

2024 BICYCLE AND PEDESTRIAN COUNT REPORT

APRIL 2024



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Introduction

The Fargo-Moorhead Metropolitan Council of Governments (Metro COG) is the designated metropolitan planning organization for the Fargo-Moorhead metropolitan area. A major responsibility of Metro COG is transportation planning, which includes planning for bicycle and pedestrian facilities. Understanding the demand for bicycle and pedestrian facilities allows local units of government and Metro COG to plan for future bicycle and pedestrian use in the area. This report details both manual (17 locations) and automated (7 locations) counts taken since 2013 and 2014 respectively. Page 5 features a map of each location counts have been reported and analyzed.

Automated Counters

A total of six automated counters are placed at various locations in the Fargo-Moorhead Metro Area. All counters are from the manufacturer Eco-Counter. Two locations have the ability to differentiate between bicycles and pedestrians by using both infrared technology and inductive pavement loop detection.

BW: Broadway west sidewalk just south of 2nd Ave N, Downtown Fargo

LG: Lindenwood Park / Gooseberry Park bicycle & pedestrian bridge, Fargo/Moorhead

MT: Milwaukee Trail between 35th Ave S and 37th Ave S, Fargo

OM: Oak Grove Park / Memorial Park bicycle & pedestrian bridge, Fargo/Moorhead

RC: Rose Coulee Trail between 46th Ave S and 47th Ave S, Fargo - Installed June/July 2023

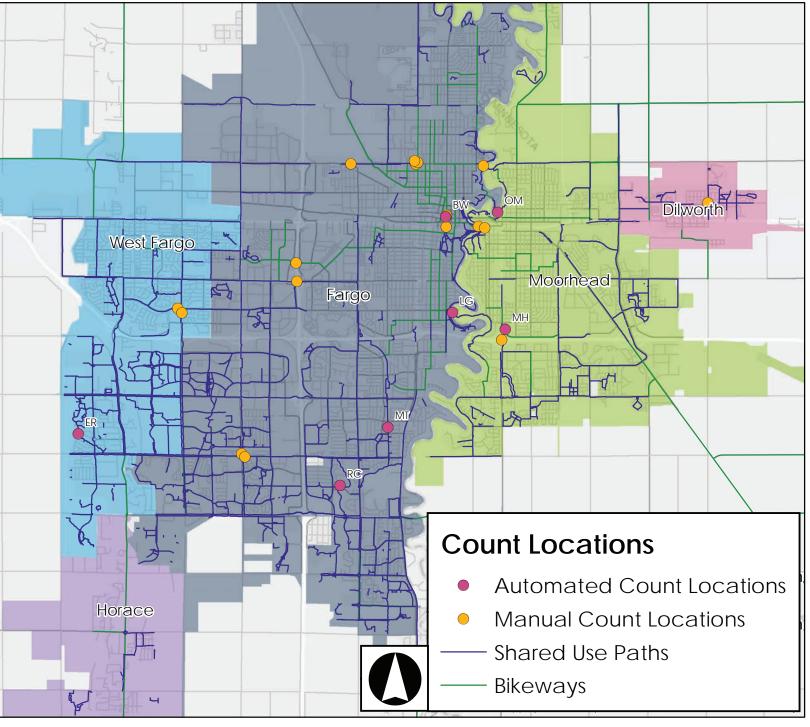
ER: Eagle Run Neighborhood Trail between Rendezvous Park and 9th St W, West Fargo

MH: Moorhead 8th Street Trail Crossing I-94, owned by MnDOT

These counters count passer-byers 7 days a week, 24 hours a day, 365 days a year. If two or more people are walking/biking side-by-side, the counter can record the group as one individual. This phenomenon is known as occlusion. Because of this, actual counts are higher than recorded. The topic of occlusion, as well as the relevant occlusion factors for each of the automated counters, will be discussed in the following pages.



2014 - 2023



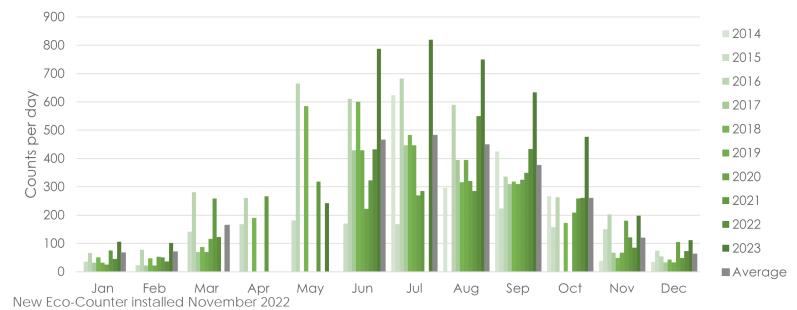
Data Consistency

Metro COG's initial deployment of automated counters utilized a basic counter intended for hiking trails - Traf-X. In 2022 and 2023 Metro COG replaced the Traf-X counters with a new style of counter - Eco Counters. During the deployment process of the Eco Counter, an Eco Counter and Traf-X counter were tested over a period of 5-6 hours during September to determine the consistency of the two devices. Using manual counts to compare, it was found the Eco Counter counts were higher and more accurate than the Traf-X counters. This difference in the recorded number of counts between the two devices is noticeable when observing the year-to-year data in the following section. Metro COG is considering ways to rectify the data to account for this difference between to two types of counters.

A challenge with automated counters regardless of the accuracy is occlusion, which is when two or more people traveling side by side pass through the counting field and are counted as one person. The best way to account for this is to calculate the occlusion factor at each location and apply that factor to the entire data set at that location. Metro COG has calculated occlusion factors at the each automated counting location and plans to integrate these factors into the count data and analysis for future reports.

3000 2014 2015 2500 2016 Counts per day 2000 2017 2018 1500 2019 2020 1000 2021 2022 500 2023 0 Average Jul Aug Sep Oct Jan Feb Mar Apr New Eco-Counter installed November 2021 Feb Jun Nov Dec May

