

2-2018

Trail Usage and Value - A Helena, MT Case Study

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Trail Usage and Value

A Helena, MT Case Study

Jeremy L. Sage, Ph.D., Norma Nickerson, Ph.D.

2/13/2018



This is a case study of trail use and values focusing on Helena, Montana. Economic impact, characteristics of users, number of users, and community sentiment towards trails are provided.

Trail Usage and Value: A Helena, MT Case Study

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Research Report 2018-02

2/13/2018

This study was funded by the Lodging Facility Use Tax, with additional financial and in-kind support from Helena Tourism Alliance/Helena Tourism Business Improvement District, City of Helena Parks and Recreation, Prickly Pear Land Trust

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Abstract

The Mt. Ascension and Mt. Helena trail network provide a valuable outdoor recreation amenity to residents of, and visitors to, Helena. This report identifies the use and value of the trail system. Though 78 percent of trail use is by local residents, visitors to the region who used the trail system for hiking or biking spent over \$4 million in the local area in the summer of 2017 (May-September).

Executive Summary

Outdoor recreation is a major driver of tourism in many parts of Montana. Mountain bike tourism is a growing component of outdoor recreation and business for Helena and Montana more broadly. In recent years, the Helena community has invested in expanding mountain bike tourism. Measuring and understanding the economic impact of not only mountain bike trail use, but all trail use for Helena provides the community with sound numbers in which future trail use investments may be made.

This report utilizes surveys conducted of both the trail users, on foot or bike, and the broader Helena community to gauge the perceived value of the system and estimate the annual dollars spent in the community by those who visit Helena and take part in recreation on the trail system.

During the summer of 2017, surveyors with the Institute for Tourism and Recreation Research intercepted 950 trail users to inquire about their trail use, and any spending in the local area. Combining the survey information collected with both manual and electronic counts of users entering the trail system, we estimate that over 63,000 users took part in outdoor recreation between May and September of 2017. Of these numbers, 17,438 were on Mountain bikes, and 45,602 were on foot (Table ES- 1). Just over a quarter of all Mountain bike activity was from users outside the local (Lewis and Clark, Jefferson, and Broadwater Counties) area, and one in five users on foot were nonlocal.

Table ES- 1. South Hills trail system entry volume by trailhead.

Entry Point	Total		Nonlocal	
	Mountain Bike	On Foot	Mountain Bike	On Foot
Arrowroot Dr. TH	2,140	793	592	31
Beattie St. TH	1,014	7,570	507	841
DeFord TH	2,429	3,876	540	1,108
Dump Gulch TH	1,040	1,217	173	203
Mt. Helena Ridge TH	3,561	1,363	984	53
Mt. Helena TH	785	18,847	-	5,760
Old Shooting Range TH	1,748	3,089	283	151
Tubbs TH	897	4,635	-	129
Other Mt. Ascension Trails	1,955	2,854	977	317
Other Mt. Helena Trails	495	683	151	209
Other Ridge access Trails	1,375	674	573	281
Total Entries (May-Sep)	17,438	45,602	4,781 (27%)	9,082 (20%)

In total, these nonlocal users spent \$4.03 million on goods and services in the local area. \$1.4 million of which came from mountain bike users. \$4.3 million in economic activity and 60 jobs can be attributed to spending by visitors to the area who recreate in the South Hills (Table ES- 2)

Table ES- 2. Economic impact due to spending by nonlocal trail users.

	Direct Effect	Indirect Effect	Induced Effect	Total Effect
Employment (# of jobs)	48	5	7	60
Labor Income	\$1,113,063	\$179,742	\$244,754	\$1,537,558
Value Added	\$1,521,482	\$304,524	\$421,803	\$2,247,809
Output	\$2,861,417	\$634,892	\$783,069	\$4,279,378
Total State & Local Tax				\$185,211

Not only does the opportunity to recreate on the trail networks of the South Hills contribute to the attractiveness of Helena for visitors, but it also provides a valuable recreation opportunity for residents. As seen above (Table ES- 1), 73 percent of mountain biking and 80 percent of foot traffic on the trails is from local users. When surveyed, local trail users indicated a high frequency of use (Table ES- 3). More than 70 percent use the trail at least three times a week during late spring and through the summer months.

Table ES- 3. Local trail users rate of use.

Response	Local Users	
	N	%
This is my first time	5	1%
Less than once a month	10	2%
1-3 times a month	49	8%
1-2 times a week	129	20%
3-4 times a week	264	41%
5-7 times a week	192	30%
Total Responses	649	

N=number of respondents

In addition to those avid trail users, the broader Helena community recognizes the value of the trail system as a component of the overall outdoor amenities offered by Helena. Over half of respondents rated the trail system as ‘very important’ to the quality of life in Helena. Additionally, 55 percent of Helena residents indicated they use the trails at least occasionally.

While the average adult resident of Helena has lived in the area for many years and does not overwhelmingly consider the trail system a significant component of why they decided to live where they do, those residents new to the area, within the last five years, do give more weight to the influence of the trails on not only their decision to move to Helena, but also where in Helena they chose to live. This importance to these newer, and frequently younger, Helena residents, suggests an opportunity for the area to enhance the attraction of new businesses and residents.

Lastly, while there appears to be a broad attraction to the trail across visitors and locals alike, as well as across many age cohorts, there does appear to be a substantial drop off in use among those over the age of 60. Nearly 50 percent of survey respondents in this age group indicated they never use the trails, compared with only three percent of those adults under 30. While the surveys in this report do not contain enough information to identify why this low rate of usage might be, it does spark an opportunity for further evaluation, especially given the average age of survey respondents was nearly 53 years. It is well known that mobility declines as we age and thus accessibility of recreation opportunities becomes a concern. Thus, the perceived or real accessibility concerns may be playing into this decline.

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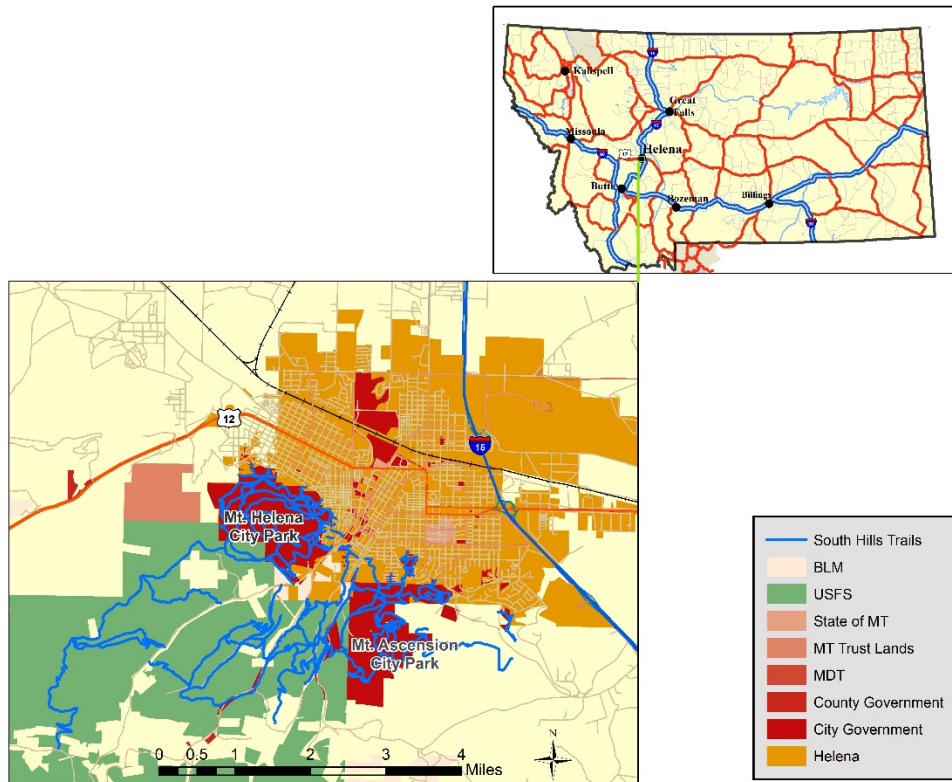
Introduction

Mountain bike tourism is a growing component of outdoor recreation and business for Helena and Montana. The community of Helena, Montana has invested in expanding mountain bike tourism in recent years. Measuring and understanding the economic impact of not only mountain bike trail use, but all trail use for Helena provides the community with sound numbers in which future trail use investments may be made.

In 2015, Helena was promoted to a Silver Level Ride Center. Helena is the only Montana community with the International Mountain Biking Association Ride Center designation, and one of only 12 Silver Level Ride Centers in the world. The Helena business and trail user community have been very supportive of efforts to promote mountain bike tourism. Part of their support has been in hope and belief of the positive economic impact of the visiting mountain bikers enjoying the local breweries, restaurants and shops. Many local small businesses invest in this promotion through sponsorship of the *Trail Rider*, a free community shuttle bus that runs 5 days a week to access trails on the Continental Divide, Helena Ridge and Mount Ascension.

The 80 mile network of trails in Helena's South Hills (Figure 1) spans over a variety of land owned by a combination of the City of Helena Parks Department, Prickly Pear Land Trust, Bureau of Land Management, and US Forest Service. These public land holders work together to offer these trails and pool their resources to maintain and develop trails for all trail users including locals and tourists, hikers and mountain bikers. User data will help these public lands organizations plan for growth, signage, and the most effective management strategies for the future.

Figure 1. South Hills overview map.



Purpose

The main purpose of this study was to assess the economic impact of mountain biking and trail usage to Helena, Montana, due to attraction of mountain bikers from outside the area. In addition to understanding the economic impacts, a secondary purpose sought to assess biking and trail user characteristics including demographics, amount of trail usage, and visitor psychographics. Lastly, the majority of trail use is by Helena residents, thus the value of the trails to the Helena community was assessed, including perceived accessibility, trail utility, contribution to desire to live in Helena, and influence on quality of life and business activity.

This report is broken into two, mostly independent, sections based on the population to whom the surveys were delivered. These sections are then brought back together for a final discussion. The two sections are:

- **Section I: Trail user intercept survey;**
- **Section II: Helena community surveys.**

Section I: Trail User Intercept Survey

Methods

Intercept Strategy

To identify the economic impact of trail usage by visitors to the Helena area, an intercept based survey was conducted at major trailheads throughout the Mt. Helena and Mt. Ascension trail system between May 9th and September 30th, 2017. In addition to trailhead surveys, surveyors were also routinely located at the primary pickup location for Helena's free *Trail Rider* shuttle, the Women's Mural in downtown Helena.¹ As shown in Figure 2, the shuttle operated Wednesday through Sunday between May 19th and October 1st. The trailheads accessed varied by day of the week.

