

2018 WC Open Space Trail Survey: Results

Executive Summary

A web-based trails usage survey was conducted by the WCOSF in July of 2018. Members of the Foundation were contacted via both email and US mail and asked to participate; notices for the general public appeared through the Foundation website and social media. In addition, the list of email addresses of all attendees of the Trails Committee Public Meetings was used to solicit survey responses. Responses were obtained from 700 survey forms in approximately 72 hours between 7/8/2018 and 7/11/2018.

The survey questions gathered information relating to user demographics, utilization of the open space, negative encounters with other users, and the effect of speed differential and trail width on the user experience. Suggestions for how to improve the user experience in the Open Space were also solicited.

Some results: the most popular uses of the open space were hiking, biking, and dog walking in that order. The scenery, exercise, and being outdoors were listed as the most popular reasons for use. Cyclists reported the largest number of negative interactions with other users with the more serious incidents mostly with hikers. 75% of equestrians had threatening experiences with cyclists. Issues with dogs not under the owner's control, however, was the second most reported problem by all groups. Survey responses regarding trail bed width indicated that about four feet was the average trail bed width people felt safe on when being passed on trails used by all groups.

Suggestions for improving the user experience tended to be mostly directed at reducing conflict which underscores the importance of finding solutions as soon as possible.

Background

Population Surveyed

The WC Trails Survey was administered using Google Forms via a link on the the Walnut Creek Open Space Foundation (WCOSF) website and therefore the survey was accessible to the general public. No respondent-identifying information was collected.

Respondents were solicited through WCOSF social media (FaceBook, Nextdoor), email and US mail to WCOSF membership, and through the WCOSF Trails Committee email contact list. The sample, therefore, was not random, but skewed towards members of the WCOSF and the mountain-biking community of the East Bay.

Data from a total of 699 electronic and one manually submitted form was received between 8 July and 10 July 2018, giving a sample size of 700 respondents. The last known public survey was conducted ten years ago and reported a sample size of 130¹.

¹ Appendices, *Open Space Vision Project Report*, Randy Anderson, et al. June 2008. ref.: <http://www.walnut-creek.org/home/showdocument?id=432>

Analysis Procedure

The timestamps and data for responses were loaded into a database and additional data fields were created to simplify analysis. The latter was necessary because of the questions which allowed the user to input free-form text if one or more of the multiple choice answers did not satisfy their needs.

Survey Questions

The survey consisted of twelve questions: nine multiple choice and three which required text answers. Two of the multiple-choice questions allowed for the entry of text if “Other” was selected. A blank survey form with the questions is attached to this report.

The survey questions can be divided into five categories:

1. Demographics of Respondents

The respondent's age group and their primary user group. Frequency of bringing children with them.

2. Perceived Value and Utilization of the Open Space

What attributes of the Open Space do they enjoy? What activities do they participate in, e.g., do they hike as well as mountain bike? What do they enjoy in the OS, e.g., wildflowers, exercise, birds,?

3. Negative Encounters With Other Users

Three levels of encounters were probed. A negative incident (e.g., dogs barking), an encounter which made the user feel threatened, or problems which discouraged them from using the open space.

4. Effect of User Speed Differential and Trail Width on User Experience

Survey participants were asked to rate their comfort level under the conditions of two speed levels and four trail widths. They were also asked to suggest the minimum trail width they would feel comfortable with on a shared trail.

5. Suggestions for Improvement of the user experience

The final Survey question asked for suggestions to improve their user experience in the open Space.

Survey Results and Observations

Some broad-brush results and sample charts follow. Further analysis will be done as required. Note that the label “Riding” in the charts below indicates “horseback riding” and was used to make the label more concise.

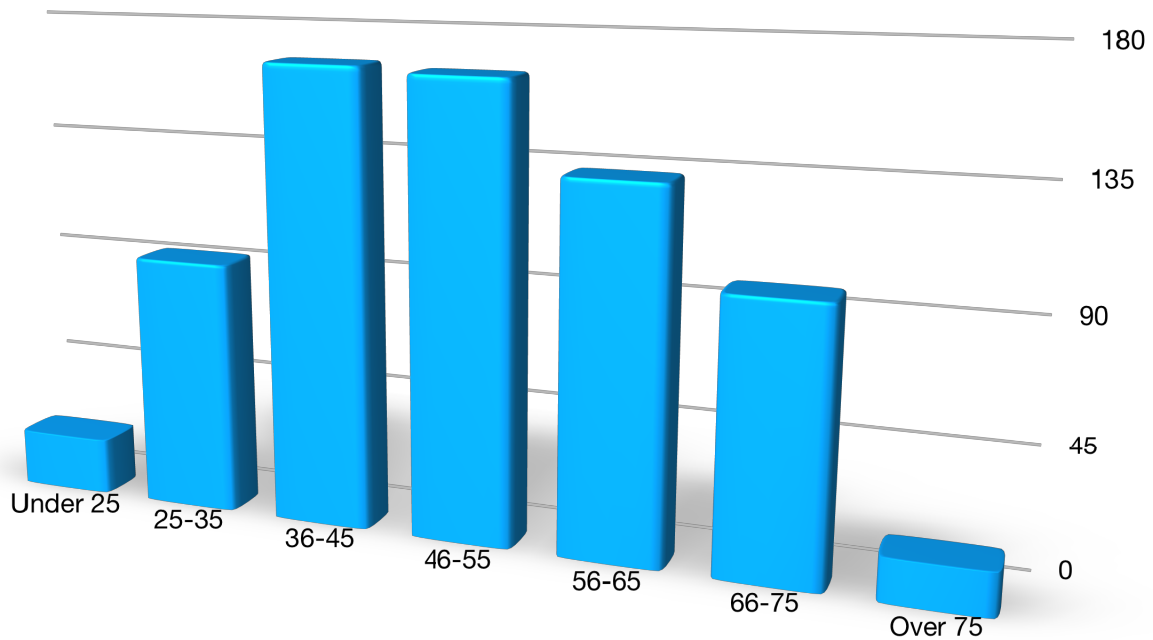
1. Demographics of Respondents

The two demographics collected were the respondents age and the user group they identified as their primary group.

► Age

Most respondents were between 36-65 years of age:

1. Age Distribution of Respondents



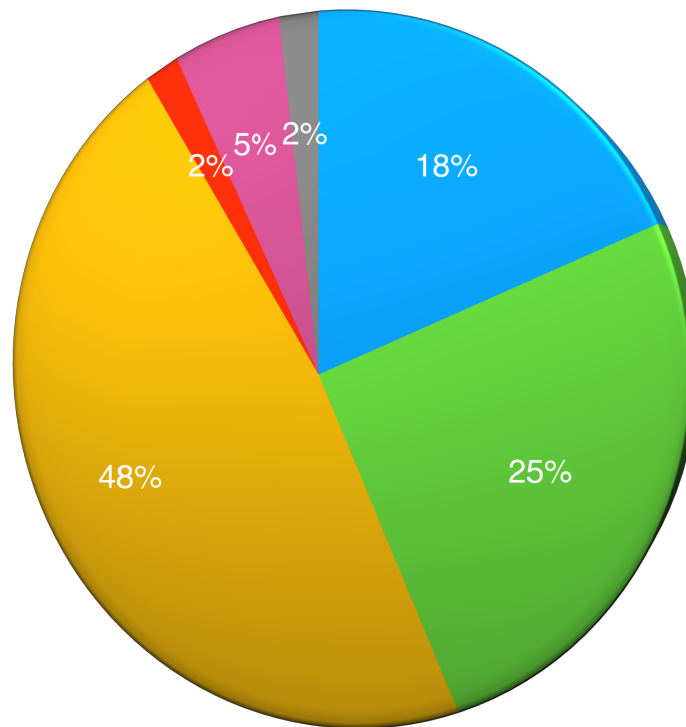
Regarding children, about 56% (392) of the respondents answered the question about how often they brought children with them to the OS. Of these, only 6% said they *always* brought a child, one in four said they *frequently* brought a child (101), and two-thirds said they *never* brought a child. There were no “Occasionally” responses.

