

The Social and Economic Impacts
of Hiking and Biking Trails in
Cañon City, Colorado

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I - Executive Summary

This study was conducted by graduate students in the University of Colorado Boulder's - Masters of the Environment program, in partnership with Fremont Adventure Recreation (FAR). The economic impacts of outdoor recreation are growing in many rural communities across the western United States. Cañon City, Colorado is no exception. Prior to this report, no data had been collected on how Cañon City's trails are valued by its residents, and what economic impacts visiting trail users bring to the local economy. This study is the first in Fremont County to research the direct social and economic impacts trails have in the region. The research findings presented in this report will provide FAR and community leaders with baseline data on a variety of metrics regarding trail use and impact in Cañon City. This report also establishes a framework for continued research and monitoring.

Based on trail use recorded by the activity tracking app *Strava*, and data collected in this study, users visit Cañon City's Royal Gorge, South Canon, and Oil Well Flats trails 15,254 times per year. 78 trail users were surveyed at these three trail systems, and a supplemental online survey was distributed to residents and visitors. The intercept survey captured data on trail use patterns and characteristics, as well as the spending habits of nonresident trail users. The online survey captured similar data for visitors, and queried Cañon City residents about the value trails and trails-based recreation brings to their lives. Key findings from both surveys include:

Trail Use

- An estimated 15,254 people use the Oil Well Flats, Royal Gorge, and South Canyon trail systems every year. Roughly half of all trail users are non-residents. Trail use is highest during the Spring and Fall seasons, indicating that Cañon City has the potential to grow as a shoulder season trail-use destination.
- Hiking is the most popular activity at these three trail systems (73% of users) followed by mountain biking (40% of trail users), although each trail system has its own use patterns. For residents, Tunnel Drive is the most commonly used local trail. However, the South Canyon trails were identified as the primary trail system for a plurality (26%) of survey respondents.
- 89% of trail users indicated that trails directly influenced their decision to visit Cañon City. Trails are likely a more significant factor for mountain bikers choosing to visit Cañon City than for hikers. 50% of mountain bikers indicated that using trails was the primary purpose for their visit.

The Economic Impact of Trails

- Comprehensive economic impact figures, such as total value added, tax revenue, and jobs created were not able to be calculated from the data collected. However, baseline data collected on visitor spending indicates that nonresident trail users visiting Cañon City spend between \$70 and \$85 per day during their visit.
- Daily spending by trail users visiting Cañon City is similar to the findings from studies in Helena, MT, and in Mesa County, CO. Lodging, restaurants or bars, and gasoline represented the majority of purchases.

- Resident respondents to the online survey spent over \$2,000, on average, on outdoor recreation goods and services in the last year. However, the same residents spent only \$236, on average, in Cañon City. Buena Vista and Salida were common destinations for outdoor recreation purchases, indicating demand for local outdoor recreation retailers.

The Value of Trails to Cañon City Residents

- 60% of residents surveyed “strongly support” (and an additional 23.8% indicated “support” for) the continued development and expansion of human-powered (biking, hiking, running, etc.) trails in Fremont County.
- Trail access was the second most important factor, behind a safe community, influencing residents’ decision to move to or stay in Cañon City. Newer residents (65%) were more likely to consider trail access very important to their decision to move to Cañon than longer-term residents (42%).
- Outdoor recreation opportunities, including city parks, public lands, and local trails were among the top five most important amenities benefiting residents’ quality of life. 50% of residents respondents to the online survey indicated that the Royal Gorge, South Canyon, and Oil Well Flats trails were among their top three most valued community amenities.

These findings indicate that trails are already vital to Cañon City’s community. FAR’s work in recent years is clearly important to the community, and continued efforts are both supported and encouraged by those they impact most.

II - Purpose of the Report

The purpose of this report is to quantify the social and economic benefits that hiking and mountain biking trails bring to Cañon City, CO. This study has three primary objectives: 1) describe trail use patterns and trail-user demographics at the Royal Gorge, South Canyon, and Oil Well Flats trail systems, 2) collect baseline data on the economic impacts these trail systems bring to the city of Cañon City, and 3) understand the importance of these trails and trails-based recreation to the community, and to residents' quality of life. The data presented in this report is designed to help inform FAR, Cañon City's city council, Fremont County commissioners, and local land managers as the city continues to grow its outdoor recreation economy. This report also provides recommendations for future studies and a roadmap for building on the baseline economic impact data presented here.

While similar socio-economic research has focused on outdoor recreation in communities throughout Colorado, including an economic value analysis for Arkansas River outfitters (which includes impacts to Fremont County), this study is the first in Fremont County to focus exclusively on the impacts of recreation trails¹. This study was commissioned by Fremont Adventure Recreation (FAR) and conducted by three students in the University of Colorado's Masters of the Environment program as their capstone project. The scope of this research was developed by the University of Colorado capstone team with input from FAR, Cañon City's city council, and local business owners and land managers. While two of the trail systems studied are located outside of Cañon City's city limits, this report was designed to examine impacts to the city and its residents, rather than all of Fremont County.

¹ Patricia Pacey, Jeffrey Nehls, and Devon Myers, *Economic Value Analysis For Arkansas River Outfitters* (Boulder, CO: Pacey Economics, 2022).

III - Background

This section introduces Fremont Adventure Recreation, overviews recent trail development in the Cañon City area, and summarizes the economic and social benefits trails have had in communities similar to Cañon City

3.1 Outdoor Recreation & Trails in Cañon City

FAR is a 501(c)3 non-profit organization in Fremont County, CO that was founded to “promote a culture of community and healthy living through human-powered outdoor recreation in the Royal Gorge Region.”² Established in 2010, FAR has worked for 13 years to expand local trail systems and bring outdoor recreation opportunities and events to Fremont County.³ These efforts have included funding the development of new trail systems, sponsoring maintenance, organizing stewardship programs, coordinating trail races and festivals, and advocating for the continued development of the region's outdoor recreation economy.⁴

Historically, Cañon City's economy was driven by Fremont County's multiple prisons and oil extraction enterprises.⁵ However, in recent years outdoor recreation has emerged as a rapidly growing economic force in Colorado.⁶ This has also been true for Fremont County.⁷ From 2010 to 2016 counties with strong recreation economies attracted more new residents, and households reported higher average incomes than those in non-recreation counties. Fremont County has already developed a substantial outdoor recreation economy driven by the whitewater rafting industry. The Arkansas Headwaters Recreation Area (AHRA), located predominantly in Lake, Chaffee, and Fremont counties, saw an increase in visitation from 876,544 visitors⁸ in 2016 to over 1.1 million in 2022.⁹ The rafting industry and other recreation opportunities in the AHRA brought over \$1.9 million dollars of revenue to the region in 2022. While trail users represented only 25,837 of total visitors in 2016, this represents a 6.2% increase in trail-specific use from the year before.¹⁰ FAR, with

² Fremont Adventure Recreation, “Fremont Adventure Recreation,” Accessed October 9, 2023. <http://www.joinfar.org/>,

³ Fremont Adventure Recreation, “Community Outreach,” Accessed October 9, 2023. <http://www.joinfar.org/community-outreach.html>.

⁴ Fremont Adventure Recreation, “Community Outreach.”

⁵ Ashlee Sack (FAR Coordinator) in communication with the authors, October 2023.

⁶ “RecreationCountiesAttractingNewResidentsAndHigherIncomes_2019.pdf,” n.d. https://oedit.colorado.gov/sites/coedit/files/RecreationCountiesAttractingNewResidentsAndHigherIncomes_2019.pdf.

⁷ Ashlee Sack (FAR Coordinator) in communication with the authors, October 2023.

⁸ “Arkansas Headwaters Recreation Area Annual Report 2016,” Colorado Parks and Wildlife Bureau of Land Management U.S. Forest Service, January 31, 2017, <https://rrfw.org/sites/default/files/documents/2016%20AHRA%20EOY%20Annual%20Report.pdf>.

⁹ “Arkansas Headwaters Recreation Area Annual Report 2022,” Colorado Parks and Wildlife Bureau of Land Management U.S. Forest Service, January 31, 2023, <https://cpw.state.co.us/placestogo/parks/ArkansasHeadwatersRecreationArea/Documents/Annual-Reports/AnnualReport2022.pdf>.

¹⁰ “Arkansas Headwaters Recreation Area Annual Report 2016,” Colorado Parks and Wildlife Bureau of Land Management U.S. Forest Service, January 31, 2017, <https://rrfw.org/sites/default/files/documents/2016%20AHRA%20EOY%20Annual%20Report.pdf>.

support from Cañon City’s city council, sees further development of the region’s hiking and mountain biking trails as an opportunity for Cañon City to capitalize on this growth.

In April 2015, Fremont County, with support from FAR, developed the *Eastern Fremont County Trails, Open Space, and River Corridor Master Plan*.¹¹ This document presents a “visionary and realizable master plan for a wide range of recreational opportunities and resource conservation throughout Eastern Fremont County.” The plan outlines specific goals tied to the county’s development of trails and open space including promoting business development, increasing property values, and promoting better community health. Included in the plan are specific objectives for improving trail access and connectivity, providing and developing trail-related infrastructure, and creating opportunities for outdoor education and youth engagement. Over the past 10 years, this plan has guided the addition of 39 non-motorized trails in Cañon City and the surrounding area, totaling 58 miles of mountain biking, hiking, and trail running opportunities.¹²

FAR has been instrumental in supporting this process. For example, their 1% for trails initiative is an elective program local businesses may opt into that adds 1% to customers’ bills in order to provide additional funds for outdoor recreation in the community. In 2022 this program raised over \$60,000.¹³ The community has shown ample support for the trails, as stated by Ashlee Sack; “our community has shown up for this progress in a big way: from volunteering for community events, participating in surveys, financial assistance, and boots-on-the-ground trail work, citizens of Fremont County have been incredibly involved in the development of trail systems in the area.”¹⁴

FAR has established itself as an important and growing force within Cañon City’s community. In 2022 FAR helped expand existing trail systems, adding 6.6 miles of new trails, and reported 101 new members.¹⁵ In 2023 FAR aims to continue work on the Royal Gorge Loop, allocate additional funding for maintenance and upkeep of existing trails, and build on its history of coordinating successful events that engage the community in using its trails and attract tourism.¹⁶ A key to continuing this success will be FAR’s ability to demonstrate the positive impacts that trail systems and trails-based outdoor recreation bring to Cañon City.

3.2 Impacts of Trails in Rural & Recreation-Based Communities

According to the U.S. Bureau of Economic Analysis, the outdoor recreation economy produced a record \$682 billion in economic output and added 4.5 million jobs in 2021.¹⁷ This shows a growth of 21.7% and

¹¹ Neumann, Bill, Mathew Whipple, and Risk McLaughlin, “EASTERN FREMONT COUNTY TRAILS, OPEN SPACE & RIVER CORRIDOR MASTER PLAN,” DMH Design Corporation, April 2015.

¹² “FREMONT ADVENTURE RECREATION: 2022 Year-End Report & Sponsor Packet,” Fremont Adventure Recreation, 2022.

¹³ Fremont Adventure Recreation, “1% for Trails,” Accessed October 9, 2023, <http://www.joinfar.org/1-for-trails.html>.

¹⁴ Ashlee Sack (FAR Coordinator) In communication with the authors, October, 2023.

¹⁵ Fremont Adventure Recreation, “Support / Contact,” Accessed October 30, 2023, <http://www.joinfar.org/support--contact.html>.

¹⁶ “FREMONT ADVENTURE RECREATION: 2022 Year-End Report & Sponsor Packet,” Fremont Adventure Recreation, 2022.

¹⁷ Davis, Kelly, “State of the Outdoor Market,” Outdoor Industry Association, Fall 2022, <https://outdoorindustry.org/wp-content/uploads/2022/12/OIA-State-of-the-Outdoor-Market-Report-Fall-2022.pdf>.

accounts for 1.9% of the total US gross domestic product. Trail use (hiking and biking) accounted for \$5.1 billion in added value, fifth highest among outdoor activities. In Colorado specifically, OR added over 120,000 jobs, and supported \$6.1 billion in wages and salaries.¹⁸ At local scales, OR drives economic growth by attracting new businesses and residents,^{19 20} and supporting higher wages and property values.^{21 22} Additionally, OR has demonstrable benefits for individuals' quality of life, physical health, and social community.^{23 24 25} Reports show that outdoor recreation attracts residents to communities, and that these residents show higher levels of mental health, physical fitness, and community connection.

Numerous reports have focused specifically on quantifying the economic contributions of trails in OR economies. Many of these studies also highlight the benefits trails bring to residents' quality of life. Headwaters Economics (Headwaters), a non-profit research group based in Bozeman, MT, has compiled a '*Trails Benefit Library*' composed of 188 studies conducted throughout the United States, all of which specifically focus on the "positive impacts of trails on businesses, public health, and quality of life".²⁶ These studies present quantifiable data on the total value added by trails to local economies, the number of jobs directly supported by trails-based tourism, the influence trails have on attracting new residents, and local attitudes and opinions relating to investments in trails infrastructure.

¹⁸ "Colorado - Outdoor Industry Association," August 22, 2022, <https://outdoorindustry.org/state/colorado>.

¹⁹ Headwaters Economics. "Recreation Counties Attracting New Residents And Higher Incomes," January 2019. https://oedit.colorado.gov/sites/coedit/files/RecreationCountiesAttractingNewResidentsAndHigherIncomes_2019.pdf.

²⁰ Headwaters Economics. "Outdoor Recreation," January 29, 2020, <https://headwaterseconomics.org/outdoor-recreation/>.

²¹ Lawson, Megan, "How Outdoor Recreation Supports Rural Economic Development," *Headwaters Economics*, February 19, 2019, <https://headwaterseconomics.org/economic-development/trends-performance/outdoor-recreation/>.

²² Headwaters Economics, "Recreation Counties Attracting New Residents And Higher Incomes," January 2019, https://oedit.colorado.gov/sites/coedit/files/RecreationCountiesAttractingNewResidentsAndHigherIncomes_2019.pdf.

²³ "Colorado-Outdoor-Rx.pdf," n.d, <https://oedit.colorado.gov/sites/coedit/files/Colorado-Outdoor-Rx.pdf>.

²⁴ Kelly, John Robert, *Social Benefits of Outdoor Recreation*, Leisure Behavior Research Laboratory, University of Illinois, 1981.

²⁵ Godbey, Geoffrey, "Outdoor Recreation, Health, and Wellness: Understanding and Enhancing the Relationship," May 6, 2009. doi:10.2139/ssrn.1408694.

²⁶ Headwaters Economics, "Trails Benefits Library Archive," Accessed October 30, 2023, <https://headwaterseconomics.org/trail/>.

