



2019 MISSOULA AREA TRANSPORTATION SURVEY

Final Report

ABSTRACT

This survey examines Missoula area residents' perceptions of the local transportation system, views about priorities for investments in the system, opinions about possible taxes to pay for system improvements, the frequency of transportation activities, and opinions about electric vehicles, autonomous vehicles, e-scooters and rideshare services.

Bureau of Business and Economic
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Executive Summary

The purpose of the 2019 Missoula Transportation Survey was to examine:

- perceptions of the transportation system;
- views about possible priorities for investments in the system;
- opinions about possible taxes or fees for system improvements;
- frequency of self-reported transportation activities; and
- opinions about the possible new transportation system elements, including electric vehicles, autonomous vehicles, e-scooters and rideshare services.

The survey was sponsored by the Missoula Metropolitan Planning Organization (MPO) and was conducted by the University of Montana's Bureau of Business and Economic Research (BBER) during the period September 9, 2019 through November 15, 2019. The 2019 survey was the third iteration of Missoula area transportation surveys, the first was conducted in 2008 and the second in 2015. The 2019 questionnaire included many of the same items asked in 2015, so the 2019 report presents an analysis of trends.

The 2019 Survey study population was adults (ages 18+) who lived in the Missoula Metropolitan Planning Area at the time of the survey excluding the institutional population, the homeless population, and those persons who were absent during the study period. Respondents were chosen from a random sample of residential addresses and within residences they were selected using the next birthday method. BBER administered the survey by mail and responses were accepted over the internet or by mail. BBER obtained 521 completed questionnaires during this survey. The overall sampling error rate for this survey is +/- 6%. The survey estimates in this report were weighted to match U.S. Census Bureau population totals for gender, age, educational attainment and location within the study area. The estimates were also weighted by the percentage of registered voters who live in the area using the Montana Secretary of State's Voter Registration List.

Overall Transportation System Quality

About 7 in 10 Missoula area residents (69%) rated the overall quality of the transportation good or higher. There was no change in the proportion of residents who rated the quality of the system good or higher from 2015 to 2019.

Preferences for Investments in the Transportation System

The 2019 Survey asked two questions examining area residents' preferences for transportation system improvements. The first question was open-ended and captured what was initially most salient to respondents. The second was closed-ended and offered a list of response options. The second question framed responses by offering response options but also aided the memory of respondents who were not as familiar with possibilities for transportation investments. It is best to consider the responses to both questions when evaluating residents' preferences.

The highest ranked responses to the open ended-question that asked about the most important transportation investment that should be made in the Missoula area were:

- Transit improvement (tied for 1st)
- Roadway maintenance (tied for 1st)

- Bicycle and pedestrian (3rd)
- New roads or bridges (tied for 5th)
- Congestion management (tied for 5th).

The highest ranked responses to the closed ended-question that asked for the top 3 transportation investments that the Missoula area should focus on were:

- Existing road maintenance (1st)
- Long distance passenger rail, commuter or light rail (tied for 3rd)
- Parking (tied for 3rd)
- Transportation system management or signal coordination (4th)
- Public transportation (5th).

Paying for Transportation System Improvements

Support for paying more taxes or fees if the revenues were spent only on transportation system improvements dropped in 2019 to 39% from 50% in 2015.

If taxes or fees were increased to pay only for transportation system improvements, a plurality of Missoula area residents (44%) preferred that the increased revenue be spent on repairing existing streets and roads.

If taxes or fees were increased to pay only for transportation system improvements, a plurality of Missoula area residents (35%) preferred that the revenue be collected through a 2 cent per gallon gas tax increase.

Rideshare and Carshare Services

Just over 2 in every 5 Missoula area residents (42%) said that they have ever used a rideshare service like Uber or Lyft in the Missoula area. A large majority of rideshare service users (76%) use the service a few times per year. Only 27% of Missoula area residents are at least somewhat interested in using a carshare service (where cars may be rented for very short periods of time).

Autonomous Vehicles

A majority of Missoula area residents (57%) said that they would be at least somewhat uncomfortable walking, bicycling or riding in a vehicle while sharing the street with an autonomous vehicle. A similar proportion of residents (63%) said they would be uncomfortable using an autonomous vehicle.

Electric Vehicles

Just over two-thirds of Missoula area residents (68%) said they are at least somewhat familiar with electric vehicles. The top concerns about purchasing an electric vehicle for use in the Missoula area were:

- Electric vehicles are not convenient for long trips (ranked 1st)
- Electric vehicles are too expensive (ranked 2nd)
- There are not enough public charging stations (ranked 3rd)
- I don't have a charging station at home (ranked 4th)
- I may get stranded due to running out of electricity (ranked 5th).

E-scooters

More Missoula area residents (44%) expressed a neutral opinion about the use of e-scooters in the Missoula area than those who supported e-scooter use (32%) or those who opposed e-scooter use (24%). Only 6% of Missoula area residents said that they are very likely to use an e-scooter share system in the Missoula area. Another 17% said that they are somewhat likely to use an e-scooter share system.

Traffic Congestion

Fewer residents (36%) reported that traffic congestion had at least a somewhat large impact on them in 2019 compared with 2015 (46%). One factor that may be related to perceived impact of traffic congestion is average commute to work time. However, as will be outlined below, the survey did not find a statistically significant change in average commute to work time for the Missoula area from 2015 to 2019. This indicates that Missoula area residents' tolerance for traffic congestion impact may have increased since 2015.

Travel in the Missoula Area

Just over 4 in every 5 Missoula area workers (82%) reported driving a car, truck or van to work in 2019. About 8% of Missoula area workers reported walking to work, 6% said they bicycled, and 4% rode public transportation. There is no statistically significant difference between the 2019 survey estimates of travel to work mode and the estimates found in the U.S. Census Bureau's 2018 5-year American Community Survey data for the Missoula metropolitan planning area. From 2015 to 2019 there appears to have been very little, if any, change in the distribution of Missoula area workers' choices of mode of transportation to work.

Missoula area workers spent an average of 17 minutes to travel to work one-way in 2019. The difference between the 2019 survey estimate and the 2015 survey estimate (16 minutes) is not statistically significant.

About one-third of Missoula area residents (33%) who live at an address with a child or children under the age of 18 said that at least one of the children was likely to walk or ride a bicycle to school over the next two weeks. The top reasons for not walking or bicycling to school were:

- Too distant (ranked 1st)
- The child is too young or homeschooled (ranked 2nd)
- Weather (ranked 3rd)
- Safety in general (ranked 4th)
- It is more convenient to drive them (ranked 5th).

Just under 4 in 10 (38%) 2019 residents of the Missoula metropolitan planning area said they rode a bicycle in the preceding 30 days. The survey estimate of the past 30-day prevalence rate for bicycling in the Missoula area dropped from 52% in 2015. This apparent decline was probably weather-influenced. The top barriers to bicycling in the Missoula area were:

- Weather (ranked 1st)
- Safety while biking next to / with cars (ranked 2nd)
- Needing to carry bulky items (ranked 3rd)
- Work schedule or family obligations (ranked 4th)
- Distance to destination is too far (ranked 5th).

Just over 4 out of every 5 adult Missoula area residents (81%) said they walked, jogged or ran outside for at least 5 minutes over the past 30 days. The overall prevalence in the Missoula area of past 30-day walking, jogging or running outside declined slightly in 2019 from 88% in 2015. This apparent decline was probably weather-influenced. The top barriers to walking, running or jogging outside were:

- Work schedule or family obligations (ranked 1st)
- Weather (ranked 2nd)
- Not interested in walking, jogging or running (ranked 3rd)
- Personal health or disability (ranked 4th)
- Distance to destination is too far (ranked 5th).

About 15% of Missoula area residents reported riding any form of public transportation in the last 30 days. There was no significant difference in the overall 30-day prevalence of public transportation ridership among Missoula area residents from 2015 (16%) to 2019. The top barriers to using public transportation in the Missoula area were:

- Bus doesn't run when I need it to (ranked 1st)
- Work schedule or family obligations (ranked 2nd)
- Bus doesn't go where I need it to (ranked 3rd)
- Distance to the bus stop is too far (ranked 4th)
- Need to carry bulky items (tied for 6th)
- Other modes are more convenient (tied for 6th).

Introduction

The purpose of the 2019 Missoula Transportation Survey was to examine:

- perceptions of the transportation system;
- views about possible priorities for investments in the system;
- opinions about possible taxes or fees for system improvements;
- frequency of self-reported transportation activities; and
- opinions about the possible new transportation system elements, including electric vehicles, autonomous vehicles, e-scooters and rideshare services.

The 2019 survey was designed to help policy-makers and planners quantify public opinions about the Missoula area transportation system and examine trends in public opinion. This is the 3rd iteration of this survey. The previous iterations were conducted in 2008 and 2015. The 2019 survey replicates many of the questions asked in 2015, making analysis of trends possible.

The mail and internet-administered survey provides City of Missoula and Missoula County a rigorous, representative sample by which to gauge current public opinion. The survey was constructed to act as a benchmark that would allow possible future exploration of trends in public sentiment regarding the area transportation system.

The paragraphs that follow describe the design and implementation of the survey. This description provides readers information required to understand the results that are presented in subsequent sections of this report. In addition, the documentation of the survey methods presented below offers readers information that is useful when assessing the quality of the survey and the reliability of the public opinion estimates produced using the survey data. As will be shown below, the methods used for this survey were rigorous and state-of-the-art.

Survey Methods

Questionnaire design

The questionnaire was designed by the Bureau of Business and Economic Research (BBER) of the University of Montana and by the transportation planning staff of the Missoula Metropolitan Planning Organization (MPO). The draft questionnaire was evaluated using cognitive interviews. In cognitive interviews, test respondents are asked to think aloud their thoughts as they encounter the questionnaire. Revisions were made to the draft based on the cognitive interview process. BBER programmed and tested the internet version of the questionnaire using software provided by Qualtrics, Inc. MPO was the final approval authority for the questionnaire.

Sampling

Sampling was conducted using an addressed-based, random sample purchased from Dynata, Inc. Within household random sampling was conducted using the next birthday method. The study population was adults (ages 18+) who lived in an occupied dwelling that was listed on the U.S. Postal Service's Computerized Delivery Sequence File. These adults were sampled from a total of 67 U.S. Census block groups that contain the Missoula Metropolitan Planning Area. The list of U.S. Census block groups was provided by MPO staff. This population differs slightly from all adults as it excludes institutionalized persons, homeless persons, and those absent during the survey period. The study population was 82,848 adult residents of the Missoula Metropolitan Planning Area,

as estimated by the 2017 U.S. Census Bureau American Community Survey 5-year data (U.S. Census Bureau, 2019). BBER randomly sampled 1,300 addresses and obtained 521 unweighted survey responses.

Sampling Error

The 521 responses obtained in this survey yielded a confidence interval of +/- 6%. This means that if the survey were administered 100 times, in 90 of the administrations a proportion of 50% would be found +/- 6%. The sampling error rate for respondents to this survey who lived in the City of Missoula is +/- 6% and the sampling error rate for respondents who lived outside Missoula City but in the study area (county residents) is +/- 10%. Data users should take care to calculate confidence intervals and standard errors for these survey estimates using a modern statistical software package that can account for the complex design of the survey as opposed to using older survey analysis practices that assume of unweighted, simple random sampling.

For reference, Table 1 presents population totals and 90% confidence intervals for a survey estimated proportion of 50% of the study's main geographic divisions.

TABLE 1: STUDY POPULATIONS AND 90% CONFIDENCE INTERVALS

	Entire planning area	City only	County only
Total	82,848	61,616	21,232
50% of survey responses	41,424	30,808	10,616
90% confidence interval	+/- 4,971	+/- 3,697	+/- 2,123

Survey Administration

BBER administered the survey on behalf of the MPO during the period September 9, 2019 through November 15, 2019.

The surveys were administered by mail and responses were collected over the internet or via a hardcopy questionnaire. Sampled potential respondents received up to 4 mail contacts during the survey:

1. An introductory letter inviting participation via an internet link provided;
2. A follow-up letter thanking respondents and reminding nonrespondents that they could participate via the internet link provided;
3. A 6" x 9" questionnaire packet mailed to non-respondents only inviting participation via an internet link provided or by completing a hardcopy questionnaire and returning it in the stamped envelope provided;
4. A second 6" x 9" questionnaire packet mailed to non-respondents only inviting participation via an internet link provided or by completing a hardcopy questionnaire and returning it in the stamped envelope provided.

BBER carefully documented the survey completion status of each resident in the survey sample. This allowed calculation and reporting of a unit response rate. The response rate for this survey was 40%. This response rate was calculated using American Association for Public Opinion Research definition 3. (AAPOR, 2016) The response rate is nearly identical to that obtained by BBER in the 2015 survey (41%). A 40% response rate is

typical for a rigorously administered, randomly sampled, mail and internet survey. (Dillman, Smyth, & Christian, 2014)

Data Set Preparation

Following collection and data entry, 100% of mailed questionnaires were verified for data entry accuracy. Appropriate data labels were added as well as composite variables and flags to facilitate analysis. Missing values for the weighting variables, necessary for comparison to the 2017 ACS 5-year estimates, were imputed using the multiple imputation method (Berglund & Heeringa, 2014) (Rubin, 1987). Data were processed using three statistical software packages: IBM SPSS Statistics Version 25 (2017), SAS Version 9.4 (2016), and Statistics Canada's G-EST Version 2.01.004 (2019).

Weighting

The estimates presented in this survey are produced using survey weights. Survey weights improve the accuracy of estimates and help to ensure that the survey is representative of the study population. The consensus in the scientific literature is that correctly constructed and applied weights should be used to produce statistics that describe survey data. (Kish & Frankel, 1974) (Rao, Hidiroglou, Yung, & Kovacevic, 2010) (Valliant, Dever, & Kreuter, 2013) (Battaglia, et al., 2016) (Haziza & Beaumont, 2017)

Weights for the survey were calculated using a three-step process that is also widely accepted in survey research literature. (Haziza & Beaumont, 2017) (Battaglia, et al., 2016) (Haziza & Lesage, 2016) (Lavallee & Beaumont, 2016) (Valliant, Dever, & Kreuter, 2013) In step 1 a base weight was calculated to account for the probability of selection of each individual in the sample. The population control total was based on the U.S. Census Bureau's American Community Survey 2017 5-year estimate for the population of persons age 18 and older (U.S. Census Bureau, 2019). In step 2 the base weight was modified to adjust for nonresponse. (Haziza & Lesage, 2016) (Battaglia, et al., 2016) (Brick, 2013) (Kreuter & Olson, 2013) (Olson, 2013) (Valliant, Dever, & Kreuter, 2013) In step 3 the nonresponse-adjusted weight was calibrated to population control totals derived from the U.S. Census Bureau's American Community Survey 2017 5-year estimates for the population of persons age 18 and older (Haziza & Beaumont, 2017) (Lavallee & Beaumont, 2016) (Valliant, Dever, & Kreuter, 2013) (Sarndal, 2007) (Kalton & Flores-Cervantes, 2003).

Survey weight calibration was conducted using the Gest_Calibration module of Generalized Estimation System version 2.01.004 (January 2019) developed by Statistics Canada. The survey weight was calibrated to population control totals by:

1. U.S. Census Bureau population (ages 18 +) for the Missoula City and County portions of the study area
2. Gender
3. Age
4. Educational attainment
5. Voter registration (Montana Secretary of State, 2019)

Two survey weights were provided by BBER in the dataset: a population weight useful for estimating the number of adults in the study population who have a particular characteristic, and a sample weight needed for some statistical packages to calculate accurate standard errors.

Respondent Characteristics

Table 2 below describes the 521 respondents. 2017 U.S. Census Bureau American Community Survey 5-year population proportions (ages 18 +) for the study population of 82,848 persons are provided for context.

TABLE 2: 2019 SURVEY RESPONDENT CHARACTERISTICS

Characteristic		2017 ACS 5-Year Estimate (%)	2019 Voter Registration List	Unweighted Responses (%)	Weighted Responses (%)
Gender	Female	49.7%		57.8%	49.7%
	Male	50.0%		41.7%	50.0%
	Other	0.3%		0.5%	0.3%
Age	18-34	39.1%		18.1%	39.1%
	35-49	22.4%		23.8%	22.4%
	50-64	22%		28%	22%
	65+	16.5%		30.1%	16.5%
Educational attainment	HS diploma or less	28.4%		10%	28.4%
	Some college or AA degree	35%		29.2%	35%
	Bachelor's degree or more	36.6%		60.8%	36.6%
Location of residence in the metro planning area	City	74.4%		77.9%	74.4%
	County	25.6%		22.1%	25.6%
Voter registration	Registered		85.8%	85.2%	85.8%
	Not registered		14.2%	14.8%	14.2%

2019 Survey Estimate Reliability

The survey estimates presented in this report appear to be quite reliable when compared to available benchmarks. The gold standard of surveys in the United States is the U.S. Census Bureau’s American Community Survey (ACS). The ACS estimates some transportation-related statistics for the Missoula Metropolitan Planning Area that can serve as benchmarks against which the 2019 Survey estimates may be compared. The comparable 2019 Survey estimates closely match the ACS estimates. Table 3 below presents the comparison.

TABLE 3: COMPARISON BETWEEN THE 2019 SURVEY AND ACS ESTIMATES

Benchmark		ACS 5-Year Data Estimate	2019 Survey Estimate
Mode of travel to work (% of workers)	Car, truck or van	86%	82%
	Walk	6%	8%
	Bicycle, motorcycle or other	5%	6%
	Public transportation	3%	4%
Average number of people who rode in the vehicle to work (people)		1.3	1.3
Average travel time to work (City only)(minutes)		16	15
Average number of working motor vehicles per residence (City only)(motor vehicles)		1.7	1.7

Two 2019 Survey estimates exactly match the ACS estimates: 1) average number of people who rode in the vehicle to work and 2) average number of working motor vehicles per residence. The 2019 Survey estimates for mode of travel to work and average travel time to work are well within the 2019 Survey and the ACS margins of sampling error. These close matches between estimated transportation-related statistics should increase readers’ confidence in the estimates presented in the remainder of this report.

Analysis

BBER conducted a statistical analysis of the survey data to meet the needs of MPO. BBER analyzed the data collected using frequencies, cross-tabulations, standard measures of central tendency (mean, median, and mode), ANOVA (analysis of variance) and hypothesis tests (chi-square and t-tests). IBM SPSS Statistics version 25, a statistical analysis software, was used to produce the analysis presented in this report. Within SPSS Statistics version 25 the complex samples module and the tables module were used in this analysis.

Structure of the Report

The remainder of this report is divided into 8 chapters. Each chapter focuses on a general topic of interest. Within a general topic area, each chapter is organized in the order that the relevant questions were asked in the questionnaire. The appropriate question text is provided for the convenience of the reader. Most topics present findings that compare responses from Missoula City residents and Missoula County residents who lived outside the City but in the MPA. BBER recognizes that all 2019 Survey respondents live in Missoula County. However, the report distinguishes between City and County because it is helpful to know the differences in preferences and needs, and it is helpful for elected officials to know that for their constituents. It also helps to provide urban context – do the respondents live in a more urban center situation or a more rural setting?

Unless the report specifies otherwise, differences between responses from two or more demographic groups cited in the report are significant at the .10 level. This means that if the survey were replicated 100 times, the difference cited would be found in at least 90 of the replications.

Two appendices are provided at the end of the report for readers who need more detailed information. The first appendix provides the full questionnaire wording. The second appendix presents detailed survey response cross-tabulations by a number of key demographic characteristics.

The next chapter of this report examines general perceptions about the quality of the Missoula area transportation system.

General Perceptions of the Quality of the Missoula Area Transportation System

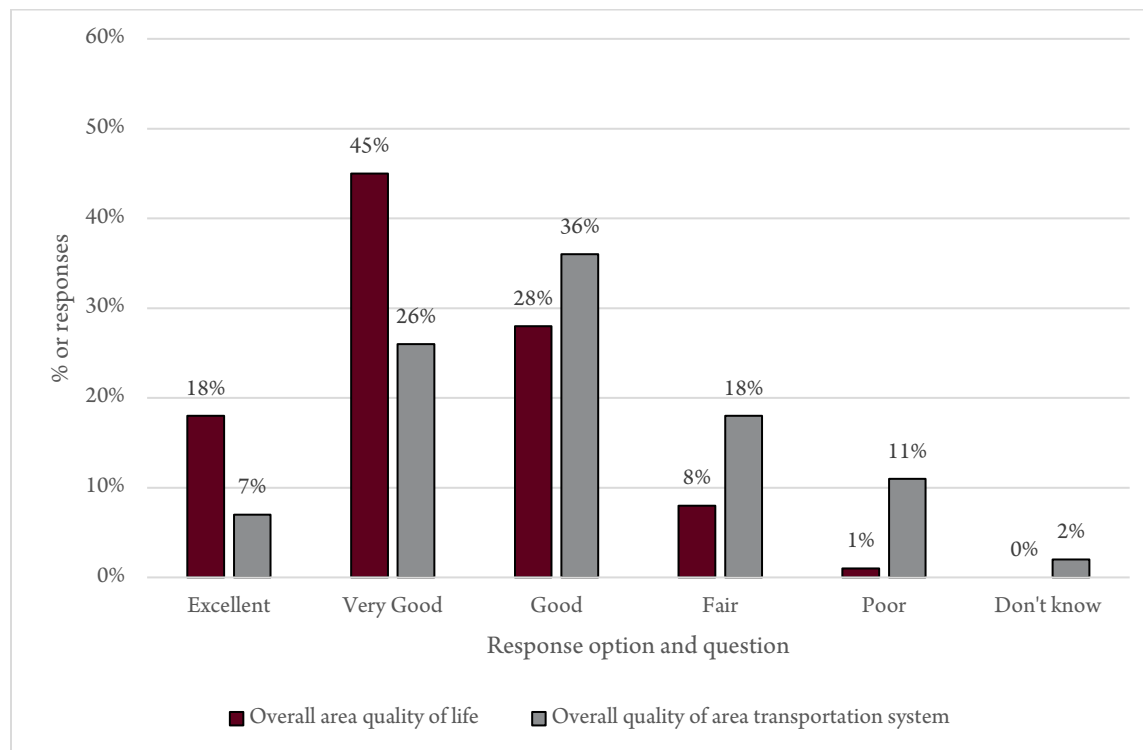
The paragraphs that follow present the findings of the Missoula Area Transportation Survey that was conducted in September, October and November of 2019. While the report as a whole is organized by topic, within each topic area the results are presented in the order that the questions appeared in the questionnaire. The text of each question is provided to assist the reader. When differences between groups are cited, like differences in opinions between Missoula City residents and area residents who live outside the City (County residents), those differences are statistically significant at the .10 level. The section of the report that follows describes Missoula transportation planning area residents' rating of the overall quality of the area transportation system.

Q2. Overall, how would you rate the quality of life in the Missoula area?

Q3. How would you rate the overall quality of the transportation system (including roads, bicycle and pedestrian facilities, public transit (buses), etc.) in the Missoula area?

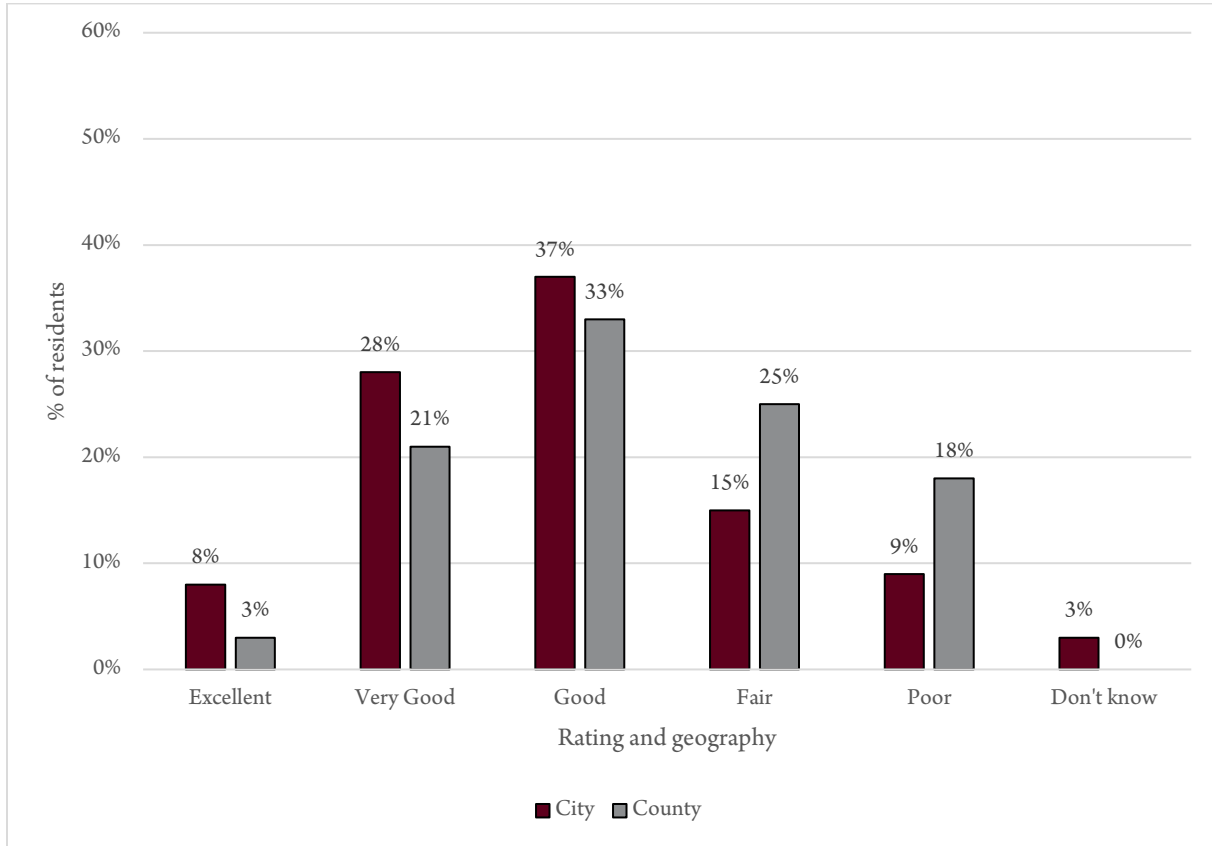
2019 Missoula area residents' ratings of the overall quality of the area transportation system fell into three groups. About one-third of area residents (33%) rated the quality of the area transportation system as excellent or very good. Another one-third of residents (36%) rated the quality of the transportation system as good. A final one-third (29%) rated the quality of the area transportation as fair or poor or didn't know (2%). Figure 1 presents these ratings and residents' overall ratings of the quality of life in the Missoula area for context.

FIGURE 1: GENERAL PERCEPTIONS OF THE OVERALL QUALITY OF THE AREA TRANSPORTATION SYSTEM



It is also useful to compare the ratings of the quality of the area transportation system reported by the location of the respondent's residence, specifically whether the respondent lived in Missoula City (City) or in the transportation planning area but outside Missoula City (County). Figure 2 presents these ratings.

FIGURE 2: CITY VS. COUNTY RATINGS OF AREA TRANSPORTATION SYSTEM QUALITY

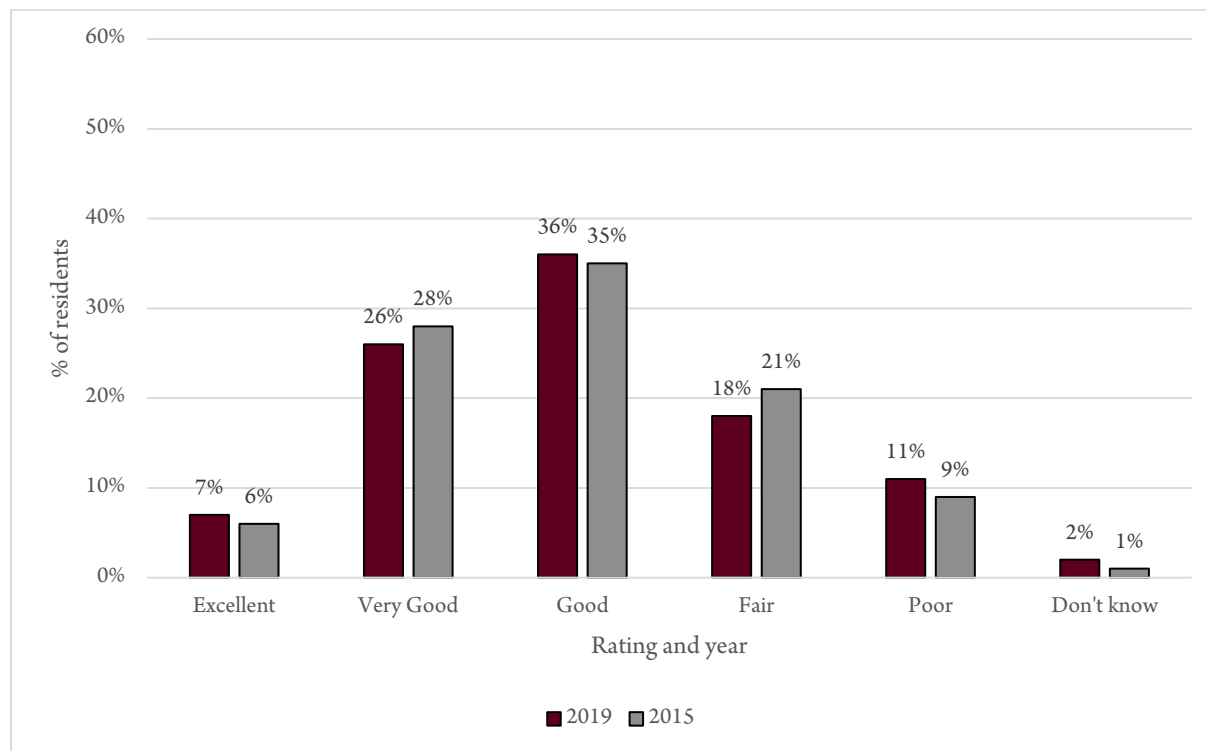


While the survey estimates show that more City residents rated the area transportation system positively than did County residents, none of the differences between City and County ratings exceeded the survey's margin of sampling error with 90% confidence. This means that the differences found could simply be due to randomly selecting survey respondents.

Trends

Two trends emerge upon examination of the survey results. First, the 2019 survey found essentially no change in residents' ratings of the overall quality of the area transportation from 2015. Figure 3 illustrates this finding.

FIGURE 3: TREND IN OVERALL SYSTEM QUALITY RATINGS



Second, in both 2019 and 2015 residents who commuted to work by bicycling, walking or bus rated overall area transportation system quality higher than did those who commuted by car, truck or van. Table 4 illustrates this trend.

TABLE 4: SYSTEM QUALITY RATING BY COMMUTE MODE

	2019			2015		
	Car, truck or van	Bike, walk or bus	Not in workforce or work at home	Car, truck or van	Bike, walk or bus	Not in workforce or work at home
Excellent	7%	11%	5%	7%	7%	2%
Very Good	21%	40%	35%	28%	31%	28%
Good	37%	45%	30%	31%	45%	44%
Fair	22%	4%	15%	25%	12%	17%
Poor	13%	0%	15%	9%	5%	9%

In 2019, 96% of bike, walk or bus commuters rated system quality good or higher, while only 65% of car, truck or van commuters rated system quality good or higher. This pattern was first found in 2015, when 83% of bike, walk

or bus commuters rated system quality good or higher, while only 66% of car, truck or van commuters rated system quality good or higher.

Preferences for Investments in the Missoula-Area Transportation System

Q4. What is the most important transportation investment that should be made in the Missoula area?

Q5. What type of transportation investments should the Missoula area focus on?

Missoula area residents were asked about possible transportation system investments in two different ways. First, residents were asked in an open-ended question to tell us the most important investment that should be made. Second, residents were presented a list of types of transportation system investment and asked to select their top 3 choices for the Missoula area to focus on.

This two-question sequence was chosen to measure two different concepts. First, the open-ended question captured the system investment that was initially most prominent in the mind of the resident. Second, the list gave residents an opportunity to refresh their memory of types of investment that are possible and then report their top three choices using those refreshed memories.

Data users should consider the results from both questions when evaluating the preferences of Missoula area residents. Keeping in mind both residents' initially prominent response and their memory-aided responses yields a fuller understanding of how residents think about investments in the area's transportation system.

Transit improvements (22% of all responses) and roadway maintenance (19% of all responses) were statistically tied as the most frequently cited transportation investment that is most important. Residents provided a total of 550 responses to question 4, 405 by city residents and 145 by county residents. Table 4 describes these responses.

TABLE 5: MOST IMPORTANT MISSOULA-AREA TRANSPORTATION INVESTMENT

	All	City	County
Investment category	Column %	Column %	Column %
Transit improvement	22%	24%	16%
Roadway maintenance	19%	17%	23%
Bicycle or pedestrian	15%	19%	3%
New roads or bridges	9%	7%	17%
Congestion management	9%	8%	9%
Road widening	6%	4%	9%
Snow removal	4%	5%	1%
Parking	3%	3%	2%
Signals or signs	3%	3%	1%
Safety	3%	2%	4%
Lighting	1%	2%	0%
Education	1%	1%	3%
Intercity or unspecified rail	1%	0%	3%
Shared mobility	0%	0%	0%
Complete streets	0%	0%	1%
Airport	0%	0%	0%
Other	5%	3%	8%

Bicycle or pedestrian facility investments (15% of all responses) were the third most commonly mentioned investment. This was followed in frequency of citations by new roads or bridges (9% of all responses) and congestion management (9% of all responses).

The categories representing the responses to question 4 (Table 5 above) were developed by Missoula Metropolitan Planning Organization staff. Since these categories are necessarily broad, Table 6 below will be of use to data users as they interpret specific response categories.