- The 56-65 age group was the age group to “Never” bring children.

► **Primary User Group**

Respondents were asked to identify which activity they considered to be their primary activity

2. Respondents' Primary Use of the Open Space



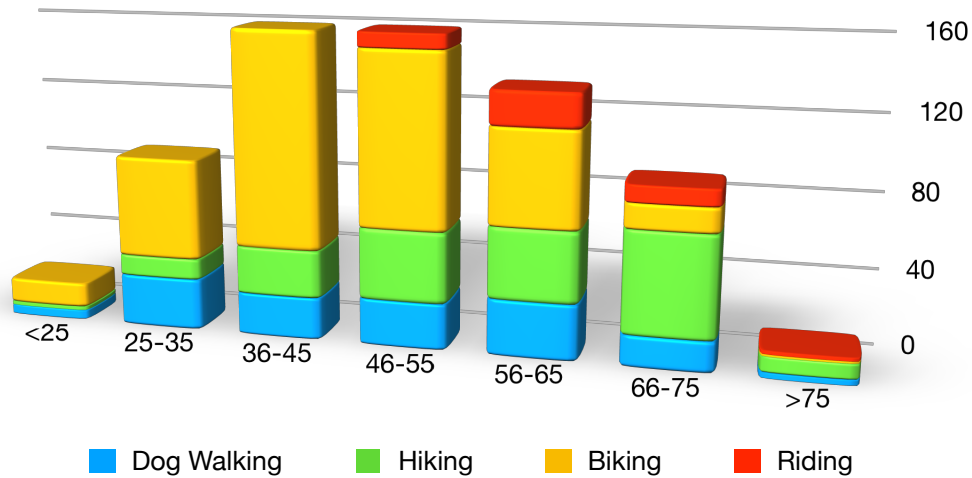
● Dog Walking ● Hiking ● Biking ● Running ● Riding ● Other

in the Open Space.

- Almost half of the respondents replied that their primary use of the Open Space was for cycling.

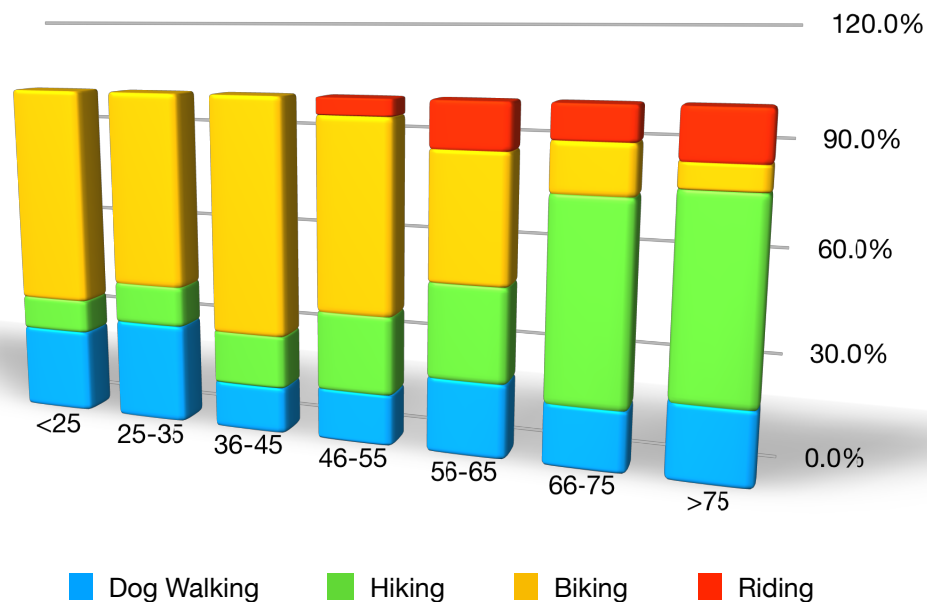
- While 48% filling out the survey preferred mechanized travel on the trails, about the same number reported using the Open Space primarily on foot (hiking, dog walking, and running).

3. Count of Primary Activity by Age Group



Most bikers responding to the survey were in the 36-45 year-old age group with the majority being between 36 to 55 years old:

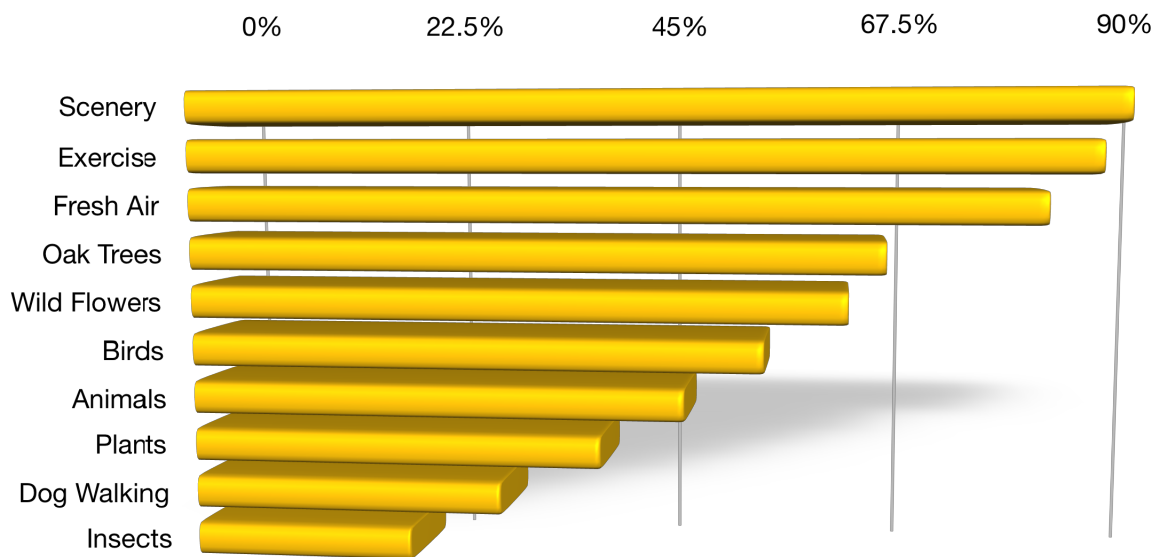
4. Primary Activity as Percent of Age Group



2. Perceived Value and Utilization of the Open Space

Below are the summarized responses to the question *What do you enjoy when you visit our open space?* Users were allowed to pick one or more items.