Collectively, these studies have demonstrated that investment in purpose-built hiking and biking trails has boosted the economies of many small communities throughout the Western United States.^{27 28 29 30 31 32} The economic impacts of trails-based outdoor recreation are measured by analyzing the amount of money that visiting trail users, whose primary purpose for visiting is using trails, spent in the community during their trip.³³ This spending represents money that would not have entered the economy without the presence of trail systems, and has direct, indirect, and induced impacts on income, employment, and economic output.³⁴

These impacts have been observed across diverse communities representing varied population sizes, trail types and lengths, and geographic locations. For example, analysis of four studies conducted in different communities throughout the Western U.S. reveals that mountain bikers who visit a community for the primary purpose of using its trail systems spend an average of \$132.65 per person per day in that community.^{35 36 37 38}

Economic impact studies throughout the Rocky Mountain region have demonstrated that hiking and biking trails can contribute millions of dollars annually to outdoor recreation communities. Three trail systems in Mesa County, CO, are responsible for adding an estimated \$14.5 million annually to the region's economy through visitors expenditures.³⁹ In Whitefish, MT, a report by Headwaters Economics estimates that the Whitefish trail is directly responsible for 68 jobs and \$1.9 million in labor income that would not have been present without the trail.⁴⁰ A similar study in Helena, MT concluded that regional trails contributed \$1.5 million in labor income to the region, and added a total of \$2.2 million in value to the region's economy.⁴¹

²⁷ Perry, Nathan, Tim Casey, and Johnny Snyder, "The Economic Impact of Outdoor Recreation in Mesa County," 2022.

²⁸ "The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana," April 2018.

²⁹ Sage, Jeremy L., and Norma Nickerson, "Trail Usage & Value: A Helena Case Study," Institute for Tourism and Recreation Research, The University of Montana, January 2018.

³⁰ Boozer, Benjamin B, "An Economic and Impact Analysis of the Coldwater Mountain Bike Trail," Center for Economic Development Jacksonville State University, July 2012, https://headwaterseconomics.org/wp-content/uploads/Trail_Study_13-coldwater-mountain-bike-trail.pdf.

³¹ Mountain Bikers of Santa Cruz, "Economic Benefits of Mountain Bike Tourism for Santa Cruz County," Accessed November 7, 2023,

https://headwaterseconomics.org/wp-content/uploads/Trail_Study_103-CA-Mtn-Bike-Tourism-Santa-Cruz.pdf.

³² Meltzer, Nicholas S, "Adapting to the New Economy: The Impacts of Mountain Bike Tourism in Oakridge, Oregon." Accessed November 7, 2023,

https://headwaterseconomics.org/wp-content/uploads/Trail_Study_104-OR-Mtn-Bike-Tourism-Oakridge.pdf.

³³ Mendez, Mayra, Lorenzo Muñoz, Megan Paliwoda, and Carrie Tanner, "A Methodology for Developing an Economic Impact Assessment of Outdoor Recreation in Colorado," CO Outdoor Recreation Industry Office, n.d.

³⁴ Lukoseviciute, Goda, Luís Nobre Pereira, and Thomas Panagopoulos, "The Economic Impact of Recreational Trails: A Systematic Literature Review," *Journal of Ecotourism* 21, no. 4 (October 2, 2022): 366–93.

³⁵ Mountain Bikers of Santa Cruz, "Economic Benefits of Mountain Bike Tourism for Santa Cruz County."

³⁶ Meltzer, Nicholas S, "Adapting to the New Economy: The Impacts of Mountain Bike Tourism in Oakridge, Oregon."

³⁷ Perry, Nathan, Tim Casey, and Johnny Snyder, "The Economic Impact of Outdoor Recreation in Mesa County," 2022.

³⁸ "The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana," April 2018.

³⁹ Perry, Nathan, et.al., "The Economic Impact of Outdoor Recreation in Mesa County," 2022.

⁴⁰ "The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana," April 2018.

⁴¹ Sage, Jeremy L., and Norma Nickerson, "Trail Usage & Value: A Helena Case Study."

Economic outputs of these levels can be an important catalyst for revitalizing rural communities whose economies need to diversify and grow.⁴² Although many of these systems are more established (in the sense that they attract more annual visitors), they provide important examples of how an economy such as Cañon City can benefit from investing in outdoor recreation.

Trails-based tourism has also shown to provide indirect benefits by way of increased property value for areas surrounding trail systems and open space.^{43 44} While factors such as proximity to trails, trail purpose, and buyer preferences impact this increase,^{45 46} data suggests that outdoor recreation is a significant variable in property owners' decisions to move to certain communities.^{47 48 49} These same factors that attract new residents to growing OR communities are also shown to stimulate economic growth by attracting new businesses.

Residents in communities with trails-based OR opportunities also benefit from improved physical and mental health, additional social opportunities, and a better overall quality of life.^{50 51} Biking specifically has been shown to increase physical health and reduce the chances of contracting five major chronic illnesses, including heart disease and diabetes.^{52 53} Easy access to trails for walking or biking is a key factor in promoting physical activity.⁵⁴ Community members who have easy access to trails, and choose to use them, report higher satisfaction with their community, are at a lower risk of mental health issues, and benefit from stronger social bonds.⁵⁵ Outdoor recreation opportunities can have such a great appeal, that in Jackson Hole, Wyoming, 96% of survey respondents stated that outdoor recreation was the most important factor in their decision to move to the community.⁵⁶

⁴² Meltzer, Nicholas S, "Adapting to the New Economy: The Impacts of Mountain Bike Tourism in Oakridge, Oregon."

⁴³ "Trails-Library-Property-Value-Overview.pdf," n.d.

⁴⁴ Corning Sarah E., Mowatt Rasul A., and Charles Chancellor H., "Multiuse Trails: Benefits and Concerns of Residents and Property Owners," *Journal of Urban Planning and Development* 138, no. 4 (December 1, 2012): 277–85.

⁴⁵ Corning Sarah E., et.al., "Multiuse Trails: Benefits and Concerns of Residents and Property Owners."

⁴⁶ "Trail_Study_140-MI-Econ-Impact-Huron-River.pdf,"

n.d., https://headwaterseconomics.org/wp-content/uploads/Trail_Study_140-MI-Econ-Impact-Huron-River.pdf.

⁴⁷ RRC Associates. "Jackson Hole Pathways and Trails Survey," Jackson Hole Chamber of Commerce, Spring 2015.

⁴⁸ RRC Associates, LLC, "Bonner County Trails: Final Survey Results," Headwater Economics, February 2016.

⁴⁹ Sage, Jeremy L., and Norma Nickerson, "Trail Usage & Value: A Helena Case Study."

⁵⁰ Corning Sarah E., et.al., "Multiuse Trails: Benefits and Concerns of Residents and Property Owners."

⁵¹ Casey, Tim, Castaneda, Corey, and Nathan Perry, "Grand Valley Public Trail Systems Socio-Economic Study, Mesa County, Colorado." Colorado Mesa University, 2018.

⁵² BBC Research and Consulting. "Economic and Health Benefits of Bicycling in Northwest Arkansas," n.d.

https://headwaterseconomics.org/wp-content/uploads/Trail_Study_136-AR-Bicycle-Benefits.pdf.

⁵³ The Center for Research on Economic and Social Policy (CRESP) of the University of Colorado at Denver, "Bicycling and Walking in Colorado: Economic Impact and Household Survey Results," April 2020.

https://headwaterseconomics.org/wp-content/uploads/Trail_Study_87-bicycling-walking-colorado.pdf.

⁵⁴ Brownson, R. C., R. A. Housemann, D. R. Brown, J. Jackson-Thompson, A. C. King, B. R. Malone, and J. F. Sallis. "Promoting Physical Activity in Rural Communities: Walking Trail Access, Use, and Effects," *American Journal of Preventive Medicine* 18, no. 3 (April 2000): 235–41.

⁵⁵ Mitten, Denise, Jillisa R. Overholt, Francis I. Haynes, Chiara C. D'Amore, and Janet C. Ady, "Hiking: A Low-Cost, Accessible Intervention to Promote Health Benefits," *American Journal of Lifestyle Medicine* 12, no. 4 (Jul-Aug 2018): 302–10.

⁵⁶ RRC Associates, "Jackson Hole Pathways and Trails Survey."

3.3 Need for this Report

While dozens of the studies accessible through Headwaters' *Trails Benefit Library* demonstrate these benefits in small western communities similar to Cañon City, the city does not currently have any data pertaining to local trail use, or its economic and social benefits. FAR only has anecdotal evidence that its work developing new trails is increasing tourism, attracting new residents, and is valued by the community. As stated by the FAR's Coordinator; "without concrete, objective, evidence, it's difficult to quantify [the community's] support. Our first-ever economic impact report will help us bring baseline data to our land managers, funders, and local government officials, and assist them in understanding the true value of the recreation amenities in our community."⁵⁷ The data presented in this report begins to bridge this gap in knowledge. While this report represents a pivotal first step in efforts to demonstrate the value of Cañon City's trails, future studies will be needed to add confidence to these findings and to build on the initial economic analysis presented here.

⁵⁷ Ashlee Sack (FAR Coordinator) In personal communication with the authors, October, 2023.

IV - Methodology

This section details the survey and data analysis methodology implemented in this study. The intercept survey can be found in **Appendix A**, and the online survey can be found in **Appendix B**.

4.1 Overview

The authors reviewed existing literature and interviewed community stakeholders to guide the scope of research, identify key lines of inquiry, and understand the community's needs. Two surveys, a trailhead intercept survey (intercept survey) and an online survey, were developed to collect data on residents' and visitors' trail use patterns, their satisfaction with and support for trails, and the economic impacts of trails. Both surveys were distributed using the *Qualtrics* survey platform. The intercept survey, which was facilitated by the authors as well as community volunteers, randomly sampled trail users at three trail systems: The South Canyon, Royal Gorge, and Oil Well Flats trails. The online survey was not a random sample and was designed to gather information from all residents and visitors to the area, including those who do not use trails. Data analysis was conducted in Microsoft Excel.

4.2 Project Scoping & Survey Design

Three reports identified in the literature review were used to guide this project's survey design and research methodology. Best practices and methods were amalgamated from the following studies: *Grand Valley Public Trail Systems Socio-Impact Study* by researchers at Colorado Mesa University⁵⁸, *The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, MT* by Headwaters Economics⁵⁹, and *Trail Usage and Value: A Helena Case Study* by the University of Montana.⁶⁰

To better understand the local context and potential impacts of this study, the authors interviewed and surveyed community stakeholders in the Spring of 2023. As a part of this stakeholder engagement, the authors presented the initial scope to Cañon City's city council at the May 15th, 2023 city council meeting. Next, interviews were conducted with a local business owner, the assistant field manager for the Bureau of Land Management's Royal Gorge Field Office, and Cañon City's economic development manager. Finally, brief surveys were disseminated to additional stakeholders to solicit feedback on the importance of 15 potential metrics. This survey was completed by 12 respondents representing the Cañon City government, local business owners, and land managers.

This process revealed how little information exists on the impacts of trails, and highlighted the need for this study to cover multiple focus areas. Stakeholders expressed a desire to know more about the value that trails bring to residents, and how trails influence the desirability of Cañon City as a place to live. Additionally, stakeholders wanted to know what users value in the current trail systems, and where opportunities exist for

⁵⁸ Casey, Tim, et. al. 2018, "Grand Valley Public Trail Systems Socio-Economic Study, Mesa County, Colorado."

⁵⁹ Lawson, M. 2018, "The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana."

⁶⁰ Sage, Jeremy L., and Norma Nickerson. 2018, "Trail Usage & Value: A Helena Case Study."

improvement. Finally, stakeholders were interested in how trails impact Cañon City’s tourist economy. A full report on the results of this stakeholder engagement can be found in **Appendix C**.

4.3 Trailhead Intercept Survey

Survey Design

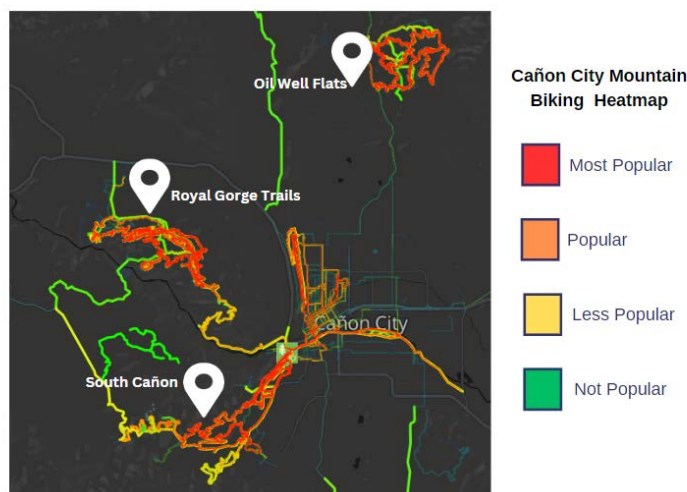
The primary purpose of the intercept survey was to collect data on trail use patterns and visitor spending in Cañon City. Two separate survey branches were developed for residents and nonresidents. For analysis and discussion of the intercept survey, the term ‘nonresidents’ refers to all respondents whose primary residence lies outside of Cañon City’s limits. Nonresident trail users captured by the intercept survey include respondents from other municipalities within Fremont County.

Residents and nonresidents were asked the same questions on trail use, user satisfaction, willingness to pay, and demographics. The travel characteristics and economic impact sections were only presented to nonresidents. Certain follow-up questions were also only displayed after specific responses, ensuring that all respondents were only shown questions applicable to them. The resident survey took 3-5 minutes to complete, and the nonresident survey took 7-9 minutes.

Implementation

Surveys were conducted at the Royal Gorge, South Canyon, and Oil Well Flats trail systems by the authors and community volunteers. These trail systems were identified by FAR as the priority trails in the region due to anecdotal evidence of their popularity, and their recent trail development. **Figure 1** shows the relative popularity of these trail systems compared to surrounding regional trails based on mountain biking activity recorded by the TrailForks app. Five trailheads were surveyed: The Eagle Wing and Eco Park trailheads for the South Canyon trails, the Canyon Rim and Made in the Shade Trailheads at Royal Gorge Park, and the Upper Trailhead at Oil Well Flats.

Figure 1 - The popularity of trails by mountain bikers near Cañon City, CO ⁶¹



⁶¹ Trailforks, “Mountain Biking Heatmap,” 2023.

Surveyors were stationed centrally at these trailheads near information kiosks, as seen in **Figure 2**, and were instructed to approach each trail user and conduct the survey in person using their personal electronic devices. Business cards with a QR code accessing an online version of the survey were distributed to trail users who were unwilling, or unable to participate in an in-person survey. All trail users were surveyed individually except for members of the same household. For trail users who were members of the same household, one member was randomly selected to respond for the entire household.

Figure 2 - Photo of the standard surveyor setup for facilitating the intercept survey



Surveyors were given a table, wind-flag, outreach materials, QR code cards, and a volunteer handbook.

Volunteers completed a formal one-hour training prior to conducting surveys. The volunteer handbook, which outlines the survey methodology, training materials, and the suggested script can be found in **Appendix D**. 68 volunteer hours were invested, yielding 56 survey hours. Survey hours are the amount of time at least one volunteer (or the authors) was at a trailhead. Volunteer hours refer to the total time investment by all surveyors. In situations where two volunteers were present at the same trailhead for a two- hour shift, that shift counted as two survey hours and four volunteer hours. The distribution of volunteer and survey hours by trailhead is shown in **Table 1**.

