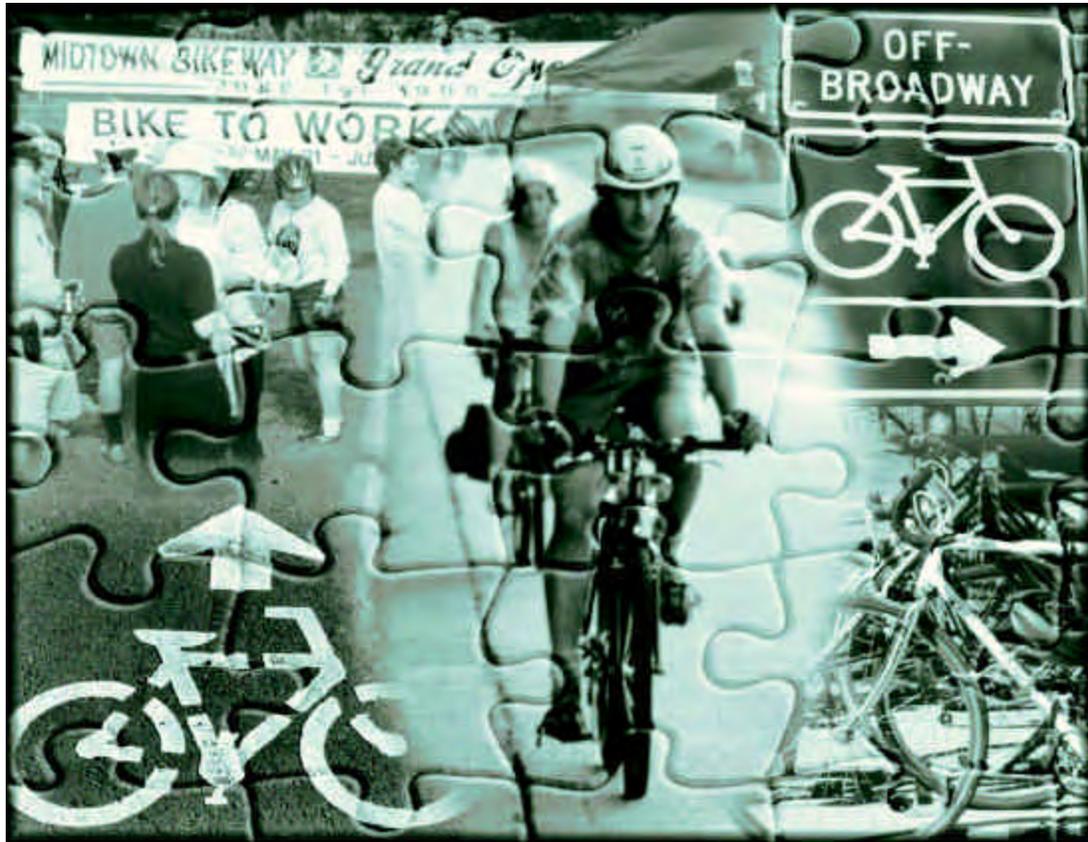


1999 Bicycle Plan: Reviewing the Past, Planning the Future



City of Vancouver
Engineering Services



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Neighbourhood Transportation Branch Staff

Terry Dixon
Jim Hall
Nicky Hood
Forrest Klotzbach
Doug Louie
Melina Scholefield
Peter Stary
Nina Wang

1997/1999 Bicycle Advisory Committee to Council

Colin Brander
Emma Dal Santo
Robert Delahanty, Chair
Brian G. Larsen
Lynne Mutrie
Bernadette Kowey
Lawrence Pamer
Helen Warn
Ian Wasson

Bicycle Network Subcommittee

Barry Bogart
Dick Loomer
Douglas Todd
Lorne Whitehead

Table of Contents

<i>Acknowledgements</i>	<i>i</i>
<i>List of Figures</i>	<i>v</i>
<i>List of Tables</i>	<i>ix</i>
<i>Action Items</i>	<i>xiii</i>
<i>Executive Summary</i>	<i>xv</i>
1 Purpose	1
2 Background	3
2.1 Local Cycling Organizations and Programs	3
2.2 Cycling Related Studies and Reports	7
2.2.1 Greater Vancouver Regional District Studies and Reports	7
2.2.2 City of Vancouver Studies and Reports	8
2.3 The Fundamental “E’s” of Cycling	11
3 Education, Enforcement and Encouragement	13
3.1 Vancouver Cycling Maps and Brochures	13
3.2 Bicycle Hotlines	15
3.2.1 Telephone Hotline	15
3.2.2 Email Hotline	16
3.3 Police and Parking Enforcement Bicycle Squads	16
3.3.1 Vancouver Police Bicycle Squad	16
3.3.2 Parking Enforcement Bike Squad	17
3.4 Bicycle Courier Licences	17
3.5 Bicycle Parking By-law	18
3.6 Bicycle Helmet By-law	18
3.7 Bike to Work Week	18
4 Engineering	19
4.1 Bicycle Network in Vancouver	19
4.1.1 Bicycle Networks in Other Bicycle-Friendly Cities	25
4.2 Greenways Program	26
4.3 Bike Rack Program	28
4.4 Bikeway Sign and Stencil Upgrade	28

5	<i>Review of Existing Bikeways</i>	31
5.1	<i>Data/Trends</i>	31
5.1.1	Classifier Counts	31
5.1.2	Bicycle Counts	46
5.1.3	Vehicle Counts	57
5.1.4	Bicycle Collisions	59
5.1.5	Vancouver Police Department Bicycle Collision Reports	59
5.1.6	ICBC Bicycle Collision Reports	67
5.1.7	Bikeways and Crime Rates	70
5.1.8	Bikeways and Property Values	82
5.2	<i>Public Input</i>	92
5.2.1	Cycling Survey	92
5.2.2	Resident Survey	114
5.2.3	Comparison Between Cyclist and Resident Surveys	138
6	<i>Conclusions and Recommendations</i>	147
6.1	<i>Route Development</i>	147
6.1.1	Proposed Network	147
6.1.2	Proposed Downtown Network	150
	<i>Bibliography</i>	153
	<i>Glossary</i>	155
	<i>Index</i>	157
	<i>Appendix A: City of Vancouver Cycling Related By-laws</i>	161
	<i>Street and Traffic By-law, as it Pertains to Cyclists</i>	161
	<i>Parking By-law, as it Pertains to Cyclists</i>	163
	<i>Appendix B: Surveys</i>	173
	<i>Realtor Survey</i>	173
	<i>Cyclist Survey</i>	175
	<i>Resident Survey</i>	179
	<i>Appendix C: Open House Comments</i>	182

List of Figures

Education, Enforcement and Encouragement

Vancouver Cycling Maps and Brochures

Cycling in Vancouver Map _____	13
Quantity of Cycling in Vancouver Maps Distributed _____	14
Geographic Distribution of Cycling in Vancouver Maps in 1998 _____	14

Bicycle Hotline

City of Vancouver Bicycle Hotline Usage in 1998 _____	16
---	----

Police and Parking Enforcement Bicycle Squads

Police Bicycle Squad _____	17
----------------------------	----

Bike to Work Week

1999 Bike Week Promotion _____	18
--------------------------------	----

Engineering

The Bicycle Network

Bicycle Route Construction _____	19
Cost of Vancouver's Bicycle Network _____	21
Vancouver's Existing Bicycle Network _____	22
The Cycling Network Program's Contribution to Vancouver's Bicycle Network _____	23
Routes along Side Streets as Identified by the 1992 <i>Bicycle Network Study</i> _____	24
Comparison of Bicycle Facilities between Vancouver, Seattle and Portland _____	25

Greenways Program

Vancouver Greenways Network _____	27
-----------------------------------	----

Bikeway Sign and Stencil Upgrade

Bikeway Stencils _____	28
Street Name Blade to be used on Bikeways _____	29
Overhead Sign to be used for Signals Where Bikeways Cross Arterial Streets _____	29
Stencil used for Bicycle Activation at Loop Detectors _____	29

Review of Existing Bikeways

Data/Trends

24-Hour Bicycle and Vehicle Volumes on Adanac St. east of McLean Dr., September 14 to 15, 1998 _____	32
48-Hour Bicycle and Vehicle Volumes on Adanac St. east of McLean Dr., January 26 to 28, 1999 _____	33
48-Hour Bicycle and Vehicle Volumes on Adanac St. east of Lillooet St., July 13 to 15, 1998 _____	35
48-Hour Bicycle and Vehicle Volumes on Camosun St. south of W 40 th Ave., November 16 to 18, 1998 _____	36
48-Hour Bicycle and Vehicle Volumes on West 39 th Ave. east of Wallace St., November 16 to 18, 1998 _____	37
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave. east of Balaclava St., February 8 to _____	

10, 1999 _____	38
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave. east of Balaclava St., February 15 to 17, 1999 _____	39
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave east of Trafalgar St., November 18 to 20, 1998 _____	40
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave. east of Cambie St., January 27 to 29, 1999 _____	41
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave. east of Columbia St., January 27 to 29, 1999 _____	42
Peak Hour Factor to Extrapolate 24-Hour Bicycle Volumes From Adanac Bikeway Classifier Data _____	43
Peak Hour Factor from Midtown/Ridgeway Bikeway Classifier Data _____	44
Combined Peak Hour Factors from Adanac and Midtown/Ridgeway Data _____	46
Bicycle Counts	
Modal Split for Bicycles Entering the Downtown Core _____	47
Peak Hour Vancouver Bicycle Volumes – 1995 _____	49
Peak Hour Downtown Bicycle Volumes – 1995 _____	50
Peak Hour Vancouver Bicycle Volumes – 1996 _____	51
Peak Hour Downtown Bicycle Volumes – 1996 _____	52
One-Hour East and Westbound Bicycle Volumes on the Adanac Bikeway _____	53
One-Hour East and Westbound Bicycle Volumes on the Off-Broadway Bikeway _____	54
One-Hour North and Southbound Bicycle Volumes on the Cypress Bikeway _____	55
Before and After, One-Hour Bicycle Counts on the Midtown/Ridgeway Bikeway _____	56
Vehicle Counts	
Two-way Vehicle Volumes at Various Locations along the Adanac Bikeway _____	58
Two-way, Vehicle Volumes at Various Locations along the Off-Broadway Bikeway _____	58
Two-way, 24-Hour Vehicle Volumes at Various Locations along the Cypress Bikeway _____	59
Bicycle Collisions	
Reported Collisions Involving Cyclists from 1975 to 1998 _____	60
Cyclist Fatalities in Vancouver from 1975 to 1998 _____	61
Vancouver Bicycle Collisions – 1995 _____	63
Downtown Bicycle Collisions – 1995 _____	64
Vancouver Bicycle Collisions – 1996 _____	65
Downtown Bicycle Collisions – 1996 _____	66
1997 and 1998 ICBC Claims Involving Cyclists on Vancouver Bicycle Routes _____	67
Fault of 1997 and 1998 Collisions Involving Cyclists on Vancouver Bicycle Routes _____	68
Fault of 100 Random ICBC Claims Involving Cyclists in 1997 and 1998 _____	69
Effects of Bikeways on Crime Rates	
City-wide Residential Break and Enter – 1995 _____	72
City-wide Residential Break and Enter – 1996 _____	73
City-wide Residential Break and Enter – 1997 _____	74
Cypress St. – Residential Break and Enter, 1995 – One Year Prior to Bikeway Construction _____	76
Cypress St. – Residential Break and Enter, 1996 – Year Bikeway Constructed _____	77
Cypress St. – Residential Break and Enter, 1997 – One Year After Bikeway Constructed _____	78
Ontario St – Residential Break and Enter, 1995 – Year Bikeway Constructed _____	79
Ontario St. – Residential Break and Enter, 1996 – One Year After Bikeway Constructed _____	80

Ontario St. – Residential Break and Enter, 1997 – Two Years After Bikeway Constructed	81
Effects of Bikeways on Property Values	
Realtor Age Profile	83
Realtor Gender Profile	84
Realtor Responses to ‘Would you use a bicycle route as a selling feature of a home?’	86
Realtor Responses to ‘If a home is adjacent to a bicycle route, the route will:’ (ease of sale)	87
Realtor Responses to ‘If a home is adjacent to a bicycle route, the route will:’ (selling price)	88
Realtor Responses to ‘If a home is within a block of, but not adjacent to a bicycle route, the route will:’ (ease of sale)	89
Realtor Responses to ‘If a home is within a block of, but not adjacent to a bicycle route, the route will:’ (selling price)	90
Public Input	
Cycling Survey Advertisement	92
Cycling Survey	
Cyclist Age Profile	93
Comparison of Age Profiles Between the 1998 Vancouver and 1992 GVRD Surveys	94
Cyclist Gender Profile	95
Comparison of Gender Between 1998 Vancouver, 1992 GVRD and 1987 Vancouver Cycling Surveys	96
Cyclist Responses to ‘How often do you use your bicycle for the following purposes?’	97
Cyclist Responses to ‘How often do you use the following bikeways?’	98
Route Use Based on Respondents Who Cycle Daily	99
Cyclist Responses to ‘What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?’	100
Cyclist Responses to ‘When you arrive at your destination, what facilities are available for you to use?’	101
Cyclist Responses to ‘What facilities would you like to have available at your destination?’	102
Distances Cyclists Cycled (One Way) as a Percentage of Total Cycling Trips	103
Cyclist Responses to ‘What types of bicycling facilities would you prefer? (Please rank in order of preference.)’	104
Cyclist Responses to ‘What features or aspects of existing Bikeways (e.g. Adanac, Off-Broadway, etc.) do you like?’	105
Cyclist Responses to ‘What features or aspects of existing Bikeways (e.g. Adanac, Off-Broadway, etc.) do you like?’	105
Cyclist Responses to ‘What features or aspects of existing bikeways do you dislike?’	106
Cyclist Responses to ‘Vancouver’s bicycle network has had (choose one):’	107
Cyclist Responses to ‘Where would you like to see cycling routes in Vancouver?’	108
Cyclist Responses to ‘Do you have a copy of the City’s ‘Cycling in Vancouver’ brochure or other cycling map?’	109
Bicycle Helmet Usage	110
Residents Survey	
Resident Age Profile	114
Resident Gender Profile	115
Resident Responses to ‘Which bicycle route do you live along?’	116
Actual Route that Residents Who Answered ‘Unsure’, Live Along	117
Resident Responses to ‘Would you say that you are an active cyclist?’	118
Resident Responses to ‘How often do you use the following bikeways?’	119

Resident Responses to 'What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?'	120
Distances Residents Cycled (One Way) as a Percentage of Total Cycling Trips	122
Resident Responses to 'Vancouver's bicycle network has had (choose one):'	123
Resident Responses to 'Living along the bikeway has had (choose one):'	124
Resident Responses to 'What type of home do you live in?'	125
Resident Responses to 'If you were to sell your home today, do you think that being on a bike route would: (selling price)'	126
Resident Responses to 'If you were to sell your home today, do you think that being on a bike route would: (ease of sale)'	127
Resident Responses to 'How do you feel about living on a bicycle route? What, if any, would you say are the positives and negative aspects of living along a bicycle route?'	128
Resident Responses to 'Do you have any <u>specific comments</u> about any of the traffic measures installed as part of the bikeway?' (positive or negative)	129
Resident Responses to 'Since your street has become a bikeway, would you say that the livability of the street has:'	130
Resident Responses to 'Since your street has become a bikeway, would you say that the number of bicycles has:'	131
Resident Responses to 'Since your street has become a bikeway, would you say that the number of automobiles has:'	132
Resident Responses to 'Do you have a copy of the City's 'Cycling in Vancouver' brochure or other cycling map?'	133
Bicycle Helmet Usage	134

Comparison Between Cyclist and Resident Results

Comparison Between Cyclist and Resident Ages	138
Comparison Between Cyclist and Resident Ages With 1996 Census Data For Vancouver	139
Comparison of Cyclist and Resident Gender with 1996 Census Data for Vancouver	140
Comparison of Bicycle Trip Frequency	141
Comparison of Factors that Discourage Respondents from Cycling More Often	142
Comparison of Responses to 'Vancouver's bicycle network has had (choose one):'	143
Comparison of Helmet use between Cyclists and Residents	144
Comparison of bike map ownership between Cyclists and Residents	145

Recommendations

Route Development

Proposed Network

Proposed Bicycle Facilities	149
-----------------------------	-----

Proposed Downtown Network

Proposed Downtown Bicycle Network	151
-----------------------------------	-----

List of Tables

Background

Recommended Traffic Volumes for Local Integrated Bikeways _____	10
---	----

Education, Enforcement and Encouragement

Vancouver Cycling Maps and Brochures

Geographic Distribution of Cycling in Vancouver Maps in 1998 _____	15
--	----

Engineering

The Bicycle Network

Bicycle Route Construction _____	20
Cost of Vancouver's Bicycle Network _____	21
Comparison of Bicycle Facilities between Vancouver, Seattle and Portland _____	26

Review of Existing Bikeways

Data/Trends

24-Hour Bicycle and Vehicle Volumes on Adanac St. east of McLean Dr., September 14 to 15, 1998 _____	32
48-Hour Bicycle and Vehicle Volumes on Adanac St. east of McLean Dr., January 26 to 28, 1999 _____	33
48-Hour Bicycle and Vehicle Volumes on Adanac St. east of Lillooet St., July 13 to 15, 1998 _____	35
48-Hour Bicycle and Vehicle Volumes on Camosun St south of West 40 th Ave., November 16 to 18, 1998 _____	36
48-Hour Bicycle and Vehicle Volumes on West 39 th Ave. east of Wallace St., November 16 to 18, 1998 _____	37
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave east of Balaclava St., February 8 to 10, 1999 _____	38
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave. east of Balaclava St., February 15 to 17, 1999 _____	39
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave east of Trafalgar St., November 18 to 20, 1998 _____	40
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave. east of Cambie St., January 27 to 29, 1999 _____	41
48-Hour Bicycle and Vehicle Volumes on West 37 th Ave. east of Columbia St., January 27 to 29, 1999 _____	42
Peak Hour Factor to Extrapolate 24-Hour Bicycle Volumes From Adanac Bikeway Classifier Data _____	44
Peak Hour Factor from Midtown/Ridgeway Bikeway Classifier Data _____	45
Combined Peak Hour Factors from Adanac and Midtown/Ridgeway Data _____	46

Bicycle Counts

Modal Split for Bicycles Entering the Downtown Core _____	47
One-Hour East and Westbound Bicycle Volumes on the Adanac Bikeway _____	54
One-Hour East and Westbound Bicycle Volumes on the Off-Broadway Bikeway _____	55
One-Hour North and Southbound Bicycle Volumes on the Cypress Bikeway _____	56

Before and After, One-Hour Bicycle Counts on the Midtown/Ridgeway Bikeway _____	57
Vehicle Counts	
Bicycle Collisions	
Reported Collisions Involving Cyclists from 1975 to 1997 _____	60
Cyclist Fatalities in Vancouver from 1975 to 1998 _____	61
1997 and 1998 ICBC Claims Involving Cyclists on Vancouver Bicycle Routes _____	68
Fault of 1997 and 1998 Collisions Involving Cyclists on Vancouver Bicycle Routes _____	69
Fault of 100 Random ICBC Claims Involving Cyclists in 1997 and 1998 _____	70
Effects of Bikeways on Property Values	
Realtor Age Profile _____	83
Realtor Gender Profile _____	84
Realtor Responses to 'Would you use a bicycle route as a selling feature of a home?' _____	86
Realtor Responses to 'If a home is adjacent to a bicycle route, the route will:' (ease of sale)	87
Realtor Responses to 'If a home is adjacent to a bicycle route, the route will:' (selling price)	88
Realtor Responses to 'If a home is within a block of, but not adjacent to a bicycle route, the route will:' (ease of sale)	89
Realtor Responses to 'If a home is within a block of, but not adjacent to a bicycle route, the route will:' (selling price)	90
Public Input	
Cycling Survey	
Cyclist Age Profile _____	93
Comparison of Age Profiles Between the 1998 Vancouver and 1992 GVRD Surveys _____	94
Cyclist Gender Profile _____	95
Comparison of Gender Between 1998 Vancouver, 1992 GVRD and 1987 Vancouver Cycling Surveys _____	96
Cyclist Responses to 'How often do you use your bicycle for the following purposes?' _____	97
Cyclist Responses to 'How often do you use the following bikeways?' _____	98
Route Use Based on Respondents Who Cycle Daily _____	99
Cyclist Responses to 'What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?' _____	100
Cyclist Responses to 'When you arrive at your destination, what facilities are available for you to use?' _____	101
Cyclist Responses to 'What facilities would you like to have available at your destination?' _____	102
Distances Cyclists Cycled (One Way) as a Percentage of Total Cycling Trips _____	103
Cyclist Responses to 'What types of bicycling facilities would you prefer? (Please rank in order of preference.)' _____	104
Cyclist Responses to 'What features or aspects of existing bikeways do you dislike?' _____	106
Cyclist Responses to 'Vancouver's bicycle network has had (choose one):' _____	107
Cyclist Responses to 'Where would you like to see cycling routes in Vancouver?' _____	108
Cyclist Responses to 'Do you have a copy of the City's 'Cycling in Vancouver' brochure or other cycling map?' _____	109
Bicycle Helmet Usage _____	110
Residents Survey	
Resident Age Profile _____	115
Resident Gender Profile _____	116
Resident Responses to 'Which bicycle route do you live along?' _____	117
Actual Route that Residents Who Answered 'Unsure', Live Along _____	118

Resident Responses to 'Would you say that you are an active cyclist?'	119
Resident Responses to 'How often do you use the following bikeways?'	120
Resident Responses to 'What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?'	121
Distances Residents Cycled (One Way) as a Percentage of Total Cycling Trips	122
Resident Responses to 'Vancouver's bicycle network has had (choose one):'	123
Resident Responses to 'Living along the bikeway has had (choose one):'	124
Resident Responses to 'What type of home do you live in?'	125
Resident Responses to 'If you were to sell your home today, do you think that being on a bike route would: (selling price)'	126
Resident Responses to 'If you were to sell your home today, do you think that being on a bike route would:' (ease of sale)	127
Resident Responses to 'How do you feel about living on a bicycle route? What, if any, would you say are the positives and negative aspects of living along a bicycle route?'	128
Resident Responses to 'Do you have any <u>specific comments</u> about any of the traffic measures installed as part of the bikeway?' (positive or negative)	129
Resident Responses to 'Since your street has become a bikeway, would you say that the livability of the street has:'	130
Resident Responses to 'Since your street has become a bikeway, would you say that the number of bicycles has:'	131
Resident Responses to 'Since you street has become a bikeway, would you say that the number of automobiles has:'	132
Resident Responses to 'Do you have a copy of the City's 'Cycling in Vancouver' brochure or other cycling map?'	133
Bicycle Helmet Usage	134
Comparison Between Cyclist and Resident Results	
Comparison Between Cyclist and Resident Ages	138
Comparison Between Cyclist and Resident Ages With 1996 Census Data For Vancouver	139
Comparison of Cyclist and Resident Gender with 1996 Census Data for Vancouver	140
Comparison of Bicycle Trip Frequency	141
Comparison of Factors that Discourage Respondents from Cycling More Often	142
Comparison of Responses to 'Vancouver's bicycle network has had (choose one):'	143
Comparison of Helmet use between Cyclists and Residents	144
Comparison of bike map ownership between Cyclists and Residents	145

Recommendations

Route Development Proposed Network

Proposed Bicycle Facilities	150
Proposed Downtown Network	
Proposed Downtown Bicycle Network	151

Action Items

Education, Enforcement and Encouragement

Vancouver Cycling Maps and Brochures

Action 1: In order to ensure adequate distribution and to offset the costs of producing the 'Cycling in Vancouver' maps, sponsorship opportunities should be pursued. _____ 15

Engineering

The Bicycle Network

Action 2: In order to maximize funding and accelerate construction of the bicycle network, funding applications through the Cycling Network Program and TransLink should continue to be actively pursued. _____ 20

Greenways Program

Action 3: Incorporate the Greenway Network into the Bicycle Network by providing facilities for recreational cyclists. _____ 26

Bike Rack Program

Action 4: Implement a new bike rack program that allows for options and flexibility and that results in an increase in racks in busy commercial areas. _____ 28

Data/Trends

Action 5: Count bicycles using both automated and manual methods to better determine bicycle volumes along the bikeways and other streets, and to further refine the peak hour factor for cyclists. _____ 46

Action 6: Conduct bicycle cordon counts on a regular basis to accurately measure the modal split for bicycles and the effectiveness of cycling programs and initiatives. _____ 48

Action 7: Monitor vehicle traffic along the bikeways and take remedial actions where needed. _____ 59

Action 8: Monitor collisions involving cyclists to identify intersections or locations requiring modifications and to ensure a decline in the number and severity of bicycle collisions. 70

Action 9: Analyze crime statistics to ensure that there is a continued lack of correlation between crime and the presence of a bicycle facility. _____ 82

Recommendations

Route Development

Action 10: Develop the bicycle network to ensure a grid of bikeways approximately one kilometre apart. _____ 147

Action 11: Enhance accommodation for bicycles on arterial streets where practical, and provide for cyclists in the planning and design of new and reconstructed arterial streets. _____ 147

Proposed Downtown Network

Action 12: Plan and construct a network of bike lanes in the downtown core, in conjunction with the Downtown Transportation Plan. _____ 152

Executive Summary

Over the course of the last year, a review of Vancouver's bicycle network was completed to determine if it is meeting the needs of both cyclists and residents. Included in this review is a summary of bicycle data and trends, including bicycle counts, bicycle accidents, and the effects of bikeways on crime rates and property values. Also included in this review are surveys of cyclists using the bicycle facilities and of residents living along bikeways. This information is being compiled in a draft report titled "1999 Bicycle Plan: Reviewing the Past, Planning the Future." The following is an overview of the results.

Bicycle Data and Trends

Bicycle counts conducted recently indicate that the bikeways are attracting many cyclists to use them. For example, bicycle counts on the Adanac Bikeway at Main Street are up substantially since 1992. In 1992, before it was constructed, approximately 330 cyclists were using the Adanac Bikeway in a 24 hour period. This number has risen to approximately 560 in 1993 and to over 1080 cyclists in a 24 hour period in 1997. This represents a 225% increase in the number of cyclists in a five year period. On many sections of the Adanac Bikeway, the number of bicycles is almost equal to the number of automobiles using the street.

In addition to bicycle counts on bikeways, bicycle counts at intersections throughout the entire city were analyzed. From the analysis, it can be concluded that the majority of cyclists are located in the downtown core followed by the Broadway corridor.

Vehicle use along bikeways was also reviewed to determine if the creation of a bikeway affected the number of automobiles using the street. Results indicate that vehicle volumes along a street are highly variable and fluctuate from year to year, but that the creation of a bikeway did not increase the number of vehicles using the street. In many cases, the volumes of vehicles decreased due to the traffic calming measures implemented with along with the bikeway.

