



2017 Northwest Arkansas Trail Usage Monitoring Report

Summary Findings:

The study showed that average daily *weekday* bicycle volumes per study site increased by about 32% between 2015 and 2017, from 142 daily cyclists to 187 cyclists per site on average; and by about 14% on *weekends*, from 296 cyclists to 336 cyclists. The estimated average annual bicycle volumes per study site grew between 2015 and 2017 by 24%, from about 67,700 to 83,700 cyclists per year per site. During this same period, about 34 miles of new multi-use path were constructed, along with about 77 miles of natural surface trails network, 0.5 miles of bike lane, about 1 mile of neighborhood path, and 0.5 miles of shared roadway facility.

The study showed that Northwest Arkansas (NWA) had high cyclist user counts per capita relative to other more densely populated areas. For example, the sum of the top three sites with the highest daily cyclist use in NWA was greater than the top three sites with the highest daily cyclist use in San Francisco. Comparing cycling levels (for the three highest activity sites for each location) per capita (users per 1,000 population), Northwest Arkansas (5.45) is higher than both San Francisco (3.2) and San Diego County (0.67), and shows lower levels than Minneapolis (25.48), Vancouver (24.07), and Portland (9.34).

The study also indicated based on time of day usage patterns that the trails are used for both utilitarian and recreational use. Weekday cycling, for example, has a double peaking pattern, which typically indicates that these paths are being used for utilitarian trips, such as school or work trips. Weekend cycling by hour of day shows a single peak, suggesting that travel is more recreational in nature. The analysis also showed that there are higher levels of cycling in areas of NWA that are more densely populated and have low-to-medium incomes.

In comparison to trail usage patterns for cyclists, pedestrian activity levels show similar results. The study showed that average daily *weekday* pedestrian volumes per study site increased by about 5% between 2015 and 2017, from 141 daily pedestrians to 166 pedestrians per site on average; and by about 19% on *weekends*, from 171 pedestrian to 203 pedestrians. The estimated average annual pedestrian volumes per study site grew between 2015 and 2017 by 10%, from about 58,900 to 65,000 pedestrians per year per site.

Results relative to other more densely populated areas of the US remain positive. For example, comparing pedestrians (for the three highest pedestrian sites for each location) per capita (users per 1,000 population), Northwest Arkansas (5.78) is higher than San Diego County (5.51) and Calgary (3.95). Also similar to cycling usage, based on the time of use, the trails appear to be used for utilitarian purposes during the weekdays, showing double peak patterns. During weekends, trails show recreational walking patterns. The relationship between low-income areas and greater pedestrian trail usage was consistent with the cycling trends.

Project Overview:

The Walton Family Foundation has made significant investments in developing a robust trail network in the Northwest Arkansas region. Since 2015, the network has expanded by 35 miles of new multi-use path, about 77 miles of new natural surface trails network, 0.5 miles of new bike lane, about 1 mile of new neighborhood path, and 0.5 miles of new shared roadway facility.

A trail user count was conducted by San Diego State University between May and July of 2017. Evaluation staff analyzed the data to determine the impact of the Foundation's trail investments as well as understand the impact of different type of trail investments.

Methodology:

Given the budget and objectives associated with the Northwest Arkansas Trail Monitoring project, the team selected the following technologies:

- 24-hour Continuous Active Infrared counters (or Pyros), and
- 24-hour Continuous Pneumatic Tubes.

24-hour continuous pyro counters were used to count pedestrian and bicycle activity combined without distinction of mode, whereas a combination of 24-hour continuous Pyro counters and 24-hour continuous pneumatic tubes were used to count bicycle and pedestrian activity (which is calculated by subtracting bicycle counts collected via the pneumatic tubes from all activity collected via the infrared counters).

Key criteria used to guide the siting of bicycle and pedestrian count stations across the Northwest Arkansas region included: 1) presence of existing trail facilities, 2) achieving a representative sample of locations in relation to population density, employment density and median household income, and 3) an even geographic distribution of count sites across the system.