Table 1 - The distribution of volunteer and survey Hours by trail system

Trail System	Volunteer Hours	Survey Hours	% of Total Survey Hours
Royal Gorge	28.5	22.5	40%
South Canyon	29	23	41%
Oil Well Flats	10.5	10.5	19%

4.4 Online Survey

Survey Design

The primary purpose of the online survey was to capture data on how trails impact residents' quality of life in Cañon City. For the online survey, the resident and nonresident branches facilitated two completely separate surveys. Because of the online survey's ability to reach a broader sample of visitors, including non-trail users, a separate survey branch was developed to capture nonresident responses. The resident survey asked a completely separate set of questions, and collected data on demographics, employment, length of residence in Cañon City, the impact of trails on quality of life, trail use characteristics, and spending on outdoor recreation goods and services. The nonresident survey was nearly identical to the intercept survey and collected data on demographics, travel characteristics, lodging, trail use, and spending. Both the resident and nonresident surveys were designed to take no more than 8-12 minutes to complete.

On August 6th, questions were added to the online survey to distinguish nonresidents whose primary residence lies within Fremont County from nonresidents who were visiting from outside of Fremont County. This question was added because the nonresident questions were targeted to nonlocal tourists, and did not apply to Fremont County locals. Following this change, Fremont County residents were posed the same questions as Cañon City residents. Nonresident survey responses from Fremont County residents that were recorded prior to August 6th were identified using zip code data. The final survey responses were divided among three populations: 1) Cañon City Residents, 2) Fremont County Residents, and 3) Nonresidents/Tourists. For analysis and discussion of the online survey, the term 'nonresidents' refers only to respondents whose primary residence lies outside of Fremont County.

Implementation

The online survey was distributed in multiple ways. Business cards with QR codes were distributed at the FAR tent at the Royal Gorge Whitewater Festival, and flyers with QR codes were posted at various locations in downtown Cañon City. A full list of posting locations can be found in **Appendix E**. FAR posted the survey on their homepage, and publicized access through four customized Facebook advertisements. Similarly, the Cañon City government posted the survey to their website twice, and linked the survey once on their Facebook page. The authors acknowledge that these particular distribution methods likely influenced the population of survey respondents, as FAR channels are more likely to reach trail users and supporters. Three local businesses, Pizza Madness, Fremont Provisions, and the Bean Pedaler, all offered discounts as incentives to patrons who presented a screenshot of a completed survey. The online survey collected responses from July 21st - August 14th, 2023.

4.5 Data Analysis

The raw data were adjusted to account for user error, remove unnecessary fields, and facilitate analysis. Percentages for response distribution were calculated as a percentage of all responses, and did not consider blank or NULL responses. All analysis in this report is descriptive of the individuals surveyed. Due to small sample

sizes, the data are not considered representative of the populations sampled. See **Appendix F** for comprehensive lists of all changes made to the raw data sets.

Resident and nonresident responses were analyzed separately for the online and intercept surveys. Because the population of interest identified in project scoping was *Cañon City* residents, the 23 Fremont County resident responses were not considered in the analysis of the online survey. Strava Metro was also used to estimate trail use for each trail system survey in the intercept survey.

V - Survey Response

This section summarizes response data from the online and intercept surveys, including the number and demographics of respondents. The application and limitations of these surveys' results is also discussed.

5.1 Intercept Survey Response

78 respondents completed the intercept survey, representing 101 trail users (**Table 2**). 23 of these users were additional household members captured by the responses from 14 individual respondents. Survey responses were split evenly among residents and nonresidents. 96% percent of recorded surveys were fully completed.

Table 2 - Intercept survey response & total trail users captured

	Survey Responses	Trail Users Captured	% of All Surveys Completed ⁶²
All Respondents*	78	101	96.2%
Residents	38	48	94.7%
Nonresidents	38	50	97.4%

**2 surveys, representing 3 trail users, have unknown residency because the respondents did not answer the question "are you a resident of Cañon City"*

Surveys facilitated in person accounted for 74% of responses. 26% were accessed by the trail user through the QR code link. The majority of respondents to the QR survey were nonresidents (70%), whereas the in-person survey slightly favored resident respondents (57%) to nonresident respondents (41%).

The vast majority of survey responses were split between the Royal Gorge (51%) and South Canyon (44%) trail systems (**Table 3**). Only 4 trail users were intercepted at Oil Well Flats. The survey results slightly favored weekend trail users, with 58% of all respondents being intercepted on weekend days, and the remaining 41% representing week day trail users. Over half of the survey respondents were intercepted in July (54%), followed by September (24%), August (11%) and June (10%).

⁶²The % of Surveys completed refers to the number of survey responses in which answers were submitted for all sections. A survey was considered complete if at least one question in each section was answered. This accounts for blank responses submitted as "0" values, or for questions that the respondent did not feel applied.

Table 3 - Intercept survey response by trail system

Trail System	Total Responses	% Responses	Responses Per Survey Hour
Royal Gorge	40	51.3%	1.78 responses/hour
South Canyon	34	43.6%	1.48 responses/hour
Oil Well Flats	4	5.1%	0.38 responses/hour

Respondent Demographics

The demographics of nonresident and resident respondents are shown in **Table 4**. Comparing the demographics of resident respondents with census data offers insight into how the population of trail users differs from Cañon City’s population. The age distribution of resident survey respondents was largely representative of the city’s population. However, female and Hispanic trail users were underrepresented. Resident trail users also reported earning twice the average annual salary of Cañon City residents. These results may indicate opportunities for the trails to more equitably serve the community.

Table 4 - The demographics of resident and nonresident trail users (intercept survey)

	Nonresident Trail Users	Resident Trail Users	Cañon City Census Data ⁶³
Population	50	48	17,298 ⁶⁴
Median Income	\$100,001-150,000	\$100,001 - 150,000	\$52,648
Median Age	35-44	45-64	44.8 ⁶⁵
Age - Under 18	6.1%	4.35%	23.7%
Age - Over 65	8.2%	23.9%	23.8%
Gender - % Female	46.9%	36.2%	51.9%
Race - White Alone	83.6%	91.5%	93.4%
Two or More Races	2.0%	2.1%	3.6%
Hispanic or Latino?	6.1%	2.3%	12%

⁶³ All data, unless otherwise footnoted is from

United States Census Bureau > Communications Directorate - Center for New Media, “QuickFacts: Cañon City City, Colorado,” Accessed December 15, 2023.

⁶⁴ Estimated for 2022

⁶⁵ “Data USA.” Accessed December 15, 2023. <https://datausa.io/>.

5.2 Online Survey Response

The online survey recorded 322 responses. 289 surveys were complete and 33 were partially complete. The majority of respondents (84%) accessed the survey through FAR & Cañon City’s websites and Facebook posts. The remaining responses were evenly distributed throughout the survey period. Only 16% of responses were accessed by QR code. The QR code was distributed by fliers at local businesses and cards handed out at the Royal Gorge Whitewater Festival.

Residence

The online survey collected 260 resident responses and 39 nonresident responses. 90% of respondents used Fremont County trails in the last 12 months. Only 25 responses were received from residents who had not used trails. 93% of all resident respondents completed every survey section, while only 82% of nonresident surveys were fully complete. The survey response for residents, nonresidents, trail users, and non trail users is shown in **Table 5**.

Table 5 - Online survey response, by residence and trail user status

	Cañon City Residents	Nonresidents	Trail Users	Non Trail Users
Responses	260	39	267	45
% of Total Survey Responses	80.7%	12.1%	85.6%	14.4%

Demographics of Resident Respondents

The online survey was intended to reach the broadest possible sample of Cañon City residents, including non trail users, however, this survey is not a random sample. Comparing the demographics and employment status of online survey respondents with US Census data offers insight into how representative this survey is of Cañon City’s population (**Table 6**). The survey respondents are largely representative of Cañon City’s racial, ethnic, age, and employment demographics. However, the surveyed population is not representative of Cañon City for gender identity and household income.

Nearly 65% of survey respondents identified as female, compared with 52% for Cañon City in the 2020 census⁶⁶. For household income, the median survey respondent reported an annual income of \$75,000-100,000. This is substantially higher than the median household income for Cañon City, which is estimated at just over \$52,000. The Latino and Hispanic populations were underrepresented by about 7%; residents over the age of 65 were also underrepresented.

⁶⁶ United States Census Bureau, “QuickFacts”.

Table 6 - Online survey response demographics for resident respondents, compared to US Census data

	Survey Results	Response Rate	Census Data ⁶⁷
Population	260	NA	17,298 ⁶⁸
Median Income	75,001 - 100,000	79.2%	\$52,648
Median Age	45-54	93.1%	44.8 ⁶⁹
Gender - % Female	64.9%	91.9%	51.9%
Race - White Alone	90.4%	84.2%	93.4%
Two or More Races	8.3%	84.2%	3.6%
Hispanic or Latino?	5.5%	90.8%	12%

The response rate represents the percentage of respondents who completed that specific survey question.

Employment Trends Among Resident Respondents

The employment data captured by the online survey is representative of Cañon City’s population. Employment responses were compared to census data from DataUSA.io, a database compiled by Deloitte and Datawheel⁷⁰. The categories presented in this database were not the same used in the online survey. However, the industry categories reported on by both datasets are comparable. The distribution of employment in various industry categories for online survey respondents is similar (within ~3% for all comparable industries) to the data presented by DataUSA.io for Cañon City. Educational and Health Services (28.2%), Professional and Business Services (21.8%), Public Administration (9.2%), Agriculture and Forestry (5.75%), and Leisure and Hospitality (5.75%) are the most common industries among employed respondents. 19% of respondents held a remote job.

Primary Residence of Resident Respondents

Cañon City is the primary residence for 97.3% of resident respondents. 87.6% are homeowners. 34.5% of respondents are new residents who moved to Cañon City in the last five years, 16.3% have lived in Cañon City for 6-10 years, and 49.2% are long-term residents who have lived in Cañon City for 11 years or longer.

56% of residents who listed the zip code of their previous residence moved to Cañon City from a different municipality in Colorado. Texas (5.9%), Kansas (5.3%), and Florida (3.5%) were the next most common states residents moved from. For those who moved to Cañon City from elsewhere in Colorado, 28% had previously lived in a different Fremont County municipality. 21% moved from the Denver area (Denver, Jefferson, Douglas, Arapahoe, and Adams Counties) and 16% moved from the Colorado Springs area (El Paso and Teller Counties).

⁶⁷“Cañon City, CO,” Accessed December 15, 2023, <https://datausa.io/profile/geo/Cañon-city-co-31000US15860>.

⁶⁸ Estimated for 2022

⁶⁹United States Census Bureau > Communications Directorate - Center for New Media, “QuickFacts: Cañon City City, Colorado,” Accessed December 15, 2023, <https://www.census.gov/quickfacts/fact/table/Cañoncitycolorado/POP060210>.

⁷⁰ DataUSA.io, “Data USA.”

These data suggest that there is a trend towards migration from urban areas. New residents who have lived in Cañon City for five years are roughly 7% more likely to have moved from the Denver or Colorado Springs areas, and less likely to have relocated from elsewhere in Fremont County.

Demographics of Nonresident Respondents

The demographic distribution of nonresidents is shown in **Table 7**. Nonresident survey respondents were older, more likely to be male, and reported higher incomes than resident respondents. Additionally, the nonresident survey had greater representation from Hispanic and Latino respondents, but fewer respondents identified as nonwhite, or multiple races. The difference in gender representation between the resident survey (65% female) and the nonresident survey (32% female) is particularly stark.

The online survey was distributed in a manner that made it more likely to reach a representative sample for nonresidents than for residents. 38% of all nonresident respondents were not trail users compared to only 10% of resident respondents. This suggests that the nonresident results may not be as skewed toward trail users.

Table 7 - Online survey response demographics, for nonresident respondents

	Survey Results	Response Rate
Population	39	NA
Median Income	100,001 - 150,000	71.8%
Median Age	55-64	82.1%
Gender - % Female	32.3%	79.5%
Race - White Alone	100%	74.4%
Two or More Races	0%	74.4%
Hispanic or Latino?	9.7%	79.5%

5.3 Significance of Survey Results

Intercept Survey

Using data from *Strava Metro*, the estimated average trail use originating from the five trailheads surveyed in this study is 15,254 uses per year⁷¹. Based on this estimate, a sample size of at least 266 intercept survey respondents would be needed in order to confidently draw conclusions about trail use trends⁷². While this study’s sample size of 78 is not **representative** of all trail use, the results may be **indicative** of certain trends. In this report, the authors intend the findings presented to be interpreted and used as baseline data. Additionally, the intercept survey’s results are only indicative of summer trail use. Certain trail systems, such as

⁷¹The analysis for this figure is presented in section 6.1 of this report.

⁷²This sample size assumes the standard 90% confidence interval and 5% margin of error.

Oil Well Flats, are specifically known to be popular as Fall, Winter, or Spring mountain biking destinations⁷³. Additional sampling at all trailheads in different seasons would provide important information on the dynamics of trails-based tourism in Cañon City. Finally, there are many trailheads and access points for the South Canyon and Royal Gorge trails. This survey did not cover all these access points.

Online Survey

The demographic and employment data suggest that the online survey reached a cross-section of the Cañon City population that is fairly similar to the city's population. However there are three caveats: 1) the trend for respondents to skew female, 2) the higher median income, compared to Cañon City's population, and 3) the 90% trail use rate among respondents. The results from the online survey should be used to highlight certain values ascribed to trails, identify preferences and patterns of trail use, and note other trends among Cañon City trail users. The data should not be interpreted as representing the City's entire population.

⁷³ This observation is supported by Strava Metro data.

VI - Trail Use in Cañon City

This section describes the patterns of trail use by residents and nonresidents at the Oil Well Flats, South Canyon, and Royal Gorge trail systems. Data from the social media app *Strava* is used to provide baseline estimates for annual trail use at these trail systems. Additionally, data on all trails used by Cañon City residents is presented.

6.1 - Estimating Annual Trail Use Using Strava Metro

What is Strava Metro?

One strategy for estimating total trail use is to analyze data provided by Strava Metro. Strava is a fitness-tracking app with over 100 million users worldwide.⁷⁴ In addition to being an activity tracking app, Strava is also a social media platform. The app allows users to publicly post their activities for followers to view.⁷⁵ Strava Metro (Metro) is the ‘back end’ facet of Strava. Metro allows decision-makers to access data in order to better understand and analyze pedestrian and bicycle patterns in a given area. It is important to note that all Metro data is aggregated and de-identified. Furthermore, any activity recording that has been identified as ‘private’ or deleted by the user is not included.⁷⁶

Estimating Annual Trail Use

Cañon City does not currently have trail use counters installed at any of the trail systems surveyed in this study. However, Strava Metro offers an alternative method for estimating trail use. While only a minority of recreators record their activities on Strava, multiple studies have found correlations between trail use measured by trail counters and trail use recorded by Strava. Researchers from Headwaters published a methodology for using Metro data to extrapolate trail use estimates collected by a few trail counters along Whitefish, MT’s Whitefish Trail to the entire trail system. Researchers in Oslo, Norway, and Vancouver, Canada studied the correlation between activity data recorded by Strava and total activity estimates from trail counters. The strength of the correlation varied among these two studies, however their results suggest that data from Strava Metro can be reflective of broader trail use trends.