The deployed survey schedule was based on discussions with local partners who have intimate knowledge of the trail system and in consult with previous years' trail counter data. The trail counter data revealed typical heavy periods of use. The surveyor was stationed in two to three hour increments at locations and times that sought to both maximize the number of surveys collected and provided a suitable cross section of the trail network, days of the week, and hours of the day.

As can be seen in Figure 3, peak survey periods were 7am to 9am and 4pm to 6pm during weekdays, and 8am to 12pm during the weekends. In total, 237 hours were spent surveying during the weekdays, and 87 hours during the weekend. These hours were spread over eight trailheads in addition to the shuttle pick-ups (Table 1).

Figure 2. 2017 Trail Rider Schedule Poster.



¹ Bike Helena. <http://bikehelena.com/trail-rider/>

Figure 3. Time of day distribution of survey intercept effort.

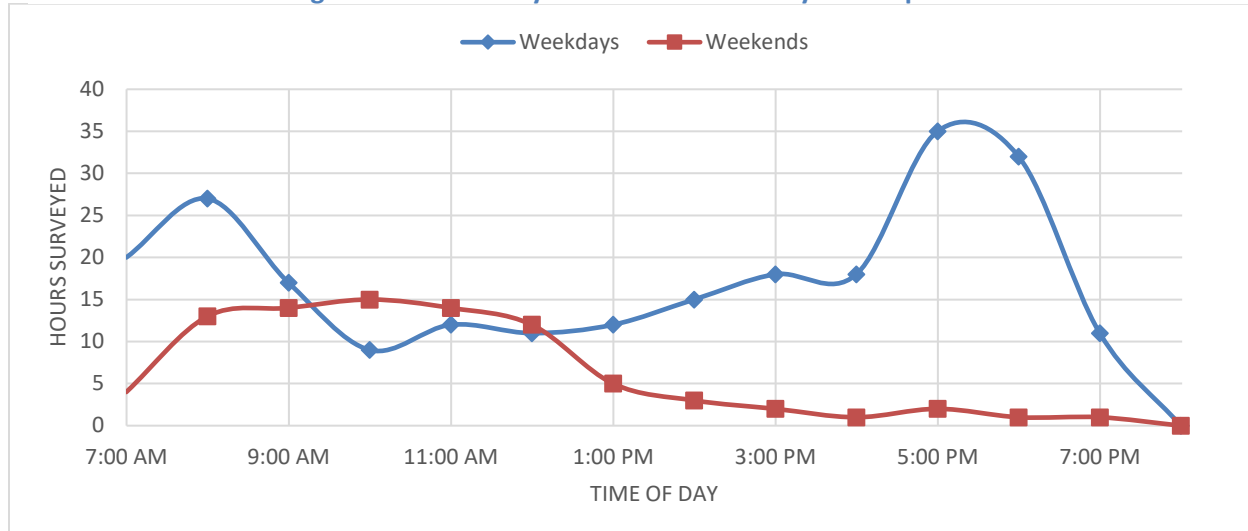


Table 1. Survey hours per location.

Intercept Location	Weekday Hours	Weekend Hours
Trailheads		
Mt. Helena Trailhead	39	15
Beattie St. Trailhead	36	9
Old Shooting Range Trailhead	34	7
Mt. Helena Ridge Trailhead	25	9
Dump Gulch Trailhead	17	6
Waterline Trailhead	15	5
DeFord Trailhead	14	5
Tubbs Trailhead	14	8
Shuttle Pick-ups		
Women's Mural Shuttle for Helena Ridge Trailhead	18	18
Women's Mural Shuttle for 2006 Trailhead	16	0
Women's Mural for Trail Rider Shuttle Fest	9	5
Hourly Sum	237	87

Survey design

The intercept surveys were primarily conducted via direct intercept by the surveyor with the potential respondents. Where volume was low enough, the respondents were provided an opportunity to directly input their responses into the surveyor's iPad based iForm interface. In order to increase the number of respondents reached, identical print versions of the survey were provided along with pens and clipboards (Appendix C). The surveyor manually entered the paper forms into iForm during down periods or after the survey shift.

Limitations

Though it is known that the trail system is used year-round, the survey period was limited to the high volume summer season. Use in other seasons is estimated based on survey response questions. Additionally, survey effort was primarily concentrated to those trailheads with heavy use (Table 1), and as such users accessing via small, neighborhood entry points may be underrepresented. Underrepresented use, if any, likely affects local user estimates most, given their knowledge of, and accessibility to the minor entry points.

Response rate

In total, 950 individuals were approached and asked to participate in the survey. Twenty refusals were recorded by the surveyor, leaving 930 completed surveys for a response rate of 98 percent.

Proportion Counts

In addition to surveying trail users, the surveyor conducted periodic, hour long proportion counts. During the proportion count periods, all users entering the trail system through the observed trailhead were asked whether they were a resident of the local area (defined as Lewis and Clark, Jefferson, and Broadwater Counties), a resident of other Montana counties, or were from out of state. Other information was visually collected to determine if children were present, group size, whether on bike or on foot, and whether the users had dogs with them.

Trail Counters

TRAFx trail and mountain bike counters were placed at several heavy use trailheads to enable the generation of total volumes of users on the trail system. The counters were in place for the entirety of the summer survey period. Infrared (IR) trail counters count all users whether on bike or on foot. These counters were placed at the Beattie Street trailhead, Mt. Helena Ridge trailhead, Mt. Helena trailhead, and the Old Shooting Range trailhead. In addition to the IR counters, mountain bike (MB) specific counters were located at the Mt. Helena Ridge trailhead and Beattie Street trailhead. The mountain bike counters work off of magnetometer based technologies. The combination of both counters at a single trailhead permit the estimation of detailed bike versus on foot users when combined with the visual proportion counters by the surveyor. The counters are multidirectional and as such the manual proportion counts inform an entry versus exit estimation.

In addition to the counters placed during the 2017 data collection period, additional counters were previously placed at other trailheads in 2016. Trail counts from 2016 were used to inform the distribution of user traffic throughout a day. In 2016, mountain bike counters were located at Beattie Street, Eagle Scout, Old Shooting Range, and Tubbs trailheads. IR counters were located at Beattie Street, Dump Gulch, Mt. Helena, Old Shooting Range, Show Me the Horse, and Tubbs trailheads.

User Volume Estimation

User volume on the trail network was estimated through a composite of survey responses, proportion counts, trail count data, and where necessary, Strava² based data. We attempt to use estimation strategies for volume, based on the best available information. Major trails throughout the network have varying levels of data availability, thus require slightly differing estimation procedures. These procedures are detailed in Table 2.

² Strava (<https://www.strava.com/>) is a mobile fitness app used by runners, hikers, walkers and cyclists. Detailed user data from Strava users is provided through the Trail Forks website (<https://www.trailforks.com/>). The website provides a trail database including user density and user type (on foot or bike). All references in this report to Strava data are from publicly available data.

Table 2. Trail specific volume estimation strategy.

Arrowroot Dr. TH	No trail counters. Use Trailforks check-ins for May-Sept 2017. Assume check-ins represent 5% of total use. ³ Estimate foot use portion based on ratio at Helena Ridge which also has Trail Rider shuttle drop offs.
Beattie St. TH	Trail has both IR and MB counters. Assume that entry/exit is 50/50 for MB and foot. Assumption based on reported entries and exits by survey respondents.
DeFord TH	Use combination of 2017 proportion counts at DeFord and the 2016 IR and MB counters on Eagle Scout. Assume that MB entry/exit split is 45/55, and foot split is 48/52. Assumption based on reported entries and exits by survey respondents.
Dump Gulch TH	Use combination of 2016 IR trail counter and Trailforks check-ins for May-Sept 2017. Assume check-ins represent 5% of total use. Estimate foot use and entry/exit portions based on survey data collected.
Mt. Helena Ridge TH	Trail has both IR and MB counters. Assume entry/exit is 50/50 for foot travel. MB entry/exit is 67/33 based on survey responses.
Mt. Helena TH	Trail has IR counter. Assume that entry/exit is 41/59 for both foot and MB. Assumption based on reported entries and exits by survey respondents. MBs represent 4% of count based on proportion counts.
Old Shooting Range TH	Use combination of 2017 proportion counts at Shooting Range and the 2016 IR and MB counters on Shooting Range West. Assume that MB entry/exit is 28/72, and foot traffic is 48% of total. Assumption based on reported entries and exits by survey respondents.
Tubbs TH	Use combination of 2017 proportion counts at Tubbs and the 2016 IR and MB counters on Tubbs. Assume that MB and foot entry/exit is 50/50. Assumption based on reported entries and exits by survey respondents.
Other Mt. Ascension TH	Trails included as potential entry points: Little Moab, Catch Up, and Prickly Pear. Use Trailforks to identify the number of check-ins in May-September 2017. Assume this is 5% of all MB use. Assume foot traffic is 1.46 times that of bikers based on ratio of foot to bike at Beattie St. who arrived at TH by foot or bike. Removed those who arrived by vehicle for comparison. Likely that these smaller trails without parking lots are local access trails.
Other Mt. Helena access trails	No trail counters for other Mt. Helena access. Also limited confidence in Trailforks check-ins given limited MB use in area. As such, estimates based on survey respondents' reports of having entered from such sites. Assume similar time distribution as Mt. Helena TH. Value is 6% of main TH for foot and 63% for bike.
Other Ridge access trails	Trails included as potential entry points: Mini Ridge Trail and Show Me the Horse. Show Me is primarily a downhill trail but with some uphill, thus entries are quite small. Mini-Ridge is expected to be balanced up and down. Emmett's trail is not included as it is primarily downhill. Use Trailforks to identify the number of check-ins in May-September 2017. Assume this is 5% of all MB use. Assume foot traffic is .49 times that of bikers based on ratio of foot to bike at Mt. Helena Ridge who arrived at TH by foot, bike, or personal vehicle. Removed those who arrived by shuttle for comparison.

³ Assumption is based on the trails with available MB counters and sufficient Trailforks use. Assume that the direction specific check-ins represent approximately 5% of all use.

Results

Demographics

Men outweighed women, 55 to 45 percent, in trail use during the survey period. The average age was rather consistent across gender, with men averaging 45.3, and women 46.1 years old. Out of state users, 40.3 years, were markedly younger than either the local group, 46.5 years, or the other Montana county users, 45.4 years.

Demographic questions pertaining to education and income were frequently left blank. Of the 452 respondents who answered the education question, 366 (81 percent) indicated their highest level of education was an undergraduate degree, the remaining 86 (19 percent) indicated a high school diploma as their highest achieved. Seventy-one percent of respondents completed the household income question, with the five middle income categories (\$40,000-\$59,999, \$60,000-\$79,999, \$80,000-\$99,999, \$100,000-\$119,999) each garnering 18 percent of the responses. Incomes above and below these categories received considerably fewer responses. The same general pattern holds whether the respondent was from the local area, elsewhere in Montana, or out of state.

