Cycling in Greater Vernon: The Road Ahead

Results of a survey of cyclists' perceptions and suggestionsFinal report presented to the Greater Vernon Cycling Advisory Committee and the Transportation Demand Management Committee, June 2010

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(photo credit: Bruce Mol)

'Segregation of bikes and motorized (vehicles) must always be at the discretion of the cyclists. There are too many different types of cyclists to force them all into a bike path, even though such paths are great.' (Survey respondent, 2009)

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Abstract

This paper was created to evaluate the perceptions and suggestions of cyclists in Greater Vernon, British Columbia, in order to develop recommendations on how local government and other stakeholders might better encourage and support cycling. The main information used in this report comes from a survey involving 142 volunteer participants who were drawn predominantly from the fitness and recreation cycling community. Survey participants were asked to comment on whether they feel cycling in Greater Vernon is safe and/or convenient, what improvements they would like to see to the cycling programs (e.g. safety training) and facilities (e.g. bike lanes/paths and other infrastructure) offered in the area, and what would encourage them to cycle more, including specific concerns related to children cycling. Findings indicate that cyclists do not feel cycling is safe (or to a lesser extent, convenient) in Greater Vernon for themselves or for their children. To combat this, cyclists emphasized that they want to see designated bike lanes on both main and side roads as well as separate (off-road) bike paths, in order to serve the different priorities of experienced and inexperienced cyclists. Cyclists also expressed a desire to balance the needs of fitness and recreation cyclists through routes to parks, beaches, and popular countryside areas with the needs of commuter cyclists through better connectivity within and between neighbourhood commuting routes. More frequent clearing of road debris, safety training programs for cyclists (young and old) and drivers, controlled signalized crossings and bike lockers in key locations are also considered important for encouraging cyclists to bicycle more frequently.

Introduction

Greater Vernon, in the Okanagan Valley of British Columbia, Canada, includes the City of Vernon, the District of Coldstream, and Electoral Areas 'B' and 'C' (Figure 1). There are over 46,000 residents (Statistics Canada, 2006).

Figure 1. Map showing the location of Greater Vernon in British Columbia, Canada.

Like many urban areas in North America, Greater Vernon is almost exclusively dependent upon single occupancy private vehicles. 81% of daily commuters choose personal private transportation as their main source of transportation (Figure 2), with far fewer people walking and cycling (8.9%), using public transit (0.8%) or sharing a car with someone else (12.5%). Recently, the City of Vernon has started to intensively encourage

alternative modes of transportation, including cycling, though a strategy called Transportation Demand Management (TDM). The City's Official Community Plan (OCP) embraces TDM values and objectives, and emphasizes the importance of raising awareness of bicycle safety issues for bicyclists as well as motorists (Vernon OCP – TDM Strategy, 2008). Cycling trips presently account for 1% of all trips in Vernon (Statistics Canada, 2006), and the city would like to increase this amount to 5% by 2030 to lessen the public's dependency on single occupancy private transportation (Vernon OCP – TDM Strategy, 2008). This report presents the views of Greater Vernon's cyclists, a group of transportation users whose voices have in recent times tended to be disregarded due to their relatively low numbers, but who need to be heard if the City's TDM objectives are to be reached.

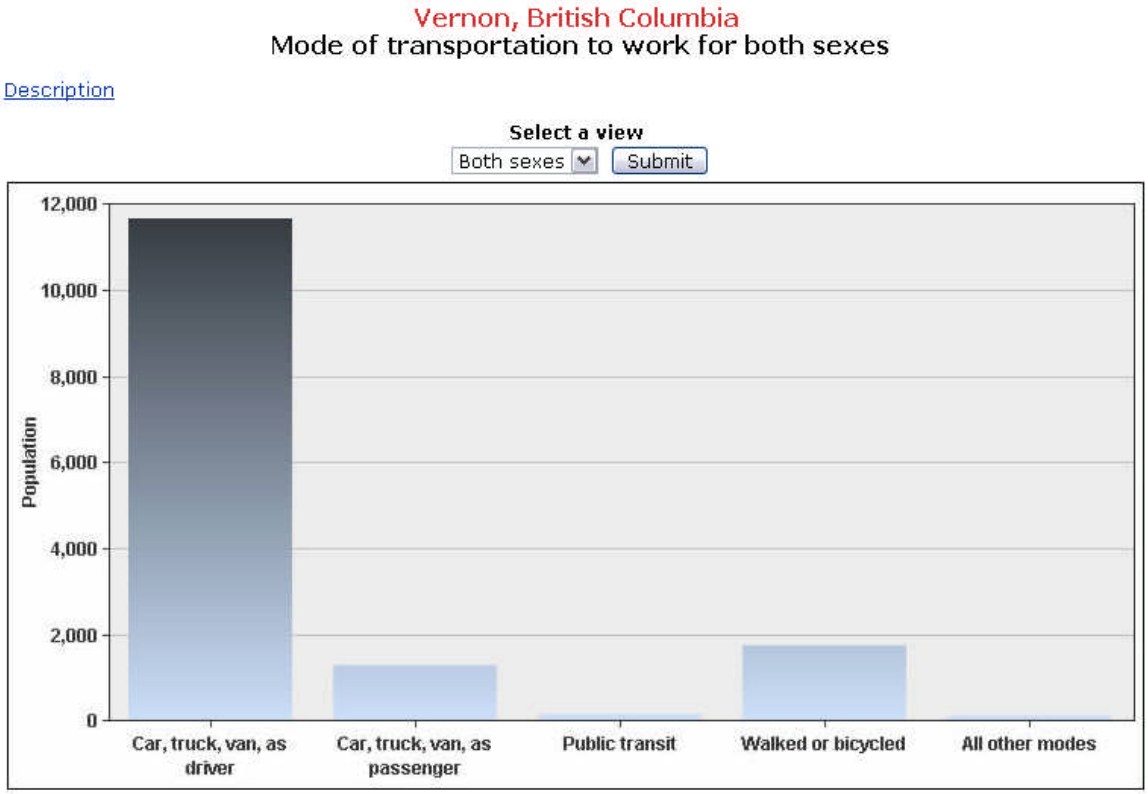

Figure 2. Mode of Transportation, *Community Profiles: Vernon, British Columbia* (Census Canada 2006). Retrieved from http://www12.statcan.ca/census-recensement/2006/ on 16 March, 2010.