Over 25 years of accident data were reviewed to determine the trend in the number of reported accidents involving cyclists. The data indicates a general decline in the number of reported accidents involving cyclists since 1992. It is interesting that this decline in bicycle accidents corresponds with the development of the City's bicycle network.

To determine if there is any correlation between the presence of a bike route and crime, the help of the Vancouver Police Departments' Crime Analysis Unit was enlisted. City-wide residential break and enter data for 1995, 1996 and 1997 was analyzed and no relationship could be found between the location of bicycle routes and the frequency of residential break and enter crime reports. In addition to city-wide data, two neighbourhoods were analyzed before and after a bikeway was constructed. As with the city-wide data, no correlation was found between bikeway development and the frequency of break and enter crime reports.

In addition to crime data, a random survey was delivered to Vancouver Realtors to determine the effect of the presence of a bicycle route and property values. Of the Realtors who responded, 85% indicated that bicycle routes are an amenity to the community and 65% indicated that they would use the bicycle route as a selling future of a home. When asked about the effect on property values 62% indicated that the bike route would have no effect on the selling price of the home. The results from this study indicate that the bicycle routes do not affect property values.

Cyclist Opinion Survey Results

Over 1700 cyclists responded to our cycling survey that was distributed along our bikeways and made available on-line in the city's website (www.city.vancouver.bc.ca/cycling). Survey questions included the respondent's age, gender, cycling habits and preferences.

A summary of the results indicates that most of the cyclists who responded are between the ages of 25 and 44, two-thirds are male and most are commuter cyclists. The three top discouraging factors to cycling are traffic, poor weather and safety concerns. The top three preferred cycling facilities are bikeways followed by bicycle lanes and separated bike paths. Of the cyclists who responded, the top three areas where bicycle facilities should be provided are the downtown core, on all bridges, and Burrard Street. In addition, 69% of respondents indicated that Vancouver's bicycle network has had at least some influence on the amount they cycled.

Resident Opinion Survey Results

An opinion survey was also delivered to 9600 households along existing bikeways. Approximately 1850 were returned representing a 19% response rate. In addition to questions about their cycling habits, residents were asked to indicate how they felt about living along a bikeway.

The survey results show that most of the residents who responded are between the ages of 25 and 55, 51% live in single family homes and 39% consider themselves to be an active cyclist. The top three discouraging factors to cycling are traffic, bad weather and not having enough time. When asked about the influence of Vancouver's bicycle network on the amount they cycle, 43% indicated that the network had at least some influence, while 41% indicated that the network had no influence on the amount they cycle. When asked about selling their home, 45% felt that living on the bikeway would have no effect on the selling price of the home. Of the remaining 55%, 19% felt the bikeway would increase the price, 12% felt the bikeway would decrease the price and 24% did not know what effect the bikeway would have.

When asked about the positive and negative aspects of living on a bikeway, most of the results were positive with the most common response being that respondents felt the street was safer, quieter and had less automobile traffic. In addition, when asked about the livability of the street, 38% of respondents indicated that the bikeway had increased the livability of the street, 47% felt it had remained unchanged and 15% felt that livability of the street had decreased since it became a bikeway.

Conclusions

As a result of this bicycle network review, several preliminary bicycle proposals are presented in Appendix A. The general conclusions from the review are that the bicycle network is generally seen as a positive benefit to both the residents and cyclists of Vancouver. There is a strong desire by cyclists to have a network of interconnected bicycle routes in the downtown core to complement the network of bikeways that has been constructed to date.

1 Purpose

With the turn of the millennium upon us and Greater Vancouver's population nearing two million, transportation alternatives need to be provided to alleviate the pressure on our overloaded roadway network. Since City Council's historic 1968 decision not to build a freeway network in Vancouver, Council has continued to support transportation alternatives to the private automobile. To this end, Council has ranked transportation priorities as providing for the needs of pedestrians, cyclists, transit and goods movement, above that of the private automobile.

The development of the Bicycle Network has been an important strategy in the City's effort to reduce congestion and provide a safe and attractive alternative to the automobile in Vancouver. A concerted effort to develop bicycle facilities within the City began with two important initiatives, the Vancouver Comprehensive Bike Plan and the Bicycle Network Study, as precursors to the 1999 Bike Plan outlined in this report.

Vancouver's Bicycle Program began in 1988 when Council approved the Engineering Department's "Vancouver Comprehensive Bicycle Plan" which was the result of over three years of consultation with cyclists and residents of Vancouver. The comprehensive bicycle plan analyzed local cycling statistics and needs and explored the four fundamental "E's" of cycling (Engineering, Education, Enforcement and Encouragement), in order to integrate cyclists into the existing transportation network and to promote and encourage the use of bicycles as a safe and convenient mode of transportation.¹

In 1992, the Bicycle Network Study was conducted to determine the methods and logistics of integrating cyclists into the existing roadway infrastructure and to identify a logical bicycle network that linked important destinations safely and efficiently. Four basic options for providing bicycle facilities were examined: integration on arterial streets, integration on local streets, bicycle lanes and bicycle paths. While all four options were acknowledged as being part of a cohesive and effective network, enhanced integration on local streets was identified as the preferred option to pursue. Enhanced integration on local streets is achieved by identifying a quiet side street parallel to a major transportation corridor, and installing traffic calming devices and signals to favour the movement of cyclists. As a result of the recommendations of the Bicycle Network Study, Vancouver's existing bicycle network is primarily composed of locally integrated bikeways.

In addition to defining the type of bicycle facility to be pursued, the Bicycle Network Study identified four priority routes to be pursued: the Adanac/Union corridor, the Broadway corridor, the Arbutus corridor and the Ontario corridor. These four priority corridors have been completed along with bikeways along the Cassiar, Heather, Lakewood, 37th Avenue, and Elliott/Slocan corridors.

In the eight years since the approval of the Bicycle Network Study, much of our focus has been on creating a grid of locally integrated bikeways. It is now time to step back and review the existing network to determine its effectiveness, both in terms of economics and in encouraging people to cycle. In addition to answering these two important questions, this report will review the existing bicycle network, update the bicycle master plan, solicit feed back from both users of the bicycle facilities and residents living along the bikeways, and identify future bicycle facilities and initiatives.

¹ Vancouver Comprehensive Bicycle Plan, Page i

2 Background

This section details a summary of the past and current cycling organizations and reports as well as the fundamental “E” of cycling that have guided the development of Vancouver’s bicycle network.

2.1 Local Cycling Organizations and Programs

Over the last decade, the City of Vancouver has developed a network that contains over 100 kilometres of bicycle facilities. During this time, there have been numerous groups and organizations that have provided input on route selection, design, and construction. The following is an alphabetical listing of organizations and programs that have contributed to the creation of Vancouver’s bicycle network and the promotion of the bicycle as a viable form of transportation within Vancouver.

Better Environmentally Sound Transportation (BEST)

BEST is a non-profit organization formed in 1991 to promote the use of environmentally, economically, and socially responsible alternatives to the private automobile within the Greater Vancouver region.²

The mission of BEST is to foster a higher quality of life through the promotion of sustainable and appropriate forms of transportation primarily in the Greater Vancouver area and the rest of BC. They encourage cycling as a form of transportation by promoting more effective and safer use of bicycles.³

BEST’s many projects include providing trip reduction strategies to local companies, producing a quarterly newsletter entitled *The Spoke’ n’ Word* and organizing the annual “Bike to Work Week” and accompanying events.

For more information contact:

Better Environmentally Sound Transportation
Suite 822, 510 West Hastings St
Vancouver, BC
V6B 1L8
Phone: (604) 669-2860
Fax: (604) 669-2869
Email: atc@wimsey.com
Homepage: www.best.bc.ca

Bicycle Advisory Committee to Council (BAC)

The Bicycle Advisory Committee to Council (BAC) was formed to provide Vancouver City Council with input on various proposals and projects as they pertain to cycling. The BAC meets on the third Wednesday of each month, in Committee Room No. 2, Third Floor, City Hall, at 5:30 p.m.

The BAC was established by resolution of Council on July 30, 1985 to:

- 🚲 Review and advise Council on the implementation of the *Vancouver Comprehensive Bicycle Plan*;
- 🚲 Provide cyclist input on Capital improvement projects;

² *Better Environmentally Sound Transportation Homepage*

³ *BEST, Annual Report and Financial Statements May 1, 1997 – April 30, 1998, page 2*

- 🚲 Promote bicycling as a viable form of urban transportation and recreation;
- 🚲 Evaluate bicycle facilities and promote motorist and cyclist awareness, competence, and safety.⁴

Volunteers serve on the BAC for a three-year term and are appointed by Council, Vancouver Park Board, and the Vancouver School Board.

For more information contact:

Laura Kazakoff, Clerk
City Clerks Office, City Hall
453 West 12th Avenue,
Vancouver, BC
V5Y 1V4
Phone: (604) 871-6353
Fax: (604) 873-7419
Email: laura_kazakoff@city.vancouver.bc.ca

Bicycle Network Subcommittee (BNSC)

The Bicycle Network Sub-committee (BNSC) of the Bicycle Advisory Committee was formed on April 10, 1991 to pursue an integrated bicycle network concept with Engineering Services. The membership of the BNSC consisted mainly of members of the Vancouver Bicycle Network Group (VBNG) and the two groups became synonymous.⁵

The BNSC meets monthly to discuss the technical issues of bikeway design, in addition to pursuing other projects such as the *Local Integrated Bikeway Standards Report* and the promotion of the existing bicycle network.

For more information contact:

Peter Stary, Neighbourhood Transportation Branch
Engineering Services, City Hall
453 West 12th Avenue,
Vancouver, BC
V5Y 1V4
Phone: (604) 871-6437
Fax: (604) 871-6192
Email: peter_stary@city.vancouver.bc.ca

Cycling British Columbia

Cycling British Columbia is a non-profit association whose function is to “manage and develop cycling for recreation, transportation and sport in BC”.⁶ Cycling BC develops programs for bicycle racing, recreation, safety and transportation; advocates cyclists’ rights at the provincial level; works co-operatively with other community groups and organizations with similar aims; promotes cycling to the public through bicycle education courses for children, youth and adults; and provides members with a monthly newsletter and insurance coverage.⁷

⁴ *Bicycle Advisory Committee 1997-99*

⁵ *Bicycle Network Study, page 5*

⁶ *Cycling British Columbia Homepage*

⁷ *Ibid.*

For more information contact:
Cycling British Columbia
1367 West Broadway
Vancouver, BC
V6H 4A9
Phone: (604) 737-3034
Fax: (604) 737-3141
Email: office@cyclimg.bc.ca
Homepage: www.cyclimg.bc.ca

Cycling Network Program (CNP)

In June 1995, the British Columbia Provincial Government established the Cycling Network Program (CNP) to encourage people to cycle instead of drive. The program finances half of the cost of cycling infrastructure, including bike paths, bike lanes, cyclist-activated signals, refuge areas and bike parking. The local municipality pays the remaining costs. The Cycling Network Program is a program of the BC Transportation Financing Authority and receives administrative support from the Ministry of Transportation and Highways.⁸

Financing for the Cycling Network Program is from the BC Transportation Financing Authority (BCTFA). A minimum of 50% of the funds is available to eligible local governments (on a 50/50 cost-sharing basis, up to a maximum of \$200,000), while a maximum of 50% of the funds available is assigned to projects on existing provincial roads. To be eligible for CNP funding, a project must be part of an approved cycling network plan.

Of the existing 15 bike routes in Vancouver, nine have had funding provided through the Cycling Network Program. The extent of CNP funding in the City of Vancouver is shown in Figures 8 and 10.

For more information contact:
BC Transportation Financing Authority
Box 9900, Station Prov Govt
Victoria, BC Canada
V8W 9R1
Homepage: www.tfa.gov.bc.ca/

Downtown Cyclists' Network (DCN)

In October 1997, ten cyclists formed the Downtown Cyclists' Network (DCN). The DCN is composed of cyclists who live and/or work downtown and who advocate the development of a network of bike lanes in the downtown core. In addition to lobbying for bike lanes, the DCN's mandate is to improve quantity and quality of end of trip facilities for commuter cyclists downtown.

The Network currently consists of over 100 members, who work for such institutions as The Vancouver Sun and Business in Vancouver publications, Vancouver Community College, British Columbia Institute of Technology, Simon Fraser University – Harbour Centre, the Vancouver Port Corporation and the Granville Mall Tenant's Association.⁹

For more information contact:
Email: dcn@e-law.com
Homepage: www.sustainability.com/dcn/

⁸ BC Transportation Financing Authority Homepage

⁹ The Downtown Cyclist Network Homepage

Municipal Bicycle Committee (MBC)

In 1992, the Regional Bicycle Task Force formed the Municipal Bicycle Committee (MBC). The MBC is comprised of technical staff representatives from GVRD member municipalities, as well as from agencies such as BC Transit, the Ministry of Transportation & Highways and the Airport Authority. The mandate of the MBC is to ensure smooth flow of information between the Regional Bicycle Task Force and the agencies above, and to ensure that the interests of each of these jurisdictions are adequately represented in the actions and discussions of the Regional Bicycle Task Force.¹⁰

For more information contact:

Helen Cook, Implementation Planning Department
TransLink
#1700 - 4720 Kingsway
Burnaby, BC
V5H 4N2
Phone: (604) 453-4563
Fax: (604) 453-4628
Email: helen_cook@translink.bc.ca

Regional Bicycle Task Force

In 1991, the Greater Vancouver Regional District formed the Regional Bicycle Task force to:

-  Find ways to advance bicycle-related transportation policies;
-  Promote a regional cycling network in co-operation with member municipalities;
-  Publish a map of regional commuting and recreational bicycle routes;
-  Work with BC Transit to facilitate multi-modal travel.

Members of the Regional Bicycle Task Force are comprised of civic politicians within the GVRD.

Vancouver Area Cycling Coalition (VACC)

In 1998, the Vancouver Area Cycling Coalition (VACC) was formed by cycling advocates from BEST, Cycling BC and the Vancouver Bicycle Club to provide a single representative cycling body to the Provincial and municipal governments. The VACC is a member-supported advocacy and lobby group for the entire greater Vancouver area and is dedicated to the improvement of conditions and facilities for cycling.

The VACC's goals are to advocate better conditions for cyclists, support cycling for itself and not for environmental reasons, strive to institutionalize change and to use modern forms of communication to share information, debate issues, and contact others.¹¹

Current VACC projects include: bicycles in, under and around SkyTrain; improving cycling facilities on the Lions Gate Bridge; bicycles and the Greater Vancouver Transportation Authority; and various cycling issues in Burnaby.¹²

For more information contact:

E-mail: vacc@sustainability.com
Homepage: www.vcn.bc.ca/vacc/

¹⁰ Ken Kuo, GVRD Strategic Planning Department

¹¹ Vancouver Area Cycling Coalition Homepage

¹² Richard Campbell, Vancouver Area Cycling Coalition

Vancouver Bikeway Network Group (VBNG)

On February 13, 1991, Dr. Lorne Whitehead of the Vancouver Bikeway Network Group (VBNG) presented a concept for bicycle routes in Vancouver to the BAC. The concept involved dedicating side streets parallel to major arterial streets for cyclists. After presenting this plan to several bicycling organizations and the Engineering Department, the concept was refined to allow integration of both vehicles and bicycles on the parallel side streets, with bicycles receiving priority. A draft document titled *The Bikeway Solution* was then written by the VBNG in May of 1991 and presented to the BAC and Engineering Department for consideration.¹³

In April 1991, the members of the VBNG formed the Bicycle Network Subcommittee to the Bicycle Advisory Committee to Council to assist Engineering staff pursue an integrated bicycle network concept.

2.2 Cycling Related Studies and Reports

The following is a chronological list of regional and City of Vancouver studies and reports that have been produced to either directly promote cycling or emphasize the need to reduce reliance on the automobile.

2.2.1 Greater Vancouver Regional District Studies and Reports

Creating our Future: Steps to a More Livable Region, 1990

Written in 1990, *Creating our Future: Steps to a More Livable Region* was created to maintain Greater Vancouver's liveability and emphasized five critical priorities, which require immediate attention by the Greater Vancouver municipal federation. The five priorities are:

1. Maintaining a healthy environment;
2. Conserving our land resource;
3. Serving a changing population;
4. Maintaining the region's economic health; and
5. Managing our region.¹⁴

Regional Actions 16 and 17 address cycling directly and state:

"16. Develop a regional air quality and transportation strategy that identifies priority actions. Reverse transportation priorities so decisions are made to favour walking, cycling, public transit, goods movement and then the automobile."

"17. Double the number of bicycle commuters by 1995 through promoting a regional cycling network in co-operation with municipalities, preparing a regional map of commuter and recreational cycling routes, working with BC Transit to facilitate multi-modal travel, and encouraging municipalities to adopt development standards that accommodate the needs of cyclists."¹⁵

¹³ *Bicycle Network Study, page 5*

¹⁴ *Creating Our Future: Steps to a More Livable Region, page 9*

¹⁵ *Ibid., page 13*

Livable Regions Strategy: Proposals, 1993

Following the *Creating our Future: Steps to a More Livable Region* report, the GVRD held several public discussions and developed the *Livable Regions Strategy: Proposals* in 1993.¹⁶ One of the policies developed was the need to increase transportation choices and to “enhance and/or retrofit local streets and infrastructure to favour transit, bicycle and pedestrian users”.¹⁷

Transport 2021: A Long-Range Transportation Plan for Greater Vancouver, 1993

Transport 2021 was a joint two-year project between the GVRD and the Province of British Columbia. The plan presents all the elements of a 30-year transportation plan for Greater Vancouver.¹⁸

“A major obstacle to more cycling is that existing roads and bridges do not accommodate cyclists very well. Also, many destinations have no secure bicycle storage, change rooms, showers or lockers.

If cyclists were better accommodated, transit could also benefit: more people from further away could access transit by bike than by foot alone, giving transit stops a greater ‘catchment’ area.

Those modern western cities which have successfully adapted their road systems to accommodate cycling have shown that bicycle travel can become an important component of the transportation system and may reduce the number of motor vehicles on the roads.”¹⁹

Greater Vancouver Regional Bicycle Sign and Pavement Marking Guidelines, 1996

The Greater Vancouver Regional Bicycle Sign and Pavement Marking Guidelines were developed in 1996 by the GVRD’s Municipal Bicycle Committee. The Guidelines were developed to assist anyone planning or building bicycle facilities in Greater Vancouver by providing standard signs and pavement markings that are clear and effective traffic control devices, whether the bicycle traffic is on-road, off-road or on a mixed-use facility.²⁰

2.2.2 City of Vancouver Studies and Reports

Vancouver Comprehensive Bicycle Plan, 1988

In 1988, the Engineering Department, in co-operation with the Bicycle Advisory Committee to Council, developed the *Vancouver Comprehensive Bicycle Plan*. The comprehensive plan was developed to analyze local cycling statistics and needs, explore the four fundamental areas of cycling (Engineering, Education, Enforcement and Encouragement) and to promote and encourage the responsible use of the bicycle as a safe and convenient mode of transportation.²¹

¹⁶ *Livable Region Strategy: Proposals, page 3*

¹⁷ *Ibid., page 37*

¹⁸ *Transport 2021: Long Range Plan for Greater Vancouver, page 1*

¹⁹ *Ibid. page iv*

²⁰ *Greater Vancouver Regional Bicycle Sign and Pavement Marking Guidelines, page 1*

²¹ *Vancouver Comprehensive Bicycle Plan, page 15*

Clouds of Change, 1990

In 1990, Council approved the *Clouds of Change Report* prepared by the Task Force on Atmospheric Change. The task force was created by Vancouver City Council to study the issues surrounding atmospheric change, gather public input and recommend specific actions for the City to pursue.²²

Bicycle Parking Standards Study, 1991

The City's Engineering Department in 1991 completed the *Bicycle Parking Standards Study*. The report was conducted to obtain current data on bicycle ownership and use, to determine "state of the art" practices in other jurisdictions, and to recommend appropriate standards to be applied to various types of development in Vancouver.²³

The results of the Bicycle Parking Standards Study were used to amend the Building and Parking By-laws to incorporate end-of-trip facilities for cyclists in all new developments in Vancouver. A copy of the Bicycle Parking By-law is located in Appendix A.

Bicycle Network Study, 1992

In 1992, the Engineering Department, in co-operation with the Bicycle Advisory Committee to Council, developed the *Bicycle Network Study*. The purpose of the study was to develop measures beyond the *Vancouver Comprehensive Bicycle Plan* and to formulate the basis for a bicycle network in Vancouver. The major recommendation of the *Bicycle Network Study* was the priority to integrate bicycles on local streets through the construction of locally integrated bikeways.²⁴

Vancouver Greenways Plan, 1995

In 1995, City Council adopted the *Vancouver Greenways Plan* that proposes a network of greenways to join important destinations throughout Vancouver. A greenway is a "linear public corridor that connects parks, nature reserves, cultural features, historic sites, neighbourhood, and retail areas, often along either natural corridors like river or ocean fronts or along rail rights-of-way or streets shared for transportation use".²⁵

Greenways are "green paths" for pedestrians and cyclists that expand the opportunities for urban recreation and enhance the experience of nature and city life.²⁶

As a result of the *Vancouver Greenways Plan*, Council approved the Ridgeway Greenway Pilot Project. The Ridgeway Greenway, which connects Pacific Spirit Park on the West Side to Central Park in Burnaby, is the first city-wide greenway to be constructed in Vancouver. The first stage of the Greenway, along 37th Avenue from Granville Street to Knight Street, was constructed in 1997/98. Stages 2 and 3, the extension of the Greenway from Granville Street to U.B.C., and from Knight Street to Boundary Road, are scheduled for construction in 1999 and 2000 respectively.

²² *Bicycle Network Study, page 3*

²³ *Bicycle Parking Standards Study, page 1*

²⁴ *Bicycle Network Study, page 2*

²⁵ *Greenways/Public Ways, page vii*

²⁶ *Vancouver Greenways Plan, page 1*

Bicycle Network Subcommittee’s Local Integrated Bikeway Standards (LIBS), 1996

Developed in 1996, the Local Integrated Bikeway Standards report was written by the Bicycle Network Subcommittee to determine design standards to apply to all new integrated bikeways in Vancouver. The BNSC developed a ratio of traffic volume to road width to determine a design that is comfortable for most cyclists.

The LIBS ratio is as follows:²⁷

$$\frac{VPH}{W_{C-C} - n*2.2 - 3.3}$$

where:

VPH = the maximum number of vehicles (including bicycles) in both directions travelling per hour

W_{C-C} = the roadway width from curb to curb, metres

n = the number of parking lanes on the street

Using the above equation, the following table was produced to give recommended maximum and desirable hourly volumes for streets of varying widths.

Table 1: Recommended Traffic Volumes for Local Integrated Bikeways²⁸

Category	Width (m)	Maximum Vehicles Per Hour	Desirable Vehicles Per Hour
A	< 4.6	84	32
B	4.6 < w < 5.8	228	86
C	5.8 < w < 7.2	384	144
D	7.2 < w < 8.8	564	212
E	8.8 >	684	257

City of Vancouver Transportation Plan, 1997

The City of Vancouver Transportation Plan was completed in 1997 and was the culmination of a year of public meetings and symposiums on transportation in Vancouver. The basic directions for transportation within the City of Vancouver have been established by Council’s adoption of CityPlan and Livable Region Strategic Plan. The goal of the Transportation Plan was to determine the details of how these transportation directions could be achieved.²⁹

The six basic strategies that arose from the Plan include sharing the road network, calming traffic in neighbourhoods, creating a better transportation balance downtown, setting targets for transportation goals, setting priorities for implementation and setting policies for paying for transportation.³⁰

The Transportation Plan Policies that specifically address cycling are as follows:

- 🚲 Continue to develop bikeways as a high priority and to use different bicycle facilities, such as bike lanes, in areas of the Downtown where bikeways are not possible. (Initiatives C1 and C2)

²⁷ Recommendations for Traffic Volumes for Local Integrated Bikeways

²⁸ Ibid.

²⁹ The City of Vancouver Transportation Plan, page 7

³⁰ Ibid., pages 8-11

- 🚲 Install bike lanes on some arterial streets for fast, safe bicycle access across the city. (Initiative C3)
- 🚲 Raise the awareness and visibility of cycling facilities by using pavement markings such as bike logos and painted bike lanes. (Initiative C4)
- 🚲 Improve linkages with transit through provision of bike racks at bus stops and by encouraging BC Transit to accommodate bikes on all public transit vehicles. (Initiatives C5 and C6)
- 🚲 Encourage the provision of a high standard of bicycle facilities in commercial and residential facilities, especially in the Downtown. (Initiative C7)³¹

2.3 The Fundamental “E’s” of Cycling

In order to provide safe, efficient facilities for cyclists and to encourage more people to ride their bicycles for transportation purposes, there are four fundamental and interdependent factors that must be addressed. These factors include engineering, education, enforcement and encouragement.³²

Engineering refers to the infrastructure constructed to encourage cycling and provide a safe and convenient cycling environment for the commuter and recreational cyclist. Engineering may include the construction of bikeways and bike lanes, providing for bicycles at existing traffic signals, providing bike racks and improving the existing road network to better meet the needs of cyclists.

Education is the second fundamental “E” of cycling. The ultimate goal of education is to promote the safe and responsible use of the bicycle for transportation and recreation, and to achieve widespread acceptance of the bicycle as a legitimate vehicle whose operator shares the same rights and responsibilities as that of other vehicles in the transportation network.³³

Enforcement of the rules of the road network also plays an important role in encouraging cycling. Enforcement is required to ensure that both motorists and cyclists comply with all municipal and provincial laws regarding operation of their vehicles. This further enforces the principal that cyclists and motorists respect each other’s right and responsibilities to the road network.

The final fundamental “E” of cycling is encouragement. Encouragement is required to get more people to use their bicycles as a means of transportation. The result is a decrease in traffic congestion, less pollution and an increase in physical fitness.

Over the last 12 years, much of the focus has been providing and developing bicycle infrastructure. However there have been advancements in the areas of education, encouragement, and enforcement.

³¹ *Ibid.*, page 45

³² *Vancouver Comprehensive Bicycle Plan*, page 13

³³ *Vancouver Comprehensive Bicycle Plan*, page 16

3 Education, Enforcement and Encouragement

Since the *Comprehensive Bicycle Plan* identified Education, Enforcement and Encouragement as being critical to the success of its bicycle program, the City has contributed to several projects that have addressed these fundamental factors. Such projects include producing bicycle maps and brochures, creating a hotline for cyclists to call and report cycling hazards, creating both a Police and Parking Enforcement bicycle squad, licensing bicycle couriers, updating the Parking By-law to include bicycle end-of-trip facilities, instituting a mandatory helmet by-law and participating in educational events such as Bike to Work Week.

3.1 Vancouver Cycling Maps and Brochures

Since the implementation of the City's first bicycle routes, cycling maps have been produced to educate residents about the cycling opportunities that exist within the City of Vancouver. The initial individual route maps and brochures evolved until 1995 when they were compiled into a city-wide map, encompassing all routes in Vancouver. This first map entitled *Vancouver Bicycle Routes*, illustrated both the existing and proposed bike routes, in relation to the arterial streets in the City.

