

Connecticut Trail Census

Statewide multi-use trail user study



2023 Trail Use Count Data Report

*June 2024 version 2**



**minor modifications made 6/15/24 due to slight change in several adjustment factors*

Acknowledgements

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Volunteers

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Overview

This report includes the final adjusted infrared (IR) counter data from 23 multi-use path locations in Connecticut at which counts were conducted throughout 2023 (Figure 1a), as well as from 12 locations at which short-time counters collected data for three or more weeks in the summer and fall of 2023 (Figure 1b).

This use count summary is part of a larger multi-use trail data collection effort, the Connecticut Trail Census, which is a statewide volunteer data collection program intended to inform understanding of multi-use trail use and to make the information available to trail user groups, administrators, government agencies, and the public. In addition to this report, the team also publishes data through an online data dashboard that allows users to explore count data across sites and years, accessible through UConn's CT Trails Program website¹.

The project is currently funded by the Connecticut Department of Energy and Environmental Protection (CTDEEP) Recreational Trails Program. Project partners include the Connecticut State Greenways Council and the Naugatuck Valley Council of Governments.

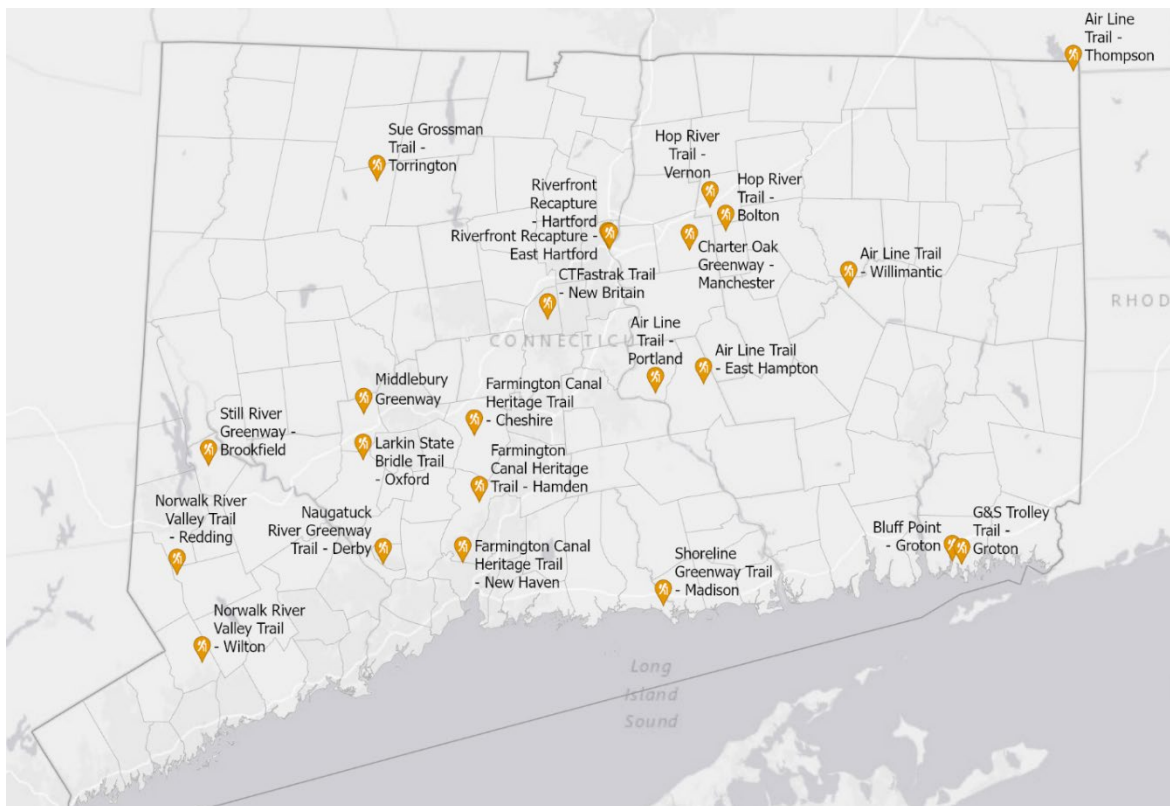


Figure 1a. Permanent Trail Counter Sites in 2023.

¹ The trail census website is now part of UConn's CT Trails Program website https://cttrails.uconn.edu/ct_trail_census/, the CT Trail Census Data Dashboard can be accessed at https://cttrails.uconn.edu/ct_trail_census/dashboard/.



Figure 1b. Short-Term Trail Counter Sites in 2023.

Connecticut Trail Census Goals

1. Understand when, who, how, and why people use Connecticut's trails.
2. Educate trail user groups, administrators, state and local government agencies, and the public about trails and their impacts.
3. Obtain multi-year information about trail use, user demographics, economic impacts, and trail amenities for identification of patterns and trends.
4. Promote citizen participation in monitoring and understanding the value of trails and to encourage data-based trail design, construction, and management.

Understanding the Data

TRAFx Infrared Counters

The CT Trail Census employs TRAFx brand infrared (IR) pedestrian counters to track trail use. These IR counters register a temperature differential between background levels and that of a person or object passing by the IR scope, and compiles these “hits” into hourly totals. The counters collect data 24 hours per day for as long as they are installed. While they generally work well, the counters do have some limitations. They cannot distinguish between different types of users (like pedestrians vs. cyclists) and cannot determine direction of travel. Two or more individuals passing the counter simultaneously or in rapid succession may only register as one “hit” by the counter, referred to as “occlusion error.” Fast moving cyclists might not be registered by the counter. Overcounting may occur in certain instances, like when pets or even wild animals pass the counter; but typically, TRAFx IR pedestrian counters undercount trail users.

Calibration Factors

To account for typical undercounting and to provide more accurate use figures, the raw count data is adjusted, or calibrated, using manual counts conducted by volunteers and CT Trail Census staff. The volunteer or staff member is stationed at the counter location for a full hour and counts trail users as they pass by. The manual counts conducted at the trail counter location are then compared to the count registered by the IR counter in that location for the same hour(s). Previously, annual correction factors were developed from manual counts conducted each year and a minimal factor was applied to trail locations where manual counts were not conducted during that year. Since 2022, however, the CT Trail Census team has developed calibration factors differently. To maximize the number of manual counts included in the calculation and to eliminate the application of an arbitrary minimal factor, calibration factors were developed from *all* previous manual counts conducted on each trail going back, in some cases, to 2017. This approach should more accurately correct for undercounts and help avoid swings in estimates caused by shifts in calibration factors from year to year.

Uses vs. Users

The count data presented in this report shows the number of *uses*, not individual visits or visitors. Trail users who travel out and back on the same route will pass the counter twice and be counted as two uses. For trails with primarily out and back traffic, trail visits can be estimated at $\frac{1}{2}$ of the count total. The count data in this report only reflects uses at the point on a trail where the counter is installed. The figures are not indicative of use of an entire trail or trail network.

Missing Data

Several counters had issues that resulted in missing or corrupted data and therefore incomplete datasets for the year. Common causes of missing or corrupted data are moisture in the IR scope, heated vegetation within view of the IR scope, nesting insects or vegetation obstructing the IR scope, or counter malfunction. These issues are usually very apparent in the data with either zeroes, no data, or wildly high or inconsistent numbers being recorded by the counter. In these cases, the data was eliminated from the dataset. To account for missing data on annual use estimates, the annual totals were calculated by multiplying the average daily use for days with valid data on each trail by 365. More detailed information about methodology can be found on the CT Trails website under the CT Trail Census tab.

Short Term Count Data

As part of a pilot short-term count program in 2023, counters were installed for several weeks at 12 locations in the summer and fall of 2023 (see Figure 1b for locations and Figure 2 for recording dates). Three to four weeks of recording is a reasonable time to allow for counts at multiple locations during summer and fall, while still giving enough data for each location to gain an initial understanding of trail use. Short-term counts were extrapolated to estimate annual counts at each location. Extrapolation was done by first identifying a similar “comparison trail” location from the long-term counter locations considering trail type, surface, geographic location and use patterns and then comparing them for the same time period to develop an extrapolation factor. The extrapolation factor was then applied to the annual total of the comparison trail to arrive at an estimate of annual trail use for the temporary count location.

