Commuter Cycling in Winnipeg, 2007 - 2014
Executive Summary

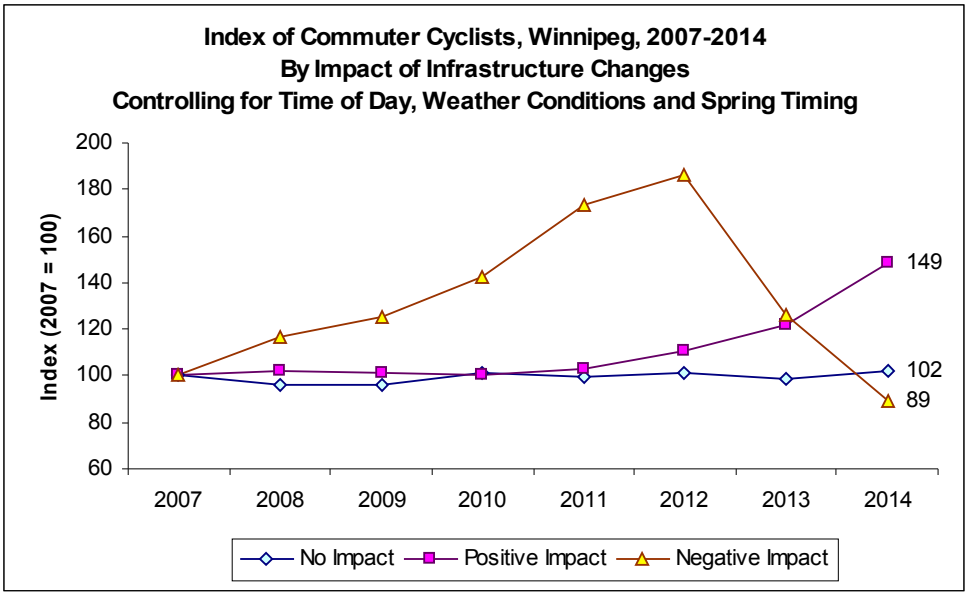
Volunteers from Bike Winnipeg (formerly Bike to the Future) have been conducting spring counts of bicycle traffic since 2007 in order to provide solid information about the numbers of commuter cyclists in Winnipeg based on direct observation. During April, May and June of 2014 we completed 68 counts at 25 locations in Winnipeg. Since 2007 we have completed 530 counts at 84 locations. (See Appendix B for summary data on the 2014 counts.) Our analysis resulted in these findings:

Daily and Seasonal Weather Patterns Affect Cycling Levels

Weather patterns have a big impact on the numbers of commuter cyclists, and this includes both daily and seasonal weather. The number of cyclists increases directly with the improvement of weather conditions. In addition the number of cyclists increases in relation to the timing of spring weather, measured as time since the last snow has melted. "Snow on the ground" is a better measure of spring timing than the calendar month and provides a clearer annual trend in commuter cycling behaviour.

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 by 8% in 2012, 10% in 2013 and 22% in 2014. **Since 2010 bicycle counts at these locations have increased by 49%.** On the other hand there was only a slight increase in bicycle counts at locations without such improvements. At two locations new bicycle infrastructure appears to have diverted cyclists away from unimproved facilities.

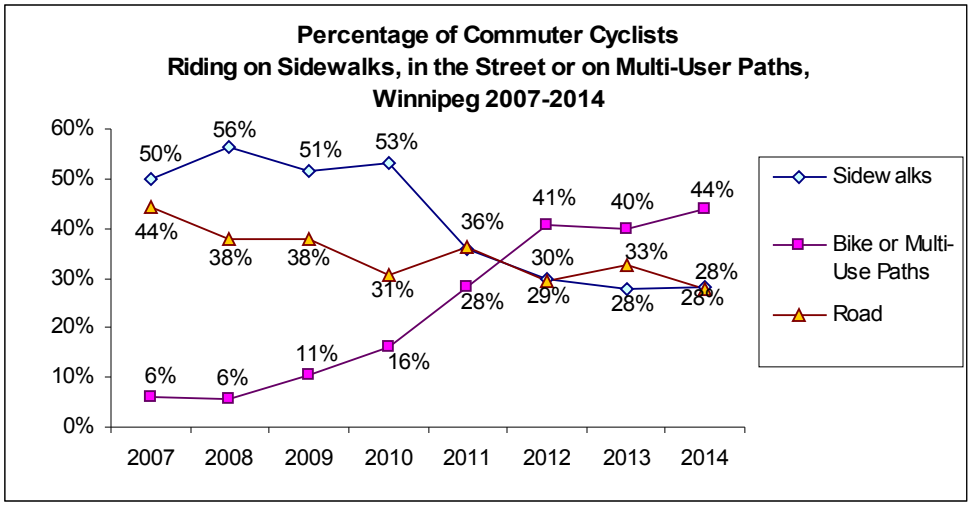


More than 14,000 Daily Bicycle Commuters in Winnipeg

- In **downtown Winnipeg** average daily bicycle traffic (number of cyclists) traveling during a typical weekday in May or June is estimated at **13,789.**
- 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 **6,895**.
- 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 **14,350**. The total number of commuter cyclists in the city would be higher, given that not every cyclist commutes every day.

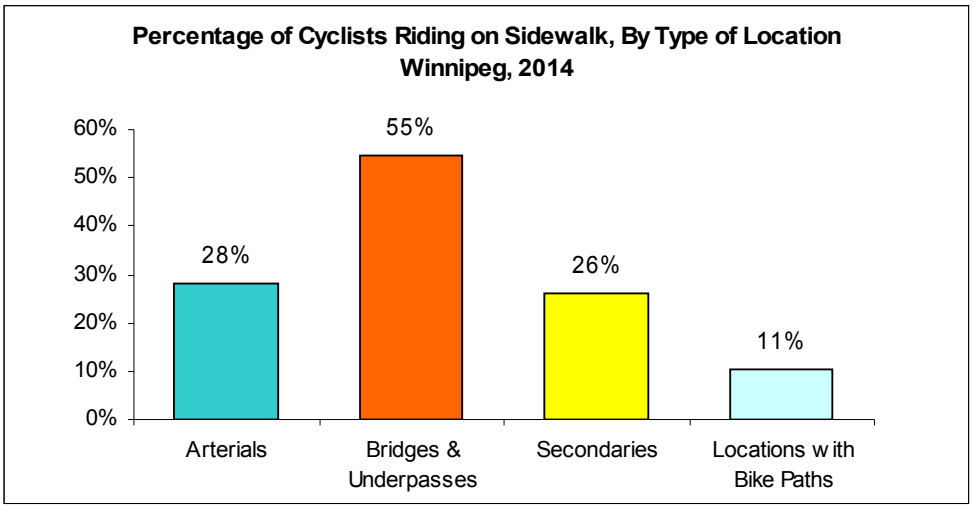
Less Sidewalk Riding Where Bike Paths Exist

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 27% in 2008. 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.



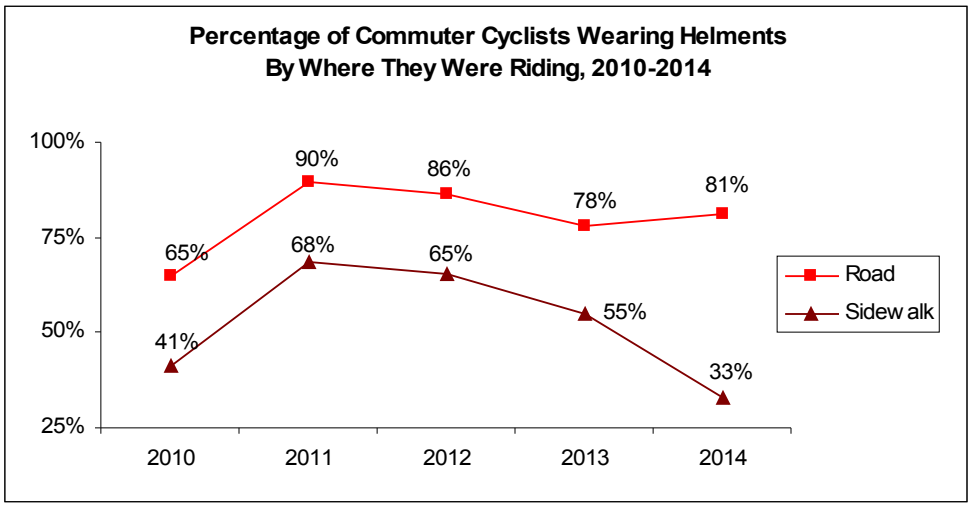
Majority of Cyclists on Sidewalks at Bridges and Underpasses

Sidewalk riding remains high on major bridges and underpasses 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 2014 65% of commuter cyclists wore helmets, down slightly from 2013. While 81% of cyclists riding on the roads wore helmets, only 33% 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. Progress has been slow with most of the new facilities built as part of the federal infrastructure stimulus program. These new facilities have included a few major bridges, but most have been smaller projects, such as painted bicycle lanes, and cyclists continue to avoid riding in the street at most of the major bridges and underpasses.

Nevertheless 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 is taking place primarily at locations with new bike lanes and multi-user paths. Similarly, 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.

In addition, we reached the following conclusions:

- During May and June of 2014, an average of approximately 6,900 cyclists commuted in and out of the downtown area of Winnipeg during weekdays, and throughout the entire city a total of about 14,350 cyclists commuted on a daily basis.
- Sidewalk riding has been declining as bicycle-specific infrastructure becomes available. More than half of cyclists ride on the sidewalks on major bridges and underpasses, but where bike paths exist, only 11% ride on sidewalks. There has been a major shift in bicycle traffic from sidewalks and roads to bike lanes and multi-user paths *where they have been provided.*
- 65% of commuter cyclists wear helmets, with women, and those riding in the street more likely to wear helmets than men and those riding on sidewalks.
- After taking into account location, weather conditions, spring timing and time of day, commuter cycling in Winnipeg has increased by 16% over the past eight years. However, at locations with separated bike lanes or paths there has been a 49% increase over this time period.

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Commuter Cycling in Winnipeg, 2007-2014

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1. Bicycle Counting in Winnipeg

For the past eight 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 although there are likely to be non-commuters included in the counts, especially in the afternoons. They are done on weekdays at the beginning of each month in spring – in April, May and June. In 2014 we completed 68 counts at 25 locations in Winnipeg. Since 2007 we have completed 530 counts at 84 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. Most of the 2014 volunteers have counted 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 are Tuesday through Thursday during the first weeks of April, May and June. This timing was selected to enable us to analyse trends from month to month in spring, focussing on typical mid-week commuting days. Most counts have been done during these targeted times and days, but, in order to accommodate volunteers' availability, a few counts have taken place in mid-month.

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 2014, 528 counts were carried out at 84 locations in Winnipeg. The number of counts and timing has varied among locations, ranging from only one count at some locations to more than 15 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 in different months. For example, at Osborne Bridge the highest count was 405 (June, 2010) while the lowest count was 26 (April, 2009). These variations are related to several factors, the foremost being weather conditions, followed by time of year and time of day. 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.

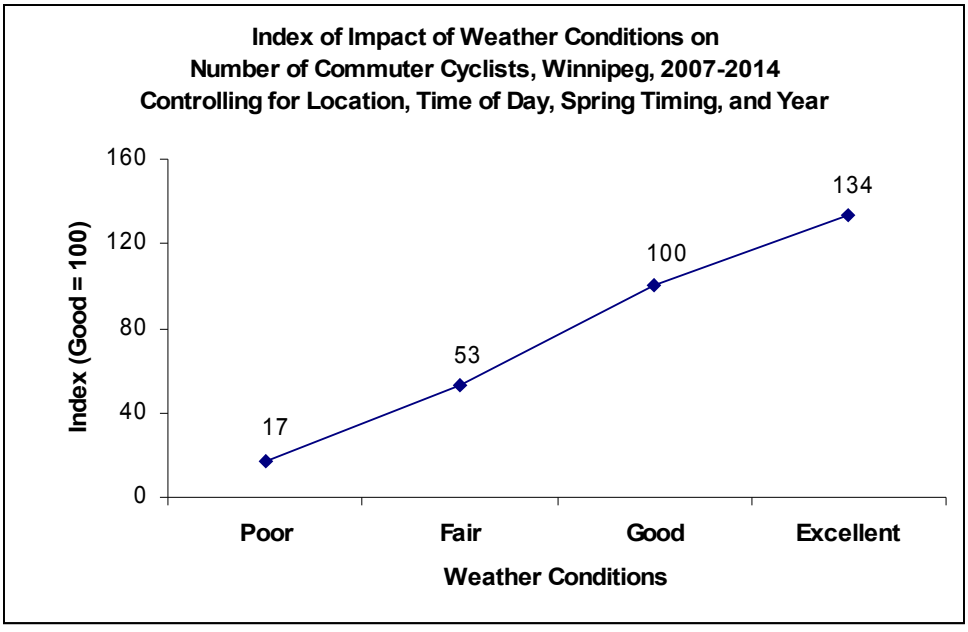
4. Impact of Weather Conditions on Numbers of Cyclists

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 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
Good:	Temperature = 9º to 17º Celsius with wind less than 40 km/hr
Excellent:	Temperature ≥ 18º Celsius with wind less than 40 km/hr

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 spring timing. (Spring timing will be described in section 6 below.) The percentage differences in numbers of cyclists for different weather conditions were then calculated and averaged. The average percentage differences were then used to create an index. For the sake of the index "good" weather conditions are set at 100.

