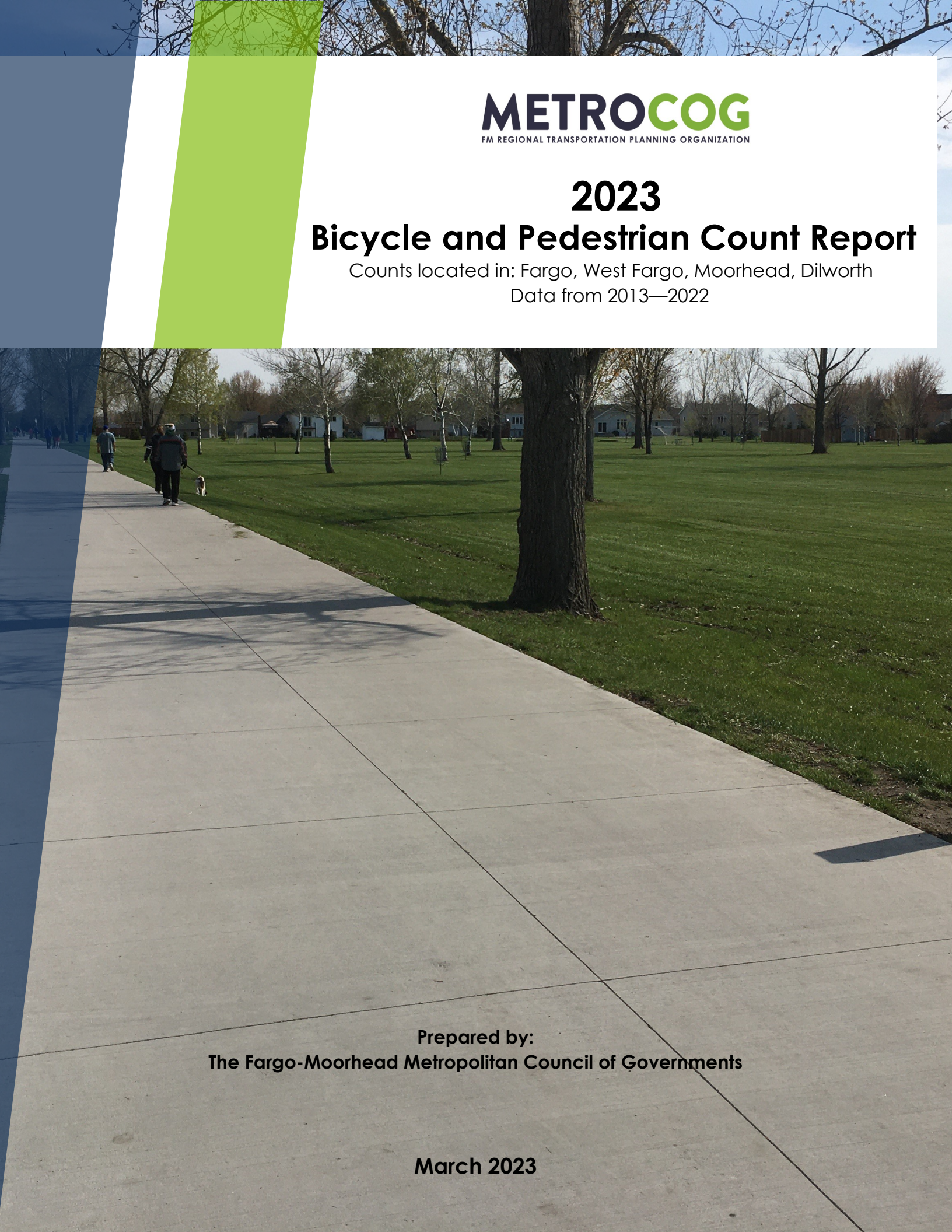
METROCOG
FM REGIONAL TRANSPORTATION PLANNING ORGANIZATION

2023
Bicycle and Pedestrian Count Report

Counts located in: Fargo, West Fargo, Moorhead, Dilworth
Data from 2013—2022



Prepared by:
The Fargo-Moorhead Metropolitan Council of Governments

March 2023

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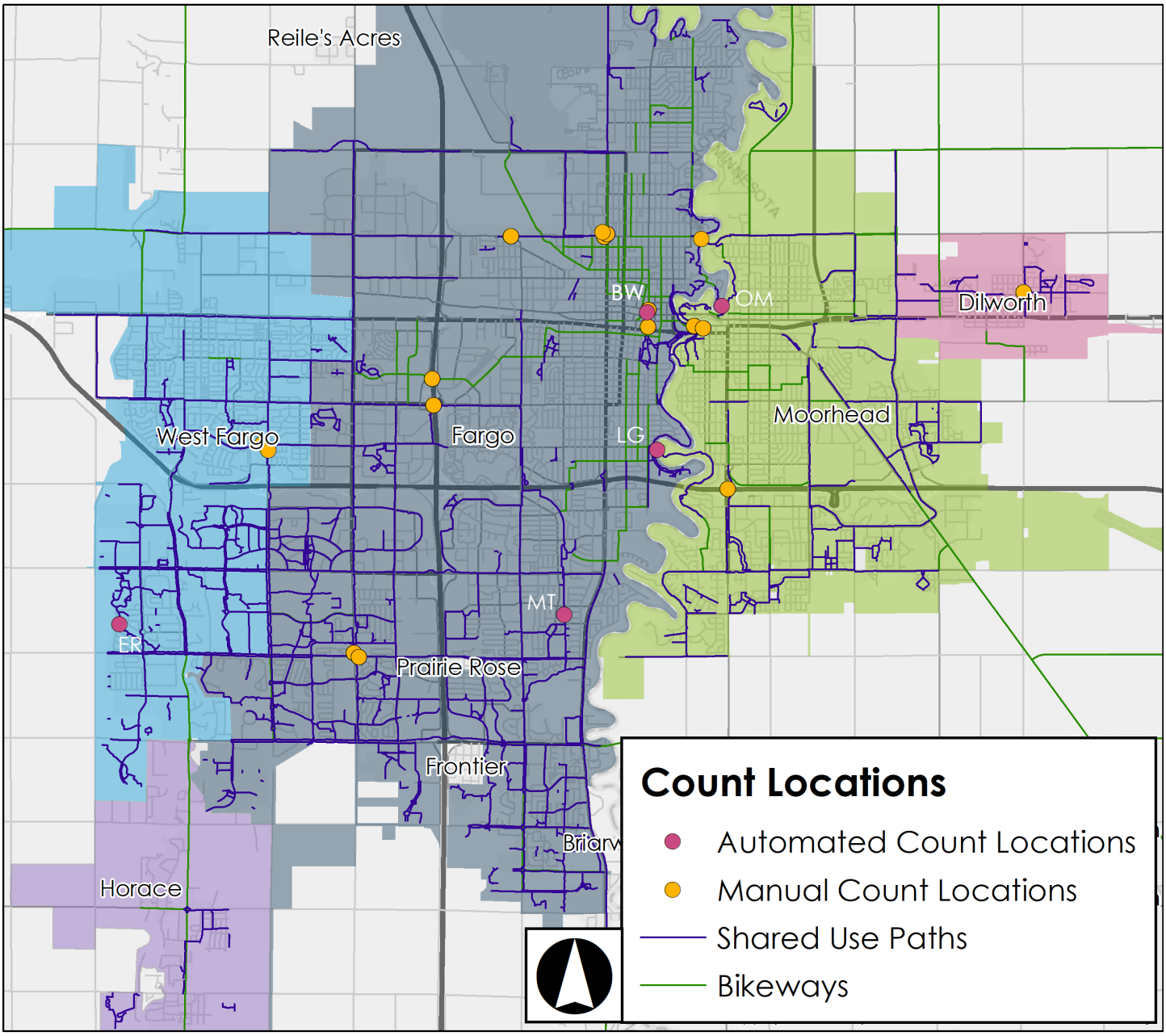
2023 Bicycle and Pedestrian Count Report

Report background

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 and automated counts taken since 2013 and 2014 respectively. Below are the locations for all counters utilized for bicycle and pedestrian counts.



Automated Counts
2014—2022

Automated Counts

Metro COG Counters

A total of five 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. Two Traf-X counters were replaced by Eco-Counters during Fall 2022, so 2022 data will reflect the use of both counters. Below is a description of the counter locations.

- **BW:** Broadway west sidewalk just south of 2nd Ave N, Downtown Fargo
- **MT:** Milwaukee Trail between 35th Ave S and 37th Ave S, Fargo
- **ER:** Eagle Run Neighborhood Trail between Rendezvous Park and 9th St W, West Fargo
- **LG:** Lindenwood Park / Gooseberry Park bicycle & pedestrian bridge, Fargo/Moorhead—Eco-Counter replaced Traf-X counter during 2022
- **OM:** Oak Grove Park / Memorial Park bicycle & pedestrian bridge, Fargo/Moorhead—Eco-Counter replaced Traf-X counter during 2022

These counters count passer-byers 7 days a week, 24 hours a day, 365 days a year. It is important to note that three of these counters are not capable of differentiating between bicyclists and pedestrians. In addition, if two or more people are walking/biking side-by-side, the counter often records 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.

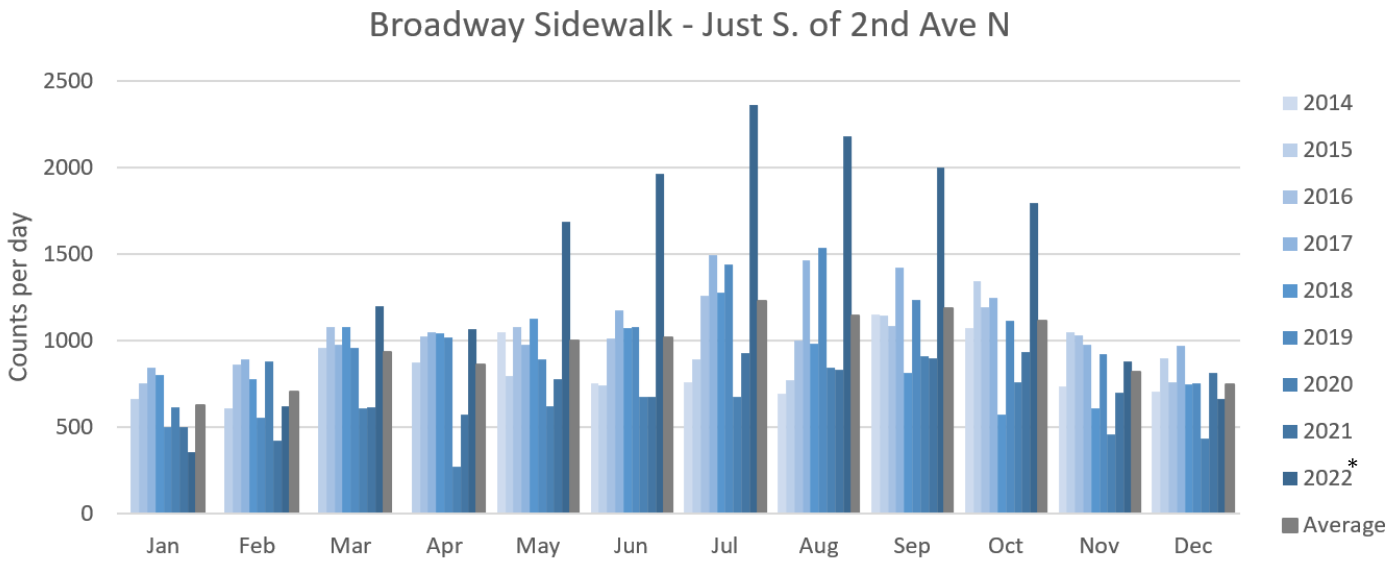
MnDOT Counter

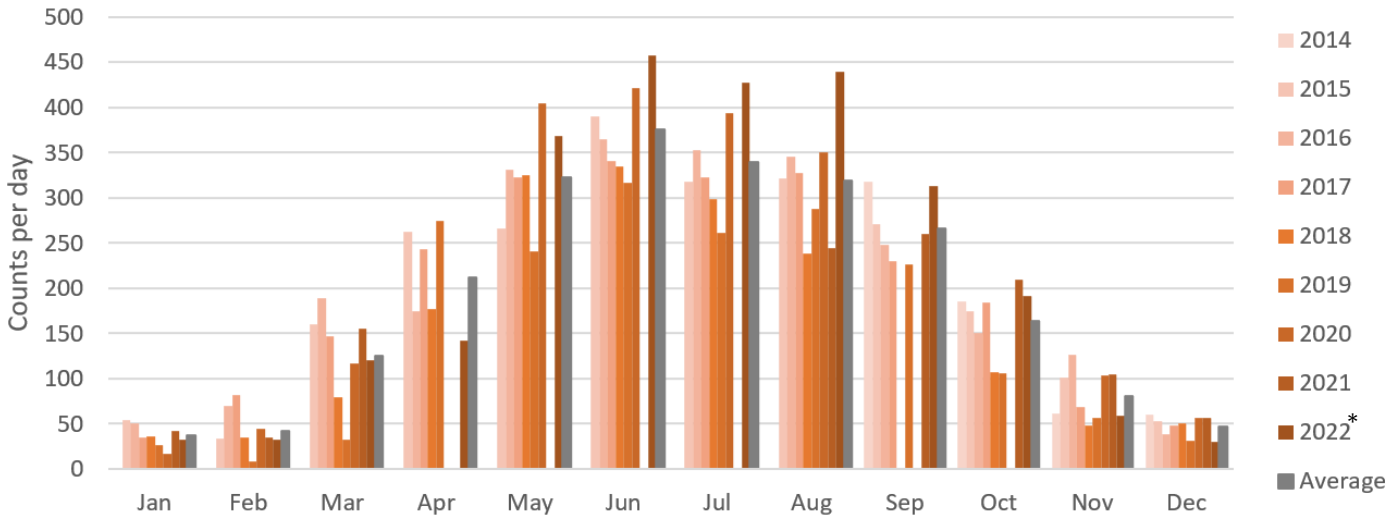
The Minnesota Department of Transportation (MnDOT) installed an automated counter in 2016 when the I-94 interchange at 8th St (US 75) was reconstructed. The counter is made by Eco-Counter and uses both infrared technology and inductive pavement loop detection, allowing the counter to differentiate between bicycles and pedestrians. In addition, this counter is capable of detecting both directions of travel on the path. This counter is located on & along the shared use path on the east side of 8th St just north of the I-94 westbound off-ramp. The counter is one of several bicycle/pedestrian counters located across Minnesota.

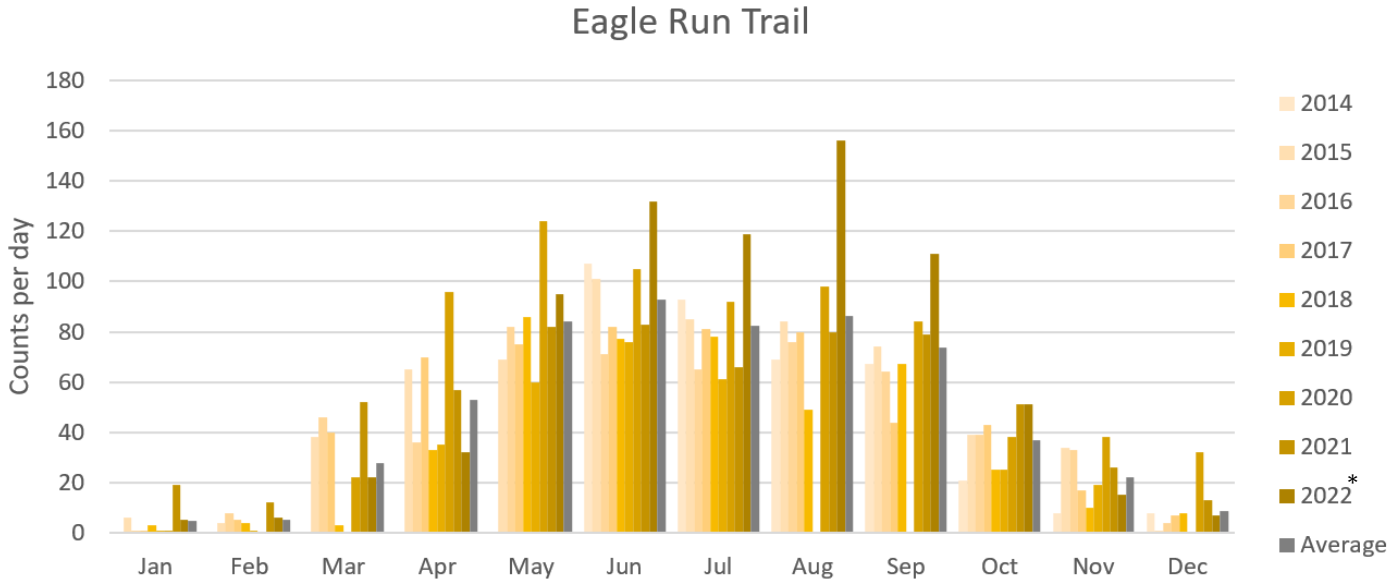
Data Consistency

As previously mentioned, all of Metro COG's counter locations were previously Traf-X counters. All of these locations were replaced by Eco-Counters since the 2022 Bicycle and Pedestrian Count Report. When analyzing the count data, it quickly became apparent that last year's numbers (counted by Eco-Counter) were significantly higher than the previous years counted by Traf-X. Through comparing historical automated counts to manual counts at the same locations, we found that the Eco-Counters counted more accurately than the Traf-X counters. We are considering a variety of ways to rectify the Traf-X data to make it more consistent with the Eco-Counter data. We plan to implement a rectification strategy to the Traf-X data prior to the 2024 Bicycle and Pedestrian Count Report.

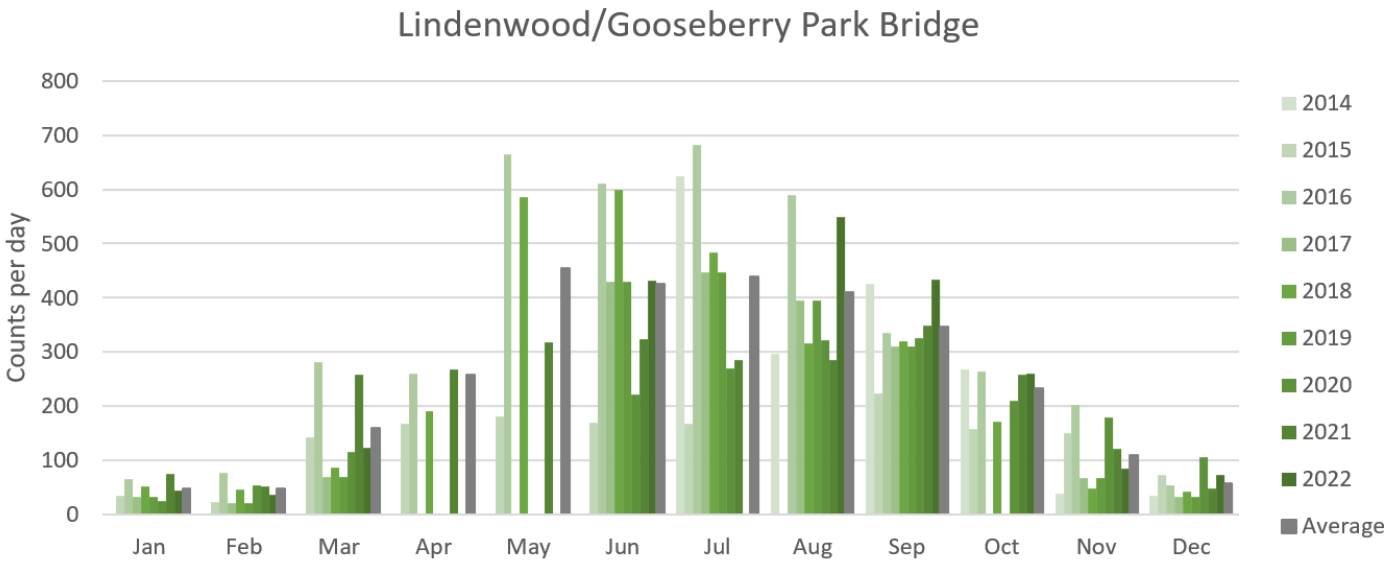
A challenge with automated counters regardless of the accuracy and precision is occlusion, which is when two or more people traveling side by side pass through the counting field and are counted as one person. The best way to account for this is to calculate the occlusion factor at each location and apply that factor to the entire data set at that location. Metro COG's hypothesis is the occlusion factor at each site will be proportional to the total counts, meaning locations with higher counts will have a higher factor than locations with lower counts. Metro COG has not calculated occlusion factors at the counting locations, but plans to have that completed prior to the 2024 Bicycle and Pedestrian Count Report.

