# Commuter Cycling in Winnipeg, 2007 - 2013
## Executive Summary

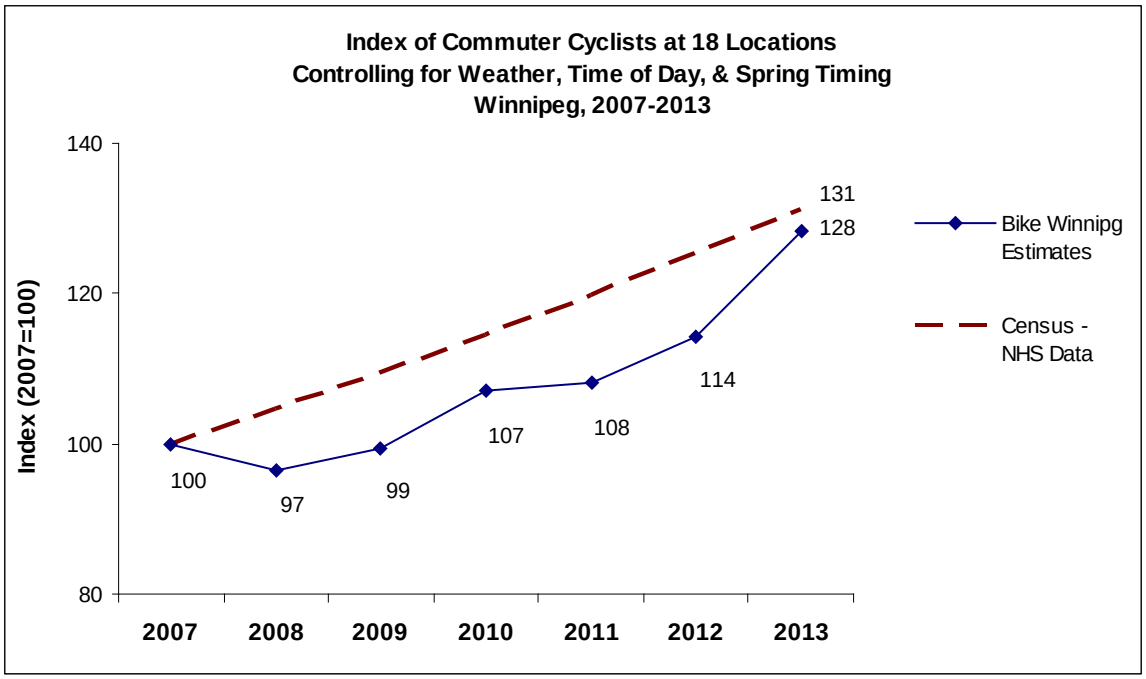
Volunteers from Bike to the Future have been conducting spring counts of bicycle traffic since 2007 in order to provide solid information about the numbers of commuter cyclists in Winnipeg based on direct observation. During April, May and June of 2013 we completed 78 counts at 28 locations in Winnipeg. Since 2007 we have completed 462 counts at 84 locations. (See Appendix B for summary data on the 2013 counts.) Our analysis resulted in these findings:

## Timing of Spring Weather Affects Cycling Levels

The analysis found that the timing of spring weather, measured as time since the last snow has melted, has a direct effect on the numbers of cyclists. This is a better measure of spring timing than the calendar month and provides a clearer annual trends in commuter cycling behaviour.

## 28% Increase in Commuter Cycling Since 2007

Based on our analysis, incorporating location, time of day, weather conditions and spring timing, the number of cyclists **increased by an estimated 12% in 2013**, compared to 2012. Since 2007 the number of commuter cyclists has **increased by an estimated 28% or an annual average of 4.3% per year.** This rate of increase is similar to the rate of increase based on the 2006 Census and the 2011 National Household Survey concerning the number of commuters using bicycles to travel to work, that worked out to 4.6% per year.




- The number of cyclists increased more at locations that have benefited from cycling infrastructure improvements than at other locations.

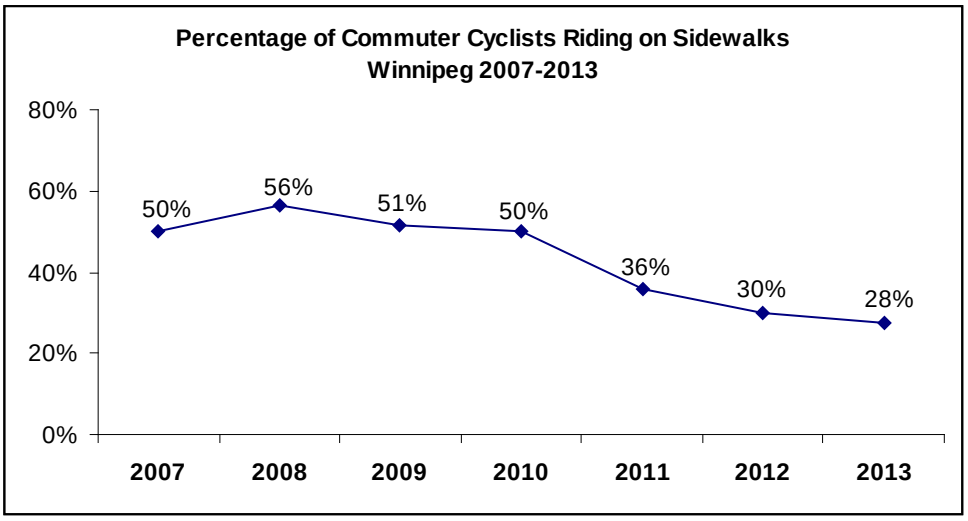
- Locations where cyclists feel unsafe and where no improvements have been made, have not experienced similar growth; some have seen reduced traffic.

## More than 13,000 Daily Bicycle Commuters in Winnipeg

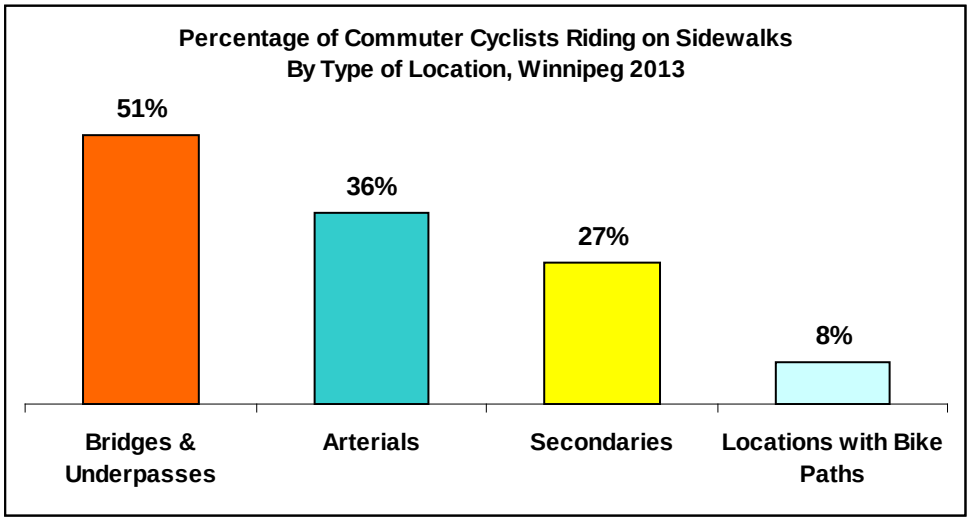
- Average daily bicycle traffic (number of cyclists) traveling in and out of downtown Winnipeg during a typical weekday in May or June (24 hours) is estimated at **12,648**.
- Assuming each cyclist travels both in and out of downtown, the number of downtown commuter cyclists is estimated at half of the total daily traffic or **6,324**.
- Given that many commuter cyclists don't travel downtown and 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 is estimated at **13,200**.

## Sidewalk Riding Low 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. The percentage of cyclists riding on the sidewalks has declined since 2008 and the rate of decline is greater since 2010.

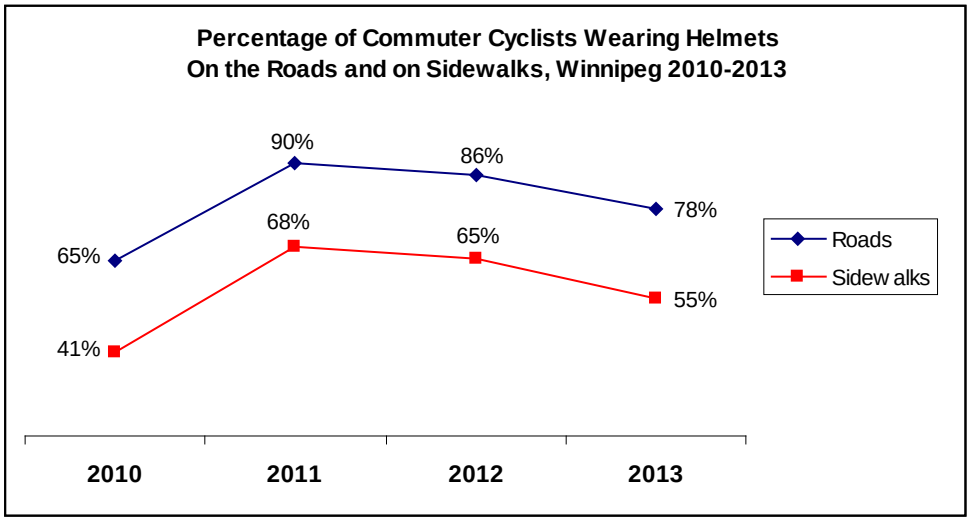



The decrease in sidewalk riding may be due to the increasing availability of bicycle or multi-user paths in Winnipeg. Sidewalk riding cyclists depends on the particular location, the amount of traffic and the choices that are available to them. At locations where there was a bike or multi-use path only 8% rode on the sidewalks in 2013.




## Helmet Use Higher on Roads than on Sidewalks

In 2013 69% of commuter cyclists wore helmets, down slightly from 2012. 78% of cyclists riding on the roads wore helmets compared to 55% of those riding on sidewalks.