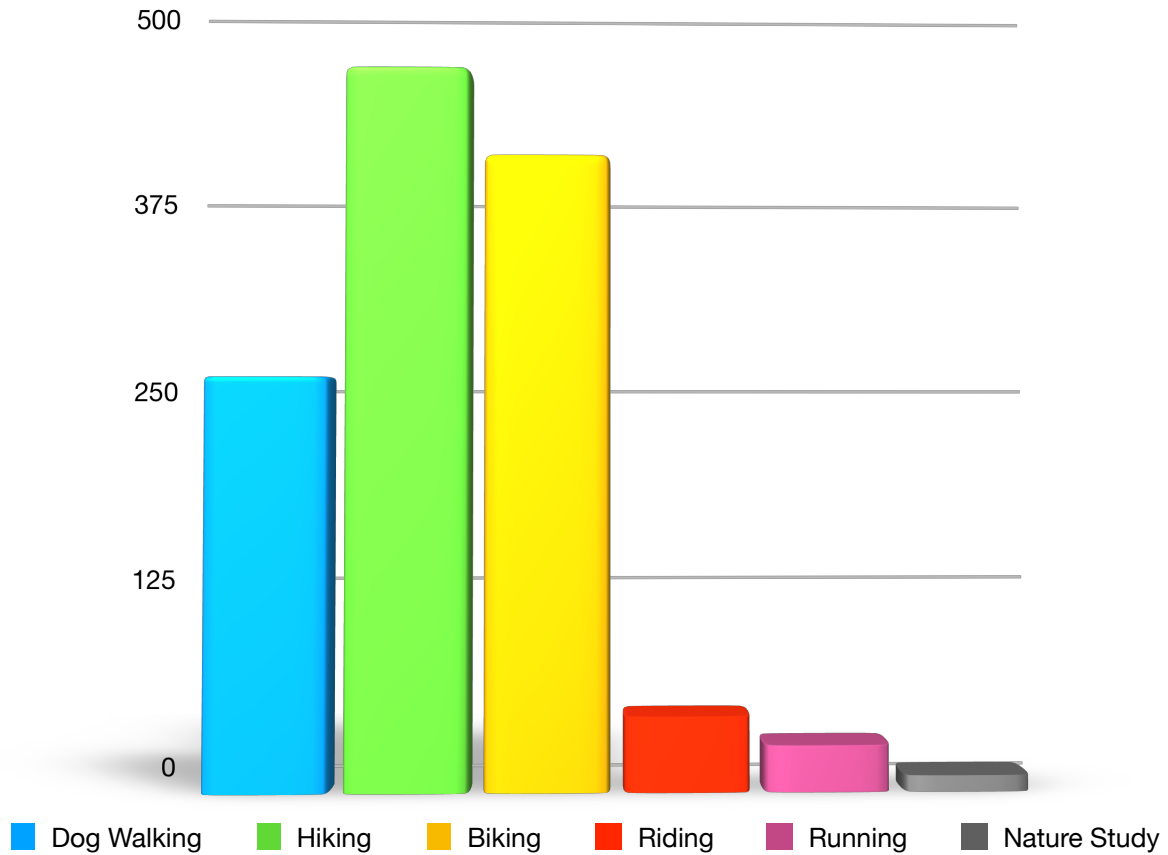
5. *What do you enjoy in the Open Space?*



■ For the 24 respondents who provided *only* “Exercise” as the source of enjoyment, 21 were mountain bikers, 3 were hikers.

Respondents were also given the opportunity to select multiple activities from a list. More than half reported that they enjoy the Open Space when doing more than one type of activity. Here is a breakdown of all activities survey takers reported they pursue in the WCOS:

6. Activities Enjoyed in the Open Space



■ Based on the responses, mechanized use of the Open Space (bicycling) was enjoyed by 57% of the respondents while hiking use was enjoyed by 65%.

3. Negative Encounters With Other Users

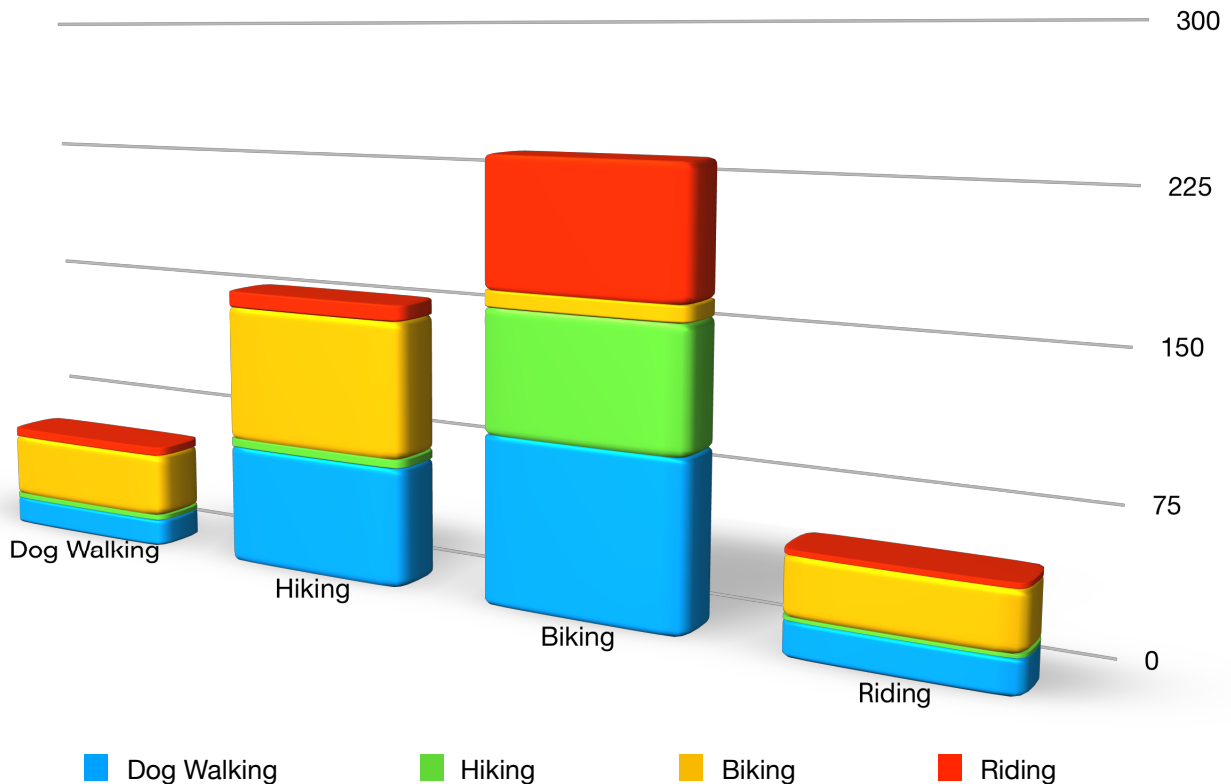
The three questions about negative interactions roughly address three levels of negativity: 1) mildly negative (an incident), 2) overtly negative (words may have been exchanged, for example) and 3) discouraging encounters — those unpleasant or frequent enough to discourage use of one or more trails in the OS.