Key Findings:

Cyclists

The findings reflect that Northwest Arkansas, especially considering its low population density, has noteworthy cycling levels. Northwest Arkansas compares favorably to other regions, some of which are considered cycling-prominent cities such as Minneapolis, Vancouver and Portland. Considering the comparison geographies (combining the usage of the top three sites with the highest average daily bicycle volume), Vancouver reports the highest average daily bicycle volume (15,200 cyclists), followed by Minneapolis (10,540 cyclists), then Portland (5,782 cyclists), San Francisco (2,747), Northwest Arkansas (2,563 cyclists), and San Diego (2,224 cyclists). Comparing cycling levels (for the three highest activity sites for each location) per capita (users per 1,000 population), Northwest Arkansas (5.45) is higher than San Francisco (3.2) and San Diego (0.67), and lower than Minneapolis (25.48), Vancouver (24.07) and Portland (9.34).

The Razorback Greenway Trail at Brooks Ridge and the Scull Creek Trail at West North Street showed the highest average daily multi-use path weekday and weekend bicycle counts at 481 cyclists and 863 cyclists per day, respectively. The trail at Park Springs Park showed the highest average daily weekday and weekend bicycle counts for natural surface trails, at 100 cyclists and 106 cyclists per day, respectively.

Table 1: Daily Volume of Cyclists per 1,000 Population (user counts reflect top three locations combined)

Location (Rank)	Population	Daily Cyclists*	Cyclists/1K
Minneapolis (1)	413,650	10,540	25.48 (40.99 in 2015)
Vancouver (2)	631,486	15,200	24.07
Portland (3)	619,334	5,782	9.34 (18.89 in 2015)
NWA (4)	470,332	2,563	5.45 (4.45 in 2015)
San Francisco (5)	852,537	2,747	3.2 (1.59 in 2014)
San Diego County (6)	3,317,700	2,224	0.67 (0.55 in 2015)

*Daily cyclists is determined by averaging the three highest daily bicycle volumes for each of the reported regions.

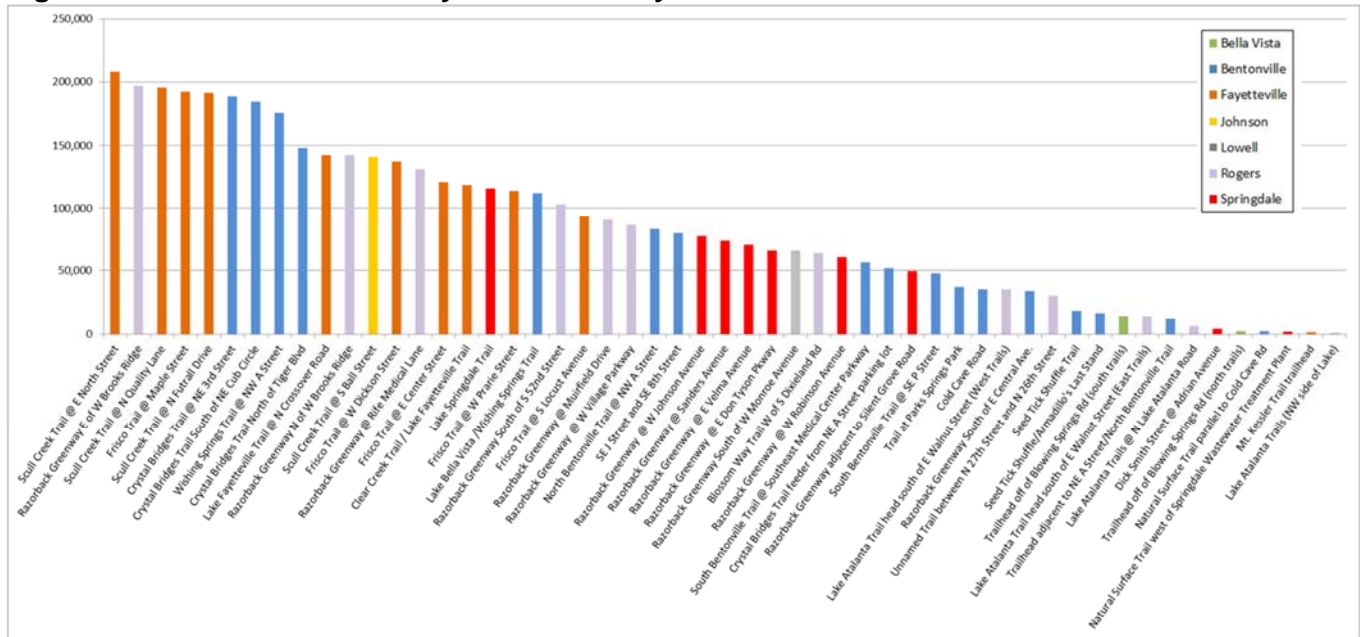
The study estimated that an average of 83,718 annual cyclists per site are anticipated across the system, with a median of 73,937 bicyclists and a standard deviation of 62,497. This reflects an increase of about 24% over the estimated annual cyclists in 2015.

