

# **Pedestrian and Bicycle Travel Data in Greater Victoria**

**Richard James, P. Eng, PTOE, and Larry Roberts, A.Sc.T,**

## **Abstract:**

The paper is based on an ongoing count program organised by the Vancouver Island Section of ITE (ITE Section) and the Capital Regional District (CRD) to document bike and pedestrian traffic in the Region. The methodology is set up to be compatible with historical and ongoing CRD counts for the regional transportation model and ITE International's "National Bicycle and Pedestrian Documentation Project".

The project uses primarily volunteers to collect data with CRD staff assisting in project management and data processing. Working with volunteers poses some challenges not met in the use of employee staffing, which are reviewed in the paper.

The paper focuses on:

- Historic travel data collection in the CRD
- ITE's "National Bicycle and Pedestrian Documentation Project" overview
- Integration of CRD objectives with those of the ITE project
- Survey design (Counts)
- Survey design (Interview survey)
- Solving operational challenges
- The results
- Continuing time-series analysis of bike/pedestrian data
- Guidelines for further work

Count locations include a downtown screen-line, suburban major road/highway locations, major bike/pedestrian trails and specific bike/pedestrian generators (including UVic and a Recreation Centre/Movie Theater/Shopping Centre complex).

# Pedestrian and Bicycle Travel Data in Greater Victoria

## Background

The Capital Region is located on the southern end of Vancouver Island in the Province of British Columbia (see Map 1) and generally known as “Greater Victoria”. The Region includes 13 incorporated municipalities and one Electoral Area on Vancouver Island, plus 5 of the main Gulf Islands (two Electoral Areas). with an area of approximately 2,450 square kilometres. The estimated 2006 population is 354,200.

Prior to the 1950’s, transit, cycling and walking were the primary method of travel. As the community grew and spread throughout the region other modes of travel have become more dominant. However, the Capital Region continues to have a very active cycling and pedestrian community and as such has gained a reputation as the Cycling Capital of Canada. For the 2001 PM Peak hour, the from-work cycling-trips exceed 6% of the total from-work travel demand by all modes. The urban portion of the region is very pedestrian friendly and walking represented 12% of the all travel demand during the PM period.