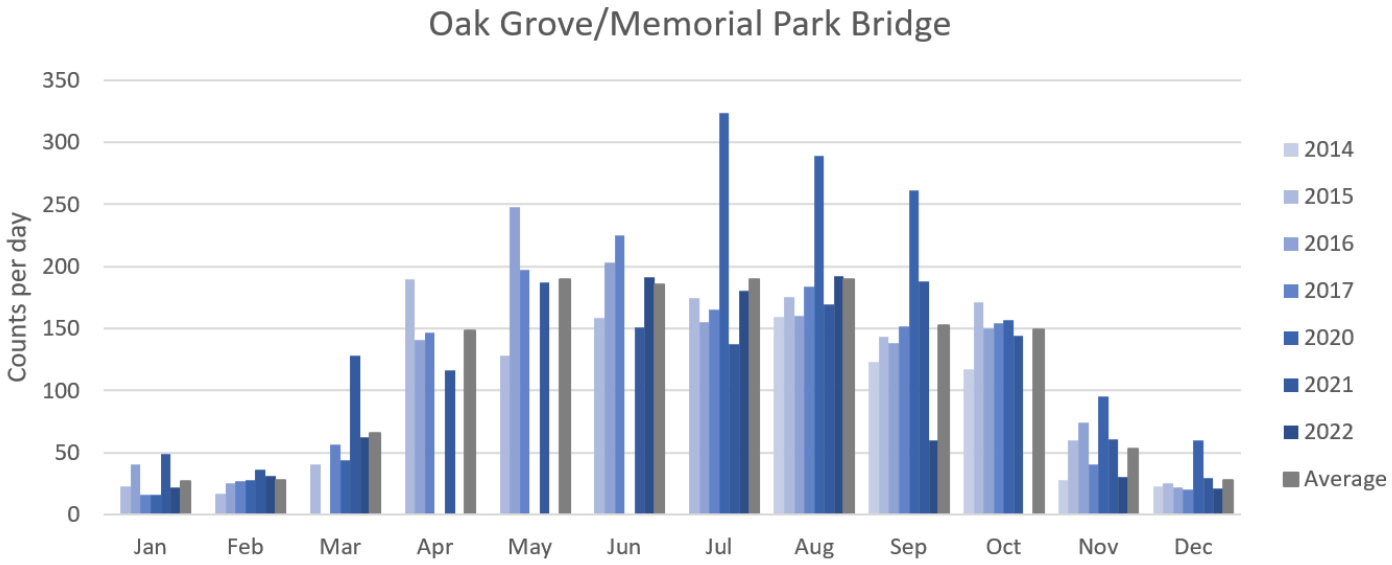


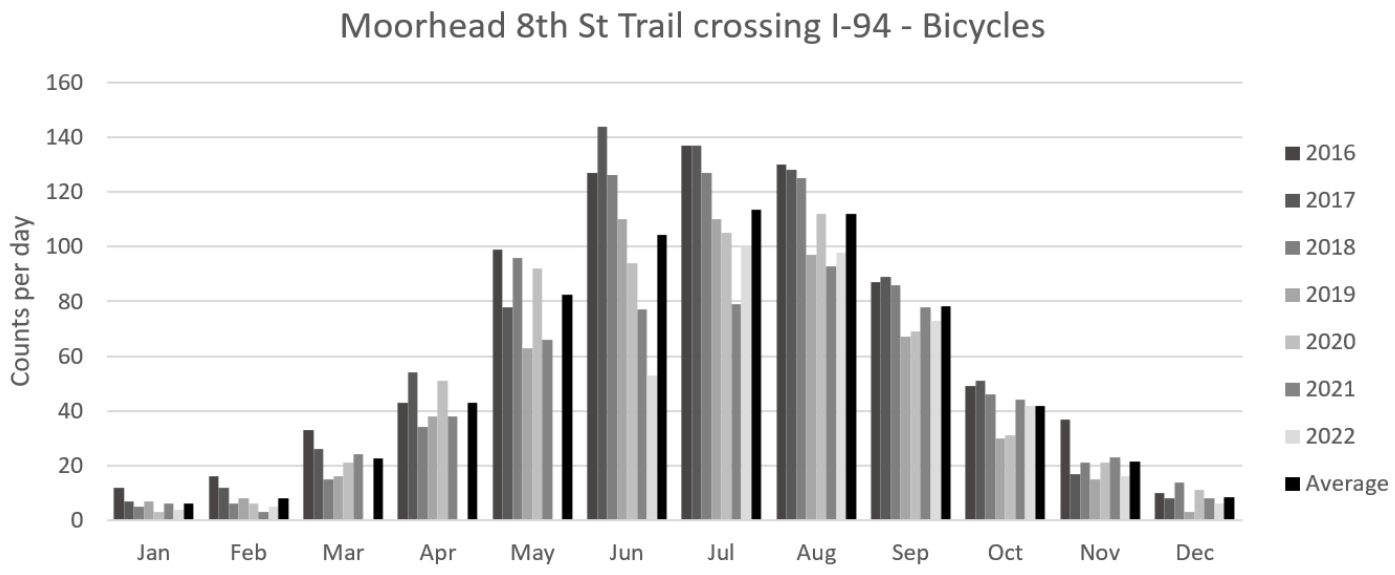


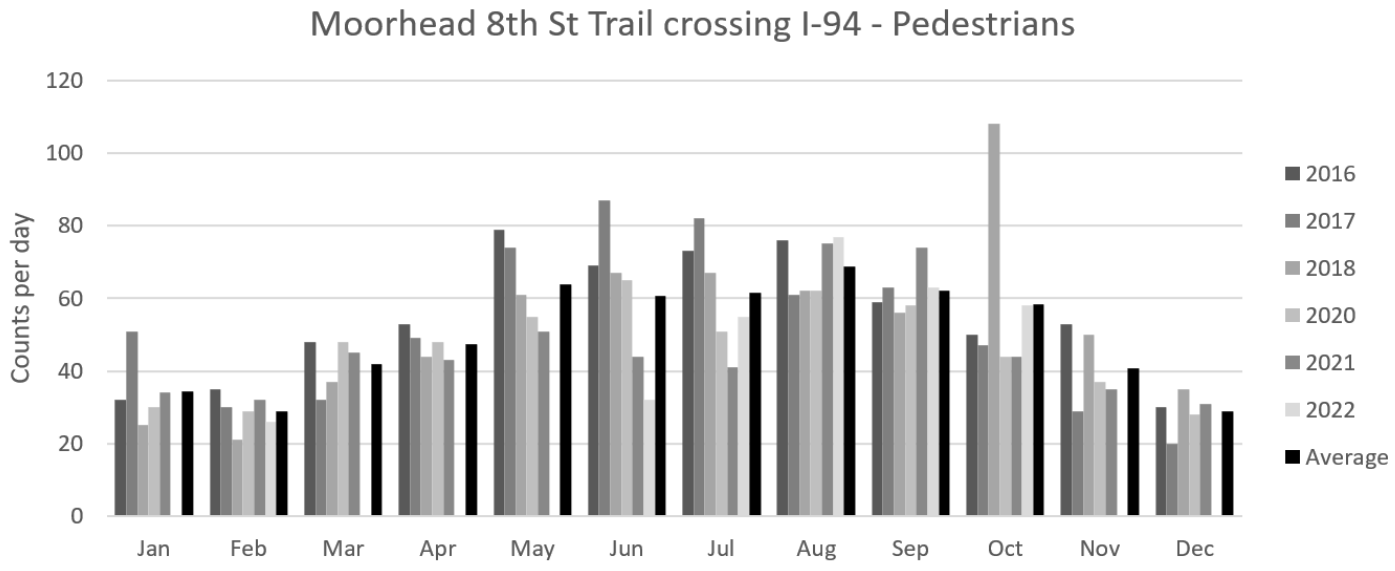


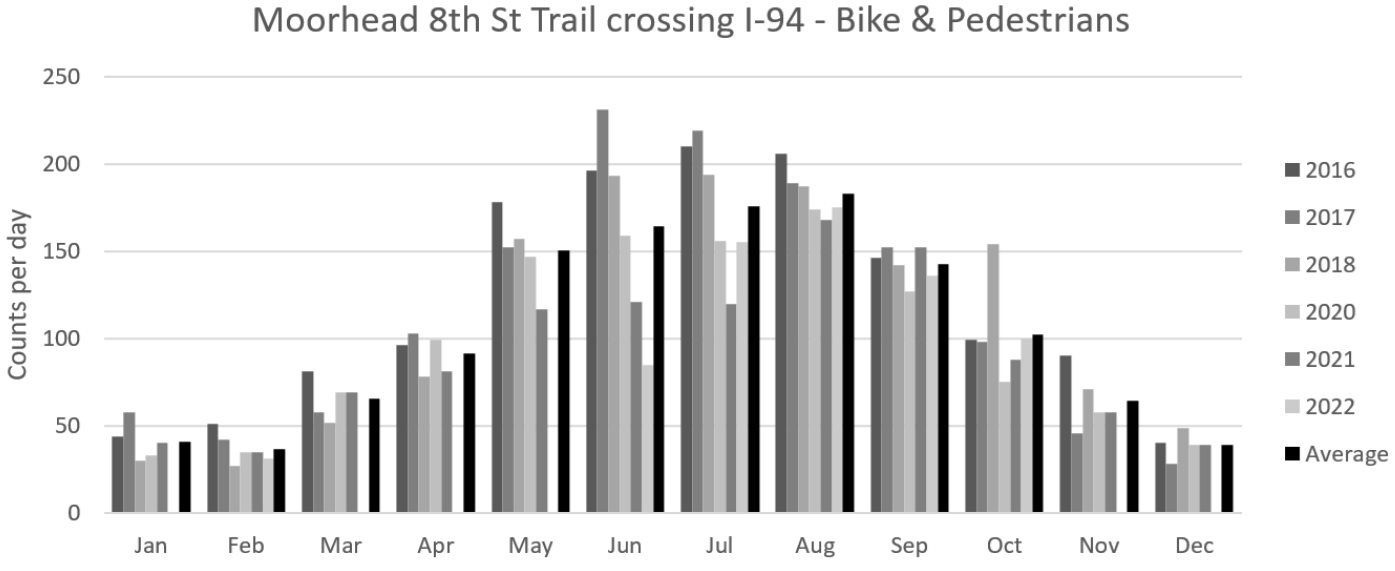
*NOTE: This year has higher counts due to the transition from Traf-X counters to Eco-Counters—see page 6 for more information

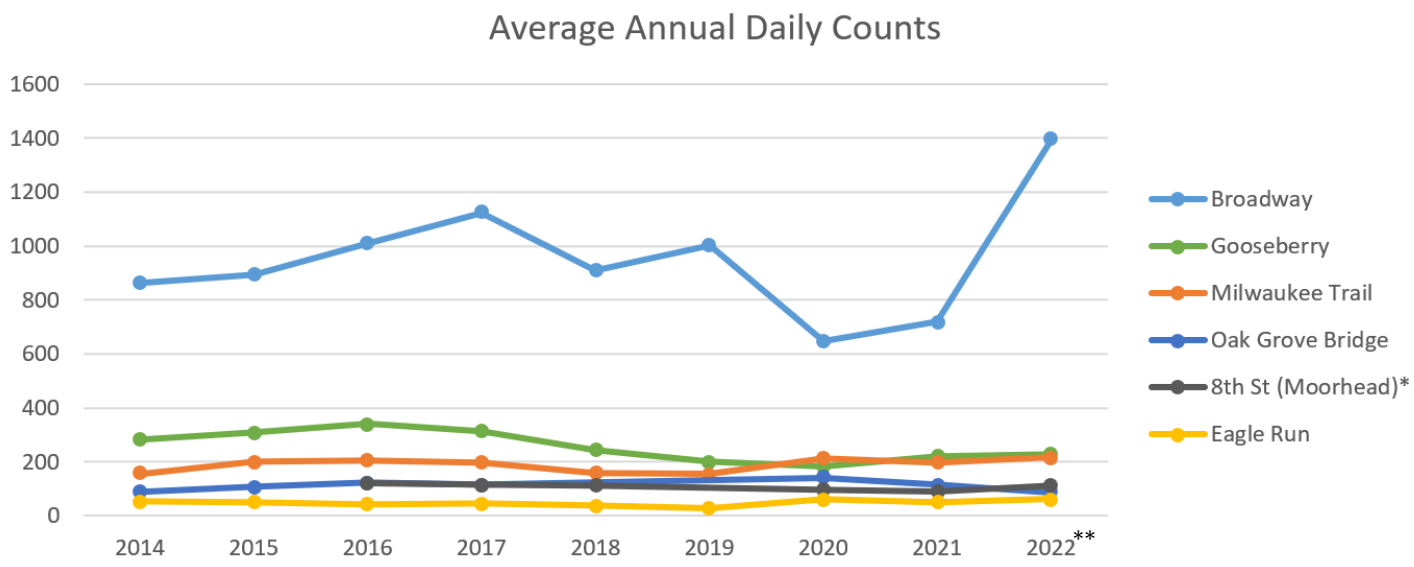

Lindenwood/Gooseberry Park Bridge
Counts per day
800
700
600
500
400
300
200
100
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2014
2015
2016
2017
2018
2019
2020
2021
2022
Average


Oak Grove/Memorial Park Bridge
Counts per day
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2014
2015
2016
2017
2020
2021
2022
Average


Moorhead 8th St Trail crossing I-94 - Bicycles
Counts per day
160
140
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2016
2017
2018
2019
2020
2021
2022
Average


Moorhead 8th St Trail crossing I-94 - Pedestrians
Counts per day
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2016
2017
2018
2020
2021
2022
Average


Moorhead 8th St Trail crossing I-94 - Bike & Pedestrians
Counts per day
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2016
2017
2018
2020
2021
2022
Average



* Includes both bicycle & pedestrian counts

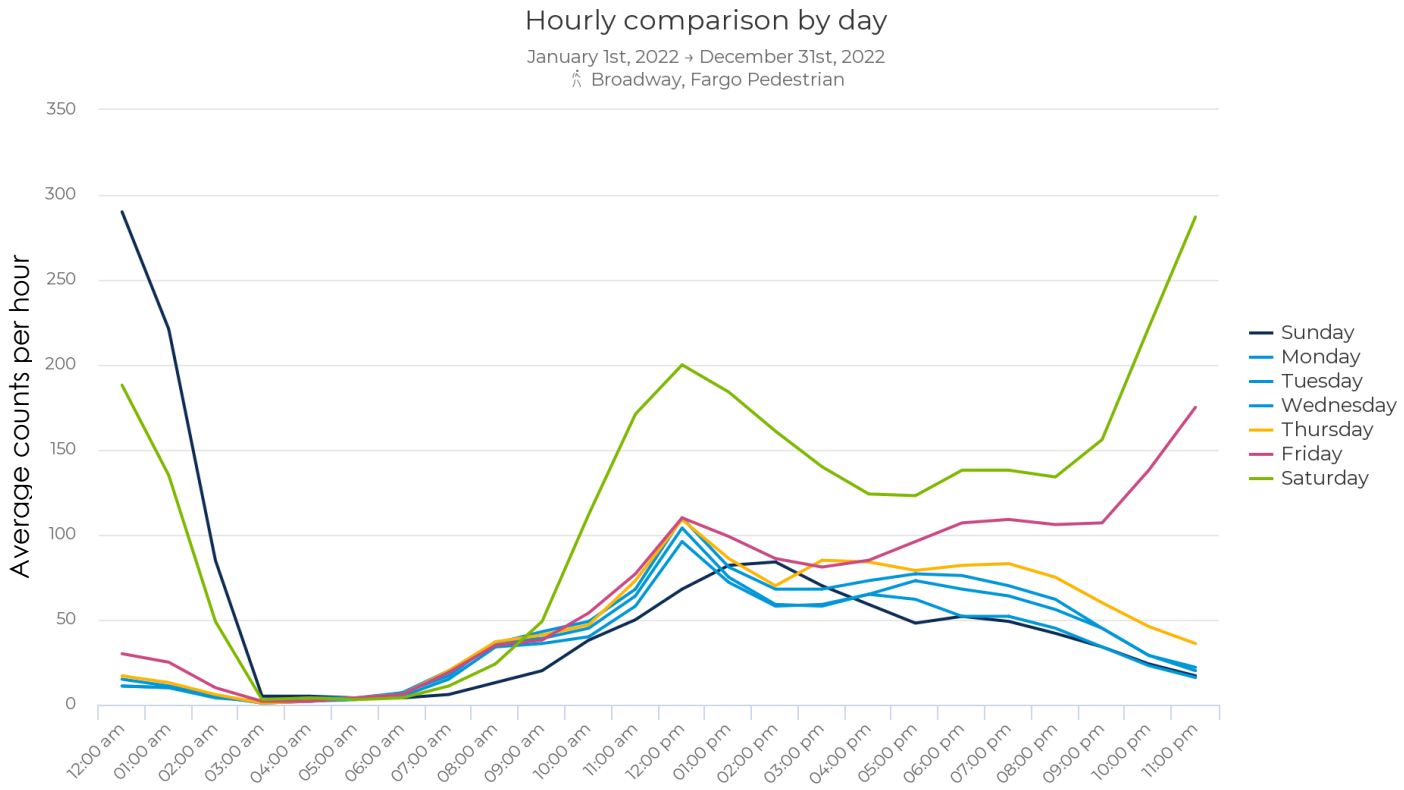
Average Annual Daily Counts										
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022****	**Average (2014-2022)**
Broadway	865	894	1011	1124	908	1001	646	721	1397	952
Gooseberry Bridge	281	311	341	315	245	201	183	220	227	258
Milwaukee Trail*	156	200	203	196	157	156	212	195	218	188
Oak Grove Bridge	90	109	123	115	-	-	142	116	88	112
8th St (Moorhead)*	-	-	120	115	111	-	98	91	114	108
Eagle Run Trail*	53	50	44	45	37	28	61	52	63	48
**Includes both bicycle & pedestrian counts*										

**NOTE: 2022 has higher counts due to the transition from Traf-X counters to Eco-Counters—
see page 6 for more information

BW: Broadway just south of 2nd Ave N—west sidewalk

2022 Data

Located in the heart of Fargo's downtown, the Broadway counter records the highest volume of people compared to the other automated counters. The counter cannot differentiate between bicycles and pedestrians. The data collected showcases several trends and events that impact the downtown core of the Fargo-Moorhead area. See below for analysis.



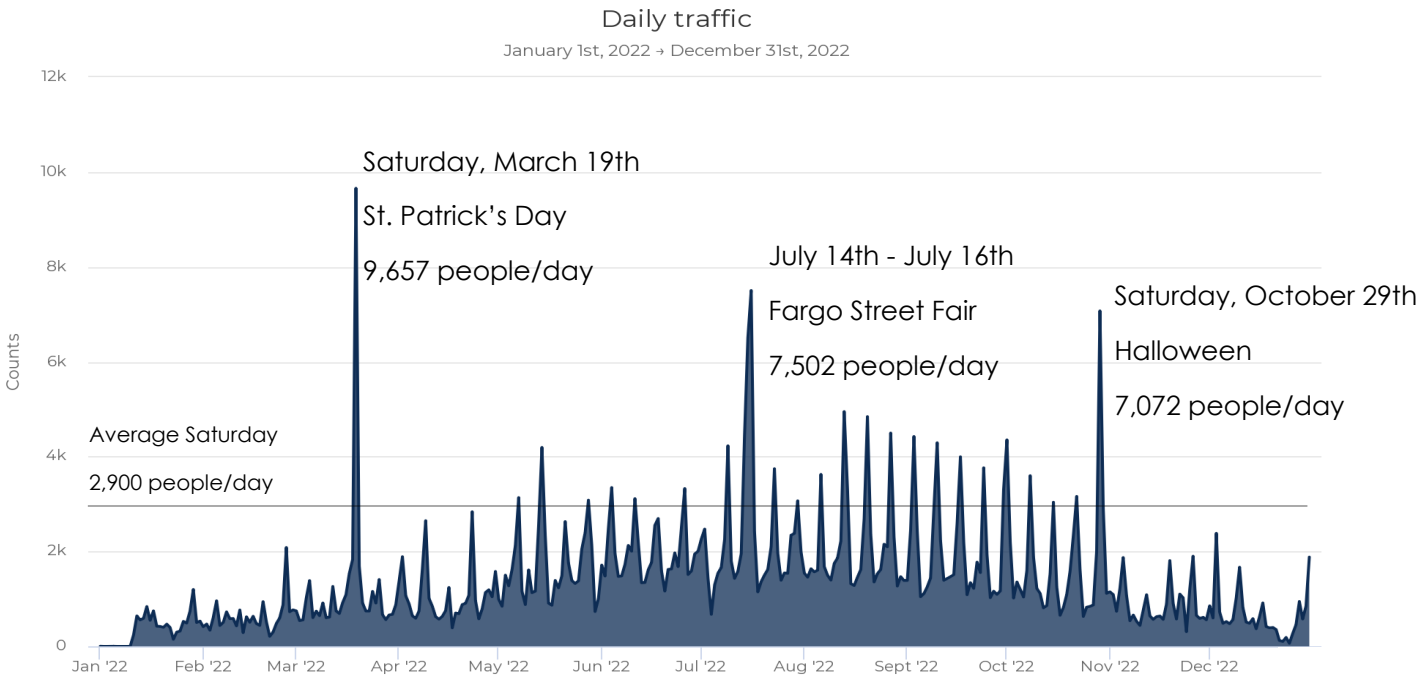
The above graph separates the 2022 data into the seven days of the week, showcasing the average data recorded every hour for every day of the week. Several trends emerge within the data when displayed this way.

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 .

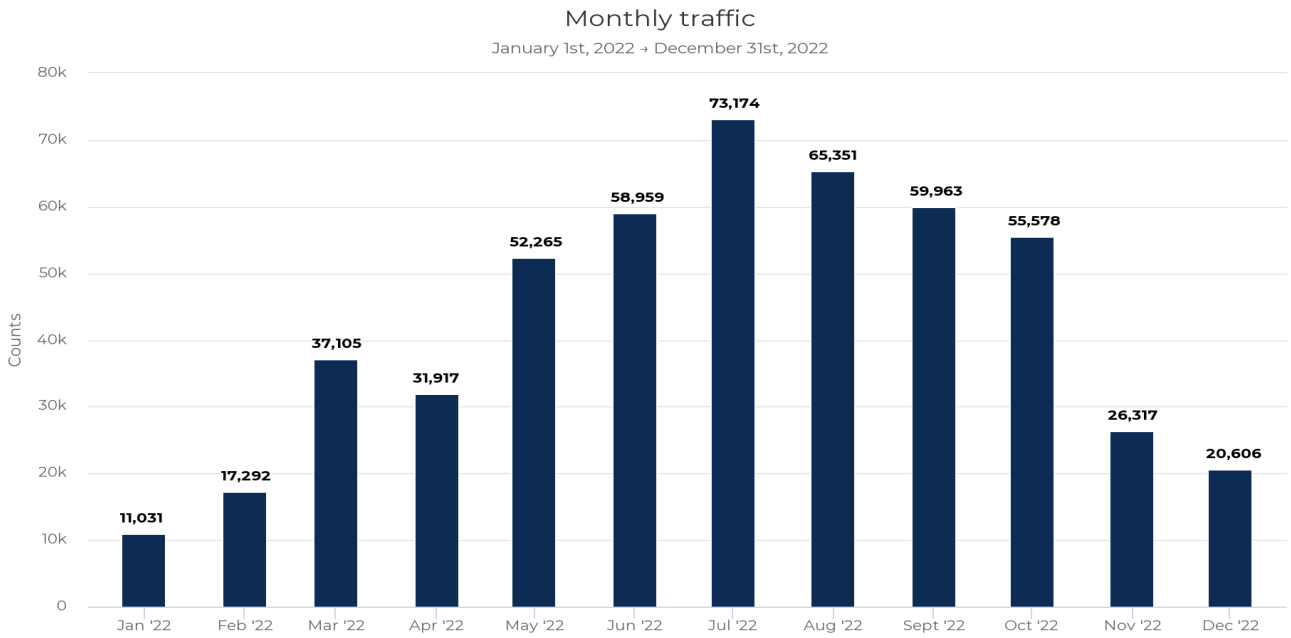
A second trend that emerges is a common lunchtime peak across all weekdays of around 100 people an hour, then a drop as lunchtime ends. Saturday has a much larger lunchtime peak around the same time, and data from Sundays show a smaller lunchtime peak that occurs later in the day.

Broadway just south of 2nd Ave N—west sidewalk

2022 Data



When the data is separated into daily counts over the course of 2022, 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.