Based on 29 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 17 are likely to travel at the same location in poor weather, 53 in fair weather, and 134 in excellent weather.



5. Morning and Afternoon Counts

Afternoon rush hour bicycle counts are consistently higher than morning rush hour counts. We have completed 56 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 53 of these pairs the afternoon counts were higher. The total for the 56 two hour morning counts was 6,796 and the total for the 56 two hour afternoon counts was 9156. Thee afternoon, therefore, were 35% higher on average than the 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. Since 2007 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.

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.

Two ways of identifying the timing of spring weather were considered: 1) The last date of continuous **snow on the ground**; and 2) The start of **spring street cleaning** by the City of Winnipeg. The first of these addresses weather conditions directly, while the second is an indirect measure of weather conditions, and a direct measure of road conditions. Many cyclists, for example, may wait until the streets have been cleaned of winter's accumulated sand and debris before getting their bikes out. The following table shows the relationship between these two measures of spring timing.

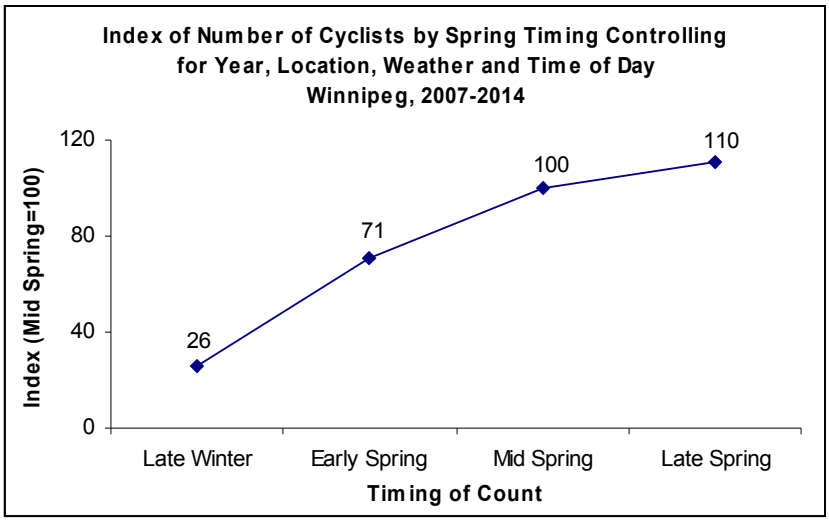
Table 1
Measures of the Timing of Spring Weather

Year	Last Day of Continuous Snow On the Ground	Spring Street Cleaning Begins
2007	March 27	April 15
2008	April 5	April 13
2009	April 12	April 19
2010	March 14	April 11
2011	April 5	April 17
2012	March 13	March 18
2013	April 26	April 28
2014	April 25	April 28

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), and data for spring street cleaning were obtained by monitoring local news reports. 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, year and weather. A total of 24 comparable counts were identified where the spring timing of the count was different but all the other factors - location, time of day, year and weather conditions were the same. Percentage changes between spring timing categories were calculated for each set of comparable counts and then these were averaged. An index was created based on this analysis with mid spring counts set as the reference point, as shown in the following chart. It was found that late winter counts were 74% lower than mid spring counts, early spring counts were 29% lower than in mid spring, and later spring counts were 10% higher than in mid spring.



7. 2007-2014 Trends

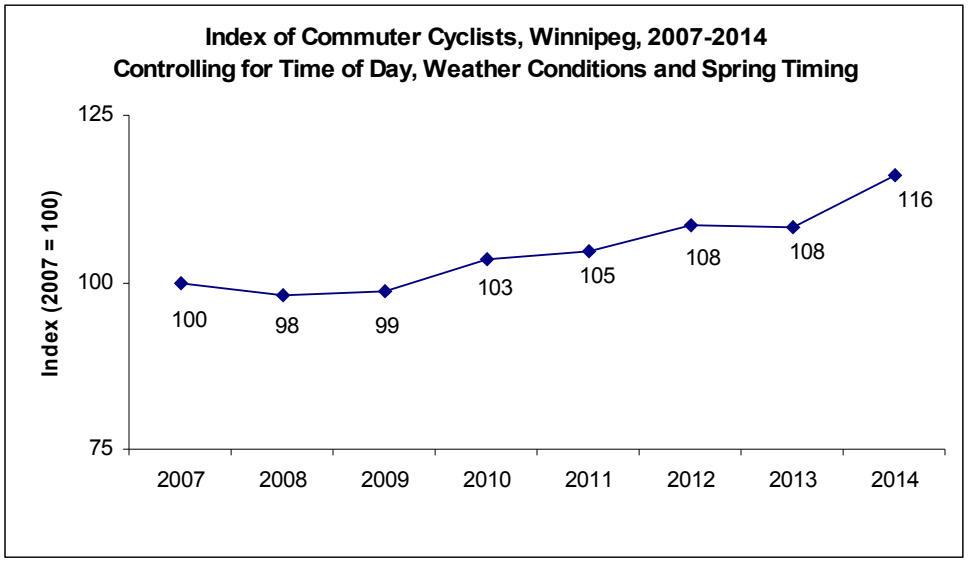
In this section we will describe annual trends in numbers of cyclists over the period from 2007 through 2014. An analysis was done of comparable counts from year to year, controlling for location, time of day, weather conditions and spring timing. Spring timing was defined in reference to the last day of snow on the ground as described above. For this analysis year-over-year comparisons where all other factors were the same were possible for 22 locations. Often the comparable counts were 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 216 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.

The analysis found that the number of commuter cyclists in Winnipeg increased by 7% between 2013 and 2014, and by a cumulative total of 16% between 2007 and 2014. These numbers are lower than in previous estimates and are a result of the additional comparisons available using data from the 2014 counts. 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.

The percentage changes per year are shown in the following table. These percentage changes were converted to an index, with 2007 set as the reference value of 100. (See chart below.)

Table 2
Year/Year Change in Bicycle Counts
Controlling for Location, Time of Day, Weather and Spring Timing
Winnipeg 2007-2014

Year	Average Change from Previous Year	Index
2007	----	100
2008	-2%	98
2009	0%	99
2010	+5%	103
2011	+1%	105
2012	+4%	108
2013	0%	108
2014	+7%	116



Based on this analysis there was a gradual increase the numbers of commuter cyclists between 2007 and 2013, but there was a marked increase in 2014.

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 explanation is the impact of new cycling infrastructure projects. There were several major projects and many smaller projects that provided new bicycle facilities during this time period, summarized in the following table:

Table 4
City of Winnipeg Cycling Infrastructure Projects Completed between 2007 and 2014

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 intended to have a bike lane of the proper width but it does not at this time.

Some of our counting locations have clearly benefited from new infrastructure, such as the Assiniboine Avenue segregated bike lane. Other locations were not affected by the new bicycle infrastructure. There are also at least two 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 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. It was found that, as expected, bicycle travel tended to increase to a greater degree where new infrastructure has been built, than at other locations, and that bicycle traffic declined as expected on Louise Bridge and University Crescent after 2012.

Table 4 provides a summary of the findings concerning annual trends in bicycle counts for the three sets of locations.

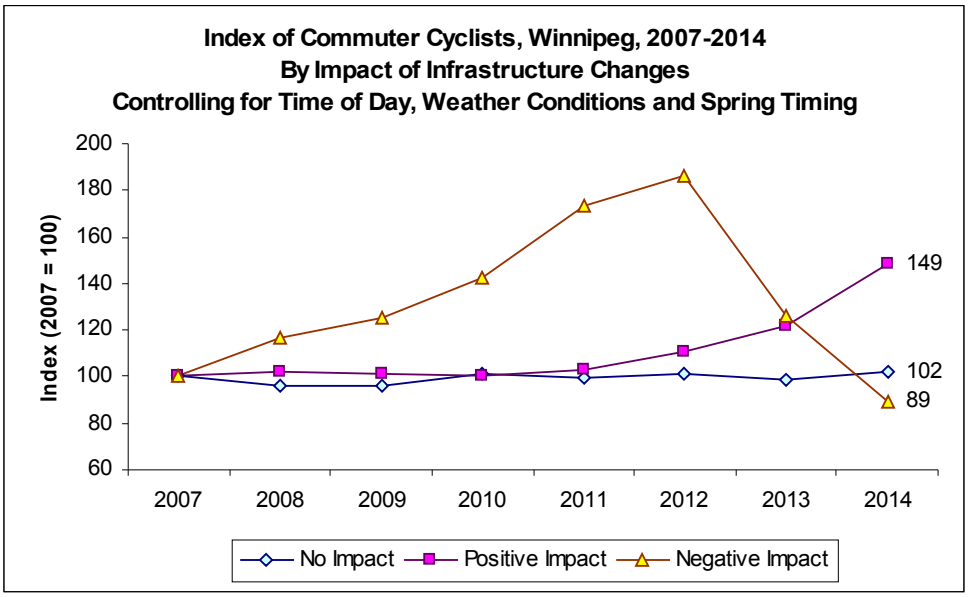
Table 4
Estimated Year/Year Percentage Change in the Number of Commuter Cyclists
At 23 Locations, Winnipeg, 2007-2014
Controlling for Weather, Time of Day and Spring Timing*

Location	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
No Changes to Cycling Infrastructure							
Arlington @ Ellice	-6%	-21%	-2%	78%			
Ellice @ Arlington	-22%	-16%	6%	88%			
Main St @ Higgins	35%	26%	21%		-42%	-25%	30%
Midtown Bridge	4%	4%	4%	3%	40%	28%	22%
Norwood Bridge				-12%	10%	8%	-2%
Omand Park Train Bridge	-14%	-16%	0%	26%	9%		
Osborne Underpass			6%	-20%	-21%	20%	-17%
Pembina-Jubilee Underpass	-3%	-3%			12%	8%	2%
Provencher Bridge & Esplanade	-27%	9%	8%	-20%	33%	8%	-11%
River Trail @ Main St						-21%	38%
Sherbrook @ Cumberland						5%	4%
Sherbrook-Maryland Bridges	9%	7%	6%	11%	-2%		-1%
Slaw Rebchuk Bridge	-8%	-5%	-5%	-6%	-11%	-29%	35%
Weighted Average	**-4%**	**0%**	**6%**	**-2%**	**2%**	**-2%**	**3%**
Positively Affected by Changes to Cycling Infrastructure							
Assiniboine Ave @ Hargrave						21%	21%
Bishop Grandin Greenway @ Dakota						32%	24%
Fort Garry Bridges				103%			
Grosvenor @ Harrow					16%	9%	
Harrow @ Grosvenor				21%	26%	25%	
Osborne Bridge	2%	0%	1%	-17%	10%	9%	18%
Pembina between Chevrier & Plaza			-4%	-4%	-5%	-10%	24%
Weighted Average	**2%**	**0%**	**-2%**	**3%**	**8%**	**10%**	**22%**
Negatively Affected by Changes to Cycling Infrastructure							
Louise Bridge	17%	7%	11%	26%	-4%	-38%	-40%
University Crescent			17%	19%	16%	-28%	-17%
Weighted Average	**17%**	**7%**	**14%**	**22%**	**7%**	**-32%**	**-29%**
Overall Weighted Average	**-2%**	**0%**	**5%**	**1%**	**4%**	**0%**	**9%**

Time periods following the completion of new bike facilities are shaded.

Note that we do not yet have any comparable year/year counts for the Disraeli AT Bridge or for the University golf course trail and therefore can't document trends at these locations. However, we did count 120 cyclists crossing the new Disraeli AT Bridge in June this year. Past counts on the old Disraeli Bridge were much lower; for example we estimated 36 cyclists in two hours on the Disraeli Bridge in May 2013. At the University golf course trail we counted 91 cyclists in June, 2013. What appears to be a decline in bicycle counts at Louise Bridge and University Crescent is most likely an overall increase in bicycle traffic.

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 total commuter cyclists in Winnipeg for several reasons. First, it is not possible to cover all routes among our counting locations. Second, some cyclists may travel past several of the counting points on their commuting routes. Third, some cyclists travel within smaller geographic areas and may not leave their neighbourhoods. The traffic counting method is simply not designed to provide an overall count of traffic volumes, or the share of traffic made up of different travel modes.

On the other hand, our counting locations have been selected in part to include the major routes in and out of downtown Winnipeg. With this in mind, a circle of 20 counting locations around the downtown perimeter have been selected that cover most of the ways that cyclists traveling between the downtown area and outlying areas would have to take. (See Table 5 below and Appendix D.) While it is possible that someone could cross more than one of these counting points on their way to work, it is not likely if they are proceeding towards downtown. At the same time, some possible routes are not covered, such as routes along Notre Dame Ave. and travel within smaller areas of the downtown.

For most of the downtown perimeter 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. Where there is no count for 2014, 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 (1.35) was used to fill in the missing number.

As shown in the table, average morning rush hour traffic is estimated at 2,600 cyclists and average afternoon rush hour traffic was about 3,247 for this set of locations for a total morning and afternoon count of 5,847. The total bicycle traffic into and out of the downtown area over the course of a day (24

hours) is estimated at 13,789. 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 total 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 **6,895 cyclists** traveling in and out of downtown Winnipeg during weekdays at this time of year.