Lindenwood/Gooseberry Park Bridge



Broadway Sidewalk - Just S. of 2nd Ave N

COUNTERS DATA SUMMARY

AUTOMATED

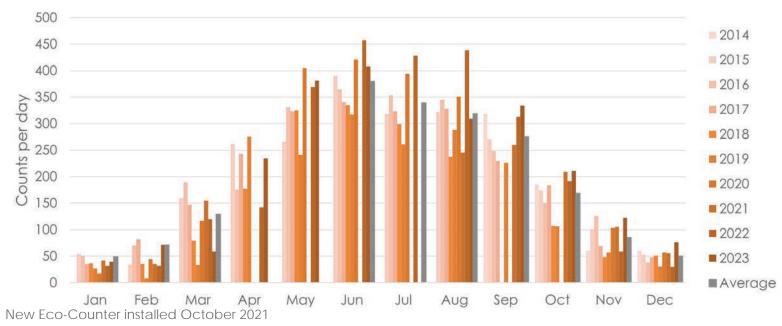
2014 - 2023



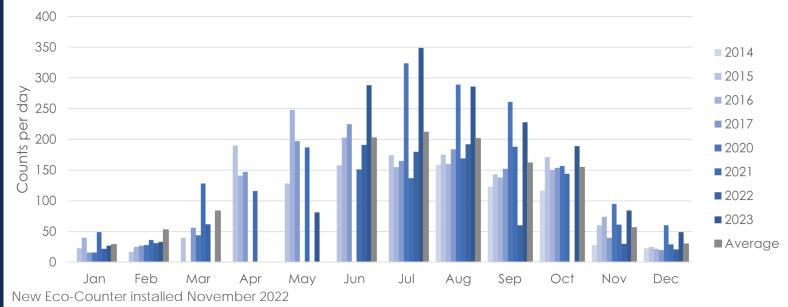
AUTOMATED COUNTERS

DATA SUMMARY

2014 - 2023



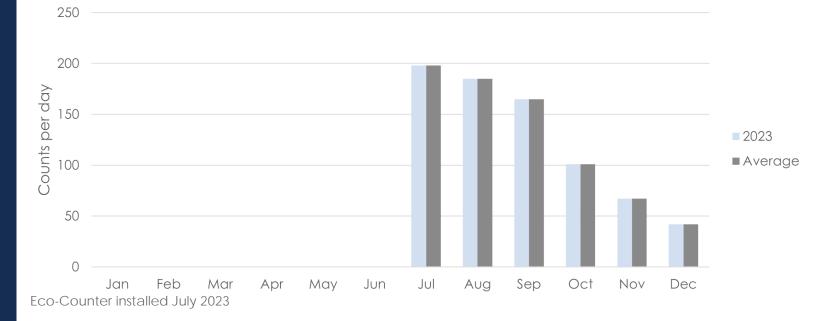
Oak Grove/Memorial Park Bridge



8

Milwaukee Trail

Rose Coulee



DATA SUMMARY

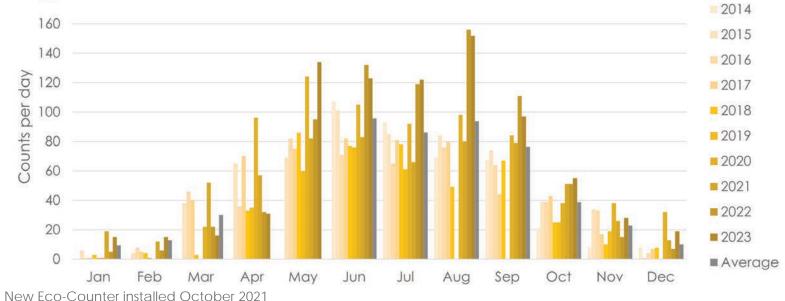
AUTOMATED

COUNTERS

2014 - 2023

180

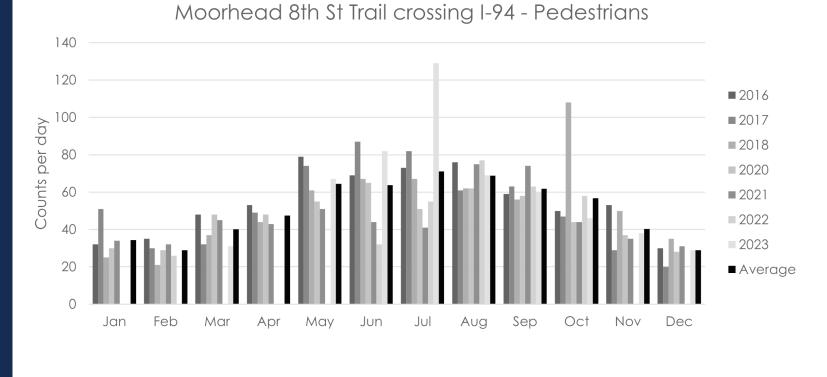




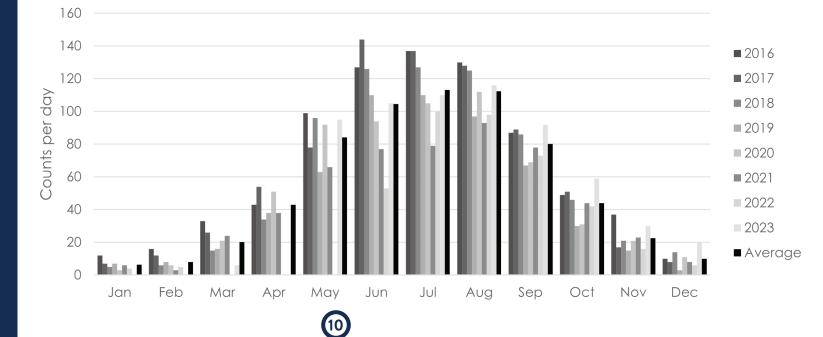
9

AUTOMATED COUNTERS DATA SUMMARY

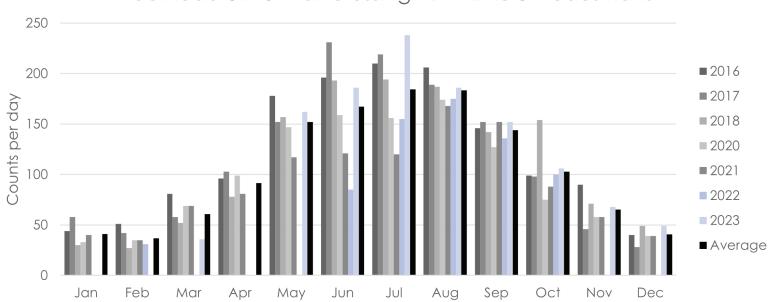
2016 - 2023



Moorhead 8th St Trail crossing I-94 - Bicycles

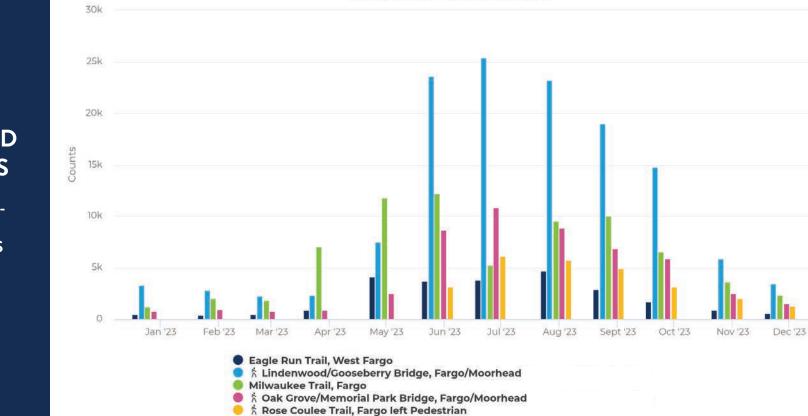






Moorhead 8th St Trail crossing I-94 - Bike & Pedestrians



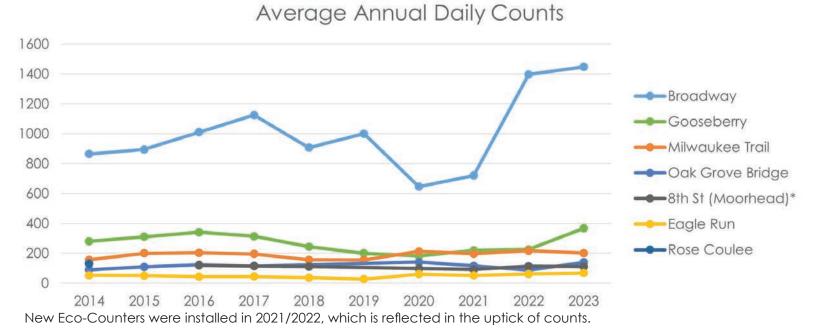


12

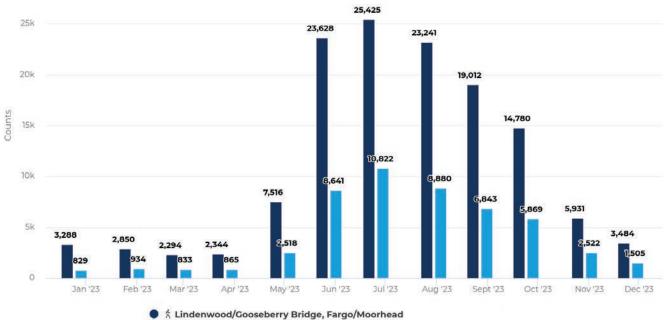
Monthly traffic January 1st, 2023 → December 31st, 2023

AUTOMATED COUNTERS

2023 COUNTER-TO-COUNTER COMPARISONS



Bridge Comparison - Month to Month



13

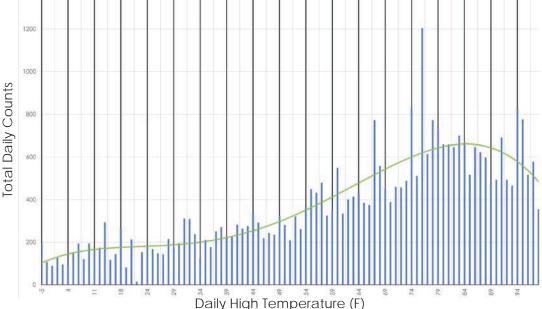
A Oak Grove/Memorial Park Bridge, Fargo/Moorhead

0

AUTOMATED COUNTERS

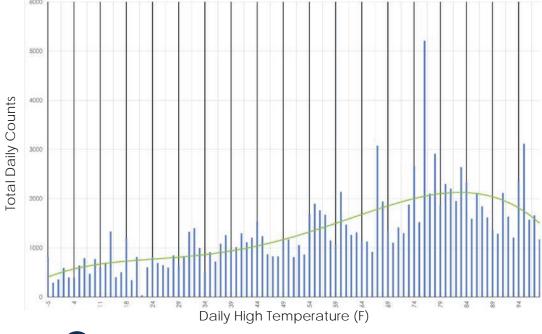
2023 WEATHER ANALYSIS



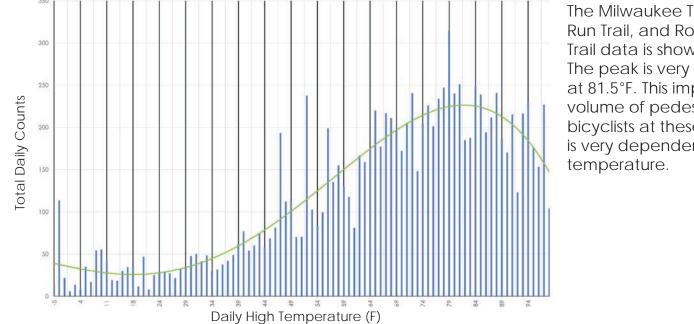


The following graphs compare the total daily count to the daily high temperature taken from the National Centers for **Environmental Information** National Oceanic and Atmospheric Administration NCEI NOAA historical weather data from the station at Fargo Hector International Airport, ND US (USW00014914). The graph to the left shows the trendline for all combined locations with a peak of 84°F.

Broadway: Counts vs. Temperature



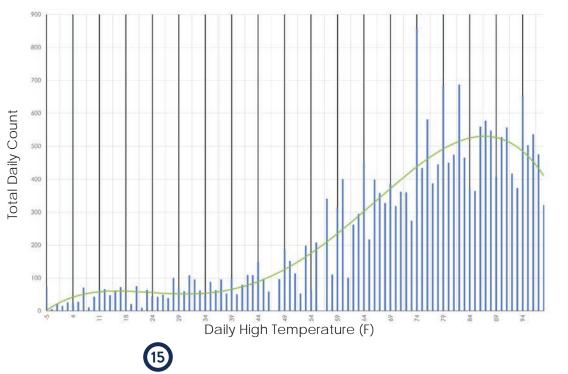
The Broadway data has a less pronounced peak. This may be a result of the density of commercial land uses adjacent to this counter. People appear more likely to visit this location even if the temperature is significantly warmer or colder than they would desire. The temperature which results in the highest trendline of counts at the Broadway location is 83°F. Milwaukee Trail, Eagle Run Trail, and Rose Coulee Trail: Counts vs. Temperature



The Milwaukee Trail, Eagle Run Trail, and Rose Coulee Trail data is shown to the left. The peak is very pronounced at 81.5°F. This implies that the volume of pedestrians and bicyclists at these locations is very dependent on the

Lindenwood/Gooseberry and Oak Grove/Memorial Park: Counts vs. Temperature

The Lindenwood/Gooseberry Bridge and Oak Grove/ Memorial Park Bridge data also has a very pronounced peak, 86.5°F. It is interesting to note the difference in peak between this graph and the previous one. The 5°F change is potentially from the heavy tree canopy at the river trails compared to the other locations.





BROADWAY SOUTH OF 2ND AVE N WEST SIDEWALK

2023 ANALYSIS

PEAK DAY: FRIDAY

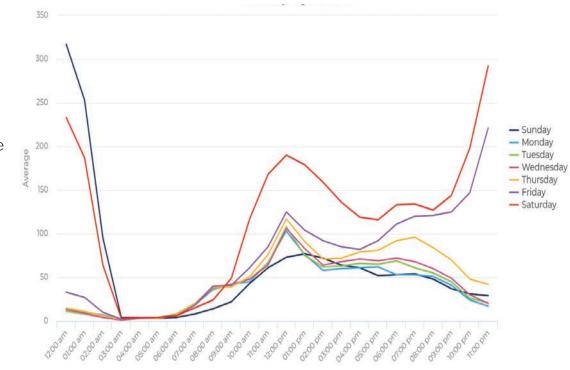
PEAK DATE: 7/15/2023

PEAK TOTAL: 8898

DAILY AVERAGE: 1448

WEEKEND AVERAGE: 2133

WEEKDAY AVERAGE: 1171 Located in the heart of Fargo's downtown, the Broadway counter records the highest volume of people compared to the other automated counters. Unlike some counters, this counter cannot differentiate between bicycles and pedestrians. The data collected showcases several trends and events that impact the Broadway sidewalk in the core of downtown Fargo.



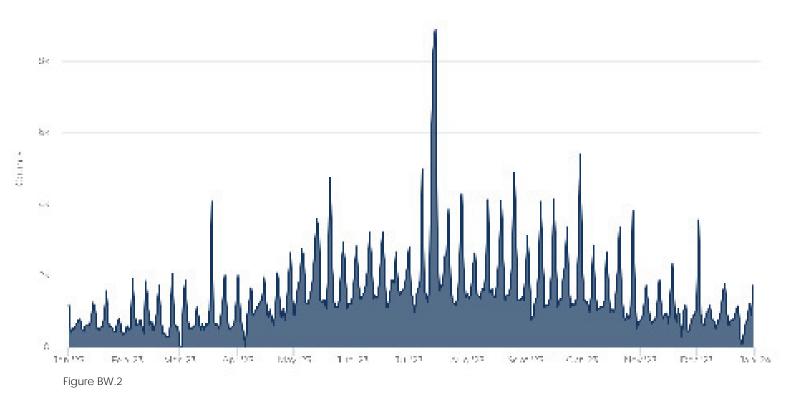


The above graph separates the 2023 data into the seven days of the week, showcasing the average data recorded every hour for every day of the week. Several trends emerge within the data when displayed this way.