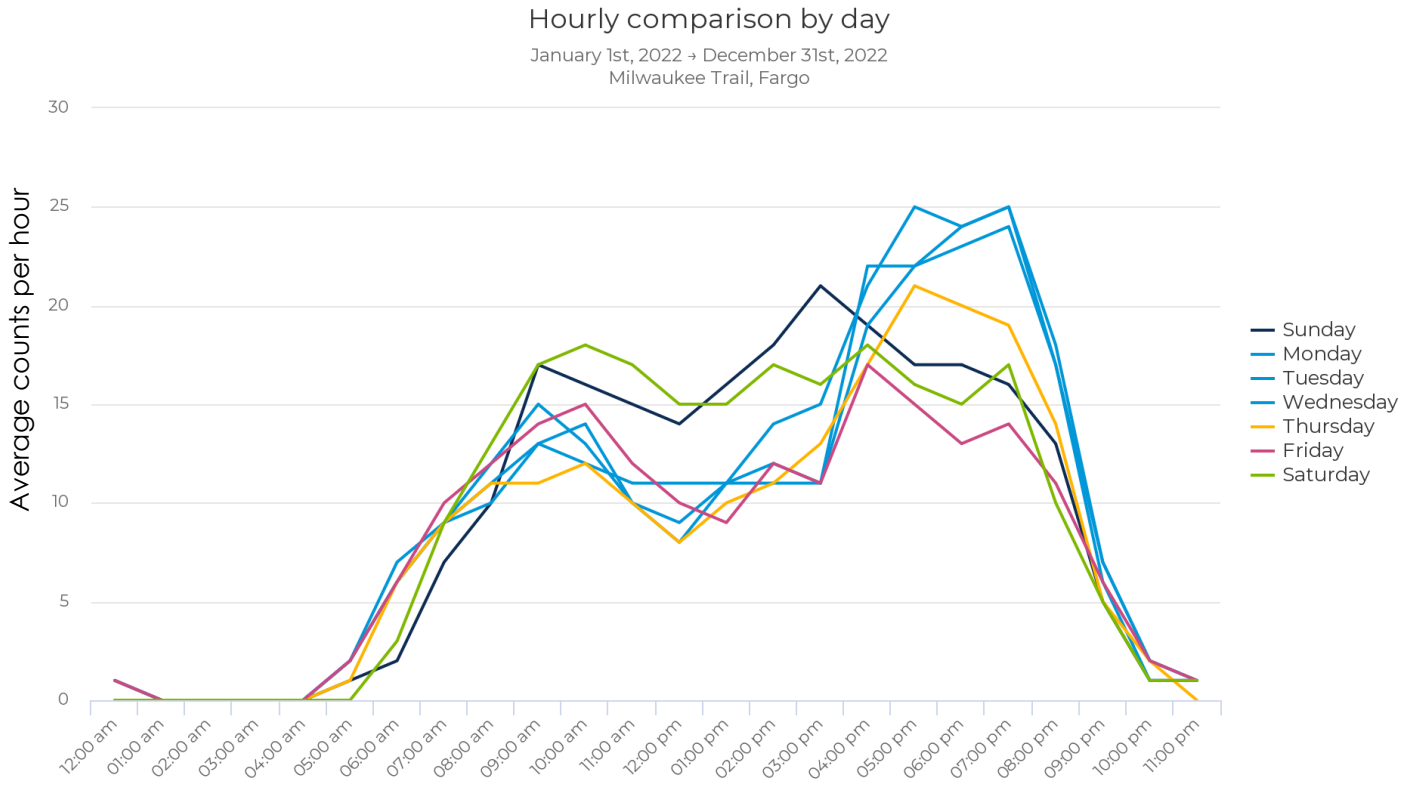


Counting people by month showcases the divide between winter and summer pedestrian traffic on Broadway and speaks to larger trends within the FM area. During January 2022, less than 20,000 people were recorded by this counter versus over 70,000 people recorded during July 2022. The lower counts in the 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 a reduced number of events.

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

2022 Data

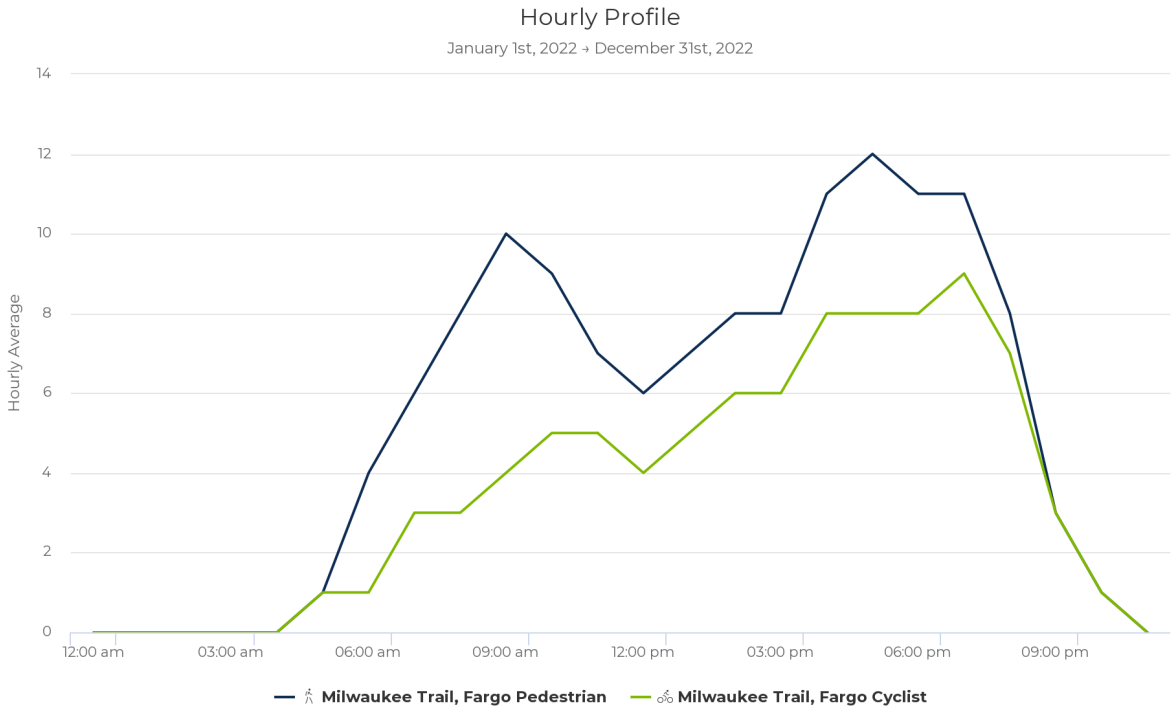
The Milwaukee Trail is one of the longest trail systems in the City of Fargo, spanning 3 miles from 1-94 southward to the Rose Creek trail just south of 40th Ave S, with plans to connect the trail to other trail networks once a crossing of Rose Creek Coulee is complete. The counter, located near Mini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

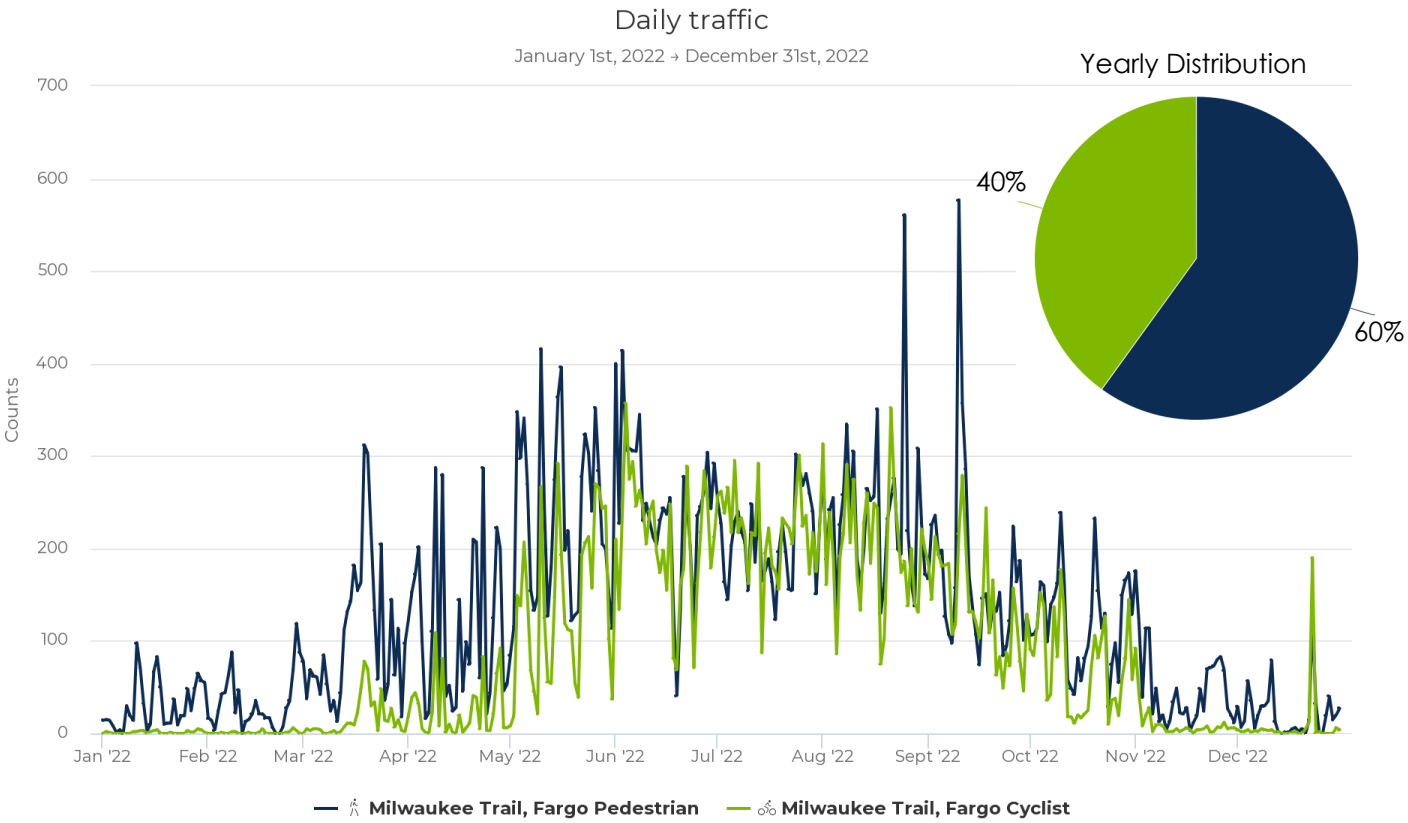


The above graph separates the 2022 data into the seven days of the week, showcasing the average data recorded every hour of the day for every day of the week. The most notable aspect of the graph are the two main peaks that appear: an evening peak and a smaller lunchtime peak. During the working week, these peaks are very pronounced, but during the weekends the data appears much more consistent throughout the day. Saturday features no true peak at all; in its place is a plateau of around 15 people per hour throughout the entire day. Sunday features a smaller peak earlier in the day, and Friday features the smallest evening peak before declining at sunset. The weekday peaks are relatively consistent, with around 25 people passing the counter per hour between 5:00PM and 7:00PM.

Milwaukee Trail between 35th Ave S and 37th Ave S

2022 Data



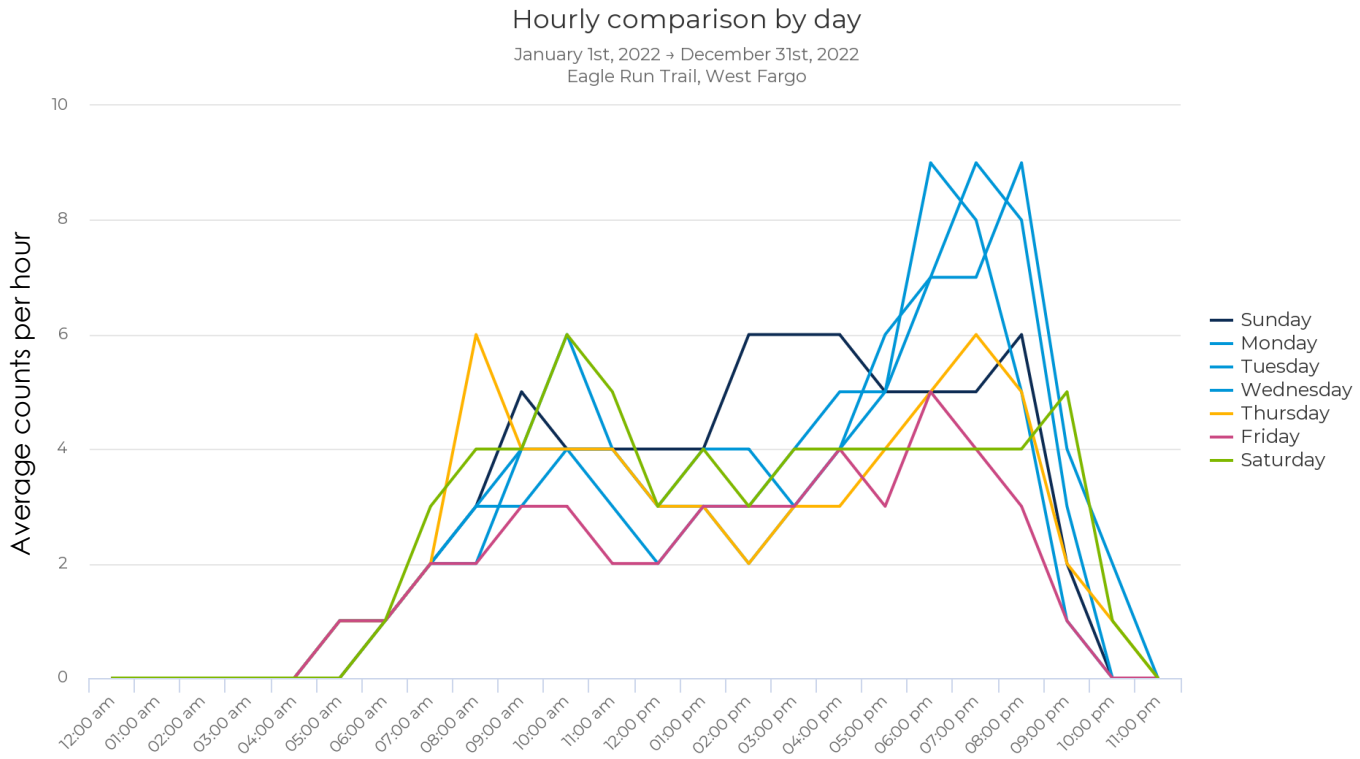


The above graphs represent the average pedestrian traffic vs. the average bicycle traffic for each hour of the day. The data helps paint a picture of who uses the Milwaukee Trail. Hourly data reflects two specific peaks for pedestrians, a morning and an evening one. These peaks could correspond to students walking to and from school via the trail. In contrast, bicycle traffic grows at a constant rate until nightfall. The daily traffic shows that walkers still utilize the Milwaukee Trail during the winter, but bicyclists do not. During the summer, the ratio of bicyclists to pedestrians is consistently almost 1:1.

ER: Eagle Run Trail between Rendezvous Park and 9th St W

2022 Data

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

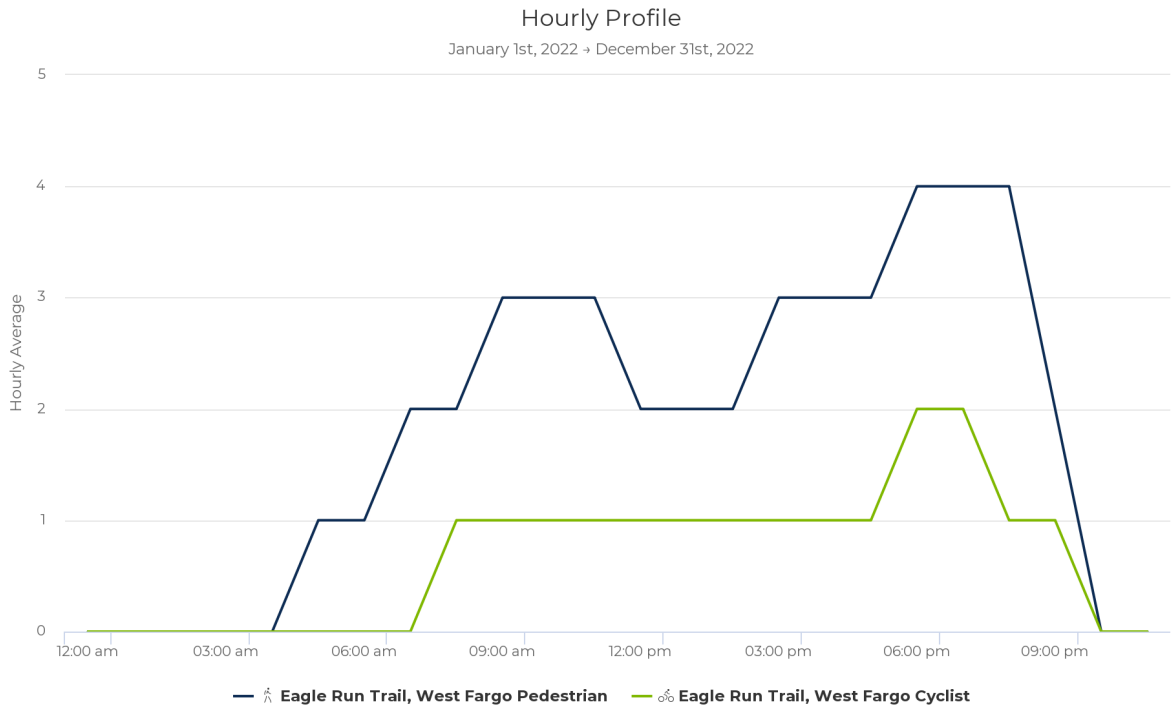


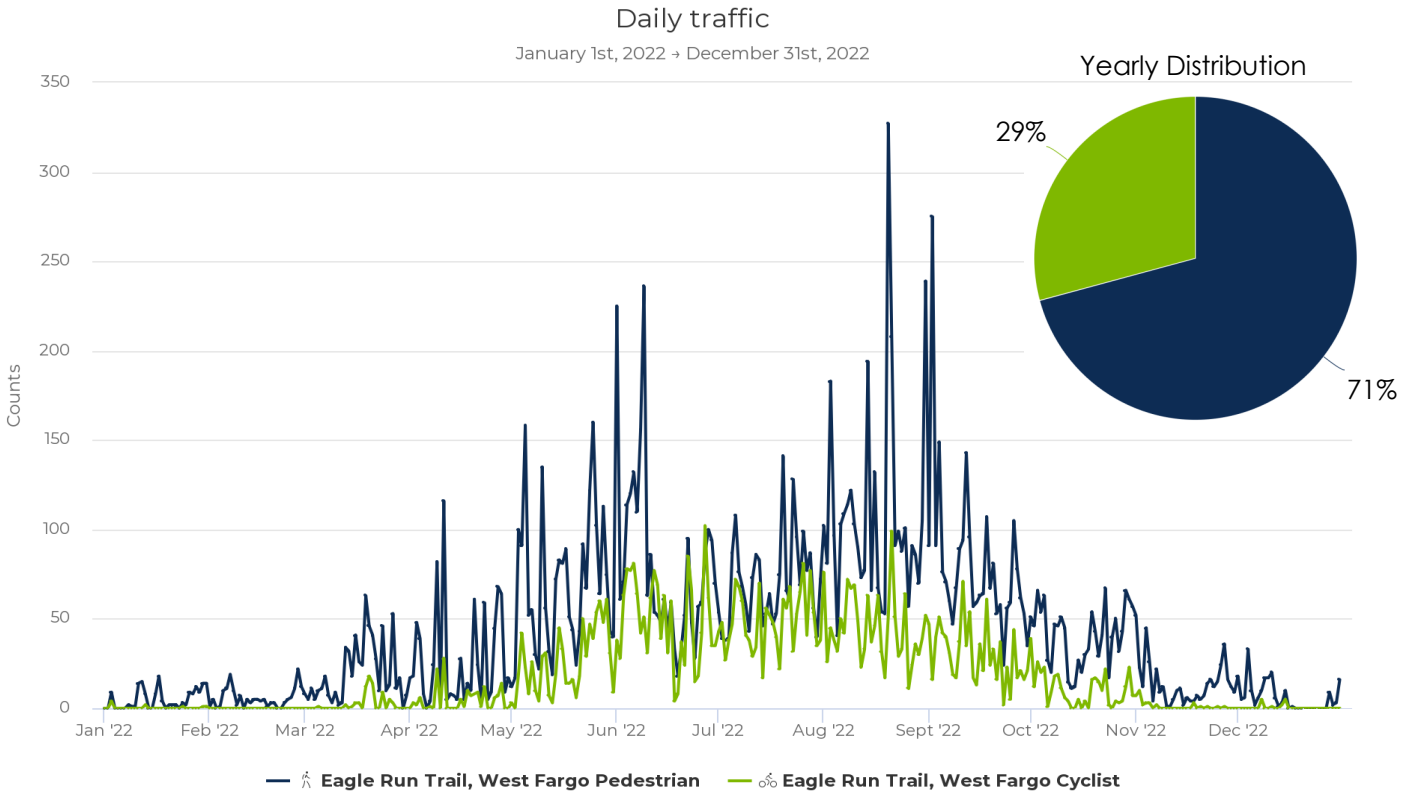
The above graph separates the 2022 data into the seven days of the week, showcasing the average data recorded every hour for every day of the week. Due to lower counts, the hourly data appears more sporadic and can be more impacted by outliers, but distinct trends still emerge. Specifically, weekday volume is at its highest in the evening, after people return home from work and potentially embark on an evening walk, run, or bike ride. A smaller lunchtime spike exists during weekdays, but generally the evening features the highest number of pedestrians or bicyclists.

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

Eagle Run Trail between Rendezvous Park and 9th St W

2022 Data





The above graphs represent the average pedestrian traffic vs. the average bicycle traffic for each hour of the day. The data reflected in the graphs shows similar trends to the Milwaukee Trail counter, though at a much smaller scale. Daily traffic over the course of the year follows a slightly different pattern than the Milwaukee Trail. During most of the spring, late summer, and fall, the ratio between pedestrians and bicyclists is roughly 2:1. Between June and August the ratio more closely resembles 1:1. Fewer people are using the Eagle Run trail, but similar to the Milwaukee trail people use it in the morning and in the evening, and are more likely to walk than bike along the trail.

LG: Lindenwood Park / Gooseberry Park bicycle & pedestrian bridge 2022 Data

Located on the Minnesota-North Dakota border, the Gooseberry counter counts people as they cross the bridge over the Red River, traveling between Gooseberry Park and Lindenwood Park.

The Eco-Counter was installed in November 2022, so data for 2022 has been omitted from detailed information analysis. The Traf-X Counter installed in 2014 near the bridge was malfunctioning for a significant portion of 2022 and removed when the Eco-counter was installed, so consistent data only exists from November 2022 onward. Beginning in 2023, detailed data will be analyzed and shown here.

OM: Oak Grove Park/Memorial Park bicycle & pedestrian bridge 2022 Data

Located on the Minnesota-North Dakota border, the Oak Grove counter counts people as they cross the bridge over the Red River, traveling between Oak Grove Park and Memorial Park.

The Eco-Counter was installed in November 2022, so data for 2022 has been omitted from detailed information analysis. Beginning in 2023, detailed data will be analyzed and shown here.