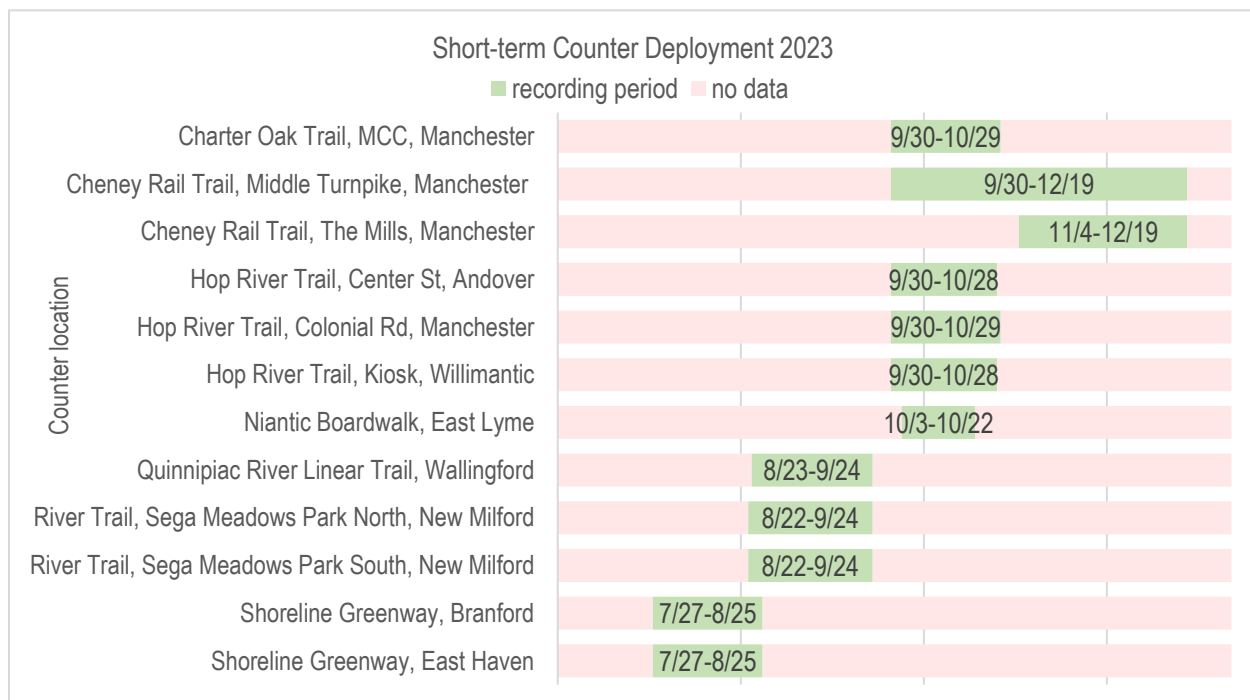


Figure 2. Deployment Periods for Short-Term Counters. The dates where counts were recorded are shown in green for each location.

2023 Overall Trail Use: Key Takeaways

- **Summary.** Overall, across trails with consistent data, trail use in 2023 was slightly higher than in 2022, and still slightly higher than 2019 pre-COVID levels.
- **Trail Specific Trail Use Patterns.** 2023 Monthly, Day of Week, and Hour of Day trail use patterns vary between trails.
- **Weather Rules!** Weather appears to have a major influence on the volume of trail use. On days with mild to warm temperatures and clear conditions, trails see higher use volumes overall. Most of the trail use occurs in the summer/spring and fall. However, 2023 also saw 15% of yearly use in January, February, and December.

2023 Yearly Count Estimate by Trail

Of the trails with permanently installed trail use counters, the most heavily used trails in the study during 2023 were Bluff Point State Park in Groton (401,199 uses), the Naugatuck River Greenway Trail in Derby (262,475 uses), and the Still River Greenway in Brookfield (192,698 estimated uses). The counters on the Air Line State Park Trail in Thompson and Portland, the G&S Trolley Trail in Groton, the Larkin State Bridle Trail in Oxford, and the Norwalk River Valley Trail in Redding recorded the lowest number of uses. A total of 2,305,810 counts were recorded in 2023 across the 23 sites for which data was available. Using average daily counts to account for missing data, the 23 sites had an estimated 2,419,108 total uses in 2023 (Table 1) – higher than in 2022 which had an estimated 2,103,863 total uses.

Table 1: Counts and estimated yearly use - permanent counters. A summary of total IR counts, days with data available, daily averages and estimated annual use by trail location for 23 permanently installed counters in 2023. Total counts are adjusted with trail specific calibration factors. Red values indicate sites where fewer than 365 days of data were collected so that the annual estimate is derived (see Missing Data section).

Counter Location	Total Count adjusted	Days with data	Average Daily Total	Estimated Total Use
Air Line State Park Trail, East Hampton	62,472	282	221.53	80,859
Air Line State Park Trail, Portland	20,111	365	55.10	20,111
Air Line State Park Trail, Thompson	31,751	365	86.99	31,751
Air Line State Park Trail, Willimantic	36,147	364	99.30	36,246
Bluff Point Trail, Groton	401,199	365	1099.18	401,199
Charter Oak Greenway, Manchester	84,168	365	230.60	84,168
CTFastrak Trail New Britain	36,668	363	101.01	36,870
Farmington Canal Heritage Trail, Cheshire	175,196	365	479.99	175,196
Farmington Canal Heritage Trail, Hamden	148,202	364	407.15	148,609
Farmington Canal Heritage Trail, New Haven	79,924	365	218.97	79,924
G&S Trolley Trail, Groton	32,195	365	88.21	32,195
Hop River Trail, Bolton	86,755	365	237.68	86,755
Hop River Trail, Vernon	158,611	365	434.55	158,611
Larkin State Bridle Trail, Oxford	26,491	365	72.58	26,491
Middlebury Greenway, Middlebury	71,299	365	195.34	71,299
Naugatuck River Greenway, Derby	262,475	365	719.11	262,475
Norwalk River Valley Trail, Redding	23,591	365	64.63	23,591
Norwalk River Valley Trail, Wilton	116,602	365	319.46	116,602
Riverfront Recapture, East Hartford	69,719	365	191.01	69,719
Riverfront Recapture, Hartford	109,413	365	299.76	109,413
Shoreline Greenway Trail, Madison	84,505	365	231.52	84,505
Still River Greenway, Brookfield	142,544	270	527.94	192,698
Sue Grossman Trail, Torrington	45,772	186	246.09	89,821
Total over all 23 sites	2,305,810		6,627.70	2,419,108

In East Hampton, the sensor became wet and recorded untypically high counts during early fall, which was detected during the Q3 check-up and lead to a replacement of the IR lens in October. Brookfield and Torrington counters failed to launch and lost one quarter of yearly counts in Brookfield, respectively almost two quarters in Torrington.

Among the short-term counters, the Niantic Boardwalk in East Lyme saw the highest recorded counts by far, with 616,324 estimated total uses, followed by the Quinnipiac River Linear Trail in Wallingford (110,510 estimated uses), and the Shoreline Greenway in Branford (72,542 estimated uses (Table 2).

Table 2: Counts and estimated yearly use - short-term counters. Totals from short-term counters were compared with similar trails for the same period in order to extrapolate the short-term data for the entire year (see Short Term Count Data section).

Counter Location	Total Short-Term Count (adjusted)	Days with data	Average Daily Uses	Comparison Trail	Total Use (extrapolated)
Charter Oak Trail, MCC, Manchester	2,320	30	77.3	Hop River Trail, Vernon	26,113
Cheney Rail Trail, Middle Turnpike, Manchester	7,223	81	89.2	Hop River Trail, Vernon	37,682
Cheney Rail Trail, The Mills, Manchester	4,313	46	93.8	Hop River Trail, Vernon	45,814
Hop River Trail, Center St, Andover	3,584	29	123.6	Hop River Trail, Vernon	40,741
Hop River Trail, Colonial Rd, Manchester	5,731	30	191.0	Hop River Trail, Vernon	64,505
Hop River Trail, Kiosk, Willimantic	4,128	30	142.3	Hop River Trail, Vernon	46,503
Niantic Boardwalk, East Lyme	33,550	20	1,677.5	Naugatuck River Valley Trail, Derby	616,324
Quinnipiac River Linear Trail, Wallingford	14,050	33	425.8	Farmington Canal Heritage Trail, Cheshire	110,510
River Trail, Sega Meadows Park N, New Milford	1,623	34	47.7	Larkin State Bridle Trail, Oxford	17,507
River Trail, Sega Meadows Park S New Milford	3,206	34	94.3	Larkin State Bridle Trail Oxford	28,123
Shoreline Greenway, Branford	8,595	30	286.5	Shoreline Greenway Madison	72,542
Shoreline Greenway, East Haven	1,165	30	38.8	Shoreline Greenway Madison	6,534

*MCC is Manchester Community College

2023 Counts by Month

The 2023 CT Trail Census Count data by month is shown in Tables 3 and 4 for each permanent trail counter. Monthly trail use counts since 2018 on trails that have had consistent data recorded for all years are shown in Figure 3. Due to the short recording window, monthly counts and percentages for short-term locations are not summarized.