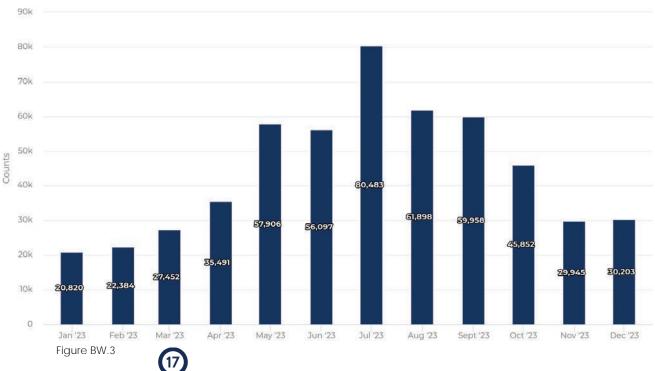
First, a comparison of weekend nights vs. weekday nights. Friday nights and Saturday nights find Broadway much busier than average, with totals on Saturday tripling average weekday peaks. For both Friday and Saturday nights, the busiest time is around midnight, with a steep drop in volume by 3AM when foot traffic is at its lowest.

A second trend that emerges is a common lunchtime peak across all weekdays of around 100 people an hour, then a drop as lunchtime ends. Saturday has a much larger lunchtime peak around the same time, and data from Sundays show a smaller lunchtime peak that occurs later in the day.

When the data is separated into daily counts over the course of 2023 specific peaks corresponding to holidays and events are identified. The magnitude of these peaks provides good insight into the volume of traffic that these events create. The consistent smaller peaks represent the Friday and Saturday night crowds.



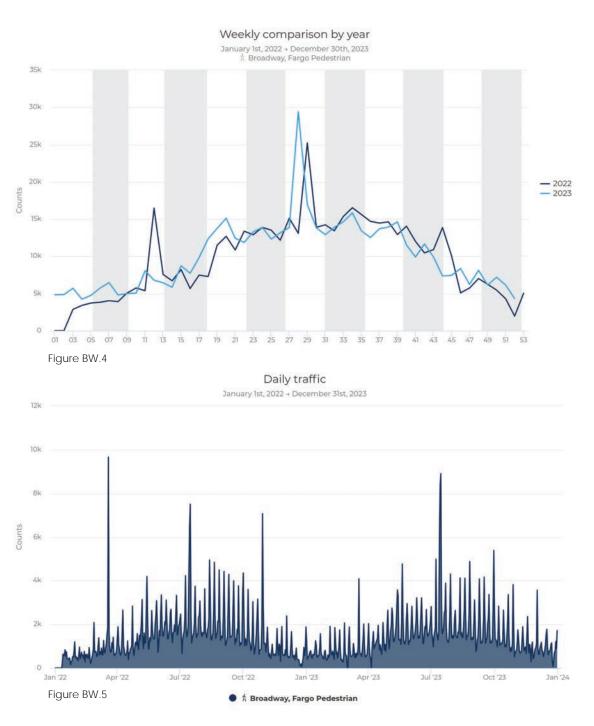
Counting people by month showcases the difference between winter and summer pedestrian traffic on Broadway and speaks to larger trends within the FM area. During January 2023, slightly more than 20,000 people were recorded by this counter versus over 80,000 people recorded during July 2023. The lower counts in the winter could be for a host of reasons, such as people opting to drive downtown, fewer people frequenting downtown businesses due to the weather, and/ or a reduced number of events.





BROADWAY SOUTH OF 2ND AVE N WEST SIDEWALK

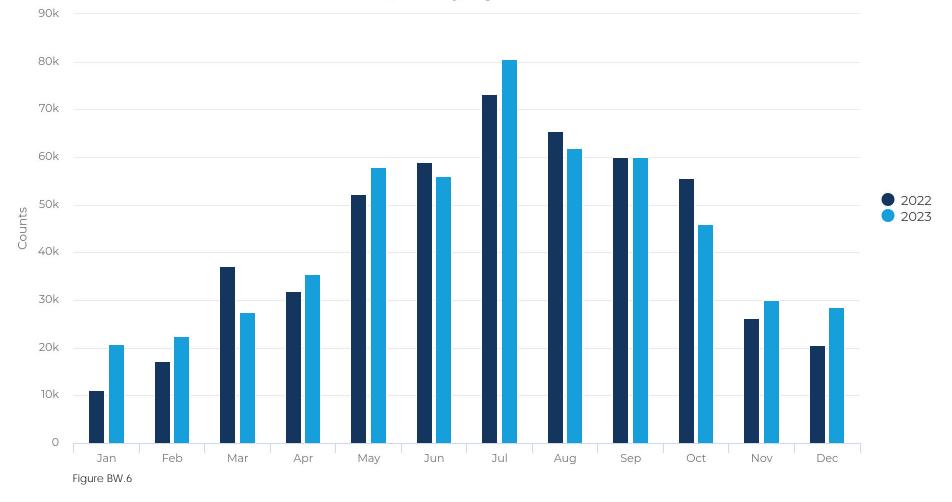
2022-2023 ANALYSIS





Monthly comparison by year

January 1st, 2022 → December 30th, 2023 ☆ Broadway, Fargo Pedestrian



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LINDENWOOD/ GOOSEBERRY BRIDGE

2023 ANALYSIS

PEAK DAY: SUNDAY

PEAK DATE: 6/11/2023

PEAK TOTAL: 2113

DAILY AVERAGE: 367

WEEKEND AVERAGE: 495

WEEKDAY AVERAGE: 315

Located on the Lindenwood-Gooseberry Pedestrian Bridge, the LG counter was installed in November 2022 and replaced the Traf-X counter. The counter does not discern between bicycles and pedestrians. The LG counter does not count during floods, when the bridge is lifted.

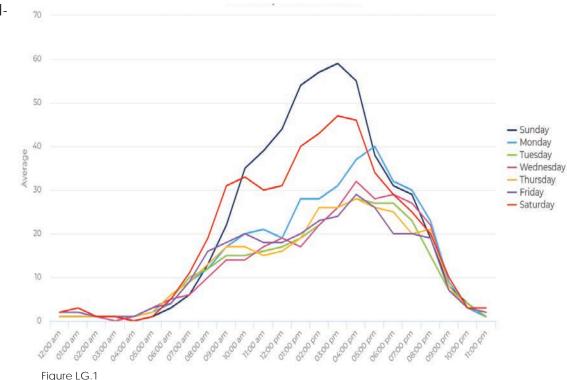


Figure LG.1 separates the 2023 counter data by day. Weekday traffic is relatively consistent, with steady increases throughout the day until the evening, where most days plateau before falling as nightfall sets in. Monday features higher volumes than other weekdays, and features a more pronounced peak at 5:00 PM.

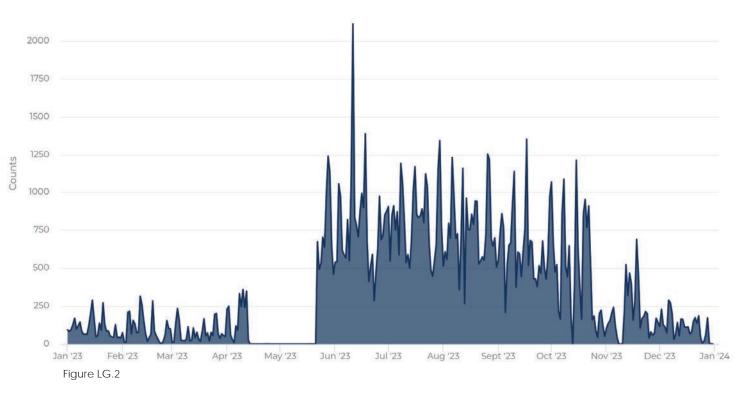
The Lindenwood-Gooseberry bridge is significantly busier on the weekends than the weekdays. Sundays peak at nearly 60 people/hr, while Saturdays peak at around 47 people/hr. Weekend peaks are also generally earlier than weekdays, with both Saturday and Sunday peaking at around 3-4:00PM.

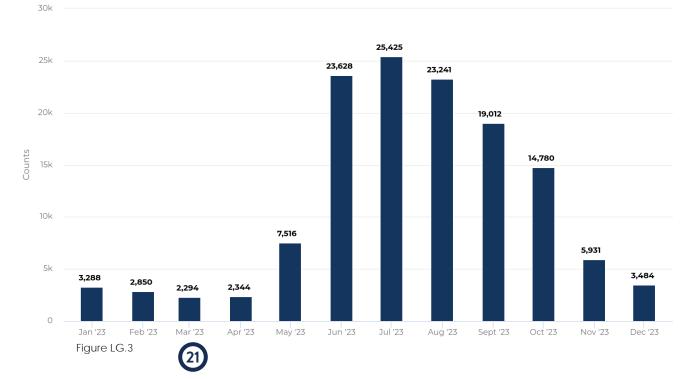
The LG counter is the 2nd busiest count location, aside from the Broadway automated counter. With a daily average of 367 people, the bridge experiences frequent traffic from people crossing the Red River from Fargo into Moorhead or vice versa. Weekends average 180 more people than weekdays, with an average of 495 people crossing the bridge a weekend day.



Figure LG.2 represents the total counts each day of 2023. During the winter, counts remain low. The noticeable absence of counts in April and May represent a spring flood of the Red River. After the flood, counts significantly increase and remain consistent throughout the summer, before declining in the fall. The several peaks represent weekends throughout the summer.

Figure LG.3 showcases each month of 2023 with the total counts for each month. In July, 25,425 people crossed the Lindenwood-Gooseberry bridge, over 22,000 more than the total people who crossed the bridge in January. The seasons greatly affect multi-modal travel in the Fargo-Moorhead area, but the Lindenwood-Gooseberry bridge still receives significant traffic in the winter, equating to slightly less than summer monthly totals for the Eagle Run Trail counter (LG - 3,288 people in January; ER - 3,694 people in June).







PEAK DAY: TUESDAY

PEAK DATE: 4/26/2023

PEAK TOTAL: 823

DAILY AVERAGE: 202

WEEKEND AVERAGE: 201

WEEKDAY AVERAGE: 202

The Milwaukee Trail is one of the longest trail systems in the City of Fargo, spanning 3 miles from 1-94 southward to the Rose Creek trail just south of 40th Ave S, with plans to connect the trail to other trail networks once a crossing of Rose Creek Coulee is complete. The counter, located near Mini Park 1 and 36th Ave S, can differentiate between bicycles and pedestrians. While the area in the immediate vicinity of the counter contains low density housing, the areas surrounding the Milwaukee Trail contain a range of high and low density housing.



Figure MT.1 separates the 2023 data into the seven days of the week, showcasing the average data recorded every hour of the day for every day of the week. The most notable aspect of the graph are the two main peaks that appear: an evening peak and a smaller morning peak. Weekdays and weekends are consistent in use, with a weekend average of 201 and a weekday average of 202. The Milwaukee Trail experiences frequent use regardless of day, though Saturdays and Sundays experience higher morning peaks and lower evening peaks than weekdays do.

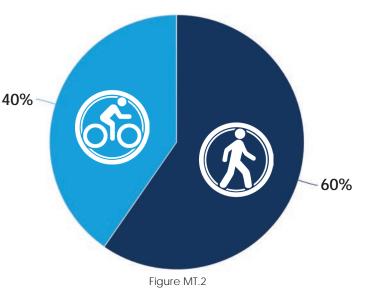


Figure MT.3 showcases the use of the Milwaukee Trail throughout 2023. The counter malfunctioned from mid-July through early August; therefore no counts were recorded. The Milwaukee Trail is far more utilized in the summer than winter, with a peak in the early summer before a steady decline to winter.