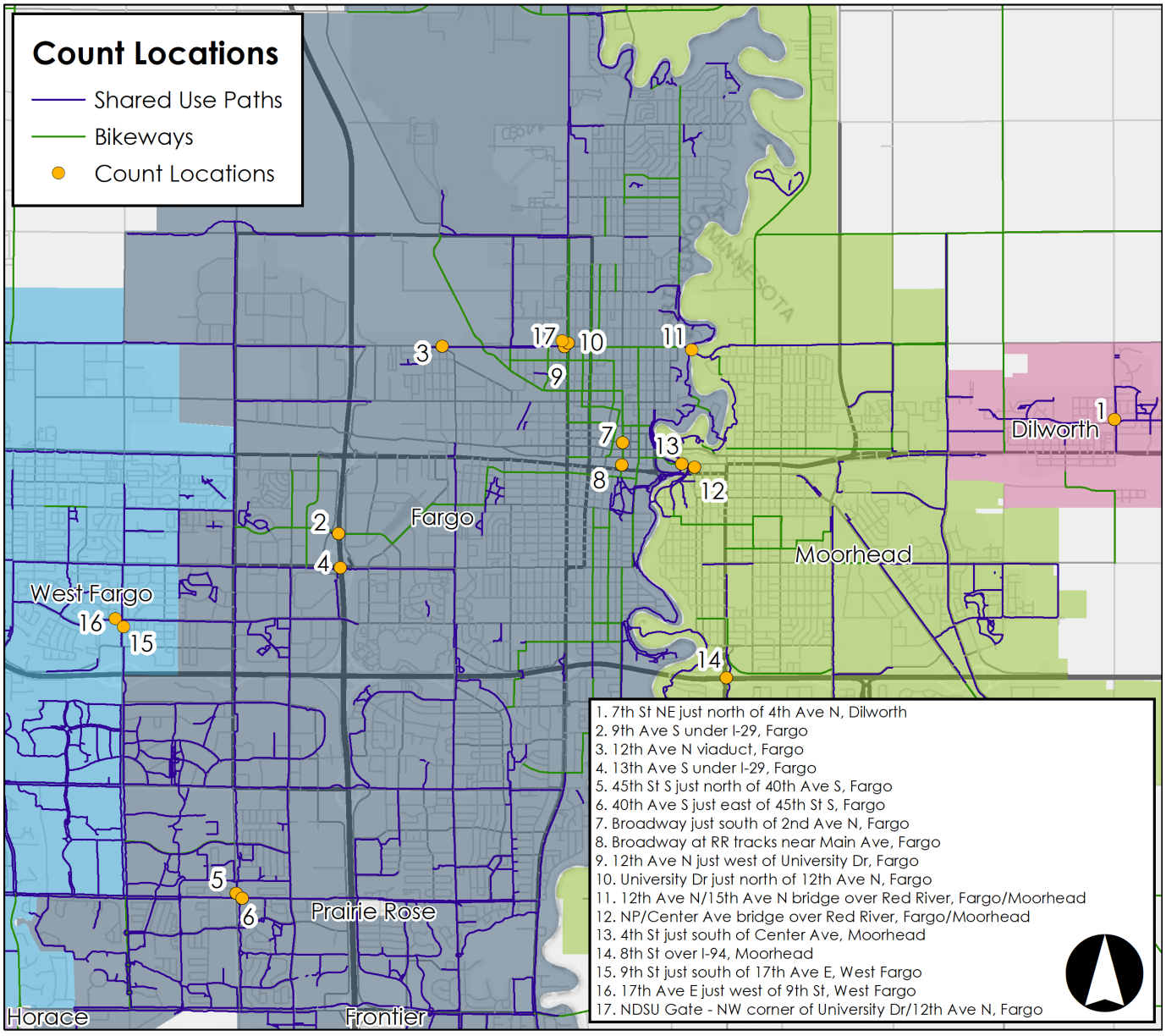
Manual Counts
2013—2022

Manual Counts

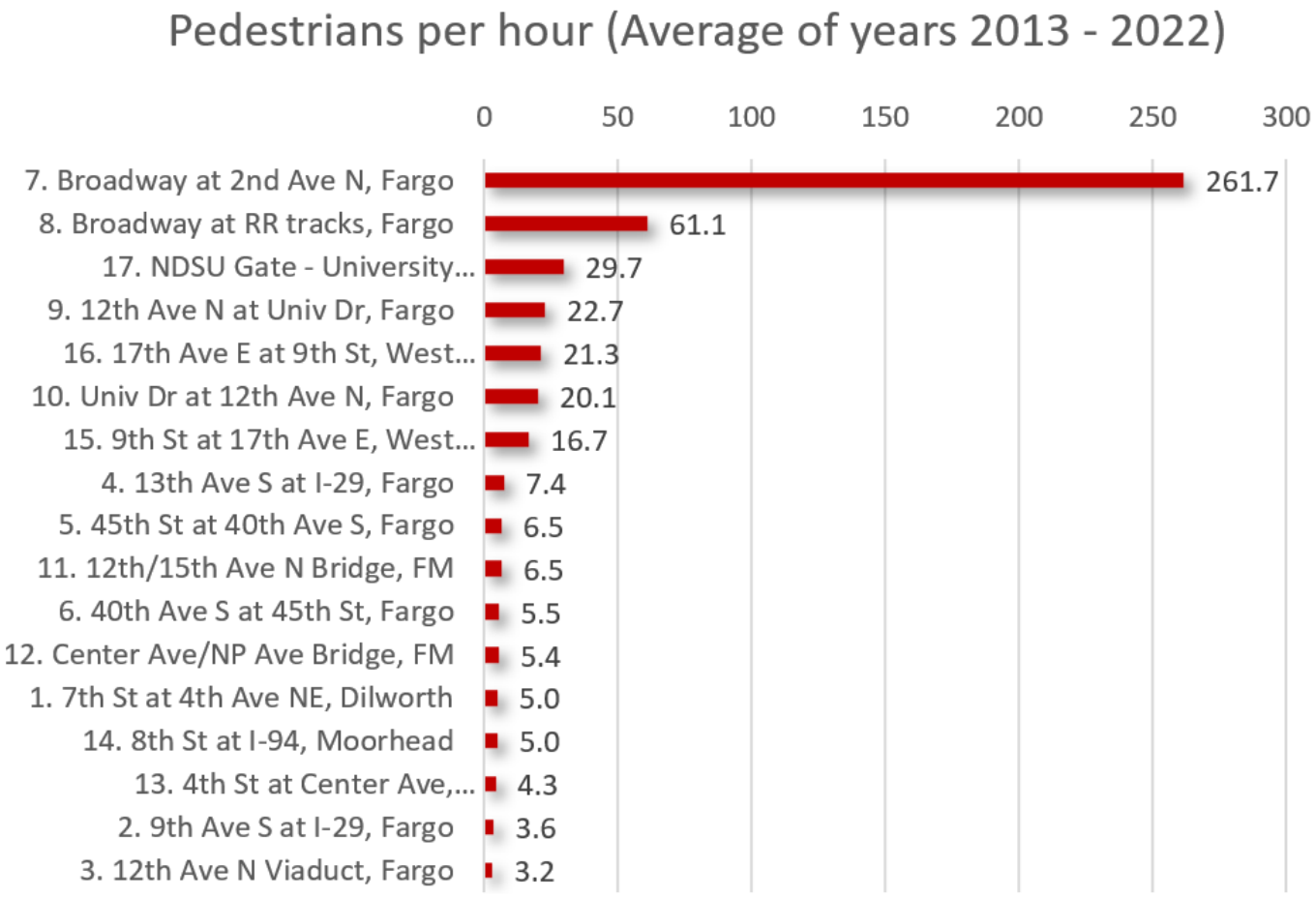
Manual counts are conducted once a year for a four-hour period on a typical weekday in September (Note: locations near NDSU campus are counted for a five–hour period). Based on availability of staff and resources some locations are counted for two consecutive weekdays to increase accuracy. The counts 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.

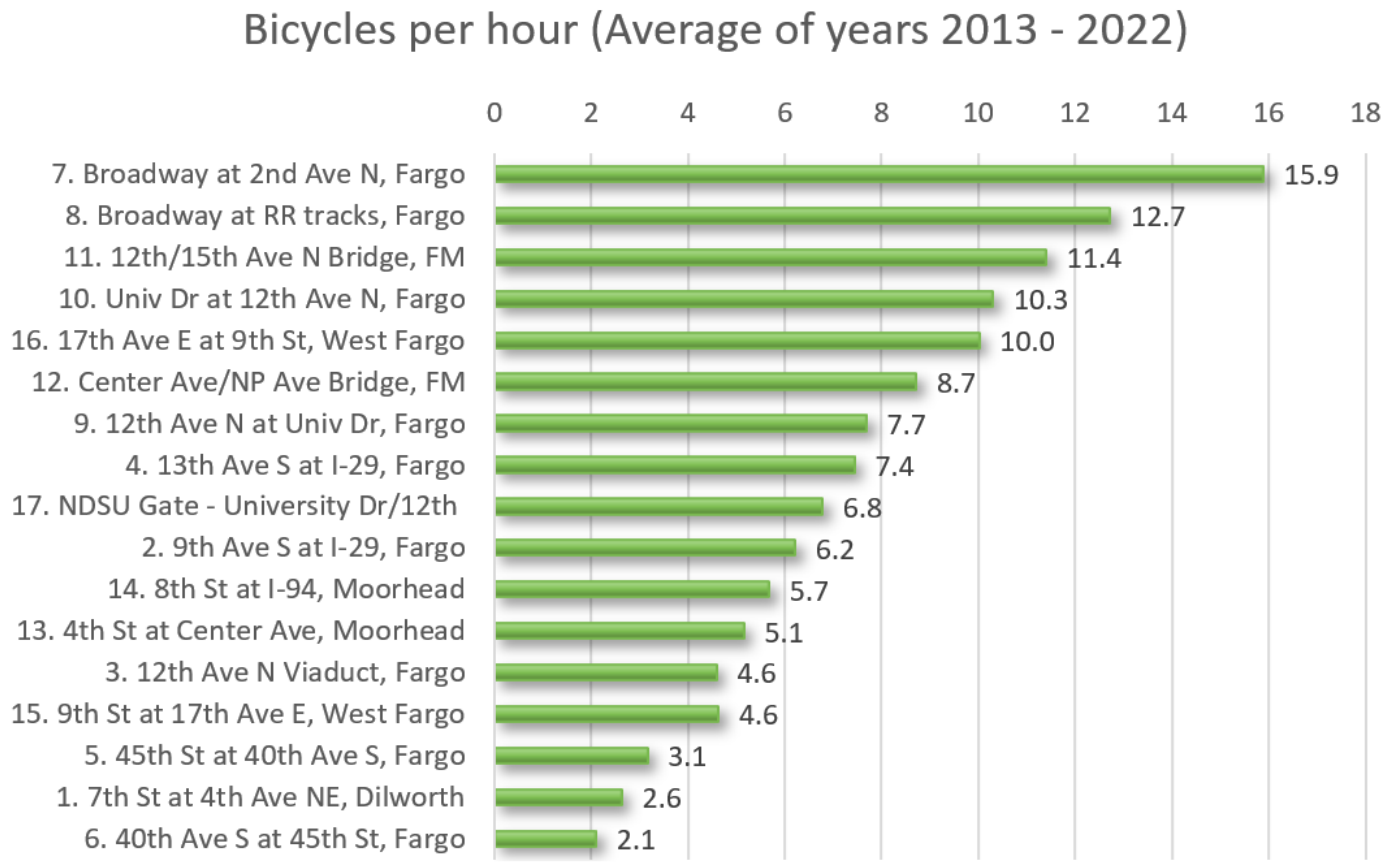
The count data shown in this section of the report includes years 2013 through 2022, however some locations may not include all years due to previous counting mythology, construction, or equipment failure. Below is a map showing the location of each manual count:

Manual Count Locations

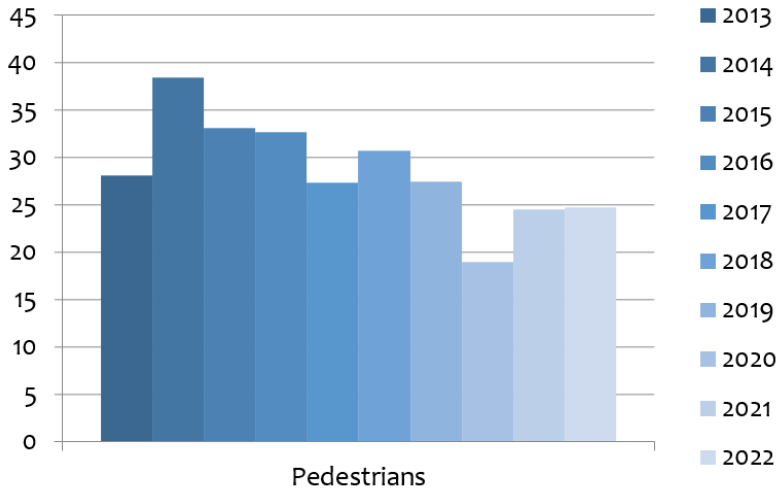


The following pages show the manual bicycle and pedestrian count data for the years 2013 through 2022.

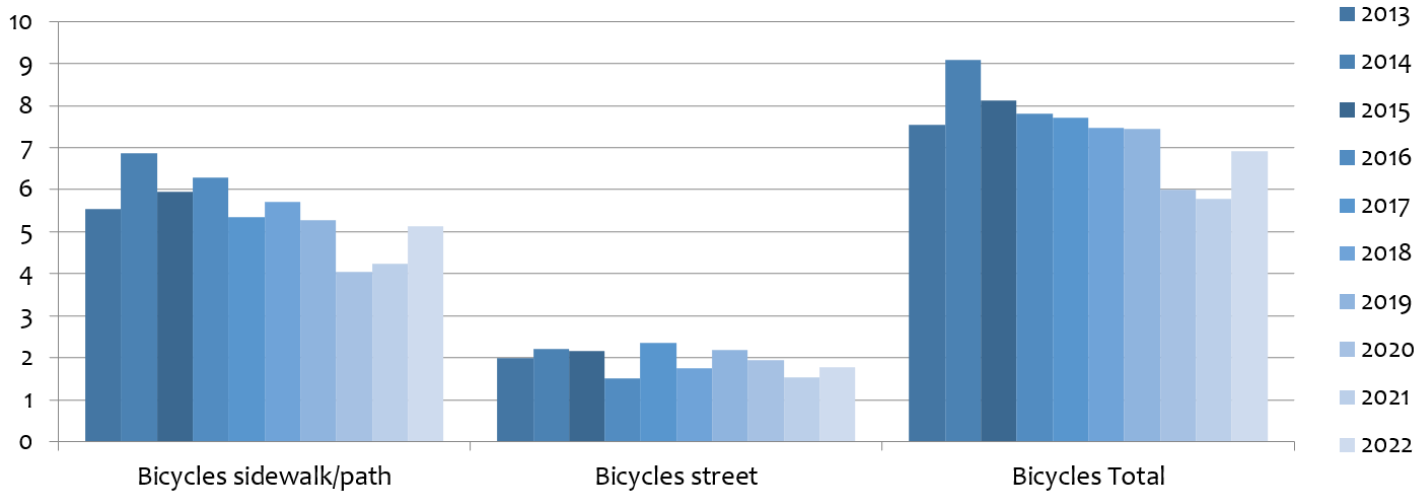

Pedestrians per hour (Average of years 2013 - 2022)
0
50
100
150
200
250
300
7. Broadway at 2nd Ave N, Fargo
261.7
8. Broadway at RR tracks, Fargo
61.1
17. NDSU Gate - University...
29.7
9. 12th Ave N at Univ Dr, Fargo
22.7
16. 17th Ave E at 9th St, West...
21.3
10. Univ Dr at 12th Ave N, Fargo
20.1
15. 9th St at 17th Ave E, West...
16.7
4. 13th Ave S at I-29, Fargo
7.4
5. 45th St at 40th Ave S, Fargo
6.5
11. 12th/15th Ave N Bridge, FM
6.5
6. 40th Ave S at 45th St, Fargo
5.5
12. Center Ave/NP Ave Bridge, FM
5.4
1. 7th St at 4th Ave NE, Dilworth
5.0
14. 8th St at I-94, Moorhead
5.0
13. 4th St at Center Ave,...
4.3
2. 9th Ave S at I-29, Fargo
3.6
3. 12th Ave N Viaduct, Fargo
3.2


Bicycles per hour (Average of years 2013 - 2022)
0
2
4
6
8
10
12
14
16
18
7. Broadway at 2nd Ave N, Fargo
15.9
8. Broadway at RR tracks, Fargo
12.7
11. 12th/15th Ave N Bridge, FM
11.4
10. Univ Dr at 12th Ave N, Fargo
10.3
16. 17th Ave E at 9th St, West Fargo
10.0
12. Center Ave/NP Ave Bridge, FM
8.7
9. 12th Ave N at Univ Dr, Fargo
7.7
4. 13th Ave S at I-29, Fargo
7.4
17. NDSU Gate - University Dr/12th
6.8
2. 9th Ave S at I-29, Fargo
6.2
14. 8th St at I-94, Moorhead
5.7
13. 4th St at Center Ave, Moorhead
5.1
3. 12th Ave N Viaduct, Fargo
4.6
15. 9th St at 17th Ave E, West Fargo
4.6
5. 45th St at 40th Ave S, Fargo
3.1
1. 7th St at 4th Ave NE, Dilworth
2.6
6. 40th Ave S at 45th St, Fargo
2.1

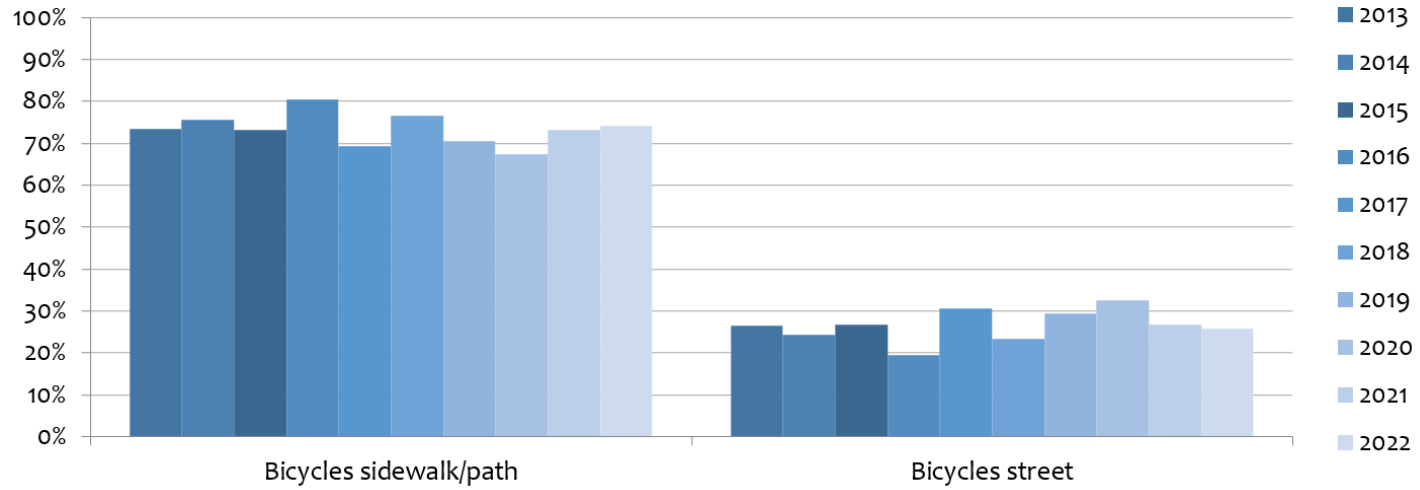
Pedestrian counts per hour by year (average of all locations)



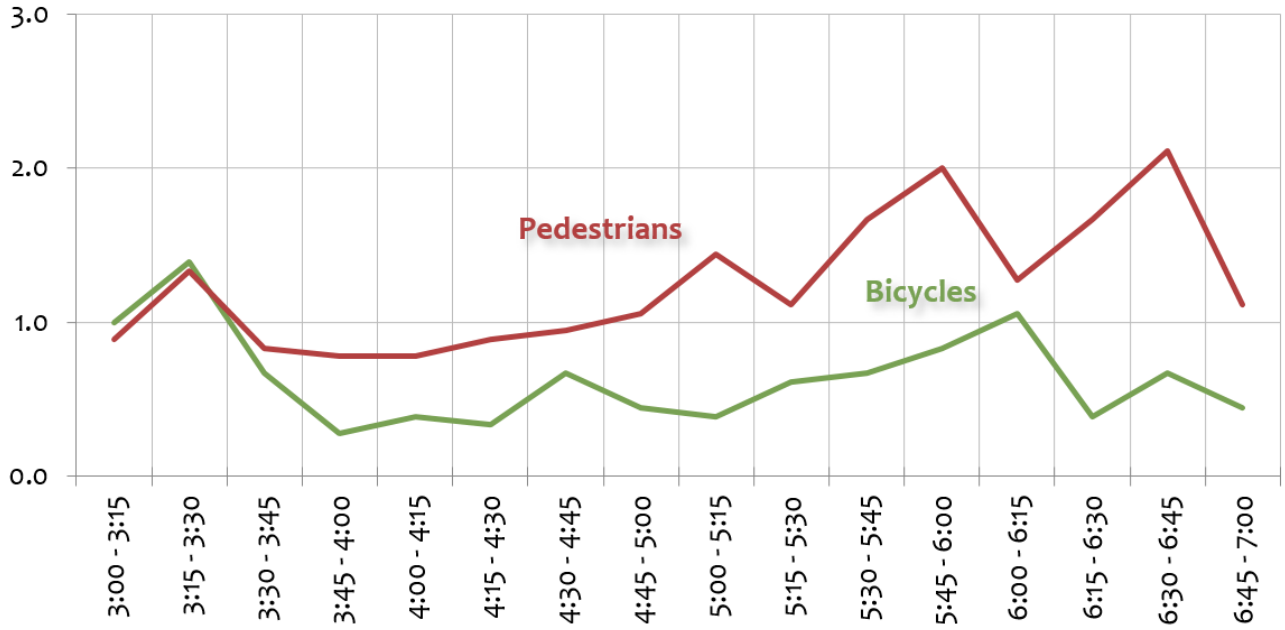
Bicycle counts per hour by year (average of all locations)

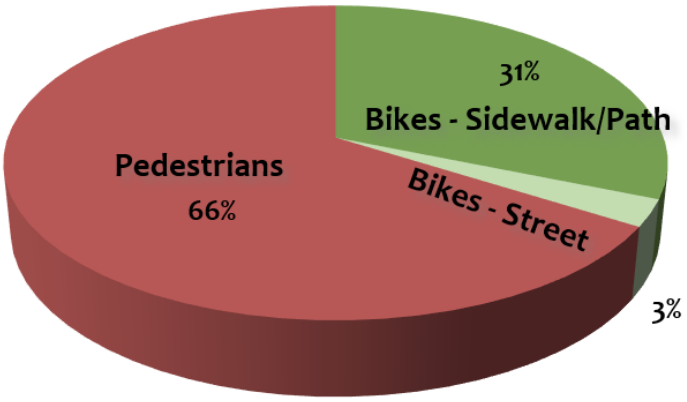


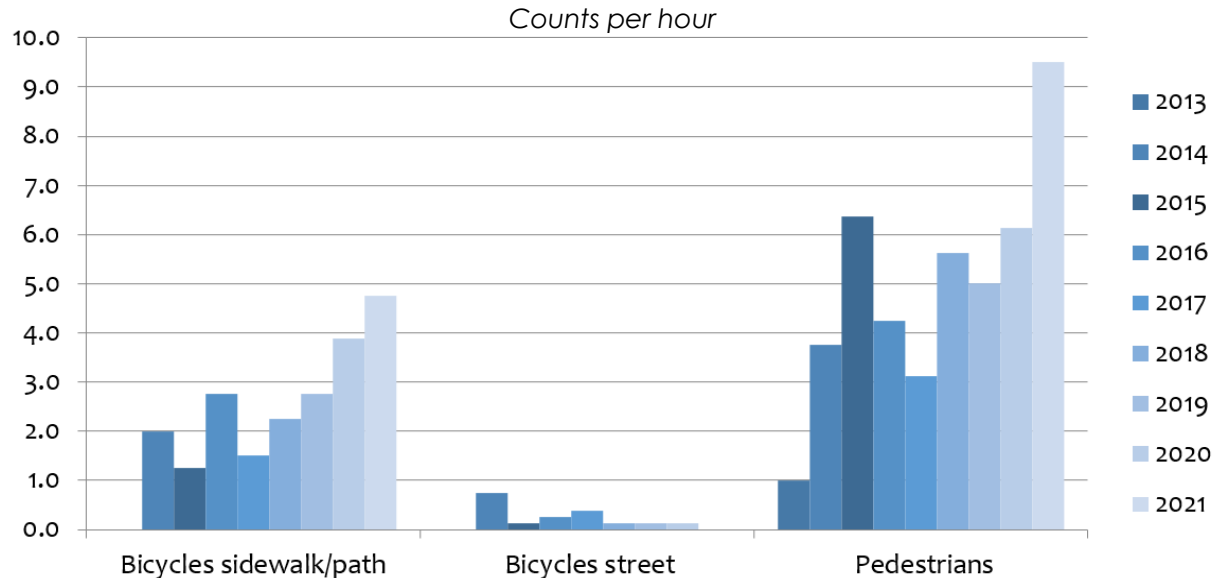
% of bikes on sidewalk/path vs. bikes on street (average of all locations)