This should not be viewed as an estimate of total 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 total about **14,350 cyclists** commute regularly in Winnipeg during May and June. This is about 9% higher than our estimate in the 2013 report.

[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.

[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.

Table 5
Estimates of Total Traffic In/Out of Downtown Winnipeg – May-June
Based on 2014 or most recent previous counts

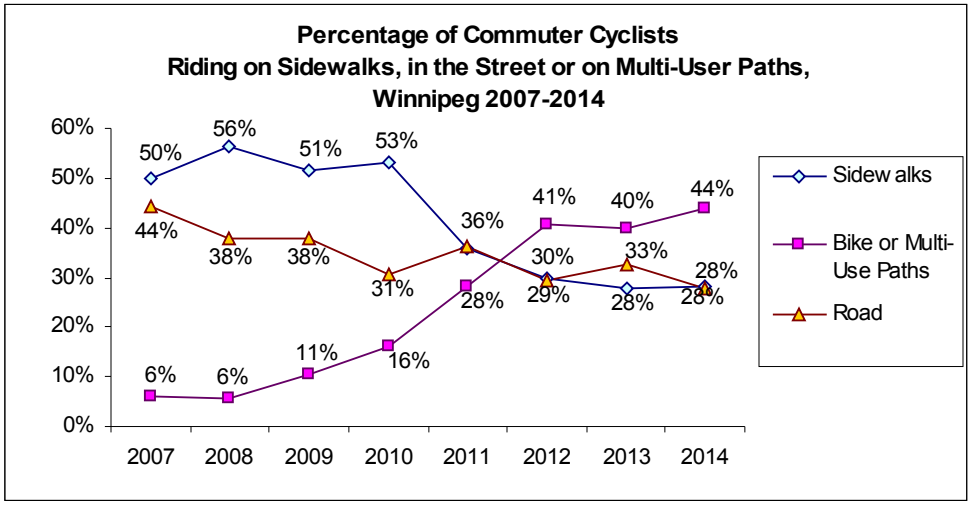
Location	Most Recent May or June Count AM	PM	AM +PM
1 Arlington St.@ Ellice	42	51	93
2 Disraeli AT Bridge south end	120	***162***	282
3 Ellice Ave @ Arlington	32	79	111
4 Louise Bridge	66	***89***	155
5 Main St @ Higgins	123	241	364
6 Maryland @ Notre Dame **	***53***	72	125
7 Midtown Bridge	35	60	95
8 Norwood Bridge	315	399	714
9 Osborne AT Crosswalk	354	***478***	832
10 Osborne Bridge	251	377	628
11 Portage Underpass	66	210	276
12 Provencher Bridge/Esplanade Riel	244	277	521
13 River Trail @ Main St	196	67	263
14 Sargent @ Arlington	40	***54***	94
15 Sherbrook @ Cumberland	72	***53***	125
16 Sherbrook/Maryland Bridges	399	331	730
17 Slaw Rebchuk Bridge	58	88	146
18 St Matthews Ave @ Arlington	55	53	108
19 Stradbrook East of Donald (@ Harkness)	40	54	94
20 Wellington Ave. @ Arlington	***39***	52	91
Total 2 Hour Counts	**2,600**	**3,247**	**5,847**
Estimated Total Daily Traffic* **			**13,789**
Estimated Cyclists (50% of Total Traffic)			**6,895**

* Italicized and bolded numbers are estimates based on the ratio PM/AM = 1.35.
** No counts were done on Maryland @ Cumberland. It was assumed that the numbers would be about the same on Maryland as on Sherbrook since these are twin, one-way streets.
*** 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 (5,847 / .424 = 13,789).

10. Sidewalk Use

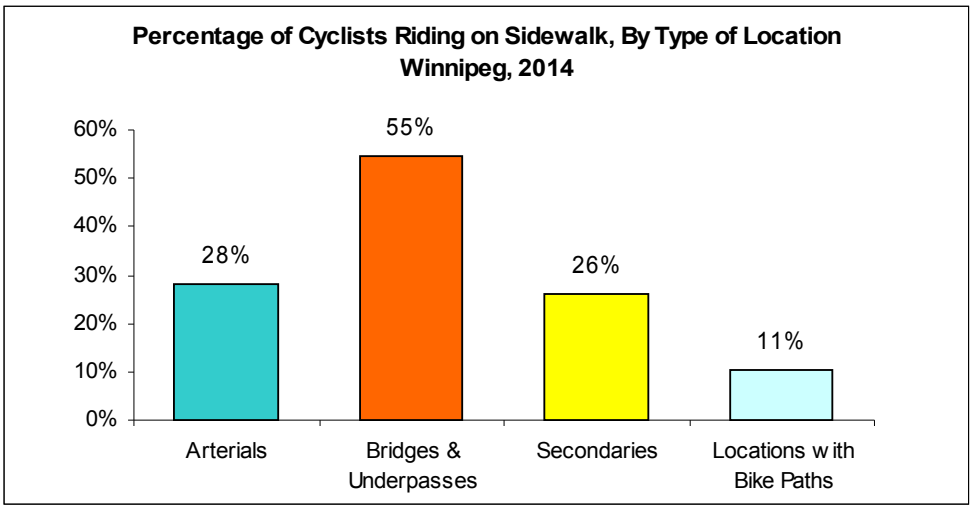
Although cycling on sidewalks is generally illegal in Manitoba, except where explicitly permitted, many cyclists do, in fact, ride on the sidewalks, either for convenience or out of fear of riding in the street. Overall, at our 2014 counting locations, 28% of cyclists rode on the sidewalk, 28% rode in the street and 44% rode on a bike or multi-user path.

The percentage of cyclists riding on the sidewalks has been declining since 2008 and especially since 2010. Prior to 2010 half or more of the cyclists we counted were riding on the sidewalks. In 2011, however, the percentage of sidewalk riders decreased substantially to 36% and it continued to decrease to 27% in 2014. (See chart.)



The major reason for the decrease in sidewalk riding is the increasing availability of bicycle or multi-user paths in Winnipeg. As the chart shows, while sidewalk riding has been declining, the percentage riding on designated paths, bike lanes or trails has increased from 6% in 2007 & 2008 to 45% in 2014. This reflects the new cycling infrastructure that started to become available in 2009 and the following years. In some cases the new trails were simply a re-designation of sidewalks as multi-use paths with the provision of additional signage and pavement markings. Examples of this are found along Jubilee and Taylor. But in most cases these paths represent new construction or newly established, painted bike lanes.

The percentage of sidewalk riders also varies dramatically according to the type of location. In 2014, 55% of cyclists traveling on bridges or through underpasses used the sidewalks, while 28% of those on major arteries and 26% of those on secondary streets rode on the sidewalks. However, at locations where there was a bike or multi-use path only 11% rode on the sidewalks. (See chart.)



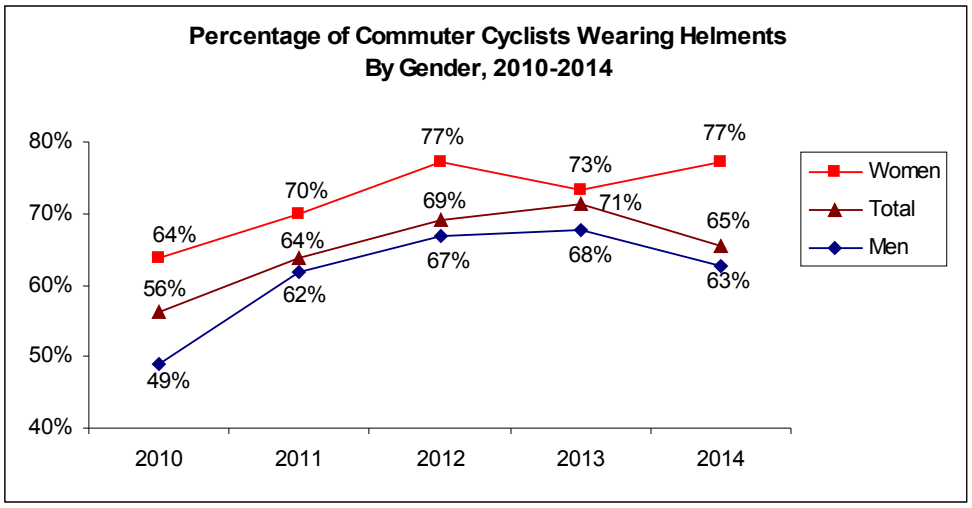
The behaviour of cyclists seems to depend on the particular location, the amount of traffic and the choices that are available to them. For example, the Louise Bridge is very narrow, has a high volume of traffic, and very few cyclists take the road. Another example is Provencher Bridge/Esplanade Riel, 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 Nassau or Ellice. Another factor is an increase in the presence of painted bike lanes on a number of streets since 2010, reducing sidewalk riding on streets such as Harrow and Maryland. 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.

11. Helmet Use and Gender

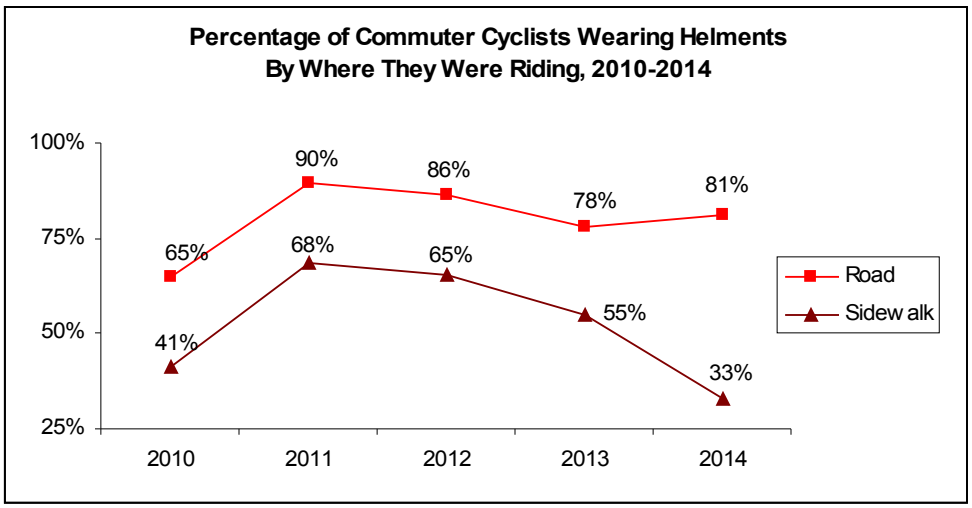
Starting in 2010 some of our volunteers have kept track of the gender of the cyclists and whether cyclists were wearing bicycle helmets or not. An average of 28% of the commuter cyclists were identified as female, and 72% were identified as male in 2014. Similar proportions of women have been identified in each of the previous 3 years (2011-2013) This is 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]

The percentage of commuter cyclists wearing helmets increased from 56% in 2010 to 71% in 2013. The percentage then declined to 65% in 2014. Helmet use has generally been increasing among both women and men, as shown in the following figure. In general a higher percentage of women than men wear helmets. As can be seen from the following chart, in 2014 the difference between men and women was larger than in previous years with 77% of women wearing helmets compares to 63% of men. (See the chart below.)

[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.



Cyclists who are riding in the road are more likely to wear helmets than those riding on the sidewalks. The percentages vary from year to year. Among those riding on the roads, 81% wore helmets in 2014, while among those riding on sidewalks only 33% wore helmets in 2014.



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. 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.

12. 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. But progress has been slow with most of the new facilities built as part of the federal infrastructure stimulus program. There have been improvements on a few major bridges, but these improvements have often fallen short of what is needed. Most improvements have been smaller projects, such as painted bicycle lanes, and cyclists continue to avoid riding in the street at most of the major bridges and underpasses. We continue to see street and bridge construction projects taking place that fail to address the needs of cyclists, in contradiction to the City's stated policy.

Nevertheless 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 is taking place primarily at locations with new bike lanes and multi-user paths. Similarly, 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 16% over the past eight years. However, at the locations with separated bike lanes or paths there has been a 49% increase over this time period.
- On a typical weekday in May and June of 2014, an estimated 6,900 cyclists commuted in and out of the downtown area of Winnipeg, and throughout the entire city a total of about 14,350 cyclists commuted on a given day. The total number of commuter cyclists in the city would be higher, given that not every cyclist commutes every day.
- Sidewalk riding has been declining as bicycle-specific infrastructure becomes available. More than half of cyclists ride on the sidewalks on major bridges and underpasses, but where bike paths exist, only 11% ride on sidewalks. In short, there has been a major shift in bicycle traffic from sidewalks and roads to bike lanes and multi-user paths *where they have been provided.*
- Not all cyclists are the same in terms of their degree of comfort and cycling behaviours. Cyclists who ride in the street rather than on the sidewalk are more likely to wear helmets, while cyclists who ride on the sidewalks are less likely to wear helmets.
- 65% of commuter cyclists wear helmets, with women, and those riding in the street more likely to wear helmets than men and those riding on sidewalks.
- Women make up 28% of commuter cyclists in Winnipeg.

