Research Report

Duluth Traverse
2021 Summer Visitor Profile

December 2021

About the Parks & Trails Council

Parks & Trails Council of Minnesota is a 501(c)(3) organization dedicated to acquiring, protecting, and enhancing critical land for the public's use and benefit. Founded in 1954, the Parks & Trails Council acquires threatened and critical parcels of land, advocates at the Minnesota Capitol, supports volunteers, and produces original research on issues and trends facing Minnesota's parks and trails.

More information about Parks & Trails Council is available at www.parksandtrails.org.

About the Greater Minnesota Regional Parks and Trails Commission

Greater Minnesota Regional Parks and Trails Commission is comprised of 13 members appointed by the governor, two members from each of the six districts and one at-large member. The Greater Minnesota Regional Parks and Trails Commission was created to undertake system planning and provide recommendations to the legislature for grants from the Parks and Trails Legacy Fund to counties and cities outside of the seven-county metropolitan area that have been designated as regionally significant.

More information about the Greater Minnesota Regional Parks and Trails Commission is available at www.gmrptcommission.org.

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Acknowledgments

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Cover: Riding the Duluth Traverse. Photo from the City of Duluth / Hansi Johnson

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Executive Summary
Duluth Traverse
2021 Summer Visitor Profile

About: The Duluth Traverse is a 100+ mile mountain biking system that traverses the entire length of Duluth, MN above the hillside that frames the city. The Duluth Traverse consists of five trail centers that are connected by a 40+ mile "spine" that connects the entire system with city neighborhoods. The trails have been part of the designated Greater Minnesota Regional Parks and Trails System since 2018.

Trail Traffic Estimates

Total Traffic

Summer total traffic on the Duluth Traverse ranges from ≈ **26,500 at Hartley Park** to ≈ **8,500 at Haines Road**

Daily Patterns

12pm Weekend peak *

5pm Weekday peak *

* Average across all locations. Individual site patterns vary.

Weekend Traffic

54% of use at Spirit Mountain

42% of use at other locations *

* Average across all locations. Individual site patterns vary.

Estimated Total Summer Traffic

35

2

53

Becks Road

Haines Road

Hawk Ridge

Hartley Park

Mission Creek

Spirit Mountain

Twin Ponds Observation Hill

535

61

Lester Park

—— Duluth Traverse Trail

N

5 miles

Each ring represents ≈ 4,000 summer traffic
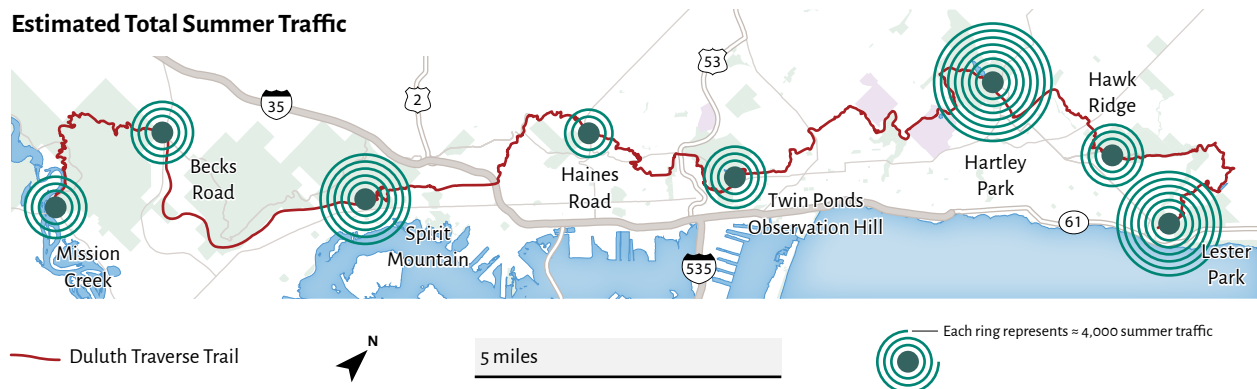
Visitor Demographics

+ Men **60%**
+ Women **40%**
+ Average age **≈ 37**

+ Gen Z **29%**
+ Millennials **30%**
+ Gen X **24%**
+ Baby Boomers **16%**
+ Silent **2%**

+ White **96%**
+ Asian **2%**
+ Native American **2%**

+ Bachelor's degree **75%**
+ Income over $100k **49%**
+ Disability **5%**

Trail Experience

Trail Activities

61%
mountain biking is primary activity

24%
hiking is primary activity

72%
Rated the trail "very good"

Reasons for visiting

72%
visiting to improve physical health

66%
visiting to experience nature

62%
visiting for relaxation and/or stress relief

Trip Characteristics

26%
visiting with children

2:11
Average (mean) time spent on trail

17%
First-time visitors

Mountain bikers at Spirit Mountain. Photo from the City of Duluth / Hansi Johnson

Trail Tourism

89%
from Minnesota

30%
of trail users are tourists

15
Different states represented

39%
of overnight visitors stayed in campgrounds

59%
of overnight visitors stayed in the Duluth Area for 1-2 nights

86%
said the trail was *at least* part of the reason they visited Duluth

> These trails are **why I moved to Duluth**.
>
> ~ Duluth Traverse trail user, age 33

Rider Characteristics

11% beginner level skills
47% intermediate
32% advanced
10% expert

Information Sources

53%
use trail apps to learn about the trail

Methodology: In 2021 the Greater Minnesota Regional Parks and Trails Commission contracted with Parks & Trails Council to conduct a visitor profile for the Duluth Traverse Trail. Automated counters were installed at eight locations across the trail system, and a systematic visitor intercept survey collected information on visitor characteristics (n = 278). Results are representative of summer (Memorial Day through Labor Day) visitors on the Duluth Traverse during 2021 and have a margin of error of +/- 5.9 percentage points.

For full results and methodology, see the full Visitor Profile Report.

Photo credit: City of Duluth / Hansi Johnson

Introduction

The Duluth Traverse is a 100+ mile mountain biking system that traverses the entire length of Duluth, MN above the hillside that frames the city. The Duluth Traverse consists of five trail centers — Lester Park, Hartley Park, Piedmont/ Brewer Park, Spirit Mountain and Mission Creek — that are connected by a 40+ mile "spine" that connects the entire system with city neighborhoods, schools, universities, natural areas and commercial districts. Ranging from fast flow trails at Mission Creek, lift-serviced downhills at Spirit Mountain, rocky outcroppings at Brewer Park and smooth-rolling creekside trails at Lester Park, Duluth offers a uniquely urban mountain biking trail system that is one of only seven locations in the entire world recognized as a Gold Level Trail Center by the International Mountain Biking Association.

The spine of the Duluth Traverse is approximately 80% singletrack, with the remainder of the route consisting of gravel roads and other multi-purpose paths. While primarily designed and built for mountain bikers, the Duluth Traverse is open to all human-powered trail users. The Duluth Traverse is maintained by the City of Duluth, in partnership with the Cyclists of Gitchee Gumee Shores (COGGS), and was

designated and became a part of the Greater Minnesota Regional Park and Trail System in 2018.

In 2021 the Greater Minnesota Regional Parks and Trails Commission (GMRPTC) contracted with Parks & Trails Council of Minnesota (P&TC) to study the visitor profile and use of the of the Duluth Traverse. GMRPTC is responsible for system planning and providing recommendations to the legislature for grants funded by the Parks and Trails Legacy Fund to counties and cities outside the seven-county metropolitan area. The objectives of the visitor profile were to understand user numbers, visitor origination, trip characteristics and basic demographics of trail users. Ultimately, this data is meant to help inform planning and marketing efforts by GMRPTC and collaborative partners.

This visitor profile consists of two parts. First, automated trail counters were installed at eight locations across the Duluth Traverse (Figure 1). The trail counters collected data on total traffic, travel direction, hourly patterns, and weekly patterns. Second, a systematic intercept visitor survey was conducted at five trailhead locations across the length of the Duluth Traverse. Staff used electronic

tablets to collect surveys during high and low-use periods (mornings and afternoons, weekdays and weekends). A total of 278 surveys were collected. Together, the trail counts and visitor surveys provide a snapshot of how many people use the Duluth Traverse and who those people are.

There are two important notes about the scope of this project. First, this visitor study was conducted during the summer and early fall of 2021 and designed primarily to be representative of the summer season, defined as Memorial Day through Labor Day. This report does not attempt to quantify or understand use of the Duluth Traverse during the winter, spring or fall. Importantly, such use may be significant: the Duluth Traverse is managed for year-round use and used by trail runners, hikers, dog walkers, fat-tire winter bikers, snowshoers and backcountry skiers. Readers should understand this report focuses on summer use of the Duluth Traverse, and as such accounts for only a portion of the trails full impact on the Duluth region.

Second, results from the visitor survey are meant to be representative of the totality of summer users across the Duluth Traverse rather than representative of users at any specific location. There are reasons to believe that different types of visitors use different segments of the trail, however. In selected instances we present results at

the trail center level (e.g., results specific to visitors at Mission Creek), but such results are derived from small sample sizes and should be interpreted cautiously.

For more details on this report's methods, see our methodology.

Figure 1

Duluth Traverse trail map and study area

Legend:
- Duluth Traverse
- Beginner Two-Way Traffic
- Intermediate Two-Way Traffic
- ? Visitor Survey Location
- Trail Counter Location

Hawk Ridge
Hartley Park
Lester Park
College of St. Scholastica
University MN - Duluth
Twin Ponds
Enger Park
Haines Rd
Brewer Park
Lake Superior
Spirit Mt Rec Area
Spirit Mountain
Becks Rd
Magney-Snively Natural Area
WISCONSIN
Mission Creek Forest Preserve
Mission Creek
Jay Cooke State Park
Duluth

Trail Use Estimates

Summer total traffic on the Duluth Traverse ranges from approximately 26,500 at Hartley Park to approximately 8,500 at Haines Road

Traffic volumes vary significantly across the Duluth Taverse. The busiest locations are on the eastern half of the trail: Hartley Park (approximately 26,500 total summer traffic) and Lester Park (approximately 24,000 total summer traffic) were the busiest count locations (Figure 2 and Figure 3). Spirit Mountain was the third busiest location (approximately 19,000 total summer traffic). Traffic on the Duluth Traverse was similar at Mission Creek, Becks Road, Twin Ponds and Hawk Ridge, where volumes ranged between 11,000 and 13,000. The least

trafficked segment of the Duluth Traverse was just east of the trailhead at Haines Road, near Brewer and Piedmont Parks.[1]

Importantly, traffic volumes do not represent unique visits to the Duluth Traverse trail system. Depending on how visitors are using the Traverse, they may be counted once per visit (e.g., riding a point-to-point), twice (e.g., riding an out-and-back) or three or more times (e.g., riding a loop multiple times). Since we don't have data on what type of trips users are taking on the Duluth Traverse (e.g., the share of trips that are out-and-back, point-to-point, and loops), we're unable to estimate the

Figure 2

Estimated total summer traffic
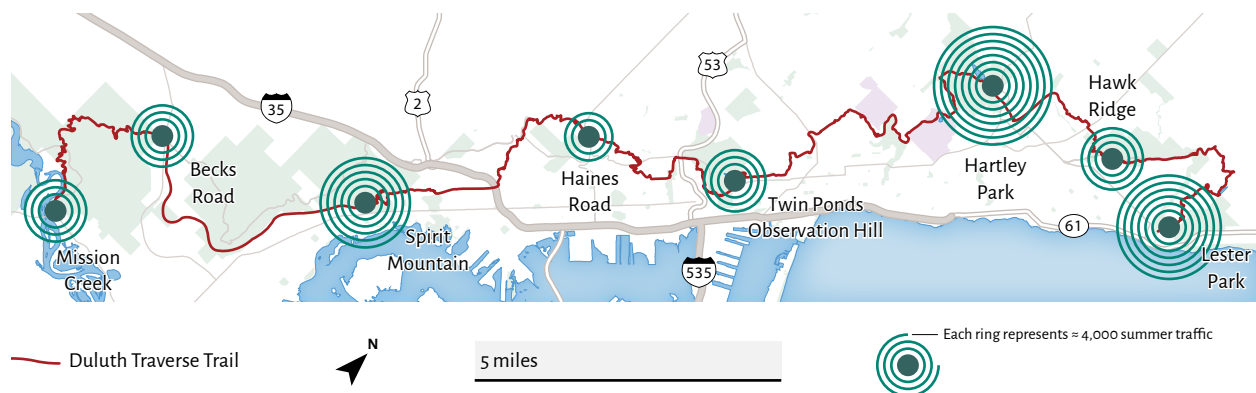
Duluth Traverse Trail · N · 5 miles · Each ring represents ≈ 4,000 summer traffic

Notes:
Summer defined as Saturday, May 29, 2021 through Monday, September 6, 2021 (Saturday of Memorial Day weekend through Labor Day).

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1 Due to multiple access points and loop possibilities, use of Brewer and Piedmont trail systems may be significantly greater than represented here. The counter at Haines Road was placed on the Duluth Traverse, immediately east of the parking area; See Appendix A for precise counter location.

number of unique visits the Duluth Traverse receives.

Traffic at most locations is split roughly 50/50 between eastbound and westbound traffic (Figure 3). The greatest discrepancies in eastbound and westbound traffic flows were at Mission Creek and Hawk Ridge. At Mission Creek, the western terminus of the Duluth Traverse, the majority of users (57%) were traveling eastbound. This may be due to a share of riders using Mission Creek as a starting point for a point-to-point route. Alternatively, some users at Mission Creek may be jumping on Highway 210 as an alternative route to the trailhead on their return trip. Any users doing so would have bypassed the counter location on their

return (westbound) trip, thus resulting in the difference in eastbound vs. westbound traffic. The majority of users (58%) at Hawk Ridge were also traveling eastbound. This may be due to users (particularly hikers) starting at the parking area further west on Skyline Parkway, hiking towards the Hawk Ridge Bird Observatory, and then taking alternative hiking routes back to the parking area. Future research would be needed to conclusively understand the directional flows at Mission Creek and Hawk Ridge.

Trail use is concentrated on weekends at Spirit Mountain, less so at other locations
Average weekends are busier than average weekdays, regardless of location (Figure 4). Specific weekday and weekend patterns

Figure 3

Estimated summer traffic flows

	Eastbound	Westbound	Total Traffic
Mission Creek	7,480 74 SADT	5,656 56 SADT	13,136 130 SADT
Becks Road	*Directional traffic not available*		13,066 129 SADT
Spirit Mountain	*Directional traffic not available*		19,117 189 SADT
Haines Road	4,311 43 SADT	4,377 43 SADT	8,688 86 SADT
Twin Ponds / Observation Hill	5,836 58 SADT	6,511 64 SADT	12,347 122 SADT
Hartley Park	12,477 124 SADT	14,272 141 SADT	26,749 265 SADT
Hawk Ridge	6,576 65 SADT	4,859 48 SADT	11,435 113 SADT
Lester Park	11,444 113 SADT	12,596 125 SADT	24,041 238 SADT

Notes:
Summer defined as Saturday, May 29, 2021 through Monday, September 6, 2021 (Saturday of Memorial Day weekend through Labor Day).
SADT = Summer Average Daily Traffic.

vary by location, however. Spirit Mountain, where use appears to be primarily driven by lift service, is the clearest example of this. The lift at Spirit Mountain operates on Thursdays, Fridays, Saturdays and Sundays, and traffic patterns clearly reflect that schedule. Traffic at Spirit Mountain on Mondays, Tuesdays and Wednesdays, when the lift is closed, averages about 92 "users" per day.[2] When the lift is operating on Thursdays and Fridays, traffic averages about 163 users per day. Use at Spirit Mountain really peaks during the weekend, however, when traffic averages 354 users per day. Overall, the average weekend at Spirit Mountain is 2.9 times busier than the average weekday during the summer, and weekends account for 54% of weekly traffic. The discrepancy between weekends and weekdays at Spirit Mountain is even greater during September, when the lift only operates on Saturdays and Sundays. More details on weekly and daily totals for Spirit Mountain are provided in Appendix A.

Weekends are busier than weekdays at other trail locations as well, but to a lesser degree. Weekend traffic at Mission Creek and Hartley Park, for example is approximately 1.5 times busier than average weekday traffic, whereas the ratio of average weekend traffic to average weekday traffic at Becks Road, Haines Road, Twin Ponds, Hawk Ridge and Lester Park is closer to

two. Consequently, the busiest trail location varies by day of week. On weekdays, Hartley Park tends to be the busiest location,

Estimated summer weekday and weekend traffic

■ Weekday SADT   ■ Weekend SADT
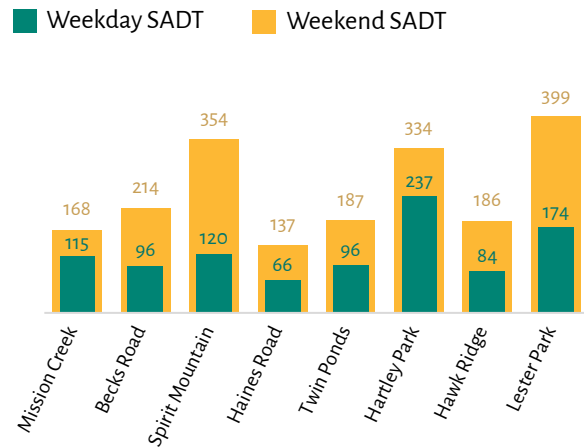
At Spirit Mountain...

Average **weekends are 2.9 times busier** than average weekdays, and weekends **account for 54% of weekly traffic.**

At other Duluth Traverse locations...

Average **weekends are 1.8 times busier** than average weekdays, and weekends **account for 42% of weekly traffic.***

Notes:
Summer defined as Saturday, May 29, 2021 through Monday, September 6, 2021 (Saturday of Memorial Day weekend through Labor Day).

SADT = Summer Average Daily Traffic

* Based on average weekend and weekday traffic across all short duration count sites. Weekly patterns vary by location.

2   The term "user" is used here for readability, and should be interpreted as on person passing the trail counter one time. The number of unique users or visits is unknown.

followed by Lester Park. Lester Park tends to be busier than Hartley Park on weekends, however, as does Spirit Mountain (Figure 4).

Weekend use peaks in the late morning; Weekday use peaks in the evening.

The Duluth Traverse has different hourly traffic patterns on weekends and weekdays. Across all locations, weekend traffic is generally slow in the early morning, picks up rapidly starting around 9am, peaks around noon, and stays relatively stable before dropping off late afternoon. On average across all locations, weekend use peaks at 12pm, and only slight weekend variations exist: traffic Mission Creek and Hawk Ridge peaks late morning, for example, while Hartley Park and Becks Road traffic peaks early-to-mid afternoon. And weekend traffic at Spirit Mountain is more concentrated in the middle parts of the day,

again corresponding to the hours of lift service.

Weekday traffic follows a very different pattern. Rather than peaking around noon, weekday use on the Duluth Traverse tends to build slowly throughout the day before peaking in the late afternoon between 5pm and 6pm. Only slight variations on this pattern exist across the different counting sites (Figure 5).

Fact sheets summarizing key trail count metrics for each location are available in Appendix A.