User Residency

A substantial majority of trail users, 81 percent, are Montana residents. Of Montanans, 87 percent are from within the local area (Table 3). Nonresidents are largely from other US states, making up 79 percent of all nonresident users.⁴

Table 3. Respondent place of residence.

	Frequency	Proportion
Montana	754	81%
Local MT (Lewis & Clark, Broadwater, Jefferson Counties)	654	70%
Non-local MT (All other Counties)	100	11%
Other US States	138	15%
Canada	27	3%
Other Foreign Countries	10	1%

Trip Characteristics of Nonresident Trail Users

Of those trail users surveyed that were not from the local area (274), 39 percent were in Helena for the first time. Mostly, the first timers were from out of state. More than half, 56 percent, of nonresident trail users were in Helena for the first time.

When asked about their primary reason for being in the area, 71 percent of nonlocal trail users indicated it was directly for trail usage, while 44 percent of nonresidents indicated trail usage as their primary reason. Among other reasons indicated for being in Helena, 38 percent indicated vacation, 36 percent were passing through, 9 percent were in the area to shop, and 16 percent were in the area for other reasons, including business.

⁴ See Appendix A for specific states or countries of origin.

Trail Use Characteristics

Trail users were asked to identify how they accessed the trail at the time they were intercepted. Given the large amount of time spent surveying at the *Trail Rider* pick up locations, high numbers of shuttle responses are recorded (Table 4). Aside from using the shuttle to access the trails, users across groups largely relied on their own personal vehicles to access the trails. In the case of nonresidents, many received rides from someone else. Local users were the most likely to indicate that they walked to the trailhead.

Table 4. Surveyed user means of trail access.*

Response	All Users		Local Users		Nonlocal MT Users		Nonresident Users	
	N	%	N	%	N	%	N	%
Personal vehicle	333	36%	269	41%	28	30%	36	21%
Shuttle	348	38%	223	34%	51	55%	74	43%
Ride from someone else	87	10%	41	6%	7	8%	39	23%
Biked	65	7%	41	6%	6	7%	18	10%
Walked	80	9%	75	12%	0	0%	5	3%
Total Responses	913		649		92		172	

N = number of respondents selecting the given choice.

**Note: Shuttle riders were intentionally over surveyed, thus producing the appearance of inflated proportion of trail use attributable to the shuttle. See Trail Use Volume section below for accurate proportion of total trail use.*

Trail users, independent of their residency, averaged 1.88 people per group. Two person groups was the most frequently observed group size. Roughly one in five respondents indicated they had a dog with them during their trail use the day they were surveyed, 88 percent of which were local trail users. Ninety percent of local users surveyed report that they use the trails network at least once a week between April and October, and over 70 percent say they do so at least three times a week during this period (Table 5). Three quarters of Montanans surveyed who were not local, reported that this was either their first time (41 percent) or that their use is about once a month (37 percent). For a large majority of nonresidents surveyed (67 percent), this was their first time using the trail system.

Table 5. May to October trail use frequency.

Response	All Users		Local Users		Nonlocal MT Users		Nonresident Users	
	N	%	N	%	N	%	N	%
This is my first time	157	17%	5	1%	37	41%	115	67%
Less than once a month	72	8%	10	2%	34	37%	28	16%
1-3 times a month	78	9%	49	8%	15	16%	14	8%
1-2 times a week	135	15%	129	20%	3	3%	3	2%
3-4 times a week	267	29%	264	41%	1	1%	2	1%
5-7 times a week	202	22%	192	30%	1	1%	9	5%
Total Responses	911		649		91		171	

N = number of respondents selecting the given choice.

During the colder months of the year, November to April, trail use is considerably down among all groups. The number of local users reporting trail use of at least once a week drops to 58 percent, and those at three or more times a week drops to 35 percent. Use by nonlocals, either Montanans or nonresidents is minimal during this time of year.

Table 6. November to April trail use frequency.

Response	All Users		Local Users		Nonlocal MT Users		Nonresident Users	
	N	%	N	%	N	%	N	%
Have not used in this period	267	29%	61	9%	59	66%	147	87%
Less than once a month	130	14%	90	14%	27	30%	13	8%
1-3 times a month	127	14%	118	18%	3	3%	6	4%
1-2 times a week	154	17%	152	23%	1	1%	1	1%
3-4 times a week	142	16%	142	22%	0	0%	0	0%
5-7 times a week	87	10%	85	13%	0	0%	2	1%
Total Responses	907		648		90		169	

N = number of respondents selecting the given choice.

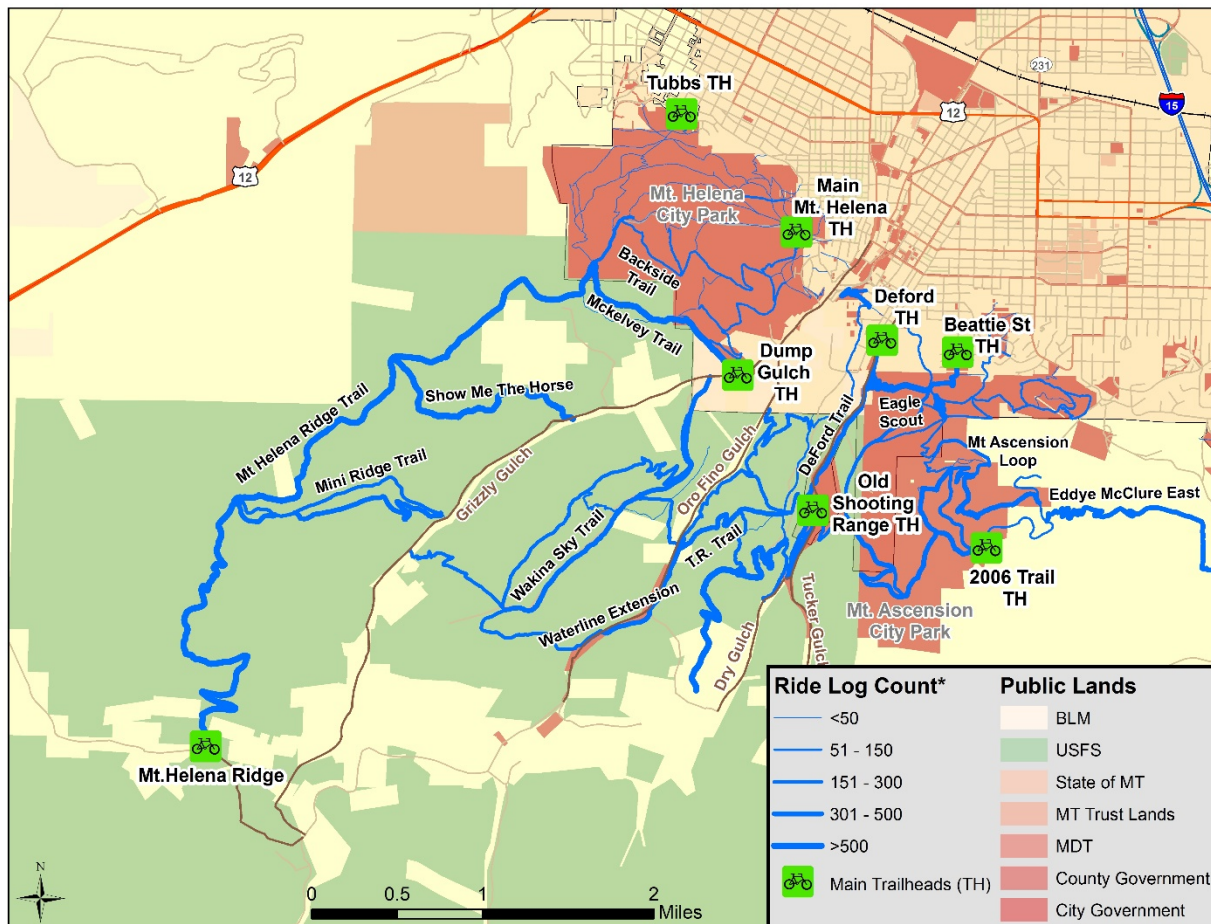
Across all three user groups, respondents indicated a strong desire to use the trail systems again. More than 98 percent of each group indicated such, with 100 percent of nonlocal Montanans reporting a positive response.

Fitness Tracking

Over half of all users, 55 percent, utilize some form of fitness tracking mobile app or device. Among the choices provided to the respondents⁵, Strava was most frequently selected, with 31 percent of app or device users indicating use. App or device use is higher among those trail users on mountain bikes. Sixty-six percent of these users used some type of app, and of those, 44 percent used Strava. Mountain bikers using the Strava app provide an opportunity to identify the relative volume of use across the trail system (Figure 4). Generally speaking, the Mt. Helena ridge and Mt. Ascension areas receive the highest volume of mountain bike use. Little volume is observed among these users in the Mt. Helena City Park area, likely due to the high volume of foot traffic there and the steep terrain.

⁵ Strava, Garmin products, Fitbit, Map my fitness/run/ride, and Other.

Figure 4. Strava user mountain bike volume, by ride log count.



*Strava Ride Log Counts span 2012-2017, and are shown for trail to trail comparative purpose only. Data derived from publicly available information from: <https://www.trailforks.com/>. Note: Trailforks displays Strava Ride Log data.

Trail Use Volume

Largely driven by foot traffic at the main Mt. Helena trailhead, trail use on foot exceeds that of bike use by nearly a three to one margin (Table 7 and Table 8) across the entirety of the trail system. Individually, foot traffic on most trailheads exceeds that of mountain bike traffic. The exceptions to this are Arrowroot Drive, Mt. Helena Ridge, and other minor Mt. Helena Ridge access trailheads.

Using the individual trailhead entry volumes and their respective user group breakouts (local, nonlocal MT, and nonresident) to weight the total proportion of users, we observe that locals make up 78 percent of trail users, nonlocal Montanans contribute another five percent, and nonresidents round out the last 17 percent.

Table 7. Helena trail system entry point volume for mountain bikes.

Entry Point	Total	Local	Nonlocal MT	Nonresident
Arrowroot Dr. trailhead	2,140	1,548	139	452
Beattie St. trailhead	1,014	507	127	380
DeFord trailhead	2,429	1,889	-	540
Dump Gulch trailhead	1,040	867	-	173
Mt. Helena Ridge trailhead	3,561	2,576	232	753
Mt. Helena trailhead	785	785	-	-
Old Shooting Range trailhead	1,748	1,464	236	47
Tubbs trailhead	897	897	-	-
Other Mt. Ascension trails	1,955	977	244	733
Other Mt. Helena access trails	495	344	23	128
Other Ridge access trails	1,375	802	458	115
Total May-September Entries	17,438	12,657	1,459	3,321

Note: Volumes represent May-September 2017.

Table 8. Helena trail system entry point volume for foot traffic.