A more comprehensive survey would be needed to more accurately estimate the total 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 travel to 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 2014 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 2014:

Karla Braun, Mike Burt, Jim Chapryk, Richard Craig, Laura Donatelli, Charles Feaver, Waiyee Lai, Liz Harland, Jeremy Hull, Ainsley Hutchins, Jim Kirby, Kevin Lunn, Duncan McNairney, Bill Newman, Jim Parker, Holly Poklitar, Ken Preston, Bill Reid, Krista Robinson, Sierra Sawatzky, Tom Schmidt, Lea Stogdale, Tina Tenbergen, Mani Tougas, John Wilmot, Terry Woods

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
Commuter Bicycle Count Data - Spring 2014

Location	Month	Day	AM/ PM	Spring Timing	Weather	2 Hr count*	Side-walk %	Helmet %	Women %
Assininboine Ave @ Hargrave	April	9	AM	Late Winter	Fair	**56**	0%	86%	27%
	April	8	PM	Late Winter	Fair	**58**	3%	62%	28%
	May	6	PM	Early Spring	Poor	**212**	1%	74%	33%
	June	3	PM	Late Spring	Excellent	**519**	1%	77%	36%
Bishop Grandin Greenway @ Dakota	April	10	PM	Late Winter	Fair	**5**	n.a.	80%	20%
	May	8	PM	Early Spring	Poor	**29**	n.a.	72%	10%
	June	3	PM	Late Spring	Excellent	**82**	n.a.	66%	22%
Cumberland at Sherbrook	May	6	AM	Early Spring	Fair	**11**	36%	45%	27%
	June	3	AM	Late Spring	Good	**23**	74%	52%	55%
Dakota @ Bishop Grandin	April	10	PM	Late Winter	Fair	**15**	73%	67%	7%
	May	8	PM	Early Spring	Poor	**42**	86%	62%	7%
Disraeli AT Bridge (south end)	April	8	AM	Late Winter	Poor	**14**	n.a.	93%	
	May	6	AM	Early Spring	Fair	**110**	n.a.	72%	
	June	3	AM	Late Spring	Good	**120**	n.a.	78%	33%
Fort Garry Bridges	April	8	AM	Late Winter	Poor	**16**	n.a.	67%	21%
	April	8	PM	Late Winter	Poor	**21**	n.a.		
Grosvenor @ Harrow	April	9	PM	Late Winter	Good	**12**	0%	67%	42%
	May	6	PM	Early Spring	Poor	**22**	27%	64%	55%
Harrow @ Grosvenor	April	9	PM	Late Winter	Good	**16**	0%	86%	29%
	May	6	PM	Early Spring	Poor	**43**	9%	81%	21%
Louise Bridge	April	9	AM	Late Winter	Fair	**11**	100%	63%	
	June	3	AM	Late Spring	Good	**66**	95%		
Main St @ Higgins	May	6	AM	Early Spring	Fair	**64**	72%	29%	18%
	June	3	AM	Late Spring	Good	**123**	73%	32%	21%
	May	6	PM	Early Spring	Poor	**132**	87%		
	June	3	PM	Late Spring	Excellent	**241**	85%		
Midtown Bridge	May	7	AM	Early Spring	Poor	**35**	49%	71%	31%
Munroe at North Pioneer Greenway	June	3	PM	Late Spring	Excellent	**40**		43%	33%
North Pioneer Greenway at Munroe	June	3	PM	Late Spring	Excellent	**157**	n.a	64%	27%
Norwood Bridge	May	14	AM	Mid Spring	Poor	**148**	5%	75%	23%
	June	4	AM	Late Spring	Good	**315**	5%	75%	32%
	May	14	PM	Mid Spring	Fair	**180**	5%		
	June	4	PM	Late Spring	Excellent	**399**	5%		
Osborne Bridge	April	8	AM	Late Winter	Poor	**47**	28%	69%	20%
	May	6	PM	Early Spring	Poor	**178**	39%		
	June	3	PM	Late Spring	Excellent	**377**	32%	55%	
Osborne Underpass	May	8	AM	Early Spring	Fair	**48**	75%	80%	30%
	June	5	AM	Late Spring	Good	**135**	63%	72%	33%
Path under Ft Garry Bridges	April	8	AM	Late Winter	Poor	**3**	n.a.	75%	
	April	8	PM	Late Winter	Fair	**1**	n.a.		
Pembina between Chevrier & Plaza	May	8	AM	Early Spring	Fair	**34**	18%	72%	25%
	June	4	AM	Late Spring	Good	**156**	13%	72%	37%
	May	8	PM	Early Spring	Poor	**64**	22%		
	June	4	PM	Late Spring	Excellent	**165**	16%	71%	29%

Appendix A, continued
Commuter Bicycle Count Data - Spring 2014

Location	Month	Day	AM/ PM	Spring Timing	Weather	2 Hr count*	Side-walk %	Helmet %	Women %
Pembina-Jubilee Under-pass	April	8	PM	Late Winter	Fair	**36**	61%	79%	22%
	June	4	PM	Late Spring	Excellent	**199**	65%	75%	30%
Provencher Bridge/ Esplanade Riel	May	8	AM	Early Spring	Fair	**81**	39%		
	June	3	AM	Late Spring	Good	**244**	29%		
	April	9	PM	Late Winter	Good	**52**	27%		
	May	15	PM	Mid Spring	Good	**212**	38%		
	June	5	PM	Late Spring	Excellent	**277**	62%		
River Trail @ Main St	June	3	AM	Late Spring	Good	**196**	n.a.	89%	34%
	April	9	PM	Late Winter	Good	**12**	n.a.	75%	8%
	May	8	PM	Early Spring	Poor	**67**	n.a.	88%	25%
Sherbrook @ Cumber-land	April	8	AM	Late Winter	Poor	**12**	56%	45%	
	May	6	AM	Early Spring	Fair	**39**	13%	85%	34%
	June	3	AM	Late Spring	Good	**72**	33%	67%	40%
Sherbrook-Maryland Bridges	May	6	AM	Early Spring	Fair	**213**	49%		
	June	3	AM	Late Spring	Good	**399**	47%		
Slaw Rebchuk Bridge	May	6	AM	Early Spring	Fair	**38**	71%	34%	16%
	June	5	AM	Late Spring	Good	**58**	57%	52%	33%
University Crescent	April	8	PM	Late Winter	Fair	**38**	92%	5%	5%
	April	9	AM	Late Winter	Fair	**24**	33%	64%	18%
	May	6	AM	Early Spring	Fair	**44**	36%	56%	21%
	June	5	AM	Late Spring	Good	**96**	19%	55%	33%
	April	9	PM	Late Winter	Good	**43**	21%		
	May	6	PM	Early Spring	Poor	**58**	36%		
	June	3	PM	Late Spring	Excellent	**135**	25%	59%	31%

* Two hour counts completed between 6:30 & 9:00 AM or between 3:30 & 6:00 PM. Where the was longer than two hours, the highest two hour period is used. Where the count was shorter than two hours, a two hour count is estimated on a proportionate basis.
n.a. = not applicable (no sidewalk) or sidewalk designated as a bike path.
Notes: Counts of gender and helmet use were optional. For definitions of Spring Time and Weather categories see text.

Appendix B
Peak Two Hour Bicycle Traffic Counts or Estimates at Selected Locations
By Direction of Travel
(highest counts recorded, 2007 – 2014)

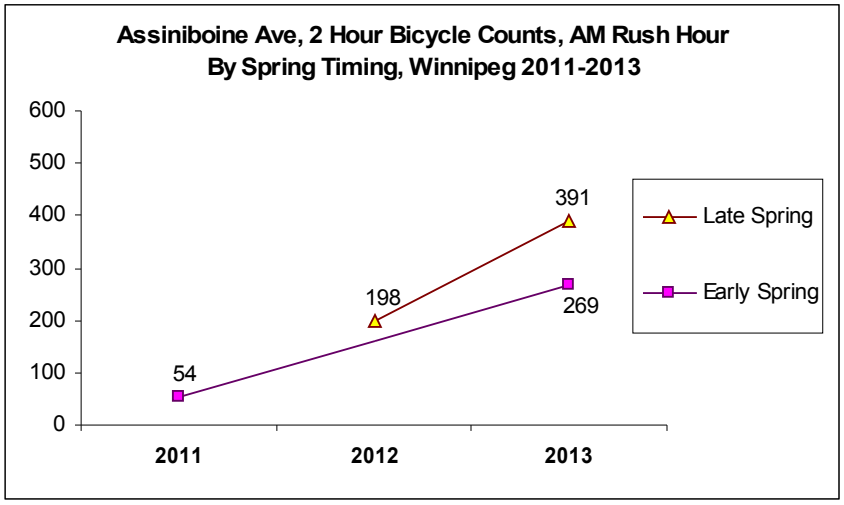
Location	"IN" (towards downtown)	"OUT" (away from downtown)
Arlington @ Ellice	39	32
Assin Ave @ Hargrave	246	235
Assin Park Footbridge	65	84
Bishop Grandin Greenway @ Dakota	37	45
Bruce @ Overdale	37	38
Cumberland/Wellington	30	n.a.
Dakota @ Bishop Grandin	43	64
Ellice @ Arlington	39	41
Fort Garry Bridges	70	129
Grosvenor @ Harrow	35	55
Harrow @ Grosvenor	38	74
Jubilee @ Lilac	49	40
Lilac @ Jubilee	31	12
Louise Bridge	154	n.a.
Main St @ Higgins	102	141
Main St Bridge	182	190
Midtown Bridge	75	116
Nassau @ Stradbrook	60	111
Norwood Bridge	234	270
Northern Pioneer Greenway Trail / Gateway / Raleigh @ Chalmers Ave	63	94
Omand Creek train bridge	110	213
Osborne Bridge	223	277
Osborne Underpass	162	133
Pembina @ St Maurice School	87	80
Pembina-Jubilee Underpass	103	131
Provencher Bridge/Esplanade Riel	220	265
River Trail @ Main St	170	168
Sherbrook @ Cumberland	n.a.	67
Sherbrook-Maryland Bridges	252	317
Slaw Rebchuk Bridge	53	55
St Matthews @ Arlington	35	37
Stradbrook @ Nassau	94	53
University Crescent*	191	122
Waterfront Drive @ Lombard	112	168
Waterfront Drive near Provencher	153	97
Waverley @ Taylor	60	91

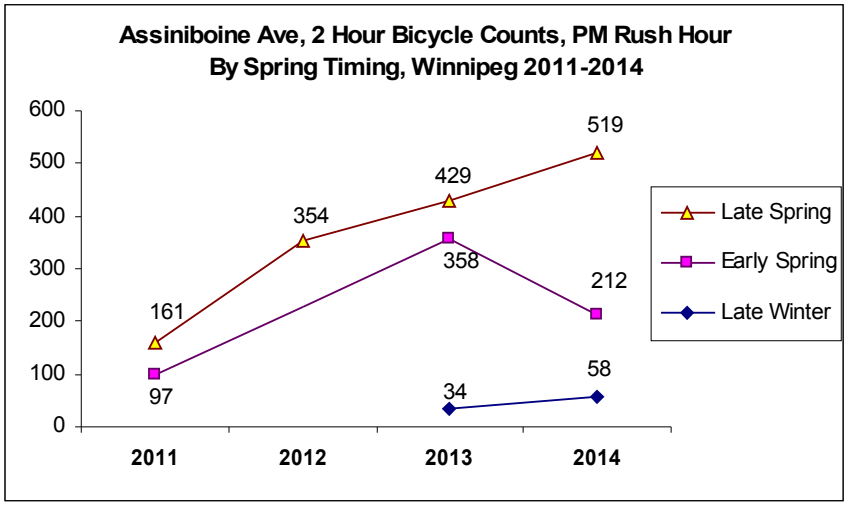
* On University Crescent "In" means towards the University, "Out" means away from the University.
n.a. – Not applicable (one way street or no appropriate AM/PM count.