## Historic Data Collection

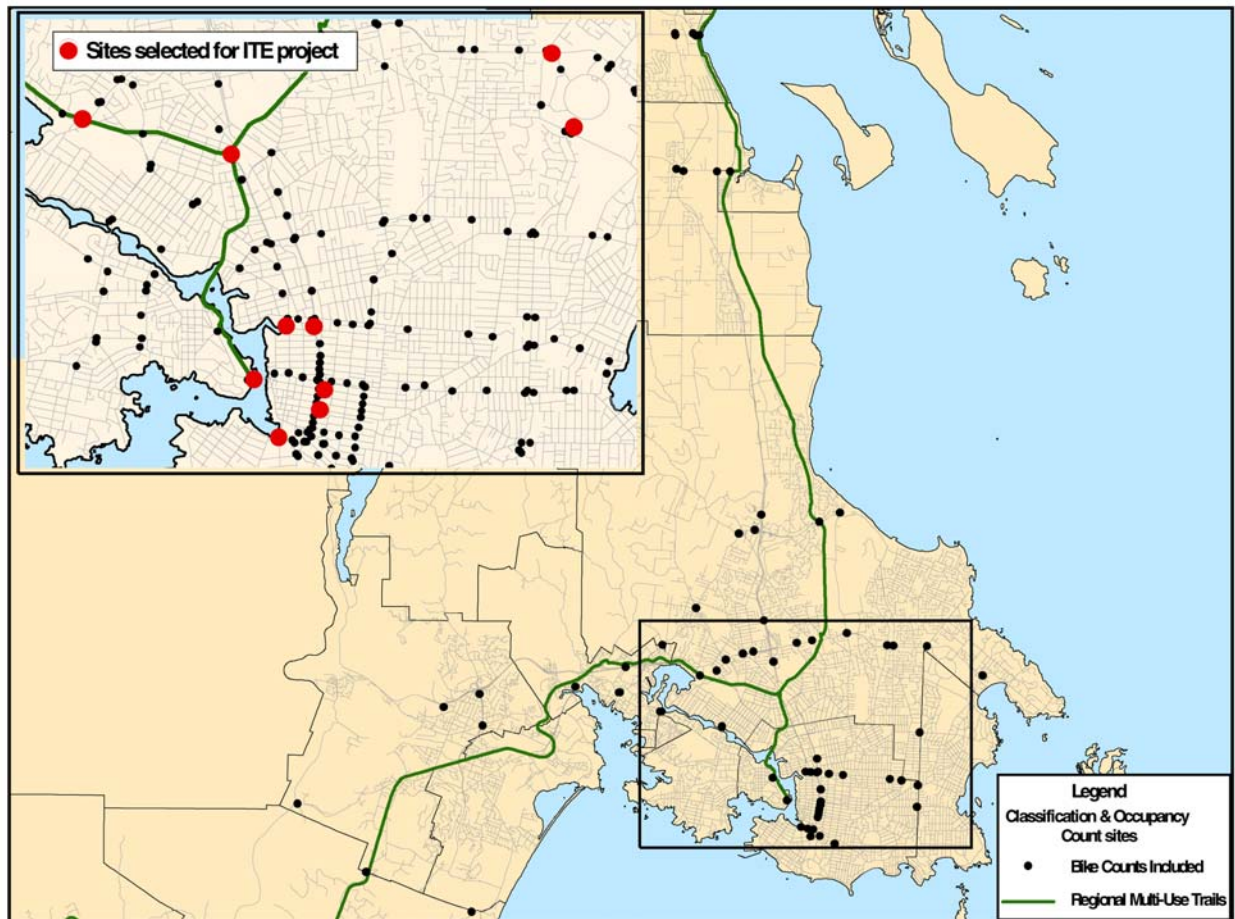
In 1991, the Region started collecting transportation data as part of a goal to develop a Regional Transportation Strategy and to begin understanding the impacts of transportation at a regional scale. Of the 12 municipalities that existed in 1991, only two collected any data on travel demand. The region’s data collection program was structured for use in a transportation model. The data includes:

- Population & employment by Traffic Analysis Zone geography (TAZ);
- Land area by TAZ;
- Origin and Destination Household Travel Survey (24-hour)
- Origin and Destination of External to External Trips (Ferry, Airports, Malahat)
- 24-hour traffic volume flows (directional on all major routes);
- Vehicle occupancy and classification surveys (trucks, passengers, and cyclists);
- Network geometry (lane-km, speed, alignments, operations, etc);
- Vehicle ownership and operating costs;
- Value of time by trip purposes;
- Parking costs;
- Travel times surveys of passenger and transit vehicles;
- Transit operations – routes, schedules, frequency, capacity, costs.

Measuring the demand for cycling has been a low priority in the region. Over the past 14 years, cycling data has only been counted in downtown Victoria in 1992 and 1998 along with some few selected sites in 2000. For 2004 and 2005, a broader study area was funded. The count sites are shown in map 2. Those shown in red include bicycle data. There is no pedestrian data included in the regional program.



## Map 2 Count Sites, Historic and 2006 Surveys



### ITE's “National Bicycle and Pedestrian Documentation Project” Overview

The National Documentation Project (NDP) is an annual bicycle and pedestrian count and survey effort sponsored by the Institute of Transportation Engineers (ITE) Pedestrian and Bicycle Council. The project was introduced to:

- establish a consistent bicycle and pedestrian count and survey methodology, building on the “best practices” from around the country;
- publicize the availability of this free material for use by agencies and organizations on-line;
- establish a database of bicycle and pedestrian count information generated by these consistent methods and practices; and
- to use the count and survey information to begin analysis on the correlations between various factors and bicycle and pedestrian activity. These factors may range from land use to demographics to type of new facility.

The program is intended to develop a consistent bicycle and pedestrian count methodology with input from the ITE Pedestrian and Bicycle Council, interested professionals, and groups such as

the Transportation Research Board, American Association of State Highway and Transportation Officials, the Association of Pedestrian and Bicycle Professionals, and other groups.