Figure 5

Hourly traffic patterns
% of daily traffic   🟩 Weekday   🟡 Weekend
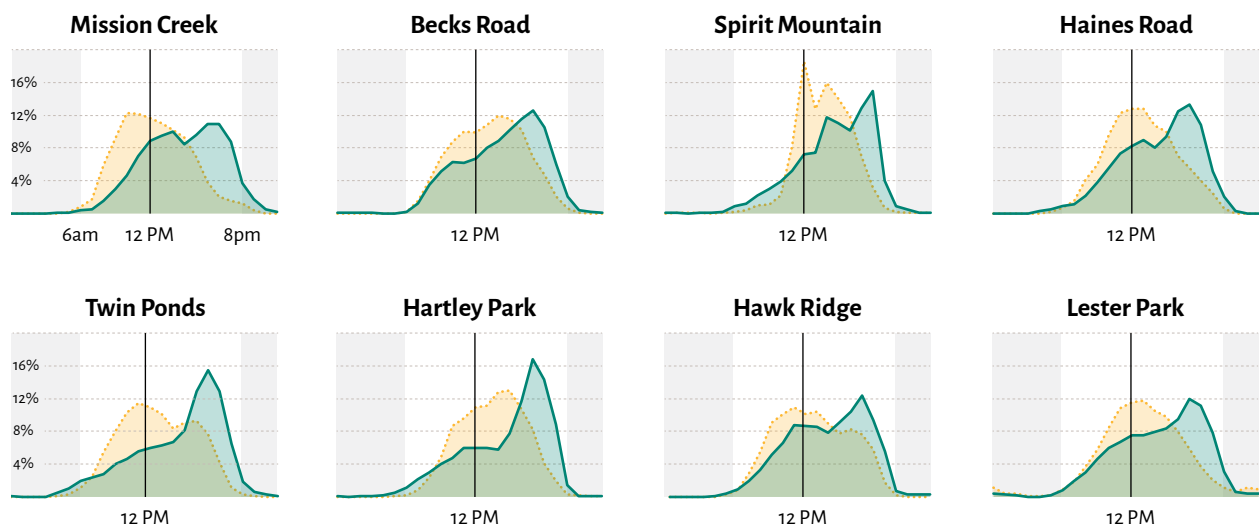
Visitor Demographics

Duluth Traverse visitors span a wide range of ages

The average *adult* visitor on the Duluth Traverse is between 43 and 47 years old (median = 42; mean = 44.8; 95% C.I. [43.1, 46.6]). Among all adult visitors, approximately two thirds (65%) are between 30 and 60 years old.

The average age of *all* visitors, however, is significantly younger. The survey did not directly ask for the ages of children visitors (under 18), but it did ask how many children were in each visitor group. Overall, 25% of all visitors were children under 18 (Figure 6). If it's assumed the average age of children visitors is 12, the average age of *all* visitors was approximately 37 years old.[1]

Generations provide another method of understanding visitors by looking at their place in the life cycle, whether a young adult, middle-aged or a retiree. Looking at generations is informative because it provides a way to understand how different generational e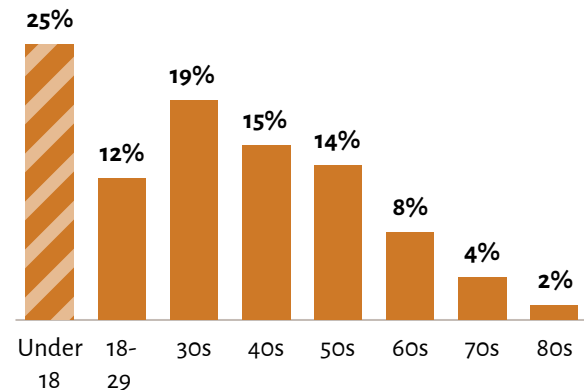xperiences (e.g., world events, technological advances) interact with life stage to form recreational preferences. The two youngest generations — Generation Z and Millennials — make up a majority of Duluth Traverse visitors (Figure 6). The

Figure 6

Visitors by age
% of all visitors

Visitors by generation
% of all visitors
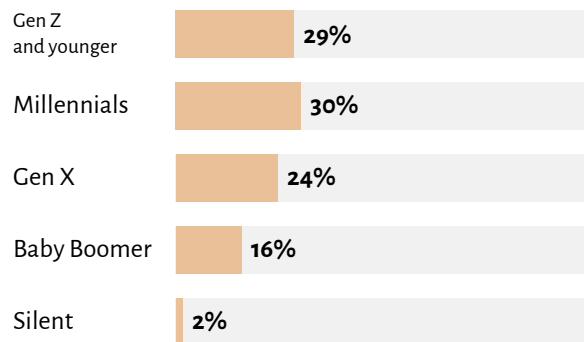
Q22: What year were you born? (n = 262)

Notes: Ages were only asked of adult visitors. Percentage under 18 is calculated based upon group composition (Q11). Generations are defined as Gen Z and younger (born 1997 or after; Age 24 and younger), Millennials (born 1981-96; Age 25-40), Gen X (born 1965-80; Age 41-56), Baby Boomer (born 1946-64; Age 57-75), and Silent (born 1928-1945; Age 76-93).

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1   The Loppet Foundation, a large organization that serves youth in Minneapolis, offers mountain biking camps for kids starting at age 7. Assuming a normal distribution of ages between 7 and 17, children on the trail have an average age of 12.

share of visitors on the Duluth Traverse who are Gen Zers or Millennials (59%) is roughly equal to their share of the general population (54%).[2, 3] Generation X (ages 41-56) makes up the next largest share of visitors (24%), while 18% of visitors were Baby Boomers or older. Overall, the age breakdown of visitors suggests the Duluth Traverse attracts a relatively young demographic.

Males account for a majority of visitors on the Duluth Traverse

The majority of visitors (60%) on the Duluth

Visitors by gender identity
% of adult visitors

What is your gender identity?

40%	60%	<1%
Female	Male	Non-binary / third gender

Do you identify as transgender?

<1%	98%	2%
Yes	No	Prefer not to answer
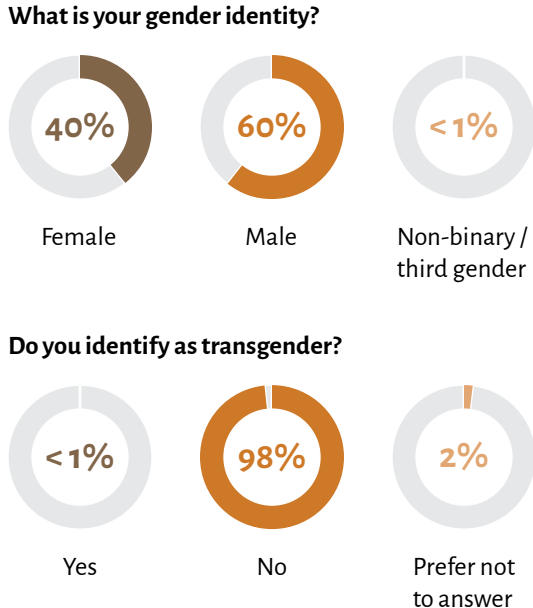
Q23. What is your gender identity? (n = 268)
Q24. Do you identify as transgender? (n = 258)

Traverse identify as male. Males make up an even larger share of mountain bikers (See the "Rider Characteristics" Section). A minority of visitors (40%) identify as female, and fewer than 1% of visitors identified as either non-binary or a third gender. A small minority (fewer than 1%) of visitors identified as transgender. The majority of visitors (98%) do not identify as transgender, while 2% of visitors preferred not to answer (Figure 7).

The majority of visitors are white , highly-educated, and high-income

A significant majority of visitors (96%) identified as white (Figure 8). Small

Visitors by race/ethnicity
% of adult visitors

White or Caucasian	96%
Asian	2%
Native American, First Nation or Alaska Native	2%
Some other race, ethnicity or origin	1%
Middle Eastern or North African	1%
Hispanic or Latinx	1%
Pacific Islander	<1%
Black or African American	0%
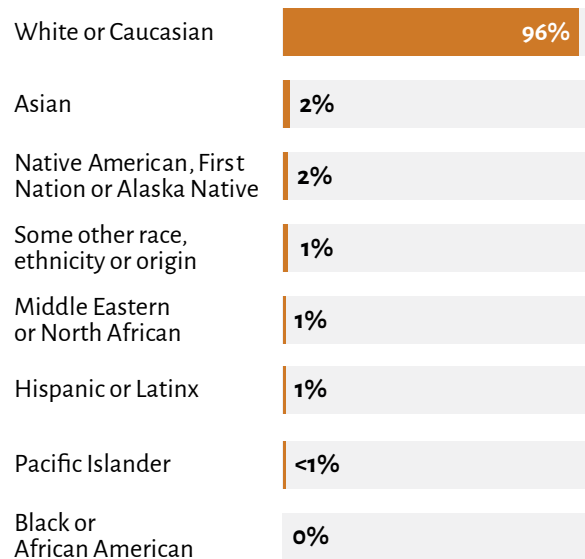
Q25. How do you describe yourself? *Select all that apply* (n = 269)

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2   Generation Z is usually defined as people born between 1997 and 2012 (currently ages 9 through 24). This report groups Generation Z together with the upcoming generation (those born 2013 to present).
3   U.S. Census Bureau. Population Division. 2020

minorities of visitors identified as Asian (2%), Native American (2%), some other race ethnicity or origin (1%), Middle Eastern or North African (1%), Hispanic or Latinx (1%) or Pacific Islander (< 1%). No respondents to the visitor survey identified as Black or African American.

Visitors on the Duluth Traverse mountain biking trails have disproportionately high-incomes compared to the statewide average. Nearly half of visitors (49%) reported annual household incomes of $100,000 or higher (Figure 9). For comparison, only 35% of Minnesota households make over $100,000 annually.[4] Correspondingly, visitors are also less likely to have below-average incomes.

Whereas 32% of Minnesota households make less than $50,000 annually, only 14% of Duluth Traverse visitors do.

Visitors are also highly-educated compared to the Minnesota average. Approximately three quarters (76%) of visitors had either a graduate degree or a bachelor's degree (Figure 10). For comparison, only 36% of Minnesotans over the age of 25 have a college degree.[5]

A minority (5%) of visitors reported having a physical, mental or sensory disability or condition. That's significantly lower than the statewide average (22% of Minnesotans have a disability),[6] though it's unknown

Figure 9

Visitors by annual household income

% of adult visitors

14% have household incomes less than $50,000

37% have household incomes between $50k and $100k

49% have household incomes more than $100k

| <$20k | $20k-$29,999 | $30k-$39,999 | $40k-$49,999 | $50k-$59,999 | $60k-$69,999 | $70k-$79,999 | $80k-$89,000 | $90k-$99,999 | $100k-$149,999 | $150k-$199,999 | >$200k |
| 3% | 2% | 6% | 4% | 8% | 10% | 7% | 9% | 4% | 23% | 11% | 15% |
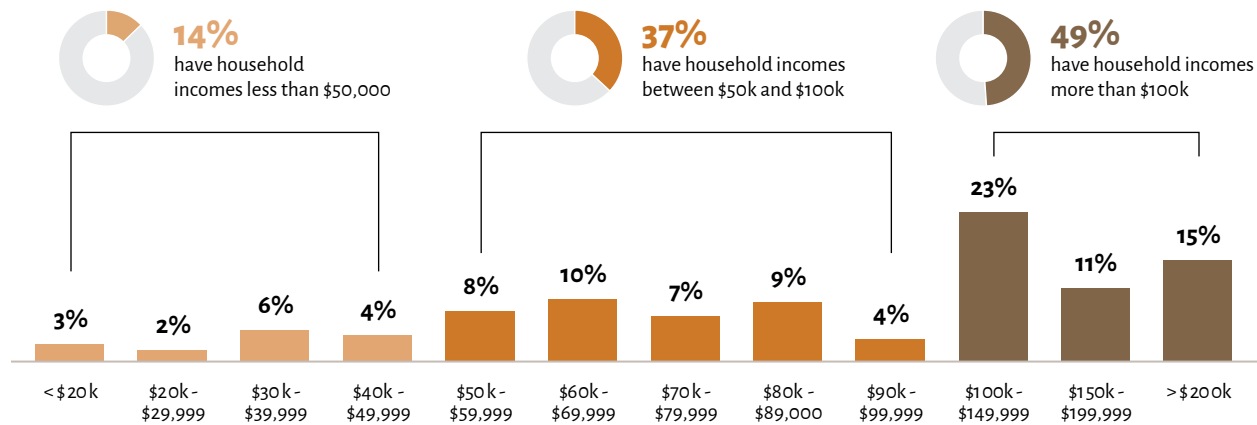
Q31. Please indicate your total household income before taxes last year (n = 231)

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4   U.S. Census Bureau, 2019 estimate.
5   U.S. Census Bureau, 2015-2019 estimate.
6   Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Questionnaire. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2019.

how it compares to park and trail visitors in general. To our knowledge this is the first year a question about disabilities have been asked on visitor surveys in any state or regional park or trail. Future research will be needed to better understand park and trail visitors with disabilities and if/how parks and trails can better serve communities of all abilities.

Figure 10

Visitors by educational attainment
% of adult visitors

Graduate degree	36%
Bachelor's degree	40%
Associate's degree	11%
Some college, but no degree	8%
High school graduate	7%
Less than high school	0%
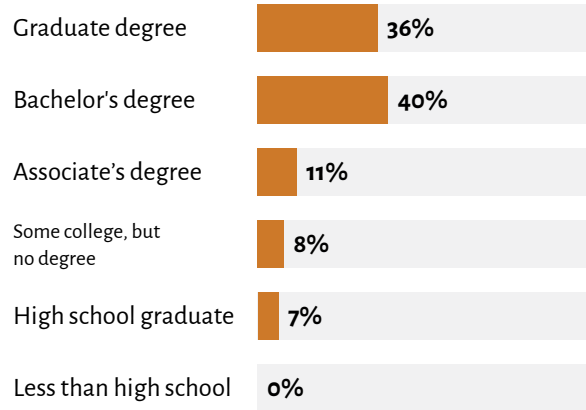
Q29: What is the highest level of education you have completed? (n = 267)

Figure 11

Visitors with disabilities

5% of visitors have a **physical, mental or sensory disability or condition**

Q30. Do you, or does someone in your group, have a physical, mental or sensory disability or condition? (n = 264)

Mountain biking is the primary trail activity on the Duluth Traverse

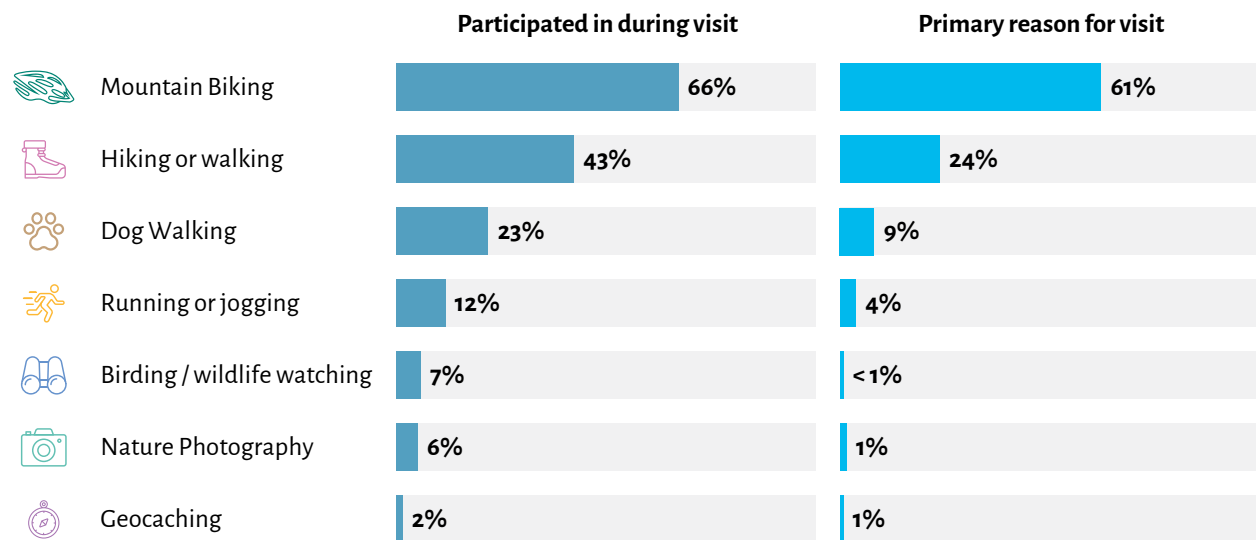The majority (66%) of the Duluth Traverse's visitors are mountain biking. But sizable minorities participate in other activities as well: 43% of visitors were hiking or walking on the trail, 23% were dog walking, 12% were running or jogging, 7% were birding or wildlife watching, 6% were doing nature photography, and 2% were geocaching (Figure 12).

The wide variety of trail activities makes sense considering the Duluth Traverse is a multi-use trail. A relatively high number of visitors (36% of all visitors, 28% of mountain bikers) even reported participating in multiple activities on the same trip. This is partly due to some activities being complementary (e.g., it's possible for someone to go mountain biking and take nature photos on the same trip). Some visitor groups are also comprised of people doing different activities (e.g., a parent hikes while their children ride). And finally, it's possible some mountain bikers also selected "hiking or walking" partly in jest, indicating they got tired and had to walk part of the way.

Figure 12

Participation in trail activities during visit
% of all visitors

	Participated in during visit	Primary reason for visit
Mountain Biking	66%	61%
Hiking or walking	43%	24%
Dog Walking	23%	9%
Running or jogging	12%	4%
Birding / wildlife watching	7%	<1%
Nature Photography	6%	1%
Geocaching	2%	1%

Q1. Which trail activities are you and your group doing during your visit today? *Select all that apply* [Answers presented in randomized order] (n = 278)
Q2. Which one of these activities was your main reason for visiting this trail? (n = 278)

Overall, mountain biking was the primary activity for the majority of visitors (61%). Hiking or walking was the primary activity for 24% of visitors, followed by dog walking (9%) and running or jogging (4%). Birding and wildlife viewing, nature photography, and geocaching were the primary activity for only 1% (or fewer) of visitors.