As mentioned above, Transportation Demand Management (TDM) strategies are being implemented in the Official Community Plan (OCP) of Vernon as well as many other communities across British Columbia. TDM encourages the use of more efficient transportation options such as cycling, walking, transit, and carpooling over the use of single occupancy vehicles (Litman, 2003). This is achieved through providing incentives for users who choose the more efficient modes of transportation (Lim, 1998).

There are two main differences between TDM and more conventional transportation designs. Firstly, while conventional transportation aims at objectives such as moving private vehicles efficiently through and around town; TDM is more directed at achieving the benefits of choosing other modes of transportation. These benefits include but are not limited to cost savings, reduced crashes, cash incentives, healthier lifestyle, and reduced pollution emissions (Litman, 2003). Secondly, conventional transportation strategy is developed to support transportation patterns as they currently exist, or as they are projected to be if current trends continue, mainly through infrastructure planning. In contrast, a TDM strategy is developed to shift the attitudes and behaviors of commuters in order to create new transportation patterns. Thus, it is an attempt to understand and manipulate where, why, and how people travel from location to destination – in other words, to manage the 'demand' for transportation through public awareness and education as well as changes in infrastructure and other facilities rather than simply 'supply' the infrastructure to meet existing demand (Wachs, 1991).

It is sometimes argued that TDM does little to influence a person's choice in mode of transportation (Kennedy, 2002). Kennedy argues that compared to the bicycle, the automobile's benefits of speed and ease of access to desired destinations still outweigh its greater cost in the eyes of many commuters, mainly due to the low density of most Canadian cities, which make alternative options less convenient (Kennedy, 2002). However, Condon and Isaac; and Pucher and Buehler argue that the social and environmental costs of automobiles in terms of increased accidents, congestion and emissions outstrip these advantages (Condon & Isaac, 1999; Pucher and Buehler, 2008a).

Wachs has shown that TDM strategies can change the perception of travel time, travel cost, and travel distance to such a degree that it influences commuters' modes of transportation (Wachs, 1991). Canadian communities that have adopted TDM have experienced as much as a 93% increase in cycling trips (Transport Canada, 2010).

In general, the two main concerns identified by cyclists in studies done in cities in the USA and Brazil are safety and efficiency in moving from origin to destination (Sirkis, 2000; Pucher & Buehler, 2008b). There has been much debate concerning which of these two concerns should be more of a priority when adapting public roads to encourage cycling (Pucher & Buehler, 2008b). Up until the year 1998, cycling advocacy in North America has focused on safety priorities by building bike paths and vehicle lanes that were separated from each other (Pucher, Komanoff, & Schimek, 1999). However, it is now commonly understood that multi-use roads that include private vehicles and cyclists are much more effective at transporting citizens to their destination (Sirkis, 2000). In Europe and some of the large urban areas of North America such as Portland and New York City these issues are now being addressed (Kennedy, 2002) through intersection modification, traffic calming devices, and bike parking (Tilahun, Levinson, & Krizek, 2007; Hunt & Abraham, 2007). Sirkis (2000) However, cyclists in these places, regardless of the type of road upgrade, continue to have concerns about safety (Sirkis, 2000).

A 2006 survey of cyclists carried out by the University of British Columbia's Cycling in Cities Research Team of Metro Vancouver (http://www.cher.ubc.ca/cyclingincities/survey.html) found that the three most popular

out of sixteen possible route types for all levels of cyclists, from inexperienced to experienced, were:

1. Paved off-street paths for cyclists only,
2. Residential streets designated for cycling & with traffic calming, and
3. Paths next to major streets separated from motor vehicles by a curb or other barrier.

Route design features that were considered to encourage cycling included: cycling routes away from traffic and noise pollution, near beautiful scenery, separated from heavy and high-speed traffic, with minimum slopes and distances, and with smooth, non-slip surfaces clear of debris. Other features that encouraged cycling were: good lighting, lanes marked with reflective paint, safe indoor bike storage, and the option to take bikes on transit.

This paper addresses the concerns of cyclists in the Greater Vernon area related to the safety and convenience of cycling, and summarizes their suggestions for improvements to safety education programs and cycling facilities in order to encourage people, including children, to cycle more. In doing so, it shows the way forward to achieving the objectives of TDM for one important form of alternative transportation - bicycling.

Methods

This paper describes the results of a survey designed by graduate student Patrick Allen of the University of British Columbia Okanagan (UBCO). The survey was confined to Greater Vernon, with most of the responses from the two major urban areas, Coldstream and Vernon, and took place from May to December, 2009.

Survey questions can be grouped into the following four categories (see sample survey in Appendix A):

1. *Information about the respondents* themselves, such as their main reasons for cycling, kilometers cycled per average week, age group and home neighbourhood;
2. *Perceptions related to cycling safety and convenience*;
3. *Specific suggestions related to cycling programs and facilities*, such as cycling safety training and education programs, and improvements to facilities such as bike lanes (on all, main or side roads) and separate bike paths, as well as signalized crossings, cycling route maps posted on signage and bicycle lockers; and
4. *Overall suggestions on what would encourage respondents to cycle more*, including those related to children cycling locally.

The survey was set up online using the freeware services provided by surveymonkey.com. The online survey was then linked from the City of Vernon website and also promoted through emails to community members and cycling networks throughout Greater Vernon such as members of a cycling advocacy group (the Greater Vernon Cycling Advisory Committee (GVCAC)), a triathlon club (the Kalamalka Running and Triathlon Sports (Kal RATS)), and a mountain biking group (the North Okanagan Cycling Society (NOCS)), and their respective social networks. A paper version of the survey was also passed around at meetings of the above groups, and was available at booths during various Environment Week activities at the end of May of 2009. Due to the way in which this survey

was promoted, the respondents are clearly not randomly selected from the larger Vernon population, and so the results discussed below must be assumed mostly to represent people with a higher-than-average interest in cycling issues.

Due to Patrick Allen having to be away from Vernon for an extended period of time, Mary Stockdale, Adjunct Professor in Geography at UBCO, and member of the GVCAC, took on the responsibility of steering the process of compiling, analyzing and reporting on the survey results. Together with Katimavik volunteers, she completed an initial coding and compilation of the data. Aaron Leckie, 4th year student at UBC O, then took on the task of analysing and reporting on these results as an assignment for a Geography course he was taking with Dr. Stockdale.

The survey data permits some simple quantitative analysis, but only a qualitative methodology that also examines the comments made by individual respondents can fully understand the views and perceptions of individual cyclists. This is because a lot of the most valuable explanations and suggestions are found in the 'other comments' boxes attached to the survey questions.

