

2010 Peninsula Screenline Bicycle Count

The HRM Active Transportation Plan (the AT Plan) strives to improve the experience for non-motorized transportation modes within the HRM for both existing and future generations. The plan envisions a connected, region-wide AT network. Collecting data to monitor aspects of user behaviour is recommended by the AT Plan in order to assist in evaluating the effectiveness of various initiatives undertaken pursuant to the plan.

Bicycle counts serve to inform the Municipality's ongoing bicycle planning efforts by providing the data needed to evaluate HRM's bicycle network, as well as identifying locations where additional infrastructure improvements are needed. Three programs are currently ongoing:

- Intersection Counts
- HRM Cordon Counts
- Peninsula Screenline Count

While the cordon and screenline counts are primarily used to identify trends in volume, all types of counts may inform decision making to at least some extent on where to establish bike routes and make infrastructure improvements. This report summarizes the results of the Peninsula Screenline Bicycle Count

Overview and Purpose

This count provides a good sample of the volume of bike traffic by counting all cyclists crossing an east-west line bisecting the peninsula during the peak travel periods (rush hour). HRM staff believe that a large portion of peninsula bike trips cross this line, and if the count is repeated annually, it will give HRM a basis upon which to monitor volume trends. 2010 represents the first year that the Peninsula Screenline Bicycle Count was done, and as such is the baseline against which future counts can be compared. In addition to providing information about the current volume and patterns of bicycle use, subsequent counts in future years will help the HRM assess progress in its efforts to improve bicycle infrastructure on the peninsula.

In addition to counting numbers of cyclists, other characteristics were noted such as gender, age category, helmet use, and compliance with laws, in order to develop a profile of cyclists in HRM. This data may be useful when considering the development of programs and policies related to cycling.

Method

Quinpool and Cogswell Streets were chosen as the screenline, representing a division of the peninsula with primarily residential uses to the north and major employers to the south. As shown on Figures #1 and #2, counters (HRM staff and volunteers) were situated along 16 stations on the screenline recording the number of cyclists passing through each location in fifteen minute increments during the morning and afternoon peak traffic periods. Most stations counted bicycles crossing the screenline at only one

point, but some stations included crossings at two or three points when multiple crossings were observable from a single viewing station. For example, at Station C, bicyclists crossing the screenline at both Parkwood and Woodlawn were visible; Station O observed cyclists crossing the screenline at Brunswick, Albermarle & Barrington; and at Station P, counters located in the upper levels of the Purdy's Wharf Parkade had a great view of cyclists crossing Upper Water Street and multiple points on the Cogswell Ramp. This approach minimized the numbers of volunteers needed for the counts.

Table 1. Weather Conditions During Screenline Bicycle Count

Date	Temperature	Wind Speed	Sun/ Cloud
20/09/10	13° C	30 Km/hr	Cloudy
21/09/10	9 °C	40 km/hr	Clear

The PM count was done from 4:00 to 6:00p.m on Monday September 20th and the AM count was done the next morning on Tuesday September 21st from 7:00 to 9:00a.m. The count was conducted in September because school was in session, and weather conditions were still


conducive to cycling (Table 1). Only cyclists who crossed the south curb line of the screenline were counted. Cyclists crossing the north curb line or travelling along the screenline itself were not counted in order to avoid double counting. Volunteers also recorded characteristics of each cyclist such as gender, age, helmet use and compliance with traffic signs and signals. A volunteer training session was conducted to ensure that counts would be consistent between stations. The counts were carried out on clear weather days with mild temperatures to minimize the effect weather may have on decisions to commute by bicycle. A rain date would have been used in case of inclement weather.

Results and Discussion

A total of 841 cyclists were observed crossing the screenline during the PM peak, and 631 were observed the next morning during the AM peak, as shown on Figures 1 and 2 respectively. The difference between days and peak periods suggests there may be a some variability in cyclist volumes either from AM peak to PM peak or from day to day. For example, the PM count may have captured more non-commuting trips than the AM count, as people may be more likely to run errands, shop, or ride for leisure in the afternoon.