There is value in adding Canadian data to the program, and comparing it to data collected in the USA. The Vancouver Island Section of ITE has supported this effort.

The program was initiated in 2005 and includes further efforts in 2006 and 2007. The proposed dates for 2006 are:

January 10-12, 2006	May 9-11, 2006	Jul 4-6, 2006	Sept. 9-16, 2006
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These dates will be adjusted slightly to reflect Canadian practice and local conditions. Collecting data in all four “seasons” will provide valuable insight into travel behaviour by these modes that might be expected to have different seasonality to automobile travel.

The specific types of analysis that the project will provide include:

- Volumes by user group;
- Comparison of volumes to background data;
- Comparison of volumes to location attributes;
- Factors that influence usage;
- Comparison of usage figures to survey results;
- Understanding of trip purpose;
- Understanding of trip frequency;
- Understanding of trip origin;
- Understanding why people use specific facilities; and
- Types of enhancements people would like.

### **Integration of CRD Objectives with those of the ITE Project**

The ITE project provides a large amount of comparative data identifying key parameters about bicycle and pedestrian travel. As such, it provides a unique opportunity to look at data that shows a range of results that might be expected in comparable areas.

The Regional Growth Strategy intends to provide a sustainable transportation system that gives priority to moving people and goods; and that contributes towards improved quality of life throughout the region. The mission of the supporting transportation strategy “TravelChoices” is to significantly increase the proportion of people walking, cycling, using transit, ride-sharing or using other alternatives to driving alone.

Annually the region is required to report on the effectiveness of the growth and transportation strategy. Part of the ongoing monitoring program is the need to track all modes of travel. In 2004, the region introduced an enhanced monitoring program to focus on the goals of its strategies. Prior to the current program, modal data was initially collected in 1991 and only partially repeated in 2000, and 2002. The majority of the 1992 sites were recounted in 2005.

One major pedestrian/cyclist traffic generator (Univ. of Victoria) has been collecting time series data. Our data is intended to be compatible with and add to their collection program.

Data collected by this project will provide a valuable tool to compare the results achieved in the CRD with those achieved in a large range of jurisdictions across North America. Continuing

time-series analysis of bike/pedestrian data will provide a local comparison to prior years and indicate the success or otherwise of the TravelChoices Strategy.

In addition to the ITE's objectives of collecting a consistent dataset, the CRD has objectives more attuned to local issues and specifics of our transportation system. The changes made to data formats and methodologies to achieve this are discussed below.

### **Survey Design (Counts)**

The counts were conducted using a modified traffic data collection form. Data was recorded by mode and direction for 5 minute intervals and aggregated to 15 minute intervals for reporting. This allows reporting of peak hours to the closest 5 minute step. Bicycle and pedestrian mode peaks can be shown separately and compared with vehicular traffic peaks.

### **Survey Design (Interview Survey)**

The National Documentation Project provided agencies with a set of instructions for the project and related forms including the "Standardized Pathway Survey". After reviewing this document, it was decided to enhance the survey as shown in red and shaded on the attached form. One of the additions was simply the option of "other" with key questions in the event the narrow options failed to focus the respondents. The "Seasonal Use" question was enhanced by collecting the data for all 4 seasons and the residence/work question was clarified with local references. We also customised and reformatted the location/mode/ direction information to assist in coding the data as the location had multiple survey stations. The modifications provided more clarification on the trends and reasons people choose to walk or cycle.

During the actual interview, we found the questions, as amended, were easy to deliver and well received by the respondents.

### **Selection of Sites**

The project tasks included undertaking user surveys on pathways and on-street locations. The CRD used the modified "Standardized Pathway Survey" to undertake a Saturday interview along its 85 km multi-use pathway system that traverses most of the region. It begins near the downtown core and proceeds in a northerly direction for approximately 3 km, then splits with one segment continuing northwards to the ferry terminal and the other section heading westwards through the Western Communities. The survey site selected was located at the major junction where the pathway branches into its east/west and north/south routes.

On-street sites were selected on the basis of historic data and resources available for the study. A total of 9 on-street sites on the downtown screenline and at the University of Victoria were selected from the 73 historic sites where cycling data has been tracked.