## Conclusions

- After taking into account location, weather conditions, spring timing and time of day, **commuter cycling in Winnipeg has increased by 28% over the past five years, an average rate of increase of 4% per year.**

- **At some locations peak bicycle traffic exceeds 400 cyclists in two hours, or one cyclist every 15-20 seconds, during rush hour.**

- **The number of cyclists is increasing more at locations that have benefited from cycling infrastructure improvements than at other locations.**

- **At locations where cyclists feel unsafe and where no improvements have been made, there has been little growth and some cases of a decline in cyclist traffic.**

- **During May and June of 2013, approximately 6,300 cyclists commuted in and out of the downtown area of Winnipeg during weekdays, and throughout the entire city a total of about 13,200 cyclists commuted on a daily basis.**

- **More than half of cyclists ride on the sidewalks on busy arteries, bridges and underpasses, but where bike paths exist, less than 10% ride on sidewalks.**

- **69% 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.**

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# Commuter Cycling in Winnipeg, 2007-2013

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**September 10, 2013**

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## 1. Bicycle Counting in Winnipeg

For the past seven years Bike Winnipeg (formerly known as Bike to the Future) has recruited volunteers to count cyclists traveling during rush hour at selected locations. These counts have been done on weekdays at the beginning of each month in spring – in April, May and June. In 2013 we completed 78 counts at 28 locations in Winnipeg. Since 2007 we have completed 462 counts at 84 locations. (See Appendix B for summary data on the 2013 counts.)

The purpose of these counts is to document the level of bicycle traffic during rush hour at key locations, especially into and out of downtown Winnipeg. By counting at the same locations during different months and years, we are able to document trends in commuter cycling in Winnipeg and estimate the total daily bicycle traffic at these locations. These counts provide baseline data for planning and assessing improvements to cycling infrastructure, such as the Osborne Bridge rehabilitation project and the Pembina-Jubilee underpass. They are also useful in documenting before / after counts at locations where new bicycling infrastructure has been installed.

Counting locations have been selected with these goals in mind. The locations include several bicycle commuting "choke points," such as bridges and underpasses through which cyclists must pass traveling to or from the downtown area. We have also focused on locations slated for improvements.

The choice of locations is also based in part on the availability of our volunteers who are usually 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. Many of the 2013 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 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 2013, 462 counts were carried out at 84 locations in Winnipeg. The number of counts and timing has varied among locations, ranging from only one count to more than 15 counts at some locations. The number of cyclists counted per two hours ranged from 1 to more than 400, with the highest counts recorded at Norwood Bridge, Sherbrook-Maryland Bridges and Assiniboine Ave. Where several counts were done in different months, there was sometimes a wide range between high and low counts. For example, at Osborne Bridge the highest count was 405 while the lowest count was 26. 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.

## 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).

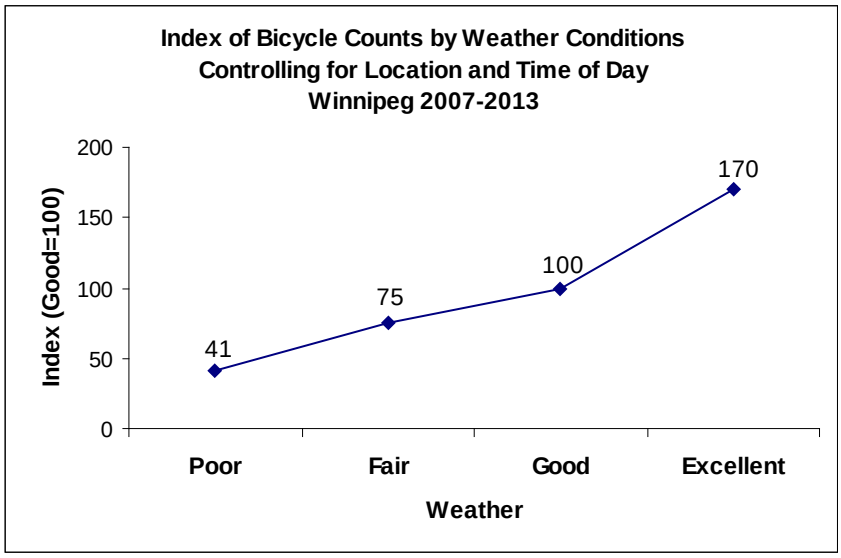
**Weather Conditions – Definition of Categories**

| | |
|---|---|
| **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 and time of day under various weather conditions. An index was created showing the average percentage differences in numbers of cyclists at these locations. Only comparable counts were used for the analysis, that is, the location and time of day had to be the same. Where more than one count fit the criteria the counts were averaged. For the sake of the index "good" weather conditions = 100.

Based on 118 pairs of comparable counts, it was found that the number of cyclists increased as weather conditions improved. The number of cyclists averaged 86% higher during "fair" weather than during "poor" weather, 36% higher during "good" weather than during "fair" weather, and 69% higher during "excellent" weather than during "good" weather. When the ratios are multiplied together it is found that the number of cyclists riding in excellent weather is 4.3 times greater than the number riding in poor weather.

The relationship can be described in the following way: if 100 cyclists are likely to travel at a given location and time of day in good weather, then 41 are likely to travel at the same location and time of day in poor weather, 75 in fair weather, and 170 in excellent weather.




## 5. Morning and Afternoon Counts

Afternoon rush hour bicycle counts are consistently higher than morning rush hour counts. We have completed 46 pairs of AM and PM counts at the same location on the same day, and in 43 of these pairs the afternoon counts were higher. In addition, the total of the 46 afternoon counts was 32% higher than the total of the 46 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. In addition, higher afternoon counts may reflect other travel preferences, including the after school activity of students. A number of volunteers commented that there appeared to be more non-commuters in the afternoons, as reflected by how they were dressed. The percentage riding on the sidewalks was also much 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, with counts taking 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 mild, 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, and in particular the sharp contrast between 2012 and 2013, 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 the accumulated sand and debris before getting their bikes out.

Data for snow on the ground were obtained through Environment Canada based on a Charleswood weather reporting station (the only one in Winnipeg for which this type of data was available), and data for spring street cleaning were obtained through a search of local news reports. Categories were created for "early, mid, and late" spring based on the number of days elapsed between the reference date and the date of each bicycle count. These categories were used in place of "month" in several analyses. The following table shows how the categories were defined:

| Reference Date | Timing of Bicycle Count | | |
|---|---|---|---|
| | **Early Spring:** | **Mid Spring:** | **Late Spring:** |
| **First Day of Spring Street Cleaning** | < 15 Days After Reference Date | 15-45 Days After Reference Date | 46 or More Days After Reference Date |
| **Last Day of Continuous Snow on the Ground** | < 15 Days After Reference Date | 15-45 Days After Reference Date | 46 or More Days After Reference Date |

While the measure of snow on the ground is strictly based on weather, the start of the city's spring street cleaning is also a function of the City administration's scheduling of work crews. Spring street cleaning takes about two weeks to complete. From the following table it can be seen that there is a wider range and greater variability in the dates for snow on the ground than for spring street cleaning. However there was a particularly large variation in the start of spring street cleaning between 2012 and 2013. In 2012 street cleaning started a month earlier than usual, while in 2013 it started about two weeks later than usual.

| 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 |

When our "Early, Mid, and Late" categories are applied to the timing of our bicycle counts, we end up with the following distributions:

**Percentage Distribution of Bicycle Counts In Relation to Last Day of Snow on the Ground**

| Year | Early Spring | Mid Spring | Late Spring |
|---|---|---|---|
| **2007** | 8% | 53% | 40% |
| **2008** | 23% | 35% | 43% |
| **2009** | 16% | 70% | 14% |
| **2010** | 0% | 43% | 57% |
| **2011** | 38% | 36% | 26% |
| **2012** | 0% | 27% | 73% |
| **2013** | 72% | 28% | 0% |
| **Total** | **25%** | **40%** | **35%** |

**Percentage Distribution of Bicycle Counts In Relation to First Day of Spring Street Cleaning**

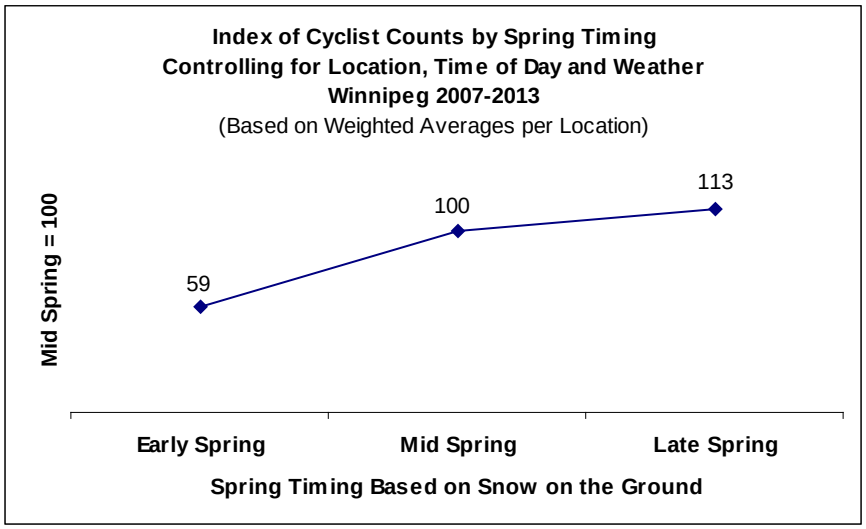
| Year | Early Spring | Mid Spring | Late Spring |
|---|---|---|---|
| **2007** | 30% | 38% | 33% |
| **2008** | 23% | 43% | 35% |
| **2009** | 16% | 79% | 5% |
| **2010** | 43% | 40% | 17% |
| **2011** | 38% | 36% | 26% |
| **2012** | 0% | 27% | 73% |
| **2013** | 72% | 28% | 0% |
| **Total** | **34%** | **40%** | **26%** |

It can be seen that the two tables are somewhat different for the years 2007-2010, but are exactly the same in the years 2011-2013. The biggest differences between the two tables are found in 2007 and 2010. In both of these years the "snow on the ground" method results in a much higher proportion of bicycle counts done early spring, and a lower percentage done in late spring, compared to the results of the "first day of street cleaning" method.

Based on an analysis of the three different methods of measuring the spring season (using month, last day of snow on the ground, or the start of spring street cleaning) it was concluded that using the last day of snow on the ground provided the best results. In particular it was found that using the snow on the ground definition resulted in a more consistent trend in cyclist traffic from year to year, which suggested that this method is therefore better at capturing underlying trends in bicycle use.