As the number of bike routes in Vancouver grew, the map was updated to reflect the changes in the route network. In the spring of 1998, a new map entitled *Cycling in Vancouver* was created to show the relationship of the bike routes within the entire roadway network. This version of the cycling map has proven very successful with over 50,000 being distributed in its first year. Figure 1 shows the front cover of the 98/99 bike map.

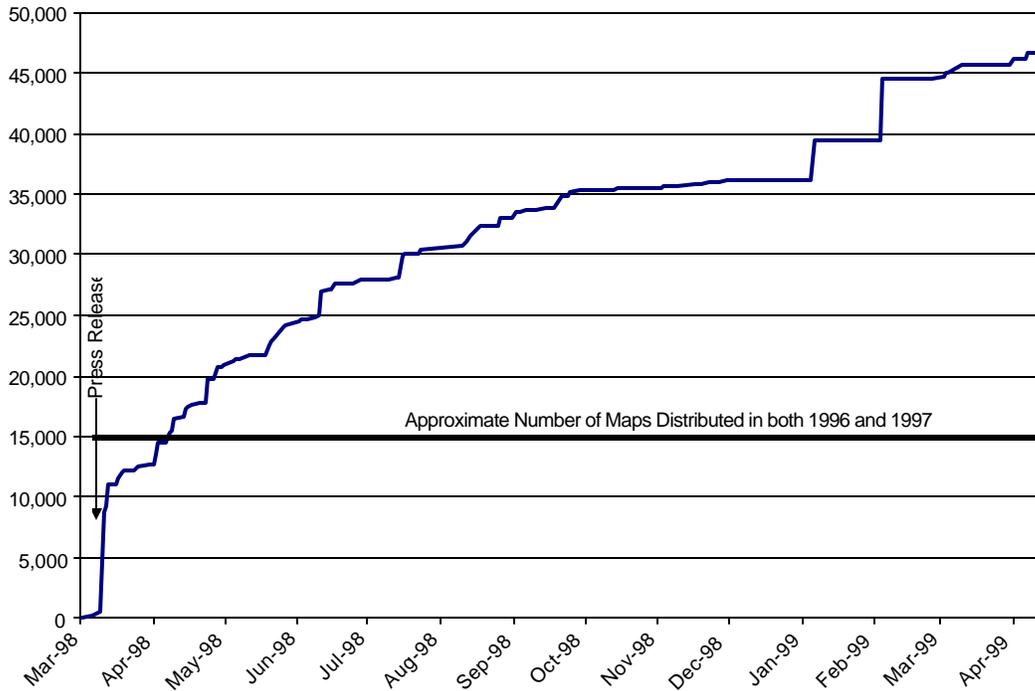
With press coverage and the advertisement of the map on our homepage, requests for copies of the map have come from all over the world. To date, requests have been received from the United Kingdom, Belgium, Finland, Germany, Korea and we have received dozens of requests from the United States.

Figure 2 illustrates the demand for the cycling maps. As one would expect, the majority of the maps are distributed during the spring and summer months. Figure 2 also illustrates the success of the new map with quantities surpassing that of the previous two years.



Figure 1: "Cycling in Vancouver" Map

Figure 2: Quantity of “Cycling in Vancouver” Maps Distributed



Maps are given out to individuals or organizations on request. Figure 3 shows that 98% of the maps are distributed within Vancouver. Most of the remaining 2% are distributed to municipalities neighbouring Vancouver, such as Burnaby, Richmond and North Vancouver.

Figure 3: Geographic Distribution of “Cycling in Vancouver” Maps in 1998

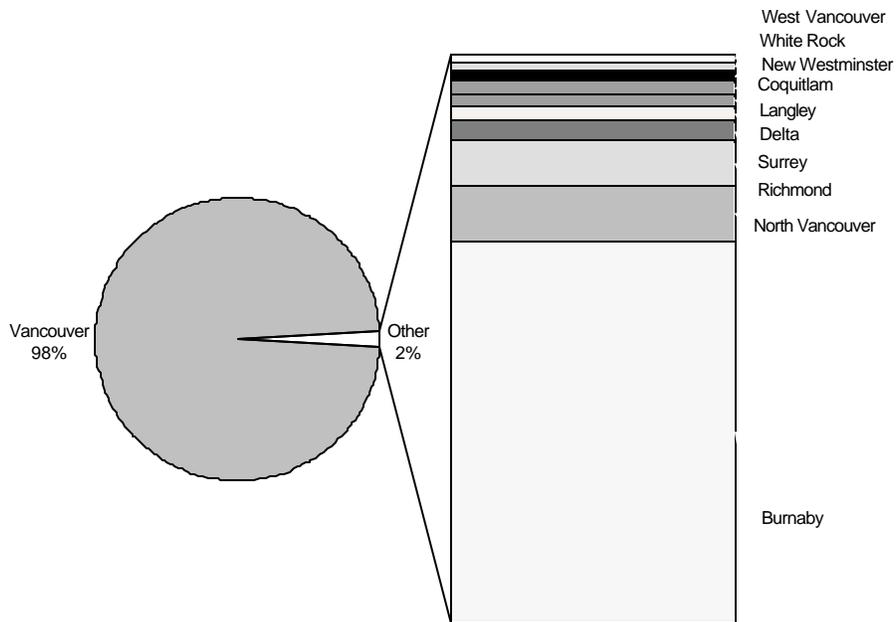


Table 3: Geographic Distribution of “Cycling in Vancouver” Maps in 1998

City	Quantity	Percentage
West Vancouver	11	0.03%
White Rock	11	0.03%
New Westminster	13	0.03%
Coquitlam	18	0.04%
Langley	16	0.04%
Delta	18	0.04%
Surrey	27	0.06%
Richmond	58	0.13%
North Vancouver	72	0.17%
Burnaby	500	1.16%
Vancouver	42,519	98%
Total:	43,263	100%

Action 1: In order to ensure adequate distribution, and to offset the costs of producing the “Cycling in Vancouver” maps, sponsorship opportunities should be pursued.

3.2 Bicycle Hotlines

As described in the following sections, cyclists can reach city staff via a telephone or email hotline to report hazardous cycling conditions, ask questions or make suggestions about cycling in Vancouver.

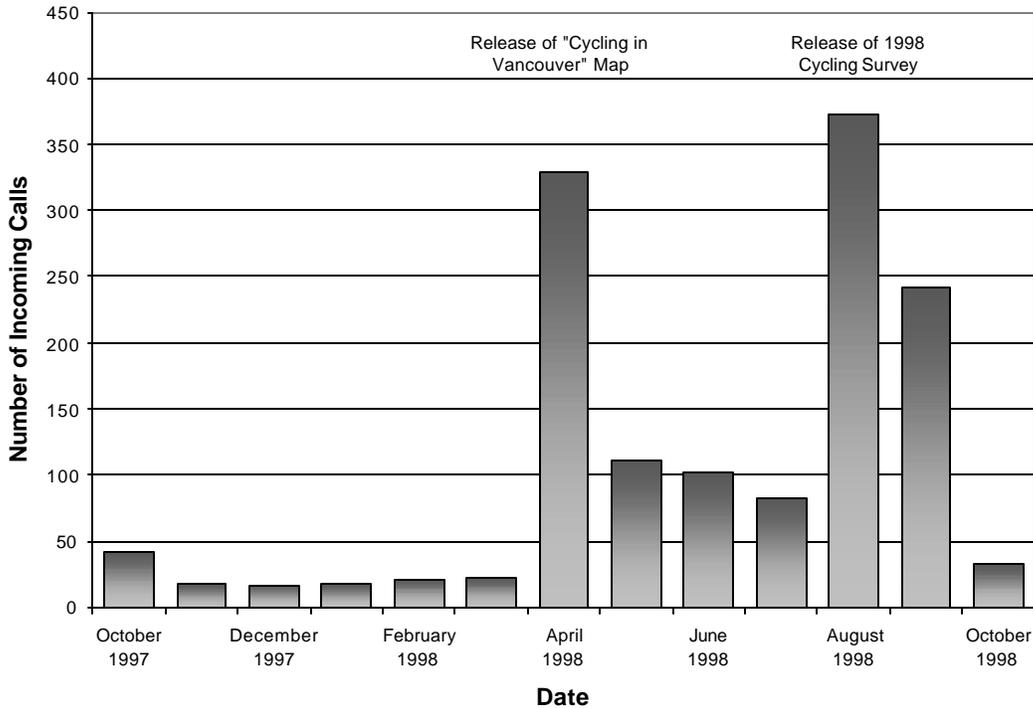
3.2.1 Telephone Hotline

In 1993, a hotline telephone number, (604) 871-6070, was set up for cyclists to request road maintenance, ask questions, or make suggestions regarding our bicycle program.

While the topics of phone calls vary, the majority of calls are related to road maintenance issues such as potholes, broken glass, and lighting, and many callers also request bike maps or suggest future bike routes. Requests for road maintenance and bicycle maps are usually processed and completed within two working days of receiving the call.

The volumes of calls to the bicycle hotline vary both seasonally and with media coverage. Generally, one or two calls are received daily but as shown in Figure 4, as many as 350 calls have been received in a single month.

Figure 4: City of Vancouver Bicycle Hotline Usage in 1998



3.2.2 Email Hotline

In 1994, the City of Vancouver created an email version of its Bicycle Hotline similar to the telephone hotline. Cyclists can email the city for information, report hazardous cycling conditions or request street maintenance.

Initially, the email address was set up jointly with a general transportation hotline (transdiv@city.vancouver.bc.ca), but in 1997 a separate address was created specifically to address cyclists' concerns (cycling@city.vancouver.bc.ca). The volume of requests through email also varies seasonally, with an average of eight to ten requests or messages per week.³⁴

3.3 Police and Parking Enforcement Bicycle Squads

The City of Vancouver has created two bicycle squads for its police and parking enforcement officers. These bicycle patrols are proving popular both with the public and officers alike.

3.3.1 Vancouver Police Bicycle Squad

Although the first police officer to patrol Vancouver's streets on bicycle was in 1899, the first modern Bicycle Squad was created nearly one hundred years later, by the Vancouver Police Department (VPD). The Squad, initially consisting of eight officers, was formed to fill the gap in coverage between

³⁴Cycling Initiatives in Vancouver – Providing Alternatives

beat officers and officers in patrol cars. This squad was modeled on the successes of the Seattle Police Department's Bicycle Squad.³⁵



Figure 5: Police Bicycle Squad

(Photo courtesy of BEST)

Since its inception, the Bicycle Squad has been well received by the public and officers alike. For the public, Police Officers on bicycles are more approachable, personal and contribute to a sense of community. Officers enjoy the bicycle squad because they are more mobile in congested areas, have an expanded view of the patrol area and are able to see, hear and even smell more details. Generally, officers in the Bicycle Squad get more exercise, have less stress and are happier than their counterparts in patrol cars. In addition, the Bicycle Squad is cost effective; eight officers can be trained and equipped for the cost of purchasing one patrol car.³⁶

The Squad has expanded from its initial eight members in 1991, to now include over 70 members of the VPD's 1100 officers; there are now bicycle squads in each of the City's four geographical districts. In fact, with over six percent of its officers on bicycle, Vancouver has one of the highest percentages of bicycle patrols in Canada.³⁷

3.3.2 Parking Enforcement Bike Squad

The City of Vancouver Parking Enforcement Bike Squad was established in 1993 after a Vancouver City Council discussion on a new permit-parking program in the West End. Initially a six-month trial involving 3 officers, the squad has now grown to include over 12 members.³⁸

The establishment of the bicycle squad has seen similar advantages as the Police Bicycle Squad. The bicycles have allowed officers to do their job more efficiently, as larger areas can be patrolled in less time in congested areas and officers on bicycles are more approachable to the public.³⁹

3.4 Bicycle Courier Licences

The City, in conjunction with Cycling British Columbia, currently administers and conducts written and on-road testing before issuing licences to bicycle couriers. This process ensures that couriers are aware of all laws that apply to them, are competent cyclists and are accountable for their actions.

³⁵Vancouver Police Department Bicycle Squad Homepage

³⁶Constable Bert Rainey, Vancouver Police Bicycle Squad

³⁷Vancouver Police Department Bicycle Squad Homepage

³⁸Citylink, June 1998

³⁹*Ibid.*

3.5 Bicycle Parking By-law

In 1995, the City of Vancouver amended its Parking and Building by-laws to include provisions for end-of-trip facilities for cyclists. Depending on the building's use, new developments must now provide bike racks outside the building (Class B bicycle parking) and secure, underground bicycle storage inside the building (Class A bicycle parking). If Class A bicycle parking is required, change rooms and shower facilities are also required for cyclists.⁴⁰

Relevant sections of the Parking By-law are given in Appendix A.

3.6 Bicycle Helmet By-law

The Provincial Government introduced legislation on September 3, 1997 to make the use of approved bicycle helmets mandatory under the Province of British Columbia's Motor Vehicle Act.

Following the Province's lead, the City of Vancouver amended its Street and Traffic by-law to make helmet use mandatory on all bicycle facilities in the City that are not covered by the Provincial legislation.

Under the legislation, an operator of a bicycle must wear an approved bicycle helmet, or face a fine of not more than \$100. Parents or guardians of children under 16 may be charged if they authorize or knowingly allow their child to ride without a helmet.

Relevant sections of the Street and Traffic By-law are located in Appendix A.

3.7 Bike to Work Week

Bike To Work Week is an annual weeklong event of activities, events and publicity to promote cycling as a viable transportation alternative. Held each year during National Environment Week in June, the purpose of Bike To Work Week is to encourage as many people as possible to cycle to work, school and to shop by raising the awareness of cycling as a healthy, efficient and economical transportation choice.

Co-ordinated and presented by Better Environmentally Sound Transportation (BEST), Bike To Work Week was launched in 1996 and has grown over the last three years to include a regional public education and communications campaign that encourages more people to use their bicycle. The City of Vancouver supports and participates in this annual event.

In 1999, the name was changed to Bike Week to reflect a greater range of events than just cycling to work. Generally, events include a recreational bicycle ride, an opening of a City of Vancouver Bikeway, the Bike-Transit-Car Challenge (a fun race between different modes of transportation), a cycling forum, a dance and a recreational ride to Granville Island. Figure 6 shows a poster used to advertise the 1999 Bike Week.⁴¹



Figure 6: 1999 Bike Week Promotion

⁴⁰ Cycling Initiatives in Vancouver – Providing Alternatives

⁴¹ Joy Schellenberg, Better Environmentally Sound Transportation

4 Engineering

While many initiatives have been implemented within the past ten years to address the Education, Enforcement and Encouragement fundamentals of cycling, the majority of the accomplishments have been in the area of Engineering. The final fundamental component to an effective cycling program, Engineering, has received perhaps the most attention in the last decade. Examples of bicycle engineering and infrastructure include the development of a network of bikeways, the implementation of a bike rack program, the upgrading of signs and stencils on bikeways to increase awareness and visibility, and the development of the Greenway Network.

4.1 Bicycle Network in Vancouver

The creation of Vancouver's bicycle network began with the construction of the BC Parkway and Seaside recreational routes in the late 1980's. In 1992, Council approved the *Bicycle Network Study* and the development of a network of locally integrated bicycle routes. In particular, four priority corridors for bicycle integration were identified: the Adanac/Union corridor, the Broadway corridor, the Ontario corridor and the Arbutus corridor.

Figure 7 illustrates both the construction rate of new bicycle routes and significant milestones since the 1980's. Table 7 details the number of kilometres of bike route associated with the various bike corridors developed since the 1980's.

Figure 7: Bicycle Route Construction

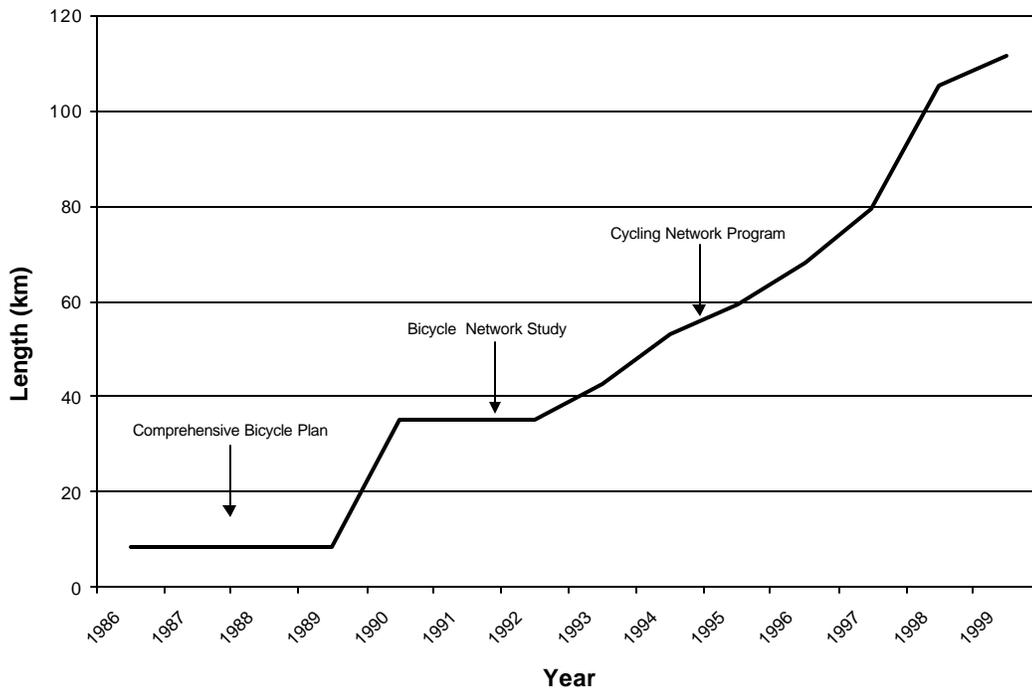


Table 7: Bicycle Route Construction

Route	Year Constructed	Length (km)
BC Parkway	1986	8.5
Seaside	1990	39.0
Adanac	1993	5.7
Cassiar	1993	1.7
Off-Broadway	1994	8.3
Fraser Lands	1994	1.9
Ontario	1995	6.5
Cypress	1996	8.6
Heather	1997	3.0
Lakewood	1997	2.9
SW Marine	1997	5.4
Midtown	1998	13.5
Ridgeway	1998	12.0
Sunrise	1998	9.8
Mosaic	1999	3.0
Portside	1999	3.5
16 Routes	14 years	133 km

Construction of the four priority corridors began in 1993 with the Adanac Bikeway and was completed in 1996 with the Cypress Bikeway (Arbutus corridor). With the opening of the Sunrise Bikeway in the spring of 1999, Vancouver reached over 100 kilometres of signed bicycle routes.

In 1995, the Provincial Cycling Network Program was created and has contributed to the accelerated route construction over the past four years. The Cycling Network Program's contributions to Vancouver's bicycle network are shown in Figures 8 and 10.

The Cycling Network Program has been indispensable in the development of bike routes in Vancouver by providing 50%, up to a maximum of \$200,000, towards the cost of constructing new routes. This has effectively doubled the budget available for bicycles in the City of Vancouver. As a result, bicycle routes beyond the four priority corridors of the 1992 *Bicycle Network Study* have been developed.

In addition to the Cycling Network Program, funding is available through the recently formed TransLink. The details of this funding are not yet available, however all indications are that TransLink will provide funding for cycling projects of regional importance.

Action 2: In order to maximize funding and accelerate construction of the bicycle network, funding applications through the Cycling Network Program and TransLink should continue to be actively pursued.

Figure 8: Cost of Vancouver's Bicycle Network

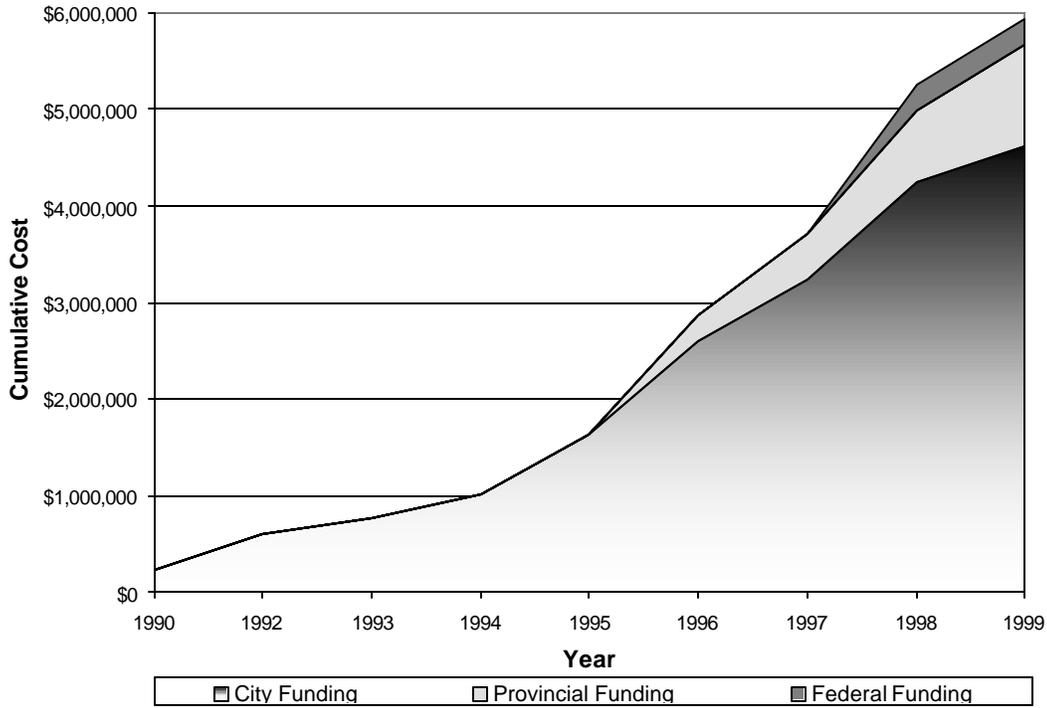


Table 8: Cost of Vancouver's Bicycle Network

Year	City Funding	Provincial Funding	Federal Funding
1990	\$237,000	\$0	\$0
1992	\$356,000	\$0	\$0
1993	\$168,900	\$0	\$0
1994	\$257,000	\$0	\$0
1995	\$617,600	\$0	\$0
1996	\$966,800	\$265,000	\$0
1997	\$635,000	\$201,500	\$0
1998	\$1,014,584	\$266,583	\$266,583
1999	\$352,750	\$316,050	\$0
Total	\$4,605,634	\$1,049,133	\$266,583

In addition, Figure 11 illustrates the bicycle routes identified by the *Bicycle Network Study* in relation to the existing bicycle network. Of the routes identified in 1992, approximately 60% have been constructed to date. The most notable gaps in the existing network include the lack of bicycle facilities in the downtown peninsula, a north-south route near the University of British Columbia and the need for an east-west route through the southern portion of the city.

Figure 9: Vancouver's Existing Bicycle Network

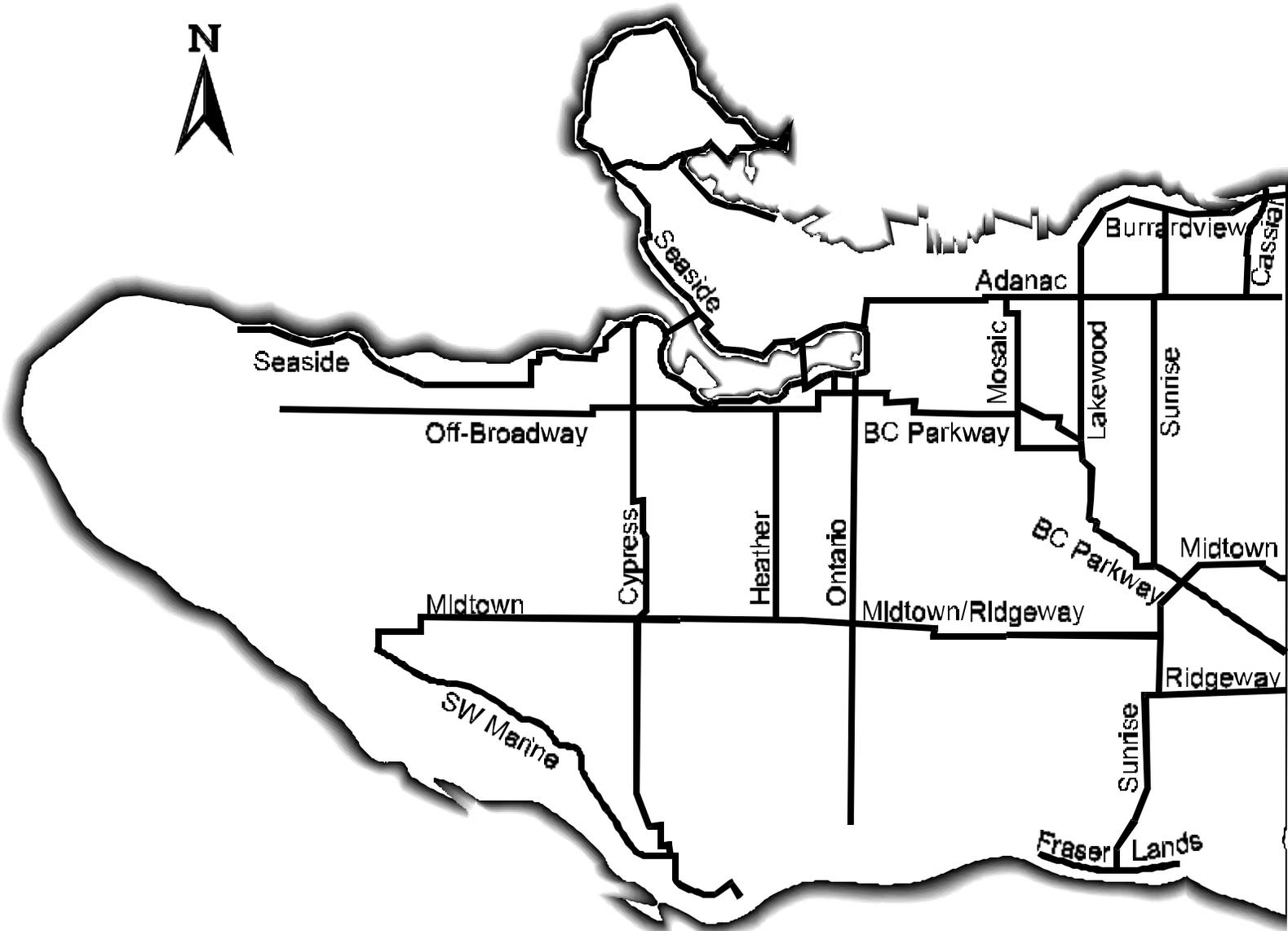


Figure 10: The Cycling Network Program's Contribution to Vancouver's Bicycle Network

