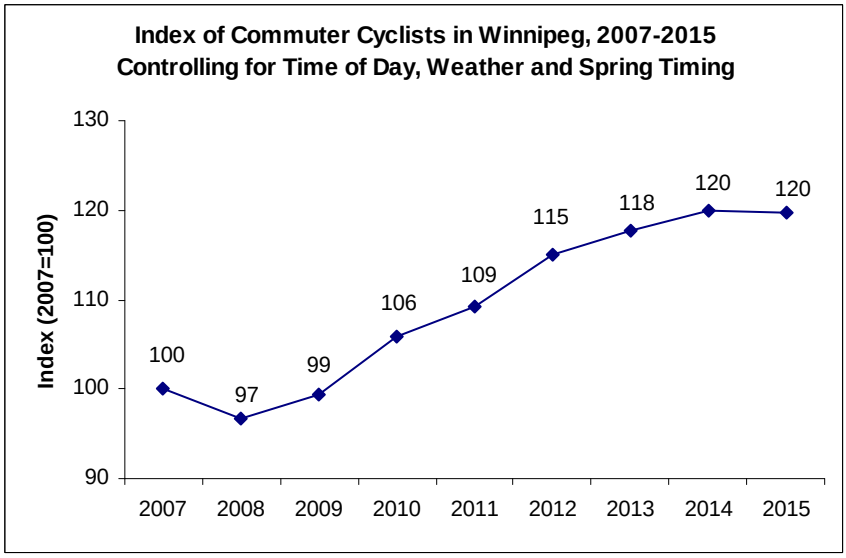
Commuter Cycling in Winnipeg, 2007 - 2015
Executive Summary

Volunteers from Bike Winnipeg (formerly Bike to the Future) have been conducting spring counts of bicycle traffic since 2007 in order to provide solid information about the numbers of commuter cyclists in Winnipeg based on direct observation. During May and June of 2015 we completed 86 counts at 25 locations in Winnipeg. Since 2007 we have completed 615 counts at 100 locations. (See Appendix B for summary data on the 2015 counts.) Our analysis resulted in these findings:

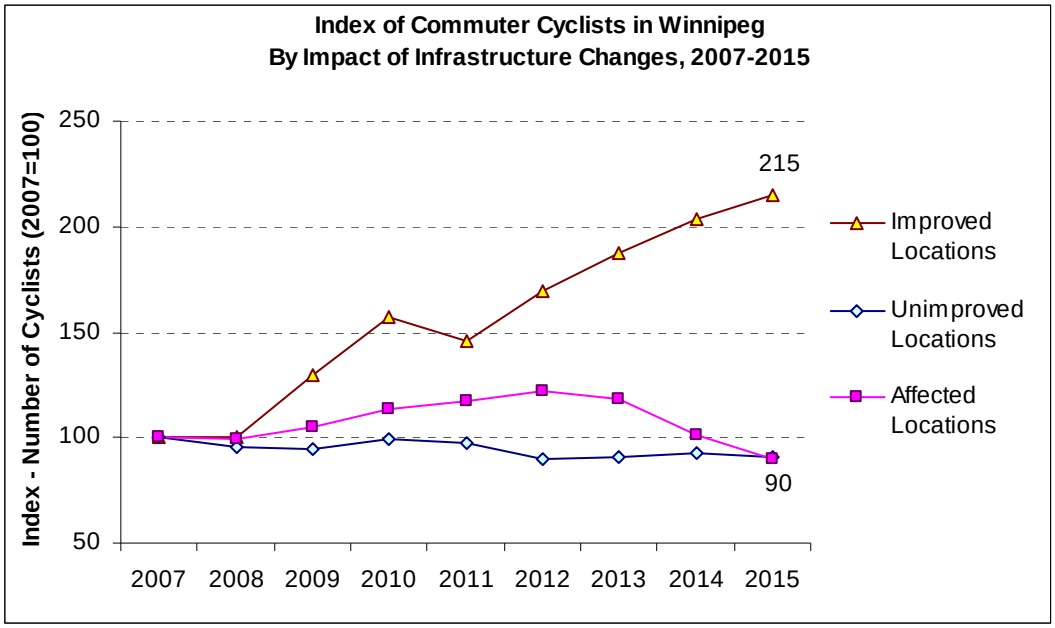
Commuter Cycling Up 20% Since 2007

After controlling for location, weather, time of day and spring timing, it is estimated that commuter cycling has increased by about 20% since 2007 at our counting locations. The largest increase has been during the 2009-2012 period following the funding of many new bicycle facilities by the federal infrastructure stimulus program. Growth in commuter cycling appears to have leveled off over the past two years.



Increase in Commuter Cycling Where Bike Lanes and Paths are Available

Cycling trends are related to the availability of bicycle lanes and paths. At locations where bike lanes or paths have been completed in recent years the number of cyclists increased dramatically. **Since 2007 bicycle counts at these locations have increased by 115%.** On the other hand there was no change in bicycle counts at locations without such improvements. At four locations new bicycle infrastructure appears to have diverted cyclists away from unimproved facilities.

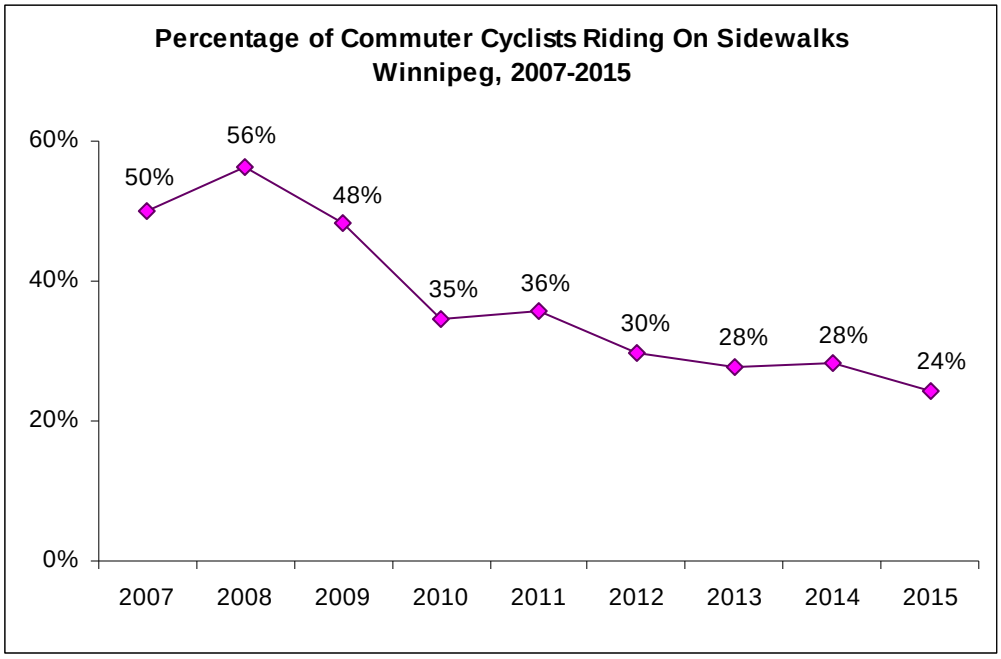


More than 14,000 Daily Bicycle Commuters in Winnipeg

- In **downtown Winnipeg** average daily bicycle traffic (number of cyclists) traveling during a typical weekday in May or June is estimated at **14,200.**
- Assuming each cyclist is counted twice, traveling both in and out of downtown, the number of downtown commuter cyclists is estimated at half of the total daily traffic or **7,100**.
- Given that downtown commuters are about 48% of the total number of Winnipeg commuter cyclists, the number of bicycle commuters for the city as a whole on a typical weekday in May or June is estimated at **14,780**. The total number of commuter cyclists in the city would be higher, given that not every cyclist commutes every day.

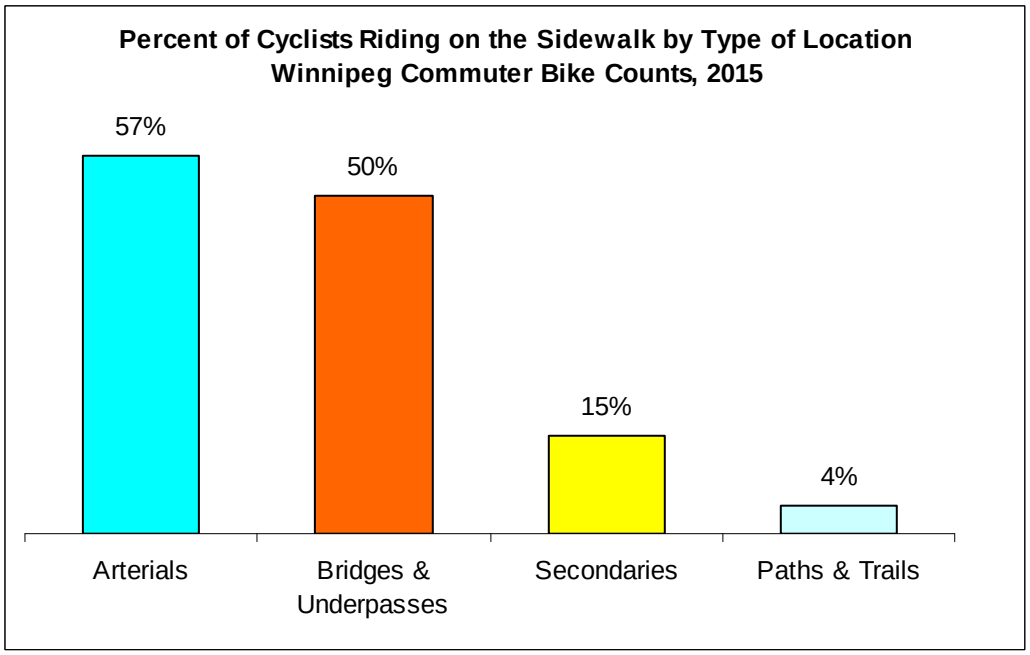
Less Sidewalk Riding Where Bike Paths Exist

Although cycling on sidewalks is illegal in Manitoba, except where explicitly permitted, many cyclists ride on the sidewalks, either for convenience or out of fear of riding in the street. At the locations we monitor, the proportion of cyclists riding on the sidewalks declined from 53% in 2010 to 28% in 2014. The percentage riding in the street has also declined, from 44% to 26%. At the same time the percentage of cyclists riding on bike lanes or paths has increased from 6% in 2007 to 45% in 2014. In short, there has been a major shift in bicycle traffic from sidewalks and roads to bike lanes and multi-user paths. The timing of these shifts coincided with the completion of a number of new bike lanes and paths in 2010 and subsequent years.



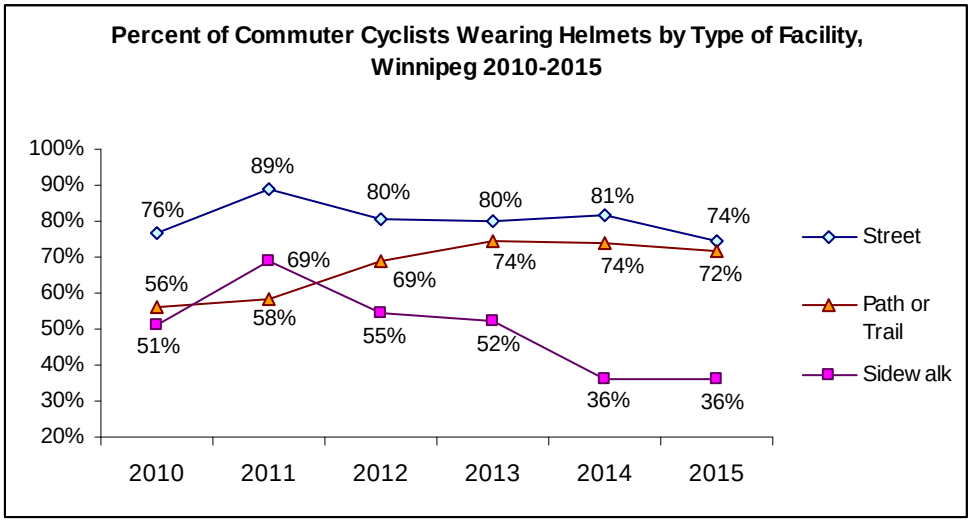
Most Cyclists Ride on Sidewalks on Major Arteries, Bridges and Underpasses

Sidewalk riding remains high on major arteries where the majority continue to take to the sidewalks. Where bike lanes or paths are available few ride on the sidewalks.



Helmet Use Higher on Roads than on Sidewalks

In 2015 64% of commuter cyclists wore helmets, down slightly from 2014. While 74% of cyclists riding in the street wore helmets, only 36% of those riding on sidewalks wore helmets.



Conclusions

Over the past several years Winnipeg has been gradually increasing the extent of facilities designed for cyclists, including the provision of multi-user paths, separated or buffered bike lanes, painted bike lanes, and traffic calming devices. Many of the new facilities were built as part of the federal infrastructure stimulus program, coming on line in the 2009-2011 period. More recently there have been some improvements on a few major bridges, and the development of separated bike lanes on Sherbrook Street and Pembina Highway, but investment levels have been relatively low. In 2015 the City adopted a new pedestrian and cycling strategy with more ambitious goals. If this results in a more substantial investment in cycling infrastructure we can expect to see increased cycling levels in the future.