Discussion

The discussion below is divided into four sub-sections: discussion of the nature of the individuals that participated in the survey, respondents' perceptions related to the safety and convenience of cycling, their suggestions regarding bike facilities (i.e. lanes, paths, crossings, route signs, lockers, etc) available to cyclists in Greater Vernon, and their

suggestions regarding what is most needed to encourage people, including children, to cycle more. This report will conclude with a summary of the recommendations for improving the cycling experience in Greater Vernon.

Who were the survey participants?

As stated earlier, participants were to some extent self-selected after being contacted through the social networks of various cycling advocacy groups, and can be assumed to have a higher than average interest and awareness of cycling issues. The survey results (Figure 3) support this assumption in showing that most of the respondents (80%) cycle either daily or weekly for 'fitness and recreation', although it is interesting to note that far fewer respondents cycle daily or weekly for other purposes such as 'commuting to work' (49%), 'shopping and other errands' (40%), or 'commuting to school and college' (17%).

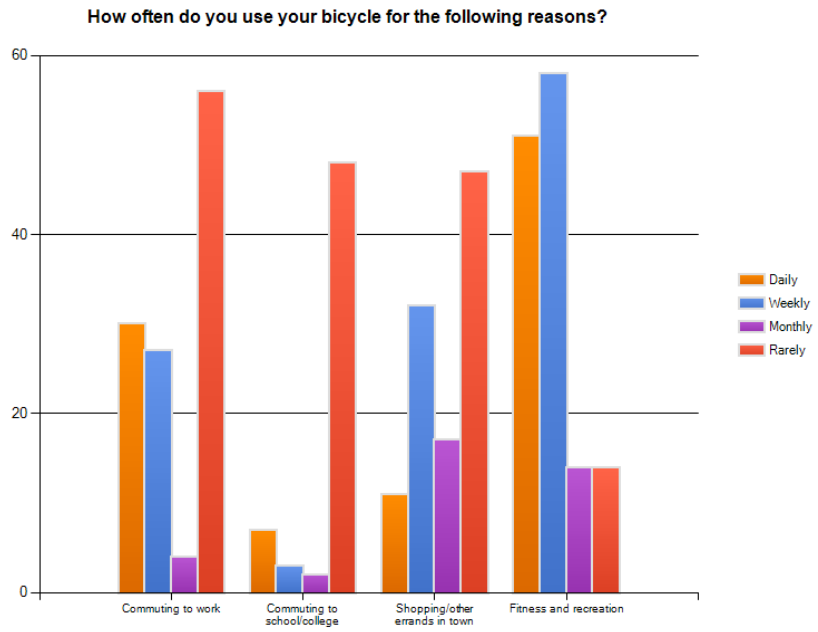

Figure 3. Number of respondents who bicycle for different purposes, and the frequencies at which they do so.

Looking at inter-relationships between the data in more depth, the respondents can be separated out into three main clusters, based on their purpose and frequency of cycling:

1. The largest group includes the many frequent (daily or weekly) fitness and recreation cyclists who were also frequent commuters for work, shopping/errands and school/college purposes.
2. The next largest cluster of respondents includes the many frequent (daily or weekly) fitness and recreation cyclists who rarely cycled for commuting purposes (work, shopping/errands or school/college).
3. The third largest cluster of respondents rarely cycled for all purposes.

Interestingly, there were very few frequent commuters who rarely cycled for fitness and recreational purposes – unlike the commuter cyclists common in larger cities such as Vancouver or Victoria.

When these data are examined in conjunction with the average distances that cyclists bicycle per week (Figure 4), the main trend is that no matter what the purpose was for cycling, the cyclists who cycle frequently (daily or weekly) tend to cycle longer distances of 25 or more km per week, whereas those who cycle rarely seem to travel shorter distances of between 1-5 km per week. Relatively few cyclists cycle between 5 and 25 km per week.

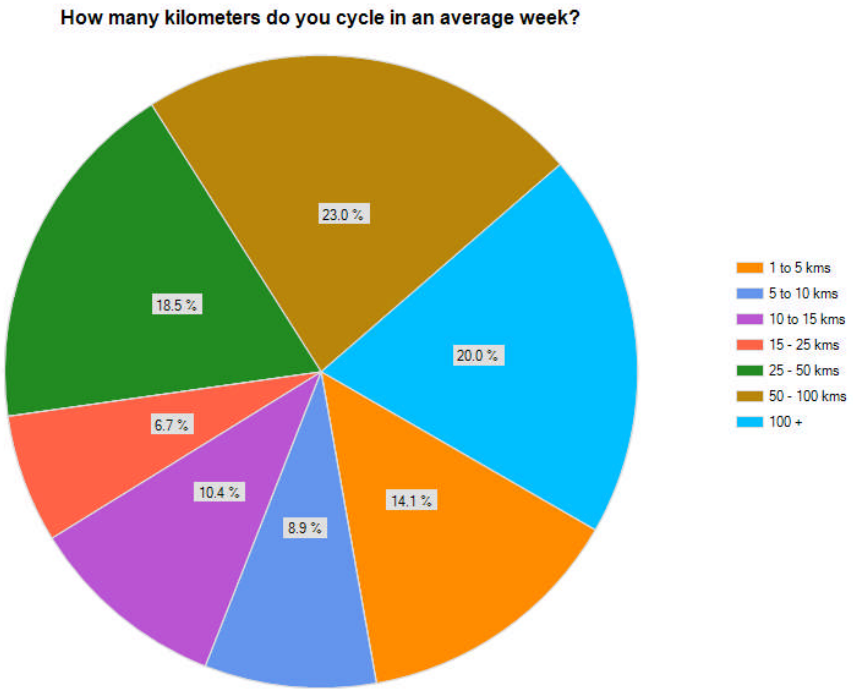

Figure 4. Percentage of respondents who cycle each average weekly distance ranges.

Another interesting attribute of the respondents is what part of Greater Vernon they live in. The data show that the largest number of respondents come from Coldstream (31%), followed by East Hill (24%), Okanagan Landing (13%), and BX (10%). The location of respondents did not appear to have much influence over their purposes or frequencies of cycling, nor in the distances cycled.

Finally, looking at the age of respondents, by far the largest number of respondents (84%) were in the 30-59 age group. This is likely partly because this age group spans many more years than the other age groups, which were 13-19 (6%), 20-29 (4%), and 60+ (6%), as well as partly due to the types of networks contacted.