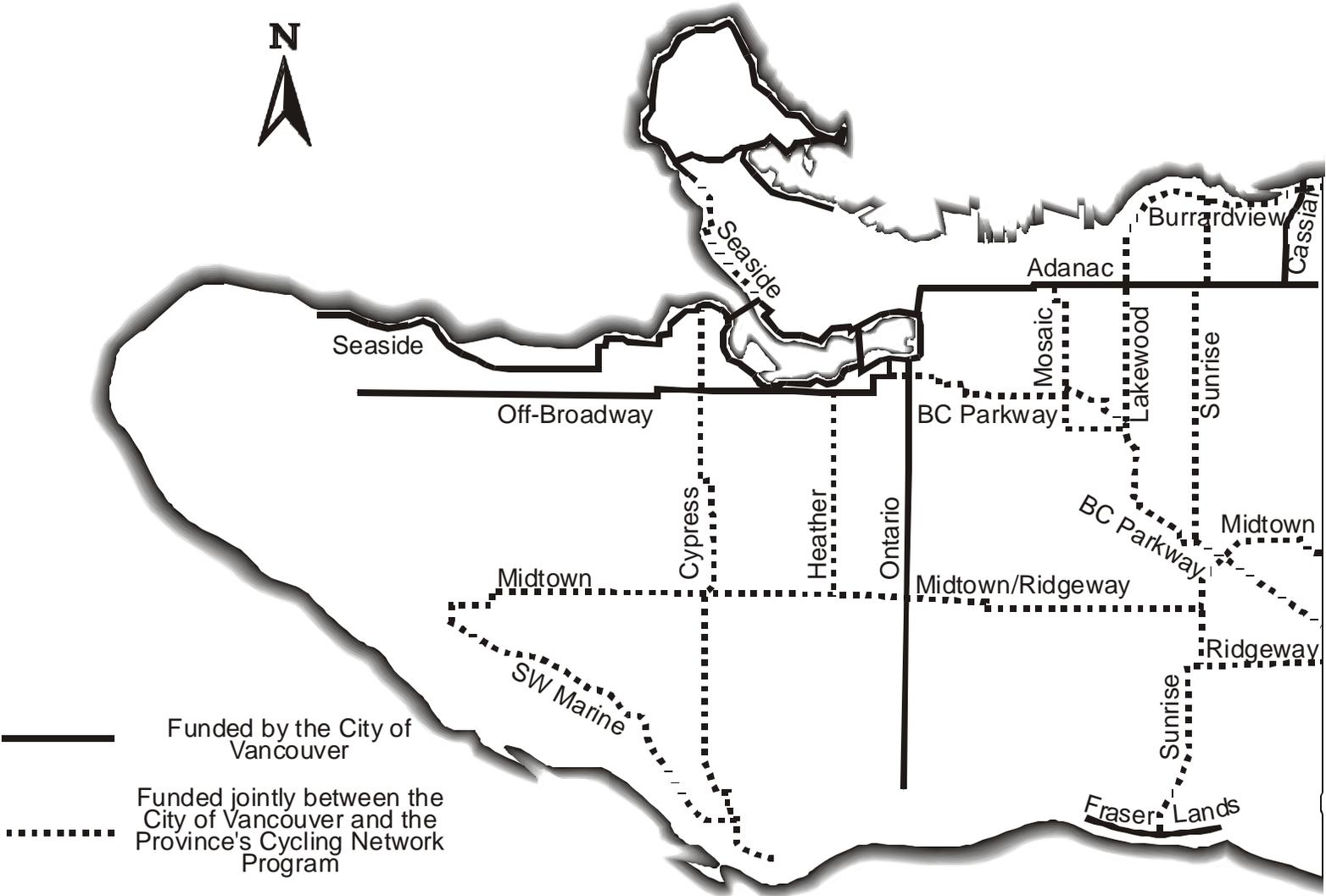
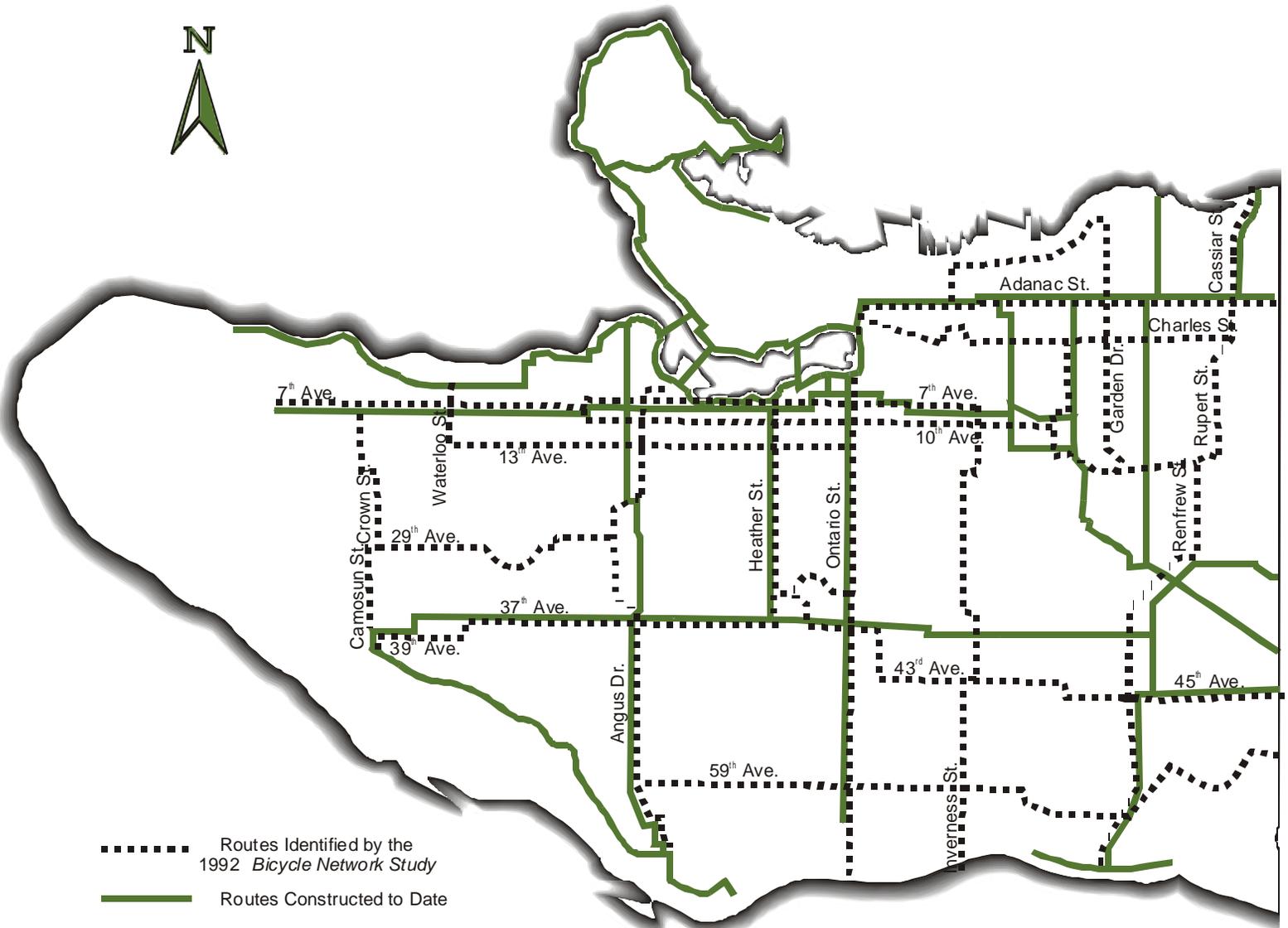


Figure 11: Routes along Side Streets Identified by the 1992 Bicycle Network Study



4.1.1 Bicycle Networks in Other Bicycle-Friendly Cities

Figure 12 illustrates the length of the various cycling facilities in Vancouver with those of Portland, Oregon and Seattle, Washington. Portland and Seattle were selected because of their proximity to Vancouver and their similar populations and climates.

While a combination of bike lanes, paths and bikeways are required for an effective network, each city has focused on a different primary type of bicycle facility; Portland has constructed the most bike lanes, Seattle the most bicycle paths and Vancouver the most bikeways. Despite these different focuses, it is interesting to note that the approximate rate of commuter cycling is the same (2%) for each of the three cities.

Figure 12: Comparison of Bicycle Facilities in Vancouver, Seattle and Portland

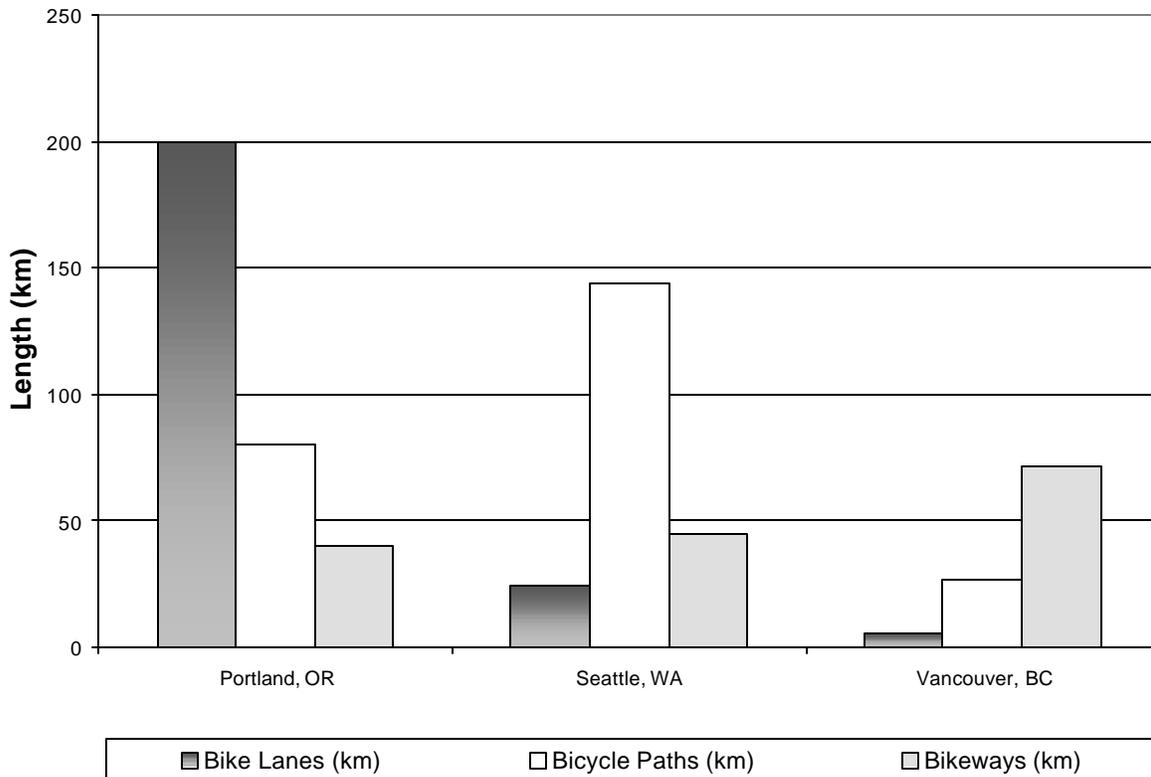


Table 12: Comparison of Bicycle Facilities between Vancouver, Seattle and Portland ^{42 43}

	Portland, OR	Seattle, WA	Vancouver, BC
Population			
City	480,000	533,000	540,000
Metro Region	1,200,000	3,100,000	1,900,000
Rainfall (mm/yr)	1270	968	1480
Bicycle Use (%)	2%	2%	2%
Bike Lanes (km)	200	24	5
Bicycle Paths (km)	80	144	27
Bikeways (km)	40	45	72
Total (km)	320	213	104
Bikes on Buses	Yes (all)	Yes (all)	Limited Routes

4.2 Greenways Program

As stated in Section 1, Council adopted a network of greenways in 1995 as outlined by the Vancouver Greenways Plan. Many of these proposed greenways coincide with the scenic and recreation bicycle routes identified in the 1992 Bicycle Network Study. As a result, staff are co-ordinating their efforts to ensure that both the Bikeway and Greenway Networks are developed to complement each other and to maximize funding and staff resources.

Greenways provide more in terms of landscaping, views and aesthetics than do regular bikeways. Consequently, they appeal to recreational cyclists. However, care must be taken to ensure that, where appropriate, greenways accommodate commuter cyclists as well.

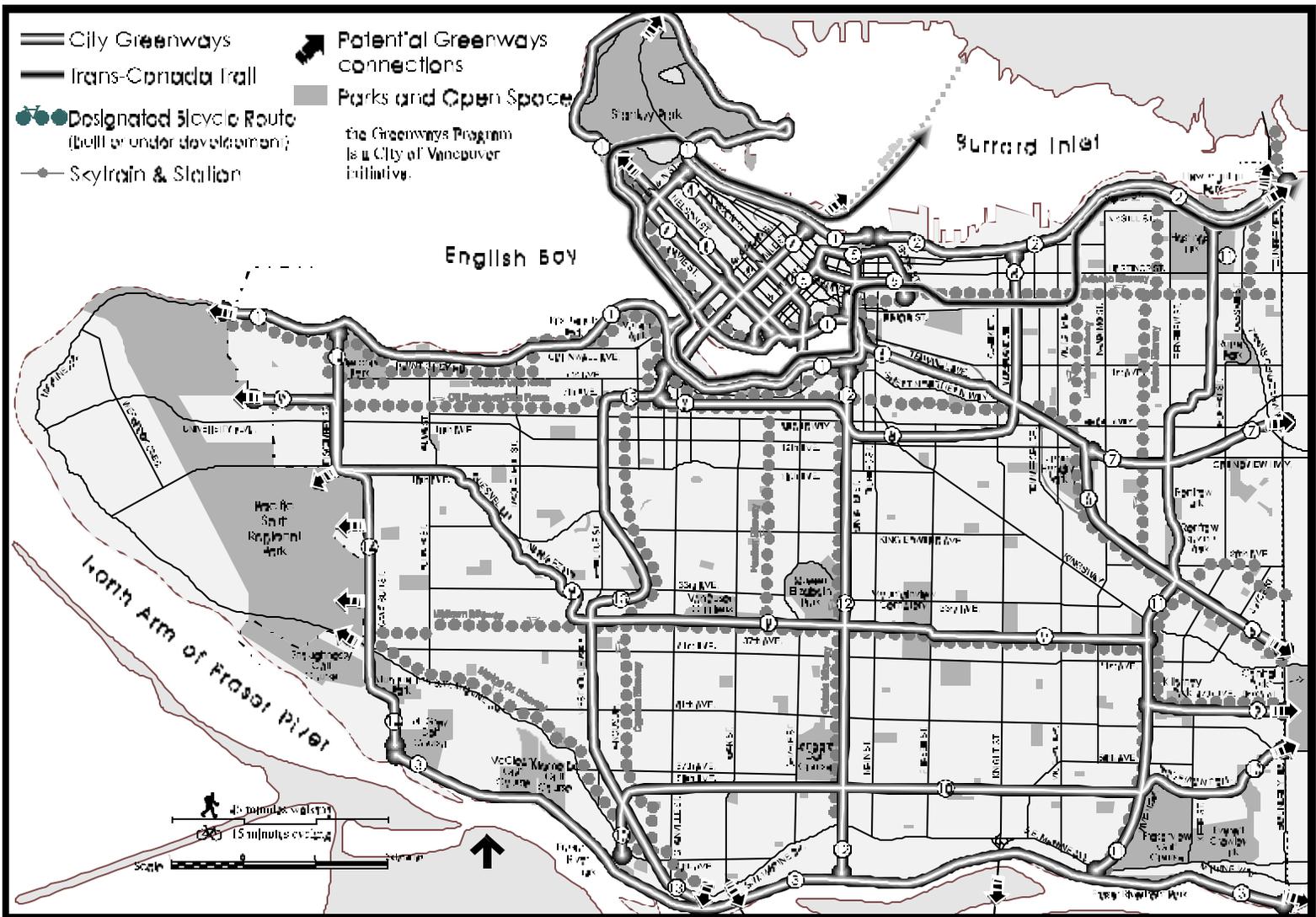
Action 3: Incorporate the Greenway Network into the Bicycle Network by providing facilities for recreational cyclists.

The city-wide Greenway Network is show in Figure 13.

⁴² *A Tale of Three Cities: A Comparison of Santa Barbara, Davis and Portland*

⁴³ *City of Seattle Homepage, Seattle Transportation: Bicycle Facts and Statistics*

Figure 13: Vancouver Greenways Network



Map 13: Vancouver Greenways Network

4.3 Bike Rack Program

In 1993, the City of Vancouver, in association with Cycling BC and the Provincial Government, established a bike rack program to encourage businesses to install bike racks on the sidewalk in front of their premises. A business requesting a rack would pay two-thirds of the cost of the rack and the City and Province paid the remaining one-third. Cycling BC's role was to administer and advertise the program. After approximately two years, the program was cancelled because it was not attracting sufficient interest. Lack of interest may have been the result of cumbersome administration, lack of promotion, or the restriction on the type of rack eligible.⁴⁴

Clearly, to attract more people to cycle, we need to improve end-of-trip facilities such as bicycle racks, particularly in busy commercial areas. As result, the City should investigate and implement a more flexible bike rack program.

Action 4: Implement a new bike rack program that allows for options and flexibility and that results in an increase in racks in busy commercial areas.

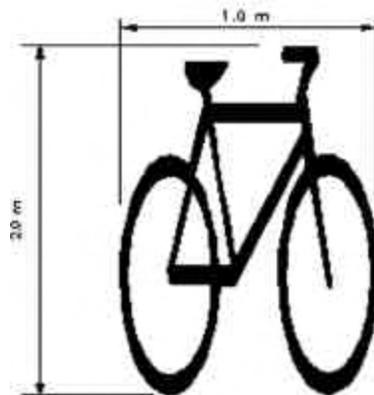
This Action Item supports Vancouver's Transportation Plan, Initiative C6 to install bike racks on each block of commercial frontage and at major bus stops.⁴⁵

4.4 Bikeway Sign and Stencil Upgrade

On July 28, 1998, Vancouver City Council approved Engineering Services' *Bicycle Network Upgrade Report*. The *Bicycle Network Upgrade Report* responds to the Transportation Plan's initiative to increase the awareness and visibility of cycling facilities, Initiative C4.⁴⁶ This initiative involves the use of pavement markings and signs to identify bikeways to cyclists and motorists and to raise the awareness of the bicycle network.

To alert drivers of the presence of cyclists on the street as well as to guide cyclists, bicycle road logos (pavement stencils), as shown in Figure 14, are being placed approximately every third block along a bikeway. In particular, stencils are being installed where the bikeway turns onto another street, intersects another bikeway, or intersects an arterial street.

Figure 14: Bikeway Stencils



⁴⁴ Cycling in Initiatives in Vancouver – Providing Alternatives

⁴⁵ *Vancouver Transportation Plan*, page 45

⁴⁶ *Ibid.*, page 45

In addition existing street name blades along bikeways are being replaced with new name blades that contain a bicycle logo, such as that shown in Figure 15. This new street name sign features a green and white bicycle symbol on a black street name sign. The street name and hundred-block also features a new, modern typeset. This will help to further identify a street as a bikeway and increase driver awareness of the presence of cyclists on the street.

Figure 15: Street Name Blade to be used on Bikeways



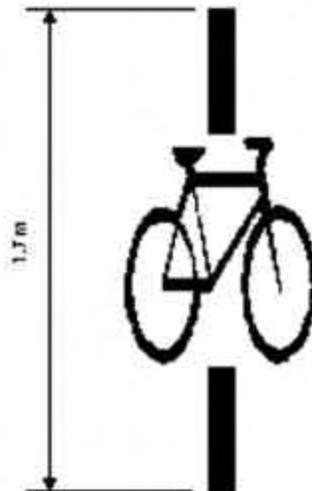
Also proposed is the installation of overhead street name blades containing a bicycle logo at all signalized intersections along the bikeways. The majority of these signals are pedestrian and cyclist actuated and currently do not have overhead signs. See Figure 16.

Figure 16: Overhead Sign to be used for Signals Where Bikeways Cross Arterial Streets



Finally, bicycle loop detector stencils, as shown in Figure 17 have been installed at various semi-actuated traffic signals throughout the city. They will assist cyclists in placing their bicycles appropriately on top of a loop detector so that the cyclist will be detected and trigger the vehicular traffic signal. This will allow cyclists to activate the signal without having to wait for another vehicle or push a button. Furthermore, the stencils will help reinforce the presence of cyclists in the flow of traffic.

Figure 17: Stencil used for Bicycle Activation at Loop Detectors



All existing routes will be upgraded with the new signs and stencils and incorporated in all future bikeway construction. When completed, these initiatives will substantially raise awareness of the bicycle network and provide further guidance to those using the routes.

5 Review of Existing Bikeways

Over the past 14 years, Vancouver has constructed over 100 kilometres of signed bicycle routes. During this time, the focus has been towards constructing new bicycle facilities and little information has been gathered to measure the effectiveness of the routes for cyclists and their acceptance by residents.

In addition, during the planning phase of routes, some residents have raised concerns regarding the possible detrimental effects of the bikeway on property values, crime and the quality of life. Others have been concerned that there will be too few cyclists to justify the expense of proposed changes made to the street. This section examines bikeway-related data and trends as well as, public input in order to address many of these concerns.

5.1 Data/Trends

This section summarizes quantitative bikeway information including data on bicycle and vehicle volumes, bicycle accidents, crime statistics and property values.

5.1.1 Classifier Counts

Until recently, cyclists were counted by having an observer manually count cyclists over a period of time, usually one hour. Commuter bicycle traffic patterns were assumed to be similar to that of motor vehicles, with the same peak use periods, behaviours and peak hour factors.

In 1998, however, Engineering Services obtained automatic classifying counters that, in addition to counting and measuring vehicle speeds, are able to determine the type of vehicle passing over them. This allows us to determine whether the vehicle is an automobile, truck, bus or a bicycle/motorcycle. Classifiers have proven to be a tremendous asset in the traffic evaluations required for the Bike Network review. By facilitating cyclist counts to occur continuously over a period of days, we have been able to better assess daily bicycle and vehicle patterns.

While the classifiers are an excellent method for counting and classifying vehicles, they do have their limitations. Unfortunately, the classifiers are unable to measure vehicles travelling below 16 km/h, which means that they cannot count cars or bicycles if they are moving too slowly. As a result, the number of cyclists reported may be lower than the actual number using the bikeway.

The second limitation of using a classifier is that vehicles are grouped according to the number of and distance between axles. As motorcycles and bicycles are similar in size and shape, they are grouped as one type of vehicle. However, as the number of motorcycles compared to bicycles on bikeways is assumed to be relatively small, they are reported as bicycles in the following analysis.

Adanac Bikeway

The Adanac Bikeway, the first and arguably the most popular bikeway constructed to date, has had several classifier counts conducted over the last year to count the number of bicycles and vehicles using the street. Counts have been conducted on Adanac at McLean Drive, at Windermere Street and at Lillooet Street. Figures 18 through 21 illustrate the results of these counts.

Figure 18: 24-Hour Bicycle and Vehicle Volumes on Adanac St. east of McLean Dr., September 14 to 15, 1998

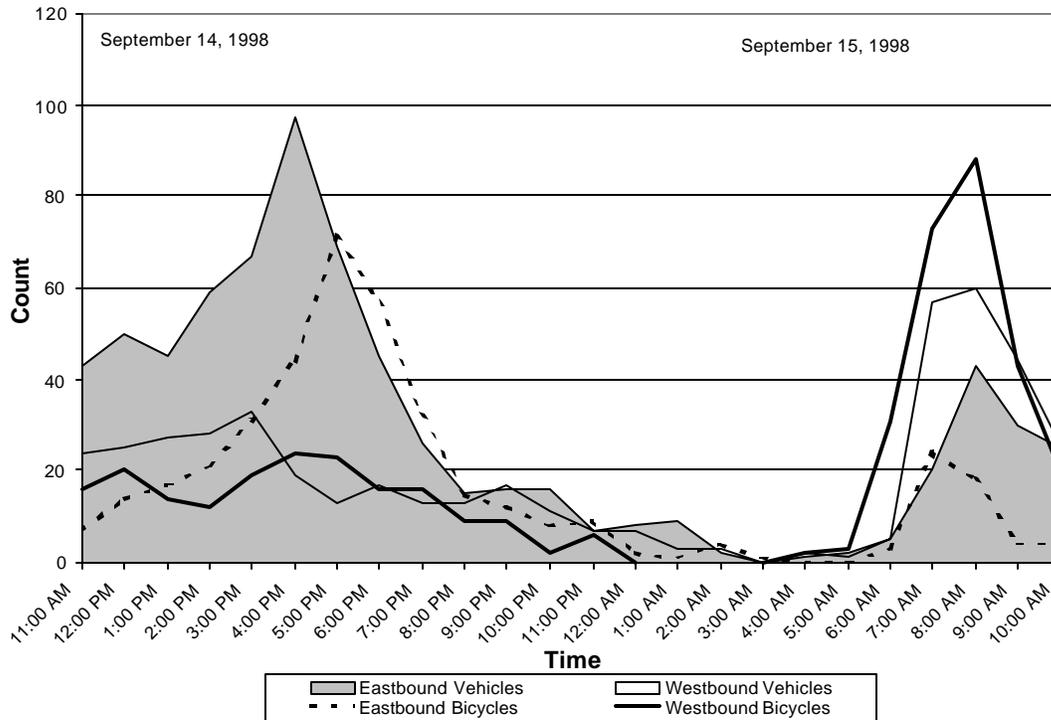


Table 18: ADANAC BIKEWAY - 24-Hour Bicycle and Vehicle Volumes on Adanac Street east of McLean Dr., September 14 to 15, 1998

14-Sep-98	Direction				15-Sep-98	Direction			
	Westbound		Eastbound			Westbound		Eastbound	
Time	Bicycles	Vehicles	Bicycles	Vehicles	Time	Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	16	24	7	43	11:00 PM	6	7	9	7
12:00 PM	20	25	14	50	12:00 AM	0	7	2	8
1:00 PM	14	27	17	45	1:00 AM	0	3	1	9
2:00 PM	12	28	21	59	2:00 AM	0	3	4	2
3:00 PM	19	33	31	67	3:00 AM	0	0	1	0
4:00 PM	24	19	44	97	4:00 AM	2	2	0	1
5:00 PM	23	13	71	69	5:00 AM	3	1	0	2
6:00 PM	16	17	57	45	6:00 AM	31	5	3	5
7:00 PM	16	13	32	26	7:00 AM	73	57	24	20
8:00 PM	9	13	15	15	8:00 AM	88	60	18	43
9:00 PM	9	17	12	16	9:00 AM	43	44	4	30
10:00 PM	2	11	8	16	10:00 AM	20	26	4	25
					24 hr Total	446	455	399	700

While one-hour manual bicycle counts have been conducted on Adanac before, the results of this classifier count are encouraging. The volume of cyclists approaches the volume of motor vehicles with 855 bicycles and 1155 vehicles counted in a 24-hour period. In fact, the number of bicycles heading westbound in the morning rush exceeds that of westbound automobiles, as shown in Table 18.

It is also interesting to note that the peak periods for both cyclists and motorists occur at approximately the same time. The morning peak hour for both automobiles and bicycles is approximately 7:00 to 8:00 a.m. The afternoon peaks are from 4:00 to 5:00 p.m. for automobiles and from 5:00 to 6:00 p.m. for bicycles.