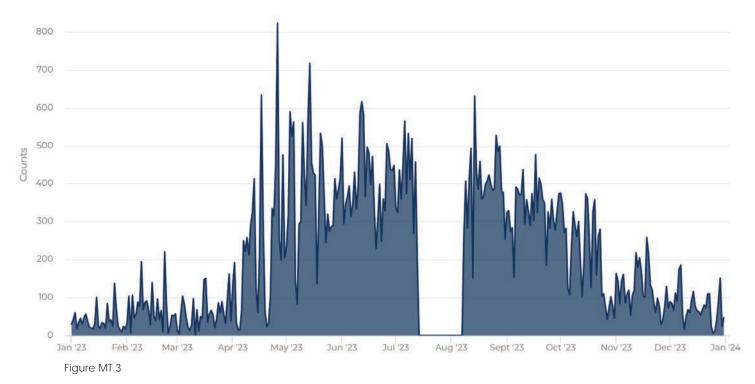


Figure MT.4 represents the total pedestrian traffic vs. the total bicycle traffic for each month of the year. The data helps show which modes use the Milwaukee Trail. During the summer, the ratio of bicyclists to pedestrians is consistently almost 1:1. Throughout the entire year, 40% of users are cyclists, while 60% are pedestrians. The Milwaukee Trail features high volumes of multi-modal traffic, which peaks in the summer and significantly declines in the winter, though not to the extent of the other trail counters.





MEMORIAL PARK BRIDGE

2023 ANALYSIS

PEAK DAY: SATURDAY

PEAK DATE: 4/26/2023

PEAK TOTAL: 548

DAILY AVERAGE: 140

WEEKEND AVERAGE: 172

WEEKDAY AVERAGE: 127 Located on the Oak Grove - Memorial Park bridge just north of Downtown Fargo/ Moorhead, the OM counter was installed in November 2022 and replaced the Traf-X counter. This counter does not discern between bicycles and pedestrians. The OM counter does not count during floods, when the bridge is lifted.

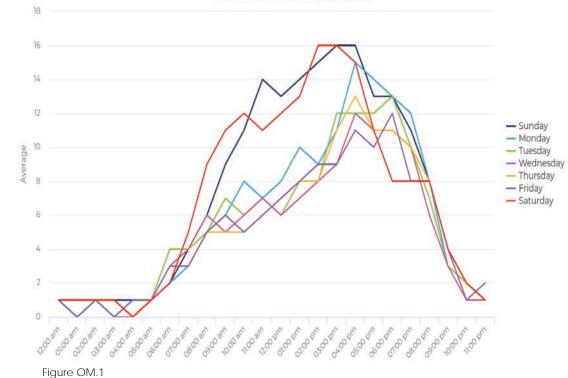


Figure OM.1 separates the 2023 counter data by day. Weekday traffic is relatively consistent, with steady increases throughout the day until the evening, where most days plateau before falling as nightfall sets in. Monday features slightly higher volumes than other weekdays, and features a more pronounced peak at 4-5:00 PM.

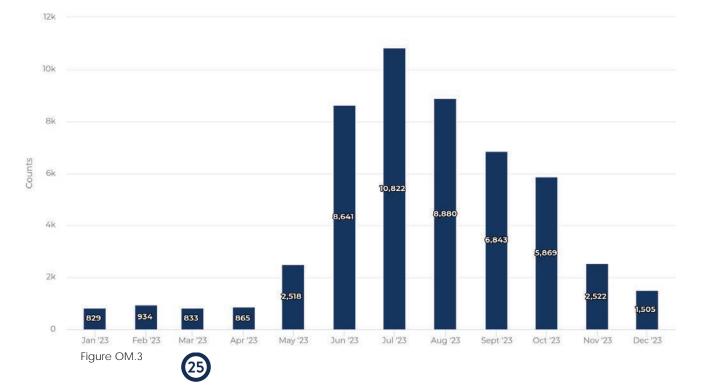
The Lindenwood-Gooseberry bridge is significantly busier on the weekends than the weekdays, particularly in the morning. Saturdays and Sundays peak at 16 people/hr. Weekend peaks are also generally earlier than weekdays, with both Saturday and Sunday peaking at around 3:00PM.

Counts collected by the OM counter are about 1/3 of the counts collected by the LG counter, which is reflected in the daily averages both on weekdays and weekends. While both are bridges connecting pedestrians to North Dakota and Minnesota, the OM bridge is used significantly less than the LG bridge.

Figure OM.2 represents the total counts each day of 2023. During the winter, counts remain low. The noticeable absence of counts in April and May represent a spring flood of the Red River. After the flood, counts significantly increase and remain consistent throughout the summer, before declining in the fall. The several peaks represent weekends throughout the summer.

500 400 Counts 300 200 100 Feb '23 Apr '23 May '23 Jun '23 Jul '23 Oct '23 Jan '23 Mar '23 Aug '23 Sept '23 Nov '23 Dec '23 Jan '24 Figure OM.2

Figure OM.3 showcases each month of 2023 with the total counts for each month. In July, the counter recorded 10,822 people crossing the Lindenwood-Gooseberry bridge. This is almost exactly 10,000 more than the total number of people that crossed the bridge in January. The July total at OM is about 15,000 fewer than the July total at the Lindenwood-Gooseberry Bridge. However, the OM bridge follows the same trends as the LG bridge, with strong summer totals declining as temperatures decrease.





COULEE

2023 ANALYSIS

PEAK DAY: SUNDAY

PEAK DATE: 6/29/2023

PEAK TOTAL: 350

DAILY AVERAGE: 132

WEEKEND AVERAGE: 134

WEEKDAY AVERAGE: 132 The RC counter was installed in June 2023, so a full year of data has not yet been counted. All analysis will focus on the data that had been collected from mid-June to the end of 2023. The counter is located along the Rose Coulee trail north of the Timber Creek neighborhood. A project in 2025 will connect the Rose Coulee trail to the Milwaukee Trail, which has the potential to significantly increase counts in this area.

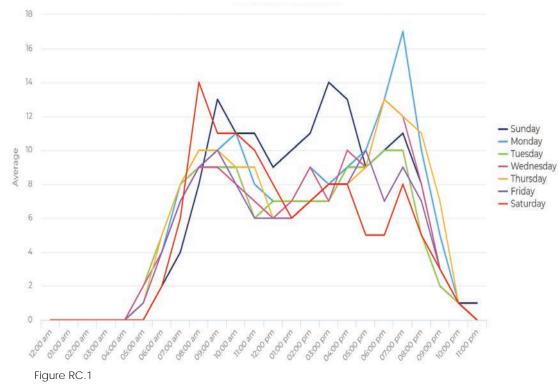


Figure RC.1 separates the 2023 data by day. Two distinct peaks emerge from this dataset: a morning peak and less-pronounced evening peak. All weekdays feature a peak from 8-10:00AM, with around 9-10 people counted per hour. A second peak appears around 6-7:00PM, after the typical dinnertime. Mondays feature the highest peak, of 17 people/hr.

Weekend traffic peaks in the mornings, but Saturday and Sunday diverge after about 10:00AM. Saturday traffic falls to around 6 people/hr and does not have an evening peak. Sunday traffic falls to 9 people/hr, then climbs to a late afternoon peak of 14 people/hr.

Over the entire year, weekends and weekdays are, on average, consistent. The overall daily average is 132, with weekends averaging 134 people/day and weekdays averaging 132 people/day. No events or outliers seem to affect the RC counter, but with only half the year analyzed, conclusions cannot yet be made.



Figure RC.2 showcases the counts each day throughout all of 2023. Because the RC counter was installed in June, a full year of data does not yet exist and conclusive analysis cannot be done. However, the decline from summer to fall appears to be relatively linear.

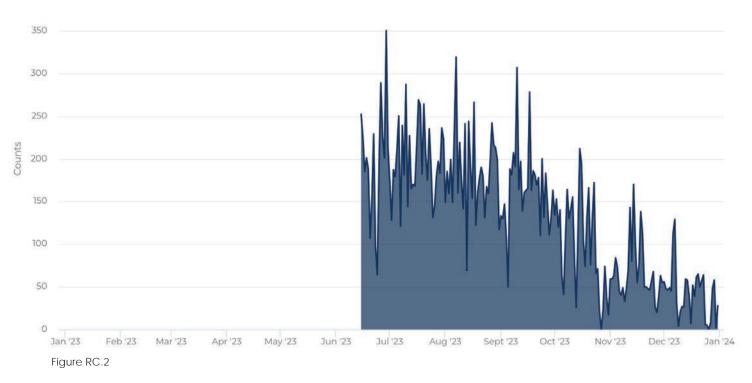
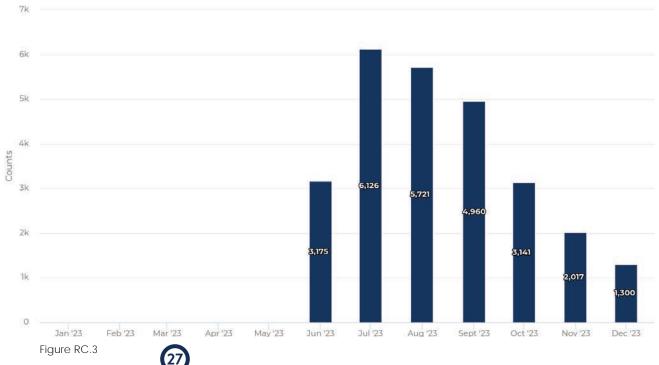


Figure RC.3 represents the total counts collected per month of 2023. In July 2023, 6,126 people were counted, an average of 198 people/day. This is about half of the July total for the Milwaukee Trail counter, and about 2,500 more than the July total for the Eagle Run Trail counter. In December 2023, 1,300 people were counted. This is 4,826 people fewer than were counted in July, which is a 471% drop in use from July to December.





PEAK DAY: SUNDAY

PEAK DATE: 9/1/2023

PEAK TOTAL: 320

DAILY AVERAGE: 68

WEEKEND AVERAGE: 67

WEEKDAY AVERAGE: 68

Located in southern West Fargo, the Eagle Run Trail automated counter collects data from a shared use path along a drainage corridor near Rendezvous Park. Like the Milwaukee Trail counter, the Eagle Run Trail counter has the ability to differentiate between bicycles and pedestrians.

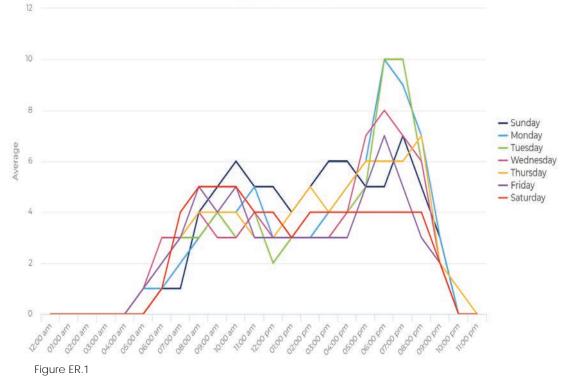


Figure ER.1 separates the 2023 data into the seven days of the week, showcasing the average data recorded every hour for every day of the week. Due to lower counts, the hourly data appears more sporadic and can be more impacted by outliers, but distinct trends still emerge. Specifically, weekday volume is at its highest in the evening, presumably after people return home from work and embark on an evening walk, run, or bike ride. Particularly, Mondays and Tuesdays appear to have the highest volume of evening use.