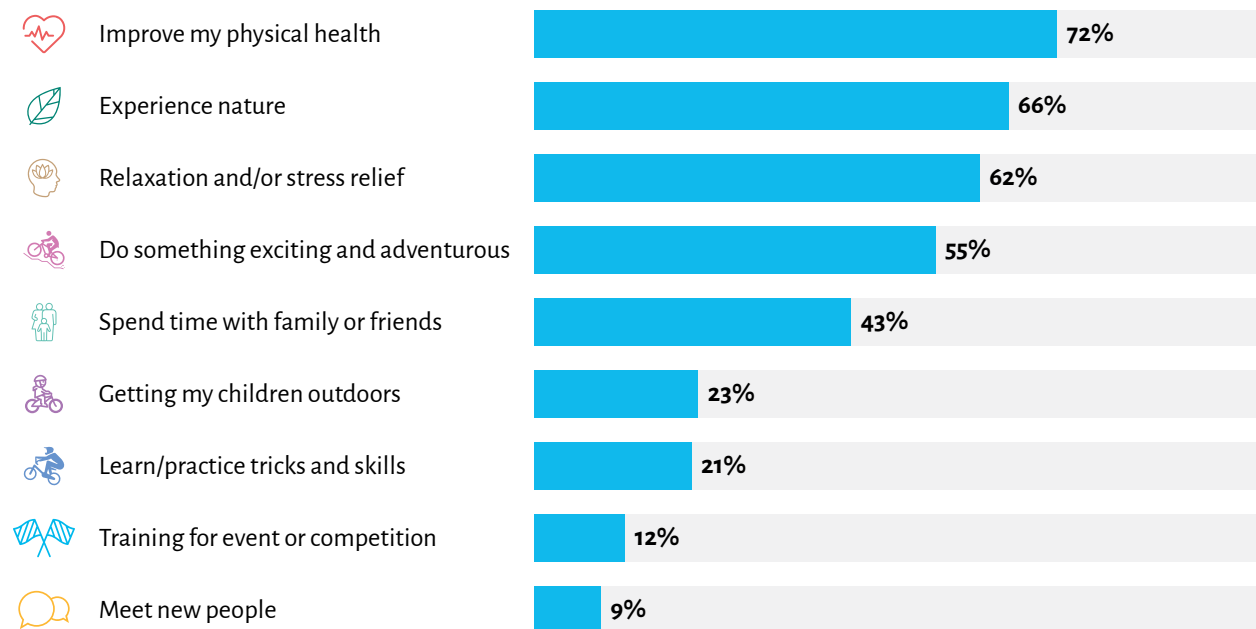**Improving physical health, experiencing nature and relaxation top the list of reasons for visiting**

Visitors on the Duluth Traverse are usually seeking health benefits and/or nature. A majority of users (72%) say improving their physical health was one of their most important reasons for visiting. Similarly

high numbers of visitors say experiencing nature (66%) or relaxation and stress relief (62%) were important reasons for visiting.

Other frequently cited reasons for visiting include doing something exciting or adventurous (55%) and spending time with family or friends (43%) (Figure 13). Other reasons for visiting were generally less important to visitors. Approximately a quarter of visitors (23%) said "getting my children outdoors" was an important reason for visiting, and 21% said learning or practicing tricks and skills was an important reason for visiting. Training for an event or competition (12%) and meeting

Figure 13

Most important reasons for visiting the trail
% of adult visitors

Improve my physical health	72%
Experience nature	66%
Relaxation and/or stress relief	62%
Do something exciting and adventurous	55%
Spend time with family or friends	43%
Getting my children outdoors	23%
Learn/practice tricks and skills	21%
Training for event or competition	12%
Meet new people	9%

Q7. What are your most important reasons for visiting the trail today? *Select all that apply* [Answers presented in randomized order] (n = 278)

new people (9%) were important reasons for only a minority of visitors.

Different activity groups tend to visit for different reasons. Hikers and mountain bikers, for example, are equally likely to visit in order to improve physical health, experience nature, get their children outdoors and to meet new people. But mountain bikers are more likely to visit in order to do something exciting and adventurous, learn or practice tricks and skills, and train for an event or competition. Hikers, conversely, are more likely to visit for relaxation and stress relief or to spend time with family or friends (Figure 14).
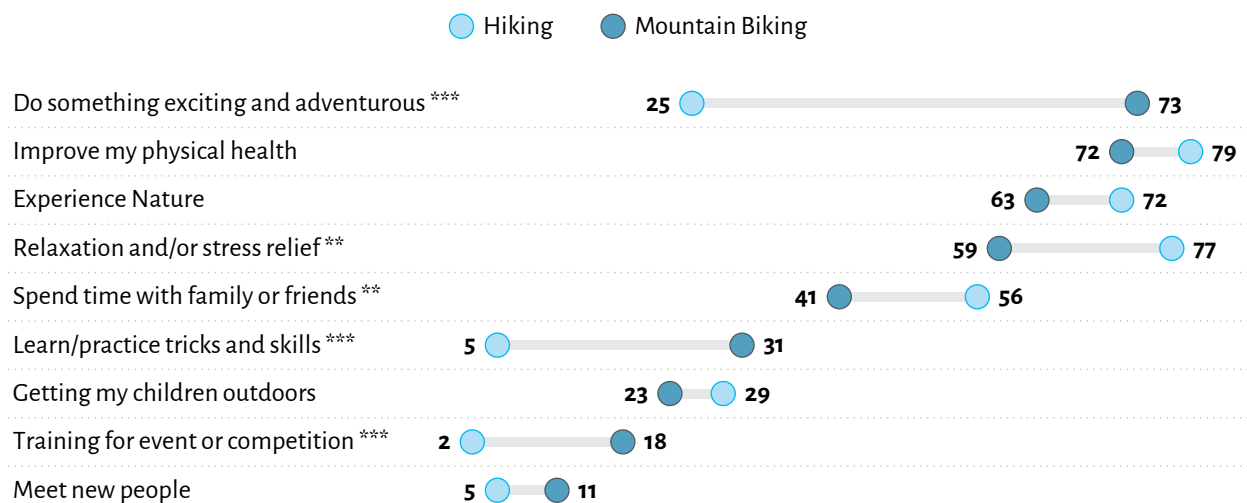
Motivations for visiting differed across visitor subgroups. First-time visitors, for example, were more likely than repeat visitors to say doing something exciting and adventurous (78% vs. 50%, $p < .01$) was an important reasons for visiting. Repeat visitors, conversely, were more likely to say improving physical health (74% vs. 60%, $p = .05$) and relaxation and/or stress relief (65% vs. 47%, $p < .05$) were important reasons for their visit.

Locals and tourists also expressed different motivations for visiting. Compared to locals, tourists were more likely to visit in order to do something exciting and adventurous (68% vs. 50%, $p < .05$) and to

Figure 14

Most important reasons for visiting the trail by primary activity
% of visitors whose primary trail activity was hiking or mountain biking

○ Hiking   ● Mountain Biking

Reason	Hiking	Mountain Biking
Do something exciting and adventurous ***	25	73
Improve my physical health	79	72
Experience Nature	72	63
Relaxation and/or stress relief **	77	59
Spend time with family or friends **	56	41
Learn/practice tricks and skills ***	5	31
Getting my children outdoors	29	23
Training for event or competition ***	2	18
Meet new people	5	11

Q7. What are your most important reasons for visiting the trail today? *Select all that apply* [Answers presented in randomized order] (n = 238)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

learn and practice tricks and skills (29% vs. 18%, $p < .05$). Locals, conversely were more likely than tourists to say improving physical health (77% vs. 61%, $p < .05$) and relaxation and/or stress relief (68% vs. 49%, $p < .05$) were important reasons for their visit.

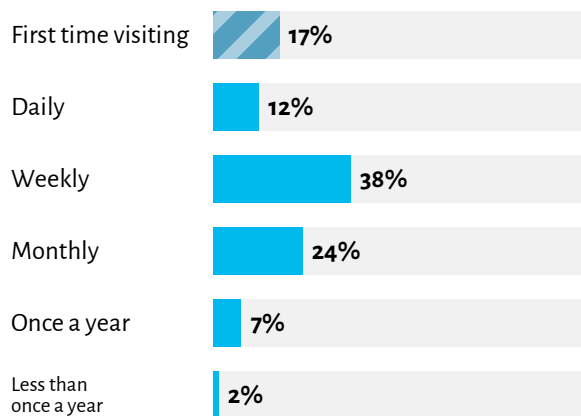## Nearly three quarters of visitors are "regulars"

Nearly three quarters of visitors (74%) are "regulars," meaning they visit at least once a month. The largest share of visitors report visiting weekly (38%), while another 24% of visitors report visiting monthly. And approximately a tenth of visitors (12%) visit daily (Figure 15).

The remaining 26% of visitors use the Duluth Traverse less frequently. A significant minority of visitors (17%) were

Visitation frequency
% of adult visitors

First time visiting	17%
Daily	12%
Weekly	38%
Monthly	24%
Once a year	7%
Less than once a year	2%

Q9. Approximately how often do you visit this trail during spring, summer and fall? (n = 274)

first-time visitors. The majority (87%) of first-time visitors, though not all, were tourists from out-of-town. Approximately a tenth of all visitors (9%) use the Duluth Traverse about once a year (or less).

Most visitors spend anywhere from 1 to 3 hours on the trail each visit

On average, visitors spend approximately 2 hours, 11 minutes on the trail per visit (median = 2.5, mean = 2.19, 95% C.I. [1.9, 2.4]). Overall, the majority of visitors spend between 1 and 3 hours on the trail: 46% of visitors spent between 1 and 2 hours and

Duration of trail visit
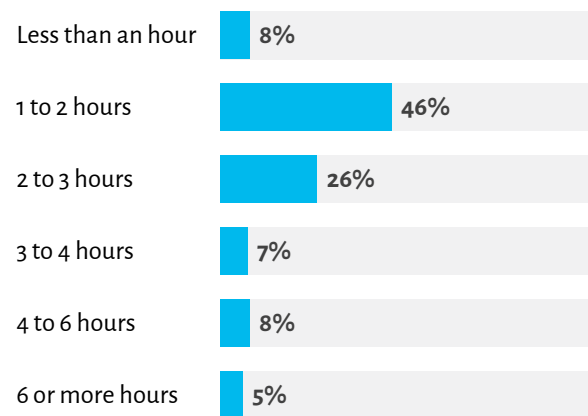

02:11
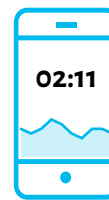
The average (mean) visitor spends **2 hours, 11 minutes** on the trail

% of all visitors spending _____ at the trail

Less than an hour	8%
1 to 2 hours	46%
2 to 3 hours	26%
3 to 4 hours	7%
4 to 6 hours	8%
6 or more hours	5%

Q8. Approximately how much time did you spend at the trail on this visit? [Hours: Minutes] (n = 273)

26% spent between 2 and 3 hours (Figure 16). Approximately 15% of visitors spent between 3 and 6 hours on the trail. Only a small number of visitors fall on the extremes: 8% of visitors spent less than an hour, and only 5% spent 6 hours or more.

The majority of visitor groups are pairs or individuals recreating alone

Most visitors (62%) use the Duluth Traverse with other people (Figure 17). Most groups are relatively small, however: nearly half of visitors (45%) visit with one or two other people, whereas only 17% of groups are 4 people or larger. Over one-third of visitors (38%) visit alone.

The average (mean) visitor group size is 2.4 people (95% C.I. [2.1, 2.6]). Approximately a quarter of visitor groups (26%) include children, and such groups tend to be larger than groups without children. The average group with children had 4.3 people, nearly three times the size of the average group without children (1.7, $p < 0.001$).

Visitor groups tend to be slightly larger on weekends than they are on weekdays. On weekends, the average group has 2.8 people, compared to an average of 1.9 people on weekdays ($p = .01$).

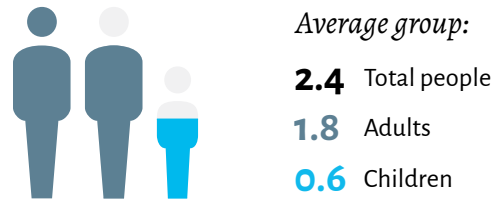**Visitors give the Duluth Traverse very high ratings**

Visitors rated their experiences on the Duluth Traverse very highly (Figure 18). The majority of visitors (72%) said their

experience was "very good", and another 28% rated it as "good." Less than 1% of visitors rated their experience as fair, and no survey respondents visitors rated their experience as " "poor" or "very poor".

Few significant differences in trail ratings were observed across visitor subgroups. Regardless if visitors were men or women; mountain biking or hiking; had children

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Figure 17

Group size and composition
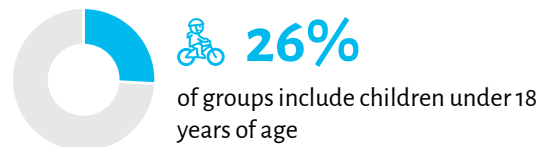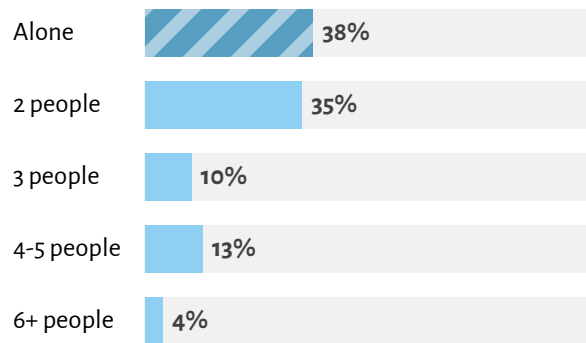
Average group:

2.4 Total people

1.8 Adults

0.6 Children

% of all visitor groups

Alone	38%
2 people	35%
3 people	10%
4-5 people	13%
6+ people	4%

26% of groups include children under 18 years of age

with them or not; were first-time or repeat visitors; were tourists or locals; were young or old; or were beginner, intermediate, advanced or an expert riders, all subgroups we analyzed gave the trails similarly high ratings. This speaks well of the trail system as a whole and its ability to appeal to a wide range of visitors.
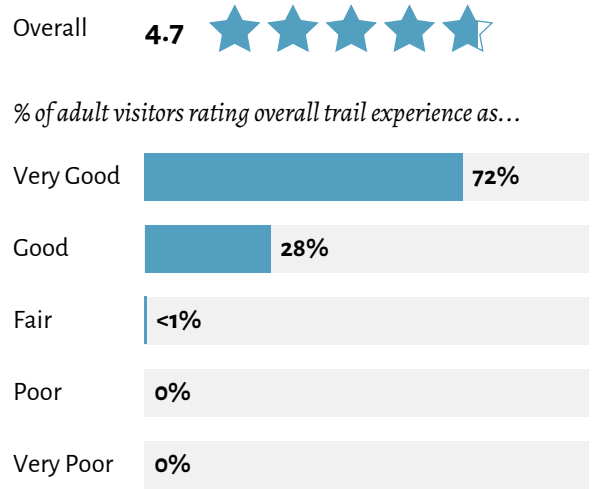
Figure 18

Visitor ratings of trail experience

Overall   **4.7** ★★★★★

% of adult visitors rating overall trail experience as…

Very Good	72%
Good	28%
Fair	<1%
Poor	0%
Very Poor	0%

Q10. Overall, how would you rate your trail experience today? (n = 269)

Note: Overall rating based on scale where 5 = very good, 4 = good, 3 = fair, 2 = poor, and 1 = very poor

Rider Characteristics

Nearly all mountain bikers are riding their own bike

Nearly all adult riders (99%) on the Duluth Traverse were riding their own bike (Figure 19). Approximately one tenth of riders (11%) were using a fat-tire bike.

Half of riders on the Duluth Traverse have intermediate skills

Approximately half of riders on the Duluth Traverse (47%) say their mountain biking skill level is intermediate. Another third of adult visitors (32%) say they have advanced riding skills. Relatively few visitors were beginners (11%) or expert riders (10%) (Figure 20).

Interestingly, beginner and intermediate riders tend to be similar to advanced
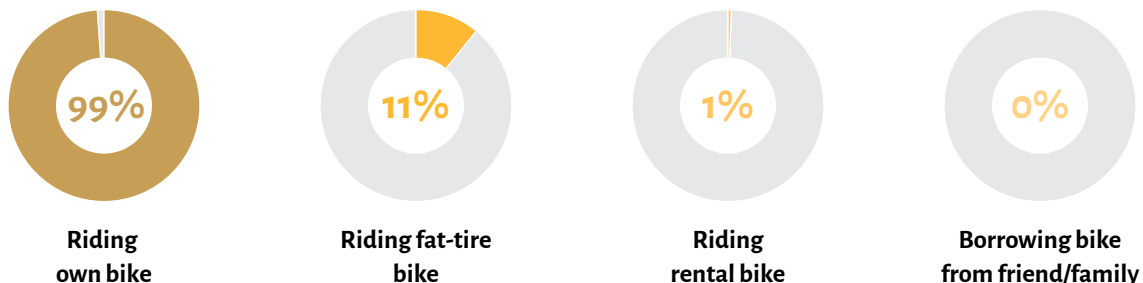
and expert riders across most measures. Riding skill levels were similar across age, education, income and visitation frequency. Both beginner and intermediate riders were also equally as likely as advanced and expert riders to have kids with them on the trail, equally likely to be tourists, and recreate in similarly sized groups. Beginner and intermediate riders were slightly more likely than advanced and expert riders to say they were visiting in order to experience nature (70% vs. 57%, $p < .10$), but otherwise reasons for visiting were similar across skill levels.

Two key differences were found between beginner and intermediate riders and advanced and expert riders, however. First, more advanced riders tend to spend an

Figure 19

Bike characteristics
% of adult visitors, mountain bikers only

99%	**11%**	**1%**	**0%**
Riding own bike	**Riding fat-tire bike**	**Riding rental bike**	**Borrowing bike from friend/family**

Q5. Are you riding a fat-tire bike today? (n = 185)
Q6. Are you riding your own bike today? (n = 184)

extra hour on the trail each visit (3.2 hours vs. 2.1 hours, $p < .05$). Second, more advance riders are significantly more likely to be men. Nealy all women (88%) said they were a beginner or intermediate rider, whereas only half of men (51%) said the same ($p < .001$). Among riders with advanced or expert skills, 93% of them were men.

Not only are men more likely than women to report being advanced or expert riders, they're also more likely to be riding the Duluth Traverse in the first place. Three quarters (75%) of the mountain bikers surveyed were men. Conversely, women were overrepresented among the other activity groups: Two-thirds (66%) of non-mountain bikers were women (Figure 21).

Importantly, skill levels on the survey were self reported, and the survey did not provide skill level definitions or descriptions. As such, results are based on each respondent's perception of their skills and their perception of what each skill level entails. Results should be interpreted with this caveat in mind.

Mountain bikers on the Duluth Traverse have a wide variety of favorite places to ride
Understanding where visitors' favorite place to ride provides an interesting snapshot of the top mountain biking facilities in Minnesota, and also provides a sense of comparable trail systems that have a similar visitor base as the Duluth Traverse. Most

Figure 20

Mountain biking skill level
% of adult visitors, mountain bikers only

Beginner	11%
Intermediate	47%
Advanced	32%
Expert	10%
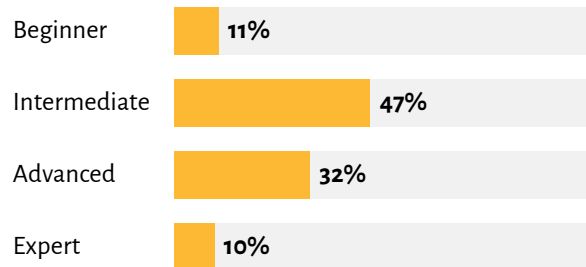
Q4. What is your mountain biking skill level? (n =180)

Figure 21

Gender split by trail activity
% of adult visitors
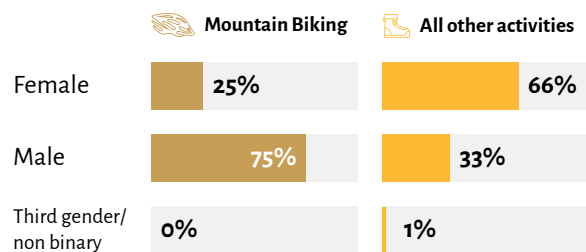
	Mountain Biking	All other activities
Female	25%	66%
Male	75%	33%
Third gender/ non binary	0%	1%

Q1. Which trail activities are you and your group doing during your visit today? *Select all that apply* [Answers presented in randomized order] (n = 278)
Q23. What is your gender identity? (n = 268)

visitors (75%) said Duluth was their favorite place in Minnesota to go mountain biking. Of respondents who said Duluth was their favorite place in Minnesota to mountain bike, most respondents didn't specify a location within the city: 69% just said Duluth's trails in general. Specific locations on Duluth's trail system that received the most mentions were Mission Creek (10%), Spirit Mountain (7%), Lester Park (4%), Hartley Park (4%), Piedmont (3%) and Hawk Ridge (2%).