Entry Point	Total	Local	Nonlocal MT	Nonresident
Arrowroot Dr. trailhead	793	762	16	16
Beattie St. trailhead	7,570	6,729	280	561
DeFord trailhead	3,876	2,769	185	923
Dump Gulch trailhead	1,217	1,015	-	203
Mt. Helena Ridge trailhead	1,363	1,310	27	27
Mt. Helena trailhead	18,847	13,087	876	4,884
Old Shooting Range trailhead	3,089	2,938	75	75
Tubbs trailhead	4,635	4,506	129	-
Other Mt. Ascension trails	2,854	2,537	106	211
Other Mt. Helena access trails	683	474	32	177
Other Ridge access trails	674	393	225	56
Total May-September Entries	45,602	36,520	1,949	7,133

Note: Volumes represent May-September 2017.

Given the large number of trail users who drive to and park at the network's trailheads (see Table 4), it should be expected that many users will enter and exit at the same location. Table 9 demonstrates this to be largely the case across many trailheads, though not all. The rows of the table indicate where surveyed users indicated they entered the trail network on the day they were surveyed. The columns represent where they indicated they left, or planned to leave, the network. For example, we can observe that 90 percent (4,353 of 4,836) trail users who entered at the Old Shooting Range trailhead (1), left from the same location. Alternatively, the prime *Trail Rider* trailheads, such as Mt. Helena Ridge

trailhead (2), serve primarily as entry points and users exit elsewhere from the network. Only 4.3 percent of those surveyed who entered at Mt. Helena Ridge exit from the same spot. Most indicate they leave via other ridge access trailheads or at the main Mt. Helena trailhead.

Table 9. Trailhead usage for entry and exit.

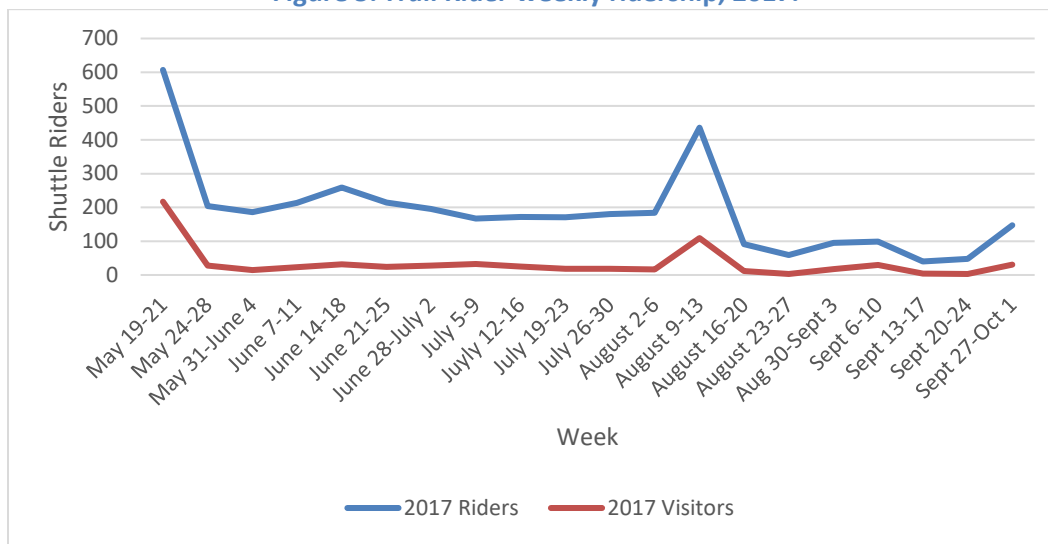
Exit Trailheads													
Entry Trailheads		1	2	3	4	5	6	7	8	9	10	11	Sum
	1	4,353	-	-	97	-	-	-	-	-	-	387	4,836
	2	61	214	122	2,049	-	-	46	76	1,376	703	275	4,924
	3	-	-	5,286	246	-	-	-	-	-	-	-	5,532
	4	-	-	74	663	-	-	74	-	368	-	-	1,178
	5	308	-	-	-	4,921	-	154	154	-	-	769	6,305
	6	544	-	-	121	272	-	121	1,573	30	30	242	2,933
	7	252	-	-	-	168	-	7,238	505	-	-	421	8,584
	8	721	-	-	-	-	-	1,924	1,683	481	-	-	4,809
	9	105	210	-	735	-	105	-	-	18,162	315	-	19,632
	10	-	-	107	-	-	-	-	-	107	2,042	-	2,257
	11	93	-	-	93	279	-	-	-	-	-	1,583	2,049
	Sum	6,438	424	5,589	4,003	5,641	105	9,556	3,991	20,525	3,091	3,677	63,039

Key: 1=Old Shooting Range TH, 2=Mt. Helena Ridge TH, 3=Tubbs TH, 4=Other Mt. Helena access THs, 5=DeFord TH, 6=Arrowroot Dr. TH, 7=Beattie St. TH, 8=Other Mt. Ascension THs, 9=Mt. Helena TH, 10=Dump Gulch TH, 11=Other Ridge access THs.

Shuttle Use Volume

Since 2015, shuttle use has risen from 1,568 riders to 3,767 riders. In 2017, the *Trail Rider* averaged 12.9 riders per pickup, with roughly 18 percent of the typical shuttle group comprising of visitors to Helena (Figure 5). The prime *Trail Rider* season spans between the Spring Shuttle Fest (May 19-21), and the Summer Shuttle Fest (August 11-13). Between the two Shuttle Fest weekends, total riders averaged roughly 200 per week. In total, 2,534 riders were shuttled to Helena Ridge trailhead, and 1,003 were shuttled to 2006/Arrowroot Drive trailhead. Comparing these numbers to those totals observed in Table 7, we can see that 71 percent of the Helena Ridge mountain bike entries are attributable to the shuttle service, while 47 percent of the Arrowroot Drive mountain bike entries are so.

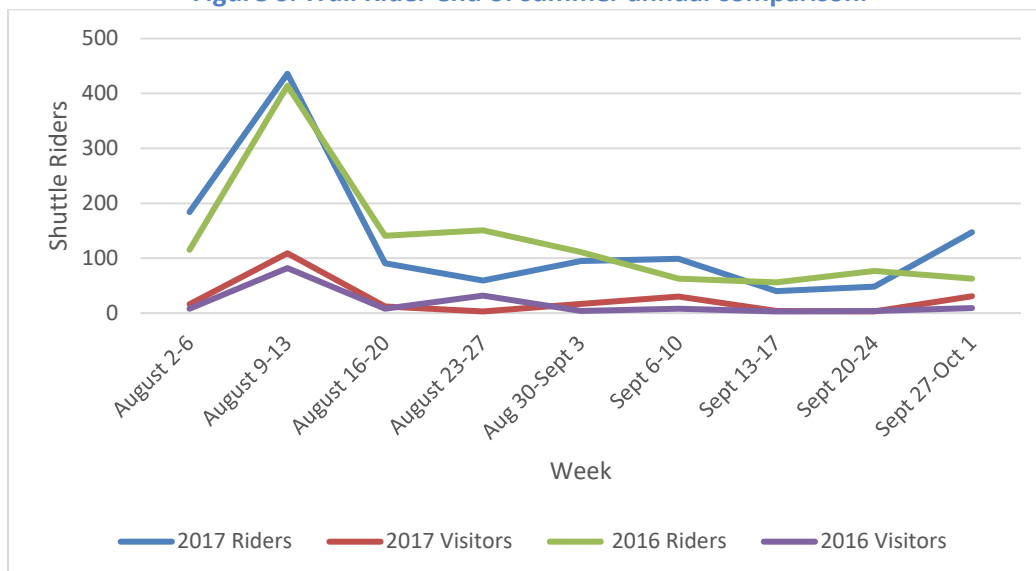
Figure 5. Trail Rider weekly ridership, 2017.



Note: Visitors are any nonlocal riders.

While *Trail Rider* volume has dropped considerably as summer moves into September in each of the past three years, the decline in 2017 was exaggerated by fires, smoke and snowy conditions (Figure 6). In Figure 6, the weather/fire conditions become evident in the week of August 23-27 in which portions of the trail network were closed due to fire, and the weeks of September 13-17 and 20-24 in which *Trail Rider* cancellations occurred due to snowy conditions.

Figure 6. Trail Rider end of summer annual comparison.



Note: Visitors are any nonlocal riders.

Trail User Spending in Helena

Direct Spending to Use Trail System

All surveyed trail users were asked about their recent (last 12 months) spending on hiking/biking/running/walking gear in the Helena area, and how much their desire to use the Helena trail system influenced their purchase. Two-thirds of all users indicated they have purchased gear in the last year in Helena. More than eight in ten local trail users have purchased gear, while 28 percent of nonlocal Montanans and 33 percent of nonresidents have done so.

The desire to use the Helena trail network appears to be a large motivator to purchasing gear (Table 10). Not only did a large portion of local users purchase gear in the last year, but 60 percent of those who purchased indicated that using the trail system had a high influence on their decision. Though only a third of nonresidents had made a local purchase of gear, 73 percent of those who did said that the trails highly influenced their purchase.

Table 10. Extent to which the use of Helena trail system influenced athletic gear purchase.

Response	All Users		Local Users		Nonlocal MT Users		Nonresident Users	
	N	%	N	%	N	%	N	%
High influence	365	60%	317	60%	7	28%	41	73%
A little influence	57	9%	48	9%	4	16%	5	9%
Moderate influence	135	22%	121	23%	11	44%	3	5%
No influence	48	8%	38	7%	3	12%	7	13%
Total Responses	605		524		25		56	

N = number of respondents selecting the given choice.

Visiting Trail User Total Spending & Economic Impacts

In addition to simply considering the purchase of gear or equipment that directly relates to use of the trail system, visitors to the Helena region were asked about their overall spending while in the area. Included in this spending are items like food, lodging, and fuel (Table 11). On average, out of state trail users surveyed spent 4.15 nights in the Helena area and 5.8 in Montana as a whole. They spent an average of \$347.84 in the Helena area during this time. Nonlocal Montanans coming to the area and using the trail system spent less time than their nonresident counterparts. This group spent an average of 1.62 nights in the area and 1.72 in Montana as a whole, away from home. During these trips, these respondents spent an average of \$116.69. On a daily spending basis, out of state trail users on bikes spent more on average, \$88.53, than nonlocal Montanan visitors and either visitor group on foot (Table 12).

Table 11. Average visitor expenditures while in Helena area.