There is strong evidence that even the limited construction of new cycling infrastructure that has occurred since 2009 has had a positive impact on the numbers of cyclists in Winnipeg. This year's bike counts and analysis suggest that there has been substantial growth in cycling but that this growth has stalled. Growth has taken place primarily at locations with new bike lanes and multi-user paths have been built, and primarily during the period when new infrastructure construction was at its height. The locations with these new bicycle facilities have seen a reduction in sidewalk riding. On the other hand, major bridges and underpasses that have not yet been improved or which do not have bike lanes continue to push cyclists onto the sidewalks, or to discourage them from riding at all. If these major barriers are dealt with the frequency of cycling throughout the entire cycling network can be expected to increase.

In addition, we reached the following conclusions:

- After taking into account location, weather conditions, spring timing and time of day, commuter cycling in Winnipeg has increased by about 20% over the past nine years.

However, at the locations with separated bike lanes or paths there has been a 115% increase over this time period.

- On a typical weekday in May and June an estimated 7,100 cyclists commuted in and out of the downtown area of Winnipeg, and throughout the entire city a of about 14,790 cyclists commuted on a given day. The total number of regular commuter cyclists in the city would be higher, given that not every cyclist commutes every day.
- Sidewalk riding has been declining where bike paths and trails are available. More than half of cyclists ride on the sidewalks on major bridges and underpasses, but where bike paths exist, only 4% ride on sidewalks.
- There has been a major shift in bicycle traffic from sidewalks and streets to bike lanes and multi-user paths *where they have been provided.*
- 64% of commuter cyclists wear helmets. Women are more likely to wear helmets than men and those riding in the street are more likely to wear helmets than those riding on sidewalks.
- Women make up 29% of commuter cyclists in Winnipeg.

A more comprehensive survey would be needed to more accurately estimate the number of cyclists, and the bicycle share of traffic in Winnipeg. The only such survey done on a regular basis is the Census of Canada (2001 and 2006) and its successor, the National Household Survey (2011), which identify the number of people commuting to work by mode of transportation in 2001, 2006 and 2011. Data from these sources suggests that commuter cycling increased in the City of Winnipeg by 32% between 2006 and 2011.

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Commuter Cycling in Winnipeg, 2007-2015

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1. Bicycle Counting in Winnipeg

For the past nine years Bike Winnipeg has recruited volunteers to count cyclists traveling during rush hour at selected locations. The timing and locations are designed to capture commuter traffic broadly defined. The timing of the counts means that most of the cyclists are likely to be traveling to work or school, although some are likely to be traveling for other reasons, such as shopping, going to appointments or recreational activities. Non-commuter traffic is probably more frequent during our afternoon counts when we notice more children and families traveling.

Most counts this year were done mid-week during May and June. Because we had a special focus on the CPR Yards Crossing Study area, we included several new counting locations in that area and conducted some of the counts on Saturdays. This was intended to be consistent with other traffic data being collected for that study. During May and June of 2015 we completed 86 counts at 25 locations in Winnipeg. Since 2007 we have completed 530 counts at 34 locations. (See Appendix B for summary data on the 2015 counts.) Since 2007 we have completed 615 counts at 100 locations.

The purpose of these counts is to document the level of bicycle traffic during rush hour at key locations, especially in downtown Winnipeg, at locations with high traffic levels, and where new bicycle infrastructure is being planned or has been built. By counting at the same locations during different months and years, we are able to document peak flows and trends in commuter cycling and estimate the total daily bicycle traffic at these locations. The counts provide baseline data for planning and assessing improvements to cycling infrastructure. They are also useful in documenting before & after counts at locations where new bicycling infrastructure has been built.

Counting locations include several bicycle commuting "choke points," such as bridges and underpasses through which cyclists must pass traveling to or from the downtown area. The choice of locations is also based in part on the availability of our volunteers who are all bicycle commuters themselves. We see the counting process as one way for people to become involved in cycling issues, and we also value the local knowledge of cycling that these volunteers bring with them.

2. Survey Methods

Volunteers are recruited mainly through the Bike Winnipeg email newsletter, and among past volunteers. We had 33 volunteers in 2015, most of them having volunteered in previous years. Instructions are generally transmitted by email. A tally sheet that includes survey instructions is emailed to each volunteer, along with a spreadsheet for summarizing and reporting the results. Using the tally sheet, volunteers count cyclists passing a given point within five minute time blocks, identifying those traveling on the street separately from those traveling on the sidewalks. There are separate columns for those traveling "in" or "out" for the road, for each sidewalk and for separate bike paths where they exist. The tally sheets are adapted to various locations as required. Volunteers are given the option of counting pedestrians as well as cyclists, keeping track of the gender of the cyclists and whether they were wearing helmets. The decision to include this information is based on the volunteer's interest and how busy the location is. Some locations are too busy to try to keep track of all of these factors. We follow the standard "screen line" counting method; volunteers count all cyclists who cross an imaginary line on the road, whether they are riding on the sidewalk, the street, or a bicycle path/trail. In some cases counters also kept track of traffic on a second cross-street at an intersection, doing two separate screen line counts at the same time.

The survey manager coordinates the counting process and assignment of locations and provides forms, counting procedures, and other information to the volunteer counters. Volunteers may deliver their counts by email as spreadsheets, as scans of their tally sheets, or as faxes. The survey manager responds to questions from volunteers to clarify methodology and locations. With the help of volunteers, the survey manager enters the data, and then analyzes the results. The manager follows up with volunteers as needed to clarify information in their counts.

Volunteers are asked to do their counts for two hours during either the morning rush hour (between 6:30 and 9:00 am) or the afternoon rush hour (between 3:30 and 6:00 pm). In some cases volunteers have counted for shorter time periods, but no less than 90 minutes, and in these cases their results are extrapolated to arrive at two hour estimates. In other cases, volunteers have counted for longer than two hours, and in these cases the two hour period with the highest number of cyclists is used.

The targeted days for counting this year were mid-week days (Tuesday through Thursday) during May and June. This timing was selected for consistency and to enable us to compare counts at the same location done in different years and weather conditions. This year some counts were done from 12 noon to 2 pm on Saturdays in the CPR Yards Crossing Study area. The number of such counts was limited by the number of available volunteers.

Most of the data from the individual counts is entered into a data base, including:

- Location
- Date
- Start and end times
- Total count
- Two hour count or estimate
- Number traveling “in” and “out” (defined according to local traffic flows)
- Number riding on the road, on the sidewalks or on a bike path
- Pedestrian count (two hour) (if counted)
- Number of men and women, with or without helmets (if counted)
- Weather conditions at 7:00 AM (for morning counts) or 4:00 PM (for afternoon counts), including temperature, wind speed, and precipitation, based on official Environment Canada weather data at the Winnipeg Forks.

(Survey forms and instructions are available on request.)

3. Locations and Counts

From 2007 through 2015 Bike Winnipeg volunteers have completed 615 counts at 100 locations in Winnipeg. The number of counts and timing has varied among locations, ranging from only one count at some locations to more than 30 counts at others. The number of cyclists counted per two hours ranged from 1 to more than 500, with the highest counts recorded at Assiniboine Ave., Sherbrook-Maryland Bridges and Norwood Bridge. There can be a wide range between counts done at the same location at different times and under different weather conditions. These variations are related to several factors, the foremost being weather conditions, followed by time of year and time of day (afternoons are higher than mornings). There have also been variations from year-to-year. All of these factors will be described below.

A summary of this year's counts is provided in Appendix A.

4. Impact of Weather Conditions on Numbers of Cyclists

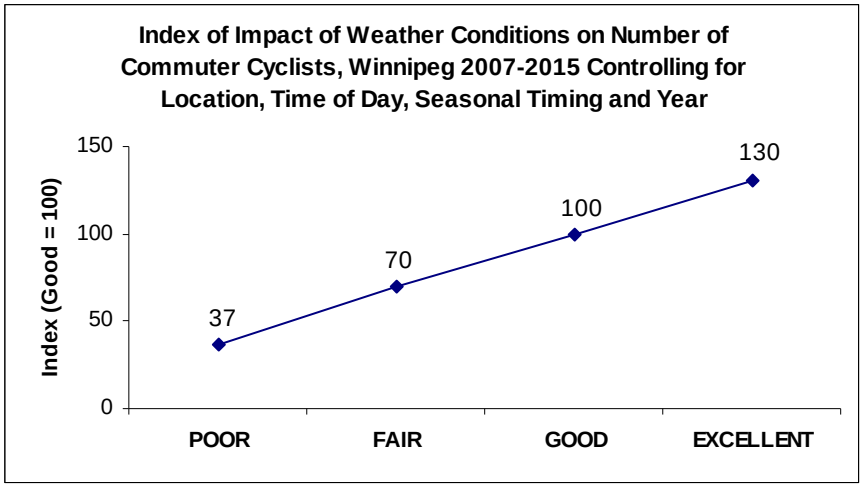
It is clear that weather conditions affect the numbers of people who travel by bicycle on a given day. Weather data is incorporated into the bike counts data base and a set of weather categories has been created, combining temperature, precipitation and wind speed (see box).

Weather Conditions – Definition of Categories

Poor:	Rain or Snow, or Temperature less than 0º Celsius
Fair:	Temperature = 0º to 8º Celsius, or wind of 40 km/hr or more (without rain or snow)
Good:	Temperature = 9º to 17º Celsius with wind less than 40 km/hr (without rain)
Excellent:	Temperature ≥ 18º Celsius with wind less than 40 km/hr (without rain)

The definitions of the categories are somewhat arbitrary, however it was found that these categories resulted in a clear relationship between weather conditions and numbers of cyclists, as shown in the chart below. The chart is the result of analysis of numbers of cyclists at a given location where all other factors were the same, including the year, time of day and seasonal timing. (Seasonal timing will be described below.) Only counts where all these factors were the same were included in the analysis. There were five pairs of counts comparing poor weather and fair weather; eleven sets comparing fair and good weather, and nine sets comparing good weather and excellent weather. Counts were totaled for each type of comparison and the ratios of the totals were calculated. These ratios were then used to create an index. For the sake of the index "good" weather conditions are set at 100.

Based on the 25 pairs of comparable counts, it was found that the number of cyclists increased as weather conditions improved. The relationship can be described in the following way: if 100 cyclists are likely to travel at a given location in good weather, then 38 are likely to travel at the same location in poor weather, 70 in fair weather, and 129 in excellent weather.



5. Morning and Afternoon Counts

Afternoon rush hour bicycle counts are consistently higher than morning rush hour counts. We have completed 60 pairs of AM and PM counts at the same location on the same day. The morning and afternoon counts were compared for a standard two hour period, and in 57 of these pairs the afternoon counts were higher. The total for the 60 two hour morning counts was 7,548 and the total for the 60 two hour afternoon counts was 10,068. The afternoon counts, therefore, were 33% higher on average than the morning counts. Normally weather conditions are somewhat better in the afternoon, which is likely to increase the number of people choosing to use their bicycle for an afternoon trip. Afternoon counts may also reflect other travel preferences, including the after school activity of students. Volunteers have often noted that there appeared to be more school-age children and non-commuters in the afternoons, as reflected by how they were dressed. The percentage riding on the sidewalks was also higher in the afternoons compared to the mornings. This would suggest a larger proportion of casual cyclists in the afternoons.

6. Seasonal Trends

The survey methodology was designed to provide a look at cycling trends over the course of the spring. From 2007 through 2014 the counts have taken place at the beginning of each month: April, May and June. It was assumed that the differences between the months would capture differences in bicycle counts between early and late spring. However, in carrying out the data analyses in previous years it became apparent that the months may not provide a consistent measure of the variability of cycling conditions within the spring season. In 2015 we dropped the April counts and all the counts were done at various times throughout May and June.

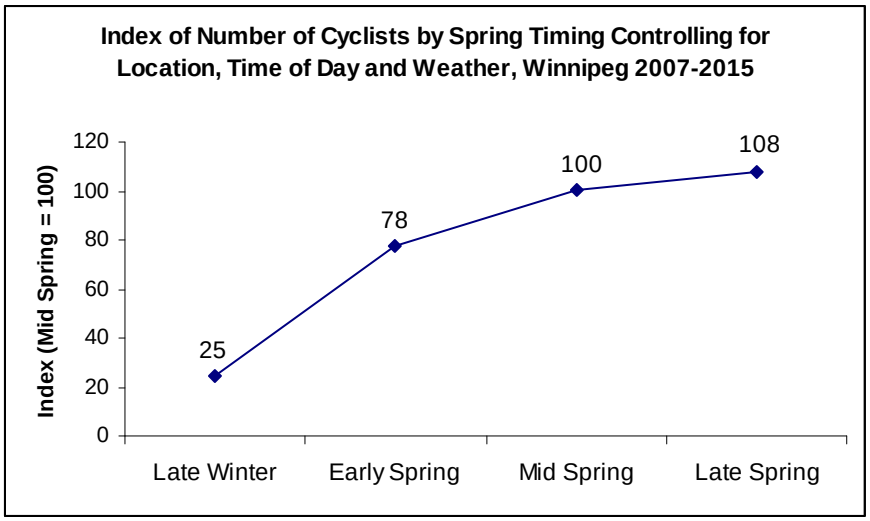
The timing of spring weather in Winnipeg is highly variable from year to year. Some years we experience milder, relatively short winters and early springs, and other years we have long winters and late springs. For example, early April conditions vary from wintry, with 30 cm of snow on the ground, to warm days with snow having long since melted away. The arrival of warm spring weather can range from March to May.

It seems likely that the timing of the start of spring weather could affect the numbers of cyclists, regardless of what the month is. The majority of cyclists stop or greatly reduce their cycling activity during the winter and many put their bikes away in the fall until the next spring. An early spring could encourage cyclists to get their bikes out early, while a late spring could have the opposite effect. The variability of timing of spring weather over the past few years has brought this issue to the fore.