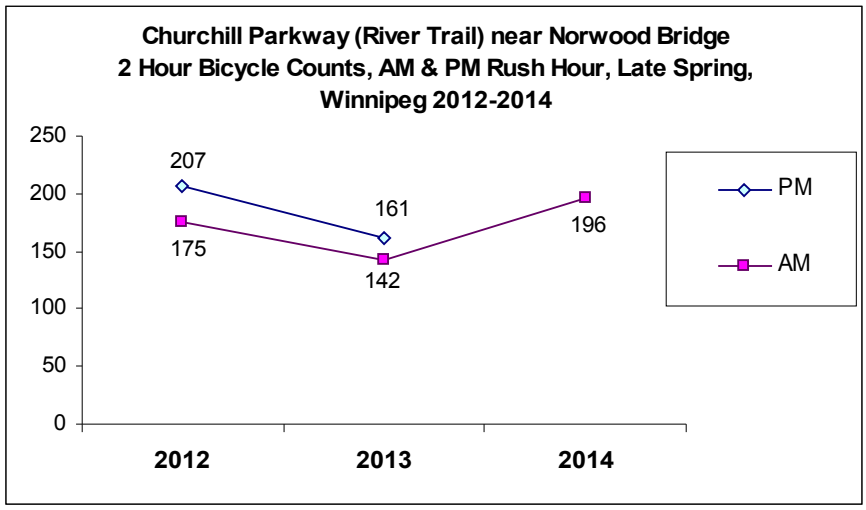
Appendix C: Charts Showing Commuter Cyclist Trends at Selected Locations By Time of Day, Spring Timing and Year

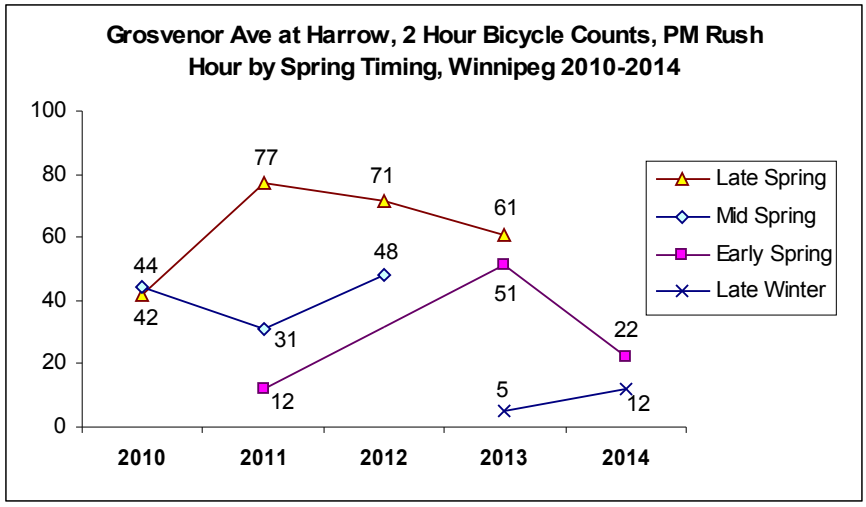
(where no marker appears on a trend line, there was no count that year)

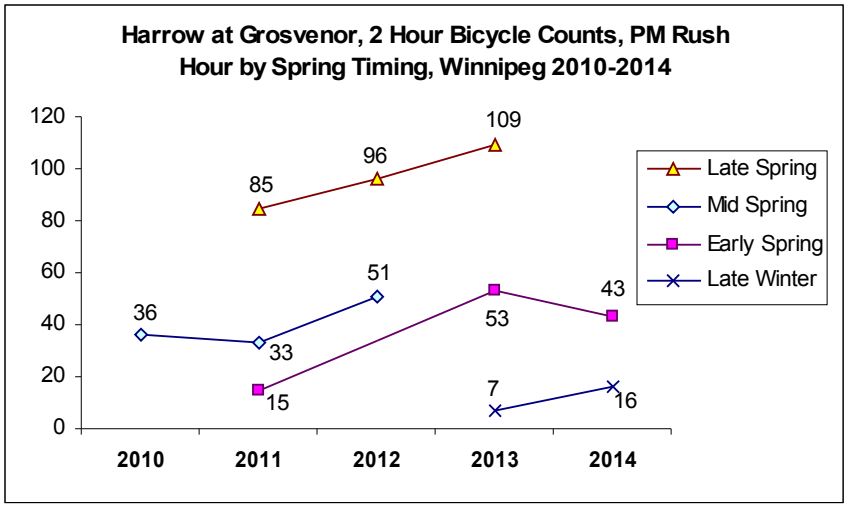
Assiniboine Ave @ Hargrave
Churchill Parkway (River Trail) near Main St.
Grosvenor Ave @ Harrow
Harrow @ Grosvenor
Louise Bridge
Main St @ Higgins
Norwood Bridge
Omand Park Train Bridge
Osborne Bridge
Osborne Underpass
Pembina between Chevrier & Plaza
Pembina-Jubilee Underpass
Provencher Bridge/Esplanade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

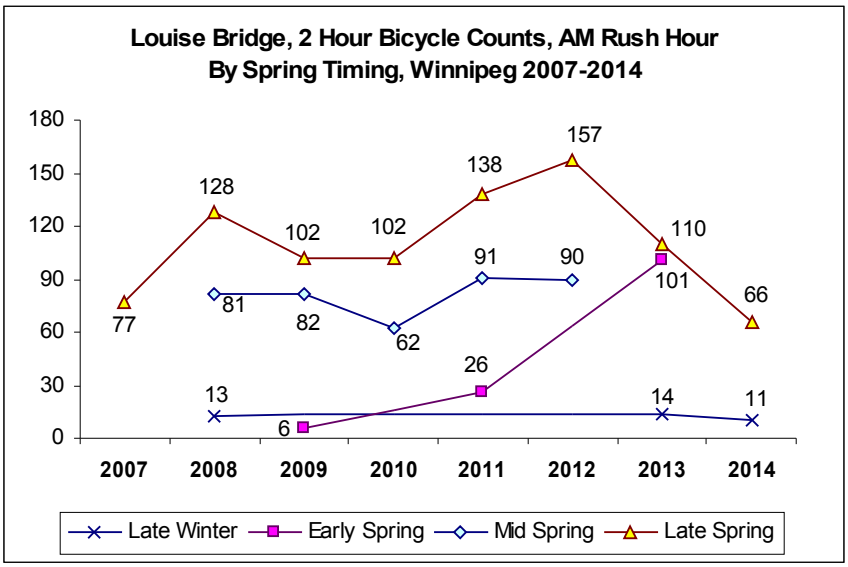


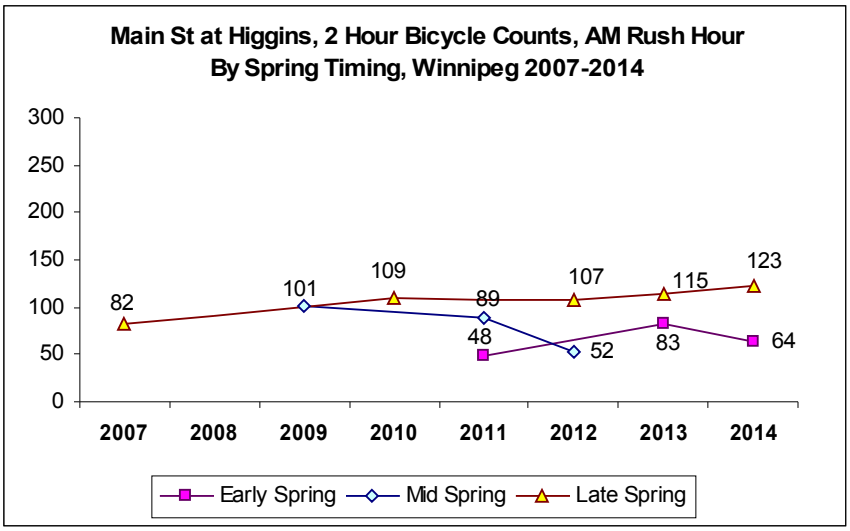


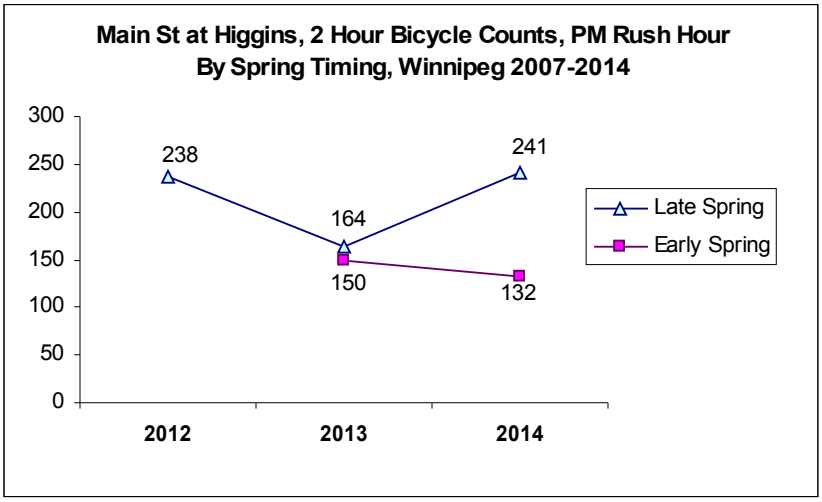

Churchill Parkway (River Trail) near Norwood Bridge
2 Hour Bicycle Counts, AM & PM Rush Hour, Late Spring,
Winnipeg 2012-2014
250
200
150
100
50
0
207
161
196
175
142
2012
2013
2014
PM
AM

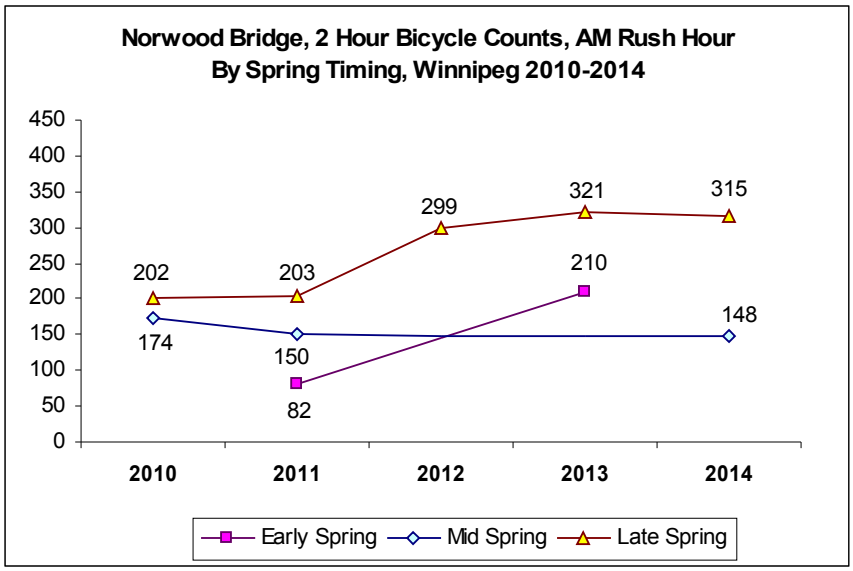

Grosvenor Ave at Harrow, 2 Hour Bicycle Counts, PM Rush
Hour by Spring Timing, Winnipeg 2010-2014
100
80
60
40
20
0
77
71
61
44
48
42
31
51
22
12
5
12
2010
2011
2012
2013
2014
Late Spring
Mid Spring
Early Spring
Late Winter

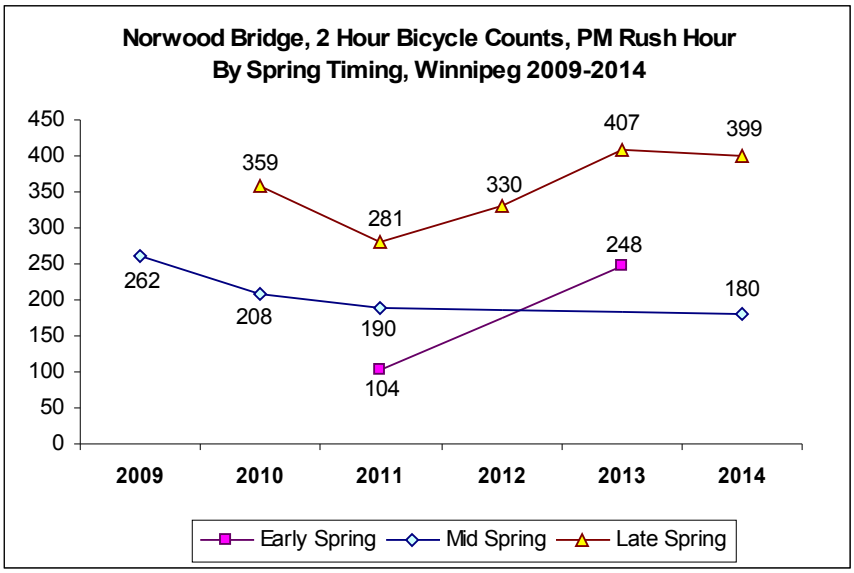

Harrow at Grosvenor, 2 Hour Bicycle Counts, PM Rush
Hour by Spring Timing, Winnipeg 2010-2014
120
100
80
60
40
20
0
109
96
85
51
43
36
33
53
15
7
16
2010
2011
2012
2013
2014
Late Spring
Mid Spring
Early Spring
Late Winter

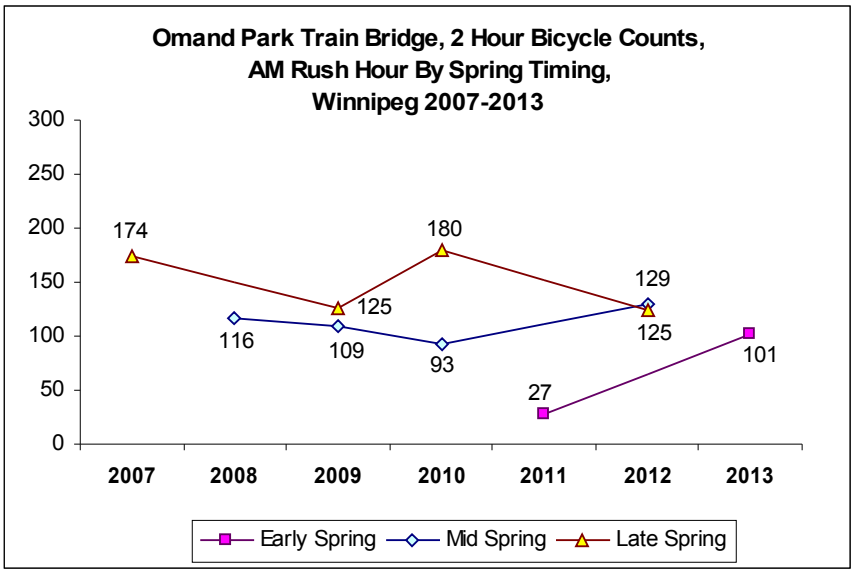

Louise Bridge, 2 Hour Bicycle Counts, AM Rush Hour
By Spring Timing, Winnipeg 2007-2014
180
150
120
90
60
30
0
2007
2008
2009
2010
2011
2012
2013
2014
77
128
102
102
138
157
110
66
81
82
62
91
90
101
13
6
26
14
11
Late Winter
Early Spring
Mid Spring
Late Spring