Expenditure Category	Out of State		Nonlocal MT resident	
	Average Daily*	Per Trip**	Average Daily	Per Trip
Lodging	\$ 13.58	\$ 56.39	\$ 7.62	\$ 12.37
Restaurant/bar	\$ 29.29	\$ 121.60	\$ 33.17	\$ 53.86
Groceries/snacks	\$ 12.50	\$ 51.92	\$ 6.06	\$ 9.84
Gas/diesel	\$ 9.45	\$ 39.25	\$ 14.56	\$ 23.64
Local Transportation	\$ 0.05	\$ 0.21	\$ 0.04	\$ 0.07
Auto Rental	\$ 1.91	\$ 7.91	\$ -	\$ -
Retail Goods	\$ 9.26	\$ 38.44	\$ 6.93	\$ 11.24
Entertainment/recreation	\$ 3.88	\$ 16.11	\$ 2.17	\$ 3.53
Bike Rental	\$ 1.16	\$ 4.82	\$ 0.20	\$ 0.32
Other Purchases	\$ 2.69	\$ 11.19	\$ 1.12	\$ 1.82
Per day total in Helena area	\$ 83.78		\$ 71.87	
Per trip total in Helena area		\$ 347.84		\$ 116.69
Average Length of Stay in Helena	4.15		1.62	
Average Length of Stay in MT	5.80		1.76	

*Expenditures are averaged across all respondents within the visitor category, even if they reported \$0 in a given category. This results in what may appear to be a low average value.⁶

** 'Per Trip' represents the total spent while in the Helena area.

Table 12. Average visitor expenditures in Helena area by mode and residence.

Expenditure Category	Average Daily Nonlocal MT resident on Bike	Average Daily Out of State on Bike	Average Daily Nonlocal MT resident on Foot	Average Daily Out of State on Foot
Lodging	\$ 8.75	\$ 11.67	\$ 9.91	\$ 17.47
Restaurant/bar	\$ 32.34	\$ 29.87	\$ 47.07	\$ 28.32
Groceries/snacks	\$ 5.88	\$ 14.57	\$ 5.78	\$ 9.70
Gas/diesel	\$ 15.40	\$ 11.59	\$ 13.11	\$ 6.19
Local Transportation	\$ 0.03	\$ 0.08	\$ -	\$ -
Auto Rental	\$ -	\$ 1.25	\$ -	\$ 2.92
Retail Goods	\$ 5.98	\$ 10.41	\$ 7.25	\$ 7.46
Entertainment/recreation	\$ 2.47	\$ 4.60	\$ 0.68	\$ 2.52
Bike Rental	\$ -	\$ 1.83	\$ -	\$ 0.15
Other Purchases	\$ 1.43	\$ 2.66	\$ 0.65	\$ 2.79
Total	\$ 72.28	\$ 88.53	\$ 84.45	\$ 77.51

Combining the trip spending shown in Table 11 with the visitor volumes in Table 7 and Table 8, yields a total spending estimate of \$4.03 million by all nonlocal visitors who used the trail system in the summer

⁶ See Appendix B for average spending by those respondents on bikes and on foot who spent in each spending category.

of 2017. Eighty-nine percent of the total is generated by out of state visitors. Further, visiting trail users on bikes make up 35 percent of total spending; \$1.42 million. The reported spending yields an impact of \$4.3 million dollars in economic output, 60 jobs, and \$185,211 in state and local tax generation (Table 13).

Table 13. Economic impact from nonlocal trail user spending in Helena.⁷

	Direct Effect	Indirect Effect	Induced Effect	Total Effect
Employment (# of jobs)	48	5	7	60
Labor Income	\$1,113,063	\$179,742	\$244,754	\$1,537,558
Value Added	\$1,521,482	\$304,524	\$421,803	\$2,247,809
Output	\$2,861,417	\$634,892	\$783,069	\$4,279,378
Total State & Local Tax				\$185,211

Section II: Helena Community Surveys

Methods

In order to gauge the perceptions and values of the South Hills trail system by Helena area residents, two similar surveys were developed. Each survey is detailed below. The first survey is an intercept survey, in which residents are approached by the surveyor at fueling stations. From this point forward, when referring to the *intercept survey*, or *intercepted respondents*, it is this in-person survey, conducted by a surveyor, to which we are referring. We view this survey as providing a representative sample of the adult population of Helena residents.

The second survey was delivered online via a social media *push* from several agencies in Helena. From this point forward, when referring to the *push survey*, or *push respondents*, it is this online, social media survey to which we are referring. As detailed in the next section, social media surveys possess limitations that can generate significant levels of bias. As such, we use the results of this survey sparingly and only in areas where we are not attempting to generalize to the greater Helena adult population. Further detail is provided in the *Limitations* section of the push survey.

⁷ **Direct Impacts:** Result from nonlocal trail user purchases of goods and services; **Indirect Impacts:** Result from purchases made by travel-related business in order to provide the necessary goods and services to the trail users; **Induced Impacts:** Result from purchases made by those employed in travel-related occupations. **Employment:** Full and part-time annual average of monthly jobs (i.e. 1 job lasting 12 months = 2 jobs lasting 6 months); **Labor Income:** All forms of employment income, including Employee Compensation (wages and benefits) and proprietor income; **Value-Added:** The difference between an industry's output and the cost of its intermediate inputs; **Output:** The value of industry production.

Intercept Survey

Helena area residents (reside within Jefferson, Broadwater or Lewis & Clark Counties) were intercepted while at fueling stations in Helena between May 9th, 2017 and September 30th, 2017.⁸ Fuel stations used were Town Pumps at the following locations:

1. 1140 Euclid Ave.
2. 2401 N MT Ave.
3. 2900 N MT Ave.
4. 3161 N Sanders St.

Town Pump locations were used based on previously established agreements with management for ITRR's larger nonresident survey efforts statewide. The same surveyor was used in these community intercepts as for the trail use survey. Efforts were made to diversify the time of day and day of week in which the surveyor was located at each fueling station so as to broaden the opportunity for Helena area residents to be intercepted.

Survey design

The survey instrument (See Appendix D) consisted of 14 questions and was delivered via an iPad tablet held by the surveyor. The survey was designed to last no more than three minutes, such that it may be completed in the duration of re-fueling and not further inconvenience the respondent or hold up the pump spot.

Limitations

As with all of ITRR's intercept based surveys, fuel stations provide an opportunity to intercept a wide cross section of the adult residents of the Helena area. Here, we consider the entire three county area to be of the target population; however, all surveyed fuel stations are in Helena. As such, county residents who do not routinely travel into, and purchase fuel in Helena, are likely to have had reduced opportunity for intercept. Additionally, those residents who do not routinely drive would not have been intercepted.

Response rate

In total, 348 potential respondents were approached by the surveyor. Twenty-three individuals refused to take the survey, leaving 325 completed surveys. These completed surveys result in a response rate of 93%.

Social Media 'Push' Survey

In addition to an intercept based survey, an online survey was developed in the *Qualtrics* platform and delivered via a social media 'push'. The initial push for the survey was generated through the *Bike Helena* and *Visit Helena Montana* Facebook pages, followed by the *Helena Area Chamber of Commerce*. The survey appeared in the Facebook feeds of followers of the two entities. Figure 7 shows an example of the social media invitation seen on the page of followers of either page. Viewers of the invitation

⁸ For a complete discussion of ITRR intercept methodology, see: <http://itrr.umt.edu/files/NonresTravelSurvey-Methods-Analysis.pdf>

were able to click on the link and, if desired, share it to their own page, thus expanding the reach of the survey.

Figure 7. Social media based survey invitation.



Survey design

The survey instrument (See Appendix E) consisted of 17 questions and was delivered online via the *Qualtrics* platform. The survey was designed such that it would supplement the intercept based survey. Several questions directly correspond to those in the intercept such that consideration may be made as to the representative nature of the social media based distribution. Additional questions were added that could not be asked in the intercept survey due to time constraints.

Limitations

In all of ITRR's survey efforts, we seek to capture a representative snapshot of the target population. In this case, the population is adult residents of the three counties around Helena (Lewis and Clark, Broadwater, and Jefferson). The distribution mechanism used here limits who may view and thus ultimately take the survey. With the initial invitation, 'push', being distributed via Facebook, a Helena area resident must have been an active Facebook user during the week long period in which the survey was active. This creates the first level of a potential bias, and the smaller concern of the two. From the point of having seen the survey, to actually clicking on the notice and taking the survey, another and more significant potential bias is introduced. It is very likely that individuals already inclined to be interested in outdoor recreation, will respond at a higher rate than those not interested, thus creating the potential for further bias. Given these limitations, we take care to identify below where the online survey results are used and where feasible, how these results compare to those of the more representative intercept survey.

Response rate

The survey was active for 7 days in the summer of 2017 and reached 6,296 on *Bike Helena's* page and 5,659 on *Visit Helena Montana's* page. From *Bike Helena*, 235 viewers clicked on the survey link (3.7 percent) and 29 people shared the link. From *Visit Helena Montana*, 195 viewers clicked on the survey link (3.4 percent) and 43 people shared the link. In total, 1,142 surveys were completed.⁹ As direct clicks from the two pages sums to 430, numerous responses were recorded from the shares. Blocks were established to minimize the opportunity for individuals to respond to the survey multiple times (known as ballot stuffing).¹⁰ Incomplete surveys, 110, were removed from analysis. An additional 46 surveys were started, but the respondent was filtered out due to not being a local resident.

Results

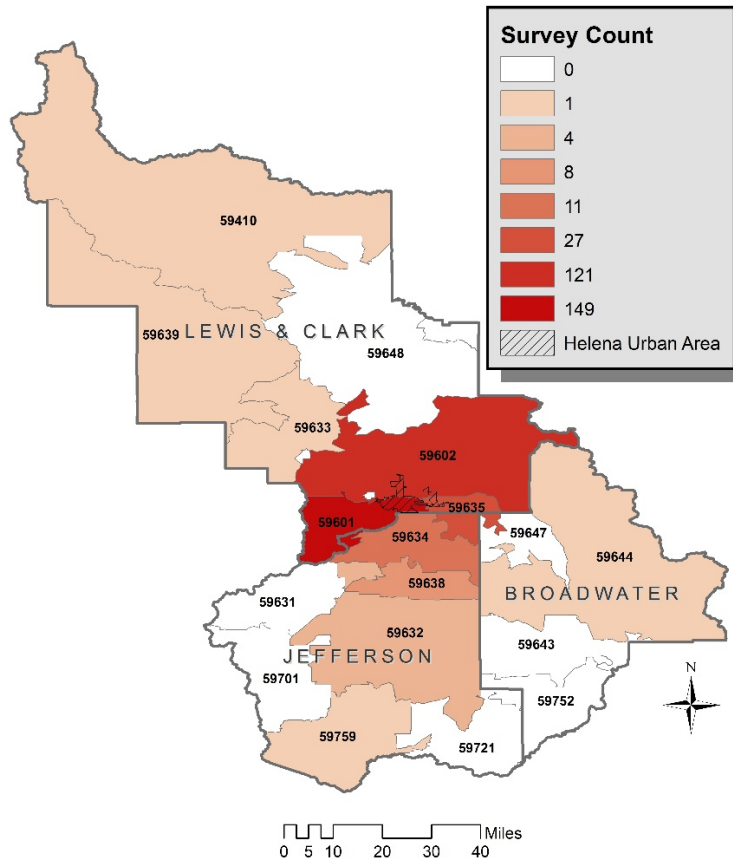
Geographic Distribution

The vast majority of intercept survey respondents were from the immediate Helena vicinity (Zip Codes 59601 and 59602) (Figure 8). Respondents indicating a zip code of 59604 (n=2) and 59624 (n=4) are included in the count for 59602 for display purposes.