Weekend traffic is more constant, lacking a large evening spike which weekdays contain, though Saturday still features a lunchtime spike and Sunday contains a peak during the afternoon carrying over into the evening.

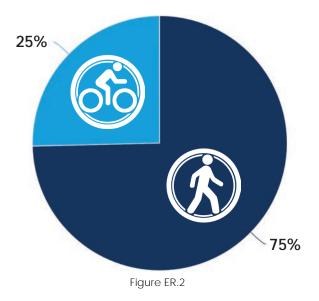


Figure ER.3 showcases counts per day over the course of 2023. Winter volumes are notably low, but volume begins to increase in May. Two peaks can be seen: a late Spring peak and an early Fall peak. Summer volumes remains generally consistent.

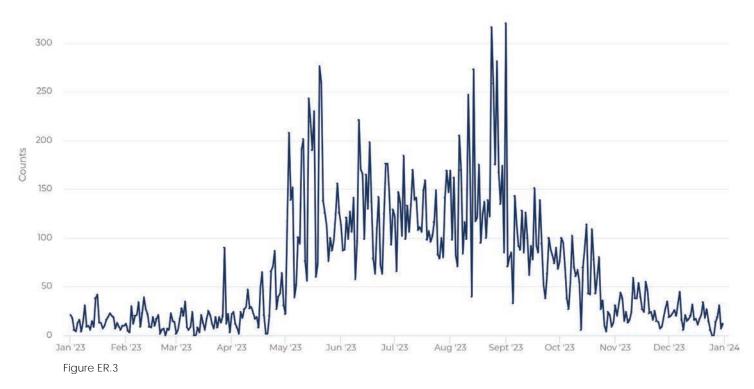
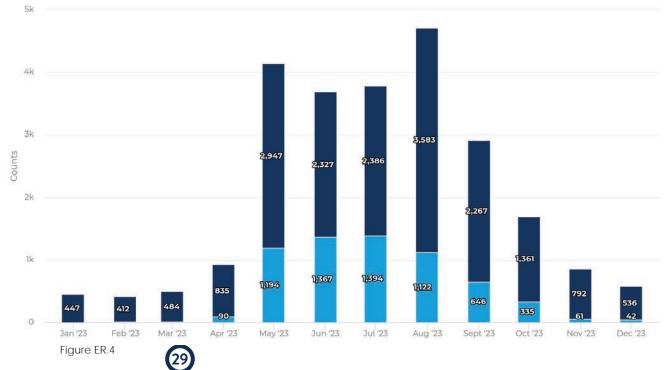


Figure ER.4 represents the total pedestrian traffic vs. the total bicycle traffic for each month of the year. The data reflected in the graphs shows similar trends to the Milwaukee Trail counter, though at a much smaller scale. Volumes over the course of the year follows a slightly different pattern than the Milwaukee Trail. During most of the spring, summer, and early fall, the ratio between pedestrians and bicyclists is roughly 2:1. Fewer people are using the Eagle Run trail, and the trail is mostly used in the summer, with noticeably less use in the winter.





MOORHEAD 8TH ST @ I-94

2023 ANALYSIS

Owned and operated by MnDOT, the Moorhead 8th St counter records multi-modal traffic at the interchange of I-94 and 8th St/Highway 75. The counter has the ability to differentiate between bicycles and pedestrians. The counter has faced several periods of major malfunctioning, so most outliers were omitted for the purpose of this report.



PEAK DAY: MONDAY

PEAK DATE: 7/29/2023

PEAK TOTAL: 703

DAILY AVERAGE: 127

WEEKEND AVERAGE: 122

WEEKDAY AVERAGE: 129

Figure MH.1 separates the 2023 data into the seven days of the week, showcasing the average data recorded every hour for every day of the week. Due to lower counts, the hourly data appears more sporadic and can be more impacted by outliers, but distinct trends still emerge. Specifically, weekday volume is at its highest in the evening. Nights generally have more counts than the other trail counters.

Figure MH.1

Figure MH.2 shows the ratio of bicyclists to pedestrians. The MH counter recorded a higher percentage of bicyclists vs. pedestrians throughout 2023, though for much of the year the ratio is near 1:1, aside from the late summer.

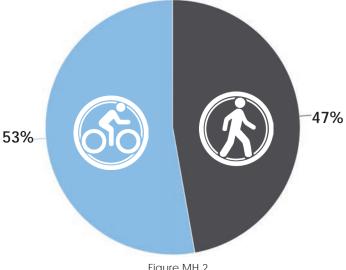


Figure MH.2

Figure MH.3 showcases counts per day over the course of 2023. Several periods of data have been omitted due to the counter malfunctioning. Overall, the data shows higher summer volumes and lower winter volumes, with a peak in late-July. Conclusions cannot be made in regard to this peak, though it may be the counter recording higher-thanactual totals.

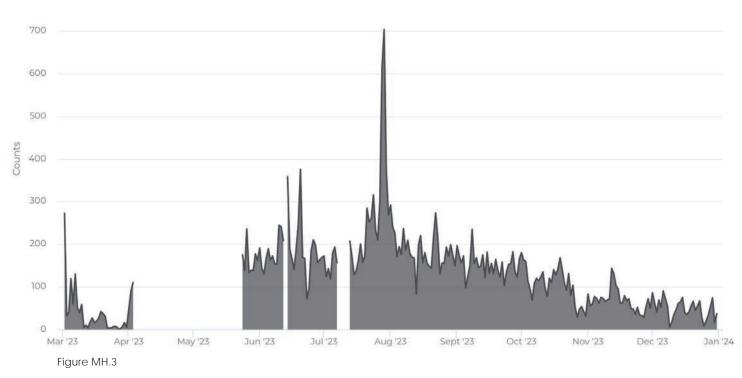


Figure MH.4 represents the total pedestrian traffic vs. the total bicycle traffic for each month of the year. The data reflected in the graphs shows similar trends to the Milwaukee Trail and Eagle Run Trail counters. Overall counts reflect the seasonal shift in multi-modal traffic in the Fargo-Moorhead area. People are less likely to bike or walk in the winter months, but quickly begin to do so once the temperatures increase in the late spring. This data also shows that in late summer more people are bicycling rather than walking.



Metro COG staff drafted a list of potential locations for new bicyclepedestrian counters. The list was ranked by the Bicycle-Pedestrian Committee on August 16, 2023, and the results are listed below. Metro COG staff intends to install new counters utilizing this prioritization list.

PRIORITIZATION

1.

AUTOMATED COUNTERS

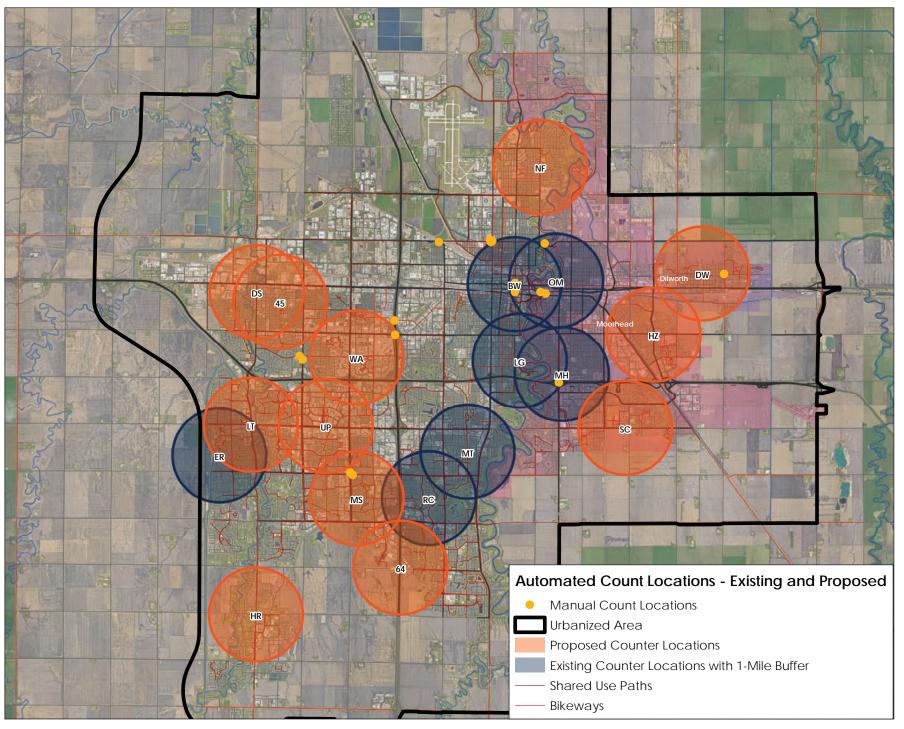
PROPOSED LOCATIONS

- 45 West Fargo, Drain 45
- 2. NF Fargo, along VA Hospital trail
- 3. DW Dilworth, along Heartland Trail
- 4. MS Fargo, near Microsoft Office Complex

5 tied WA - Fargo, West Acres neighborhood 5 tied UP - Fargo, Urban Plains neighborhood

- 7. 64 Fargo, along 64th Ave near Sports Complex
- 8. DS West Fargo, Downtown
- 9. HR Horace, along CR 17
- 10. LT West Fargo, 32nd Ave near The Lights
- 11. HZ Moorhead, near Horizon Middle School
- 12. SC Moorhead Soccer Complex







