

Connecticut Trail Census

Statewide multi-use trail user study



2019 Intercept Survey *Aggregated Data Report*

March 9, 2020



Acknowledgements

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March 9, 2020

Executive Summary ~ Key Takeaways

This report provides a summary of intercept survey data collected from multi-use trail users by volunteer surveyors at sites participating in the [Connecticut Trail Census](#). In 2019, volunteers from 13 of the 20 participating sites collected an aggregated total of 993 user intercept surveys from users at various times throughout the year. This data was provided to UConn, and 978 surveys were included for analysis in this report. While this data misses most winter, early morning and night users, it provides a general picture of those surveyed on these trails and how the trails are being used.

- **Walking, running, and jogging outpaces bicycling on these trails.** 84.7% of trail users surveyed indicated using the trail to walk, run, or jog, while 25.6% indicated use for bicycling.
- **The majority of users on these trails use them frequently.** In 2019, 64.7% of users surveyed indicated using the trails two or more times per week.
- **Trails are used throughout the year.** Those surveyed use the trails most often in the summer (94.9%), fall (93.0%) and spring (87.7%) but a surprising percentage also use them in winter (36.9%).
- **An overwhelming majority of users drive to these trails.** 55.4% of respondents drove their cars or motorcycles, alone, to get to the trail, and 28.9% drove with someone else. About an equal percentage walk (6.6%) or bike (7.5%) to the trail and 1.0% run or jog. Only 0.3% of respondents reported using public transportation.
- **Respondents use the trails primarily for exercise, recreation, and relaxation. Use for transportation purposes is negligible.** The majority of users (79.7%) indicated using the trails for the purpose of exercise, followed closely by recreation (62.4%). Only 1.6% of respondents indicated using the trails for “Travel to work” and no users indicated using the trails for “Travel to school.”
- **Trails are social spaces.** 9% of users indicated that they use the trails for socializing and 16.3% for family time.
- **Respondents complete an average of 36.4% of their exercise using the trail,** but only 8.1% completed 100% of their physical activity on the trail exclusively. These findings suggest that the majority of physical exercise, among users who are already engaging in activity, is taking place elsewhere--offering potential for trail advocates seeking to increase use.
- **More trail users surveyed are female than male.** In 2019, 54.6 % of respondents identified as female and 45.2% as male.
- **Trail users surveyed are largely older than the general population of Connecticut.** 65.7% of those surveyed were over 45 years of age.
- **Respondents overwhelmingly identified as white.** In 2019, 87.0 % of respondents identified as white, and this was consistent with previous years.
- **A majority of respondents report household incomes of \$100,000 or more.** 54.5% of all respondents in 2019 reported household incomes of \$100,000 or more.

Table of Contents

Background	1
Methods	1
Respondent Characteristics and Demographics.....	5
Zip Codes and Transportation	7
Mode and Purpose	8
Health	10
Time and Frequency of Use	11
Spending	14
Qualitative Data	16
Conclusions and Recommendations	19

Background

This report provides a summary of intercept survey data collected from multi-use trail users by volunteer surveyors at sites participating in the [Connecticut Trail Census](#). The Connecticut Trail Census is a statewide volunteer data collection program intended to inform a better understanding of multi-use trail use in the state of Connecticut and to make this important information available to trail user groups, administrators, government agencies, and the general public. The Census involves a trail user intercept survey, as well as infrared user counts on 20 multi-use trail sites throughout the state of Connecticut.

The goals of the Connecticut Trail Census are to: understand when, who, how, and why people make use of Connecticut's multi-use trails; educate stakeholders about trail use patterns and trends and user demographics; promote active citizen participation in monitoring and communicating the value of trails; and encourage sound trail building and maintenance programs based on data. The project is funded by the Department of Energy and Environmental Protection Recreational Trails Program and project partners include the Connecticut State Greenways Council and the Naugatuck Valley Council of Governments.

Methods

The survey tool and methods were developed with guidance from a survey advisory team, consisting of trail administrators from around the state and Connecticut Trail Census staff in partnership with the University of Connecticut Extension and Naugatuck Valley Council of Governments. Survey questions were based on those identified from similar surveys around the country and the National Bicycle and Pedestrian Data Collection Project. The paper survey takes about five minutes to complete. Note that some survey questions and procedures were modified to decrease error from year to year. These have been noted where applicable in the charts and narrative.

Data was collected by local volunteers who received supplies and training from the Connecticut Trail Census and data was provided on a voluntary and de-identified basis to the University of Connecticut Extension for analysis. In 2019, thirteen of the twenty participating sites (65%) collected an aggregated total of 993 surveys. In 2018, ten of the sixteen participating (63%) sites collected an aggregated total of 1,146 surveys, and in 2017, eleven of the fifteen sites (73%) collected an aggregated total of 1,042 surveys. This project was reviewed and determined exempt by the University of Connecticut Review Board (IRB) Exemption #XI5-174. However, under IRB guidelines, data received from minors under the age of 18 was removed prior to analysis. With data from minors removed there were a total of 978 surveys for analysis in 2019, 1,131 from 2018 and 1,003 from 2017. Data was also reviewed prior to analysis to identify data entry errors. Additional information about how errors were handled for each question was documented and is available on request. For more information about this data or the Connecticut Trail Census visit <http://cttrailcensus.uconn.edu>.

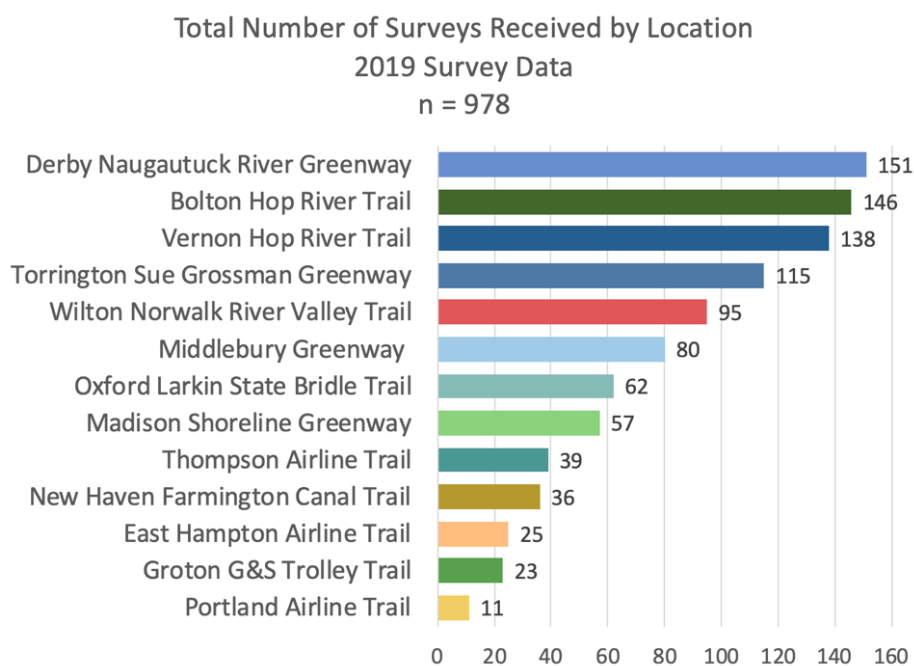
The 978 surveys analyzed were collected from thirteen multi-use trail sites shown on the map below over 57 data collection periods. The sites that collected survey data in 2019 were: the Naugatuck River Greenway Trail in Derby, the Hop River Trail at Bolton and Vernon, the Sue

Grossman Trail in Torrington, the Middlebury Greenway in Middlebury, the Larkin State Bridle Trail in Oxford, the Shoreline Greenway in Madison, the Norwalk River Valley Trail in Wilton, the Farmington Canal Heritage Trail in New Haven, the Airline Trail in Thompson, East Hampton, and Portland and the Groton G&S Trolley Trail. While surveying methods were prescribed to maximize representation of total trail users across months, days, and times, the survey times were ultimately chosen based on volunteer availability, so rigorous randomization was not possible.