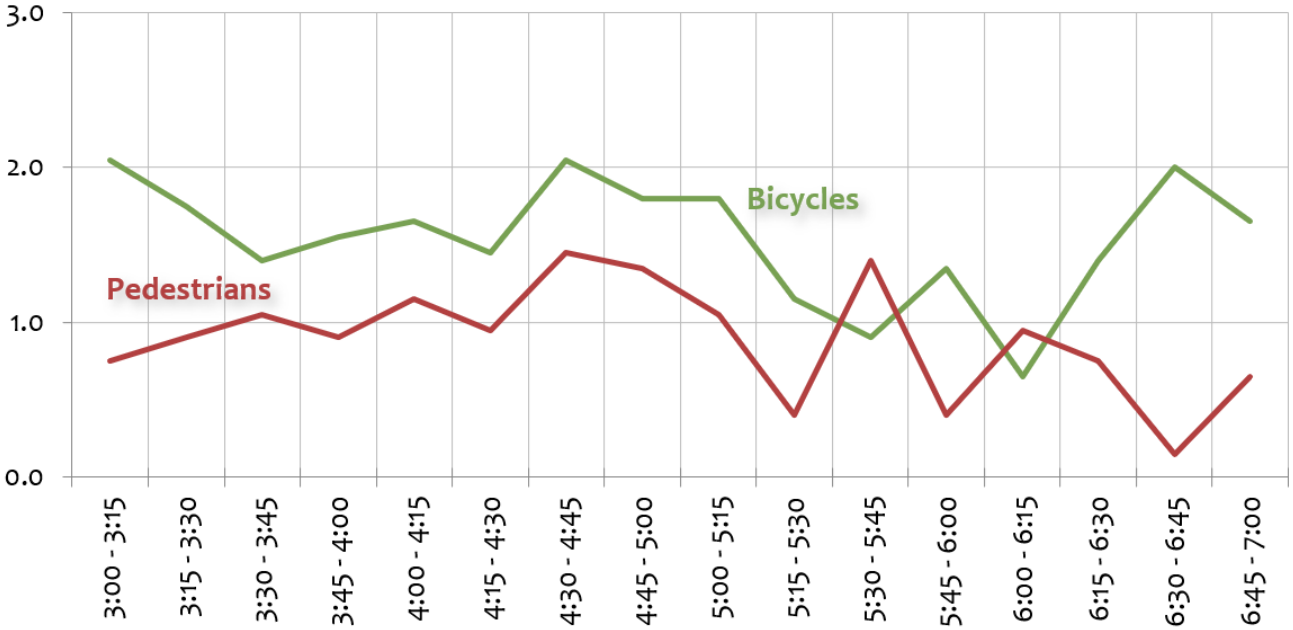
1. Dilworth—7th St NE just north of 4th Ave NE (Average of years 2013-2021) (No 2022 data)

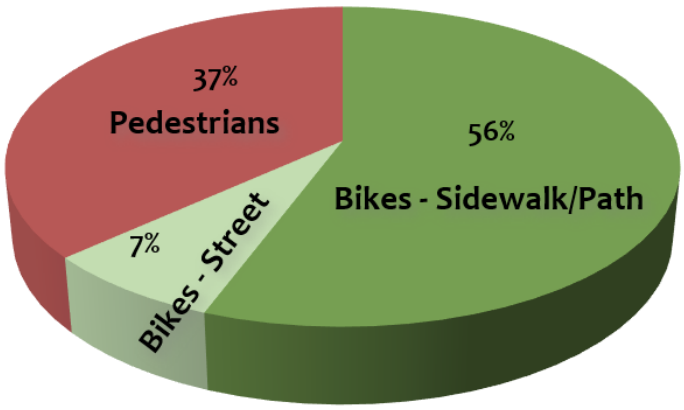


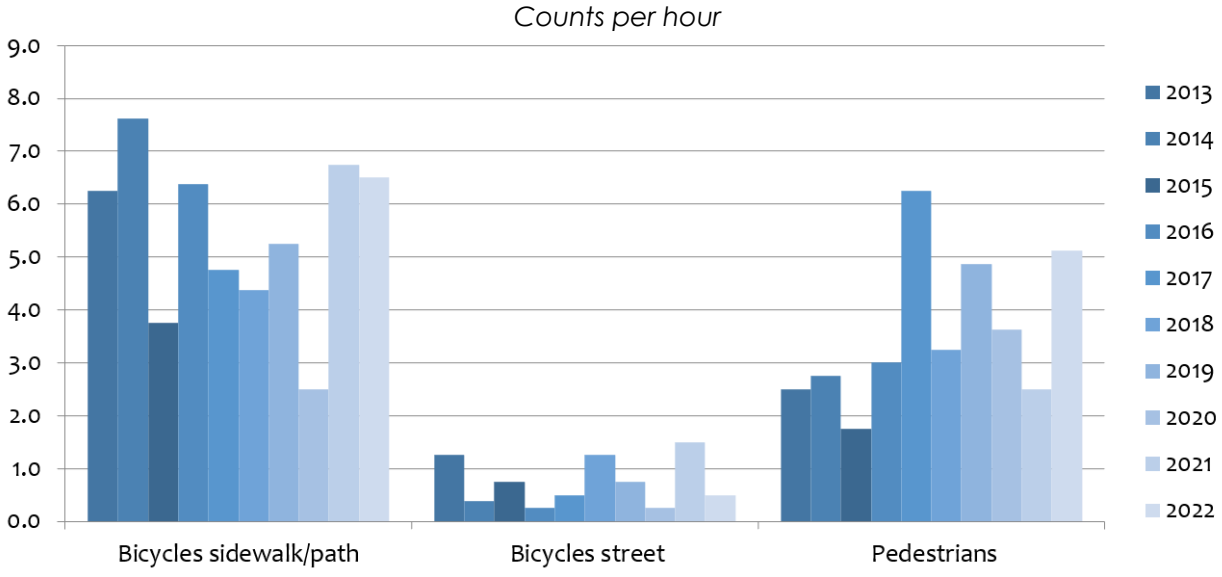




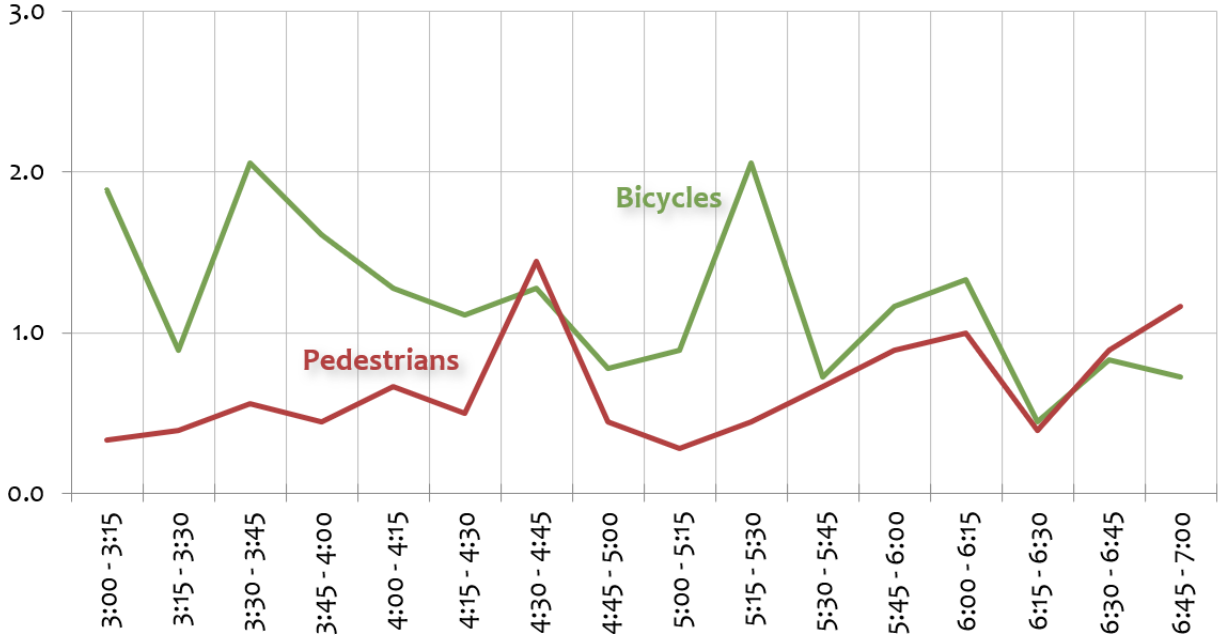
2. Fargo—9th Ave S under I-29
(Average of years 2013-2022)

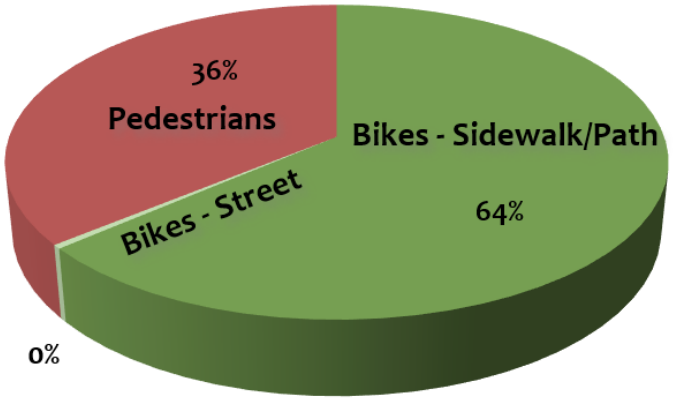


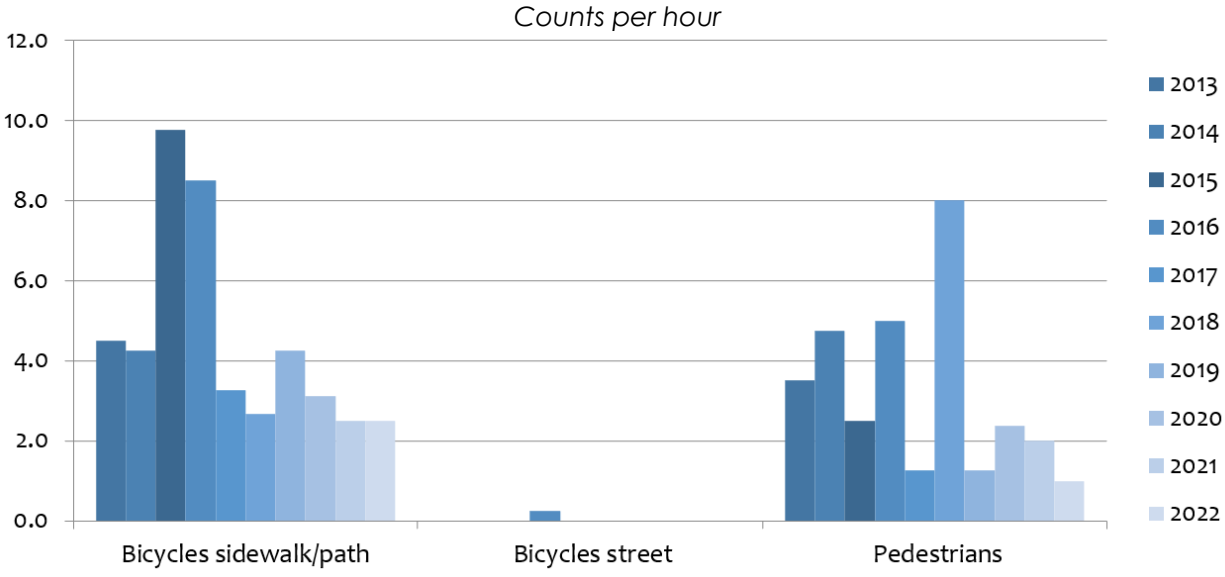




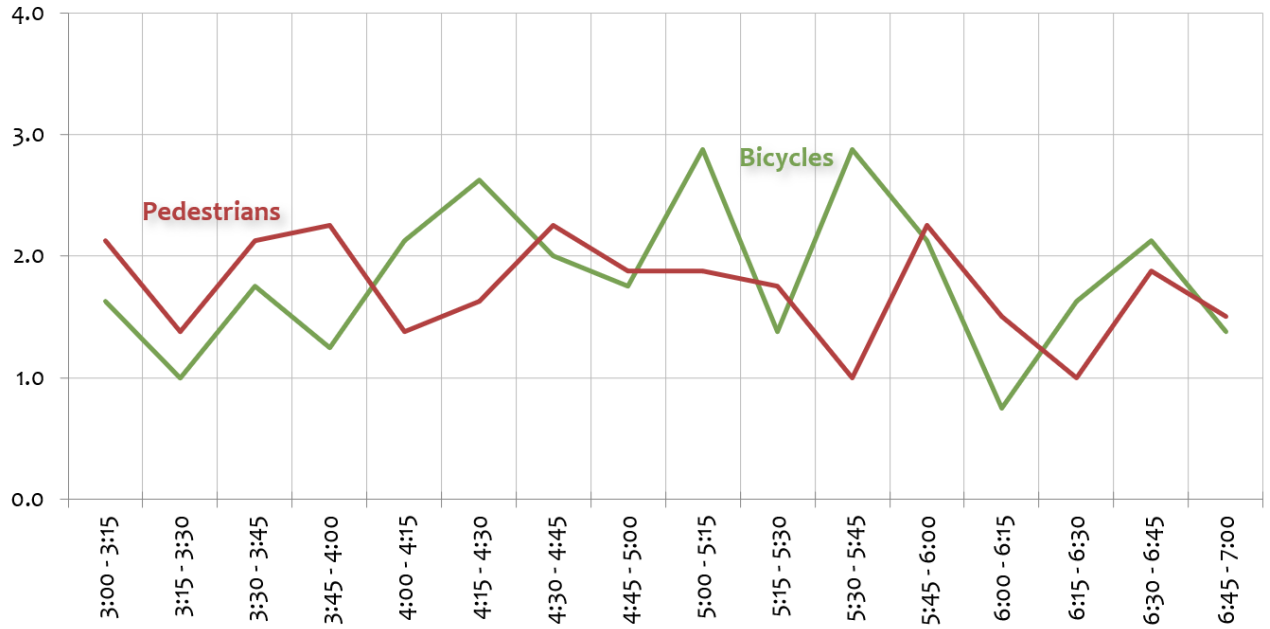
3. Fargo—12th Ave N viaduct (between 19th St & 29th St) (Average of years 2013-2022)

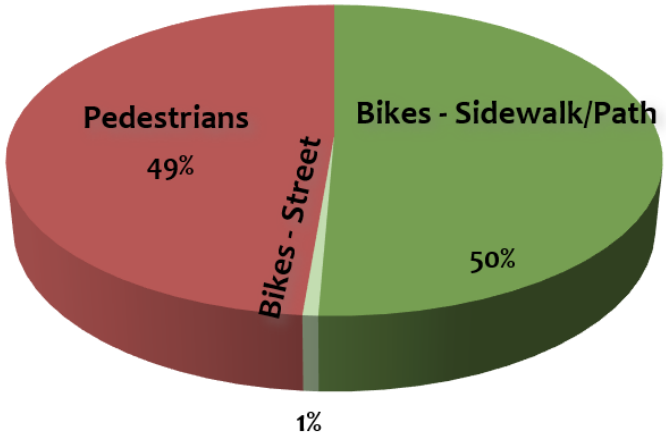


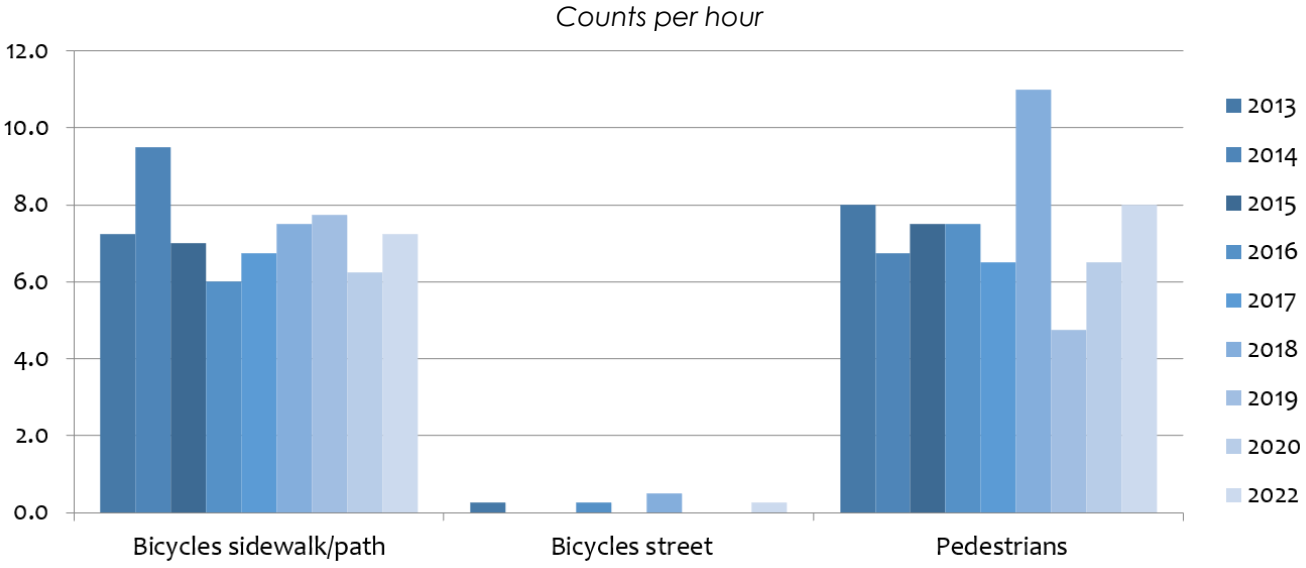




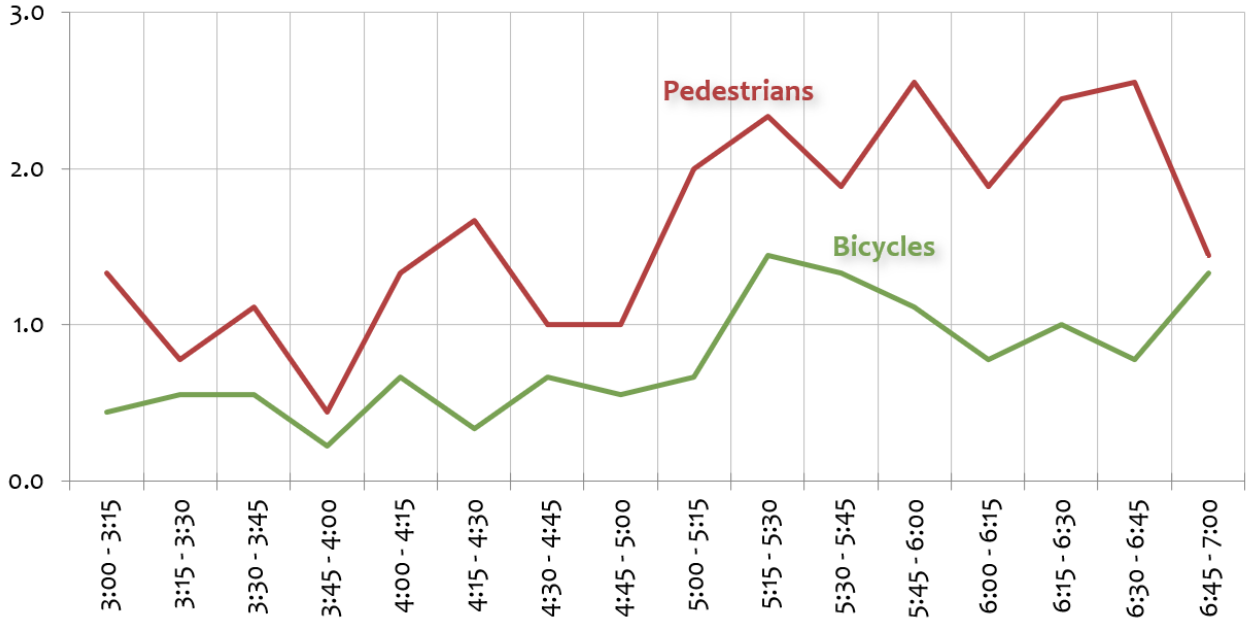
4. Fargo—13th Ave S under I-29 (Average of years 2013-2022)

