2015 State Trail User Count

An exploratory look at how Minnesota’s State Trails are used

PARKS & TRAILS COUNCIL OF MINNESOTA

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Central Lakes State Trail near Fergus Falls, MN
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How many people use Minnesota's state trails? It's a simple question. And it's an important question, too, since decisions on funding, design, maintenance, and promotion are all at least partly based on how trails are used. But it's also a very hard question to answer because of the inherent variability of bicycle and pedestrian traffic. The amount of traffic on a trail often differs greatly on different days, at different times, in different seasons, and depending on weather. Consequently, estimating traffic on recreational trails has historically required a large commitment of labor, time, and technology.

Considering the costs associated with non-motorized traffic counts, the Minnesota Department of Natural Resources (DNR) has historically not been able to conduct consistent, systematic counts of state trail users. The DNR conducted some trail counting studies in the 1990s, and again in the 2000s, but since 2010 counts have only been conducted on three of Minnesota's 18 state-owned bicycle trails.\textsuperscript{1-2} The lack of up-to-date state trail user counts is problematic for legislators, managers, and advocates alike.

Over the last 10 to 15 years, increased interest in non-motorized traffic has led to the development of bicycle and pedestrian counting initiatives relying on automated, continuous trail counters. Researchers have used data collected from automated trail counters to develop extrapolation factors so that manual, short-duration traffic counts can now be used to calculate order-of-magnitude estimates of annual trail use. While limitations of short-duration counts still persist, more and more it is becoming possible to develop meaningful estimates of trail use from a few hours of counting.

To increase knowledge of Minnesota's state trail system, the Parks & Trails Council of Minnesota (P&TC) initiated a state trail counting project in the fall of 2015. Working with volunteers across the state, we conducted a series of manual trail counts at 25 locations to start building a body of knowledge on the nature and volume of use on Minnesota's state trails. Although our methodology cannot produce precise estimates of trail use, it can serve as a first step in developing a larger, more sophisticated trail counting program in future years. Our goals of the 2015 trail count were to (1) provide an order-of-magnitude estimate of state trail use in Minnesota, (2) engage and mobilize local volunteers on the importance of trail counts, and (3) highlight the need for future, expanded trail counts on Minnesota state trails.
BACKGROUND ON MINNESOTA'S STATE TRAIL SYSTEM

Minnesota was a pioneer of the rail-to-trail movement and one of the first states to establish a state trail network. The legislature authorized the Casey Jones Trail in 1967, the Minnesota Valley State Trail in 1969, and officially established state trails as a part of Minnesota’s Outdoor Recreation System in 1971. Today, there are 24 legislatively authorized state trails in Minnesota, of which 19 are partially or wholly developed. All but one of these trails are developed and promoted for multiple uses including bicycling, hiking, in-line skating, and horseback riding. The exception is the Arrowhead State Trail System, which is an expansive system of natural surface trails in northeastern Minnesota used primarily (though not exclusively) for snowmobiling during the winter months. Of Minnesota’s approximately 1,450 of developed state trail miles, 651 are a hardened surface (either paved or compacted aggregate).³

Since P&TC focuses on non-motorized, multi-use trails, we limited the scope of our trail count project to non-winter use (defined as April through October) of the 651 hardened-surface miles in the state trail system (Figure 1). This report refers to those 651 miles as "state bicycle trails" because bicycling is the most common activity for which they provide.

HOW THIS TRAIL COUNT FITS WITH OTHER COUNTING INITIATIVES

This report is meant to complement the numerous non-motorized traffic counting initiatives already underway in Minnesota (and across the country). The last 20 years, and last 10 in particular, have seen a remarkable proliferation of non-motorized traffic counting initiatives across Minnesota: the Metropolitan Council, Three Rivers Park District, Minneapolis Park & Recreation Board, University of Minnesota, Minneapolis Department of Public Works, and Transit for Livable Communities, among other entities, are all actively counting bicyclists and pedestrians. While nearly all this work has centered around the Twin Cities Metropolitan Area, non-motorized traffic counts are also starting to get underway in Greater Minnesota thanks to the Minnesota Department of Transportation’s (MnDOT) Minnesota Bicycle and Pedestrian Counting Initiative. The MnDOT initiative, which is a collaboration with the Humphrey School of Public Affairs at the University of Minnesota, began in 2011 to encourage and support bicycle and pedestrian monitoring by local, regional, and state organizations. The initiative has developed training materials, conducted pilot counts, and is developing a statewide monitoring system consisting of permanent and short-duration reference sites along trails, road shoulders and bike lanes. Our 2015 trail count relied heavily on MnDOT methodology, including the sampling time frame and counting forms.⁴⁻⁵

P&TC’s 2015 trail count is an attempt to use the methodologies from existing counting initiatives in Minnesota and apply them to state bicycle trails. As previously mentioned, the DNR began a trail monitoring program in the 1990s that used trail user scans to estimate "user hours" (i.e. staff would ride or drive along trail segments, conducting instantaneous counts as they go). The DNR’s goal was to conduct a count on each state trail once every 10 years, but limited resources have made that unfeasible. As a result, most DNR data on state trail use is out-of-date, and on some newer trails no counts have been done. Additionally, the data collected by the DNR’s methodology is not comparable to data collected by automated, continuous trail counters. The inability to compare and jointly analyze DNR data with data from other trail systems severely limits understanding of recreational trail use in Minnesota.
This challenge will only grow as automated trail counting technology becomes increasingly common.

In a step towards gathering better, comparable data on Minnesota state trails, the Arrowhead Regional Development Commission (ARDC), in collaboration with MnDOT, DNR, Gitchi Gami Trail Association and the Sawtooth Mountain Clinic, started the Gitchi-Gami State Trail User Count Project in 2015. Seven automatic counters were set up along the Githi-Gami State Trail to count trail use throughout the summer of 2015. To our knowledge, the ARDC project is the first systemic use of automated, continuous traffic counters on a Minnesota state bicycle trail. While P&TC hopes to begin using automated counters for future trail counts, we were not able to secure any automated trail counters in 2015. Nevertheless, the methodology we used for our volunteer counts ensures all the data we collected is directly comparable to that collected by automated counters.

Nationally, the largest and most influential trail counting program is the National Bicycle and Pedestrian Documentation Project (NBPDP). The NBPDP, which was started in 2004 as a joint initiative of the Institute of Traffic Engineers and the consulting firm Alta Planning and Design, is often described as the most ambitious bicycle and pedestrian counting initiative in the United States. Its purpose is to provide a “consistent model of data collection and ongoing data for use by planners, governments, and bicycle and pedestrian professionals.” NBPDP protocol trains volunteers to conduct short duration trail counts (conducted in May and September of a given year) and provides extrapolation factors to calculate annual estimates. To date, NBPDP is the largest trail count initiative in existence and has supported counts by municipal governments, recreational agencies and organizations, and other nonprofit organizations.

Although NBPDP protocols have influenced the active trail counting initiatives in Minnesota, local initiatives have adapted it to better fit Minnesota’s local context. We have based our methodology on MnDOT’s Bicycle and Pedestrian Counting Initiative to facilitate future collaboration with local entities and ensure our data is comparable. Our methodology is detailed in the next chapter.
METHODOLOGY

In 2013 MnDOT published protocols and materials to facilitate non-motorized traffic counts across Minnesota. Wherever possible, we followed MnDOT guidelines when planning and conducting our 2015 trail count. The general approach to this study was to (1) select representative and accessible counting locations, (2) recruit volunteers to conduct field counts at each location, and (3) extrapolate the field count data to estimate non-winter traffic at each location.

SELECTION OF COUNTING LOCATIONS

P&TC staff identified counting locations by first dividing the state trail system into segments of approximately 15-25 miles in length. A length of 15-25 miles was chosen to both maximize resources (i.e., shorter segments would have increased study locations and diffused limited volunteer hours) and to approximately represent the distance of a bicycling trip. Shorter trails were considered one segment, while longer trails were divided into as many as five segments (e.g., the Paul Bunyan State Trail). In cases where a trail passes through significantly distinct landscapes (e.g., urban, suburban, and rural), we used shorter segments to better represent the diversity of the trail. The process of dividing trails into segments resulted in a total of 37 trail segments.