The charts below show the questions and summarizing information of user interactions.

1. Have you had problems with other people?

An incident with a bicycle was defined in the survey as “... not yielding or going too fast on a narrow trail”; an incident with a with a dog walker as “Dogs barking or not under control.”; with an equestrian or hiker, as simply “an incident”.

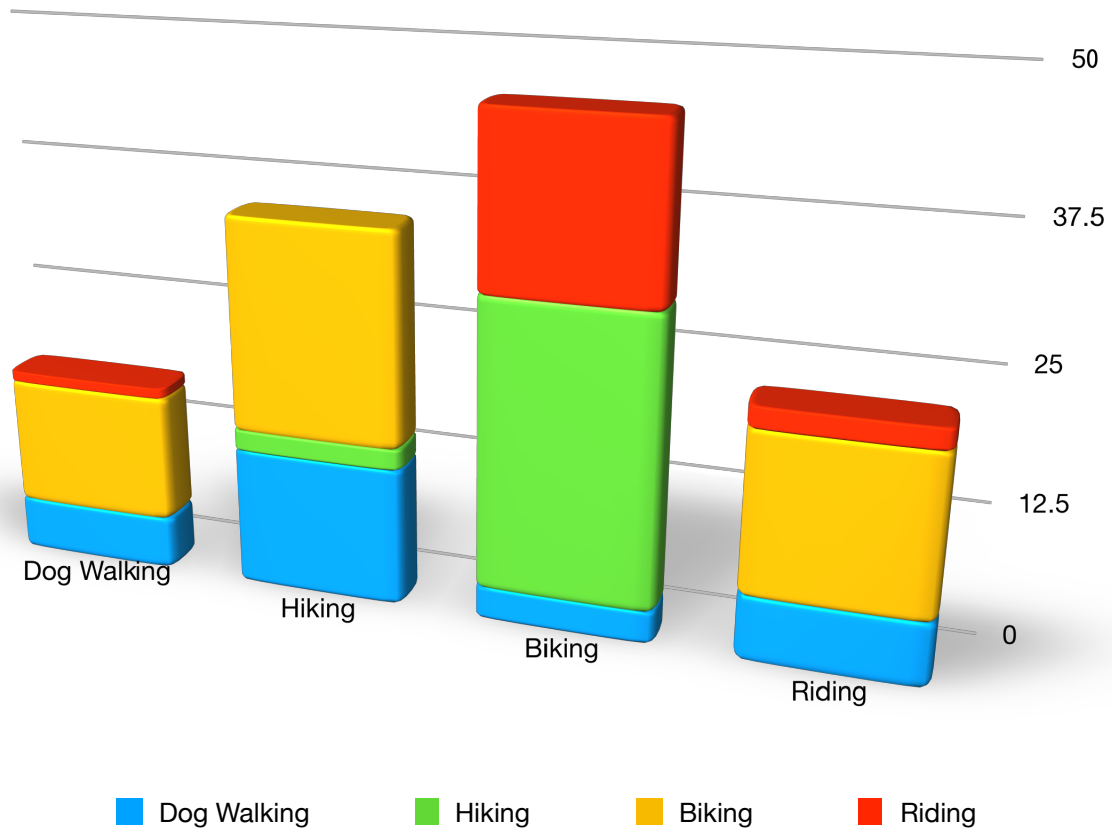
7. Incidents With Others During an Activity by Primary Use



- 92% of equestrians reported one or more incidents, 88% of them with cyclists.

2. Have you felt uncomfortable or threatened in encounters with other people in our Open Space (if so, please describe)?

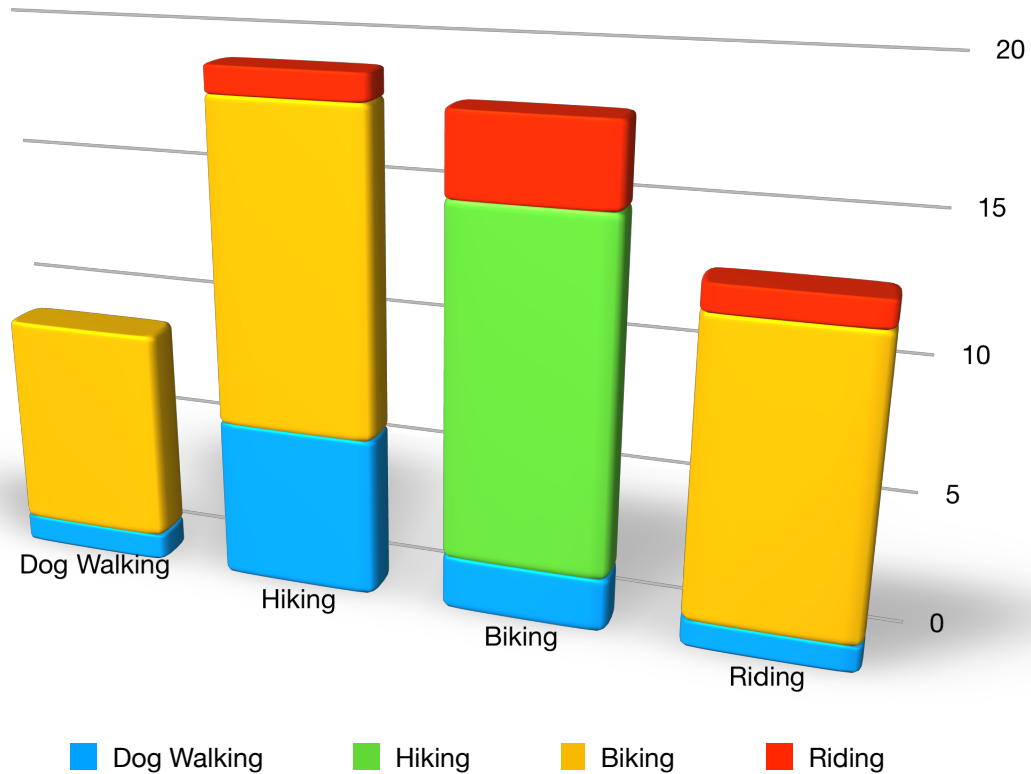
8. Overtly Negative User Interactions During an Activity by Primary Use



- About 1 in 5 of responding bikers and hikers have had unpleasant interactions with other users in the open space.
- Bikers have the most negative interactions with hikers, and everyone else has the most negative experiences with bikers.
- Dog walkers and equestrians have the fewest negative interactions with hikers.

3. Have encounters with other trail users made you less likely to use particular trails?

9. Discouraging Encounters During an Activity by Primary Use



- Negative interactions with mountain bikers seems to be the most likely interaction to cause other users to avoid using some or all of the trails.
- For bikers, negative encounters with hikers are the most likely to cause them to change their usage patterns.
- Overall, about 10% of the respondents reported that they were discouraged from use of a trail as a result of interaction with other people; in some cases even members of their own user group.
- Users reported a total of 11 problems with people who were apparently vagrants living in the open space.
- More than a third of the equestrians felt deterred from using certain trails in the WCOS.