Using this "snow on the ground" method there are striking differences in the distribution of bicycle counts from year to year. This is most striking when looking at 2012 and 2013. In 2012 none of the bicycle counts took place in early spring, while 73% of the bicycle counts occurred in late spring. In 2012 it was the opposite – there were no counts in late spring (as defined) but 72% of the bicycle counts were done in early spring. It was also found that bicycle counts done in early May could be categorized as "early", "mid" or "late" spring, depending on the year.

Average bicycle traffic volumes per location were compared between early, mid and late spring, while keeping time of day and weather conditions the same. An index was created based on this analysis, as shown in the following chart. It was found that mid-spring cycle traffic was 71% higher than early spring traffic, and late spring traffic were 13% higher than mid-spring traffic.




## 7. 2007-2013 Trend

In this section we will describe annual trends in numbers of cyclists over the period from 2007 through 2013. 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 186 year-over-year comparisons were possible for 18 locations. A weighted average percentage change was computed by 1) averaging the numbers of cyclists in comparable pairs of counts at each location and year, 2) totalling averages for all locations, and 3) calculating the year over year change in these totals. This procedure avoids giving undue weight to lighter traffic or to locations with a larger number of counts. Where comparable counts exist for years that are separated by two or more years, the missing counts in the series were estimated using the average annual rate of change for that series.

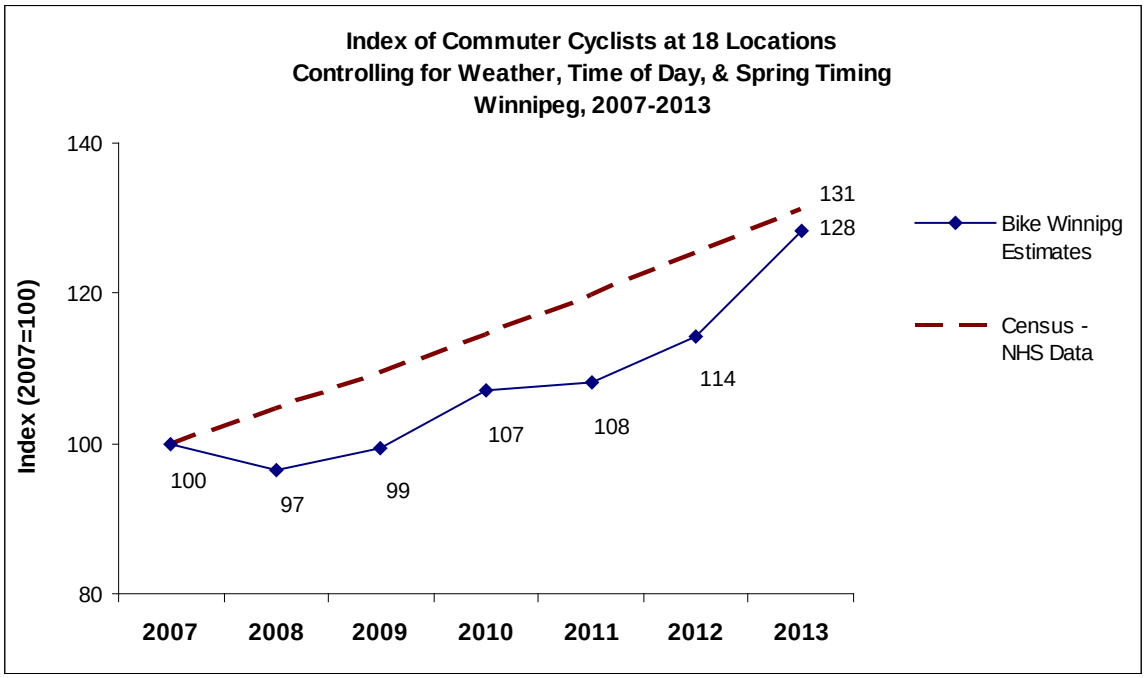
The analysis found that the number of commuter cyclists in Winnipeg was 28% higher in 2013 than it was in 2007. In terms of raw counts, the number of cyclists was higher in 2012 than in 2013, but when weather, time of day, and spring timing were taken into account, it is estimated that there was a 12% increase in commuter cycling in 2013 compared to 2012. (See table below.)

The trend identified in the table may be compared to the results of the 2006 Census and the 2011 National Household Survey. These surveys asked people what was their usual mode of travel to work. For the City of Winnipeg (Census Division #11) the number using bicycles increased from 5,645 in 2006 to 7,080 in 2011, an increase of 25.4% over five years. This works out to an average increase of about 4.6% per year. This may be compared to the average annual increase of 4.3% per year calculated in our analysis of bicycle counts. For comparison's sake, the Census/NHS rate of increase was used to create an index, setting 2007 equal to 100. This shows that the results we arrived at are slightly lower but follow a similar trend to what is suggest by the Census/NHS data. The chart below shows both sets of data as indexes for comparison purposes.

**Table 1**
**Estimated Year/Year Percentage Change in the Number of Commuter Cyclists**
**At 18 Locations, Winnipeg, 2007-2013**
**Controlling for Weather, Time of Day and Spring Timing***

| Location | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|---|---|---|---|---|---|---|
| Arlington @ Ellice | -8% | -22% | 4% | 78% | -29% | -41% |
| Assin Ave @ Hargrave | | | 24% | 24% | 24% | 24% |
| Ellice @ Arlington | -23% | -16% | 9% | 88% | -21% | -26% |
| Fort Garry Bridges | | | | 103% | | |
| Grosvenor @ Harrow | | | | | 16% | 62% |
| Harrow @ Grosvenor | | | | 21% | 26% | 56% |
| Louise Bridge | 16% | 3% | 11% | 15% | 6% | 1% |
| Main St @ Higgins | 5% | 7% | 7% | -1% | -19% | -6% |
| Midtown Bridge | 4% | 4% | 4% | 4% | | |
| Norwood Bridge | | | 12% | -9% | 11% | 15% |
| Omand Park Train Bridge | -33% | | 0% | 26% | 9% | |
| Osborne Bridge | 1% | -1% | 3% | -16% | -14% | 20% |
| Osborne Underpass | | | 2% | -11% | -19% | -3% |
| Pembina-Jubilee Underpass | -10% | | | | 12% | 33% |
| Provencher Bridge/Esplanade Riel | 13% | 12% | | -43% | 33% | |
| Sherbrook-Maryland Bridges | 6% | 7% | 5% | 11% | -10% | -44% |
| Slaw Rebchuk Bridge | -9% | -6% | -5% | -5% | -9% | |
| University Crescent | | 12% | 14% | 20% | 17% | |
| **Annual Weighted Average** | **-3%** | **+3%** | **+8%** | **+1%** | **+6%** | **+12%** |
| **Cumulative Change** | **-3%** | **-1%** | **+7%** | **+8%** | **+14%** | **+28%** |

* Spring timing is defined in relation to the last day of snow on the ground – see text.



## 8. Trends for Specific Locations

Table 2 estimates the cumulative and average annual changes for various locations over the 2007-2013 period, based on the "snow on the ground" analysis. The table provides a sense of where cycle traffic has been increasing or decreasing, and at what rates. (Charts showing trends in actual counts for selected locations are provided in Appendix D.)

**Table 2**
**Cumulative and Annual Rate of Change in the Number of Cyclists**
**At 18 Locations in Winnipeg, 2007-2013**
**Controlling for Weather, Time of Day and Spring Timing***

| Location | Overall Change | Time Period From | Time Period To | Annual Average Change |
|---|---|---|---|---|
| **A. Increasing Numbers** | | | | |
| Fort Garry Bridges | 103% | 2010 | 2011 | 103% |
| Grosvenor @ Harrow | 87% | 2011 | 2013 | 37% |
| Harrow @ Grosvenor | 138% | 2010 | 2013 | 33% |
| Assiniboine Ave @ Hargrave | 133% | 2009 | 2013 | 24% |
| University Crescent | 64% | 2008 | 2012 | 13% |
| Pembina-Jubilee Underpass | 33% | 2007 | 2013 | 10% |
| Louise Bridge | 61% | 2007 | 2013 | 8% |
| Norwood Bridge | 31% | 2009 | 2013 | 7% |
| Provencher Bridge/Esplanade Riel | 17% | 2007 | 2012 | 4% |
| Midtown Bridge | 9% | 2007 | 2011 | 2% |
| **B. Decreasing Numbers** | | | | |
| Main St @ Higgins | -9% | 2007 | 2013 | -2% |
| Omand Park Train Bridge | -9% | 2007 | 2012 | -2% |
| Ellice @ Arlington | -22% | 2007 | 2013 | -4% |
| Osborne Bridge | -20% | 2007 | 2013 | -4% |
| Sherbrook-Maryland Bridges | -34% | 2007 | 2013 | -7% |
| Osborne Underpass | -29% | 2011 | 2013 | -8% |
| Arlington @ Ellice | -45% | 2007 | 2013 | -9% |
| Slaw Rebchuk Bridge | -69% | 2007 | 2013 | -18% |
| **Weighted Average** | **28%** | | | **4%** |

* Spring timing is defined in relation to the last day of snow on the ground – see text.

## 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. 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 3 below.) 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.

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 2013, counts from the most recent previous year 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 (1.32) was used to fill in the missing number.

As shown in the table, average morning rush hour traffic is estimated at 2,192 cyclists and average afternoon rush hour traffic was about 3,171 for this set of locations for a total morning and afternoon count of 5,363. The total bicycle traffic into and out of the downtown area over the course of a day (24 hours) is estimated at 12,648. This estimate is based on the Winnipeg Area Transportation Survey of 2007 in which the proportion of cyclists who travelled during morning and afternoon rush hours was 42.4% of the total daily bicycle traffic. 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 **6,324 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[1] 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 **13,200 cyclists** commute regularly in Winnipeg during May and June.