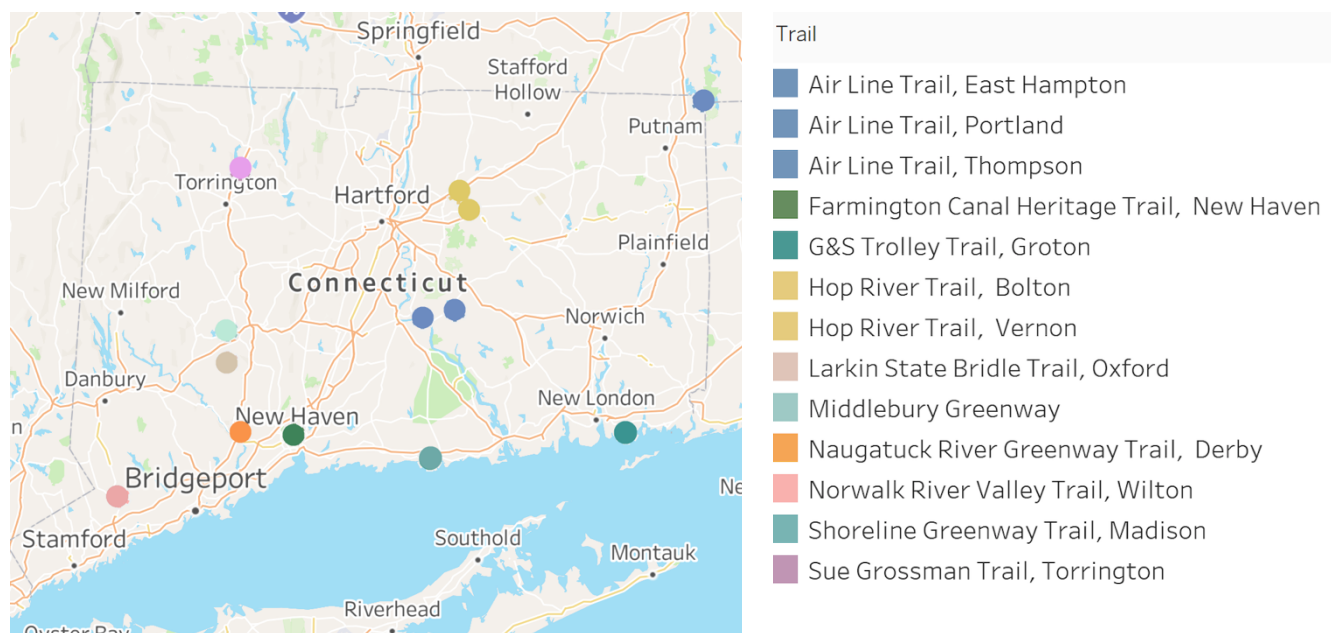
The specific data collection location was chosen by trail administrators familiar with trail use, to most accurately represent normal use along the trail segment and to best facilitate asking people to stop during an activity (usually near a trailhead or parking area). These sites varied slightly from the locations chosen for infrared counts to avoid interference of the survey with accurate infrared counting. Count summaries are not included in this report but are available on the Trail Census website www.cttrailcensus.uconn.edu.

This report includes intercept survey data collected in 2017, 2018 and 2019. While some comparison is provided in this report from year to year, this data should be used with caution. The trails selected and the samples of users selected to complete the survey are not random and therefore may not accurately represent the trail user population, either for the individual trails or for trail users statewide. Participating trails also changed from year to year based on the ability of each community to mobilize volunteers. However, we report this data to provide a general picture of those users who did complete the survey. While a rigorous statistical analysis is not possible, this data is sufficient to inform local programming and policy decisions and to identify needs for further investigation. A full report of prescribed data collection methods can be found at www.cttrailcensus.uconn.edu.

Chart 1: Number of Surveys Received by Location



Map 1: Survey Data Collection Sites



Additionally, because the samples collected by volunteers are not random, calculations of margins of error are not appropriate for this data. Additional discussion about methods and estimated margins of error used to inform surveying recommendations are available at www.cttrailcensus.uconn.edu.

The charts below compare the survey data collection months, days and hours to overall trail use across all of the trails for which infrared counter data was available. This demonstrates that while usage declines from December through March, trails are still used during these months. The survey samples are heavily skewed to warmer months and may not be representative of winter users. Surveys were also heavily skewed to Saturdays and Sundays, likely due to surveyor availability, but these are also the days of heaviest average use. In terms of time of day, a large percentage of surveys were collected in the morning and afternoon hours. However, this analysis represents the first full hour following the surveying start time surveying, not the actual timestamp for each survey collected, as this was not available for every survey. Some survey sessions lasted less than one hour while others extended up to four hours. The patterns shown here are also likely to vary significantly from trail to trail based on use patterns at each location.