Strava Metro’s ‘trip origin’ feature allows users to identify the number of activities that began within a discrete, pre-established hexagonal area. Each hexagon covers .28 sq miles and uses the open-source H3 grid system.⁷⁷ Each of this study’s trailheads was completely encompassed by a hexagon, as shown in **Figure 3**. Using this function, the authors were able to access data on how many activities were recorded starting at each of the five surveyed trailheads. Approximately 2,929 annual trips originated from the Royal Gorge (Twisted Cistern

⁷⁴ “About Us,” Strava, Accessed December 3, 2023, <https://www.Strava.com/about>.

⁷⁵ Delfino, Devon, “What Is Strava??: How to Navigate and Use the Strava Fitness-Tracking App,” Business Insider, May 6, 2020, <https://www.businessinsider.com/guides/tech/what-is-Strava>.

⁷⁶ “Frequently Asked Questions,” Strava Metro, Accessed December 3, 2023. <https://metro.Strava.com/faq>.

⁷⁷ “Origins & Destinations,” Strava Metro, 2023, Accessed December 15, 2023, <https://Stravametro.zendesk.com/hc/en-us/articles/6281279621527-Origins-Destinations>.

and Made in the Shade), South Canyon (Eco Park and Eagle Wing), and Oil Well Flats (Upper) trailheads from 2019 - 2022. **Table 8** shows a full breakdown of the total number of recorded Strava activities, originating annually from each trailhead.

Figure 3 - The extent of Strava Metro’s *trip origin* cell for the Oil Well Flats Trailhead.

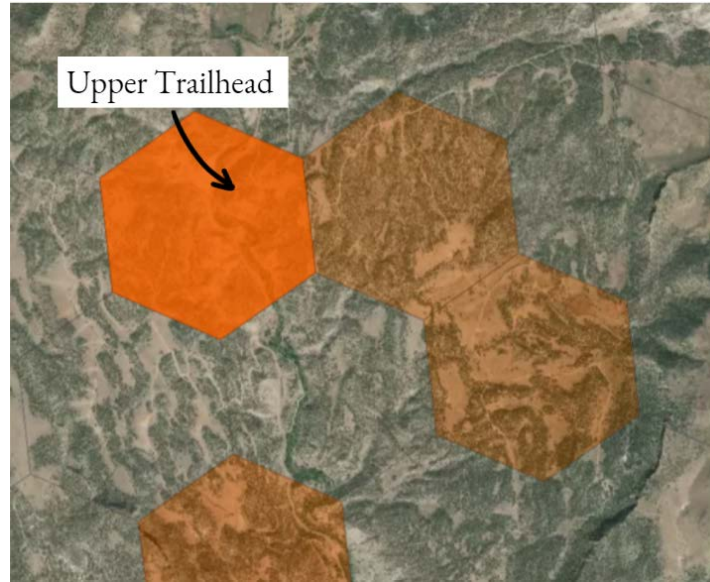


Table 8 - Total cumulative trail activities reported on Strava from 2019 - 2022, by trailhead

	Oil Well Flats		Royal Gorge		South Canyon	
	<i>Upper Trailhead</i>	<i>Twisted Cistern</i>	<i>Made in the Shade</i>	<i>Eagle Wing</i>	<i>Eco Park</i>	
Biking	4,295	1,375	1,985	1,235	795	
Foot Travel	325	940	200	255	310	
Total	4,620	2,315	2,185	1,490	1,105	

Trail activity is defined as the number of activities that originated from each trailhead.

By understanding the percentage of total trail use that is captured by Strava, it is possible to use Metro data to estimate the total average annual use originating from the five trailheads. The intercept survey asked each respondent whether or not they recorded, or were going to record, their activity on Strava. 19.2% of respondents indicated that they recorded their activity on Strava. This figure aligns with the Strava use rates observed by Headwaters for trail users in Whitefish, Montana. That study found that 17% of all trail users recorded their activities on Strava. Most other studies have found that Strava captures a much lower percentage of total use (between 1% and 10%), however, these studies are not specific to trails and have mostly been conducted in urban areas.

For this study, the authors estimated average annual trail use, originating from trailheads at the Royal Gorge, South Canyon, and Oil Well Flats Trails using low, medium, and high Strava use scenarios. 19.2%, the Strava use rate reported by the intercept survey, was used as the middle scenario. 10% and 30% were used for the low and high scenarios. Using the 19.2% scenario, the average annual use at these trail systems is estimated to be 15,254 uses. This is the trail use estimate used in the rest of this report. Trail use estimates for all three scenarios, as well as for each trail system, are shown in **Table 9**.

It is important to note that Strava data has been shown to be biased toward certain user groups. Studies have found that in many cases bikers use the app more than those traveling by foot. Furthermore, male, middle-aged, higher income, and more educated populations tend to utilize the app more, resulting in underrepresentation of particular socio-economic groups.⁷⁸ In this study, Cañon City residents were less likely to record their activity on Strava (13.13%) than nonresidents (26.3%). Installing trail counters, and conducting a dedicated trail use study will be needed to more accurately understand total trail use at these trail systems.

Table 9 - Estimated average annual trail use, based on Strava Metro data from 2019 - 2022

	All Trails	Oil Well Flats	Royal Gorge	South Canyon
10% Scenario	29,288	11,550	11,250	6,489
19.2% Scenario*	15,254	6,016	5,859	3,379
30% Scenario	9,763	3,850	3,750	2,163

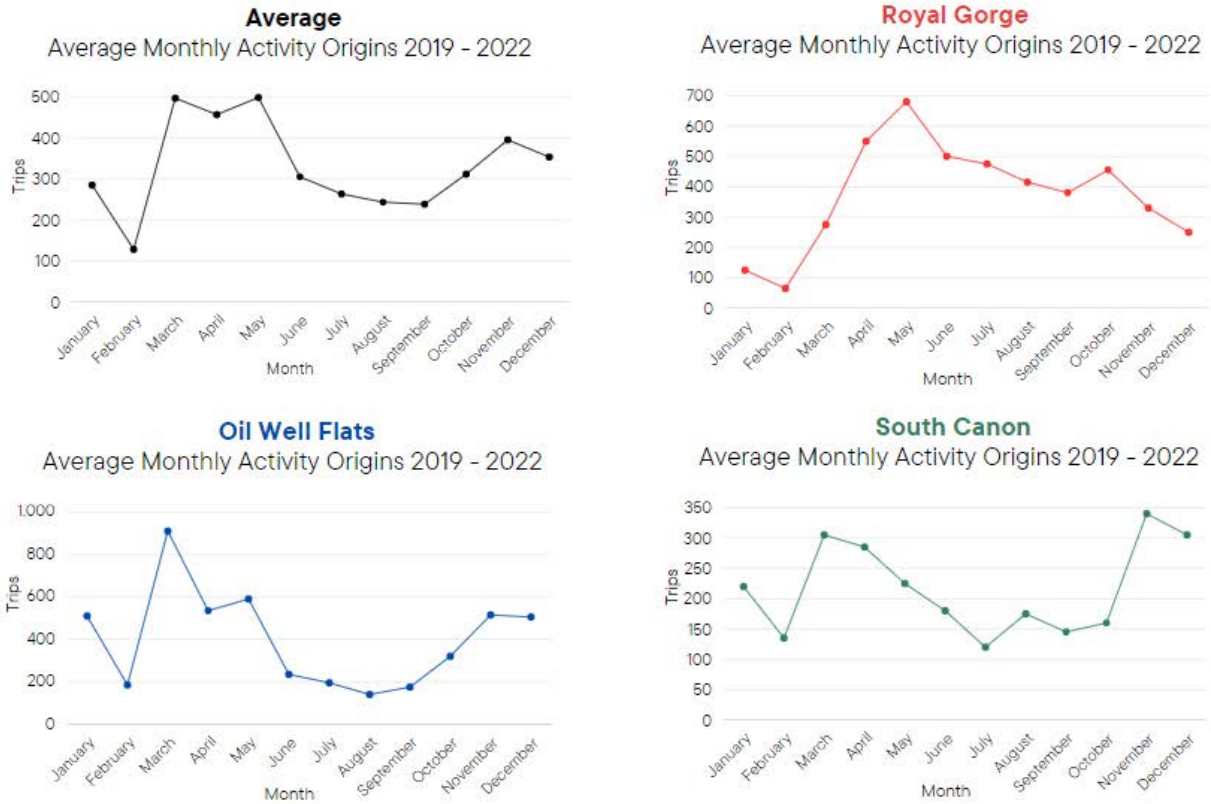
**The 19.2% scenario is based on the percentage of intercept survey respondents who reported recording their activity on Strava*

Estimating Seasonal Trail Use

The trip origins function also facilitates analyzing seasonal use trends for each trail system. The average use curve (**Figure 4**) shows spikes in trail use from March through May, and to a lesser extent from October through December. Each trail system has a slightly unique seasonal use curve. The Oil Well Flats and South Canyon trails follow this pattern more closely than the Royal Gorge Trails. The uptick in use during the shoulder seasons suggests that Cañon City may have potential as a shoulder season trails destination. This trend is consistent with anecdotal evidence referenced by stakeholders that trails-based tourism is strongest in the spring and in the fall. This trend also helps explain the low number of users intercepted at Oil Well Flats.

⁷⁸ Venter, Zander S., Vegard Gundersen, Samantha L. Scott, and David N. Barton, “Bias and Precision of Crowdsourced Recreational Activity Data from Strava,” *Landscape and Urban Planning* 232 (April 2023): 104686, <https://doi.org/10.1016/j.landurbplan.2023.104686>.

Figure 4 - Total activities recorded on Strava from 2019 - 2022, by trail system



6.2 - Trail Use Patterns & Characteristics (Intercept Survey Results)

Alongside Strava Metro data, the intercept survey collected valuable data on respondents' trail use patterns and preferences.

Return vs. First-Time Trail Users

Most intercept survey respondents were return users, accounting for 61% of those surveyed. Only 39% of respondents were first-time trail users, although 74% of nonresident respondents were first-time users. The Royal Gorge Trail System reported 30% return users compared to 97.6% return users at the South Canyon Trail System. These results make sense, given that 75.9% of users intercepted at the Royal Gorge Trail System were nonresidents whereas 79.4% of those intercepted at South Canyon were residents.

Trail Use Patterns & Activities

Respondents were asked to identify all activities they were participating in at the intercepted trail system during their trip. 73% of trail users indicated that they participated in hiking/walking on the trails. Biking was the second most popular activity with 40% of users participating. Running and off-highway vehicle (OHV) activities lagged behind with 5% and 2% of total use, respectively. No equestrian users were intercepted in this

survey. It is worth noting that many respondents participated in more than one activity during their visit, and the sum of multiple activities can total over 100%.

Each trail system had a unique distribution of recorded activities (**Table 10**). The Royal Gorge and South Canyon trail systems were most popular among hikers/walkers, with 80% and 68% of use, respectively. 75% of users intercepted at the Oil Well Flats trails were mountain bikers, however, only four trail users were intercepted at that trail system.

Table 10 - The percent of total trail use by hikers and bikers, for each trail system

	Total Use	Oil Well Flats ⁷⁹	Royal Gorge	South Canyon
Biking	40%	75%	36%	41%
Hiking	73%	25%	80%	68%

Percentages can total over 100 because some participants engaged in both activities in one visit.

The survey also captured data on the miles traveled by each user during their activity (**Table 11**). Hikers and bikers displayed substantially different preferences for trip length. 73.7% of hikers/walkers traveled between 1-5 miles, while only 13.6% of bikers recorded rides less than 5 miles. For bikers, 40.9% rode between 5 and 10 miles, and 45.4% rode over 10 miles. No hikers recorded trips over 10 miles. These data indicate unique needs among hikers and bikers regarding the length and extent of trail systems.

Table 11 - The percent of trail users, by total distance traveled during their activity

	1-5 Miles	5-10 Miles	10-15 Miles	15+ Miles
All Activities	52.5%	33.7%	9.9%	4%
Hiking	73.7%	26.3%	-	-
Biking	13.6%	40.9%	31.8%	13.6%

Where do Trail Users Access Trail Information & Conditions?

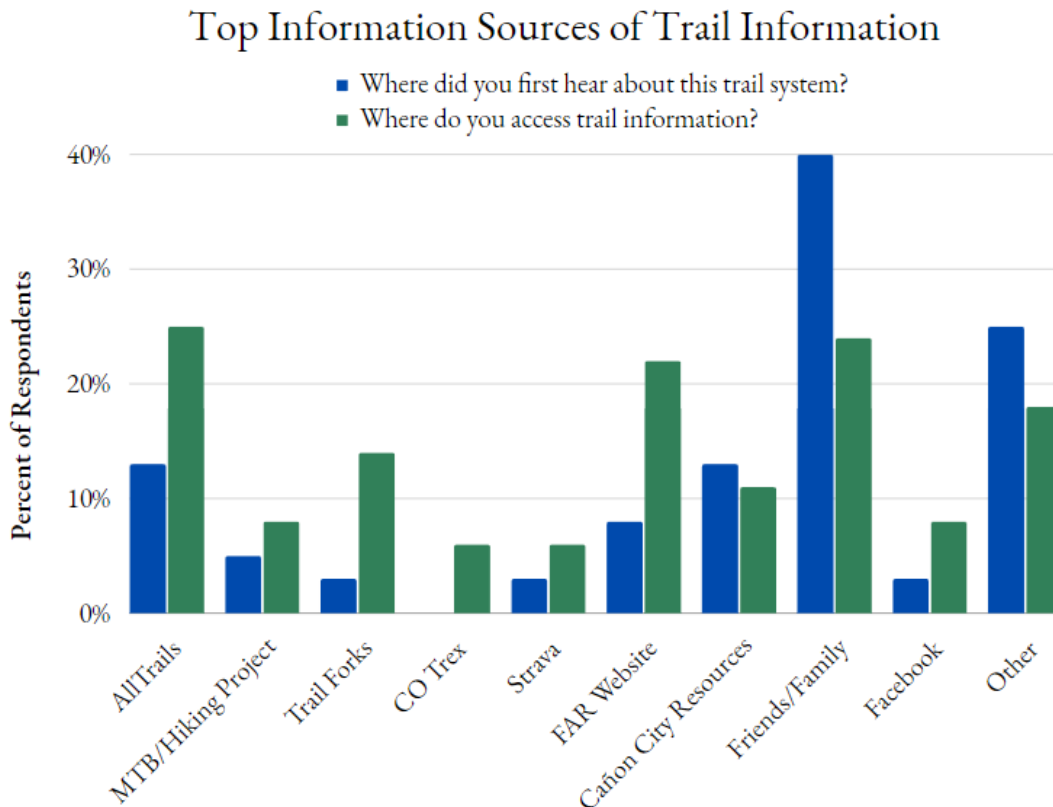
Understanding how trail users first discover trails, and where they access information on trail conditions is key to effectively marketing Cañon City as a trails destination. Respondents were asked where they first heard about the trail systems, and where they go to access up-to-date trail information, such as conditions, new trails, and closures (**Figure 5**). “Friends and family” was the most common response when trail users were asked where they first heard about the trails. 43% of residents and 37% of nonresidents indicated they learned about the trails from friends or family. Among the other responses, Cañon City residents were more likely than nonresidents to discover trails through local resources such as Cañon City Information Resources (24% of residents) or the FAR

⁷⁹ Only 4 trail users were intercepted at Oil Well Flats. The percentages reported may be less representative than for the other trail systems.

website (16% of residents). Nonresidents, on the other hand, were more likely to discover trails through online trails information websites such as AllTrails (26% of nonresidents).