Perceptions of cycling safety and convenience

When participants were asked if they have safe and/or convenient access to work, school/college, retail and other services, and parks and green spaces, most respondents indicated that they do 'not at all' have safe or convenient access to any of these destinations (Figure 5). The next most popular response was 'convenient', followed by 'safe and convenient', with the lowest number of respondents labeling these destinations as 'safe'.

Grouping 'not at all' and 'convenient' responses together indicates that a very large majority of respondents do not feel they have safe access, whether it is to retail and other services (79.0% of respondents), school/college (73.8%), work (68.4%) or parks/green spaces (61.4%). As one participant says "I don't cycle… I would love to; but it is not safe enough, vehicles do not respect people on bikes."

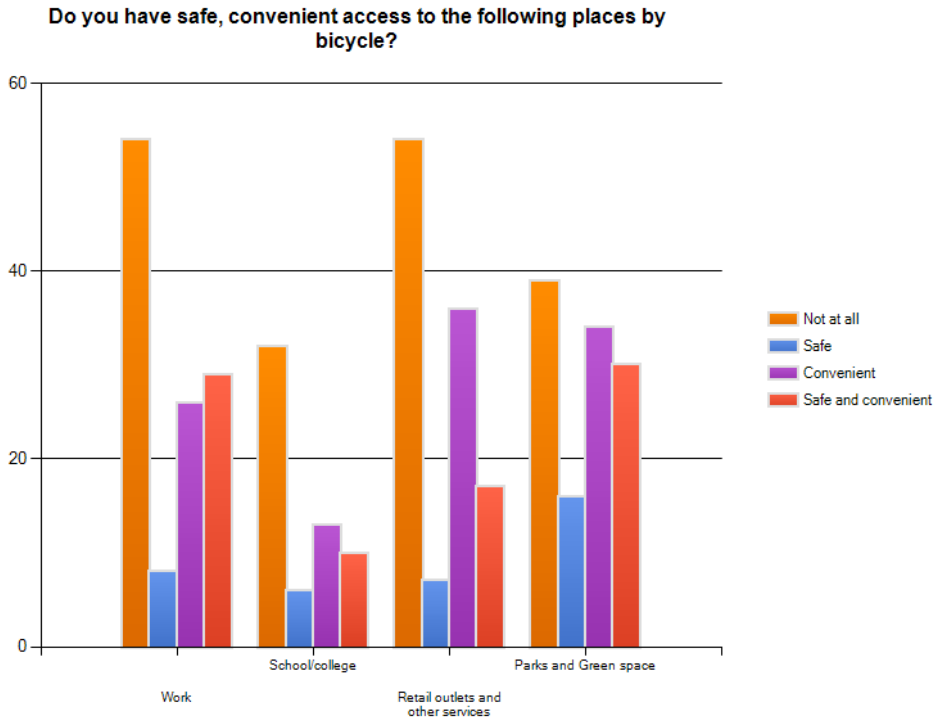

Figure 5. Number of respondents who find access to work, school/college, retail outlets or parks and green spaces destinations safe and/or convenient.

One interesting result is that the majority of cyclists who commute to work daily find that access to their work destination is both 'safe and convenient', although such a positive response was not found for people who cycle daily to shop/run errands, to school/college or for fitness and recreation in relation to their presumed favorite destinations of retail and other services, school/college and parks and green space, respectively.

Suggestions related to cycling programs and facilities

When asked about cycling training and education programs, a minority of respondents (37%) responded that they would like access to such programs, and most of these were willing to pay a small fee to cover the costs. However the majority (63%) were not interested in such training. Several suggested that drivers needed more training than cyclists.

When respondents were asked about their preferences for bike lane and path improvements, there were some interesting results. The lane and path choices presented to them included: bike lanes on all streets, bike lanes on side streets linking key destinations, bike lanes on main connector streets, bike lanes on main connector streets with a wide curb lane shared with cars, and separate bike lanes (Figure 6).

