Cycling in Cities
opinion survey

CYCLING IN CITIES RESEARCH TEAM
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About the study

Using a bicycle for transportation is good for the environment, and it also offers personal health benefits. Cycling is also feasible, since more than 80% of Canadians live relatively close to at least one common destination, and over half of us already own a bicycle. Despite these advantages, however, cycling rates in Canadian cities remain very low. This opinion survey aimed to investigate what types of routes people prefer to cycle on, as well as the motivators and deterrents of cycling.

What did we do?

In 2006, we surveyed 1,402 current and potential adult cyclists in Metro Vancouver. Participants answered the questionnaire either online or by mail. The questionnaire asked people about:

- current use patterns and preferences for 16 different route types
- the influence of 73 other factors that might affect cycling behavior including hills, road surfaces, intersections, vehicle traffic, aesthetics, safety, weather, end of trip facilities, links with transit, legislation, and education

Who did we ask?

We took a random sample of current and potential cyclists by drawing names from the phone book. People who either did not have access to a bicycle, who had not cycled in the past year, or who were not willing to consider cycling in the future were not eligible to participate. Partcipants were grouped into four categories, depending on how often they cycled.

	Number of people
Total participants	1402
Cyclist type	
Potential cyclist	197
Occasional cyclist (at least yearly)	617
Frequent cyclist (at least monthly)	481
Regular cyclist (at least weekly)	107
Gender	
Male	761
Female	668
Has children	
Yes	641
No	761
Municipality	
Vancouver	419
Other	983

Desirable and undesirable routes

Among the 16 different types of routes that we asked about in our survey, we found that people preferred to travel on paved paths separated from motor vehicle traffic, cycle paths next to major city streets but separated by a physical barrier, or residential streets with traffic calming.

The questionnaire revealed a large disparity between the types of routes people *want* to travel on, and the types of routes that are *available* and therefore commonly used. A good example of this disparity can be found in the case of physically separated cycle paths next to major streets: this route was least commonly used (less than 500 m of this route type exists in Metro Vancouver), but it was almost as desirable as unpaved off-street paths, or residential streets with bicycle facilities. These findings highlight one clear way to adapt the current road network so that it is more supportive of cyclists.

A full list of all 16 route types, arranged in order from desirable to undesirable, is shown here:

3. unpaved off-street multi-use paths

4. cycle paths next to major streets, separated by barrier

5. residential street bike routes with traffic calming

6. residential streets marked as bike routes

2. paved off-street multi-use path

7. residential streets

most desirable route type

1. paved off-street cycle path for bikes only

8. major city streets with bike lanes, no parked cars

9. rural roads with paved shoulder and bike symbols

least desirable route type

16. major city streets with parked cars

15. major city streets with no parked cars

14. rural roads with no paved shoulder

13. rural roads with paved shoulder

12. major city streets with bike symbols, parked cars

11. major city streets with bike lanes, parked cars

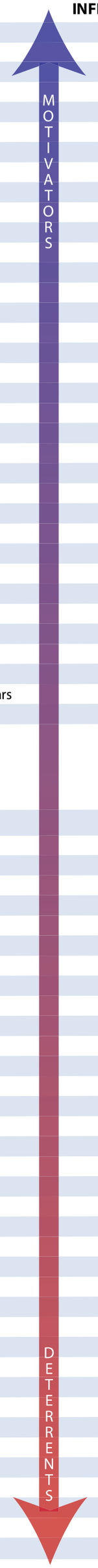
10. major city streets with bike symbols, no parked cars

Motivators and Deterrents

The main cycling motivators were route ease and enjoyment. Respondents enjoyed travelling away from air pollution, traffic noise, and traffic. They appreciated beautiful scenery and flat terrain, and preferred cycling if it took less time than other modes. The main deterrents to cycling were related to safety: factors such as traffic volume and speed, driver behaviour, ice and snow, and debris on the road.

A full list of all 73 factors, arranged in order from strong motivators to strong deterrents, is shown here.

The "influence" score ranges as follows: +1 = much more likely to cycle, 0 = neutral, -1 = much less likely to cycle.