Two of our 37 identified trail segments overlapped with the ARDC’s Gitchi-Gami State Trail counting project. Rather than recruit volunteers to duplicate the ARDC’s work, we relied on the ARDC’s trail counting and subsequent report to gauge use of the Gitchi-Gami State Trail. Thus, we were left with 35 trail segments on which we determined counting locations and recruited volunteers.

When choosing counting locations for each segment, P&TC staff worked with local community members who have intimate knowledge of the trail to determine the best location. Counting locations were chosen purposely based on suspected use patterns as well as accessibility and safety concerns for the volunteers. Most counting locations were near a city, trail head, park, or major trail junction. Importantly, since our selected locations were non-random, our estimates are specific to the chosen locations rather than representative of an "average" state trail mile. Ideally, we would have randomly sampled enough sites to develop statistically
representative regional estimates, but limited data collection resources made random sampling impractical. Purposeful sampling was used to make the best use of volunteer hours and to recognize that planners (and users) are typically more interested in traffic at a particular point-of-interest than in traffic along an indeterminate "average" mile.

VOLUNTEER RECRUITMENT

For each of the 35 identified counting locations, P&TC staff contacted local community partners to ask for help recruiting volunteers. Community partners included local "friends of the trail" groups, activity clubs, foundations, non-profit organizations, and city and DNR staff. In some cases, a specific person or organization coordinated volunteer recruitment for a location. In other cases, a general appeal was sent out and volunteers were coordinated directly by P&TC.

The recruitment process resulted in enough volunteers to conduct trail counts at 25 of the 35 identified locations (Figure 2; Appendix A). In total, 82 volunteers donated 235 hours of service for this project. All volunteers were given a free P&TC t-shirt as a thank you for helping.

VOLUNTEER TRAINING

All volunteers received a detailed training manual to ensure consistent data collection at each location. Additionally, a live webinar was hosted on September 2, 2015 for volunteers able to attend. The webinar provided an overview of the project, instructions on when and how to conduct the field counts, a series of practice examples, and a chance to ask questions.

FIGURE 2: TRAIL COUNT LOCATIONS
FIELD COUNTS

Volunteers were asked to complete 10 hours of field counts at each location during the month of September. The middle week of September (the 12th through the 20th) was chosen as the preferred week for counting to coincide with the counts done by MnDOT, the National Bicycle and Pedestrian Documentation Project, and the Minneapolis Department of Public Works. To help accommodate volunteer schedules and the possibility of poor weather, volunteers were given the week on either side of the preferred week as alternative times to complete their counts.

Volunteers were instructed to complete 6 hours of counts on weekdays (Tuesday-Thursday) and 4 hours of counts on weekends (Saturday-Sunday). The majority of field counts took place during the busiest hours of the day, or “peak hours.” Past research has shown that conducting field counts during peak hours is preferable because peak hours are less prone to large variations in traffic volumes. Without existing data on hourly traffic patterns on state trails, we assumed daily use patterns on state trails are similar to regional trails in Minneapolis. Generally, peak volume on trails occurs between 4pm and 7pm on weekdays and between 10am and 2pm on weekends.

The vast majority (>90%) of counts took place during the predetermined time parameters (Figures 3-5). Due to unfavorable weather at some locations throughout mid September, however, the time frame was extended at a few locations. Additionally, since the Luce Line State Trail through Hutchinson was being paved during September, field counts in Hutchinson were conducted in October.

**FIGURE 3:** HOURS OF MONITORING BY DAY

**FIGURE 4:** HOURS OF MONITORING BY TIME OF DAY

**FIGURE 5:** HOURS OF MONITORING BY DAY OF WEEK
When conducting field counts, volunteers were instructed to count every person who passed their "screen line" (i.e., an imaginary, transverse line running across the trail surface). Trail users were counted regardless of which direction they were traveling; thus, out-and-back users could be counted twice. Consequently, traffic volumes in this study refer to "events" rather than unique visitors. This method is standard practice in traffic counting programs, and replicates how automated counters work.

All field counts were conducted using a modified version of a field worksheet developed by MnDOT's Minnesota Bicycle and Pedestrian Counting Initiative (Appendix B). The worksheet is structured to tally trail users, by activity and age, in 15-minute intervals. Volunteers determined whether the trail user was an adult or youth (under age 18) and classified each user as a bicyclist, walker, jogger, skater, equestrian, or other (Figure 6). Field counts varied in length from one hour to four hours, with the majority being two hours in length.

**HOW THE DATA IS EXTRAPOLATED**

We estimated non-winter use at each location by extrapolating the data collected from each field count. "Non-winter" is defined as April through October, which are generally months without significant snow cover on Minnesota's state bicycle trails.

We followed the same general approach to extrapolation as used by MnDOT and the Federal...
Using baseline data on non-motorized traffic patterns for day, month, and year, the basic steps are:

1. Estimate average weekday (or weekend) traffic using the hour-long field count;
2. Estimate monthly average daily traffic using average weekday (or weekend) traffic;
3. Estimate annual average daily traffic using monthly average daily traffic;
4. Estimate annual traffic using annual average daily traffic;
5. Estimate non-winter use; and

The primary challenge of this approach is that extrapolation based on small sample sizes involves a large degree of uncertainty. Additionally, reliable extrapolation factors for most regions of Minnesota are not yet available. Without regionally-specific adjustment factors, we assumed that traffic patterns on state trails located across the state are similar to traffic patterns on multipurpose, mixed-mode trails in Minneapolis, where counting has taken place with automated counters for some time. Although this approach requires certain assumptions and has limitations (detailed in the next chapter), the approach relies on the best information available and provides a foundation for further exploration.

The steps used to extrapolate our data are perhaps best illustrated with an example: On Saturday, September 12, between 12:00pm and 1:00pm, a volunteer on the Harmony-Preston segment of the Blufflands State Trail observed 56 bicyclists and pedestrians. Given this field count, and assuming the field count is representative of an average weekend in September, the extrapolation steps are as follows:

1. **Estimate average weekend traffic using the hour-long field count.** We know that on multipurpose, mixed-mode trails in Minneapolis, average weekend traffic between 12:00pm and 1:00pm accounts for 10.3% of daily traffic (Figure 7). Assuming this same traffic pattern applies to the Blufflands State Trail in Preston, we estimate:

   \[ \text{Average Weekend Traffic} \approx \frac{56}{0.103} \approx 544 \]

2. **Estimate monthly average daily traffic using average weekend traffic.** We know that in Minneapolis, average September weekend traffic is 1.15 times greater than average September daily traffic (Figure 8). Assuming this same traffic pattern applies to the Blufflands State Trail in Preston, we estimate:

   \[ \text{September Average Daily Traffic} \approx \frac{544}{1.15} \approx 473 \]

3. **Estimate annual average daily traffic using monthly average daily traffic.** We know that in Minneapolis, average September daily traffic is 1.4 times greater than annual average daily traffic (Figure 9). Assuming this same traffic pattern applies to the Blufflands State Trail in Preston, we estimate:

   \[ \text{Annual Average Daily Traffic} \approx \frac{473}{1.4} \approx 338 \]

4. **Estimate annual traffic using annual average daily traffic:**

   \[ \text{Annual Traffic} \approx 338 \times 365 \text{ days per year} \approx 123,370 \]
5. **Estimate non-winter use.** Most state trails are closed to bicyclists and pedestrians during the winter (unlike trails in Minneapolis), so we adjust our annual estimate to reflect April though October use. We know that in Minneapolis, these months account for approximately 89% of annual traffic. Thus, we estimate:

\[
\text{April - October Traffic} = 123,370 \times 0.89 \approx 109,799
\]

6. **Estimate margin of error.** We know from past research that the margin of error associated with extrapolating short-duration field counts of only one or two hours in duration can be as high as 40%.\textsuperscript{14-15} To be conservative, we calculate a range for our estimate:

\[
\text{April - October Traffic Estimated Range} = 109,799 \pm 40\% = 65,879 - 153,719
\]

Thus, based on one hour of counting on one Saturday in September, our best guess is that the Blufflands State Trail in Preston, MN, is used between 65,879 and 153,719 times from April through October. We completed these steps for every hour of counting. The results reported are the average of all hours counted at each location.