## Solving Operational Challenges

The ITE program was being organized outside the normal work program of the region and its municipal partners. Undertaking this project depended on securing volunteers and it turned out that the timing of the January survey proved difficult.

The call for volunteers was initiated in December 2005 with a notice being posted at local universities, and e-mailed to municipalities and consulting firms. University sessions were ending and the corresponding demands on students such as exams resulted in very few people responding to the call for volunteers. After weeks of effort only eight people participated in the initial project. This limited the number of locations the region could expect to sample. Several volunteers participated on more than one survey day.

Weather also proved a challenge. Winter in the Greater Victoria tends to bring rain, rain and more rain. This January proved to set new records for days of continuous and measurable amounts of rain. However, the volunteers stayed the course and completed the project as scheduled despite rain on all but one survey day.

Sites were selected on a priority basis from a list of sites previously counted in the CRD program with the addition of selected sites to address ITE program concerns. Sites at the University of Victoria and at a sub-regional shopping center are included in this list. The sites are generally located on the Downtown traffic cordon, cross-town screenlines and at major trail locations.

The full list of sites and those selected for the January surveys are shown in below (sites in *red/shaded* were actually counted in January 2006; xxx= estimated volume).

- 1) September 2006 Sites – The following list was used as the ongoing master list for tracking cycling and pedestrian behaviour for the ITE study.

<p>CBD Victoria that includes:</p> <ul style="list-style-type: none"> <li>• Bay east of Blanshard ~ 90 (3 to 6pm)</li> <li>• Caledonia east of Blanshard ~ 100</li> <li>• Fisgard east of Blanshard ~ 70</li> <li>• Pandora east of Blanshard ~ 120</li> <li>• Johnson east of Blanshard ~ 130</li> <li>• Yates east of Blanshard ~ 110</li> <li>• View east of Blanshard ~ 70</li> <li>• Fort east of Blanshard ~ 150</li> <li>• Broughton east of Blanshard ~ 150</li> <li>• Government north of Bellville ~ 270</li> <li>• Douglas north of Belleville ~ 90</li> <li>• Bay west of Tyee ~ 80</li> <li>• Johnson St Bridge ~ 700</li> <li>• Government South of Bay ~ 100</li> <li>• Douglas South of Bay ~ 100</li> <li>• Blanshard south of Bay ~ 150</li> </ul>	<p>UVic area including:</p> <ul style="list-style-type: none"> <li>• Mckenzie</li> <li>• Henderson</li> <li>• Cedarhill Cross</li> <li>• Galloping Goose at Switch Bridge ~ 500</li> </ul> <p>Helmcken/Royal oak area at:</p> <ul style="list-style-type: none"> <li>• Hwy 1A north of Helmcken ~ 120</li> <li>• Hwy 1 north of Helmcken ~ 90</li> <li>• Galloping goose north of Helmken ~ 350</li> <li>• West Saanich north of Royal Oak ~ 80</li> <li>• Hwy 17 north of Royal Oak ~ 60</li> <li>• Lochside north of Royal Oak - 300</li> </ul> <p>Tillicum Mall at: Primary entrances</p>
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2) Seasonal Tracking Sites – Based on the above list the following sites would be done in January If sufficient volunteers were available (see also Map 2):

<p>CBD Victoria that includes:</p> <ul style="list-style-type: none"> <li>• Bay east of Blanshard ~ 90 (3 to 6pm)</li> <li>• Pandora east of Blanshard ~ 120</li> <li>• Johnson east of Blanshard ~ 130</li> <li>• Yates east of Blanshard ~ 110</li> <li>• Fort east of Blanshard ~ 150</li> <li>• Government north of Bellville ~ 270</li> <li>• Johnson St Bridge ~ 700</li> <li>• Government South of Bay ~ 100</li> <li>• Blanshard south of Bay ~ 150</li> </ul>	<p>UVic area including:</p> <ul style="list-style-type: none"> <li>• Mckenzie</li> <li>• Henderson</li> <li>• Galloping Goose at Switch Bridge ~ 500</li> </ul> <p>Helmcken/Royal oak area at:</p> <ul style="list-style-type: none"> <li>• Galloping goose north of Helmcken ~ 350</li> <li>• Lochside north of Royal Oak - 300</li> </ul>
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## The Results