TABLE 6: MOST IMPORTANT INVESTMENT CATEGORY DESCRIPTIONS

Investment category	Open-response example
Transit improvement	Expand service, Sunday service, transit-related ADA, bus stop improvements, light rail, etc.
Roadway maintenance	Fill potholes, re-striping, re-surface, repair, update, etc.
Bicycle or pedestrian	Bike facilities, sidewalks, bike racks, bike or pedestrian-related ADA, etc.
New roads and bridges	More bridges, bypass, more roads or highways, new routes, etc.
Congestion management	Relieve congestion, improve flow, east-west traffic, excessive traffic, etc.
Road widening	Add vehicle lanes, remove bike lanes, wider vehicle lanes, etc.
Snow removal	Plowing
Parking	More parking, parking access, downtown parking, etc.
Signals or signs	Light timing, improved signage, more stop signs, enhanced signals, etc.
Safety	Safety, safer bike lanes, safer roads, safer parking, safer for all
Lighting	More street lighting, brighter street lights
Education	Driving training, bicycle training, etc.
Intercity or unspecified rail	Develop rail service between Montana cities, general rail comments
Shared mobility	Permit or promote bike share, car share, or e-scooter share
Complete streets	Improve conditions for all modes as opposed to a specific mode
Airport	Improve the Missoula airport, etc.
Other	Comments unrelated to transportation, unclassifiable

City residents and county residents expressed differing views on the most important investment. The most frequently mentioned category of investment among city residents was transit improvement (24% of city resident responses). In contrast, the most often cited category among county residents was roadway maintenance (23% of county resident responses). A second difference appears when examining bicycle or pedestrian investments. While 19% of city respondents most frequently mentioned bicycle or pedestrian investments, only 3% of county respondents cited bicycle or pedestrian investments. Additionally, 17% of county respondents said that investments in new roads or bridges are most important, but only 7% of city respondents mentioned this type of investment.

Existing road maintenance was the dominant choice of respondents (23% of all responses) when selecting the top 3 types of transportation investments that the Missoula area should focus on from a list of 12 possibilities. Table 7 below presents the responses to question 5.

TABLE 7: TOP 3 TRANSPORTATION INVESTMENTS THAT THE MISSOULA AREA SHOULD FOCUS ON

	All	City	County
Investment category	Column %	Column %	Column %
Existing road maintenance	23%	23%	25%
Long distance passenger rail, commuter rail or light rail	11%	10%	14%
Parking	11%	10%	13%
Transportation system management or signal coordination	10%	9%	14%
Public transportation	8%	9%	5%
Bike lanes	7%	9%	3%
Improvements to assist travel by people with disabilities	6%	7%	2%
New roadways	6%	4%	10%
Sidewalks	6%	6%	3%
Safety or crossing improvements	5%	5%	5%
Recreational trails	4%	5%	3%
Electric vehicle charging infrastructure	2%	3%	2%

Three additional types of investment were statistically tied as the 2nd most frequently selected: rail transportation (11% of all responses), parking (11% of all responses) and system management or signal coordination (10% of all responses).

The distributions of city resident responses and county resident responses to question 5 were very similar to each other. Three small differences did appear. First, 14% of county responses cited system management or signal coordination, while 9% of city responses cited system management or signal coordination. Second, 10% of county responses mentioned new roadways, compared with only 4% of city responses. Third, 7% of city responses cited improvements to assist travel by people with disabilities, while only 2% of county responses cited these improvements.

Trends

The 2019 survey did not ask the same questions about preferences for investments in the Missoula-area transportation system that were asked in 2015. Thus, a straightforward assessment of trends about preferences for transportation system investments isn't possible. In fact, the questions asked in the 2019 and 2015 are so different that any comparison at all must be done keeping in mind the complex set of influences the question changes may have on responses.

Two very limited observations about trends in preferences for investments in the Missoula-area transportation system should be made. First, roadway maintenance was ranked highly in 2019 and in 2015. In 2019 roadway maintenance was ranked 1st (or tied for 1st) in both questions asked. In 2015, 71% of respondents rated adding and improving roadways for vehicles as a very or somewhat high priority, ranking it 1st out of 4 choices. Second, investment in transit or public transportation appears to be more prominent in the choices of 2019 respondents than in the choices of 2015 respondents. In 2019 transit investments were ranked at the top of most important investments and in the middle of a list of 12 possibilities. The rankings of transit in 2015 appeared lower. Specifically, in 2015 providing more or improved public transit (bus) services was ranked 4th out of 4 possibilities. Also in 2015 only 32% of respondents rated adding and improving public transit services as a very or somewhat high priority. That 2015 rating again ranked 4th out of 4 possibilities.

Paying for Transportation System Improvements

Q18. Current transportation needs in the Missoula area are greater than the amount of money available to address them. Generally speaking, would you support or oppose paying more taxes or fees if the revenues were spent only on transportation system improvements?

Support and opposition for paying more taxes or fees if the revenues were spent only on transportation system improvements were statistically tied among adult residents of the Missoula metropolitan planning area in 2019 – 39% of residents somewhat or strongly opposed the idea while 36% somewhat or strongly supported it. An additional 18% of residents neither supported nor opposed and 7% said they didn’t know. Table 8 below displays these findings.

TABLE 8: OPINION ON FOR PAYING MORE TAXES OR FEES FOR TRANSPORTATION SYSTEM IMPROVEMENTS

	Strongly support	Somewhat support	Neither support nor oppose	Somewhat oppose	Strongly oppose	Don't know
All	12%	24%	18%	17%	22%	7%
City	15%	26%	17%	18%	17%	7%
County	5%	16%	19%	14%	39%	7%

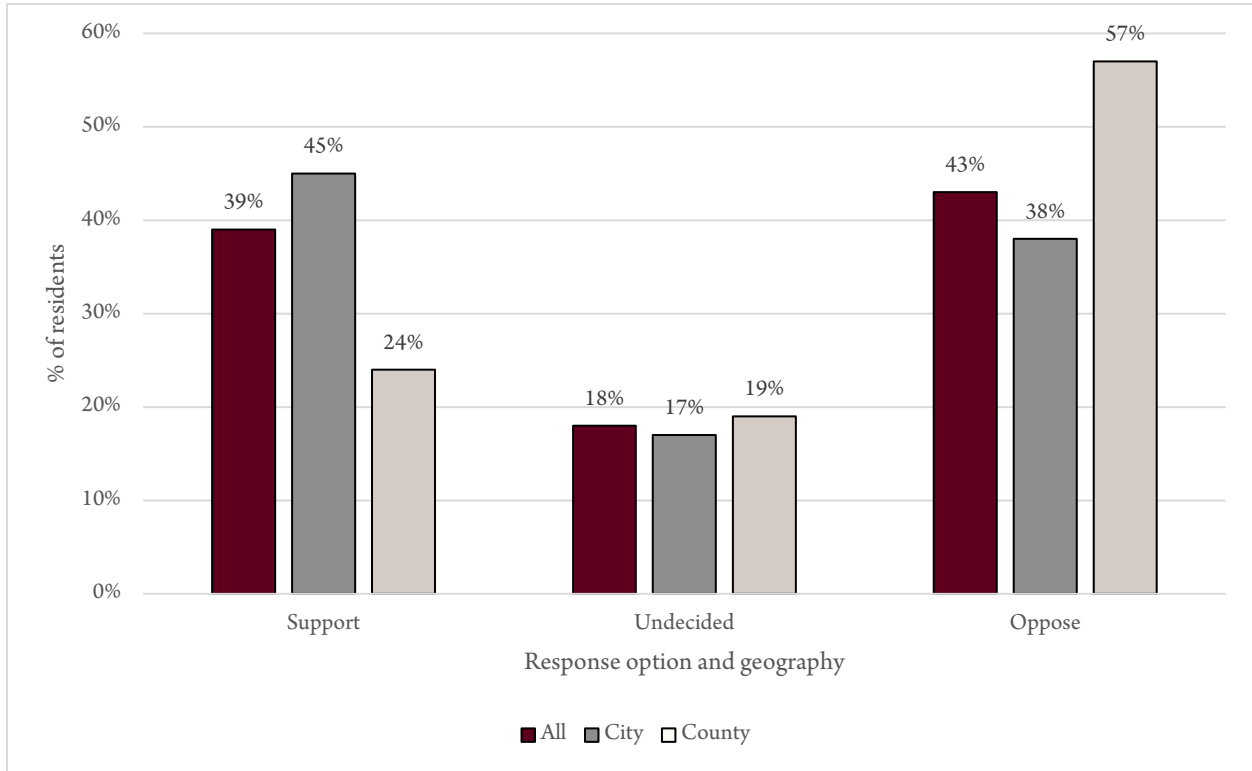
Opinions differed significantly between city and county residents. Support among city residents (41%) for paying more taxes or fees for transportation system improvements was statistically tied with opposition (35%). In contrast, only 21% of county residents supported paying more taxes or fees while a majority of county residents (53%) opposed.

Examining strength of support or opposition also yields useful observations. Opposition for paying more taxes or fees for transportation system improvements is a more a more intensely held opinion than support. Considering the planning area as a whole, a majority of the support resides in the weaker “somewhat support” category and a majority of the opposition resides in the stronger “strongly oppose” category. The intensity of feeling is particularly evident among county residents, where the single most common response (39%) was strongly oppose.

Although examining the opinions of all metropolitan transportation planning area residents is very important, it is also important to examine the opinions of registered voters in the area. The paragraph that follows presents this examination.

A familiar pattern emerges when exploring the opinions of registered voters. Figure 1 displays this pattern with response categories collapsed and the don't know responses removed for simplicity. Support and opposition among all registered voters in the metropolitan planning area was also statistically tied – 43% opposed and 39% supported. And again, support among city residents (45%) for paying more taxes or fees for transportation system improvements was statistically tied with opposition (38%). This contrasts with county residents, of whom only 24% supported paying more taxes or fees while a majority (57%) opposed.

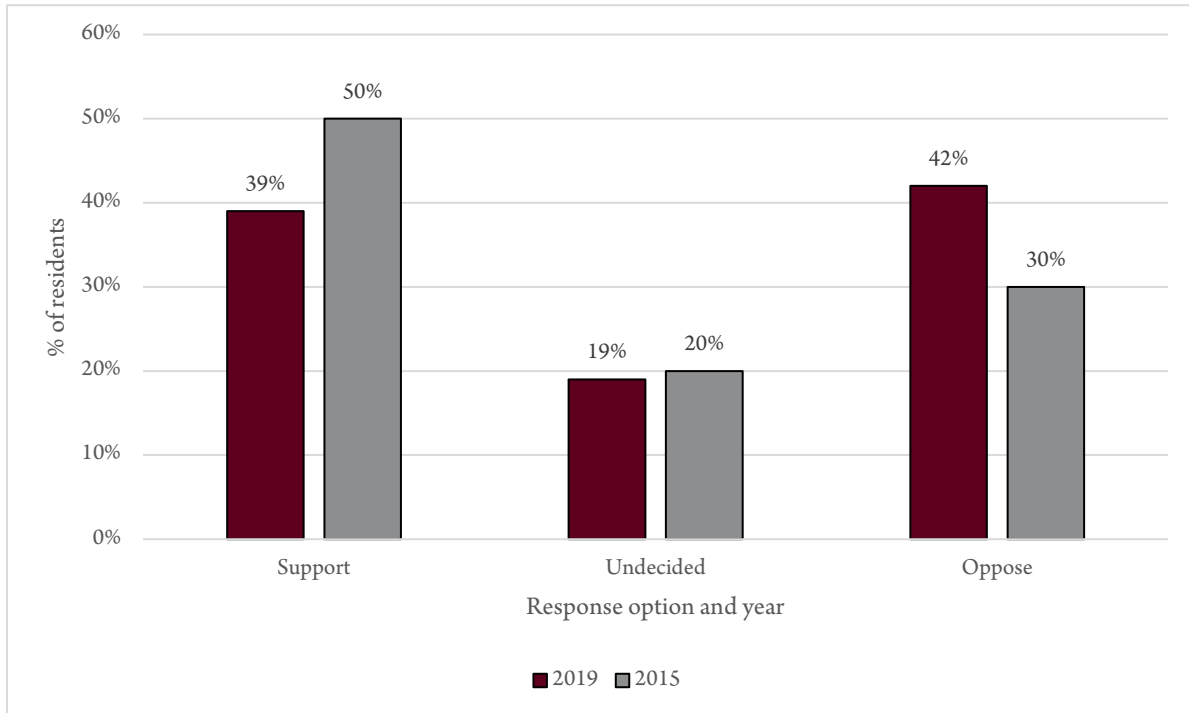
FIGURE 4: REGISTERED VOTER OPINION ON PAYING MORE TAXES OR FEES FOR TRANSPORTATION SYSTEM IMPROVEMENTS



Trend

Support decreased and opposition increased in 2019 for paying more taxes or fees if the revenues were spent only on transportation system improvements when compared to 2015. Figure 5 displays the trend for the metropolitan planning area as a whole with response categories collapsed and don't know responses excluded for clarity.

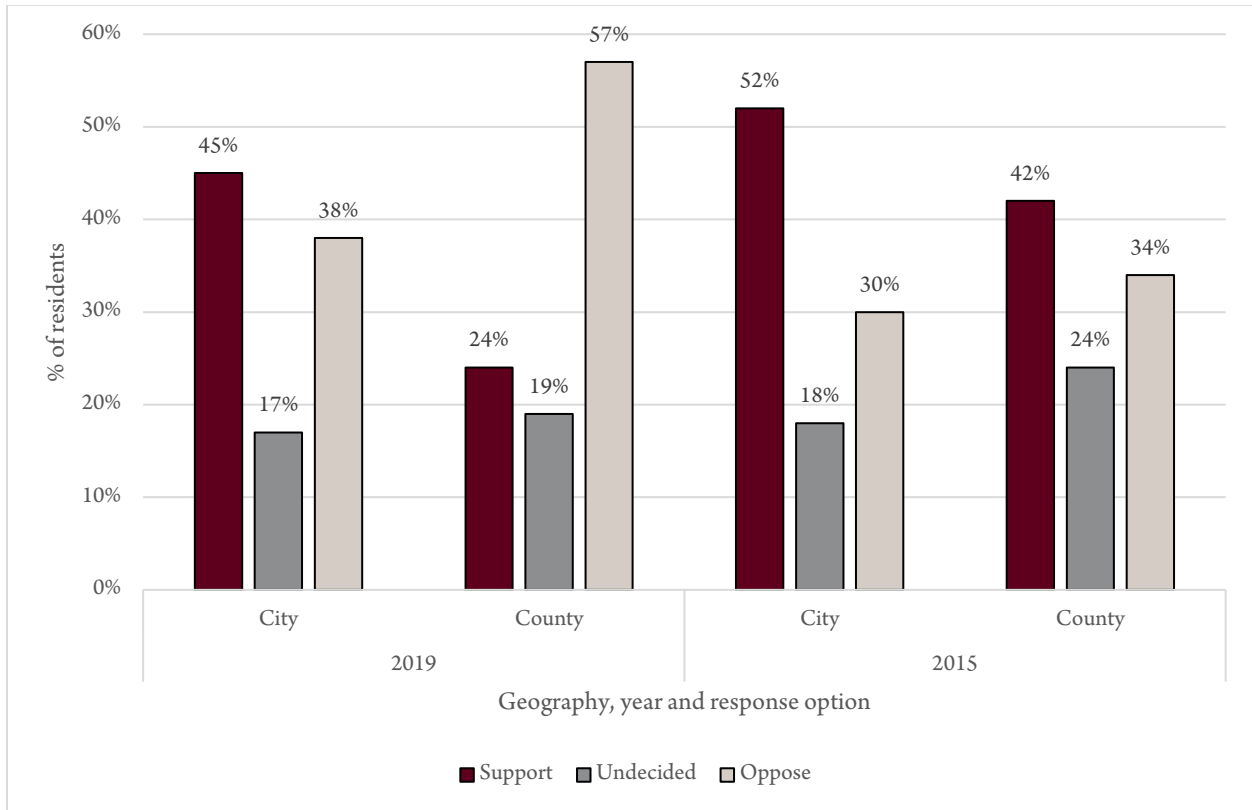
FIGURE 5: OVERALL TREND IN OPINION ABOUT PAYING MORE TAXES OR FEES FOR TRANSPORTATION SYSTEM IMPROVEMENTS



Support among residents of the entire metropolitan planning area dropped from 50% in 2015 to 39% in 2019. Opposition increased from 30% in 2015 to 42% in 2019. The proportion of undecided residents was essentially unchanged. This pattern holds true when examining opinion by voter registration and location of residence, as the next paragraphs demonstrate.

Figure 6 illustrates the trend for registered voters by their place of residence.

FIGURE 6: TREND IN REGISTERED VOTER OPINION ON PAYING MORE TAXES OR FEES FOR TRANSPORTATION SYSTEM IMPROVEMENTS BY PLACE OF RESIDENCE



Among registered voters in the city the level of support declined from 52% in 2015 to 45% in 2019, and the level of opposition increased from 30% in 2015 to 38% in 2019. The change in opinion was more pronounced among registered voters who live in the county. Among county registered voters the proportion of supporters dropped from 42% in 2015 to 24% in 2019. Opposition among county registered voters increased from 34% in 2015 to 57% in 2019.

It is beyond the scope of this study to attempt to explain this change in opinion. However, in the years between 2019 and 2015 several bond issues were adopted and taxable property values were reassessed in jurisdictions that overlap the metropolitan planning area. In addition, there was substantial press coverage of these events. Data users interested in explaining the change in opinion may wish to start with evaluating the effect of these events on public opinion.

Q19. If taxes or fees were raised to improve transportation in the Missoula area, what would you want to see the additional revenues used for?

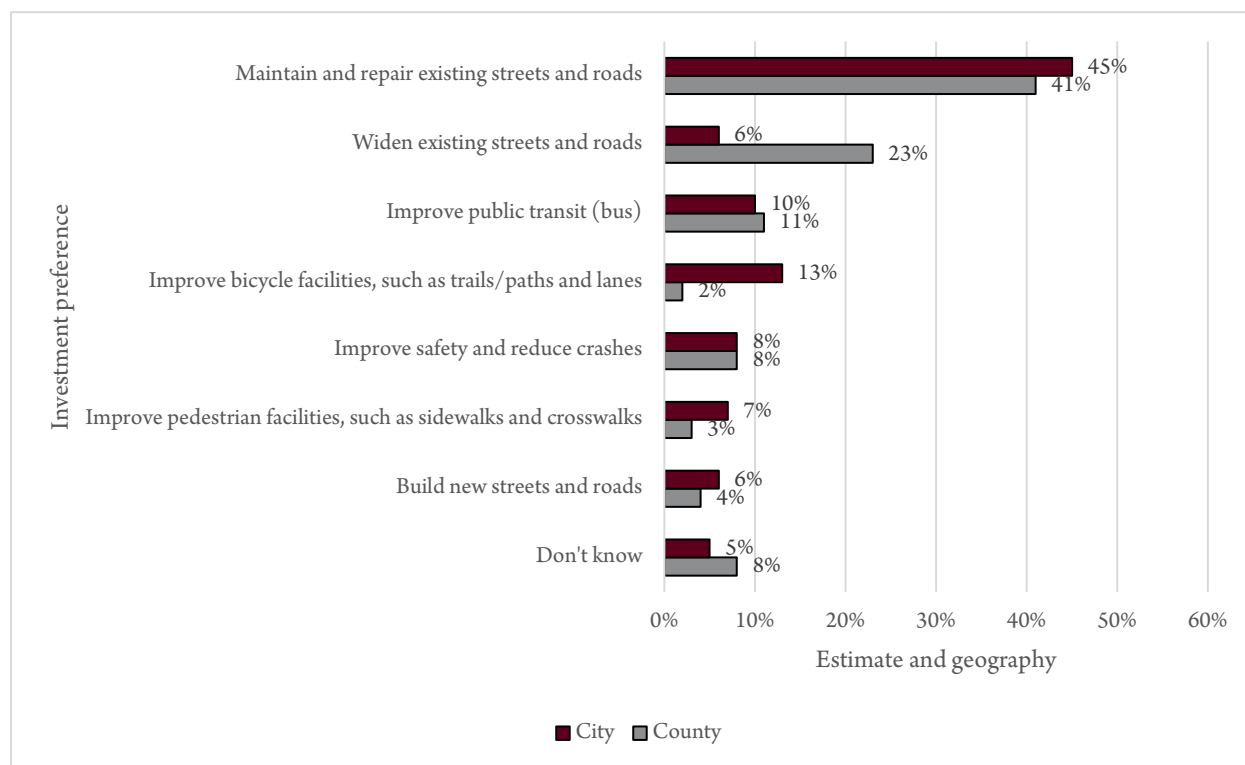
Maintaining and repairing existing streets and roads was chosen most often (44%) as the transportation improvement on which residents would want to use any additional revenue raised. Table 9 describes residents' choices.

TABLE 9: SPENDING PREFERENCES IF TAXES OR FEES ARE INCREASED

Potential action	%
Maintain and repair existing streets and roads	44%
Widen existing streets and roads	11%
Improve public transit (bus)	10%
Improve bicycle facilities, such as trails/paths and lanes	10%
Improve safety and reduce crashes	8%
Improve pedestrian facilities, such as sidewalks and crosswalks	6%
Build new streets and roads	5%
Don't know	6%

Widening existing streets and roads (11%), improve public transit (10%) and improve bicycle facilities (10%) were the next most commonly chosen potential actions.

FIGURE 7: CITY VS. COUNTY PREFERENCES FOR SPENDING NEW TAXES OR FEES



A few differences emerge when looking at the responses to question 19 by respondent's residence location (see Figure 7). County residents (23% were much more likely than city residents (6%) to choose widening existing streets and roads. City residents (13%) more often cited improving bicycle facilities than did county residents (2%).

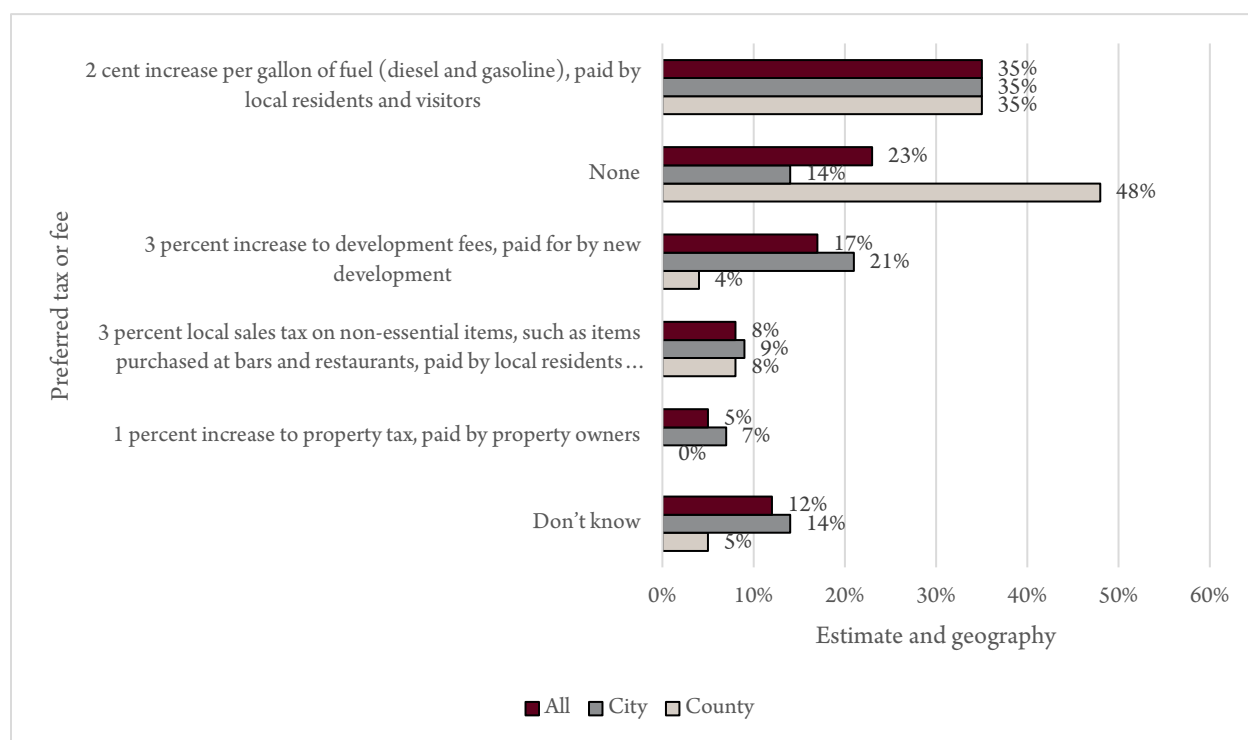
Trend

Public opinion about preferred targets for any additional new spending did not change significantly in 2019 when compared to 2015, with one small exception. The portion of residents who advocated widening existing streets and roads dropped in 2019 to 11% from 19% in 2015.

Q20. What type of tax or fee would you be most willing to support if the revenues were used only for transportation system improvements locally?

Taken as a whole, more residents of the metropolitan planning area (35%) said they would be most willing to support a 2 cent increase per gallon of fuel, compared to any other type of tax or fee. Figure 8 below displays the responses to question 20.

FIGURE 8: TYPE OF NEW TAX OR FEE PREFERRED BY RESIDENCE LOCATION



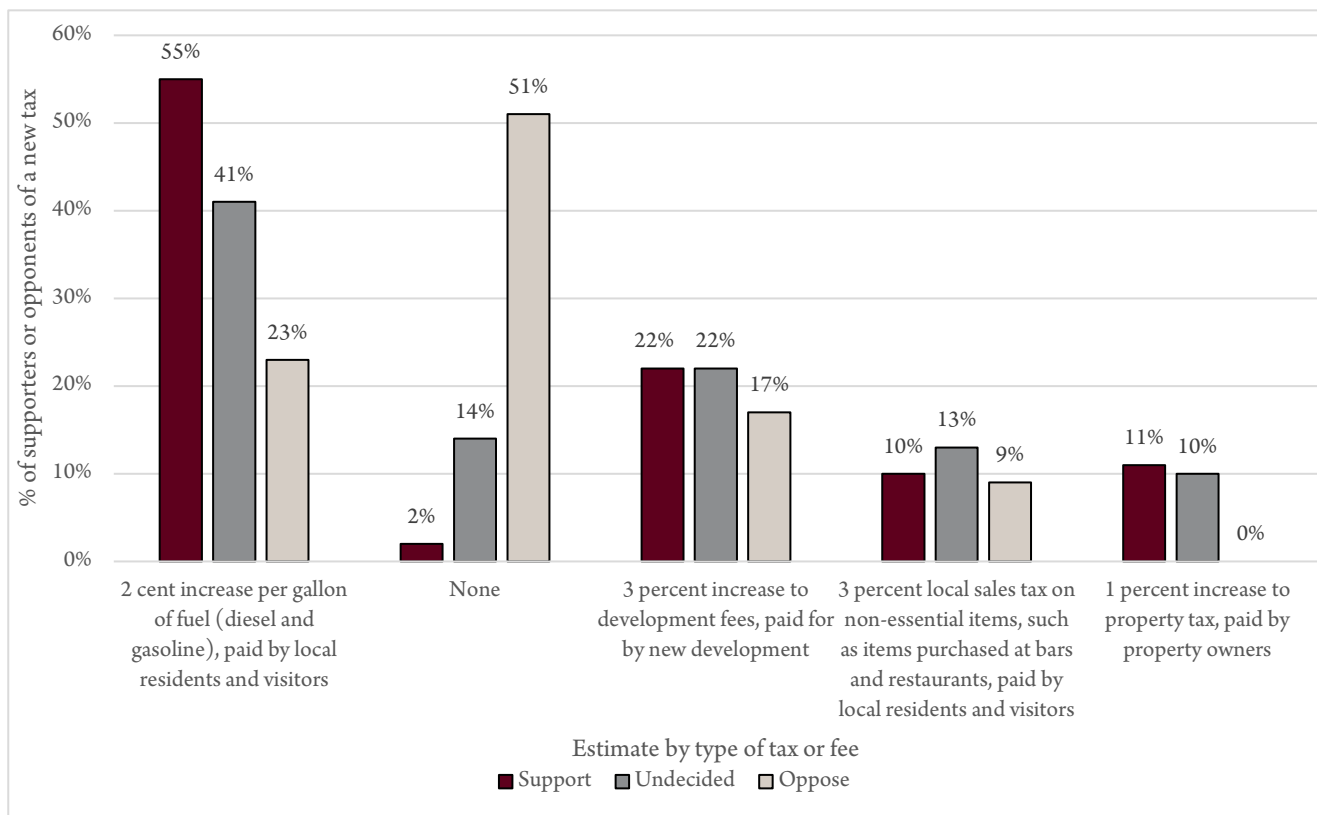
The second most commonly preferred type of tax or fee was actually none, which was chosen by 23% of residents. A 3% increase in development fees was the third most commonly preferred tax or fee (17%).

There were two significant differences between the opinions of city residents and county residents. First, 48% of county residents preferred none of the tax or fee alternatives, while only 14% of city residents said they preferred none. Second, 21% of city residents said they preferred a 3% increase in development fees, while only 4% of county residents preferred a 3% increase in development fees.

Though not shown in Figure 8 for clarity, area registered voters displayed the same pattern as area residents as a whole. 36% of city registered voters preferred a 2 cents per gallon fuel tax increase and 35% of registered county voters preferred the fuel tax. 21% of city registered voters supported a new development fee, compared with just 4% of county registered voters. Similarly, 49% of county registered voters supported no new tax or fee, compared with only 13% of city registered voters.

A majority (55%) of supporters for paying more taxes or fees for transportation system improvements preferred using a 2 cent increase per gallon of fuel as the way to collect the tax. Figure 9 below illustrates preferences for type of tax or fee by whether or not the respondent supports paying more taxes or fees. Figure 9 excludes don't know responses for clarity.

FIGURE 9: TYPE OF TAX PREFERRED BY SUPPORTERS AND OPPONENTS OF A NEW TAX



Most residents (41%) who were undecided about supporting a new tax also preferred using a 2% increase per gallon of fuel as the way to collect the tax. Interestingly, 23% of opponents to implementing a new tax or fee preferred using a 2 cent increase per gallon of fuel to collect the tax if one were implemented.

A majority of opponents to a new tax or fee (51%) preferred none of the options presented for collecting the new tax. 14% of undecided residents preferred none of the options. Only 2% of supporters of a new tax preferred none of the collection options offered.

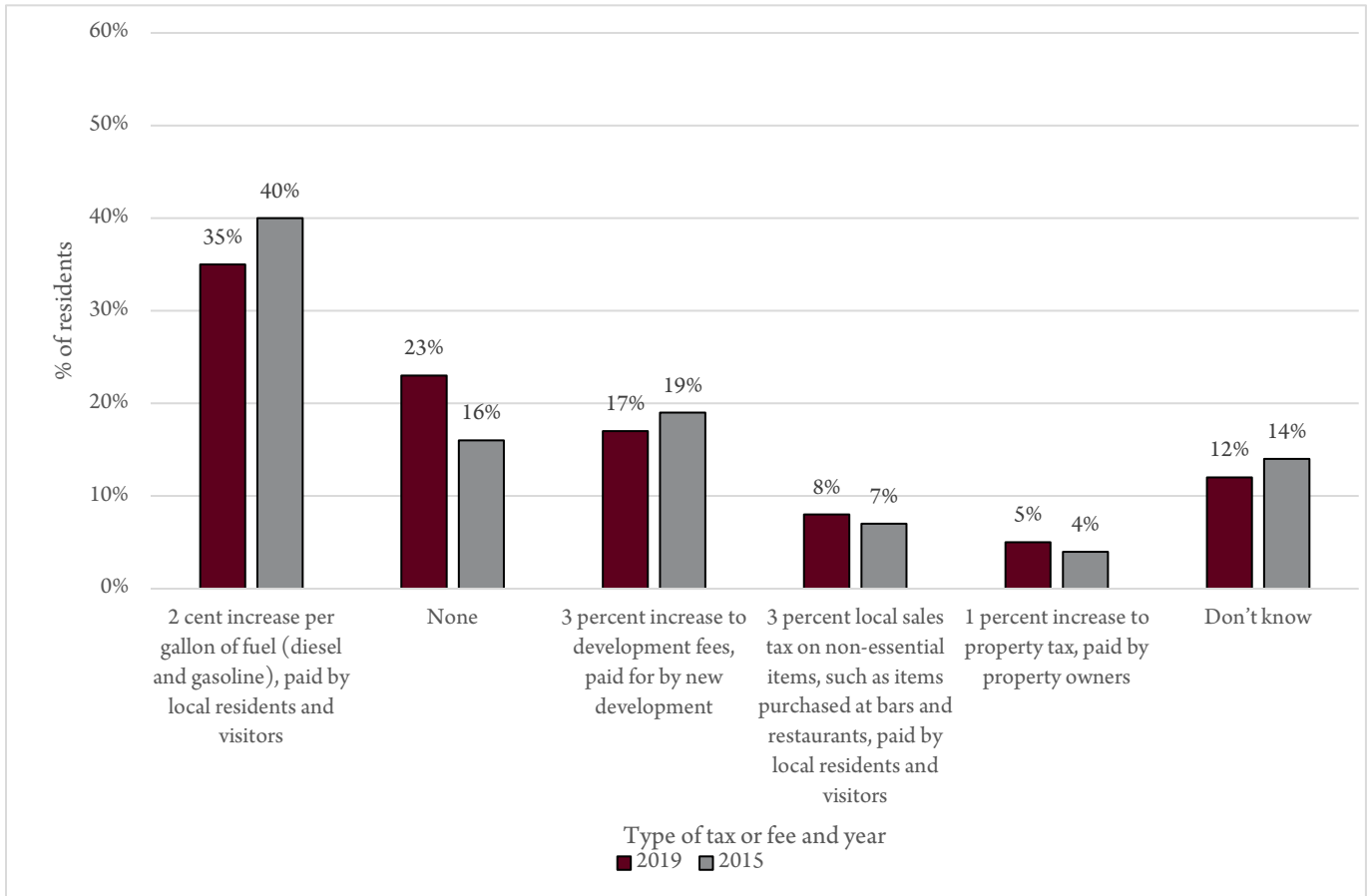
The second ranked method for collecting a new tax, a 3% increase to development fees, was preferred by 22% of supporters of a new tax and 22% of those who were undecided about a new tax. 17% of opponents of a new tax preferred using a 3% development fee to collect the revenue if and fee was implemented.