[1] 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 3**
**Estimates of Total Traffic In/Out of Downtown Winnipeg – May-June**
**Based on 2013 or most recent previous counts**

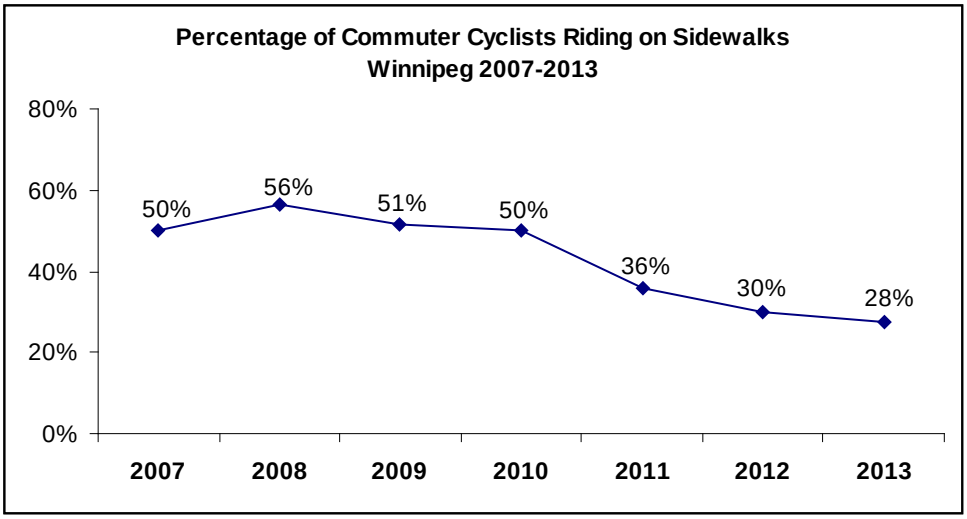
| Location | May-June Averages* AM peak | PM peak | AM +PM peaks |
|---|---|---|---|
| 1 Arlington St. | 42 | ***55*** | 97 |
| 2 Disraeli Bridge | ***27*** | 36 | 63 |
| 3 Ellice Ave | 32 | ***42*** | 74 |
| 4 Louise Bridge | 106 | ***140*** | 246 |
| 5 Main St @ Higgins | 85 | 157 | 242 |
| 6 Maryland @ Cumberland ** | 55 | 41 | 96 |
| 7 Midtown Bridge | ***46*** | 60 | 105 |
| 8 Norwood Bridge | 266 | 328 | 593 |
| 9 Osborne AT Crosswalk | 354 | ***467*** | 821 |
| 10 Osborne Bridge | 212 | ***279*** | 491 |
| 11 Portage Underpass | 66 | 210 | 276 |
| 12 Provencher Bridge/Esplanade Riel | ***237*** | 313 | 550 |
| 13 River Trail @ Main St | 142 | 161 | 303 |
| 14 Sargent @ Arlington | 40 | 54 | 94 |
| 15 Sherbrook @ Cumberland | 41 | 55 | 96 |
| 16 Sherbrook/Maryland Bridges | 309 | 331 | 640 |
| 17 Slaw Rebchuk Bridge | 59 | ***78*** | 137 |
| 18 St Matthews Ave | 55 | 53 | 108 |
| 19 Stradbrook East of Donald | ***41*** | 54 | 95 |
| 20 Wellington Ave. | 52 | 64 | 116 |
| **Total 2 Hour Counts** | **2,192** | **3,171** | **5,363** |
| **Estimated Total Daily Traffic*** ** | | | **12,648** |
| **Estimated Cyclists (50% of Total Traffic)** | | | **6,324** |

* Italicized numbers are estimates based on the ratio PM/AM = 1.32.
** 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 found that 42.4% of bicycle trips in Winnipeg are made during the AM and PM rush hours, combined (5,363 / .424 = 12,648).

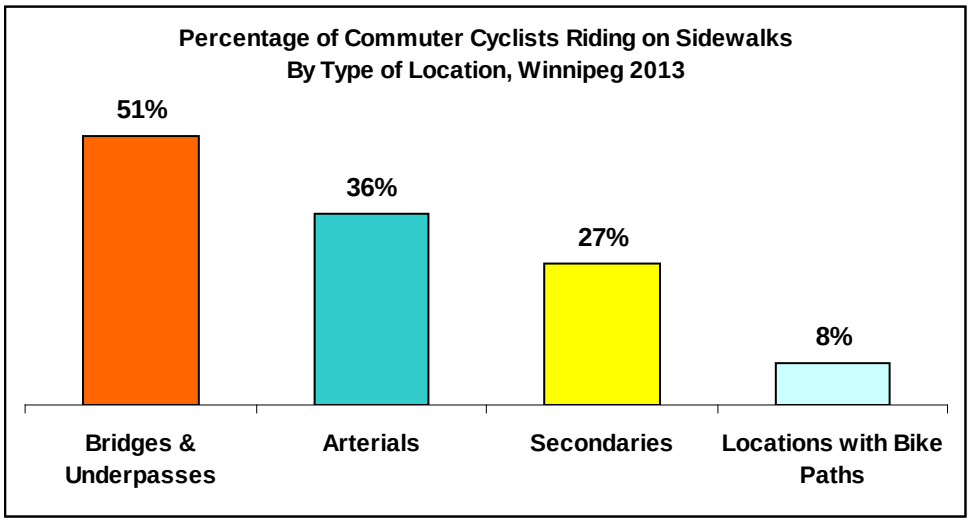
## 10. Sidewalk Use

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 2013 counting locations, 28% of cyclists rode on the sidewalk while 33% rode in the street and 40% 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 28% in 2013. (See chart.)




The decrease in sidewalk riding is probably due in large part to the increasing availability of bicycle or multi-user paths in Winnipeg. The percentage of sidewalk riders varies dramatically according to the type of location. In 2013, 51% of cyclists traveling on bridges or through underpasses used the sidewalks, while 36% of those on major arteries and 27% of those on secondary streets rode on the sidewalks. However, at locations where there was a bike or multi-use path only 8% rode on the sidewalks. (See chart.)

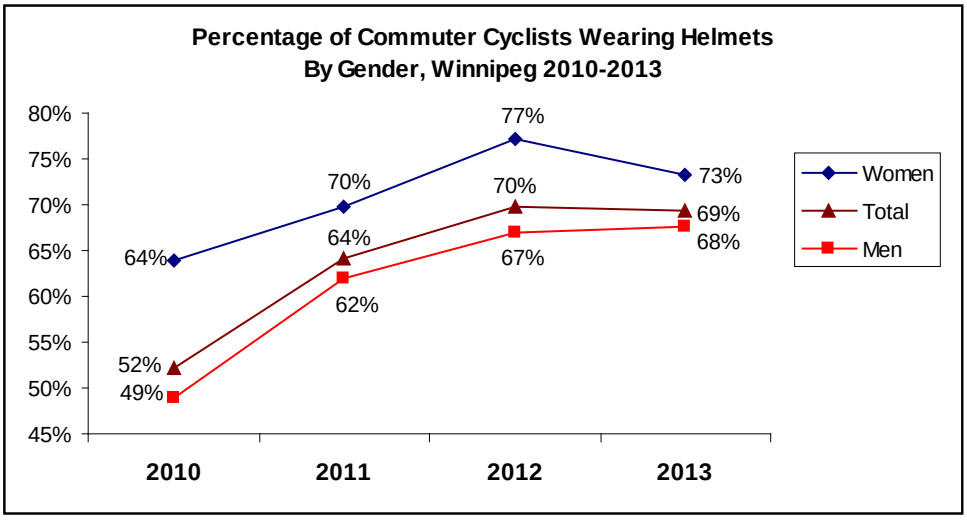



The behaviour of cyclists seems to depend on the particular location, the amount of traffic and the choices that are available to them. For example, the Louise Bridge is very narrow, has a high volume of traffic, and very few cyclists take the road. Another example is Provencher Bridge/Esplanade Riel, where the main bridge has a parallel pedestrian/cyclist bridge (Esplanade Riel). In this case cyclists can legally ride on the multi-use bridge and avoid traffic, and the majority of them do. 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, affecting 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.

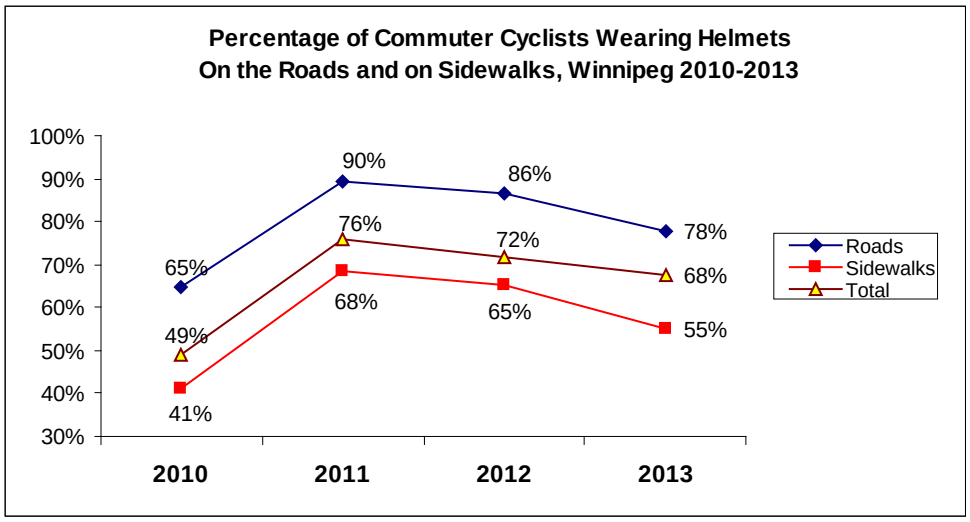
## 11. Helmet Use and Gender

Starting in 2009 some of our volunteers have kept track of the gender of the cyclists and whether cyclists were wearing bicycle helmets or not. Over this period an average of 28% of the commuter cyclists were identified as female, and 72% were identified as male. These are 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.

The percentage of commuter cyclists wearing helmets increased from 52% in 2010 to 70% in 2012, declining slightly to 69% in 2013. Helmet use has been increasing among both women and men, as shown in the following figure. A higher percentage of women than men wear helmets but the gap seems to be closing as helmet use has been increasing more rapidly among men than among women.