For the locations sampled, the results are as follows:

**Table 1A On Street Count Data (2 hour period)**

Site	Pedestrians			Cyclists		
	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total
1	57	28	85	41	27	68
2	NA	NA	924	66	NA	66
6	80	69	149	30	26	56
7	195	430	625	33	50	83
8	9	81	90	14	69	83
9	284	177	461	88	8	96
10	57	106	163	48	64	112
11	50	71	121	26	50	76
<b>Totals</b>	<b>732</b>	<b>962</b>	<b>1,694</b>	<b>346</b>	<b>294</b>	<b>640</b>

Sites 1, 2, 6, 7, 9 and 10 are located in or near downtown Victoria. The remaining sites were located in a suburban area near the entrance to the University of Victoria.

**Table 1B Pathway Count Data (2 hour period)**

Site	Pedestrians			Cyclists		
	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total
3	7	12	19	37	82	119
4/5 (Sat)	26	31	56	60	73	133
4/5 (Wed)	30	22	52	108	58	168
<b>Totals</b>	<b>63</b>	<b>65</b>	<b>127</b>	<b>205</b>	<b>213</b>	<b>418</b>

Site 3 is located 4.5 km from downtown in a suburban residential area. Site 4/5 is 3 km from the core of the business district.

A key part of the project included using the “*standardized pathway survey*” form to undertake a field survey at a selected site. The CRD selected site 4 that is located at the junction of two major regional trails. The field survey occurred on a Saturday between the hours of 12 noon and 2 p.m. Weather conditions were good – sunny and cool. Key highlights of the survey are as follows:

**Table 1C Pathway Survey Responses**

Why are you out here?	38% exercise and 35% recreation
How often did you walk or bike in the last month	18% first time, 45% - 5 times or less & 20% daily
Is this pretty consistent for all seasons?	75% yes
Are you a resident, visitor, or employee?	92% resident
How did you get to the path?	85% walked or biked
Reason for using the path?	Multiple reasons (safety and direct access notable)
What would you like improved?	Multiple answers (other was selected the most and included topics such as better lighting, intersection safety and other engineering issues.