It is interesting to note that many intersections varied greatly between the two days and count times (stations A, F,G,H,I,J,K,L,N) while a few did not (M,O,P) (Table 2). For those that varied a lot, there were always fewer cyclists counted in the AM peak. The stations that varied were predominantly west of North Park Street (except Gottingen Street), while those that did not, were east of Gottingen St. One theory which may explain this pattern in variation is that cyclists who are travelling east of North Park Street are likely heading to the central business district (CBD) where people typically work 9-5 types of jobs. West of North Park Street, destinations are more likely to include the hospitals and universities, where schedules can be more flexible, and shift work comes into play. Gottingen Street may be an anomaly to this pattern because cyclists heading to the CBD in the morning must climb a large hill if they stay on Gottingen, and are more likely to head down Cogswell. In the afternoon, the situation would be reversed, and topography on Gottingen would be more favourable to cyclists.

Table 2. Variation between AM/ PM Peak Counts

WEST	Station	AM PEAK	PM PEAK
	Armview (A)	6 <	17
	Rosebank (F)	3 <	10
	Beech (G)	14 <	28
	Oxford (H)	26 <	40
	Preston (I)	26 <	50
	Vernon (J)	98 <	162
	Robie/Bell (K)	60 <	77
	Commons (L)	78 <	128
	North Park/Trollope/Ahern/Rainnie (M)	125 >	121
	Gottingen (N)	9 <	25
	Brunswick/Albermarle/Barrington (O)	111 >	102
	Upper Water/Cogswell Ramps (P)	41 >	40
EAST			

To better understand this variability, future counts should be conducted on more than one day so the resultant total can be averaged to come up with a better estimate that could then be more reliably used to compare one year to the next. The U.S. National Bicycle & Pedestrian Documentation Project (a joint project of the Institute for Transportation Engineers (ITE) and Alta Planning & Design) states “given the variability of bicycle and pedestrian activity, we strongly encourage that all estimates be based on the average of at least two and preferably three counts during the same time period and week, especially for lower volume areas.”

Table 3. Average Number of Cyclists Overall

The Screenline Count may help us to understand which north – south routes might be the most popular

Station	Average number of bikes	
	Number	%
Armview (A)	11.5	1.6%
Prince Arthur (B)	2	0.3%
Parkwood/Woodlawn (C)	9	1.2%
Bloomdale (D)	3	0.4%
Connaught (E)	24.5	3.3%
Rosebank (F)	6.5	0.9%
Beech (G)	21	2.9%
Oxford (H)	33	4.5%
Preston (I)	38	5.2%
Vernon (J)	130	17.7%
Robie/ Bell (K)	68.5	9.3%
Commons (L)	103	14.0%
Trollope/Ahern/Rainnie (M)	123	16.7%
Gottingen (N)	17	2.3%
Brunswick/Albermarle/Barrington (O)	106.5	14.5%
Upper Water/Cogswell Ramps (P)	40.5	5.5%

with existing cyclists. Averaging the AM/ PM peaks (Figure 3, Table 3) showed that 72% of cyclists crossed the screenline at only five stations. The most popular north - south bike routes appear to be:

- 1) Vernon Street (17.7%)
- 2) North Park/Trollope/Ahern/Rainnie 16.7%)
- 3) Brunswick Street (14.5%)
- 4) Path through Commons (14%)
- 5) Robie/Bell (9.3%)

Gender

Looking at the average of AM/PM observations (Figure 3), there was a predominance of male cyclists observed during the count (63% vs. 37% females). Despite the variability in total number of observed cyclists between the AM and PM peaks, the proportion of males and females remained the same for both time periods: AM had a split of 62% male/ 38% female and PM had split of a 63% male and 37% female cyclists.

Other studies have suggested that

because females tend to be more risk averse, regions without dedicated bicycle infrastructure will always see higher proportions of male cyclists due to the perceptions of increased safety associated with dedicated infrastructure. Cities with high bicycle mode shares typically achieve a balance between male and female ridership. Thus, gender parity is considered an important indicator of the success of a city's bicycle program in creating safe, comfortable and attractive conditions for bicycling. Compared to other jurisdictions well known for their advanced cycling networks, peninsular Halifax does not fair poorly in

this regard. For example Portland, Oregon, named second of the USA's top 50 bicycle-friendly cities by Bicycling Magazine in 2010, had only 31% female riders in their 2009 summer bicycle count. By North American standards, there appears to be a substantial proportion of female cyclists on the peninsula.