**FIGURE 7** DAILY TRAFFIC PATTERNS ON MULTIPURPOSE, MIXED-MODE TRAILS IN MINNEAPOLIS

![Graph showing daily traffic patterns.](source: Lindsey (2015))

**FIGURE 8** RATIO OF AVERAGE DAILY TRAFFIC TO SEPTEMBER AVERAGE DAILY TRAFFIC IN MINNEAPOLIS

![Bar chart showing traffic ratio.](source: Lindsey (2013))

**FIGURE 9** RATIO OF MONTHLY AVERAGE DAILY TRAFFIC TO AVERAGE ANNUAL DAILY TRAFFIC IN MINNEAPOLIS

![Bar chart showing traffic ratio by month.](source: Lindsey (2013))
The methodological approach used in this study is replicable, consistent with existing practices, and relies on the best information available. Nonetheless, our methodology has several limitations that limit the validity of the estimates we can derive. So long as these limitations are noted and taken into consideration, however, our estimates can be useful and provide a foundation for future study. An order-of-magnitude estimate, provided the limitations are openly and honestly communicated, is better than no estimate.

The primary limitations of our methodological approach are small sample sizes, use of non-local adjustment factors for extrapolation, assumptions of daily traffic patterns, and the level of uncertainty associated with our estimates:

**Small sample sizes.** Our annual estimates are based on 10 hours (at most locations) of observation. While 10 hours of field counts per location is more than required by some methodologies (e.g., the NBPDP), there is no guarantee that the hours and days on which we counted are representative of normal September traffic. Relying on small sample sizes has the benefit of minimizing costs and labor needs, but also requires accepting a large degree of uncertainty.

**Use of non-local adjustment factors for extrapolation.** Since historical databases on bicycle and pedestrian traffic across Minnesota do not yet exist, we relied on adjustment factors developed for regional trails in Minneapolis to extrapolate our data. In doing so we assumed that monthly and daily traffic patterns in Minneapolis are representative of trails located elsewhere in the state, which likely is not the case. This limitation probably has the strongest affect on trails located in northern Minnesota, where summer-time tourism is a significant driver of trail use. We suspect traffic on such trails, compared to Minneapolis, is disproportionately clustered on weekends during June, July, and August. As such, our methodology likely underestimates actual trail traffic on state trails in northern Minnesota. Until better extrapolation can be developed, however, the Minneapolis-based factors are the best available to work with.

**Assumptions of daily traffic patterns.** Daily traffic patterns on trails differ from location to location. It's possible, for example, that a trail located near an elementary school receives
peak traffic in the early morning and late afternoon as kids go to and from school, whereas traffic on a trail located near a tourist resort may peak only once during midday. In the absence of data on daily traffic patterns on state bicycle trails, we assumed traffic across the state bicycle trail system mimics multipurpose, mixed-mode trails in Minneapolis where use peaks between 6:00pm and 7:00pm on weekdays and between 11:00am and 12:00pm on weekends. Depending on actual daily traffic patterns at state trail locations, our estimates could over or underestimate actual traffic.

Level of uncertainty. All estimates derived from averaging samples include uncertainty, and extrapolations based on samples reflect this uncertainty. Sources of error that potentially affect our estimates include error made by observers, error associated with sample characteristics, and error associated with use of non-local extrapolation factors. Simulation experiments by researchers indicate that extrapolations based on short duration counts of only a few hours may have a margin of error as high as 40%. To reflect this uncertainty, we present our estimates of use as a range. More precise estimates of trail traffic will be developed in the future when longer-duration trail counts can be obtained with automated equipment.

In addition to these limitations, a number of other factors suggest that our estimates likely underestimate rather than overestimate actual state trail use. First, since the aim of our field counts was to estimate traffic on an "average" day, care was taken -- both during selection of sampling days and during data analysis -- to exclude large groups (e.g., track teams) and special events (e.g., trail races or festivals). Consequently, our estimates do not account for the role organized groups and/or events play in getting people out and active on state bicycle trails. In some locations, the effect of such groups and/or events may be significant. Second, while September was warmer than average across most of Minnesota, many locations experienced variable, unpredictable rain and gusty winds during some of the field counts. As such, some field counts took place during less-than-ideal weather conditions. While we excluded field counts that took place during significant rainfall, it is likely that the weather produced lower-than-usual traffic during at least a few of the field counts used for analysis. Finally, the 27 locations for which we have estimates are not representative of the entire 651-mile state bicycle trail system. It is probable that trail traffic is higher on some segments than the ranges presented and lower on others. Additional fieldwork will be necessary to characterize traffic flows through the entire trail system. Levels of actual use are greater than the levels reported here because users typically do not use the entire length of a trail during an individual visit.

With the limitations outlined above, readers should interpret our estimates as best guesses based on the best available data. As more and more trail counting is implemented across the state, our approach can be refined and improved to produce more reliable estimates. For now, our study represents the best estimates available on state bicycle trail traffic in 2015.
RESULTS

State bicycle trails receive a wide range of traffic volumes as evidenced by our field counts: Volunteers observed as many as 146 trail users per hour and as few as zero. The busiest hour of counting took place in Grant, MN, on the Gateway State Trail between 2:00pm and 3:00pm on Sunday, September 13. Conversely, there were four instances where not a single person was counted during a hour-long field count. In total, volunteers counted 6,173 trail users during 235 hours of field counts. On average, volunteers counted 26.3 people every hour (Median = 17), or one person every 2.3 minutes.

ESTIMATES OF TRAFFIC VOLUMES

Using our field count totals, and including ARDC data on the Githi-Gami State Trail, we estimate the combined April through October traffic at the 27 locations included in this study is 1,811,000 (40% confidence interval = 1.09 million - 2.54 million). State bicycle trail traffic is not equally distributed across the state (Figure 10). Whereas traffic volume at the average count location is approximately 67,000 (Median = 45,000), estimated volumes vary from a high of 209,000 (on the Gateway State Trail in Grant) to a low of 9,000 (on the Central Lakes State Trail in Ashby). Of all our sampled locations, we estimate that traffic volumes are at least 100,000 at six locations and less than 20,000 at two.

Trail use can also be described in terms of average daily traffic. At the average sampled location, average daily traffic between April and October was 314 (Median = 209). Across all locations, average daily traffic between April and October varied from a low of 44 to a high of 978.

CHARACTERISTICS OF TRAIL USERS

The most frequently observed activity was bicycling, which accounts for an estimated 61% of all state trail traffic. Bicycling was followed in frequency by walking (25% of all traffic), jogging (11%), and skating (3%) (Figure 11). These four activities accounted for nearly all trail users we observed. While many of Minnesota’s state bicycle trails have parallel natural surface trails that allow horseback riding, horseback riding was not a frequently observed activity at our sampling locations.
FIGURE 10 ESTIMATED APRIL-OCTOBER STATE TRAIL TRAFFIC