### **Comparison with Time-Series Data**

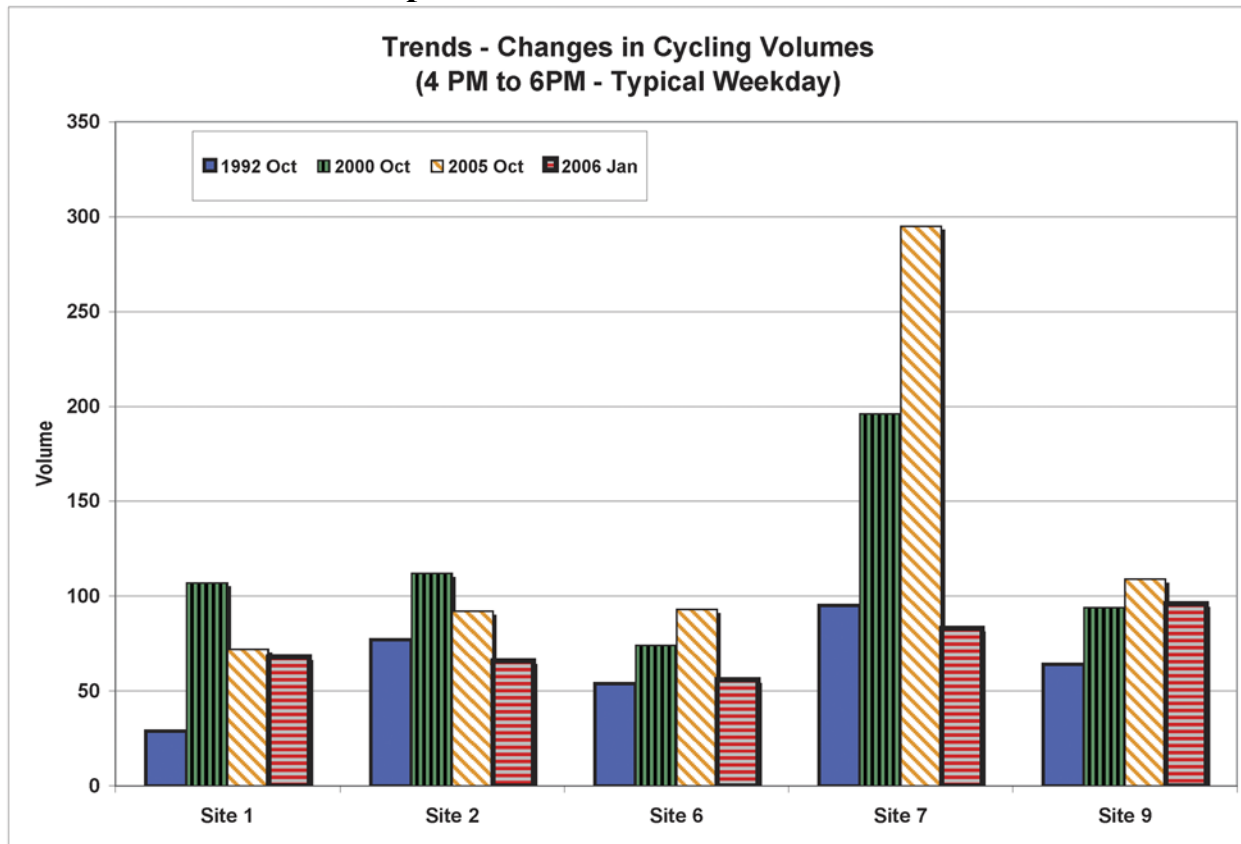
Table 2 compares historic data for five sites that correspond with the sites selected to be part of this Project. Cycling demand has increased significantly over the past 13 years since data was first acquired. Growth in cycling volumes has ranged from 1% per annum to over 15% per annum. For site 1, cycling volumes increase by 150% over the past 13 years. This route includes bike lanes introduced approximately 10 years ago along a major highway (by narrowing existing travel lanes) that link major residential areas with primary employment centres.

Site7 is a route (excludes bikeways) that provides a link to residential areas located close to the downtown core and access to a popular waterfront route to adjoining municipalities.

One observation of the data is the influence of “*weather*” on the amount of cyclists using the road network. Site 7 which is a scenic route saw volumes drop from 150 per hour to less than 35. On the date of the random count, weather conditions included heavy rain and wind. Repeating this key count in spring, summer and fall conditions will provide useful insights to cyclist activity. We also propose to count some sites on both weekdays and weekends (we could only do a weekend interview in January due to lack of illumination at the site for a PM peak survey).

There is no comparable pedestrian data for the sites used in this survey.

**Table 2 Time Series Comparison**



## Conclusions

Our conclusions from this initial survey effort are:

- The use of volunteer staff is practical;
- The training provided was adequate;
- The data collection forms work as expected and provided few problems with coding (CRD staff are familiar with the area and coding requirements);
- The CRD participation in this national survey has produced new and relevant information that will aid the member municipalities in the region with future bicycle and pedestrian strategies; and
- The comparison with data from other areas will be valuable in setting planning targets.

## Guidelines for Further Work

The survey work went very much as planned. Training of volunteers was provided before the surveys although some participants were familiar with traffic survey procedures. One site required set-up of signs advising of the survey (interviews). This was on a trail section so working in traffic was not an issue. Future surveys may require working in or adjacent to moving traffic which will require greater attention to signing and personnel training for safety.

One person was dedicated as Survey Supervisor and checked that personnel were at their locations and did not encounter problems.

The process of encouraging volunteers was hindered by a late start to the project, the Christmas break and January weather conditions. The key to attracting volunteers is probably timing, not too far in advance, but not too late. 4-6 weeks is probably the best time period.

## **Acknowledgments**

We would like to acknowledge the assistance of the **Capital Regional District** and the **City of Victoria** in providing staff support, **TransTech Data Services** for providing traffic signs and the employers of the volunteer staff for donating their time to the project (**CRD, CH2MHill, Richard James & Associates**).