Beyond Duluth, a wide variety of places were listed (Figure 22): Cuyuna (identified by 13% of visitors) topped the list, followed by Tioga (3%), the North Shore (2%), Redhead (2%) and various trails in the Twin Cities Metro (2%). Giant's Ridge and the Iron Range also received mentions (Figure 22).

Figure 22

Favorite places to mountain bike

 ♡ **69%**

of visitors have a **favorite place in Minnesota to go mountain biking**

% of visitors who say _____ is their favorite place to go mountain biking in Minnesota…

Duluth *	75%
Cuyuna	13%
Tioga	3%
North Shore	2%
Redhead	2%
Twin Cities Metro	2%
Giant's Ridge	1%
Iron Range	1%
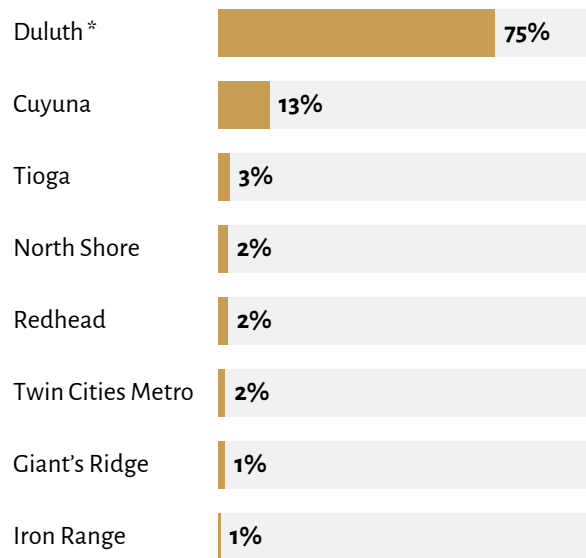
Q3. Do you have a favorite place in Minnesota to go mountain biking? (n = 180)
Q3a. If so, where? [Open ended response] (n = 112)

* Of the Duluth responses, most respondents (69%) didn't give a specific location. Others listed Mission Creek (10%), Spirit Mountain (7%), Lester Park (4%), Hartley Park (4%), Piedmont (3%) and Hawk Ridge (2%).

Trail Tourism

Local users make up the majority of visitors on the Duluth Traverse, though tourists are a sizable minority

Over two-thirds of visitors on the Duluth Traverse (70%) are locals, defined as someone who lives within 50 miles of the trail and is not spending a night away from home (Figure 23). The remaining 30% of trail users are tourists visiting the Duluth area. Nearly a quarter (23%) of all trail users are overnight visitors, while 7% of trail users are on day trips away from home. Tourists were slightly more likely to be using the trail on weekends: 36% of survey respondents on weekends were tourists, compared to 25% of respondents on weekdays ($p = .05$).

The vast majority of tourists (84%) on the Duluth Traverse are mountain biking, whereas locals are much more likely to use the trail for hiking or other activities (43%, $p < .001$). As such, tourists are predominantly male (73% compared to 55% of locals, $p < .05$) and spend an extra hour on the trail per visit (2.9 hours vs. 1.9 hours, $p < .05$). Tourists and locals also tend to have different motivations for visiting (see the "Trail Experiences" section). Trip characteristics of locals and tourists were similar in other ways, however: both tourists and locals were equally likely to be visiting with children, recreating in similarly sized groups, have similar skill levels and give the Duluth

Traverse similar ratings. Demographically, tourists tend to be approximately 5 years younger than locals (41.5 vs. 46.3, $p < .95$) and have lower levels of education (51% of tourists have a bachelor's degree vs. 81% of locals, $p < .001$).
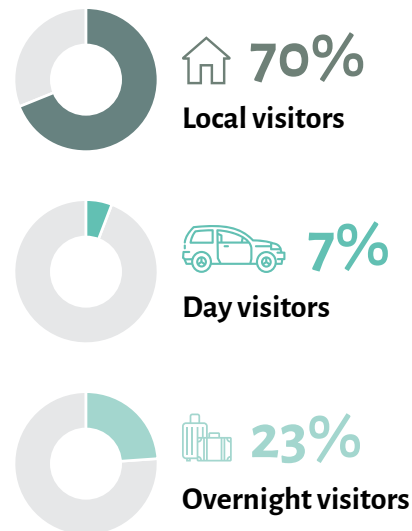
Tourists on the Duluth Traverse are concentrated on the western half of the trail

Nearly half of visitors on the western half of the Duluth Traverse were tourists, whereas

---

Figure 23

Visitor travel segments
% of all visitors

🏠 **70%**
Local visitors

🚗 **7%**
Day visitors

🧳 **23%**
Overnight visitors

Q15. Do you live more than 50 miles from this trail? (n = 277)
Q16. Are you on a trip where you have or plan to stay at least one night away from home? (n = 277)

Note: "Local Visitor" defined as someone who lives within 50 miles and is not spending a night away from home. "Day Visitor" is someone who lives more than 50 miles away but is not spending a night away from home. "Overnight visitor" is someone spending at least one night away from home, regardless of how far away they live.

Figure 24

Duluth Traverse tourists

% of all visitors at each location who are on trips away from home

Mission Creek **54%**

Spirit Mountain **45%**

Haines Road **38%**

Hartley / Lester Park **13%**
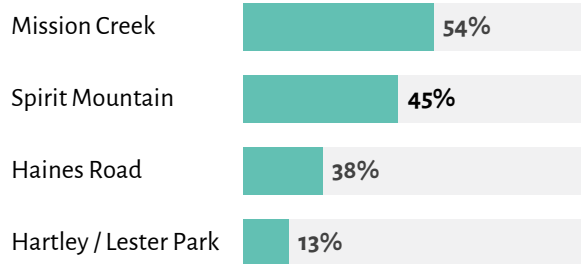
Q15. Do you live more than 50 miles from this trail? (n = 277)
Q16. Are you on a trip where you have or plan to stay at least one night away from home? (n = 277)

Note: "Tourist" defined as a visitor who is 50 miles or more away from home and/or spending at least one night away from home.

the eastern segments are used primarily by locals. Approximately half of visitors at Mission Creek (54%) and Spirit Mountain (45%) were tourists, and 38% of visitors at Haines Road were also from out-of-town. Survey respondents at Hartley Park and Lester Park, conversely, were nearly all locals. Only 13% of visitors at Hartley and Lester were tourists (Figure 24).

Duluth Traverse visitors come from all over the country

The Duluth Traverse hosts visitors from all over the country: 15 different states were

Figure 25

Where visitors are from: National map

1 survey   25 surveys

Minn.
89%

Wis.
6%
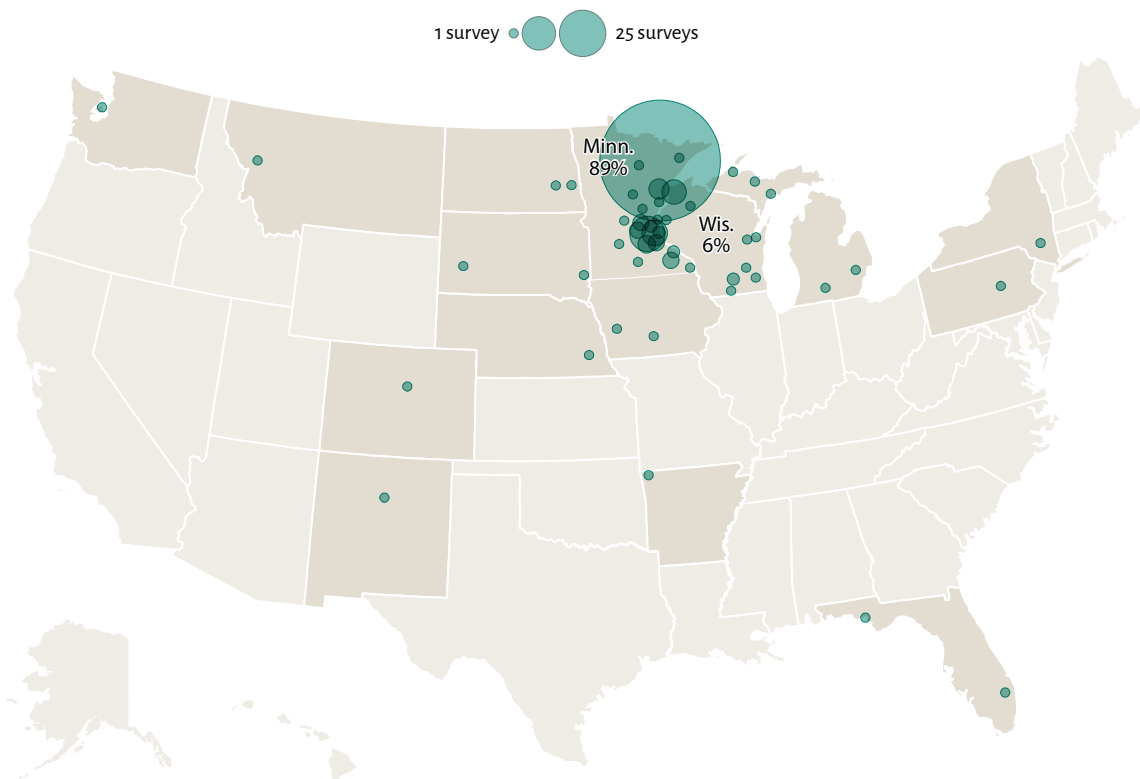
21. What is the zip code of your home address, or what is your country of residence? (n = 264)

represented among survey respondents (Figure 25). Visitors came from as far away as Washington, New York and Florida. While visitors arrived from both coasts, the vast majority were from Minnesota (89%).

Notably, the COVID-19 pandemic restricted travel during the 2021 summer season, especially for international travelers. Consequently, every visitor surveyed was from the United States. Duluth is approximately 3.5 hours away from Thunder Bay, Ontario and, had the northern border been open, it's likely a significant number

of Canadians would have visited. As such, our 2021 data likely underestimates the full extent that the Duluth Traverse serves out-of-town visitors during "normal" years.

The Twin Cities are the Duluth Traverse's primary tourism market

Overall, 15% of all visitors on the Duluth Traverse were from the Twin Cities metropolitan area (Figure 26). The Twin Cities were by far the most frequent origin for tourists. Nearly half (46%) of tourists on the Duluth Traverse were from the Twin Cities. The vast majority of visitors (85%)

Where visitors are from: Regional map
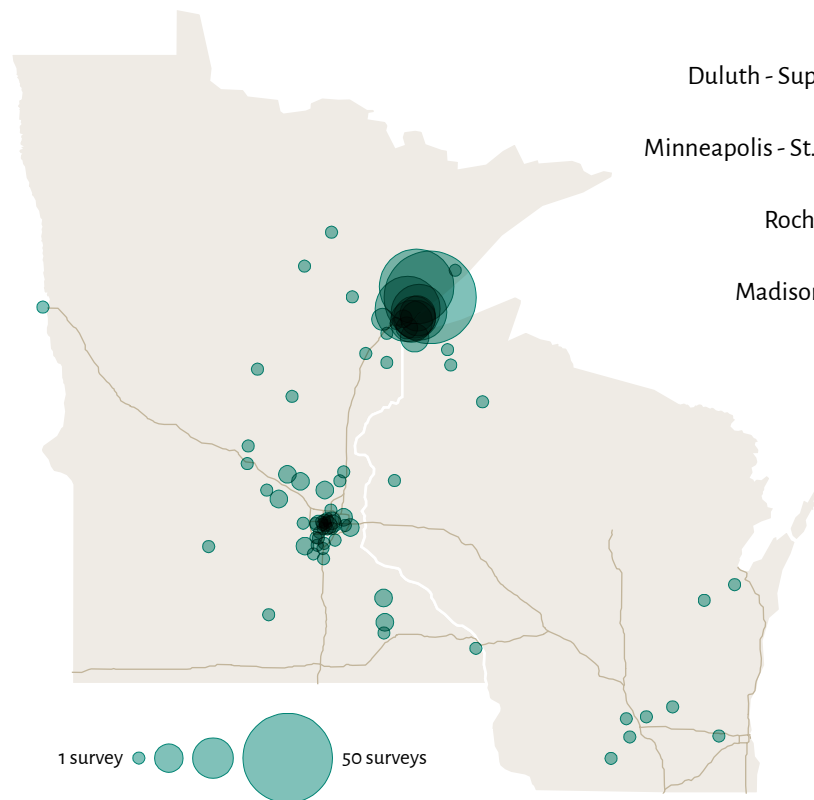
Visitors by region
% of all visitors

Duluth - Superior	73%
Minneapolis - St. Paul	15%
Rochester	2%
Madison, WI	1%

1 survey   50 surveys

21. What is the zip code of your home address, or what is your country of residence? (n = 264)

from the Twin Cities were spending at least one night in Duluth.

Overnight visitors stay in a wide variety of accommodations during their visit
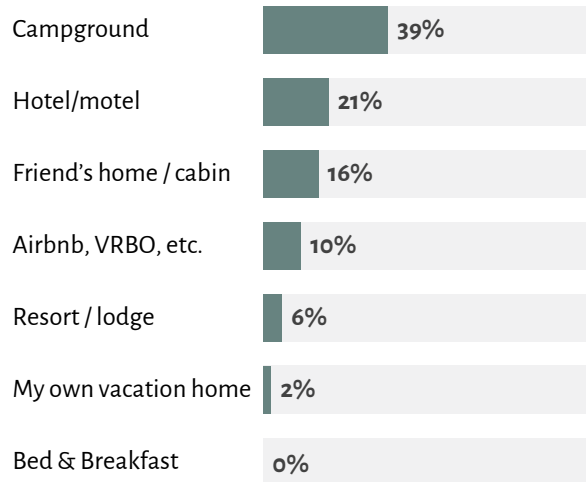
Tourists on the Duluth Traverse stay in a wide variety of accommodations during their stay. Most tourists are staying in paid accommodations. Campgrounds account for the largest share of tourists (39% of overnight visitors), followed by hotel/motels (21%), Aitbnb or VRBO rentals (10%), and resorts or lodges (6%) (Figure 27). A smaller share of visitors stay in private homes: 16% of overnight visitors stay at the home of a family or friend, and only 2% stay in their own personal vacation home.

The majority of overnight trips are for one or two nights

Overall, most overnight visitors on the Duluth Traverse are on relatively short trips. The majority of overnight visitors (59%) stay for only one or two nights, and another 25% stay for three or four nights (Figure 27). A small, but significant minority of visitors are on longer trips. Approximately 5% of overnight visitors spend a week in the Duluth area (5-6 nights, 5%), while 9% spend a week or two (7-13 nights). Only a small minority (3%) of visitors spend more than 2 weeks in the area.

Figure 27

Visitor overnight accommodations
% of overnight visitors

Campground	39%
Hotel/motel	21%
Friend's home / cabin	16%
Airbnb, VRBO, etc.	10%
Resort / lodge	6%
My own vacation home	2%
Bed & Breakfast	0%

Trip Length
% of overnight visitors

1 - 2 nights	59%
3 - 4 nights	25%
5 - 6 nights	5%
7 - 13 nights	9%
>13 nights	3%
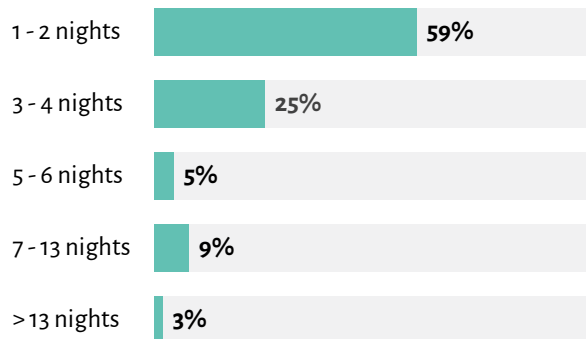
Q18. How many total nights do you plan to spend in this area during your trip? (n = 67)
Q19. What type of overnight accommodations are you staying in during your trip? *Select all that apply*
[Answers presented in randomized order] (n = 67)

The majority of tourists on the Duluth Traverse say the trail itself was a significant reason they decided to visit the area

There's all kinds of reasons tourists choose to visit different areas. Some tourists visit for a specific reason (e.g., to ride the trail everybody's talking about), others visit for a complex mix of reasons (e.g. the area has great food, stunning scenery and lots of activity options to choose from) and others visit for completely unrelated reasons (e.g., they're visiting family or traveling for business). Understanding whether tourists on the Duluth Traverse are visiting the area primarily for the trails themselves, or if they see the trails as just one of many attractions in the area, is helpful for tourism marketing and planning.

For tourists on the Duluth Traverse, Duluth's trails are usually a significant reason for their trip (Figure 28). Among all tourists, 41% said the trail was the primary reason they visited the area, and another 21% said the trail was a significant reason. Only 14% of tourists said they would have visited the Duluth area regardless of the mountain biking trails.

There's a wide range in how far in advance tourists plan their visits

Tourists on the Duluth Traverse were split relatively evenly in terms of how far in advance they planned their trip. Most trips were planned with relatively little notice: Over a third of visitors planned their trip wi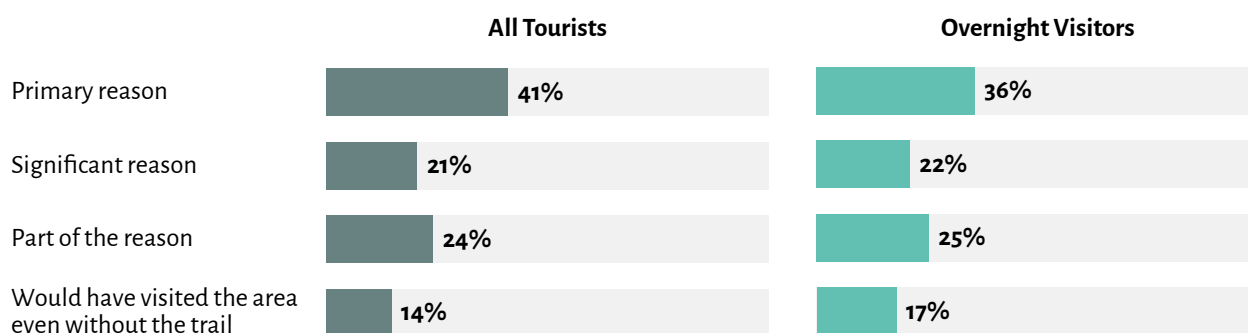thin one week of arriving (35%), and another 29% of tourists planned their trip a few weeks to a month in advance (1-4 weeks). Significant numbers of tourists on the Duluth Traverse made plans further in advance, however. Nearly a fifth of tourists (17%) made plans one or two months in advance, and another 20% of tourists made plans two months or more in advance (Figure 28).