Respondents cited different sources when asked where they access trail status, conditions, and other information prior to use. While 35% of residents still utilized friends and family, the most common source of information for residents was the FAR website (47%). Nonresidents, again, cited AllTrails (39%) as the most common source for up-to-date information. 19% of nonresidents used the TrailForks app.

Figure 5 - Common sources of trail information for intercept survey respondents



6.3 - Trail Use Patterns of Cañon City Residents (Online Survey Results)

The online survey also provided insight into the trail use patterns of Cañon City residents. Residents were asked to select all trails in the Cañon City area that they had used in the last year. Additionally, respondents selected a single trail or trail system as their ‘primary’ or most used trail(s). **Table 12** shows the percentage of residents who selected each trail system for both categories. Tunnel Drive is the most commonly used trail in Cañon City, and had been used by 80.5% of survey respondents in the last year. The Royal Gorge, South Canyon, and Oil Well Flats trails were all among the top five most used trails. The data on residents’ primary trail systems, however, demonstrates a preference for trail systems closer to town with the South Canyon trails (25.9%) being a clear favorite. While the Royal Gorge trails were used by 70.8% of residents in the past year, only

8.5% selected these trails as their primary trail system. Oil Well Flats was the primary trail system for even fewer (4.7%) of residents.

Table 12 - The most used trails by resident respondents to the online survey

Trail System	% Total Use	% Primary Trail System
Tunnel Drive	80.5%	18.2%
Royal Gorge	70.8%	8.5%
South Canyon	63.6%	25.9%
Hogback Flats	62.3%	16.5%
Oil Well Flats	54.7%	4.7%
Red Canyon Park	51.69%	6.4%
Shelf Road	39%	2.54%
Tanner-East Bear Gulch / Stultz Trail	22.9%	1.3%
Seep Springs	15.7%	2.1%
Beaver Creek State Wildlife Area	15.6%	.4%
Lion Canyon	11.9%	.9%

VII - The Economic Value & Impacts of Trails in Cañon City

This section provides information collected by the intercept and online surveys on per capita spending by nonresident trail users, their travel & lodging choices, the influence of trails on driving tourism to Cañon City, the total value of the trails to users, and spending by residents on outdoor recreation goods and services.

7.1 - Economic Impact Assessments Applied to Trails

Economic impact assessments measure the amount of value added to an economy through visitor spending, tax revenue, and jobs created by a specific project, policy, or amenity.^{80 81} Economic impact is commonly divided into direct, indirect, and induced effects^{82 83}. Applied to trails, direct effects encompass any spending that can be directly tied to the use of trails. For example, this would include money spent in the local economy by a trail user who travels to Cañon City and purchases a meal at a local restaurant. The indirect economic impacts of trails would encompass any ‘business to business’ spending that results from that direct purchase. For instance, when the restaurant purchases food from a local farmer as a result of added business from trail users, that spending would be an indirect effect. Finally, the induced economic impacts of trails refer to spending that is the result of income tied to the use of trails. In this example, the induced impacts include any spending in Cañon City by a waiter at the restaurant, who was hired to help handle the increased demand from trail users. Because economic impact analysis aims to quantify spending in the community that would not have existed otherwise, this analysis only considers nonresident spenders⁸⁴.

7.2 - Methods & Limitations

The authors took a multi-faceted approach to understanding how trails impact Cañon City’s economy. The intercept survey collected data on the length and location of visitors’ stays in Cañon City, and their total spending during their trip. Resident and nonresident respondents to the intercept survey were asked to estimate the amount of money they would hypothetically be willing to pay to use the trails for a day. This was used for a contingent valuation of the trails’ value. The online survey also collected data on nonresidents’ travel characteristics, length of stay, and spending in Cañon City. Resident respondents to the online survey were asked a series of questions about their spending on outdoor recreation goods and services.

Calculating comprehensive economic impact figures for total value added, tax revenue, and jobs created was beyond the scope of this project for two primary reasons. First, calculating an economic impact value tied to trail use requires an accurate estimate of the total population of trail users. The authors do not feel that the trail use estimates presented in this report are robust enough to be used to calculate economic impact.

⁸⁰ “The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana,” April 2018.

⁸¹ Casey, Tim, Cory Castaneda, and Nathan Perry, “Grand Valley Public Trail Systems Socio-Economic Study, Mesa County, Colorado,” Colorado Mesa University, 2018.

⁸² Demski, Joe, “Understanding IMPLAN: Direct, Indirect, and Induced Effects,” Accessed December 15, 2023, <https://blog.implan.com/understanding-implan-effects>.

⁸³ Lukoseviciute, “The Economic Impact of Recreational Trails”

⁸⁴ “The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana,” April 2018.

Second, the sample sizes achieved by the surveys in this study are too small to extrapolate spending trends. Because economic impact is concerned with quantifying spending that would not have occurred without the trails, many economic impact assessments only consider spending from *primary users*⁸⁵. However, some studies choose to look at economic impact more broadly. The 2018 study on trail usage and value in Helena, MT, calculated the economic impacts of all nonresident trail users⁸⁶. Another 2018 study on the economic impacts of the Whitefish Trail to Whitefish, MT, estimated the impacts of the 59% of trail users who identified the trail as “a somewhat or very important reason for their visit”. Our intercept survey collected spending profiles for 48 nonresident trail users. Only 16 of these respondents identified as *primary users*, those whose primary purpose for their visit was to use the trail systems. 28 profiles were collected for *secondary trail users*, those respondents who indicated that the opportunity to use the trails influenced their decision to visit Cañon City.

50% of all trail users sampled were nonresidents, and 89.6% of all nonresidents sampled are primary or secondary trail users. Based on this data, 44.8% of all trail users are primary or secondary trail users. By using the average annual trail use estimate of 15,254 users provided in section 6.1, and applying these findings, the authors estimate that 6,864 nonresidents visit Cañon City each year in order to use trails. In order to estimate the total economic impact of these trail users with 90% confidence and only 5% error⁸⁷, 261 primary and secondary nonresident trail users would need to be surveyed. Based on this study’s findings, a total intercept survey sample of at least 586 trail users would be required to reach this threshold⁸⁸.

Although the authors did not attempt to calculate total economic impact, this report does present baseline data on the travel characteristics of nonresident trail users, the influence trails have on tourism in Cañon City, the per capita spending by nonresident trail users during their visit, and the spending by residents on outdoor recreation goods and services.

7.3 Primary Residence, Lodging, and Length of Stay for Nonresidents

Intercept Survey

Nonresident trail users stayed in the Cañon City area for 1.8 days on average, with the majority of respondents traveling to the area for just one day. 34 nonresident respondents (68%) stayed overnight in or near Cañon City during their visit (**Table 13**). Nearly all stayed in short-term rentals (32.4%), paid campsites (29.4%) or hotels, motels and lodges (26.5%).⁸⁹ Only 1 respondent indicated that they stayed at a free, dispersed camping area during their visit.

⁸⁵ Personal communication, Brian Lewandowski, 2023.

⁸⁶ Sage, Jeremy L., and Norma Nickerson, “Trail Usage & Value: A Helena Case Study.”

⁸⁷ The statistical standard is to use a 95% confidence interval, 90% is used here because this is a more feasible number to aim for in future studies.

⁸⁸ This figure is calculated using the assumption 44.8% of all survey respondents could be used to calculate economic impact for primary and secondary trail users. If calculating economic impact figures for only primary users, only 16.5% of all surveys collected could be used.

⁸⁹ All visitors who stayed in short term rentals or motels, hotels, and lodges, except one, indicated that their lodging was located within Cañon City or the Royal Gorge area. The one exception stayed in Westcliffe.

Table 13 - The lodging choices of nonresident trail users, captured by the intercept survey

Short Term Rental	32.4%
Hotel, Motel, or Lodge	26.5%
Paid Campsite	29.4%
Free Campsite	2.9%
Stayed with Family/Friends	8.8%

Only 35% of nonresident trail users visited from out of state (**Table 14**). Of the 65% who were Colorado residents, 37% live in the Colorado Springs area⁹⁰ and 17% live in the Denver area.⁹¹

Table 14 - The home state of nonresident trail users, captured by the intercept survey

State	Number of Trail Users	Percent of All Nonresident Trail Users
Colorado	30	65%
Texas	5	11%
Oklahoma	3	7%
Kansas	3	7%
Utah	1	2%
California	1	2%
Illinois	1	2%
Florida	1	2%
New York	1	2%

Online Survey

Nonresidents who completed the online survey spent between one and 20 days in Cañon City. Excluding a single outlier of 20 days, the average visitor spent 1.9 days in the region.

While 35% of intercept survey respondents visited the Cañon City area from out of state, only 5% of nonresident online survey respondents lived outside Colorado. Additionally, a much higher percentage of online

⁹⁰ El Paso and Teller Counties

⁹¹ Jefferson, Douglas, Arapahoe, Adams, and Denver counties

survey respondents visited from the Denver metro area. 41% were visiting from the Denver area⁹² and 19% visited from Colorado Springs.⁹³

Over 90% of respondents indicated that they had previously visited Cañon City. 19 (50%) respondents reported staying overnight in the Cañon City area during their visit. 23 (61%) indicated that they used trails. 77% indicated that they were “extremely likely” to visit Cañon City again.

7.4 The Influence of Trails on Driving Visitation to Cañon City (Intercept Survey)

The intercept survey asked respondents to select all the reasons they chose to visit Cañon City, from a list of 10 options. Respondents were then asked to select their *primary purpose* for visiting (**Figure 6**). Trails were identified as a *secondary purpose* for visitors who responded ‘yes’ to the question “Did the opportunity to use trails influence your decision to visit Cañon City?”.

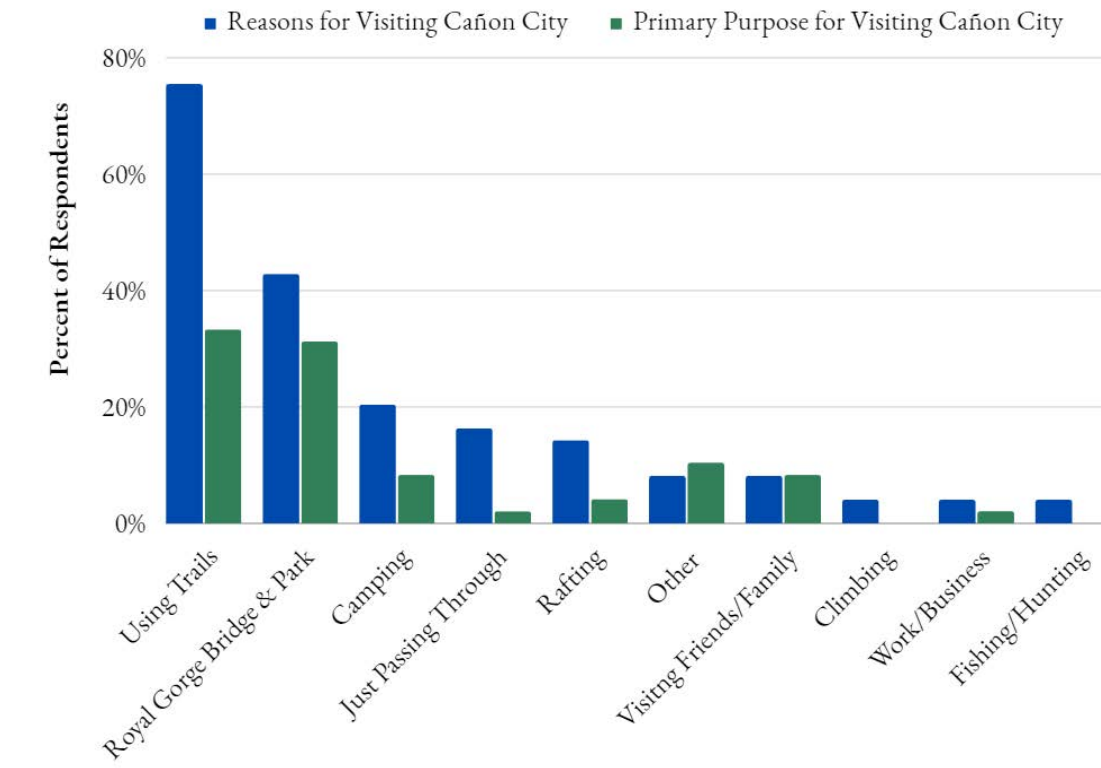
“Using trails” was a factor in choosing to visit Cañon City for 75.5% nonresident respondents. “The royal gorge bridge and park” (42.8%), “camping” (20.4%), and “just passing through” (16.3%) were the next most common reasons visitors chose Cañon City. While most respondents indicated that using trails was a factor in their decision to visit, only 33% indicated that “using trails” was their primary purpose. In total, using trails was the primary or secondary purpose for 89% of nonresident trail users. Additionally, 19% of visitors extended their stay by at least one day in order to use trails.

Interestingly, “using trails” was more likely to be the primary purpose for mountain bikers visiting Cañon City than for hikers. Of the 14 mountain bikers surveyed, 50% indicated that using trails was the primary purpose for their visit. In contrast, only 25% of hikers selected “using trails” as their primary purpose. 39% of hikers selected “Royal Gorge Bridge and Park” as their primary purpose compared to only 1 mountain biker (7%).

⁹² Jefferson, Douglas, Adams, Arapahoe, and Denver Counties.

⁹³ El Paso and Teller Counties

Figure 6 - Reasons for visiting Cañon City, for nonresident trail users captured by the intercept survey
Factors Driving Visitation to Cañon City among Nonresident Trail Users



7.5 - Spending by Nonresidents

Both the intercept and online surveys asked nonresidents to complete a spending profile for their visit to Cañon City. While the intercept survey only captured the spending of nonresident trail users, the online survey data includes spending by non trail users. Respondents estimated the total dollars their household spent in Cañon City for 10 categories: lodging, gas, transportation, retail, restaurant/bars, grocery/liquor, outdoor recreation services, tourist services, entertainment, and other.

Table 15 shows the average and median spending, as well as standard deviations, for both the intercept and online surveys. The two surveys yielded similar results. Together, their results indicate that 73-82% of visitors to Cañon City contribute to the local economy during their visit. Spending averages between \$70 and \$85 per day, and median spending is \$45-\$50.