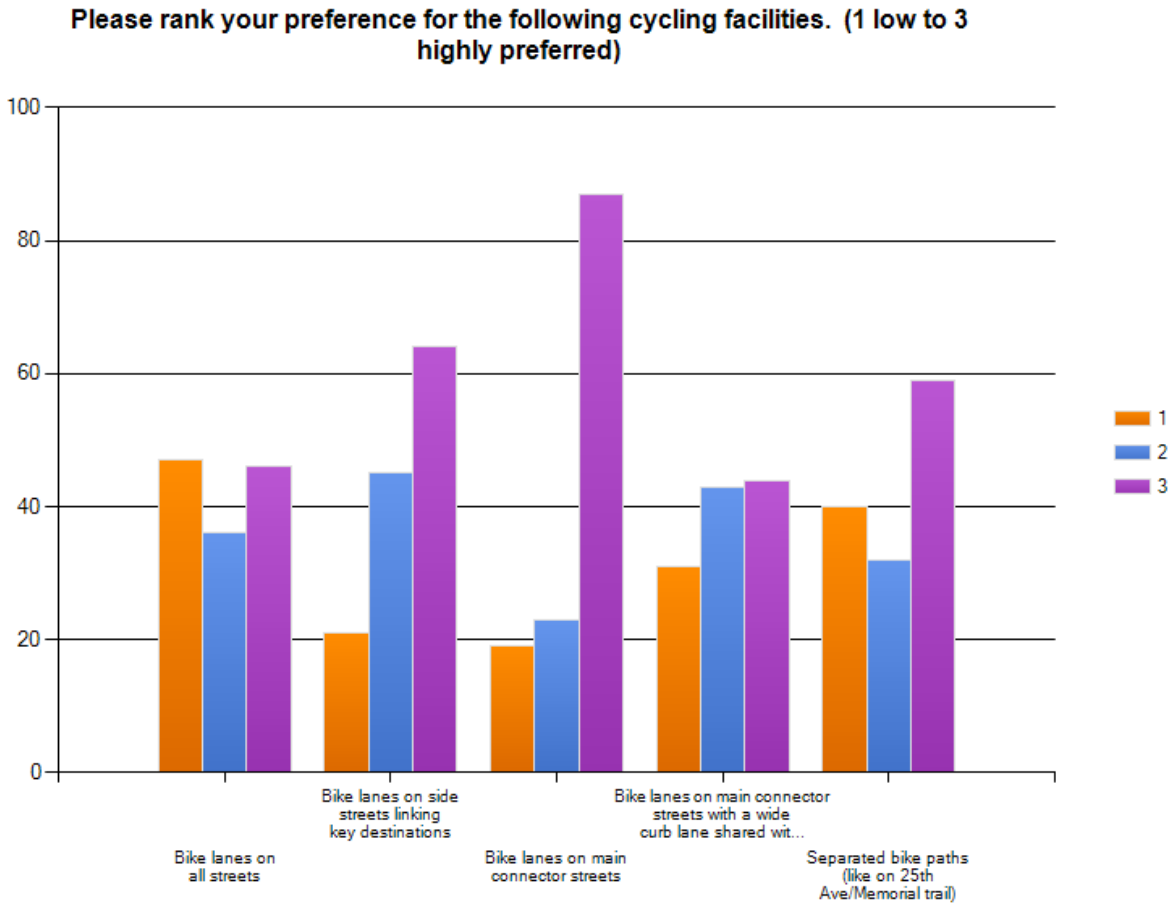

Figure 6. Number of cyclists who ranked each of the above bike lane/bike path options from 1 (low preference) to 3 (high preference)

Cyclists do not appear to view bike lanes on all streets as desirable for the Greater Vernon area, as this was by far their least favorite of the options presented (Figure 6). They also did not seem to favor bike lanes on main connector streets with a wide curb lane shared with cars, but this may be because they did not understand what this option entailed, as the survey did not explain this option in any detail. Instead, the order of

preference was as follows: bike lanes on main connector streets (67% gave it the highest ranking), bike lanes on side streets (50%) and separated bike paths (45%).

Table 1 shows ranked lists of most frequently used as well as top priority bike routes.

Table 1. 'Most frequently used' and 'top priority' cycling routes, ranked in order of the number of respondents who mentioned them

Most frequently used cycling routes	*# of respondents*	*Top priority cycling routes*	*# of respondents*
Kalamalka Rd	32	Kalamalka Rd	38
Pleasant Valley Rd	23	Pleasant Valley Rd	31
Hwy 97	19	Hwy 6	23
Hwy 6	16	Hwy 97	23
Okanagan Landing Rd	13	27th St	22
32nd Ave	12	Old Kamloops Rd	19
25th Ave	11	Bella Vista Rd	14
27th St	10	Okanagan Landing Rd	13
15th St	8	Downtown Streets	12
Silver Star Rd	7	Silver Star Rd	9
Bella Vista Rd	7	Kidston Rd	9
Middleton Way	6	15th St	8
39th Ave	6	Polson Park to Kalamalka Rd	6
Path through Polson Park	6	Hospital Hill	6
Hospital Hill	5	East Side Rd	6
30th Ave	4	25th Ave	5
Old Kamloops Rd	4	Middleton Way	5
25th St	4	Okanagan College	5
East Side Rd	4	Tronson Rd	5

The top four frequently used routes were Kalamalka Rd (Google Maps show it as two separate roads: Kalamalka Lake Road and Kalamalka Road, but Vernon and North Okanagan Map Book and Visitor Planner show it all as Kalamalka Road; in this report we have grouped both road names together due to apparent confusion over names amongst

respondents), Pleasant Valley Rd, and Highways 6 and 97. These four routes maintained the same order of ranking for priority for improvement.

It is interesting to note where the rankings of most frequently used cycling routes diverge the most from those considered top priority for improvement. Some frequently used routes, such as 25th Ave and Okanagan Landing Rd (separate bike paths now on all or part of these roads), or Middleton Way and 32nd Ave (recently done or redone with a good bike lanes), were a relatively low priority for improvement, probably because they have already been greatly improved for cyclists' use.

Other frequently used routes were a relatively high priority for improvement, including 27th St, Old Kamloops Rd, Bella Vista Rd, East Side Rd and Kidston Road. 'Downtown streets' also appeared on the 'top priorities' list although they hadn't been noted as frequently used.

Table 2, below, summarizes the main complaints about each of these 'top priority' roads.

Table 2. Summary of the main concerns noted for the top priority routes in Greater Vernon

Rank	*Route*	*Main barriers/suggestions*
1	Kalamalka Rd	Busy, debris on road, and lacking bike lanes. N of golf course to downtown is bad: the four car lanes leave no lanes for cyclists. From Aberdeen Rd to Coldstream Ranch, road needs widening and new bike lanes.
2	Pleasant Valley Rd	Potholes, broken pavement, glass, and sharp rocks on road; too narrow, no shoulder, incomplete bike lanes. Needs to be wider and with a bike lane from Silver Star Rd North to Hwy 97 near Swan Lake (or even to water park!); 48 Ave to 32 Ave also needs work.

3	Hwy 6	Needs safe shoulders, there are also gravel, potholes and cracks in pavement. Very dangerous intersection from Hwy 6 right on to 27th St: minimal lane, narrow, poor visibility for cars to see cyclists. Very dangerous E of railway crossing at Coldstream Ranch; no safe lanes, potholes to Lavington; after Lavington, needs wider shoulder paving to Whitevale Rd or beyond.
4	Hwy 97	Lots of debris on road (gravel, glass, rocks), little or no shoulders in places. Shoulder is nice and wide N of town, but road is very congested (traffic) in town near London Drugs, also needs work to the S (see comments for Hospital Hill).
5	27th St	Minimal shoulder, poor pavement, rough, with holes and with the gratings aligned in the wrong direction; no bike lane in S end from Catholic church to 32nd Ave.
6	Old Kamloops Rd	'Scary', 'incredibly dangerous' and 'only a matter of time before a cyclist is hit'; no shoulders let alone bike lanes, needs lower speed limits for cars, road also needs repair.
7	Bella Vista Rd	The cycle lane is great but it ends, other places have no bike lanes, narrow shoulders shared with pedestrians, and dangerous traffic (speedy). Needs paved shoulders from Allenby to Crosby.
8	Okanagan Landing Rd	'Bike path is fantastic', but others say bike path switches from side to side, crossing over road carries risk each time; on other (non bike path) part of road: narrow lanes, poor visibility, needs designated crosswalk at Marshall Fields.
9	Downtown streets	High traffic, narrow bike lanes, sometimes no bike lanes. Need to enhance connectivity between major routes: for example from 25th Ave to Beairsto school, from East Hill to Polson Park, from 32nd Ave to path to Okanagan College.
10	Silver Star Rd	Narrow, speeding drivers; needs a shoulder and a bike lane, also a bus to Foothills with a bike carrier.
11	Kidston Rd	Narrow road out to Kalamalka Provincial Park.
12	15th St	Parked cars in the bike lane is the biggest problem here, road needs 'no parking' signs, some gravel on road, need to extend lane past Pottery Rd on to Middleton.
13	Polson Park to Kalamalka Rd	Better bike lane plan/safer corridor through Polson Park and on to Kalamalka Road. Difficult to cross traffic to Kalamalka Rd.
14	Hospital Hill's Hwy 97	'Hospital is a large employer, many workers would like to cycle but concerned about safety'. Hwy 97 on hill needs bike lanes both sides; needs a controlled crossing over the road at hospital; road is rough, has potholes.
15	East Side Rd	'Scary', 'dangerous'; narrow road, needs a bike lane.