Chart 2. Percent Surveys Collected Compared to Use Estimates by Month

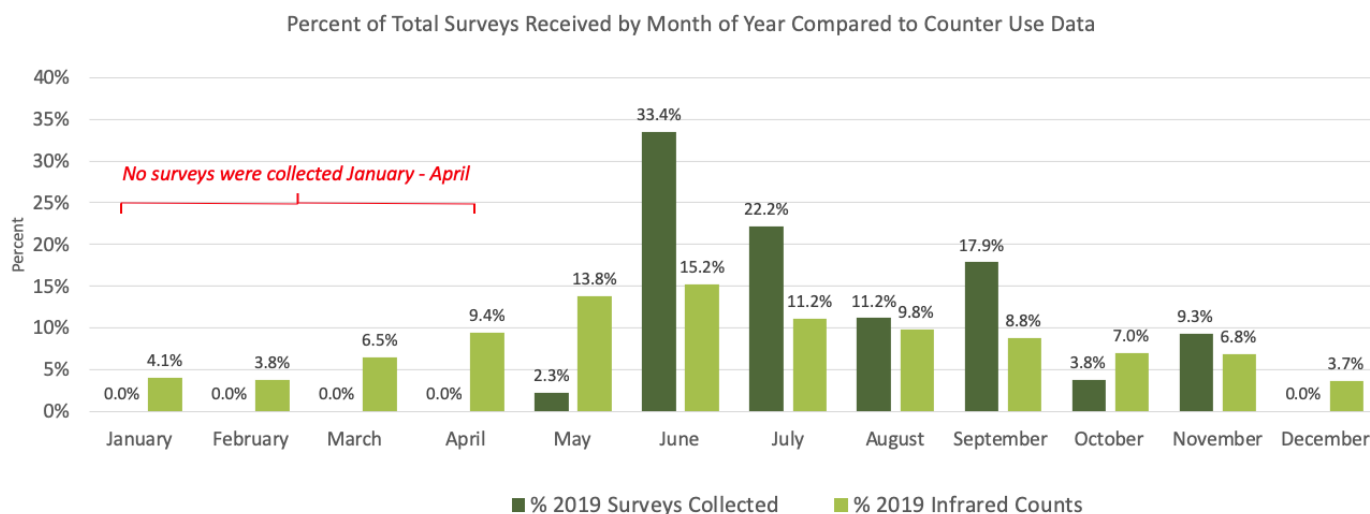


Chart 3: Percent Surveys Collected Compared to Use Estimates by Day of Week

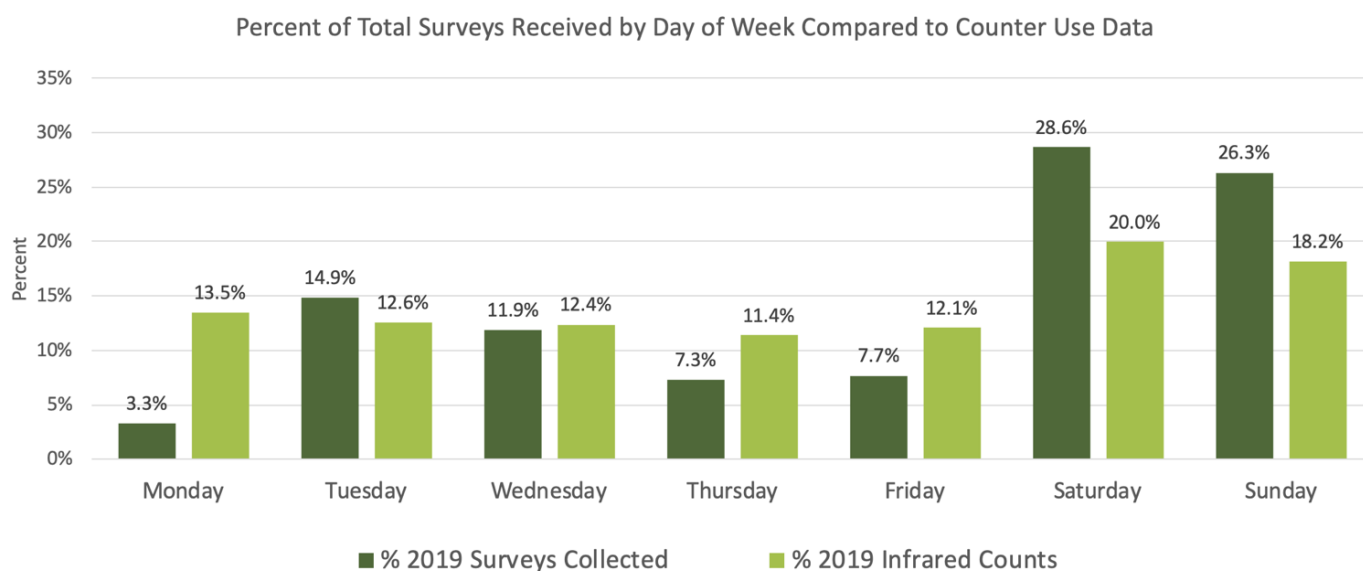
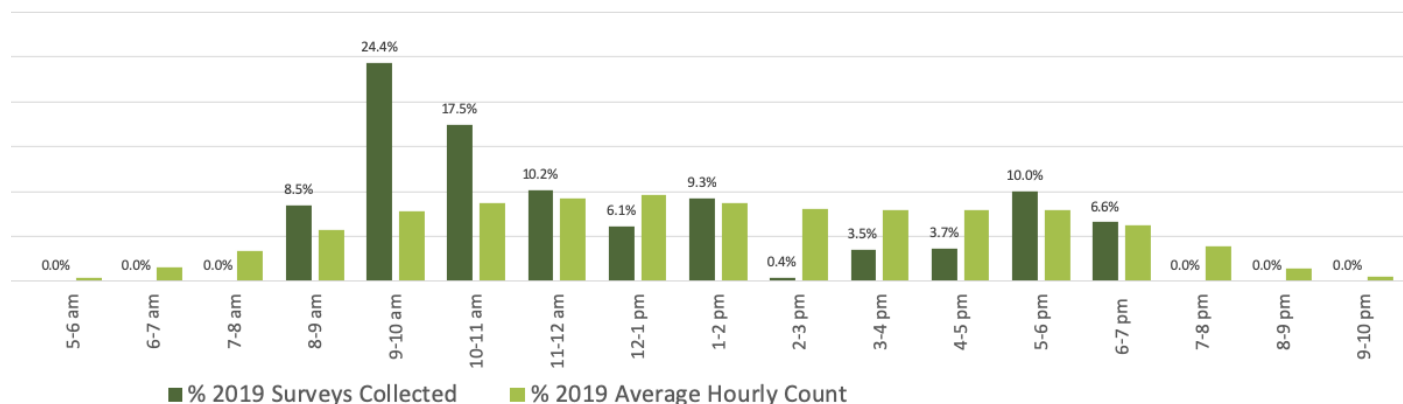


Chart 4: Percent Surveys Collected Compared to Use Estimates by Hour

Percent of Total Surveys Received by Start Time Compared to Counter Use Data



Respondent Characteristics and Demographics

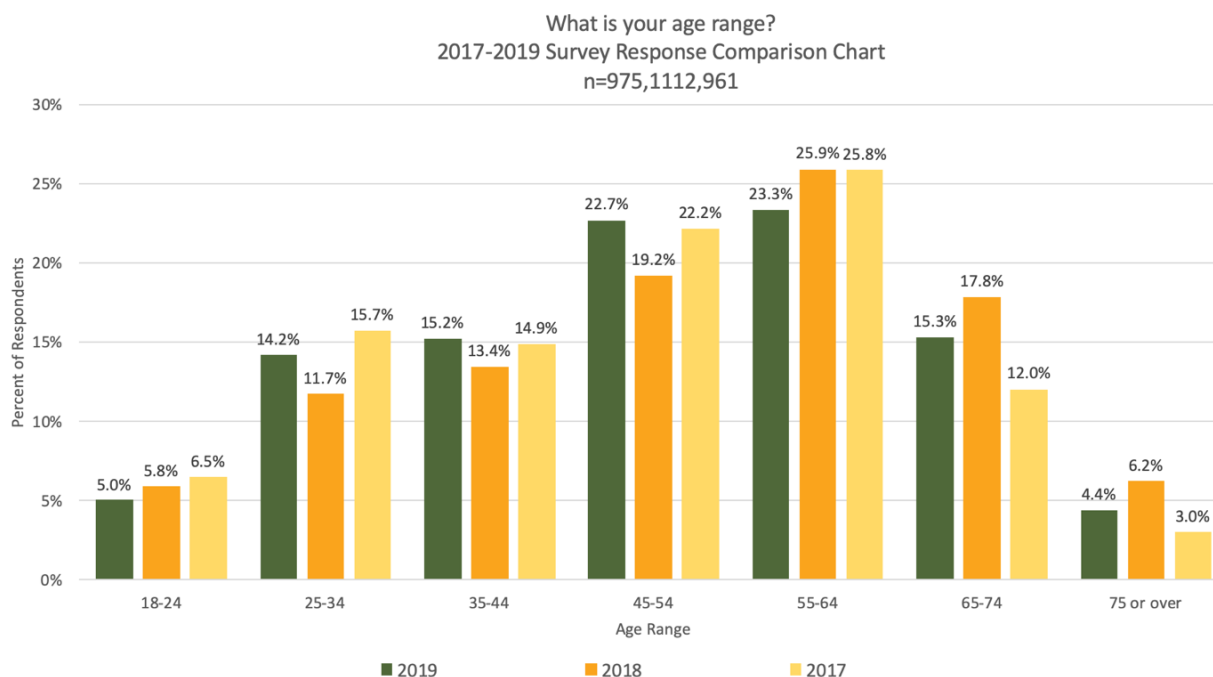
More trail users surveyed are female than male. Consistent across all three years of data is the predominance of female users on these trails. In 2019, 54.6 % of respondents identified as female and 45.2% as male, with 0.2% preferring to self-describe. In 2018, 53.3% identified as female and 46.7% as male, and in 2017, 56.5% identified as female and 43.5% as male.¹ There is a greater proportion of female trail users than the population of the state of Connecticut as a whole, which is 48.8% male and 51.2% female.

Trail users surveyed are largely older than the general population of Connecticut and respondents in 2018 were older than those surveyed in 2017. In 2019, 65.7% of those surveyed were over 45 years of age. According to the US Census only 44.7% of the general population of Connecticut is over age 45.² In 2019, users aged 25-34 represented only 14.2% of all those surveyed, compared to 12% in 2018 and 15.7% in 2017.