1. Blufflands (Preston) (p. 24)
2. Brown’s Creek (Stillwater) (p. 30)
3. Casey Jones (Pipestone) (p. 25)
4. Central Lakes (Alexandria) (p. 26)
5. Central Lakes (Ashby) (p. 26)
6. Central Lakes (Fergus Falls) (p. 26)
7. Cuyuna Lakes (Crosby) (p. 29)
8. Gateway (Grant) (p. 30)
9. Gateway (Maplewood) (p. 30)
10. Gitchi Gami (Iona’s Beach)*
11. Gitchi Gami (Lutsen)*
12. Glacial Lakes (Spicer) (p. 32)
13. Goodhue Pioneer (Zumbrota) (p. 29)
14. Great River Ridge (Elgin) (p. 33)
15. Heartland (Dorset) (p. 34)
16. Heartland/Paul Bunyan (Walker) (p. 34)
17. LuCe Line (Hutchinson) (p. 36)
18. LuCe Line (Plymouth) (p. 36)
19. Mill Towns (Northfield) (p. 38)
20. Minnesota Valley (Shakopee) (p. 39)
21. Munger (Hinckley) (p. 40)
22. Munger (Duluth) (p. 40)
23. Paul Bunyan (Bemidji) (p. 42)
24. Paul Bunyan (Brainerd) (p. 42)
25. Sakatah Singing Hills (Faribault) (p. 44)
26. Sakatah Singing Hills (Mankato) (p. 44)
27. Shooting Star (Adams) (p. 46)

* Estimates are based on data from the Arrowhead Regional Development Commission. See the ARDC Gitchi-Gami State Trail 2015 Usage Study for details.
Although bicycling accounts for more than half of all trail users, it was not the most common activity at all locations. Bicyclists made up a minority of users on the Luce Line State Trail near Plymouth, the Goodhue Pioneer State Trail in Zumbrota, the Shooting Star State Trail near Adams, the Great River Ridge State Trail in Elgin, the Central Lakes State Trail in Alexandria, and the Munger State Trail in Hinckley (Figure 12). Additionally, bicycling accounted for approximately half of all users at another six trail locations. Thus, any management action on state trails aimed only at bicyclists would miss near half (or more) of all trail users.

Adults made up the majority of trail users. We estimate that 12% of all trail users are under the age of 18 (compared to 23.5% for the state population as a whole). Trails users under 18 made up a significant portion of trail user at a few locations, however, including the Munger State Trail in Hinckley (32% under 18), the Luce Line State Trail in Hutchinson (26% under 18), and the Blufflands State Trail in Preston (22% under 18) (Figure 13).

Weekend traffic volumes are busier than weekday traffic volumes at nearly every location included in our sample (Figure 14). This pattern was most pronounced on the Heartland State Trail in Dorsett, where we estimate traffic on an average weekend day is equal to 405% of average weekday traffic. At the majority of our sampled locations, average weekend traffic

---

**FIGURE 11 ESTIMATED TOTAL STATE TRAIL TRAFFIC BY MODE SPLIT**

- **3% SKATERS**
- **11% JOGGERS**
- **25% WALKERS**
- **61% BICYCLISTS**

TOTAL STATE TRAIL TRAFFIC ≈ 1.81 MILLION

*Note: Traffic mode was estimated by weighting observed mode type by weekday and weekend use.*
1. Blufflands (Preston) (p. 24)
2. Brown’s Creek (Stillwater) (p. 30)
3. Casey Jones (Pipestone) (p. 25)
4. Central Lakes (Alexandria) (p. 26)
5. Central Lakes (Ashby) (p. 26)
6. Central Lakes (Fergus Falls) (p. 26)
7. Cuyuna Lakes (Crosby) (p. 29)
8. Gateway (Grant) (p. 30)
9. Gateway (Maplewood) (p. 30)
10. Gitchi Gami (Iona’s Beach)*
11. Gitchi Gami (Lutsen)*
12. Glacial Lakes (Spicer) (p. 32)
13. Goodhue Pioneer (Zumbrota) (p. 29)
14. Great River Ridge (Elgin) (p. 33)
15. Heartland (Dorset) (p. 34)
16. Heartland/Paul Bunyan (Walker) (p. 34)
17. Luce Line (Hutchinson) (p. 36)
18. Luce Line (Plymouth) (p. 36)
19. Mill Towns (Northfield) (p. 38)
20. Minnesota Valley (Shakopee) (p. 39)
21. Munger (Hinckley) (p. 40)
22. Munger (Duluth) (p. 40)
23. Paul Bunyan (Bemidji) (p. 42)
24. Paul Bunyan (Brainerd) (p. 42)
25. Sakatah Singing Hills (Faribault) (p. 44)
26. Sakatah Singing Hills (Mankato) (p. 44)
27. Shooting Star (Adams) (p. 46)
was 125% to 200% that of average weekday traffic. Average weekdays were busier than average weekends at only a few trail locations: the Great River Ridge State Trail in Elgin, the Luce Line State Trail in Hutchinson, and the Munger State Trail in Hinckley.

Finally, because dog walking can sometimes conflict with bicycling on shared-use trails, volunteers also counted the number of dogs they observed. On average, state trails are not used frequently for dog walking. Across all our sampling locations, we counted fewer than 5 dogs for every 100 people. Dogs were most common on the Goodhue Pioneer segment of the Douglas State Trail in Zumbrota (25 dogs per 100 people) and the Great River Ridge State Trail in Elgin (16 dogs per 100 people). Thus, even though dog walking is a frequent trail activity at a select number of locations, overall few people appear to use state trails for dog walking.

Detailed results for each field count location are included in the next chapter.
TRAIL SPECIFIC RESULTS
Located in the heart of Southeast Minnesota’s river bluffs, the Blufflands State Trail System winds through river-carved limestone bluffs, rolling agricultural fields, traditional Amish communities, and historic milling towns. The trail system consists of the 42-mile Root River Trail, running from Fountain to Houston, and the 18-mile Harmony-Preston Trail. Field counts were conducted at the trailhead in Preston.

**MAP OF COUNTING LOCATION**

**LOCATION:** Trailhead in Preston  
**COUNTING DATES:** Sept. 12, 13, 15, 16, and 17  
**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
2015 ≈ 52,000 « 86,000 » 121,000

**ESTIMATED MONTHLY TRAFFIC**

<table>
<thead>
<tr>
<th></th>
<th>APR</th>
<th>MAY</th>
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<th>JUL</th>
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<th>SEP</th>
<th>OCT</th>
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<tr>
<td><strong>7k</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>11k</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>15k</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>17k</strong></td>
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</tr>
<tr>
<td><strong>16k</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>11k</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>9k</strong></td>
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</tr>
</tbody>
</table>

**WEEKEND-TO-WEEKDAY RATIO:** 197%

**PERCENT OF TRAIL USERS OVER 18:** 78%

**ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC**  
24 ≈ 242 « 403 » 565

**ESTIMATED MODE SPLIT**

- **Bicycle:** 71%
- **Pedestrian:** 22%
- **Dog:** 5%

**DOGS PER 100 PEOPLE:** 2

24 2015 TRAIL COUNT
Named after the immortalized train engineer, the Casey Jones State Trail is Minnesota’s oldest state trail. Two paved portions of the trail currently exist: 5 miles starting in Pipestone and extending towards Woodstock, and a 6 mile loop between Lake Shetek State Park and the city of Currie. The trail travels through remnants of tallgrass prairie, wooded ravines, around Lake Shetek, and through the agricultural landscape of southwestern Minnesota. A single hour of field counting was conducted near the trailhead in Pipestone. Since only one hour of trail counting was done on the Casey Jones State Trail compared to 10 hours at most locations, estimates for the Casey Jones State Trail should be interpreted with extra caution.

**LOCATIONS:** Trailhead in Pipestone  
**COUNTING DATES:** Sept. 8  
**TOTAL HOURS COUNTED:** 1

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
≈ 27,000 « 45,000 » 63,000

**ESTIMATED MONTHLY TRAFFIC**

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<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
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<td>6k</td>
<td>8k</td>
<td>9k</td>
<td>9k</td>
<td>6k</td>
<td>5k</td>
</tr>
</tbody>
</table>

**ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC**

≈ 127 « 211 » 296

**ESTIMATED MODE SPLIT**

- **Bike:** 50%
- **Foot:** 25%
- **Other:** 25%

- **<1%**

**WEEKEND-TO-WEEKDAY RATIO:** INSUFFICIENT DATA

**PERCENT OF TRAIL USERS OVER 18:** INSUFFICIENT DATA

**DOGS PER 100 PEOPLE:** INSUFFICIENT DATA
The Central Lakes State Trail runs 55 miles along a former railroad route between Fergus Falls to Osakis, where it connects to the 46-mile Lake Wobegon Regional Trail. The trail provides users with views of lakes, wetlands, and open prairie, in addition to passing through the region’s rolling countryside. Many towns along the trail - typically one every 7 to 10 miles - provide access to water, restrooms, restaurants, parks, and lodging. Field counts were conducted in Fergus Falls, Ashby, and Alexandria.