Overnight visitors were generally more likely to plan their trips further in advance. Nearly half (44%) of overnight visitors planned their trip at least a month in advance. Even so, nearly a quarter of overnight visitors (24%) planned their trip within a week or arriving. Day visitors were generally more likely to make "last minute" plans, though our sample of day visitors is too small to make meaningful estimates of day visitors' planning habits.
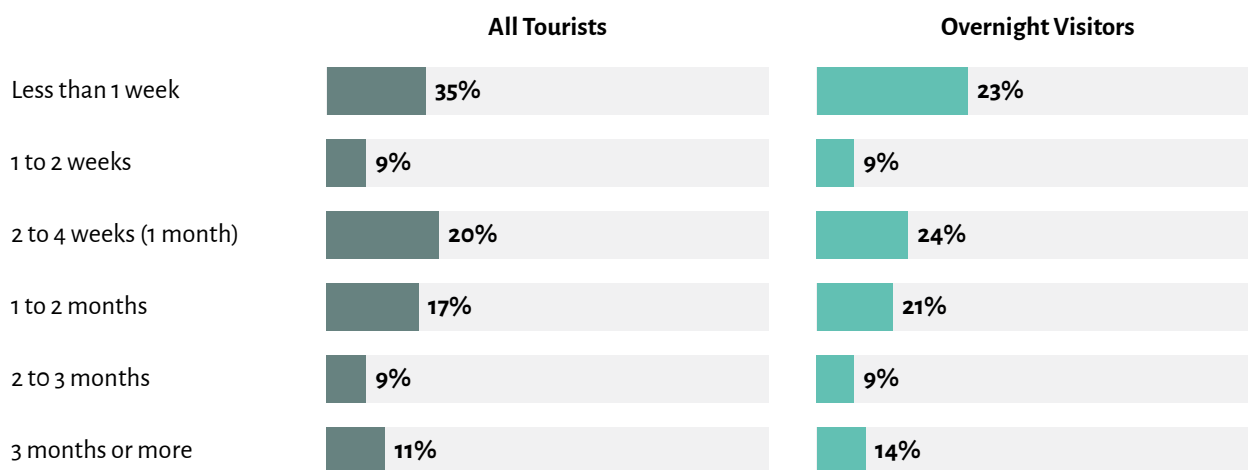
Figure 28

Importance of trail in decision to visit Duluth

% of adult visitors, tourist visitors only

	All Tourists	**Overnight Visitors**
Primary reason	41%	36%
Significant reason	21%	22%
Part of the reason	24%	25%
Would have visited the area even without the trail	14%	17%

How far in advance tourists planned their trip

% of adult visitors, tourist visitors only

	All Tourists	**Overnight Visitors**
Less than 1 week	35%	23%
1 to 2 weeks	9%	9%
2 to 4 weeks (1 month)	20%	24%
1 to 2 months	17%	21%
2 to 3 months	9%	9%
3 months or more	11%	14%

Q17. How important was the trail in deciding to visit this area? (n = 83)
Q20. How far in advance did you plan this trip? (n = 82)

Note: "Tourist" defined as visitor who lives more than 50 miles away and/or is spending a night away from home. "Day Visitor" is someone who lives more than 50 miles away but is not spending a night away from home. "Overnight visitor" is someone spending at least one night away from home, regardless of how far away they live.

Visitors on day trips not displayed due to small sample size (n = 18)

Local knowledge and trail apps top the list of how visitors get their information about the Duluth Traverse
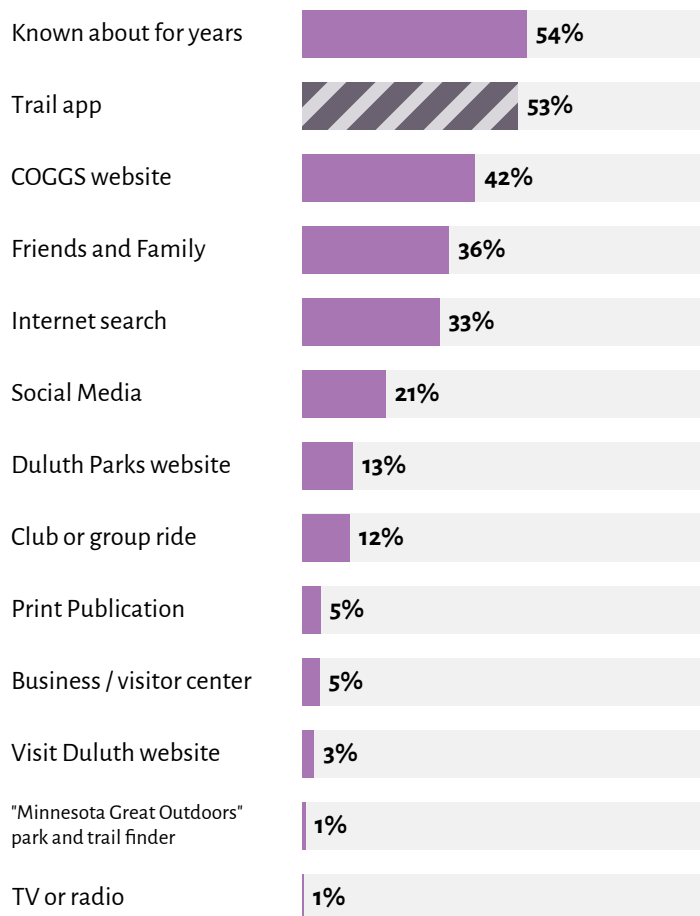
When asked what information sources they've used to learn about the Duluth Traverse, a majority of visitors say they've known about the trail for years (54%) and/ or use a trail app (53%) (Figure 29). No other information source is used by a majority of visitors, though a large minority of visitors use the COGGS website (42%). Approximately a third a visitors learn about the Duluth Traverse through friends and
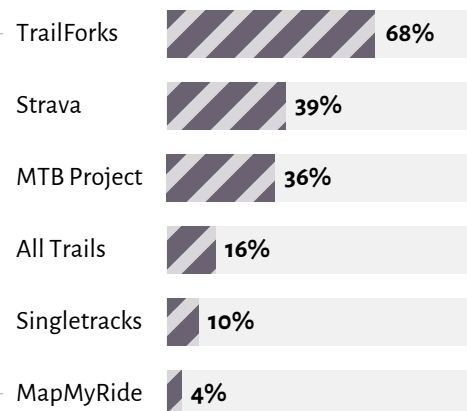
Figure 29

Where visitors get information about the trail
*% of adult visitors who use information source*

Known about for years	54%
Trail app	53%
COGGS website	42%
Friends and Family	36%
Internet search	33%
Social Media	21%
Duluth Parks website	13%
Club or group ride	12%
Print Publication	5%
Business / visitor center	5%
Visit Duluth website	3%
"Minnesota Great Outdoors" park and trail finder	1%
TV or radio	1%

Most popular trail apps
Of trail app users, % who use...

TrailForks	68%
Strava	39%
MTB Project	36%
All Trails	16%
Singletracks	10%
MapMyRide	4%

Use of trail apps depends on skill level *
% of mt. bikers who use trail app
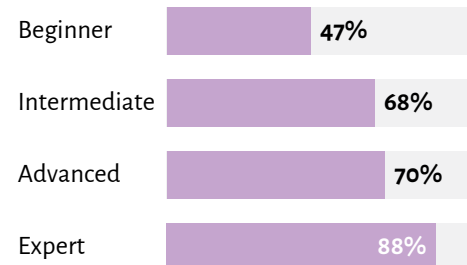
Beginner	47%
Intermediate	68%
Advanced	70%
Expert	88%

Q12. What information sources have you used to learn about this trail? *Select all that apply* [Answers presented in randomized order] (n = 277)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

family (36%) or Internet searches (33%). Social media (used by 21% of visitors), the Duluth Parks website (13%) and club or group rides (12%) round out the top places visitors find information about the Duluth Traverse. Other information sources, such as print publications, local businesses and visitor centers, the Visit Duluth website, the "Minnesota Get Outdoors" park and trail finder, and TV or radio were used by less than 5% of visitors.

The relatively high use of trail apps should be of interest to trail managers and researchers alike, since trail apps track valuable data that can inform how trail systems are used. Both Trailforks and Strava, for example, provide heat maps of trail use based on data provided by their subscribers. Such trail app data is undoubtedly informative, but our data suggests it should be interpreted cautiously. For starters, trail app users are used predominantly by mountain bikers. Nearly all trail app users on (86%) the Duluth Traverse were mountain biking, and only 21% of non-bikers used a trail app.

Even among mountain bikers, however, trail app users are not representative of the average visitor. Mountain bikers on the Duluth Traverse who use trail apps tend to have higher skill levels than visitors who don't use apps (Figure 29). Compared to the average mountain biker on the Duluth

Traverse, trail app users are also more likely to be male, are younger, are more likely to be tourists, spend longer on the trail, are more likely to be training for an event and are more likely to be visiting to do something exciting and adventurous. Data from trail apps should be interpreted with this context in mind.

Locals and tourists learn about the Duluth Traverse from different information sources
Several differences exist between where tourists and locals get their information about the Duluth Traverse (Figure 30). Tourists are more likely than locals to learn about the trail through trail apps (71% vs. 45%, $p < .001$), Internet searches (57% vs. 22%, $p < .001$), and friends and family (45% vs. 32%, $p < .05$). Other information sources are more likely to be used by locals. Unsurprisingly, locals were more likely than tourists to say they've known about the trail for years, but were also more likely to learn about the trail from clubs or group rides and from print publications. No significant differences were found between locals and tourists use of the COGGS website, the Duluth Parks website, or the Visit Duluth website.

Less than half of visitors look for information about the trail before their visit
Overall, most visitors don't look for information about the Duluth Traverse before visiting. Only a third of visitors (32%) said they looked for information prior

to their visit. Tourists, unsurprisingly, are more likely than locals to look for information before heading out to the trail (Figure 31). Over half of tourists (58%) looked for information before their visit, compared to only 21% of locals ($p < .001$).
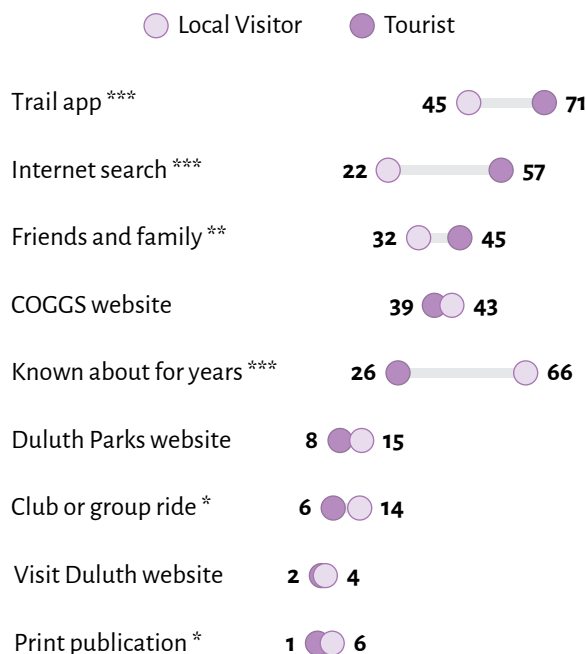
When visitors look for information, they're most often looking for trail maps and mileage

Trail maps and mileage were the most frequent information visitors looked for

before visiting (Figure 32). Among visitors who looked for information, nearly three quarters (73%) of them looked for trail maps and mileage. A minority of visitors looked for a wide range of other information: 49% looked for information about trail difficulty, 30% looked for travel directions, 24% looked for trail reviews, 19% looked for trail rules, 15% looked for parking information, 11% looked up costs or fees, 11% looked up lodging options, and 10% looked up trail

Figure 30

Local and tourist use of selected information sources

% of visitors using information source

○ Local Visitor ● Tourist

Trail app ***   45 ○——● 71

Internet search ***   22 ○——● 57

Friends and family **   32 ○—● 45

COGGS website   39 ●○ 43

Known about for years ***   26 ●————○ 66

Duluth Parks website   8 ●○ 15

Club or group ride *   6 ●○ 14

Visit Duluth website   2 ○ 4

Print publication *   1 ◐ 6

Q12. What information sources have you used to learn about this trail? *Select all that apply* [Answers presented in randomized order] (n = 276)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Additionally, no statistically significant differences were found in locals and tourist use of social media, recommendations from businesses, the "Minnsota Great Outdoors" park and trail finder, or TV and radio.

Figure 31

Pre-trip planning information

(i) **32%**

of visitors **looked for information about the trail** before their visit

Tourists are more likely than locals to look for information before their visit

% of adult visitors who searched for information before their visit

Local Visitor   21% ***

Tourist   58% ***
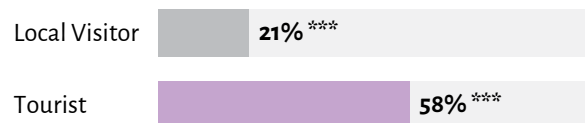
Q13. To prepare for your visit today, did you or your group look for information about this trail before you came? (n = 277)
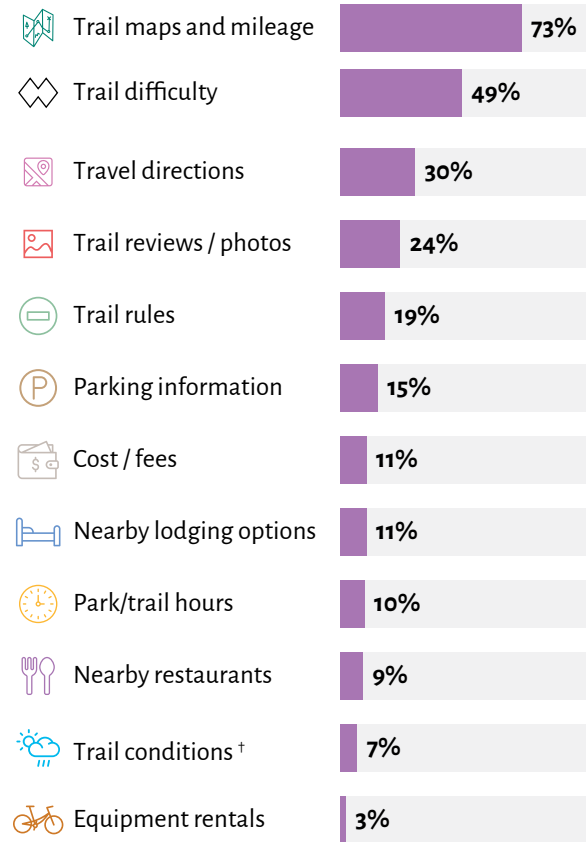
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

hours. Fewer than 10% of visitors looked up nearby restaurants or equipment rentals.

Of note, 7% of visitors volunteered that they looked up trail conditions (or weather) under the "other" option. Not including trail conditions on the list of options was an oversight, and had it been included significantly more visitors would likely have checked it.

Figure 32

What information do visitors search for before their visit?

Of adult visitors who looked for information before their visit, % who searched for…

Trail maps and mileage	73%
Trail difficulty	49%
Travel directions	30%
Trail reviews / photos	24%
Trail rules	19%
Parking information	15%
Cost / fees	11%
Nearby lodging options	11%
Park/trail hours	10%
Nearby restaurants	9%
Trail conditions †	7%
Equipment rentals	3%

Q14. What information did you search for before your visit today? *Select all that apply* [Answers presented in randomized order] (n = 92)

† "Trail conditions" was a frequent response to the open-ended "other" category. Had "trail conditions" been included as an answer choice, frequency would likely be higher.

Methodology

Overview

Data in this report is drawn from two complementary studies conducted on the Duluth Traverse during the summer of 2021. First, to measure system use and traffic patterns, automated trail counters were installed at eight locations across the system. Second, a visitor intercept survey contacted visitors at Mission Creek, Spirit Mountain, Haines Road (i.e., Brewer Park / Piedmont), Hartley Park, and Lester Park to collect responses on trail experience, trip characteristics, and demographics.

Trail counters were installed for varying lengths of time between May 29, 2021 (the Saturday before Memorial Day) and October 1. Visitor surveys were collected between June 26, 2021 and September 16, 2021. While data collection continued through September, both studies were designed be representative of the summer season, defined as the Saturday before Memorial Day through Labor Day. Focusing visitor studies on the summer season coincides with the peak visitation season for mountain biking and ensures comparability with other visitor studies conducted in regional and state parks and trails across Minnesota.[1]

While beyond the scope of this study, it should be noted that the Duluth Traverse is used year round, and use during other seasons (particularly the fall) may be significant. Readers should understand this report does not quantify the full, year-round regional impact that the Duluth Traverse has on Duluth and the surrounding community.

Trail Use Estimates

Data on trail use was primarily collected using EcoCounter PYRO boxes, which are passive-infrared automated trail counters that detect trail users as they pass by. The passive-infrared counters count all users, and occasionally wildlife, that pass by and do not differentiate between bikers and hikers. Field staff validated the counters after installation by hiking or riding past the counter 50 times and ensuring it was counting properly.

Spirit Mountain and Hartley Park were chosen as the two primary trail count locations in consultation with trail planners. Spirit Mountain was chosen for its location on the western half of the trail and being a high-use tourist destination, while Hartley Park was chosen for its location on the eastern half of the trail and being a high-

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1 See "Regional Parks System Visitor Study Report" (Metropolitan Council, November 2016), "2017 State Park Visitor Survey" (Minnesota DNR, November 2017) , and "2019 Minnesota State Trail Visitor Survey" (Minnesota DNR, July 2020).

use area for locals. P&TC installed a PYRO box counter on the Duluth Traverse at Spirit Mountain for the entirety of the counting season (May 29 - October 1). The City of Duluth installed a TrafX counter on the Duluth Traverse in Hartley Park from June 1 through October 1.

In addition to the season-long counts at Spirit Mountain and Hartley Park, short-duration counts were conducted at Mission Creek, Becks Road, Haines Road, Twin Ponds/Observation Hill, Hawk Ridge, and Lester Park. Short-duration counts ranged in length from two to three weeks (Figure 33). All trail counting locations were determined in consultation with trail planners at the City of Duluth.

Several technical issues plagued the counters at both Spirit Mountain and Hartley Park. The counter at Spirit Mountain malfunctioned between June 13 and July 8, and had to be taken down for maintenance again between August 18 and August 26, resulting in 33 days of lost data. Daily traffic for the missing days at Spirit Mountain were estimated using a traffic model incorporating a local traffic index.[2]

Additionally, the City of Duluth's TrafX counter installed at Hartley Park

Figure 33

Trail counting locations and dates

Location	Dates	Duration (days)
Mission Creek	7/31/21 - 8/14/21	15
Becks Road	9/9/21 - 9/30/21	22
Spirit Mountain	5/29/21 - 6/13/21	16
	7/9/21 - 8/17/21	40
	8/26/21 - 9/30/21	36
Haines Road	8/31/21 - 9/13/21	14
Twin Ponds/ Observation Hill	9/9/21 - 9/30/21	22
Hartley Park	6/1/21 - 6/15/21 (TrafX)	15
	9/15/21 - 9/30/21	16
Hawk Ridge	9/15/21 - 9/30/21	16
Lester Park	8/31/21 - 9/13/21	14

malfunctioned and only recorded data for the first two weeks of the summer. Unfortunately this issue was not discovered until the end of the counting season. We installed a secondary counter at the Hartley Park location for the final two weeks of September (a EcoCounter Pyro Box). To test compatibility between the TrafX and EcoCounter counts, we compared Hartley Park traffic to Spirit Mountain traffic for both count periods and found the TrafX counts to be systematically higher.[3] To be conservative, we adjusted the counts collected with the TrafX counter so that the ratio of Hartley Park to Spirit Mountain traffic in June was equal to that observed in

September. Due to the extensive data loss at Hartley, we treated it as a short-duration site during analysis.