Key Takeaways

- **Summer peak.** As observed in previous years, the heaviest trail use occurred, in general, between the months of March and October. August had the highest total recorded trail use statewide with 12% in 2023, followed by May with 11%, and June, July, and October with 10% each. September was unusually rainy and saw only 9% of statewide recorded use in 2023, whereas January and December were relatively mild and saw 5% each.
- **Year-round trail use.** While trails are more heavily used in the warmer months, all trails were also used in the winter, maybe more so in 2023. With rather mild winter months and rather wet summer months, the difference in trail use between summer and winter was less prominent in 2023.
- **Patterns are trail specific.** The percent of total annual trail use by month (Table 4) shows that trail use patterns varied by trail in 2023. Exceptionally high counts in Hartford in August may be attributed to the Dragon Boat Festival on August 19 when nearly 9,000 counts were recorded at the Riverfront Recapture Hartford count location. In contrast, the Connecticut River was flooded in early July which led to low counts for that month in Hartford and East Hartford. In general, July was both wet and hot which could be the reason for lower counts especially on less shaded trails in cities (New Haven, Hartford, East Hartford).
- **Compared to previous years,** aggregated monthly trail use levels in 2023 were lower than in 2020 and 2021, but higher than in 2022, and also higher than pre-pandemic levels. 2023 counts were higher in the winter months than in 2022. During shoulder months (March, April, May and October, November, December) as well as in July 2023 numbers are very similar to 2022, whereas the rest of the summer is more variable than in other years, with lower dips in June and September, and a higher August peak than in most years (Figure 3). For a yearly comparison of trail data between pre-pandemic levels and recent years for individual trails, visit the online CT Trail Census Data Dashboard².

² https://cttrails.uconn.edu/ct_trail_census/dashboard/

Table 3. Counts by month - permanent counters. Pink shading indicates months with missing data where monthly totals are calculated by “filling in” missing days from available data. Red shading indicates months with no data due to counter malfunction.

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Air Line Trail, East Hampton	4,661	4,290	5,431	7,761	11,089	7,767	5,764	9,468	--	10,397	6,450	4,359
Air Line Trail, Portland	1,201	1,191	1,474	1,920	2,351	1,980	1,540	2,058	1,673	1,974	1,467	1,282
Air Line Trail, Thompson	1,841	1,828	2,334	2,526	2,922	2,968	2,915	3,508	2,710	3,706	2,794	1,699
Air Line Trail, Willimantic	1,777	1,740	1,447	2,747	4,844	4,065	3,925	4,189	2,960	5,011	2,105	1,464
Bluff Point Trail, Groton	22,524	20,087	26,046	32,766	47,484	39,439	44,809	44,049	43,021	37,462	25,363	18,149
Charter Oak Greenway, Manchester	3,480	3,563	4,807	9,845	11,160	9,772	8,831	10,410	7,123	7,959	4,244	2,974
CTFastrak Trail, New Britain	2,981	2,624	3,207	3,343	4,295	3,555	3,522	3,044	2,942	3,141	2,405	1,812
Farmington Canal Heritage Trail, Cheshire	7,356	6,758	8,972	12,858	22,038	20,850	22,477	24,890	17,362	15,536	9,174	6,925
Farmington Canal Heritage Trail, Hamden	5,820	5,880	8,603	13,421	18,735	18,627	16,673	19,214	14,749	14,219	7,602	5,280
Farmington Canal Heritage Trail, New Haven	8,300	8,122	8,957	9,210	7,053	5,383	3,604	5,061	6,054	7,016	6,332	4,832
G&S Trolley Trail, Groton	2,282	1,800	2,226	2,712	3,312	3,041	2,717	2,932	2,417	3,720	2,941	2,095
Hop River Trail, Bolton	3,627	3,432	4,304	7,628	10,161	9,949	9,609	12,024	8,545	8,796	5,154	3,526
Hop River Trail, Vernon	8,284	7,543	9,187	14,138	18,554	17,052	17,527	20,095	12,738	14,337	10,573	8,583
Larkin State Bridle Trail, Oxford	1,570	1,648	1,863	2,892	3,201	2,571	1,897	2,498	2,379	2,427	2,054	1,491
Middlebury Greenway, Middlebury	4,166	3,948	4,881	6,608	8,957	7,437	6,961	7,942	5,593	6,183	4,702	3,921
Naugatuck River Greenway, Derby	14,732	15,420	20,002	22,938	32,010	29,071	26,102	29,481	21,375	22,894	16,133	12,317
Norwalk River Valley Trail, Redding	2,090	1,961	2,231	2,290	2,324	1,885	1,919	1,876	1,482	1,985	1,840	1,708
Norwalk River Valley Trail, Wilton	9,562	7,492	8,827	9,758	11,812	10,286	10,311	10,666	9,401	10,848	9,771	7,868
Riverfront Recapture, East Hartford	2,999	3,454	5,402	8,221	10,495	8,261	4,436	7,089	5,418	7,298	4,419	2,227
Riverfront Recapture, Hartford	3,482	3,775	5,595	7,784	11,691	11,206	9,933	23,689	8,096	16,574	5,135	2,453
Shoreline Greenway Trail, Madison	4,436	3,744	5,166	6,067	8,277	6,985	10,461	13,525	8,529	7,621	5,254	4,440
Still River Greenway, Brookfield	13,650	11,974	14,964	19,775	--	--	18,790	22,683	17,857	19,620	13,523	11,218
Sue Grossman Trail, Torrington	--	--	--	5,897	10,604	9,689	9,532	13,743	--	7,279	4,846	2,713
Total per month	130,058	121,565	155,137	212,344	262,641	231,262	243,593	293,574	201,993	235,393	153,661	112,753
Percentage of yearly use	6%	5%	7%	9%	11%	10%	10%	12%	9%	10%	7%	5%

Table 4. Percent of counts by month - permanent counters. Darker greens indicate higher percentage. Red frames indicate months with some missing data where totals are calculated by “filling in” missing days with daily averages for that month. Red shading indicates months without data.

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Air Line Trail, East Hampton	6%	6%	7%	10%	14%	10%	7%	12%	--	13%	8%	6%
Air Line Trail, Portland	6%	6%	7%	10%	12%	10%	8%	10%	8%	10%	7%	6%
Air Line Trail, Thompson	6%	6%	7%	8%	9%	9%	9%	11%	9%	12%	9%	5%
Air Line Trail, Willimantic	5%	5%	4%	8%	13%	11%	11%	12%	8%	14%	6%	4%
Bluff Point Trail, Groton	6%	5%	6%	8%	12%	10%	11%	11%	11%	9%	6%	5%
Charter Oak Greenway, Manchester	4%	4%	6%	12%	13%	12%	10%	12%	8%	9%	5%	4%
CTFastrak Trail New Britain	8%	7%	9%	9%	12%	10%	10%	8%	8%	9%	7%	5%
Farmington Canal Heritage Trail, Cheshire	4%	4%	5%	7%	13%	12%	13%	14%	10%	9%	5%	4%
Farmington Canal Heritage Trail, Hamden	4%	4%	6%	9%	13%	13%	11%	13%	10%	10%	5%	4%
Farmington Canal Heritage Trail, New Haven	10%	10%	11%	12%	9%	7%	5%	6%	8%	9%	8%	6%
G&S Trolley Trail, Groton	7%	6%	7%	8%	10%	9%	8%	9%	8%	12%	9%	7%
Hop River Trail, Bolton	4%	4%	5%	9%	12%	11%	11%	14%	10%	10%	6%	4%
Hop River Trail, Vernon	5%	5%	6%	9%	12%	11%	11%	13%	8%	9%	7%	5%
Larkin State Bridle Trail, Oxford	6%	6%	7%	11%	12%	10%	7%	9%	9%	9%	8%	6%
Middlebury Greenway, Middlebury	6%	6%	7%	9%	13%	10%	10%	11%	8%	9%	7%	5%
Naugatuck River Greenway, Derby	6%	6%	8%	9%	12%	11%	10%	11%	8%	9%	6%	5%
Norwalk River Valley Trail, Redding	9%	8%	9%	10%	10%	8%	8%	8%	6%	8%	8%	7%
Norwalk River Valley Trail, Wilton	8%	6%	8%	8%	10%	9%	9%	9%	8%	9%	8%	7%
Riverfront Recapture, East Hartford	4%	5%	8%	12%	15%	12%	6%	10%	8%	10%	6%	3%
Riverfront Recapture, Hartford	3%	3%	5%	7%	11%	10%	9%	22%	7%	15%	5%	2%
Shoreline Greenway Trail, Madison	5%	4%	6%	7%	10%	8%	12%	16%	10%	9%	6%	5%
Still River Greenway, Brookfield	8%	7%	9%	12%	--	--	11%	14%	11%	12%	8%	7%
Sue Grossman Trail, Torrington	--	--	--	9%	16%	15%	15%	21%	--	11%	8%	4%