After investigating different ways of identifying the timing of spring weather it was found that the last day of snow on the ground provided a good measure of the arrival of spring. Data for snow on the ground were obtained through Environment Canada based on a Charleswood weather reporting station (the only location in Winnipeg for which this type of data was available). The following categories were created based on the number of days elapsed between the reference date and the date of each bicycle count.

Late Winter	Before Last Day of Snow on the Ground
Early Spring	0-14 Days After Last Day of Snow on the Ground
Mid Spring	15-45 Days After Last Day of Snow on the Ground
Late Spring	46+ Days After Last Day of Snow on the Ground

Using these categories, the average bicycle traffic volumes per location were compared between late winter, early spring, mid spring and late spring where possible, controlling for time of day, and weather. A total of 135 comparable counts were identified where the spring timing of the count was different but all the other factors - location, time of day, and weather conditions - were the same. Comparisons were only made between adjacent time periods: late winter vs. early spring, early spring vs. mid spring, and mid spring vs. late spring. Counts were totaled for each set of comparisons. Ratios between spring timing categories were calculated for each set of totals. An index was created based on these ratios with mid spring counts set as the reference point, as shown in the following chart. It was found that late winter counts were 75% lower than mid spring counts, early spring counts were 22% lower than in mid spring, and later spring counts were 8% higher than in mid spring.



7. 2007-2015 Trends

Two hour bike counts at specific locations are not the best way to track trends in cycling over time because of the high variability between different locations, time periods and weather conditions. Changes to infrastructure and construction projects also frequently occur and these can affect cycling behaviour. Trends in the numbers of cyclists can easily be overwhelmed by variations caused by the various factors. In addition, the Winnipeg locations where counts are done were not selected to be representative of cycling throughout the city.

Still, in the absence of other systematic data collection in Winnipeg concerning cycling levels or frequencies it may be of interest to look at the trends for specific locations. An analysis was carried out based on year-over-year comparisons while controlling for location, time of day, seasonal timing and weather conditions. Comparable counts were often separated by two or more years and in these cases the missing values in the annual series were interpolated based on the average annual rate of change over the time period. There were usually several sets of comparisons available for a given location, so average counts were computed for each specific location. A total of 309 year/year comparisons were possible. An overall weighted average percentage change was then calculated for all the locations for which year-to-year comparisons were available in a given year.

Table 1
Data Used for Trend Analysis: Locations, Numbers of Counts and Numbers of Comparisons, Winnipeg, 2007-2015

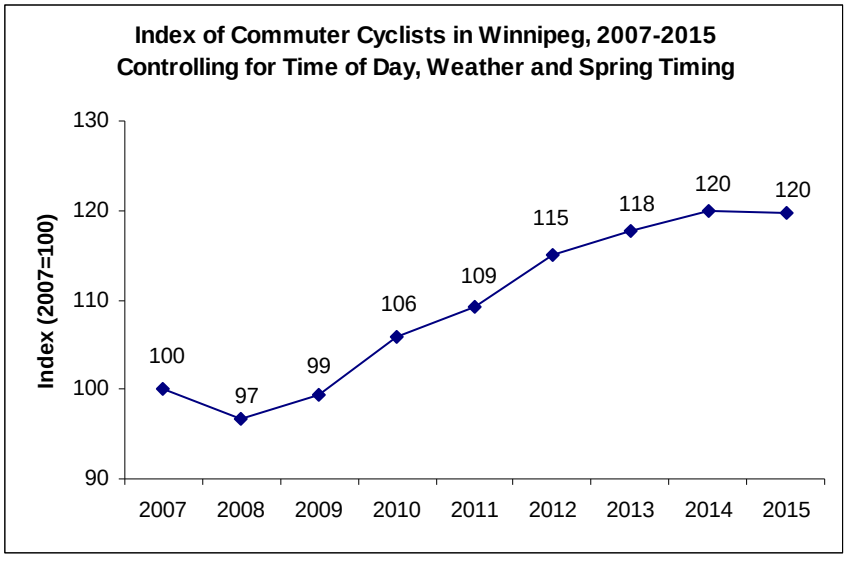
Location	Observed Counts (Averages)*	Interpolated Counts	Year/Year Pairs
Arlington @ Ellice	4	2	4
Assiniboine Ave @ Hargrave	7	7	11
Bishop Grandin Greenway @ Dakota	2	2	3
Dakota @ Bishop Grandin Greenway	2	2	3
Ellice @ Arlington	6	3	6
Fort Garry Bridges	4	5	7
Grosvenor @ Harrow	4	1	3
Harrow @ Grosvenor	6	2	5
Louise Bridge	20	17	30
Main Street @ Higgins Underpass	12	10	17
Midtown Bridge	7	9	13
Munroe @ North Pioneer Greenway	2	3	4
North Pioneer Greenway @ Munroe	2	3	4
Norwood Bridge	25	14	30
Omand Park Train Bridge	11	6	12
Osborne Bridge	24	35	49
Osborne Underpass	14	6	15
Pembina @ St Maurice School	8	7	11
Pembina-Jubilee Underpass	9	2	7
Provencher Bridge & Esplanade Riel	15	11	19
River Trail @ Main St	4	2	4
Sherbrook-Maryland Bridges	18	6	18
Slaw Rebchuk Bridge	12	10	16
University Crescent @ Markham	16	9	18
Totals: 24 Locations	**234**	**174**	**309**

* The observed counts may be a single count or the average of more than one count in a given year that have the same time of day, weather conditions and seasonal timing.

The analysis found that the number of commuter cyclists in Winnipeg changed by 20% between 2007 and 2015. After controlling for weather, time of day, and spring timing the number of cyclists went down in 2008 and then increased steadily through 2014. There was virtually no change between 2014 and 2015. These trends may not be representative of the city as a whole – they are a reflection of the specific locations where we completed our counts as shown in Table 1. The percentage changes per year are shown in Table 2. These percentage changes were converted to an index, with 2007 set at 100. (See chart below.)

Table 2
Year/Year Change in Bicycle Counts
Controlling for Location, Time of Day, Weather
And Spring Timing, Winnipeg 2007-2015

Year	Yr/Yr Change	Index
2007	---	100.0
2008	-3.4%	96.6
2009	3.0%	99.5
2010	6.4%	105.9
2011	3.2%	109.3
2012	5.4%	115.1
2013	2.3%	117.8
2014	1.8%	119.8
2015	-0.1%	119.7



At these locations it appears that cycling increased the most during the years from 2009-2012 after which it leveled off. This is also the period when there was a significant investment in cycling infrastructure within Winnipeg, and it seems likely that the new infrastructure had a role in stimulating an increase in cyclists.

8. Impact of Infrastructure Projects

Even after controlling for various factors, there was a lot of variability between locations and from year-to-year. One possible factor is the impact of new cycling infrastructure projects at specific locations. There were several major projects and many smaller projects that provided new bicycle facilities during this time period, summarized in the following table:

Table 3
City of Winnipeg Cycling Infrastructure Projects Completed between 2007 and 2015

Project	Cycling Infrastructure	Completion
North Pioneer Greenway	Multi-user pathway	2008 (extended in 2012)
Fort Garry Bridges Rehabilitation	South Sidewalk becomes a multi-user trail	2009
Osborne Bridge Rehabilitation	Shy Lanes* added – often used as a bike lanes	2012
Federal Infrastructure Stimulus Program	35 smaller projects including the Assiniboine Ave. separated bike lane, the Pembina Hwy. buffered bike lane, the Dakota St. multi-use trail/sidewalk, Harrow St. bike lane, Churchill Parkway/Red River Trail extension to the Forks, etc.	2010-2012
Pembina Buffered Bike Lanes	Chevrier to Plaza Drive	2013
Disraeli Cycling and Pedestrian Bridge	New Cycling and Pedestrian Bridge	2013

* A shy lane is a narrow lane on the side of a road to allow clearance from the curb or barrier. These do not meet the width requirements for bike lanes. Shy lanes are painted on a number of Winnipeg bridges, including Sherbrook & Maryland Bridges, Osborne Bridge and others. Note that according to plans for the rehabilitated Osborne Bridge it was originally intended to have a bike lane of the proper width but it does not at this time. Cyclists typically use this as a bike lane, although it ends at the end of the bridge.

Some of our counting locations have clearly benefited from new infrastructure, such as the Assiniboine Avenue at Hargrave location where a separated bike line was constructed in 2009-2010. Other locations were not affected by the new bicycle infrastructure. There are also some locations where the new infrastructure may have diverted traffic away and reduced the number of cyclists. The new Disraeli AT bridge appears to have diverted bicycle traffic that would formerly have traveled across the nearby Louise Bridge, and the increased use of the former Southwood Golf Course as a multi-use path may have diverted bicycle traffic from University Crescent. Similarly, the development of bike paths and bike routes through the Lord Roberts area of Fort Rouge may have diverted bicycle traffic from Pembina-Jubilee Underpass and improvements to the Churchill Parkway river trail, connecting it to the Forks, may have diverted cyclists from the Osborne Underpass. Both of these underpasses require cyclists to choose between riding with heavy traffic through the underpass or riding illegally on a narrow sidewalk.

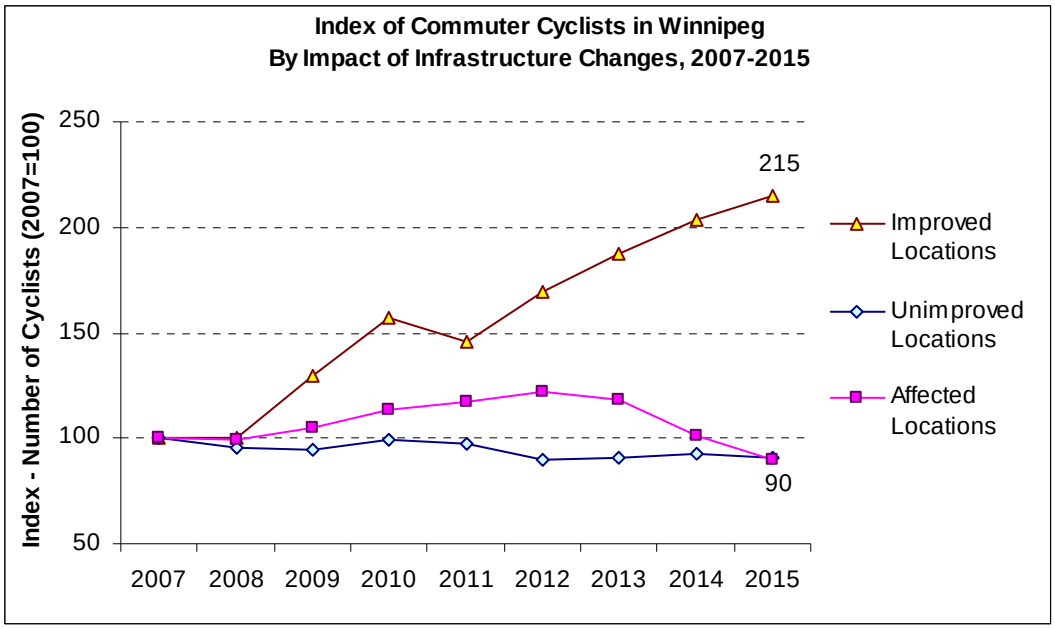
An analysis of the various locations found that, as expected, bicycle travel tended to increase where new infrastructure has been built, and to decline on Louise Bridge, University Crescent, Pembina-Jubilee Underpass and Osborne Underpass after alternate routes were created or improved. Table 4 provides a summary of the findings concerning annual trends in bicycle counts for the three sets of locations.

Table 4
Estimated Year/Year Percentage Change in the Number of Commuter Cyclists
At 26 Locations, Winnipeg, 2007-2015
Controlling for Weather, Time of Day and Spring Timing

Location	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
No Changes to Cycling Infrastructure								
Arlington @ Ellice	-8.2%	-66.2%	-7.7%	182.8%				
Arlington Bridge					8.1%	8.1%	8.1%	8.1%
Ellice @ Arlington	-22.9%	-15.9%	-5.6%	300.0%				
Harrow @ Grosvenor	15.6%	4.9%	9.3%	-100.0%	-100.0%			
Main St @ Higgins	5.1%	7.3%	7.4%	-0.8%	-17.0%	-3.5%	24.0%	-18.3%
Midtown Bridge	4.3%	4.5%	3.8%	4.1%	29.8%	29.8%	29.8%	
Norwood Bridge			11.6%	-8.6%	9.5%	9.0%	-0.2%	2.1%
Omand Park Train Bridge	-33.3%		-0.1%	25.1%	9.5%	-2.4%	-2.4%	-2.4%
Osborne Bridge	0.6%	-0.4%	1.7%	-7.7%	4.4%	2.8%	2.8%	0.2%
Sherbrook-Maryland Bridges	6.3%	6.7%	4.7%	10.8%	-7.3%	-4.1%	-2.6%	-3.6%
Slaw Rebchuk Bridge	-9.3%	-5.6%	-5.4%	-5.2%	-9.3%	-12.6%	5.8%	-12.4%
Weighted Average	**-4.5%**	**-1.4%**	**4.9%**	**-1.8%**	**-7.2%**	**0.2%**	**2.2%**	**-1.6%**
Positively Affected by Changes to Cycling Infrastructure								
Assin Ave @ Hargrave			23.6%	23.6%	23.6%	8.1%	9.5%	2.0%
Bishop Grandin @ Dakota						25.9%	25.9%	25.9%
Dakota @ Bishop Grandin						10.6%	10.6%	10.6%
Fort Garry Bridges		29.5%	590.2%	91.1%	29.5%	29.5%	29.5%	
Grosvenor @ Harrow					7.9%	106.2%		
Harrow @ Grosvenor				19.0%	22.7%	88.0%		
Pembina @ St Maurice			-3.3%	-3.3%	-3.3%	0.3%	10.6%	0.5%
Provencher Bridge				-42.6%	20.4%	2.6%	-5.6%	3.4%
River Trail @ Main St						-1.2%	16.5%	-1.2%
Munroe @ NPG					-4.1%	-4.1%	-4.1%	-4.1%
NPG @ Munroe					18.9%	18.9%	18.9%	18.9%
Weighted Average		**29.5%**	**21.2%**	**-7.1%**	**16.1%**	**10.5%**	**8.9%**	**5.6%**
Negatively Affected by Changes to Cycling Infrastructure								
Louise Bridge	15.6%	4.9%	9.3%	14.9%	7.6%	-18.8%	-37.2%	-34.7%
Osborne Underpass			2.3%	-11.0%	-16.7%	3.1%	-7.9%	0.8%
Pembina-Jubilee Underpass	-9.7%				10.4%	2.4%	-4.5%	-11.8%
University Crescent			15.7%	16.2%	15.8%		-17.2%	
Weighted Average	**-0.3%**	**4.9%**	**8.4%**	**3.4%**	**3.9%**	**-3.0%**	**-14.7%**	**-10.8%**

Note: some year/year percentage changes are based on interpolated data.