¹ Gender was observed by the interceptor in the 2017 survey which likely created some error. In 2018 this was a respondent question.

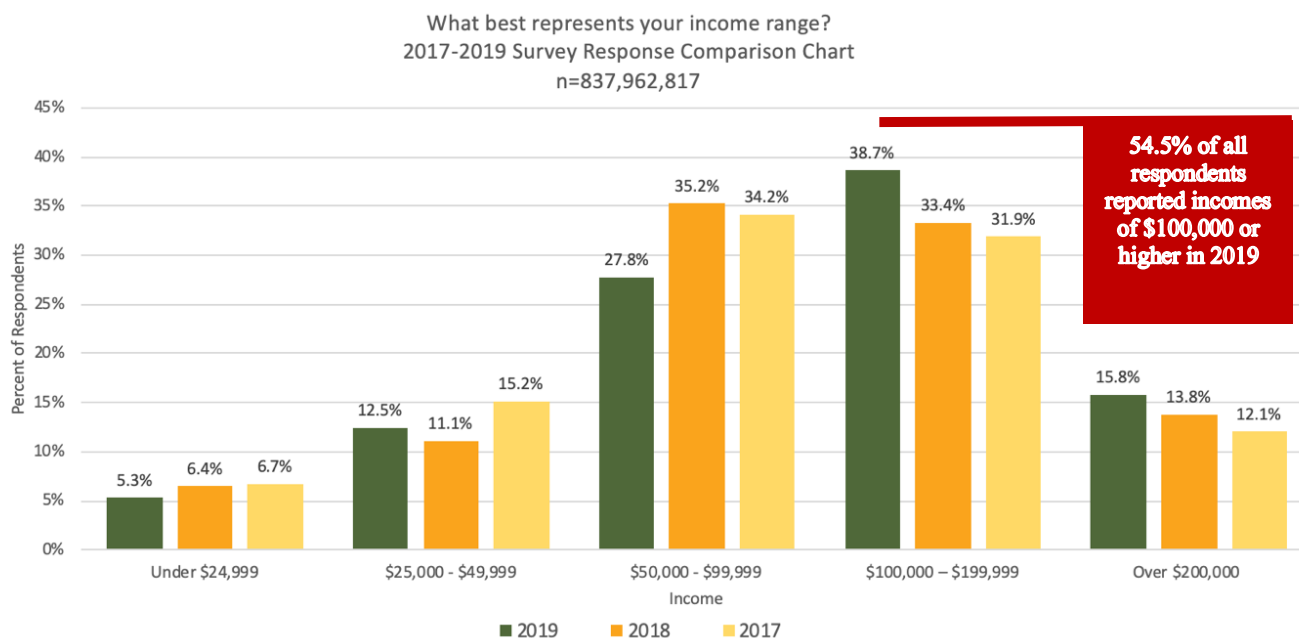
² US Census Bureau (2017). *American Community Survey 5-Year Estimates*. Retrieved from <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

Chart 5: Respondent Age Range



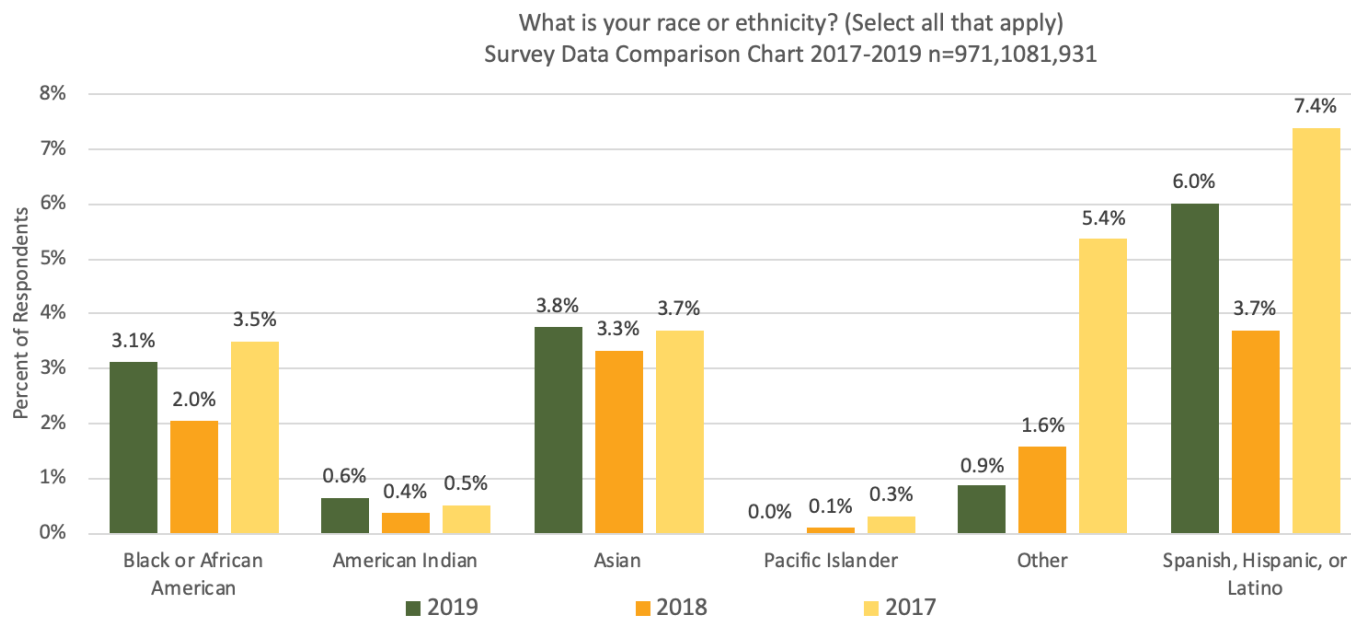
Respondents in 2019 were wealthier than 2018 or 2017 respondents. As shown in the table below, 54.5% of all respondents in 2019 reported household incomes of \$100,000 or more compared to 47.2% in 2018 and 43.9% in 2017. Similarly, a lower percentage of respondents reported household incomes of less than \$50,000. It is important to note that this data alone does not explain if this represents a shift in the types of users on these trails or if the same users simply increased their incomes.

Chart 6: Income Range



Respondents overwhelmingly identified as white. In 2019 87.0 % of respondents identified as white, and this was consistent with previous years' data (90.5% in 2018 and 86.6% in 2017). 6.0% of respondents identified as Spanish, Hispanic or Latino, 3.8% as Asian, 3.1% Black or African American, 0.6% as American Indian, 0.9% as Other, and 0% as Pacific Islander.