Age Categories:

Observers noted whether cyclists were youth (<18 years), adult (age 18-60) or seniors (60+ years). Most bicyclists observed during the counts were adults. This should come as no surprise given the time and location of counts which were conducted at peak periods, and so mostly captured adults commuting to work. The only exceptions were Beech Street (station G) which had 8 children crossing Quinpool heading to Sir Charles Tupper School, and the commons crosswalk (station L) which captured some youth heading to Citadel High School. Unless a school is nearby, it may not be necessary to consider age categories. Also, since school is normally finished by 3pm and the PM counts did not start until 4pm, PM counts will not catch the majority of young people leaving school.

Helmet Use

Ninety seven percent (97%) of observed cyclists were wearing helmets. These numbers show an incredibly high rate of compliance with the provincial helmet requirements under the Motor Vehicle Act. If this number declines in future counts, police could be directed to undertake enforcement campaigns. Given the high compliance rate, an enforcement campaign would not be justified at this time.

Sidewalk Riding

As shown on Figure #3, 16% of cyclists were observed riding on the sidewalk and 84% were observed riding on the road. While the majority of cyclists ride where they are legally obliged, the proportion of cyclists on the sidewalk is higher on the western end of the screenline, particularly west of Oxford Street. West of Oxford Street there are fewer cyclists overall, and more than half of those observed (53%) were riding on the sidewalk. This may speak to level of discomfort cyclists feel riding on the western end of Quinpool where vehicle speeds increase and traffic lanes narrow. The eastern portion of Quinpool Road has a wide on-street parking lane that provides cyclists with a larger buffer from moving vehicles.

HRM does not condone sidewalk riding because it is largely illegal and in some situations may actually endanger bicyclists, pedestrians, and motorists. However, frequent observations of such behaviour can highlight areas where bicyclists have concerns for their personal safety, or where bicycle facilities may be necessary to encourage legal behaviour. HRM should continue to monitor sidewalk riding, and consider infrastructure improvements where incidences are high.

Compliance with Signs and Signals

Out of 1,472 cyclists observed during both the AM and PM counts, 90% were observed to obey traffic signs and signals. However, there were differences in observed violations between stations, and 7% of all the violations noted were observed at the intersection of Vernon and Quinpool. At this intersection, signs direct traffic to turn right or left and straight through movements are prohibited. This signage was implemented to deter motor traffic from using Vernon Street to access the Quinpool Center. The intent

was never to deter bicycle traffic and HRM intends to install signage which will exempt bicycles from these turning requirements as soon as such signage has been approved by the Province.

Other observed violations included cyclists travelling the wrong way on a one-way street, and cyclists jumping red lights (i.e. stopping at a red light, but proceeding before the light has turned green). Some cyclists were also observed disregarding the no left turn sign at Armview onto Quinpool as they headed towards the rotary (typically while also riding on the sidewalk).

No violations were noted at Station L, where a crosswalk connects a pathway on the Halifax Common. It is very likely that some cyclists here did not dismount and walk across the crosswalk, and the volunteer at this station may not have noted this violation for some reason. In future counts, volunteers should be directed to make note of how cyclists use this crosswalk.

Conclusion

2010 marks the first year for the completion of the Peninsula Screenline Bicycle Count. Future counts will provide more information on changes in cycling volume and behaviours and may serve to inform policy and decision making with regard to bicycle programs and infrastructure.

Subsequent counts should consider the following:

1. Carry out the count over two or more days and average the results.
2. Where certain stations recorded bicycles along more than one street, data should be separated by street to allow more information on preferred routes to be collected.
3. To simplify data collection, omit the age category when sampling during the weekday peak period, unless a school is nearby.
4. Incidences of riding in the crosswalk could be noted at the crosswalk on Cogswell Street across the Commons.