4. Effect of User Speed Differential and Trail Width on User Experience

Respondents were asked to rate their comfort level with various trail widths under the conditions of slow vs. high speed encounters with other users. They were then asked to select their preference for the minimum trail width for shared trails.

Comfort Factor, Speed and Trail Width. The survey asked respondents to consider trail width and speed when encountering other users. They were given four trail widths: two-, four-, six- and eight-feet. They were to characterize their comfort level when the encounters occurred at a low vs. high speed. Three categories of comfort were provided: “I’m OK”, “I’m a bit concerned”, and “I want to avoid these situations”. To analyze the results, I assigned a value of 1, 0 or -1 to each of these responses to represent a relative comfort factor from most to least. A small number of respondents selected more than one of the standard responses (fewer than 2%). In cases of multiple responses, the assigned values were simply added together to compute the CF.

10. Low Speed Pass: Comfort Factor by Trail Width and Activity

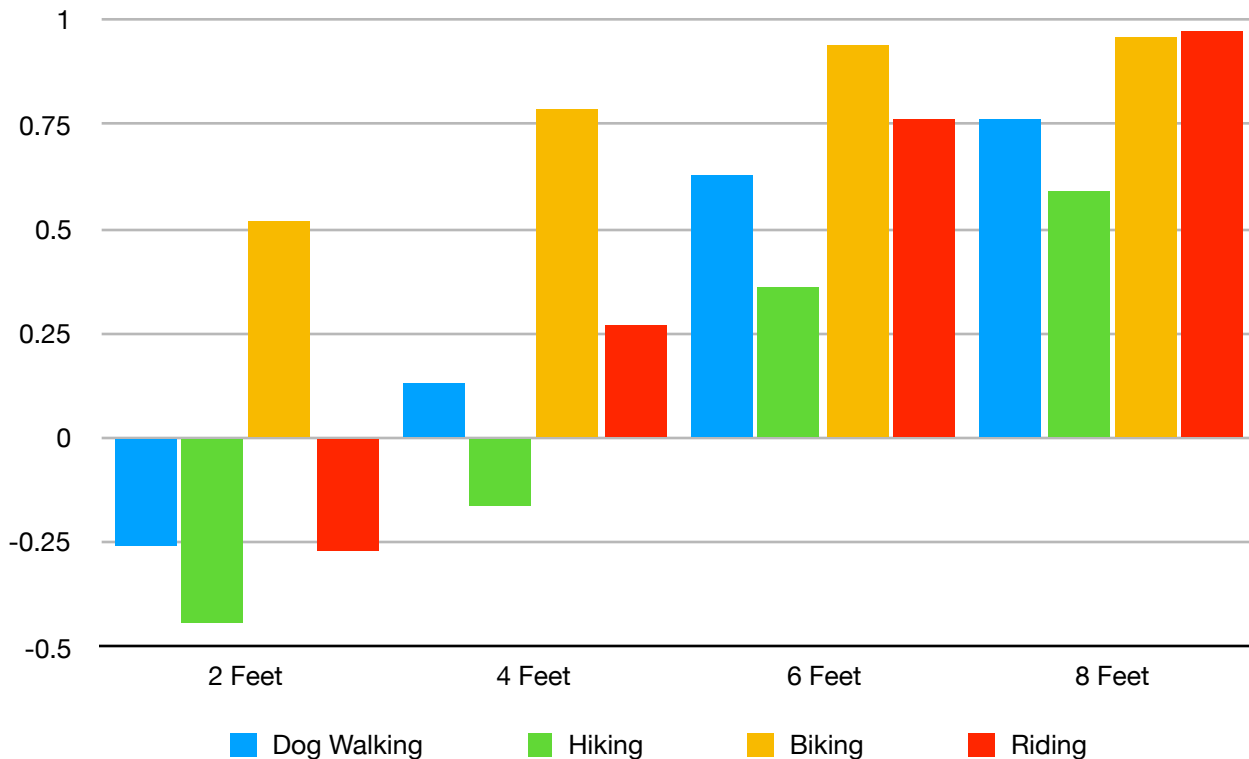


The speed of the encounter was only specified as “low” or “high”. For users, considering an actual encounter on the trail, it is likely that “low” was interpreted as someone going the same speed, slower than they were, or stopped. For example, if following proper procedure for yielding to hikers, a mountain biker heading down hill on a single track will come to a complete stop leaning the bike off-trail, with the tires left on the trail bed; so the biker would be “slower” than a hiker when they encountered each other.

A high-speed encounter would probably only occur when someone biking or trail running passes another user. Hikers, horseback riders, and dog walkers all move at about the same speed (2-3) miles per hour. A trail runner maintaining a 11 minute/mile pace would be traveling *twice* as fast as the slower group (5.45 mph).

Mountain bikers have reported times of 5-10mph going *up* single track trails in the WCOS and speeds of 20-30mph coming down the same trails². Thus, a hiker can be passed at twice his or her speed if the bike is headed uphill, and up to *fifteen* times the speed if the bike is heading downhill. On a relatively flat trail, a mountain bike traveling at the current speed limit in the open space (15mph) would be traveling at about *seven* times the speed of a typical user on horseback or on foot³. A mountain bike going *uphill* could encounter a bike traveling 4-5 times faster downhill.