⁹ Data from *Helena Area Chamber of Commerce* Facebook not available. The survey was available on their site for only the final two days of the survey.

¹⁰ By preventing ballot stuffing, a given IP address may only be used once to complete the survey in an internet browser.

Figure 8. Resident intercept survey response count by zip code.



Demographics

On average, intercept respondents have lived in the Helena area for 30 years. Two-thirds of the respondents have lived in Helena for more than 20 years, with many of these individuals having lived in the area for most, if not all of their lives. Only 16 percent have lived in the area for less than 10 years, and only nine percent for less than five years. The average age of respondents was 52.9 years, with men, 53.4 years, slightly older than women, 52.0 years. Additionally, men made up 62 percent of the respondents.

Respondents to the push survey have lived in the area for an average of 19.7 years; more than 10 fewer than those intercepted. Further, push respondents were younger on average, at 46.3 years and women were more likely to be responding, making up 60 percent of the responses.

Trail Use

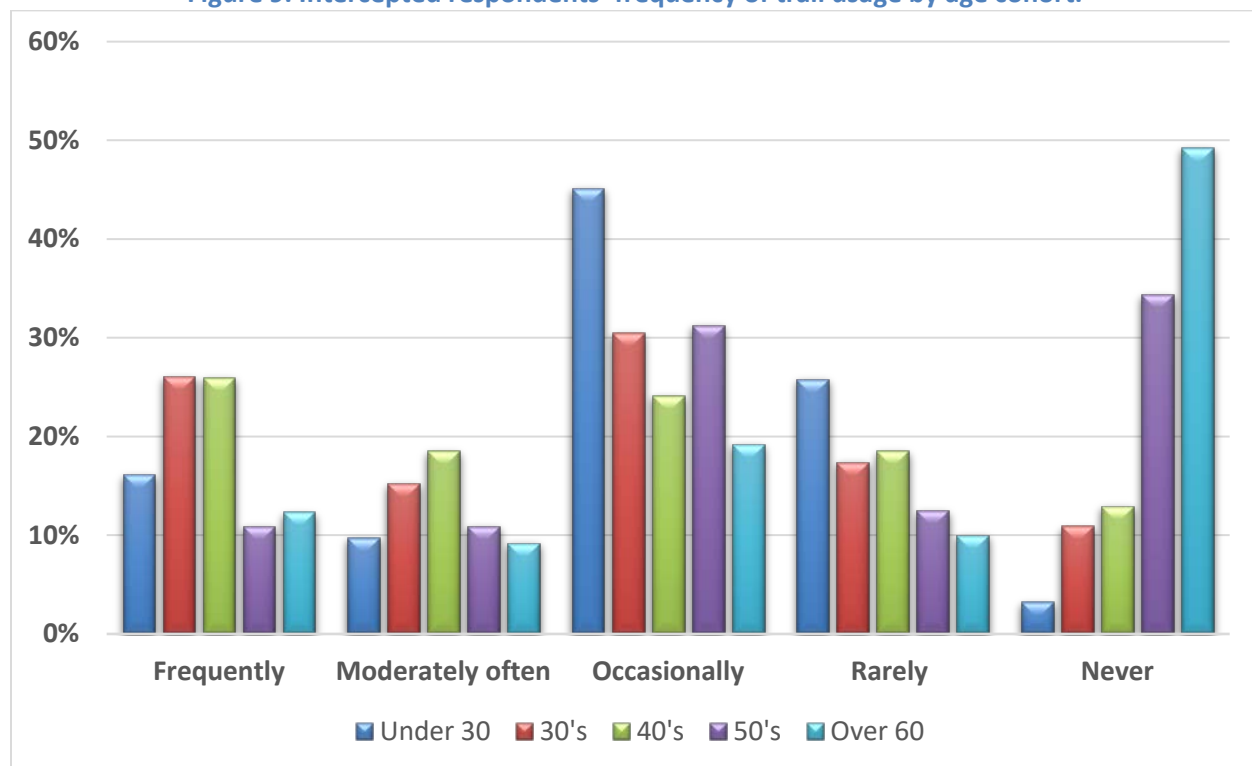
Intercepted respondents were asked to identify the frequency with which they use Helena's biking/hiking/walking trails and paths. They were provided the opportunity to select between frequently, moderately often, occasionally, rarely, or never. More than half, 55 percent, of the respondents indicated they use the trails and paths at least occasionally (Table 14). Three in ten respondents however, indicated they never use the trails or paths.

Table 14. Intercepted respondents' frequency of local trail or path usage.

Response	Frequency	%
Frequently	54	16.6%
Moderately often	39	12.0%
Occasionally	86	26.5%
Rarely	47	14.5%
Never	99	30.5%

Women were four percent more likely to indicate that they frequently use the trails, while men were four percent more likely to say they never use the trails. More variability may be found when partitioning the data by age. Respondents in their 30's and 40's were the most likely to indicate they frequently use the trail system (Figure 9). Younger respondents, those under 30, were most likely to indicate occasional use. The rate at which an age group indicated they never use the trails increased with age, peaking out at nearly 50 percent of those over 60 indicating they never use the trails.

Figure 9. Intercepted respondents' frequency of trail usage by age cohort.



In comparison, and a demonstration of the bias introduced in the online survey, only three percent of online survey respondents indicated they never used the trail system, while 43 percent indicated they frequently use the trails for walking or hiking and 21 percent indicate they frequently do so for biking. This compares to the 30 percent who indicated they never use the trails, and 17 percent who used them frequently in the intercept survey (Table 14). These results suggest that those who responded to the

online survey are more likely than the general Helena population to be avid trail proponents and users, thus results displayed below should be considered within such a frame.

Means of Accessing the Trail System – Push Survey

Push survey respondents were asked to identify the various means by which they accessed the trail network, in addition to which means was their primary. Table 15 shows the frequency of each type identified. The center column indicates the number of respondents who selected each option as a means they use to access the trails, while the third column indicates the number of respondents who selected each option as their primary means of accessing the trails. Parking at or near a trailhead was the most frequently cited option, with 591 respondents, 53 percent, indicating it as their primary access means. Large numbers of respondents also indicated they either walk/run or ride their bikes from home to access the trails. The ability to walk/run or ride to the trails appears logical for this group given 48 percent indicated they live within one mile of a trailhead and 71 percent are within two miles.

Table 15. Means of access to the area trails by online respondents.

	Any means of access used	Primary means of access
Park at, or near, a trailhead	828	591
Walk/run from home	601	344
Bike from home	601	124
Walk/run from work	356	18
Bike from work	119	8
Use a shuttle service	87	10
Other	226	10

N=1105

Importance of Community Amenities¹¹

Intercepted respondents were asked to rate the importance of seven community amenities to their lives in Helena (Table 16). Access to open space, nearby outdoor recreation opportunities, and the amount of open space heavily outpaced the remaining amenities in the rate at which respondents indicated them as being very important. Access to open space lands yielded the highest average (4.58) score for importance to life in Helena, while arts and culture (3.67) lagged behind the other six. While not among the highest scoring amenities, the Mt. Helena and Mt. Ascension trail system did receive a high average score of 4.0, with more than half of respondents ranking it with the highest score of five. None of the seven amenities received an average score within the 'not important' categories indicating that all these amenities are important to Helena area residents, some just more so than others.

¹¹ Given the significantly differing rates of trail use between the intercept and online survey, the community amenity and housing location sections are reported based only on the intercept survey, such that it reflects the broader Helena community.

Table 16. Intercepted respondents' rated importance of community amenities to life in Helena.

Amenity	Not Important			Very Important		Average
	1	2	3	4	5	
Access to open space lands	4%	1%	6%	11%	78%	4.58
Nearby outdoor recreation opportunities	4%	2%	7%	16%	71%	4.48
Amount of open space	4%	2%	10%	14%	70%	4.45
Community parks	5%	3%	10%	25%	56%	4.24
Mt. Helena and Mt. Ascension trail system	13%	2%	13%	17%	56%	4.00
Paved or unpaved urban paths	11%	5%	15%	22%	47%	3.88
Arts and culture	10%	10%	20%	24%	36%	3.67

N=325

Trail Influence on Housing

Intercepted respondents were asked not only how important the trail system was to life in Helena, but also to rate how much influence (1=No Influence to 5=Very High Influence) the trails have had on their decision to live in Helena, where they live in Helena, and their decision to stay in Helena (Table 17). For each of the three questions, “no influence” was the most frequently selected choice, yielding an average score of less than three for each. Housing choice location within Helena appears to be the lowest scoring of the three, with an average of 2.19 and nearly 60 percent indicating “no influence”.

Table 17. Intercepted respondents' perceived influence of trail system on housing choices.

How Much Influence...	No Influence				Very High Influence	Average
	1	2	3	4	5	
...does Helena's trail system have on your decision to live in or near Helena?	47%	7%	18%	9%	19%	2.47
...did Helena's trail system have on the location of where you live in Helena?	57%	6%	12%	11%	14%	2.19
...does Helena's trail system have on your decision to stay in Helena?	47%	5%	17%	11%	20%	2.51

N=325

Given the rather long average length of residency in Helena, nearly 30 years, the low values of influence shown in (Table 17) may not be a surprising result. To examine this further, influence responses can be broken out by cohorts of length of residency. Table 18 shows that across all three questions, those residents who recently moved to the Helena area, within the last 5 years, scored the influence of the trail system higher than other residency cohorts. In the cases of the influence on their decision to live in or near Helena and where to live within Helena, this cohort scored 0.5 or higher on average above other groups. Regarding the decision on where to live in Helena, the direction of influence was not asked, and thus is not clear. A rating of high influence can be either an attraction to the neighborhoods with greater access to the trails, or the creation of an inability to live near these neighborhoods given the housing

price there compared to other locations. Additional housing market studies could be conducted to aid in discerning this difference.

Table 18. Intercepted respondents perceived influence of the trail system on housing choices, by length of residency.