**LOCATION:** DeLagoon Park in Fergus Falls  
**COUNTING DATES:** Sept. 12, 13, 15, 16 and 17  
**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**

![Traffic Graph]

- **2015 Trail Count**
- **Estimated Monthly Traffic**

**WEEKEND-TO-WEEKDAY RATIO:** 177%

**PERCENT OF TRAIL USERS OVER 18:** 83%

**DOGS PER 100 PEOPLE:** 9
ESTIMATED APRIL - OCTOBER TRAFFIC

LOCATION: Co. Rd. 10 crossing in Asby
COUNTING DATES: Sept. 15, 17, 19, 20 and 24
TOTAL HOURS COUNTED: 10

ESTIMATED MONTHLY TRAFFIC

<table>
<thead>
<tr>
<th>Month</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
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<tbody>
<tr>
<td>k</td>
<td>1k</td>
<td>1k</td>
<td>2k</td>
<td>2k</td>
<td>1k</td>
<td>1k</td>
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</tr>
</tbody>
</table>

WEEKEND-TO-WEEKDAY RATIO: 149%

PERCENT OF TRAIL USERS OVER 18: 87%

DOGS PER 100 PEOPLE: 9

ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC

<table>
<thead>
<tr>
<th>Hour</th>
<th>24h</th>
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<tbody>
<tr>
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<tr>
<td></td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>61</td>
</tr>
</tbody>
</table>

ESTIMATED MODE SPLIT

- **Bike**: 53%
- **Pedestrian**: 35%
- **Other**: 13%
- **<1%**

ESTIMATED APR - OCT TRAFFIC

<table>
<thead>
<tr>
<th>Year</th>
<th>April - October</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>≈ 6,000 « 9,000 » 13,000</td>
</tr>
</tbody>
</table>

ESTIMATED APR - OCT MONTHLY TRAFFIC

<table>
<thead>
<tr>
<th>Month</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
</tr>
</thead>
<tbody>
<tr>
<td>k</td>
<td>9k</td>
<td>14k</td>
<td>18k</td>
<td>21k</td>
<td>20k</td>
<td>14k</td>
<td>11k</td>
</tr>
</tbody>
</table>

WEEKEND-TO-WEEKDAY RATIO: 128%

PERCENT OF TRAIL USERS OVER 18: 82%

DOGS PER 100 PEOPLE: 7

ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC

<table>
<thead>
<tr>
<th>Hour</th>
<th>24h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>298</td>
</tr>
<tr>
<td></td>
<td>497</td>
</tr>
<tr>
<td></td>
<td>696</td>
</tr>
</tbody>
</table>

ESTIMATED MODE SPLIT

- **Bike**: 42%
- **Pedestrian**: 43%
- **Other**: 10%
- **6%**

ESTIMATED APR - OCT TRAFFIC

<table>
<thead>
<tr>
<th>Year</th>
<th>April - October</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>≈ 64,000 « 106,000 » 149,000</td>
</tr>
</tbody>
</table>

LOCATION: Big Ole Park, Alexandria
COUNTING DATES: Sept. 12, 16, 22 and 23
TOTAL HOURS COUNTED: 10

ESTIMATED APR - OCT MONTHLY TRAFFIC

<table>
<thead>
<tr>
<th>Month</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
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<tbody>
<tr>
<td>k</td>
<td>9k</td>
<td>14k</td>
<td>18k</td>
<td>21k</td>
<td>20k</td>
<td>14k</td>
<td>11k</td>
</tr>
</tbody>
</table>

WEEKEND-TO-WEEKDAY RATIO: 128%

PERCENT OF TRAIL USERS OVER 18: 82%

DOGS PER 100 PEOPLE: 7

ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC

<table>
<thead>
<tr>
<th>Hour</th>
<th>24h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>298</td>
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<tr>
<td></td>
<td>497</td>
</tr>
<tr>
<td></td>
<td>696</td>
</tr>
</tbody>
</table>
The 8 mile Cuyuna Lakes State Trail connects the cities of Riverton and Crosby. The trail offers a beautiful paved route through the Cuyuna Country State Recreation Area, where the trail connects to a world class 25-mile, single-track mountain bike trail system. Along the route are views of lakes, remote stretches of wooded forest, and open meadows where deer and eagles can often be spotted. Two hours of field counts were conducted at the trailhead in Crosby. Since only two hours of trail counts were done on the Cuyuna Lakes State Trail compared to 10 hours at most locations, estimates for the Cuyuna Lakes State Trail should be interpreted with extra caution.

**LOCATION:** Trail intersection with Hwy. 6 in Crosby
**COUNTING DATES:** Sept. 15
**TOTAL HOURS COUNTED:** 2

**ESTIMATED APRIL - OCTOBER TRAFFIC**

\[ \approx 22,000 \prec 37,000 \succ 51,000 \]

**ESTIMATED MONTHLY TRAFFIC**

<table>
<thead>
<tr>
<th>Month</th>
<th>Traffic</th>
</tr>
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<tbody>
<tr>
<td>APR</td>
<td>3k</td>
</tr>
<tr>
<td>MAY</td>
<td>5k</td>
</tr>
<tr>
<td>JUN</td>
<td>6k</td>
</tr>
<tr>
<td>JUL</td>
<td>7k</td>
</tr>
<tr>
<td>AUG</td>
<td>7k</td>
</tr>
<tr>
<td>SEP</td>
<td>5k</td>
</tr>
<tr>
<td>OCT</td>
<td>4k</td>
</tr>
</tbody>
</table>

**ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC**

\[ \approx 103 \prec 171 \succ 240 \]

**ESTIMATED MODE SPLIT**

- **Bicycle:** 81%
- **Foot:** 15%
- **Bicycle + Foot:** 4%
- **Other:** <1%

**WEEKEND-TO-WEEKDAY RATIO:** INSUFFICIENT DATA

**PERCENT OF TRAIL USERS OVER 18:** INSUFFICIENT DATA

**DOGS PER 100 PEOPLE:** INSUFFICIENT DATA
When complete, the Douglas Trail System will connect Rochester to Red Wing. The Douglas Trail System includes both the 12.5 mile Douglas State Trail, which runs between Rochester and Pine Island, and the Goodhue Pioneer State Trail, which currently has 9 miles of developed trail near Zumbrota and Red Wing. Both trails offer rural scenery, including tall grass prairie, oak savanna, maple and basswood forests, and some of the richest agricultural land in Minnesota. Abundant wildlife, including deer, fox, turkey, beavers, opossum, partridge, pheasant, and geese can all be spotted along the route. Field counts took place in Zumbrota, along the southern segment of the Goodhue Pioneer Trail.
Connecting downtown St. Paul to the banks of the St. Croix River in downtown Stillwater, the Gateway-Brown's Creek State Trail System is one of the most heavily traveled in Minnesota. The 18-mile Gateway Trail travels through urban and suburban settings. The trail passes lakes, wetlands, fields, shopping areas, and connects to numerous regional parks and trails. At Duluth Junction, the Brown’s Creek Trail veers off the Gateway and heads toward Stillwater, following the route of Brown’s Creek. Field counts were conducted in a urban setting in Maplewood, a rural setting just north of Duluth Junction in Grant, and at a trailhead near the midway point of the Brown’s Creek segment.
LOCATION: Just north of Hwy 96 trail bridge
COUNTING DATES: Sept. 13, 15, 19, 22 and 25

TOTAL HOURS COUNTED: 11

ESTIMATED APRIL - OCTOBER TRAFFIC

ESTIMATED MONTHLY TRAFFIC

PERCENT OF TRAIL USERS OVER 18:

DOGS PER 100 PEOPLE:

LOCATION: Coldwater Stop in Stillwater
COUNTING DATES: Sept. 12, 16 and 25

TOTAL HOURS COUNTED: 10

ESTIMATED APRIL - OCTOBER TRAFFIC

ESTIMATED MONTHLY TRAFFIC

PERCENT OF TRAIL USERS OVER 18:

DOGS PER 100 PEOPLE:
Cutting across Minnesota’s western tallgrass prairie and eastern deciduous forest, the Glacial Lakes State Trail traverses the gently rolling topography left behind by glaciers 10,000 years ago. Two segments of the trail are currently developed: A 22-mile stretch connecting Willmar, Spicer, New London, and Hawick; and a northern 11-mile segment connecting Roscoe with Cold Spring. Built on a former railroad grade, the Glacial Lakes Trail is generally level as it passes numerous lakes, remnants of virgin prairie, wetlands, woodlands, and agricultural fields. Field counts were conducted in Spicer, near the approximate midpoint of the southern segment.