The remaining choices presented for collecting a new tax were preferred by relatively few area residents.

Trend

In 2019 and in 2015 a 2 cent increase per gallon of fuel was preferred by more residents than any other possibility offered for type of new tax or fee. Figure 10 illustrates this trend.

FIGURE 10: TREND IN PREFERENCE FOR TYPE OF NEW TAX OR FEE

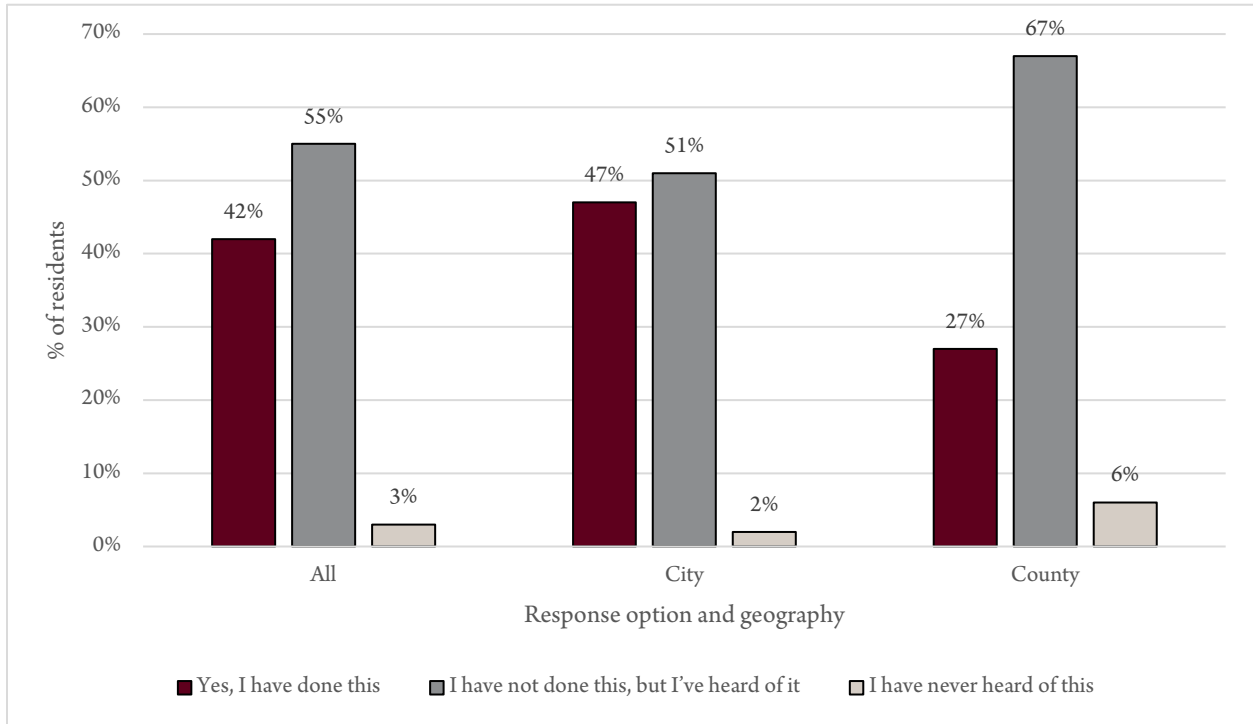


The choice of none of the options moved up from the 3rd ranked choice in 2015 to 2nd in 2019. In terms of their ranking, the other fee types remained unchanged in 2019.

Rideshare and Carshare Services

Q14. Have you ever used a rideshare service such as Uber/Lyft in the Missoula area?
About 2 in every 5 residents of the metropolitan planning area (42%) said that they have ever used a rideshare service in the Missoula area. Figure 11 below presents these responses.

FIGURE 11: EVER USED A RIDESHARE SERVICE IN THE MISSOULA AREA



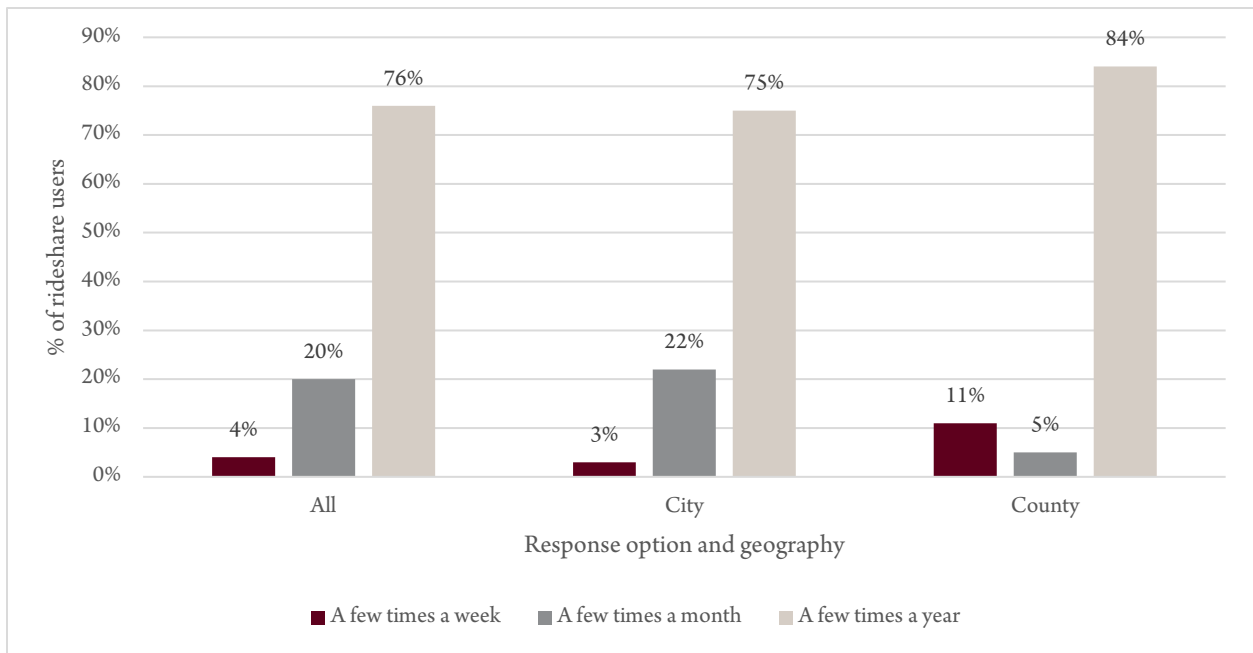
A majority of residents of the planning area (55%) reported that they have not used a rideshare service in the Missoula area but they have heard of the service. Only 3% of residents said they have never heard of a rideshare service like Uber or Lyft.

Nearly half (47%) of city residents reported that they have used a rideshare service in the Missoula area, while only 27% of county residents said they have used a rideshare service in the Missoula area. Very few residents of either the city or the county said that they have never heard of a rideshare service like Uber or Lyft.

Q15. How often do you use a rideshare service such as Uber/Lyft to get from place to place in the Missoula area?

About one quarter (24%) of those who use a rideshare service in the Missoula area reported using the service at least a few times a month. Using the survey responses, one can estimate that about 1,300 area residents reported using the service a few times a week and another 6,000 reported using the service a few times per month. Figure 12 presents the responses to question 15. The differences in frequency of rideshare use between city and county residents did not exceed the survey's sampling error margin.

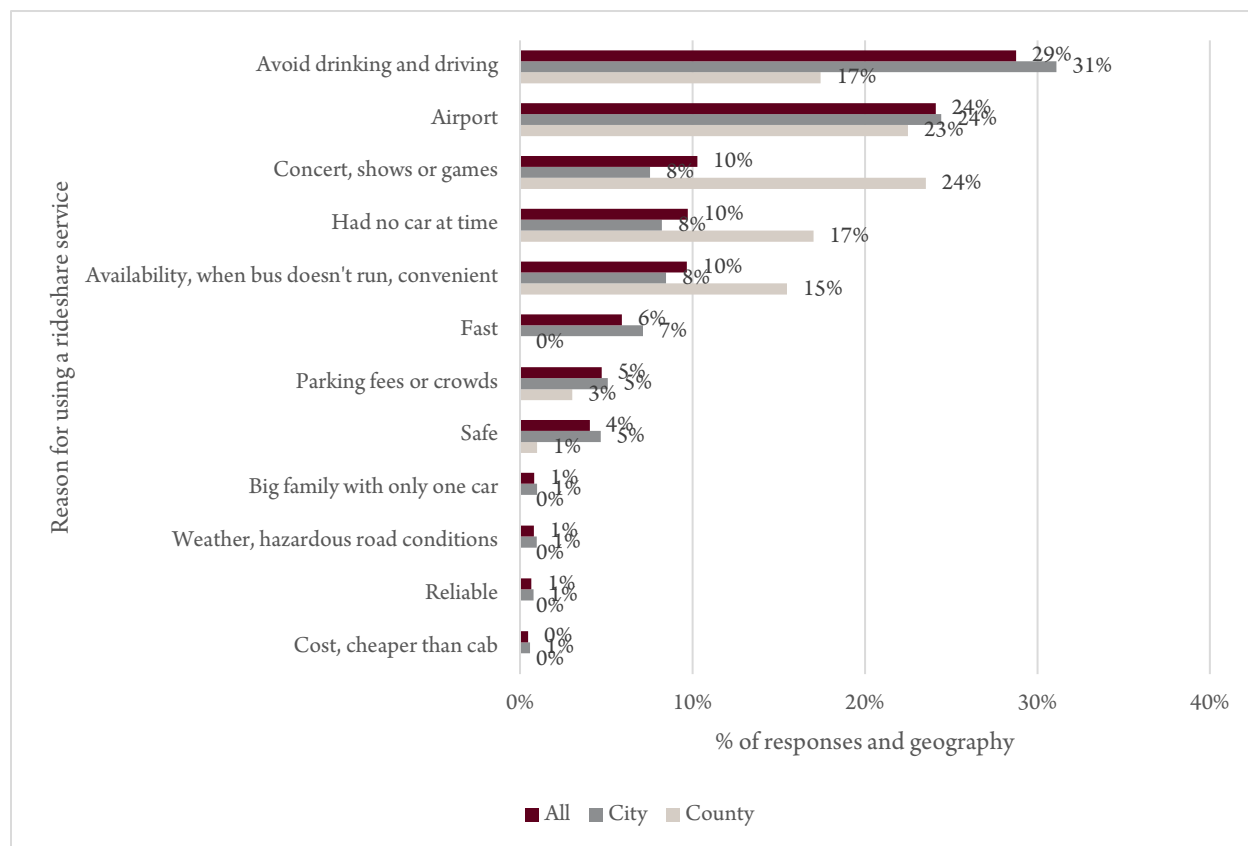
FIGURE 12: FREQUENCY OF USE AMONG RIDESHARE USERS



Q16. What are the one or two main reasons you use a rideshare service like Uber/Lyft in the Missoula area?

A plurality of metropolitan planning area residents who use rideshare services (29% of all responses) said that they use a rideshare service to avoid drinking and driving. Figure 13 presents the distribution of reasons for using a rideshare service.

FIGURE 13: AREA RESIDENT REASONS FOR USING A RIDESHARE SERVICE

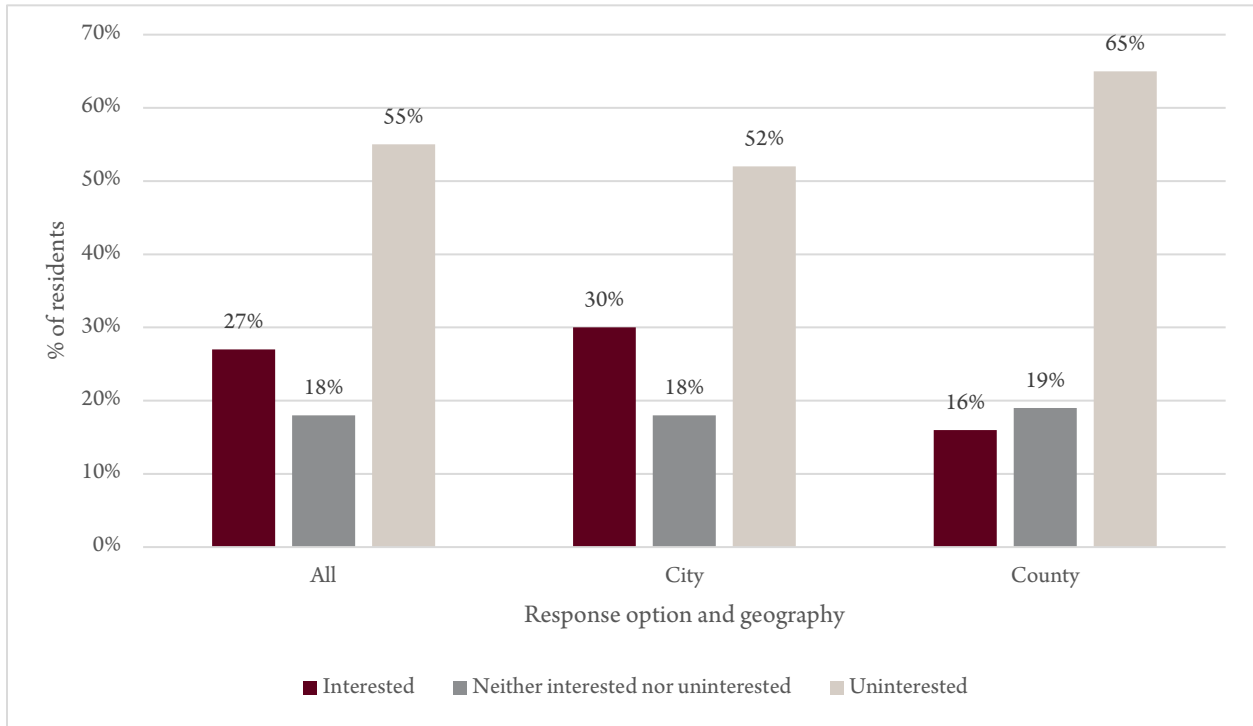


Nearly one quarter of area rideshare users (24% of responses) said that they use the service for travel to or from the airport. The third-ranked reasons for rideshare use among area rideshare users were travelling to area concerts, shows or sporting events (10%), having no car (10%), and the convenience or availability of rideshare services (10%).

More city rideshare users (31%) than county rideshare users (17%) said that they use rideshare services to avoid drinking and driving. In addition, more county rideshare users (24%) than city rideshare users (8%) said that they use a rideshare service to attend concerts, shows or sporting events.

Q17. How interested are you in participating in a carshare program in the Missoula area? Just over one quarter of area residents (27%) said that they are interested in participating in a carshare service in the Missoula area. Carshare services let people rent cars for very periods of time, often by the hour. Figure 14 displays the responses to question 17.

FIGURE 14: INTEREST IN CARSHARE SERVICES AMONG AREA RESIDENTS



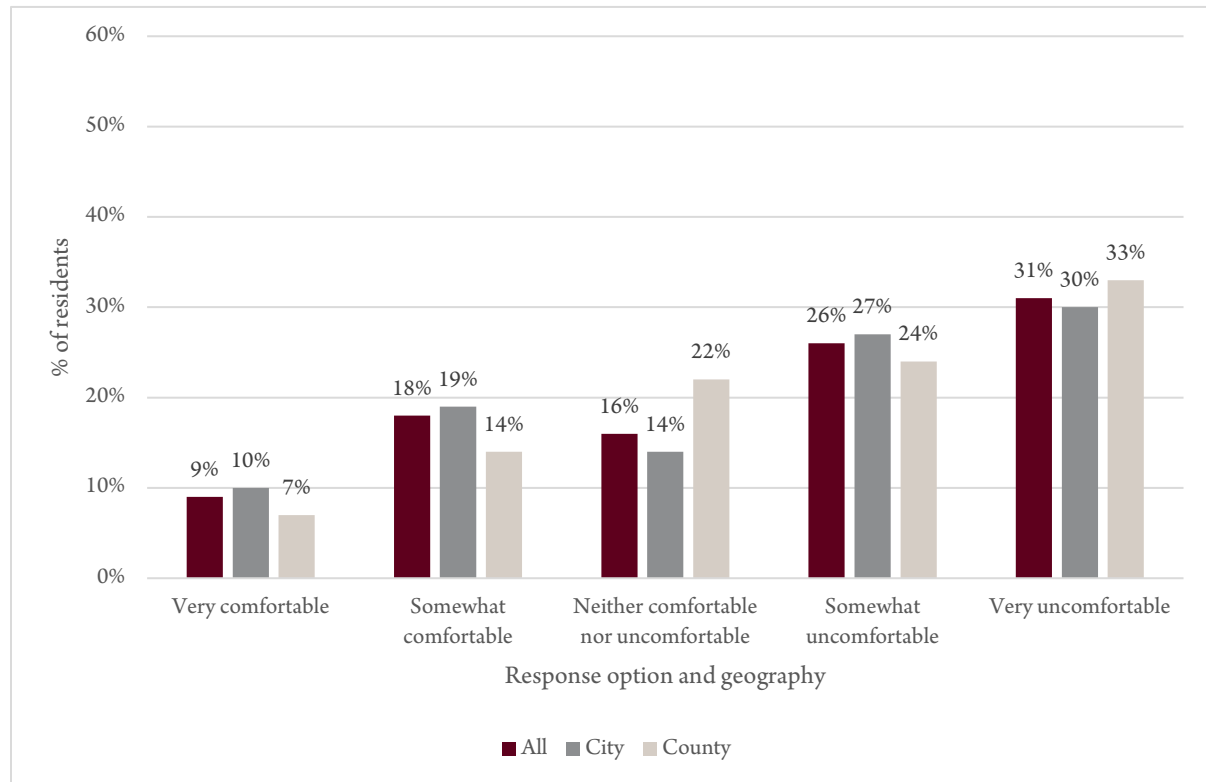
A majority of residents (55%) were not interested in using a carshare service in this area. The remainder (18%) said that they were neither interested nor uninterested in carshare services. The difference in interest between city (30% interested) and county residents (16% interested) did not exceed the survey's level of random sampling error.

Autonomous or Electric Vehicles

Q10. How comfortable would you be walking, bicycling, or riding in a vehicle while sharing the street with vehicles moving without a driver (so-called autonomous vehicles)?

A majority of area residents (57%) said they would be uncomfortable walking, bicycling, or riding in a vehicle while sharing the street with vehicles moving without a driver. In fact, a plurality of area residents (31%) said they would be very uncomfortable walking, bicycling, or riding in a vehicle while sharing the street with vehicles moving without a driver. Figure 15 below describes area residents' comfort level with autonomous vehicles.

FIGURE 15: AREA RESIDENTS' COMFORT LEVEL WITH SHARING THE ROAD WITH AUTONOMOUS VEHICLES

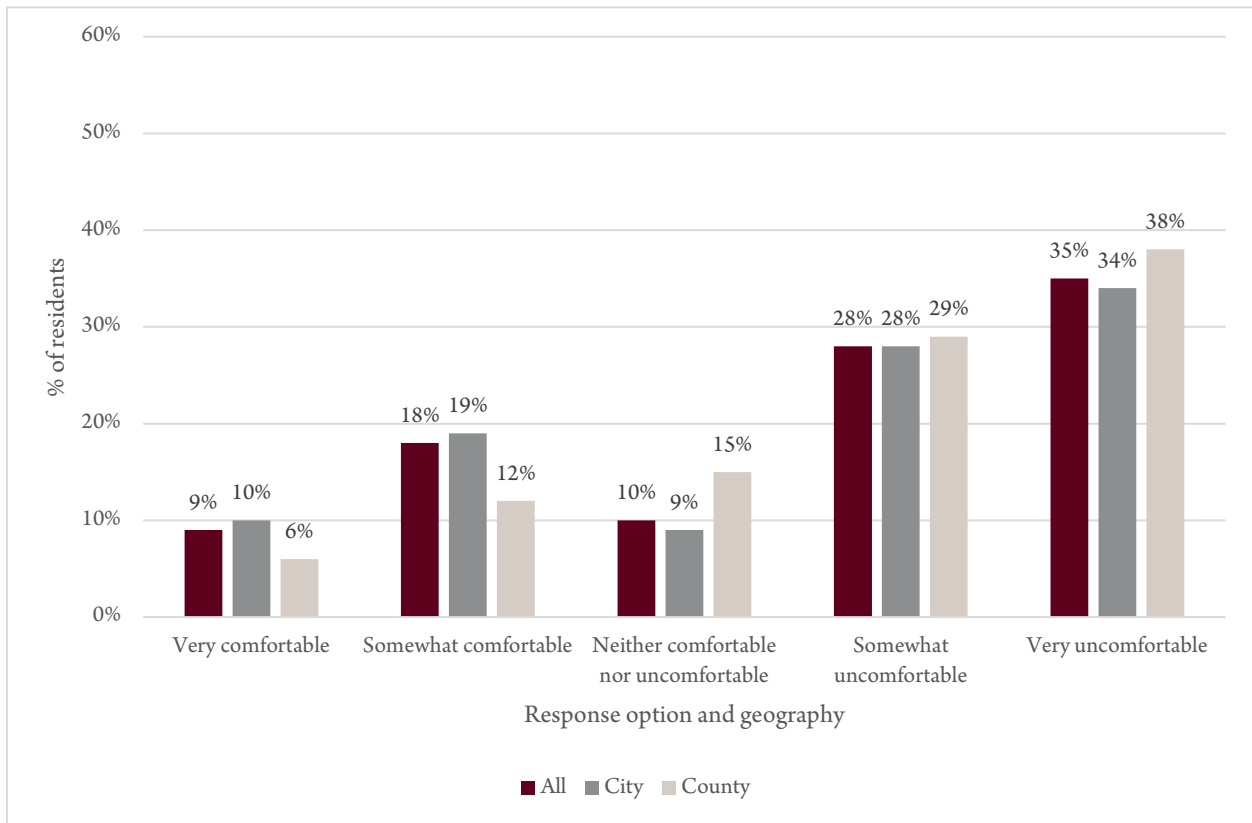


Only about one quarter of area residents (27%) said they would be comfortable sharing the street with an autonomous vehicle. The comfort levels of both city and county residents with sharing the roads with autonomous vehicles was similar. A majority of both were uncomfortable sharing streets with autonomous vehicles.

Q11. How comfortable would you be using a vehicle that travels without a driver (a so-called autonomous vehicle)?

Area residents' comfort level, or more properly stated their discomfort level (63% uncomfortable), with using an autonomous vehicle was very similar to what they expressed about sharing the road with an autonomous vehicle. Figure 16 examines the responses to question 11 in more detail.

FIGURE 16: AREA RESIDENTS' COMFORT LEVEL WITH USING AN AUTONOMOUS VEHICLE

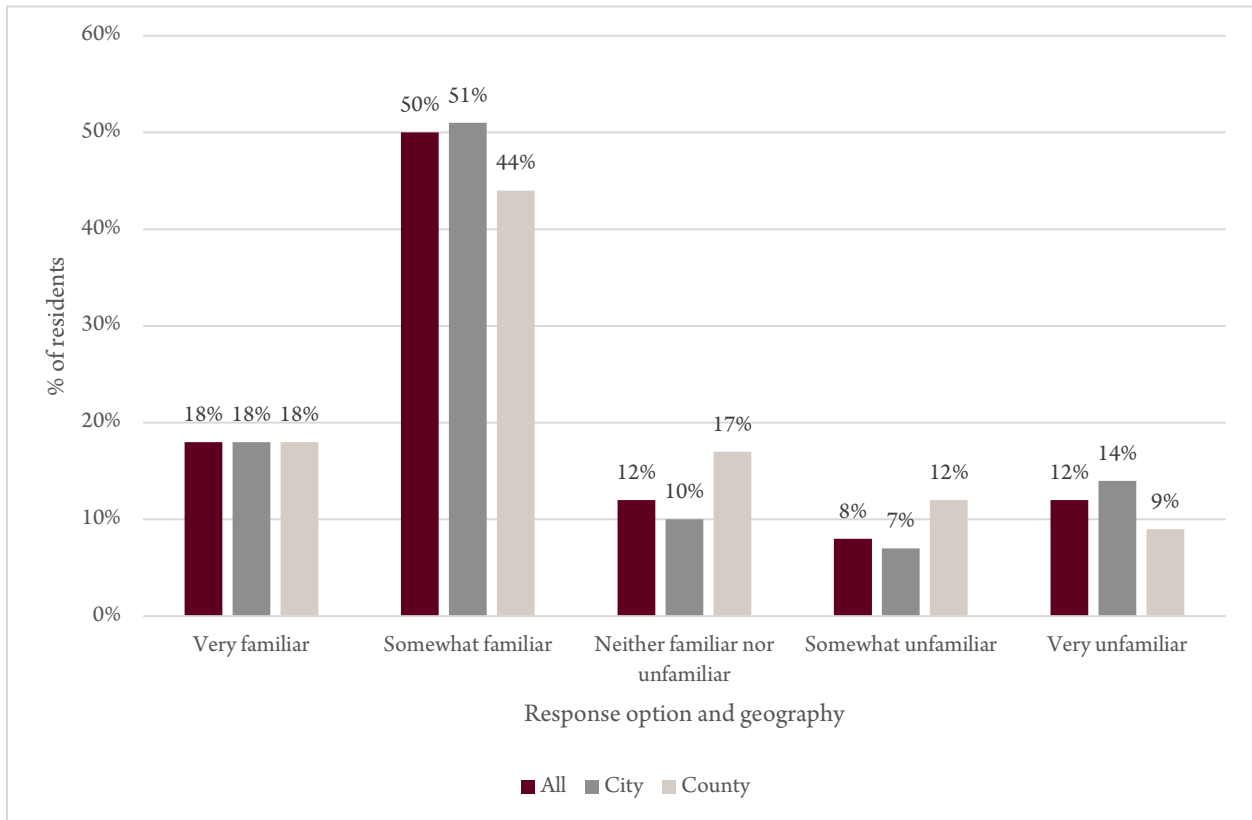


For both sharing the road with autonomous vehicles (31%) and using autonomous vehicles (35%) the modal response was very uncomfortable. Again, the distribution of responses by level of comfort was very similar among city and county residents.

Q12. How familiar are you with electric vehicles, that is, vehicles that are powered by a battery that obtains its charge from an external source?

In contrast to residents' lack of comfort with autonomous vehicles, most residents expressed at least some familiarity with electric vehicles. Almost one in every five residents (18%) said they were very familiar with electric vehicles, and half (50%) said that they are somewhat familiar with electric vehicles. Area residents' familiarity with electric vehicles is presented in Figure 17 below.

FIGURE 17: FAMILIARITY WITH ELECTRIC VEHICLES

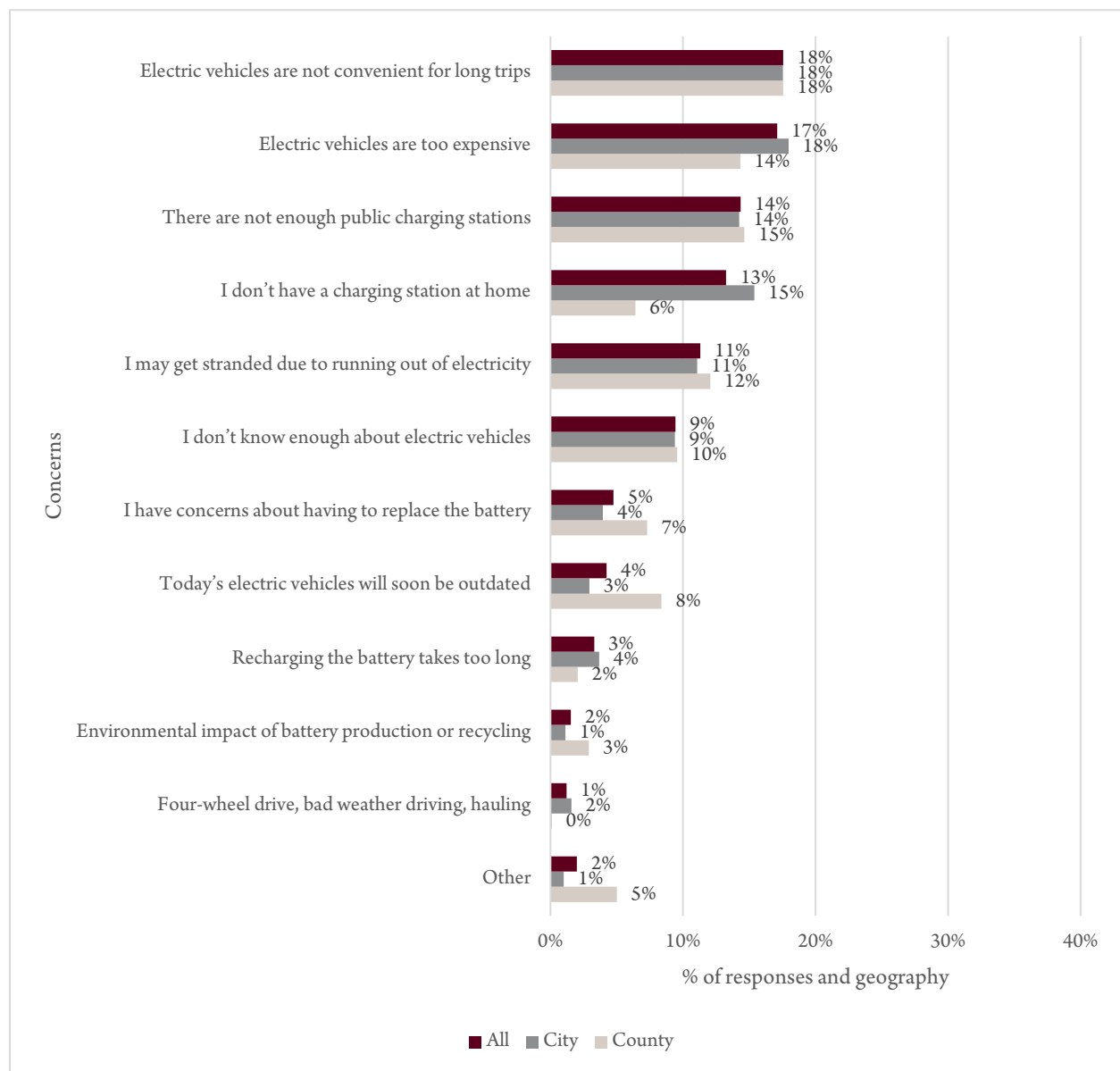


Only one in five area residents (20%) expressed at least some unfamiliarity with electric vehicles. City residents' and county residents' familiarity with electric vehicles was quite similar.

Q13. What factors concern you most about purchasing an electric vehicle for use in the Missoula area? (Top 3 choices)

The top 3 concerns about purchasing an electric vehicle were 1) electric vehicles are not convenient for long trips (18% of all responses), electric vehicles are too expensive (17% of all responses) and 3) there are not enough public charging stations (14% of all responses). Figure 18 below presents the responses to question 13.

FIGURE 18: CONCERNS ABOUT ELECTRIC VEHICLES



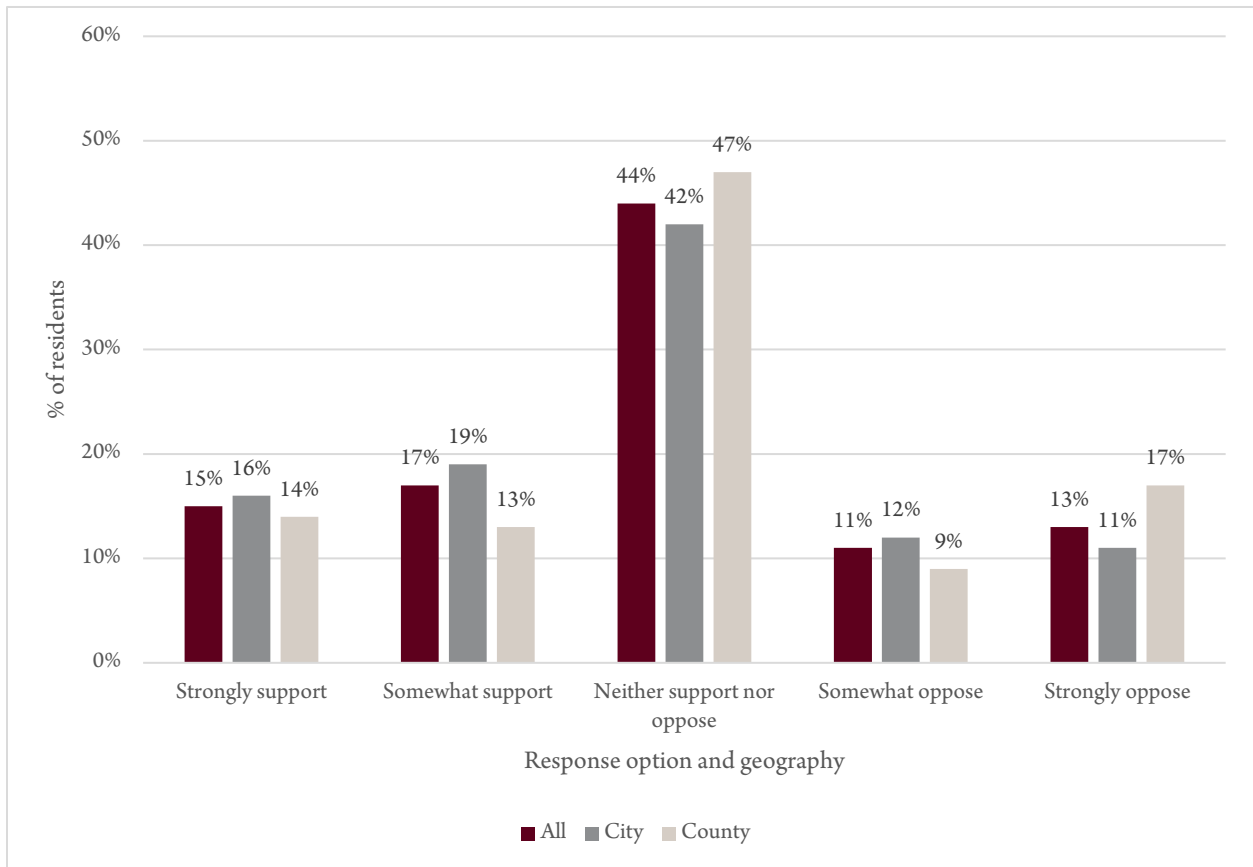
Differences between city resident and county resident concerns did not exceed the survey's random sampling error.