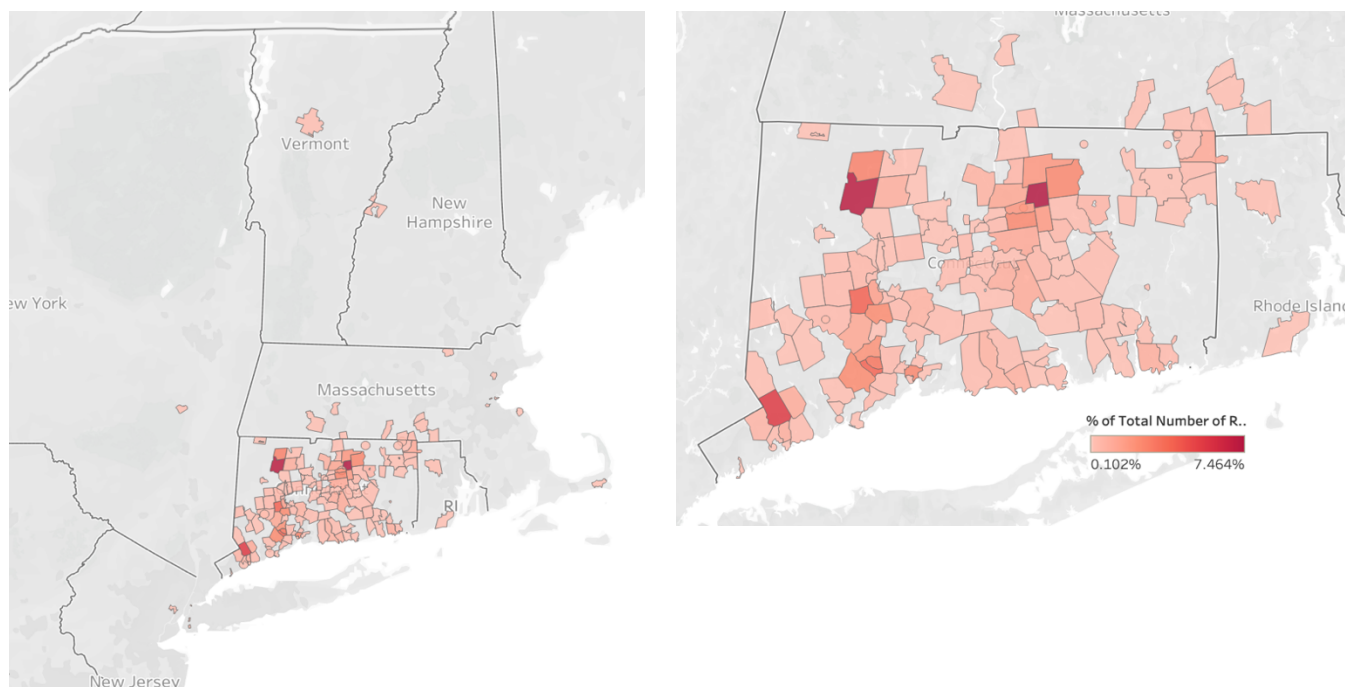
Chart 7: Race or Ethnicity



Zip Codes and Transportation

2019 Respondents represented 188 unique zip codes and 20 states. The map below shows the zip codes where respondents live.

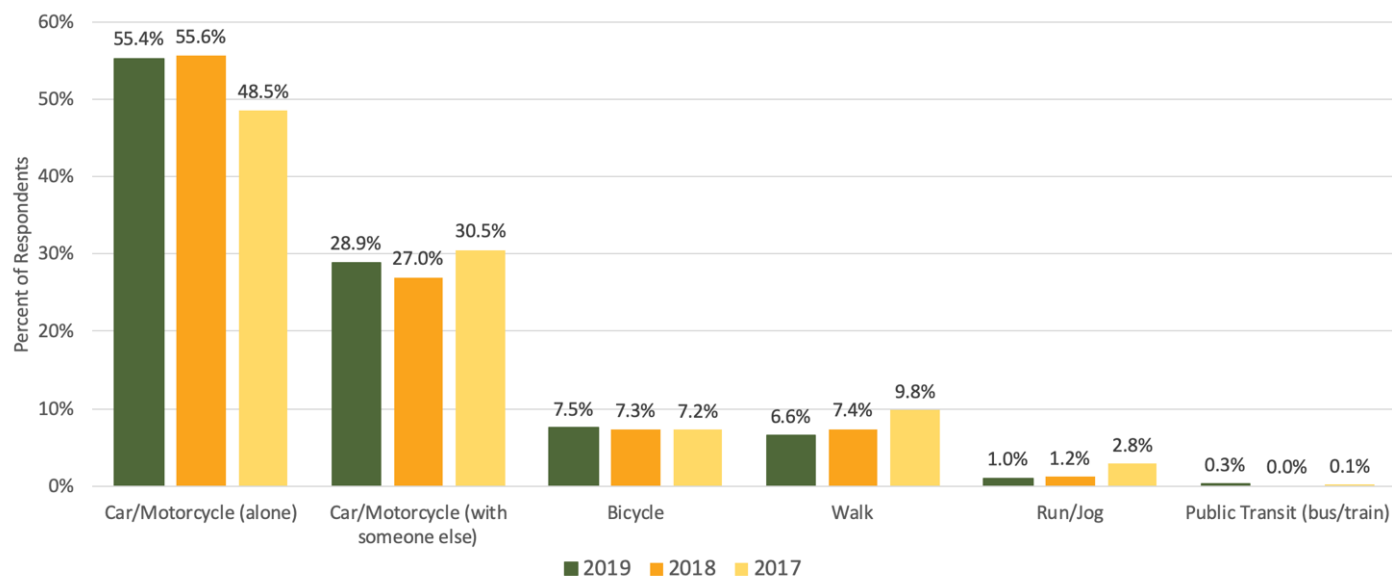
Map 2: Respondent Home Zip Code



An overwhelming majority of users drive to these trails. 55.4% of respondents drove their cars or motorcycles, alone, to get to the trail, and 28.9% drove with someone else. About an equal percentage walk (6.6%) or bike (7.5%) to the trail and 1.0% run or jog. 0.3% of respondents reported using public transportation.

Chart 8: Mode of Transportation to the Trail

How did you get to the trail today?
Survey Data Comparison Chart 2017-2019, n=983,1127,977