**LOCATION:** Nest Lake trailhead in Spicer
**COUNTING DATES:** Sept. 12, 13, 15, 16 and 17
**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**

![Traffic Chart]

- **APR:** 25,000
- **MAY:** 41,000
- **JUN:** 58,000

**ESTIMATED MONTHLY TRAFFIC**

- **APR:** 3k
- **MAY:** 5k
- **JUN:** 7k
- **JUL:** 8k
- **AUG:** 8k
- **SEP:** 5k
- **OCT:** 4k

**WEEKEND-TO-WEEKDAY RATIO:** 289%

**PERCENT OF TRAIL USERS OVER 18:** 85%

**DOGS PER 100 PEOPLE:** 6
Offering picturesque views of southeastern Minnesota’s river bluffs, the Great River Ridge Trail connects the cities of Plainview, Elgin, and when completed, Eyota. Built along a former railroad, the trail traverses a historic high tressel bridge, rolling bluffs, and open agricultural landscapes. Prairie flowers and wildlife can be spotted throughout the corridor. Field counts were conducted in the city of Elgin.

**LOCATION:** Between 2nd St. SW and Co. Rd. 2 in Elgin  
**COUNTING DATES:** Sept. 19, 20, 22, 23 and 24  
**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
2015 ≈ 22,000 « 36,000 » 51,000

**ESTIMATED MONTHLY TRAFFIC**

<table>
<thead>
<tr>
<th>Month</th>
<th>Traffic</th>
</tr>
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<td>AUG</td>
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</tr>
<tr>
<td>SEP</td>
<td>5k</td>
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<tr>
<td>OCT</td>
<td>4k</td>
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</tbody>
</table>

**WEEKEND-TO-WEEKDAY RATIO:** 68%

**PERCENT OF TRAIL USERS OVER 18:** 94%

**DOGS PER 100 PEOPLE:** 16

**ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC**

24 ≈ 102 « 170 » 239

**ESTIMATED MODE SPLIT**

- **Bicycle:** 49%
- **Pedestrian:** 37%
- **Runners:** 12%
- **Other:** 2%
Passing through northern hardwood, pine, and spruce fir forests, the 49-mile Heartland Trail was one of the first rail-to-trail projects in the country. Starting in Park Rapids, the trail travels east through Dorset and Akeley before joining the Paul Bunyan State Trail near Walker. In Walker, the Heartland Trail veers north and ends in Cass Lake. Along the way, users have access to numerous lakes, rivers, and wildlife viewing opportunities. Field counts were conducted in the city of Dorset and the city of Walker.
**LOCATION:** Intersection with Hwy. 226 in Dorset  
**COUNTING DATES:** Sept. 8, 15, 17 and 20  
**TOTAL HOURS COUNTED:** 11

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
≈ 16,000 « 27,000 » 37,000

**ESTIMATED MONTHLY TRAFFIC**

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<td>SEP</td>
<td>3k</td>
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**WEEKEND-TO-WEEKDAY RATIO:** 405%

<table>
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<th>Traffic</th>
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</thead>
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<tr>
<td>SAT</td>
<td>96%</td>
</tr>
<tr>
<td>SUN</td>
<td>96%</td>
</tr>
</tbody>
</table>

**PERCENT OF TRAIL USERS OVER 18:** 96%

**DOGS PER 100 PEOPLE:** 2

**ESTIMATED APR - OCT AVERAGE DAILY TRAFFIC**  
≈ 75 « 125 » 175

**ESTIMATED MODE SPLIT**

<table>
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<th>Mode</th>
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<td>Bike</td>
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<tr>
<td>Walk</td>
<td>14%</td>
</tr>
<tr>
<td>Run</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
</tbody>
</table>

**LOCATION:** Trail junction near downtown Walker  
**COUNTING DATES:** Sept. 12 and 23  
**TOTAL HOURS COUNTED:** 6

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
≈ 37,000 « 62,000 » 86,000

**ESTIMATED MONTHLY TRAFFIC**

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<thead>
<tr>
<th>Month</th>
<th>Traffic</th>
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<tbody>
<tr>
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<tr>
<td>SEP</td>
<td>8k</td>
</tr>
<tr>
<td>OCT</td>
<td>6k</td>
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</table>

**WEEKEND-TO-WEEKDAY RATIO:** 170%

<table>
<thead>
<tr>
<th>Days</th>
<th>Traffic</th>
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</thead>
<tbody>
<tr>
<td>SAT</td>
<td>97%</td>
</tr>
<tr>
<td>SUN</td>
<td>97%</td>
</tr>
</tbody>
</table>

**PERCENT OF TRAIL USERS OVER 18:** 97%

**DOGS PER 100 PEOPLE:** 2
Stretching across metropolitan and rural Minnesota, the Luce Line Trail follows a former railroad line that is now developed for year-round recreation. The state-owned portion of the trail starts in the western suburbs of the Twin Cities and heads west, past Lake Minnetonka, through rolling maple and basswood forests, and into the remnants of the tallgrass prairie. Wildlife, ranging from fox to deer to pheasant, are common sights along the trail. Field counts were conducted in the city of Hutchinson and at the trailhead in Plymouth. While the majority of the Luce Line is a crushed natural surface, the Hutchinson-to-Winsted portion was paved in September of 2015. To avoid construction, field counts in Hutchinson were conducted primarily in October.
**LOCATION:** 3rd Ave. and Hwy. 15 in Hutchinson
**COUNTING DATES:** Sept. 30, Oct. 1, 10, 11 and 14

**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**

<table>
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<th>Month</th>
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<th>Traffic (Approx.)</th>
</tr>
</thead>
<tbody>
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<td>94,000 - 156,000</td>
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<td>20k</td>
<td>» 219,000</td>
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<tr>
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<td></td>
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<tr>
<td>JUL</td>
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</tr>
<tr>
<td>AUG</td>
<td>29k</td>
<td></td>
</tr>
<tr>
<td>SEP</td>
<td>20k</td>
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</tr>
<tr>
<td>OCT</td>
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**ESTIMATED MONTHLY TRAFFIC**

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<th>Traffic (Approx.)</th>
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</thead>
<tbody>
<tr>
<td>APR</td>
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</tr>
<tr>
<td>MAY</td>
<td>20k</td>
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</tr>
<tr>
<td>SEP</td>
<td>20k</td>
</tr>
<tr>
<td>OCT</td>
<td>16k</td>
</tr>
</tbody>
</table>

**WEEKEND-TO-WEEKDAY RATIO:** 89%

**PERCENT OF TRAIL USERS OVER 18:** 74%

**DOGS PER 100 PEOPLE:** 6

**LOCATION:** Vicksburg Lane trailhead in Plymouth
**COUNTING DATES:** Sept. 12, 15, 16, 19 and 22

**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**

<table>
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<tr>
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<th>Traffic (Approx.)</th>
</tr>
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<td>110,000 - 183,000</td>
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<td>» 256,000</td>
</tr>
<tr>
<td>JUN</td>
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<td></td>
</tr>
<tr>
<td>JUL</td>
<td>36k</td>
<td></td>
</tr>
<tr>
<td>AUG</td>
<td>34k</td>
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<td>24k</td>
<td></td>
</tr>
<tr>
<td>OCT</td>
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**ESTIMATED MONTHLY TRAFFIC**

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<th>Traffic (Approx.)</th>
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</thead>
<tbody>
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<td>31k</td>
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<td>34k</td>
</tr>
<tr>
<td>SEP</td>
<td>24k</td>
</tr>
<tr>
<td>OCT</td>
<td>18k</td>
</tr>
</tbody>
</table>

**WEEKEND-TO-WEEKDAY RATIO:** 153%

**PERCENT OF TRAIL USERS OVER 18:** 91%

**DOGS PER 100 PEOPLE:** 6
When completed, the Mill Towns State Trail will connect the Sakatah Singing Hills State Trail in Faribault to the Cannon Valley Regional Trail in Cannon Falls. Along the way, the trail will bring users through the historic milling towns of the Cannon River. Currently, the Mill Towns State Trail exists primarily as a 3-mile paved stretch connecting the city of Dundas with Northfield. Field counts were connected at the trail bridge near downtown Northfield.