E-scooters

Q8. Do you support or oppose the use of electric scooters (so-called e-scooters) in the Missoula area?

Twice as many respondents (44%) expressed a neutral opinion about e-scooters, as expressed any other opinion. Figure 19 illustrates the distribution of opinions about e-scooters among area residents.

FIGURE 19: SUPPORT OR OPPOSITION FOR E-SCOOTERS

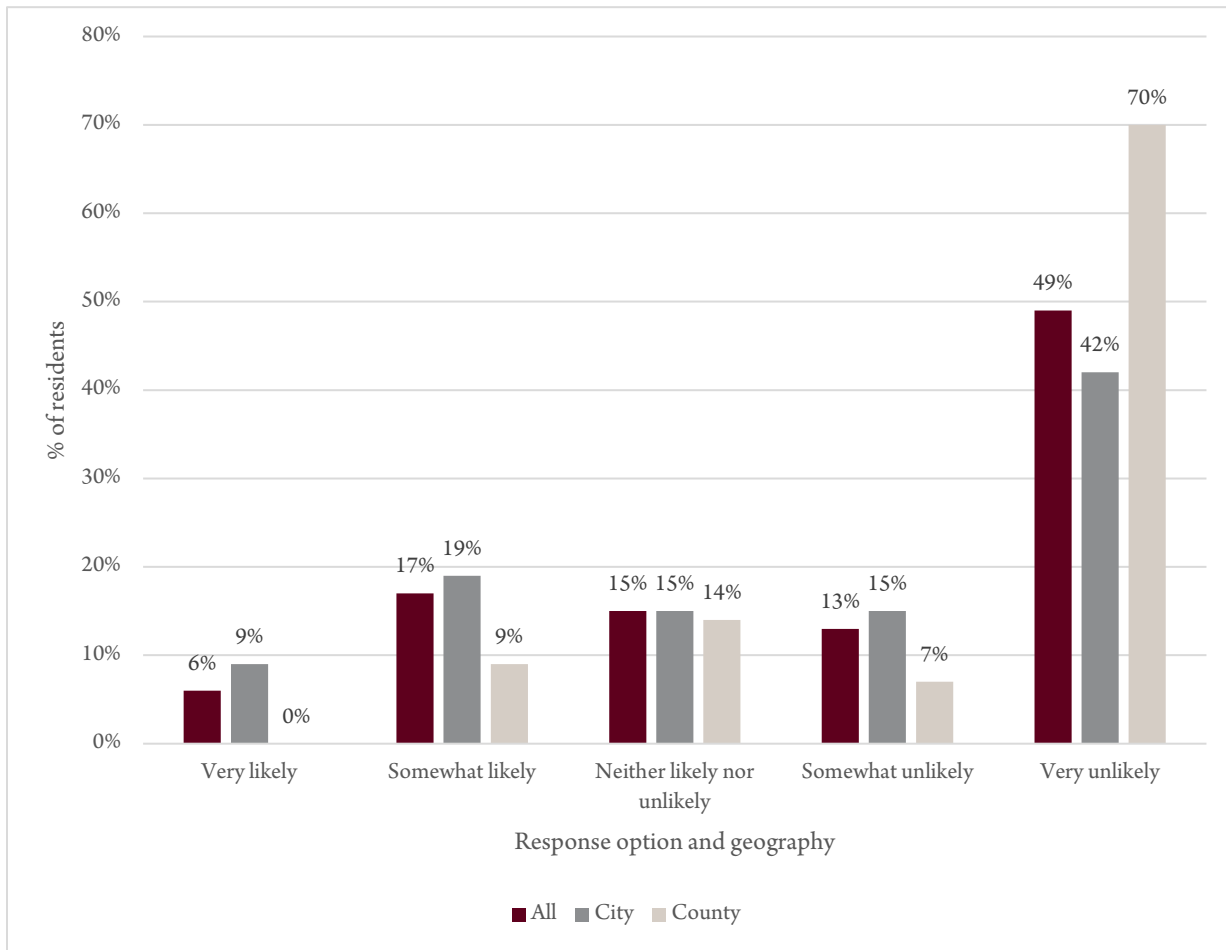


The difference between support (32%) and opposition (24%) did not exceed the survey's sampling error. The distribution of opinion about e-scooters among city and county residents was quite similar.

Q9. If a company establishes an e-scooter share system in Missoula, where riders can rent e-scooters, how likely are you to use an e-scooter share system?

Just under one quarter of adult residents (23%) said they are at least somewhat likely to use an e-scooter share system in the Missoula area. In contrast, almost half (49%) said they are very unlikely to use an e-scooter share system. Figure 20 illustrates area residents' estimates about their likelihood of using an e-scooter share system.

FIGURE 20: LIKELIHOOD OF USING AN E-SCOOTER SHARE SYSTEM IN THE MISSOULA AREA



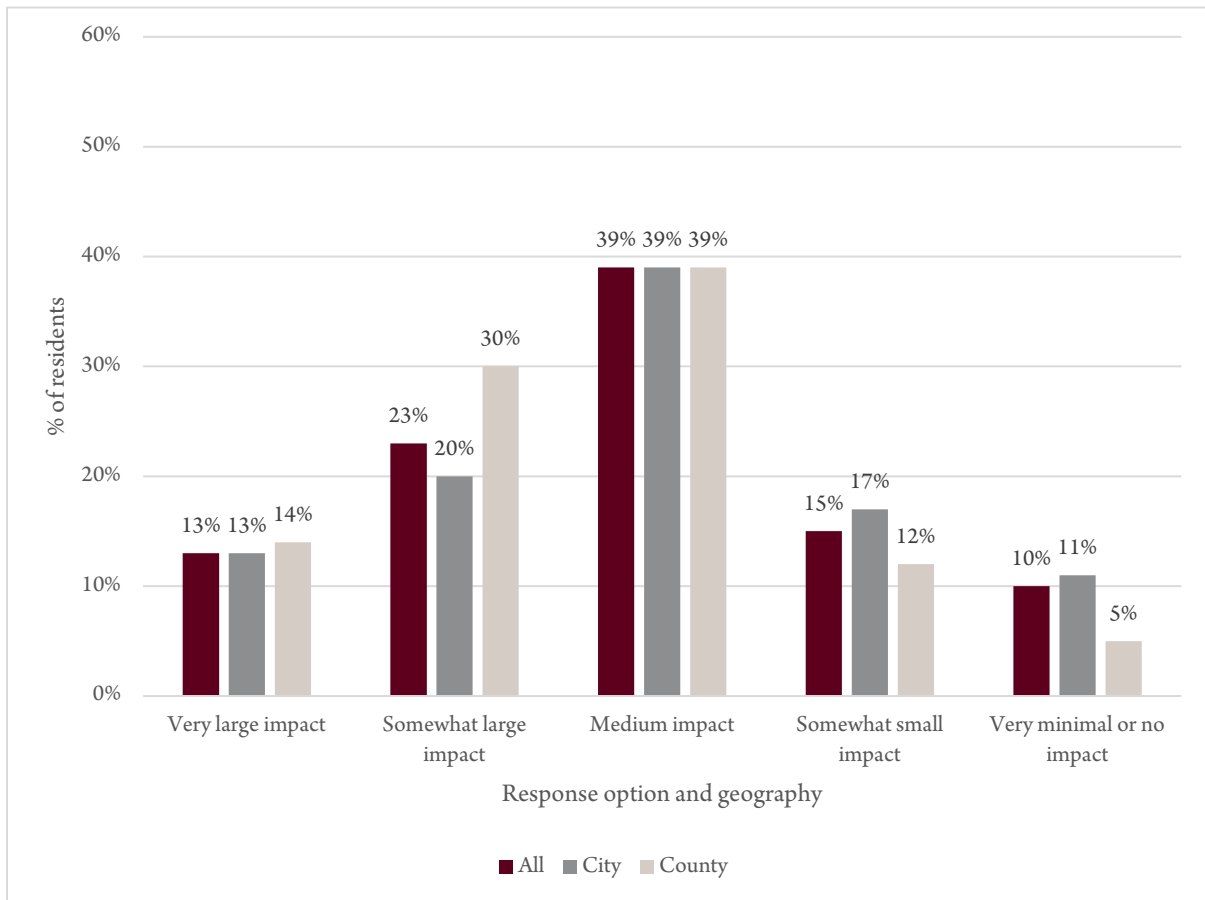
City residents said they are more likely than county residents to use an e-scooter share system. In fact, all of the residents who said they are very likely to use an e-scooter share system (6% of planning area residents) live in the city. The survey estimates this number of adults to be about 5,000 plus or minus 2,500. A very substantial 70% of county residents estimated that they are very unlikely to use an e-scooter share system.

Traffic Congestion

Q6. How much, if at all, does traffic congestion in the Missoula area affect you personally?

More Missoula area residents said that traffic congestion has at least a somewhat large impact on them (36%) than said it has a small or no impact (25%). Almost two of every 5 residents (39%) said that traffic congestion has a medium impact on them. Figure 21 below presents the responses to question 6.

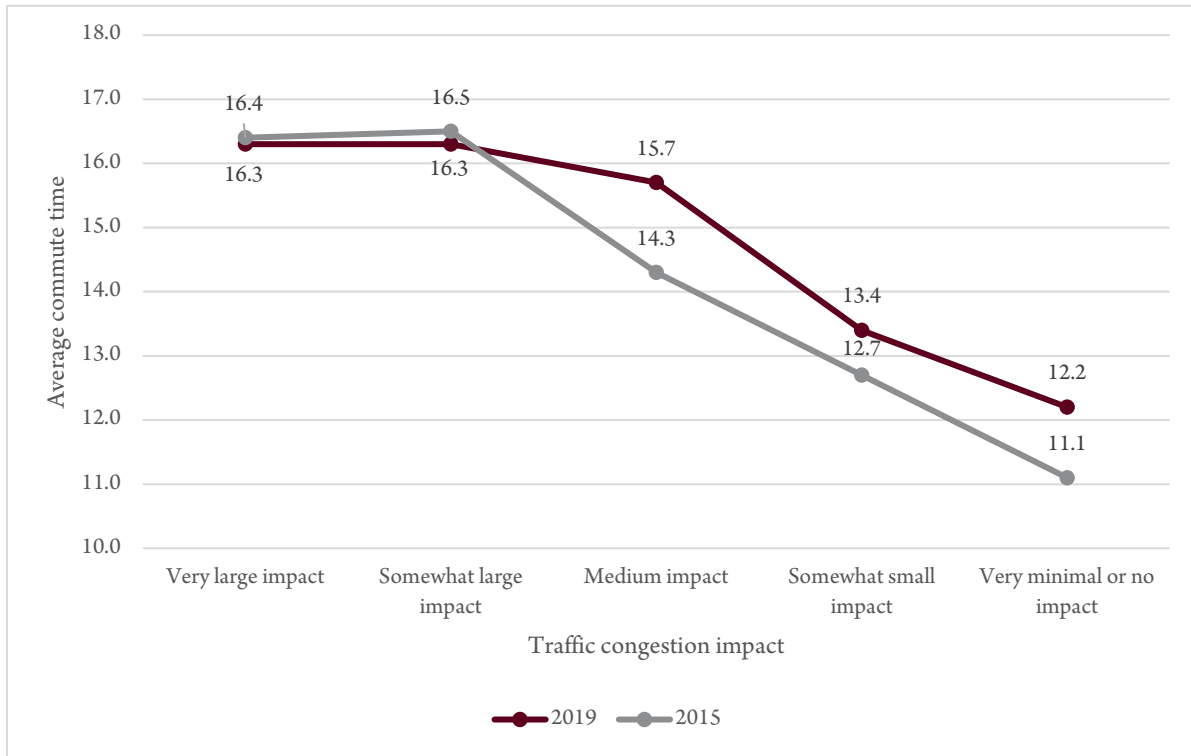
FIGURE 21: PERCEIVED EFFECT OF TRAFFIC CONGESTION ON AREA RESIDENTS



The differences in the distribution of reported impact between city and county residents were not statistically significant.

Missoula area residents who reported longer commute times also reported that traffic congestion had a larger impact on them personally. Figure 22 below illustrates the relationship between perceived traffic congestion impact and average travel time to work.

FIGURE 22: TRAFFIC CONGESTION IMPACT BY AVERAGE TRAVEL TO WORK TIME (MINUTES)

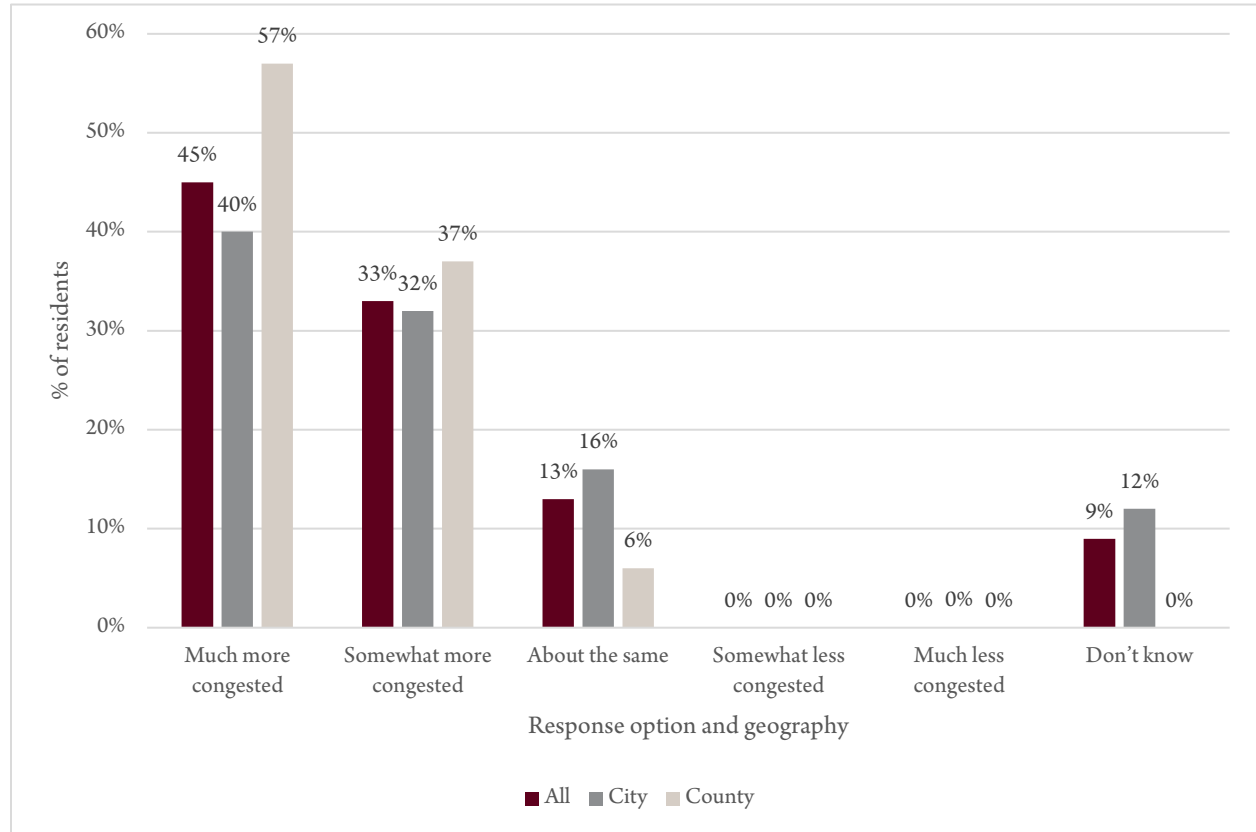


Residents who reported large personal traffic congestion impacts averaged about 16.3 minutes traveling to work. Residents who reported small personal traffic congestion impacts averaged between 12 and 13 minutes travelling to work. The 2019 difference in average work commute times between residents who reported large versus minimal personal traffic congestion impacts is only about 4 minutes. This indicates that 2019 Missoula area residents are probably sensitive to increases in travel to work times that would be considered quite small in other regions of the country, as they were in 2015. However, Missoula area residents' commute time threshold for rating traffic congestion as having a medium or lower impact may have increased in 2019 when compared with 2015. As Figure 22 illustrates, higher average travel to work times were associated with the lower end of the impact scale (minimal impact to medium impact) in 2019 when compared with 2015.

Q7. In your opinion, how has the amount of traffic congestion changed in the Missoula area over the last five years, that is, from September 2014 until now?

More than three quarters of all area residents (78%) said that the Missoula area is at least somewhat more congested now than it was in September 2014. Essentially no residents (0%) said that the Missoula area is less congested now than it was in September 2014. Just over 1 in 10 (13%) residents said that congestion was about the same, while 9% didn't know. Figure 23 presents Missoula area residents' views on the change in area traffic congestion since September 2014.

FIGURE 23: PERCEIVED CHANGE IN AREA TRAFFIC CONGESTION OVER THE LAST 5 YEARS

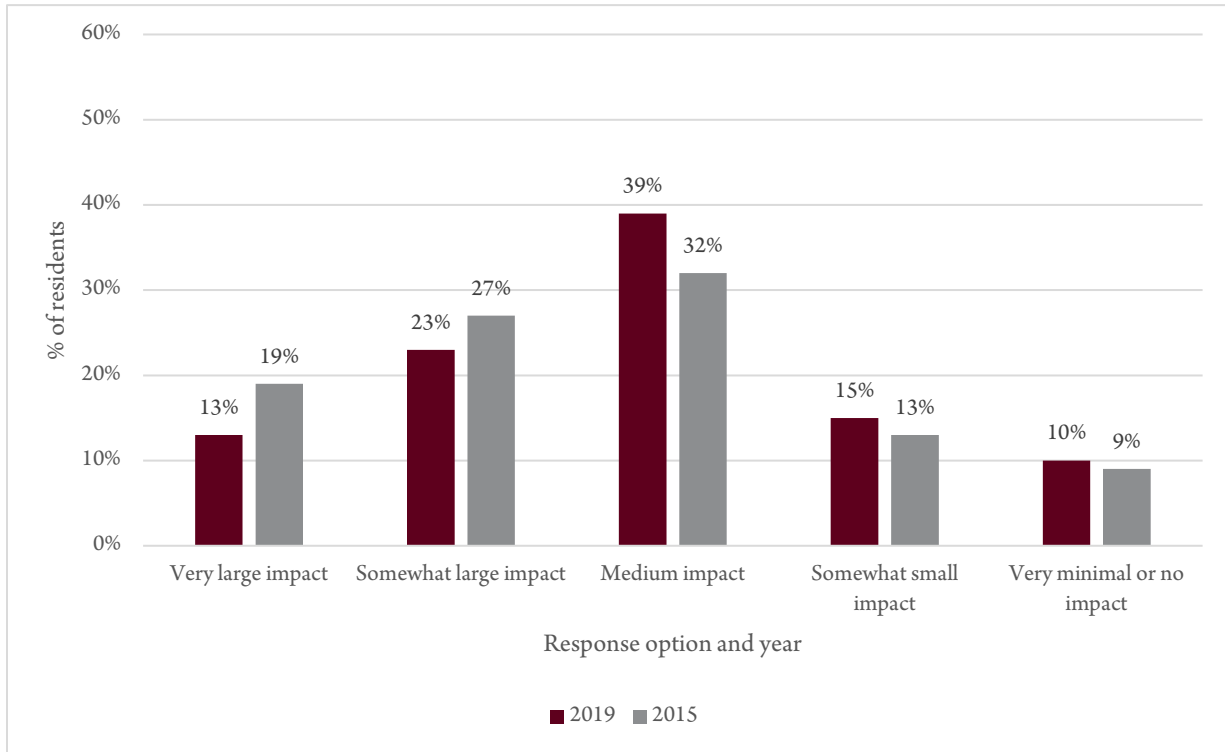


A majority of county residents (57%) said that area traffic is much more congested than it was 5 years ago, and a plurality of city residents (40%) agreed. All of the residents who said that they didn't know about the 5-year trend in area traffic congestion lived in the city.

Trend

Fewer residents (36%) reported that traffic congestion had at least a somewhat large impact on them in 2019 compared with 2015 (46%). Figure 24 below illustrates this trend.

FIGURE 24: TREND IN PERCEIVED EFFECT OF TRAFFIC CONGESTION ON AREA RESIDENTS



One factor that may be related to perceived impact of traffic congestion is average commute to work time. However, as will be outlined in detail in a section of this report that follows, the survey did not find a statistically significant change in average commute to work time for the Missoula area from 2015 to 2019. This indicates that Missoula area residents' tolerance for traffic congestion impact may have increased since 2015.

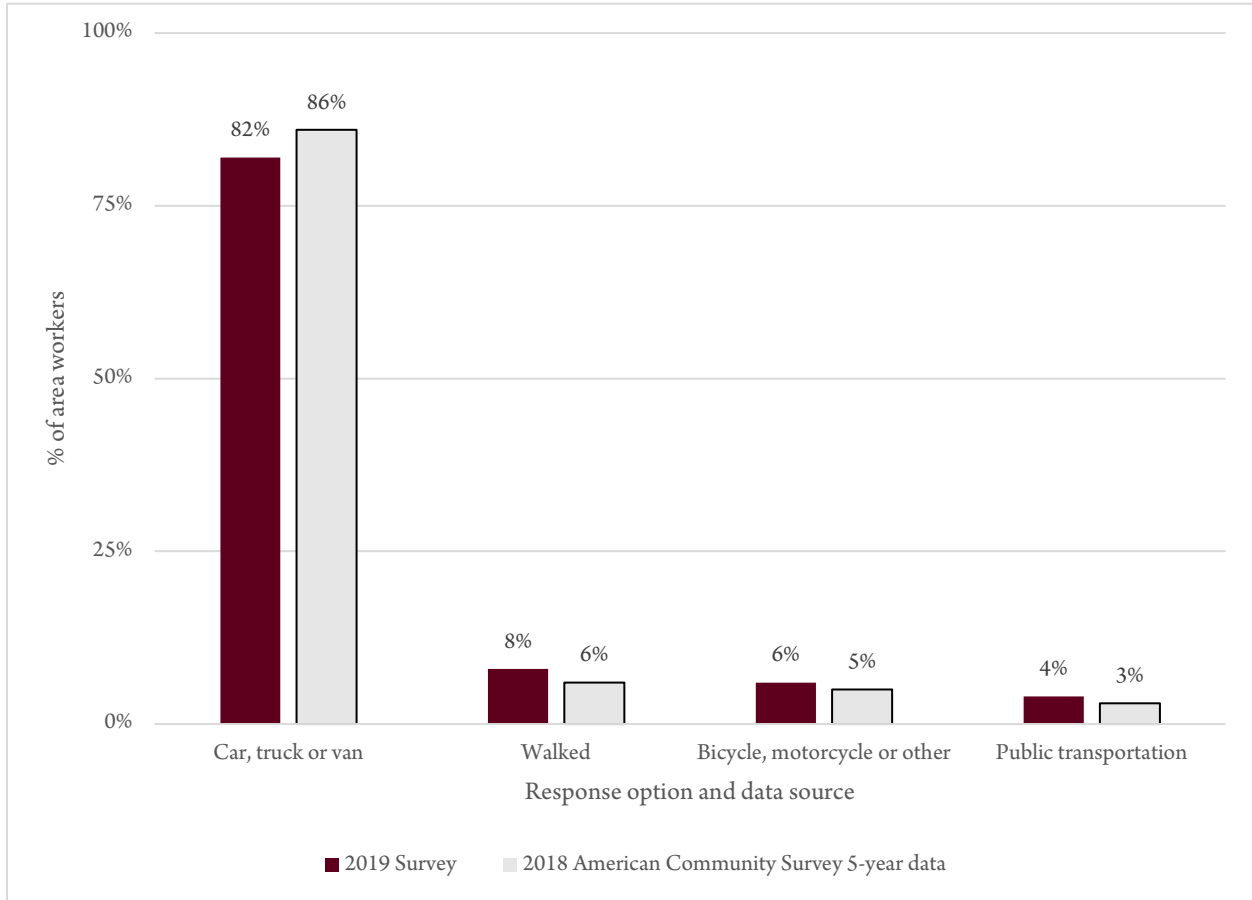
Travel in the Missoula Area

Commuting

Q21. How did you usually get to work LAST WEEK?

Just over 4 in every 5 Missoula area workers (82%) reported driving a car, truck or van to work. Figure 25 below displays the 2019 survey estimates of the proportions of Missoula area workers that use specific modes of travel to work.

FIGURE 25: MODE OF TRAVEL TO WORK IN THE MISSOULA AREA



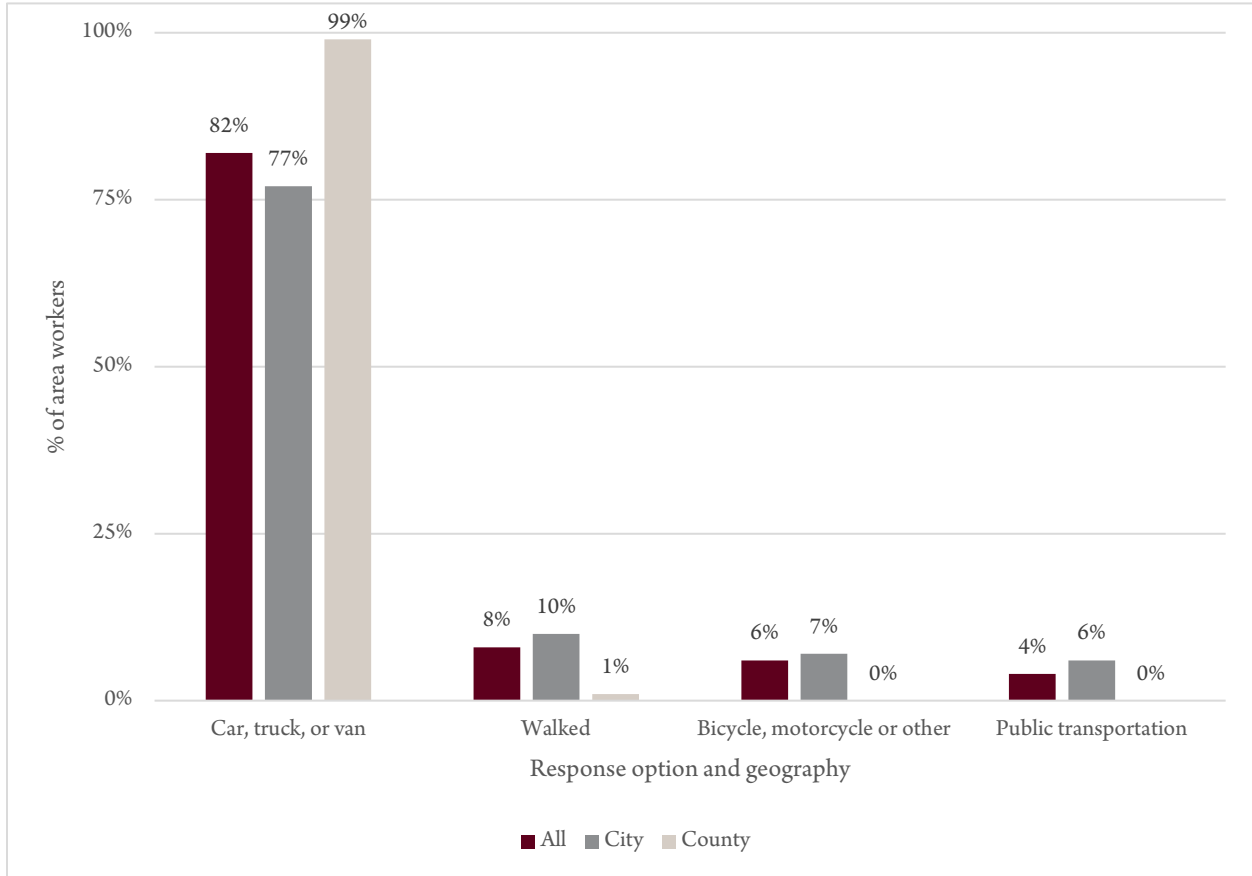
About 8% of Missoula area workers reported walking to work, 6% said they bicycled, and 4% rode public transportation.

There is no statistically significant difference between the 2019 survey estimates of travel to work mode and the estimates found in the U.S. Census Bureau's 2018 5-year American Community Survey data for the Missoula metropolitan planning area (U.S. Census Bureau, 2019). The accuracy of the 2019 survey estimates for travel to work mode, essentially equal to those found by the gold standard of survey research in the United States, should increase the confidence of readers in the overall quality of the estimates presented in this report. In fact, one would expect the statistically insignificant differences in the point estimates between the two surveys given the difference in data collection season for each survey. The 2019 survey found slightly fewer drivers, and slightly

more users of other modes. This may be because the 2019 survey was administered in September and October, while the ACS is administered during all 12 months of the year and includes winter travel to work.

Exploring mode of travel to work by whether the respondent lived in the City of Missoula or outside the City in the County provides important context for any discussion of mode of travel to work in the Missoula area. Figure 26 displays the modes of travel to work used by City residents of the metropolitan planning area and by County residents in the metropolitan planning area.

FIGURE 26: CITY VS. COUNTY MODE OF TRAVEL TO WORK

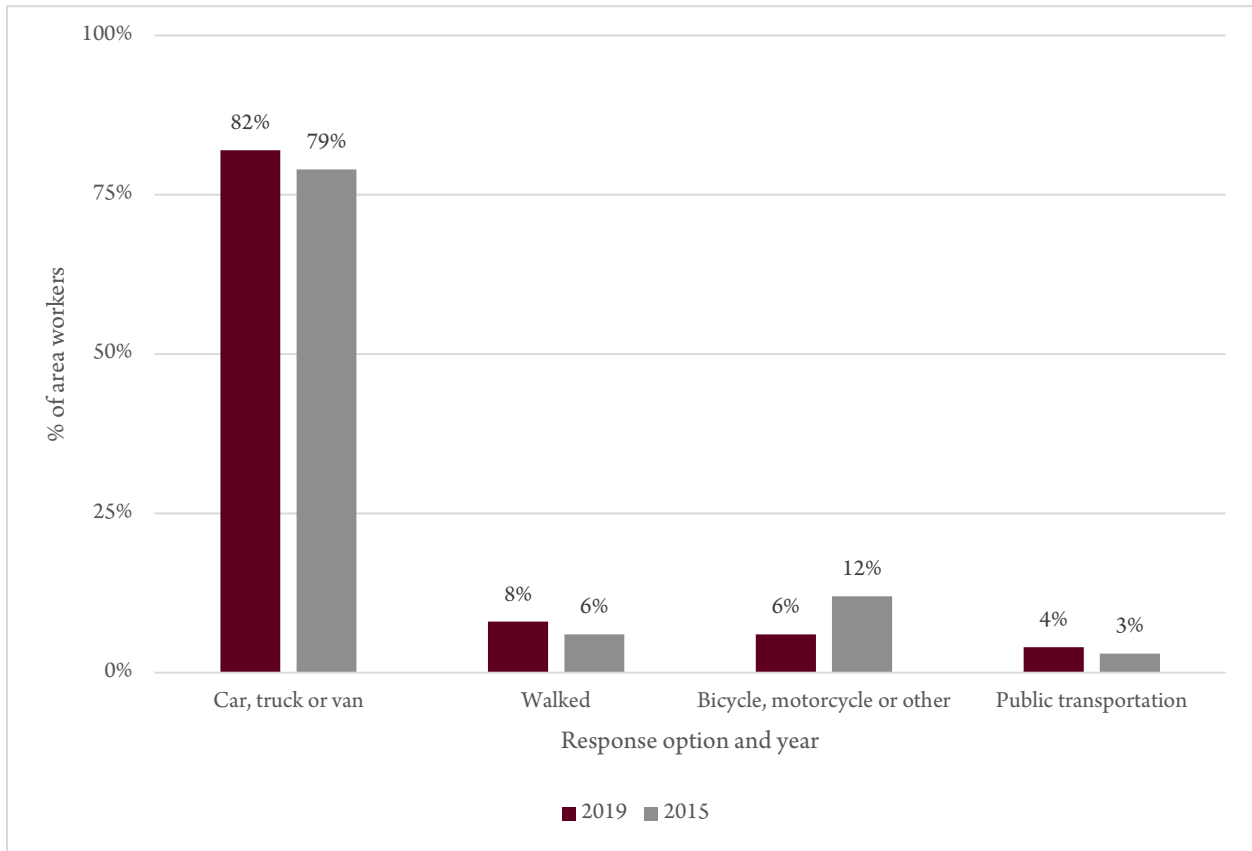


Nearly all workers (99%) who live in the county portion of the metropolitan planning area drive a car, truck or van to work. Only 1% of county workers walked to work. In contrast, nearly one quarter of city workers (23%) use alternative modes of travel to work, including walking (10%), bicycling (7%), and public transportation (6%).

Trend

From 2015 to 2019 there appears to have been very little, if any, change in the distribution of Missoula area workers' choice of mode of transportation to work. Figure 27 displays the trend findings.

FIGURE 27: TREND IN MISSOULA AREA MODE OF TRAVEL TO WORK



None of the differences in survey estimates presented in Figure 27 exceed the combined random sampling error rates for the two surveys.