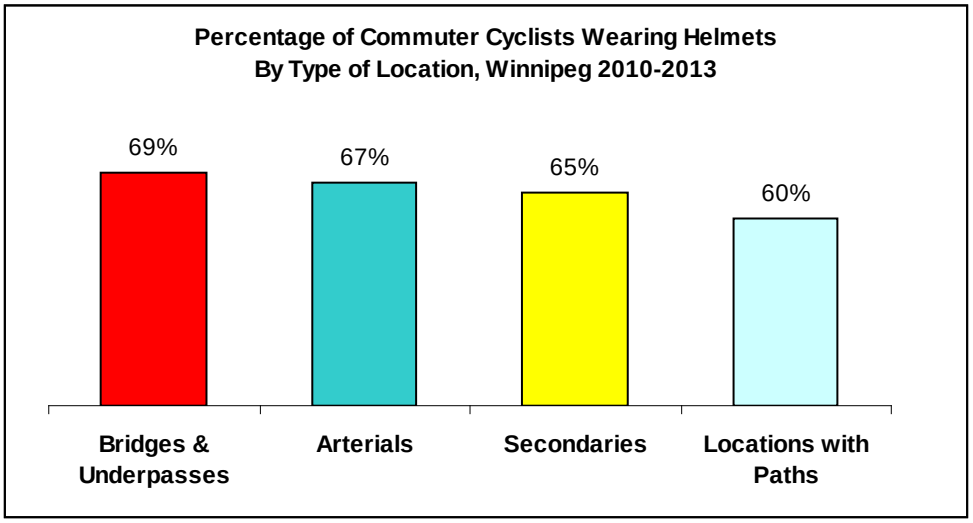



Cyclists who are riding in the road are more likely to wear helmets than those riding on the sidewalks. The percentages vary from year to year. Among those riding on the roads, 78% wore helmets in 2013, while among those riding on sidewalks 55% wore helmets in 2013. (The trends for roads/sidewalks and for men/women are somewhat different because they are based on different counts.)



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.

Helmet use was also somewhat related to the type of location with greater helmet use on bridges, underpasses and arterial roads and less helmet use where there are bike paths.




## 12. Conclusions

Seven years of bicycle counts in Winnipeg have provided for increasingly detailed and sophisticated analysis of trends. The analysis has shown that three important factors affect cycling traffic volumes: weather, time of year, and time of day.

More specifically, these findings show that commuter bicycle traffic has varied from year to year, but is generally increasing in Winnipeg. **The number of commuter cyclists has increased by 28% since 2007 and by 12% since 2012.** This is a substantial revision of the numbers identified in previous years, as a result of the incorporation of a variable to measure the timing of spring weather. Our estimates are also consistent with the results of the 2006 Census and the 2011 National Household Survey which show a 25% increase in the percentage of bicycle commuters over 5 years, equivalent to a 31% increase over 6 years. (It should be kept in mind that the Census/NHS surveys and our cyclist counts use very different methods and do not cover exactly the same population.)

**The cyclist traffic has increased more at locations that have benefited from cycling infrastructure improvements than at other locations.** The locations with the greatest increases include:

- University Crescent (at Thatcher Drive)
- Assiniboine Ave. (at Hargrave)
- Stradbrook Ave. (at Nassau)
- Nassau St. (at Stradbrook)

- Grosvenor Ave. (at Harrow)

**Cyclist traffic is also high and increasing on multi-use paths and bridges that are separated from motor traffic, including**:

- Esplanade Riel/Provencher Bridge
- Assiniboine Park Foot Bridge
- Omand Park Train Bridge

**At locations where cyclists feel unsafe and where no improvements have been made, there has been little growth or declining numbers of cyclists.** Examples include:

- Osborne Underpass
- Slaw Rebchuk Bridge
- Main Street at Higgins
- Pembina-Jubilee Underpass

It is estimated that in May and June, **approximately 6,300 cyclists commute in and out of the Winnipeg downtown area during weekdays, and that a total of about 13,200 cyclists commute throughout the city on a daily basis.** This does not include cycling on recreational trails, or cycling within neighbourhoods in Winnipeg that are not part of commuter routes. These counts focus on mid-week commuting routes and do not capture weekend travel patterns.

The findings also reinforce the idea that 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. Women are more likely to wear helmets than men but we estimate that women make up only 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 and 2006. The Census and NHS, however, do not provide 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.

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**Acknowledgements**

I would like to thank the following dedicated volunteers who contributed to the 2013 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 2013 (including volunteers for both our regular Bike to the Future spring bike counts reported here, and the Bike to Work Day counts):

Sarah Bartel, Tim Brandt, Karla Braun, Geoff Brewster, Mike Burt, Kevin Champagne, Jim Chapryk, Richard Craig, Glenn De la Cruz, Laura Donatelli, Charles Feaver, Waiyee Lai,
Fred Lair, Liz Harland, Brent Harrop, Jeremy Hull, Jim Kirby, Greg Loeb, Tim Lutz, Greg Maxwell, Beth McKechnie, Duncan McNairney, Chantel Mireau, Bill Newman, Jim Parker,
Ken Preston, Bill Reid, Krista Robinson, Sierra Sawatzky, Fabian Suarez-Amaya, Tom Schmidt, Tyler Steiner, Lea Stogdale, Tina Tenbergen, Amy Tibbs, Mani Tougas, John Wilmot, Heather Wittick, 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:**
**Peak Two Hour Bicycle Traffic Counts or Estimates by Location and Direction of Travel**
**(highest counts recorded, 2007 – 2013)**

| Location | "IN" (towards down town) | "OUT" (away from down town) |
|---|---|---|
| Arlington @ Ellice | 39 | 32 |
| Assin Ave @ Hargrave | 224 | 229 |
| Assin Park Footbridge | 65 | 84 |
| Bishop Grandin Greenway @ Dakota | 26 | 39 |
| 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 | 97 | 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 | 46 | 63 |
| Omand Creek train bridge | 110 | 213 |
| Osborne Bridge | 223 | 277 |
| Osborne Underpass | 162 | 133 |
| Pembina @ St Maurice School | 87 | 74 |
| Pembina-Jubilee Underpass | 103 | 131 |
| Provencher Bridge/Esplanade Riel | 220 | 265 |
| River Trail @ Main St | 151 | 168 |
| Sherbrook @ Cumberland | n.a. | 62 |
| Sherbrook-Maryland Bridges | 240 | 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 B
## 2013 Spring Bike Counts Summary

| Location | Month | Day | AM/PM | Weather | 2 HR count | Side-walk % | Pede-strians (2 hrs) | Helmet % | Spring Timing |
|---|---|---|---|---|---|---|---|---|---|
| Arlington @ Ellice | 4 | 2 | AM | Poor | **7** | 0% | 43 | | Early |
| Arlington @ Ellice | 5 | 8 | AM | Fair | **42** | 48% | 115 | | Early |
| Assin Ave @ Hargrave | 4 | 6 | PM | Poor | **34** | 13% | 133 | 65% | Early |
| Assin Ave @ Hargrave | 5 | 7 | AM | Good | **269** | 1% | | 80% | Early |
| Assin Ave @ Hargrave | 5 | 7 | PM | Excellent | **358** | 3% | 238 | 75% | Early |
| Assin Ave @ Hargrave | 6 | 4 | AM | Good | **391** | 2% | | 79% | Mid |
| Assin Ave @ Hargrave | 6 | 4 | PM | Excellent | **429** | 4% | 251 | 72% | Mid |
| Assin Park Footbridge | 4 | 4 | PM | Poor | **17** | n.a. | 115 | 71% | Early |
| Bishop Grandin Greenway @ Dakota | 4 | 2 | PM | Poor | **8** | n.a. | | 88% | Early |
| Dakota @ Bishop Grandin | 4 | 4 | PM | Poor | **4** | 0% | | 75% | Early |
| Disraeli Bridge | 4 | 3 | AM | Poor | **2** | 50% | 10 | 100% | Early |
| Disraeli Bridge | 5 | 9 | PM | Good | **36** | 58% | 32 | 58% | Early |
| Ellice @ Arlington | 4 | 2 | AM | Poor | **9** | 29% | 76 | | Early |
| Ellice @ Arlington | 5 | 8 | AM | Fair | **32** | 44% | 125 | | Early |
| Grosvenor @ Harrow | 4 | 4 | PM | Poor | **5** | 0% | | 80% | Early |
| Grosvenor @ Harrow | 5 | 8 | PM | Good | **51** | 6% | 51 | 71% | Early |
| Grosvenor @ Harrow | 6 | 6 | PM | Excellent | **61** | 95% | | 67% | Mid |
| Harrow @ Grosvenor | 4 | 4 | PM | Poor | **7** | 14% | | 100% | Early |
| Harrow @ Grosvenor | 5 | 8 | PM | Good | **53** | 2% | 37 | 89% | Early |
| Harrow @ Grosvenor | 6 | 6 | PM | Excellent | **109** | 4% | | 80% | Mid |
| Louise Bridge | 4 | 2 | AM | Poor | **13** | 92% | 7 | 33% | Early |
| Louise Bridge | 4 | 3 | AM | Poor | **15** | 100% | 9 | 53% | Early |
| Louise Bridge | 5 | 7 | AM | Good | **101** | 96% | 27 | 66% | Early |
| Louise Bridge | 6 | 4 | AM | Good | **110** | 97% | 18 | 73% | Mid |
| Main St @ Higgins | 4 | 2 | PM | Poor | **55** | 85% | | 15% | Early |
| Main St @ Higgins | 4 | 3 | AM | Poor | **22** | 73% | 113 | 36% | Early |
| Main St @ Higgins | 5 | 7 | AM | Good | **83** | 51% | 177 | 58% | Early |
| Main St @ Higgins | 5 | 9 | PM | Good | **150** | 77% | | 30% | Early |
| Main St @ Higgins | 6 | 4 | PM | Excellent | **164** | 80% | 371 | 38% | Mid |
| Main St @ Higgins | 6 | 6 | AM | Good | **115** | 65% | 4 | 55% | Mid |
| McPhillips at Machray | 5 | 7 | PM | Excellent | **36** | 27% | | | Early |
| Midtown Bridge | 5 | 8 | PM | Good | **60** | 30% | | | Early |
| Nassau @ Stradbrook | 5 | 8 | AM | Fair | **54** | 8% | 71 | 77% | Early |
| Norwood Bridge | 4 | 3 | AM | Poor | **34** | 11% | 280 | 49% | Early |
| Norwood Bridge | 4 | 3 | PM | Fair | **43** | 10% | | | Early |
| Norwood Bridge | 5 | 8 | AM | Fair | **210** | 1% | 214 | 72% | Early |
| Norwood Bridge | 5 | 8 | PM | Good | **260** | 0% | 457 | | Early |
| Norwood Bridge | 5 | 9 | PM | Good | **236** | 8% | | | Early |
| Norwood Bridge | 6 | 5 | AM | Good | **321** | 5% | 275 | 70% | Mid |
| Norwood Bridge | 6 | 5 | PM | Excellent | **407** | 5% | 473 | 70% | Mid |
| Omand Park Train Bridge | 5 | 8 | AM | Fair | **101** | n.a. | 40 | 84% | Early |
| Osborne Bridge | 4 | 4 | AM | Poor | **27** | 22% | | 78% | Early |
| Osborne Bridge | 4 | 4 | PM | Poor | **47** | 51% | | | Early |
| Osborne Bridge | 5 | 7 | AM | Good | **172** | 35% | | 73% | Early |
| Osborne Bridge | 6 | 5 | AM | Good | **251** | 23% | | 53% | Mid |
| Osborne Underpass | 4 | 10 | AM | Poor | **22** | 59% | | 77% | Early |