Figure 19: 48-Hour Bicycle and Vehicle Volumes on Adanac St. east of McLean Dr., January 26 to 28, 1999

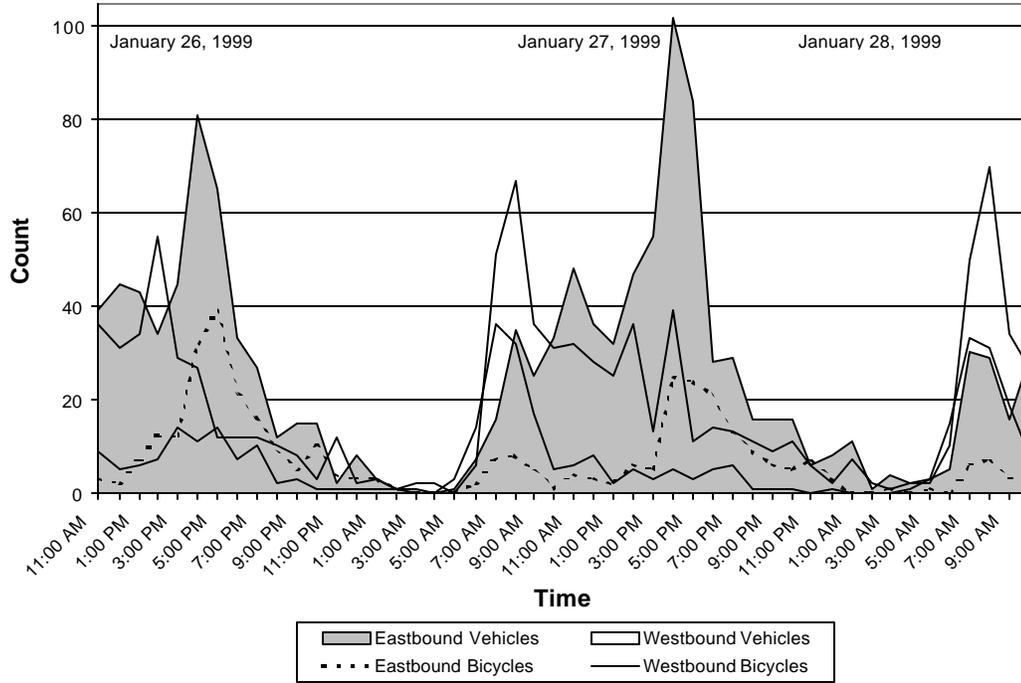


Table 19: ADANAC BIKEWAY - 48-Hour Bicycle and Vehicle Volumes on Adanac St. east of McLean Dr., January 26 to 28, 1999

Januar 26/27, 1999					January 27/28, 1999				
Time	Westbound		Eastbound		Time	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	9	36	3	39	11:00 AM	6	32	4	48
12:00 PM	5	31	2	45	12:00 PM	8	28	3	36
1:00 PM	6	34	7	43	1:00 PM	2	25	2	32
2:00 PM	7	55	12	34	2:00 PM	5	36	6	47
3:00 PM	14	29	12	45	3:00 PM	3	13	5	55
4:00 PM	11	27	32	81	4:00 PM	5	39	25	102
5:00 PM	14	12	39	65	5:00 PM	3	11	24	84
6:00 PM	7	12	21	33	6:00 PM	5	14	21	28
7:00 PM	10	12	16	27	7:00 PM	6	13	13	29
8:00 PM	2	10	9	12	8:00 PM	1	11	9	16
9:00 PM	3	8	5	15	9:00 PM	1	9	6	16
10:00 PM	1	3	10	15	10:00 PM	1	11	5	16
11:00 PM	1	12	4	2	11:00 PM	0	6	7	6
12:00 AM	1	2	3	8	12:00 AM	1	2	3	8
1:00 AM	1	3	3	3	1:00 AM	0	7	0	11
2:00 AM	1	1	1	1	2:00 AM	0	2	0	1
3:00 AM	0	2	0	1	3:00 AM	0	1	1	4
4:00 AM	0	2	0	0	4:00 AM	1	2	0	2
5:00 AM	3	0	0	1	5:00 AM	3	2	1	3
6:00 AM	14	6	2	7	6:00 AM	15	10	0	5
7:00 AM	36	51	7	16	7:00 AM	33	50	6	30
8:00 AM	32	67	8	35	8:00 AM	31	70	7	29
9:00 AM	17	36	5	25	9:00 AM	19	34	3	16
10:00 AM	5	31	1	33	10:00 AM	8	27	3	29
24 hr Total	200	482	202	586	24 hr Total	157	455	154	653

The January counts are also encouraging as approximately 300 to 400 cyclists per day are still using the bikeway in the middle of winter (compared to 800 to 900 cyclists per day in autumn).

Figure 20: ADANAC BIKEWAY - 48-Hour Bicycle and Vehicle Volumes on Adanac Street east of Windermere St., July 21 to 23, 1998

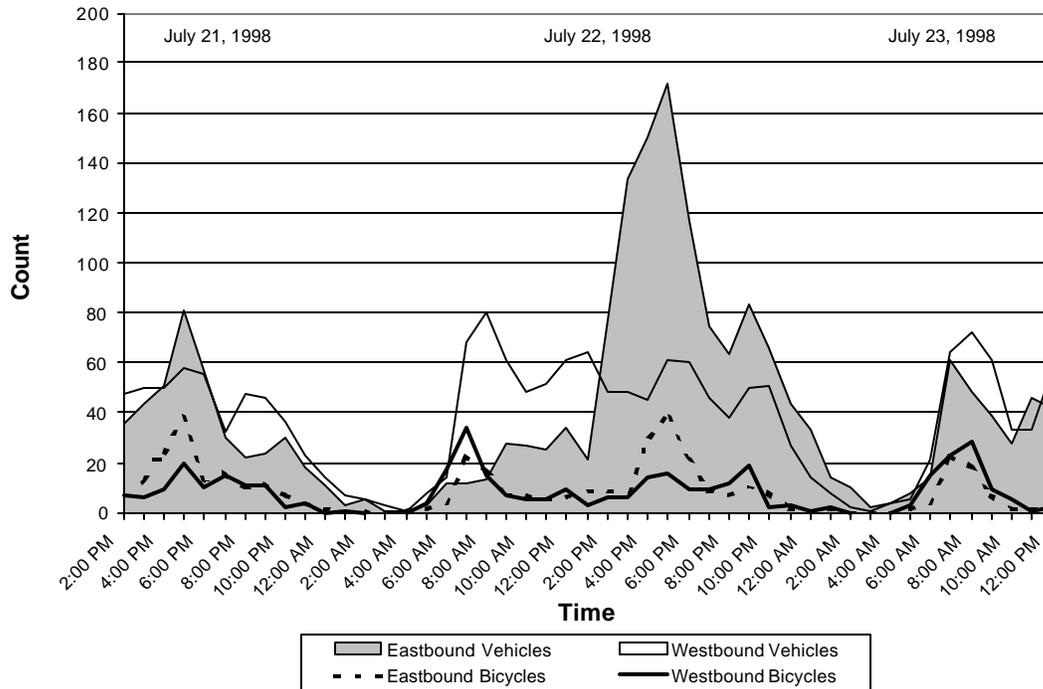


Table 20: 48-Hour Volumes on Adanac St. east of Windermere St., July 21 to 23, 1998

July 21/22, 1998					July 22/23, 1998				
Time	Westbound		Eastbound			Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
2:00 PM	7	47	9	36	2:00 PM	6	48	9	77
3:00 PM	6	50	13	44	3:00 PM	6	48	8	134
4:00 PM	9	50	24	51	4:00 PM	14	45	30	150
5:00 PM	20	58	38	81	5:00 PM	16	61	38	172
6:00 PM	10	55	12	57	6:00 PM	9	60	21	117
7:00 PM	15	32	16	30	7:00 PM	9	46	9	75
8:00 PM	11	47	10	22	8:00 PM	12	38	7	63
9:00 PM	11	46	12	24	9:00 PM	19	50	11	83
10:00 PM	2	37	7	30	10:00 PM	2	51	8	66
11:00 PM	4	23	4	18	11:00 PM	3	27	2	44
12:00 AM	0	14	2	11	12:00 AM	1	14	1	33
1:00 AM	1	7	0	3	1:00 AM	2	8	2	14
2:00 AM	0	5	1	5	2:00 AM	0	2	0	10
3:00 AM	0	3	0	1	3:00 AM	0	1	0	2
4:00 AM	0	1	1	1	4:00 AM	0	4	0	4
5:00 AM	4	8	2	3	5:00 AM	3	5	2	8
6:00 AM	17	14	4	12	6:00 AM	15	21	4	14
7:00 AM	34	68	23	12	7:00 AM	23	64	23	61
8:00 AM	15	80	16	13	8:00 AM	29	72	18	48
9:00 AM	7	61	7	28	9:00 AM	9	61	7	39
10:00 AM	5	48	7	27	10:00 AM	5	33	2	28
11:00 AM	5	52	5	25	11:00 AM	1	33	2	46
12:00 PM	9	61	6	34	12:00 PM	2	56	2	42
1:00 PM	3	64	9	21					
24 hr Total	195	931	228	589	23 hr Total	186	848	206	1330

Figure 21: 48-Hour Bicycle and Vehicle Volumes on Adanac St. east of Lillooet St., July 13 to 15, 1998

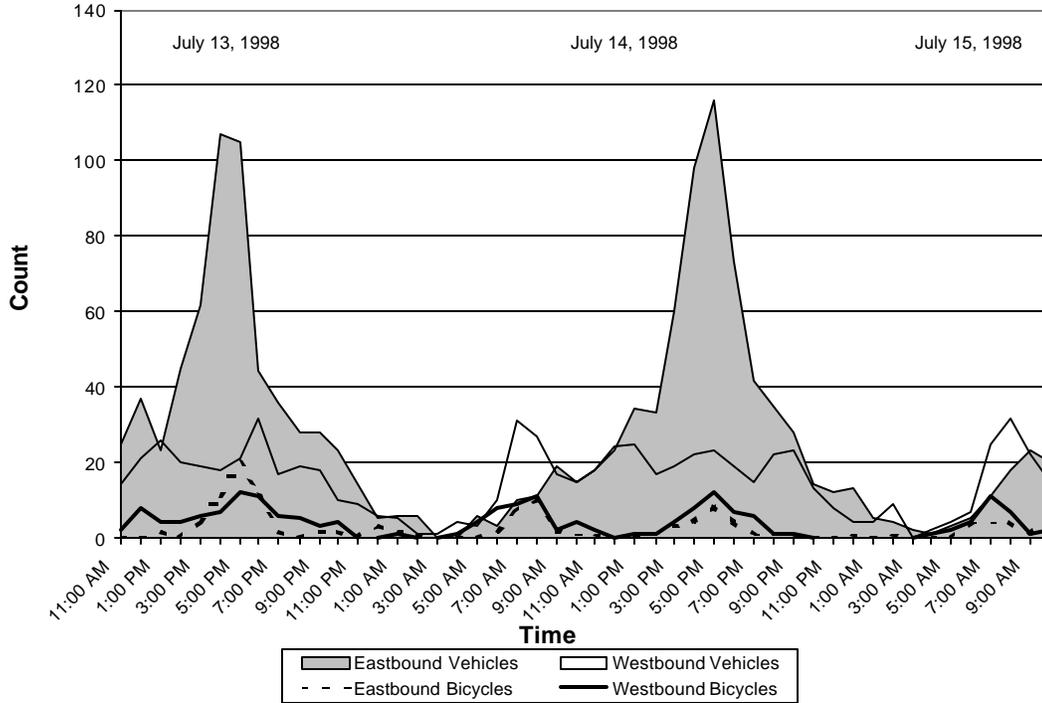


Table 21: 48-Hour Bicycle and Vehicle Volumes on Adanac St. east of Lillooet St., July 13 to 15, 1998

July 13/14, 1998				July 14/15, 1998					
Time	Westbound		Eastbound		Time	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	2	14	0	25	11:00 AM	2	18	1	18
12:00 PM	8	21	0	37	12:00 PM	0	24	0	23
1:00 PM	4	26	2	23	1:00 PM	1	25	0	34
2:00 PM	4	20	0	45	2:00 PM	1	17	1	33
3:00 PM	6	19	4	62	3:00 PM	4	19	3	60
4:00 PM	7	18	11	107	4:00 PM	8	22	4	98
5:00 PM	12	21	20	105	5:00 PM	12	23	8	116
6:00 PM	11	32	11	44	6:00 PM	7	19	4	73
7:00 PM	6	17	2	36	7:00 PM	6	15	1	42
8:00 PM	5	19	0	28	8:00 PM	1	22	1	35
9:00 PM	3	18	2	28	9:00 PM	1	23	1	28
10:00 PM	4	10	2	23	10:00 PM	0	13	0	14
11:00 PM	0	9	0	14	11:00 PM	0	8	0	12
12:00 AM	0	6	3	5	12:00 AM	0	4	1	13
1:00 AM	1	5	2	6	1:00 AM	0	4	0	5
2:00 AM	0	1	1	6	2:00 AM	0	9	1	4
3:00 AM	0	1	0	0	3:00 AM	0	0	0	2
4:00 AM	1	4	0	0	4:00 AM	1	2	0	1
5:00 AM	4	3	0	6	5:00 AM	2	4	0	3
6:00 AM	8	10	2	3	6:00 AM	4	7	4	5
7:00 AM	9	31	7	10	7:00 AM	11	25	4	11
8:00 AM	11	27	10	11	8:00 AM	7	32	4	18
9:00 AM	2	17	2	19	9:00 AM	1	22	1	23
10:00 AM	4	15	1	15	10:00 AM	2	15	4	20
24 hr Total	112	364	82	658	24 hr Total	71	372	43	691

Midtown/Ridgeway Bikeway

In addition to the data collected on the Adanac route, classifier data also exists for the more recently implemented Midtown/Ridgeway Bikeway.

Figure 22: MIDTOWN/RIDGEWAY BIKEWAY - 48-Hour Bicycle and Vehicle Volumes on Camosun St. south of West 40th Ave., November 16 to 18, 1998

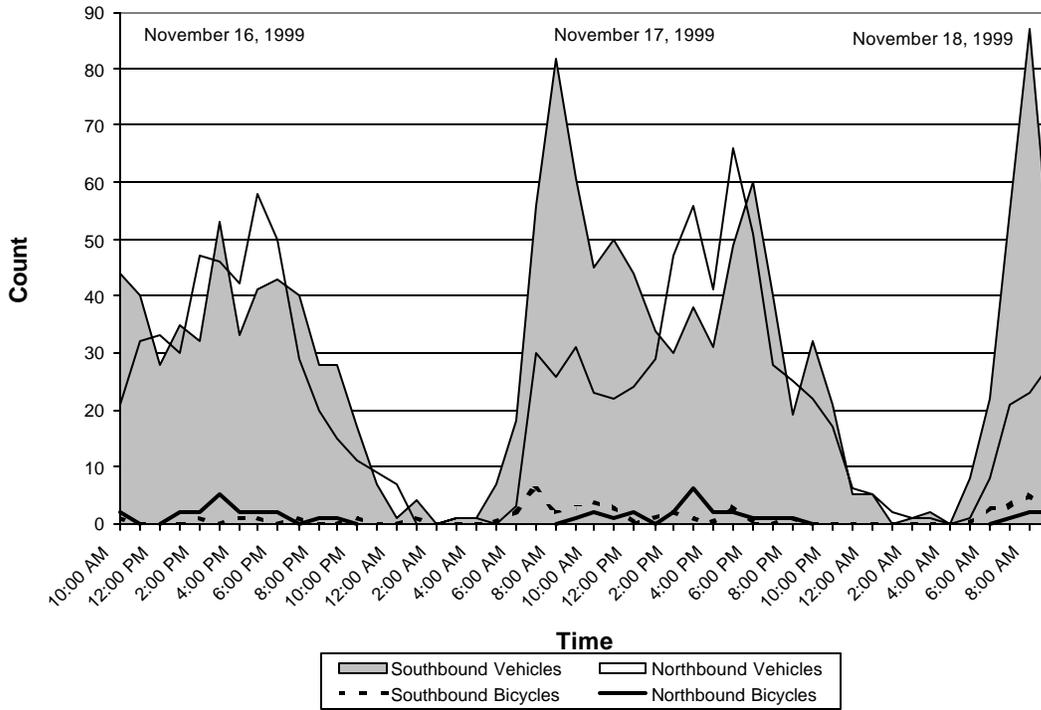


Table 22: 48-Hour Bicycle and Vehicle Volumes on Camosun St. south of West 40th Ave., November 16 to 18, 1998

November 16/17, 1999				November 17/18, 1999					
Time	Northbound		Southbound		Time	Northbound		Southbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
10:00 AM	2	21	1	44	10:00 AM	2	23	4	45
11:00 AM	0	32	0	40	11:00 AM	1	22	3	50
12:00 PM	0	33	0	28	12:00 PM	2	24	0	44
1:00 PM	2	30	0	35	1:00 PM	0	29	1	34
2:00 PM	2	47	1	32	2:00 PM	2	47	2	30
3:00 PM	5	46	0	53	3:00 PM	6	56	1	38
4:00 PM	2	42	1	33	4:00 PM	2	41	0	31
5:00 PM	2	58	1	41	5:00 PM	2	66	3	49
6:00 PM	2	50	0	43	6:00 PM	1	51	0	60
7:00 PM	0	29	1	40	7:00 PM	1	28	0	40
8:00 PM	1	20	0	28	8:00 PM	1	25	1	19
9:00 PM	1	15	0	28	9:00 PM	0	22	0	32
10:00 PM	0	11	1	17	10:00 PM	0	17	0	21
11:00 PM	0	9	0	7	11:00 PM	0	6	0	5
12:00 AM	0	7	0	1	12:00 AM	0	5	0	5
1:00 AM	0	0	1	4	1:00 AM	0	2	0	0
2:00 AM	0	0	0	0	2:00 AM	0	1	0	1
3:00 AM	0	1	0	1	3:00 AM	0	1	0	2
4:00 AM	0	1	0	1	4:00 AM	0	0	0	0
5:00 AM	0	0	0	7	5:00 AM	0	1	0	8
6:00 AM	0	3	2	18	6:00 AM	0	8	3	22
7:00 AM	0	30	6	56	7:00 AM	1	21	3	55
8:00 AM	0	26	2	82	8:00 AM	2	23	5	87
9:00 AM	1	31	3	61	9:00 AM	2	28	2	48
24 hr Total	20	542	20	700	24 hr Total	25	547	28	726

Figure 23: 48-Hour Bicycle and Vehicle Volumes on West 39th Ave. east of Wallace St., November 18 to 20, 1998

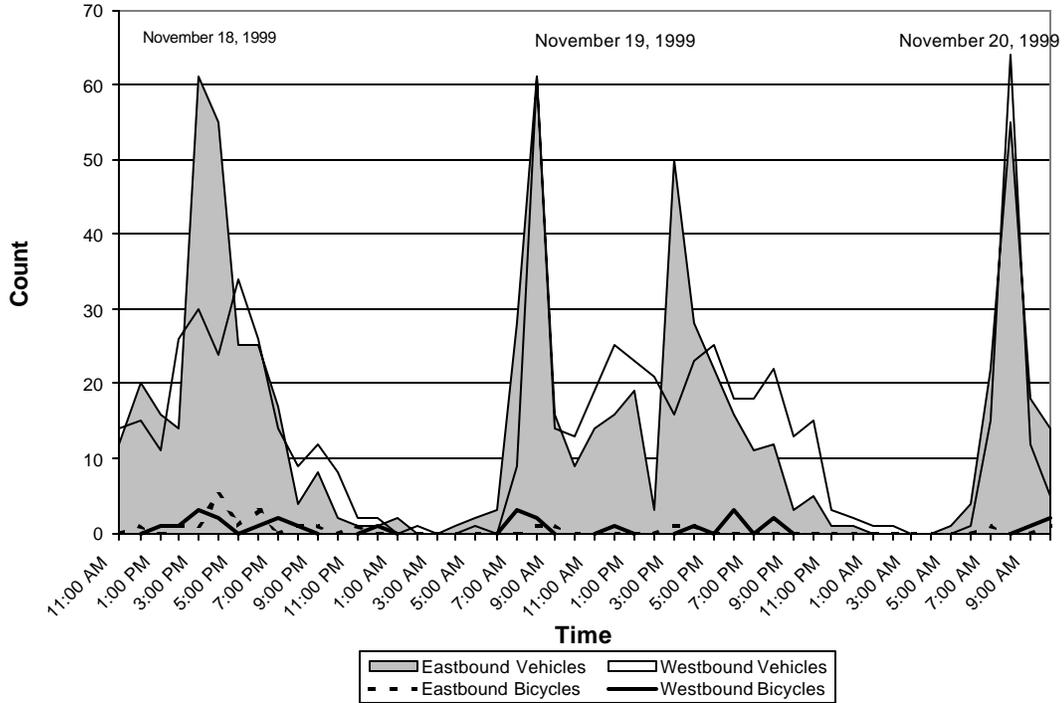


Table 23: 48-Hour Bicycle and Vehicle Volumes on West 39th Ave. east of Wallace St., November 16 to 18, 1998

November 18/19, 1998	Westbound		Eastbound		November 19/20, 1998	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	0	14	0	12	11:00 AM	0	19	0	14
12:00 PM	0	15	1	20	12:00 PM	1	25	0	16
1:00 PM	1	11	0	16	1:00 PM	0	23	0	19
2:00 PM	1	26	1	14	2:00 PM	0	21	0	3
3:00 PM	3	30	1	61	3:00 PM	0	16	1	50
4:00 PM	2	24	5	55	4:00 PM	1	23	1	28
5:00 PM	0	34	1	25	5:00 PM	0	25	0	22
6:00 PM	1	26	3	25	6:00 PM	3	18	0	16
7:00 PM	2	14	0	17	7:00 PM	0	18	0	11
8:00 PM	1	9	1	4	8:00 PM	2	22	0	12
9:00 PM	0	12	1	8	9:00 PM	0	13	0	3
10:00 PM	0	8	0	2	10:00 PM	0	15	0	5
11:00 PM	0	2	1	1	11:00 PM	0	3	0	1
12:00 AM	1	2	0	1	12:00 AM	0	2	0	1
1:00 AM	0	0	0	2	1:00 AM	0	1	0	0
2:00 AM	0	1	0	0	2:00 AM	0	1	0	0
3:00 AM	0	0	0	0	3:00 AM	0	0	0	0
4:00 AM	0	0	0	1	4:00 AM	0	0	0	0
5:00 AM	0	1	0	2	5:00 AM	0	0	0	1
6:00 AM	0	0	0	3	6:00 AM	0	1	0	4
7:00 AM	3	9	0	28	7:00 AM	0	15	1	22
8:00 AM	2	61	1	61	8:00 AM	0	64	0	55
9:00 AM	0	14	1	16	9:00 AM	1	12	0	18
10:00 AM	0	13	0	9	10:00 AM	2	5	1	14
24 hr Total	17	326	17	383	24 hr Total	10	342	4	315

Figure 24: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Balaclava St., February 8 to 10, 1999

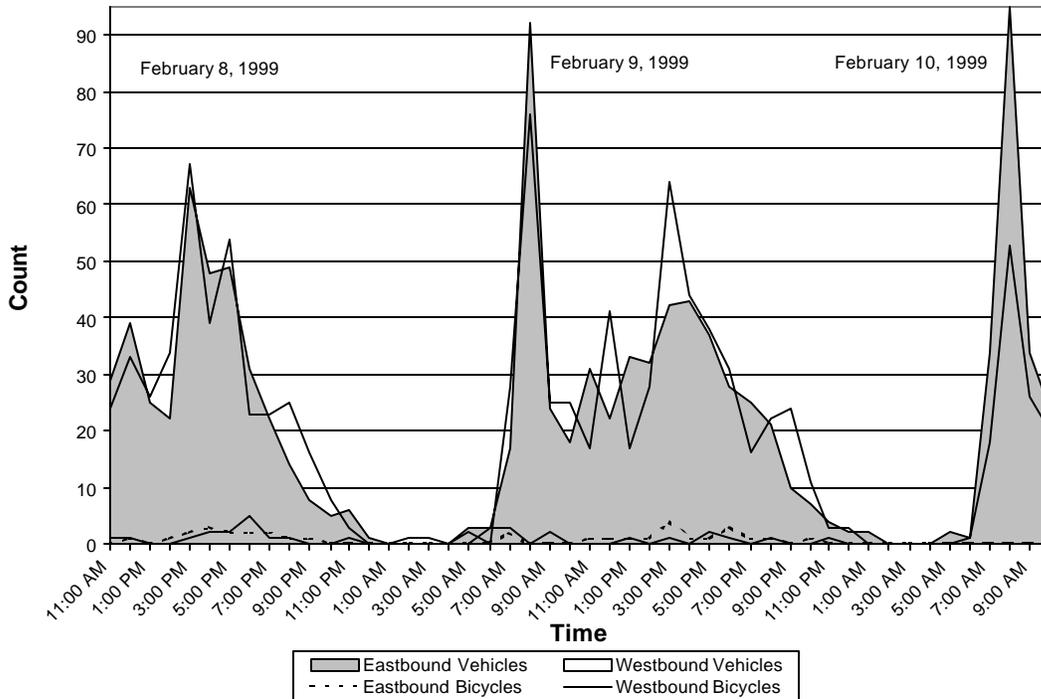


Table 24: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Balaclava St., February 8 to 10, 1999

February 8/9, 1999					February 9/10, 1999				
Time	Westbound		Eastbound		Time	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	1	24	0	29	11:00 AM	0	17	1	31
12:00 PM	1	33	1	39	12:00 PM	0	41	1	22
1:00 PM	0	26	0	25	1:00 PM	1	17	1	33
2:00 PM	0	34	1	22	2:00 PM	0	28	1	32
3:00 PM	1	67	2	63	3:00 PM	1	64	4	42
4:00 PM	2	39	3	48	4:00 PM	0	44	1	43
5:00 PM	2	54	2	49	5:00 PM	2	38	1	37
6:00 PM	5	23	2	31	6:00 PM	1	31	3	28
7:00 PM	1	23	2	22	7:00 PM	0	16	1	25
8:00 PM	1	25	1	14	8:00 PM	1	22	1	21
9:00 PM	0	16	1	8	9:00 PM	0	24	0	10
10:00 PM	0	8	0	5	10:00 PM	0	11	1	7
11:00 PM	1	3	0	6	11:00 PM	1	3	0	4
12:00 AM	0	0	0	1	12:00 AM	0	3	0	2
1:00 AM	0	0	0	0	1:00 AM	0	0	0	2
2:00 AM	0	1	0	0	2:00 AM	0	0	0	0
3:00 AM	0	1	0	0	3:00 AM	0	0	0	0
4:00 AM	0	0	0	0	4:00 AM	0	0	0	0
5:00 AM	0	2	0	3	5:00 AM	0	0	0	2
6:00 AM	3	0	0	3	6:00 AM	0	1	0	1
7:00 AM	3	28	2	17	7:00 AM	0	18	0	34
8:00 AM	0	76	0	92	8:00 AM	0	53	0	95
9:00 AM	2	25	0	24	9:00 AM	0	26	0	34
10:00 AM	0	25	0	18	10:00 AM	0	20	0	24
24 hr Total	23	533	17	519	24 hr Total	7	477	16	529