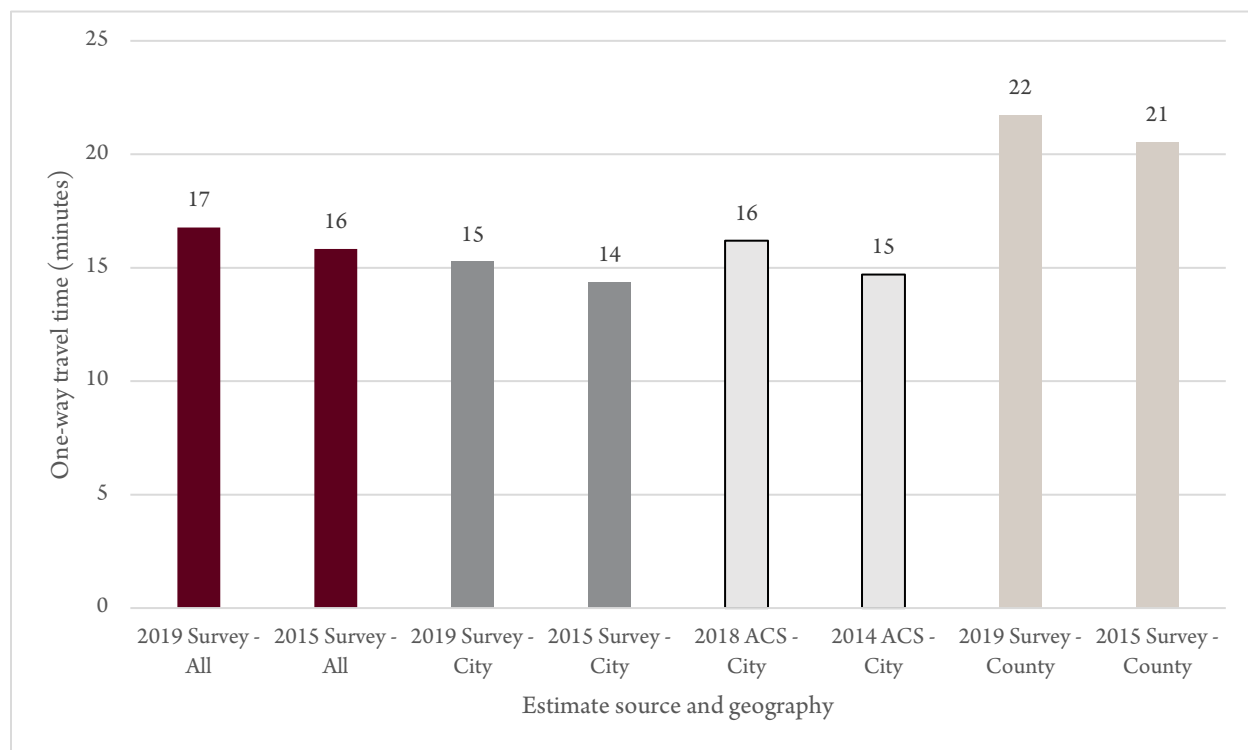
Q22. How many people, including you, usually rode to work in the car, truck, or van LAST WEEK?

In the Missoula metropolitan area an average of 1.3 people rode in the car, truck or van workers used to get to work in 2019. This is a small, but statistically significant increase over the 2015 average of 1.1. The 2019 survey estimate of 1.3 people per vehicle is also equal to U.S. Census Bureau’s 2018 5-year American Community Survey estimate of 1.3 people per vehicle. There was no difference between city or county workers in the average number of people riding in the car, truck or van used to get to work.

Q23. How many minutes did it usually take you to get from home to work LAST WEEK one way?

Missoula metropolitan planning area residents reported travelling an average of 17 minutes one way to work in fall of 2019. Figure 28 below presents the survey estimates regarding travel time to work.

FIGURE 28: MEAN TRAVEL TIME TO WORK (MINUTES)



2019 city residents reported travelling an average of 15 minutes to work, and county residents reported travelling an average of 22 minutes to work. The 2018 U.S. Census Bureau American Community Survey (ACS) 5-year estimate for Missoula city residents was 16 minutes, which is not statistically different from the 2019 survey estimate for city residents. 2019 county residents said they travelled an average of 22 minutes to work.

Trend

None of the changes in survey estimates for travel time to work between 2015 and 2019 are statistically significant. However, since the survey estimates and the ACS estimates displayed in Figure 28 both show a 1-minute average increase in travel time to work from 2015 to 2019, this lends evidence to the assertion that travel to work times did increase.

Q25. Did you usually use more than one method of transportation during EACH trip to work LAST WEEK? If Yes, please tell us what the second method was.

Approximately 2,500 workers in the Missoula metropolitan planning area reported using two different modes of travel during each trip to work in the prior week. Table 10 below outlines the estimated number of Missoula area workers who reported using various combinations of travel mode.

TABLE 10: TRAVEL TO WORK MODE COMBINATIONS

		1st Travel to Work Mode				Total
		Car, truck, or van	Bus	Bicycle	Walked	
2nd Travel to Work Mode	Car, truck, or van		60		480	540
	Bus	480		20		500
	Walked	450	710	300		1,460
Total		930	770	320	480	2,500

Missoula area workers who travelled the majority of the distance to work by car, truck or van most frequently (930 workers) reported using a 2nd travel mode. Bus travelers to work (710 workers) most often reported completing their trip by walking. Bicycle travelers most often reported walking to finish their trip to work.

Non-motorized Travel to Primary or Secondary School

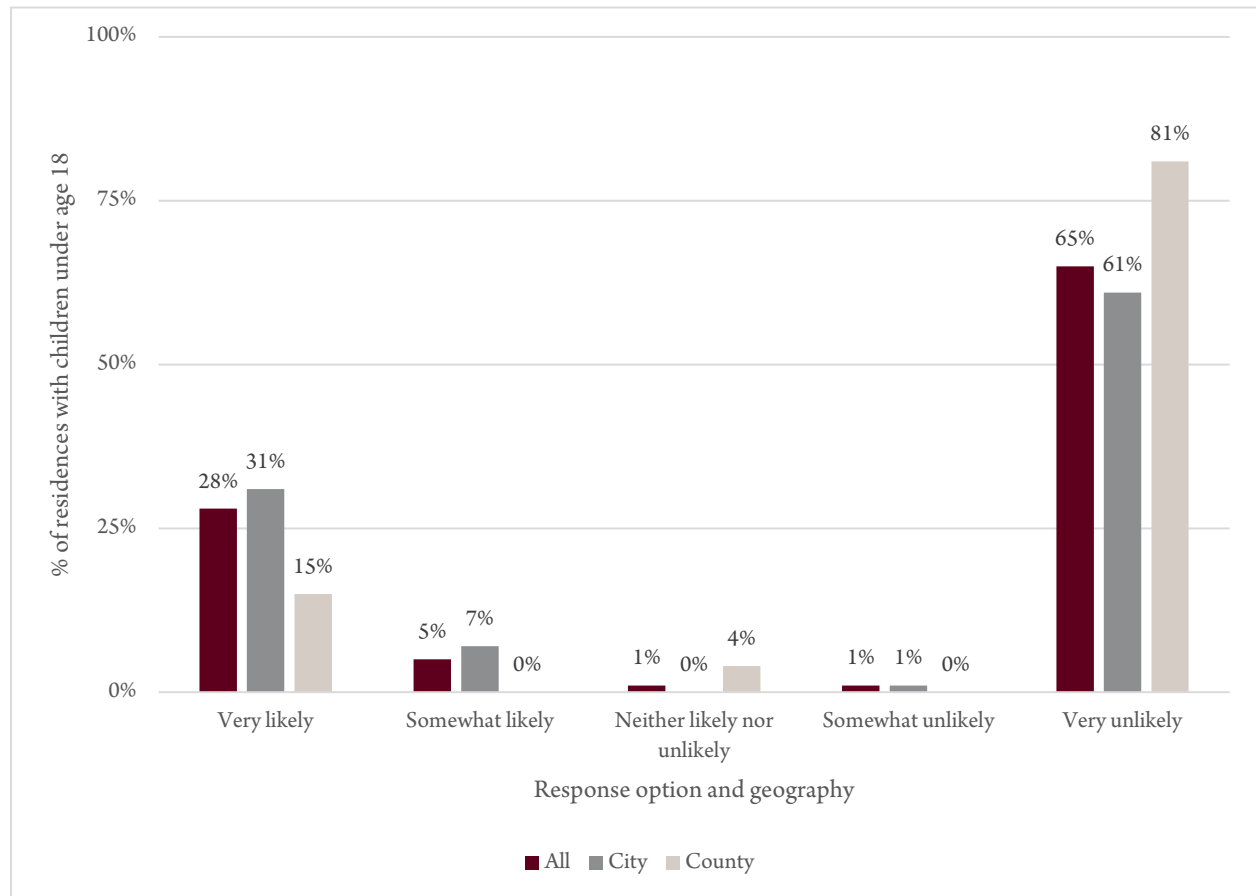
Q26. Do any children under the age of 18 live at the address on the mailing label?

One in five residents (20%) said they live at an address with a child or children under the age of 18. The same proportion of city residents (20%) said a child or children live at their address, while 17% of county residents reported that a child or children live at their address.

Q27. Over the next two weeks, how likely are any of these children to walk or ride a bicycle to school?

Overall, about one third of residents with a child or children living at their address (33%, or about 5,000 residents) said that at least one of the children was likely to walk or ride a bicycle to school over the next two weeks. Figure 29 presents the survey's estimates of the likelihood that children will walk or ride a bicycle to school over the next two weeks.

FIGURE 29: LIKELIHOOD OF WALKING OR RIDING A BICYCLE TO SCHOOL OVER THE NEXT 2 WEEKS

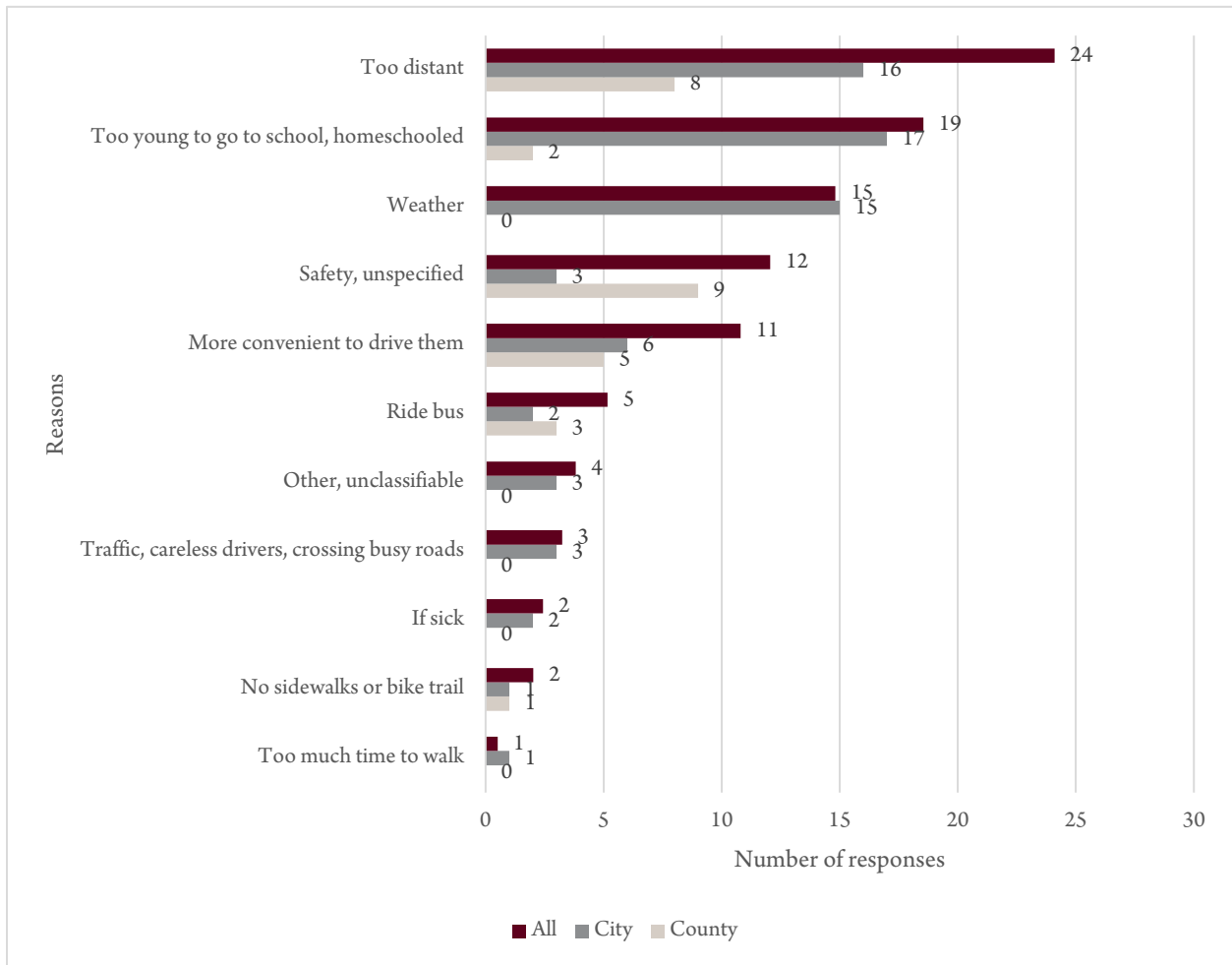


Almost two thirds of area residents with children living at their address said that the children were very unlikely to walk or ride their bicycle to school over the next two weeks. About 38% of city residents with children living at their address reported that a least one child was likely to walk or ride a bicycle to school, while only 15% of county residents living with children reported that a child was likely to walk or ride a bicycle to school.

Q28. What are the one or two main reasons that any of these children might NOT walk or ride a bicycle to school over the next two weeks?

Residents who lived with children reported a total of 98 reasons that the children might not walk or bicycle to school over the next two weeks. Those reasons are presented in Figure 30 below.

FIGURE 30: REASONS FOR NOT WALKING OR BICYCLING TO SCHOOL



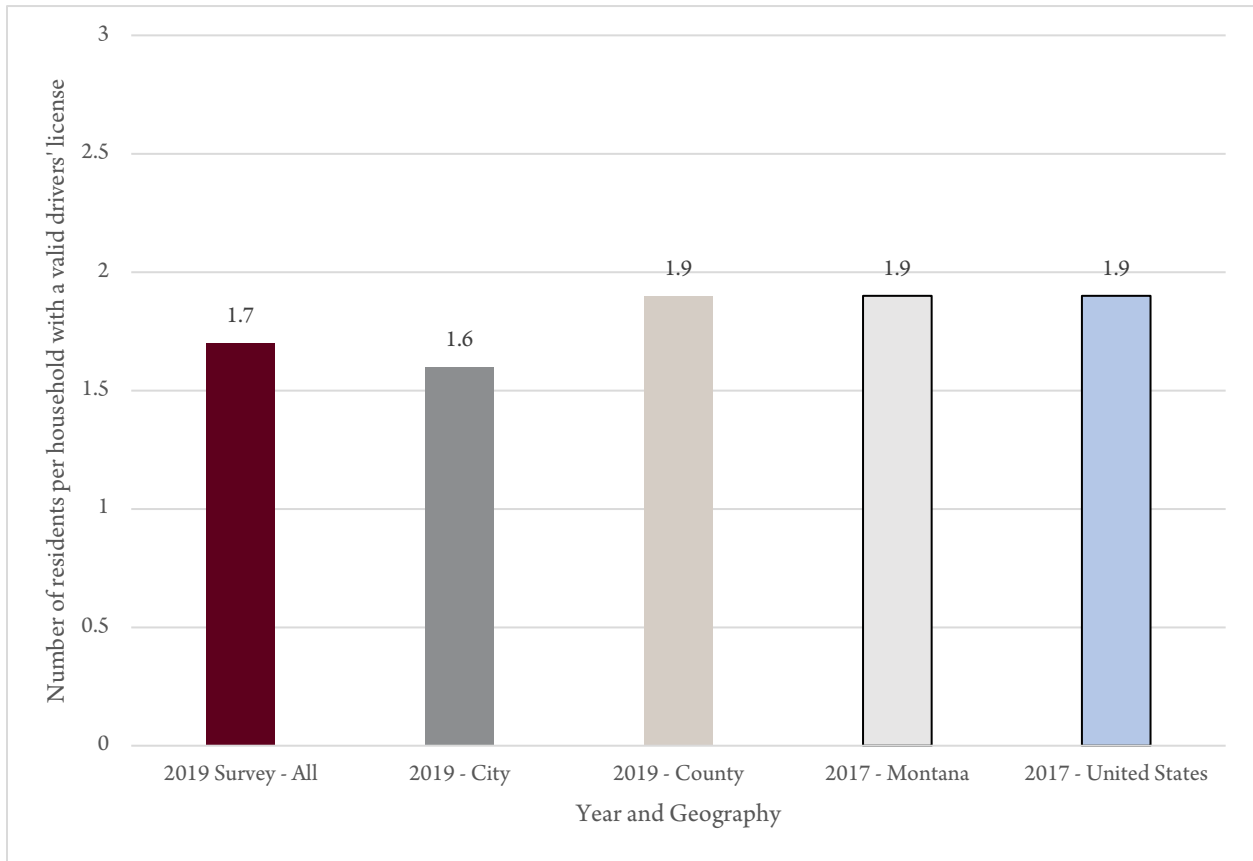
The most commonly reported reason (24 responses) for not walking or riding a bicycle to school was that the school was too distant. The second most commonly reported reason (19 responses) was that the child or children were too young to go to school or were homeschooled. The third most common reason was weather (15 responses). Safety in general (12 responses) and specific safety concerns (3 responses) combined were tied with weather as the third most often mentioned reason.

Driving

Q29. How many people who now live or stay at the address on the mailing label have a current and valid drivers' license?

Just under 2 (1.7) persons who lived at each sampled mailing address said they had a current and valid drivers' license. Figure 31 presents this result and results from Montana and the United States for context.

FIGURE 31: PERSONS WITH VALID DRIVERS' LICENSES PER RESIDENCE

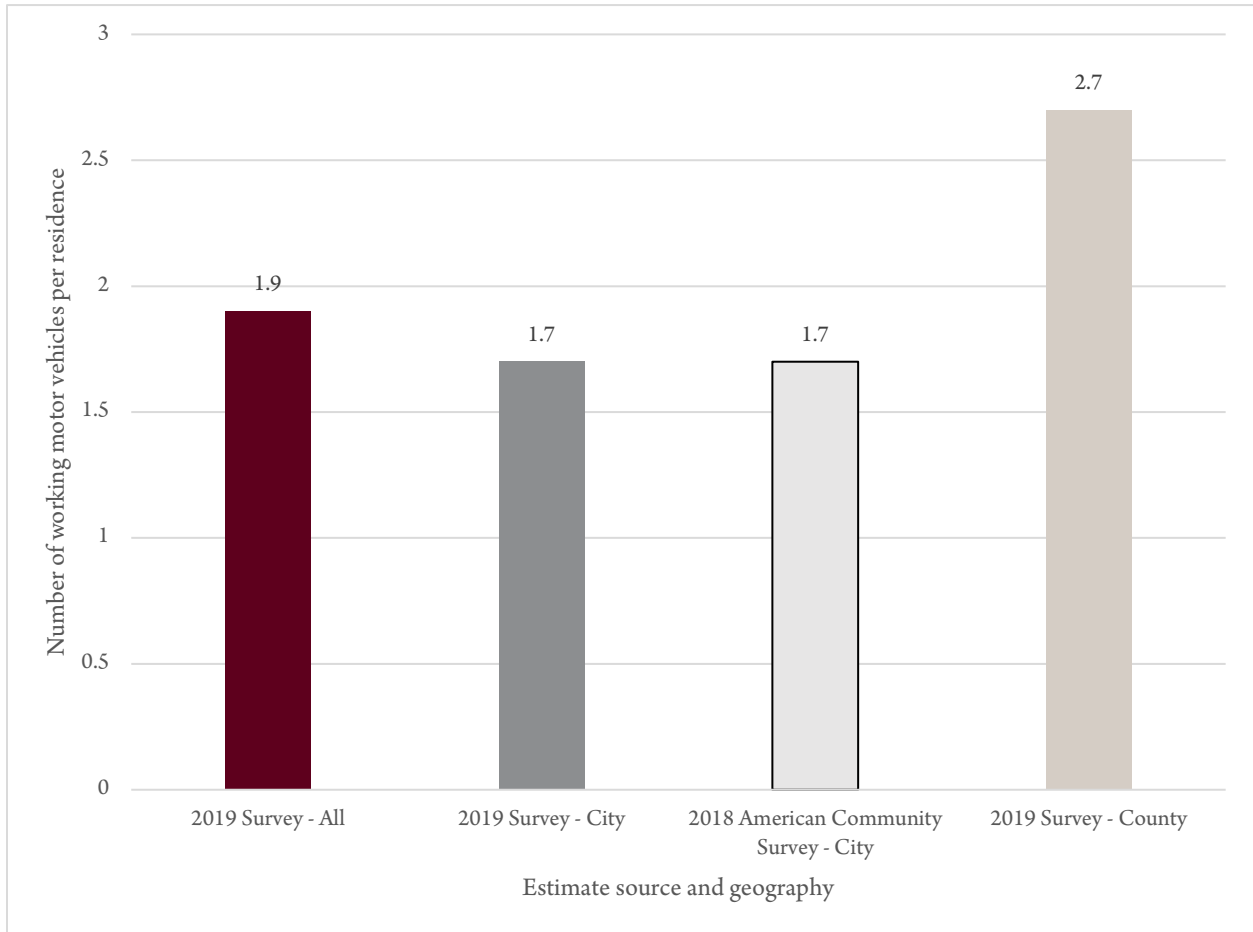


There are slightly fewer licensed drivers on average in city residences (1.6) than in county residences (1.9). Residences in the Missoula metropolitan planning area as a whole had slightly fewer licensed drivers than did the state of Montana (1.9) or the United States (1.9) in 2017 (Federal Highway Administration, Office of Highway Policy Information, 2018).

Q30. How many drivable (functioning/working) autos, trucks, vans, or motorcycles are currently in the possession of all of the people who live or stay at the address on the mailing label?

Each residence in the Missoula metropolitan planning area in 2019 had 1.9 working autos, trucks, vans, or motorcycles. Figure 32 below illustrates the survey estimates for number of working motor vehicles per residence in the Missoula metropolitan planning area.

FIGURE 32: NUMBER OF WORKING MOTOR VEHICLES PER RESIDENCE

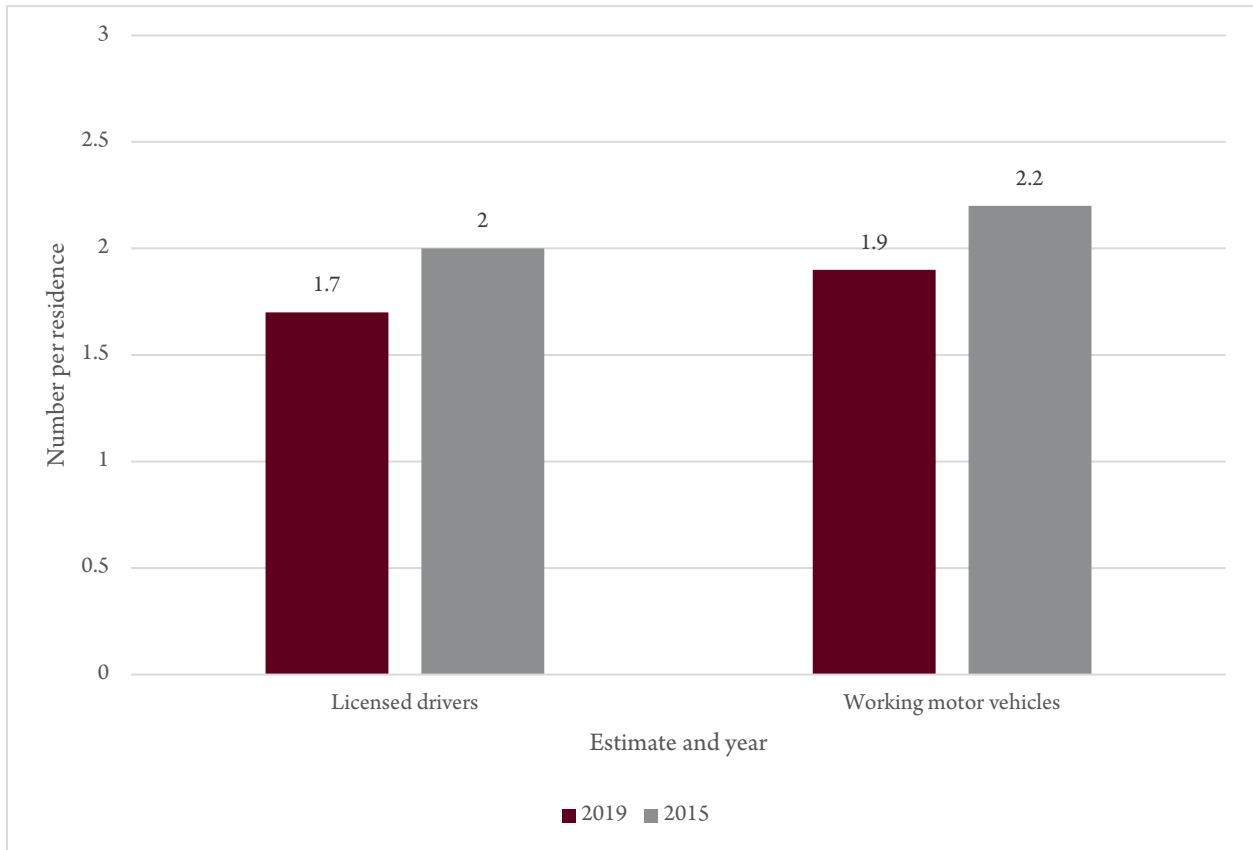


On average, county residences have one more working motor vehicle (2.7) available when compared with city residences (1.7). The 2019 survey estimate for city residences (1.7) was identical to the 2018 American Community Survey 5-year estimate for Missoula city (1.7).

Trends

The survey estimates for the number of licensed drivers and working motor vehicles per residence dropped slightly in 2019 when compared to 2015. Figure 33 illustrates these trends.

FIGURE 33: TRENDS IN NUMBERS OF LICENSED DRIVERS AND WORKING MOTOR VEHICLES PER RESIDENCE



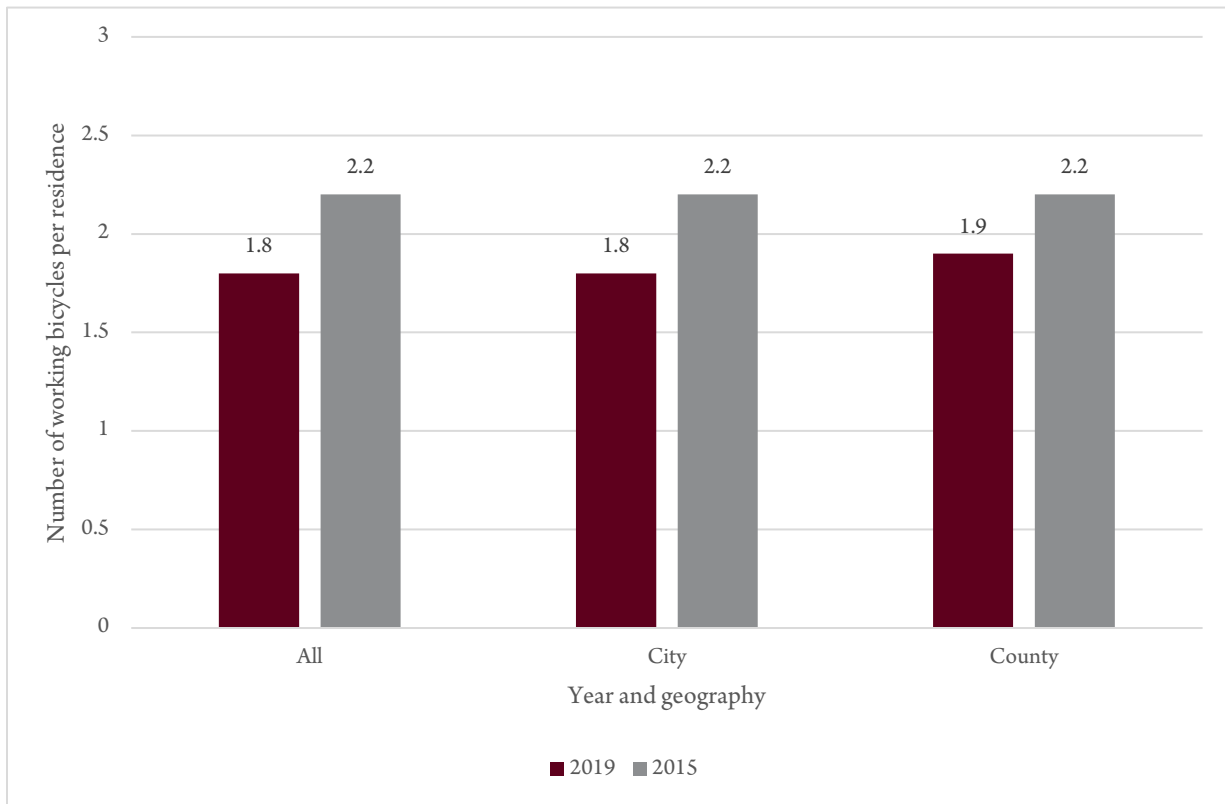
The average number of licensed drivers per residence dropped somewhat from 2 in 2015 to 1.7 in 2019. Similarly, the number of working motor vehicles in each residence dropped from 2.2 in 2015 to 1.9 in 2019. Each of these declines is statistically significant, though they are not very large in a practical sense.

Bicycling

Q31. How many rideable (functioning/working) bicycles are currently owned by all of the people who live or stay at the address on the mailing label?

Each residence in the Missoula metropolitan planning area housed an average of 1.8 working bicycles in 2019. Figure 34 below examines the survey estimates of the number of working bicycles per residence in the Missoula area.

FIGURE 34: NUMBER OF WORKING BICYCLES PER RESIDENCE

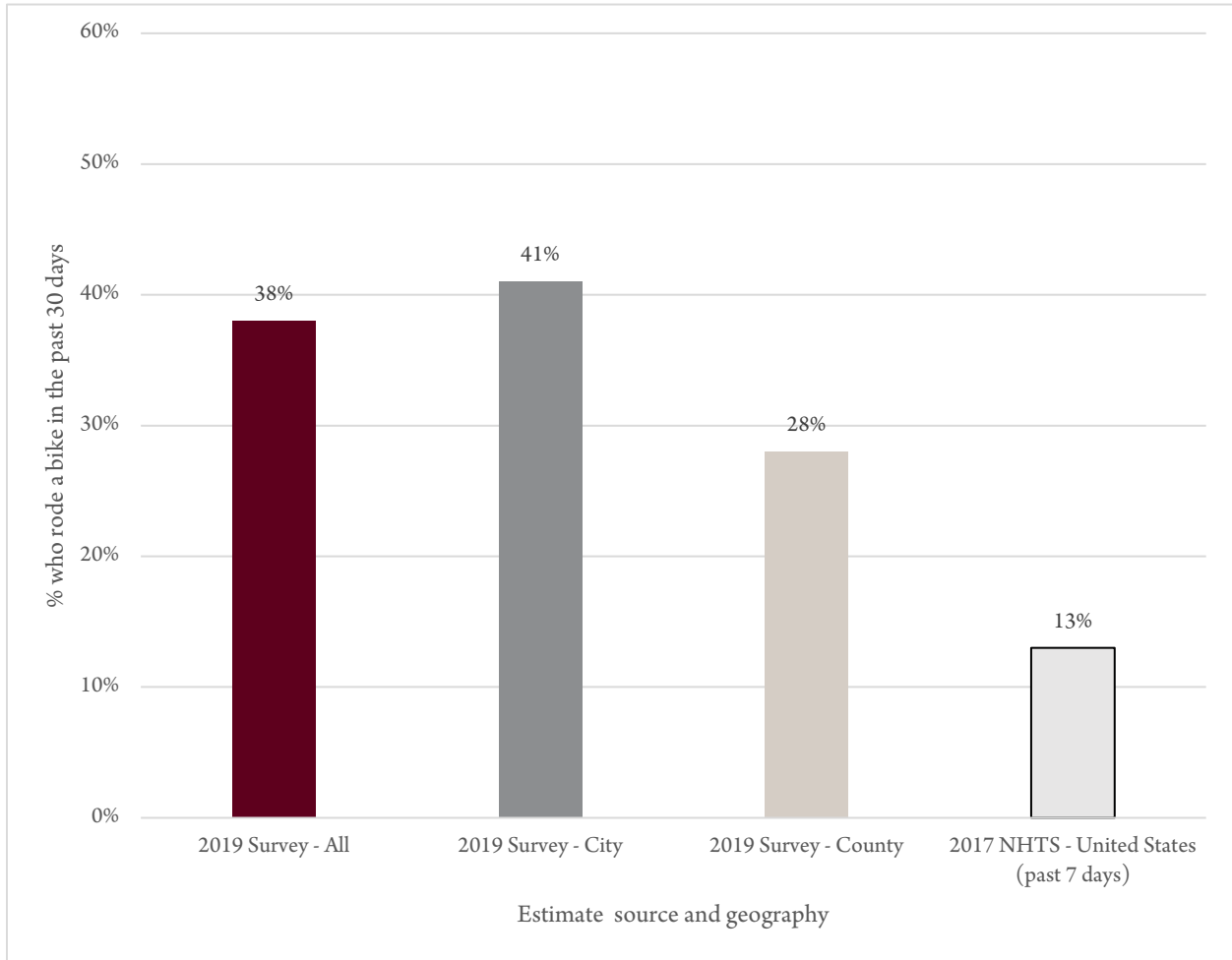


There was no significant difference in 2019 between the average number of bicycles in city residences (1.8) and the average number in county residences (1.9). The number of working bicycles per residence dropped in 2019 (1.8) from the number reported in 2015 (2.2).

Q32. During the last 30 days, did you ride a bicycle?

Just under 4 in 10 (38%) 2019 residents of the Missoula metropolitan planning area said they rode a bicycle in the preceding 30 days. Figure 35 below presents the 2019 prevalence estimates of past 30-day bicycle riding in the Missoula area and offers a 2017 national estimate for context.