## **Authors**

**Richard James, P. Eng, PTOE**, Richard James & Associates, Victoria, BC,  
E-Mail: raj@rjassociates.ca

**Larry Roberts, A.Sc.T**, Manager, Transportation Planning, Regional Planning Services, Capital Regional District, Victoria BC, E-Mail: lroberts@crd.bc.ca

# STANDARDIZED PATHWAY SURVEY

Directions: Refer to the Standardized Bicycle and Pedestrian Survey Methodology.

“Excuse me, may I ask you a few questions? I’m working for the CRD as part of a national effort to learn why people walk and bicycle where they do. This will take less than one minute and will be completely confidential.”

**Mode:**  
**Bike** ..... **Ped** ..... **Other:** .....

**# in Group::** .....

**Direction:** **E/B** ..... **W/B** ..... **N/B**..... **S/B** .....

**Time Period:** ..... **Seq No:** .....

1. What best describes why you are out here today?

- Exercising
- Going to Work or School
- Shopping/Doing Errands
- Recreation
- Other .....

2. In the past month, about how often have you walked or ridden here?

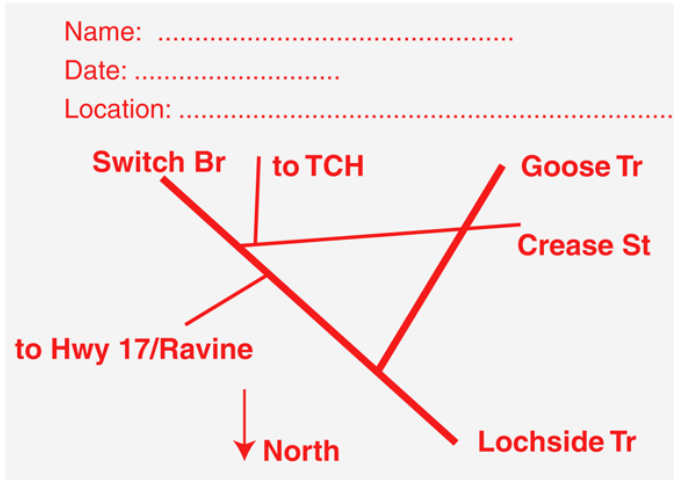
- First time
- 0-5 times
- 6-10 times
- 10-20 times
- Daily

3. Is this pretty constant for the four seasons of the year?

- Yes

If no, what seasons do you come here? .....and how often?

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> Summer      | <input type="checkbox"/> Winter      |
| <input type="checkbox"/> 0-5 times   | <input type="checkbox"/> 0-5 times   |
| <input type="checkbox"/> 6-10 times  | <input type="checkbox"/> 6-10 times  |
| <input type="checkbox"/> 10-20 times | <input type="checkbox"/> 10-20 times |
| <input type="checkbox"/> Daily       | <input type="checkbox"/> Daily       |
| <input type="checkbox"/> Fall        | <input type="checkbox"/> Spring      |
| <input type="checkbox"/> 0-5 times   | <input type="checkbox"/> 0-5 times   |
| <input type="checkbox"/> 6-10 times  | <input type="checkbox"/> 6-10 times  |
| <input type="checkbox"/> 10-20 times | <input type="checkbox"/> 10-20 times |
| <input type="checkbox"/> Daily       | <input type="checkbox"/> Daily       |



4. How would you describe yourself? (read list)

- Local Resident
- Local Employee
- Local Visitor (Van Isl)
- Visitor from outside region (not Van Isl)

5. How did you get to the path today?

- Drove
- Walked or biked
- Transit

6. Why are you using this path as opposed to walking/riding somewhere else?

- Accessible/close
- Direct/good connections
- Safer than using roads
- Scenic qualities
- Flat
- Length
- Other .....

7. What would you like to see improved?

- Make it longer
- Better access
- More parking: car\_\_\_ bike\_\_\_
- Drinking fountain
- Restroom
- Lower bike speeds
- Fewer pedestrians
- Better Surface
- Better Safety
- Other .....

Thank you for your help with this survey.