The following chart illustrates these patterns.



9. Estimates of Downtown Commuter Cyclists

It is difficult to translate the bicycle counts at a set of specific locations into estimates of commuter cyclists in Winnipeg for several reasons. It is not possible to count at all the possible routes among our counting locations, some cyclists may travel past several of our counting points on their commuting routes, and some cyclists travel within smaller geographic areas and may not leave their neighbourhoods. Our method is not designed to provide an overall count of traffic volumes.

On the other hand, our counting locations have been selected to include the major routes in and out of downtown Winnipeg. A circle of 21 of our counting locations around the downtown perimeter cover most of the ways that cyclists would have to travel between the downtown area and outlying areas. (See Table 5 below and Appendix D.) For the majority of the locations shown in the table we have at least one or two counts for May and June of this year. April counts are lower and they have been excluded from the calculations of typical spring commuting. When there is no count available for 2015, the most recent May or June counts in previous years have been used. Because there is a large difference between morning and afternoon counts, they have been estimated separately. Where either the morning or afternoon counts were missing the average ratio between AM and PM counts identified in section 5 above (1.33) was used to estimate the missing number.

As shown in the table, average morning rush hour traffic is estimated at about 2,400 cyclists and average afternoon rush hour traffic is estimated at 3,200. This gives a total morning and afternoon count of just over 5,600. The bicycle traffic into and out of the downtown area over the course of a day (24 hours) is estimated at 13,257. This estimate is based on the Winnipeg Area Transportation Survey of 2007 in which the proportion of cyclist trips during morning and afternoon rush hours combined was 42.4% of the daily bicycle traffic[1]. Based on the assumption that these cyclists are passing once in each direction, the number of *cyclists* is estimated at half of this number, or about **6,600 cyclists** traveling in and out of downtown Winnipeg on a given day at this time of year.

[1] Calculated from data in iTrans Consulting, Winnipeg Area Travel Survey Results, Final Report, July 2009, p. 33. This shows that 4,620 bicycle trips were taken during the AM and PM rush hours and 10,890 bicycle trips were taken over 24 hours.

This should not be viewed as an estimate of commuter cyclists in the city. Data from Bike to Work Day[2] and other surveys shows that commuter cyclists are traveling between all regions of the city, and their routes do not always go through the downtown area. For example, a substantial number of cyclists, students and employees, commute to and from the University of Manitoba's Fort Garry campus, and the largest numbers of these students live in the Fort Rouge, Fort Garry and Fort Richmond areas, so that their commuting routes are totally outside of the downtown area. According to Bike to Work Day registration data from 2009, only 48% of those who registered actually were traveling to or from the downtown area of the city. This would suggest that in 2015 about **13,800 cyclists** commute regularly in Winnipeg during May and June.

Table 5
Estimates of Traffic In/Out of Downtown Winnipeg During the May-June Period Based on 2015 or Most Recent Counts

Location	Most Recent May or June Count AM	PM	AM + PM
1 Arlington St.@ Ellice	42	51	93
2 Disraeli AT Bridge south end	99	121	220
3 Ellice Ave @ Arlington	32	79	110
4 Louise Bridge	52	***69****	121
5 Main St @ Higgins	103	190	293
6 Maryland @ Notre Dame	11	55	66
7 Midtown Bridge	35	60	95
8 Norwood Bridge	335	413	748
9 Notre Dame at Maryland	64	***85****	149
10 Osborne AT Crosswalk	***250****	333	583
11 Osborne Bridge	267	292	559
12 Portage Underpass	66	210	276
13 Provencher Bridge/Esplanade Riel	81	336	417
14 River Trail @ Main St	169	145	314
15 Sargent @ Arlington	40	***53****	93
16 Sherbrook @ Cumberland	72	58	130
17 Sherbrook/Maryland Bridges	467	468	935
18 Slaw Rebchuk Bridge	68	38	106
19 St Matthews Ave @ Arlington	55	72	127
20 Stradbrook East of Donald (@ Harkness)	***41****	54	95
21 Wellington Ave. @ Arlington	***39****	52	91
Total 2 Hour Counts	**2,388**	**3,233**	**5,621**
Estimated Daily Traffic**			**13,257**
Estimated Cyclists Commuting Downtown (50% of Traffic)			**6,628**

* No count available. Estimates based on the ratio PM/AM = 1.33.
** The 2007 Winnipeg Area Transportation Survey showed that 42.4% of bicycle trips in Winnipeg are made during the AM and PM rush hours, combined (5,621 / .424 = 13,257).

[2] According to Bike to Work Day registration data, in 2008 40% of cyclists worked in the downtown area. In 2009, 48% of cyclists traveled between the downtown and other areas of the city. Reports based on Bike to Work Day registration data in 2008 and 2009 are available from Jeremy Hull on request.

10. Counts in Support of the CPR Yards Study

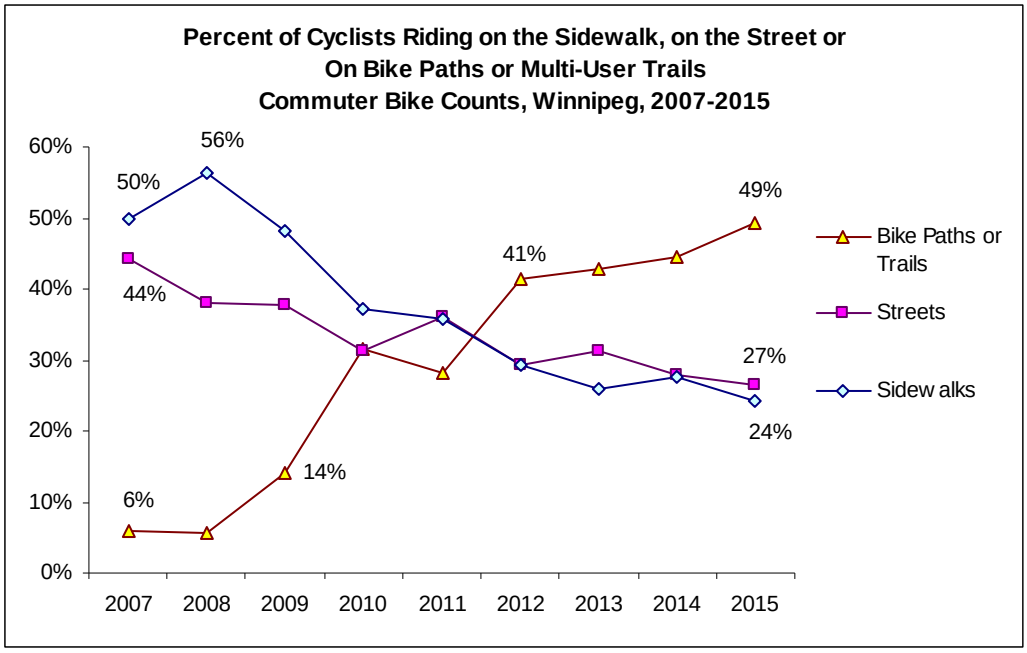
During 2015 a study was being conducted of the options for crossings of the CPR yards and rail line in view of the need to replace the Arlington Bridge. In support of this a number of counts were completed in the vicinity of the CPR line, on both the north and south sides of the tracks. Counting locations were chosen because of their possible importance in current and future cycling routes in the area. Counts have been done at some of these locations in the past but many were being done for the first time at a given location. Following is a list of these counts.

Table 6: Counts Related to the CPR Yards Study

Location	Month	Day	Time	Weather	2 Hr Count
Aberdeen at Main	JUNE	17	PM	Poor	20
Aberdeen at Salter	JUNE	16	AM	Good	4
Annabella Underpass	MAY	16	Midday	Excellent	49
Annabella Underpass	JUNE	13	Midday	Excellent	56
Arlington @ Pacific	MAY	14	PM	Poor	23
Arlington @ Pacific	MAY	21	PM	Excellent	50
Arlington Bridge	MAY	12	AM	Fair	30
Arlington Bridge	JUNE	9	AM	Poor	33
Arlington Bridge	MAY	21	PM	Excellent	51
Banning at Wellington	JUNE	18	AM	Good	7
Main St @ Aberdeen	MAY	21	AM	Good	87
Main St @ Aberdeen	JUNE	10	AM	Good	113
Main St @ Aberdeen	JUNE	17	PM	Poor	146
Main St @ Higgins	MAY	14	AM	Poor	28
Main St @ Higgins	JUNE	11	AM	Excellent	103
Main St @ Higgins	JUNE	13	Midday	Excellent	120
Main St @ Higgins	MAY	12	PM	Good	190
Maryland @ Notre Dame	MAY	12	AM	Fair	11
Maryland @ Notre Dame	JUNE	9	PM	Excellent	55
McGregor @ Aberdeen	MAY	13	AM	Fair	17
McGregor @ Aberdeen	MAY	7	PM	Excellent	36
McGregor @ Aberdeen	JUNE	11	PM	Excellent	54
McPhillips underpass	MAY	20	AM	Fair	78
Notre Dame @ Maryland	MAY	12	AM	Fair	64
Salter @ Aberdeen	JUNE	8	AM	Good	22
Salter @ Aberdeen	JUNE	16	AM	Good	20
Salter @ Aberdeen	MAY	12	AM	Fair	14
Salter @ Aberdeen	MAY	21	AM	Good	15
Salter @ Aberdeen	MAY	16	Midday	Excellent	24
Sherbrook @ Cumberland	MAY	21	PM	Excellent	39
Sherbrook @ Cumberland	JUNE	11	PM	Excellent	58
Sherbrook @ Cumberland	JUNE	18	PM	Excellent	58
Slaw Rebchuk Bridge	MAY	14	AM	Poor	27
Slaw Rebchuk Bridge	JUNE	9	AM	Excellent	68
Slaw Rebchuk Bridge	JUNE	16	AM	Good	60
Slaw Rebchuk Bridge	MAY	23	Midday	Excellent	65
Wellington @ Banning	JUNE	18	AM	Good	61

11. Sidewalk Use

Although cycling on sidewalks is generally illegal in Manitoba, except where explicitly permitted or when riding child-sized bicycles, many cyclists do, in fact, ride on the sidewalks, either for convenience or out of fear of riding in the street. At our 2015 counting locations, 24% of cyclists rode on the sidewalk, down slightly from 2014 and continuing a downward trend. The percentage of cyclists riding on the sidewalks has been declining since 2008 as shown in the chart below.

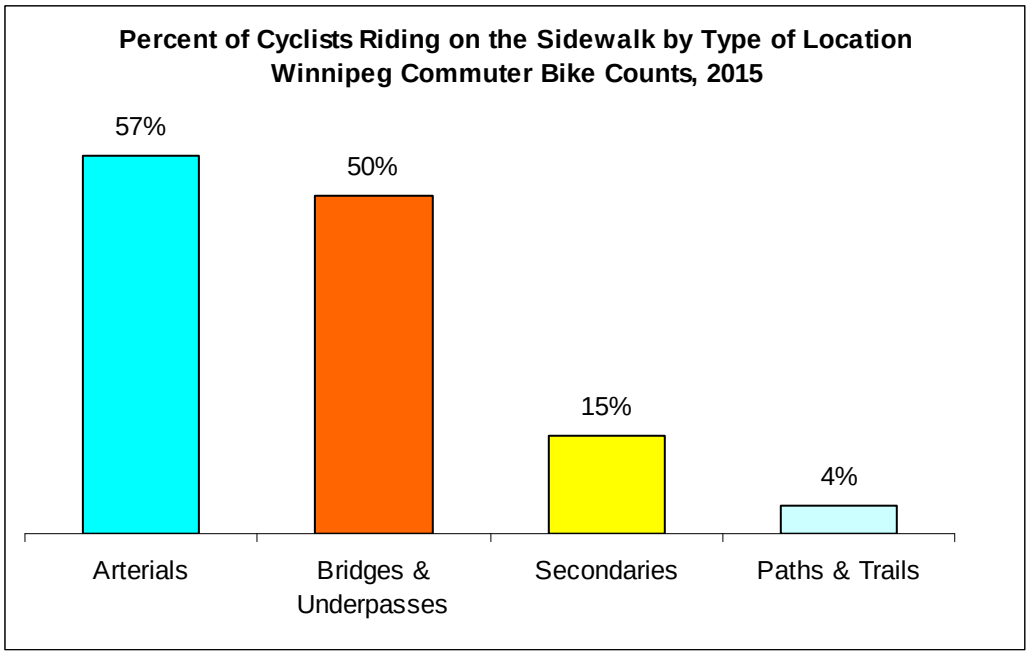


At the same time the percentage of cyclists that we counted riding on bike paths or trails has increased dramatically with the construction of new cycling facilities, ranging from painted bike lanes to bike separated from traffic and multi-user trails. By 2015 almost half of the cyclists we counted were on some form of bike or Active Transportation (AT) facility. This includes sidewalks which have been improved and designated as bike and pedestrian routes, such as on Taylor and on Jubilee. It also includes AT bridges such as the Esplanade Riel and the Disraeli AT Bridge.