**LOCATION:** Bridge over the Cannon River in Northfield  
**COUNTING DATES:** Sept. 15, 16, 19, 20 and 29  
**TOTAL HOURS COUNTED:** 11

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
34,000 « 56,000 » 79,000

**ESTIMATED MONTHLY TRAFFIC**

<table>
<thead>
<tr>
<th>Month</th>
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<th>7k</th>
<th>10k</th>
<th>11k</th>
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<th>7k</th>
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<tr>
<td>Sep</td>
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<tr>
<td>Oct</td>
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</tr>
</tbody>
</table>

**WEEKEND-TO-WEEKDAY RATIO:** 101%

**PERCENT OF TRAIL USERS OVER 18:** 85%

**DOGS PER 100 PEOPLE:** 4
The Minnesota Valley State Trail brings users into close contact with the starkly contrasting uses of the Minnesota Valley. Across only a few miles, the trail offers quiet woodlands, sprawling floodplain marshes, scenic river bluffs, industrial manufacturing, and commercialized attractions such as Valley Fair and Canterbury Downs. The trail is paved for 11 miles between Chaska and the Bloomington Ferry Bridge east of Shakopee. From there, the trail continues as an unpaved, single-track trail on the northern bank of the Minnesota River until it reaches the Minnesota Valley National Wildlife Refuge Visitor Center. Field counts were conducted in Shakopee.

**Map of Counting Location**

**Estimated April - October Traffic**

2015 Trail Count

≈ 22,000 « 36,000 » 51,000

**Estimated Monthly Traffic**

<table>
<thead>
<tr>
<th>Month</th>
<th>Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr</td>
<td>3k</td>
</tr>
<tr>
<td>May</td>
<td>5k</td>
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<td>Jun</td>
<td>6k</td>
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<tr>
<td>Jul</td>
<td>7k</td>
</tr>
<tr>
<td>Aug</td>
<td>7k</td>
</tr>
<tr>
<td>Sep</td>
<td>5k</td>
</tr>
<tr>
<td>Oct</td>
<td>4k</td>
</tr>
</tbody>
</table>

**Estimated Mode Split**

- **Bike**: 55%
- **Hike**: 37%
- **Other**: <1%

**Weekend-to-Weekday Ratio**: 287%

**Estimated April - October Average Daily Traffic**

24 ≈ 101 « 169 » 237

**Percent of Trail Users Over 18**: 91%

**Dogs per 100 People**: 2

**Location**: Trail kiosk on Levee Drive in Shakopee

**Counting Dates**: Sept. 16, 17, 19, 20 and 22

**Total Hours Counted**: 10
MUNGER STATE TRAIL

Showcasing the picturesque scenery and rich history of east central Minnesota, the Munger State Trail winds 70 miles between Hinckley and Duluth following an abandoned railroad grade. The trail passes near Banning State Park, Moose Lake State Park, and offers views of the St. Louis River as it tumbles through Jay Cooke State Park. Field counts were conducted near the southern and northern termini of the trail in Hinckley and Duluth. The trail between Duluth and Carlton was closed due to construction during the trail count, which likely resulted in lower-than-normal volumes at the Duluth count location.

Munger Trail near Jay Cooke State Park
**Estimated April - October Traffic**

**Estimated Monthly Traffic**

**Weekend-To-Weekday Ratio:**

**Estimated Mode Split**

**Dogs per 100 People:**

---

**Total Hours Counted:**

**Estimated April - Oct Average Daily Traffic**

**Estimated Mode Split**

**Dogs per 100 People:**

---

**Location:** Grindstone River crossing in Hinckley

**Counting Dates:** Sept. 12, 15, and 22

**Total Hours Counted:** 9

---

**Location:** 93rd Ave. in Duluth

**Counting Dates:** Sept. 15, 16, 19, 20 and 24

**Total Hours Counted:** 10

---
Extending 120 miles and connecting Crow Wing State Park with Lake Bemidji State Park, the Paul Bunyan State Trail is the longest continuously paved rail trail in the country. Along its long journey the trail passes 21 lakes and winds through the Chippewa National Forest. Near Walker, the Paul Bunyan joins the Heartland State Trail, offering another 49 miles of trails for users to explore. Field counts were conducted in Bemidji, Walker, and Brainerd.

**Location:** South shore day docks in Bemidji
**Counting Dates:** Sept. 8, 9, 10, 12 and 13
**Total Hours Counted:** 10

**Estimated April - October Traffic**

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<thead>
<tr>
<th>Month</th>
<th>Traffic</th>
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</thead>
<tbody>
<tr>
<td>Apr</td>
<td>≈ 51,000</td>
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<td>Jun</td>
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<td>Jul</td>
<td>17k</td>
</tr>
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<td>Aug</td>
<td>16k</td>
</tr>
<tr>
<td>Sep</td>
<td>11k</td>
</tr>
<tr>
<td>Oct</td>
<td>8k</td>
</tr>
</tbody>
</table>

**Estimated April - October Average Daily Traffic**

<table>
<thead>
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<th>Average Daily</th>
<th>Traffic</th>
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<tr>
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<td>≈ 238</td>
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<tr>
<td></td>
<td>396</td>
</tr>
<tr>
<td></td>
<td>554</td>
</tr>
</tbody>
</table>

**Estimated Mode Split**

- bicycle: 58%
- pedestrian: 27%
- e-bike: 8%
- wheelchair: 6%

**Weekend-to-Weekday Ratio:**

Saturdays: 106%

**Percent of Trail Users Over 18:**

91%

**Dogs Per 100 People:**

6
**2**

**LOCATION:** Trail junction near downtown Walker  
**COUNTING DATES:** Sept. 12 and 23  
**TOTAL HOURS COUNTED:** 6

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
2015 ≈ 37,000 « 62,000 » 86,000

**ESTIMATED MONTHLY TRAFFIC**

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<th>Month</th>
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<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
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</thead>
<tbody>
<tr>
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<td>11k</td>
<td>12k</td>
<td>12k</td>
<td>8k</td>
<td>6k</td>
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</tbody>
</table>

**WEEKEND-TO-WEEKDAY RATIO:**  
170%

**PERCENT OF TRAIL USERS OVER 18:**  
97%

**DOGS PER 100 PEOPLE:**  
2

---

**3**

**LOCATION:** Northland Arboretum trail junction in Brainerd  
**COUNTING DATES:** Sept. 16, 17, 18, 19, 20, 21, 23, 24 and 25  
**TOTAL HOURS COUNTED:** 21

**ESTIMATED APRIL - OCTOBER TRAFFIC**  
2015 ≈ 27,000 « 45,000 » 63,000

**ESTIMATED MONTHLY TRAFFIC**

<table>
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<td>8k</td>
<td>9k</td>
<td>8k</td>
<td>6k</td>
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</tbody>
</table>