## Appendix B
## 2013 Spring Bike Counts Summary

| Location | Month | Day | AM/PM | Weather | 2 HR count | Side-walk % | Pede-strians (2 hrs) | Helmet % | Spring Timing |
|---|---|---|---|---|---|---|---|---|---|
| Osborne Underpass | 5 | 2 | AM | Poor | **94** | 56% | | 74% | Early |
| Osborne Underpass | 5 | 8 | PM | Good | **91** | 42% | 176 | 58% | Early |
| Osborne Underpass | 6 | 6 | AM | Good | **163** | 52% | | | Mid |
| Pembina Bikeway | 5 | 7 | PM | Excellent | **123** | 17% | | | Early |
| Pembina Bikeway | 6 | 4 | AM | Good | **124** | 17% | 93 | 76% | Mid |
| Pembina Bikeway | 6 | 5 | PM | Excellent | **134** | 28% | | 70% | Mid |
| Pembina-Jubilee Underpass | 4 | 4 | PM | Poor | **21** | 62% | 33 | 74% | Early |
| Pembina-Jubilee Underpass | 5 | 8 | PM | Good | **106** | 54% | 32 | 72% | Early |
| Pembina-Jubilee Underpass | 6 | 6 | PM | Excellent | **195** | 58% | 38 | 69% | Mid |
| Provencher Bridge/Esplanade Riel | 4 | 2 | PM | Poor | **46** | 71% | | | Early |
| Provencher Bridge/Esplanade Riel | 5 | 9 | PM | Good | **243** | 31% | | | Early |
| Provencher Bridge/Esplanade Riel | 6 | 6 | PM | Excellent | **380** | 39% | | | Mid |
| River Trail @ Main St | 4 | 4 | PM | Poor | **12** | n.a. | 12 | 75% | Early |
| River Trail @ Main St | 6 | 5 | AM | Good | **142** | n.a. | 13 | 87% | Mid |
| River Trail @ Main St | 6 | 6 | PM | Excellent | **161** | n.a. | 10 | | Mid |
| Sherbrook @ Cumberland | 4 | 3 | PM | Fair | **3** | 0% | 82 | 50% | Early |
| Sherbrook-Maryland Bridges | 4 | 2 | AM | Poor | **40** | 30% | 84 | 86% | Early |
| Sherbrook-Maryland Bridges | 4 | 3 | PM | Fair | **48** | 53% | | 73% | Early |
| Sherbrook-Maryland Bridges | 5 | 7 | AM | Good | **331** | 38% | 149 | 87% | Early |
| Sherbrook-Maryland Bridges | 5 | 8 | AM | Fair | **230** | 40% | 78 | 87% | Early |
| Sherbrook-Maryland Bridges | 5 | 9 | AM | Fair | **232** | 40% | 145 | 81% | Early |
| Sherbrook-Maryland Bridges | 6 | 4 | AM | Good | **378** | 44% | | | Mid |
| Sherbrook-Maryland Bridges | 6 | 6 | AM | Good | **397** | 46% | | | Mid |
| Slaw Rebchuk Bridge | 4 | 3 | PM | Fair | **12** | 67% | | 8% | Early |
| Slaw Rebchuk Bridge | 6 | 4 | AM | Good | **59** | 49% | 57 | 49% | Mid |
| Stradbrook @ Donald | 5 | 9 | PM | Good | **54** | 69% | 136 | 70% | Early |
| Stradbrook @ Nassau | 5 | 8 | AM | Fair | **35** | 15% | 50 | 80% | Early |
| Univ Golf Course Trail | 5 | 9 | PM | Good | **62** | n.a. | | 69% | Early |
| Univ Golf Course Trail | 6 | 4 | PM | Excellent | **91** | n.a. | | 73% | Mid |
| University Crescent | 5 | 9 | PM | Good | **157** | 9% | | 72% | Early |
| University Crescent | 6 | 4 | PM | Excellent | **163** | 78% | | 65% | Mid |

n.a. = sidewalk percentage not applicable (no sidewalk)

**Weather Categories**:
Poor = Rain or Snow, or temp < 0; Fair = Temp 0-8, or wind > 40; Good = Temp 9-17, wind < 40; Excellent = Temp 18+ wind < 40

**Spring Timing Categories - Days Since Last Snow on the Ground**:
Early = <15 Days; Mid = 15-45 Days; Late = 46+ Days

## Appendix D: Charts Showing Commuter Cyclist Trends at Selected Locations By Month, Time of Day and Year

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

Assiniboine Ave @ Hargrave
Grosvenor Ave @ Harrow
Harrow @ Grosvenor
Louise Bridge
Main St @ Higgins
Norwood Bridge
Omand Park Train Bridge
Osborne Bridge
Osborne Underpass
Pembina-Jubilee Underpass
Provencher Bridge/Esplanade Riel
Sherbrook-Maryland Bridges
University Crescent

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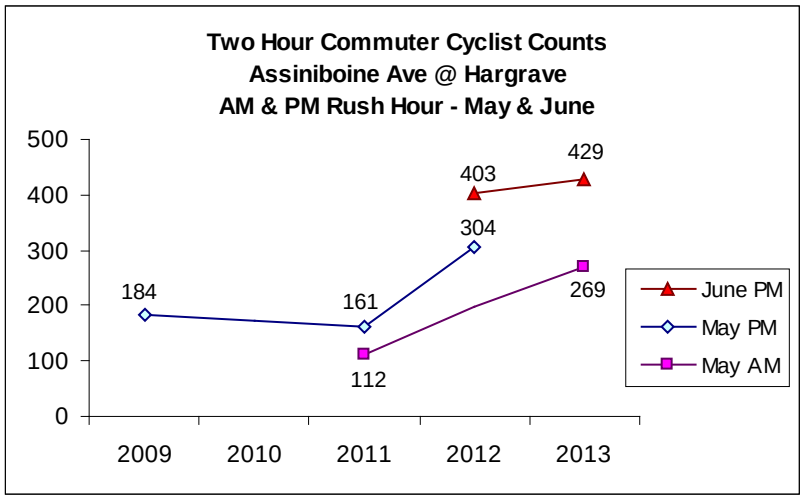
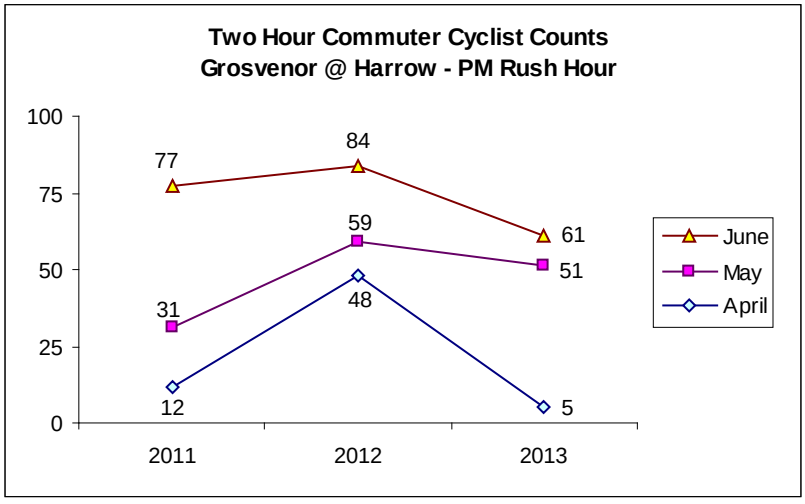
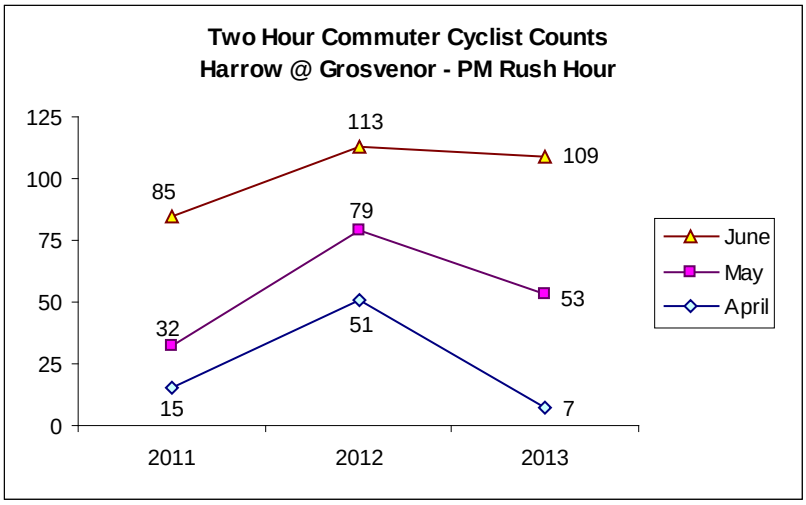
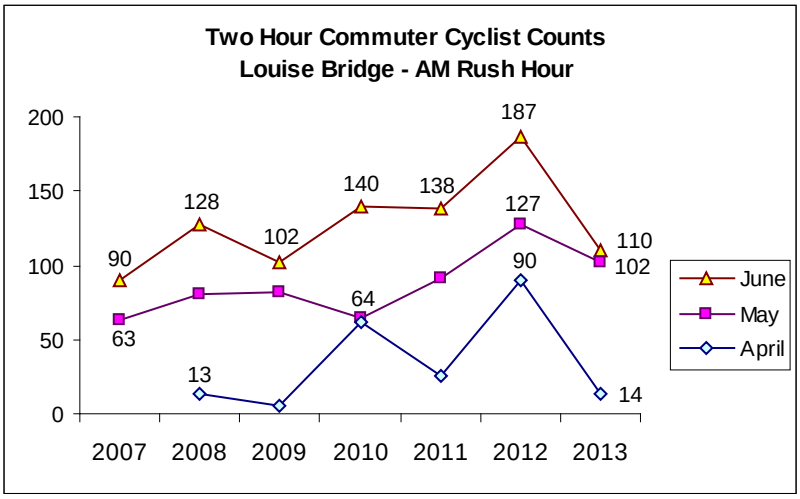
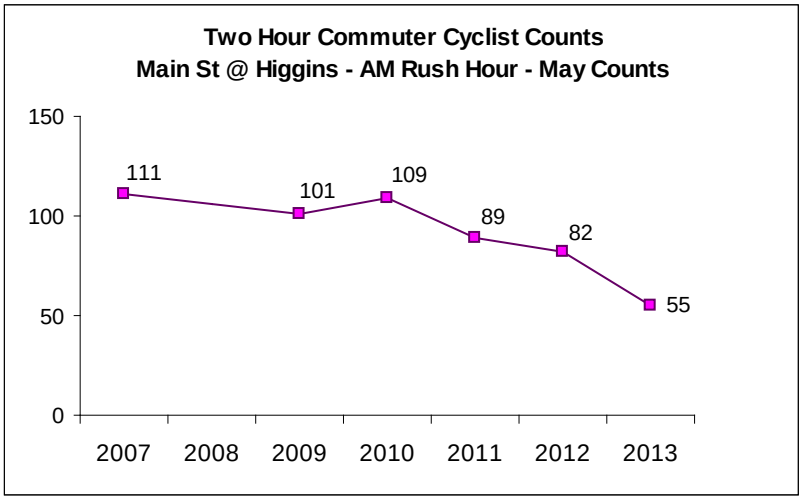
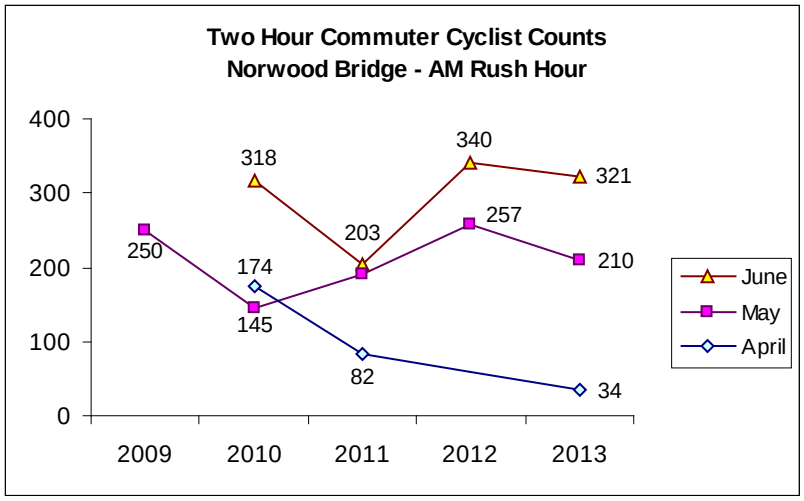