The percentage of sidewalk riders also varies according to the type of counting location. We have classified these locations as Arterial Streets, Secondary Streets, Bridges & Underpasses, and AT Paths or Trails. In 2015, 57% of cyclists traveling on major arteries used the sidewalks, while 50% of cyclists traveling on bridges or through underpasses, 15% of those on secondary streets and 4% of those on bike paths or trails rode on the sidewalks. (See chart below.)

The behaviour of cyclists seems to depend on the particular location, the amount of traffic and the choices that are available to them. For example, the Louise Bridge is very narrow, has a high volume of traffic, and very few cyclists take the road. Another example is Provencher Bridge/Esplanade Riel, where there is pedestrian/cyclist bridge (Esplanade Riel) parallel to the main bridge on the south side. In this case cyclists can legally ride on the multi-use bridge and avoid traffic, and the majority of them do although a small number of cyclists use the north sidewalk on the main bridge. Cyclists are also more willing to ride in the street on somewhat quieter secondary streets, such as Ellice. Another factor

is an increase in the presence of painted or protected bike lanes on a number of streets, reducing sidewalk riding where they exist on streets such as Pembina and Sherbrook. In addition, the introduction of traffic calming devices, such as the mini traffic circles on a number of residential streets, may have increased the comfort level of cyclists on these streets.

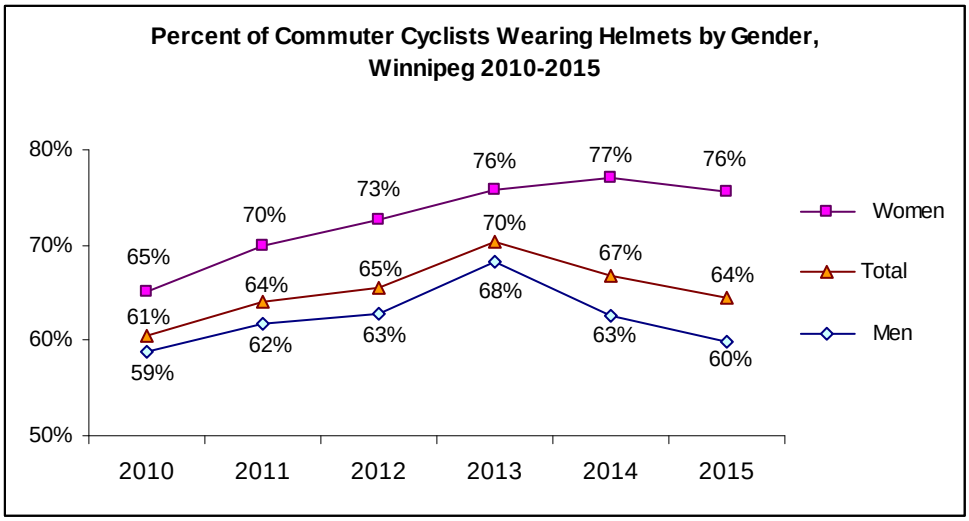


12. Helmet Use and Gender

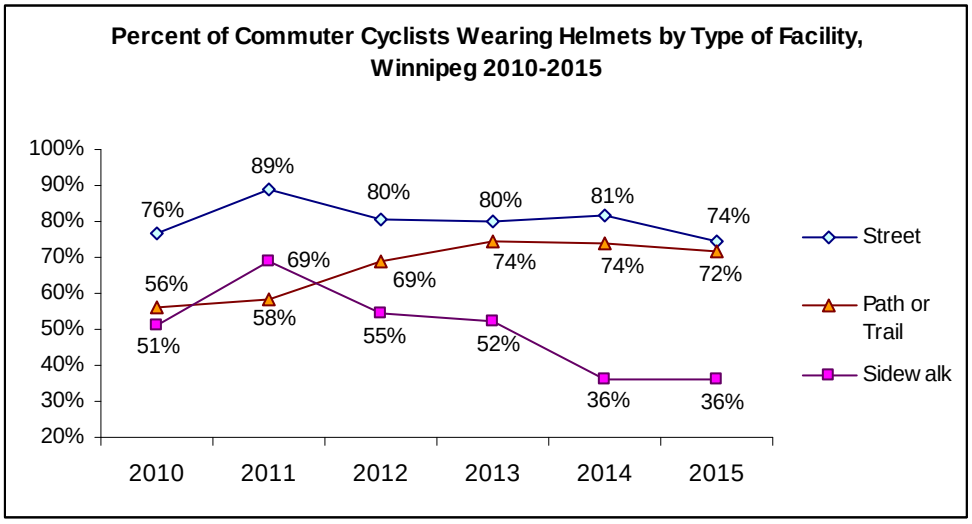
Starting in 2010 some of our volunteers have kept track of the gender of the cyclists and whether cyclists were wearing bicycle helmets or not. An average of 29% of the commuter cyclists were identified as female, and 71% were identified as male in 2015. Similar proportions of women have been identified in each of the previous 5 years (2010-2014). This is also similar to the percentages identified in the 2011 National Household Survey which found that 30% of commuter cyclists in Winnipeg were women and 70% were men.[3]

In our counts the percentage of commuter cyclists wearing helmets increased from 61% in 2010 to 70% in 2013, after which it declined to 64% in 2015. This decline is mainly attributable to a decline in helmet use among men. Helmet use is consistently higher among women than among men, and the difference between women and men has increased in recent years as shown in the following figure. In 2013 there was a difference of 8 percentage points between women (76%) and men (68%) but by 2015 the difference had increased to 16 percentage points between women (76%) and men (60%).

[3] The National Household Survey took the place of the long form of the Census of Canada in 2011. One question asked about mode of transportation to work and this was reported for various geographic areas, age and sex. See for example Statcan 99-012-X2011031.



There are also differences in helmet use between those riding in the street, on sidewalks, or on bike paths. In 2015 74% of those riding in the street, and 72% of those riding on bike paths wore helmets, compared to 36% of those riding on sidewalks. The higher rate of helmet use among those riding in the street may reflect a general perception that riding in the street is more dangerous than riding on the sidewalk and that helmets are less necessary when riding on the sidewalk (although research does not support this view). Or it may reflect the tendencies of different types of cyclists – regular commuter cyclists may be more likely to ride in the street and may also be more likely to have and use cycling equipment such as helmets, while more casual cyclists may be more likely to ride on the sidewalks and may be less likely to be fully equipped.



Over the period from 2010 through 2015 the percentages of helmet use has declined slightly among those riding in the street, increased among those riding on bike paths, and declined substantially among those riding on sidewalks. It is not clear why there should be an increasing gap in helmet use between those riding in the street and on the sidewalk. One possibility might be that as overall cycling levels increase there are larger numbers of more casual cyclists riding on the sidewalks, and these cyclists are less likely to wear helmets than other, more frequent commuter cyclists.

13. Conclusions

Over the past several years Winnipeg has been gradually increasing the extent of facilities designed for cyclists, including the provision of multi-user paths, separated or buffered bike lanes, painted bike lanes, and traffic calming devices. Many of the new facilities were built as part of the federal infrastructure stimulus program, coming on line in the 2009-2011 period. More recently there have been some improvements on a few major bridges, and the development of separated bike lanes on Sherbrook Street and Pembina Highway, but investment levels have been relatively low. In 2015 the City adopted a new pedestrian and cycling strategy with more ambitious goals. If this results in a more substantial investment in cycling infrastructure we can expect to see increased cycling levels in the future.

There is strong evidence that even the limited construction of new cycling infrastructure that has occurred since 2009 has had a positive impact on the numbers of cyclists in Winnipeg. This year's bike counts and analysis suggest that there has been substantial growth in cycling but that this growth has stalled. Growth has taken place primarily at locations with new bike lanes and multi-user paths have been built, and primarily during the period when new infrastructure construction was at its height. The locations with these new bicycle facilities have seen a reduction in sidewalk riding. On the other hand, major bridges and underpasses that have not yet been improved or which do not have bike lanes continue to push cyclists onto the sidewalks, or to discourage them from riding at all. If these major barriers are dealt with the frequency of cycling throughout the entire cycling network can be expected to increase.

In addition, we reached the following conclusions:

- After taking into account location, weather conditions, spring timing and time of day, commuter cycling in Winnipeg has increased by about 20% over the past nine years. However, at the locations with separated bike lanes or paths there has been a 115% increase over this time period.
- On a typical weekday in May and June an estimated 7,100 cyclists commuted in and out of the downtown area of Winnipeg, and throughout the entire city a of about 14,790 cyclists commuted on a given day. The total number of regular commuter cyclists in the city would be higher, given that not every cyclist commutes every day.
- Sidewalk riding has been declining where bike paths and trails are available. More than half of cyclists ride on the sidewalks on major bridges and underpasses, but where bike paths exist, only 4% ride on sidewalks.
- There has been a major shift in bicycle traffic from sidewalks and streets to bike lanes and multi-user paths *where they have been provided.*
- 64% of commuter cyclists wear helmets. Women are more likely to wear helmets than men and those riding in the street are more likely to wear helmets than those riding on sidewalks.
- Women make up 29% of commuter cyclists in Winnipeg.

A more comprehensive survey would be needed to more accurately estimate the number of cyclists, and the bicycle share of traffic in Winnipeg. The only such survey done on a regular basis is the Census of Canada (2001 and 2006) and its successor, the National Household Survey (2011), which identify the number of people commuting to work by mode of transportation in 2001, 2006 and 2011.

Data from these sources suggests that commuter cycling increased in the City of Winnipeg by 32% between 2006 and 2011. However there is no source available that provides annual data, seasonal transportation patterns, or bicycle travel for purposes other than travel to or from work. This means that, in spite of the bicycle counts reported here, **there is a continuing lack of basic data on the numbers and other characteristics of cyclists in Winnipeg, and throughout Manitoba**. Such information is needed by governments and others in order to identify trends and develop policies related to active transportation.

Acknowledgements

I would like to thank the following dedicated volunteers who contributed to the 2015 bicycle counts as well as those who have volunteered in previous years. Collectively we have been able to build baseline data and increase our knowledge about cycling patterns in Winnipeg, and this should prove useful in assessing the improvements that may take place in the coming years. The following volunteers helped with bicycle counts in 2015:

Sean Best, Guy Bonneta, Karla Braun, Jim Chapryk, Shawn Defoort, Erik Dickson, Laura Donatelli, Charles Feaver, Liz Harland, Jordan Hoff, Jeremy Hull, Jonathan Isaak, Kevin Lunn, John Markmann, Bruce Marshall, Jim Parker, Holly Poklitar, Ken Preston, Bill Reid, Lea Stogdale, Fabian Suarez-Amaya, Tina Tenbergen, Mani Tougas, Valerie Unwin, John Wilmot, Terry Woods, Janet Zonneveld

Report prepared by Jeremy Hull for Bike Winnipeg.

If there are questions or comments, or if anyone wants additional information about these counts please contact me at: hull.jeremy@gmail.com.