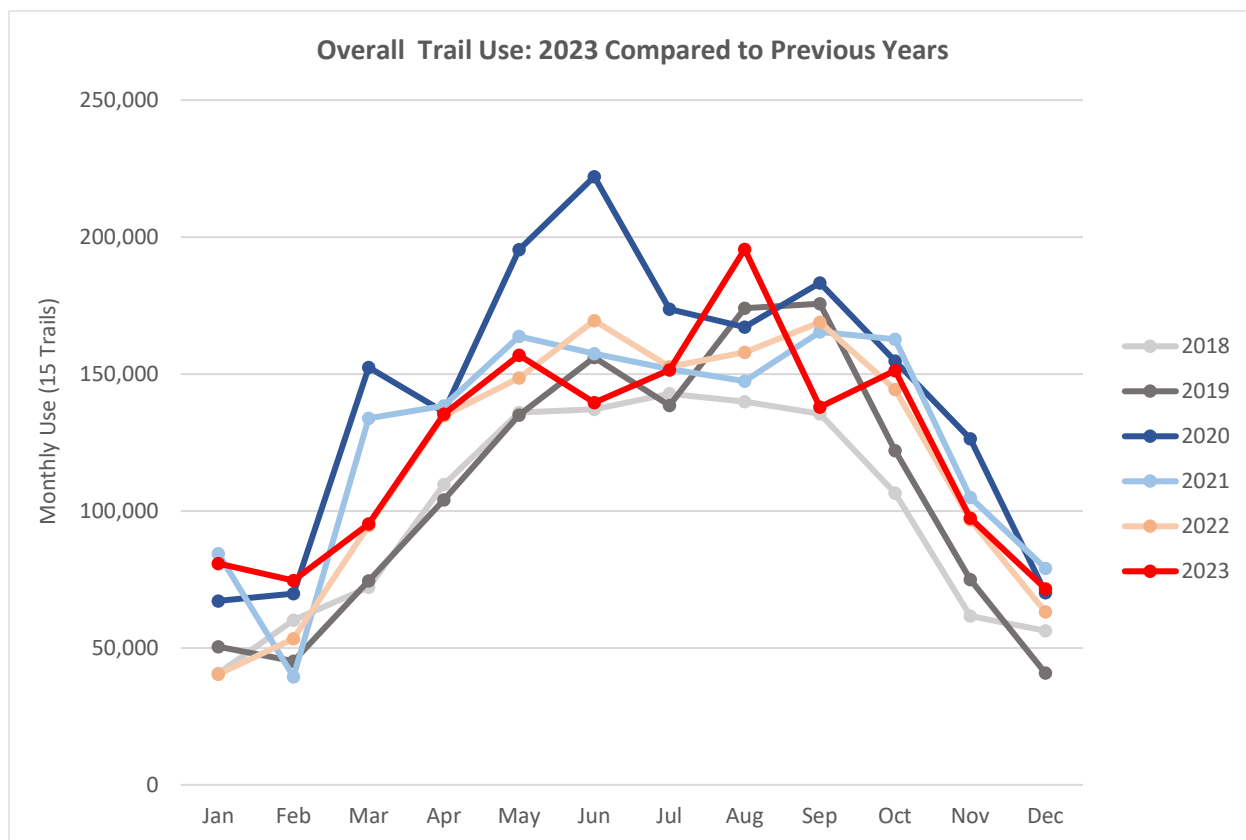


Figure 3. Aggregated Trail Count Comparison by month for 2018-2023. Total trail counts are based on adjusted counts collected from trail sites with data available consistently from 2018 through 2023 and includes the Air Line Trail in East Hampton, the CTfastrack Trail in New Britain, the Farmington Canal Heritage Trail in Cheshire, Hamden, and New Haven, the Hop River Trail in Bolton and Vernon, the Larkin State Bridle Trail in Oxford, the Middlebury Greenway Trail in Middlebury, the Norwalk River Valley Trail in Wilton, the Riverfront Recapture Trail in Hartford and East Hartford, the Shoreline Greenway Trail in Madison, the Still River Greenway Trail in Brookfield, and the Sue Grossman Trail in Torrington. For yearly comparison of individual trails see the CT Trail Census Data Dashboard³.

³ <https://cttrails.uconn.edu/ct-trail-census/dashboard/>

2023 Counts by Day of Week

The weekly summary presents trail use by day of the week, averaged over all weeks in 2023 for permanent counters (Table 5, counts, Table 6, percentages) and for short term counters (Table 7, counts, Table 8, percentages).

Key Takeaways

- **Overall, studied trails saw heavier use on weekends.** This trend has been consistent every year since 2017. In 2023, Saturdays and Sundays accounted for approximately 16% and 19% of uses on trails statewide, followed by Monday with 14%, Tuesday, Wednesday, and Thursday with 13% each, and Friday with 12% (Table 5). Trails that are not close to populated neighborhoods and require driving to the trailhead saw the highest proportional Sunday use (20-24%). Examples include the Air Line State Park Trail in Thompson, Farmington Canal Heritage Trail in Cheshire and Hamden, G&S Trolley Trail and Bluff Point State Park in Groton, Hop River Trail in Bolton, Norwalk River Valley Trail in Redding and Wilton, Larkin State Bridle Trail in Oxford, and Shoreline Greenway in Madison.
- **Some trails saw heavier use during the week than on weekends.** Most notably, the CT Fastrak trail which runs parallel to the CT Fastrak Bus Rapid Transit line saw heavier use on weekdays than on weekends, likely indicating higher levels of commuter use than recreational use. Almost uniform use throughout the week was observed on the Sue Grossman Trail in Torrington, Farmington Heritage Canal Trail in New Haven, and the Riverfront Recapture Trail in East Hartford.
- **There was a slight increase in average daily trail use in 2023 compared to 2022.** The average daily uses across 15 of trail counter locations with full datasets for 2018-2023 decreased from a high of 319 in 2020, to 281 in 2021 and 263 in 2022, and use was higher again with 279 in 2023. The averages are higher than the average daily uses in 2018 and 2019 217 and 240, respectively (Figure 4).
- **For short-term counters,** it is harder to draw conclusions as the counters were out for only a few weeks meaning that a couple of rainy days could disproportionately affect the numbers and percentages (Tables 7 and 8).

Table 5. Average counts by day of week - permanent counters, rounded to the nearest whole number.
Day-of-week counts per trail are summed over the entire year and divided by 52 (the number of weeks in a year) to reveal the pattern of average day-of-week count per trail and in total. The percentage of weekly use are the day-of-week count divided by the total average count.

Location	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Air Line State Park Trail, East Hampton	213	175	196	197	198	284	298
Air Line State Park Trail, Portland	54	49	50	48	49	61	75
Air Line State Park Trail, Thompson	71	57	61	62	80	129	148
Air Line State Park Trail, Willimantic	93	84	80	97	117	96	128
Bluff Point Trail, Groton	1003	886	910	1027	898	1323	1637
Charter Oak Greenway, Manchester	219	203	227	214	195	277	278
CTFastrak Trail New Britain	107	106	114	112	96	84	89
Farmington Canal Heritage Trail, Cheshire	435	416	436	429	394	553	692
Farmington Canal Heritage Trail, Hamden	325	341	383	341	336	519	600
Farmington Canal Heritage Trail, New Haven	217	231	226	215	209	212	224
G&S Trolley Trail, Groton	71	73	72	65	64	133	139
Hop River Trail, Bolton	196	184	185	196	183	325	392
Hop River Trail, Vernon	428	379	415	362	372	498	585
Larkin State Bridle Trail, Oxford	65	60	66	60	61	90	105
Middlebury Greenway, Middlebury	207	192	196	177	159	184	251
Naugatuck River Greenway, Derby	760	739	742	701	630	676	785
Norwalk River Valley Trail, Redding	62	55	57	60	57	72	90
Norwalk River Valley Trail, Wilton	322	287	301	267	273	339	445
Riverfront Recapture, East Hartford	205	200	227	199	148	172	186
Riverfront Recapture, Hartford	228	257	246	249	209	552	356
Shoreline Greenway Trail, Madison	199	194	205	194	187	276	363
Still River Greenway, Brookfield	515	513	526	478	451	539	670
Sue Grossman Trail, Torrington	279	256	249	246	223	227	243
Total by day-of-week	6,254	5,921	6,149	5,973	5,571	7,598	8,748
Percentage of weekly use	14%	13%	13%	13%	12%	16%	19%

Table 6. Percentage of counts by day of week - permanent counters. Darker green indicates higher percentage. The percentages are the average counts by day of week (Table 5) divided by the weeks total.