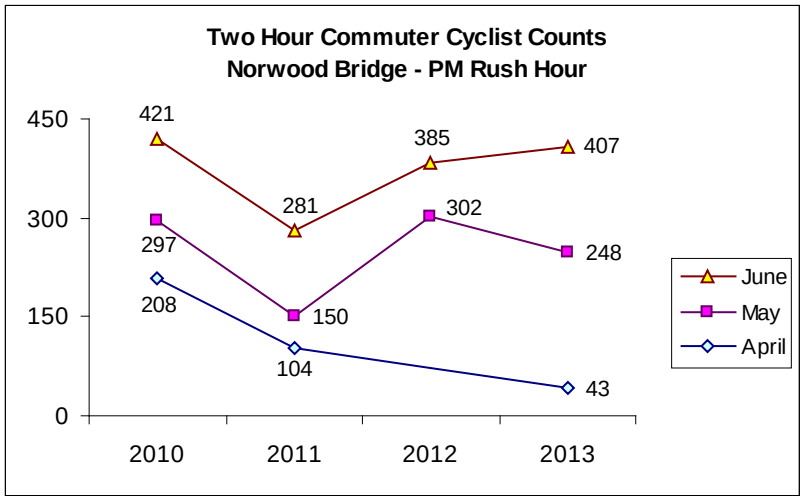



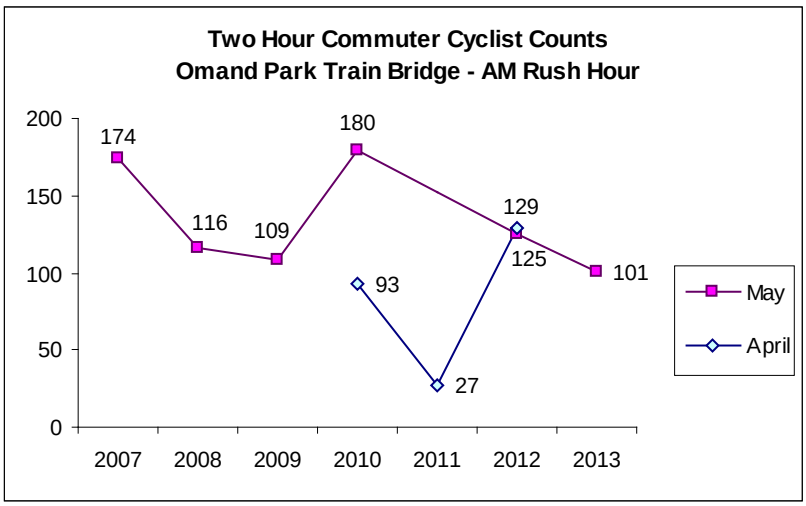

Two Hour Commuter Cyclist Counts
Harrow @ Grosvenor - PM Rush Hour
125
100
75
50
25
0
113
109
85
79
53
32
51
15
7
2011
2012
2013
June
May
April

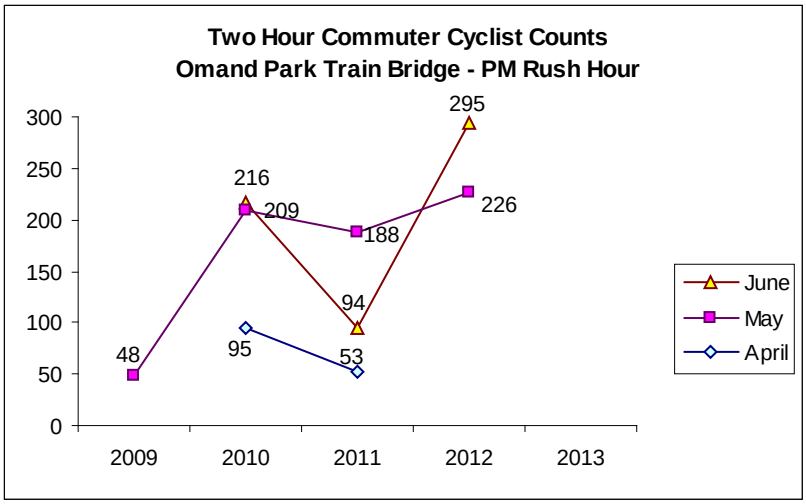

Two Hour Commuter Cyclist Counts
Louise Bridge - AM Rush Hour
200
150
100
50
0
187
128
140
138
127
110
102
90
102
64
63
90
13
14
2007
2008
2009
2010
2011
2012
2013
June
May
April

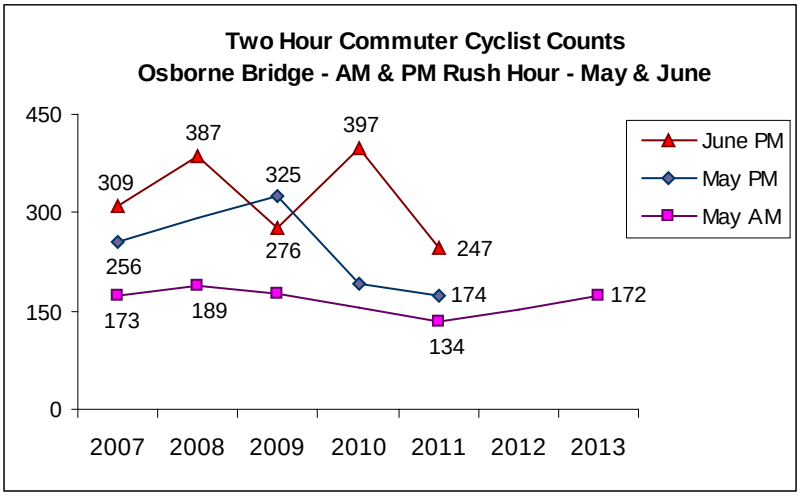

Two Hour Commuter Cyclist Counts
Main St @ Higgins - AM Rush Hour - May Counts
150
100
50
0
111
101
109
89
82
55
2007
2008
2009
2010
2011
2012
2013

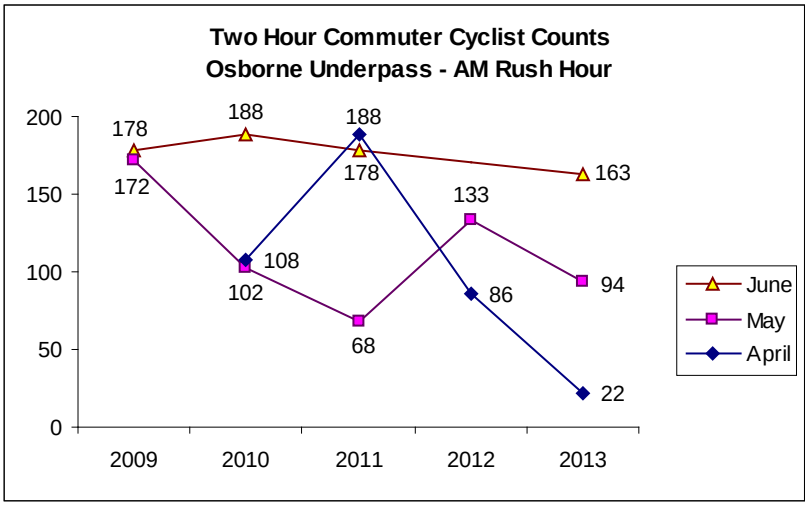

Two Hour Commuter Cyclist Counts
Norwood Bridge - AM Rush Hour
400
300
200
100
0
2009
2010
2011
2012
2013
318
340
321
203
257
210
250
174
145
82
34
June
May
April