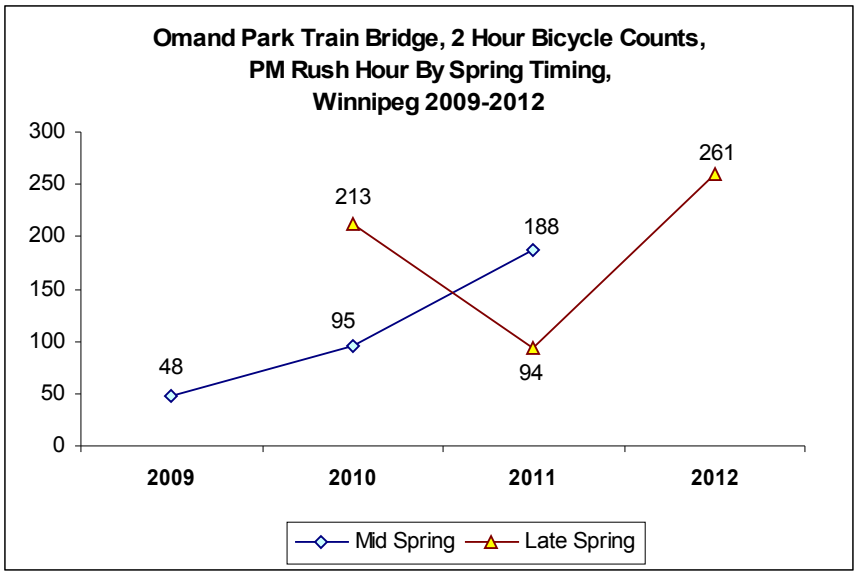

Main St at Higgins, 2 Hour Bicycle Counts, AM Rush Hour
By Spring Timing, Winnipeg 2007-2014
300
250
200
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
2014
82
101
109
89
107
115
123
48
52
83
64
Early Spring
Mid Spring
Late Spring

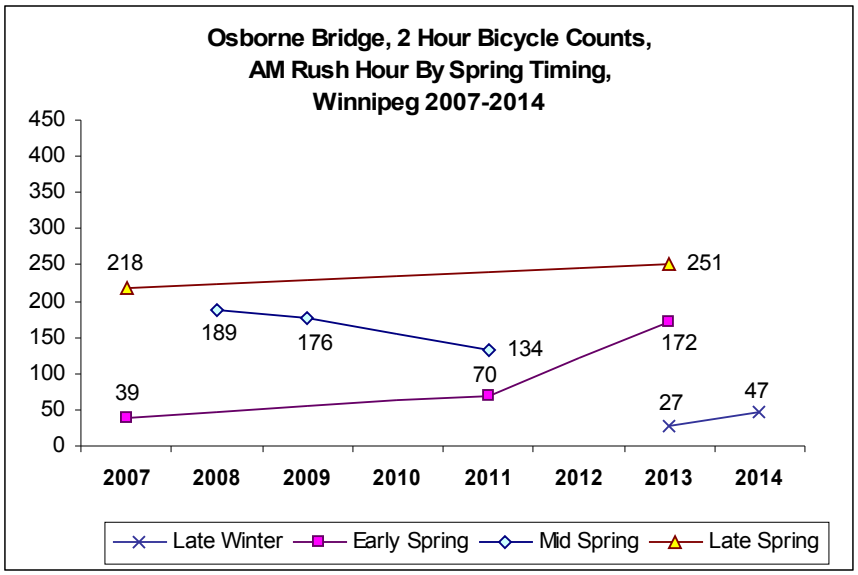

Main St at Higgins, 2 Hour Bicycle Counts, PM Rush Hour
By Spring Timing, Winnipeg 2007-2014
300
250
200
150
100
50
0
2012
2013
2014
238
164
241
150
132
Late Spring
Early Spring

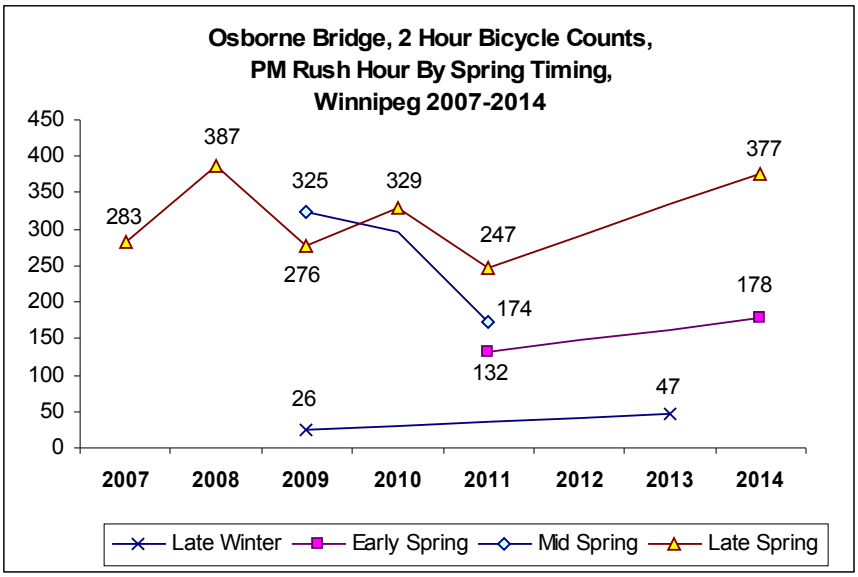

Norwood Bridge, 2 Hour Bicycle Counts, AM Rush Hour
By Spring Timing, Winnipeg 2010-2014
450
400
350
300
250
200
150
100
50
0
202
203
299
321
315
174
150
148
82
210
2010
2011
2012
2013
2014
Early Spring
Mid Spring
Late Spring

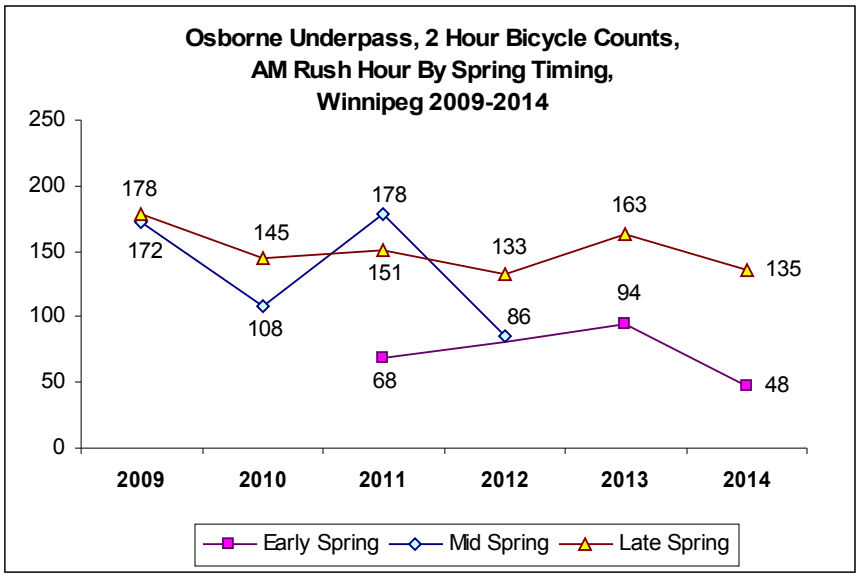

Norwood Bridge, 2 Hour Bicycle Counts, PM Rush Hour
By Spring Timing, Winnipeg 2009-2014
450
400
350
300
250
200
150
100
50
0
359
281
330
407
399
262
208
190
180
104
248
2009
2010
2011
2012
2013
2014
Early Spring
Mid Spring
Late Spring

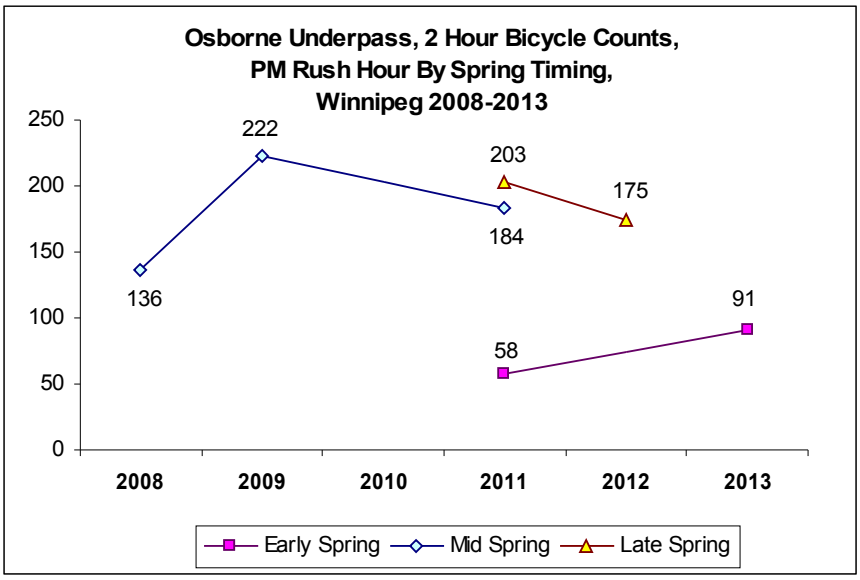

Omand Park Train Bridge, 2 Hour Bicycle Counts,
AM Rush Hour By Spring Timing,
Winnipeg 2007-2013
300
250
200
150
100
50
0
174
125
180
116
109
93
129
125
27
101
2007
2008
2009
2010
2011
2012
2013
Early Spring
Mid Spring
Late Spring

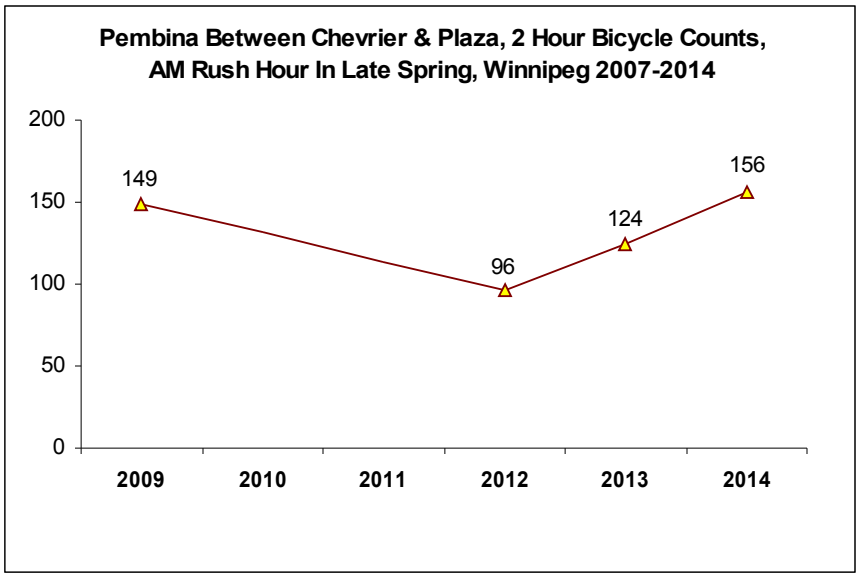

Omand Park Train Bridge, 2 Hour Bicycle Counts,
PM Rush Hour By Spring Timing,
Winnipeg 2009-2012
300
250
200
150
100
50
0
213
188
261
95
48
94
2009
2010
2011
2012
Mid Spring
Late Spring

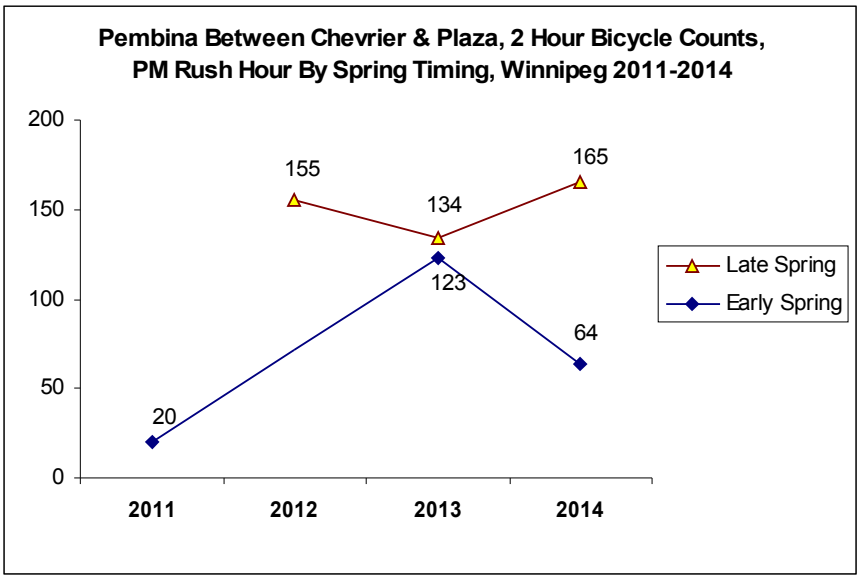

Osborne Bridge, 2 Hour Bicycle Counts,
AM Rush Hour By Spring Timing,
Winnipeg 2007-2014
450
400
350
300
250
200
150
100
50
0
218
251
189
176
134
172
70
39
27
47
2007
2008
2009
2010
2011
2012
2013
2014
Late Winter
Early Spring
Mid Spring
Late Spring