Figure 25: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Balaclava St., February 15 to 17, 1999

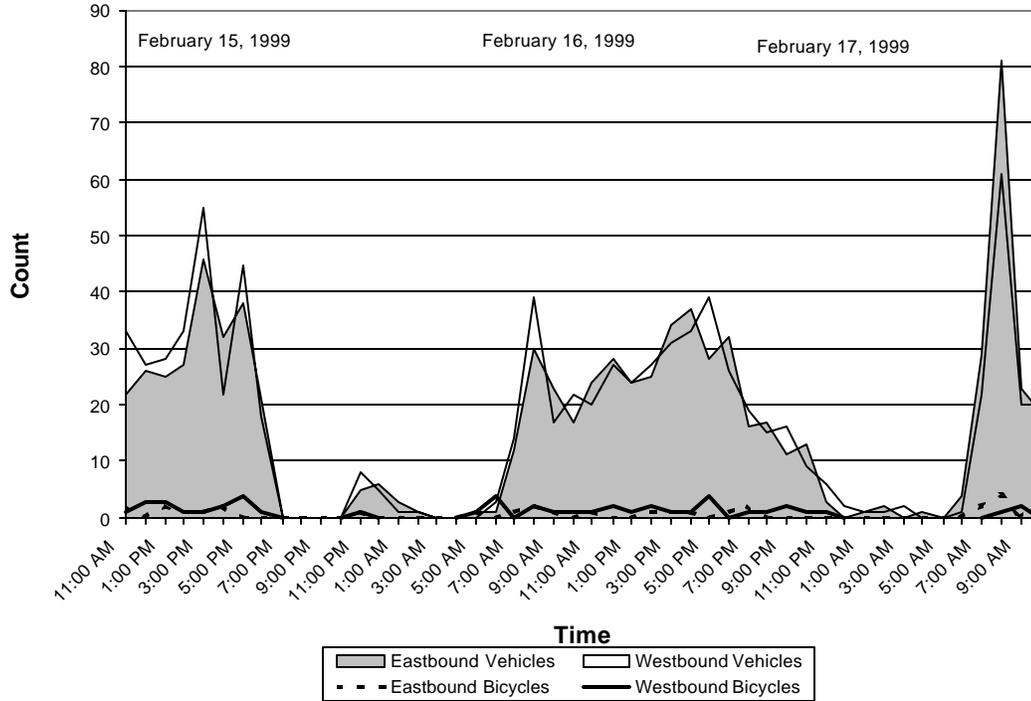


Table 25: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Balaclava St., February 15 to 17, 1999

February 15/16, 1999					February 16/17, 1999				
Time	Westbound		Eastbound		Time	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	1	33	2	22	11:00 AM	1	20	1	24
12:00 PM	3	27	0	26	12:00 PM	2	27	0	28
1:00 PM	3	28	2	25	1:00 PM	1	24	0	24
2:00 PM	1	33	1	27	2:00 PM	2	27	1	25
3:00 PM	1	55	1	46	3:00 PM	1	31	1	34
4:00 PM	2	22	2	32	4:00 PM	1	33	1	37
5:00 PM	4	45	0	38	5:00 PM	4	39	0	28
6:00 PM	1	18	0	21	6:00 PM	0	26	1	32
7:00 PM	0	0	0	0	7:00 PM	1	19	2	16
8:00 PM	0	0	0	0	8:00 PM	1	15	0	17
9:00 PM	0	0	0	0	9:00 PM	2	16	0	11
10:00 PM	0	0	0	0	10:00 PM	1	9	0	13
11:00 PM	1	8	1	5	11:00 PM	1	6	0	3
12:00 AM	0	5	0	6	12:00 AM	0	2	0	0
1:00 AM	0	1	0	3	1:00 AM	0	1	0	1
2:00 AM	0	1	0	1	2:00 AM	0	1	0	2
3:00 AM	0	0	0	0	3:00 AM	0	2	0	0
4:00 AM	0	0	0	0	4:00 AM	0	0	0	1
5:00 AM	1	0	1	1	5:00 AM	0	0	0	0
6:00 AM	4	3	0	1	6:00 AM	0	1	0	4
7:00 AM	0	14	1	12	7:00 AM	0	22	2	29
8:00 AM	2	39	2	30	8:00 AM	1	61	4	81
9:00 AM	1	17	1	23	9:00 AM	2	20	0	23
10:00 AM	1	22	0	17	10:00 AM	0	20	2	19
24 hr Total	26	371	14	336	24 hr Total	21	422	15	452

Figure 26: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Trafalgar St., November 18 to 20, 1998

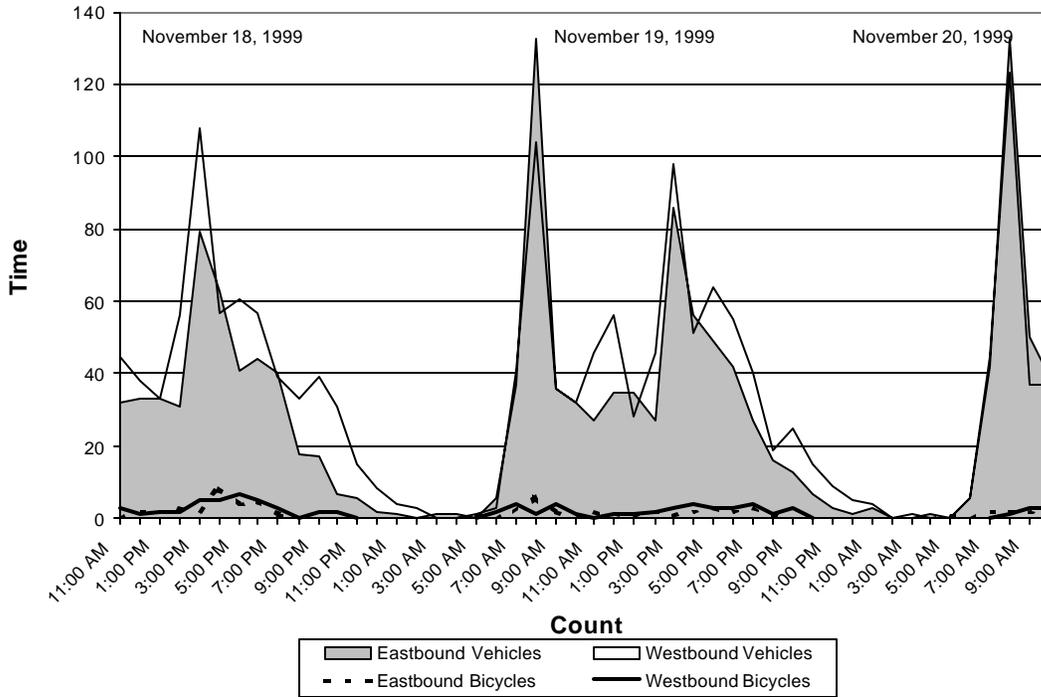


Table 26: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Trafalgar St., November 18 to 20, 1998

November 18/19, 1998				November 19/20, 1998					
Time	Westbound		Eastbound		Time	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	3	45	0	32	11:00 AM	0	46	2	27
12:00 PM	1	38	2	33	12:00 PM	1	56	0	35
1:00 PM	2	33	2	33	1:00 PM	1	28	1	35
2:00 PM	2	56	3	31	2:00 PM	2	46	2	27
3:00 PM	5	108	2	79	3:00 PM	3	98	1	86
4:00 PM	5	57	8	63	4:00 PM	4	51	2	56
5:00 PM	7	61	4	41	5:00 PM	3	64	3	49
6:00 PM	5	57	5	44	6:00 PM	3	55	2	42
7:00 PM	3	39	1	40	7:00 PM	4	40	3	27
8:00 PM	0	33	0	18	8:00 PM	1	19	1	16
9:00 PM	2	39	0	17	9:00 PM	3	25	0	13
10:00 PM	2	31	0	7	10:00 PM	0	15	0	7
11:00 PM	0	15	0	6	11:00 PM	0	9	0	3
12:00 AM	0	8	0	2	12:00 AM	0	5	0	1
1:00 AM	0	4	0	1	1:00 AM	0	4	0	3
2:00 AM	0	3	0	0	2:00 AM	0	0	0	0
3:00 AM	0	0	0	1	3:00 AM	0	1	0	0
4:00 AM	0	0	0	1	4:00 AM	0	0	0	1
5:00 AM	0	1	1	0	5:00 AM	0	0	1	0
6:00 AM	2	3	0	6	6:00 AM	0	6	0	6
7:00 AM	4	41	2	37	7:00 AM	0	45	2	42
8:00 AM	1	104	6	133	8:00 AM	1	123	2	133
9:00 AM	4	36	2	36	9:00 AM	3	37	2	50
10:00 AM	1	32	0	32	10:00 AM	3	37	1	39
24 hr Total	49	844	38	693	24 hr Total	32	810	25	698

Figure 27: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Cambie St., January 27 to 29, 1999

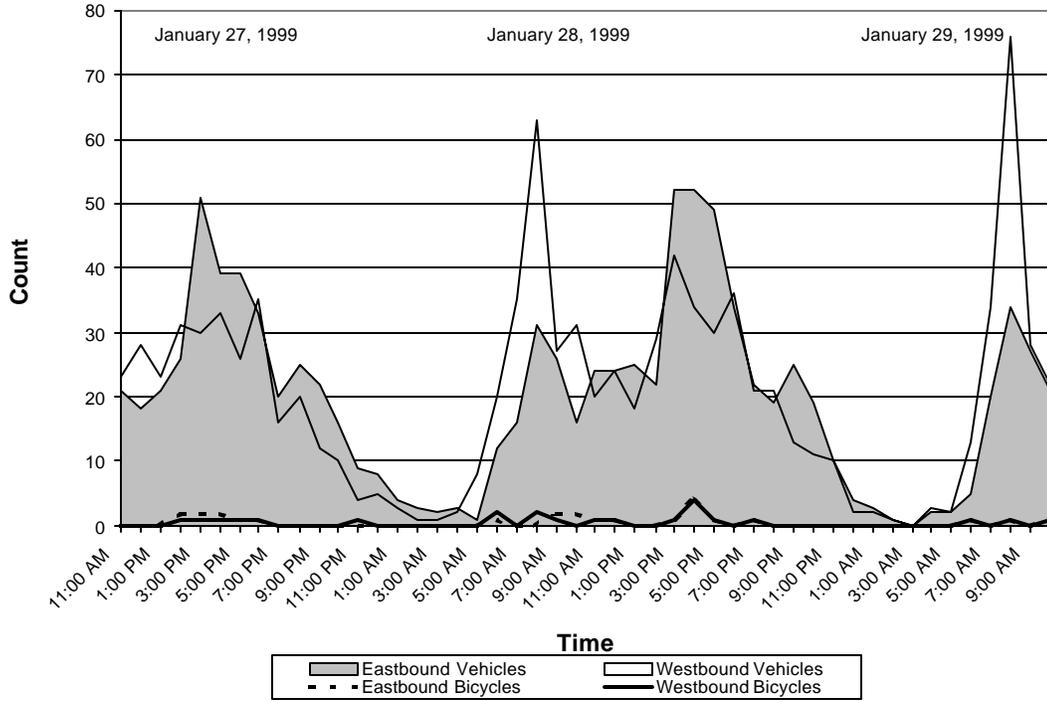


Table 27: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Cambie St., January 27 to 29, 1999

January 27/28, 1999					January 28/29, 1999				
Time	Westbound		Eastbound		Time	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	0	23	0	21	11:00 AM	2	20	1	24
12:00 PM	0	28	0	18	12:00 PM	0	24	1	24
1:00 PM	0	23	0	21	1:00 PM	0	18	0	25
2:00 PM	1	31	2	26	2:00 PM	1	29	0	22
3:00 PM	1	30	2	51	3:00 PM	2	42	1	52
4:00 PM	1	33	2	39	4:00 PM	2	34	4	52
5:00 PM	1	26	1	39	5:00 PM	3	30	1	49
6:00 PM	1	35	1	33	6:00 PM	0	36	0	34
7:00 PM	0	16	0	20	7:00 PM	1	21	1	22
8:00 PM	0	20	0	25	8:00 PM	0	21	0	19
9:00 PM	0	12	0	22	9:00 PM	0	13	0	25
10:00 PM	0	10	0	16	10:00 PM	0	11	0	19
11:00 PM	1	4	0	9	11:00 PM	0	10	0	10
12:00 AM	0	5	0	8	12:00 AM	0	2	0	4
1:00 AM	0	3	0	4	1:00 AM	0	2	0	3
2:00 AM	0	1	0	3	2:00 AM	0	1	0	1
3:00 AM	0	1	0	2	3:00 AM	0	0	0	0
4:00 AM	0	2	0	3	4:00 AM	0	3	0	2
5:00 AM	0	8	0	1	5:00 AM	0	2	0	2
6:00 AM	2	20	1	12	6:00 AM	0	13	1	5
7:00 AM	0	35	0	16	7:00 AM	0	34	0	20
8:00 AM	2	63	0	31	8:00 AM	2	76	1	34
9:00 AM	1	27	2	26	9:00 AM	0	28	0	27
10:00 AM	0	31	2	16	10:00 AM	0	22	1	21
24 hr Total	11	456	11	446	24 hr Total	13	470	11	475

Figure 28: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Columbia St., January 27 to 29, 1999

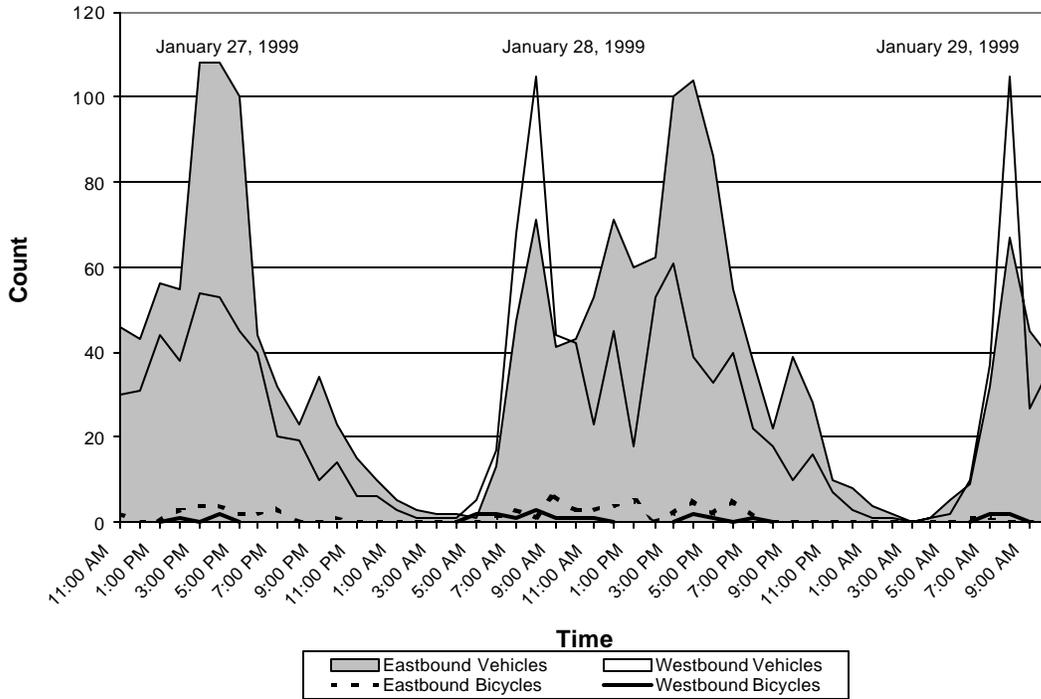


Table 28: 48-Hour Bicycle and Vehicle Volumes on West 37th Ave. east of Columbia St., January 27 to 29, 1999

January 27/28, 1999				January 28/29, 1999					
Time	Westbound		Eastbound		Time	Westbound		Eastbound	
	Bicycles	Vehicles	Bicycles	Vehicles		Bicycles	Vehicles	Bicycles	Vehicles
11:00 AM	0	30	2	46	11:00 AM	1	23	3	53
12:00 PM	0	31	0	43	12:00 PM	0	45	4	71
1:00 PM	0	44	0	56	1:00 PM	0	18	5	60
2:00 PM	1	38	3	55	2:00 PM	0	53	0	62
3:00 PM	0	54	4	108	3:00 PM	0	61	2	100
4:00 PM	2	53	4	108	4:00 PM	2	39	5	104
5:00 PM	0	45	2	100	5:00 PM	1	33	2	86
6:00 PM	0	40	2	44	6:00 PM	0	40	5	55
7:00 PM	0	20	3	32	7:00 PM	1	22	1	38
8:00 PM	0	19	0	23	8:00 PM	0	18	0	22
9:00 PM	0	10	0	34	9:00 PM	0	10	0	39
10:00 PM	0	14	1	23	10:00 PM	0	16	0	28
11:00 PM	0	6	0	15	11:00 PM	0	7	0	10
12:00 AM	0	6	0	10	12:00 AM	0	3	0	8
1:00 AM	0	3	0	5	1:00 AM	0	1	0	4
2:00 AM	0	1	0	3	2:00 AM	0	1	0	2
3:00 AM	0	1	0	2	3:00 AM	0	0	0	0
4:00 AM	0	1	0	2	4:00 AM	0	1	0	1
5:00 AM	2	5	0	1	5:00 AM	0	2	0	5
6:00 AM	2	17	1	13	6:00 AM	0	10	1	9
7:00 AM	1	68	3	47	7:00 AM	2	37	1	32
8:00 AM	3	105	1	71	8:00 AM	2	105	0	67
9:00 AM	1	44	6	41	9:00 AM	0	27	0	45
10:00 AM	1	42	3	43	10:00 AM	0	36	1	39
24 hr Total	13	697	35	925	24 hr Total	9	608	30	940

As we can see from Figures 22 through 28, the Midtown/Ridgeway Bikeway does not currently attract the same numbers of bicyclists as does the Adanac route. However the data is useful to determine a baseline to measure future growth in cycling use and the automobile use patterns at different locations.

The results of the few classifier counts on bikeways to date indicate that the morning and evening peak hours for bicycle traffic generally occur from 7:00 to 8:00 a.m. and from 5:00 to 6:00 p.m. respectively. This corresponds with the assumption that bicycle traffic behaves similarly to automobile traffic.

Peak Hour Factors

From the classifier information gathered, we can determine the ratio of total bicycle volume to peak hour bicycle volume to arrive at a factor to use to extrapolate daily volumes from existing peak one-hour counts. Table 29 shows the ratio for the three locations along the Adanac Bikeway over several days. From the limited data collected to date, the average Peak Hour Factor (PHF) is 7.7 +/- 0.7 with 95% confidence. That is to say, the average peak hour factor is between 6.9 and 8.3, 19 times out of 20. This compares to the peak hour factor of 10 that is commonly used to extrapolate daily vehicle volumes from peak hour values.

Peak hour factors (PHF) are very useful in estimating traffic volumes. For example, if during the hour between 5:00 and 6:00 p.m. 93 vehicles are counted, the average daily volume is assumed to be $93 \times 10 = 930$ vehicles per day. If during this same time frame 31 cyclists are counted, we can assume that the average daily volume is $31 \times 7.7 = 239$ cyclists per day. Figure 29 shows the set of bicycle data points used to derive the average PHF of 7.7.

Figure 29: Peak Hour Factor from Adanac Bikeway Classifier Data

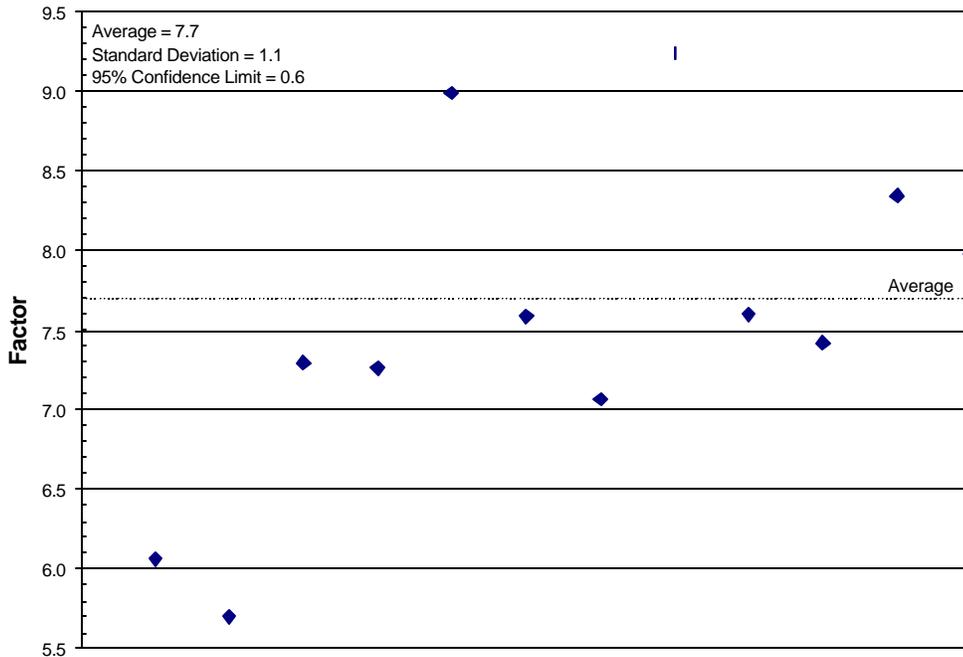


Table 29: Peak Hour Factor from Adanac Bikeway Classifier Data

Peak	Location		Date	Time	Bikes		Peak Hour	24-Hour Total	Peak Hour Factor	
	On	At			w/b	e/b				
PM	Adanac	Lillooet	July 13, 1998	5:00 PM	12	20	32	194	6.1	
			July 14, 1998	5:00 PM	12	8	20	114	5.7	
	Adanac	Windermere	July 21, 1998	5:00 PM	20	38	58	423	7.3	
			July 22, 1998	5:00 PM	16	38	54	392	7.3	
	Adanac	McClean	September 14, 1998	5:00 PM	23	71	94	845	9.0	
			January 26, 1999	5:00 PM	14	39	53	402	7.6	
			January 27, 1999	4:00 PM	5	39	44	311	7.1	
	AM	Adanac	Lillooet	July 14, 1998	8:00 AM	11	10	21	194	9.2
				July 15, 1998	7:00 AM	11	4	15	114	7.6
Adanac		Windermere	July 22, 1998	7:00 AM	34	23	57	423	7.4	
			July 23, 1998	8:00 AM	29	18	47	392	8.3	
Adanac		McClean	September 15, 1998	8:00 AM	88	18	106	845	8.0	
			January 27, 1999	7:00 AM	36	7	43	402	9.3	
			January 28, 1999	7:00 AM	33	6	39	311	8.0	
Average		7.7	Average Peak Hour Factor = 7.7 +/- 0.6, 19 times out of 20							
Std. Dev.		1.1								
95% Confidence Interval	0.6									

Similar analysis was conducted on the classifier data from the Midtown/Ridgeway bikeway. Despite the fact that this data is more variable than the Adanac bikeway, a similar peak hour factor was determined to be 7.7 +/- 0.9, 19 times out of 20.

Figure 30: Peak Hour Factor from Midtown/Ridgeway Bikeway Classifier Data

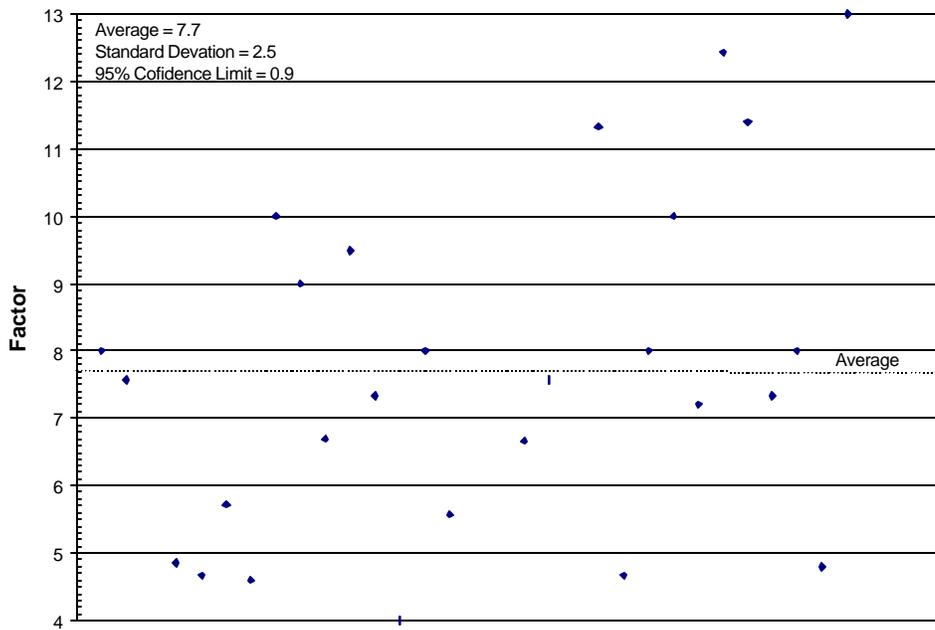


Table 30: Peak Hour Factor from Midtown/Ridgeway Bikeway Classifier Data

Peak	Location On	At	Date	Time	Bikes		Peak Hour	24-Hour Total	Peak Hour Factor	
					n/b	s/b				
PM	Camosun	40th Ave	November 16, 1998	3:00 PM	5	0	5	40	8.0	
			November 17, 1998	3:00 PM	6	1	7	53	7.6	
						w/b	e/b			
	37th	Wallace	November 18, 1998	4:00 PM	2	5	7	34	4.9	
			November 19, 1998	6:00 PM	0	3	3	14	4.7	
	37th	Balaclava	February 8, 1999	6:00 PM	5	2	7	40	5.7	
			February 9, 1999	3:00 PM	1	4	5	23	4.6	
			February 15, 1999	5:00 PM	4	0	4	40	10.0	
			February 16, 1999	5:00 PM	4	0	4	36	9.0	
	37th	Trafalgar	November 18, 1998	4:00 PM	5	8	13	87	6.7	
			November 19, 1998	4:00 PM	4	2	6	57	9.5	
	37th	Cambie	January 27, 1999	4:00 PM	1	2	3	22	7.3	
			January 28, 1999	4:00 PM	2	4	6	24	4.0	
	37th	Columbia	January 27, 1999	4:00 PM	2	4	6	48	8.0	
			January 28, 1999	4:00 PM	2	5	7	39	5.6	
	AM					n/b	s/b			
		Camosun	40th Ave	November 17, 1998	7:00 AM	0	6	6	40	6.7
November 18, 1998				8:00 AM	2	5	7	53	7.6	
						w/b	e/b			
37th		Wallace	November 19, 1998	8:00 AM	2	1	3	34	11.3	
			November 20, 1998	10:00 AM	2	1	3	14	4.7	
37th		Balaclava	February 9, 1999	7:00 AM	3	2	5	40	8.0	
			February 16, 1999	8:00 AM	2	2	4	40	10.0	
			February 17, 1999	8:00 AM	1	4	5	36	7.2	
37th		Trafalgar	November 19, 1998	8:00 AM	1	6	7	87	12.4	
			November 20, 1998	9:00 AM	3	2	5	57	11.4	
37th		Cambie	January 28, 1999	9:00 AM	1	2	3	22	7.3	
			January 29, 1999	8:00 AM	2	1	3	24	8.0	
37th		Columbia	January 28, 1999	9:00 AM	4	6	10	48	4.8	
			January 29, 1999	7:00 AM	2	1	3	39	13	
		Average	7.7	Average Peak Hour Factor = 7.7 +/- 0.9, 19 times out of 20						
		Std. Dev.	2.5							
	95% Confidence Interval	0.9								

Combining the peak hour data for both the Adanac and Midtown/Ridgeway routes, we yield an average peak hour factor of 7.7 +/- 0.6, 19 times out of 20.