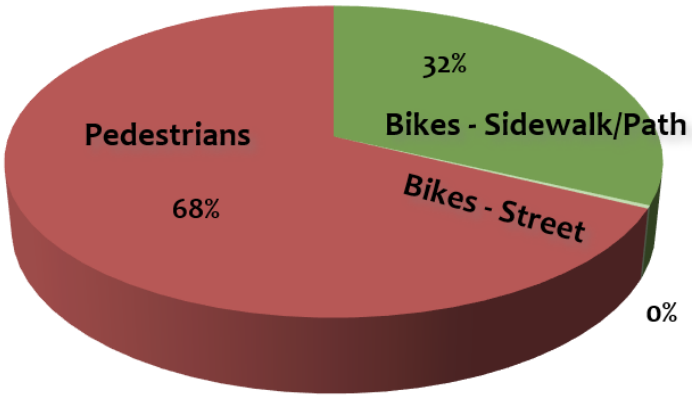


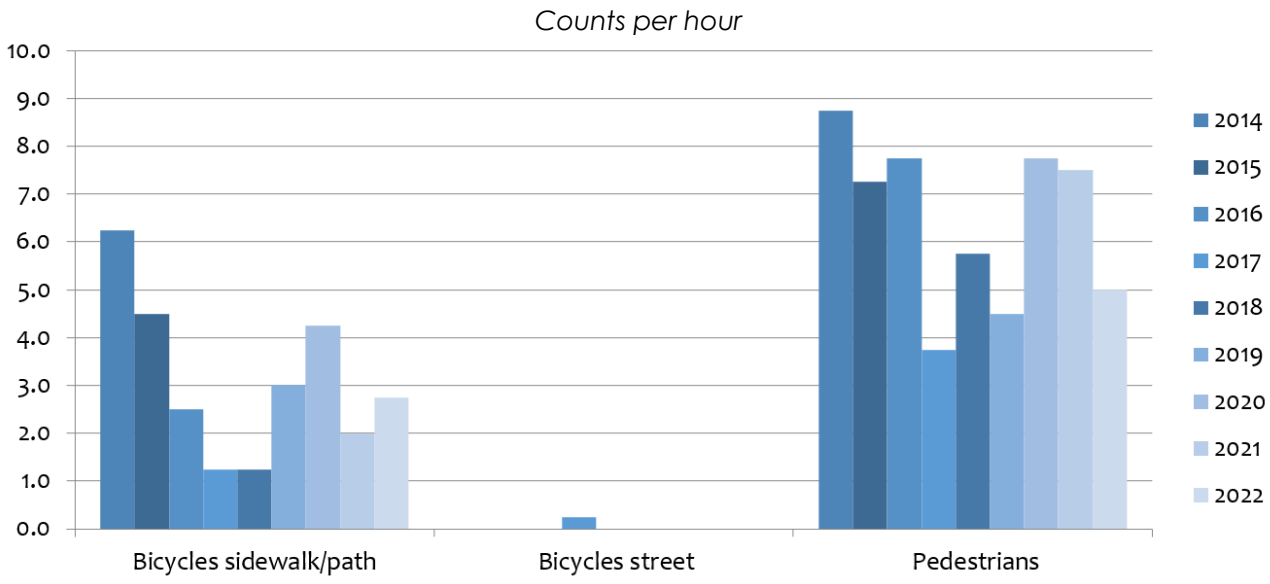




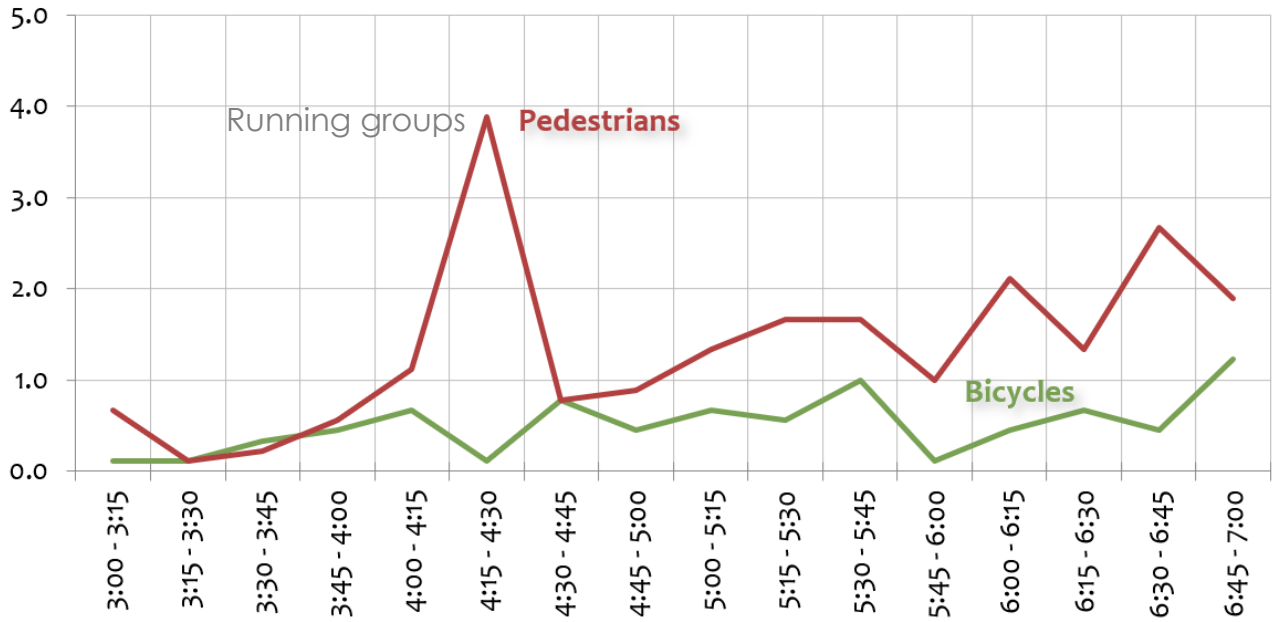
5. Fargo—45th St just north of 40th Ave S (Average of years 2014-2022)

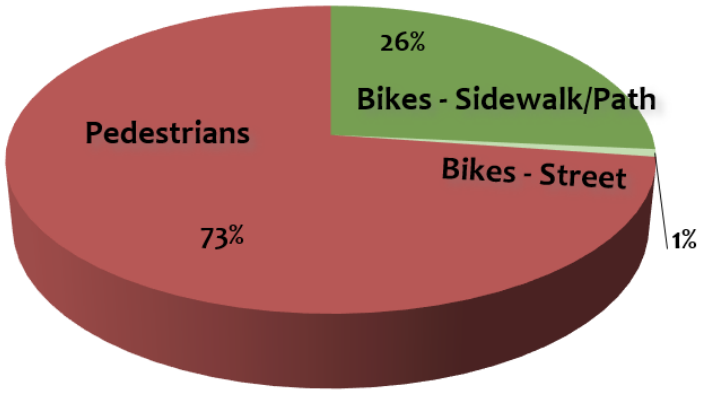


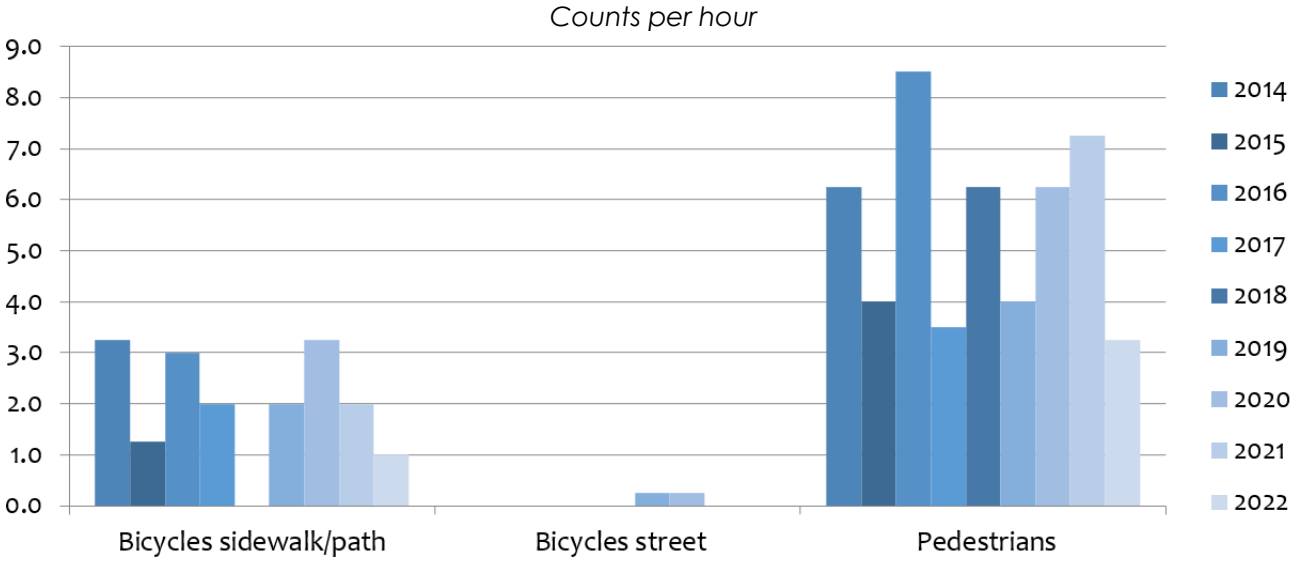




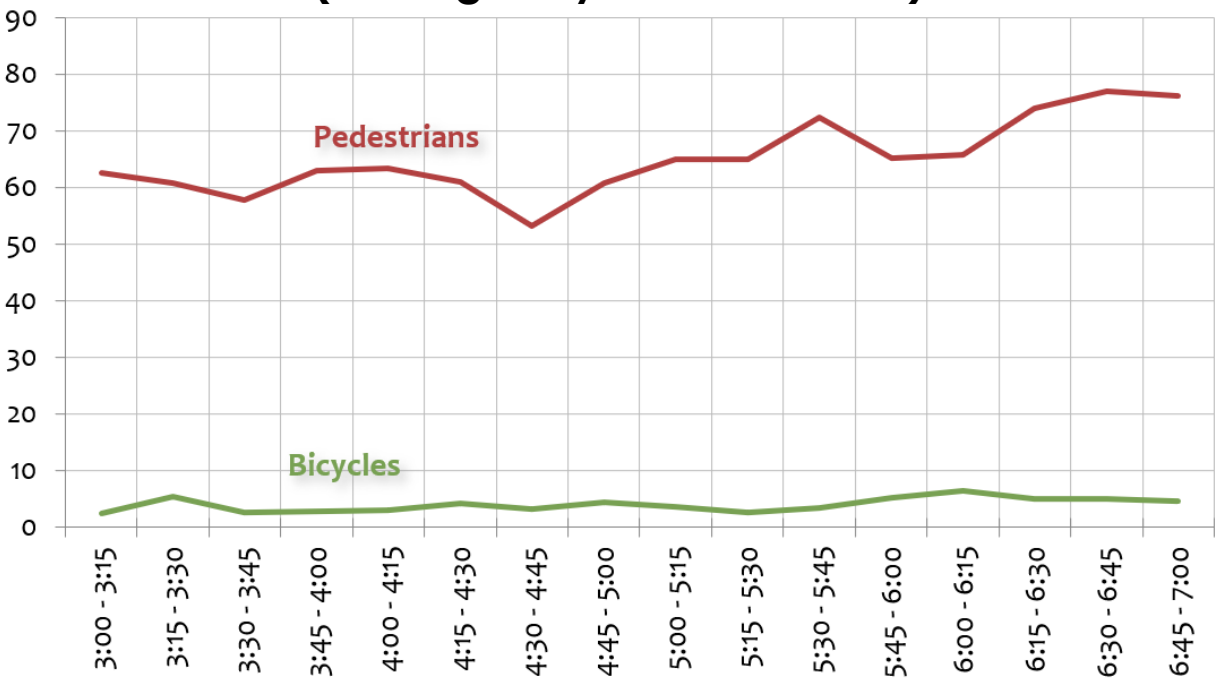
6. Fargo—40th Ave S just east of 45th St (Average of years 2014-2022)

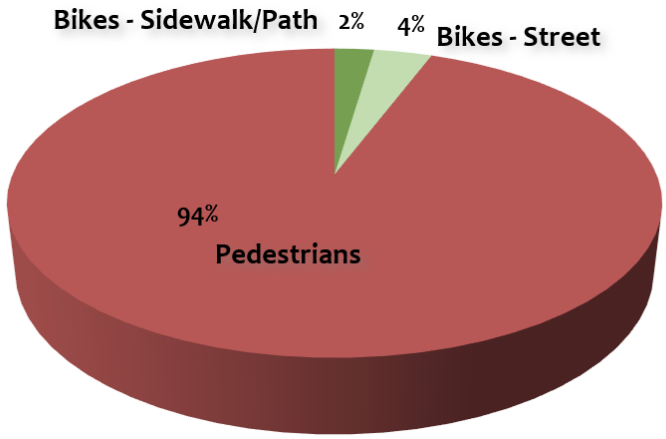


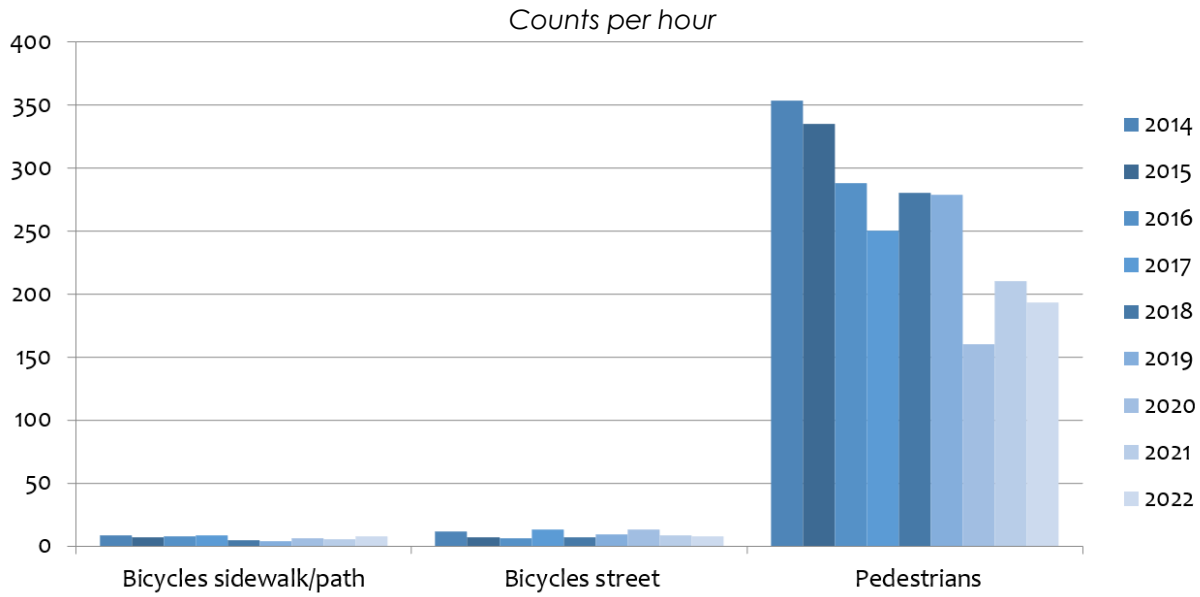




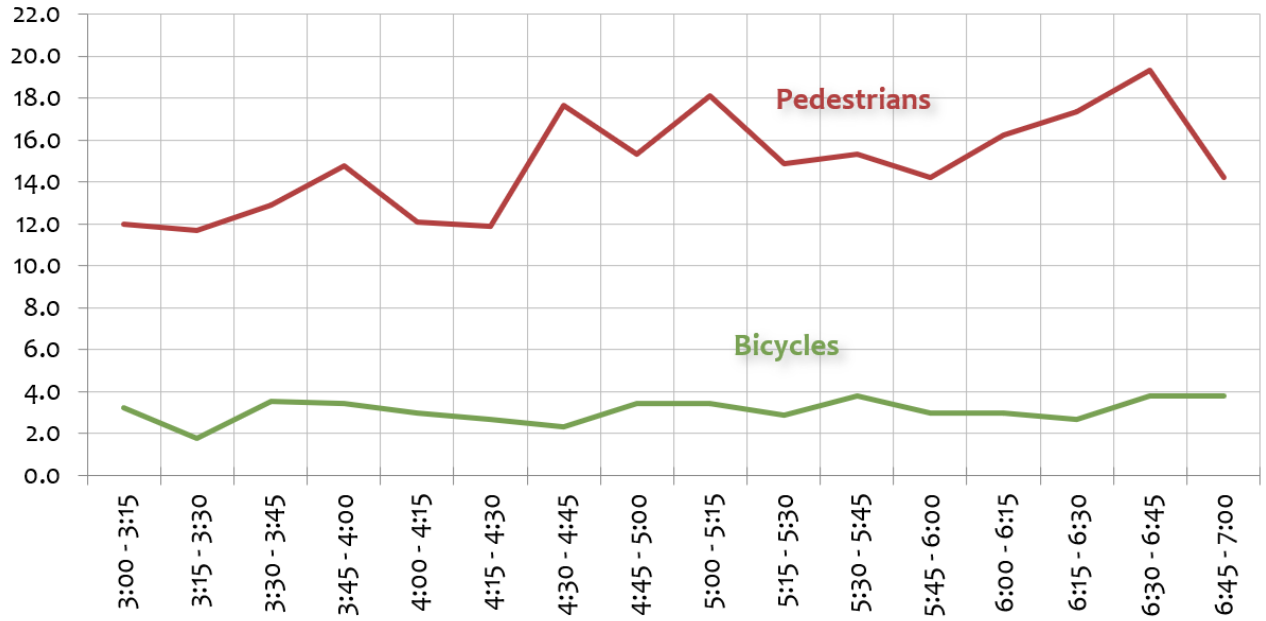
7. Fargo—Broadway just south of 2nd Ave N (Average of years 2014-2022)

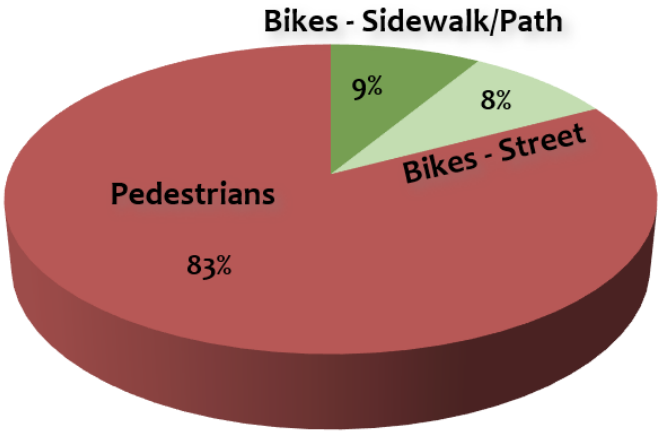


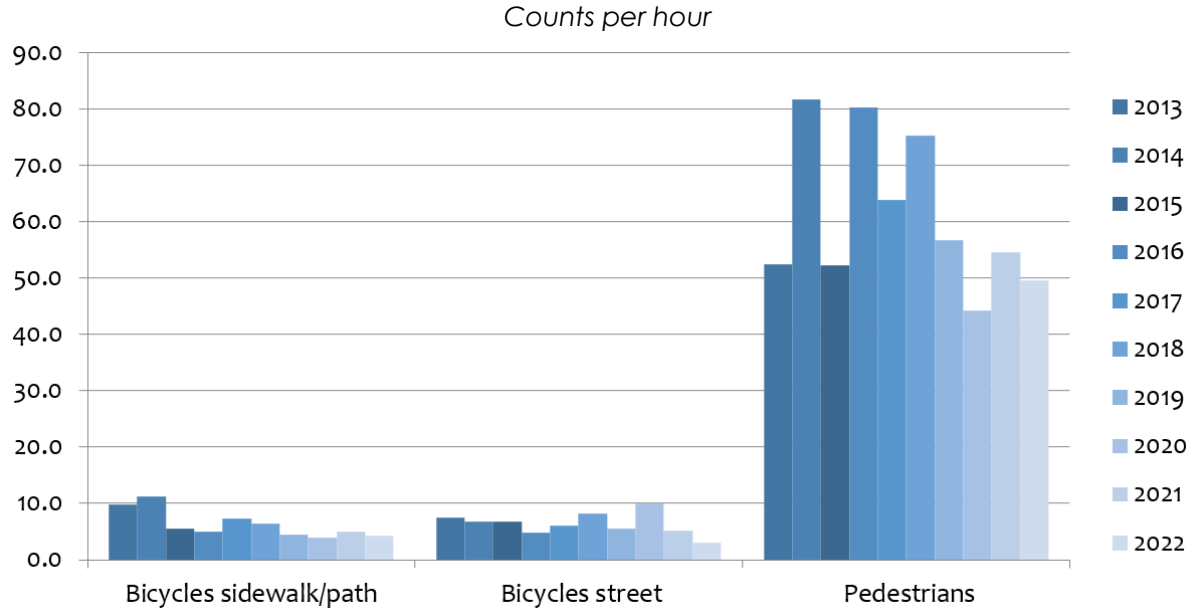




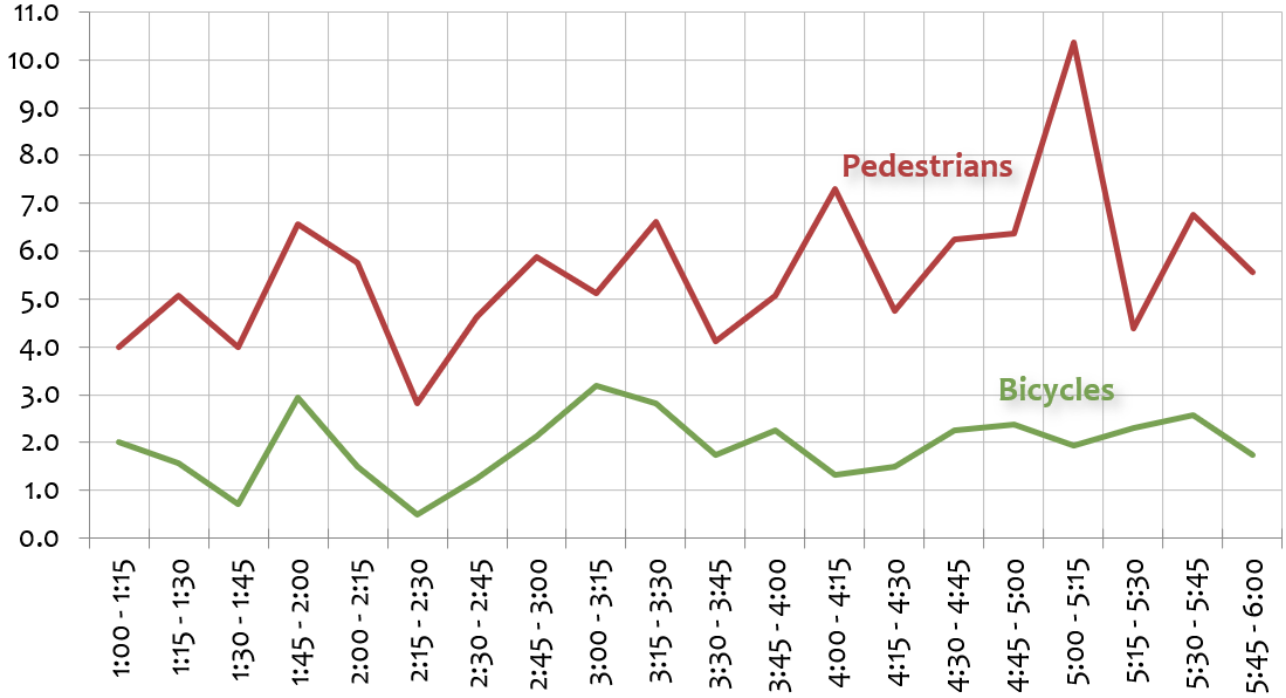
8. Fargo—Broadway at RR tracks (between NP Ave & Main Ave) (Average of years 2013-2022)