Location	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Air Line State Park Trail, East Hampton	14%	11%	13%	13%	13%	18%	19%
Air Line State Park Trail, Portland	14%	13%	13%	12%	13%	16%	19%
Air Line State Park Trail, Thompson	12%	9%	10%	10%	13%	21%	24%
Air Line State Park Trail, Willimantic	13%	12%	12%	14%	17%	14%	18%
Bluff Point Trail, Groton	13%	12%	12%	13%	12%	17%	21%
Charter Oak Greenway, Manchester	14%	13%	14%	13%	12%	17%	17%
CTFastrak Trail New Britain	15%	15%	16%	16%	14%	12%	13%
Farmington Canal Heritage Trail, Cheshire	13%	12%	13%	13%	12%	16%	21%
Farmington Canal Heritage Trail, Hamden	11%	12%	13%	12%	12%	18%	21%
Farmington Canal Heritage Trail, New Haven	14%	15%	15%	14%	14%	14%	15%
G&S Trolley Trail, Groton	11%	12%	12%	11%	10%	22%	23%
Hop River Trail, Bolton	12%	11%	11%	12%	11%	20%	24%
Hop River Trail, Vernon	14%	12%	14%	12%	12%	16%	19%
Larkin State Bridge Trail, Oxford	13%	12%	13%	12%	12%	18%	21%
Middlebury Greenway, Middlebury	15%	14%	14%	13%	12%	13%	18%
Naugatuck River Greenway, Derby	15%	15%	15%	14%	13%	13%	16%
Norwalk River Valley Trail, Redding	14%	12%	13%	13%	13%	16%	20%
Norwalk River Valley Trail, Wilton	14%	13%	13%	12%	12%	15%	20%
Riverfront Recapture, East Hartford	15%	15%	17%	15%	11%	13%	14%
Riverfront Recapture, Hartford	11%	12%	12%	12%	10%	26%	17%
Shoreline Greenway Trail, Madison	12%	12%	13%	12%	12%	17%	22%
Still River Greenway, Brookfield	14%	14%	14%	13%	12%	15%	18%
Sue Grossman Trail, Torrington	16%	15%	14%	14%	13%	13%	14%

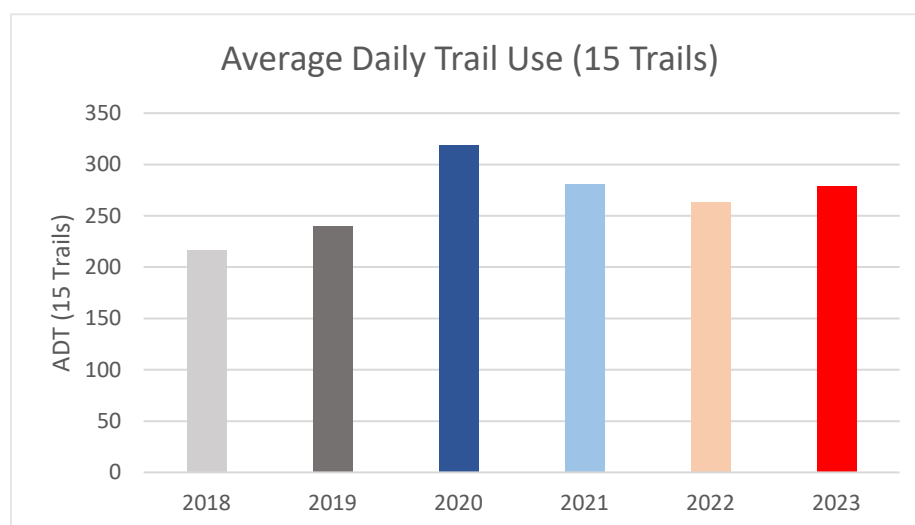


Figure 4. Average Daily Trail Counts, Aggregated Over 15 Trails. Trail counts are based on data collected from trail sites with complete count data from 2018 to 2023. These sites are in East Hampton, New Britain, Cheshire, Hamden, New Haven, Bolton, Vernon, Oxford, Middlebury, Wilton, Hartford, East Hartford, Madison, Brookfield, and Torrington.

Table 7: Average counts by day of week - short-term counters, rounded to the nearest whole number.
To calculate average count by day of the week, the day-of-week counts were summed over the recording period and then divided by the number of weeks. The percentage of weekly use figures are calculated by dividing the day-of-week counts by the total average count. Due to their short duration, several days of rainy weather can impact patterns.

Location	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Charter Oak Trail, MCC, Manchester	78	82	92	90	65	69	69
Cheney Rail Trail, Middle Turnpike, Manchester	81	86	81	105	93	88	92
Cheney Rail Trail, The Mills, Manchester	82	86	94	83	107	105	100
Hop River Trail, Center St, Andover	94	112	122	142	79	113	207
Hop River Trail, Colonial Rd, Manchester	212	188	201	194	146	146	248
Hop River Trail, Kiosk, Willimantic	135	143	132	153	98	111	200
Niantic Boardwalk, East Lyme	1,815	1,947	1,969	1,944	1,319	906	1,890
Quinnipiac River Linear Trail, Wallingford	350	486	414	462	356	429	479
River Trail, Sega Meadows Park N, New Milford	45	44	38	46	44	49	67
River Trail, Sega Meadows Park S, New Milford	87	78	71	93	91	108	130
Shoreline Greenway, Branford	229	263	321	226	174	372	465
Shoreline Greenway, East Haven	32	42	31	34	34	45	57
Total	3,240	3,558	3,565	3,570	2,605	2,542	4,003
Percentage of weekly use	14%	15%	15%	15%	11%	11%	17%

*MCC is Manchester Community College

Table 8. Percentage of counts by day of week - short-term counters. Darker green indicates higher percentage. The percentages are the average counts by day of week (Table 7) divided by the weeks total.

Location	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Charter Oak Trail, MCC, Manchester	14%	15%	17%	16%	12%	13%	13%
Cheney Rail Trail, Middle Turnpike, Manchester	13%	14%	13%	17%	15%	14%	15%
Cheney Rail Trail, The Mills, Manchester	12%	13%	14%	13%	16%	16%	15%
Hop River Trail, Center St, Andover	11%	13%	14%	16%	9%	13%	24%
Hop River Trail, Colonial Rd, Manchester	16%	14%	15%	15%	11%	11%	19%
Hop River Trail, Kiosk, Willimantic	14%	15%	14%	16%	10%	11%	21%
Niantic Boardwalk, East Lyme	15%	17%	17%	16%	11%	8%	16%
Quinnipiac River Linear Trail, Wallingford	12%	16%	14%	16%	12%	14%	16%
River Trail, Sega Meadows Park N, New Milford	14%	13%	12%	14%	13%	15%	20%
River Trail, Sega Meadows Park S, New Milford	13%	12%	11%	14%	14%	16%	20%
Shoreline Greenway, Branford	11%	13%	16%	11%	8%	18%	23%
Shoreline Greenway, East Haven	12%	15%	11%	12%	12%	16%	21%

2023 Counts by Hour of Day

The Hour of Day summary presents trail counts by time of day. Total hourly counts over all 23 trails with permanent counters averaged over 365 days are shown in Table 9 while Table 10 shows the percentage of daily counts by hour-of-day for each trail. Hourly patterns from all 12 short-term counter locations are shown in Table 11 while Table 12 shows the corresponding hourly percentages of daily use.

Key Takeaways

- **Most trail use (79%) takes place between 9am and 6pm** which is consistent with findings throughout the Connecticut Trail Census data collection. The busiest hour in 2023 was 12pm-1pm followed by the 11am, 10am, 3pm, and 5pm hours.
- **Peaks for the noon hour in Hartford and East Hartford** likely reflect the popularity of lunchtime walks by workers in nearby office buildings.
- **One trail shows commuter use.** The CT Fastrak Trail in New Britain had more pronounced early morning and late afternoon peaks indicating a higher rate of commuter use.

Table 9. Average counts by hour of day - permanent counters, rounded to the nearest whole number. Counts for each hour of the day were summed over the year and divided by 365. The percentages represent how much that hour contributed to the total count.