11. High Speed Pass: Comfort Factor by Trail Width and Activity

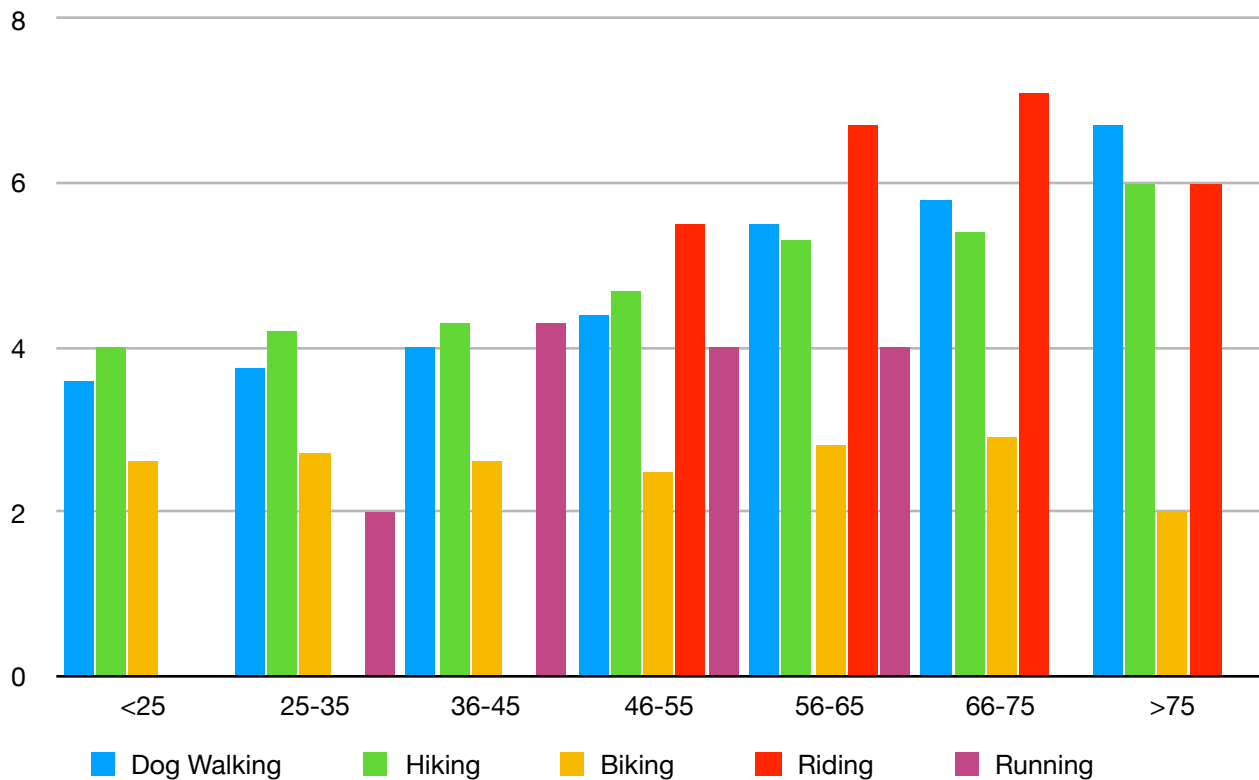


² speed estimates based on timed results reported on the Strava website: <https://www.strava.com>

³ Consider an analogy: a car going 25mph on a single lane road being approached by a pickup truck traveling at 175mph (25mph x 7).

■ Fast encounters with other users does not seem to be an issue for mountain biking although wider trails are preferred. Someone on a bike is probably never passed from behind, though, and they are only passed at relative high speed by other bikers coming down hill when they are heading up.

12. Average Preferred Trail Width for Shared Trails (Feet) by Primary Use and Age



Here are the responses by primary use and by age group showing the average preferred width in feet:

Except for mountain biking, preferred width correlated with the age group; i.e., the older the respondent, the wider the preferred trail width for shared trails; in addition, users prefer the narrowest trail width while they are mountain biking, the widest width when horseback riding.

The average preferred width for all users was 3.85 feet. Worth noting: the minimum recommended width for shared trails (MTB/Hiker/Equestrian) is 4 feet in several Regional and National design guidelines.

5. Suggestions for Improvement of the user experience

This category was covered by the question:

What changes to the trails themselves to trail use rules or to trail user behavior would make you more satisfied with your visits to our Open Space?

65% of the respondents had something to say. Since these responses were in narrative form rather than multiple choice selection, the field was analyzed using key words to count the number of responses which shared that key word. The 458 responses were also subjectively judged to require enforcement to implement.

Any solutions suggesting the following were deemed to potentially require enforcement to succeed:

- Directional trails
- Limited use trails (eg., bikes only, hikers and equestrians only, etc.)
- Alternate days access by different user groups
- Time-of-day access for certain groups
- Enforcement of existing rules

Using the above criteria, 42% of the suggestions fell into the category of potentially needing enforcement to work.

The 58% of the palliatives *not* requiring enforcement often required development. They included:

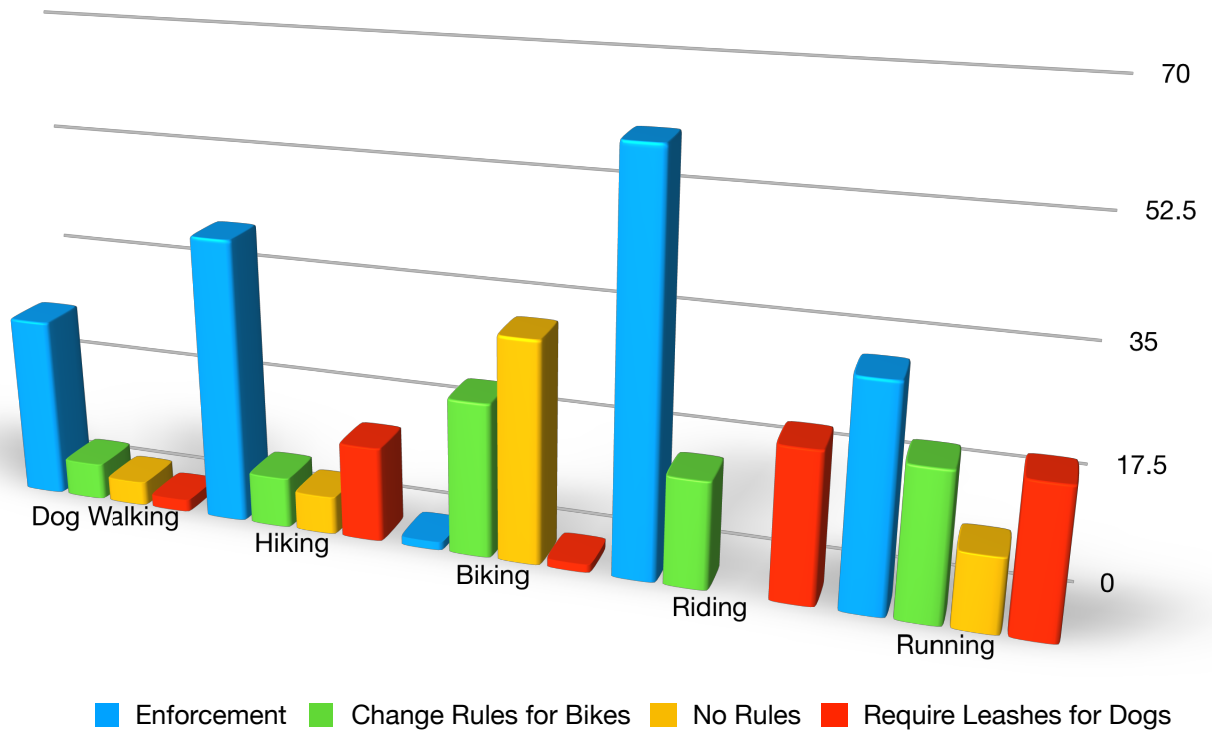
- Open all trails to everyone (no rules)
- Modify trails to reduce speed of bike traffic, improve sight lines
- Make more trails to spread out the traffic
- More attention to restoration of Shell Ridge habitat
- Additional signage posting rules and etiquette
- Better trail drainage
- Provide water fountains and restroom facilities
- Build MTB and e-bike trails
- Everyone should get along and share
- Quit planting wildflowers
- Better trail maintenance

Of these solutions, “open all trails to everyone” seemed like an interesting place to start and represented about 17% of the responses (77).

This was a free-form text response question, so it is a little more difficult to categorize the answers, because they each need to be read to make sure they go into one *or more* reasonable “buckets”. Some users mentioned several different aspects of changes to the open space to increase their satisfaction.

That said, of the 700 respondents, 458 entered something in the field, roughly grouped into the following major themes:

13. Percent of Responders By Primary Group Suggesting an Action for Improvement



Where:

- “Change rules to accommodate MTBs” were suggestions to do things like segregate trail usage by user group, time of day, alternate days, etc.
- “No Rules” means that all trails should be open to everyone.
- “Enforcement of Current Rules” these were responses which did not want changes to current trail usage rules, but wanted them to be enforced.