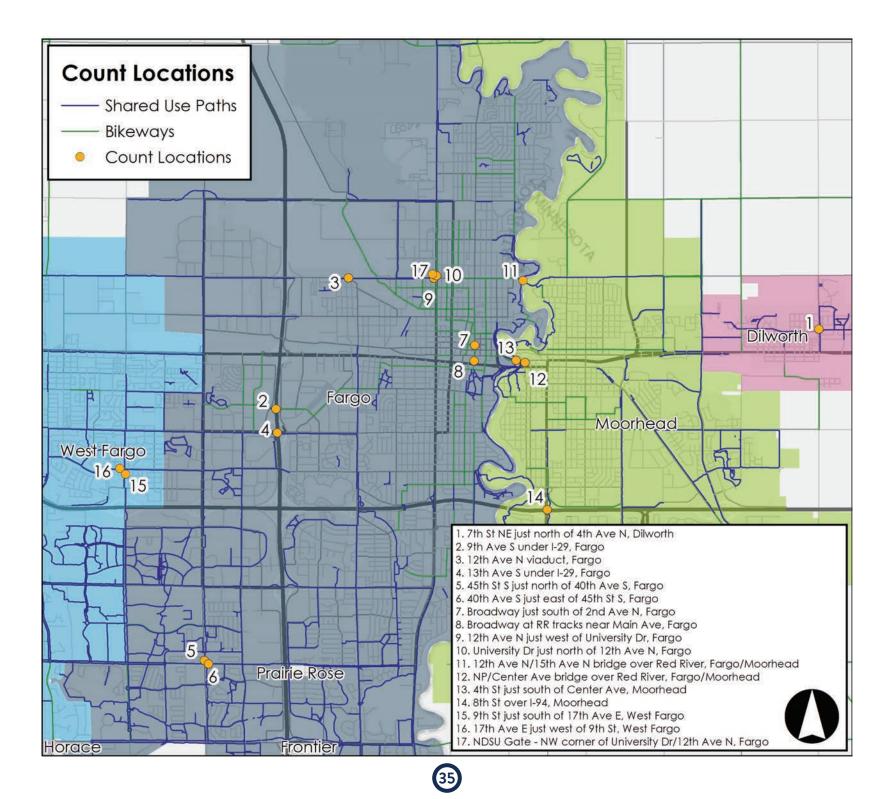


2013 - 2023

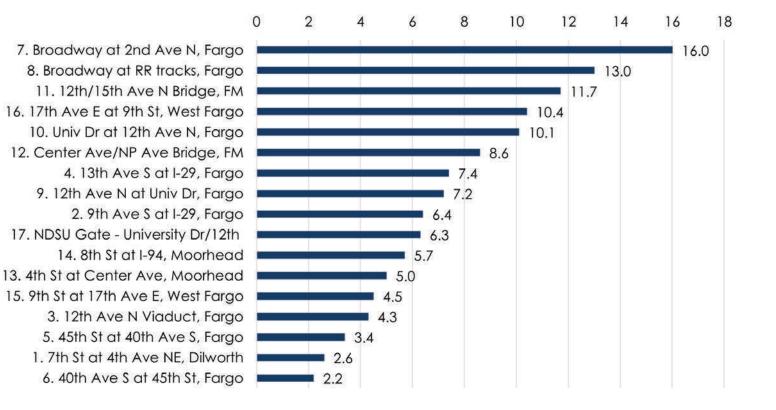
Manual counts are conducted once a year for a four-hour period on a typical weekday in September (Note: locations near NDSU campus are counted for a five-hour period). Based on availability of staff and resources some locations are counted for two consecutive weekdays to increase accuracy. The counts are taken at 17 locations in the Fargo-Moorhead Metro Area. These counts differentiate between pedestrians, bicyclists on the path/sidewalk, and bicyclists on the street where applicable. Poor weather conditions are avoided in order to provide a consistent count platform. However, variations in weather do occur which likely have some affect on the number of bicyclists and pedestrians from year to year.

The count data shown in this section of the report includes years 2013 through 2023, however some locations may not include all years due to previous counting mythology, construction, or equipment failure. On the next page is a map showing the location of each manual count:





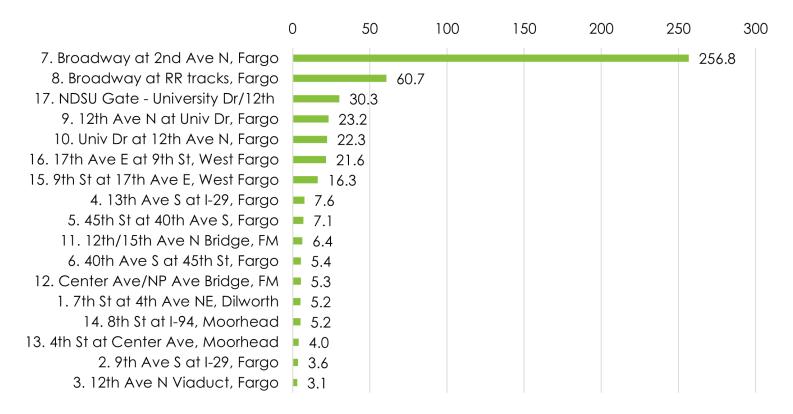
Bicycles per hour (Average of years 2013 - 2023)



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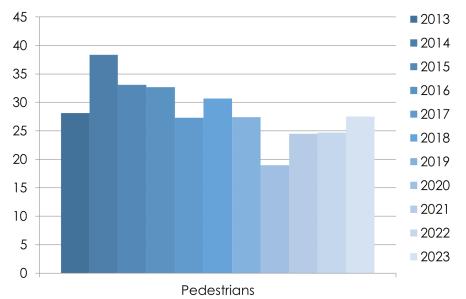
HOURLY AVERAGES

Pedestrians per hour (Average of years 2013 - 2023)





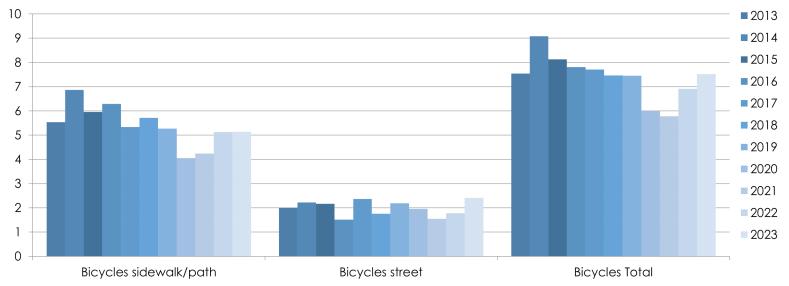
Pedestrian counts per hour by year (average of all locations)



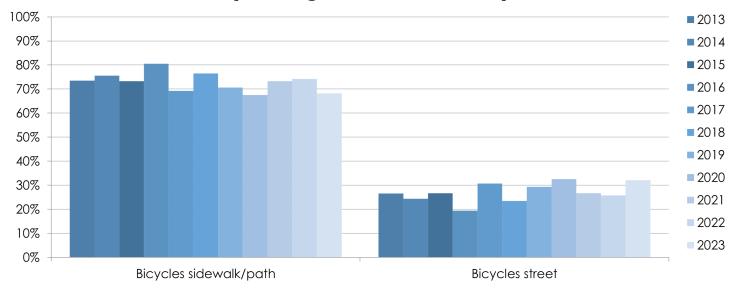
QUICK ANALYSIS



Bicycle counts per hour by year (average of all locations)



% of bikes on sidewalk/path vs. bikes on street (average of all locations)

