wonderful open space in Boulder however the majority is limited to hiking only. I do not think we need to include mt biking as an option on these trails more additional biking trails would be great.
- Build more trails open more trails to bikes
- Maybe adding additional trails in properties that already allow bikes, more options
- More rails open to cyclists, wish Canyon loop was not closed to MTB on Sat.
- Open more trails
- All trails should be open to bikes.
- more open trails would spread out the bikers
- Reopen Betasso Full time
 - I like the directional riding at Betasso but I wish the Wed/Sat ban would be lifted
 - Open Betasso back on Saturdays
 - Open Betasso full times, More trails open to bikers
- Night rides
 - I would like to see the parks open after dark in winter for after work rides
 - I would like to see more opportunity for night rides

2. Suggestions for trail type (16)

- More trails maintenance (4)
- Do not place rocks on trails
- Some trails can be marrow and poorly maintained for experienced riders
- Water bars are great. "paving" with crushed gravel is unacceptable, recently done at Heil. (dangerous)
- Trail maintenance on the Jeep road sections such as lower Walker Ranch and back of Miller Rock.

More technical trails (5)

- Increase number of Primitive Sinlgetracks open to biking. Primitive = minimal maintenance.
- Stop improvements (dumbing down)
- Do not make all trails sanitized. Environmental maintenance is good -- just don't make the trails too easy in the process
- Just no enough expert trails.
- There just isn't enough technical section to play on.

More loop trails (3)

- On popular trails I like having them one direction.

- Loops are wonderful I have no problem w/ one way loops to keep single track narrow
- Loops are best for safety

More variety of trail types (3)

- Experience-specific trails, don't make trails more homogeneous
- It would be nice to have more trails with varying levels of ability
- Some gentler trails would be great!

More trail connections (1)

- Instead of having 1 trail at each location (i.e. Hall and Heil) possibly making network of trails per location this will spread out riders`

3. User conflicts/regulations (5)

Crowd reduction (1)

- Uni-direction trail will in my opinion make trails less crowded

Improve etiquette (1)

- Bikers need to be slow and courteous around pedestrians and horses. However, it is actually easier & improve flow when pedestrians and horses yields to bikes. Peoples behavior especially bikers we don't want to loose this

Horse complaints (2)

- Equestrians should NOT be treated as spoiled children of the outdoor recreation family -- they should pick up their horse s--t and recognize that they cause at least as much erosion as bikers.
- Horses should not be allowed off trail. Horses establish too many new trails

Dog complaints (1)

- Keep open space available for dogs under voice and sight control. Deputize concerned citizens to issue citations

4. More trails near town (10)

- Many Excellent trails are CLOSED to mountain bikes e.g. Sanitas, Flagstaff, Greenman, Ann B. White.
- Make it so your don't have to drive to trail heads.
- It would be great to have Boulder to Ned trail
- Need trails out of downtown that is technical and has a direction Mt. Bikes should not be pushed out of town.
- There need to be more single track trail class in Boulder.
- More trails near the town of Boulder. Take over Chautauqua and Mesa trails or make them open to night riding. The county to annex city land! Revolt!
- Why are fireroads-like Sanitas and Shannahan ridge closed?
- Parts of Mesa trails could be respectfully opened
- More trails that can be accessed from downtown Boulder
- Open additional e.g. Sanitas, White, Green, Flagstaff.

5. Site-specific responses (8)

Create more trails like Hall/Walker (3)

- Need more trails like Hall and Walker ranch.

- Hall ranch is a great trail. It would be treat to have a few more trails like this available for mnt biking

Connect Heil/Hall (4)

- Connect Heil and Hall extend Hall Ranch loop to the west at the top.
- Heil - Hall. Yea!
- Linking up Hall and Heil would be great
- Link Heil and Hall. What a ride that would be!

Connect Eldorado/Walker (1)

- Allow biking on Eldorado trail both ends have biking. I don't see the benefit of bikeless trail between.