Table 2 : 2015 and 2017 Descriptive Statistics for Estimated Annual Bicycle Volume per Site

Statistic	Systemwide		Multi-Use Paths		Natural Surface Trails	
	2015	2017	2015	2017	2015	2017
Minimum Estimated Annual Cyclists per Site	1,449	1,095	4,634	13,611	1,449	1,095
Maximum Estimated Annual Cyclists per Site	201,035	207,985	201,035	207,985	17,142	37,024
Median Estimated Annual Cyclists per Count Site	57,859	73,937	70,292	107,653	5,706	5,997
Standard Deviation (annual per site)	56,382	62,497	52,184	54,582	5,237	10,902
Mean Estimated Annual Cyclists per Count Site	67,728	83,718	84,807	109,027	7,006	10,121
Percent Increase in Annual Mean Bicyclists Per Site (2015 to 2017)		23.6%		28.6%		44.5%

Source: Active Transportation Research, September 2017; Chen Ryan Associates, August 2015

Figure 1: Estimated Annual Bicycle Volumes by Location in Northwest Arkansas



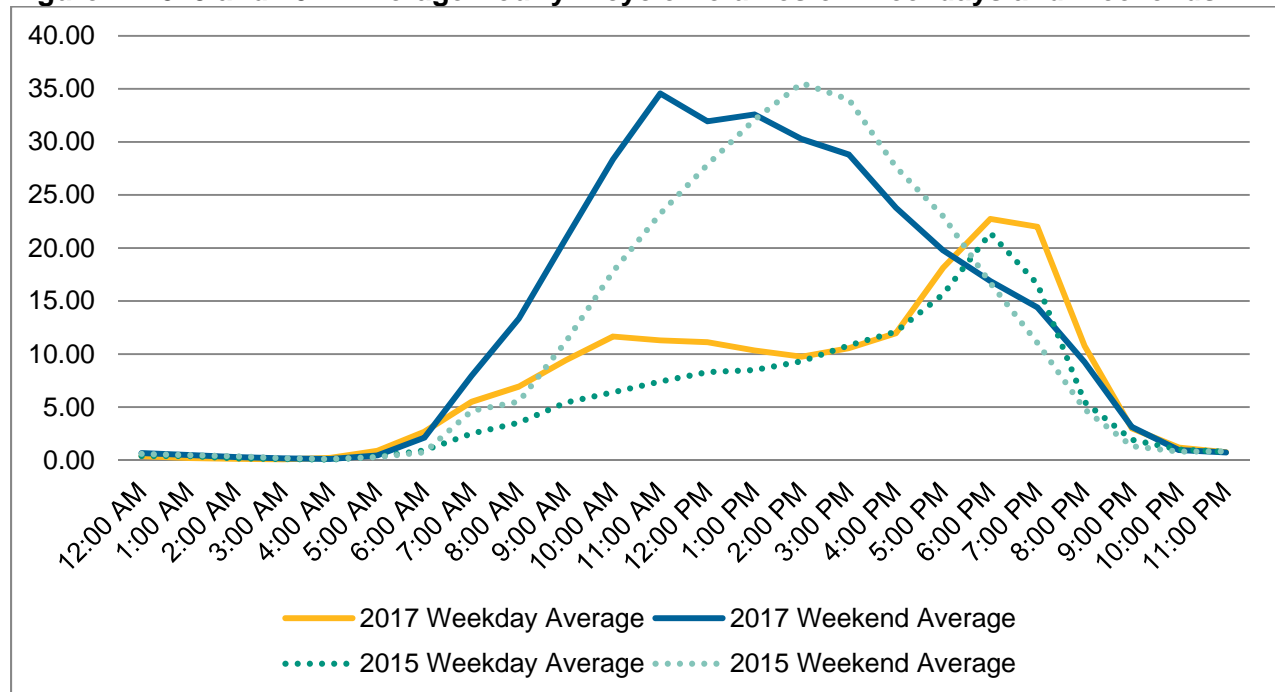
Source: Active Transportation Research, September 2017

Although hourly volumes are lower during the morning hours, the weekday hourly trends show that there is double peaking on weekdays, suggesting that users are making utilitarian trips for school or work. Weekend hourly patterns for cycling are single peaking, suggesting the expected recreational trip type.