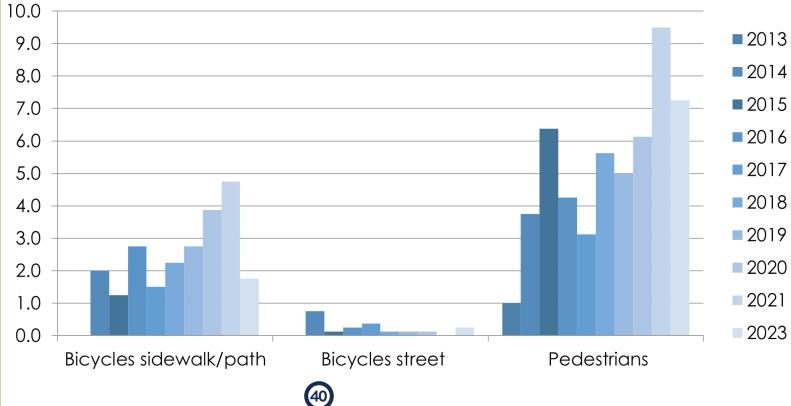


39

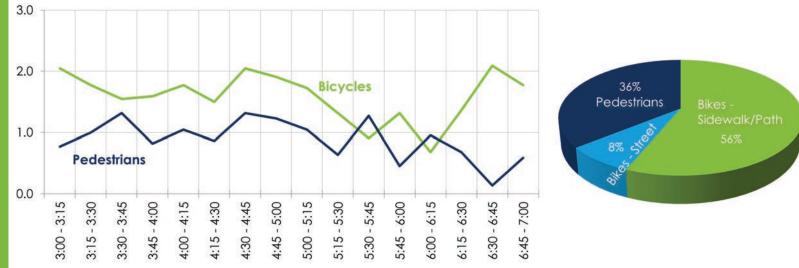


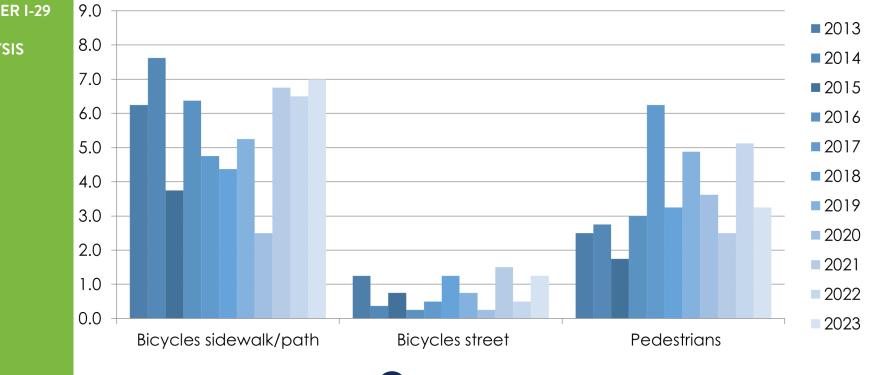










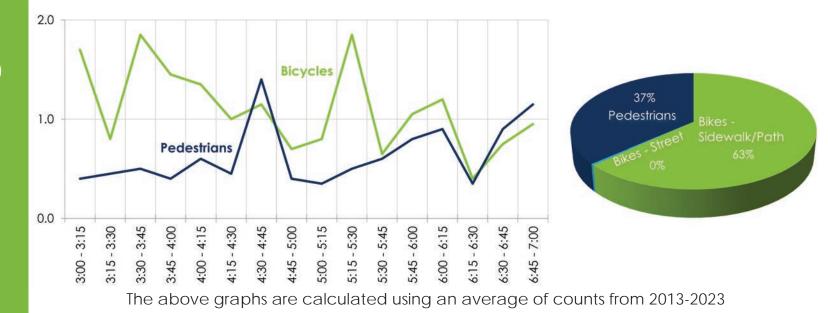


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9TH AVE S UNDER I-29

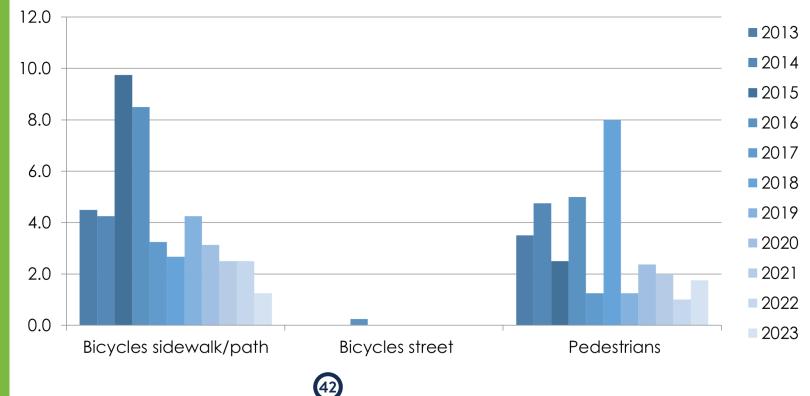
FARGO



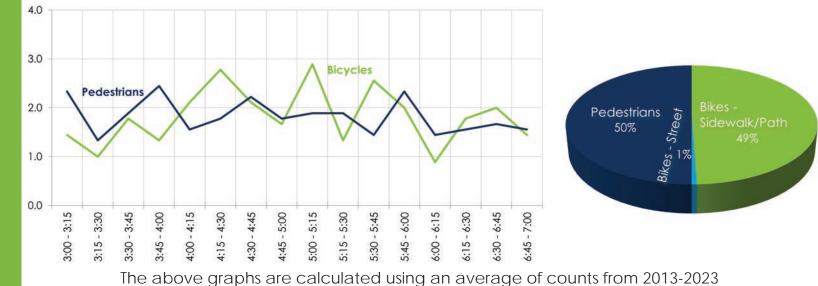




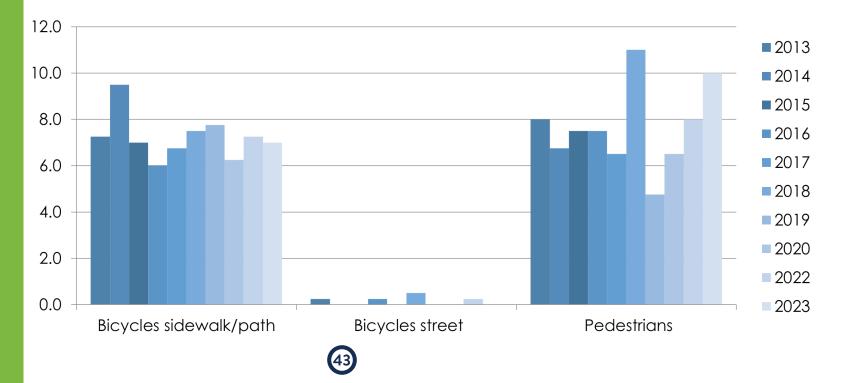
2023 ANALYSIS



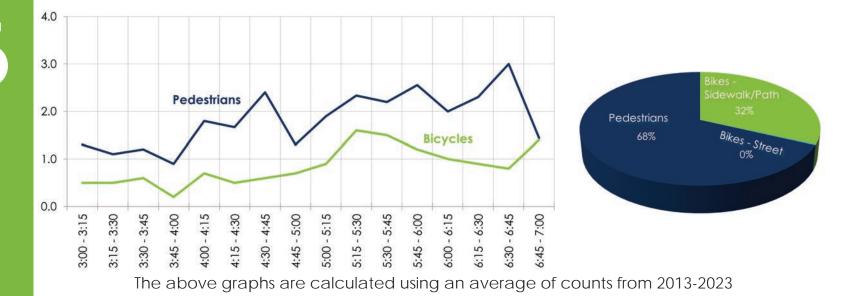




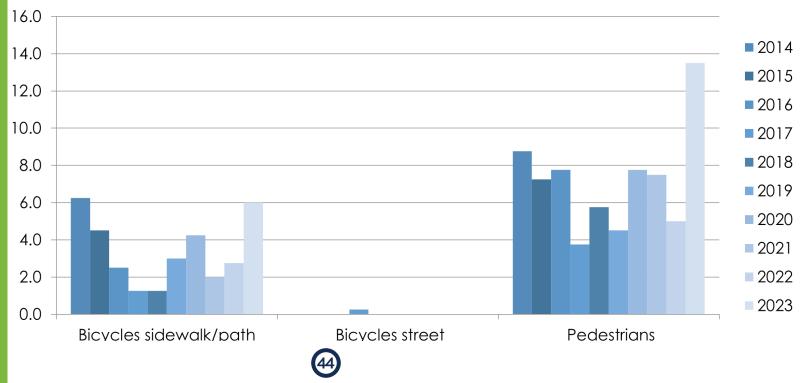
FARGO 13TH AVE S UNDER I-29



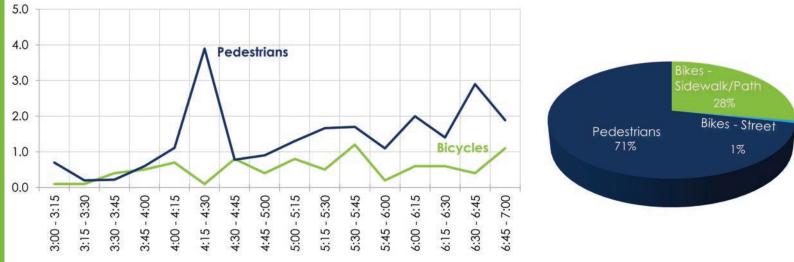




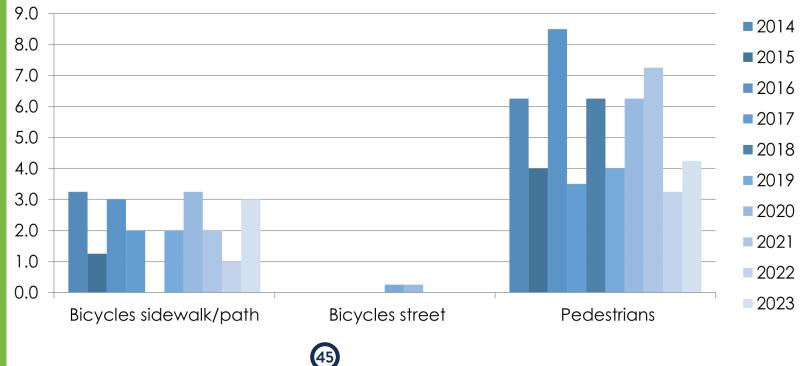
FARGO 45TH ST S @ 40TH AVE S



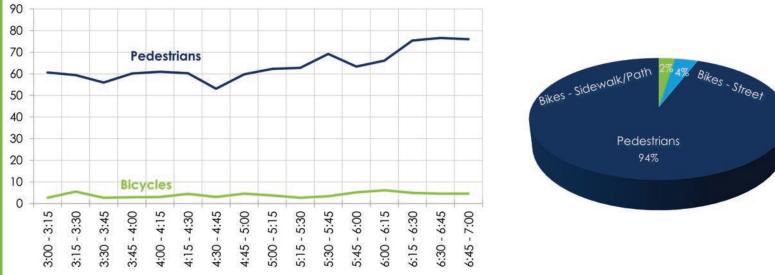


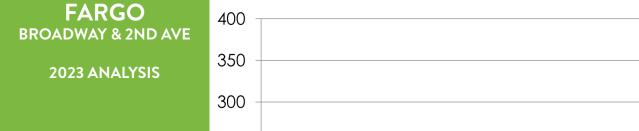


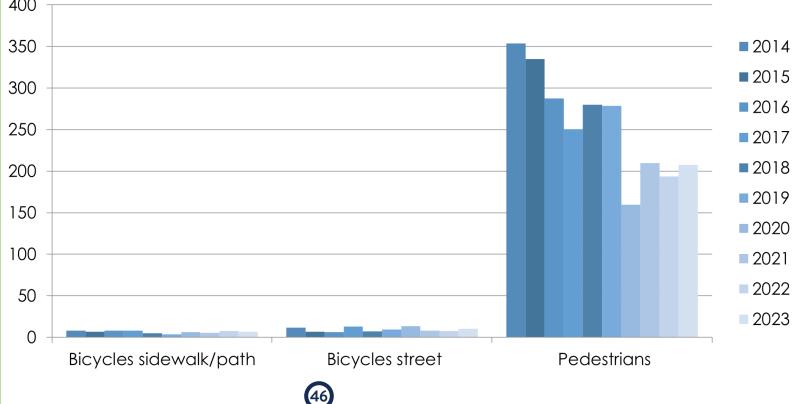








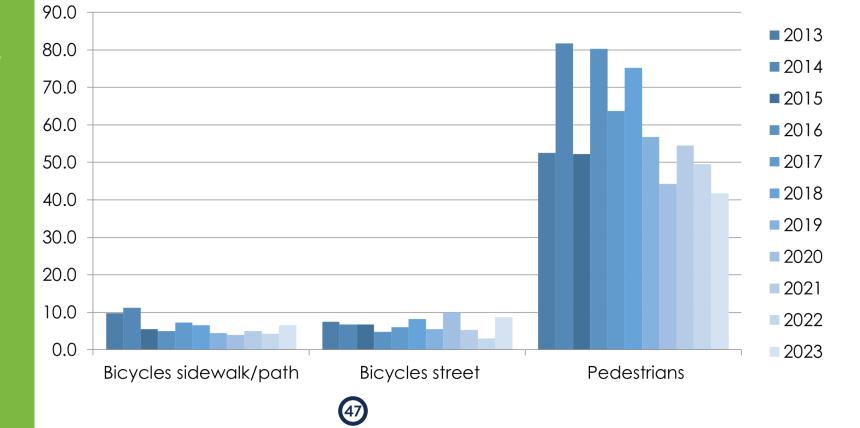








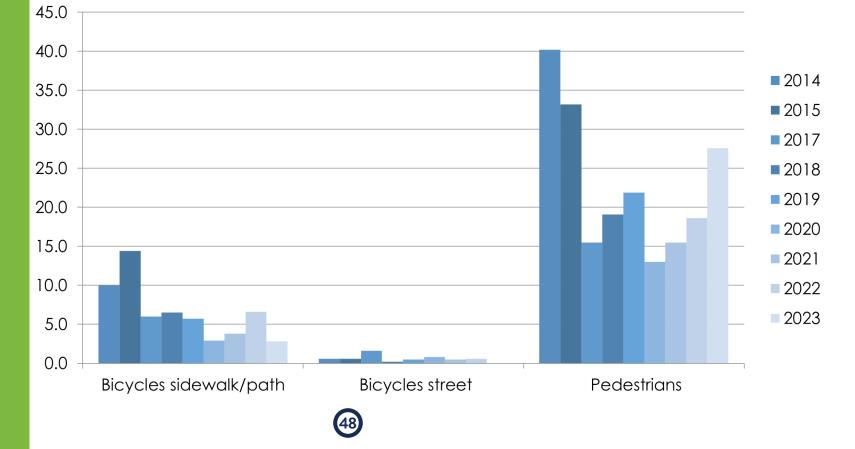
FARGO BROADWAY @ RAILROAD TRACKS NEAR MAIN AVE