Table 15 - The average and median spending, and standard deviation*, for respondents to the intercept and online surveys

	<i>Intercept Survey</i>			<i>Online Survey</i>		
	AVERAGE	MEDIAN	STDEV	AVERAGE	MEDIAN	STDEV
Total	\$84.7	\$45.0	\$117.7	\$70.8	\$50.0	\$77.7
Lodging	\$23.2	\$2.5	\$41.6	\$12.5	\$0.0	\$23.4
Gas	\$10.5	\$6.3	\$15.3	\$9.9	\$0.0	\$15.0
Transportation	\$0.1	\$0.0	\$0.7	\$1.1	\$0.0	\$6.1
Retail	\$5.7	\$0.0	\$12.3	\$9.9	\$0.0	\$22.1
Restaurant/Bars	\$14.4	\$0.0	\$19.9	\$24.6	\$25.0	\$26.3
Grocery/Liquor	\$4.3	\$0.0	\$10.7	\$5.7	\$0.0	\$8.2
OREC Services	\$11.6	\$0.0	\$59.5	\$4.1	\$0.0	\$11.4
Tourist Services	\$4.1	\$0.0	\$9.8	\$1.6	\$0.0	\$6.3
Entertainment	\$0.3	\$0.0	\$1.3	\$1.6	\$0.0	\$5.9
Other	\$10.4	\$0.0	\$72.2	\$1.4	\$0.0	\$7.4

**Standard deviation measures the spread, or variance among data. A higher standard deviation indicates great spread among responses, while a small standard deviation indicates that data is more clustered.*

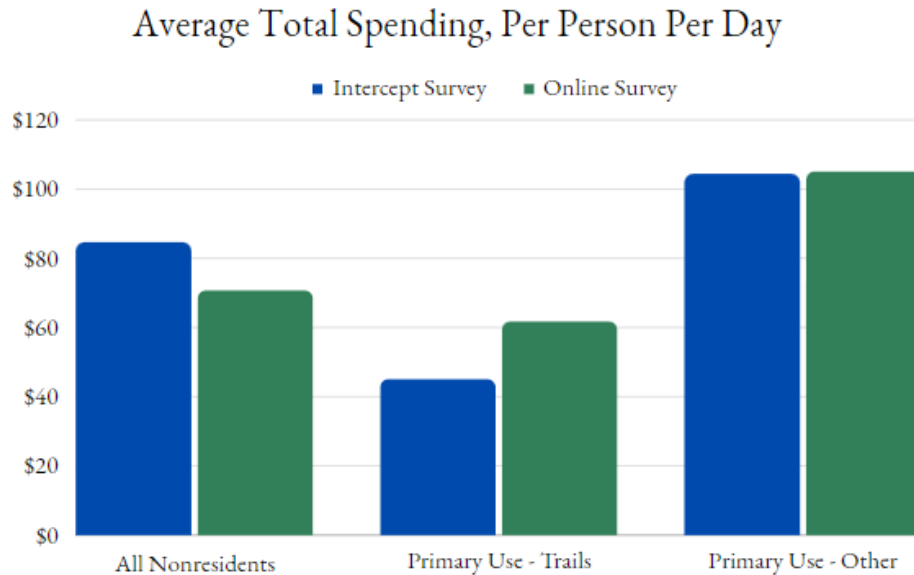
Intercept Survey

Spending profiles were collected for 48 nonresident trail users. 35 (73%) respondents reported purchasing goods or services in Cañon City during their trip⁹⁴. Total spending, per person per day, ranged from \$0 to \$500, and the median respondent spent \$45 per day during their stay. Spending averaged \$84.7 per person, per day, however, this figure is skewed by three outlier spenders who spent over \$4000 per day. Excluding these three respondents, average spending shifts closer to the median, at \$59.20 per day. Because of the wide range in spending values and small sample size median spending is likely more indicative of trends among trail users.

Nonresidents whose primary purpose for visiting Cañon City was using trails spent less on average than trail users who visited for another purpose (**Figure 7**). Primary trail users averaged \$45.2 per day, whereas other users averaged \$104.4 per day. Even after excluding outliers, users whose primary purpose was using trails spent \$20 less, on average, than other users.

⁹⁴For the purposes of this analysis blank responses were treated as \$0 responses if any part of the spending profile section of the survey was completed. This has the potential to underestimate the total percent of respondents who spent money in Cañon City during their trip. See Appendix E [Data Alterations] for more discussion of this issue.

Figure 7 - Average total spending per person per day, by primary purpose



Online Survey

The spending profiles collected by the online survey are consistent with the intercept survey’s results. Spending data was collected for 29 nonresident respondents. 19 indicated that they had used trails during their trip and 10 indicated that they had not. However, 23 respondents indicated that they were visiting Cañon City for the primary purpose of using trails while only 6 of the respondents indicated that using trails was not the primary purpose for their trip. There were 9 respondents who stated that the primary purpose for their trip was using trails, while also indicating that they did not use trails during their trip. This discrepancy makes it challenging to confidently parse the spending tendencies of trail users and non trail users.

24 (83%) respondents reported spending money in Cañon City. Among those who reported spending, total spending ranged from \$16.8 to \$395. The average respondent spent \$70.77 per day in Cañon City and the median respondent spent \$50 per day. Excluding the lone outlier of \$395, average spending was \$59.19 per day.

7.6 Willingness To Pay (Intercept Survey)

An alternative method for assigning a monetary value to public access trail systems is contingent valuation. Contingent valuation, also referred to as willingness to pay (WTP), involves asking stakeholders to assign a hypothetical monetary value to a priceless good or service⁹⁵. The total value of that good or service to its community of users can be estimated by multiplying the average WTP value by the total population of users.

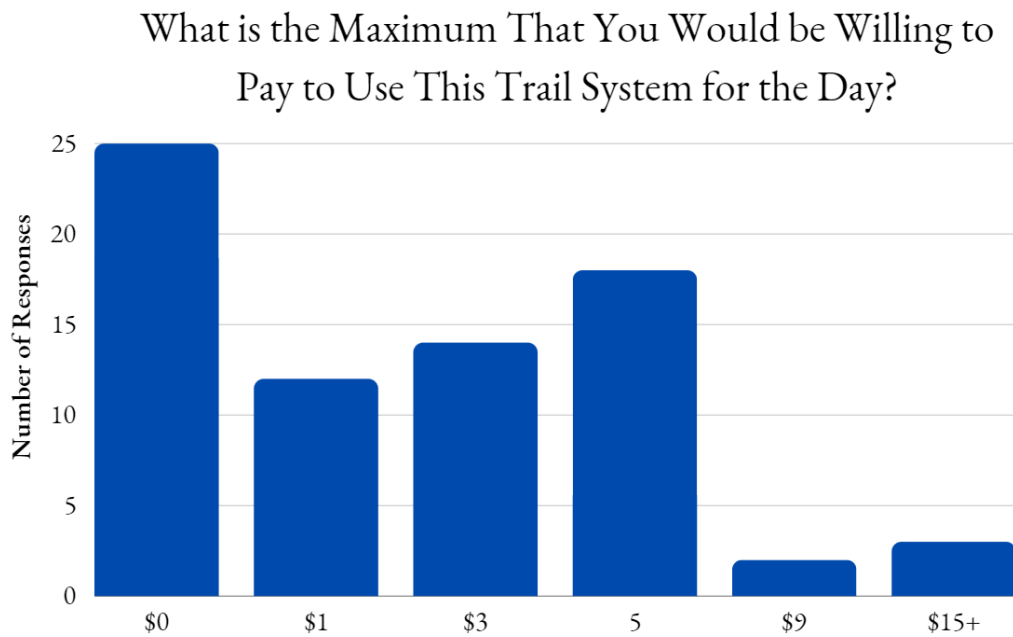
We asked intercept survey respondents to indicate the maximum amount of money, in dollars, that they would pay to use the trails for a day (**Figure 8**). Surveyors clarified that responses to this question will not be

⁹⁵ Casey, Tim, et.al. 2018, “Grand Valley Public Trail Systems Socio-Economic Study, Mesa County, Colorado.”

used to set a trail fee, and that responses will be used only to assign a monetary value to the trail systems. Respondents were given seven choices: “I would not pay to use trails”, \$1, \$3, \$5, \$9, \$15, or \$15 or more⁹⁶.

34% of all respondents indicated that they would not pay to use trails. 16% would pay \$1, 19% would pay \$3, 24% would pay \$5, 3% would pay \$9, and 4% would pay \$15 or more.⁹⁷

Figure 8 - Willingness to pay responses by nonresidents, for the Royal Gorge, South Canyon, and Oil Well Flats trails (intercept survey)



On average, intercept survey respondents indicated that they would be willing to pay \$3 per day to use the Royal Gorge, South Canyon, or Oil Well Flats Trails. Using the estimated annual trail use figure of 15,254, presented in section 6.1, these three trail systems are worth roughly \$45,762 per year to trail users.

7.7 - Outdoor Recreation Spending in Cañon City (Online Survey)

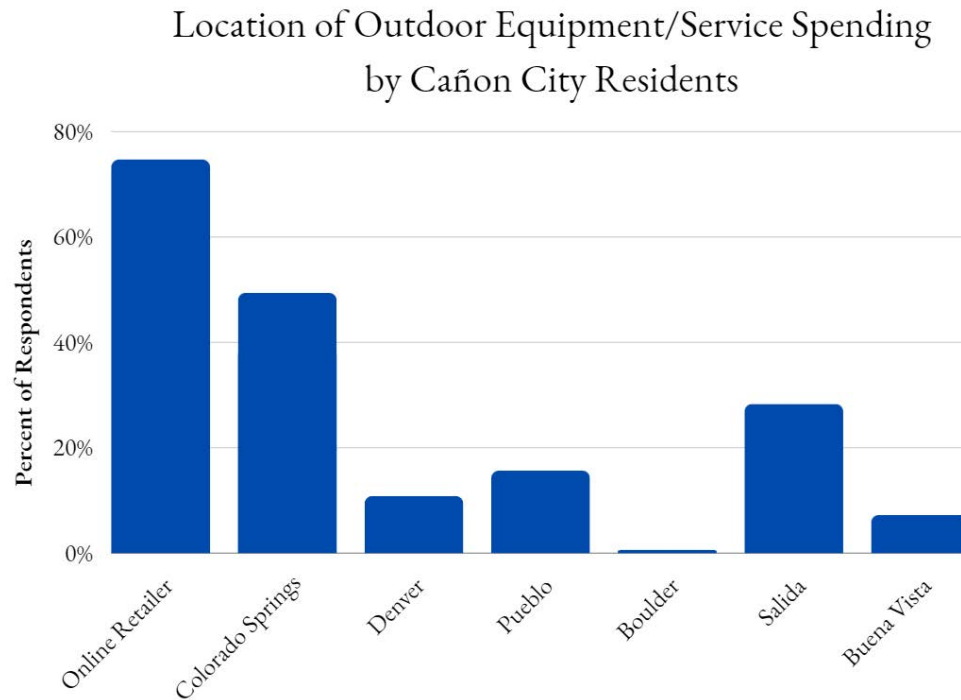
The data collected about residents’ spending on outdoor recreation goods and services in Cañon City suggests that there is ample opportunity to grow the city’s outdoor recreation economy. The online survey asked residents a series of questions about their spending, and where they went to purchase equipment or services. Of the 246 residents who responded to the spending section of the survey, 75.6% claimed to have purchased outdoor gear in the past year. Among those who had purchased outdoor recreation equipment, annual spending ranged widely from \$100 to \$25,000. Average spending was \$2,256 and the median respondent spent \$1,000 annually on outdoor gear.

⁹⁶ Respondents who were selected “\$15 or more” were asked to input a dollar value into a text box. The only respondent who selected “\$15 or more” did not indicate a dollar value. This response was calculated as \$16 for all calculations.

⁹⁷ Because the “\$15” and “\$15 or more” options are not mutually exclusive, they are considered together for this metric.

However, only 11.8% of total dollars were spent in Cañon City. Respondents estimated spending between \$0 and \$5,000 in Cañon City, and averaged only \$236 in the past year. Online retailers and stores in Colorado Springs were the most common destinations for outdoor gear and service purchases (**Figure 9**). 35% of respondents who reported spending outside Cañon City spent at least some of their outdoor recreation budget in Buena Vista or Salida. These two small towns are outdoor recreation destinations located 1 hour (Salida) and 1.5 hours (Buena Vista) from Cañon City. Purchases by Cañon City residents in these towns represent spending that could likely be moved to Cañon City.

Figure 9 - The percent of resident respondents (online survey) who reported spending at various locations outside Cañon City



7.8 Comparing Economic Impact Data with Other Case Studies

Economic impact studies throughout the Rocky Mountain region have demonstrated that hiking and biking trails can contribute millions of dollars annually to outdoor recreation communities. Three trail systems in Mesa County, CO,⁹⁸ are responsible for adding an estimated \$14.5 million annually to the region's economy through visitors' expenditures. In Whitefish, MT, a report by Headwaters estimates that the Whitefish trail is directly responsible for 68 jobs and \$1.9 million in labor income that would not have been present without the trail. A similar study in Helena, MT concluded that trails contributed \$1.5 million in labor income to the region, and added a total of \$2.2 million in value to the city's economy.

Our study indicates that average daily spending by nonresident trail users in Cañon City is similar to the figures reported for Helena and Mesa County. In Mesa County, family group spending averaged \$437.25 per

⁹⁸ The Kokopelli, 18 road, and Lunch Loops trail systems.

trip. When adjusted for average family group size and length of stay this figure converts to \$46.88 per day, which is comparable to the \$45 median spending value reported in this study.

The Helena study reported average daily spending values similar to the averages in this study. Interestingly, the Helena study found that out of state visitors⁹⁹ averaged more spending per day (\$83.78) than non-local Montana residents (\$71.87). Reported daily spending by visitors to Whitefish was much higher, averaging \$261 per day. Notably, only 19% of nonresident trail users in Whitefish were from Montana, whereas 70% of nonresident trail users in Helena were non-local Montana residents. This report's finding that 65-95% of nonresident trail users are non-local Coloradans suggests that tourism to Cañon City is more closely aligned with Helena than Whitefish. These trends also align with the lower average daily spending value reported by the online survey, which had much lower representation from out of state visitors.

The most notable difference between our results and those reported by studies in Helena, Whitefish, and Mesa County is that nonresident trail users in Cañon City reported much shorter lengths of stay. Nonresident trail users stayed an average of 3.6 days in Mesa County. In Whitefish, where most visitors were from out of state, the average visitor stayed 5.8 days. In contrast, visitors to Cañon City, who were predominantly Colorado residents, spent between 1.8 and 1.9 days in the area, on average. The Helena study offers a potential explanation. Out-of-state visitors to Helena stayed an average of 5.8 days. However non-local Montana trail users stayed an average of only 1.8 days. Out of state visitation is likely a key factor in driving longer lengths of stay among nonresident trail users. Increasing visitation by out of state trail users would likely contribute more to Cañon City's economy than a similar increase in tourism from in state trail users.

Total trail use is the other area where Cañon City lags behind these three communities. Mesa County found that the three trail systems studied drew over 198,000 visitors each year, and over 135,000 (69%) were nonresidents. In Whitefish, just under 73,000 total uses were estimated for the four Whitefish Trail trailheads studied. Over 22,000 (30%) of these uses were by visitors. The Helena study only measured economic impact, for May through September and found over 63,000 uses in that time frame. Roughly 22% (over 13,000) of May - September uses were by nonresidents. In contrast, this study estimates that total trail use for the South Canyon, Royal Gorge, and Oil Well Flats trails¹⁰⁰ is just over 15,000 uses each year.

While Helena, Whitefish, and Mesa County all have more developed outdoor recreation economies than Cañon City, the comparable daily spending reported by our study indicates that with continued growth in trails-based tourism, Cañon City has the potential to realize similar economic benefits.

⁹⁹ The Helena, MT study refers to trail users visiting from outside Montana as “nonresidents” and visitors from other communities in Montana as “nonlocal”.

¹⁰⁰ This is the figure presented in section 6.1 using Strava Metro data, the intercept survey results and percent of Strava users.