Appendix A:
2015 Commuter Bicycle Count Data

Location	Month	Day	AM/PM	SOG2	Weather	2 HR count	Sidewalk %	Overall Helmet %	% Women
Aberdeen at Main	JUNE	17	PM	Late Spring	Poor	**20**	25.0%	10.0%	25%
Aberdeen at Salter	JUNE	16	AM	Late Spring	Good	**4**	25.0%	25.0%	25%
Annabella Underpass	MAY	16	Midday	Mid Spring	Excellent	**49**	20.4%	46.9%	29%
	JUNE	13	Midday	Late Spring	Excellent	**56**	25.0%	50.0%	29%
Arlington @ Pacific	MAY	14	PM	Mid Spring	Poor	**23**	76.0%	n.r.	n.r.
	MAY	21	PM	Late Spring	Excellent	**50**	62.3%	n.r.	n.r.
Arlington Bridge	MAY	12	AM	Mid Spring	Fair	**30**	100.0%	56.7%	20%
	JUNE	9	AM	Late Spring	Poor	**33**	93.3%	50.0%	20%
	MAY	21	PM	Late Spring	Excellent	**51**	100.0%	21.6%	24%
Assin Ave @ Hargrave	MAY	14	AM	Mid Spring	Poor	**99**	1.1%	80.5%	17%
	MAY	21	PM	Late Spring	Excellent	**435**	2.0%	75.2%	31%
	JUNE	11	PM	Late Spring	Excellent	**472**	0.8%	75.8%	35%
Banning at Wellington	JUNE	18	AM	Late Spring	Good	**7**	0.0%	42.9%	14%
Bishop Grandin @ Dakota	MAY	14	PM	Mid Spring	Poor	**15**	n.a.	20.0%	40%
	MAY	21	PM	Late Spring	Excellent	**85**	n.a.	61.7%	31%
	JUNE	11	PM	Late Spring	Excellent	**97**	n.a.	56.8%	27%
	JUNE	18	PM	Late Spring	Excellent	**117**	n.a.	58.0%	22%
Dakota @ Bishop Grandin	MAY	14	PM	Mid Spring	Poor	**8**	n.a.	50.0%	13%
	MAY	21	PM	Late Spring	Excellent	**120**	n.a.	58.3%	31%
	JUNE	11	PM	Late Spring	Excellent	**121**	n.a.	51.3%	29%
	JUNE	18	PM	Late Spring	Excellent	**122**	n.a.	59.3%	28%
Disraeli AT Bridge	MAY	12	AM	Mid Spring	Fair	**86**	n.a.	74.4%	28%
	MAY	21	AM	Late Spring	Good	**111**	n.a.	75.7%	24%
	JUNE	9	AM	Late Spring	Excellent	**121**	n.a.	76.9%	27%
Dunkirk N of Fermor	MAY	21	AM	Late Spring	Good	**146**	n.a.	81.5%	31%
	JUNE	10	AM	Late Spring	Good	**191**	n.a.	83.2%	28%
Heatherington W of Osborne	MAY	21	PM	Late Spring	Excellent	**106**	n.a.	76.4%	29%
Louise Bridge	JUNE	16	AM	Late Spring	Good	**52**	92.3%	51.9%	13%
Main St @ Aberdeen	MAY	21	AM	Late Spring	Good	**87**	41.4%	52.9%	20%
	JUNE	10	AM	Late Spring	Good	**113**	54.0%	38.9%	21%
	JUNE	17	PM	Late Spring	Poor	**146**	78.1%	24.7%	25%
Main St @ Higgins	MAY	14	AM	Mid Spring	Poor	**28**	73.1%	38.5%	4%
	JUNE	11	AM	Late Spring	Excellent	**103**	68.0%	45.6%	22%
	JUNE	13	Midday	Late Spring	Excellent	**120**	95.0%	6.7%	28%
	MAY	12	PM	Mid Spring	Good	**190**	84.6%	24.2%	19%
Maryland @ Notre Dame	MAY	12	AM	Mid Spring	Fair	**11**	54.5%	27.3%	27%
	JUNE	9	PM	Late Spring	Excellent	**55**	9.1%	72.7%	41%
McGregor @ Aberdeen	MAY	13	AM	Mid Spring	Fair	**17**	28.6%	28.6%	29%
	MAY	7	PM	Early Spring	Excellent	**36**	27%	n.r.	n.r.
	JUNE	11	PM	Late Spring	Excellent	**54**	53.7%	24.1%	26%
McPhillips underpass	MAY	20	AM	Late Spring	Fair	**78**	89.7%	46.2%	19%
Munroe @ North Pioneer Greenway	JUNE	16	AM	Late Spring	Good	**12**	n.r.	58.3%	33%
	JUNE	18	PM	Late Spring	Excellent	**11**	0.0%	18.2%	9%
North Pioneer Greenway @	JUNE	16	AM	Late Spring	Good	**114**	n.a.	74.4%	21%

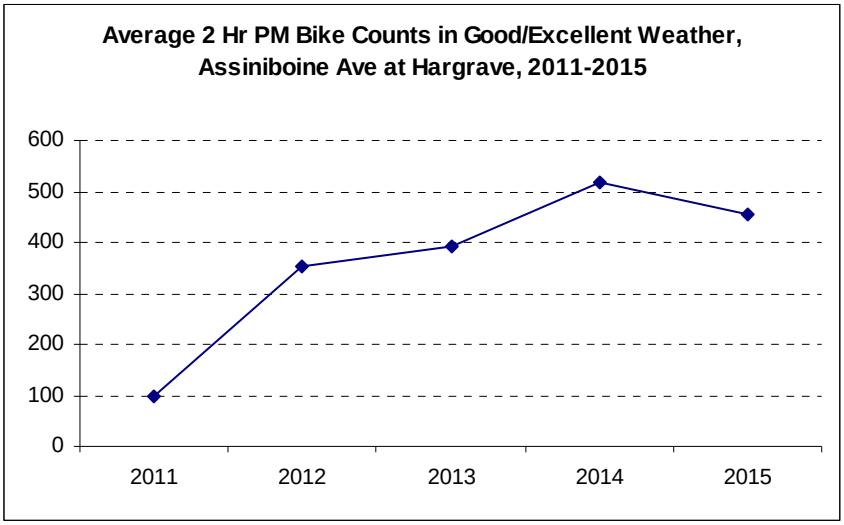
Appendix A:
2015 Commuter Bicycle Count Data

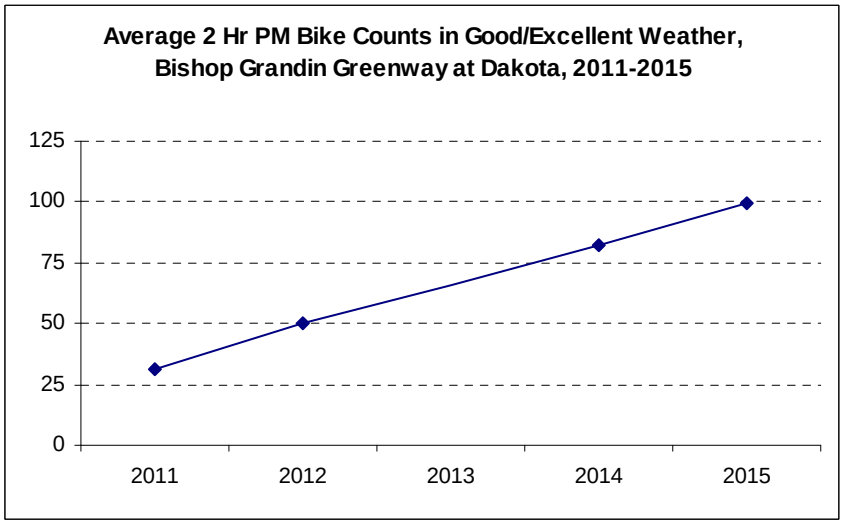
Location	Month	Day	AM/PM	SOG2	Weather	2 HR count	Sidewalk %	Overall Helmet %	% Women
Munroe	JUNE	18	PM	Late Spring	Excellent	**126**	n.a.	55.6%	21%
Norwood Bridge	MAY	13	AM	Mid Spring	Fair	**185**	4.8%	74.0%	28%
	JUNE	10	AM	Late Spring	Good	**335**	5.1%	64.5%	30%
	MAY	13	PM	Mid Spring	Poor	**198**	4.4%	*	*
	JUNE	10	PM	Late Spring	Excellent	**413**	4.7%	*	*
Notre Dame @ Maryland	MAY	12	AM	Mid Spring	Fair	**64**	n.r.	*	*
Omand Park Train Bridge	JUNE	9	AM	Late Spring	Poor	**102**	n.a.	83.8%	29%
	JUNE	10	PM	Late Spring	Excellent	**242**	n.a.	81.0%	30%
Osborne AT Crosswalk	JUNE	10	PM	Late Spring	Excellent	**328**	n.a.	68.6%	#DIV/0!
	JUNE	16	PM	Late Spring	Excellent	**337**	n.a.	70.0%	46%
Osborne Bridge	MAY	21	AM	Late Spring	Good	**267**	21.2%	70.6%	38%
	JUNE	16	AM	Late Spring	Good	**292**	23.4%	70.2%	39%
	MAY	19	PM	Late Spring	Good	**228**	31.8%	55.4%	36%
	JUNE	10	PM	Late Spring	Excellent	**274**	34.7%	55.1%	n.r.
Osborne Underpass	JUNE	18	PM	Late Spring	Excellent	**179**	56.4%	58.7%	23%
Pembina @ St Maurice School	JUNE	10	AM	Late Spring	Good	**122**	9.0%	77.2%	27%
	JUNE	17	AM	Late Spring	Fair	**109**	9.2%	76.1%	24%
	JUNE	10	PM	Late Spring	Excellent	**171**	11.4%	n.r.	n.r.
	JUNE	17	PM	Late Spring	Poor	**130**	10.1%	n.r.	n.r.
Pembina-Jubilee Underpass	MAY	20	PM	Late Spring	Excellent	**137**	69.6%	73.7%	26%
Provencher Bridge/Esplanade Riel	MAY	13	PM	Mid Spring	Poor	**207**	31.6%	n.r.	n.r.
	JUNE	18	PM	Late Spring	Excellent	**336**	34.9%	n.r.	n.r.
River Trail @ Main St	JUNE	11	AM	Late Spring	Good	**180**	n.a.	84.7%	32%
	JUNE	18	AM	Late Spring	Good	**158**	n.a.	91.1%	40%
	MAY	12	PM	Mid Spring	Good	**145**	n.a.	85.5%	29%
Salter @ Aberdeen	JUNE	8	AM	Late Spring	Good	**22**	73.1%	23.1%	23%
	JUNE	16	AM	Late Spring	Good	**20**	60.0%	35.0%	50%
	MAY	12	AM	Mid Spring	Fair	**14**	64.3%	21.4%	21%
	MAY	21	AM	Late Spring	Good	**15**	53.3%	52.9%	24%
	MAY	16	Midday	Mid Spring	Excellent	**24**	75.0%	4.2%	25%
Sherbrook @ Cumberland	MAY	21	PM	Late Spring	Excellent	**39**	56.4%	43.6%	18%
	JUNE	11	PM	Late Spring	Excellent	**58**	60.3%	29.3%	22%
	JUNE	18	PM	Late Spring	Excellent	**58**	53.7%	12.2%	20%
Sherbrook-Maryland Bridges	MAY	19	AM	Late Spring	Fair	**282**	41.1%	84.0%	35%
	JUNE	16	AM	Late Spring	Good	**467**	35.5%	n.r.	n.r.
	MAY	20	PM	Late Spring	Excellent	**493**	55.0%	n.r.	n.r.
	MAY	21	PM	Late Spring	Excellent	**443**	51.5%	n.r.	n.r.
Slaw Rebchuk Bridge	MAY	14	AM	Mid Spring	Poor	**27**	55.6%	39.1%	22%
	JUNE	9	AM	Late Spring	Excellent	**68**	70.4%	40.7%	24%
	JUNE	16	AM	Late Spring	Good	**60**	70.0%	33.3%	28%
	MAY	23	Midday	Late Spring	Excellent	**65**	80.0%	6.2%	11%
Wellington @ Banning	JUNE	18	AM	Late Spring	Good	**61**	14.8%	68.9%	49%

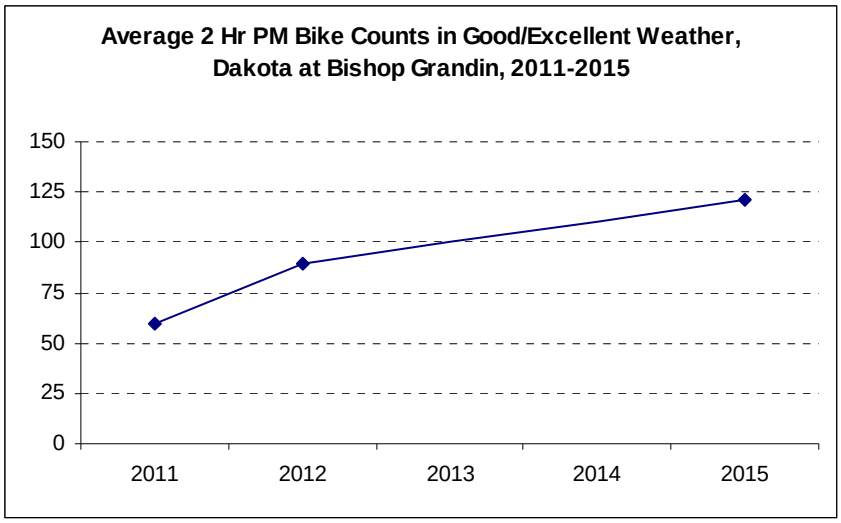
n.a. Not applicable – no sidewalk.
n.r. – not recorded
* data not recorded separately for PM & AM

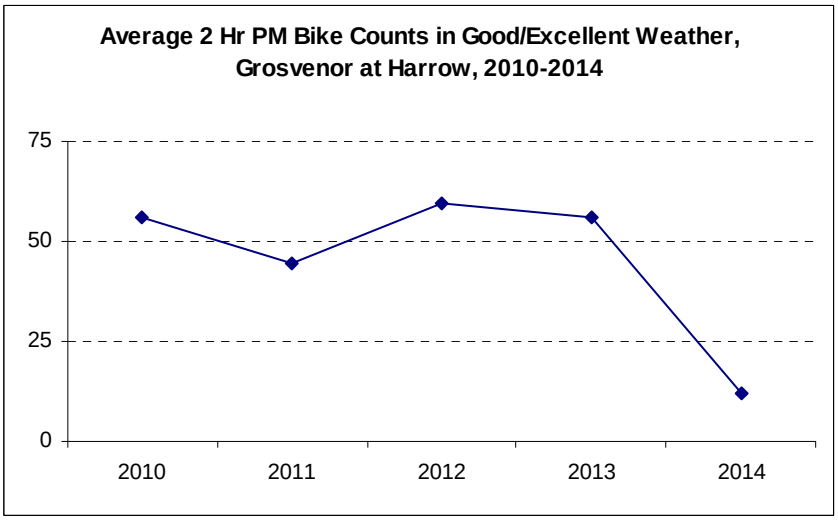
Appendix B: Charts Showing Commuter Cyclist Trends at Selected Locations
(where no marker appears on a trend line, there was no count that year)