As you might expect, the interest in enforcement of current rules also seemed to bump up with the age group. Note that changes to rules to accommodate MTB use would also require enforcement to work — such as limiting mountain bike usage on trails to certain time slots or days of the week, certain trails, dedicated bike-only trails, etc.

Respondents identifying as primarily mountain bike users had the most interest in removing all current restrictions on bike use on single track trails (bikes are currently allowed on other trails). Those responding who used the OS trails for other purposes were in favor of enforcing the current rules which allow only a few trails for mountain bike use; they were also strongly in favor of requiring leashes for dogs.

Other suggestions included adding or changing signage (11), adding/enforcing rules to cleanup after a dog or horse, etc. (11). These had much smaller group sizes.

If “Maintenance” is expanded to include suggestions to build MTB-specific trails or modify existing trails to accommodate MTBs, there were 39 suggestions in total with most of the additional suggestions coming from cyclists.

Concluding Remarks

Comparison With Previous Survey

In June of 2008, the *Walnut Creek Open Space Vision Project* commissioned an outside organization⁴ to help conduct and document the project. A survey was part of the final project report. The survey results included responses from 130 people surveyed and 74 workshop attendees. Many of the respondents were workshop attendees, so a significant number of responses were duplicates.

The summary of workshop and survey results in the 2008 report:

“The responses are ... consistent with the original 1974 Open Space Policy emphasis on protection over use, as evidenced by the large number of comments related to Natural Habitat/Resource Protection and Preservation Priority (basically keeping it like it is).”

The methodology used for the 2008 survey was not described in the published report. The responses to the nine questions were documented, however, in both narrative form (workshop attendees/survey takers comments) and six charts.

A complete description of the previous survey is beyond the scope of this document⁵ but it is useful to compare the results from ten years ago where the questions were similar to this survey to what was recently obtained. Here are some observations:

1. *What do you like to do in the Open Space?* [2008 Q3] A list of activities was given and users were asked to rank them in terms of frequency they participated in those activities in the Open Space. The ranking of activities usually performed may be equivalent to our “primary” use. Ten years ago, walking and hiking was the most popular, followed by dog walking, bird watching, and trail running. These were followed by photography, mountain biking and horseback riding, in that order. It is clear from this, that the interest in mountain biking has increased tremendously since 2008.

⁴ *LandPeople* (Benicia, CA), Randy Anderson, Principal.

⁵ The 2008 [Open Space Vision Project Report Appendices](#) (42 pages) is available on the Walnut Creek City web site.

2. *What are the important benefits?* [2008 Q4] The four most frequent responses were related to limiting development, protecting views and plant and animal habitats, and to provide peace and quiet. On almost an equal par with these was the provision of trails. A place to exercise was not mentioned by the 20 people who responded to that question, unlike the nearly 90% of respondents in the current survey⁶. This may indicate a change in emphasis to valuing personal physical benefits over aesthetics among visitors to the OS.
3. *Priorities for spending on trails?* [2008 Q5] There were 34 responses to question #5b on the 2008 survey. The suggestions included requests for more access to single track trails for mechanized (biking) use with a more than equal number of requests for separate trails for mountain biking. Looking at the current survey, about 87% of the 53 respondents who thought single track trails were appropriate for *all* users, were primarily engaged in mountain biking; of the 28 who thought there should be separate trails, primary use was evenly distributed between equestrians, hikers, and mountain bikers at 29, 29 and 32% respectively.

In sum, the three obvious trends since 2010 seem to be: many more people are using mountain bikes in the OS, there is an increased emphasis on personal health benefit over public aesthetics as the perceived benefit of the OS, and a pronounced difference of opinion concerning the *sharing* of trails (versus dedicated mountain bike-only trails) as a way to provide single track trails for use in mountain biking.

Limitations of this Survey

1. The responses may not reflect relative usage levels since the questions *assumed* that the respondents were users of the Walnut Creek Open Space rather than confirm usage in a question. Some of the text responses addressed issues in Mount Diablo State Park, for example.
2. Some of the “cells” in the analysis are very small and therefore are less reliable in exposing underlying patterns. For example only 37 respondents identified as primarily equestrians. There were few respondents in the “younger than 25” and “over 75” year-old categories, for example.
3. Assignment of some of the text responses to categories was done subjectively, so there is some chance of misinterpretation of the respondent’s answer, which would affect the counts.
4. There are many ways to “slice” the data, additional thoughts from interested parties may lead to additional ways to analyze the data to gain further insights.

Proposed Enhancements for the Next Survey

- Prevent/reduce duplication of entries. Several responses were submitted minutes apart with identical multiple choice and text responses.

⁶ “Exercise” was listed as a choice in the current survey which may have prompted that as a response, but the lack of *any* mention in the earlier survey responses seems significant.

- Solicit hiking and especially equestrian groups to encourage participation in the next survey.
- Solicit both younger and older trail users for responses.
- Collect respondent frequency of OS use data.
- Collect names of trails and areas most used and trail type frequency of use.
- Consider adding new categories for “walking” and “trail running”.
- Collect trail bed width and location when incident or encounter occurred.
- Clarify the definition of “fast speed” in trail width question.
- Add an item to indicate whether or not the respondent is a WCOSF member.
- Add question about number of people in the group when incident occurred and/or normal number of people when in open space, eg., group hiker or solo hiker, etc.
- Limit the use of free-form responses to avoid errors introduced through misinterpretation of the written response.
- Consider adding questions concerning the user experience on the trail.
- Where written responses are used, a group of three or more people can be used to evaluate the responses to categorize them.
- Consider conducting an “exit” type survey.

Credits

Many thanks to Bill Hunt who drove the survey process under a short time constraint, drafted the questions for the survey and circulated them for feedback, and solicited participation in the survey among Foundation members and other stakeholder groups. Thanks also to Katrina Nagle (WCOSF Advisory Board Member) for implementing the question list as a Google form and publishing it to the web for us.

Special thanks to David Ogden, who was kind enough to review this document before its final release.

Reader feedback is welcome; please submit any feedback to secretary@wcosf.org.

Submitted by:
K. H. Smith,
WCOSF Board Secretary

Attachments:
Survey Questions
Trail Width Detail Report
Chart Data Tables

Attachments

2018 WCOSF Trails Survey: Att. #1, Survey Questions
(4 pages)

WC Open Space Trail Survey

Please let us know your thoughts and opinions on trail use in the Walnut Creek Open Spaces prior to the next Trail's Committee meeting on July 16th.

* Required

How do you use our Open Space? *

- Hiking
- Walking with dog(s)
- Riding horses
- Mountain biking
- Other:

What is your most frequent or most valued use?

- Hiking
- Walking with dog(s)
- Riding horses
- Mountain biking
- Other:

What is your age group?

- Under 25
- 25-35
- 36-45
- 46-55
- 56-65
- 66-75
- Over 75

Do you bring children with you?

- Always
- Frequently
- Occassionally
- Never

2018 WCOSF Trails Survey: Att. #1, Survey Questions (4 pages)

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- Other:

What is your age group?

- Under 25
- 25-35
- 36-45
- 46-55
- 56-65
- 66-75
- Over 75

Do you bring children with you?