16	25th Ave	'Love the bike path!' But, into town, there isn't even a bike lane, no way to get safely to Kalamalka Rd or Pleasant Valley Rd.
17	Middleton Way	No comments
18	Okanagan College	No comments
19	Tronson Rd	'I like to bike on Tronson Road beside Okanagan Lake which is beautiful but very dangerous with no shoulder and some vehicles not respecting cycling'.

It is not surprising, given their relatively high fitness/recreation orientation, that many respondents emphasized the need for routes that enable them to get out of Vernon city centre to the countryside (e.g out Old Kamloops or Pleasant Valley/Hwy 97 to Armstrong area, out Kalamalka Rd or Hwy 6 to Lavington/Lumby area), or to parks and beaches (out Kalamalka/Kidston Rds to Kalamalka Provincial Park, or Okanagan Landing/East Side Rds to Ellison Park, or Tronson/Bella Vista Rds to Kin Beach). Mainly these routes involve the use of main connector roads (e.g. Hwy 97, Hwy 6, 27th St, 32nd Ave, 39th Ave, Okanagan Landing Road, 25th Ave, Bella Vista Rd, Kalamalka Road, Silver Star Road), although they also mentioned some slightly safer, but still large, side roads (e.g. Pleasant Valley Rd, Old Kamloops Road, 25th St, 15th St). Fitness and recreational cyclists are likely to be experienced and confident about cycling on the main roads, where they can move quickly and with fewer stop signals, even through the safety might be lower for cycle/vehicle conflicts. This might explain why they ranked bike lanes on the main roads as their highest preference, preferable to bike lanes on the side roads or separate bike paths (the opposite order of preference to the Metro Vancouver cyclist survey referred to in the Introduction: http://www.cher.ubc.ca/cyclingincities/survey.html).

Many of the top priority cycling routes indicated by the participants do not have complete bike lanes or even bike lanes at all. One participant stated *"[he] understands Vernon's attempt at creating cycling routes, [but does] not understand why many of the connector routes do not have bike paths or lanes.*" For example, Kalamalka Rd was shown to have the highest user rate, yet not all of Kalamalka Rd has a bike lane or path. The same is true of the other top priority routes: Pleasant Valley Rd and Hwys 97 and 6. Some other routes stand out as being particularly problematic. Old Kamloops Road was considered very dangerous by a number of respondents. One participant stated "*cycling on Old Kamloops Road is dangerous without a bike lane, but the only other option is the highways so [she] takes Old Kamloops Road."*

Although there was a 'recreation and fitness' bias to many of the routes chosen, the respondents also emphasized some routes that were important for commuting purposes, such as downtown streets, Hospital Hill, Okanagan College, etc. The proposed N-S route through downtown, mainly along 29 St within town, moving on to 31a St at the N end of downtown, should help to make it easier for cyclists to move through the downtown streets area. Many cyclists are calling for bike lanes to be constructed from the intersection of 25th Ave and Highway 97 to the hospital, saying that driver awareness of cyclists is a major problem in this section of the highway. Participants also mentioned the difficulty of getting from Coldstream and the East Hill to the hospital. The Hospital Hill road is "dangerous" and "full of pot holes" and "drivers who do not respect cyclists." Some possible solutions to this problem would be to build a bike path up the back of Hospital Hill through Polson Park from Kalamalka Road, or up 34th St with a pedestrian/cyclist controlled

crossing of Hwy 97 at 21st Ave. Respondents indicate that many more workers at the hospital would be willing to cycle to work if the route was safer.

Many participants also indicated a need for more separate bike paths like that along 25th Avenue. One popular idea was to build an outer loop around Vernon by connecting the Grey Canal segments: '*We need Vernon to embrace a trail system to circumnavigate the city for the sheer joy of riding. As well this route can form the junction for trail heads to leave off of; tourists would love this and locals will use it with families and individually for commuting and recreation*.'

Other respondents asked for separated bike paths to connect cyclists to 'all the major attractions', such as the parks and beaches (eg. Kal Park, Ellison Park, Paddlewheel Park, Polson Park, Kal Lake Beach, Kin Beach). One idea was to connect Polson Park to Kalamalka Lake by a bike path, perhaps along the side of the railway. Other suggested that the path be extended to follow the railway through town, to make a safe and convenient N-S corridor for cyclists, with cycling connections into each of the central residential neighbourhoods and commercial zones. Building a trail in this location would provide an important, safe, and convenient corridor for cyclists. Still others wanted 'rails with trails to extend south to Oyama or north to Armstrong. 'Rails with trails' (for active railways) and rails to trails (for abandoned railways) programs have been extremely successful in other parts of British Columbia such as Kettle Valley in Kelowna or Lake Cowichan in Victoria.

Figure 7 shows respondents' preferences for other types of cycling facilities. Bicycle lockers at main transportation hubs were more favorably viewed than the other two

options of dedicated signalized crossing and bike route signage. Some key locations for safe cycle parking suggested by the participants include downtown, the malls, the city hall/library area, all parks and beaches, the Recreation Centre/Performing Arts Centre, the Jubilee Hospital, and the bus terminal area at Coldstream Ave.