FIGURE 35: BICYCLED IN THE LAST 30 DAYS

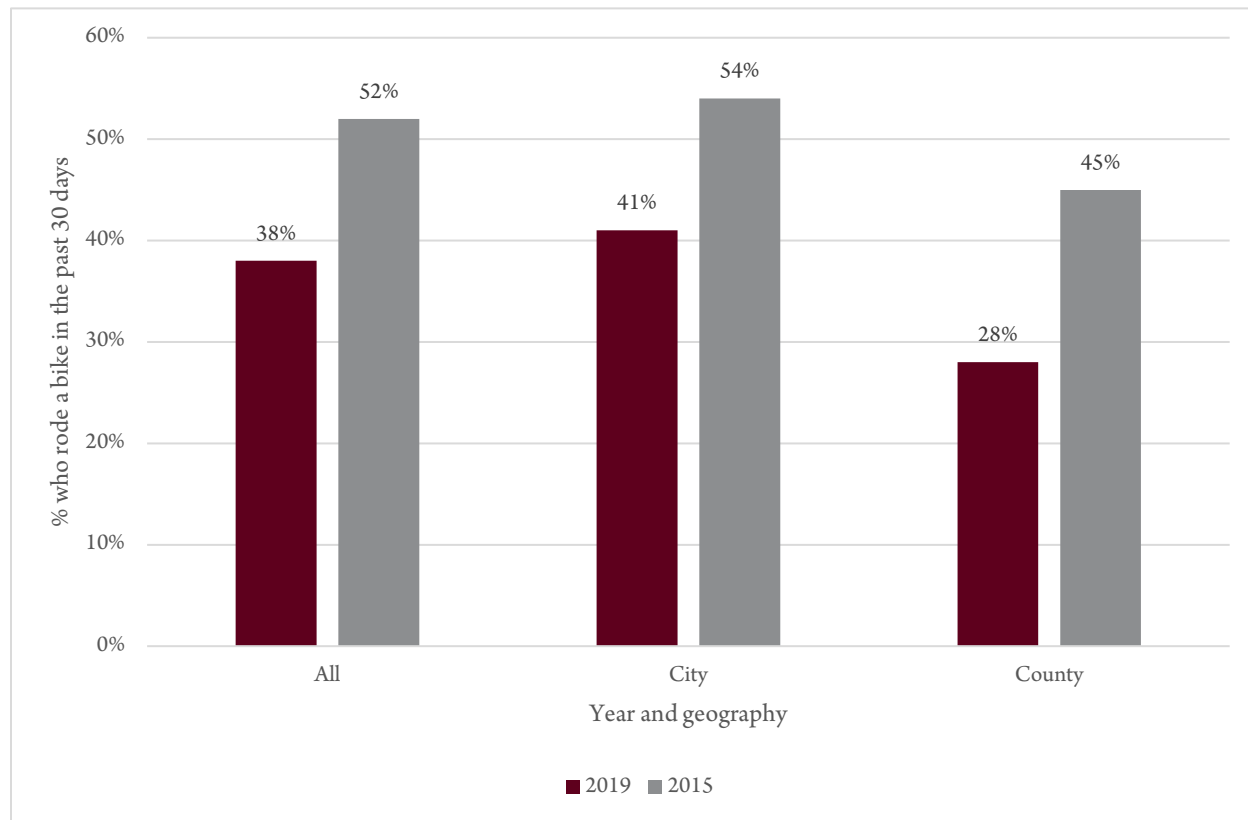


Just over 4 in 10 city residents (41%) said they bicycled in the past 30 days, while just under 3 in 10 county residents (28%) said they bicycled in the past 30 days. This difference does not exceed the 2019 survey’s rate of sampling error. The 2019 estimate for the past 30-day prevalence rate of bicycling in the Missoula area is significantly larger than the 2017 estimate presented in Figure 35 for the United States as a whole (Triby & Tharp, 2019). However, the national estimate, taken from U.S. Department of Transportation’s 2017 National Household Travel Survey, is of past 7-day prevalence NOT past 30-day prevalence. Thus, the Missoula-area bicycling prevalence rate and national bicycling prevalence rate are undoubtedly closer to each other than they appear above.

Trend

The survey estimate of past 30-day prevalence rate for bicycling in the Missoula area dropped from 52% in 2015 to 38% in 2019. Figure 36 illustrates this apparent, but probably weather-influenced, trend.

FIGURE 36: TREND IN PAST 30-DAY BICYCLING RATE



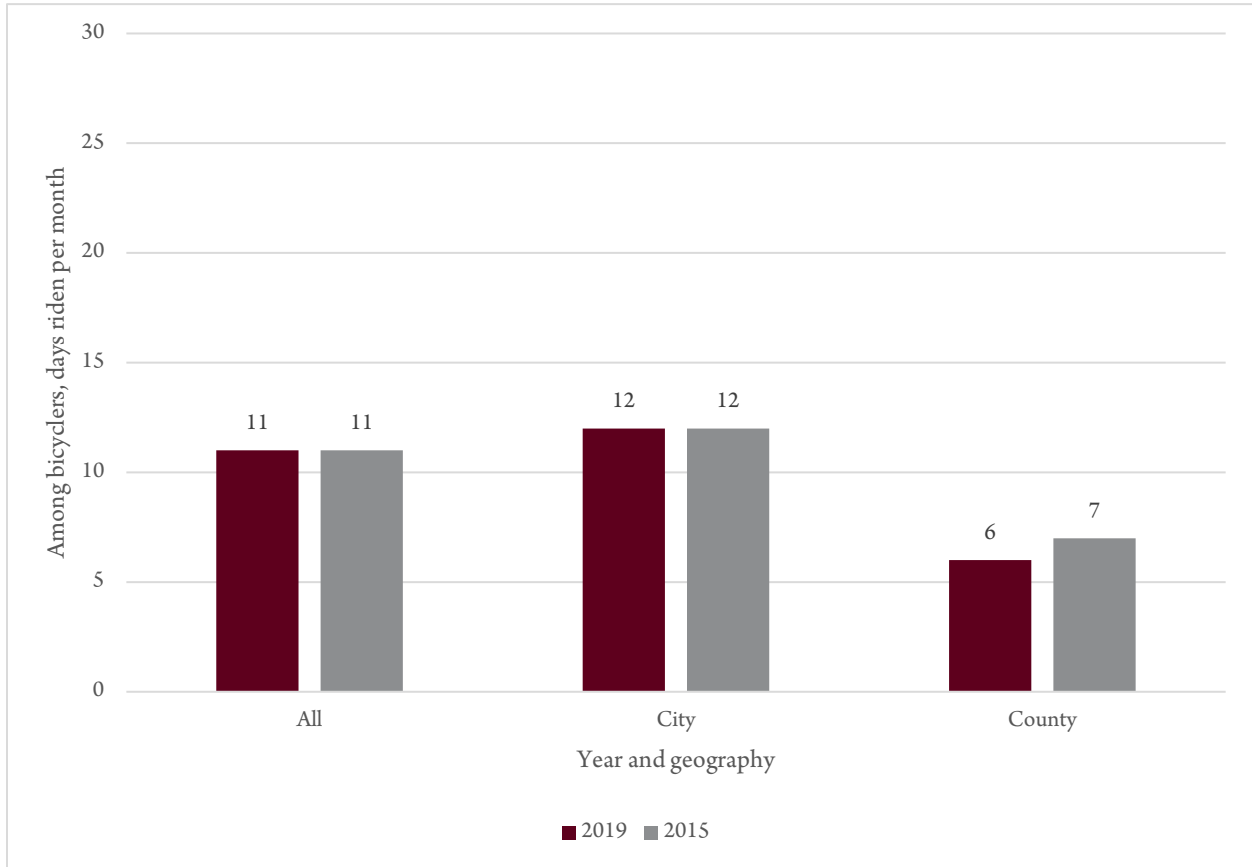
The drop in the past 30-day bicycling prevalence rate occurred in both city residents and county residents. It is likely that a substantial portion of the prevalence rate drop occurred because weather was colder and snowier during the 2019 survey period than it was in the 2015 survey period. Also, as will be described in detail in a report section that follows, weather is an important factor when area residents choose not to bicycle. Missoula area residents in both 2019 and 2015 ranked weather as their top reason for not riding a bicycle more often.

Each survey was conducted from mid-September through mid-November of the respective survey years. The U.S. National Weather Service (NWS) reported that the Missoula International Airport (MIA) experienced an average daily temperature of 42 degrees F. during the 2019 study period, but the average daily temperature was 48 degrees F. during the 2015 study period. (Menne, 2019) The minimum temperature during the 2019 survey at MIA was 1 degree F. compared to a minimum of 21 degrees F. at MIA in 2015. Likewise, MIA received 3.8 inches of snow during the 2019 survey period while MIA received only 0.4 inches of snow during the 2015 survey period.

Q33. How many days did you ride a bicycle over the last 30 days?

Among only those 2019 Missoula area residents who reported bicycling in the past 30 days, the average number of days each of them rode was 11 in the past month. Figure 37 examines the frequency of bicycle riding among Missoula area bicyclers.

FIGURE 37: FREQUENCY OF BICYCLING (PAST MONTH)

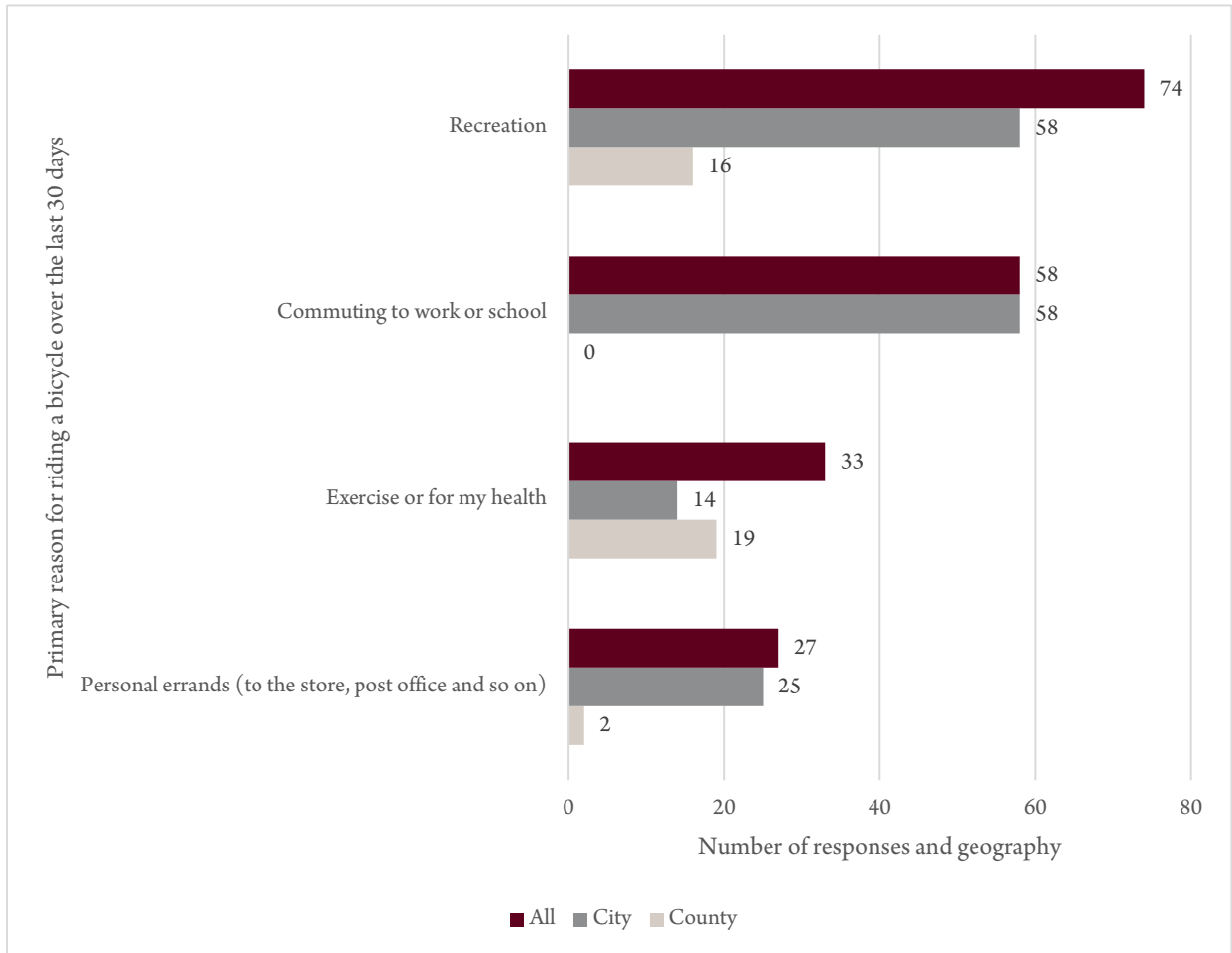


City residents who bicycle reported riding twice the number of days over the past month (12) compared with county riders (6). The average frequency of days ridden in the last month, by those who chose to ride at all, did not change from 2015 to 2019.

Q34. What was the primary reason for you to ride a bicycle over the last 30 days?

Missoula area bicyclers most often reported that their primary reason for riding a bicycle over the last 30 days was for recreation (74 total responses). Figure 38 presents the distribution of primary reasons for bicycling by the location of the rider’s residence.

FIGURE 38: PRIMARY REASONS FOR BICYCLING OVER THE PAST 30 DAYS

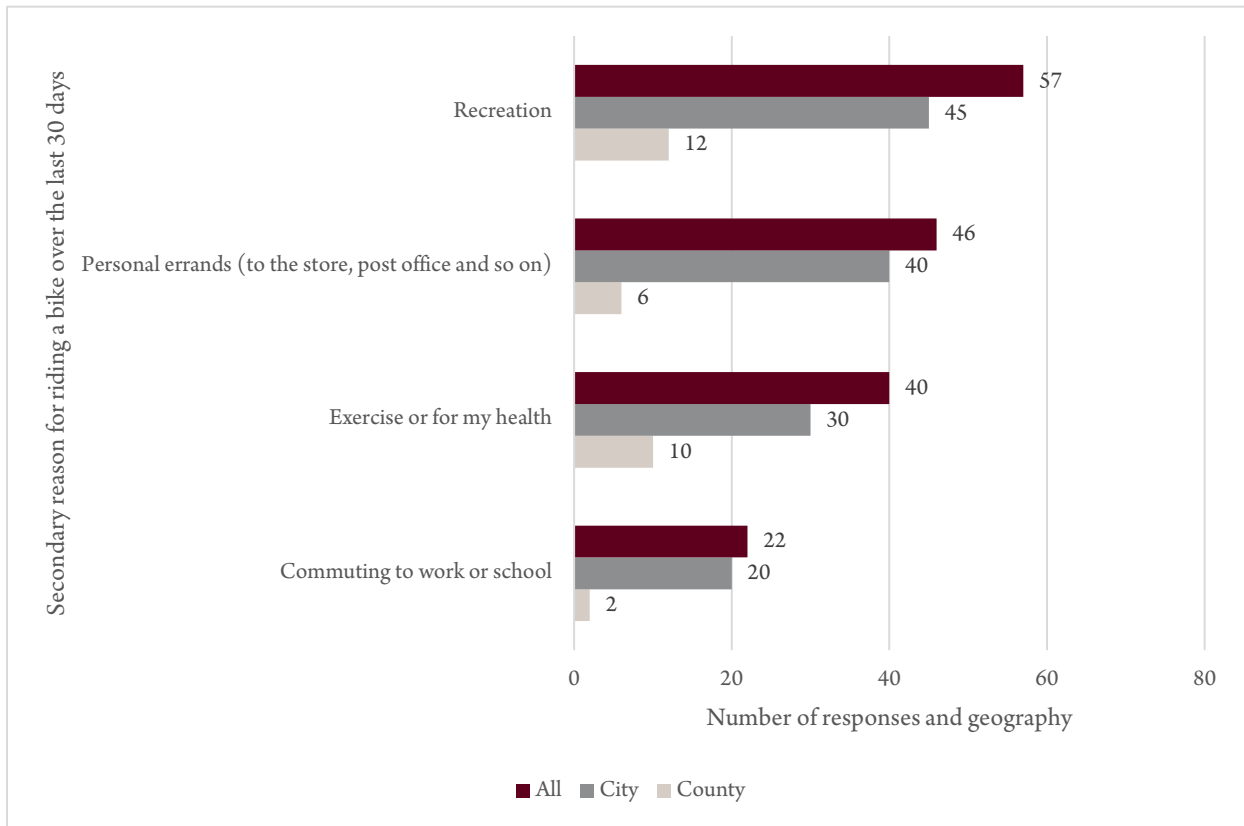


In the Missoula area commuting to work or school was the second most frequently cited reason for bicycling (58 responses). Riding for exercise received 33 responses and personal errands received 27 responses. There were significant differences in reasons for bicycling between city and county residents. Perhaps most striking was the fact that no (0) county residents reported that commuting was their primary reason for riding a bicycle. County residents most often said that their primary reason for riding a bicycle was exercise (19 responses) or recreation (16 responses).

Q35. What was a secondary reason for you to ride a bicycle over the last 30 days?

Missoula area bicyclers most often cited recreation (57 total responses) as a secondary reason for riding a bicycle over the past 30 days. Figure 39 presents the results to question 35.

FIGURE 39: SECONDARY REASONS FOR BICYCLING OVER THE PAST 30 DAYS

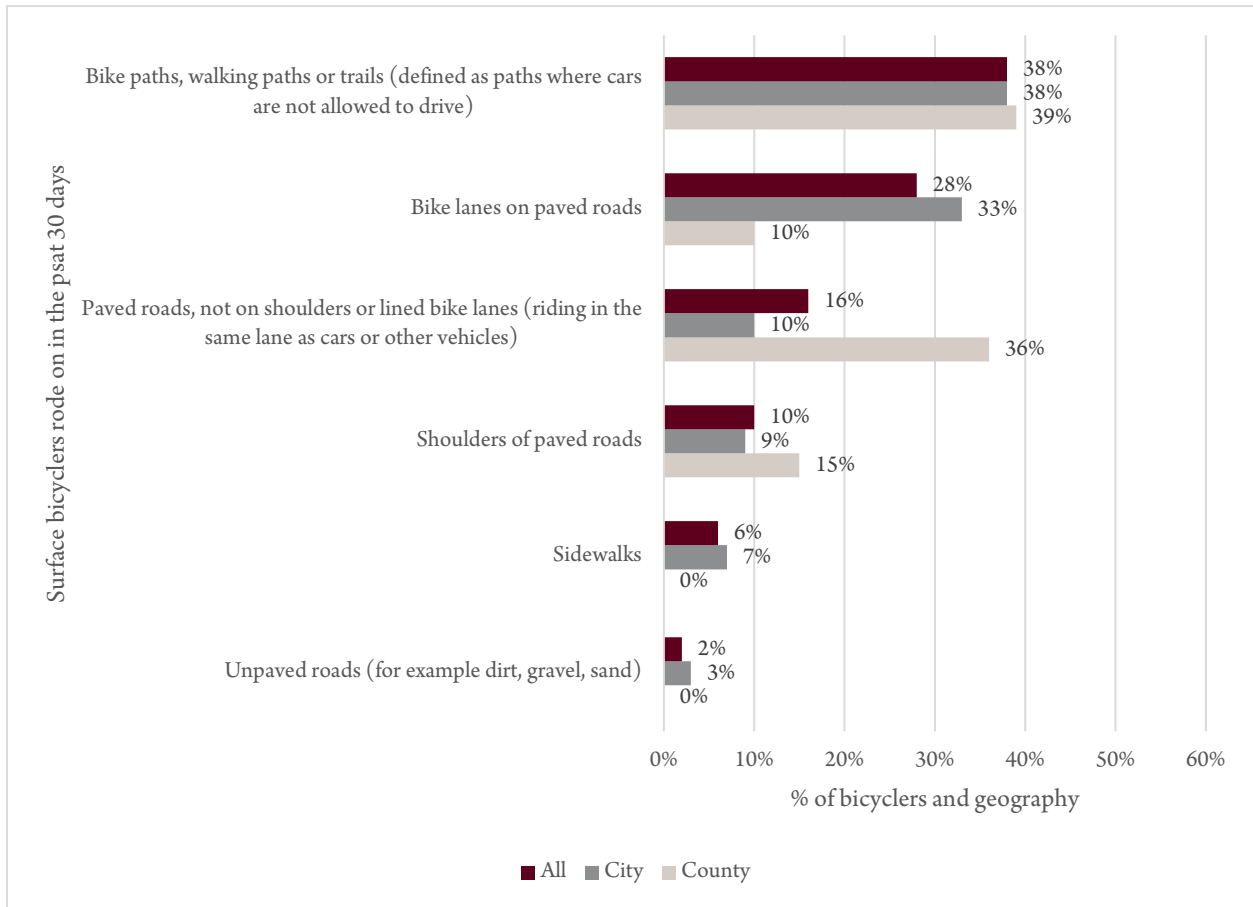


Personal errands (46 responses) and exercise (40 responses) were statistically tied as the second ranked additional reason for bicycling in the Missoula area. Among county residents the top ranked secondary reasons for bicycling were recreation (12 responses) and exercise (10 responses).

Q36. Did you bicycle mostly on?

Missoula area bicyclers reported most often riding on bike paths, walking paths or trails (38% of past 30-day bicycle riders). Figure 40 examines the proportions of Missoula bicyclers who reported riding on specific surfaces.

FIGURE 40: SURFACE BICYCLERS RODE ON IN THE PAST 30 DAYS

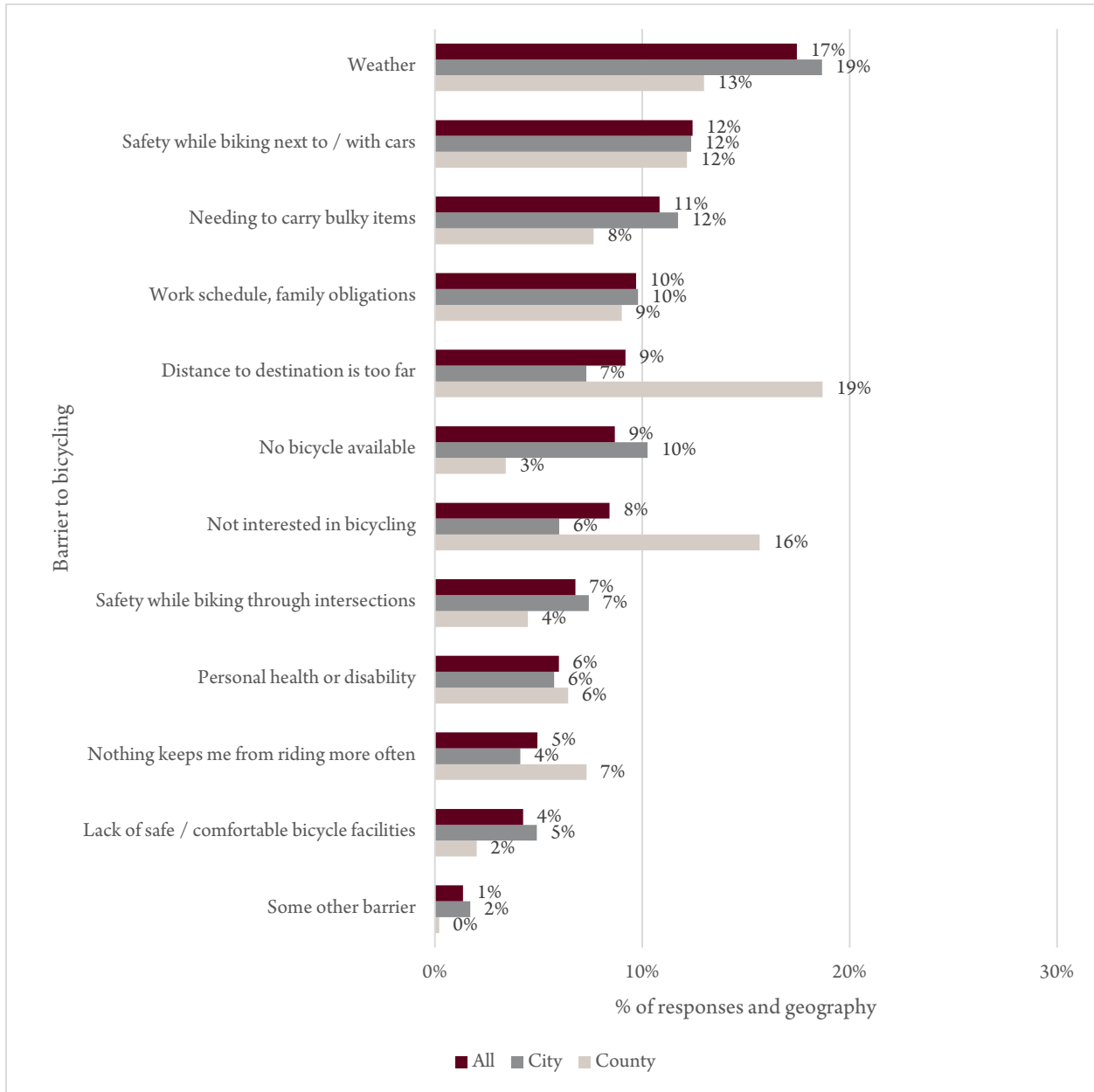


Missoula area bicyclers second most frequently ridden on surface (28%) was bike lanes on paved roads. The third most ridden on surface (16%) was paved roads (not on shoulders of lined bike lanes). There was a difference in the surfaces used by city and county riders. County riders' most often ridden on surfaces were bike paths (39% of county riders) and paved roads (36% of county riders).

Q37. What keeps you, if anything, from riding a bicycle more often?

Weather was the most commonly cited barrier (17% of all responses) to bicycling more often in 2019. Figure 41 below presents the barriers to bicycling cited by 2019 residents of the Missoula area.

FIGURE 41: BARRIERS TO BICYCLING

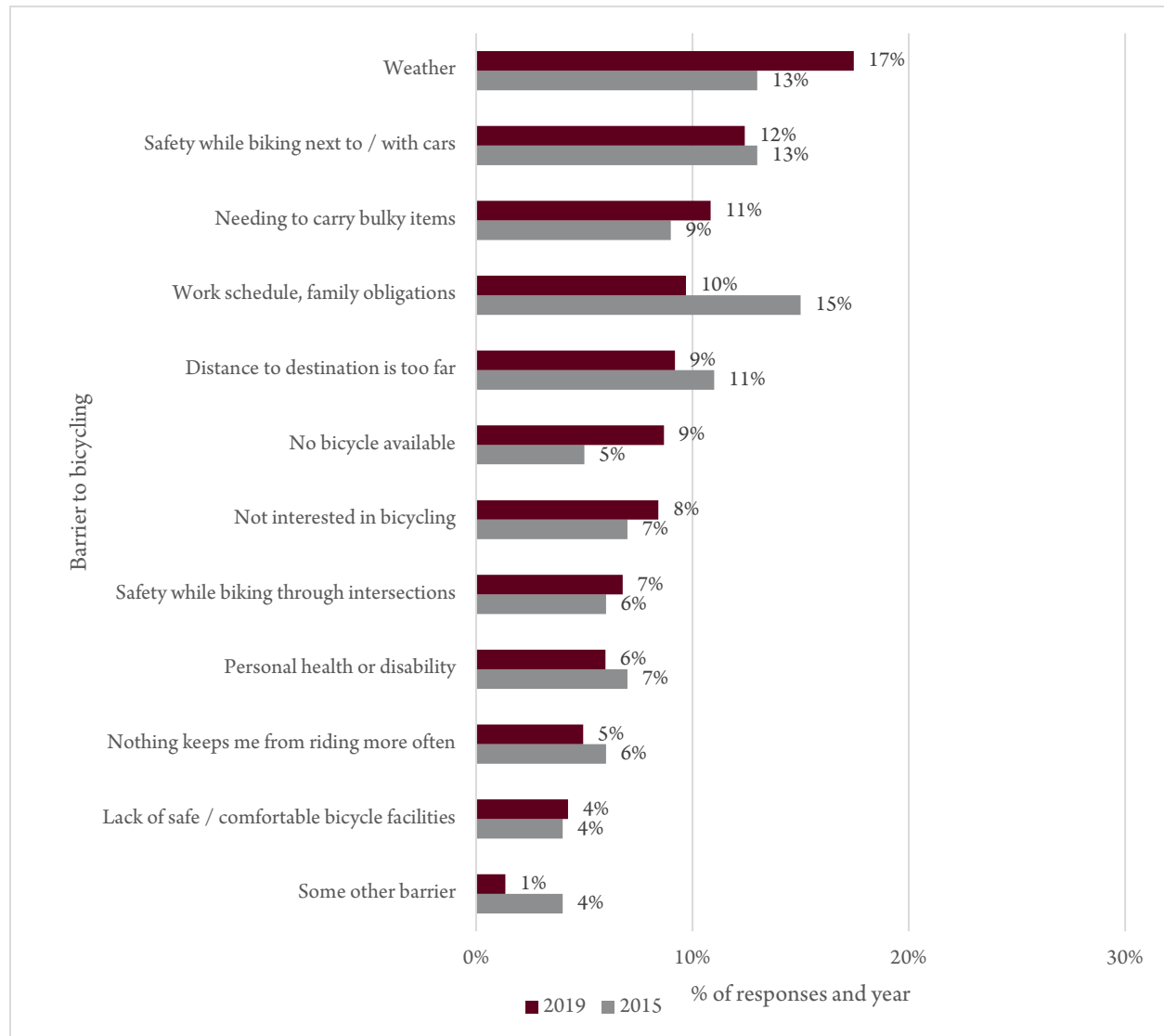


Two barriers were cited more often by county residents than city residents. First, 19% of the responses of county residents cited the distance to the destination. Second, 16% of county resident responses mentioned not being interested in bicycling.

Trend

Weather increased in rank from tied for 2nd most cited barrier in 2015 to 1st in 2019. Figure 42 illustrates the trends in reported barriers to bicycling in the Missoula area. Please see the section on results of question 32 above for a description of the possible impact of weather on answers to bicycling questions in 2019 and 2015.

FIGURE 42: TREND IN BARRIERS TO BICYCLING

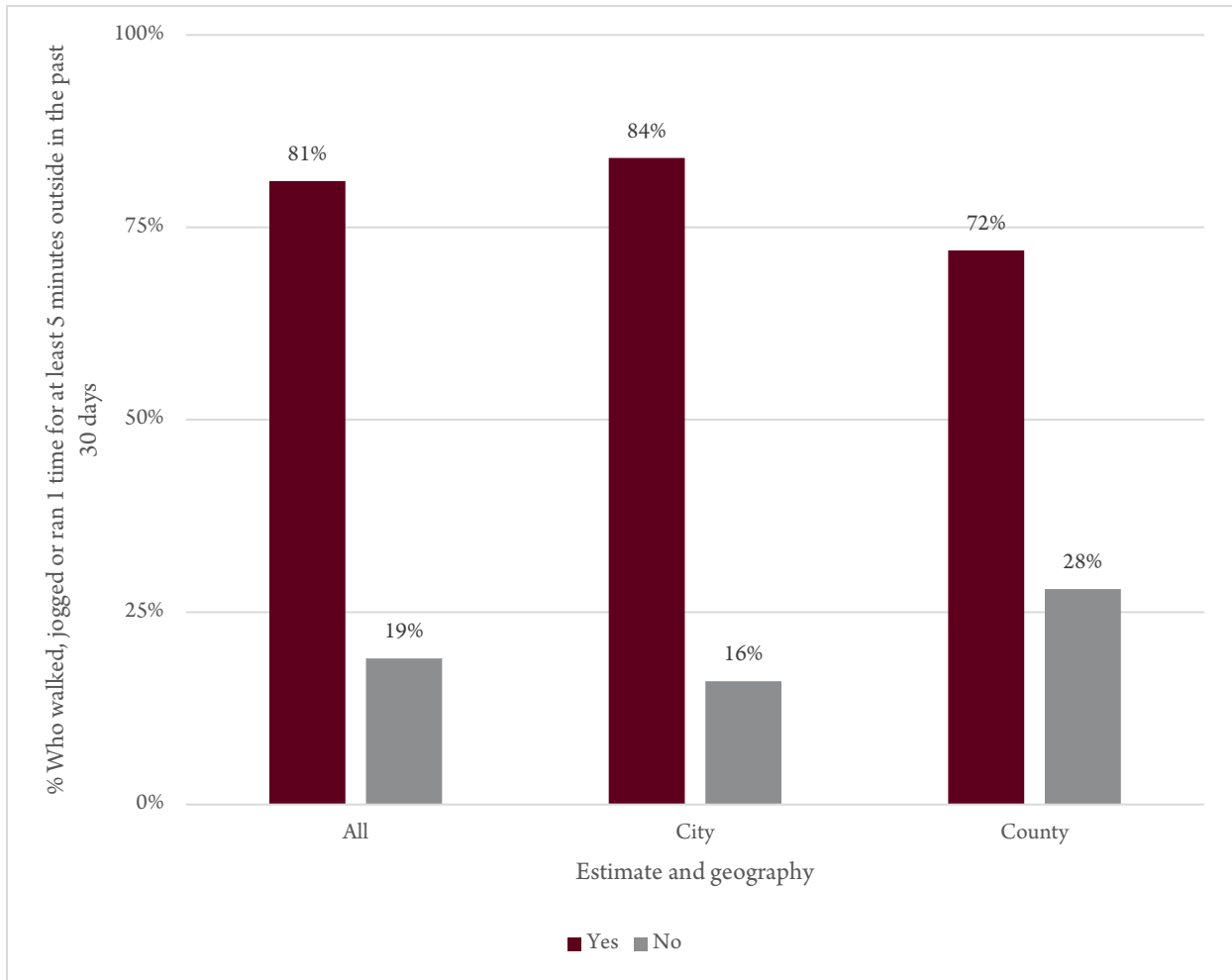


Work schedule or family obligations dropped to 4th in rank of barriers to bicycling in 2019 from 1st in 2015. No bicycle available rose to the 5th ranked barrier in 2019 from the 7th ranked barrier in 2015.