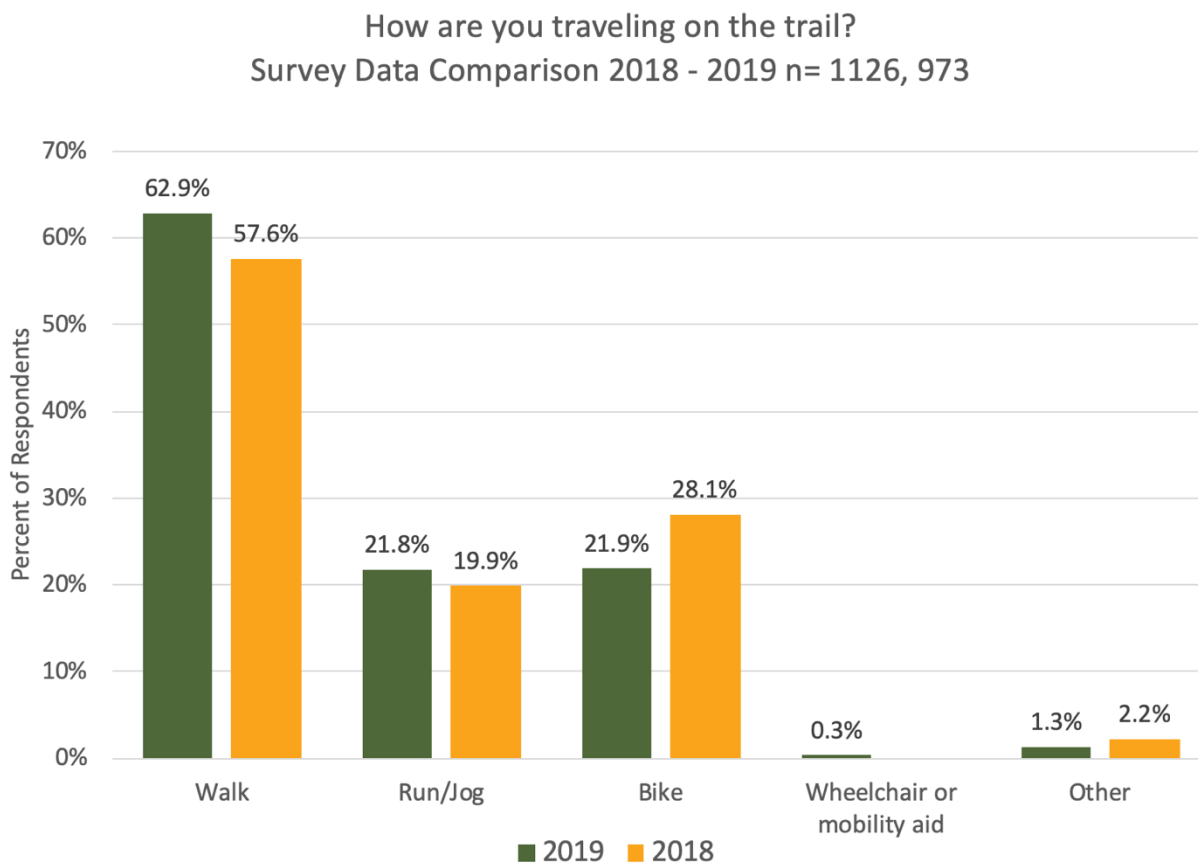


Mode and Purpose

The overwhelming majority of users surveyed, 84.7%, on these trails use them for walking, running, or jogging. This is greater than the 77.5% that indicated walking, running, or jogging in 2018.³ 21.9% indicated bicycling compared to 25.6% in 2019. 0.3% indicated using a wheelchair or mobility aid, and 1.3% indicated other modes including dog walking, equestrian, skateboards, tricycles and strollers. This question was an interceptor observed question in 2017. Question responses were modified in 2019 to include “wheelchair or mobility aid” and to consolidate infrequent responses to “other.”

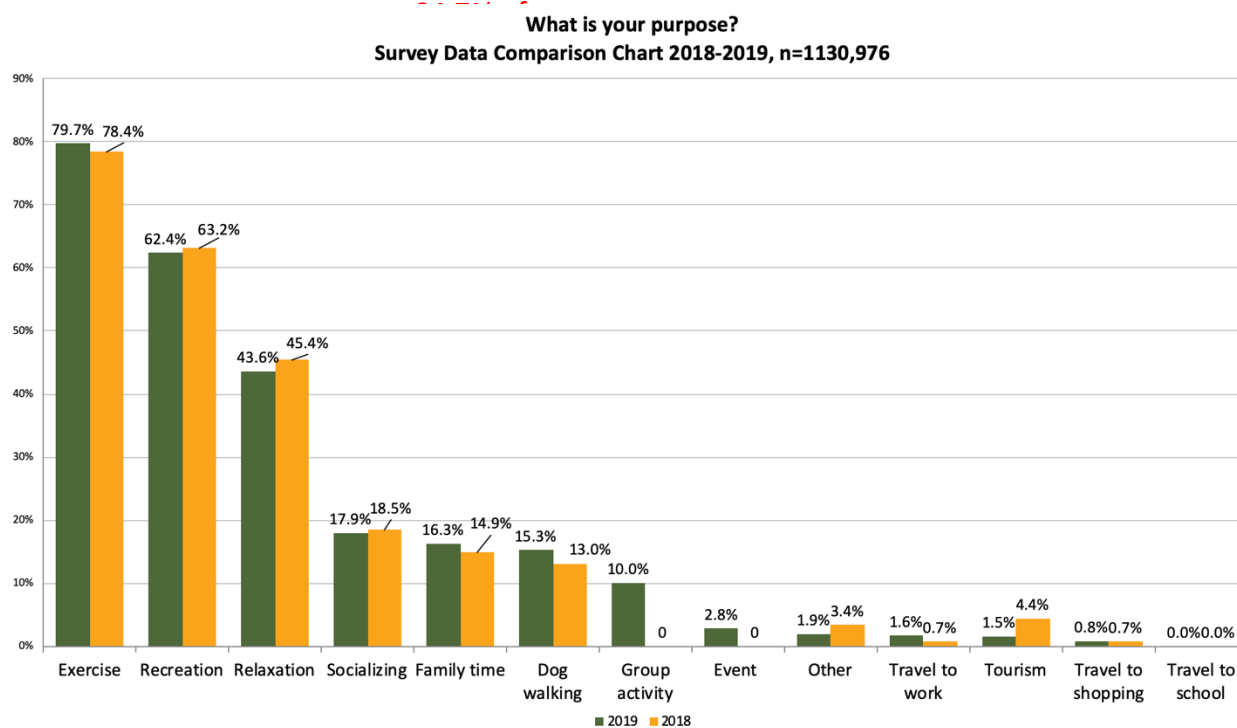
³ This analysis has been revised since the publication of the 2018 report.

Chart 9: Mode of Activity on the Trail



Respondents use the trails primarily for exercise, recreation, and relaxation. The majority of users, 79.7%, indicated using the trails for the purpose of exercise, followed closely by recreation (62.4%) and relaxation (43.6%). (Respondents could provide multiple responses).

Chart 10: Purpose on the Trail



The trails also serve an important social function, with 17.9% of users indicating they use the trails for socializing and 16.3% for family time. Other uses included dog walking (15.3%), and group activities (10.0%). 1.9% indicated other purposes including “traveling to Church,” “birding,” “biking” various nature focused activities and “eating lunch.”

These trails are not used significantly for transportation. 1.6% of respondents indicated using the trails for “travel to work,” greater than the 0.7% reporting this in 2018. No users indicated using the trails for “travel to school.”

Health

In 2018, the intercept survey was updated to include several additional questions about the physical activity level of users and use of the trails for health related purposes. This data can be used to understand how trail use, or activity on trails, might contribute to positive health outcomes and monetized health impacts.⁴ Findings from trail impacts studies have found that monetized health impacts represent a significant portion of the long term impacts of having a trail.

⁴ Brown, L. & Aseltine, M. (2018). Investigating the Relationship Between Trail Usage and Health in Connecticut through Pilot Use of Volunteer Based Data and an Online Health Calculator. Unpublished white paper.

The survey asked respondents about the number of days in the past week in which they engaged in at least 30 minutes or more of physical activity and how many of these days were vigorous. These questions were designed to align with the World Health Organization active living recommendations that adults ages 18-65 should do at least 150 minutes of moderate intensity physical activity or 75 minutes of vigorous activity per week, for at least 10 minutes at a time. Due to the nature of the simplified question in this survey, calculations included those respondents who met the minimum of at least 150 minutes of moderate activity (five days) or 90 minutes of vigorous activity (three days). The value of responses to these questions is limited, since respondents may have completed all 150 minutes to meet the minimum threshold in one day, for instance, but would not have met the standard by our calculations. However, this interpretation of physical fitness corresponds more appropriately to recommended guidelines suggesting that this activity take place over a period of days. In both 2019 and 2018, more respondents met the minimum physical activity guidelines through vigorous activity than through moderate activity; in 2019, 83.4%, and in 2018, 54.5%. In 2019, 86.9% of those responding to this question met either the moderate or the vigorous guidelines while in 2018, 56.8% met the minimum.

In 2018 respondents were asked *“Does the availability of this trail impact your decision to exercise or the frequency at which you exercise?”* and 80% indicated that it did. In 2019, survey respondents were asked, *“During an average week, what percentage of your physical activity do you complete using the trail?”* The 848 respondents to this question completed an average of 36.4% of their exercise using the trail but only 8.1% (69) users completed 100% of their physical activity on the trail exclusively. These are important findings suggesting that the majority of physical exercise, among users who are already engaging in activity, is taking place elsewhere.

Time and Frequency of Use

Respondents were asked to provide the number of minutes spent on the trail. This quantitative data was analyzed using basic descriptive statistics for various measures of dispersion in the charts below. The average time spent on the trail across all users was 74.1 minutes (compared to 72 minutes in 2018). However, when the data from those who walked or jogged/ran was segregated from those who were bicycling, this varied significantly. The average walk/run/jog time (including anyone who indicated any combination of walk, run/jog, or other but not including bicycling) was 65.7 minutes, while the average time for anyone who indicated bicycling (or any combination of bicycling and other) was 104 minutes.

Chart 11. Time Spent on the Trail

In the chart below the “Mean” is the average value, the Median is the value in the middle of the sample, and the Mode is the value that occurs most frequently in the sample.