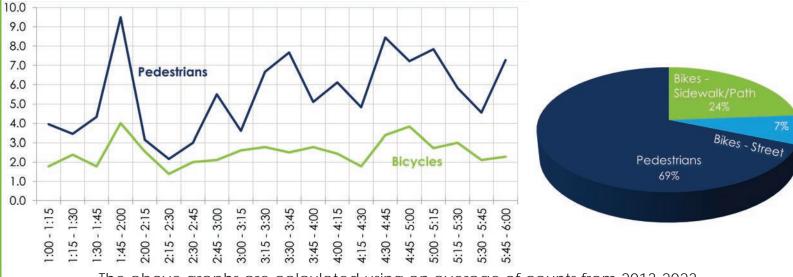


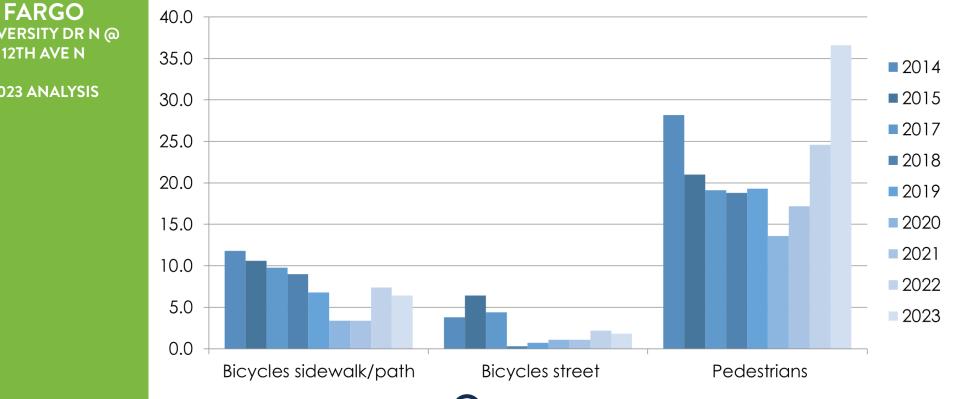








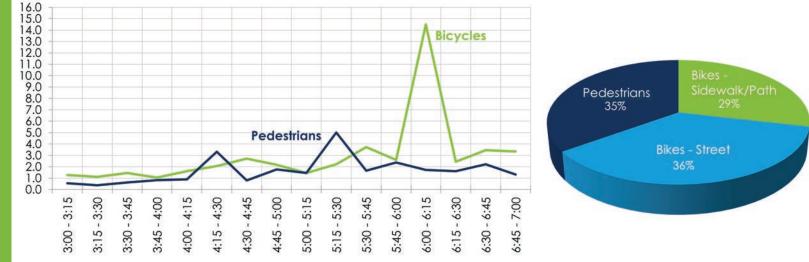




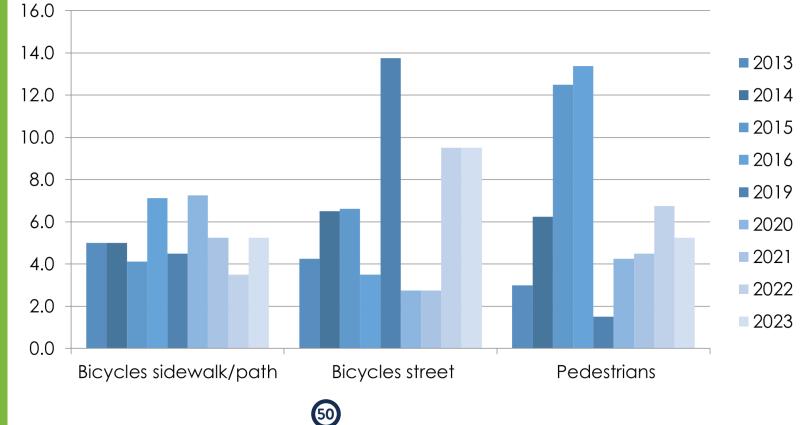
49

UNIVERSITY DR N @ 12TH AVE N

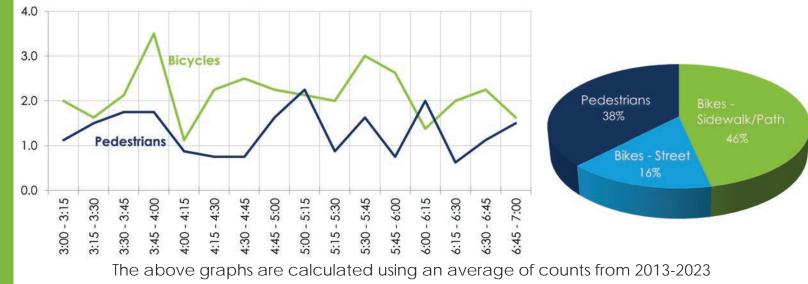




FARGO/ MOORHEAD 12TH AVE N/15TH AVE N BRIDGE

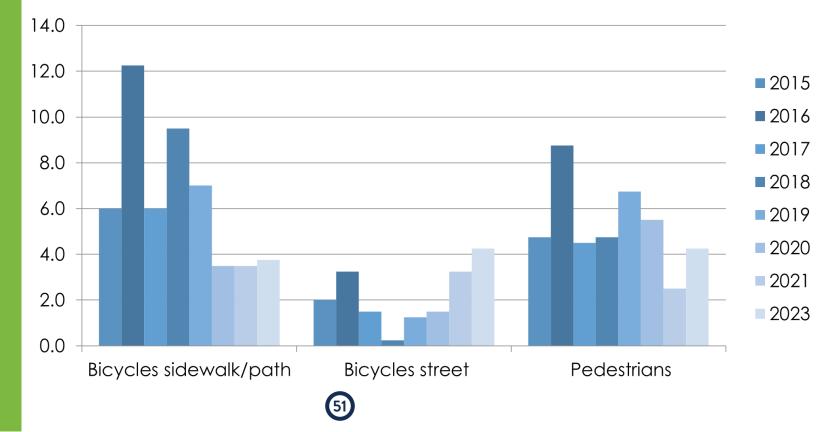




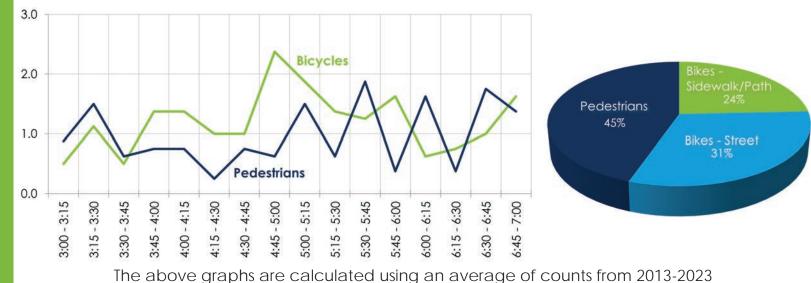




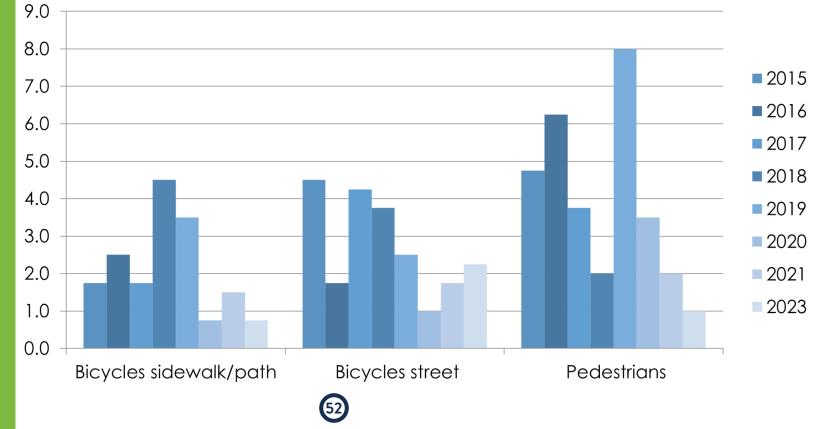




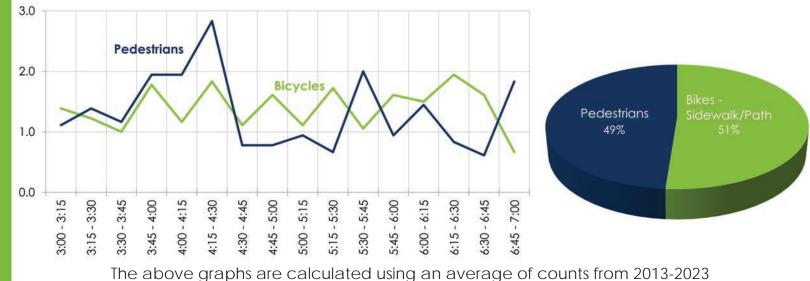




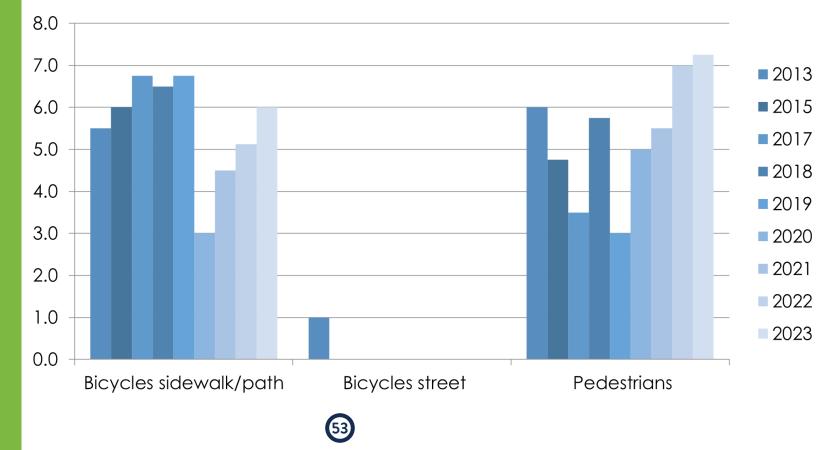
MOORHEAD 4TH ST @ CENTER AVE





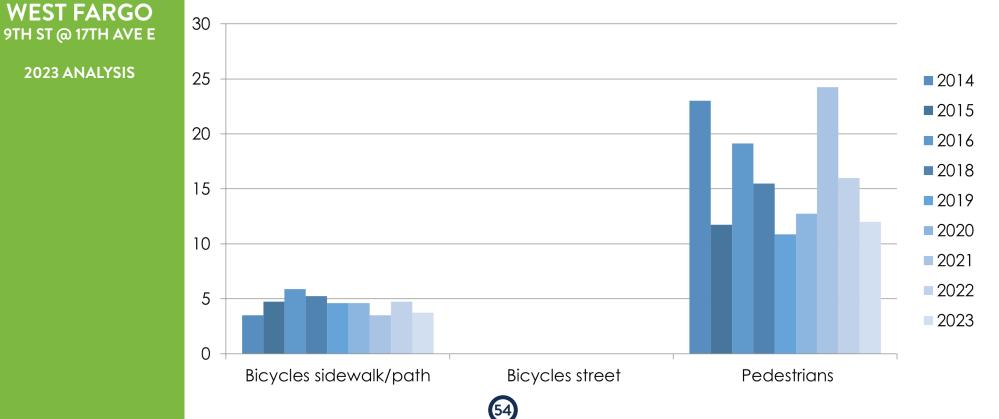




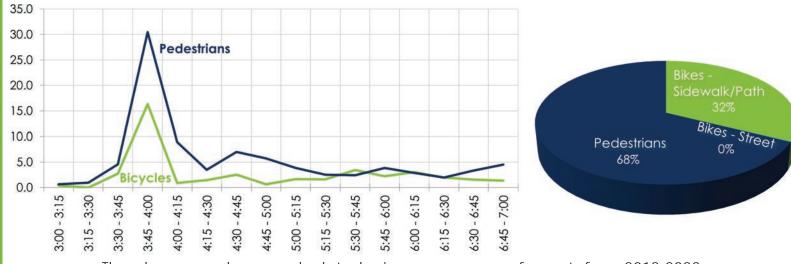














WEST FARGO