Walking, Running, or Jogging

Q38. During the last 30 days, did you walk, run, or jog at least one time outside for 5 minutes or more? Just over 4 out of every 5 adult Missoula area residents (81%) said they walked, jogged or ran outside for at least 5 minutes over the past 30 days. Figure 43 below illustrates the survey findings for question 38.

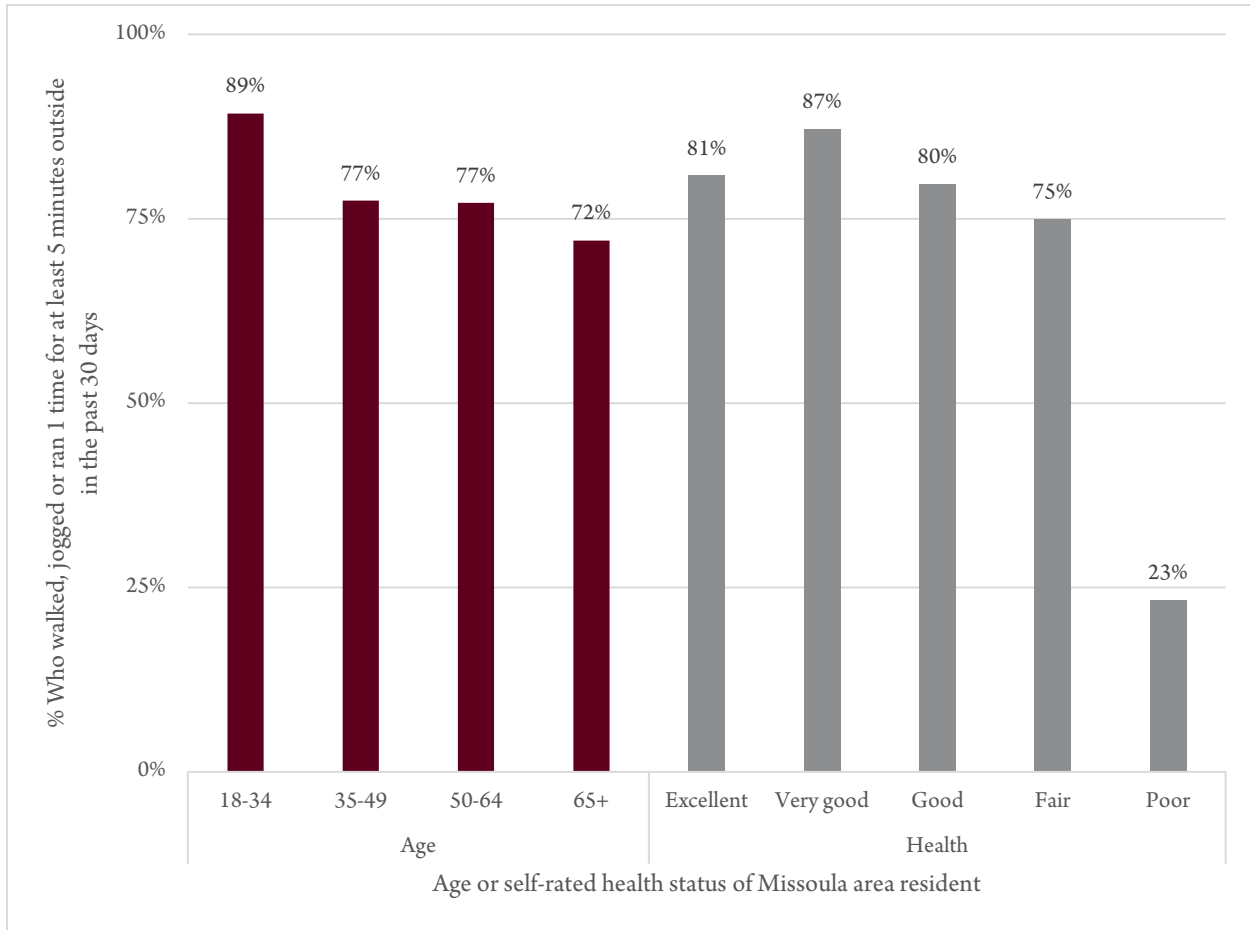
FIGURE 43: WALKED OR RAN OUTSIDE PAST 30 DAYS



More city residents (84%) reported walking, jogging, or running outside than did county residents (72%).

There is a correlation between the age or self-rated health status of Missoula area residents and their reports of walking, jogging or running outside. Figure 44 displays these correlations.

FIGURE 44: RELATIONSHIP BETWEEN AGE OR HEALTH STATUS AND PREVALENCE OF WALKING OR RUNNING OUTSIDE

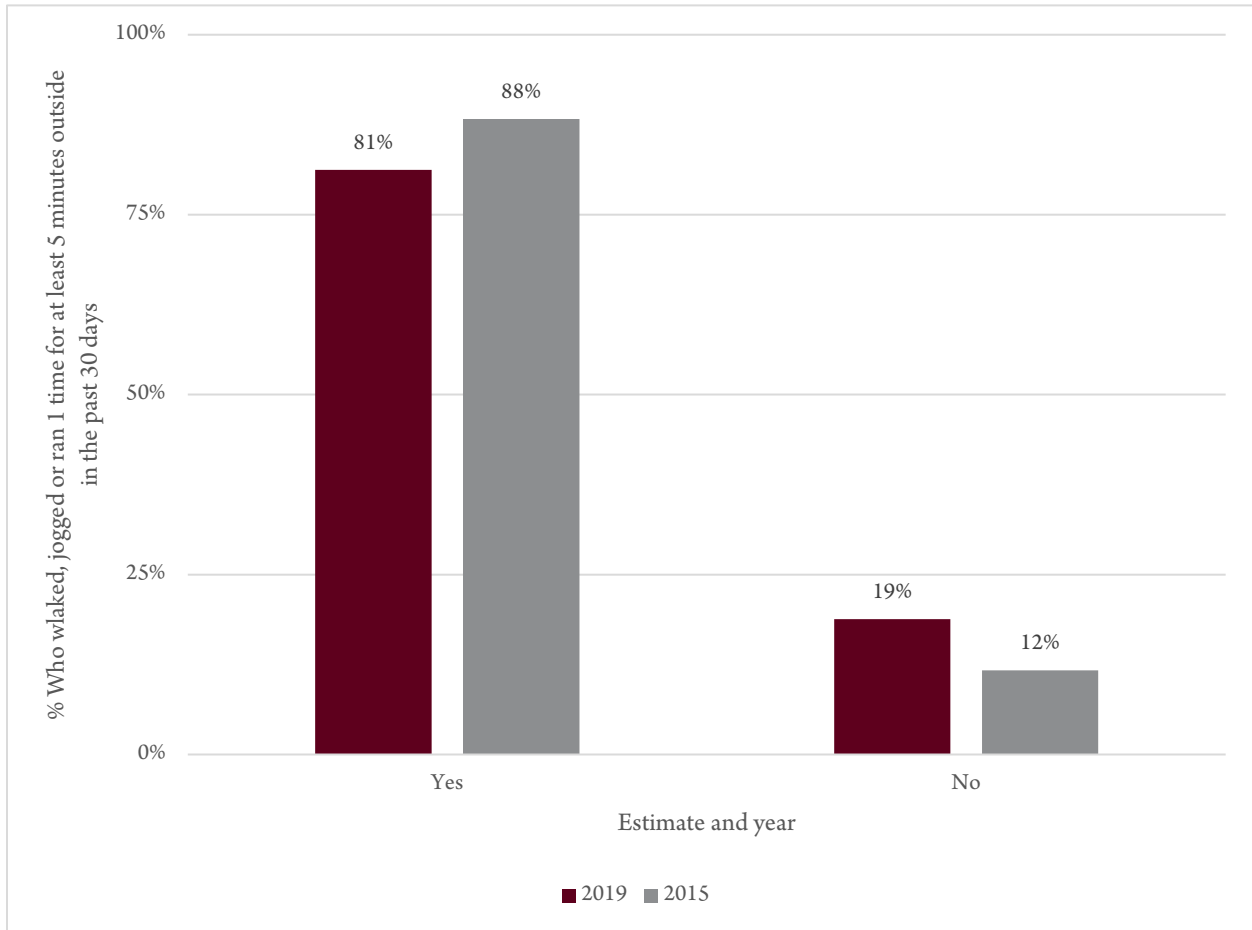


The prevalence of past 30-day walking, jogging or running outside declines somewhat in the Missoula area as the age of residents increases. While 89% of 18-34 year olds reported past 30-day walking, jogging or running outside, the prevalence declines to 72% among residents ages 65 or older. The relationship is markedly different between health status and walking, jogging or running outside. Missoula area residents who describe their health status as poor are much less likely to walk, jog or run outside than are other residents. Only 23% of residents in poor health reported walking, jogging or running outside in the past 30 days. The past 30-day walking, jogging or running outside prevalence rates for residents with better health statuses range from 75% to 87%.

Trend

The overall prevalence in the Missoula area of past 30-day walking, jogging or running outside declined slightly to 81% in 2019 from 88% in 2015. The decline is statistically significant. Figure 45 below shows this trend.

FIGURE 45: TREND IN PAST 30-DAY WALKING, JOGGING OR RUNNING OUTSIDE

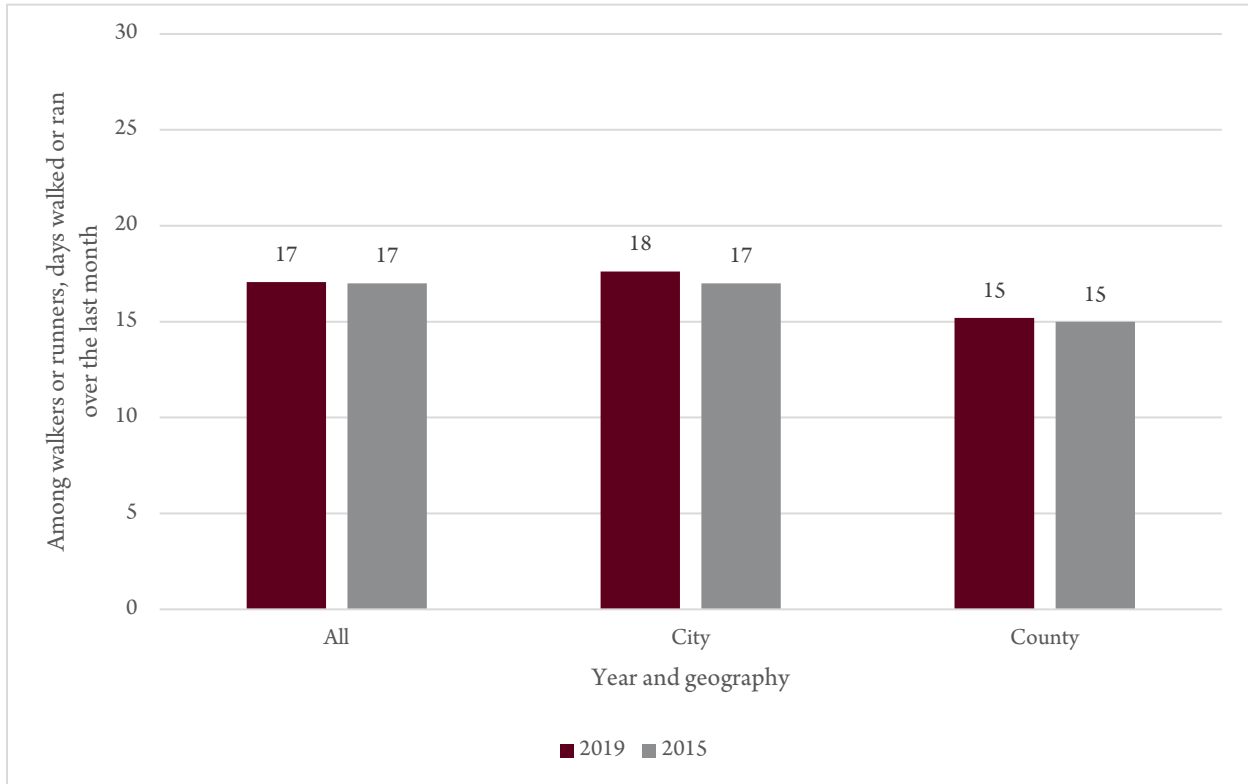


It is likely that colder and snowier weather during the 2019 study period contributed to this decline. Please see the section on results of question 32 above for a description of the possible impact of weather on answers to questions in 2019.

Q39. How many days did you walk, run or jog over the last 30 days?

Among Missoula area residents who walked, jogged or ran over the last 30 days, adults walked or ran on an average of 17 days out of the previous 30. Figure 46 presents the average number of days per month residents walk or run (among the population of walkers and runners).

FIGURE 46: FREQUENCY OF WALKING OR RUNNING (PAST MONTH)

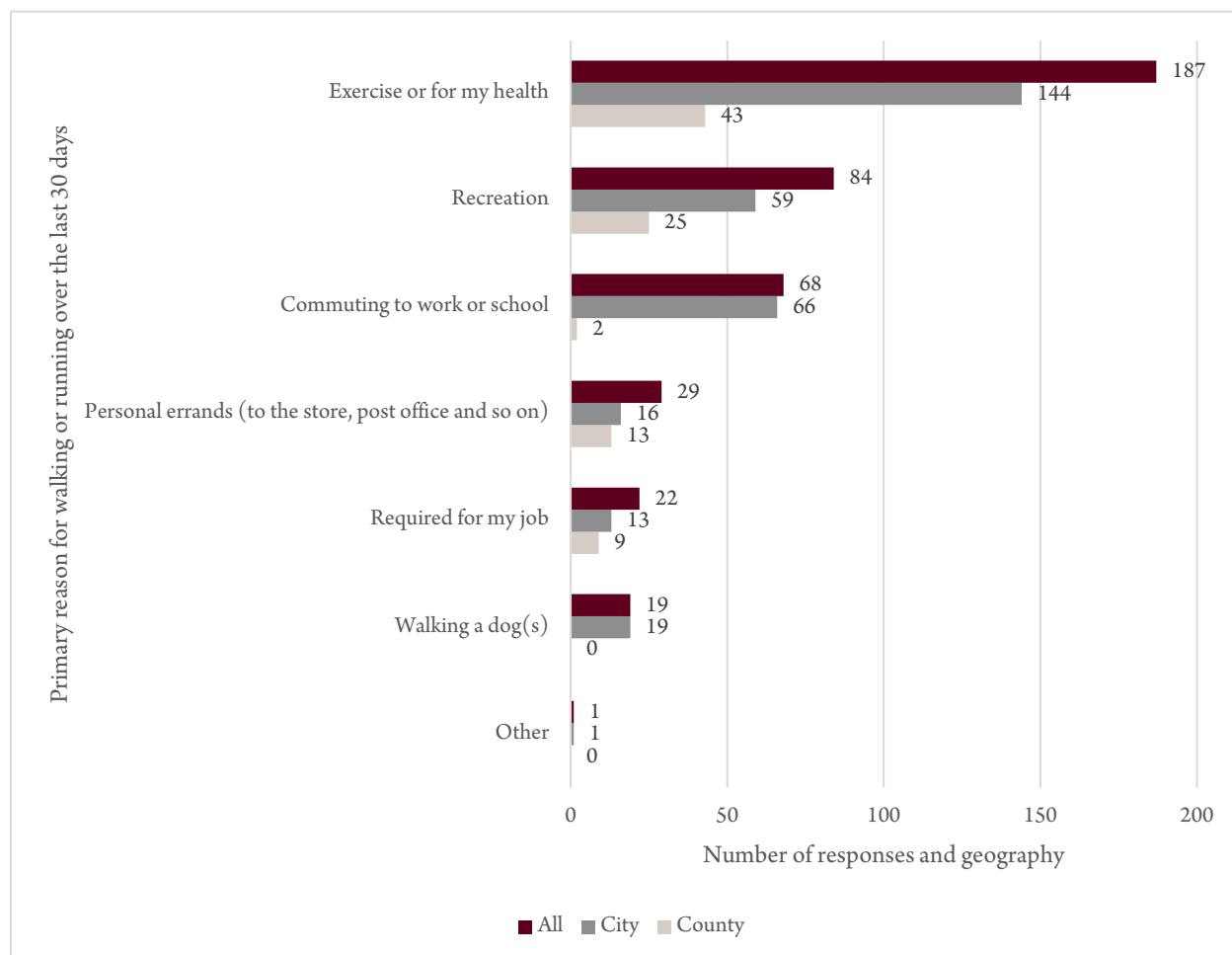


There was no statistically significant difference between the average reported by city walkers or runners (18) and the average reported by county walkers or runners (15). There also was no change in the frequency of walking or running among those who run or walk over the period 2015-2019.

Q40. What was the primary reason for you to walk, run, or jog over the last 30 days?

Missoula area residents most often said (187 responses) that exercise or their health was their primary reason for walking or running. Figure 47 below presents Missoula area residents' primary reasons for walking or running.

FIGURE 47: PRIMARY REASON FOR WALKING OR RUNNING OVER THE PAST 30 DAYS

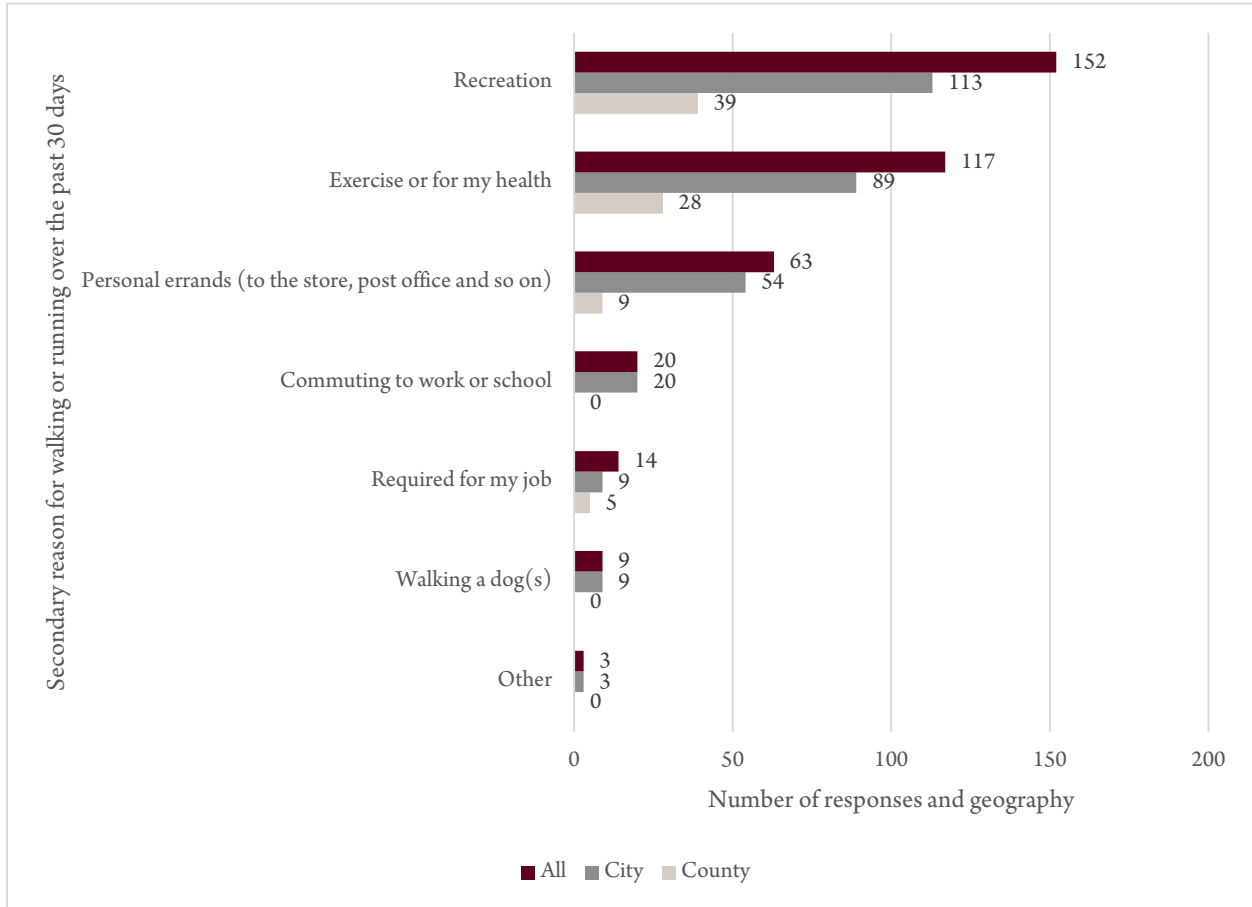


Recreation was the next most often cited primary reason for walking or running (84 responses), followed by commuting to work or school (68 responses). There is a difference in primary reasons cited by city versus county residents. City residents were much more likely (66 responses) to cite commuting to work or school as a primary reason than were county residents (2 responses). City residents were also much more likely (19 responses) to say their primary reason for walking or running was walking a dog, compared with county residents (0 responses).

Q41. What was a secondary reason for you to walk, run, or jog over the last 30 days?

Recreation was the most commonly cited (152 responses) secondary reason for Missoula area residents to walk or run. Figure 48 below presents Missoula area residents' secondary reasons for walking or running.

FIGURE 48: SECONDARY REASON FOR WALKING OR RUNNING OVER THE PAST 30 DAYS

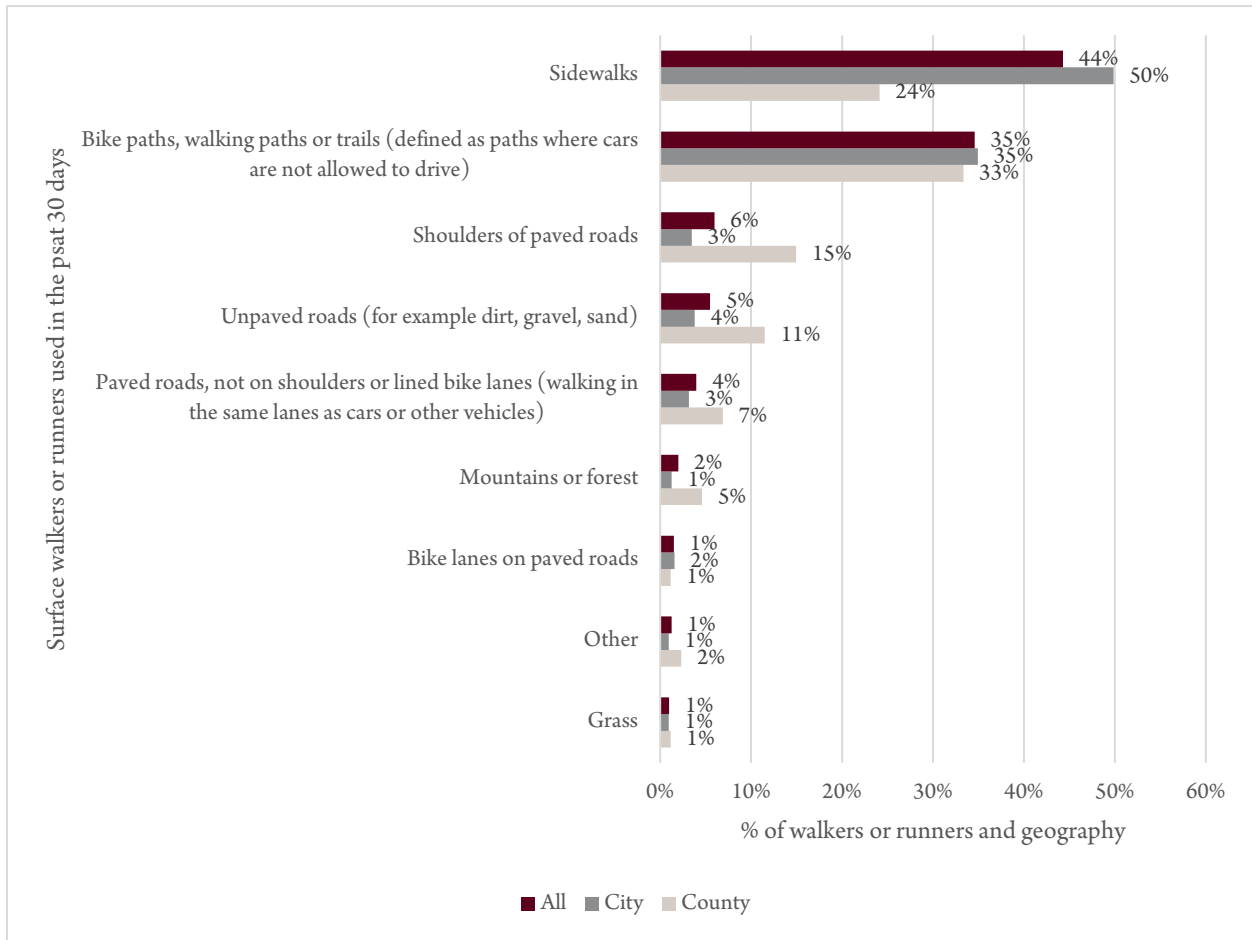


Exercise or health reasons were mentioned 117 times by respondents as a secondary reason for walking or running. Personal errands were cited 63 times as a secondary reason. County residents were less likely than city residents to mention personal errands, commuting to work or school, or walking a dog as a secondary reason.

Q42. Did you walk, run, or jog mostly on?

Missoula area residents as a whole most often walk or run on sidewalks (44% of walkers or runners and 50% of city walkers or runners). However, county residents were most likely to report walking or running on bike paths, walking paths or trails (33% of county walkers or runners). Figure 49 below illustrates Missoula area residents' choice of surface for walking or running.

FIGURE 49: SURFACE WALKERS OR RUNNERS USED IN THE PAST 30 DAYS

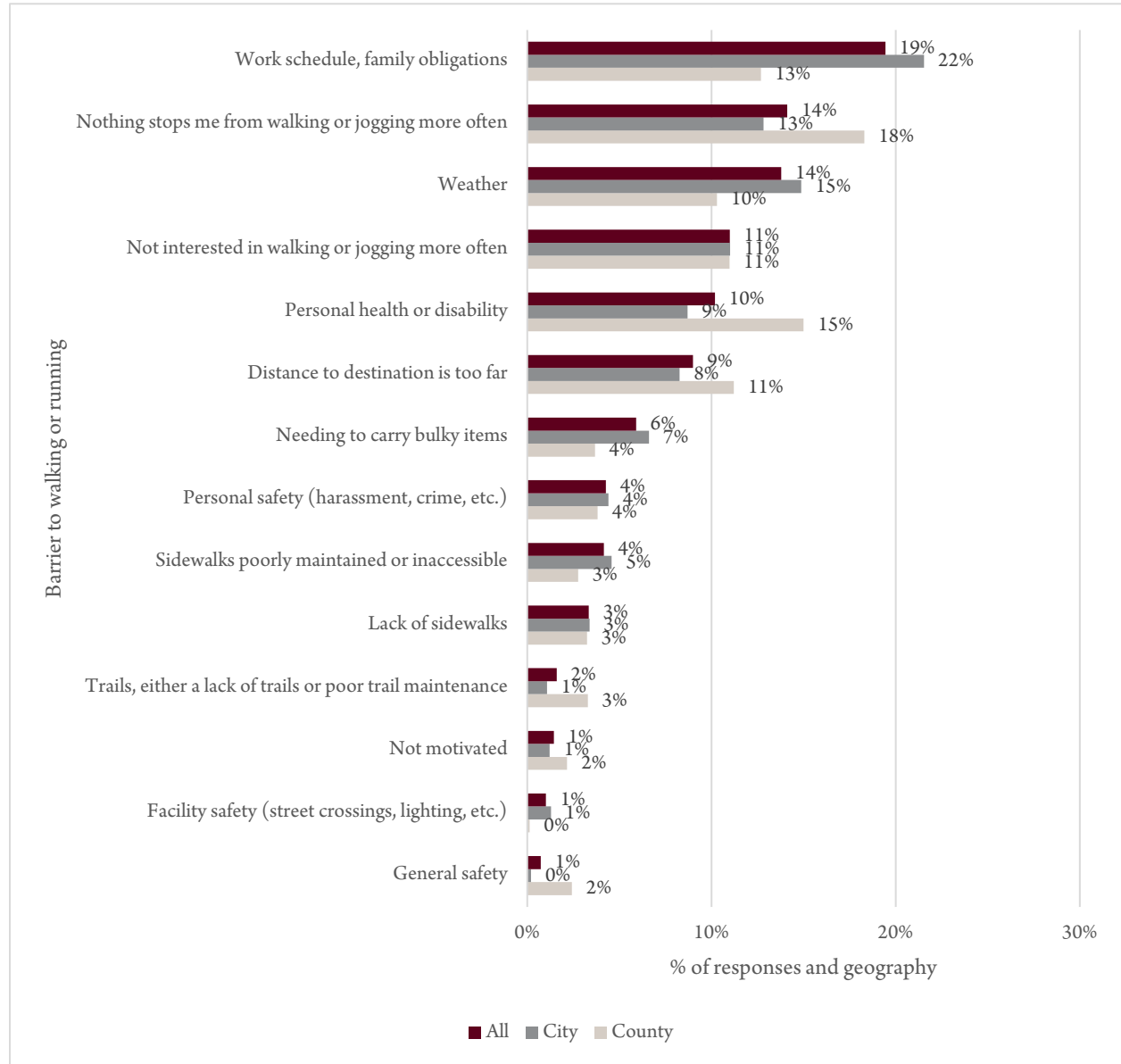


County walkers or runners were also slightly more likely than city walkers or runners to report using paved roads, the shoulders of paved roads and unpaved roads.

Q43. What keeps you, if anything, from walking or jogging more often?

The most often cited barrier to walking or running by Missoula area residents is work schedule or family obligations (19% of all responses). Figure 50 presents the barriers to walking or running in the Missoula area.

FIGURE 50: BARRIERS TO WALKING OR RUNNING

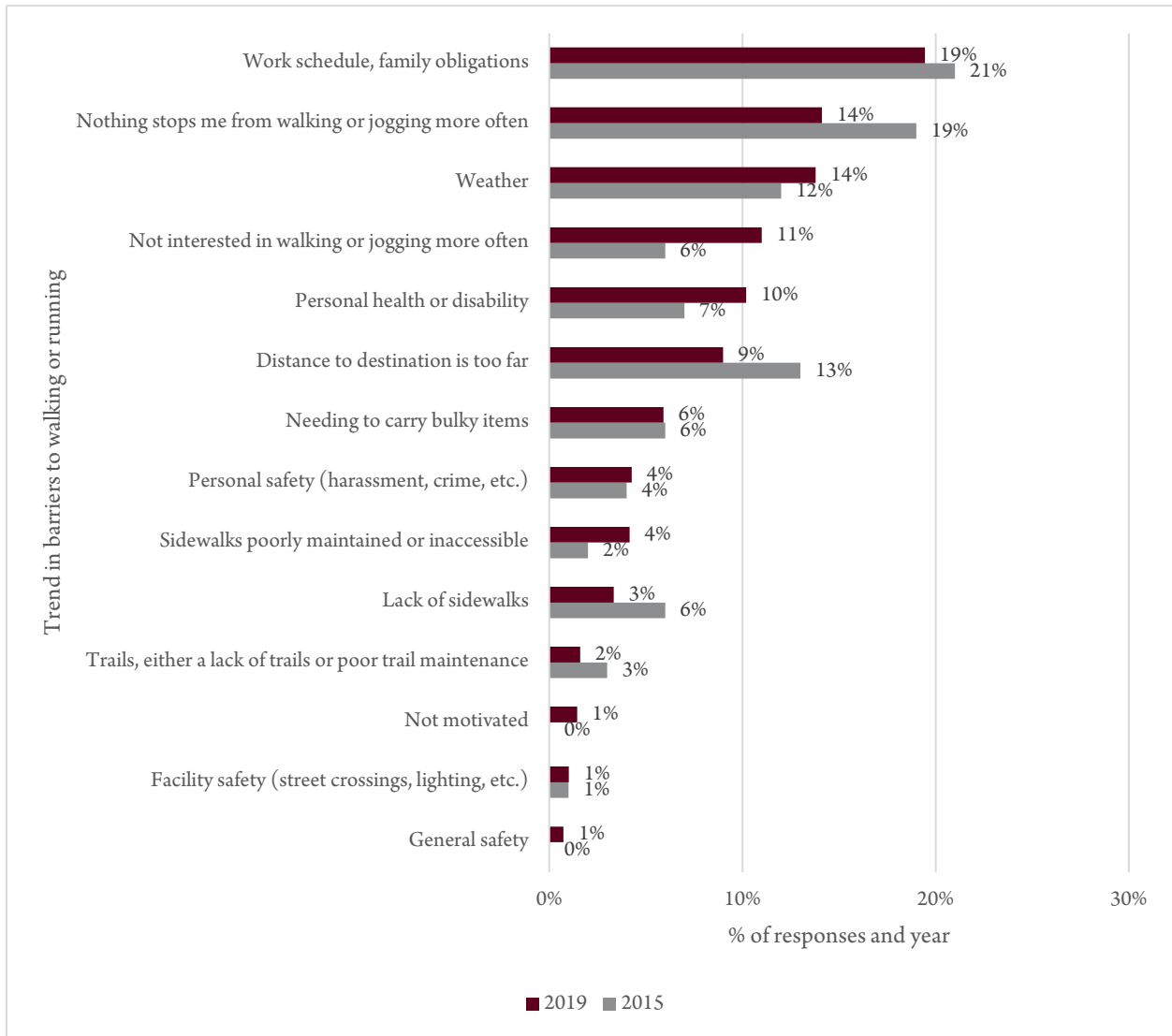


Weather was the second most often cited barrier to walking or running (14%) and lack of interest in walking or running was 3rd (11%). Slightly more county residents (15%) than city residents (9%) said that their barrier to walking or running is personal health or disability.

Trend

Work schedule or family obligations remained the top barrier in 2019 (19% of responses) to Missoula area residents walking or running, as it was in 2015 (21% of responses). Figure 51 displays the trends in barriers to walking or running in the Missoula area.