Approximately how many minutes do you plan to spend on the trail today? n=973					
	Mean - Average	Median	Mode	Max	Min
All modes	74.1	60	60	600	1
Responses Including Walking	66.1	60	60	480	1
Responses Including Walking/Run/Jog Combination	65.7	60	60	480	1
Walking Only	65.4	60	60	480	1
All Responses Including Bicycling	104.0	90	120	600	1
Bicycling Only	106.4	90	120	600	1

The majority of users on these trails use them frequently. In 2019, 64.7% of users surveyed indicated using the trails two or more times per week (in 2018 this was 55.7%). Those surveyed use the trails most often in the summer (94.9%), fall (93.0%) and spring (87.7%) but a surprising percentage also use them in winter (36.9%). This data may be significantly affected by sampling error, due to the seasons chosen for data collection, as well as likely variations between winter maintenance on these trails.



Chart 12: Frequency of Use

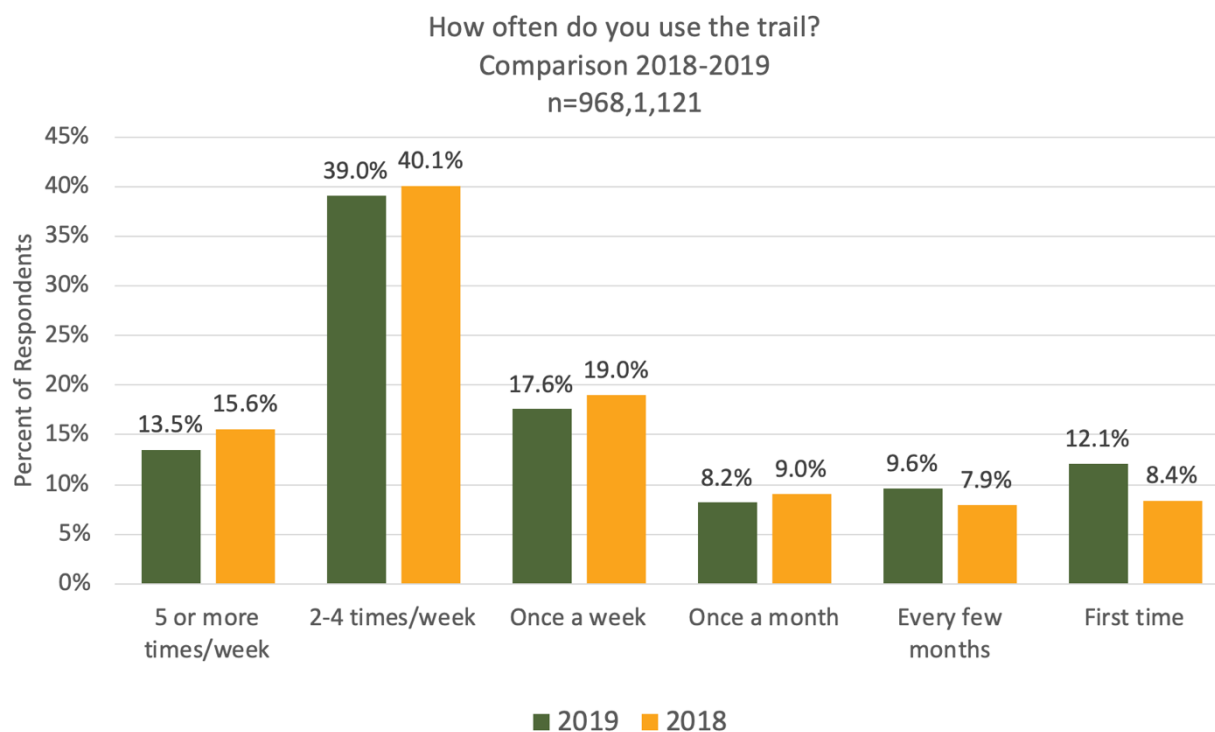
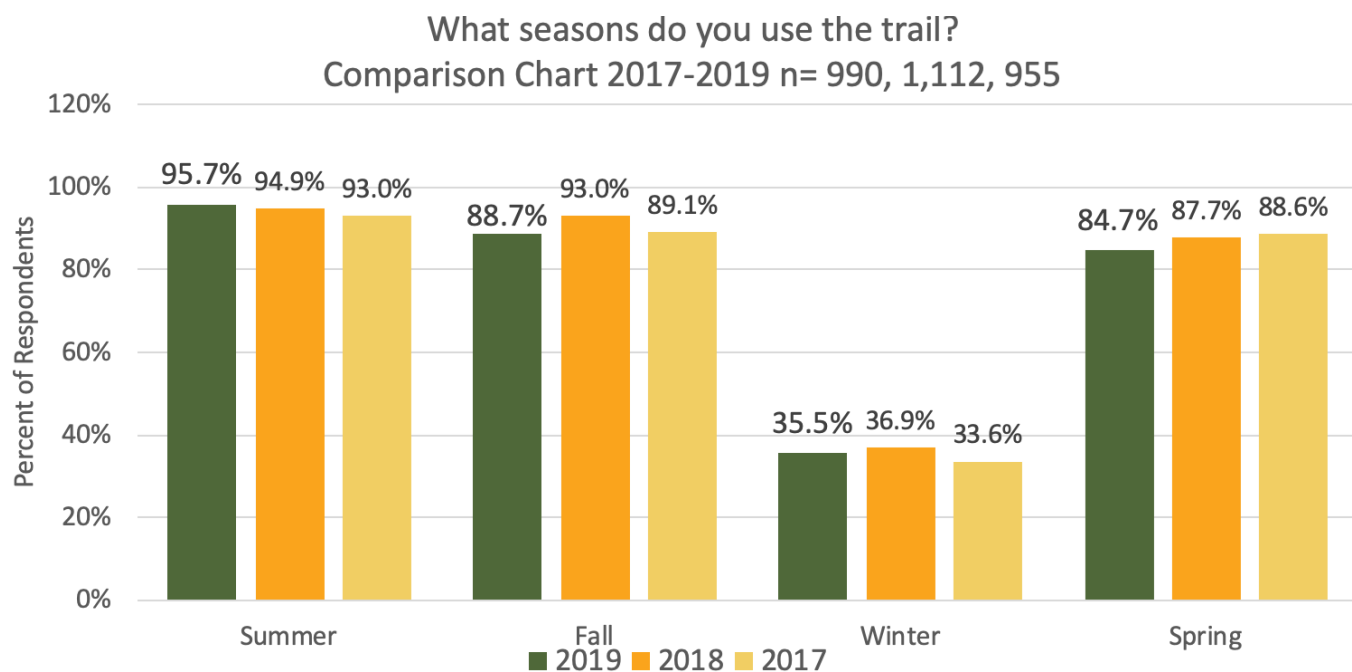


Chart 13: Use by Season



Spending

The 2019 respondent data was similar to data collected in 2018 and 2017. The total number of respondents indicating any expenditures at all was 22.4%, (2019), similar to the 25.8% in 2018 and 19.2% in 2017. Average user spending on that trip to the trail was \$6.05, also comparable to the 2018 average per user total of \$7.95 and \$5.64 in 2017. The average expenditure for those who spent any money at all was \$27.03 in 2019. The chart below provides an overview of spending calculations from 2017 to 2019. The second part of this chart includes average spending for respondents who indicated spending “\$0.” The third part of the chart indicates the average expense only for those who had any expenses in that category. This question, particularly the formatting, has been modified slightly from year to year to address non-response error.