Figure 31: Combined Peak Hour Factors from Adanac and Midtown/Ridgeway Data

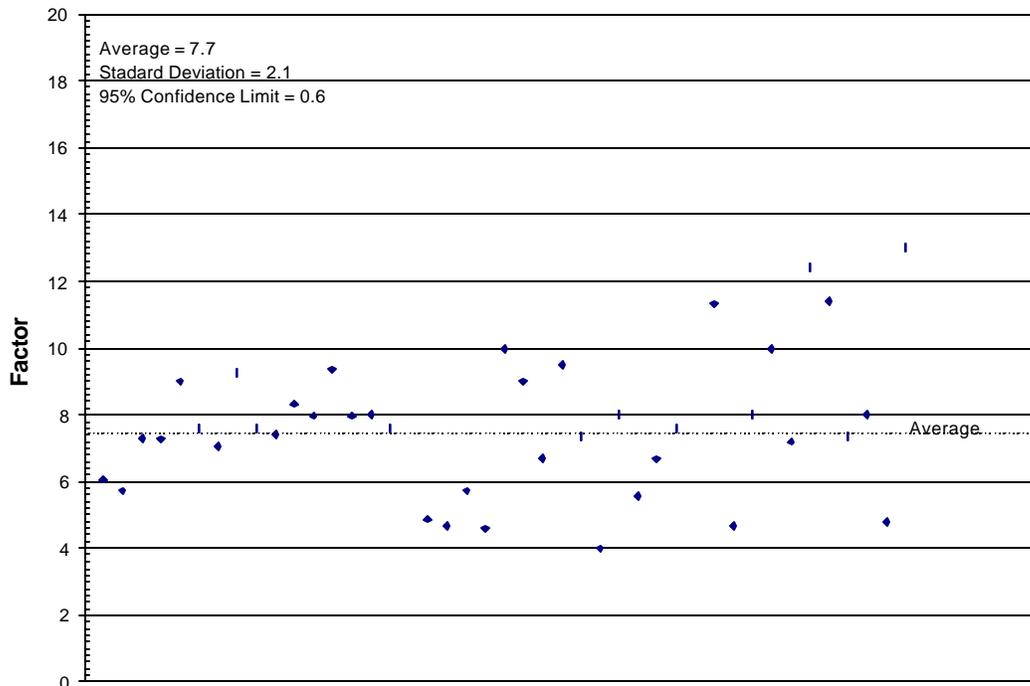


Table 31: Combined Peak Hour Factors from Adanac and Midtown/Ridgeway Data

Overall							
average	7.7	Average Peak Hour Factor = 7.7 +/- 0.6, 19 times out of 20					
Std. Dev.	2.1						
95% Confidence Interval	0.6						

Action 5: Count bicycles using both automated and manual methods to better determine bicycle volumes along the bikeways and other streets, and to further refine the peak hour factor for cyclists.

5.1.2 Bicycle Counts

This section examines cordon counts and manual counts both city-wide and on bikeways.

Cordon Counts

Vehicle cordon counts are conducted to measure the number of automobiles entering the downtown core on a typical workday. Essentially, a “box” is drawn around the central business district and each entry and exit point is counted to determine the volume of vehicles entering the “box” in a 3-hr period. This data, when combined with GVRD data for transit rider ship, carpools and pedestrians, is used to determine the percentages of each mode of transportation (modal splits).⁴⁷

A special bicycle cordon count that measures the actual volumes of bicycles entering the downtown core was first conducted in May 1991. The count was repeated in June 1995, October 1997 and July 1998, and the results are shown in Figure 32.

Figure 32: Modal Split for Bicycles Entering the Downtown Core

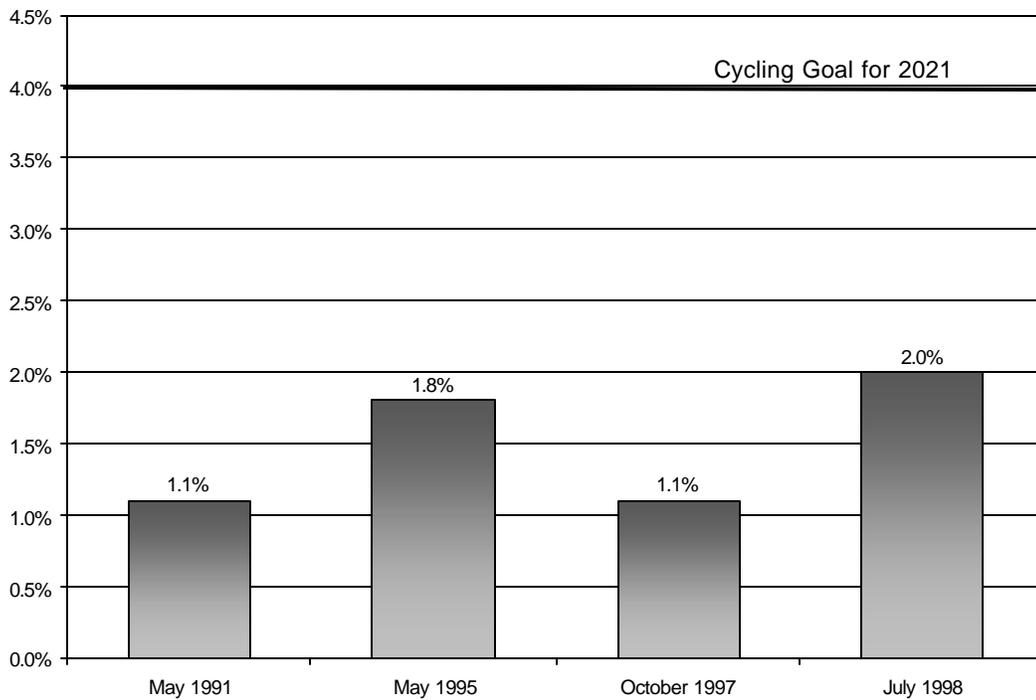


Table 32: Modal Split for Bicycles Entering the Downtown Core^{47 48}

Date	Weather	Bicycles Counted	Modal Split
May 1991	warm/sunny	1185	1.1%
May 1995	warm/sunny	1788	1.8%
October 1997	cold/raining	1139	1.1%
July 1998	warm/sunny	2006	2.0%

Over the last eight years, the number of cyclists entering the downtown core has almost doubled from approximately 1,200 to 2,000 cyclists in a three-hour period. The bicycle cordon count for 1997 was

⁴⁷ Modal split goal for bicycles for the year 2021 from the Transportation Plan, page 34

⁴⁸ Vehicle, carpool and transit volumes for modal split from 1996 Greater Vancouver Screenline Survey

conducted on a rainy day in late October and is therefore substantially lower than both the counts for 1995 and 1998. It is naturally assumed that there are more people cycling on warm, dry days in the summer months than cool, wet days in the fall and winter. However, more counts must be conducted to verify this assumption and to provide a basis for measuring the effectiveness of cycling initiatives and to measure bicycle use against projected goals.

Action 6: Conduct bicycle cordon counts on a regular basis to accurately measure the modal split for bicycles and the effectiveness of cycling programs and initiatives.

City-Wide Manual Traffic Counts

The following bicycle counts are from data that is collected by manual traffic counters who record the number, type and direction of traffic at various intersections throughout the City. These counts are generally conducted at key locations every two years. It is important to note that, the counts are conducted at intersections of arterial streets and do not reflect the number of cyclists using side streets, such as our bikeways. These counts, therefore, provide a limited representation of bicycle volumes in the city.

Manual counts provide information about the number of cyclists passing through an intersection during the peak hour for vehicles (from 4:00 to 5:00 p.m.). As shown in section 5.1.1 the cyclist peak hours parallel the vehicle peak hours. Using the manual count data, Average Daily Total (ADT) estimates are obtained by multiplying the peak hour volume by the peak hour factor of 7.7, as outline in section 5.1.1.

This information clearly indicates that the majority of cyclist volumes on arterial streets are in the downtown core, followed closely by the Broadway corridor.

Figure 33: Peak Hour Vancouver Bicycle Volumes – 1995

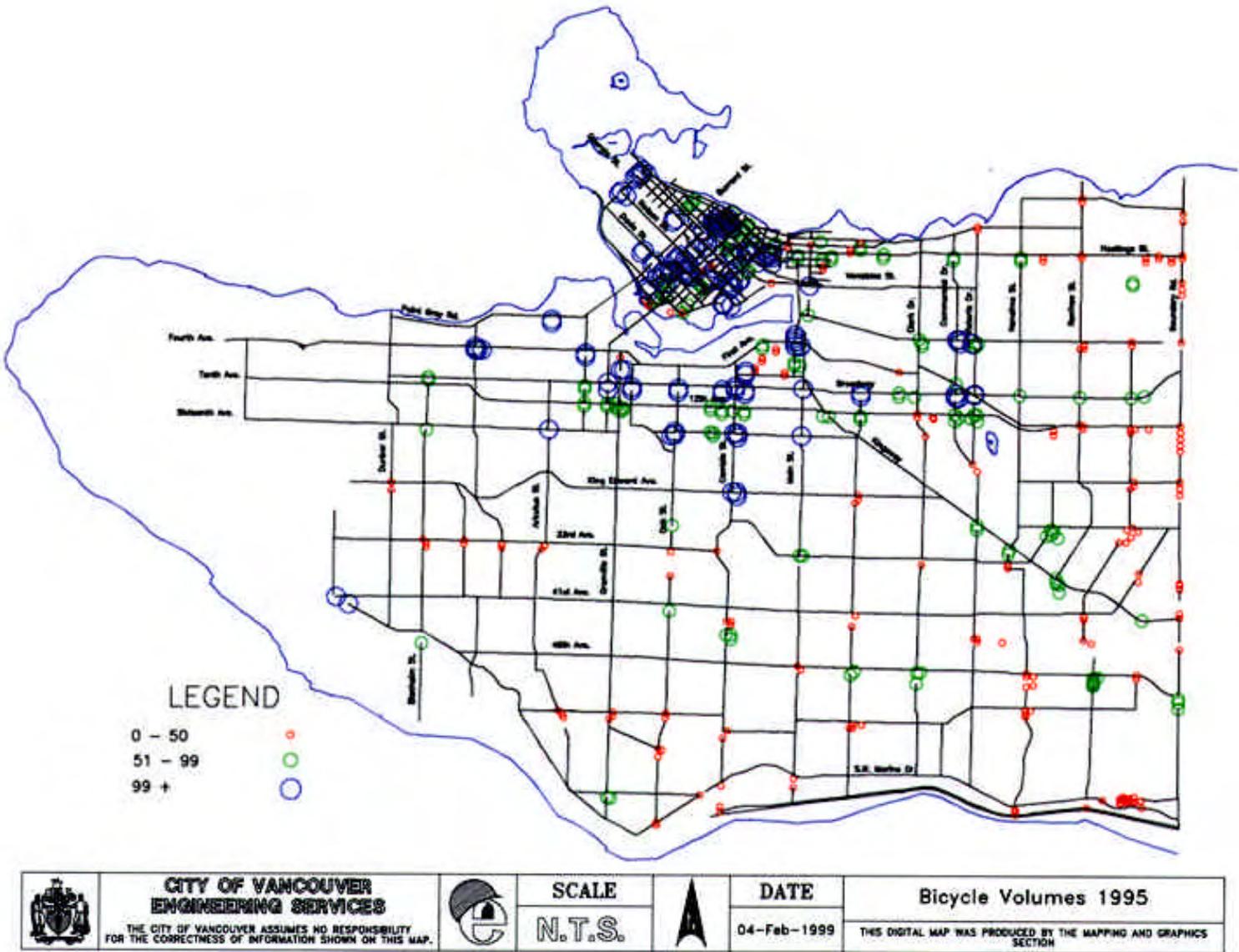


Figure 34: Peak Hour Downtown Bicycle Volumes – 1995

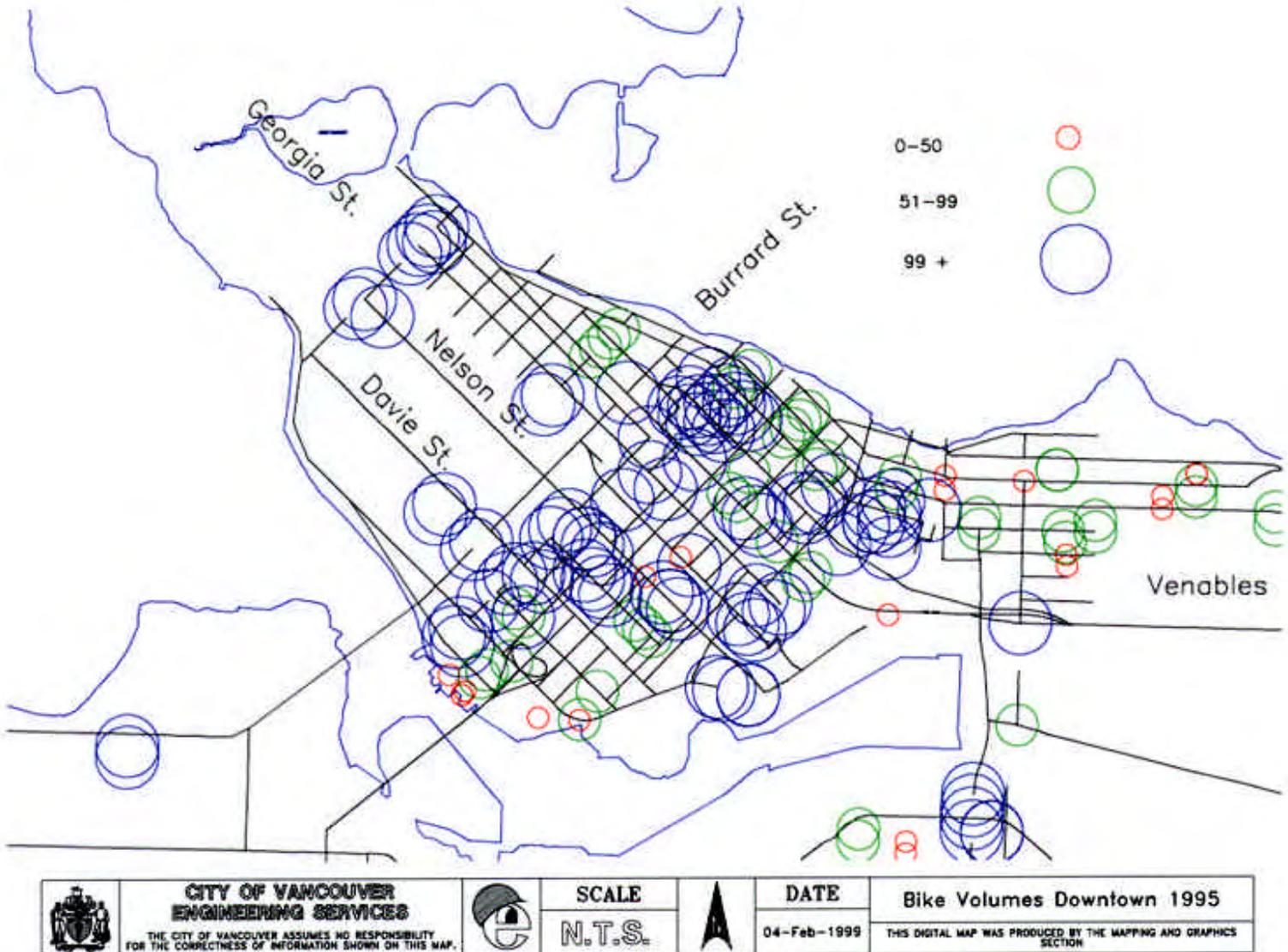


Figure 35: Peak Hour Vancouver Bicycle Volumes - 1996

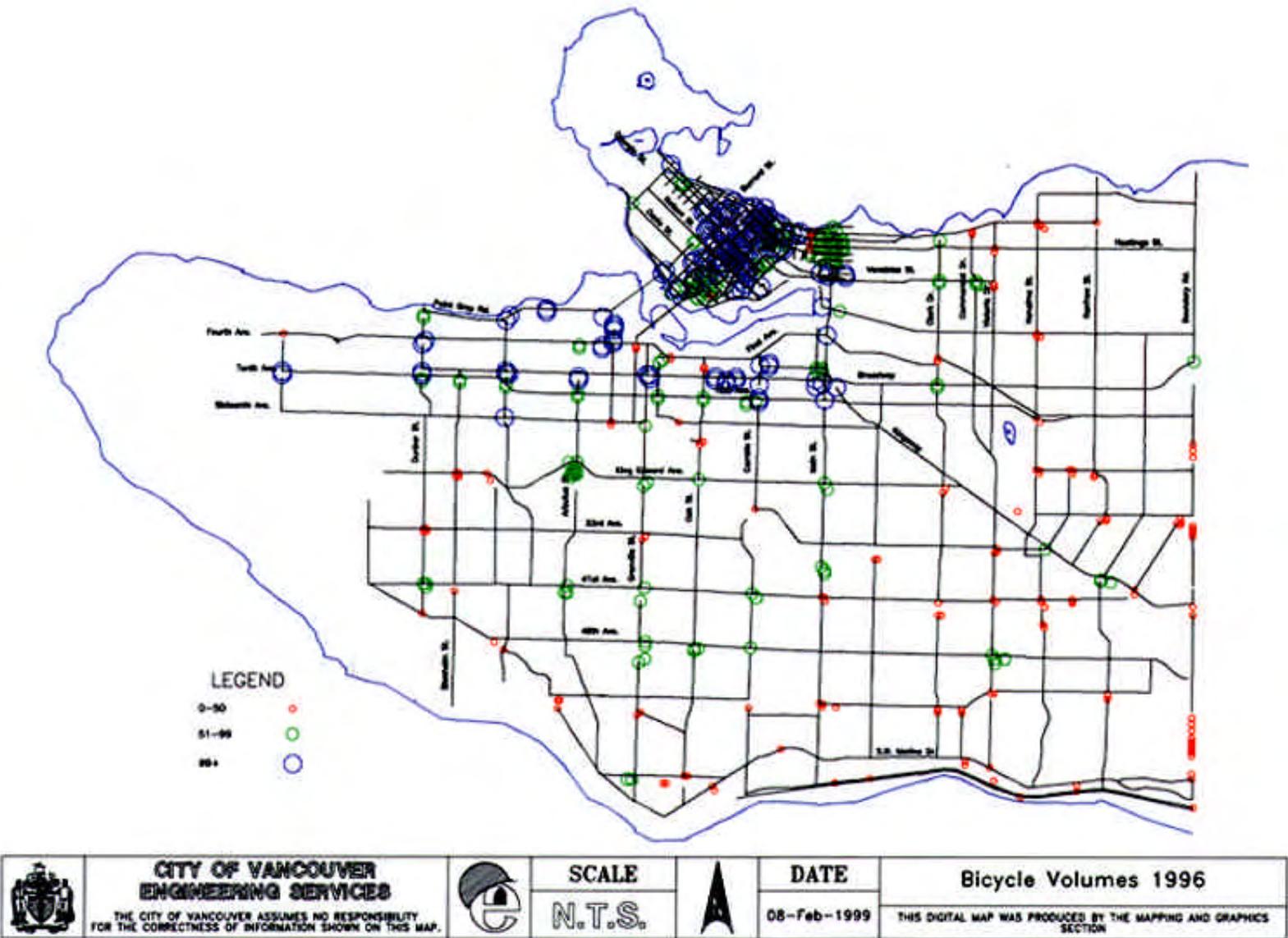
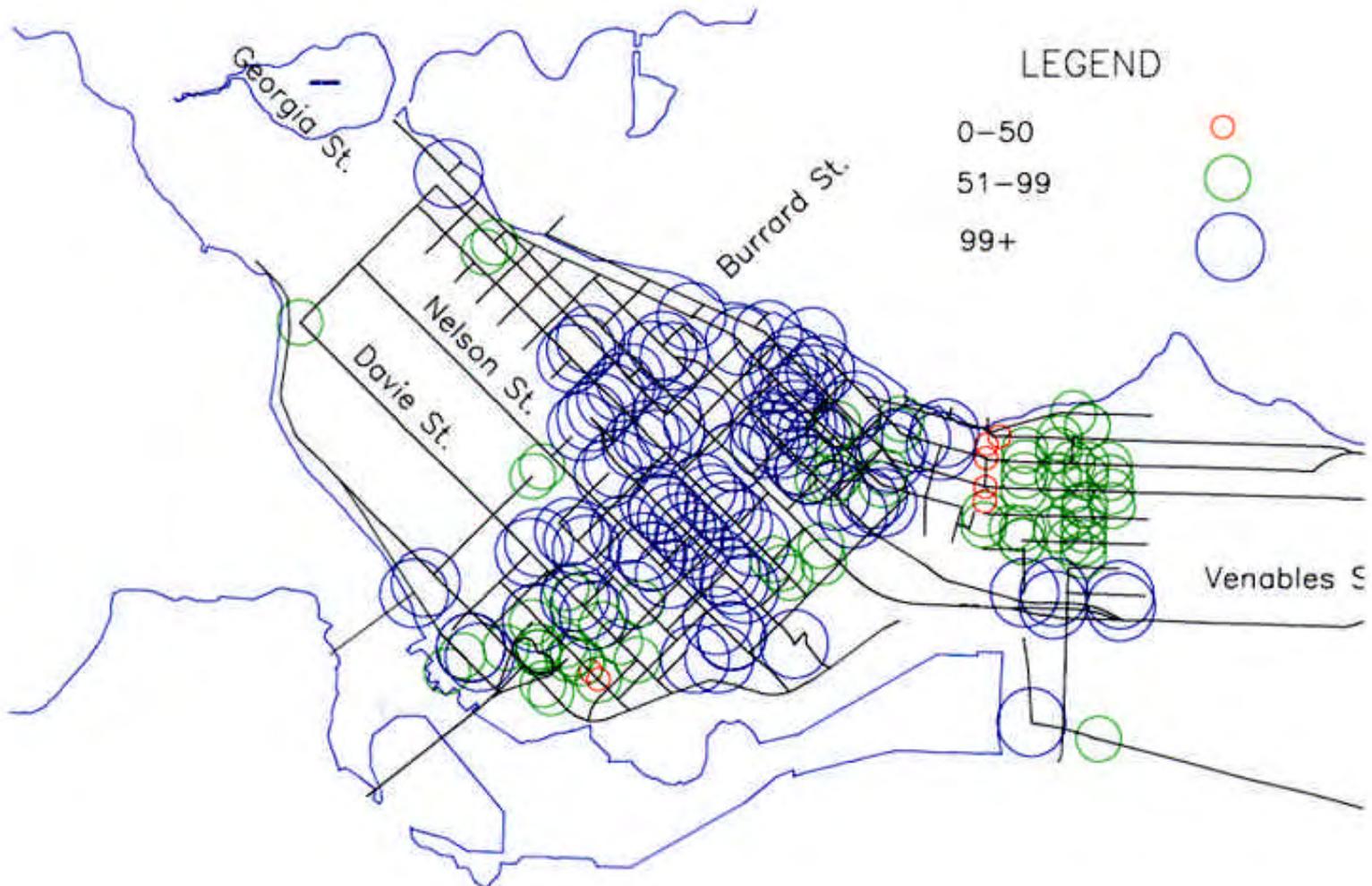


Figure 36: Peak Hour Downtown Bicycle Volumes – 1996



 <p>CITY OF VANCOUVER ENGINEERING SERVICES</p> <p>THE CITY OF VANCOUVER ASSUMES NO RESPONSIBILITY FOR THE CORRECTNESS OF INFORMATION SHOWN ON THIS MAP.</p>	 <p>SCALE N.T.S.</p>	 <p>DATE 08-Feb-1999</p>	<p>Bicycle volumes downtown 1996</p>
			<p>THIS DIGITAL MAP WAS PRODUCED BY THE MAPPING AND GRAPHICS SECTION</p>

Bikeway Manual Counts

The following summarizes a collection of special counts conducted on bikeways to determine the level of usage by cyclists. These are generally one-hour manual counts, however the peak hour factor of 7.7 calculated in section 5.1.1 was used to approximate the daily, 24-hour volumes.

Adanac Bikeway

The Adanac Bikeway is the first, and perhaps most successful, bikeway constructed in Vancouver. Manual one-hour bicycle counts were conducted at several locations before and after the bikeway was implemented in 1993.

Figure 37 indicates that bicycle volumes along Adanac have increased approximately 225% over the last seven years. These counts also show that, as the count location moves closer to the downtown core, more cyclists are using the bikeway.