FIGURE 51: TREND IN BARRIERS TO WALKING OR RUNNING



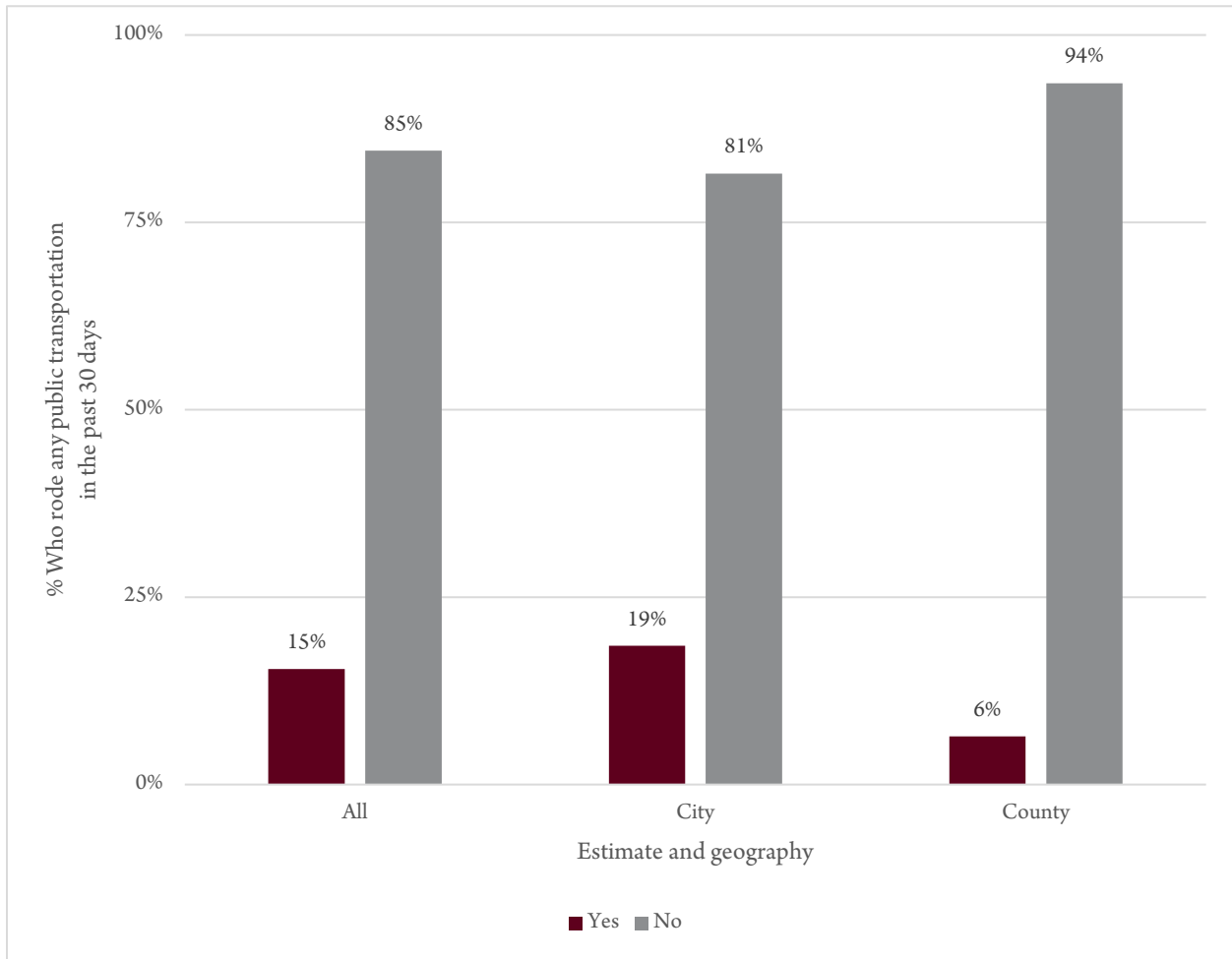
Weather moved from the 4th ranked barrier in 2015 to a tie for the 2nd ranked barrier in 2019. Lack of interest in walking or running moved to the 3rd ranked barrier in 2019 from 5th in 2015.

Riding Public Transportation

Q44. During the last 30 days, did you ride on any public transit within the Missoula area?

About 15% of Missoula area residents reported riding any form of public transportation in the last 30 days. Figure 52 below presents the 2019 results to question 44.

FIGURE 52: RODE ANY PUBLIC TRANSPORTATION PAST 30 DAYS

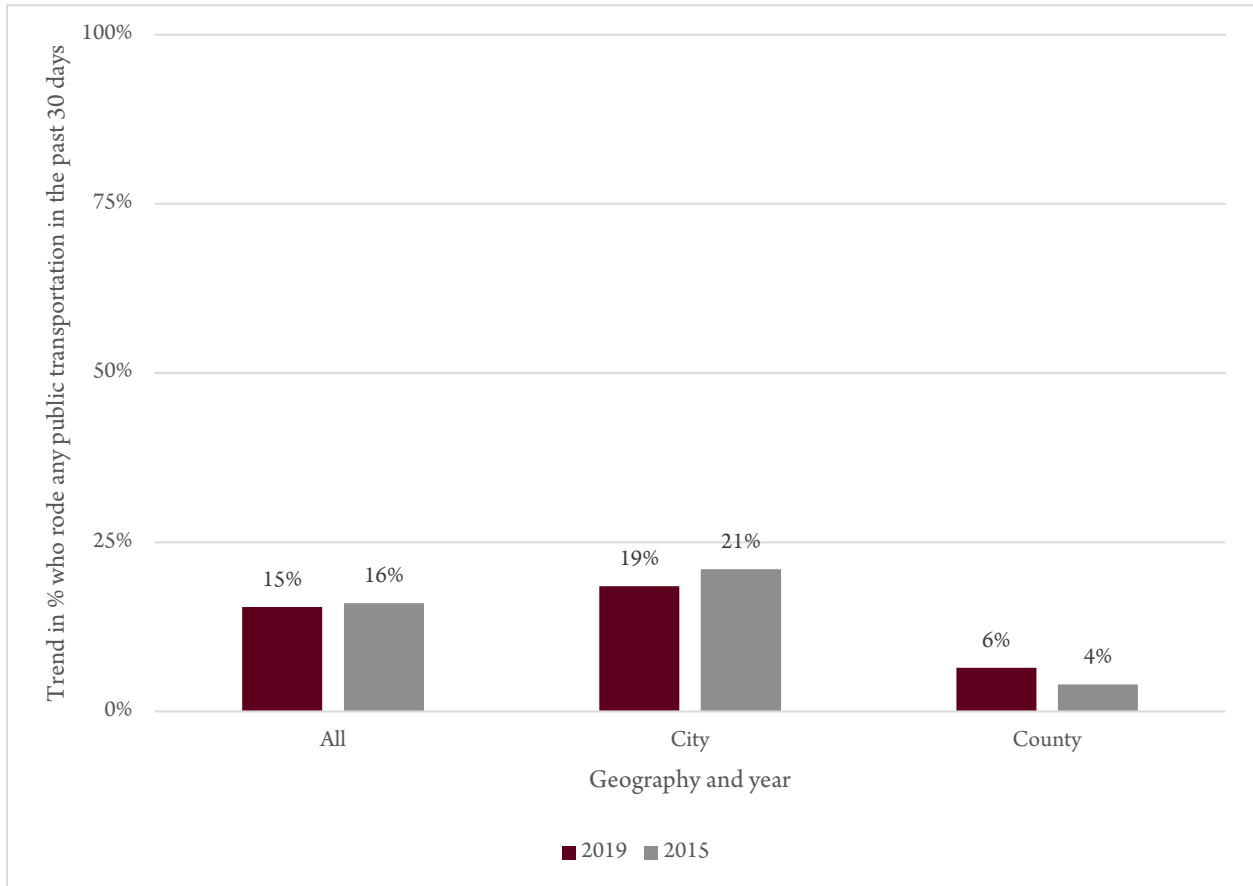


City residents (19%) were more likely than were county residents (6%) to report riding on public transportation in the past 30 days. In fact, city residents were about 3 times as likely to ride public transportation as county residents.

Trend

There was no significant difference in the overall 30-day prevalence of public transportation ridership among Missoula area residence from 2015 to 2019. Figure 53 below illustrates this trend.

FIGURE 53: TREND IN PAST 30-DAY PUBLIC TRANSPORTATION RIDERSHIP

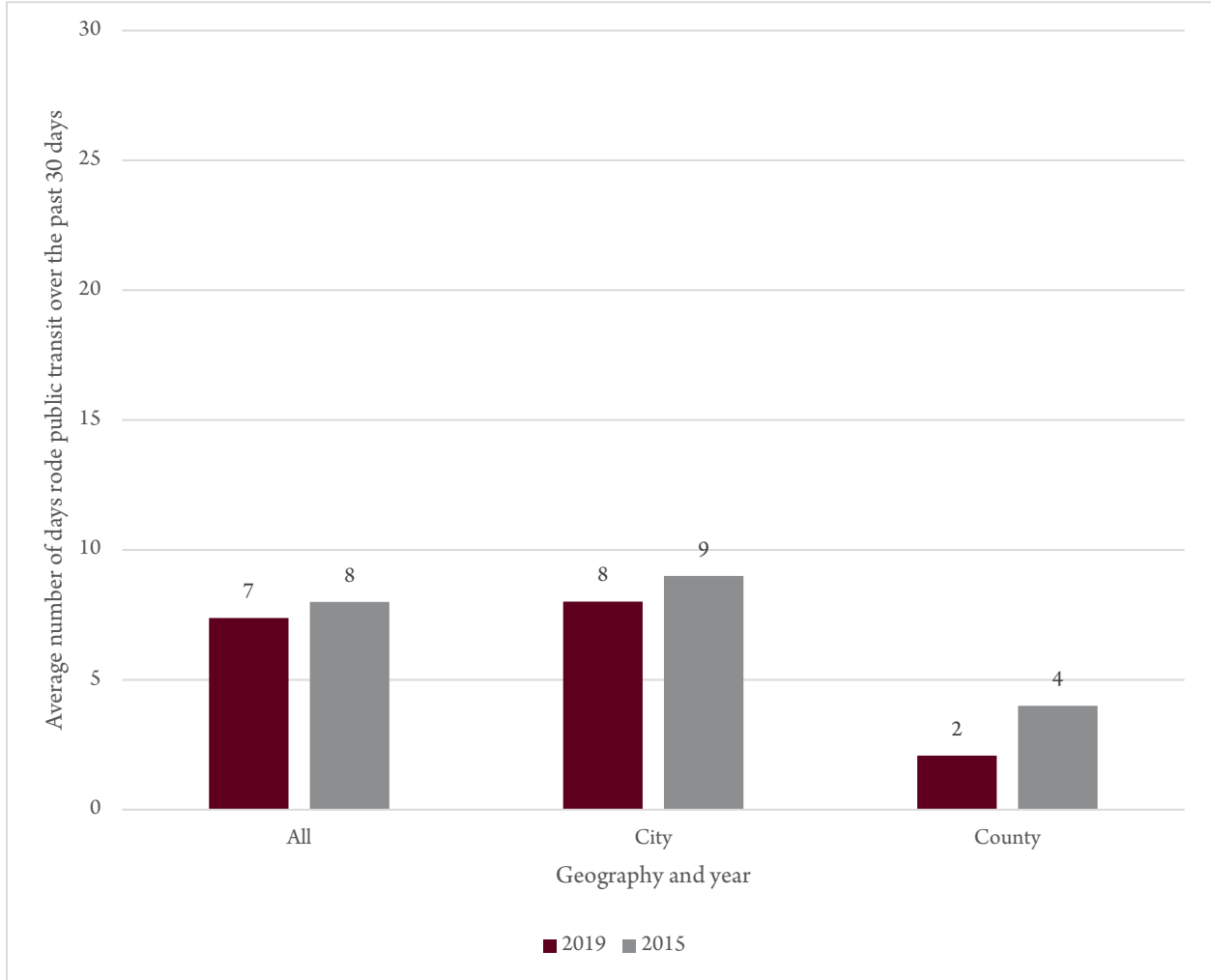


While the point estimates from the 2019 survey slightly differ from those of the 2015 survey, none of the differences exceed the margin of sampling error for both surveys.

Q45. How many of the last 30 days did you use public transit?

Missoula area public transit users reported riding on an average of 7 days over the past 30 days. Figure 54 illustrates the average daily frequency of public transit ridership in the Missoula area.

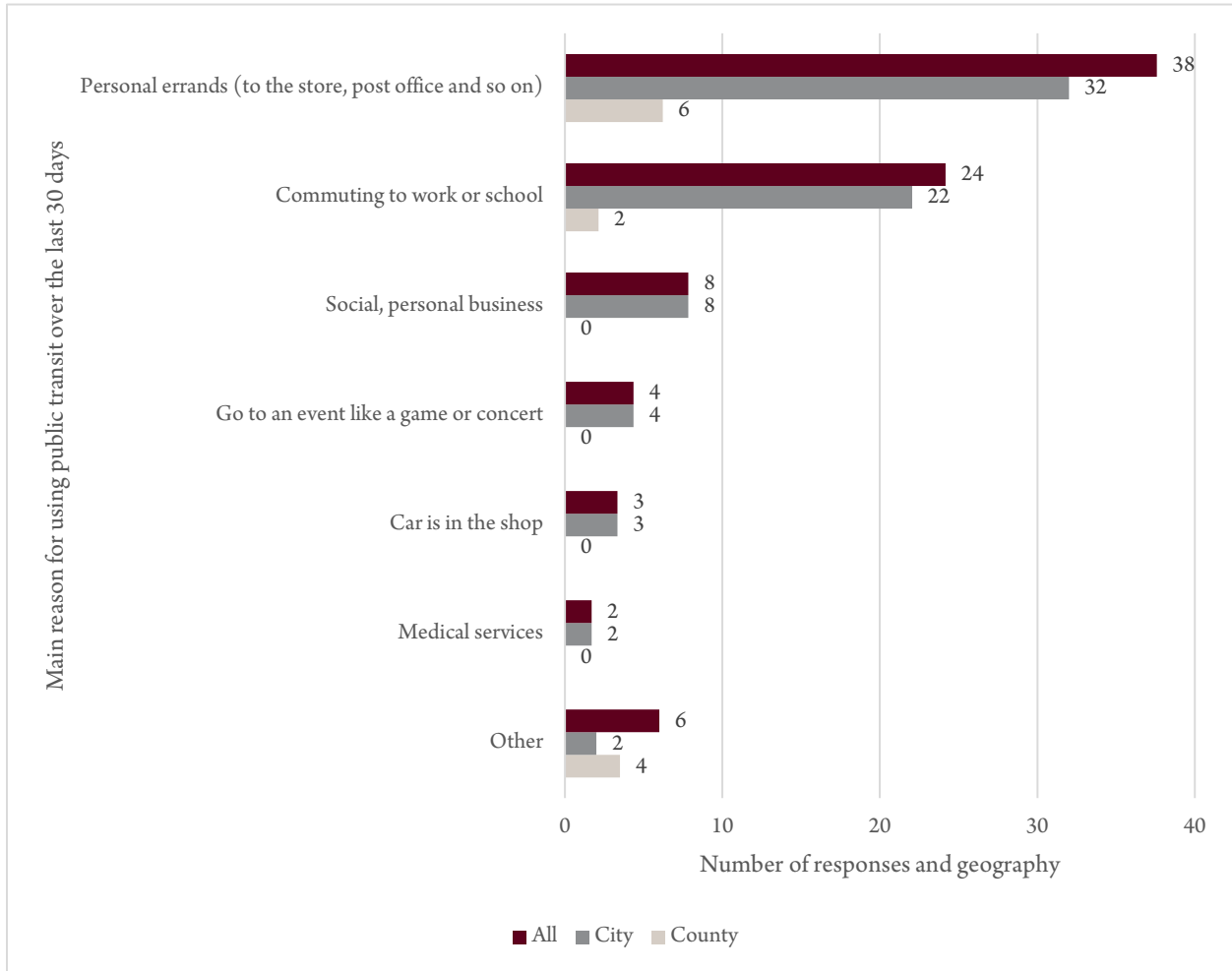
FIGURE 54: FREQUENCY OF RIDING PUBLIC TRANSIT PAST 30 DAYS



There is a difference between the frequency of days ridden between city and county residents. City public transit riders reported riding an average of 8 days over the past 30, while county riders reported riding an average of 2 days over the past 30. There was no statistically significant difference between the 2019 survey estimates and the 2015 survey estimates.

Q46. What was the main reason for you to use public transit over the last 30 days?
 Missoula area transit riders most often cited (38 responses) going on personal errands as the main reason they rode public transit over the last 30 days. Figure 55 presents the responses to question 46.

FIGURE 55: MAIN REASON FOR RIDING PUBLIC TRANSIT OVER THE PAST 30 DAYS



Commuting to work or school was the 2nd ranked (24 responses) main reason for using public transit. Social or personal business was 3rd ranked (8 responses). County riders only mentioned personal errands or commuting as main reasons for using public transit.

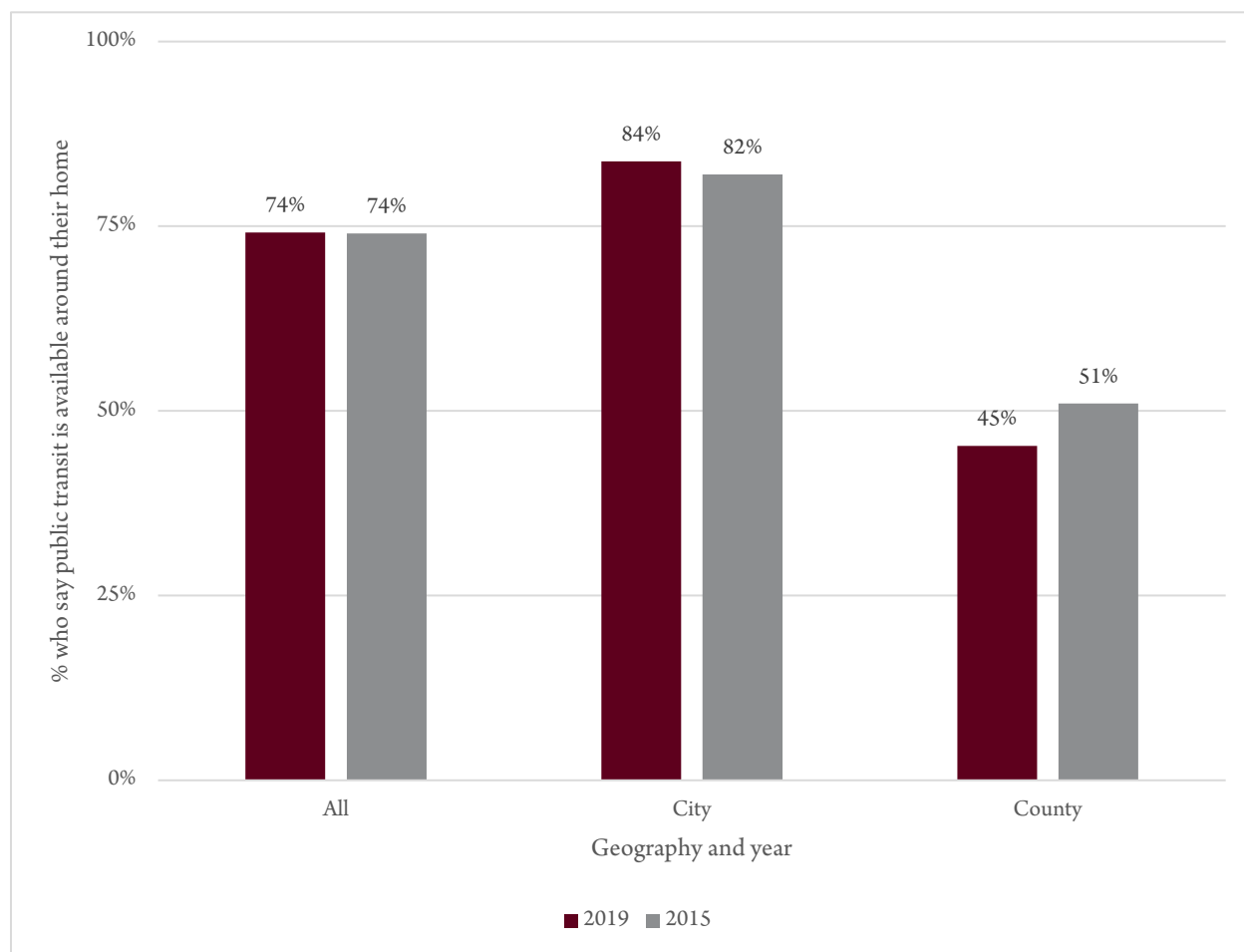
Q47. What was a secondary reason for you to use public transit over the last 30 days?

Missoula area public transit riders most often cited (20 responses) doing personal errands as a secondary reason for public transit riding over the last 30 days. Going to medical services was mentioned by 8 respondents, traveling for personal or social business was cited by 3 respondents, commuting was cited by 1 respondent, and 8 other responses were unclassifiable.

Q48. Is public transit available in the area around where you currently live or stay?

About three-quarters of Missoula area residents (74%) reported that public transit is available around where they live. Just over one in every five area residents (21%) said that public transit is not available around where they live, and 5% said that they didn't know whether public transit was available around where they live. Figure 56 below describes area residents' perceptions about the availability of public transit around their home.

FIGURE 56: PERCEIVED AVAILABILITY OF PUBLIC TRANSIT AROUND RESIDENTS' HOME

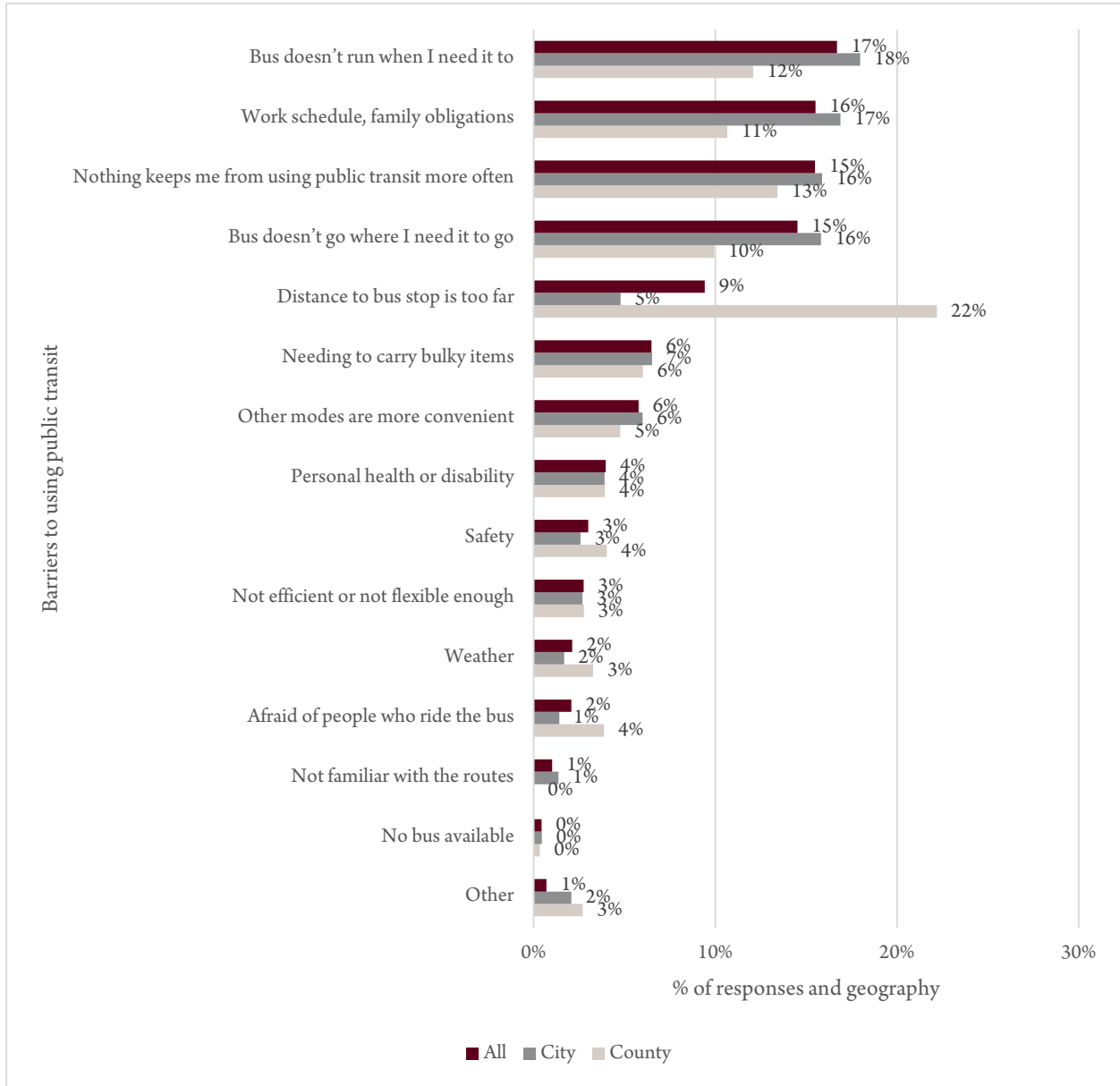


Significantly more city residents (84%) reported that public transit is available around their home than did county residents (45%). The slight changes from 2015 to 2019 in the point estimates for perceived availability did not exceed the combined sampling error rate for both surveys.

Q49. What keeps you, if anything, from using public transit more often?

The most often cited barrier (17% of all responses) to using public transit more was that the bus doesn't run when I need it to. Figure 57 below presents Missoula area residents' views on barriers to using public transit more.

FIGURE 57: BARRIERS TO USING PUBLIC TRANSIT

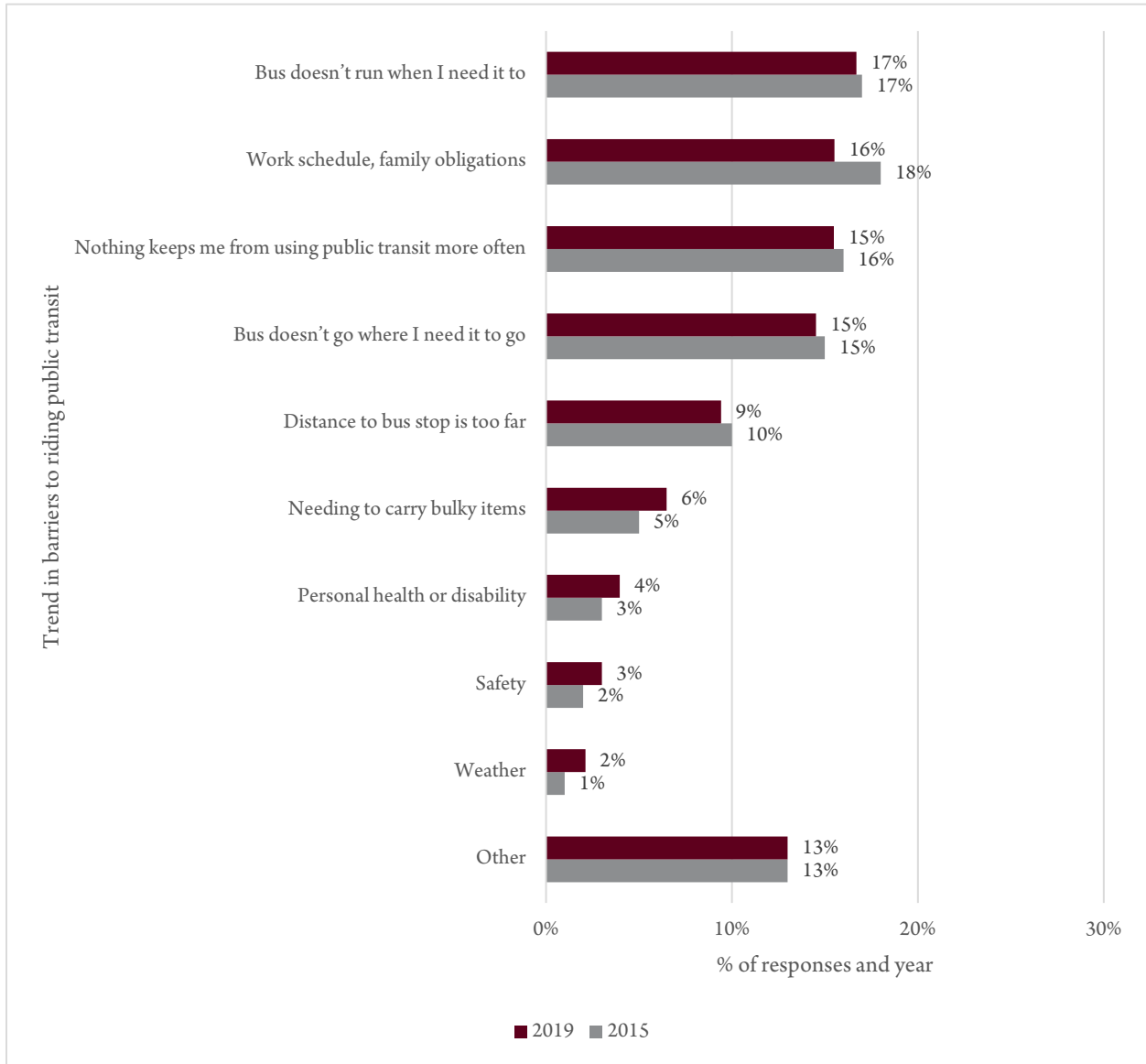


Residents' work schedule or family obligations was the 2nd ranked barrier (16% of responses). The bus not going where I need it to go was the 3rd ranked barrier (15%). County residents (22% of county responses) were more likely than city residents (5% of city responses) to report that the distance to the bus stop is too far.

Trend

There was no change in the rankings of reported barriers to riding public transit among Missoula area residents from 2015 to 2019. Figure 58 below illustrates this trend.

FIGURE 58: TREND IN BARRIERS TO RIDING PUBLIC TRANSIT



The 2019 survey estimates and the 2015 estimates are remarkably consistent. None of the small differences in the survey point estimates exceed the two surveys' combined sampling error rates.

Works Cited

- AAPOR. (2016). *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. 9th edition. Chicago, IL: AAPOR.
- Battaglia, M., Dillman, D., Frankel, M., Harter, R., Buskirk, T., McPhee, C., . . . Yancy, T. (2016). Sampling, Data Collection, and Weighting Procedures for Address-Based Sample Surveys. *Journal of Survey Statistics and Methodology*, vol. 4, 476-500.
- Berglund, P., & Heeringa, S. (2014). *Multiple Imputation of Missing Data Using SAS*. Cary, N.C.: SAS Institute Inc.
- Brick, M. (2013). Unit nonresponse and weighting adjustments: a critical review. *Journal of Official Statistics*, vol. 29, 329-353.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, N.J.: John Wiley & Sons, Inc.
- Federal Highway Administration, Office of Highway Policy Information. (2018, December 15). *Highway Statistics 2018*. Retrieved from DL-201: <https://www.fhwa.dot.gov/policyinformation/statistics/2018/>
- Haziza, D., & Beaumont, J.-F. (2017). Construction of Weights in Surveys: A Review. *Statistical Science*, vol. 32, 206-226.
- Haziza, D., & Lesage, E. (2016). A discussion of weighting procedures for unit nonresponse. *Journal of Official Statistics*, vol. 32, 129-145.
- Kalton, G., & Flores-Cervantes, I. (2003). Weighting methods. *Journal of Official Statistics*, vol. 19, 81-97.
- Kish, L., & Frankel, M. (1974). Inference from Complex Samples. *Journal of the Royal Statistical Society. Series B (methodological)*, 1-37.
- Kreuter, F., & Olson, K. (2013). Paradata for Nonresponse Error Investigation. In F. Kreuter, *Improving Surveys with Paradata: Analytic Uses of Process Information* (pp. 13-42). Hoboken, New Jersey: John Wiley & Sons.
- Lavallee, P., & Beaumont, J.-F. (2016). Weighting Principles and Practicalities. In C. Wolf, D. Joye, T. Smith, & Y.-C. Fu, *The Sage Handbook of Survey Methodology* (pp. 460-476). Sage.
- Menne, M. I. (2019, December 31). *Global Historical Climatology Network - Daily (GHCN-Daily)*, Version 3.26. . Retrieved from NOAA National Climatic Data Center: <http://doi.org/10.7289/V5D21VHZ>
- Montana Secretary of State. (2019, September 17). Statewide Voter File - Missoula County Only. Helena, Montana, USA.
- Olson, K. (2013). Paradata for Nonresponse Adjustment. *The Annals of the American Academy of Political Science and Social Science*, 142-170.
- Rao, J., Hidiroglou, M., Yung, W., & Kovacevic, M. (2010). The role of weights in descriptive and analytical inferences from survey data: an overview. *Journal of the Indian Society of Agricultural Statistics*, vol. 64., 129-135.
- Rubin, D. B. (1987). *Multiple Imputation for Nonresponse in Surveys*. New York, N.Y.: John Wiley & Sons, Inc.

- Sarndal, C.-E. (2007). The calibration approach in survey theory and practice. *Survey Methodology*, vol. 33, 99-119.
- Triby, C. P., & Tharp, D. S. (2019). Examining urban and rural bicycling in the United States: Early findings from the 2017 National Household Travel Survey. *Journal of Transport & Health*, 143-149.
- U.S. Census Bureau. (2018, October 1). American Fact Finder: Table S15011, 2013-2017 American Community Survey 5-Year Estimates. Washington, D.C., USA.
- U.S. Census Bureau. (2019, November 26). *American Community Survey, 2017 5-Year Detailed Tables*. Retrieved from Sex by Age, Table B01001: <https://data.census.gov/cedsci/>
- U.S. Census Bureau. (2019, January 2). *American Community Survey, 2018 5-Year Estimates Detailed Tables*. Retrieved from Means of Transportation to Work by Travel Time to Work, Table B08134: <https://data.census.gov/cedsci/>
- Valliant, R., Dever, J. A., & Kreuter, F. (2013). *Practical Tools for Designing and Weighting Surveys*. New York, New York: Springer.

Appendix A: Questionnaire

Appendix B: Detailed Tables of Survey Responses