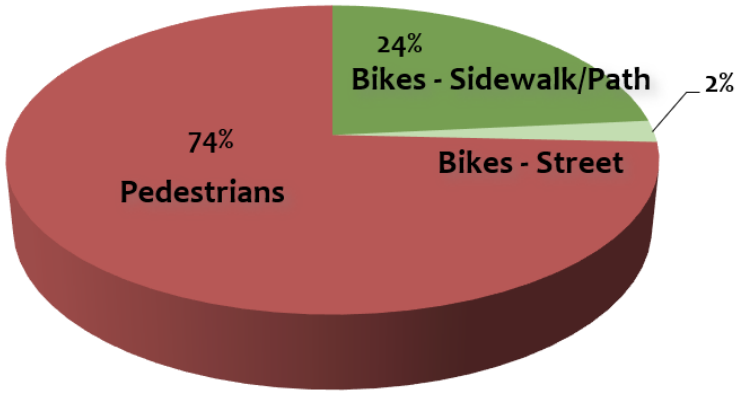


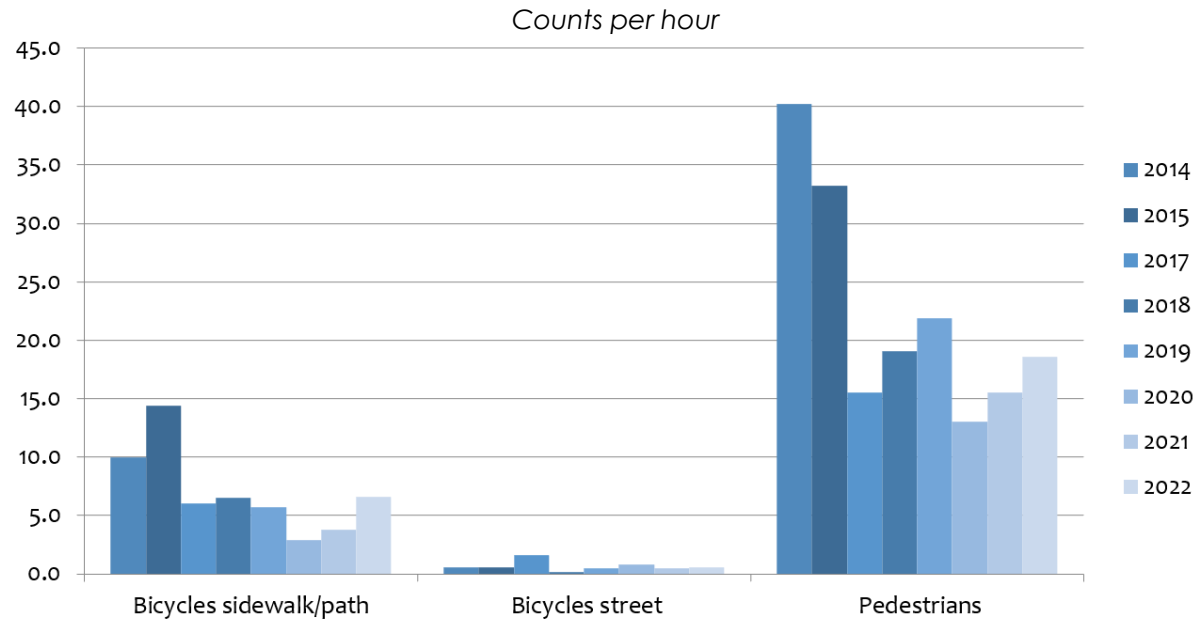




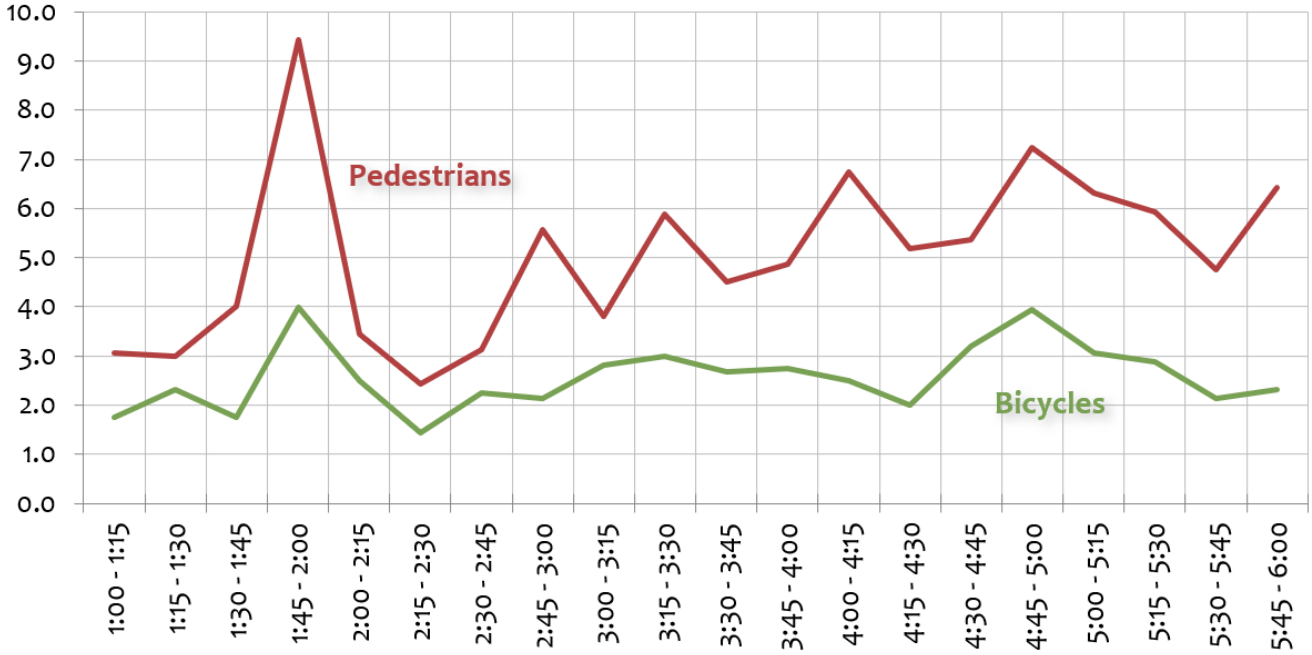
9. Fargo—12th Ave N just west of University Dr. (Average of years 2014-2022)

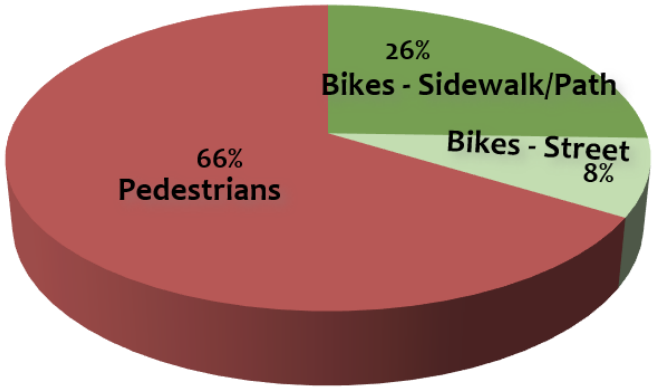




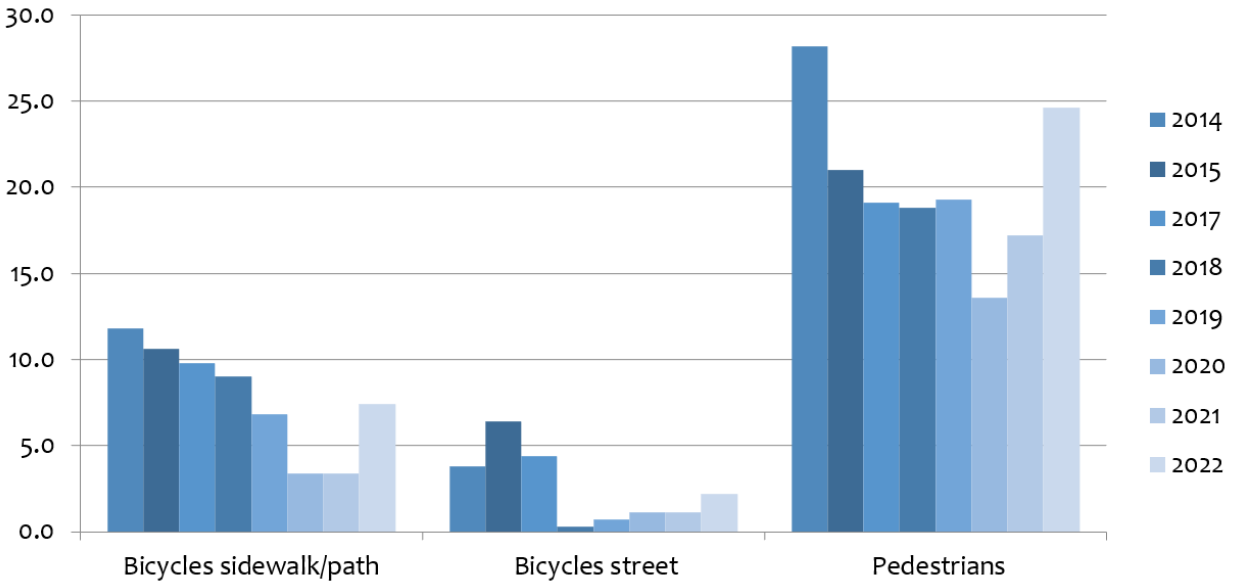


10. Fargo—University Dr just north of 12th Ave N (Average of years 2014-2022)

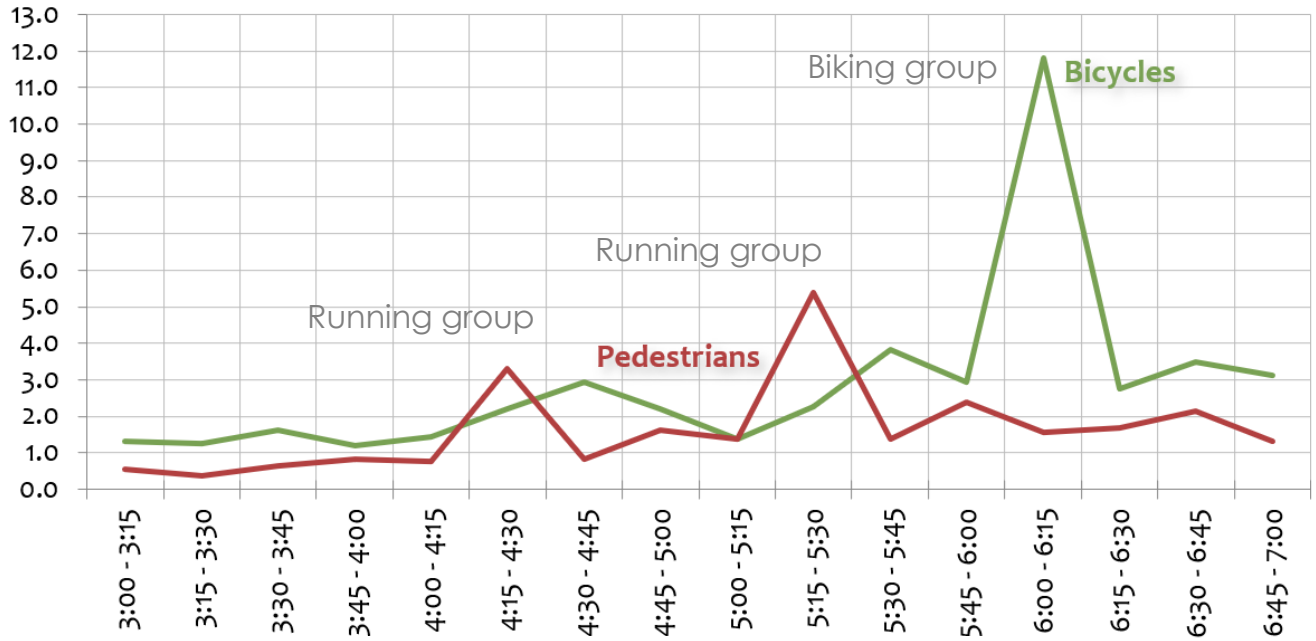


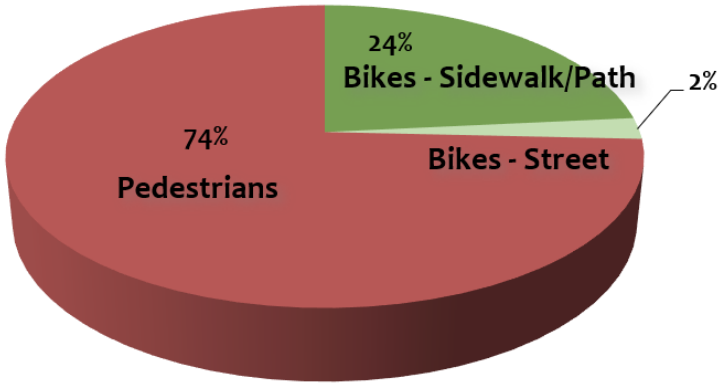


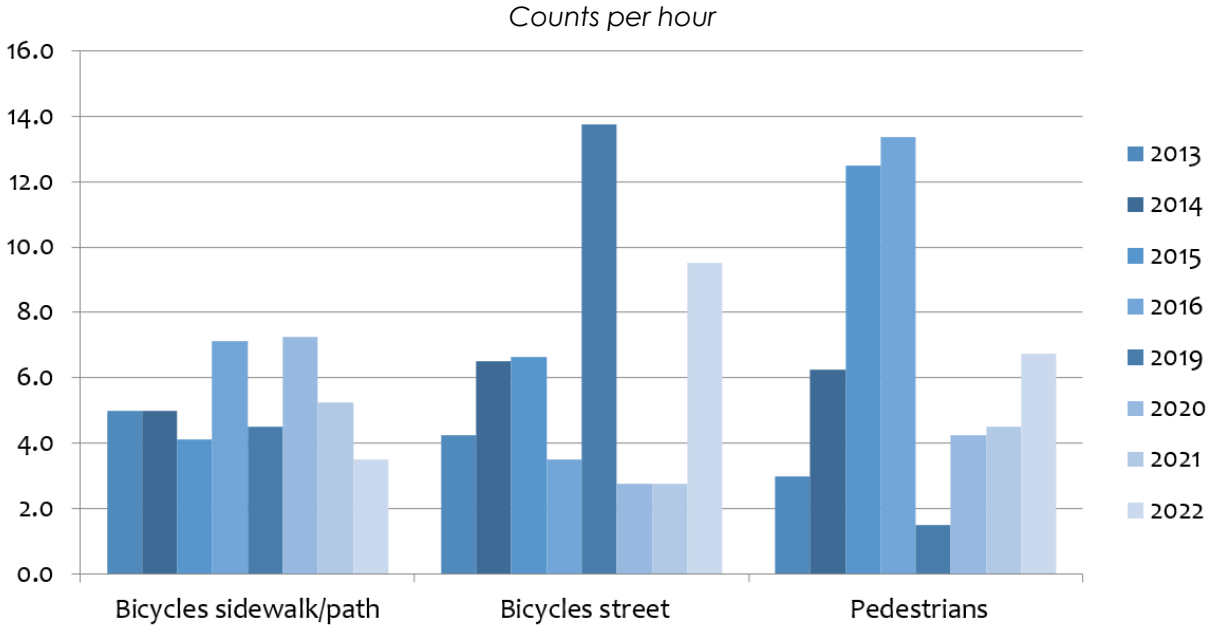
Counts per hour



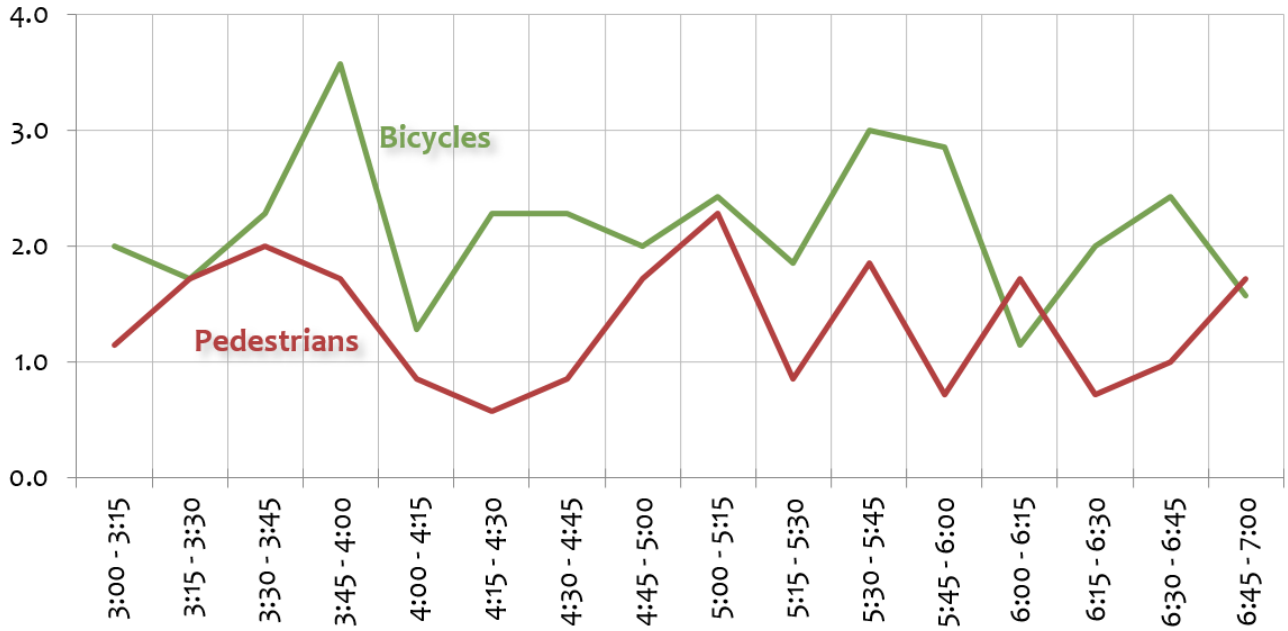
11. Fargo/Moorhead—12th Ave N/15th Ave N Bridge over Red River (Average of years 2013-2022)

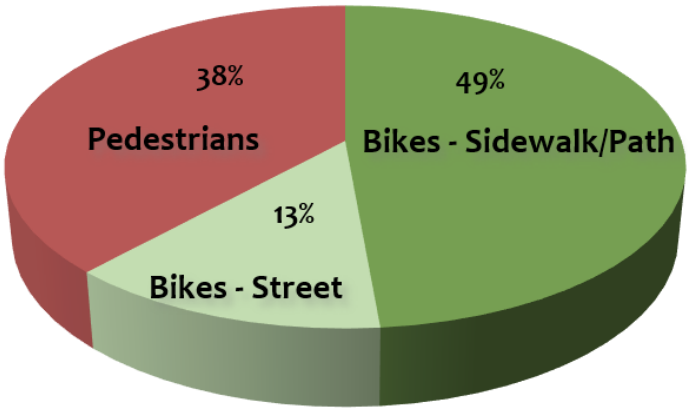


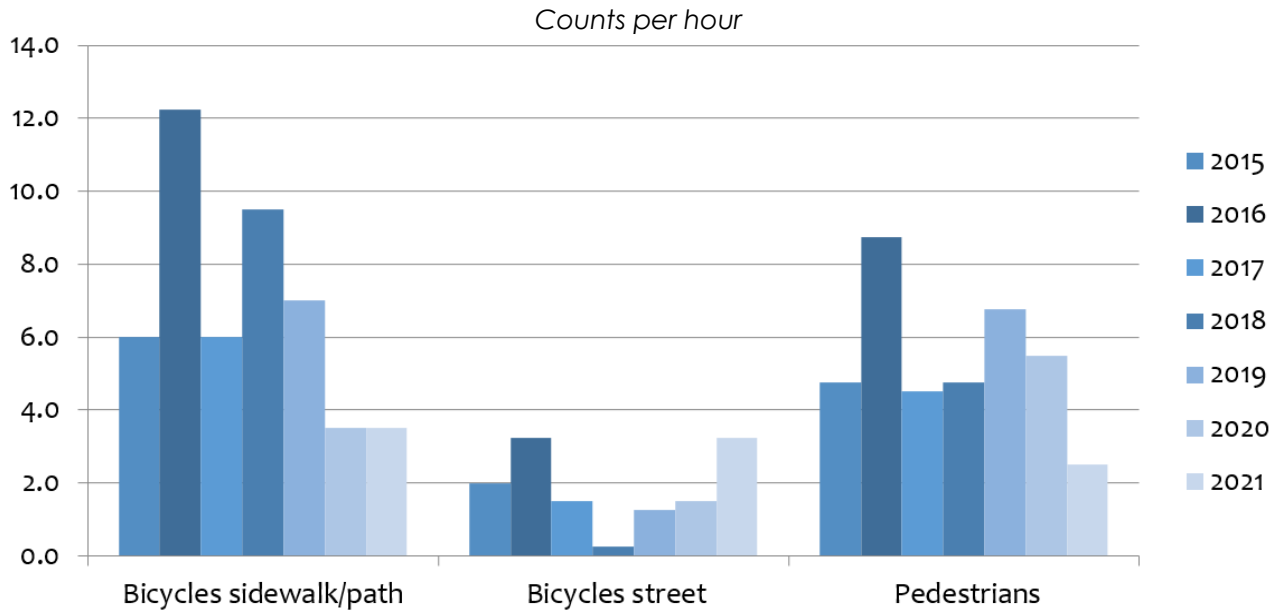




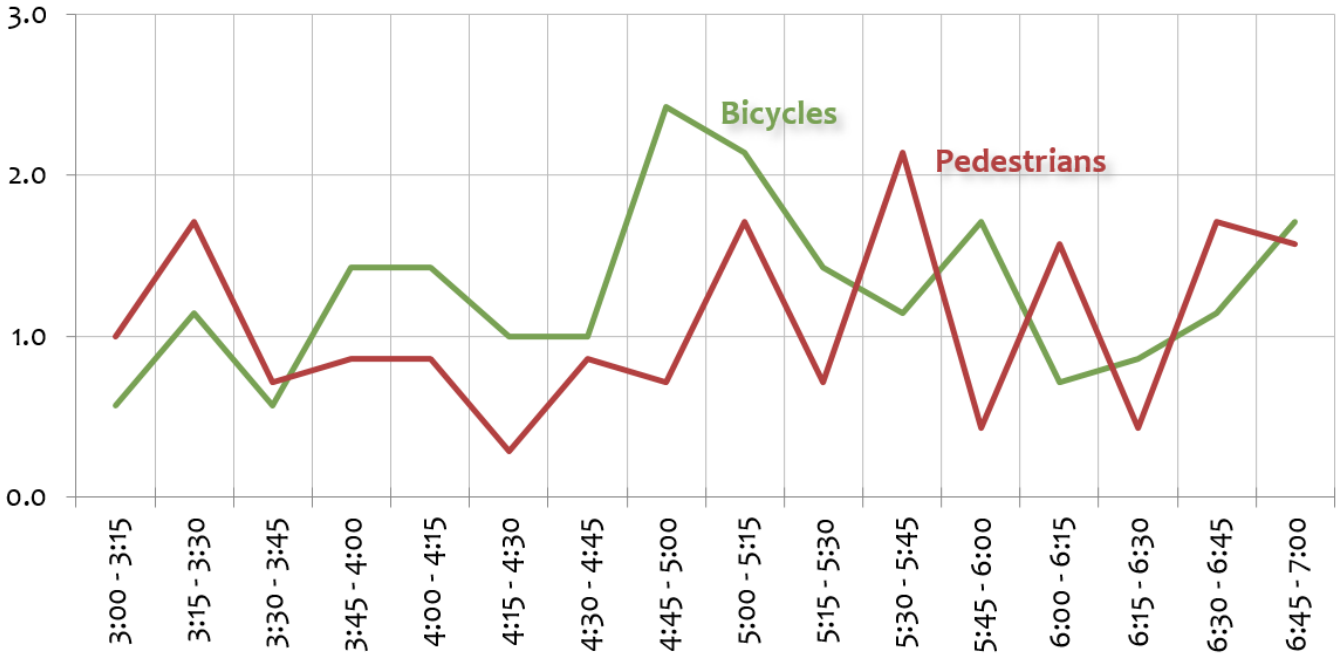
12. Fargo/ Moorhead—NP Ave/Center Ave bridge over Red River (Average of years 2015-2021) (No 2022 data)