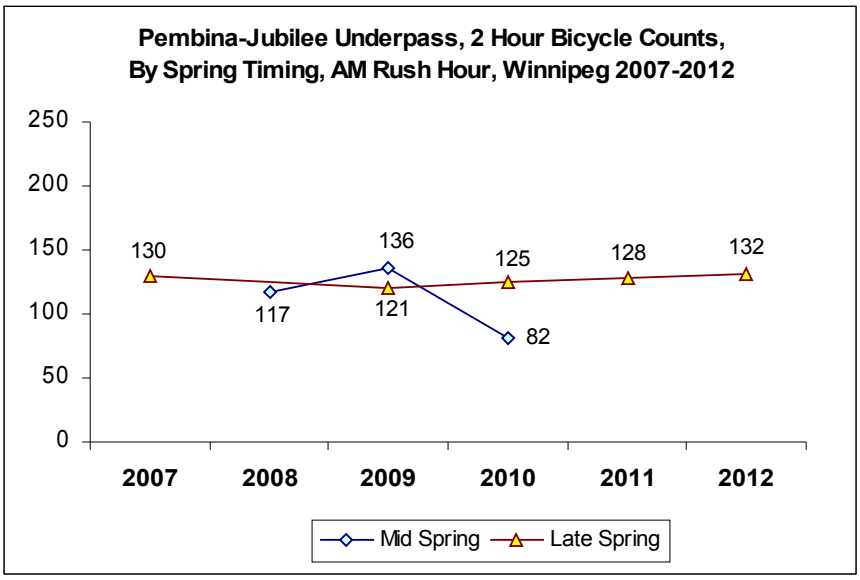

Osborne Bridge, 2 Hour Bicycle Counts,
PM Rush Hour By Spring Timing,
Winnipeg 2007-2014
450
400
350
300
250
200
150
100
50
0
387
377
325
329
283
247
276
178
174
132
26
47
2007
2008
2009
2010
2011
2012
2013
2014
Late Winter
Early Spring
Mid Spring
Late Spring

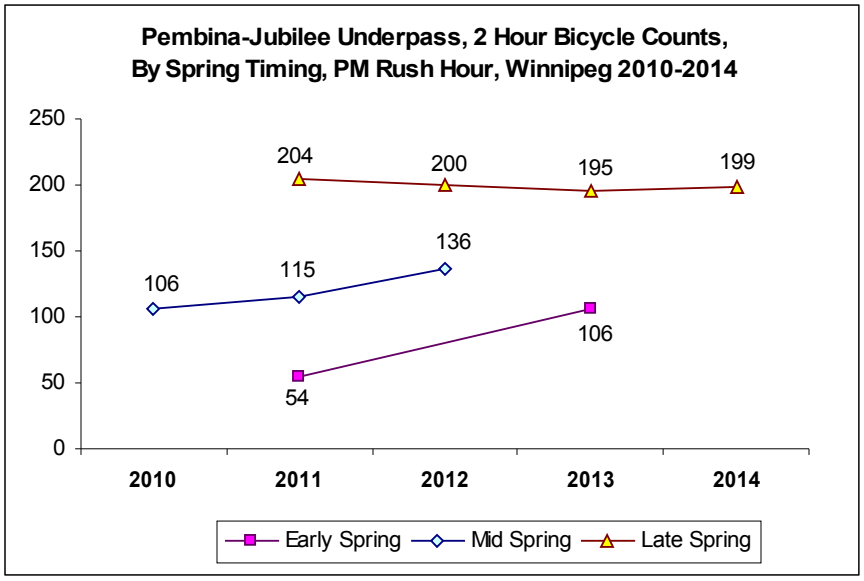

Osborne Underpass, 2 Hour Bicycle Counts,
AM Rush Hour By Spring Timing,
Winnipeg 2009-2014
250
200
150
100
50
0
178
145
151
133
163
135
172
108
178
86
94
68
48
2009
2010
2011
2012
2013
2014
Early Spring
Mid Spring
Late Spring

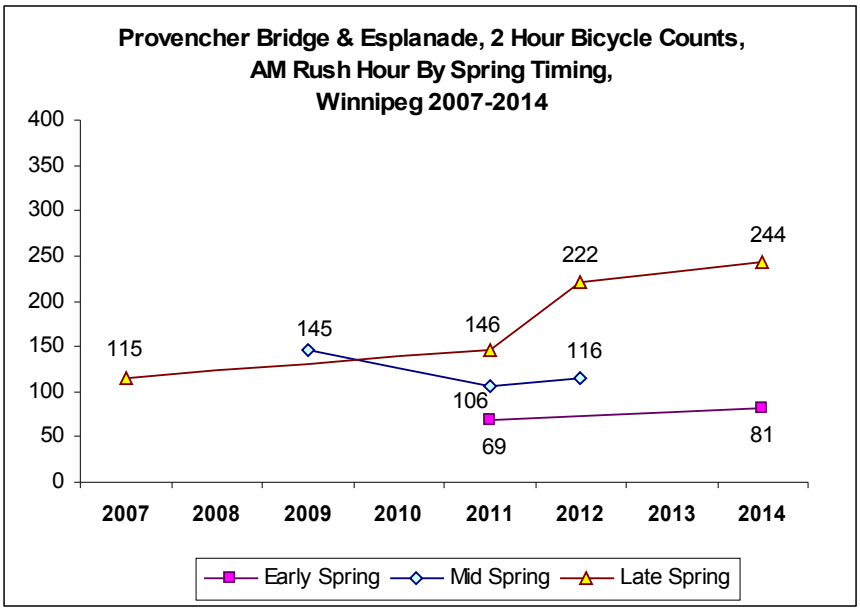

Osborne Underpass, 2 Hour Bicycle Counts,
PM Rush Hour By Spring Timing,
Winnipeg 2008-2013
250
200
150
100
50
0
222
203
175
184
136
91
58
2008
2009
2010
2011
2012
2013
Early Spring
Mid Spring
Late Spring

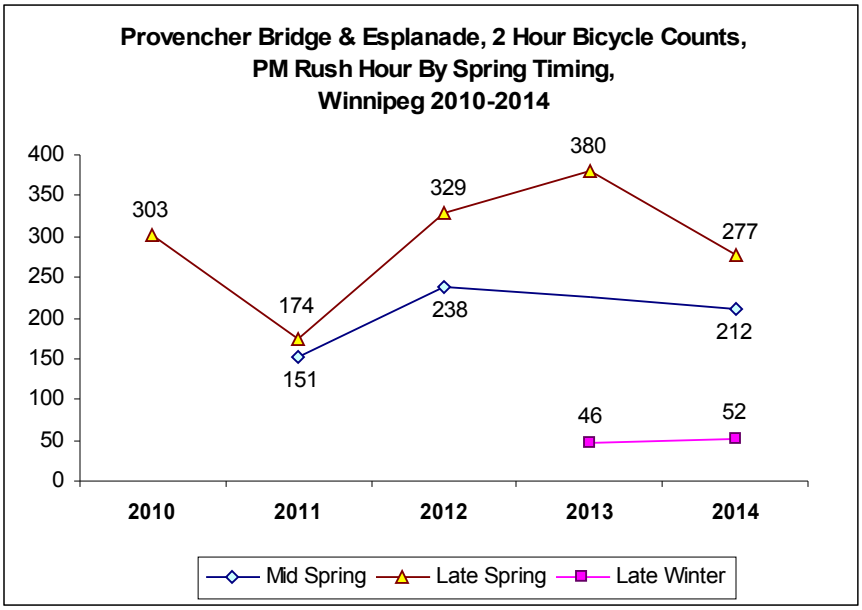

Pembina Between Chevrier & Plaza, 2 Hour Bicycle Counts,
AM Rush Hour In Late Spring, Winnipeg 2007-2014
200
150
100
50
0
149
96
124
156
2009
2010
2011
2012
2013
2014

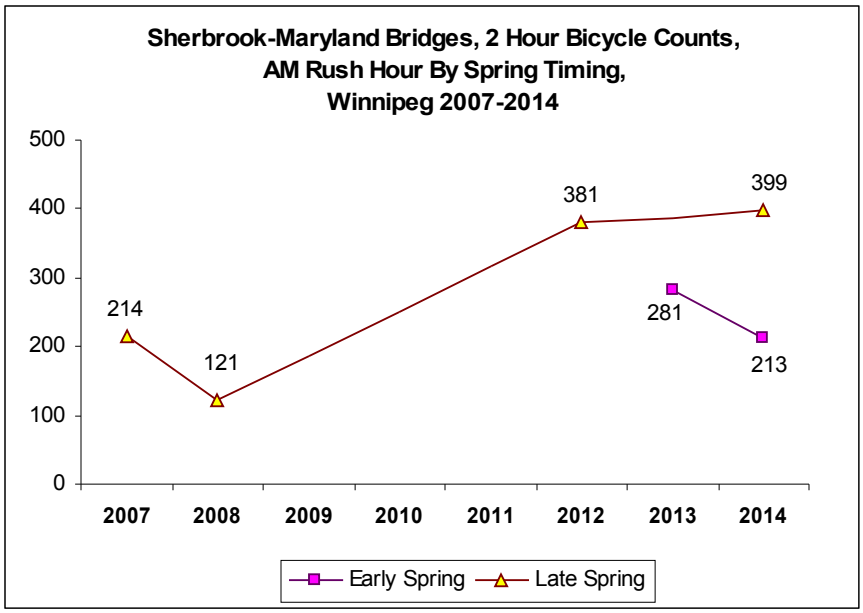

Pembina Between Chevrier & Plaza, 2 Hour Bicycle Counts,
PM Rush Hour By Spring Timing, Winnipeg 2011-2014
200
150
100
50
0
155
134
165
20
123
64
2011
2012
2013
2014
Late Spring
Early Spring

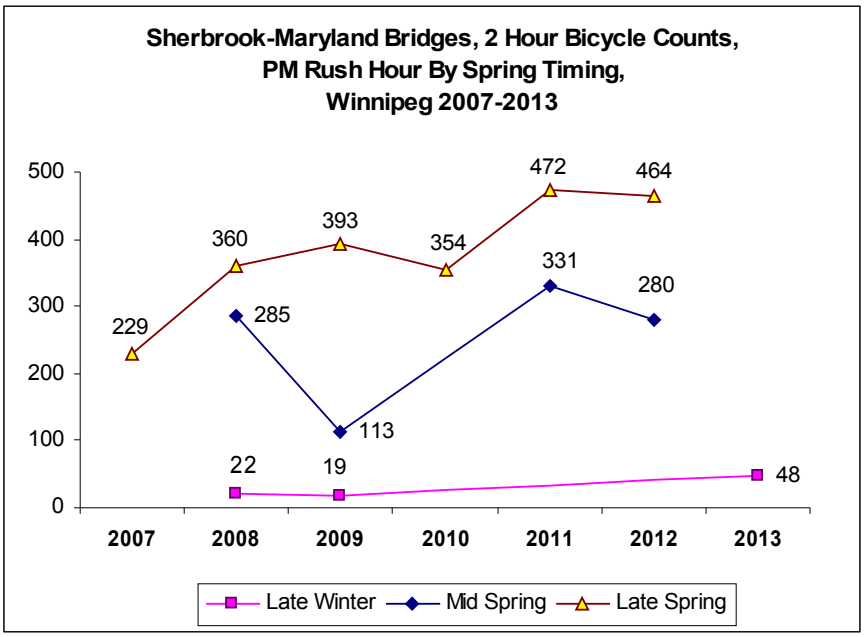

Pembina-Jubilee Underpass, 2 Hour Bicycle Counts,
By Spring Timing, AM Rush Hour, Winnipeg 2007-2012
250
200
150
100
50
0
130
117
136
121
125
82
128
132
2007
2008
2009
2010
2011
2012
Mid Spring
Late Spring