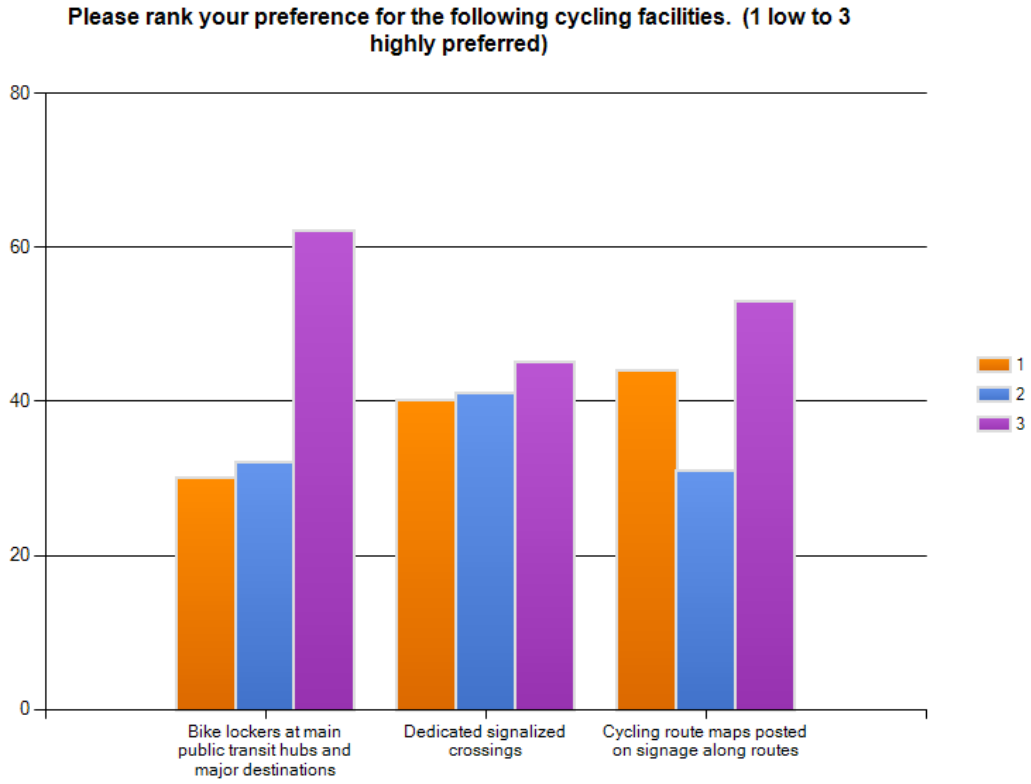

Figure 7. Number of cyclists who ranked each of the above options from 1 (low preference) to 3 (high preference)

One good location for a bike locker would be at the downtown bus loop, to service bus commuters going to Okanagan College at the southern end of Vernon or the University of British Columbia Okanagan in Kelowna. One participant indicated that he "*rides the bus to UBC-O and there is nowhere to store [his] bike at the bus loop downtown. [He] knows of several people who do not ride to the bus because of this*." Another suggestion was to '*require*

malls to put in modern bike stands in high visibility locations to lock your bike to'. Johnson (2007) has written an excellent report on the results of a survey in Greater Vernon related to bicycle security issues specifically.

There were also several favourable comments regarding dedicated signalized crossings, with locations mentioned, such as the intersection of Hwy 97 and 35th Ave (used for accessing the recreation complex), and on Okanagan Landing Road for crossing over to Marshall Fields.

Encouraging people, including children, to cycle more

Table 3 summarizes the replies of people who cycle 'rarely or not at all' in answer to the question 'what would encourage you to cycle more or start cycling?'

Table 3. Ranked summary of answers to ' What would encourage you to cycle more or start cycling?'

Solutions	*# Respondents*
More bike paths away from the roads	25
More bike lanes/routes	12
A place to lock bike	9
Safer bike lanes	8
More awareness from drivers	7
Cleaner bike paths/lanes, no gravel and stones	7
Continuous bike lanes	4
Fewer hills	4
More interconnected routes	4
Wider shoulders on highway/road	3
Showers at work	3
If I could have an electric bike	3
Bike lanes on side roads	3
Wider bike lanes	3

It is interesting to see that people who cycle rarely or not at all are much more interested in bike paths away from the roads (Table 3) than the more experienced, frequently-cycling 'fitness and recreation' cyclists who appear to prefer bike lanes over separated bike paths (Figure 6). These results are an important consideration when determining how best to encourage those who do not currently cycle to start.

When asked about their concerns about their children cycling locally, respondents showed low confidence in their children's safety on the roads. Their concerns, in order of how often they were mentioned, included: missing, discontinuous, narrow or unsafe bike lanes on the road-sides; lack of safe cycling paths away from the roads; fast, unaware or unsafe drivers; too much traffic; and debris such as stones, glass or gravel on the pavement. These concerns are remarkably similar to those of the adult respondents who cycle rarely, listed in Table 3.

Although the majority of criticism in terms of safety awareness was for the car drivers, one parent noted: '*I see a lot of children (and adults) riding their bikes on the left hand side of the road. I would like to see more education on bike riding in the schools. I think parents should also attend with their children.'* A better driver awareness program and a cycling education program at the elementary school level would build confidence in parents and the abilities of their children's, and increase the use of cycling paths and lanes near elementary schools. Given these concerns, the pilot project on bicycle safety for school children, currently being run in three schools (with three more scheduled to begin in the fall) by TDM staff in the City of Vernon, is a giant step in the right direction.

Here are some comments about children's safety and bike lane/path infrastructure:

'Safety of routes to and from school - neighbourhoods should be designed with safe bike routes that offer shortcuts through rights of way, for easy cycling and walking that shortens the route that would have been taken by car. The bike lanes are dangerous on busy roads, particularly for cars turning and not checking the bike lane first. A painted line is not a safe enough barrier between bikes and cars - biker will always lose in an accident. Consider cement barriers to provide some level of comfort for bikers and you would probably see more people using the lanes.'

'Safety: integrating with motorists is risky and children are not aware of consequences when a mistake is made with a vehicle; Vernon needs cycling routes that are through neighbourhoods rather than cycling lanes on thoroughfares (Victoria does a good job selecting neighbourhood routes that parallel main roads).'

'There are not enough safe areas for children to cycle. A narrow lane, beside busy traffic, with no barricade between the cycle lane and the traffic, is too risky for kids. Additionally, there is often too much gravel on the cycle lanes, often due to road construction, and this makes it tricky for them to ride and stop safely.'

'The drivers scare me! Kids need safe, off-road routes for them to practice riding, pick up their skills and courage; they also need safe places to cross busy roads - e.g. more pedestrian crossings...'

'Too scared to take my children cycling unless there is a separate path as many drivers have poor awareness for cyclists, especially small ones.'