Chart 14: Expenditures by Category

	2017-2019 Trail Census Respondent Expenditure Profile										
	% of Respondents Indicating Expenditures in this Category				Average Expense Per Respondent (Includes respondents who spent nothing)				Average Expense (Only respondents with expenditures in this category)		
Category	2019	2018	2017		2019	2018	2017		2019	2018	2017
Beverages	9.4%	13.6%	11.57%		\$0.56	\$0.83	\$3.16		\$5.92	\$6.10	\$5.69
Food	5.6%	10.3%	5.98%		\$0.47	\$1.26	\$1.79		\$8.31	\$12.31	\$6.23
Restaurant	3.0%	4.6%	5.08%		\$1.07	\$1.02	\$7.98		\$36.10	\$22.09	\$32.37
Gas	10.4%	9.3%	8.77%		\$1.32	\$1.36	\$6.60		\$12.65	\$14.58	\$15.69
Retail	0.9%	1.6%	1.00%		\$0.43	\$1.01	\$2.80		\$50.75	\$63.33	\$58.00
Equipment rental	0.4%	0.5%	0.00%		\$0.48	\$0.46	\$0.00		\$116.25	\$86.67	\$0.00
Lodging	0.1%	0.4%	0.00%		\$0.41	\$1.22	\$0.00		\$400.00	\$343.75	\$0.00
Nearby activities	1.5%	1.0%	0.70%		\$0.36	\$0.39	\$1.43		\$23.60	\$40.00	\$42.14
Other	1.5%	0.9%	1.50%		\$0.94	\$0.41	\$3.46		\$61.40	\$46.70	\$48.00
Total	22.4%	25.8%	19.14%		\$6.05	\$7.95	\$5.64		\$27.03	\$30.78	\$29.48

Annual expenditures were calculated as a whole and not by category. On the 2017-2018 survey, the annual expenditure question read: *How much do you spend each year on goods or services related to trail use? Include gear, clothing, equipment rental repairs, auto accessories, etc.* This was modified in 2019 to more accurately collect data specific to use of a particular trail (since this is what community partners are primarily seeking). The 2019 survey was also formatted as a two-part question: *“Did your use of this trail influence your purchase of gear, supplies, equipment, clothing, or rentals in the past year? If you answered “yes,” above approximately how much did you spend on the past year on gear, supplies, equipment, clothing or rentals related to your use of this trail?”*

This modification in the question format likely accounts for the significant drop in percentage of respondents reporting annual expenditures, since the 2019 number indicates only those with annual expenditures related to their use of the current trail. The average expense per respondent, at \$355.27, was similar to the overall average expense as only four respondents indicated spending “\$0” despite the reformatted question.

Chart 15. Annual Expenditures

2017-2019 Trail Census Annual Expenditure Profile									
	% Respondents Reporting Annual Expenditures			Average Expense Per Respondent (Includes respondents who spent nothing)			Average Expense (Only respondents with expenditures)		
	2019	2018	2017	2019	2018	2017	2019	2018	2017
Annual Expenditures	29.8%	73.6%	61.40%	\$355.27	\$168.73	\$229.67	\$361.92	\$229.67	\$338.54

Survey respondents were asked to comment on their favorite things about the trail and things they would improve about their trail experience. For this report, this data was analyzed in aggregate using a word analyzer.**

There were 904 responses regarding favorite things about the trail. Single words appearing most in responses included “scenery,” “quiet,” clean,” “flat,” “nature,” “shade,” and “safe.” **Primary word phrases regarding things respondents most liked about the trail included proximity to home, ability to walk easily without cars, ease of access, length of trail, good maintenance and friendliness of others on the trail.** The word cloud below illustrates the most frequently appearing words among all responses by word size.

16

Favorite Things by Word Count		
scenery	89	2.7821
quiet	71	2.2194
clean	70	2.1882
flat	70	2.1882
nature	64	2.0006
shade	63	1.9694
safe	61	1.9068

Top three word phrases Occurrence

close to home	18
proximity to home	10
easy to walk	6
place to walk	5
quiet no cars	4
ease of access	4
length of trail	4
no cars quiet	4
peaceful no cars	3

Top two word phrases Occurrence

well maintained	40
no cars	36
to home	29
close to	24
to walk	16
proximity to	13
easy to	11
well kept	10
it is	9
ease of	9
friendly people	9



*There were 630 responses regarding improvements to the trail experience. When asked about what would improve the trail experience, 3.8% (86) responses, noted “nothing” could be improved, while 2.3% noted “longer” and 1.5% (34) referenced lighting. **Response phrases focused on increasing length, improvements to lighting, more bathrooms, water fountains, winter maintenance pickup dog poop, and mile markers.** The word cloud below illustrates the most frequently appearing words among all responses by word size.*

[illegible]

Top two word phrases	Occurrence
lights in	19
it longer	18
in tunnel	17
make it	16
nothing nothing	12
the trail	11
more bathrooms	11
water fountain	10
in the	10
in winter	10
dog poop	9
pick up	8
mile markers	

18

Conclusions and Recommendations

This data can be valuable in helping communities better understand who is using trails and make sound investments in both physical infrastructural amenities and programming to increase use. The results of this report should be used to inform trail planning, development and policy. Despite the variation of trails participating in the survey from year to year, the data collected through the Census from 2017 to 2019 shows some clear trends that inform the following recommendations and actions.

- 1. Understand barriers to trail access and increase use by a diverse range of users -**
Since *walking, jogging and running* is the most frequent use on these trails, communities may consider developing amenities for these mainly local users. However, given that the majority of users are white, older, and upper income, there is likely a large portion of the state population who either chose not to use these public trails or for whom these trails are inaccessible. While this data cannot answer why additional populations are not using the trails, efforts to increase use will need to engage a broader and more diverse audience than existing trail users. These efforts should engage of a diverse range of audiences in the planning and design process, with the goals of understanding what prevents a wide variety of users from using trails, and what would motivate people to use the trails more. Given that these trails are public resources for the promotion of physical activity and potentially alternative routes for transportation, these are significant and relevant issues.
- 2. Increase tourism -** The results of the Census also point to the potential to increase use by bicyclists and especially bicycle tourists. Bicyclists, particularly those from out of state, make more investments in equipment, time, and spending during visits. However, many of our trails may not be conducive, either in length or amenities, to attracting these types of users. Communities and trail advocates should focus on understanding what amenities currently exist, what amenities bicycle users seek, and how trails might be better networked to attract longer distance tourism.
- 3. Build connectivity and networks -** Trails included in the Census clearly serve a social purpose, but the trails themselves often aren't connected to places where people naturally congregate in communities- downtowns, business districts, schools or other park areas. The extremely low use of these trails for travel as well as the very low expenditures of users on the trails indicate that users may not be interacting with their community in other ways during trail use. That is, the trails are disconnected amenities. Communities should think about how to better integrate trail and outdoor resource amenities with transportation needs- where people natural travel as well as connections to schools, parks, playgrounds, and business districts. This includes creating cohesive safe routes – sidewalks and bike lanes for instance - for biking or walking from neighborhoods to trails and to other community nodes.

Next Steps

As a statewide project housed within the state's land grant University, the Trail Census is in a unique position to serve as a platform for statewide information sharing and coordinating efforts around trail monitoring and usage. In 2020, the Census is gearing up for some exciting updates and changes. The project will continue to support the collection of volunteer-based survey data for communities who wish to participate. The Census will also implement a simplified QR based survey for those communities that wish to collect data but do not have volunteers to implement intercepts. The hope is that this will increase the number of participating sites and engage more respondents to the survey. This data will be reported in the next annual aggregated survey report. Infrared based count data collection will continue on the twenty sites where counters are currently installed but staff will be exploring the use of short term trail counts that may be used to extrapolate annual totals. The Census is also exploring the possibility of characterizing trails by use patterns and types of users (commuters, tourists) that will provide more specific guidance to communities based on trail typology. The team is also hoping to implement a new TrailFinder mapping tool that will allow trail users to more easily access trail information.