	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
Average Hourly Total	8	7	4	4	4	21	92	203	340	481	564	593	617	590	579	577	591	565	421	236	83	26	16	11
Percent of all hours	0%	0%	0%	0%	0%	0%	1%	3%	5%	7%	9%	9%	9%	9%	9%	9%	9%	9%	6%	4%	1%	0%	0%	0%

Table 10. Percentage of daily use by hour of day - permanent counters. Numbers are percentages and darker green indicates a higher percentage. Hourly counts per trail were summed over the entire year and divided by 365 to see the pattern of average hourly count per trail.

Location	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
Air Line State Park Trail, East Hampton	0	0	0	0	0	0	1	2	4	6	8	9	10	10	11	11	11	8	5	2	1	0	0	0
Air Line State Park Trail, Portland	0	0	0	0	0	0	2	4	5	7	8	8	8	9	9	10	9	9	7	3	1	0	0	0
Air Line State Park Trail, Thompson	0	0	0	0	0	0	1	2	4	6	8	9	10	11	11	10	9	7	5	3	1	0	0	0
Air Line State Park Trail, Willimantic	1	1	1	1	1	1	1	2	4	5	8	10	9	10	10	9	8	7	5	3	1	0	0	0
Bluff Point Trail, Groton	0	0	0	0	0	0	1	2	3	5	8	9	10	10	11	11	10	9	6	3	1	0	0	0
Charter Oak Greenway, Manchester	0	0	0	0	0	0	1	2	5	6	7	8	7	7	8	8	9	10	10	7	3	1	1	0
CTFastrak Trail New Britain	1	1	0	0	0	1	3	5	5	5	6	5	6	6	6	8	10	11	8	4	3	2	2	1
Farmington Canal Heritage Trail, Cheshire	0	0	0	0	0	0	1	3	4	7	9	10	10	9	9	9	9	8	6	3	1	0	0	0
Farmington Canal Heritage Trail, Hamden	0	0	0	0	0	0	2	4	6	8	8	9	9	9	9	9	9	8	6	3	1	0	0	0
Farmington Canal Heritage Trail, New Haven	1	1	0	0	0	1	2	4	7	8	8	7	7	7	7	7	8	9	7	4	2	2	1	1
G&S Trolley Trail, Groton	0	0	0	0	0	0	1	2	5	6	9	10	10	9	9	9	9	9	6	3	2	0	1	0
Hop River Trail, Bolton	0	0	0	0	0	0	1	3	5	7	9	9	9	9	9	10	10	9	6	3	1	0	0	0
Hop River Trail, Vernon	0	0	0	0	0	0	1	3	6	10	10	9	9	8	8	8	8	8	6	3	1	0	0	0
Larkin State Bridge Trail, Oxford	0	0	0	0	0	0	1	2	5	9	10	10	10	9	9	9	9	8	5	2	1	0	0	0
Middlebury Greenway, Middlebury	0	0	0	0	0	0	3	6	8	9	10	9	8	8	7	7	7	7	6	3	1	0	0	0
Naugatuck River Greenway, Derby	0	0	0	0	0	1	2	4	7	9	9	8	8	7	7	7	7	8	7	6	3	1	0	0
Norwalk River Valley Trail, Redding	0	0	0	0	0	0	1	2	6	7	7	9	8	9	9	9	12	12	7	2	0	0	0	0
Norwalk River Valley Trail, Wilton	0	0	0	0	0	0	1	3	6	9	10	10	10	9	9	9	8	8	4	2	0	0	0	0
Riverfront Recapture, East Hartford	0	0	0	0	0	0	1	2	4	6	7	9	13	12	8	7	7	8	8	5	2	1	0	0
Riverfront Recapture, Hartford	0	0	0	0	0	0	2	3	4	6	7	7	11	10	8	7	8	8	7	6	3	1	1	0
Shoreline Greenway Trail, Madison	0	0	0	0	0	0	1	3	5	8	11	12	11	10	9	9	8	7	4	2	1	0	0	0
Still River Greenway, Brookfield	0	0	0	0	0	0	1	3	5	7	8	9	9	9	9	10	10	10	7	3	1	0	0	0
Sue Grossman Trail, Torrington	0	0	0	0	0	1	2	4	7	9	9	8	9	7	7	8	8	8	6	4	1	0	0	0

Table 11. Average counts by hour of day - short-term counters, rounded to the nearest whole number. Counts for each hour were summed over the recording period and divided by the respective number of days. The percentages represent how much that hour contributed to the total count.

	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
Average Hourly Total	2	1	0	1	5	11	57	139	192	276	301	334	322	307	289	270	293	294	195	76	15	5	3	3
Percent of all hours	0%	0%	0%	0%	0%	0%	2%	4%	6%	8%	9%	10%	10%	9%	9%	8%	9%	9%	6%	2%	0%	0%	0%	0%

Table 12. Percentage of daily use by hour of day - short-term counters. Numbers are percentages and darker green indicates a higher percentage. Hourly counts per trail were summed over the recording period and divided by the respective number of days to see the pattern of average hourly count per trail.

Location	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
Charter Oak Trail, MCC*, Manchester	0	0	0	0	0	2	2	7	7	7	8	6	10	9	9	7	9	9	6	1	1	0	0	0
Cheney Rail Trail, Middle Turnpike, Manchester	0	0	0	0	0	0	2	3	6	7	8	8	8	8	9	9	10	11	5	3	1	0	0	0
Cheney Rail Trail, The Mills, Manchester	1	0	0	0	0	0	2	2	6	6	6	11	8	10	9	10	10	10	4	3	1	0	0	1
Hop River Trail, Center St, Andover	0	0	0	0	0	0	1	2	4	6	8	10	11	10	13	12	11	8	4	0	0	0	0	0
Hop River Trail, Colonial Rd., Manchester	0	0	0	0	0	0	1	2	6	8	7	9	12	10	10	9	9	10	5	2	0	0	0	0
Hop River Trail, Kiosk, Willimantic	0	0	0	0	0	0	0	2	4	7	8	10	10	10	11	12	10	10	4	1	0	0	0	0
Niantic Boardwalk, East Lyme	0	0	0	0	0	0	2	5	6	8	9	10	9	9	8	8	9	9	5	1	0	0	0	0
Quinnipiac River Linear Trail, Wallingford	0	0	0	0	0	0	2	5	6	9	9	8	9	7	7	6	8	9	9	4	0	0	0	0
River Trail Sega Meadows Park N, New Milford	0	0	0	0	0	0	1	4	6	11	10	11	9	8	8	6	8	7	8	3	0	0	0	0
River Trail/Sega Meadows Park S, New Milford	0	0	0	0	0	0	2	5	7	9	9	9	10	9	7	7	8	7	7	4	0	0	0	0
Shoreline Greenway, Branford	0	0	0	0	0	0	2	3	5	7	9	12	10	11	9	7	7	6	6	5	1	0	0	0
Shoreline Greenway, East Haven	0	0	0	0	0	0	2	4	4	6	7	7	7	10	9	7	9	12	10	3	1	1	0	0

*MCC is Manchester Community College

2023 Counts by Day and Weather

Weather is an important factor when looking at trail use data. Daily count totals across all trails are compared with daily high temperature (Figure 5), precipitation (Figure 6), and snow cover (Figure 7) as recorded at Bradley International Airport.

Key Takeaways

- **Weather is an influential factor impacting levels of daily trail use.** Although most of the trail use occurs in the summer, spring and fall, approximately 15% of use occurred in winter. Even on cold and/or rainy days, people still use trails (Figures 6 and 7).
- **Snow cover decreases trail use.** Days with snow cover saw less trail use, for example, in late February and early March 2023 (5.1" recorded at Bradley International Airport). However, there was no snow in January, February, November and December of 2023, which may have encouraged a relatively higher trail use during winter months when compared to previous years (Figure 7).
- **Rainy and/or hot days decreases trail use.** Where there was more of a "saddle" during July and August in past years (i.e. lower use during the hot months than during May, June, or September), 2023 saw a peak in August. One possible explanation is that August followed a very wet July and was slightly milder in 2023 than in 2022. 2023 also saw more individual spikes on days after heavier rainfall (e.g. October 1) or when temperatures decreased (July 22 and 30). Individual days with heavier precipitation, like May 20 with 2.12 inches and July 16 with 1.53 inches of rain, saw much lower trail use compared to days before and after. The intense and prolonged rain in early July had an impact on trail use. While it impacted the Riverfront Recapture Trail locations most because both trails were flooded for weeks, trails throughout the state also saw lower use in July.
- **Spring Fever!** On unseasonably warm days in winter and early spring, trail use spiked. For example, the total trail use across all count locations spiked to 9,864 (compared to 3,108 or

less on the days before and after) on March 12, a dry 51-degree day before a snowstorm, and to 15,459 (compared to less than 7,000 on days before or after) on March 26, a dry 61-degree day.