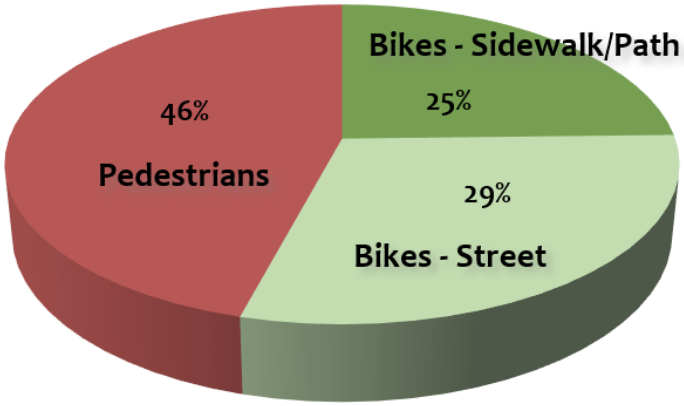


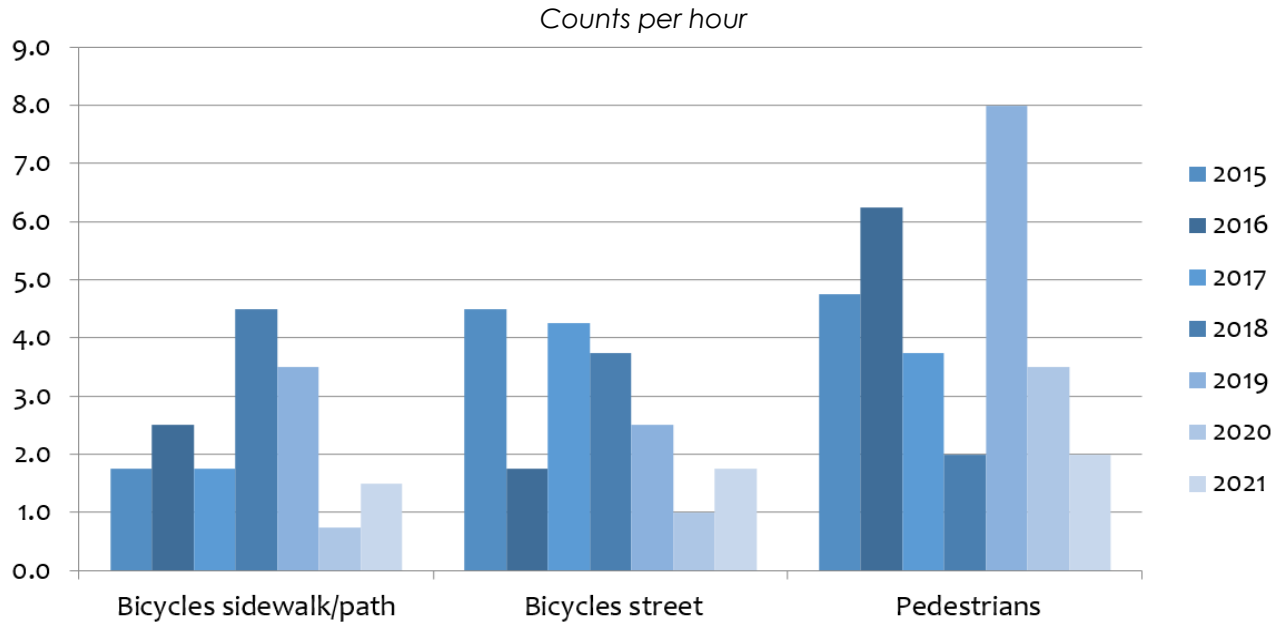




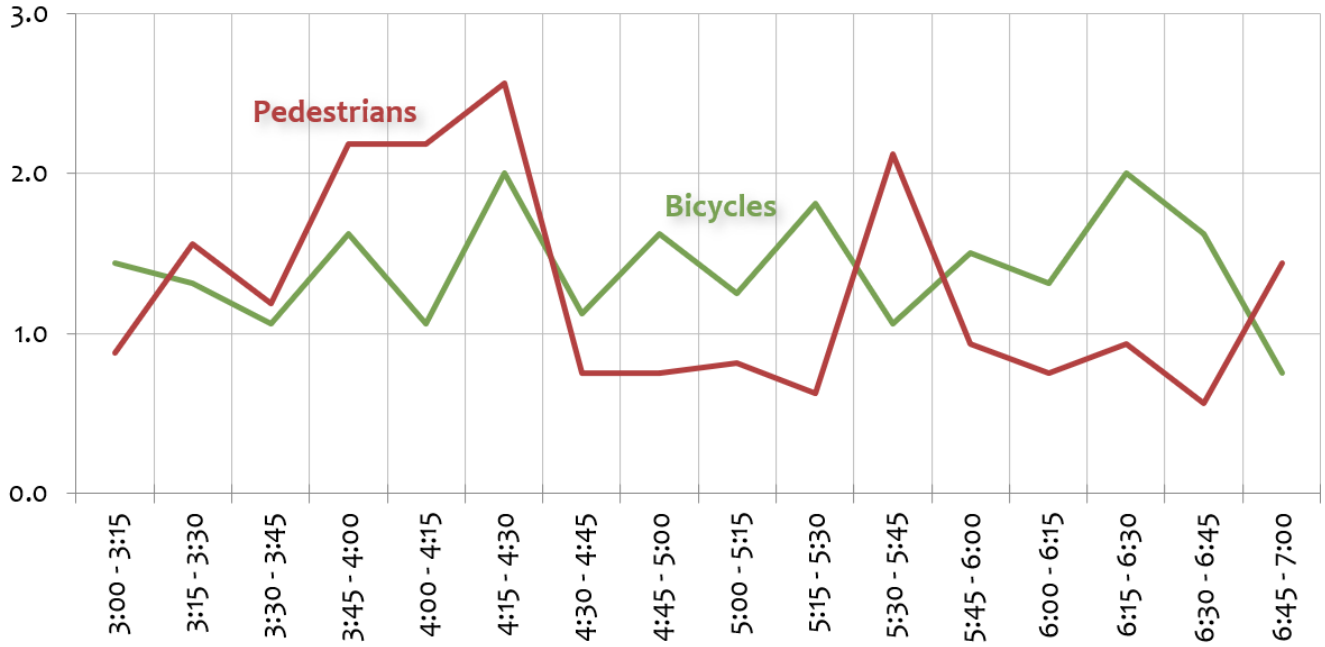
13. Moorhead—4th St just south of Center Ave (Average of years 2015-2021) (No 2022 data)

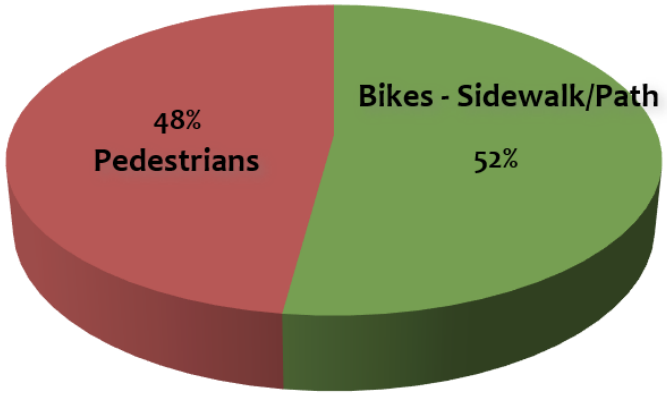


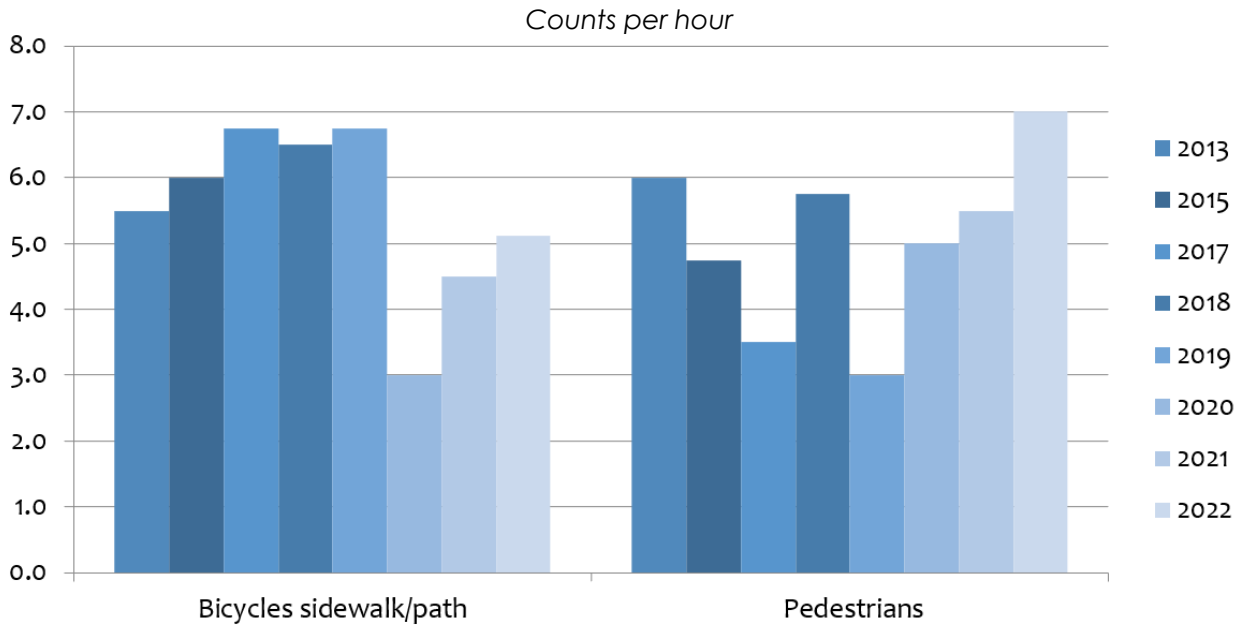




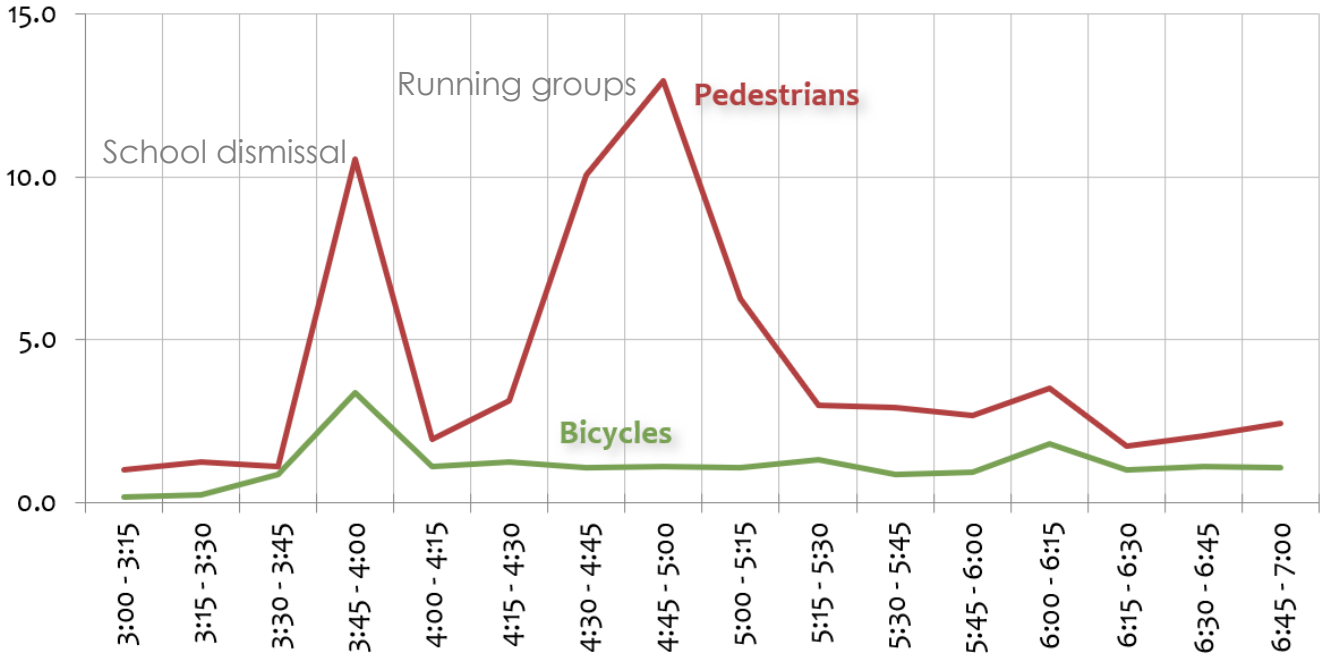
14. Moorhead—8th St over I-94
(Average of years 2013-2022)

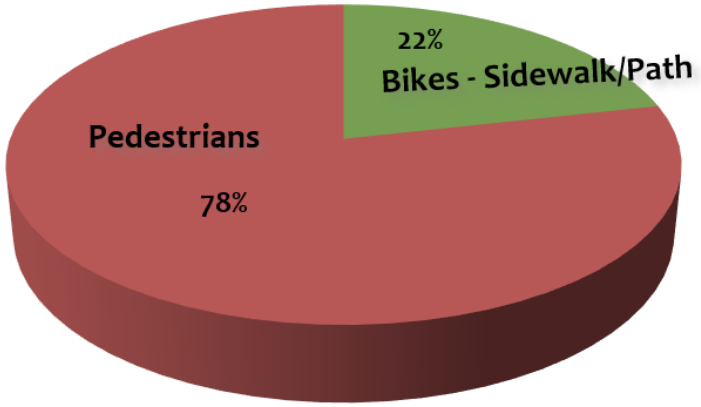


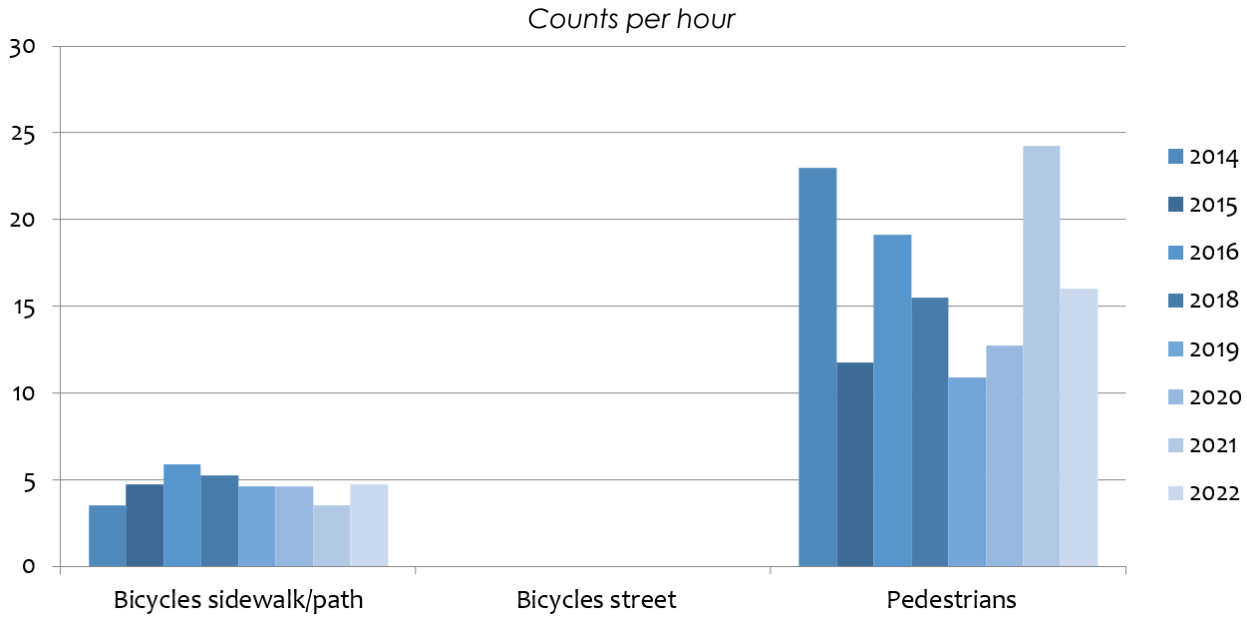




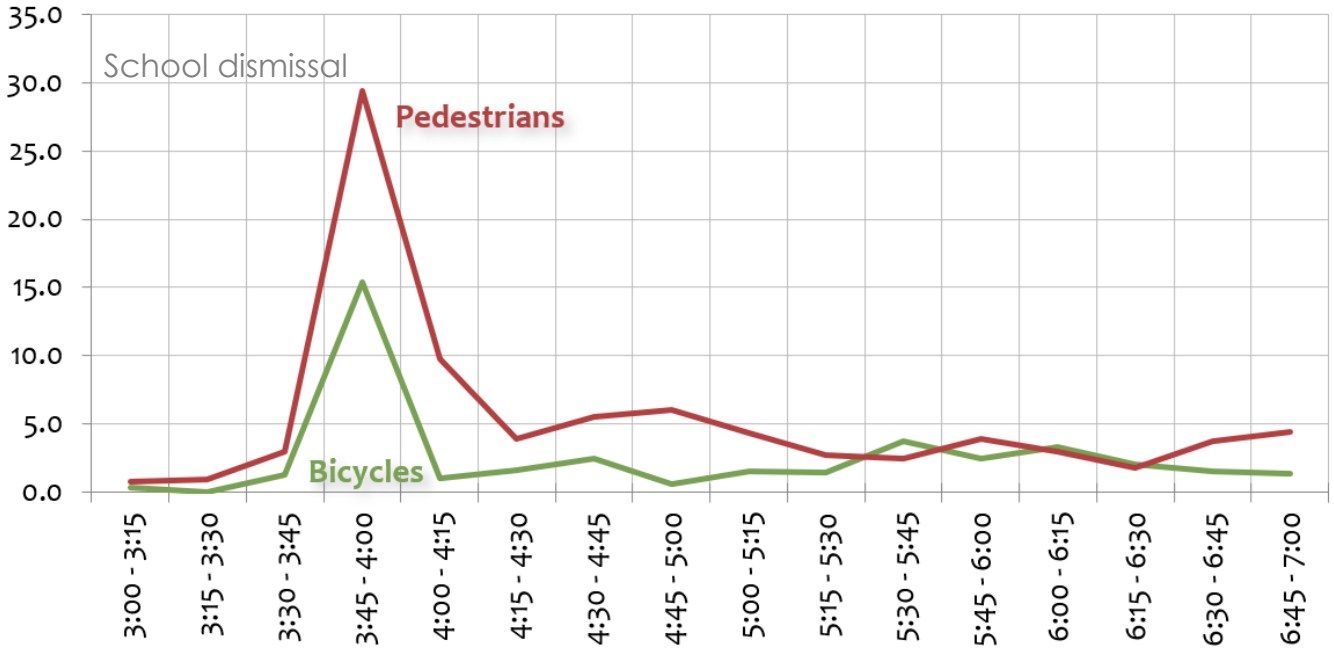
15. West Fargo—9th St just south of 17th Ave E (Average of years 2014-2022)

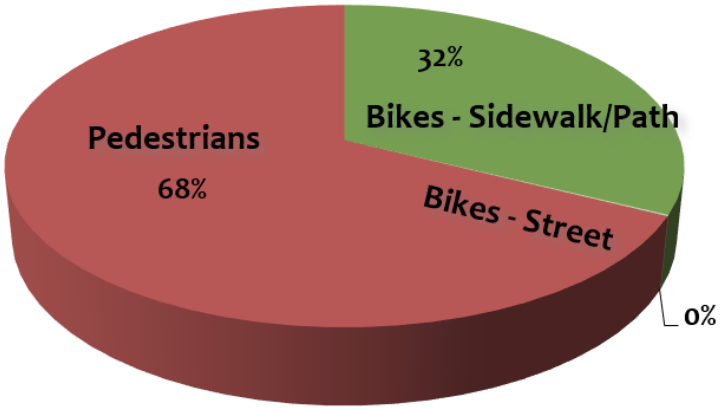


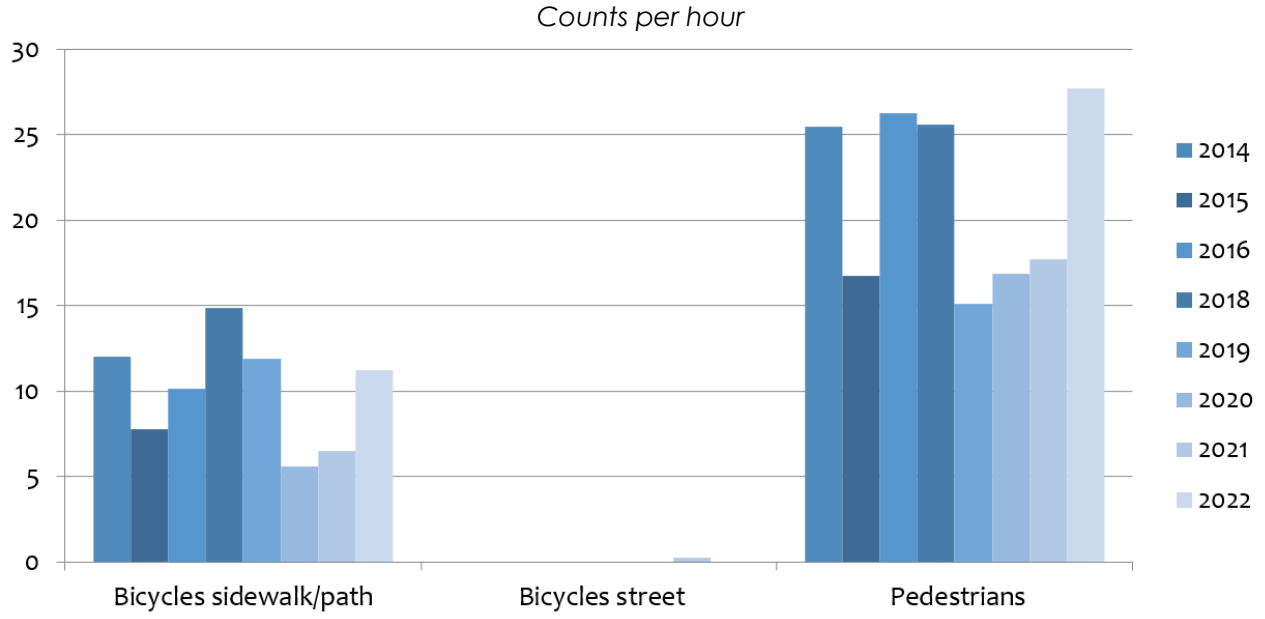




16. West Fargo—17th Ave E just west of 9th St (Average of years 2014-2022)







17. Fargo—NDSU Gate at NW Corner of University Dr and 12th Ave N (Average of years 2014-2022)