VIII - The Value of Trails for Residents (Online Survey)

This section covers the non-economic impacts that trails have for Cañon City residents. All data presented in this section was collected by the online survey. This includes data on the importance of trails in residents' decision to live in Cañon City, the value of trails to residents' daily lives compared to other community amenities, motivations for using trails, and barriers to trail use.

8.1 Decision to Move to/Stay in CC

Resident respondents to the online survey rated the importance of 10 factors on their decision to move to or stay in Cañon City. The importance of each factor was rated on a likert scale from “not important at all” to “very important”. Average scores for each category were calculated by converting responses to a 1-5 scale.

“A Safe and Secure Community” is the most important factor for those choosing to live in Cañon City. “Access to Trails” and “An Outdoor Recreation Community” are the next most important factors. Residents also selected their top three factors. “Access to Trails” was most commonly included among respondents' top three, followed by “Weather and Climate” and “Friends and Family in the Community”.

Importance of Trails for New Residents

Outdoor recreation, including access to trails, appears to be particularly important to newer residents, who moved to Cañon in the last five years. Newer residents were 25% more likely than long term residents¹⁰¹ to rate ‘access to trails’ as “very important” in their decision to move to or stay in Cañon City. Newer residents were also 20% more likely than long term residents to rank “access to trails” and “outdoor recreation community” among their top three factors. “Other (non trails-based) outdoor recreation opportunities”, and “an outdoor recreation community” were also rated higher by newer residents (**Table 16**).

¹⁰¹ Long term residents are defined as residents who have lived in Cañon City for 11 years or longer.

Table 16 - The importance of various factors on residents’ decisions to move to or stay in Cañon City

	Average ¹⁰²	Percent of Respondents Who Selected “Very Important”	
	All Respondents	New Residents	Long Term Residents
Safer Community	4.64	70.9%	71.3%
Trail Access	4.25	65.1%	41.8%
Outdoor Recreation Community	4.24	57.5%	42.9%
Balanced Life	4.24	46.0%	40.5%
Other Outdoor Recreation Access	4.16	53.5%	34.4%
Affordable Housing	4.06	36.1%	40.2%
Climate	4.06	32.2%	28.9%
Friends & Family	3.9	33.7%	46.8%
Work	3.56	24.4%	30.0%
Schools	3.51	25.9%	43.8%

New residents are those who indicated that they have lived in Cañon City for five years or less. Long term residents are those who have lived in Cañon City for 11 years or longer.

8.2 The Impact of Outdoor Recreation Amenities on Quality of Life

Respondents rated the importance of nine amenities to their daily quality of life¹⁰³. “River and Stream Access”, “Public Lands & BLM/US Forest Service Recreation Areas”, and “City Parks” were rated the highest, on average (**Table 17**). However, “the Royal Gorge, South Canyon, and Oil Well Flats trails” was the second most commonly selected amenity (49.8%) among respondents’ top three. Over one third (37.6%) of respondents indicated that these three trails were “very important” to their quality of life.

These data were analyzed for relationships to income, length of residency, and gender. New residents valued downtown amenities, cultural events, and trails more than long term residents¹⁰⁴. Additionally, trails were

¹⁰² Standard deviations for these averages ranged from 0.63 (for Safe Community) to 1.5 (for Schools). Most averages had a standard deviation between 0.8 and 1. Schools, Climate, and Balanced life had the least variation in responses, while Schools, Work, and Friends/Family had the most variation.

¹⁰³ Each amenity was rated on the same Likert scale as described in section 8.1. Likert responses were converted to a 1-5 scale to calculate averages.

¹⁰⁴ Certain metrics indicated that new residents ranked “a vibrant and active downtown”, “local arts and music”, and the royal gorge, South Canyon and oil well flats trail systems higher than long term residents. However these trends were not clear across all three metrics.

rated higher across all metrics by male respondents than by females (**Table 18**). Female respondents, on the other hand, were 15% more likely than males to rate “community events” as “very important.”

Table 17 - The importance of various amenities to residents’ quality of life in Cañon City

	Average	“Very Important” - % of Responses	Top 3 - % of Respondents
River and/or Stream Access	4.3	43.7%	64.0%
Other Public Lands & BLM/Forest Service Recreation Areas	4.2	37.7%	35.2%
City Parks	4.1	34.3%	31.6%
Royal Gorge, South Canyon, or Oil Well Flats Trails	4.0	37.6%	49.8%
A Vibrant & Active Downtown	3.9	31.6%	32.8%
Community Events	3.9	26.9%	29.6%
Local Arts & Music	3.8	28.6%	16.6%
Other Fremont County Trails	3.7	24.3%	20.6%
Royal Gorge Bridge & Park	3.2	10.2%	8.7%

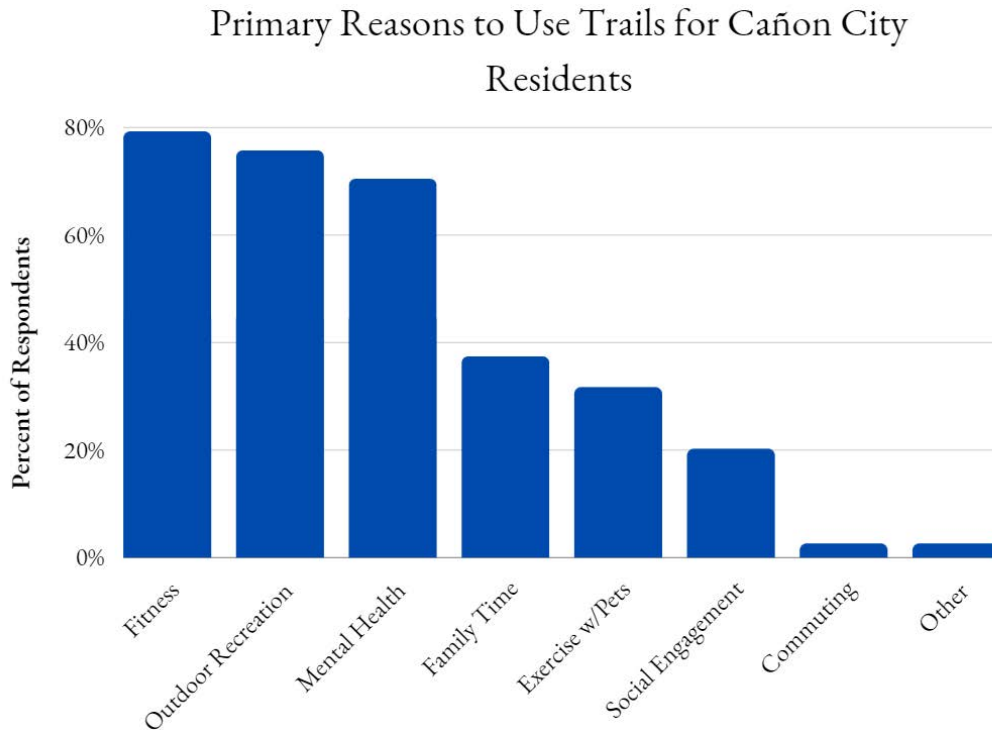
Table 18 - The importance of the “Royal Gorge, South Canyon, or Oil Well Flats” trails, by gender identity

	Average	“Very Important” - % Responses	Top 3 - % Respondents
Male	4.2	46.4%	64.3%
Female	3.95	35.5%	43.2%

8.3 Motivations for Trail Use

Residents identified as trail users¹⁰⁵ were asked to select their primary reasons for using trails (**Figure 10**). Fitness (79.3%), outdoor recreation (75.8%), and mental health (70.5%) are the three most common reasons respondents use Cañon City’s trails.

Figure 10 - The primary reasons Cañon City residents choose to use trails (online survey)



8.4 Barriers to Trail Use

23 residents who had not used Fremont County trails in the past year identified the primary barrier preventing trail use.¹⁰⁶ Response options were “not enough time”, “not interested”, “I am not aware of trails in my area”, “disability”, “conflict with other trail users”, “safety”, or “other”.

35% did not have enough time or interest to use trails, 26% did not use trails because of a disability, and 22% selected “other”. Two respondents (9%) who selected “other” indicated that they are opposed to using trails because of a perceived hostility towards private land and the agricultural industry. The following comment represents these concerns: “I will not use any of the trails in and around Cañon City due to the city and rec district not having any respect for land owners and agricultural businesses.”

¹⁰⁵ Trail users were identified by asking respondents whether they had recreated on Fremont County trails in the previous 12 months.

¹⁰⁶ Due to a survey error, only one response option was permitted.

Comments on Barriers to Trail Use

All respondents, including trail users, were given the opportunity to respond to the prompt “please expand on any barriers to access that limit your use of local trails”. 73 comments were received and coded for 19 themes (**Table 19**). 22% of commenters indicated that they did not have any barriers to using trails, other than a personal lack of time or interest

Concerns over unhoused populations (23.3% of respondents), safety and crime (21.89%), and inequitable trail design (15.1%) were the three most commonly cited barriers to trail use. A minority of users also expressed concerns relating to conflicts among user groups. Two commenters expressed safety concerns related to mountain bikers on trails, and one respondent mentioned that they felt an “unfriendly attitude towards newcomers in the mountain bike community”.

Table 19 - Common themes among commenters responding to the prompt “please expand on any barriers to access that limit your use of trails”

Comment Themes	Percent of Comments
Concerns with Unhoused Populations	23.3%
Safety / Crime	21.9%
Trail Design / Access for All Abilities	15.1%
Trail Maintenance	8.2%
Insufficient Community Walkability or Bikeability	6.9%
Rough Roads/Ability to Access Trails	5.5%
Inadequate Parking or Facilities	5.5%
Inadequate Sidewalks	2.7%
Mountain Bikes - Danger/Safety/Community	4.1%
Access to Information	4.1%
Disability Access	2.7%
E-bike Accessibility & Attitudes	2.7%
Equestrian Use Limits	2.7%
Cleanliness of Trails	2.7%
Dogs off Leash	1.4%
OHV Access Issues	1.4%
Crowding	1.4%
Presence of Shooting & Guns	1.4%

IX - Trail User Satisfaction & Priorities

This section summarizes trail users' and residents' satisfaction with the trail systems, support for trails, and priorities for potential improvements. The data presented in this section was collected by both the intercept and online surveys.

9.1 Trail User Satisfaction (Intercept Survey)

Intercept survey respondents ranked their satisfaction with seven trail system amenities on a likert scale from "very dissatisfied" to "very satisfied". Likert responses were converted to a 1-5 scale to calculate averages (**Table 20**). Trail users expressed general satisfaction with the trail systems and amenities. Restroom Facilities was the only amenity with an average ranking under four. This is likely tied to the lack of restroom facilities at the Oil Well Flats or South Canyon trail systems. Alongside restroom facilities, trail signage and trail kiosks & information were the only categories in which less than 90% of respondents indicated that they were "satisfied" or "very satisfied".

Table 20 - Trail users' satisfaction with various trail system amenities (intercept survey)

	Average Score on Likert Scale	% of respondents who selected "satisfied" or "very satisfied"
Parking and Trailhead Access	4.6	98.6%
Size and Length of Trail System	4.4	94.4%
Trail Design and Difficulty	4.4	94.3%
Access to Information	4.3	90.0%
Trail Signage	4.2	87.5%
Trail Kiosks and Information	4.1	82.4%
Restroom Facilities	3.5	61.8%

9.2 Residents' Satisfaction & Investment Priorities (Online Survey)

Residents' Priorities for Future Investments

The online survey asked residents to rank how they would prioritize future investments by the local government and FAR (**Table 21**). Connecting and expanding existing trail systems, and improving facilities were the top priorities for respondents. 74.5% of respondents indicated that expanding trail systems was "important" or "very important", followed by improving facilities (73.6%) and connecting trail systems (73.6%).

These three categories were prioritized over other possible investments such as coordinating more events, or building specific types of trails such as flow trails or challenging downhill trails. These priorities align with the intercept survey's findings that trail users are the least satisfied with current trailhead infrastructure.

Table 21 - The priorities for future investments in trails of resident respondents to the online survey

Trail Investment	Average, Converted from Likert Scale	% in Top 3
Connecting Trail Systems	3.93	56.5%
Developing New Trail Systems	3.79	41.4%
Expanding Trail Systems	3.91	53.2%
Improvements to Facilities	3.90	52.3%
More Advanced/Difficult Trails	3.14	8.9%
More Beginner/Easy Trails	3.50	30.4%
More Flow - Downhill Trails	2.68	5.5%
More Tech. Downhill Trails	2.61	2.1%
More Trails Events	3.25	23.6%
More Cross-Country Trails	3.14	11.4%

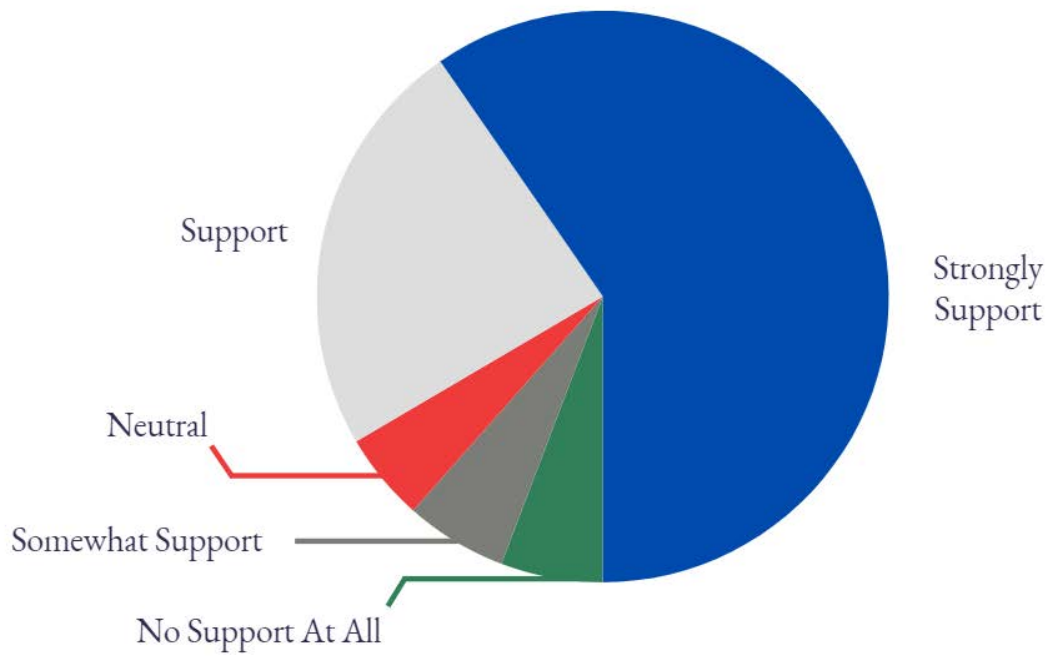
Residents' Satisfaction with Trails

The online survey also asked residents to “please evaluate your support for the continued development and expansion of human-powered (biking, hiking, running, etc.) trails in Fremont County”. 59.8% of respondents “strongly support” further developing trail systems, and 23.8% indicated that they “support” the trails (**Figure 11**).