6. Bike only trails/days (6)

- It would be great to have an mtb-only trail.
- There are lots of mnt bikers in the Boulder area. How about biker only trails?
- Boulder County needs to build more dedicated Mt. Biker as the primary use trails.
- Maybe have bike only days
- Fair treatment of Mnt Bikers. If Betasso is closed to bikers 2 days a week it should be closed to hikers/equestrians 2 days a week. More trails should be available to biker and hopefully ONLY to bikers.
- More trails open to biking only

7. Trail info -- Signs, maps, the website (2)

- Better maps and info about biking
- Maps with difficulty etc

8. Facilities (5)

Parking (2)

- More spaces for motorcycles
- More parking area

Water (1)

- Water at trailheads would be good but I understand the cost/difficulty associated with providing this service.
- Bathrooms (2)
- Bathrooms at trailheads
- More porta-pottys

10. Volunteering (2)

- Some trail should use more maintenance (washoff areas, water bars washed out etc.) I would be willing to volunteer to do that.
- If you have voluntary trail maintenance days please publish these in the Daily Camera Thurs-Sun.

11. Knapweed (3)

- Kill Knapweed

- Kill the noxious Knapp weed at Hall Ranch before it is out of control
- Seen quite a bit of diffuse Knapweed this year.

12. Fees (2)

- No fees - good
- Great to have no fees

13. Classes (3)

- Have weekend series to introduce bikers to different parks
- More programs to get more women biking
- I would be nice to take a beginner class on trail etiquette, bike skills and bike maintenance

14. Other (5)

- Believe it or not the quality/quantity of Mt biking in a given town can play a BIG part in whether many folks move to an area and Boulder is only mediocre in this regard. Building trails will bring in lots of folks for the day as well benefiting restaurants etc. A Boulder to Nederland mt biking trail could be an attraction that would bring people from all over the west. No Kidding! Just look at Fruita and Moab (former Nowhereville)
- Ask for trail maintenance groups if trail quality is a concern by others
- Raise taxes. More open space
- More control of biking on rainy days to prevent erosion
- Keep it undeveloped

15. Jeffco comparisons (6)

- I think Jefferson County has a great trail network and offers more miles of trail with better terrain. I would love to see Boulder follow in their footsteps
- We need more trails. Jefferson County is a good example.
- Jefferson County does a MUCH better job of accommodating MTN bikers
- Use Jeffco as an example of good trail building and diversity of terrain.
- I often ride Golden because the town has more mtb-access.
- Great job on the trails. Way better than Jeffco.

16. Compliments (23)

- Great work adding trails like Heil and Antelope
- It is nice to see most bike, ped, hike and Eq getting along on these trails unlike in CA
- I really enjoy the hiking and mtb at the parks in the spring/fall close to town.
- Bld county does a great job with the upkeep of the current trails and for the most part mnt bikers are very courteous to other trail users.
- Park conditions are EXCELENT. Well maintained and so far, all users are very friendly.
- Love restroom at trail heads
- Best open space program in the Nation!
- Nice trails
- Boulder county is doing pretty good job but room for improvement
- Love living here
- Keep up the trail maintenance
- Thank you for keeping trails rideable

- Boulder County does a great job on the parks and open space
- Thanks for making additional trails available. The addition of Heil is wonderful!
- Best riding in the states
- I like no dogs rule at Heil.
- No matter what, it is great as it is
- Moved from New York (quit my job) to come here and Mountain Bike!
- Really enjoy riding your trails
- I feel Boulder County is doing a fine job of maintaining the open space parks
- Think trail maintenance and improvements have been great.
- What a Great Place to live.
- I really enjoy the mnt biking trails in Boulder County. There are diverse trails for varied skill levels.
- Boulder parks are very well thought out and maintained. Kudos to Boulder county for making a solid effort to please everybody (is that possible?)

17. Thanks for doing survey (10)

- Thanks for asking!
- Keep up good work. Thanks!
- Great Survey - More Trails!
- Thanks for caring
- I REALLY appreciate you guys doing surveys like this! Keep up the good work
- Thanks!
- Thank You!
- Thank you for your interest and for the trails that are currently available. Its hard to be a mnt biker in this country with so few options
- Thanks you for your work!
- Thanks for surveying
- Thanks for doing this survey!