**WEEKEND-TO-WEEKDAY RATIO:**  
182%

**PERCENT OF TRAIL USERS OVER 18:**  
87%

**DOGS PER 100 PEOPLE:**  
5
Highlighting remnants of both Minnesota’s “Big Woods” and tallgrass prairies, the Sakatah Singing Hills State Trail stretches 39 miles between Mankato and Faribault. The trail runs through a beautiful landscape of farmland, wetlands, woods, and hugs the shoreline of a number of large lakes. Near Waterville, the Sakatah connects to camping and hiking trails in Sakatah Lake State Park. Field counts were conducted just north of Mankato and west of Faribault.
**LOCATION:** Hwy. 22 trailhead in Mankato
**COUNTING DATES:** Sept. 15, 16, 19, 20, and 24

**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**

<table>
<thead>
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<tbody>
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**ESTIMATED MONTHLY TRAFFIC**

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<td>JUL</td>
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<td>AUG</td>
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</tr>
<tr>
<td>SEP</td>
<td>4k</td>
</tr>
<tr>
<td>OCT</td>
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</tbody>
</table>

**PERCENT OF TRAIL USERS OVER 18:** 85%

**DOGS PER 100 PEOPLE:** 4

**WEEKEND-TO-WEEKDAY RATIO:** 131%

**LOCATION:** Shager Park west of Faribault
**COUNTING DATES:** Sept. 19, 20, 22, 29 and 30

**TOTAL HOURS COUNTED:** 10

**ESTIMATED APRIL - OCTOBER TRAFFIC**

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**ESTIMATED MONTHLY TRAFFIC**

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</tr>
<tr>
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<tr>
<td>SEP</td>
<td>6k</td>
</tr>
<tr>
<td>OCT</td>
<td>5k</td>
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</table>

**PERCENT OF TRAIL USERS OVER 18:** 98%

**DOGS PER 100 PEOPLE:** 4

**WEEKEND-TO-WEEKDAY RATIO:** 227%
Paralleling the Shooting Star Wildflower and Historic Route Scenic Byway (Highway 56), the Shooting Star State Trail offers 20 miles of paved trail connecting Rose Creek, Adams, Lake Louis State Park, and LeRoy. The trail highlights what is left of southern Minnesota’s once vast prairie, and passes through several natural and interpretive areas. Three hours of field counts were conducted just west of Adams. Since only three hours of trail counts were done on the Shooting Star State Trail compared to 10 hours at most locations, estimates for the Shooting Star State Trail should be interpreted with extra caution.

LOCATION: Just west of Adams, MN
COUNTING DATES: Sept. 22, 25, 26
TOTAL HOURS COUNTED: 3

ESTIMATED APRIL - OCTOBER TRAFFIC
≈ 17,000 « 29,000 » 40,000

ESTIMATED MONTHLY TRAFFIC

PERCENT OF TRAIL USERS OVER 18: INSUFFICIENT DATA
DOGS PER 100 PEOPLE: INSUFFICIENT DATA
REFERENCES


7. For more information, see the National Bicycle & Pedestrian Documentation Project website: [http://bikepeddocumentation.org/](http://bikepeddocumentation.org/)


9. Lindsey, 2013

10. Lindsey, 2013


13. Lindsey, 2013


15. Hankey, 2014


17. Hankey, 2014
APPENDIXES
APPENDIX A: Counting location maps (Images from Google Maps)

Blufflands State Trail - Preston, MN

Casey Jones State Trail - Pipestone, MN

Central Lakes State Trail - Alexandria, MN

Central Lakes State Trail - Ashby, MN

Central Lakes State Trail - Fergus Falls, MN

Cuyuna Lakes State Trail - Crosby, MN
**APPENDIX A:** Counting location maps (Images from Google Maps)

Douglas State Trail - Zumbrota, MN

Gateway-Brown’s Creek State Trail - Grant, MN

Gateway-Brown’s Creek State Trail - Maplewood, MN

Gateway-Brown’s Creek - Stillwater, MN

Gitchi Gami State Trail - Iona Beach SNA (ARDC Location)

Gitchi Gami State Trail - Lutsen (ARDC Location)
APPENDIX A: Counting location maps (Images from Google Maps)

Glacial Lakes Trail - Spicer, MN

Great River Ridge - Elgin, MN

Heartland State Trail - Dorset, MN

Heartland/Paul Bunyan State Trail - Walker, MN

Luce Line State Trail - Hutchinson, MN

Luce Line State Trail - Plymouth, MN
APPENDIX A: Counting location maps (Images from Google Maps)

Mill Towns State Trail - Northfield, MN

Munger State Trail - Duluth, MN

Munger State Trail - Hinckley, MN

Paul Bunyan State Trail - Bemidji, MN

Paul Bunyan State Trail - Brainerd, MN

Minnesota Valley State Trail - Shakopee, MN
APPENDIX A: Counting location maps (Images from Google Maps)

Sakatah Singing Hills State Trail - Faribault, MN

Sakatah Singing Hills State Trail - Mankato, MN

Shooting Star State Trail - Adams, MN
Trail Name:

Date:

Day: (circle)

SUN  MON  TUE  WED  THU  FRI  SAT

Count location: Street or intersection (nearest address if relevant)

City or Town:

Count Duration, in hours:

Count start time:

Your Name:

Your Telephone and Email:

Weather: (circle)

Sunny      Partly Cloudy      Cloudy      Rain/Drizzle      Other: ___________________________      Approximate temperature: _____

Guidelines:
1. Please complete all the fields on both sides of this form.
2. Count all people you see crossing your screen line under the appropriate categories. **Make only one tally mark for each person.**
3. Count for two hours in 15 minute increments. Record the hour you begin counting. Change rows every 15 minutes.
4. "Walkers" includes dog walkers, people in wheel chairs, children in strollers, and children being carried.
5. "Bicyclists" include people walking a bike, recumbent bicyclists, tricycles, unicycles, and children being carried behind bicyclists.
6. Count the number of people on the bicycle, not the number of bicycles.
7. "Skaters" includes in-line skates (e.g. roller blades), skate boards, and roller skis.
8. Do your best when traffic volumes get high or people talk to you; it is easy to lose count. Do your best, and make a note if you lose track.
9. Consider someone an adult if they appear 18 or older. When in doubt, classify as an adult.
10. If traffic volume is too heavy, prioritize collection in this order: # of people, type of activity, adult/youth, # of dogs.
11. Count all dogs you see in the far right column. E.g., if you see one person walking 2 dogs, make one tally under "walker" and two tallies under "dogs."

Things to bring with you:
- Lawn chair (if you won't have a bench to sit on)
- Sun protection
- Water to stay hydrated
- Clip board or something to write on
- Consider bringing a camera to take photos of the trail and of you at your "counting station." We'd love for you to share them with us!

Thank you!!!!!

Please return completed forms to Andrew Oftedal at Parks & Trails Council:

By Phone: 651-726-2457

By Email: aoftedal@parksandtrails.org

By Mail (Please make copy before mailing):

275 East 4th Street Suite #250
St. Paul, MN 55101-1651
## APPENDIX B: Counting field worksheet (back side)

<table>
<thead>
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<th>:30 - :45</th>
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Notes:
ABOUT THE PARKS & TRAILS COUNCIL OF MINNESOTA

Parks & Trails Council of Minnesota (P&TC) is a 3,400+ membership organization dedicated to acquiring, protecting, and enhancing critical land for the publics use and benefit. Since 1954, P&TC has been working on behalf of Minnesotans who treasure these special places, protecting land and water to promote conservation, outdoor recreation, tourism, and healthy lifestyles. This work is accomplished by acquiring threatened and critical parcels of land, being an independent and forthright voice at the Minnesota Capitol, boosting the capacity of Friends Groups to help care and promote parks and trails, and engaging in public policy research. Over the past 60 years, P&TC has added more than 11,000 acres, valued at more than $33 million, to Minnesota’s park and trail network.

For more information about how you can help acquire, protect, and enhance Minnesota’s special places, please contact us.