- Always
- Frequently
- Occassionally
- Never

What do you enjoy when you visit our Open Space?

- Scenery
- Wildflowers
- Oak Trees
- Other Plants
- Insects
- Birds
- Other Animals
- Exercise
- Walking with my dog(s)
- Riding/walking/jogging
- Just being outdoors
- Other:

Have you had any problems with other people using our Open Space?

- Dogs barking or not controlled by owner
- Bike rider not yielding/going too fast on a narrow trail
- Issues with hikers
- Issues with horses
- Aggressive/dangerous wildlife
- ...

Other:

Have you felt uncomfortable or threatened in encounters with other people in our Open Space (if so describe)?

Your answer

Have encounters with other trail users made you less likely to use particular trails (if yes, please describe)?

Your answer

How comfortable are you when you are passed by another user on foot, on a horse, or a mountain bike moving at a slow speed?

	I'm OK	I'm a bit concerned	I want to avoid these situations
2 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How comfortable are you when you are passed by another user on foot, on a horse, or a mountain bike moving at a fast speed?

	I'm OK	I'm a bit concerned	I want to avoid these situations
2 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 foot trail width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What minimum trail width would you prefer for your primary use on multi-use trails where hikers, hikers with dogs, equestrians and mountain bike riders are all allowed

- 2 feet
- 4 feet
- 6 feet
- 8 feet

What changes to the trails themselves to trail use rules or to trail user behavior would make you more satisfied with your visits to our Open Space?

Your answer

SUBMIT

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Google Forms



Minimum Multi-User Trail Width in Feet

2018 WCOSF Trails Survey: Att. #2, Trail Width Detail

n (2 pages)

Avg

Sigma

Dog Walking

124

4.65

1.83

Under 25

5

3.60

0.89

25-35

24

3.75

1.59

36-45

22

4.00

1.63

46-55

25

4.40

1.53

56-65

29

5.45

1.84

66-75

16

5.75

1.91

Over 75

3

6.67

1.15

Hiking

166

5.01

2.04

Under 25

2

4.00

0.00

25-35

10

4.20

2.90

36-45

24

4.25

1.80

46-55

36

4.72

2.25

56-65

36

5.33

1.72

66-75

51

5.41

1.93

Over 75

7

6.00

2.00

Mountain biking

330

2.60

1.17

Under 25

13

2.62

0.96

25-35

52

2.69

1.31

36-45

113

2.55

1.17

46-55

89

2.47

1.00

Minimum Multi-User Trail Width in Feet

	n	Avg	Sigma
56-65	49	2.78	1.21
66-75	13	2.92	1.75
Over 75	1	2.00	?
Other	13	5.85	2.23
Under 25	1	2.00	?
36-45	1	8.00	?
46-55	2	3.00	1.41
66-75	7	6.57	1.51
Over 75	2	7.00	1.41
Riding horses	37	6.49	1.79
46-55	8	5.50	2.07
56-65	18	6.67	1.68
66-75	9	7.11	1.45
Over 75	2	6.00	2.83
Running	12	3.67	2.06
25-35	3	2.00	0.00
36-45	6	4.33	2.34
46-55	2	4.00	2.83
66-75	1	4.00	?
	682	3.85	2.06

1. Age Distribution of Respondents

Age Group	Under 25	25-35	36-45	46-55	56-65
Count	21	94	168	166	134

2. Respondents' Primary Use of the Open Space

Activity	Dog Walking	Hiking	Biking	Running	Riding
Count	129	174	334	12	37

3. Count of Primary Activity by Age Group

Age Group	Dog Walking	Hiking	Biking	Riding
<25	5	2	13	
25-35	27	11	53	
36-45	22	25	113	
46-55	24	37	91	8
56-65	29	37	50	18
66-75	16	53	13	9
>75	3	8	1	2
>75	3	8	1	2

4. Primary Activity as Percent of Age Group

Age Group	Dog Walking	Hiking	Biking	Riding
<25	25.00%	10.00%	65.00%	0.00%
25-35	29.67%	12.09%	58.24%	0.00%
36-45	13.75%	15.63%	70.63%	0.00%
46-55	15.00%	23.13%	56.88%	5.00%
56-65	21.64%	27.61%	37.31%	13.43%
66-75	17.58%	58.24%	14.29%	9.89%
>75	21.43%	57.14%	7.14%	14.29%

5. What do you enjoy in the Open Space?

	Scenery	Exercise	Fresh Air	Oak Trees	Wild Flowers	Birds	Animals	Plants	Dog Walking	Insects
	87.3%	85.0%	80.3%	65.9%	62.5%	54.8%	47.4%	39.5%	29.9%	21.1%

6. Activities Enjoyed in the Open Space

	Dog Walking	Hiking	Biking	Running	Riding	Nature Study
Count	258	452	397	29	47	10

7. Incidents With Others During an Activity by Primary Use

Primary	Dog Walking	Hiking	Biking	Riding
Dog Walking	15	3	35	5
Hiking	65	5	74	9
Biking	90	66	9	69
Riding	18	2	30	3

8. Overtly Negative User Interactions During an Activity by Primary Use

Primary	Dog Walking	Hiking	Biking	Riding
Dog Walking	5	0	12	1
Hiking	13	2	20	0
Biking	3	27	0	16
Riding	6	0	15	2

9. Discouraging Encounters During an Activity by Primary Use

Primary	Dog Walking	Hiking	Biking	Riding
Dog Walking	1	0	8	0
Hiking	6	0	12	1
Biking	2	13	0	3
Riding	1	0	11	1

10. Low Speed Pass: Comfort Factor by Trail Width and Activity

Trail Width	Dog Walking	Hiking	Biking	Riding
2 Feet	0.33	0.11	0.91	-0.27
4 Feet	0.8	0.6	0.97	0.27
6 Feet	0.96	0.89	0.98	0.76
8 Feet	0.98	0.95	0.99	0.97

11. High Speed Pass: Comfort Factor by Trail Width and Activity

Trail Width	Dog Walking	Hiking	Biking	Riding
2 Feet	-0.26	-0.44	0.52	-0.27
4 Feet	0.13	-0.16	0.79	0.27
6 Feet	0.63	0.36	0.94	0.76
8 Feet	0.76	0.59	0.96	0.97

12. Average Preferred Trail Width for Shared Trails (Feet) by Primary Use and Age

Primary Use	<25	25-35	36-45	46-55	56-65	66-75	>75
Dog Walking	3.6	3.75	4	4.4	5.5	5.8	6.7
Hiking	4	4.2	4.3	4.7	5.3	5.4	6
Biking	2.6	2.7	2.6	2.5	2.8	2.9	2
Riding				5.5	6.7	7.1	6
Running		2	4.3	4	4		

13. Percent of Responders By Primary Group Suggesting an Action for Improvement

Action	Dog Walking	Hiking	Biking	Riding	Running
Enforcement	27.3	42.9	1.2	61.3	33.3
Change Rules for Bikes	5.5	7.6	23.2	16.1	22.2
No Rules	3.6	5.7	33.3	0	11.1
Require Leashes for Dogs	1.8	14.3	1.2	22.6	22.2