All online survey respondents were given the opportunity to provide open-ended feedback on what they value about the trails, and improvements they would like to see. Comments were coded and analyzed for key themes. 15.1% of respondents value the diversity of trail offerings, and 19.3% highlighted the connectivity of existing trails as a positive feature. Interestingly, 11.6% expressed a desire for more connectivity among trails. This further supports the finding that connectivity is a top priority for future trail development. While the current level of connectivity is valued, trail users would like to see further connection among trail systems moving forward. The other primary concerns that commenters mentioned related to unhoused issues (9.6% of comments) and safety concerns (9.1%), similar to the comments on barriers to trail use discussed in section 8.3.

Figure 11 - Level of support for trails by resident respondents to the online survey

Level of Support from Cañon City Residents



X - Recommendations for Future Study

This section summarizes the challenges and limitations faced by the authors, and provides recommendations for future research, to build on this report's findings.

10.1 Challenges & Limitations

The primary challenge faced in this study was the limited number of survey responses. In order to derive sound conclusions about trail use and its economic impacts, a statistically valid sample size must be reached. The three studies used to guide this research surveyed 930,¹⁰⁷ 803,¹⁰⁸ and 340¹⁰⁹ respondents. Two of those studies, which estimated annual trail use for their trails of focus, reported annual use numbers of 72,966¹¹⁰ and 198,261¹¹¹. The analysis presented in section 7.2 of this report estimates that a sample size of at least 586 would be needed to calculate economic impact figures. A sample of at least 266¹¹² would be needed to draw statistically valid conclusions about trail use, including the proportion of residents, activities, and other characteristic data.

The limited number of survey hours was this study's primary barrier to achieving a statistically valid sample. While the Helena study reported 324 hours of surveyor effort, only 56 survey hours were invested in this study's intercept survey. Recruiting paid surveyors, engaging students as volunteers for credit, or extending the timeframe of the survey could be potential solutions to these challenges. Furthermore, the Helena survey received 2.9 responses for every hour of survey effort whereas this study's intercept survey received only 1.4 responses per survey hour. The low volume of trail use observed in this study means that more hours of effort will be required to obtain an acceptable sample compared to studies in more heavily trafficked areas. Surveying trail users in the Spring or the Fall may help solve this issue. The Strava Metro data analyzed in section 6.1 suggests that the Spring and the Fall are peak seasons for Cañon City's trails.

10.2 Outstanding Questions, Areas of Inquiry, & Next Steps

Installing trail counters at the trailheads for the Royal Gorge, South Canyon, and Oil Well Flats trails will be necessary to accurately estimate annual and seasonal trail use for these systems. Even the Whitefish study, which relied on Strava Metro data to calculate a total use estimate, used trail counters to confirm and analyze the Strava data. Monitoring annual trail use is also a key strategy for tracking the growth of trails-based tourism in a community. Trail use data confirmed by trail counters will also be necessary in order to conduct a comprehensive economic impact analysis of Cañon City's trails.

¹⁰⁷ Sage, Jeremy L., and Norma Nickerson, "Trail Usage & Value: A Helena Case Study."

¹⁰⁸ "The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana," April 2018.

¹⁰⁹ Perry, Nathan, Tim Casey, and Johnny Snyder, "The Economic Impact of Outdoor Recreation in Mesa County," 2022.

¹¹⁰ "The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana," April 2018.

¹¹¹ Perry, Nathan, Tim Casey, and Johnny Snyder, "The Economic Impact of Outdoor Recreation in Mesa County," 2022.

¹¹² Assuming 5% error, a 90% confidence interval, and a total population of 15,254 trail users.

An additional area of inquiry that FAR could pursue is in the cumulative impacts of outdoor recreation. While the trail systems are FAR's primary focus, many visitors engage in outdoor recreation more generally, including visiting the Royal Gorge Bridge and Park and taking advantage of the many recreational opportunities offered by the Arkansas River. Given the low estimates for nonresident trail use provided in this report, assessing the cumulative economic impacts of outdoor recreation may be more appropriate in the immediate future. As trail use grows, a specialized economic impact analysis focused on trails will be more feasible, and more impactful. Another tact that the city could take in analyzing the impacts of its outdoor recreation opportunities would be to conduct a study focusing specifically on the impacts of its outdoor recreation festivals and events, such as the annual whitewater festival.

Finally, the authors originally hoped to conduct a community intercept survey, but were unable to due to time constraints. This survey would have been conducted at central locations, such as gas stations or grocery stores, in order to randomly sample residents. This survey would have been an abbreviated version of the online survey designed to collect data on the proportion of residents who use, or are aware of the trails. A random sample of residents could also help FAR better understand the current level of community support for trails. While the online survey provides valuable data on these questions, it is likely more representative of trail users and supporters than the community at large. Implementing a community intercept survey as described could be an effective next step as FAR seeks to build on the findings presented in this report.

XI - Conclusions

Outdoor recreation, driven in part by the rafting industry and the Royal Gorge Bridge and Park, is already a vital part of Cañon City's community and economy. In the 13 years since FAR was founded to support the development and growth of local trail systems, trails have expanded Cañon's outdoor recreation opportunities. Trail users visit the Royal Gorge, South Canyon, and Oil Well Flats trails an estimated 15,254 times per year. Half of those uses are likely by out of town visitors.

Trail users are also moving to Cañon City in order to take advantage of its trail access. The Royal Gorge, South Canyon, and Oil Well Flats trails are among the most valued community amenities by trail users, particularly by new residents. 65% of new residents who have lived in Cañon City for five years or less indicated that trail access was a very important part of their decision to move to the area.

Economically, outdoor recreation is already vital in Cañon City. Trails offer an opportunity to further expand and diversify the region's outdoor recreation economy. Communities throughout the western United States, including Whitefish and Helena in Montana, and Mesa County in Colorado have demonstrated the potential for trails to directly contribute between two and 15 million dollars annually to small town economies. Trail users visiting Cañon City spend comparably during their visit (between \$70 and \$85 per day, on average) to those visiting these more recognized trail use destinations. This spending grows the local economy, supporting jobs and businesses.

Attracting out of state visitors, who tend to stay longer and spend more per trip, will be vital in growing a trails-based recreation economy similar to that found in the aforementioned communities. Connecting and expanding existing trail systems, improving trailhead facilities and infrastructure, and developing more accessible and beginner-friendly trails are top priorities for Cañon City's trail users. These improvements could also help make Cañon even more desirable as a trails destination.

There is also *local* demand for a more diverse outdoor recreation economy. Only 12% of total spending by resident survey respondents on outdoor recreation goods and services was spent in Cañon City. The remaining 88% represents nearly \$2,000 per person in annual spending that could be brought into the local economy. Further development of the region's trails-based recreation opportunities will not only grow the region's economy through increased tourism. This growth will also serve the needs of Cañon City residents, who are increasingly choosing Cañon because of its trail access and outdoor recreation potential.

Outdoor recreation is integral to the economic health and amenity-based lifestyle that communities across Colorado are known for. These research findings demonstrate that Cañon City has an opportunity to capitalize on the economic potential trails have to diversify the local economy, and further benefit the daily lives of residents.

XII - Works Cited

- “About Us.” Strava. Accessed December 3, 2023. <https://www.Strava.com/about>.
- “Arkansas Headwaters Recreation Area Annual Report 2016.” Colorado Parks and Wildlife Bureau of Land Management U.S. Forest Service, January 31, 2017. <https://rrfw.org/sites/default/files/documents/2016%20AHR%20EOY%20Annual%20Report.pdf>.
- “Arkansas Headwaters Recreation Area Annual Report 2022.” Colorado Parks and Wildlife Bureau of Land Management U.S. Forest Service, January 31, 2023. <https://cpw.state.co.us/placestogo/parks/ArkansasHeadwatersRecreationArea/Documents/Annual-Reports/AnnualReport2022.pdf>.
- BBC Research and Consulting. “Economic and Health Benefits of Bicycling in Northwest Arkansas,” n.d. https://headwaterseconomics.org/wp-content/uploads/Trail_Study_136-AR-Bicycle-Benefits.pdf.
- Boozar, Benjamin B. “An Economic and Impact Analysis of the Coldwater Mountain Bike Trail.” Center for Economic Development Jacksonville State University, July 2012. https://headwaterseconomics.org/wp-content/uploads/Trail_Study_13-coldwater-mountain-bike-trail.pdf.
- Brownson, R. C., R. A. Housemann, D. R. Brown, J. Jackson-Thompson, A. C. King, B. R. Malone, and J. F. Sallis. “Promoting Physical Activity in Rural Communities: Walking Trail Access, Use, and Effects.” *American Journal of Preventive Medicine* 18, no. 3 (April 2000): 235–41.
- “Cañon City, CO.” Accessed December 15, 2023. <https://datausa.io/profile/geo/Cañon-city-co-31000US15860>.
- Casey, Tim, Cory Castaneda, and Nathan Perry. “Grand Valley Public Trail Systems Socio-Economic Study, Mesa County, Colorado.” Colorado Mesa University, 2018.
- “Colorado - Outdoor Industry Association,” August 22, 2022. <https://outdoorindustry.org/state/colorado-colorado-outdoor-rx.pdf>,” n.d. <https://oedit.colorado.gov/sites/coedit/files/Colorado-Outdoor-Rx.pdf>.
- Corning Sarah E., Mowatt Rasul A., and Charles Chancellor H. “Multiuse Trails: Benefits and Concerns of Residents and Property Owners.” *Journal of Urban Planning and Development* 138, no. 4 (December 1, 2012): 277–85.
- “Data USA.” Accessed December 15, 2023. <https://datausa.io/>.
- Davis, Kelly. “State of the Outdoor Market.” Outdoor Industry Association, Fall 2022. <https://outdoorindustry.org/wp-content/uploads/2022/12/OIA-State-of-the-Outdoor-Market-Report-Fall-2022.pdf>.
- Delfino, Devon. “What Is Strava?: How to Navigate and Use the Strava Fitness-Tracking App.” Business Insider, May 6, 2020. <https://www.businessinsider.com/guides/tech/what-is-Strava>.
- Fremont Adventure Recreation. “Community Outreach.” Accessed October 9, 2023. <http://www.joinfar.org/community-outreach.html>.
- Fremont Adventure Recreation. “Fremont Adventure Recreation.” Accessed October 9, 2023. <http://www.joinfar.org/>.
- “FREMONT ADVENTURE RECREATION: 2022 Year-End Report & Sponsor Packet.” Fremont Adventure Recreation, 2022.
- Fremont Adventure Recreation. “1% for Trails.” Accessed October 9, 2023. <http://www.joinfar.org/1-for-trails.html>
- “Frequently Asked Questions.” Strava Metro. Accessed December 3, 2023. <https://metro.Strava.com/faq>.
- Godbey, Geoffrey. “Outdoor Recreation, Health, and Wellness: Understanding and Enhancing the Relationship,” May 6, 2009. doi:10.2139/ssrn.1408694.
- Headwaters Economics. “Outdoor Recreation,” January 29, 2020. <https://headwaterseconomics.org/outdoor-recreation/>.
- Headwaters Economics. “Outdoor Recreation,” January 29, 2020. <https://headwaterseconomics.org/outdoor-recreation/>.
- Kelly, John Robert. *Social Benefits of Outdoor Recreation*. Leisure Behavior Research Laboratory, University of Illinois, 1981.
- Headwaters Economics. “Recreation Counties Attracting New Residents And Higher Incomes,” January 2019. https://oedit.colorado.gov/sites/coedit/files/RecreationCountiesAttractingNewResidentsAndHigherIncomes_2019.pdf.

- Headwaters Economics. "Trails Benefits Library Archive." Accessed October 30, 2023.
<https://headwaterseconomics.org/trail/>.
- Lawson, Megan. "How Outdoor Recreation Supports Rural Economic Development." *Headwaters Economics*, February 19, 2019. <https://headwaterseconomics.org/economic-development/trends-performance/outdoor-recreation/>.
- Lukoseviciute, Goda, Luís Nobre Pereira, and Thomas Panagopoulos. "The Economic Impact of Recreational Trails: A Systematic Literature Review." *Journal of Ecotourism* 21, no. 4 (October 2, 2022): 366–93.
- Meltzer, Nicholas S. "Adapting to the New Economy: The Impacts of Mountain Bike Tourism in Oakridge, Oregon." Accessed November 7, 2023.
https://headwaterseconomics.org/wp-content/uploads/Trail_Study_104-OR-Mtn-Bike-Tourism-Oakridge.pdf
- Mendez, Mayra, Lorenzo Muñoz, Megan Paliwoda, and Carrie Tanner. "A Methodology for Developing an Economic Impact Assessment of Outdoor Recreation in Colorado." CO Outdoor Recreation Industry Office, n.d.
- Mitten, Denise, Jillisa R. Overholt, Francis I. Haynes, Chiara C. D'Amore, and Janet C. Ady. "Hiking: A Low-Cost, Accessible Intervention to Promote Health Benefits." *American Journal of Lifestyle Medicine* 12, no. 4 (Jul-Aug 2018): 302–10.
- Mountain Bikers of Santa Cruz. "Economic Benefits of Mountain Bike Tourism for Santa Cruz County." Accessed November 7, 2023.
https://headwaterseconomics.org/wp-content/uploads/Trail_Study_103-CA-Mtn-Bike-Tourism-Santa-Cruz.pdf.
- Neumann, Bill, Mathew Whipple, and Risk McLaughlin. "EASTERN FREMONT COUNTY TRAILS, OPEN SPACE & RIVER CORRIDOR MASTER PLAN." DMH Design Corporation, April 2015.
- "Origins & Destinations ." Strava Metro, 2023.
<https://Stravametro.zendesk.com/hc/en-us/articles/6281279621527-Origins-Destinations>.
- Perry, Nathan, Tim Casey, and Johnny Snyder. "The Economic Impact of Outdoor Recreation in Mesa County," 2022. "RecreationCountiesAttractingNewResidentsAndHigherIncomes_2019.pdf," n.d.
https://oedit.colorado.gov/sites/coedit/files/RecreationCountiesAttractingNewResidentsAndHigherIncomes_2019.pdf.
- RRC Associates. "Bonner County Trails: Final Survey Results." Headwater Economics, February 2016.
- RRC Associates. "Jackson Hole Pathways and Trails Survey." Jackson Hole Chamber of Commerce, Spring 2015.
- Sage, Jeremy L., and Norma Nickerson. "Trail Usage & Value: A Helena Case Study." Institute for Tourism and Recreation Research, The University of Montana, January 2018.
- "The Economic Impact of Outdoor Recreation and the Whitefish Trail in Whitefish, Montana," April 2018.
- The Center for Research on Economic and Social Policy (CRESP) of the University of Colorado at Denver. "Bicycling and Walking in Colorado: Economic Impact and Household Survey Results," April 2020.
https://headwaterseconomics.org/wp-content/uploads/Trail_Study_87-bicycling-walking-colorado.pdf.
- Trailforks. (2023). Mountain Biking Heatmap. Outside+. map, Cañon City, CO
- United States Census Bureau > Communications Directorate - Center for New Media. "QuickFacts: Cañon City City, Colorado." Accessed December 15, 2023.
- Venter, Zander S., Vegard Gundersen, Samantha L. Scott, and David N. Barton. "Bias and Precision of Crowdsourced Recreational Activity Data from Strava." *Landscape and Urban Planning* 232 (April 2023): 104686.
<https://doi.org/10.1016/j.landurbplan.2023.104686>.

XIII - Appendices

All appendices can be found in a separate document accessible by contacting FAR at coordinator@joinfar.org