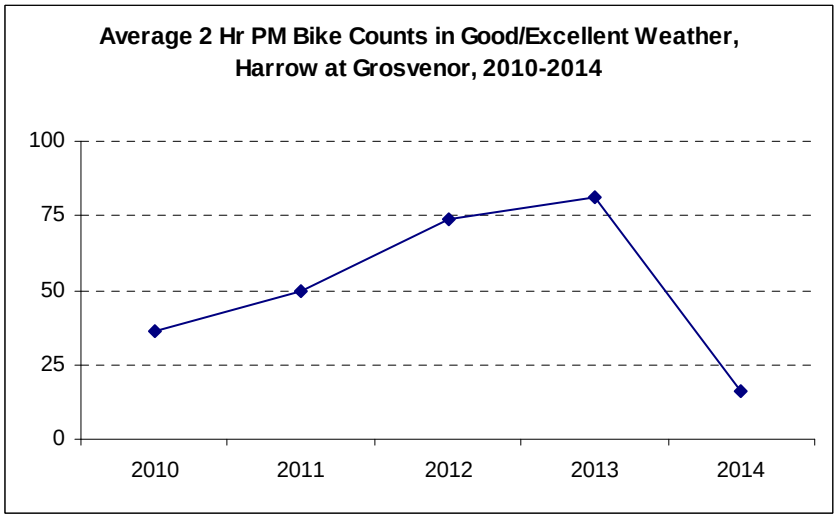
Assiniboine Ave @ Hargrave
St. Grosvenor Ave @ Harrow
Harrow @ Grosvenor
Louise Bridge
Main St @ Higgins
Norwood Bridge
Omand Park Train Bridge
Osborne Bridge
Osborne Underpass
Pembina between Chevrier & Plaza
Pembina-Jubilee Underpass
Provencher Bridge/Esplanade Riel
River Trail near Main
Sherbrook at Cumberland
Sherbrook-Maryland Bridges
Slaw Rebchuk Bridge
University Crescent

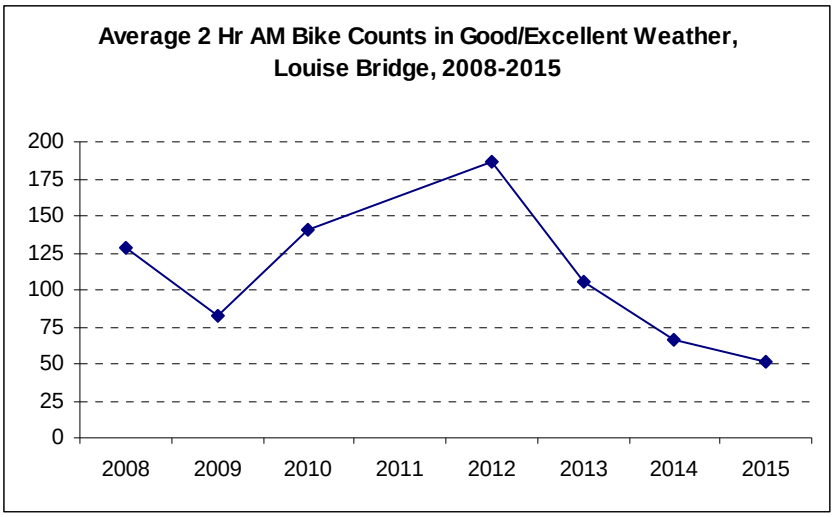


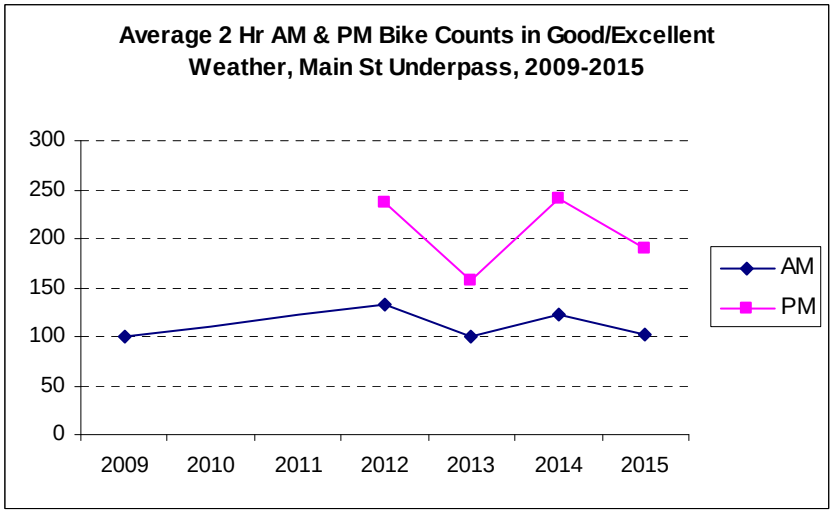


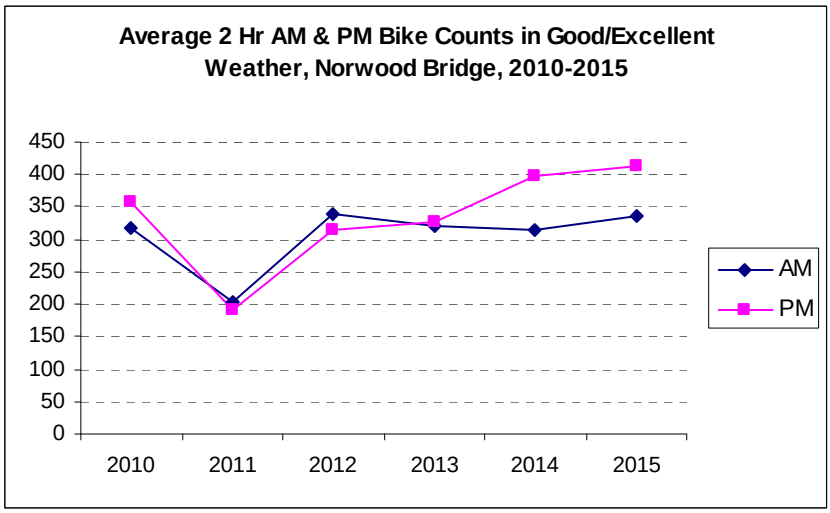

Average 2 Hr PM Bike Counts in Good/Excellent Weather,
Dakota at Bishop Grandin, 2011-2015
150
125
100
75
50
25
0
2011
2012
2013
2014
2015

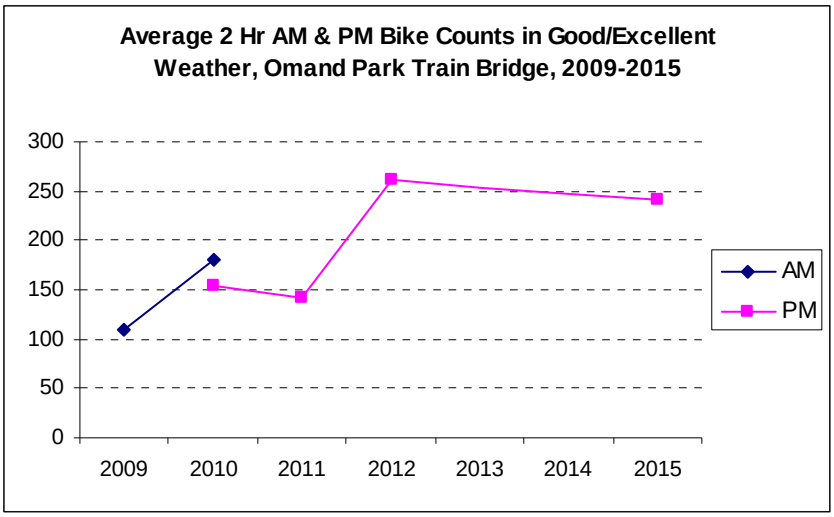

Average 2 Hr PM Bike Counts in Good/Excellent Weather,
Grosvenor at Harrow, 2010-2014
75
50
25
0
2010
2011
2012
2013
2014

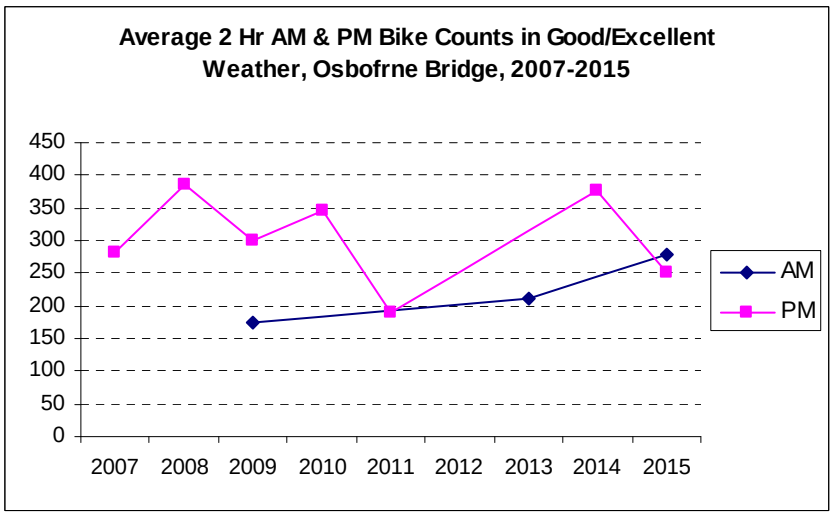

Average 2 Hr PM Bike Counts in Good/Excellent Weather,
Harrow at Grosvenor, 2010-2014
100
75
50
25
0
2010
2011
2012
2013
2014

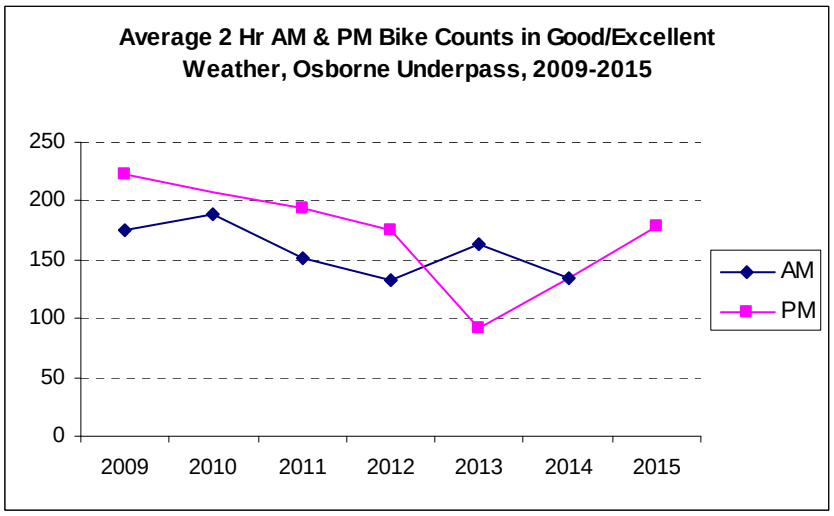

Average 2 Hr AM Bike Counts in Good/Excellent Weather, Louise Bridge, 2008-2015
200
175
150
125
100
75
50
25
0
2008
2009
2010
2011
2012
2013
2014
2015

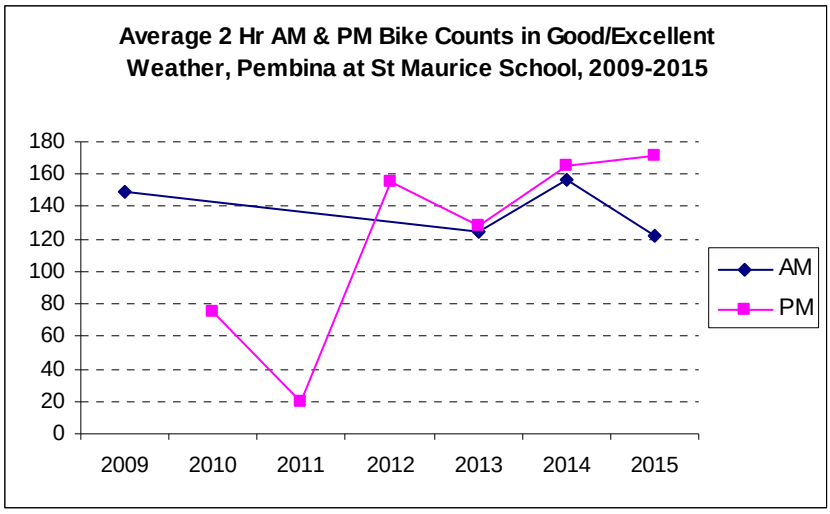

Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Main St Underpass, 2009-2015
300
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
2015
AM
PM

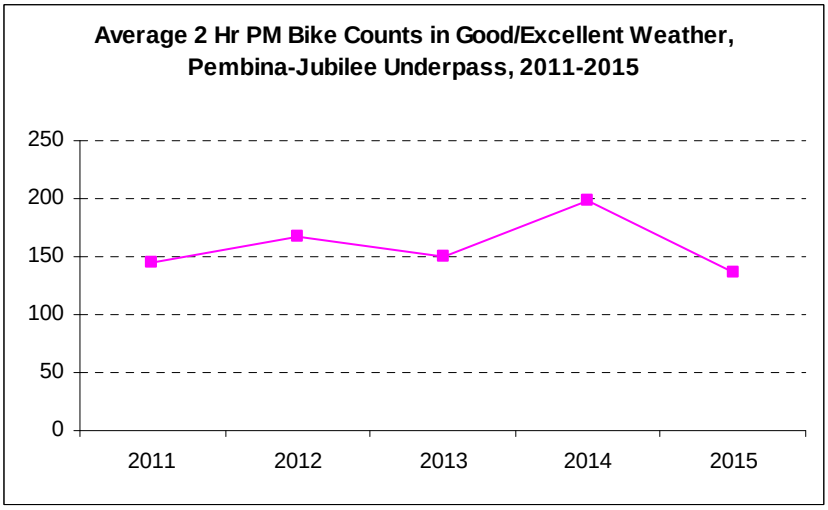

Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Norwood Bridge, 2010-2015
450
400
350
300
250
200
150
100
50
0
2010
2011
2012
2013
2014
2015
AM
PM