FACTOR	INFLUENCE
The route is away from traffic noise & air pollution	0.79
The route has beautiful scenery	0.70
The route has bicycle paths separated from traffic for the entire distance	0.69
The route is flat	0.61
Cycling to the destination takes less time than traveling by other modes	0.59
The distance to your destination is less than 5 km	0.53
You can make the trip in daylight hours	0.50
You can take your bike on the SkyTrain at any time	0.50
A 2-way off-street bike path has a reflective centre line for night & poor weather cycling	0.49
The destination has secure indoor bike storage	0.49
The route has bike signage, pavement markings & bike activated signals on residential streets	0.47
The destination has covered bike racks, to protect from rain	0.47
Information about cycling routes to the destination is available	0.46
The bus has racks that carry bikes	0.45
A web-based trip-planning tool is available	0.45
The destination has outdoor bike racks	0.42
There is a consistent type of bike lane marking throughout the greater Vancouver area	0.41
There are secure bike lockers at transit stations	0.41
The route is wide enough for cyclists to ride side-by-side	0.40
The destination has a place to store a change of clothing	0.38
The route has on-road bicycle lanes on major roads for the entire distance	0.36
Traffic calming on designated bike routes reduces the number of cars using the route	0.36
The destination has a place to dry your cycling gear	0.36
The bike lane has a different colour pavement than the road	0.35
You would be eligible to receive prizes or discounts such as savings on bike gear	0.35
There are shops, banks, & grocery stores along the route	0.34
The destination has showers	0.34
The route has push-button-activated traffic signals for cyclists & pedestrians only	0.30
There are bike racks at transit stations	0.30
Inexpensive or free short courses are available to help you learn how to fix your bike	0.30
A bicycle is stenciled every 75 m (250 ft) along the route	0.28
The destination has bike repair facilities	0.28
The destination has rental bike lockers	0.27
A solid white line is painted on both sides of the lane separating it from moving cars & from parked cars	0.26
Inexpensive or free short courses are available to help you improve your cycling skills	0.24
You are making the trip with other people	0.18
The bike lane has one solid white line painted between moving cars & the bike lane	0.16
The distance to your destination is 5 to 10 km	0.14
Cycling helmets are required	0.14
Lights are required for cycling after dark	0.13
The street is wide enough for motorists to safely pass cyclists	0.10
The route has a few small hills	0.02
The route has regular traffic signals for all traffic (cyclists, pedestrians, cars & trucks)	0.01
Cycling side-by-side on roads is not allowed	-0.05
Many intersections on the route have traffic circles	-0.12
Bike lane markings end just before intersections	-0.13
The route has rail crossings	-0.13
The weather is hot & humid	-0.16
Cycling on sidewalks is not allowed	-0.22
You need to buy groceries	-0.23
The route surface is gravel or dirt	-0.25
The route has speed bumps	-0.25
The route has lots of fallen leaves	-0.29
Designated bike routes on residential streets are used by cars because there are fewer stop signs	-0.31
There are bridges along the route where cyclists must share a narrow sidewalk	-0.34
The distance to your destination is 10 to 20 km	-0.37
The risk from cyclists who don't know how to ride safely	-0.37
Cyclists have to stop at many stop signs on the route	-0.37
The street has on-street parking	-0.43
The route has long steep sections	-0.50
The risk of violent crime when cycling	-0.55
The route has potholes or uneven paving	-0.55
The risk of bicycle theft	-0.56
You need to carry bulky or heavy items	-0.57
The route is not well lit after dark	-0.59
The route has surfaces that can be slick when wet or icy when cold	-0.59
It is raining	-0.63
The risk of injury from car-bike collisions	-0.67
The risk from motorists who don't know how to drive safely near bicycles	-0.73
Vehicles drive faster than 50 km/hr	-0.76
The route has glass or debris	-0.76
The street has a lot of car, bus, & truck traffic	-0.83
The route is icy or snowy	-0.86

Implications for planning

Because this study shows that certain routes and design features encourage cycling, our results can be used by planners and designers seeking to increase the use of bicycles for transportation. We saw that:

Route designs that encourage cycling are:

- off-road paths: paved and for cyclists only
- residential streets: marked for cycling and with traffic calming
- major streets: paths separated from motor vehicle lanes by a curb or other barrier

Design features that encourage cycling are:

- cycling routes that are near beautiful scenery, away from air and noise pollution, separated from heavy and high speed traffic
- minimum slopes and distances, option to take bike on transit
- smooth, non-slip surfaces, free of debris
- good lighting, lanes marked with reflective paint
- safe indoor bike storage

How are we using these results?

The results of this survey have been presented to academics, urban planners, and cyclists. We have made presentations to TransLink (the regional transportation authority), Metro Vancouver (which is comprised of 22 member municipalities across the Lower Mainland), and the City of Vancouver. In the past year, more separated cycling paths have been built across Metro Vancouver.

The survey results have also been used to inform the development of our new web-based cycling route planner, which allows cyclists to use a Google maps interface to choose routes throughout Metro Vancouver based on preferences such as distance, elevation gain, air quality, and areas featuring trees and other vegetation. The route planner is available at **www.cyclevancouver.ubc.ca**

In addition, the results of this project are being integrated into ongoing research that aims to identify design features of cities that are supportive of cycling. More information about the ongoing Cycling in Cities research program can be found on our website: **www.cher.ubc.ca/cyclingincities**

For more information

If you have questions about our research study or would like to know more, please visit our website or contact us:

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If you have questions, concerns, or comments about cycling in the City of Vancouver, contact the **Bicycle Hotline** by phone at 604-871-6070 or e-mail cycling@vancouver.ca.

The Vancouver Area Cycling Coalition keeps a list of municipal cycling contacts for the Metro Vancouver region: www.vacc.bc.ca.

Study Partners and Funders

Canadian Cancer Society
City of Langley
City of New Westminster
City of Richmond
City of Port Moody
City of Surrey
City of Vancouver
City of White Rock
Metro Vancouver
Township of Langley
TransLink
Transport Canada MOST Program
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