It is interesting that infrequent adult cyclists and parents of children cyclists both agree that separated bike paths and bike lanes on side streets are preferable to bike lanes on main streets, due to safety considerations, as opposed to frequent adult cyclists, who prefer the convenience and efficiency of bike lanes on main roads. The final word on this issue goes to an experienced (frequent) cyclist from Greater Vernon, who says: '*segregation of bikes and motorized must always be at the discretion of the cyclist. There are too many different types of cyclists to force them all into a bike path, even though such paths are great.'*

Conclusions

The goal of this report was to provide information that can be used by local government and other stakeholders in the Greater Vernon area to understand and act upon the perceptions and suggestions of the cyclists of Greater Vernon. Survey respondents, even though many of them cycle frequently, see cycling in Greater Vernon as unsafe. A participant stated that "roads are contentious" as various user groups compete for limited road space. To combat this, cyclists emphasized that they want to see connector and side roads designated bike lanes as well as separate bike paths, in order to serve the needs of both experienced and inexperienced cyclists. Cyclists also expressed a desire to balance the needs of fitness and recreation cyclists through routes to parks, beaches, and popular

countryside areas as well as the needs of commuter cyclists through better connectivity within and between neighbourhood routes. Some of the most popular routes indicated in the survey, such as Kalamalka Lake Road or Old Kamloops Road, are not priority cycling routes on the map drawn up in the City of Vernon's Official Community Plan; this map may need some revision in light of this survey; however, the bias towards experienced cyclists should be remembered, and the inexperienced cyclists' preferences for bike lanes on side roads or separated bike paths should also be considered. Through education programs for cyclists (young and old) and drivers, the city should become a safer community for all sources of transportation. Bike lockers are also considered important for encouraging cyclists to bicycle more frequently.

The City of Vernon has taken measure to increase road-share awareness in Vernon, but in order to generate a healthy and sustainable community, the many benefits of cycling need to be understood and promoted, and cyclists' needs for safety and convenience better supported, than they are at present.

Recommendations

1. There needs to be a mixture of bike lanes on both main and side routes, as well as separated bike paths, to meet the safety and convenience requirements of both inexperienced and experienced cyclists.
2. There should be a focus on ensuring continuous bike routes as well as interconnectivity of existing routes through downtown to better support commuting cyclists.
3. There also needs to be an emphasis on routes that connect cyclists to parks and beaches (eg. Kalamalka Park, Ellison Park, Paddlewheel Park, Polson Park, Kal Beach, Kin Beach) and also provide safe access with outlying countryside areas such as Spallumcheen/Armstrong, Lavington/Lumby that are popular for recreational and fitness cycling purposes.
4. Parents and students should be engaged in determining safest and most direct routes in their neighbourhoods to schools and provide maps at each of these schools identifying the routes and associated information when routes complete.
5. Inexperienced cyclists and children particularly need off-road bike paths, and bike lanes in quiet side streets, in which to practice cycling and develop their confidence and skills. One route considered to have the greatest potential for an off-road bike path is the Grey Canal trail. Other routes might be the 'rails and trails' routes that pass through downtown, and also connect it to towns to the north and south. Some

good side roads mentioned in the survey include 25th St (parallel to 27th St), or 33 St (beside Hospital Hill's Hwy 97).

6. The priority routes map in the existing Official Community Plan needs to be re-evaluated and re-drawn to take the priority routes mentioned in this report into consideration. However the bias in this report in favor of the priorities of frequent 'fitness and recreation' cyclists should be taken into consideration.
7. Strategies for ensuring streets are cleared of debris more frequently should be explored.
8. Secure bike racks, lockers, cages, etc are needed in the key locations listed in this report.
9. Pedestrian/cycling controlled crossings are needed in some key locations as defined by users.
10. Safety training is needed for both cyclists (young and old) and drivers.

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Greater Vernon Cycling Survey 2

1. How often do you use your bicycle for the following reasons:

	Daily	Weekly	Monthly	Rarely
Commuting to work	◯	◯	◯	◯
Commuting to school/college	◯	◯	◯	◯
Shopping/other errands in town	◯	◯	◯	◯
Fitness and recreation	◯	◯	◯	◯
Other	◯	◯	◯	◯

Other (please specify)

2. How many kilometers do you cycle in an average week?

- ☐ 1 to 5 kms
- ☐ 5 to 10 kms
- ☐ 10 to 15 kms
- ☐ 15 - 25 kms
- ☐ 25 - 50 kms
- ☐ 50 - 100 kms
- ☐ 100 +

3. If you rarely cycle or do not cycle, what would encourage you to cycle more or to start cycling?

1

2

3

4. Please identify key locations where you would like to have safe cycle parking.

5. Would you like to have access to cycle training/education?

- ☐ yes
- ☐ no

If yes, would you be willing to pay a small fee for training?

6. If you have children, please identify any specific concerns you may have regarding your children cycling locally.

Greater Vernon Cycling Survey 2

7. Do you have safe, convenient access to the following places by bicycle?

	Not at all	Safe	Convenient	Safe and convenient
Work	◯	◯	◯	◯
School/college	◯	◯	◯	◯
Retail outlets and other services	◯	◯	◯	◯
Parks and Green space	◯	◯	◯	◯

8. Please identify/describe your most frequently used cycle route.

9. Please identify your 'Top 5 priority cycling routes' in the Greater Vernon area and describe any barriers that impede safe, convenient cycling on these routes.

1

2

3

4

5

10. Please rank your preference for the following cycling facilities. (1 low to 3 highly preferred)

	1	2	3
Bike lanes on all streets	☐	☐	☐
Bike lanes on main connector streets	☐	☐	☐
Bike lanes on main connector streets with a wide curb lane shared with cars	☐	☐	☐
Bike lanes on side streets linking key destinations	☐	☐	☐
Bike lockers at main public transit hubs and major destinations	☐	☐	☐
Cycling route maps posted on signage along routes	☐	☐	☐
Dedicated signalized crossings	☐	☐	☐
Separated bike paths (like on 25th Ave/Memorial trail)	☐	☐	☐

Other (please specify)

Greater Vernon Cycling Survey 2

11. What age group do you belong to?

- ◯ under 12
- ◯ 13 to 19
- ◯ 20 to 29
- ◯ 30-59
- ◯ 60 +

12. Which part of Greater Vernon do you live in?

- ◯ BX
- ◯ Coldstream
- ◯ Downtown Vernon
- ◯ Alexis Park
- ◯ East Hill
- ◯ Harwood
- ◯ Mission Hill
- ◯ Okanagan Landing
- ◯ Silver Star Foothills
- ◯ Swan Lake

Other (please specify)