Bicycle volumes appear to be related to levels of population density and income. Count sites located in areas characterized by high density population and low to medium incomes showed higher rates of cycling than sites located in areas characterized by low population and higher income. The trend of higher cycling rates in low income neighborhoods is consistent with utilitarian cycling trends found when examining hour of day trends. High density population sites averaged 380 daily cyclists while low population density sites averaged 68 cyclists daily. Count sites situated in high income areas recorded lower bicycle volumes than those located in low income areas during both the weekend and weekday periods. High income sites averaged 100 cyclists during the week and 177 on the weekend, while sites in low income areas averaged 234 during the week and 460 on the weekend.

Cycling volumes on weekdays increased from 2015 levels at 58% of the count sites, while volumes on weekends increased at 47% of the sites. While an increase was not seen at every site, there was an overall increase of about 24% in estimated annual volumes across the network.

Figure 2: 2015 and 2017 Average Hourly Bicycle Volumes on Weekdays and Weekends



Source: Active Transportation Research, September 2017; Chen Ryan Associates, August 2015

Pedestrians

Pedestrian use of the trails, much like the cycling usage, was determined by the researchers to be comparable with other notable pedestrian friendly cities around the country particularly considering the relatively low population density. The study estimated that an average of about 65,000 annual pedestrians per site are anticipated across the system, with a median of 48,000 pedestrians and a standard deviation of 64,575.

Table 3: Descriptive Statistics for Estimated Annual Pedestrian Counts per Site

Statistic	Systemwide		Multi-Use Paths		Natural Surface Trails	
	2015	2017	2015	2017	2015	2017
Minimum Estimated Annual Pedestrian per Site	4,407	3,389	5,436	7,461	4,407	3,389
Maximum Estimated Annual Pedestrian per Site	291,836	351,553	291,836	351,553	19,593	41,025
Median Estimated Annual Pedestrian per Count Site	30,270	47,958	43,807	58,315	8,876	13,530
Standard Deviation (annual per site)	72,078	64,575	76,185	70,918	5,163	13,185
Mean Estimated Annual Pedestrian per Count Site	58,953	65,019	72,420	78,906	10,134	16,715
Percent Increase in Annual Mean Pedestrians Per Site (2015 to 2017)		10.2%		20.46%		64.94%

Source: Active Transportation Research, September 2017; Chen Ryan Associates, August 2015

Northwest Arkansas compares favorably to other regions (in pedestrian usage of trails), some of which are considered pedestrian-prominent cities such as Minneapolis. Considering the comparison geographies (combining the usage of the top three sites with the highest average daily pedestrian volume), Minneapolis reports the highest average daily pedestrian volume (41,650 pedestrians), followed by San Diego (18,281 pedestrians), followed by San Jose (5,926 pedestrians), then followed by Calgary, the Central Lane MPO (Eugene) area and Northwest Arkansas at 4,892 pedestrians, 3,075 pedestrians and 2,720 pedestrians, respectively. Comparing pedestrians (for the three highest activity sites for each location) per capita (users per 1,000 population), Northwest Arkansas (5.78) is very similar to San Diego County (5.51), and has a higher per capita use than Calgary (3.95).

The Crystal Bridges Trail showed the highest average weekday pedestrian count (813). While the Frisco Trail at Maple Street showed the second highest average weekday pedestrian count (634). The Crystal Bridges Trail saw the highest average weekend count of all trails (1,340).