- **August 19, 2023**, saw the highest uses recorded across all trail count locations with 21,077 uses which coincides with the Hartford Dragon Boat Festival and an agreeable 77-degree F day between two rainy days, when 8,759 counts were recorded on the Riverfront Recapture Trail counter in Hartford alone.

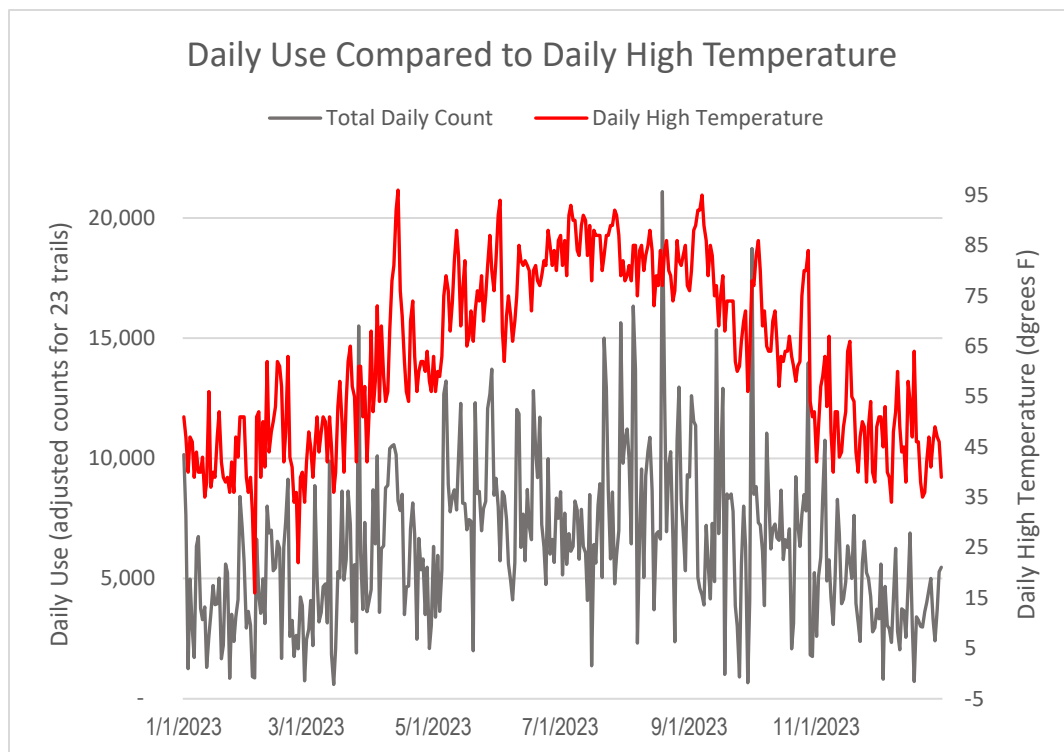


Figure 5. Trail Counts and Temperature. A comparison of the total daily counts over 23 trails with daily high temperatures which were recorded at Bradley International Airport and obtained from NOAA weather station USW00014740, obtained from NOAA – National Centers for Environmental Information⁴.

⁴ <https://www.ncdc.noaa.gov/cdo-web/datasets/GHCND/stations/GHCND:USW00014740/detail>

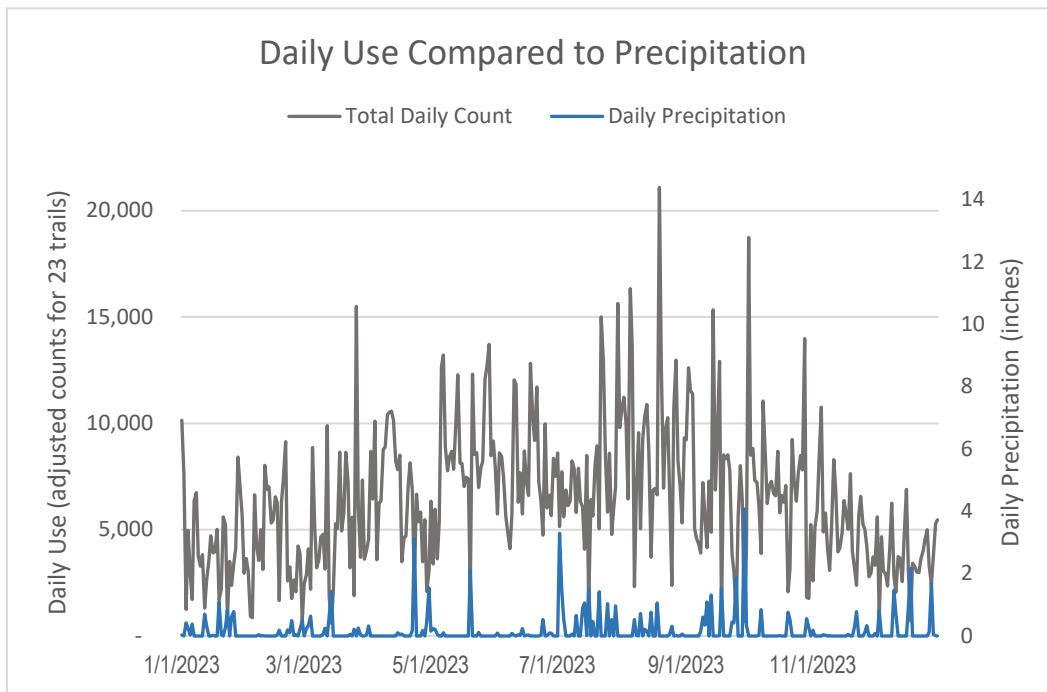


Figure 6. Trail Counts and Precipitation. A comparison of total daily counts over 23 trails with daily precipitation as recorded at Bradley International Airport. High precipitation coincides with lower trail use.

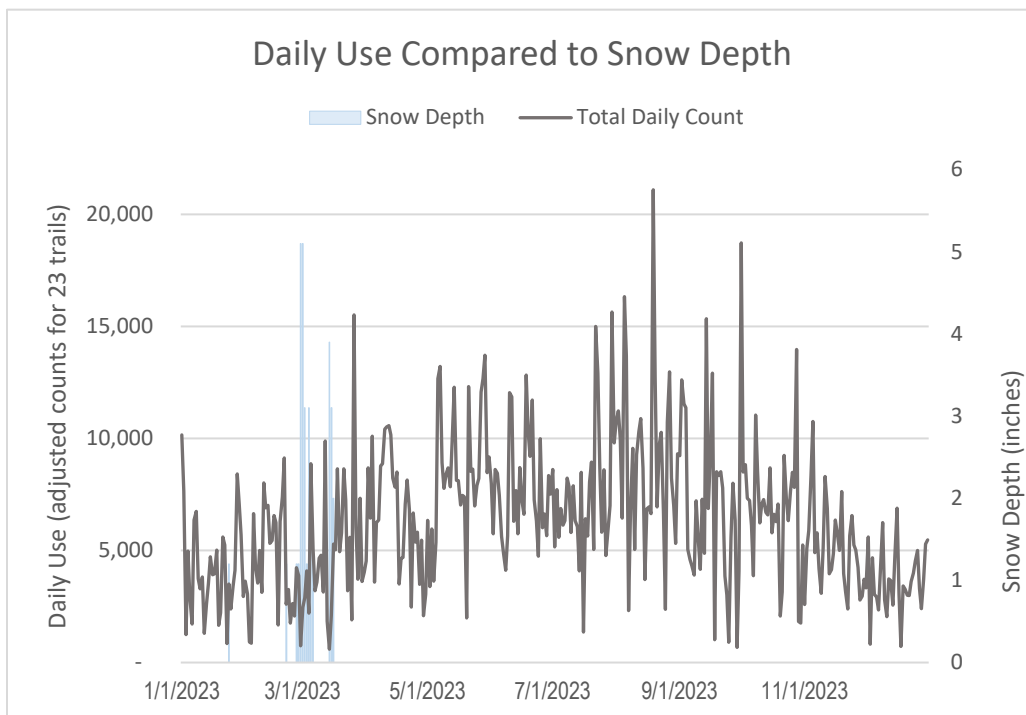


Figure 7. Trail Counts and Snow Cover. A comparison of total dails counts over 23 trails and snow depth as recorded at Bradley International Airport. Generally, trail use decreases when there is snow cover.