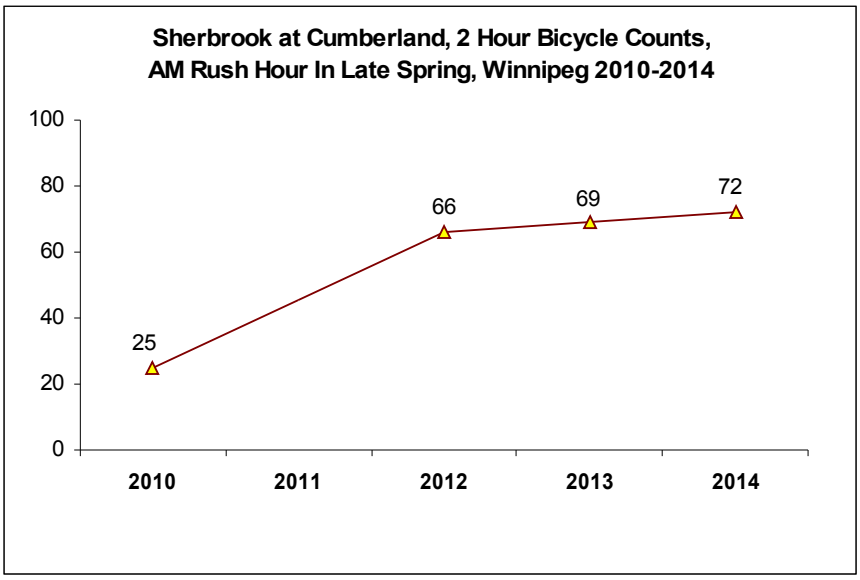

Pembina-Jubilee Underpass, 2 Hour Bicycle Counts,
By Spring Timing, PM Rush Hour, Winnipeg 2010-2014
250
200
150
100
50
0
204
200
195
199
106
115
136
54
106
2010
2011
2012
2013
2014
Early Spring
Mid Spring
Late Spring

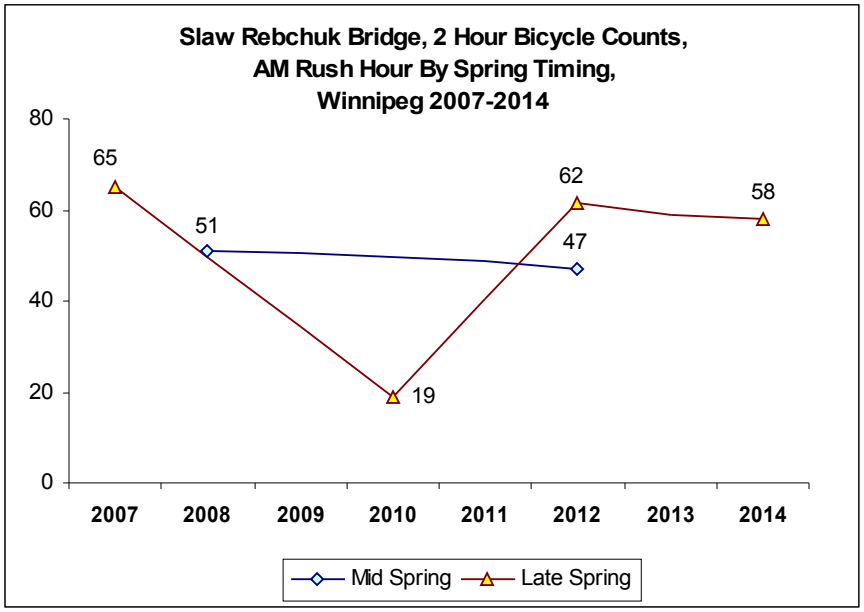

Provencher Bridge & Esplanade, 2 Hour Bicycle Counts,
AM Rush Hour By Spring Timing,
Winnipeg 2007-2014
400
350
300
250
200
150
100
50
0
115
145
106
146
222
116
69
244
81
2007
2008
2009
2010
2011
2012
2013
2014
Early Spring
Mid Spring
Late Spring

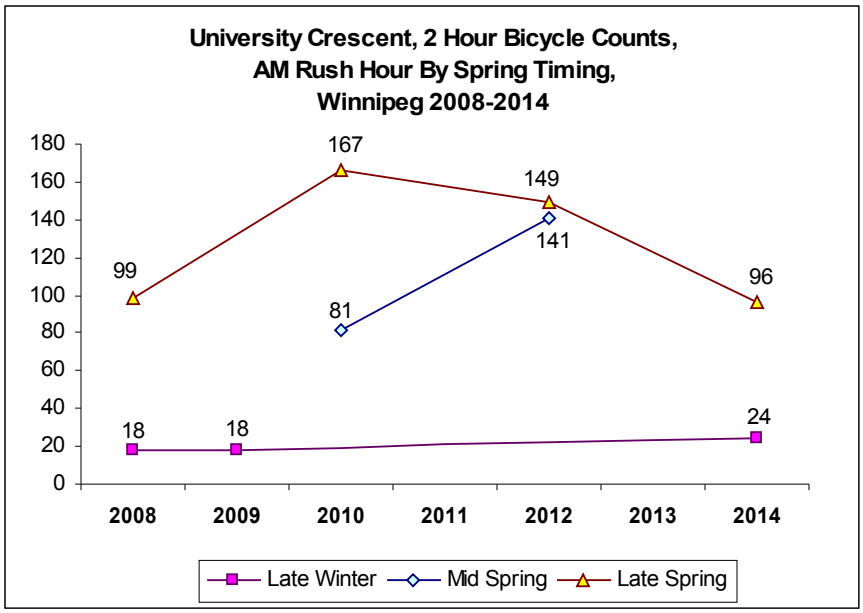

Provencher Bridge & Esplanade, 2 Hour Bicycle Counts,
PM Rush Hour By Spring Timing,
Winnipeg 2010-2014
400
350
300
250
200
150
100
50
0
303
174
151
329
238
380
212
46
277
52
2010
2011
2012
2013
2014
Mid Spring
Late Spring
Late Winter

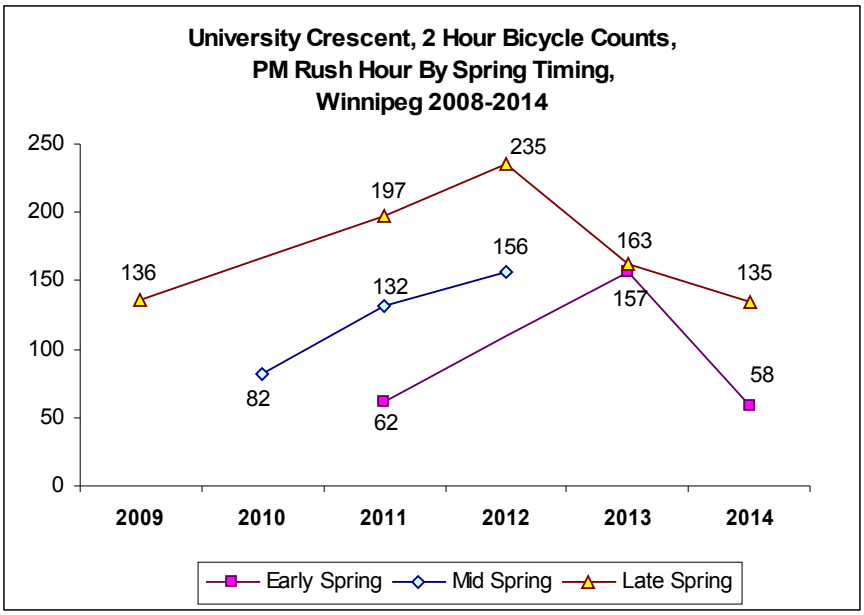

Sherbrook-Maryland Bridges, 2 Hour Bicycle Counts,
AM Rush Hour By Spring Timing,
Winnipeg 2007-2014
500
400
300
200
100
0
214
121
381
399
281
213
2007
2008
2009
2010
2011
2012
2013
2014
Early Spring
Late Spring


Sherbrook-Maryland Bridges, 2 Hour Bicycle Counts,
PM Rush Hour By Spring Timing,
Winnipeg 2007-2013
500
400
300
200
100
0
229
360
393
354
472
464
285
113
331
280
22
19
48
2007
2008
2009
2010
2011
2012
2013
Late Winter
Mid Spring
Late Spring

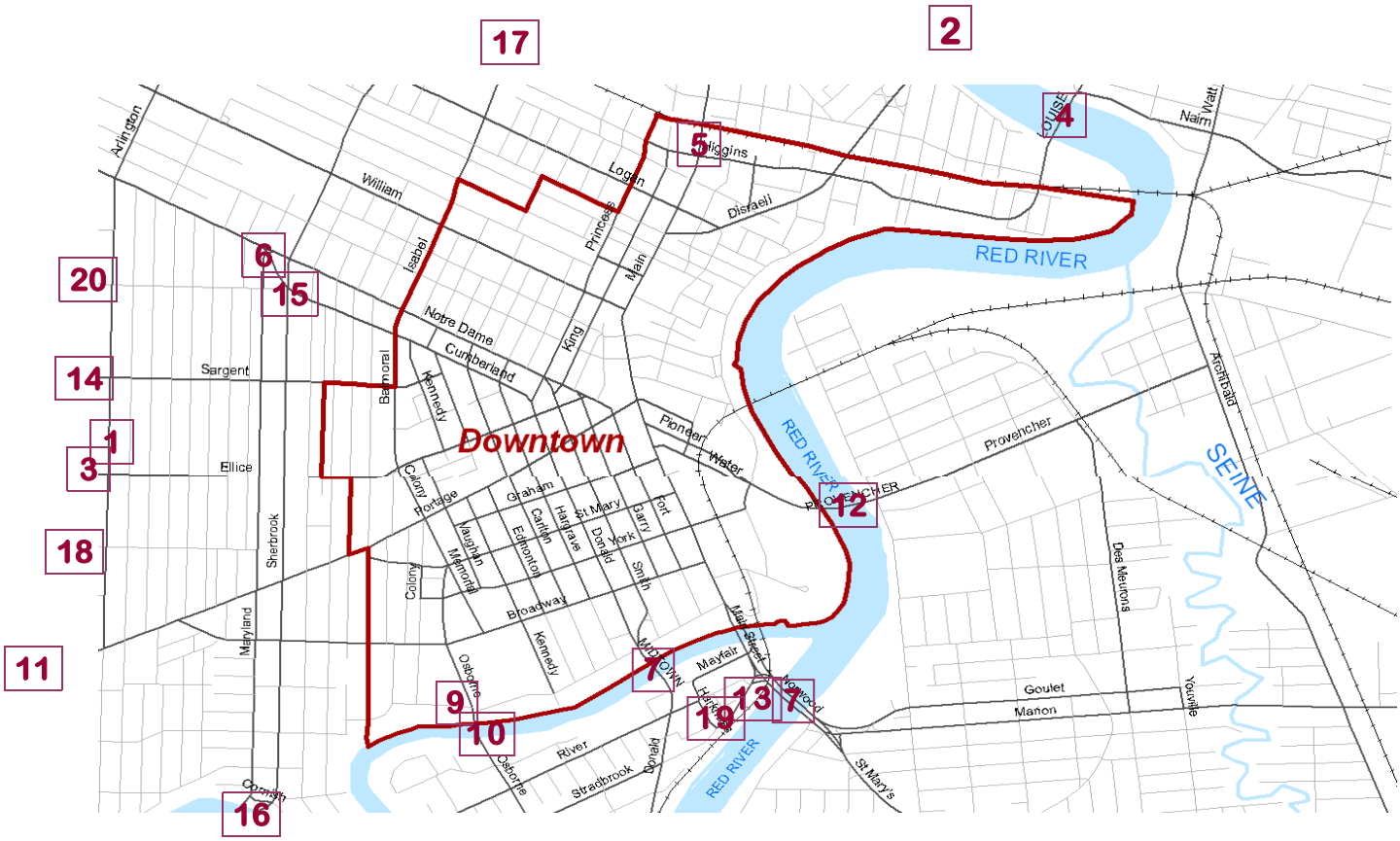

Sherbrook at Cumberland, 2 Hour Bicycle Counts,
AM Rush Hour In Late Spring, Winnipeg 2010-2014
100
80
60
40
20
0
25
66
69
72
2010
2011
2012
2013
2014


Slaw Rebchuk Bridge, 2 Hour Bicycle Counts,
AM Rush Hour By Spring Timing,
Winnipeg 2007-2014
80
60
40
20
0
65
51
19
62
47
58
2007
2008
2009
2010
2011
2012
2013
2014
Mid Spring
Late Spring


University Crescent, 2 Hour Bicycle Counts,
AM Rush Hour By Spring Timing,
Winnipeg 2008-2014
180
160
140
120
100
80
60
40
20
0
167
149
141
99
96
81
18
18
24
2008
2009
2010
2011
2012
2013
2014
Late Winter
Mid Spring
Late Spring


University Crescent, 2 Hour Bicycle Counts,
PM Rush Hour By Spring Timing,
Winnipeg 2008-2014
250
200
150
100
50
0
235
197
163
156
136
132
135
157
82
58
62
2009
2010
2011
2012
2013
2014
Early Spring
Mid Spring
Late Spring

Appendix D:
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 Osborne AT Crosswalk
10 Osborne Bridge
11 Portage Underpass
12 Provencher Bridge/Esplanade Riel
13 River Trail @ Main St
14 Sargent @ Arlington
15 Sherbrook @ Cumberland
16 Sherbrook/Maryland Bridges
17 Slaw Rebchuk Bridge
18 St Matthews Ave @ Arlington
19 Stradbrook East of Donald (@ Harkness)
20 Wellington Ave. @ Arlington