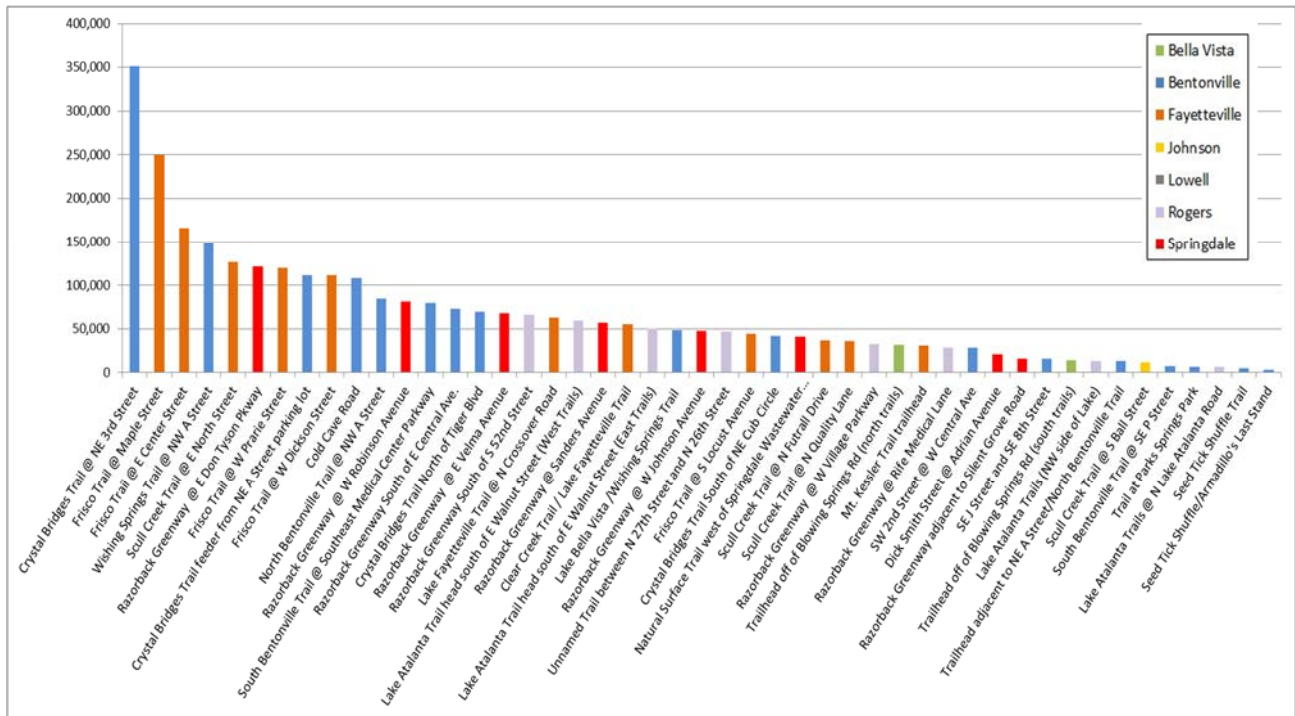
The highest average weekday pedestrian volume was found to be at 7PM (12 pedestrians on average/site/hour). The highest weekend pedestrian volume occurred at 10AM (26 pedestrians on average/site/hour).

Table 4: Daily Volume of Pedestrians per 1,000 Population (user counts reflect top three locations combined)

County (Rank)	Population	Daily Pedestrians*	Pedestrians/1K
Minneapolis (1)	413,650	41,650	100.69 <i>(147.39 in 2015)</i>
Eugene, Central Lane MPO Area (2)	619,360	3,075	13.54
San Jose (Downtown) (3)	1,025,000	6,926	6.76
NWA (4)	470,332	2,720	5.78 <i>(4.40 in 2015)</i>
San Diego County (5)	3,317,700	18,281	5.51 <i>(4.54 in 2015)</i>
Calgary (6)	1,239,200	4,892	3.95

*Daily pedestrian determined by averaging the three highest daily pedestrian volumes for each of the reported regions.

Figure 3: Estimated Annual Pedestrian Volumes by Location in Northwest Arkansas



Pedestrian volumes on weekdays increased from 2015 levels at 56% of the count sites, while volumes on weekends increased at 53% of the sites. While an increase was not seen at every site, there was an overall increase of about 10% in estimated annual volumes across the network.

The 2015 Trail Usage Monitoring project established a best practice bicycle and pedestrian data collection program for the Northwest Arkansas region, which was followed to produce the current 2017 results. The results of this repeat data collection shows notable increases in walking and cycling levels across Northwest Arkansas since 2015, underscoring the fact that investments in quality infrastructure serves to promote active travel and the individual health of community members who take advantage of the improving infrastructure.