Length of residency	<u>How much influence...</u>		
	...does Helena's trail system have on your decision to live in or near Helena?	...did Helena's trail system have on the location of where you live in Helena?	...does Helena's trail system have on your decision to stay in Helena?
Less than 5 years	3.04	2.57	2.89
5-9 years	2.43	2.17	2.70
10-20 years	2.41	1.95	2.38
More than 20 years	2.42	2.23	2.49

Trail System Influence on Local Business – Push Survey

Push survey respondents were provided an opportunity to indicate the type of industry they work in, if employed at least part time. By and large, respondents indicated they worked in either professional services, or government (Table 19). This large group, skewed the perceived influence of the trail system on respondents' place of work downward. An overall average of 12 percent indicated that the trails had either 'a lot', or 'a great deal' of influence on their place of work. However, if we focus on several key industries thought to be typically tourism and visitor dependent, we can see the perceived value rise. Respondents working in retail, food service, and lodging consider the influence to be more important than do employees in other industries. Caution should be taken however, in that the total number of respondents is rather low in these categories.

Table 19. Online respondents' perceived influence of trails on place of work.

Industry Employed	Total Respondents	How much influence on your place of work?					Portion answering 'A lot' or 'A great deal'
		None at all	A little	A moderate amount	A lot	A great deal	
Retail sales (e.g. sporting goods, general merchandise)	36	9	10	7	3	7	28%
Wholesale	8	3	2	3	0	0	0%
Outfitting, guiding or other outdoor service provider	6	5	0	0	0	1	17%
Restaurant, Bar or other food service	21	5	2	4	5	5	48%
Grocery and non-fuel convenience store	2	0	0	2	0	0	0%
Fuel and service station	0	0	0	0	0	0	0%
Hotel, B&B, or other lodging services	11	2	3	1	2	3	45%
Transportation services (e.g. auto sales, rental, repair, taxi)	9	7	1	1	0	0	0%
Professional services (e.g. insurance, legal, medical)	248	146	54	33	13	2	6%
Agriculture, Logging/Wood Products, Mining	11	5	5	0	1	0	9%
Government	233	150	34	30	9	10	8%
Education (Pre-School, K-12, College)	96	46	26	11	9	4	14%
Nonprofit	74	38	16	7	5	8	18%
Other (Please describe):	122	74	24	10	5	9	11%
Total (N)	877	490	177	109	52	49	12%

Conclusions & Recommendations

Outdoor recreation is a major driver of tourism in many parts of Montana. Mountain bike tourism is a growing component of business for Helena and Montana more broadly. In recent years, the community of Helena has invested in expanding mountain bike tourism. Measuring and understanding the economic impact of mountain bike tourism for Helena provides the community with sound numbers in which future biking investments may be made.

This report utilized surveys conducted of both the trail users, on foot or bike, and the broader Helena community to gauge the perceived value of the system and estimate the annual dollars spent in the community by those who visit Helena and take part in recreation on the trail system.

Combining the survey information collected with both manual and electronic counts of users entering the trail system, we estimate that over 63,000 users took part in outdoor recreation on these trails between May and September of 2017. Of these numbers, 17,438 were on Mountain bikes, and 45,602 were on foot. Just over a quarter of all mountain bike activity was from users outside the local area, and one in five users on foot were nonlocal.

In total, these nonlocal users spent \$4.03 million on goods and services in the local area, \$1.4 million, or 35 percent, of which came from mountain bike users. \$4.3 million in economic activity and 60 jobs can be attributed to spending by visitors to the area who recreate in the South Hills.

Not only does the opportunity to recreate on the trail networks of the South Hills contribute to the attractiveness of Helena for visitors, but it also provides a valuable recreation opportunity for residents. Seventy-three percent of mountain biking and 80 percent of foot traffic on the trails is from local users. When surveyed, local trail users indicated a high frequency of use. More than 70 percent use the trail at least three times a week during late spring and through the summer months.

In addition to those avid trail users, the broader Helena community recognizes the value of the trail system as a component of the overall outdoor amenities offered by Helena. Over half of respondents rated the trail system as 'very important' to the quality of life in Helena. Additionally, 55 percent of Helena residents indicated they use the trails at least occasionally.

While the average adult resident of Helena has lived in the area for many years and does not overwhelmingly consider the trail system a significant component of why they decided to live where they do (likely due to the trails and open space acquisition occurring after their choice of where to live), those residents new to the area, within the last five years, do give more weight to the influence of the trails on not only their decision to move to Helena, but also where in Helena they chose to live.

Lastly, while there appears to be a broad attraction to the trail across visitors and locals alike, as well as across many age cohorts, there does appear to be a substantial drop off in use among those over the age of 60. Nearly 50 percent of survey respondents in this age group indicated they never use the trails, compared with only three percent of those adults under 30. While the surveys in this report do not contain enough information to identify why this low rate of usage might be, it does spark an opportunity for further evaluation, especially given the average age of survey respondents intercepted at fueling stations was nearly 53 years. It is well known that mobility declines as we age and thus accessibility of

recreation opportunities becomes a concern. Thus, the perceived or real accessibility concerns may be playing into this decline.

Studies of dispersed recreation (many points of entry and exit) such as trail use, are usually more difficult to conduct as well as to analyze for a population estimate. The use of trail counters and proportion counts are a minimum requirement for valid estimation of local vs non-local use, especially if economic impact estimates are desired. We were fortunate in this study to have cooperating partners with access not only to trail counters, but also who have utilized the trail counters in previous years, thus allowing use profiles to be created.

Outdoor recreation is not stagnant and change in user makeup can be expected, particularly in places like Helena where attention is growing outside of the community. To maintain data on the use of the South Hills trail system, we recommend a continued regiment of trail counter utilization and shuttle use tracking. Little variability occurs between average weeks on a given trailhead. Exceptions do occur in conditions of smoke, fire, snow, or major events. Given the general consistency, representative use levels may be derived from short duration counts of two or three weeks. Using shorter duration counts permit a wider rotation of counter locations throughout the network. Major trailheads could be counted every year and a two year rotation of smaller trailheads could be established. Such rotation could then minimize assumptions about use on smaller trailheads (See Table 2).

Trail counters are of great utility in their ability to provide detailed accounting of use over an extended time and depict fluctuations throughout time of day or day of week. However, finer details of use are needed to supplement information from the counter. Most counters are bidirectional, meaning they do not decipher the direction of travel of the passerby. As such, manual proportion counts are periodically needed to identify whether the counted passersby are entering or exiting the network. As seen in this report, for many trails this break out should be close to 50/50. Entry and exits proportion counts can further be used as an opportunity to further classify the users are on foot or on bike and if desired characteristics of the group may be observed or asked. Changes in entry to exit proportions should not vary substantially, thus proportion counts may be conducted two to three times throughout the placement of the counters and only done every other time the counter is placed.

Future studies of trail usage, whether in Helena or elsewhere in Montana, need to incorporate these minimum requirements. For communities without their own access to trail counters, perhaps trail counters could be made available for rent by entities such as the Montana Office of Tourism and Business Development or by Bike Walk. This would allow small communities without the collective resources of an area like Helena, the chance to understand their local trail use. A rotation of rental year could be designed such that each interested community could do counts every five years or so. Under such a regime, similar short duration trailhead rotations within a network would also be recommended.

We found through this study that social media on-line 'push' surveys pose a strong potential to generate results skewed to the interested parties. They are unlikely to be random and thus do not reflect the broad population; therefore these should be used sparingly for decision making or representing views or interests of the general population. However, where organizations are interested in a specific user group, these types of surveys can quickly and in large volumes, provide the data for the user group. What happens throughout the 'research world' is that people and organizations misuse the data from media and social media surveys by not highlighting the methods and limitations resulting in a belief that

it reflects all people's views. It is this type of data misappropriation that bring about false claims of the data.

Appendix A: Trail User States/Countries of Origin

Table 20. Respondent origin state, province, or country.

States	Count	Canada	Count	Other Foreign Countries	Count
Montana ¹²	754	Alberta	13	Germany	4
California	19	Quebec	9	England	2
Washington	17	British Columbia	3	Switzerland	2
Idaho	13	Ontario	2	New Zealand	2
Colorado	9				
Utah	8				
Florida	6				
Wyoming	5				
Wisconsin	4				
Illinois	4				
Georgia	4				
New Jersey	4				
Minnesota	4				
Arizona	3				
Ohio	3				
Louisiana	3				
Michigan	3				
New York	3				
Massachusetts	3				
Tennessee	3				
Vermont	2				
North Dakota	2				
Missouri	2				
Pennsylvania	2				
Nebraska	1				
Connecticut	1				
Washington, D.C.	1				
North Carolina	1				
Oklahoma	1				
Iowa	1				
Kansas	1				
Oregon	1				
South Carolina	1				
Texas	1				
Maryland	1				
Alabama	1				

¹² City/Town breakout on following page.

Table 21. Montana respondent city of origin.

City/Town	Count	City/Town	Count
Helena	598	Deer Lodge	2
Clancy	30	Choteau	2
Bozeman	28	Libby	1
Missoula	17	Trout Creek	1
East Helena	15	Hamilton	1
Great Falls	8	Alberton	1
Whitefish	7	Wisdom	1
Livingston	6	Warm Springs	1
Butte	4	Big Sky	1
Billings	4	Townsend	1
Belgrade	3	Canyon Creek	1
Kalispell	2	Boulder	1
Stevensville	2	Raynesford	1
Polson	2	Fort Shaw	1
Whitehall	2	Glasgow	1
Three Forks	2	Laurel	1

Appendix B: Detailed Spending by Respondents on Bike and on Foot

Table 22. Average spending by respondents who spent within a category.

Expenditure Category	Respondents Intercepted on Bikes		Respondents Intercepted on Foot	
	Average Daily Spending if Spent in Category	Portion of Biking Respondents Represented	Average Daily Spending if Spent in Category	Portion of on Foot Respondents Represented
Hotel/Motel	\$95.64	24%	\$120.51	29%
Camping	\$11.73	10%	\$19.19	1%
Restaurant/bar	\$45.24	61%	\$52.67	48%
Groceries/snacks	\$27.06	41%	\$23.83	33%
Gas/diesel	\$27.65	47%	\$17.57	40%
Local Transportation	\$2.12	3%	\$ -	0%
Auto Rental	\$42.14	2%	\$39.12	5%
Retail Goods	\$29.31	29%	\$28.97	23%
Entertainment/recreation	\$24.04	16%	\$18.40	10%
Bike Rental	\$17.45	6%	\$10.00	1%
Other Purchases	\$25.17	9%	\$40.94	5%

Note: Nonlocal Mountain Bikers Surveyed=174; Nonlocal on foot users surveyed=101

The above table represents the average spending by category of respondents who spent within each category. For example, 24 percent of respondents who indicated they were biking on the trails when intercepted spent money on hotels. On average, these individuals spent \$95.64 per day. Important considerations of the information contained in this table include:

- Low portion percentages represent very few respondents and thus inferences drawn from them are not recommended. For example, *Auto Rentals*, though high in dollars value per day, were purchased by both mountain bikers and foot traffic at less than 6 percent each. This represents eight out of 275 total respondents.
- Vertically summing spending categories does not equate to the average total spent by respondents who spent in the Helena area. For accurate estimates of average visitor spending, see Table 11.
- Categories may appear lower than expected where a high portion of visitors only spent in the category on one day of their trip. For example, mountain bikers are shown here to only spend \$17.45 per day on bike rentals; however, bike rentals typically run in the range of \$50-\$80 per day. This suggests that rentals were only a portion of their visit and their spending is averaged across all days.