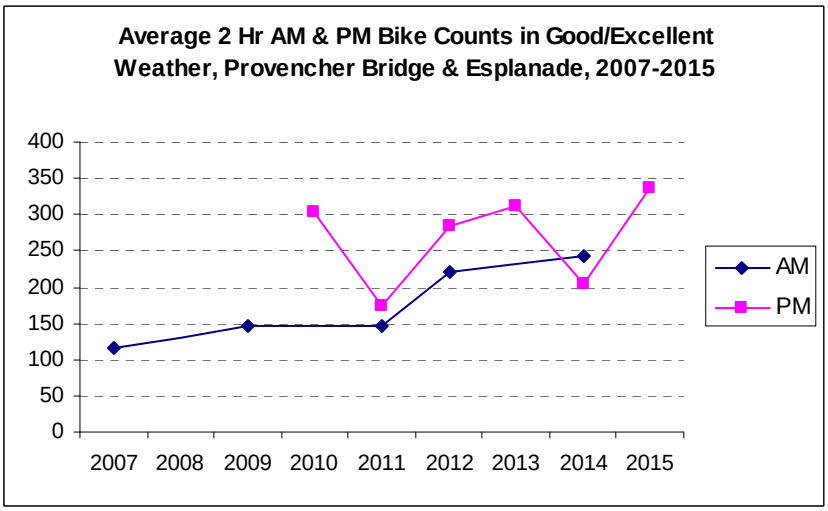

Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Omand Park Train Bridge, 2009-2015
300
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
2015
AM
PM

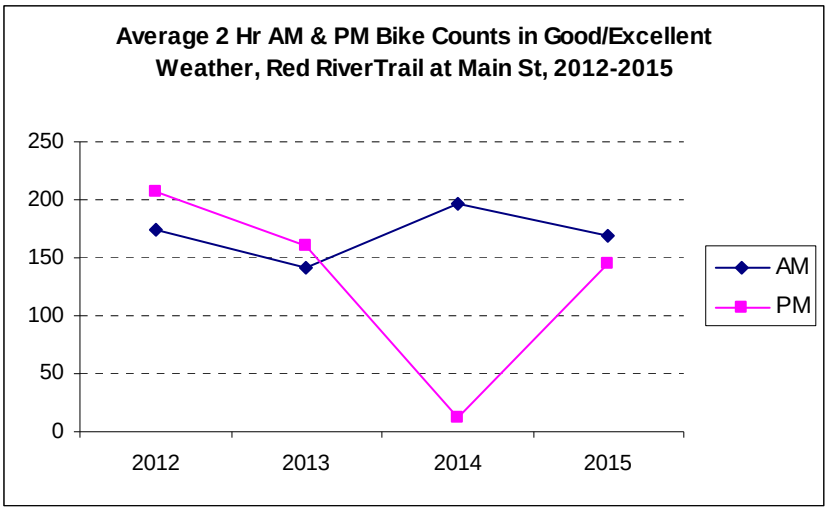

Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Osbofrne Bridge, 2007-2015
450
400
350
300
250
200
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
AM
PM

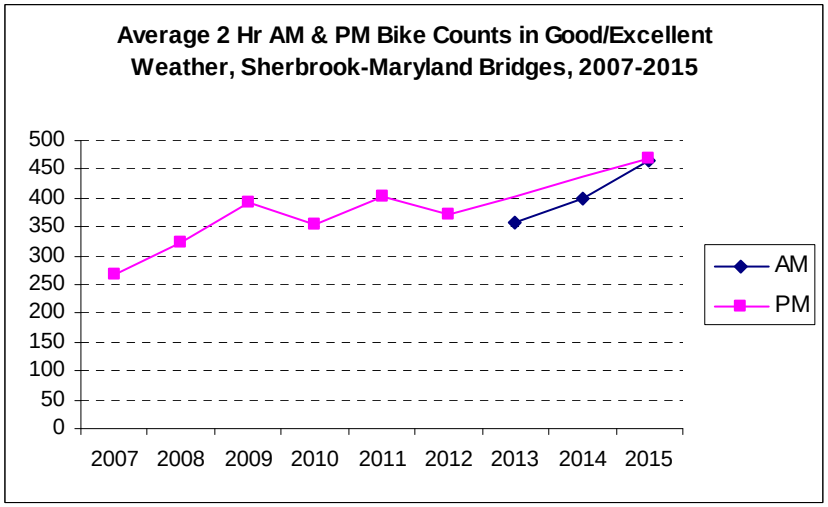

Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Osborne Underpass, 2009-2015
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
2015
AM
PM

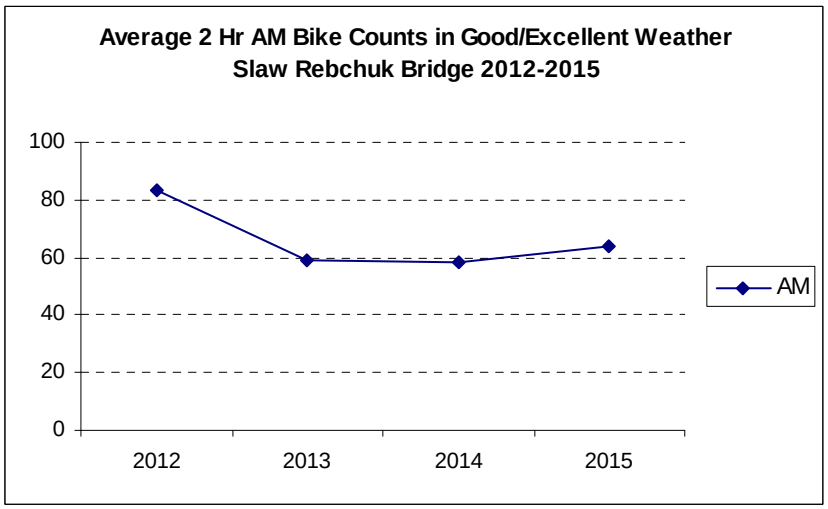

Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Pembina at St Maurice School, 2009-2015
180
160
140
120
100
80
60
40
20
0
2009
2010
2011
2012
2013
2014
2015
AM
PM

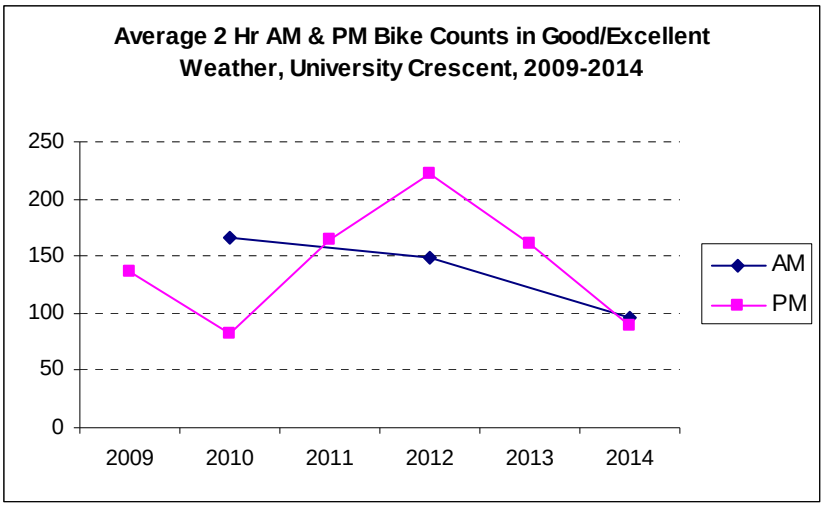

Average 2 Hr PM Bike Counts in Good/Excellent Weather, Pembina-Jubilee Underpass, 2011-2015
250
200
150
100
50
0
2011
2012
2013
2014
2015


Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Provencher Bridge & Esplanade, 2007-2015
400
350
300
250
200
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
AM
PM

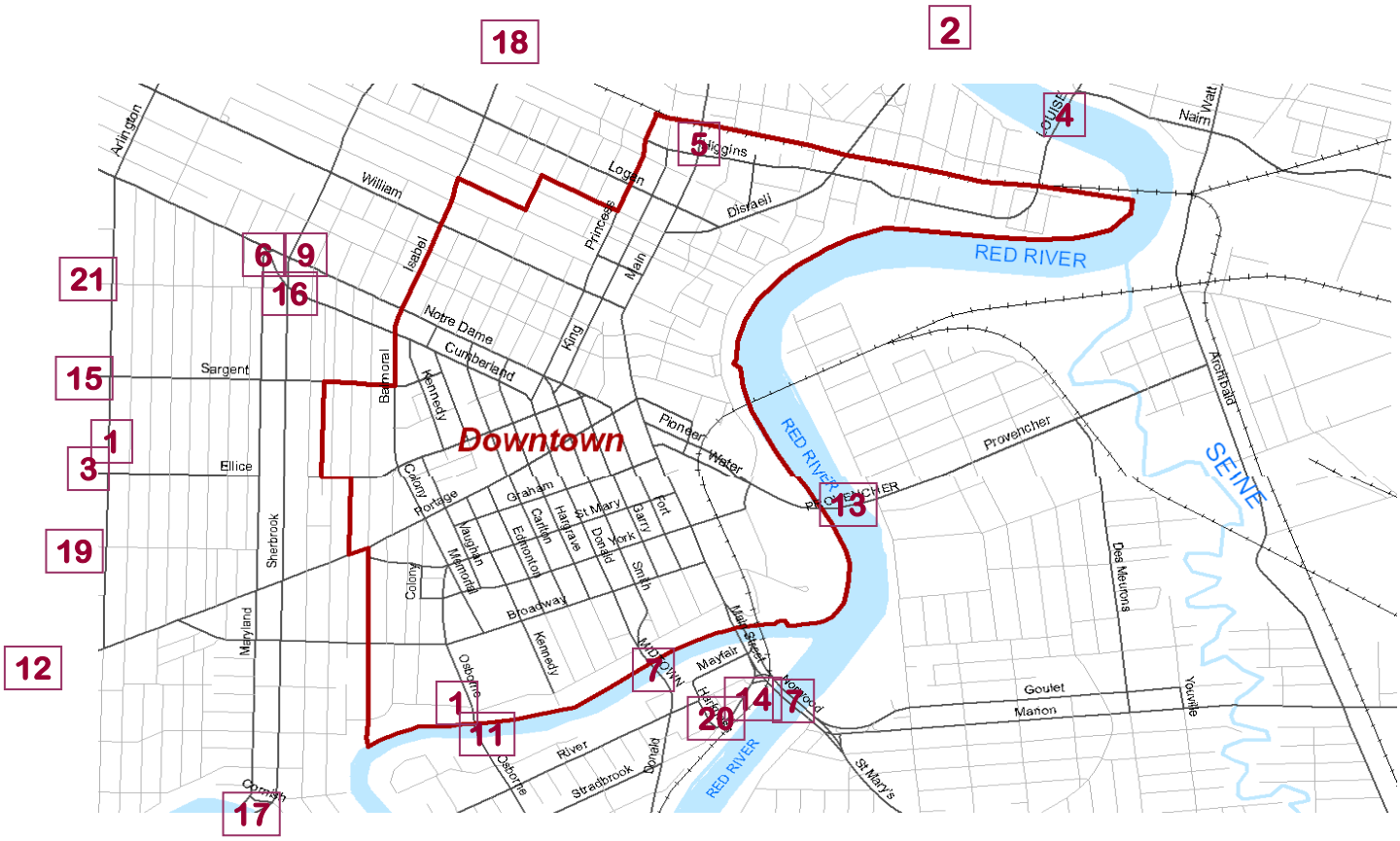

Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Red RiverTrail at Main St, 2012-2015
250
200
150
100
50
0
2012
2013
2014
2015
AM
PM


Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, Sherbrook-Maryland Bridges, 2007-2015
500
450
400
350
300
250
200
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
AM
PM


Average 2 Hr AM Bike Counts in Good/Excellent Weather Slaw Rebchuk Bridge 2012-2015
100
80
60
40
20
0
2012
2013
2014
2015
AM


Average 2 Hr AM & PM Bike Counts in Good/Excellent Weather, University Crescent, 2009-2014
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
AM
PM

Appendix C:
Downtown Perimeter Counting Locations



1 Arlington St.@ Ellice
2 Disraeli AT Bridge south end
3 Ellice Ave @ Arlington
4 Louise Bridge
5 Main St @ Higgins
6 Maryland @ Notre Dame
7 Midtown Bridge
8 Norwood Bridge
9 Notre Dame @ Maryland
10 Osborne AT Crosswalk
11 Osborne Bridge
12 Portage Underpass
13 Provencher Bridge/Esplanade Riel
14 River Trail @ Main St
15 Sargent @ Arlington
16 Sherbrook @ Cumberland
17 Sherbrook/Maryland Bridges
18 Slaw Rebchuk Bridge
19 St Matthews Ave @ Arlington
20 Stradbrook East of Donald (@ Harkness)
21 Wellington Ave. @ Arlington