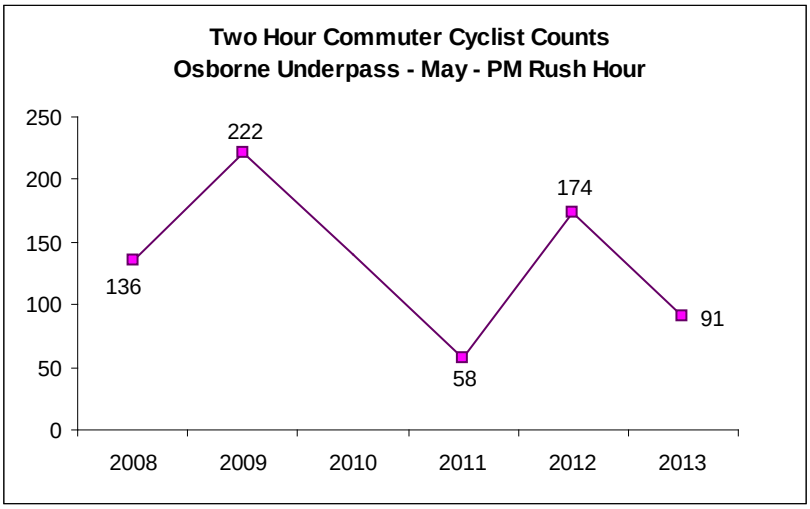

Two Hour Commuter Cyclist Counts
Norwood Bridge - PM Rush Hour
450
300
150
0
2010
2011
2012
2013
421
385
407
281
302
248
297
150
208
104
43
June
May
April

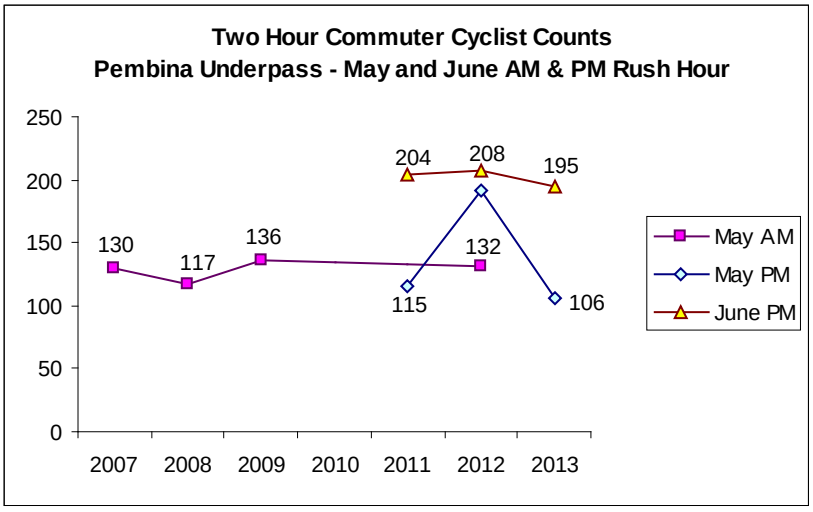

Two Hour Commuter Cyclist Counts
Omand Park Train Bridge - AM Rush Hour
200
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
174
180
116
109
129
125
101
93
27
May
April

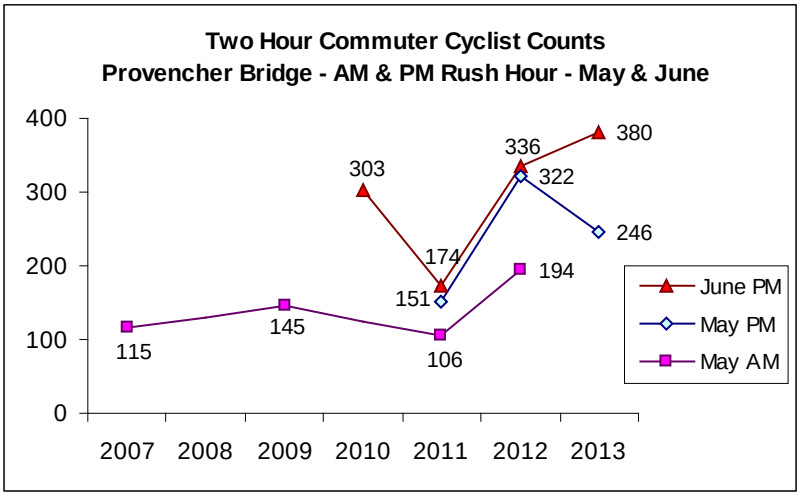

Two Hour Commuter Cyclist Counts
Omand Park Train Bridge - PM Rush Hour
300
250
200
150
100
50
0
2009
2010
2011
2012
2013
295
216
209
226
188
94
48
95
53
June
May
April

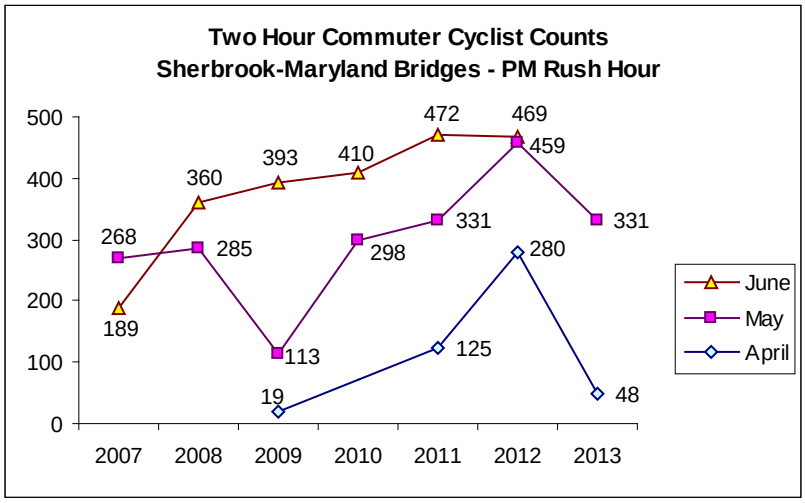

Two Hour Commuter Cyclist Counts
Osborne Bridge - AM & PM Rush Hour - May & June
450
300
150
0
2007
2008
2009
2010
2011
2012
2013
387
397
309
325
276
247
256
174
172
173
189
134
June PM
May PM
May AM

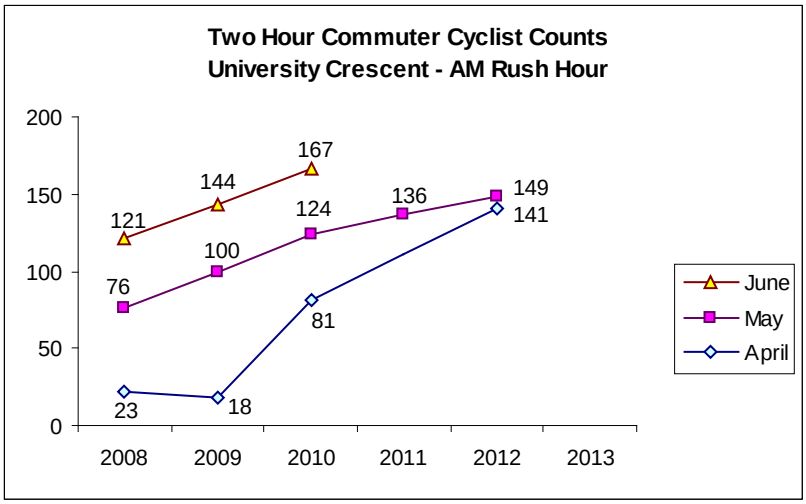

Two Hour Commuter Cyclist Counts
Osborne Underpass - AM Rush Hour
200
150
100
50
0
2009
2010
2011
2012
2013
178
188
188
178
163
172
133
108
102
94
86
68
22
June
May
April

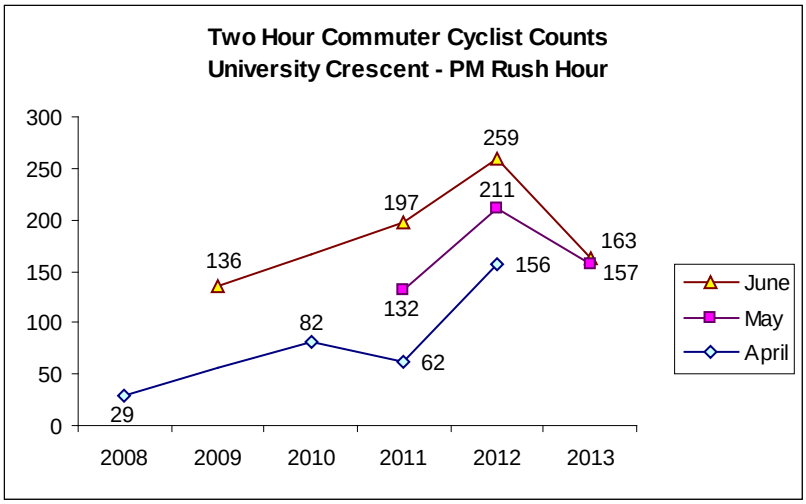

Two Hour Commuter Cyclist Counts
Osborne Underpass - May - PM Rush Hour
250
200
150
100
50
0
222
174
136
91
58
2008
2009
2010
2011
2012
2013


Two Hour Commuter Cyclist Counts
Pembina Underpass - May and June AM & PM Rush Hour
250
200
150
100
50
0
204
208
195
130
117
136
132
115
106
2007
2008
2009
2010
2011
2012
2013
May AM
May PM
June PM


Two Hour Commuter Cyclist Counts
Provencher Bridge - AM & PM Rush Hour - May & June
400
300
200
100
0
303
336
380
322
246
174
194
151
145
115
106
2007
2008
2009
2010
2011
2012
2013
June PM
May PM
May AM


Two Hour Commuter Cyclist Counts
Sherbrook-Maryland Bridges - PM Rush Hour
500
400
300
200
100
0
2007
2008
2009
2010
2011
2012
2013
472
469
459
410
393
360
331
331
268
285
298
280
189
113
125
19
48
June
May
April


Two Hour Commuter Cyclist Counts
University Crescent - AM Rush Hour
200
150
100
50
0
2008
2009
2010
2011
2012
2013
167
144
136
149
141
121
124
100
76
81
23
18
June
May
April


Two Hour Commuter Cyclist Counts
University Crescent - PM Rush Hour
300
250
200
150
100
50
0
2008
2009
2010
2011
2012
2013
259
211
197
163
157
136
156
132
82
62
29
June
May
April