Mode Share

The TRAFx IR counters cannot differentiate between different types of trail users. Volunteers conducting manual counts for calibration purposes, however, do collect information about the mode of travel by classifying trail users into three categories: pedestrian (walkers, runners, etc.), bike (all types of cycles, includes e-bikes, recumbent, tricycle, etc.), and other (using a wheelchair, stroller, roller skates/blades, skateboard, etc.).

Mode shares for individual trails recorded during manual counts since installation for each trail are shown in Figure 8. Riverfront Recapture-Hartford (94%) and Norwalk River Valley Trail-Wilton (93%) had the highest proportion of pedestrian use, followed by Norwalk River Valley Trail-Redding (92%). The Farmington Canal Heritage Trail in Cheshire and the Hop River Trail in Bolton have seen the highest proportion of cyclist use with 69% and 60%, respectively.

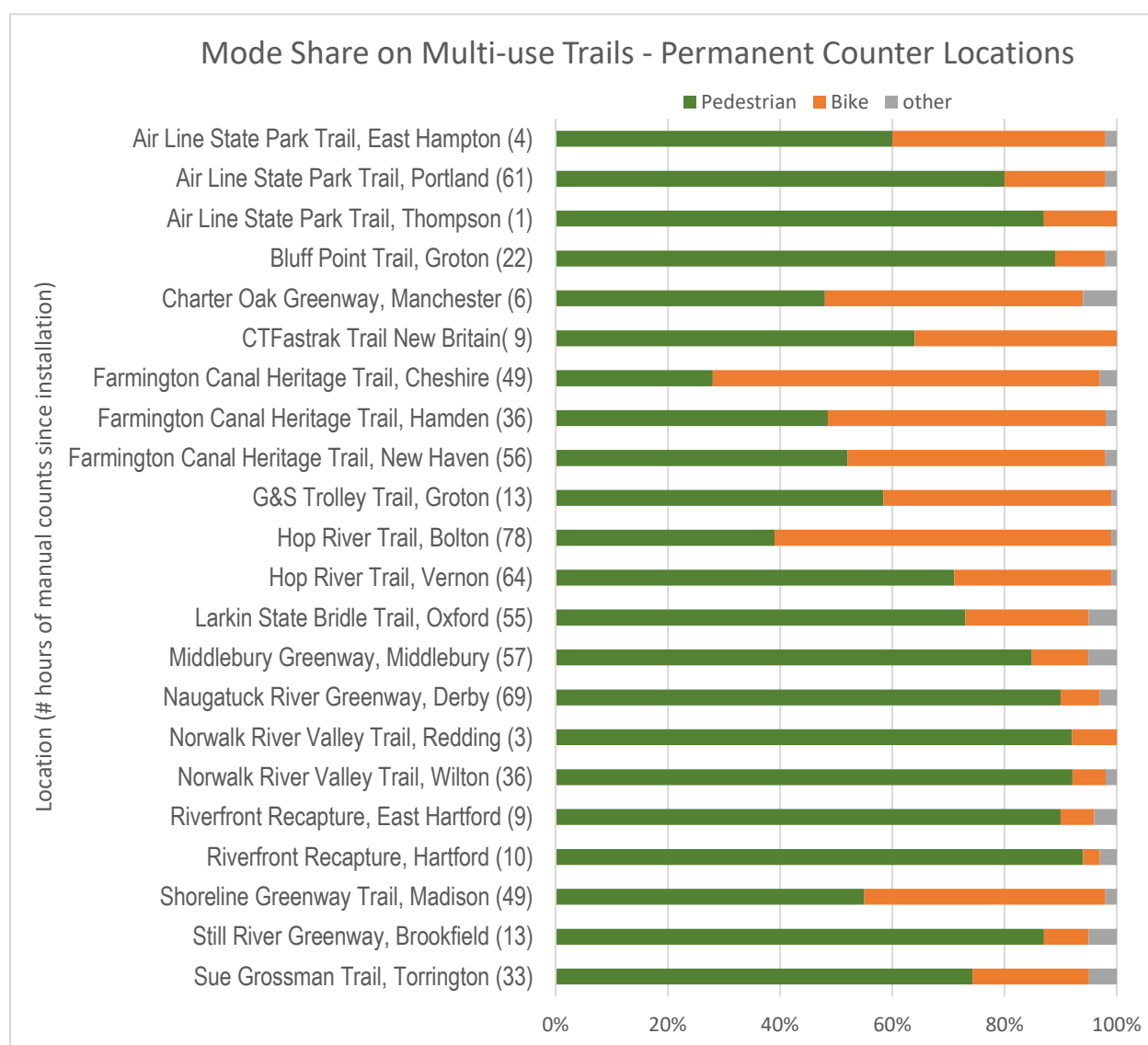


Figure 8. Mode Share by Trail - permanent counters, from manual counts conducted between 2017-2023.

For short-term counters, the Shoreline Greenway Trail in East Haven and Branford and the River Trail North in New Milford recorded 100% pedestrian use. The manual counts for Hop River Trail-Center Street in Andover showed 58% bike use (Figure 9).

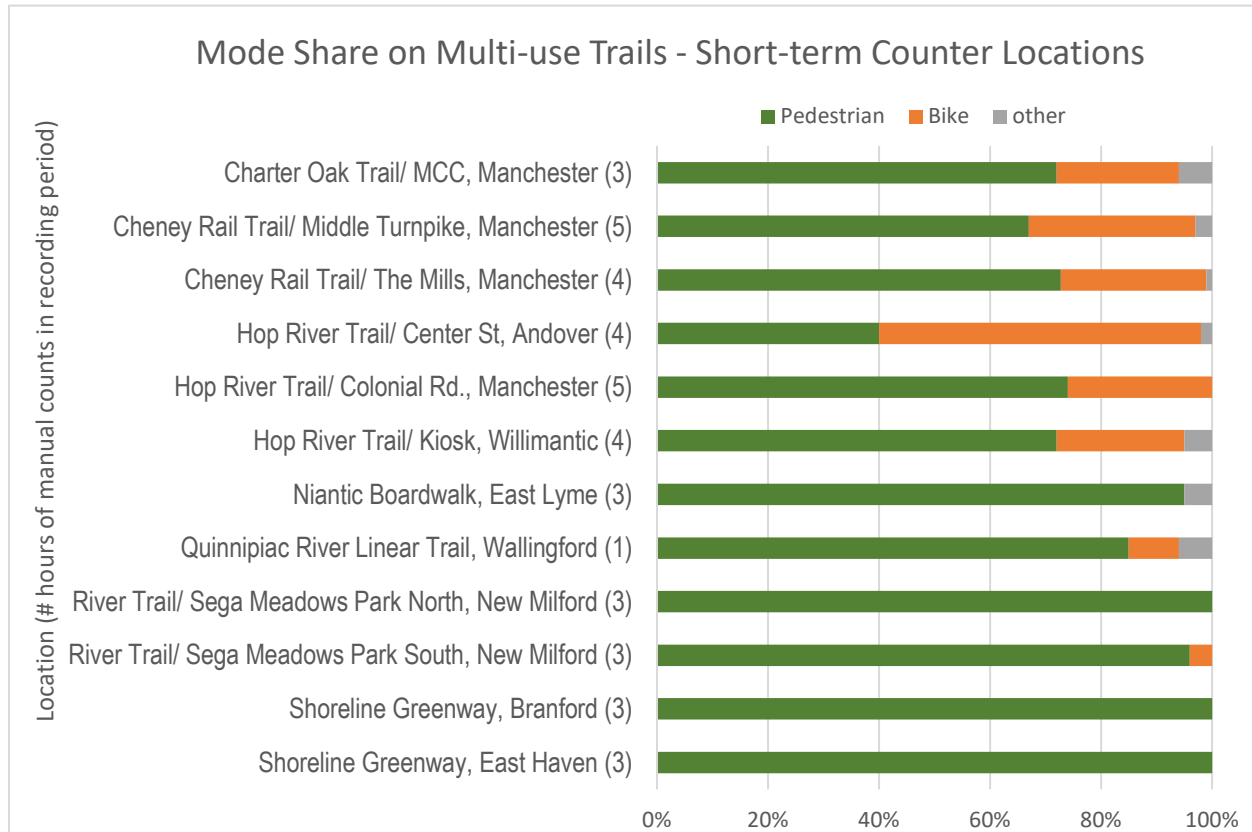


Figure 9. Mode Share by Trail - temporary counters, from manual counts conducted during recording period.