Those challenges notwithstanding, all trail count data was downloaded at the end of the season, checked and cleaned. We then analyzed data at each trail location for daily traffic patterns, hourly traffic patterns, and estimated summer average daily traffic (SADT). Fact sheets for each trail count location are provided in Appendix A.

SADT for short-duration count locations was estimated using the day-of-year factoring method. The day-of-year factoring method is a standard method to extrapolate short-duration non-motorized traffic counts because is captures the effects of local conditions such as weather, events and holidays.[4] Under the day-of-year factoring method, observed traffic at a short-duration site is assumed to equal the proportion of season-long traffic observed at a nearby location (i.e., "reference site) where counts are collected for the entire season. We used the counts collected at Spirit Mountain as the reference site to extrapolate data collected elsewhere on the system. For example, if traffic between July 31 and August 14 accounted for 13% of total summer traffic at Spirit Mountain, it's assumed that

observed traffic at Mission Creek during the same time period also accounts for 13% of total summer traffic at Mission Creek. This method typically results in estimates with a margin of error of approximately 10-15% for each short-duration trail count location.

All summer traffic estimates are specific to 2021 and are not necessarily representative of the average year. Mountain biking and hiking traffic is highly sensitive to weather, which can vary widely from year-to-year.

Questionnaire development
The questionnaire was designed through a collaborative process between the Greater Minnesota Regional Parks & Trails Commission (GMRPTC) and Parks & Trails Council (P&TC). GMRPTC designed a draft questionnaire based on the University of Minnesota's *Handbook for Minnesota Parks and Trails Surveying* and previous surveys conducted by the Metropolitan Council.[5] P&TC reviewed the questionnaire and offered recommendations to improve questionnaire clarity, focus and length. Whenever possible, questions were designed to collect data that is comparable to visitor survey data collected by the Metropolitan Council and the Minnesota Department of Natural Resources.

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4 Minge, E., Falero, C., Lindsey, G., Petesch, M., & Vorvick, T. (2017). *Bicycle and Pedestrian Data Collection Manual.* Minnesota Department of Transportation.
5 Pradhananga, A., Davenport, M.A., Saari, H. (2016). *Handbook for Minnesota Parks and Trails Visitor Surveying.* University of Minnesota, Department of Forest Resources.

Prior to finalizing the questionnaire, the instrument was pilot tested with seven volunteers at two Minnesota trail facilities. Results from the pilot were used to re-word several questions for clarity. The final questionnaire was 20 questions long, plus 13 additional questions asked only of specific users (e.g., mountain bikers, tourists). Question topics included trail activities, overall quality of the trail experience, group characteristics, trip planning, information sources, and demographics (Appendix B). On average, respondents took 5 minutes to complete the survey.

To limit potential language bias, the questionnaire was translated into English, Spanish and Somali. All respondents completed the survey in English.

Questionnaires were administered to visitors on Samsung 8" tablets using QuestionPro (a professional online survey software). The survey was stored on the tablet and did not require Wi-Fi or cellular phone service. Skips and data validation were programmed into the survey to help speed up completion and improve accuracy of data entered by the visitor. Survey responses were stored on the tablet and later uploaded to P&TC's online account. Paper surveys were also available as a backup or if requested. The vast majority of surveys (92%) were completed electronically on the tablet.

Data collection protocol

The visitor survey was conducted by P&TC staff and volunteers. All surveyors attended a training session and received an 18-page training manual that reviewed project purpose, study design and procedures, checklists and frequently encountered issues.

Surveys were conducted at Mission Creek, Spirit Mountain, Haines Road (i.e., Brewer/Piedmont), Hartley Park, and Lester Park (see Figure 1 on page 3). Only adult visitors (age 18 and older) using the Duluth Traverse were eligible to take the survey, and surveyors were trained to screen all visitors to determine visitor eligibility (Appendix B). If visitors arrived as a group, the adult with the most recent birthday was asked to complete the survey.

To welcome visitors at each survey location, a "survey station" was set up at the beginning of each survey shift. The station

Figure 34
Visitor survey station

provided a visual presence for the surveyor and included a large "Visitor Survey" sign, free water, maps, and a trash bag (Figure 34).

During each survey shift, surveyors made every effort possible to stop and talk to every visitor entering or leaving the trail. Surveyors would approach each visitor group, introduce themselves, explain the purpose the survey and ask them to participate. If the visitor agreed they were handed the tablet and self-administered the questionnaire. If the visitor asked to be administered the questionnaire verbally, the surveyor did so reading the questionnaire verbatim and recording responses on the tablet. All visitors were assured their participation was completely voluntary and that their identities would be anonymous.

In instances where high traffic volumes made it impractical to approach every visitor, the "next to pass method" was used to select respondents. During these periods, surveyors simply selected and approached the next group or person to pass the survey site after a questionnaire had been completed by someone else.

Sampling

A stratified sampling plan was developed to ensure the survey sample was as representative of summer visitors as possible. Surveys were conducted for a total of 104.5 hours stratified across high-use and low-use periods (Figure 35). Surveying hours were split between weekends (49%) and weekdays (51%). On average, 2.2 surveys were completed per hour on weekdays and 3.1 surveys were completed per hour on weekends. The majority of surveys (58%) were completed on weekends.

Response Rate & Margin of Error

A total of 305 eligible visitor groups were approached and asked to complete the questionnaire. Of those, 278 visitors completed a survey for a response rate of 91%. This response rate is exceptionally high and sufficient to allay any concerns of non-response bias (in which results are biased due to systematic differences between people who are willing to complete the survey and those who are not).

Whenever a visitor declined to participate, the surveyor recorded the group size, primary activity and inquired if they would be willing to quickly answer four short "non response questions."[6] The purpose of these questions was to test if visitors who decline to participate are systematically different from those who participated. Non-respondents were similar to respondents in terms of primary activity, group size, age and percentage recreating with children. The final sample size (n=278) provides 95 percent confidence that the sampling error

6 (1) What language do you speak most often at home? (2) Approximately how often do you visit this trail during spring, summer and fall? (3) What is your zip code (or country)? (4) What year were you born?

does not exceed plus or minus 5.9 percent. Margins of error are higher in subgroups (Figure 36).

In addition to sampling error, question wording and other biases can introduce error into surveys. To reduce answer option order bias, answers were randomized for non-ordinal answer choices.

Data Analysis

Survey data was downloaded from the QuestionPro server and prepped for import into the statistical software SPSS using Microsoft Excel. SPSS was used for

Figure 35

Survey dates, times and completions

Date	Day	Location	Time	Hours	Completed
6/26/21	Sat	Hartley	12pm - 6pm	6.00	6
7/8/21	Thu	Mission Creek	10am - 1pm	3.00	10
7/9/21	Fri	Mission Creek	12pm - 4pm	4.00	15
7/11/21	Sun	Haines Rd	12pm - 4pm	4.00	20
7/15/21	Thu	Haines Rd	4pm - 8pm	4.00	14
7/17/21	Sat	Mission Creek	8am - 12pm	4.00	14
7/19/21	Mon	Spirit Mt	10:30am - 12:30pm	2.00	2
7/22/21	Thu	Mission Creek	8am - 12pm	4.00	7
7/25/21	Sun	Hartley	8:30am - 12:30pm	4.00	20
7/29/21	Thu	Hartley	9am - 1pm	4.00	3
8/3/21	Tue	Spirit Mt	4pm - 7:15pm	3.25	2
8/7/21	Sat	Spirit Mt	10am - 4pm	6.00	32
8/8/21	Sun	Haines Rd	1pm - 2:15pm	1.25	3
8/11/21	Wed	Haines Rd	12pm - 4pm	4.00	14
8/14/21	Sat	Spirit Mt	12pm - 4pm	4.00	5
8/17/21	Tue	Mission Creek	12pm - 4pm	4.00	8
8/20/21	Fri	Haines Rd	8am - 12pm	4.00	12
8/22/21	Sun	Mission Creek	12pm - 4pm	4.00	12
8/23/21	Mon	Lester Park	4pm - 8pm	4.00	5
8/29/21	Sun	Lester Park	10:30am - 2:30pm	4.00	6
9/2/21	Thu	Spirit Mt	3pm - 6pm	3.00	2
9/4/21	Sat	Haines Rd	2pm - 4pm	2.00	5
9/5/21	Sun	Mission Creek	11:15pm - 3:15pm	4.00	17
9/8/21	Wed	Lester Park	9:15am - 1:15pm	4.00	9
9/11/21	Sat	Lester Park	12pm - 4pm	4.00	12
9/12/21	Sun	Spirit Mt	1pm - 5pm	4.00	8
9/14/21	Tue	Haines Rd	5pm - 7pm	2.00	3
9/16/21	Thu	Lester Park	3pm - 7pm	4.00	12

Figure 36

Margin of error for selected subgroups

Member segment	Sample size	Plus or minus... (percentage points)
All adult visitors	278	5.9
Tourism		
Local visitors	193	7.1
Tourists	85	10.6
Overnight visitors	67	11.9
Skill Level		
Beginner/Intermediate	105	9.6
Advanced/Expert	75	11.3
Location		
Mission Creek	83	10.8
Spirit Mountain	51	13.7
Haines Road	71	11.6
Hartley/Lester Park	73	11.5

accuracy checks, recoding, descriptive statistics, cross-tabulations, and statistical significance testing.

Throughout the report, unless otherwise specified, the word "average" refers to the sample's median rather than mean. Means are provided where informative with an accompanying confidence interval. Confidence intervals are written as 95% C.I. [#, #], where the bracketed numbers refer to the upper and lower bounds of the 95% confidence interval for the reported mean.

Statistical hypothesis tests are included throughout the report to indicate statistically significant differences between visitor subgroups (e.g., locals and tourists, men and women, skill levels, etc.). Probability values (p-value) are included alongside these tests to indicate the probability the observed differences are due to actual underlying differences in the population rather than sampling error. Researchers typically use a probability threshold of 5% to indicate "statistical significance" ($p < 0.05$), meaning there is less than a 5% chance the difference would be observed if no actual differences existed between the two subgroups. This report largely adheres to the 5% standard, though occasionally includes differences with a higher probability of being due to random chance ($p < 0.10$).

Responses to the open-ended question asking respondents if they had any additional comments were loosely grouped into categories and are provided in Appendix C.

Weighting

Despite our best efforts to sample a representative set of visitors, weekend visitors and visitors at Mission Creek and Haines Road were overrepresented in our final dataset (compared to our trail counts). To compensate for this sampling bias, the survey data was weighted by day of week (weekday vs. weekend) and trail center location. Hartley Park and Lester Park were considered one combined location for weighting purposes (due to how the sampling plan was developed). Weighting

the data provides a more accurate reflection of all visitors, but must be done cautiously because it risks over-representing the views of several people who may not be an accurate reflection of their subgroup. For all analyses we created two sets of cross-tabulations: one set weighted and one set unweighted. Cross-tabs were compared side-by-side to verify the weighting didn't cause any extreme or unexplainable changes in the dataset.

Challenges

The primary unanticipated challenges were twofold: the counter malfunctions at Spirit Mountain and Hartley Park (discussed earlier) and the relatively low rate of survey collection. The original sampling plan, modeled largely on the *Handbook for Minnesota Parks and Trails Surveying,* anticipated collecting 4 to 5 completed surveys per hour in the field. Under that assumption, the original sample plan scheduled 80 hours of surveying, with

flexibility to add 20 extra hours if necessary, in order to collect 400 completed surveys.

After the first few weeks of collecting surveys in the field, it became clear that collection rates of 4 to 5 surveys per hour was unattainable. At that point, several changes were made in the survey collection protocol in an attempt to increase responses without compromising data integrity. First, additional survey hours were scheduled and the survey sampling window was extended into the third week of September. Second, because several questions asked visitors about their experience (e.g., How long were you on the trail? How would you rate your experience?), the original survey protocol was to *only* survey visitors as they were leaving the trail. This had the drawback of missing visitors who arrived later during the surveying shift and were still on the trail when the surveyor left. To compensate for this, the survey protocol was changed so that, during the final two hours of the

Figure 37

Data weights

Visitor segment	Percentage of total system traffic	Completed surveys	Percentage of survey sample	Weight
Mission Creek Weekdays	12%	40	14%	0.82
Mission Creek Weekends	9%	43	15%	0.55
Spirit Mountain all days	15%	51	18%	0.81
Haines Road Weekdays	9%	43	15%	0.59
Haines Road Weekends	7%	28	10%	0.72
Hartley/Lester Park Weekdays	28%	29	10%	2.66
Hartley/Lester Park Weekends	21%	44	16%	1.30

surveying shift, surveyors started offering the survey to all visitors. If a visitor was just arriving, they were instructed to answer the "How long did you spend on the trail" and "How would you rate your overall experience on the trail" based on their most recent visit to the Duluth Traverse. If it was a first-time visitor, they were instructed to skip those two questions.

Despite those changes to increase completion rates, our final sample size (n=278) was well below our sampling quota (n=400). The primary drawback of a smaller size is increased uncertainty; Rather than a desired margin of error of plus or minus five percentage points, the margin of error for this study was plus or minus 5.9 percentage points. Small sample sizes also limit the ability to analyze differences between different groups of users. Consequently, there are likely additional group differences that were missed by this study. While any undetected differences are likely small (in numerical terms), they may be of practical significance. Readers should be aware visitor segments may differ in more ways than this study was able to conclude.

Duluth Traverse Mission Creek
2021 TRAFFIC ESTIMATES

Counting Location:

Counting Period:
July 31, 2021 - August 14, 2021

Summer ADT: 130
   Weekdays: 115
   Weekends: 168

Weekend:Weekday Ratio: 1.5

Weekday Peak Hour: 6:00pm
Weekend Peak Hour: 9:00am

Estimated 2021 Summer Traffic
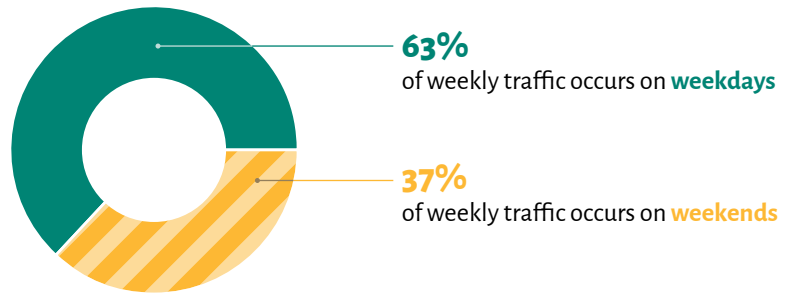
Total	Eastbound	Westbound
13,136	**7,480** (57%)	**5,656** (43%)

Weekly Traffic
Based on short-duration count period

63%
of weekly traffic occurs on **weekdays**

37%
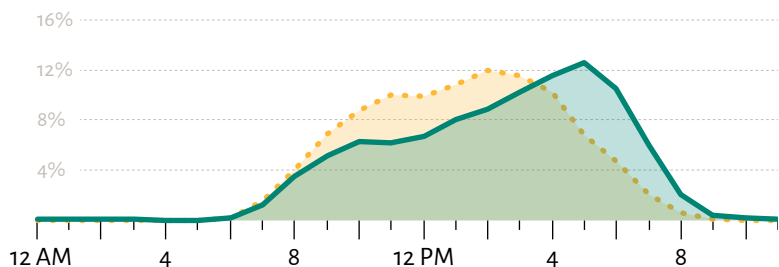of weekly traffic occurs on **weekends**

Summer Hourly Traffic Patterns
% of daily traffic   ■ Weekday   ● Weekend
Short-duration count data (smoothed)
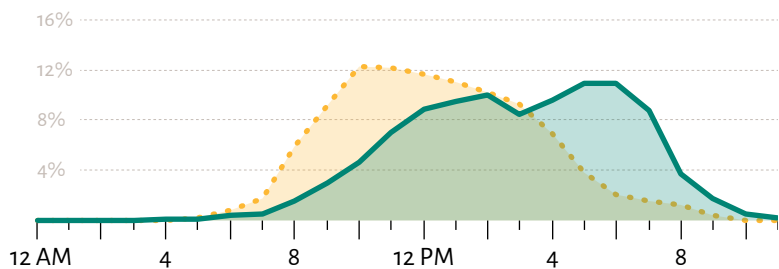
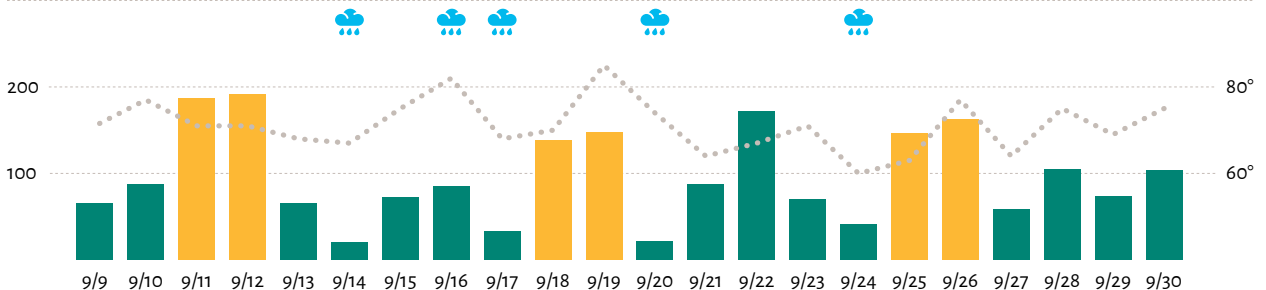
Short-Duration Daily Counts

■ Weekday traffic   ■ Weekend / Holiday traffic   ···· Temperature   🌧 Rain (≥ 0.25 in)
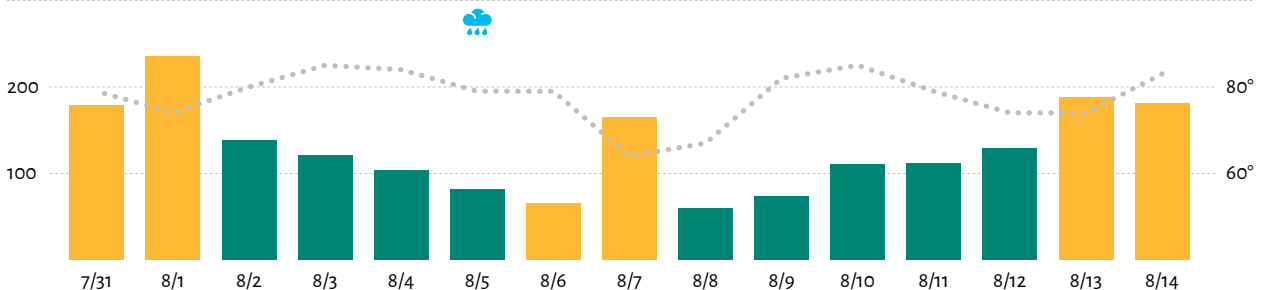
Duluth Traverse Becks Road
2021 TRAFFIC ESTIMATES

Counting Location:

Estimated 2021 Summer Traffic

13,066
(Directional traffic not available)
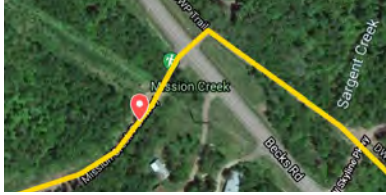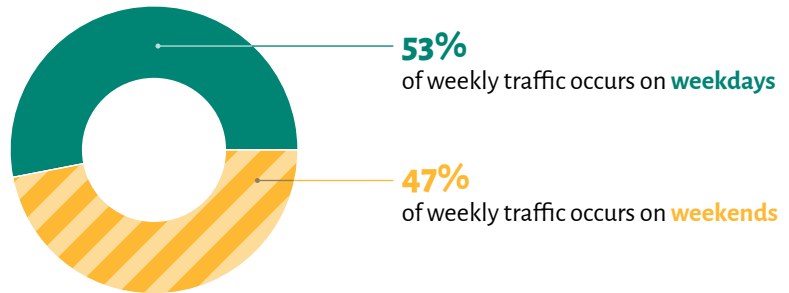
Counting Period:
Sept 9, 2021 - Sept 30, 2021

Summer ADT: 129
 Weekdays: 96
 Weekends: 214

Weekend:Weekday Ratio: 2.2

Weekday Peak Hour: 5:00pm
Weekend Peak Hour: 3:00pm

Weekly Traffic
Based on short-duration count period

53%
of weekly traffic occurs on **weekdays**

47%
of weekly traffic occurs on **weekends**

Summer Hourly Traffic Patterns
% of daily traffic ● Weekday ● Weekend
Short-duration count data (smoothed)

16%
12%
8%
4%

12 AM   4   8   12 PM   4   8

Short-Duration Daily Counts

■ Weekday traffic   ■ Weekend / Holiday traffic   ⋯ Temperature   🌧 Rain (≥ 0.25 in)

Daily Traffic   Daily High Temperature (F°)

200   80°

100   60°

9/9 9/10 9/11 9/12 9/13 9/14 9/15 9/16 9/17 9/18 9/19 9/20 9/21 9/22 9/23 9/24 9/25 9/26 9/27 9/28 9/29 9/30

Duluth Traverse Spirit Mountain
2021 TRAFFIC ESTIMATES

Counting Location:

Counting Period:
May 29, 2021 - June 13, 2021
July 9, 2021 - August 17, 2021
August 26, 2021 - Sept 30, 2021

Summer ADT: 189
  Weekdays: 120
  Weekends: 354

Weekend:Weekday Ratio: 2.9

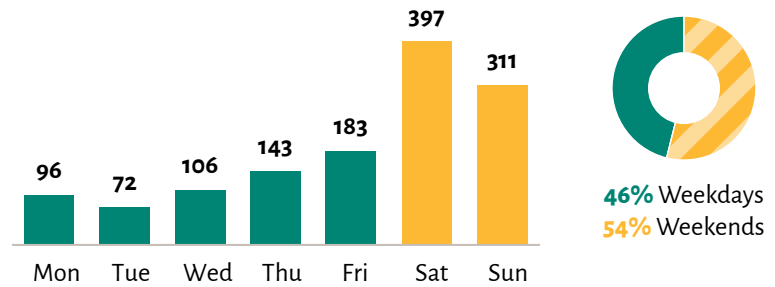**Weekday Peak Hour:** 6:00pm
Weekend Peak Hour: 12:00pm

Estimated 2021 Summer Traffic

19,117
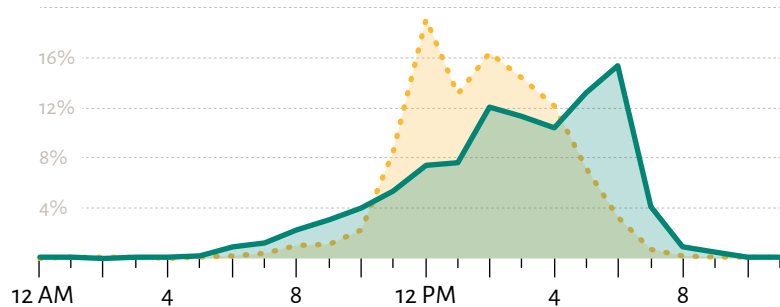(Directional traffic not available)

Summer Day-of-Week Patterns
Summer Average Daily Traffic

46% Weekdays
54% Weekends

Mon 96 | Tue 72 | Wed 106 | Thu 143 | Fri 183 | Sat 397 | Sun 311

Summer Hourly Traffic Patterns
% of daily traffic   ■ Weekday   ● Weekend

2021 Summer Total Daily Traffic

■ Weekdays (observed)   ■ Weekend / Holiday (observed)
■ Weekdays (estimated)   ■ Weekend / Holiday (estimated)

Summer Season
(Lift operates Thur - Sun)

Post Labor Day
(Lift operates Sat - Sun)

June | July | August | Sept.
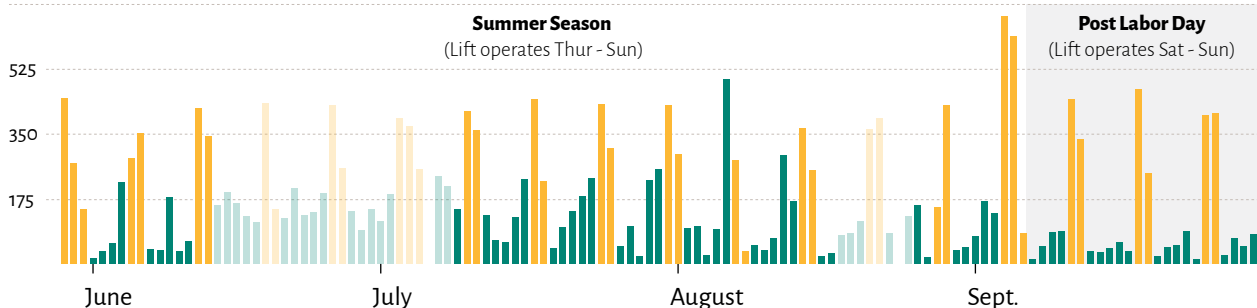
Duluth Traverse Haines Road
2021 TRAFFIC ESTIMATES

Counting Location:
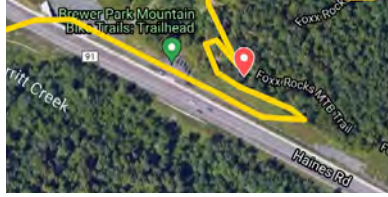
Counting Period:
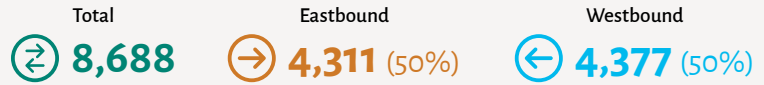August 31, 2021 - Sept 13, 2021

Summer ADT: 86
    Weekdays: 66
    Weekends: 137

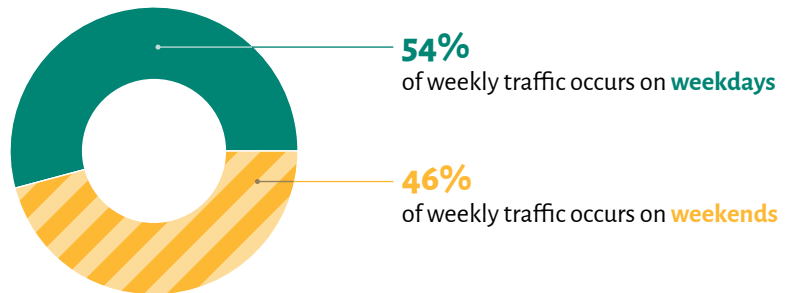**Weekend:Weekday Ratio:** 2.1

Weekday Peak Hour: 5:00pm
Weekend Peak Hour: 12:00pm

Estimated 2021 Summer Traffic

Total	Eastbound	Westbound
⇄ **8,688**	→ **4,311** (50%)	← **4,377** (50%)

Weekly Traffic
Based on short-duration count period

54% of weekly traffic occurs on **weekdays**

46% of weekly traffic occurs on **weekends**

Summer Hourly Traffic Patterns
% of daily traffic   ● Weekday   ● Weekend
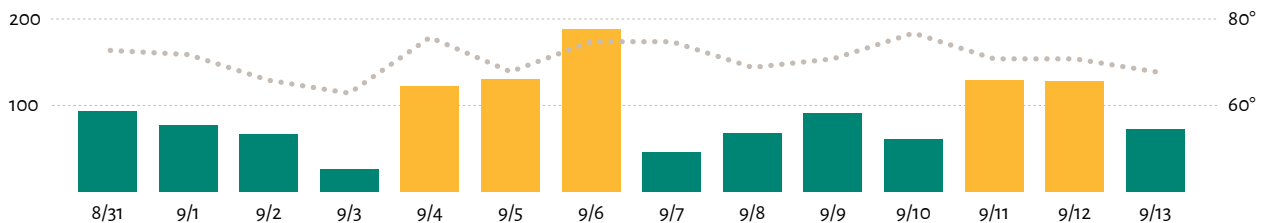Short-duration count data (smoothed)
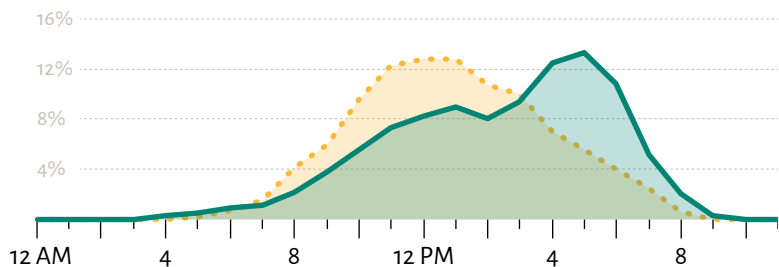
Short-Duration Daily Counts

■ Weekday traffic   ■ Weekend / Holiday traffic   ⋯ Temperature   🌧 Rain (≥ 0.25 in)

Daily Traffic   Daily High Temperature (F°)

Duluth Traverse Twin Ponds / Observation Hill
2021 TRAFFIC ESTIMATES

Counting Location:

Counting Period:
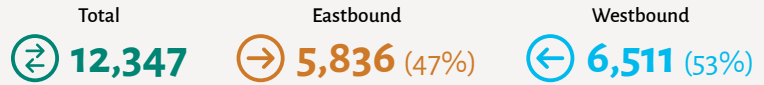Sept 9, 2021 - Sept 30, 2021

Summer ADT: 122
   Weekdays: 96
   Weekends: 187

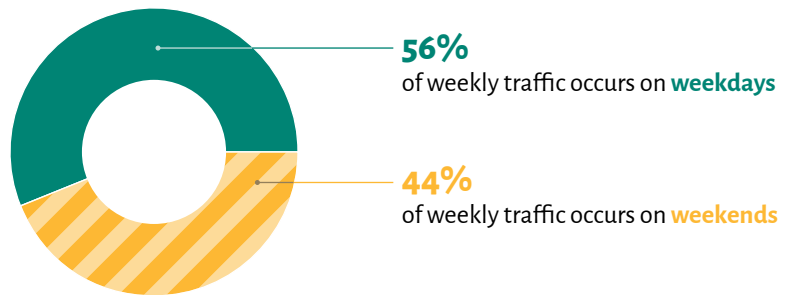**Weekend:Weekday Ratio:** 1.9

Weekday Peak Hour: 5:00pm
Weekend Peak Hour: 12:00pm

Estimated 2021 Summer Traffic

Total	Eastbound	Westbound
12,347	5,836 (47%)	6,511 (53%)

Weekly Traffic
Based on short-duration count period

56% of weekly traffic occurs on **weekdays**

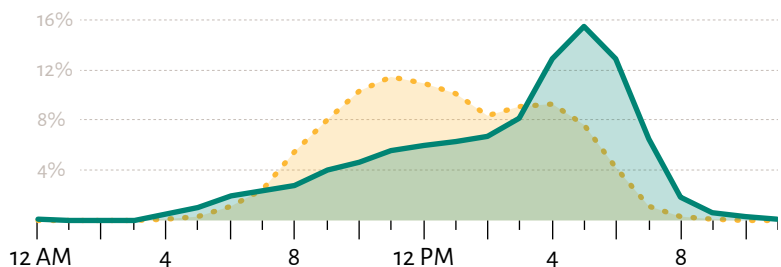**44%** of weekly traffic occurs on **weekends**

Summer Hourly Traffic Patterns
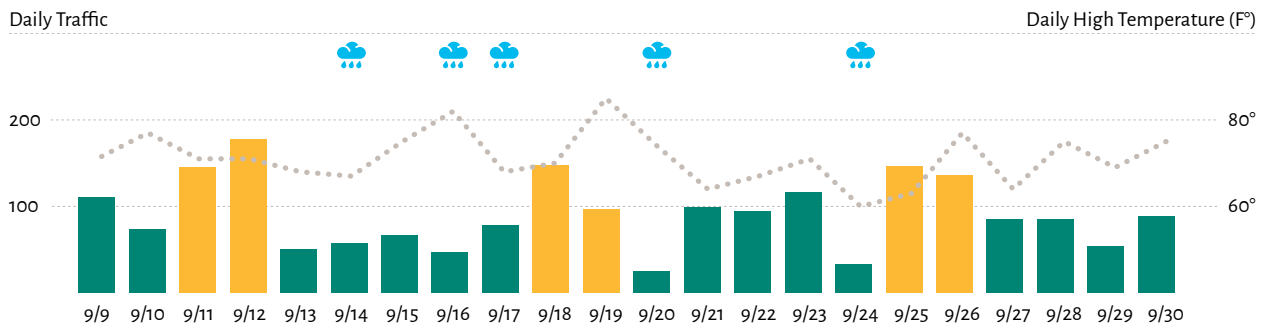*% of daily traffic*   ■ Weekday ● Weekend
Short-duration count data (smoothed)

Short-Duration Daily Counts

■ Weekday traffic   ■ Weekend / Holiday traffic   ···· Temperature   🌧 Rain (≥ 0.25 in)

Duluth Traverse Hartley Park
2021 TRAFFIC ESTIMATES

Counting Location:

Counting Period:
June 1, 2021 - June 15, 2021
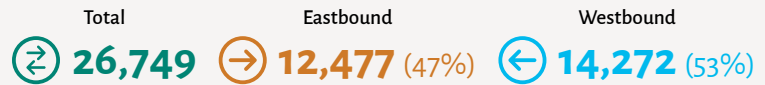Sept 15, 2021 - Sept 30, 2021

Summer ADT: 265
   Weekdays: 237
   Weekends: 334
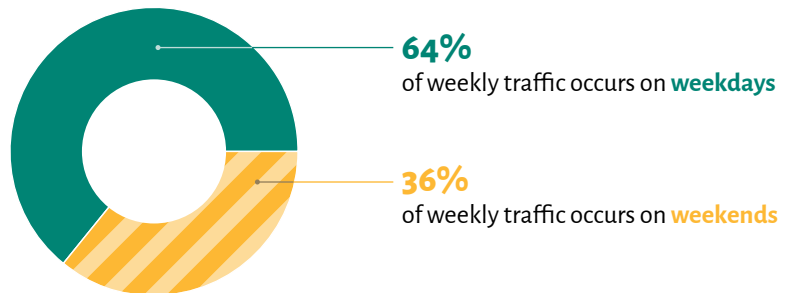
Weekend:Weekday Ratio: 1.4

Weekday Peak Hour: 6:00pm
Weekend Peak Hour: 2:00am

Estimated 2021 Summer Traffic

Total	Eastbound	Westbound
26,749	12,477 (47%)	14,272 (53%)

Weekly Traffic
Based on short-duration count period

64% of weekly traffic occurs on **weekdays**

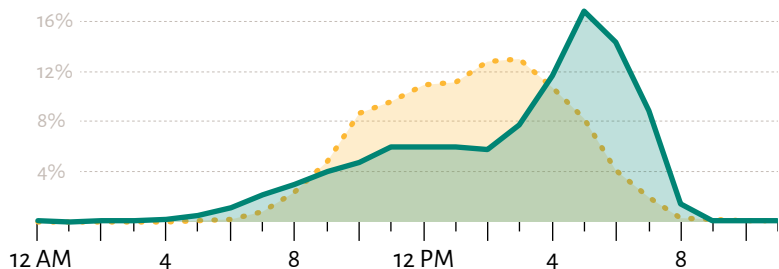**36%** of weekly traffic occurs on **weekends**

Summer Hourly Traffic Patterns
% of daily traffic   ■ Weekday   ● Weekend
Short-duration count data (smoothed)

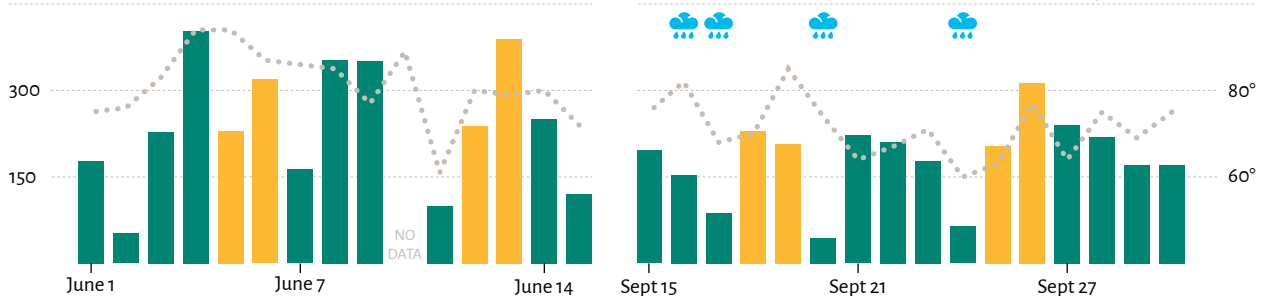## Short-Duration Daily Counts

■ Weekday traffic   ■ Weekend / Holiday traffic   ⋯ Temperature   🌧 Rain (≥ 0.25 in)

Daily Traffic

Daily High Temperature (F°)

Duluth Traverse Hawk Ridge
2021 TRAFFIC ESTIMATES

Counting Location:

Counting Period:
Sept 15, 2021 - Sept 30, 2021

Summer ADT: 113
   Weekdays: 84
   Weekends: 186
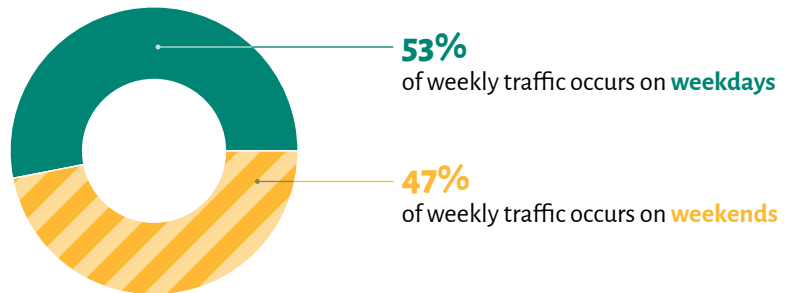
Weekend:Weekday Ratio: 2.2

Weekday Peak Hour: 6:00pm
Weekend Peak Hour: 10:00am

Estimated 2021 Summer Traffic

Total	Eastbound	Westbound
11,435	**6,576** (58%)	**4,859** (42%)