Appendix C: Helena Trail User Characteristic Survey

Hello, my name is _____ from the Institute for Tourism and Recreation Research at the University of Montana. We are conducting a study on Helena's trail usage. Would you take a few minutes right now to complete a 2 minute survey? Thank you!

Trail entry pt.

Mt. Helena larger trailhead with parking; Dump Gulch; Tubbs; Other Mt. Helena access trails; Beattie St. Trailhead; Old Shooting Range trail head; Arrowroot Drive trailhead; Other Mt. Ascension access trails; Mt. Helena Ridge trailhead; other ridge access trails

Q1. What US state, Canadian Province or Country to you permanently reside _____

Q2. Do you currently reside in Lewis and Clark or Jefferson County? Yes (skip to Q12) No

Q3. What is your zip code or postal code? _____

Q4. Is this your first time visiting the Helena area? Yes No

Q5. Was using the trails your primary reason for being in the area? Yes No

Q6. For what other reasons are you visiting the area? (Check all that apply.)

Vacation/recreation/pleasure

Visiting friends/relatives

Just passing through

Shopping

Business/convention/meeting

Work in Helena but live outside Lewis & Clark or Jefferson Counties

Q7. For this trip, how many total nights will you spend away from home?

0 (Skip to Q9)

List of 1- 10 or more

Q8. How many of those nights will be in Montana?

List of 0- 10 or more

Q9. Of your nights in Montana, how many will you stay in Helena?

List of 0 – 10 or more

10. Please enter your best estimate of the TOTAL amount of money in US dollars you (and your family/travel group, if applicable) spent in Helena in each of the following categories.

If you did not spend money in a category, please leave it blank.

ACCOMMODATIONS in Helena

Hotel/motel/bed & breakfast/cabin/room or couch

Campground

FOOD in Helena

Restaurant/bar

Groceries/snacks

TRANSPORTATION in Helena

Gasoline/diesel

Local transportation used Helena
Auto rental (rented in Helena)

RETAIL/SERVICES in Helena

Retail goods
Entertainment/recreation
Bike rental

Q11. How many people does the above spending represent (including yourself, i.e., your travel group/family size)?

List of 1 to 10 or more

Q12. How are you using the trail today?

Biking, hiking, dog walking, walking, running

Q13. Have you purchased hiking/biking/running/walking gear in the past 12 months in Helena?

Yes No (skip to Q15)

Q14. To what extent was your purchase(s) influenced by your desire to use the Helena trail system?

1. No influence 2. A little influence 3. moderate influence 4. High influence

Q15. Will you use the Helena trail system again? Yes No I don't know

Q16. How often do you use the trails in Helena between May and October?

This is my 1st time; < once a month; 1-3 times/wk; 3-4 times/wk; 5-7 times/wk

Q17. How often do you use the trails in Helena between November and April?

This is my 1st time; < once a month; 1-3 times/wk; 3-4 times/wk; 5-7 times/wk

Q18. How did you get to the trailhead today?

Walked, biked, shuttle, personal vehicle, ride from someone else

Q19. What is your planned trailhead exit?

Mt. Helena larger trailhead with parking; Dump Gulch; Tubbs; Other Mt. Helena access trails; Beattie St. Trailhead; Old Shooting range trail head; Arrowroot drive trailhead; Other Mt. Ascension access trails; Mt. Helena Ridge trailhead; other ridge access trails

Q20. What fitness tracking apps or devices do you routinely use? (Mark all that apply)

None; Strava; Map my fitness/Run/Ride; Garmin product (e.g. Garmin Connect); Fitbit; Runmeter; other (specify) _____;

Q21. What is your age? _____

Q22. What is your gender? Male Female Other

Q23. What best describes your household income

___ less than \$20,000 ___ \$40,000-\$59,999 ___ \$80,000-\$99,999 ___ \$120,000-\$149,999
___ \$20,000-\$39,999 ___ \$60,000-\$79,999 ___ \$100,000-\$119,999 ___ \$150,000 or more

Q24. What is your highest level of education?

☐ < high school ☐ high school degree ☐ technical college ☐ some college ☐ college degree
☐ graduate degree

Q25. Please provide any further comments.

Appendix D: Resident “Values of Trails and Open Space” Survey

(Intercepted at gas stations)

Hello, I am conducting a survey from the University of Montana Institute for Tourism and Recreation Research looking at the value that Helena residents place on certain attributes of their community. Do you live in Lewis & Clark or Jefferson County? Great, can you give me a few minutes while you are filling up to answer 6 quick questions? Thank you. (if not from the counties, say thanks and move on).

Q1. How often do you use the biking/hiking/walking trails or paths in the Helena area?

Never; rarely; occasionally; moderately often; frequently

On a 5 pt. scale from 1=not important to 5=very important, how important to your life in Helena are...

Q2. Nearby outdoor recreation opportunities

Q3. Access to open space lands

Q4. Amount of open space

Q5. Mt. Helena and Mt. Ascension Trail system

Q6. Paved or unpaved urban paths

Q7. Arts and culture

Q8. Community parks

On a 5 pt. scale from 1 =no influence to 5=very high influence, How much influence...

Q9. Does Helena’s trail system have on your decision to live in or near Helena?

Q10. Did Helena’s trail system have on the location of where you live in Helena?

Q11. Does Helena’s trail system have on your decision to stay in Helena?

Q12. How many years have you lived in the Helena area?_____

Q13. What is your age?

Q14. What is your Zip Code? _____

Q15. Male Female (observed)

Appendix E: “Values of Trails and Open Space” Survey

(Qualtrics based ‘Push’ Survey)

Q1 Hello, the Institute for Tourism and Recreation Research at the University of Montana, is conducting a study to estimate the value Helena area residents and businesses place on certain recreation based attributes of their community. We would greatly appreciate you taking just a couple of minutes to answer this brief survey. Your answers are completely anonymous and confidential. Thank you for your time!

Q2 Do you currently reside in Lewis & Clark, Jefferson, or Broadwater County?

- ☐ Yes (1)
- ☐ No (2)

Skip To: End of Survey If Q2 = No (2)

Q3 How close do you live to any of the Mt. Helena or Mt. Ascension area trailheads?

- ☐ Less than 1 mile (1)
- ☐ 1 to 2 miles (2)
- ☐ 3 to 5 miles (3)
- ☐ Greater than 5 miles (4)
- ☐ I'm not sure (5)

Q4 How often do you currently use the biking/hiking/walking trails or paths in the Helena area for the following activities?

	Never (13)	Rarely (14)	Occasionally (15)	Moderately Often (16)	Frequently (17)
Walking/Hiking (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking/Hiking with Kids (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking/Hiking with Dogs (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biking (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biking with Kids (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biking with Dogs (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5 How do you access the trail system? (Mark all that apply)

- ☐ Park at, or near, a trailhead (1)
- ☐ Walk/run from home (2)
- ☐ Bike from home (3)
- ☐ Walk/run from work (4)
- ☐ Bike from work (5)
- ☐ Use a shuttle service (6)
- ☐ Other (Please Describe) (7) _____

Q6 Of the access means in the previous question, which method would you consider your primary means of access?

- ☐ Park at, or near, a trailhead (1)
- ☐ Walk/run from home (2)
- ☐ Bike from home (3)
- ☐ Walk/run from work (4)
- ☐ Bike from work (5)
- ☐ Use a shuttle service (6)
- ☐ Other (Please Describe) (7) _____

Q7 When you have visitors from out of the area, how often do you take them or do they use the trail system?

- ☐ Never (1)
- ☐ Rarely (2)
- ☐ Occasionally (3)
- ☐ Moderately often (4)
- ☐ Frequently (5)

Q8 On a 5 point scale from 1 being not important to 5 being very important, how important to your life in Helena are:

	Not Important 1 (1)	2 (2)	3 (3)	4 (4)	Very Important 5 (5)
Nearby outdoor recreation opportunities (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to open space lands (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Amount of open space (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mt. Helena and Mt Ascension Trail System (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paved or unpaved urban paths (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Arts and culture (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community parks (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 On a 5 point scale from 1 being no influence to 5 being very high influence, how much influence:

	No Influence 1 (1)	2 (2)	3 (3)	4 (4)	Very High Influence 5 (5)
Does Helena's trail system have on your decision to live in or near Helena? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did Helena's trail system have on the location of where you live in Helena? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does Helena's trail system have on your decision to stay in Helena? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 How many years have you lived in the Helena area?

Q11 Which statement best describes your current employment status?

- ☐ Employed full time (1)
- ☐ Employed part time (2)
- ☐ Unemployed looking for work (3)
- ☐ Unemployed not looking for work (4)
- ☐ Retired (5)
- ☐ Student (6)
- ☐ Disabled (7)
- ☐ Prefer not to answer (8)

Q12 What type of business best describes your place of work?

- ☐ Retail sales (e.g. sporting goods, general merchandise) (1)
- ☐ Wholesale (2)
- ☐ Outfitting, guiding or other outdoor service provider (3)
- ☐ Restaurant, Bar or other food service (4)
- ☐ Grocery and non-fuel convenience store (5)
- ☐ Fuel and service station (6)
- ☐ Hotel, B&B, or other lodging services (7)
- ☐ Transportation services (e.g. auto sales, rental, repair, taxi) (8)
- ☐ Professional services (e.g. insurance, legal, medical) (9)
- ☐ Agriculture, Logging/Wood Products, Mining (10)
- ☐ Government (11)
- ☐ Education (Pre-School, K-12, College) (12)
- ☐ Nonprofit (13)
- ☐ Other (Please describe): (14) _____

Q13 How much influence does Helena's trail system have on your place of work (i.e. how much business is attributed to people using the trail system)?

- ☐ None at all (1)
- ☐ A little (2)
- ☐ A moderate amount (3)
- ☐ A lot (4)
- ☐ A great deal (5)

Q14 What best describes your annual household income in US dollars?

- ☐ Less than \$50,000 (1)
- ☐ \$50,000 to less than \$75,000 (2)
- ☐ \$75,000 to less than \$100,000 (3)
- ☐ \$100,000 to less than \$150,000 (4)
- ☐ \$150,000 to less than \$200,000 (5)
- ☐ \$200,000 or greater (6)

Q15 What is your gender?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Other (3)
- ☐ Prefer not to answer (4)

Q16 What is your age?

Q17 What is your zipcode?