Weekly Traffic
Based on short-duration count period

53%
of weekly traffic occurs on **weekdays**

47%
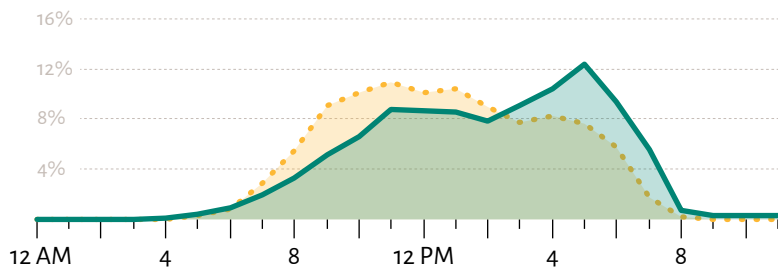of weekly traffic occurs on **weekends**

Summer Hourly Traffic Patterns
% of daily traffic   ● Weekday ● Weekend
Short-duration count data (smoothed)

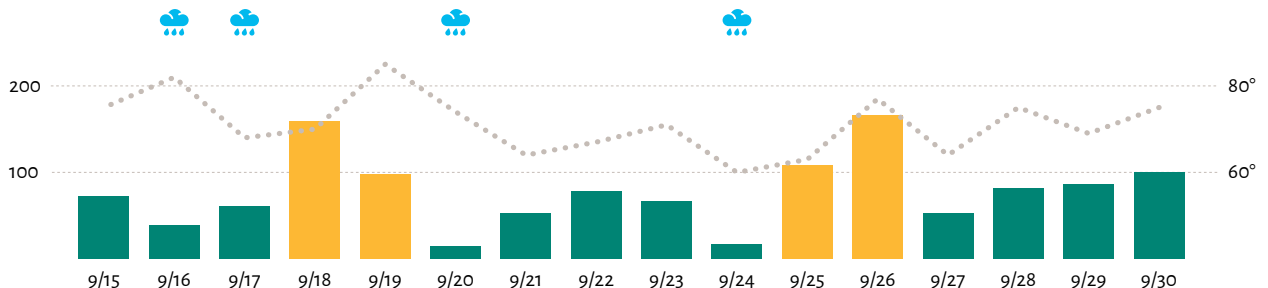## Short-Duration Daily Counts

■ Weekday traffic   ■ Weekend / Holiday traffic   ⋯ Temperature   ☂ Rain (≥ 0.25 in)

Daily Traffic   Daily High Temperature (F°)

Duluth Traverse Lester Park
2021 TRAFFIC ESTIMATES

Counting Location:

Counting Period:

August 31, 2021 - Sept 13, 2021

Summer ADT: 238
  Weekdays: 174
  Weekends: 399

Weekend:Weekday Ratio: 2.3

Weekday Peak Hour: 6:00pm
Weekend Peak Hour: 12:00pm

Estimated 2021 Summer Traffic

Total	Eastbound	Westbound
24,041	**11,444** (48%)	**12,596** (52%)

Weekly Traffic
Based on short-duration count period

52%
of weekly traffic occurs on **weekdays**

48%
of weekly traffic occurs on **weekends**

Summer Hourly Traffic Patterns
% of daily traffic   ● Weekday ● Weekend
Short-duration count data (smoothed)

Short-Duration Daily Counts

■ Weekday traffic ■ Weekend / Holiday traffic ⋯ Temperature 🌧 Rain (≥ 0.25 in)

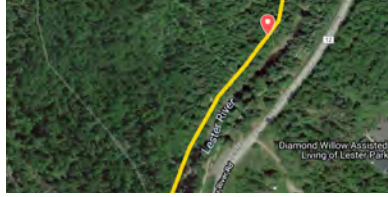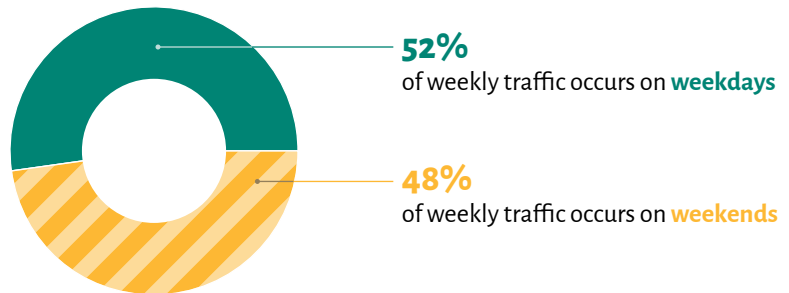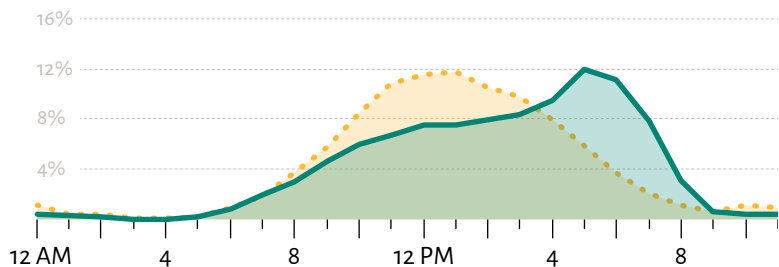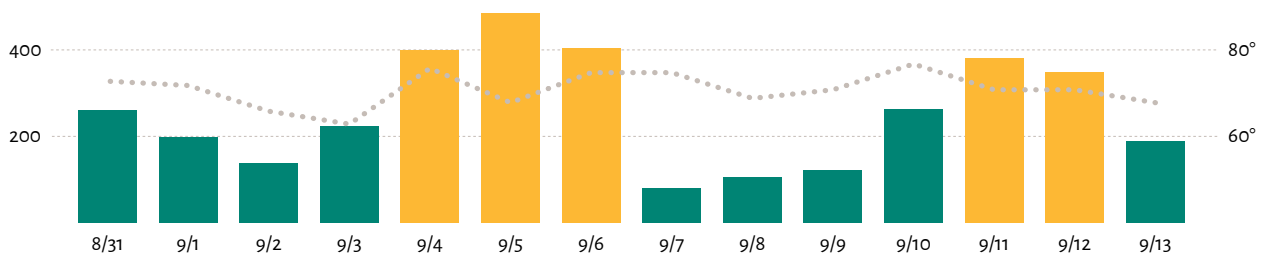Daily Traffic   Daily High Temperature (F°)

Greater Minnesota Regional Trails Survey

Survey Script:

Hi, my name is _____ and I'm working with Parks & Trails Council conducting a 6-minute trail survey to understand visitor experiences on the Duluth Traverse Trail. Are you using the Duluth Traverse trail today?

☐ Yes **[Continue]**
☐ No **[Discontinue; thank visitor and let them continue on their day]**

Are you leaving the trail, or did you just arrive?

☐ Leaving the trail, or in the middle of their trail experience **[Continue]**
☐ Just arrived **[Say thanks; Ask that they stop by later on in the day]**

Are you willing to participate in the survey? All your answers are voluntary and confidential.

If **YES:**	If **NO**:
Is anyone in your group 18 years old or older?	That's okay, no problem. Thanks for your time. Do you mind if I ask you just four quick questions before I let you go?
☐ Yes **[Continue]** ☐ No **[Discontinue; log Non-Response]**	☐ Yes **[Ask questions, log Non-Response Qs]**
Have you already taken this survey at this trail this summer, or were you with someone when they completed the survey at this trail this summer?	1. What language do you speak most often at home? 2. Approximately how often do you visit this trail during spring, summer and fall?
☐ Yes **[Discontinue survey]** ☐ No **[Hand visitor the tablet and let them complete the questionnaire; If multiple adults in the group are willing to participate, only the adult in the group with nearest birthday should complete the survey]**	3. What is your zip code (or country)? 4. What year were you born? ☐ No **[Discontinue; log Non-Response]**

Trail Experience

1. Which trail activities are you and your group doing during your visit today?
[RANDOMIZE]
(Select all that apply)
☐ Mountain biking
☐ Hiking or walking
☐ Dog walking
☐ Running or jogging
☐ Horseback riding
☐ Geocaching
☐ Nature photography
☐ Birdwatching / wildlife viewing
☐ Other (please specify): _____

    **2. [IF MULTIPLE ACTIVITIES SELECTED] Which one of these activities was your
<u>main reason</u> for visiting this trail?** _____

    **3. [IF Q1 = MOUNTAIN BIKING] Do you have a favorite place in Minnesota to go
mountain biking?**
    ☐ Yes. Where? _____
    ☐ No

    4. [IF Q1 = MOUNTAIN BIKING] What is your mountain biking skill level?
    ☐ Beginner
    ☐ Intermediate
    ☐ Advanced
    ☐ Expert

    5. [IF Q1 = MOUNTAIN BIKING] Are you riding a fat-tire bike today?
    ☐ Yes
    ☐ No

    6. [IF Q1 = MOUNTAIN BIKING] Are you riding your own bike today?
    ☐ Yes, I'm using my own bike
    ☐ No, I'm using a rental bike
    ☐ No, I'm borrowing a bike from a friend or family member

7. What are your most important reasons for visiting the trail today? [RANDOMIZE]
(Select all that apply)
☐ Experience nature
☐ Improve my physical health
☐ Relaxation and/or stress relief
☐ Spend time with family or friends
☐ Meet new people
☐ Training for event/competition
☐ Do something exciting and adventurous
☐ Learn/practice tricks and skills
☐ Getting my children outdoors
☐ Other, please describe: _____

8. Approximately how much time did you spend at the trail on this visit?
_____ hours
_____ minutes
☐ Unsure

9. Approximately how often do you visit this trail during spring, summer and fall?
☐ This is my first time visiting
☐ Daily
☐ Weekly
☐ Monthly
☐ Once a year
☐ Less than once a year
☐ Unsure

10. Overall, how would you rate your trail experience today?
☐ Very good
☐ Good
☐ Fair
☐ Poor
☐ Very poor

11. How many people are in the group you're recreating with today?
_____ Adults (18 years and older, including yourself)
_____ Children (under 18 years)

Information / Planning

12. What information sources have you used to learn about this trail? [RANDOMIZE]
(Select all that apply)
☐ I've known about this trail for years
☐ Friends and family
☐ From a club / group ride
☐ Recommendation from a business, visitor center, etc.
☐ "Minnesota Great Outdoors" online park and trail finder
☐ Internet search (e.g., Google)
☐ Social media (e.g., Facebook, Twitter, Instagram, etc.)
☐ Official website
    ☐ Duluth Parks website
    ☐ Visit Duluth website
    ☐ COGGS website
    ☐ "Minnesota Great Outdoors" online park and trail finder
☐ Trail app/website:
    ☐ MTB Project   ☐ Trail Forks
    ☐ Singletracks   ☐ Strava
    ☐ MapMyRide   ☐ All Trails
    ☐ Other: _____
☐ Print publication (brochure, magazine, or newspaper)
☐ TV or radio

☐ Other: _____

13. To prepare for your visit today, did you or your group look for information about this trail before you came?
☐ Yes
☐ No

14. [IF Q13 = YES] What information did you search for before your visit today?
[RANDOMIZE]
(Select all that apply)
☐ Travel directions
☐ Trail rules / Allowed trail activities
☐ Trail maps and miles
☐ Trail difficulty
☐ Trail reviews / photos
☐ Cost/Fees
☐ Equipment rentals
☐ Parking information
☐ Park/trail hours
☐ Nearby lodging options
☐ Nearby restaurants
☐ Other: _____

Tourism / Trip Info

15. Do you live more than 50 miles from this trail?
☐ Yes
☐ No

16. Are you on a trip where you have or plan to stay at least one night away from home?
☐ Yes
☐ No

17. [IF Q15 AND/OR Q16 = YES] How important was the trail in deciding to visit this area?
☐ The trail was the primary reason why I visited the area
☐ The trail was a significant reason why I visited the area
☐ The trail was part of the reason why I visited the area
☐ I would have visited this area even without the trail
☐ Don't know

18. [IF Q16 = YES] How many total nights do you plan to spend in this area during your trip? _____

19. [IF Q16 = YES] What type of overnight accommodations are you staying in during your trip? [RANDOMIZE]
Select all that apply
☐ Hotel / motel
☐ Resort / lodge / commercial cabin
☐ Vacation rental by owner (Airbnb, VRBO, etc.)
☐ Bed & Breakfast
☐ Campground
☐ Home/cabin of friend or relative
☐ My own vacation home
☐ Other: _____

20. [IF Q15 AND/OR Q16 = YES] How far in advance did you plan this trip?
☐ Less than 1 week
☐ 1 to 2 weeks
☐ 1 month
☐ 1 - 2 months
☐ 2 - 3 months
☐ 3+ months

Demographics

21. What is the zip code of your home address, or what is your country of residence?
a. Zip Code: _____ *or* b. Country:_____

22. What year were you born? _____

23. What is your gender identity?
☐ Female
☐ Male
☐ Non-binary / third gender
☐ Prefer to self-describe: _____
☐ Prefer not to answer
☐ Don't know

24. Do you identify as transgender?
☐ Yes
☐ No
☐ Prefer not to answer
☐ Don't know

25. How do you describe yourself?
(Select all that apply)
☐ Asian
☐ Black or African American
☐ Hispanic or Latinx
☐ Native American, First Nation or Alaskan Native
☐ Middle Eastern or North African
☐ White or Caucasian
☐ Pacific Islander
☐ Some other race, ethnicity or origin

26. [IF Q25 = NATIVE AMERICAN] Which tribe do you affiliate with?
(Select all that apply)
☐ Bois Forte Band of Chippewa
☐ Fond du Lac Band of Lake Superior Chippewa
☐ Grand Portage Band of Lake Superior Chippewa
☐ Leech Lake Band of Ojibwe
☐ Lower Sioux Indian Community
☐ Mille Lacs Band of Ojibwe
☐ Prairie Island Indian Community
☐ Red Lake Nation
☐ Shakopee Mdewakanton Sioux Community
☐ Upper Sioux Community
☐ White Earth Nation
☐ Other (please specify): _____
☐ Prefer not to answer
☐ Don't know

27. What language do you speak most often at home?
☐ English
☐ Hmong
☐ Somali
☐ Spanish
☐ Other (please specify): _____
☐ Prefer not to answer

☐ Don't know

28. [IF Q27 ≠ ENGLISH] How well do you speak English?
☐ Very well
☐ Well
☐ Not well
☐ Not at all
☐ Prefer not to answer
☐ Don't know

29. What is the highest level of education you have completed?
☐ Less than high school
☐ High school graduate or GED
☐ Some college, but no degree
☐ Associate, vocational, or technical degree
☐ Bachelor's degree
☐ Graduate or professional degree
☐ Prefer not to answer

30. Do you, or does someone in your group, have a physical, mental or sensory disability or condition?
☐ Yes
☐ No
☐ Prefer not to answer
☐ Don't know

31. Please indicate your total household income before taxes last year
☐ Less than $20,000
☐ $20,000 - $29,999
☐ $30,000 - $39,999
☐ $40,000 - $49,999
☐ $50,000 - $59,999
☐ $60,000 - $69,999
☐ $70,000 - $79,999
☐ $80,000 - $89,999
☐ $90,000 - $99,999
☐ $100,000 - $149,999
☐ $150,000 - $199,999
☐ $200,000 or more
☐ Prefer not to answer

32. Do you have any additional comments about your visit you'd like to share?

Thank you!

Positive comments about the trails:

Awesome trails

Beautiful trails (2)

Clean safe trail and fun for the kids.

Duluth rules

Enjoyed exploring a new addition to the trail system.

First day here and its been great.

Great for winter fat biking

Great park. Needs additional trash cans spread out.

Great place!

Great time and trails

Great trails! (3)

Had a great morning ride!

I am grateful to live in a city with lots of parks and trails, and other outdoor options.

I love trails!!!

I moved to Duluth because of the trail system

I really enjoy riding the misson creek trails! A very fun, beautiful and accessible trail

Keep up the great work maintaining and building the trails

Love admiral rockbar!!

Love all the outdoor activities Duluth has to offer.

Love and appreciate the multi use trails in Duluth

Love Lester Park trails!

Love the Lester park area, and more mtb/running trails are always welcome.

Love the park also.

Love the trail around the park.

Love the trails. I fat bike them 5 to 7 days per week in winter

Love themountain bike trails around Dulyth, they are amazing, love the duluth traverse

Lovely trails

Make trails more difficult

Nice mountain biking trails and park system

Nice park,

Nice trail (2)

Put money into the parks!

Thank you

Thank you COGGS and SHT volunteers!

Thank you for all of your hard work. These trails are so important to the community

Thank you for maintaining the trails and parks. Please build more mountain bike trails.

Thank you for the clean park and nice restrooms. Great trails!

Thanks for great trails!

Thanks for the trail

Thanks!

The duluth traverse is excellent!

The trails are so wonderful!

These trails are why i moved to Duluth.

This is an amazing system and we love to come to Duluth to ride and trail run. Im originally from here and i love to come back every year to visit.

Trails are fantastic, keep up the awesome work!

Very impressed with this park and mountain bike trail

We love all of recreation opportunities in the area.

We love MN parks and trails

WE LOVE THE TRAILS HERE IN DULUTH

We love this park.

Comments about system expansion:

Excellent trails. I would love to see this area get bigger.

Better connection with city trails

Great trail… nice if there was a connection back to the lot from m3.

It would be nice to have trash at the parking lot

More lift access

Spirit is awesome but needs a jump line

Comments about Bike Duluth Festival:

Bring back beer tokens for racers

Great event would be better if race had multiple ztages at once to make it go faster. Chainless DH was awesome. Should have food + drink tolken for registered racers

Great trail and great event

Comments about the environment:

Gorgeous area

I love that you are restoring the eco system. Critical for survival

Keep taking out buckthorn.

Comments about the signage:

Need better signage and tralil maps were all gone 8000 dollors no map

Signage was pretty good for the MTB trails

Slightl better signage at junctions for DT would be great. Also, info about where to fill water and go to bathroom along the trails

The maps are terrific as are the trail markings. Gorgeous trails!

Update maps,,,mark trails better,,,can be confusing

Comments about trail uses and direction:

Keep bike and walking trails separate.

Keep some trails for walker/hikers only - NOT bikes. Bikes pack or mash down the trails and make it hard and muddy (leaves and pine needles get crushed). I have sore joints so I don't want the trail compacted into hard dirt by bikes (Hartley and Lester Park paths along creek have been packed down by bikes)

More trail head markers or directions. And feel trails should be directional so safer.

Please label mountain bike trail right away. Bikers dont always yeild to hikes or slow down

Please make Lester Park one way trails

Comments about trail difficulty:

Challenging ride for beginners but great

Usually hiking the Superior Hiking Trail but was looking for an easier hike today

Generally critical comments:

Student so no full time income, pokegama trail was in very bad condition

I only rode the green trail today. Fun and flow, but your bridges could use some work.

Please consider limiting Additional biking trails..SWITCHBACKS ARE cutting up animal habitat,

Miscellaneous comments:

I'm always awestruck by the creative genius of Almighty God thru His creation; the incredible beauty and diversity within the created order. Everything in creation point to Him, which makes me want to worship Him and sing his praises!

For more information:

Greater Minnesota Regional Parks and Trails Commission

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