Figure 37: ADANAC BIKEWAY – One – Hour East and Westbound Bicycle Volumes

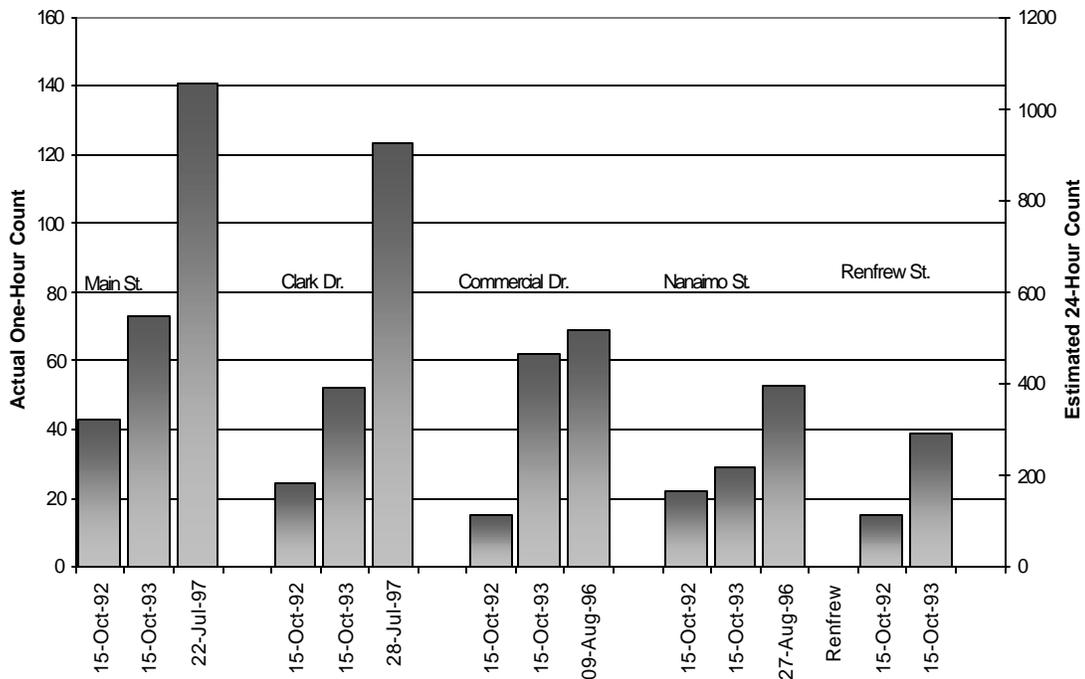


Table 37: One-Hour East and Westbound Bicycle Volumes on the Adanac Bikeway

Location	Date	Count Time	Duration (hr)	Count	Est. 24 hr Count
Main	15-Oct-92	7:30 AM	1:00	43	331
	15-Oct-93	7:30 AM	1:00	73	562
	22-Jul-97	7:40 AM	1:00	141	1086
Clark	15-Oct-92	7:30 AM	1:00	24	185
	15-Oct-93	7:30 AM	1:00	52	400
	28-Jul-97	7:45 AM	1:00	123	947
Commercial	15-Oct-92	4:30 PM	1:00	15	116
	15-Oct-93	4:30 PM	1:00	62	477
	09-Aug-96	3:30 PM	1:00	69	531
Nanaimo	15-Oct-92	7:30 AM	1:00	22	169
	15-Oct-93	7:30 AM	1:00	29	223
	27-Aug-96	7:33 AM	1:00	53	408
Renfrew	15-Oct-92	7:30 AM	1:00	15	116
	15-Oct-93	7:30 AM	1:00	39	300

Off-Broadway Bikeway

Completed in 1994, the Off-Broadway Bikeway was the second bikeway to be constructed. Again, before and after counts were conducted and the results are shown in Figure 38.

Figure 38: One-Hour East and Westbound Bicycle Volumes on the Off-Broadway Bikeway

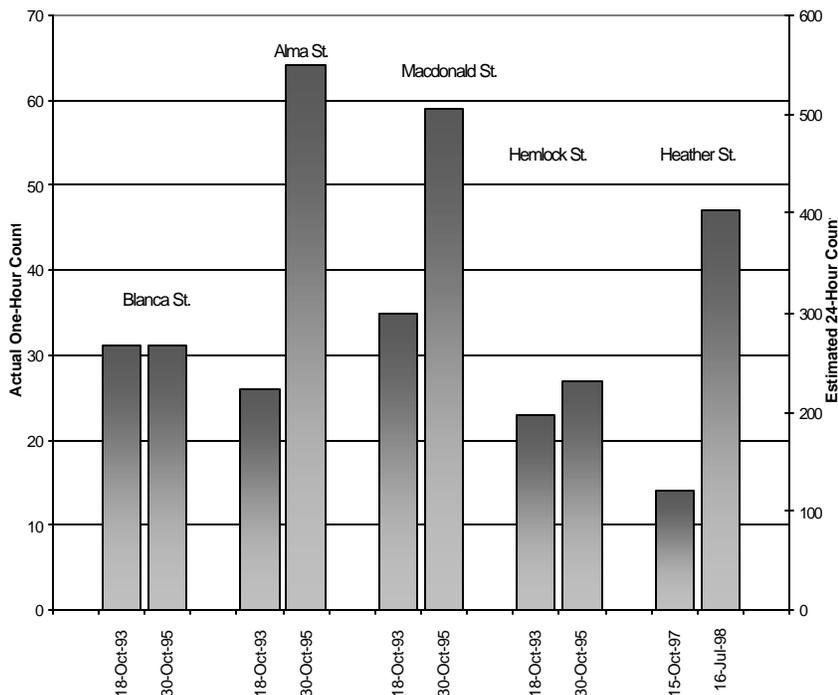


Table 38: One-Hour East and Westbound Bicycle Volumes on the Off-Broadway Bikeway

Location	Date	Time	Duration(hr)	Count	Est. 24 hr Count
Blanca	18-Oct-93	4:00 PM	1:00	31	239
	30-Oct-95	4:00 PM	1:00	31	239
Alma	18-Oct-93	7:30 AM	1:00	26	200
	30-Oct-95	7:30 AM	1:00	64	493
Macdonal	18-Oct-93	4:00 PM	1:00	35	270
	30-Oct-95	4:00 PM	1:00	59	454
Hemlock	18-Oct-93	4:00 PM	1:00	23	177
	30-Oct-95	4:00 PM	1:00	27	208
Heather	15-Oct-97	2:00 PM	1:00	14	108
	16-Jul-98	7:30 AM	1:00	47	362

While the results for the Off-Broadway Bikeway are more variable than those for the Adanac Bikeway, it appears that there is at some locations along the route, a substantial increase in the number of cyclists over the last few years.

Cypress Bikeway

As with the city's other major routes, the number of cyclists is increasing on the Cypress Bikeway. Refer to Figure 39.

Figure 39: One-Hour North and Southbound Bicycle Volumes on the Cypress Bikeway

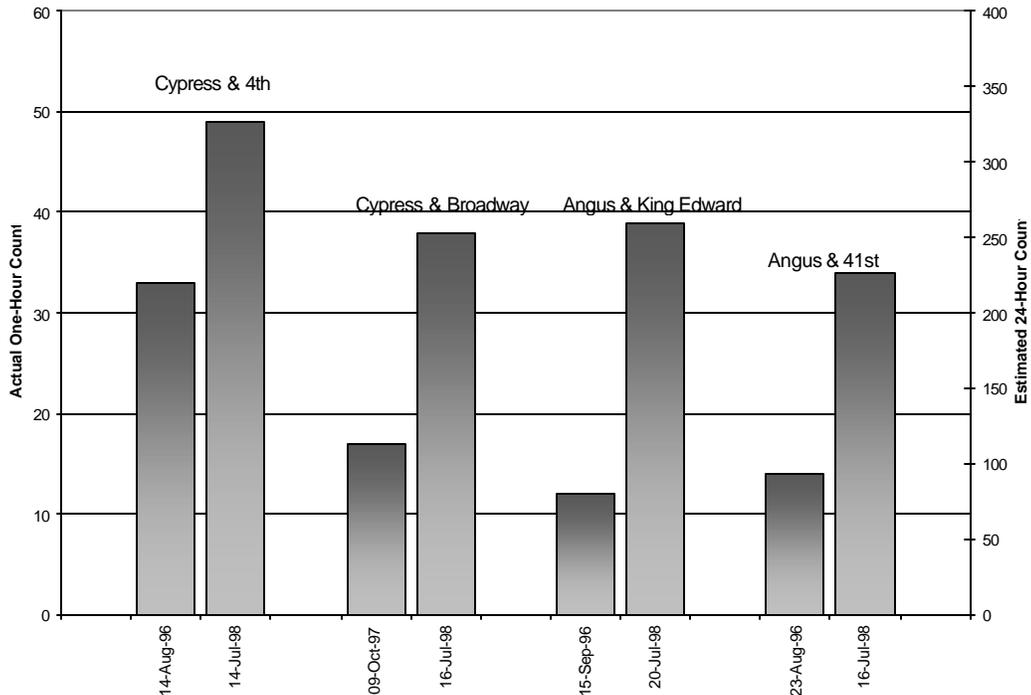


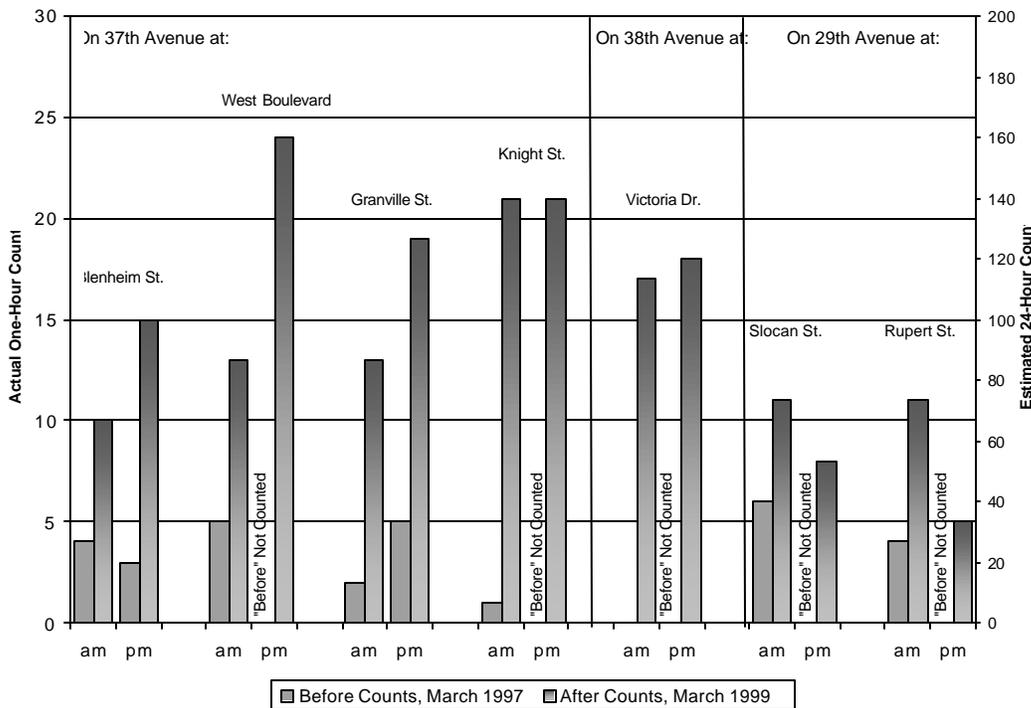
Table 39: One-Hour North and Southbound Bicycle Volumes on the Cypress Bikeway

Location	Date	Time	Duration(hr)	Count	Est. 24 hr Count
4th	14-Aug-96	3:30 PM	1:00	33	254
	14-Jul-98	4:30 AM	1:00	49	377
Broadway	09-Oct-97	9:00 AM	1:00	17	131
	16-Jul-98	7:30 AM	1:00	38	293
King Edward	15-Sep-96	3:30 PM	1:00	12	92
	20-Jul-98	5:00 PM	1:00	39	300
41st	23-Aug-96	7:30 AM	1:00	14	108
	16-Jul-98	7:30 AM	1:00	34	262

Midtown/Ridgeway Bikeway

Figure 40 shows the before and after counts for the Midtown/Ridgeway route. While this route isn't experiencing the numbers of cyclists as some of the other routes, it has seen an increase in the number of cyclists since it has become a bikeway.

Figure 40: Before and After, One-Hour Bicycle Counts on the Midtown/Ridgeway Bikeway



*Note: a.m. counts were conducted between 7:30 and 8:30 a.m., and p.m. counts between 4:30 and 5:30 p.m.

Table 40: Before and After, One-Hour Bicycle Counts on the Midtown/Ridgeway Bikeway

On	At	Time	Duration	Count		
				Before	After	Est. 24 hr Count
37th Avenue	Blenheim	7:30 AM	1:00	4	10	77
		4:30 PM	1:00	3	15	116
37th Avenue	West Boulevard	7:30 AM	1:00	5	13	100
		4:30 PM	1:00	not counted	24	185
37th Avenue	Granville	7:30 AM	1:00	2	13	100
		4:30 PM	1:00	5	19	146
37th Avenue	Knight	7:30 AM	1:00	1	21	162
		4:30 PM	1:00	not counted	21	162
38th Avenue	Victoria	7:30 AM	1:00	0	17	131
		4:30 PM	1:00	not counted	18	139
29th Avenue	Slocan	7:30 AM	1:00	6	11	85
		4:30 PM	1:00	not counted	8	62
29th Avenue	Rupert	7:30 AM	1:00	4	11	85
		4:30 PM	1:00	not counted	5	39

Summary

In general, the before and after bicycle count data is encouraging. Bicycle use is increasing within the city, particularly along the established bikeways. It is likely that this increase in use is due in part to existing cyclists migrating to the bike routes and to new rider ship from those who did not cycle before the bikeways were established.

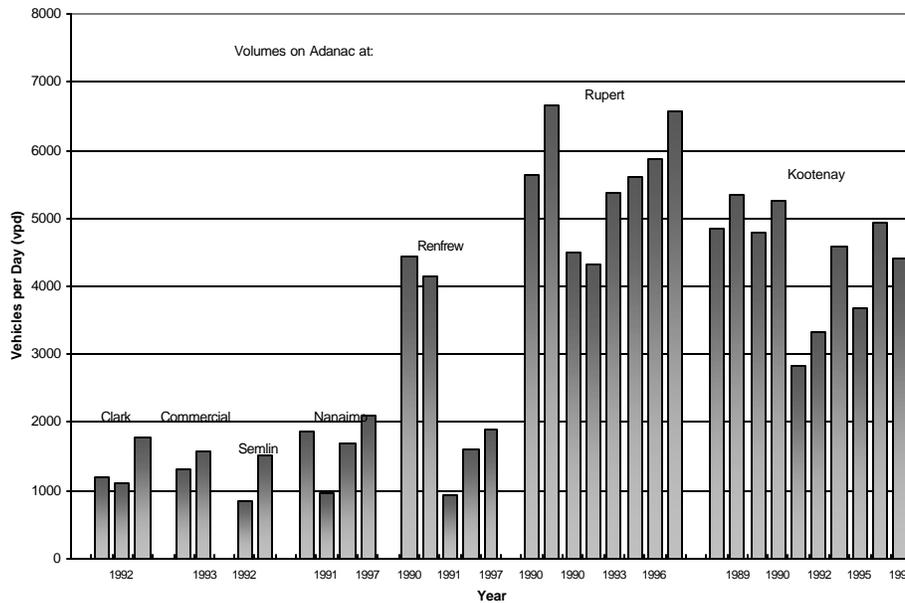
5.1.3 Vehicle Counts

In addition to bicycle counts, vehicles have been counted along the bikeways to ensure that the street remains comfortable for cyclists and residents after the route has been established. While the majority of count locations have remained relatively unchanged, there are a few locations where vehicle volumes have increased. This increase appears to be the result of adjacent land use and traffic patterns, not the implementation of the bikeway. For example, Adanac Street east of Renfrew Street is the only street between First Avenue and Hastings Street that passes over Highway 1. As a result, this section of Adanac has become short-cut route for automobile drivers. Speed humps, have been installed along this section of Adanac in an attempt to reduce vehicle speeds. As well, existing traffic calming devices are being modified to try and discourage motorists from disobeying them.

Adanac Bikeway

Figure 41 illustrates the numerous counts that have occurred along Adanac Street over the last few years. The traffic counts are highly variable, even when conducted within the same year. It is assumed that this variability is due to a number of factors including construction of the Cassiar Connector (1990-1992) and the implementation of a traffic calming plan east of Renfrew Street (1994). Apart from these two key events, traffic volumes have not changed significantly from 1989 – 1997. However, the number of automobiles has generally remained unchanged.

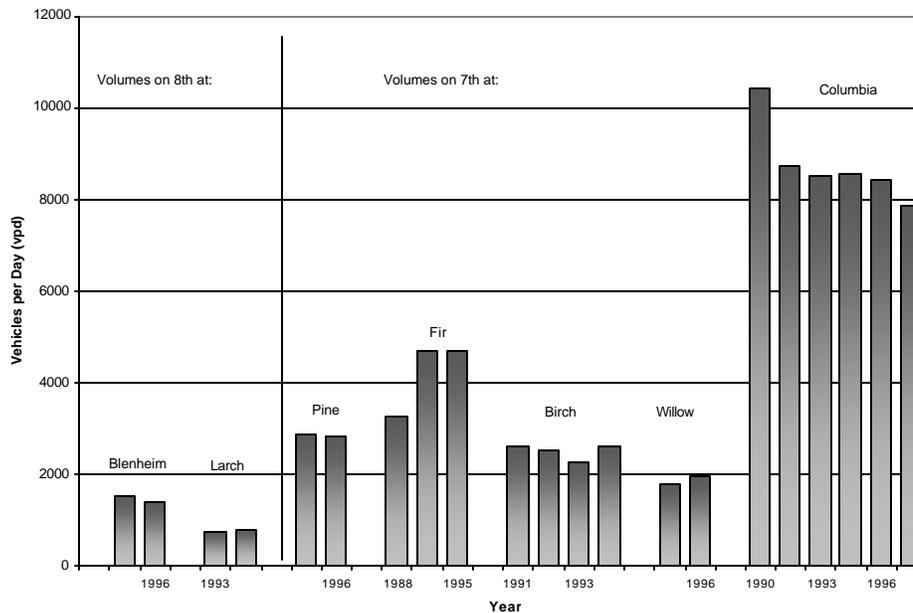
Figure 41: Two-way Vehicle Volumes at Various Locations along the Adanac Bikeway



Off-Broadway Bikeway

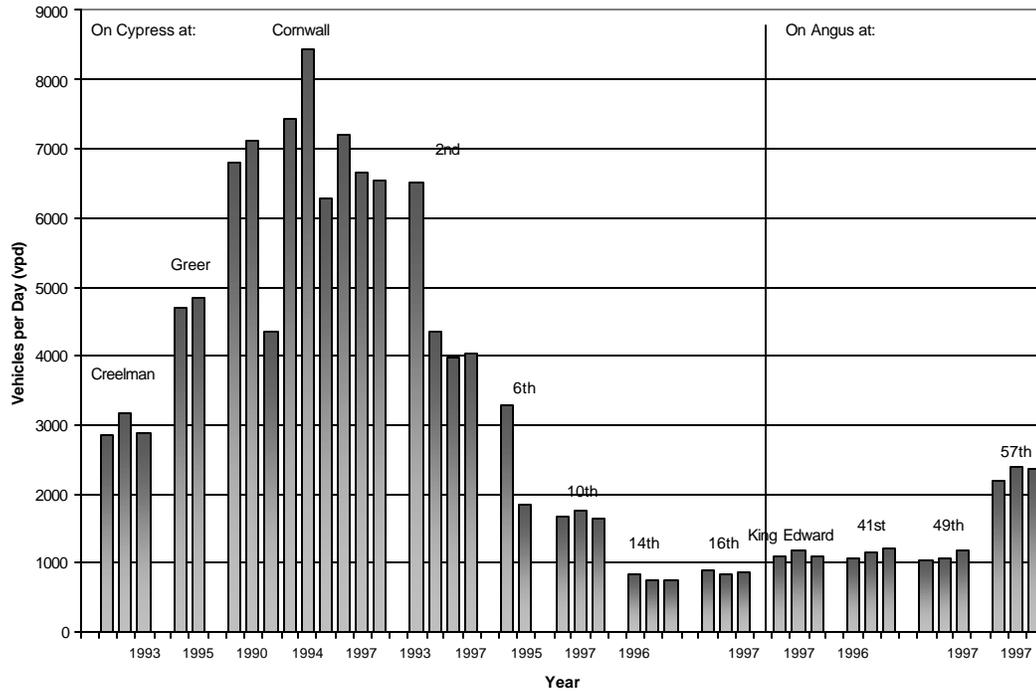
Similar to the Adanac bikeway, results along the Off-Broadway Bikeway indicate that vehicle volumes have remained steady since the implementation of the Bikeway.

Figure 42: Two-way, Vehicle Volumes at Various Locations along the Off-Broadway Bikeway



Cypress Bikeway

Figure 43: Two-way, 24-Hour Vehicle Volumes at Various Locations along the Cypress Bikeway



Summary

In general, the implementation of a bikeway does not appear to increase motor vehicle volumes. With the increase in Vancouver’s population over the last decade an increase in traffic is to be expected, however the construction of a bikeway does not appear to attract additional motorists.

Action 7: Monitor vehicle traffic along the bikeways and take remedial actions where needed.

5.1.4 Bicycle Collisions

The number of collisions involving cyclists has increased in recent years as the popularity of cycling as a means of recreation and transportation has grown. However, there is a gradual decline in the number of collisions since the early 1990’s.

5.1.5 Vancouver Police Department Bicycle Collision Reports

Figure 44 shows the reported bicycle collisions involving cyclists in Vancouver from 1975 to 1998. It must be noted that the Police Department changed its accident reporting procedures in 1997, resulting in a dramatic drop in the number of bicycle collisions between 1996 and 1997. As of April 1,

1997, the Police only accept accident reports for accidents that they attend. As a result, the number of reported collisions dropped sharply in 1997.

Figure 44: Reported Collisions Involving Cyclists from 1975 to 1998

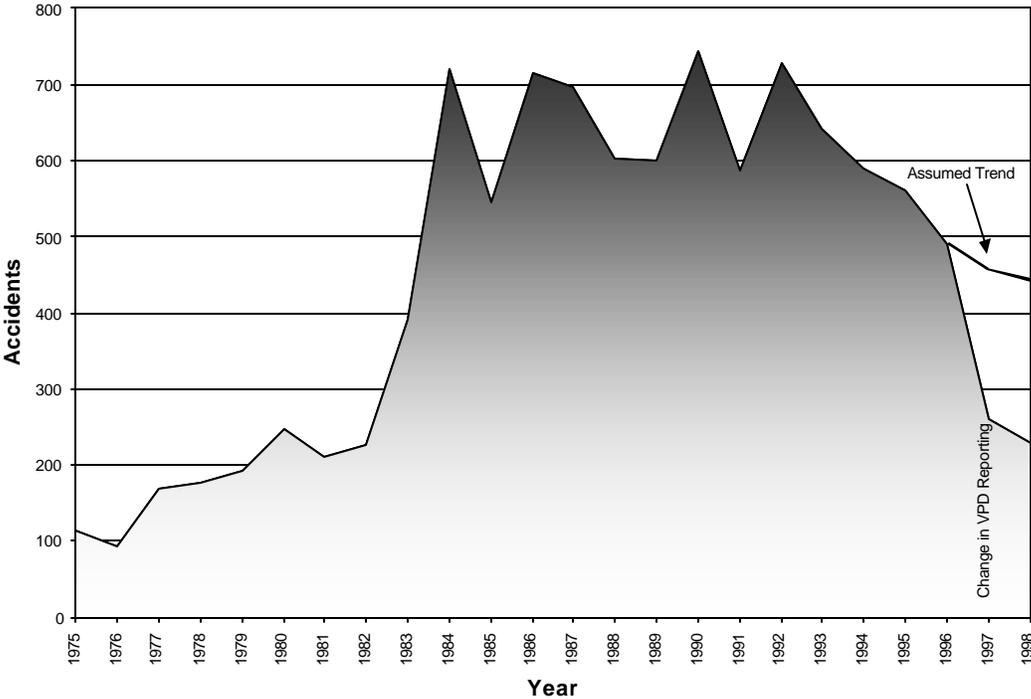


Table 44: Reported Collisions Involving Cyclists from 1975 to 1998

Reported Accidents		Reported Accidents	
Year	Involving Cyclists	Year	Involving Cyclists
1975	114	1987	697
1976	93	1988	603
1977	169	1989	600
1978	178	1990	744
1979	193	1991	588
1980	248	1992	728
1981	211	1993	641
1982	227	1994	590
1983	392	1995	560
1984	719	1996	491
1985	546	1997	262
1986	715	1998	229
		Total	10,538

It is interesting to note that with the advent of the Bicycle Network Study in 1992 and the creation of the Adanac Bikeway in 1993, there has been a declining trend in the number of collisions involving cyclists at the same time the number of cyclists appears to be increasing. This decline in collisions

may be the result of a greater awareness of cyclists on the roadway network, increased cycling infrastructure or the increased skill and education of cyclists and motorists.

As shown in Figure 45, 35 cyclists have lost their lives in the City of Vancouver over the last 25 years. Fortunately, cyclist fatalities are down from a high of six in 1981 to approximately one per year since 1991. Regardless of who is at fault, it is always the cyclist who is more vulnerable when involved in a collision with an automobile. It is tragic that anyone is killed on the roadway network and the City's ultimate goal is to have no road-related fatalities in Vancouver.

Figure 45: Cyclist Fatalities in Vancouver from 1975 to 1998

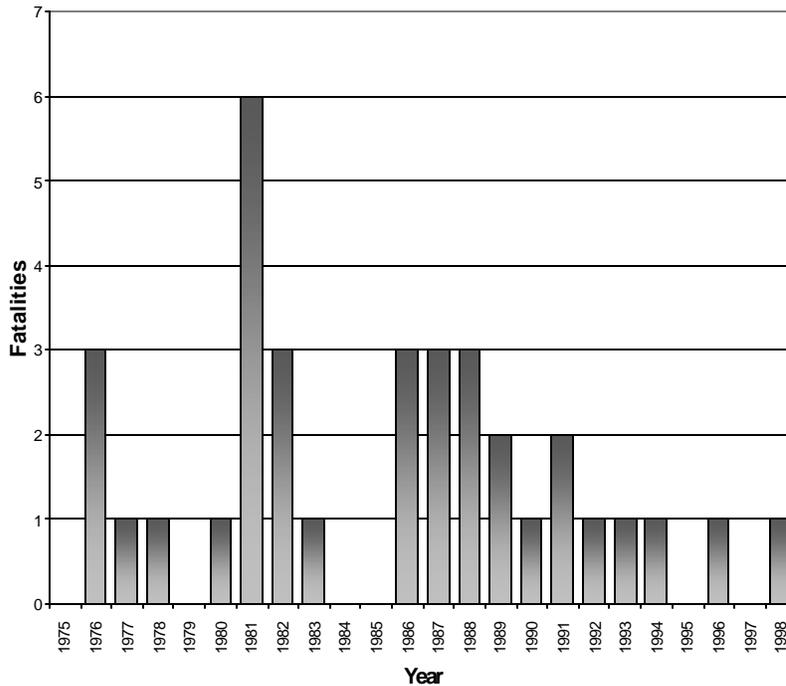


Table 45: Cyclist Fatalities in Vancouver from 1975 to 1998

Year	Cyclist Fatalities	Year	Cyclist Fatalities
1975	0	1987	3
1976	3	1988	3
1977	1	1989	2
1978	1	1990	1
1979	0	1991	2
1980	1	1992	1
1981	6	1993	1
1982	3	1994	1
1983	1	1995	0
1984	0	1996	1
1985	0	1997	0
1986	3	1998	1
		Total	35

The following figures illustrate the locations of reported bicycle collisions within the City of Vancouver. As with the city-wide bicycle counts, collisions are shown for 1995 and 1996. As the figures show, the majority of collisions involving cyclists are within the downtown core. However, unlike the city-wide bicycle counts, the data for collisions is more variable and is not entirely located in the downtown core or the Broadway corridor.

Figure 46: Vancouver Bicycle Collisions – 1995

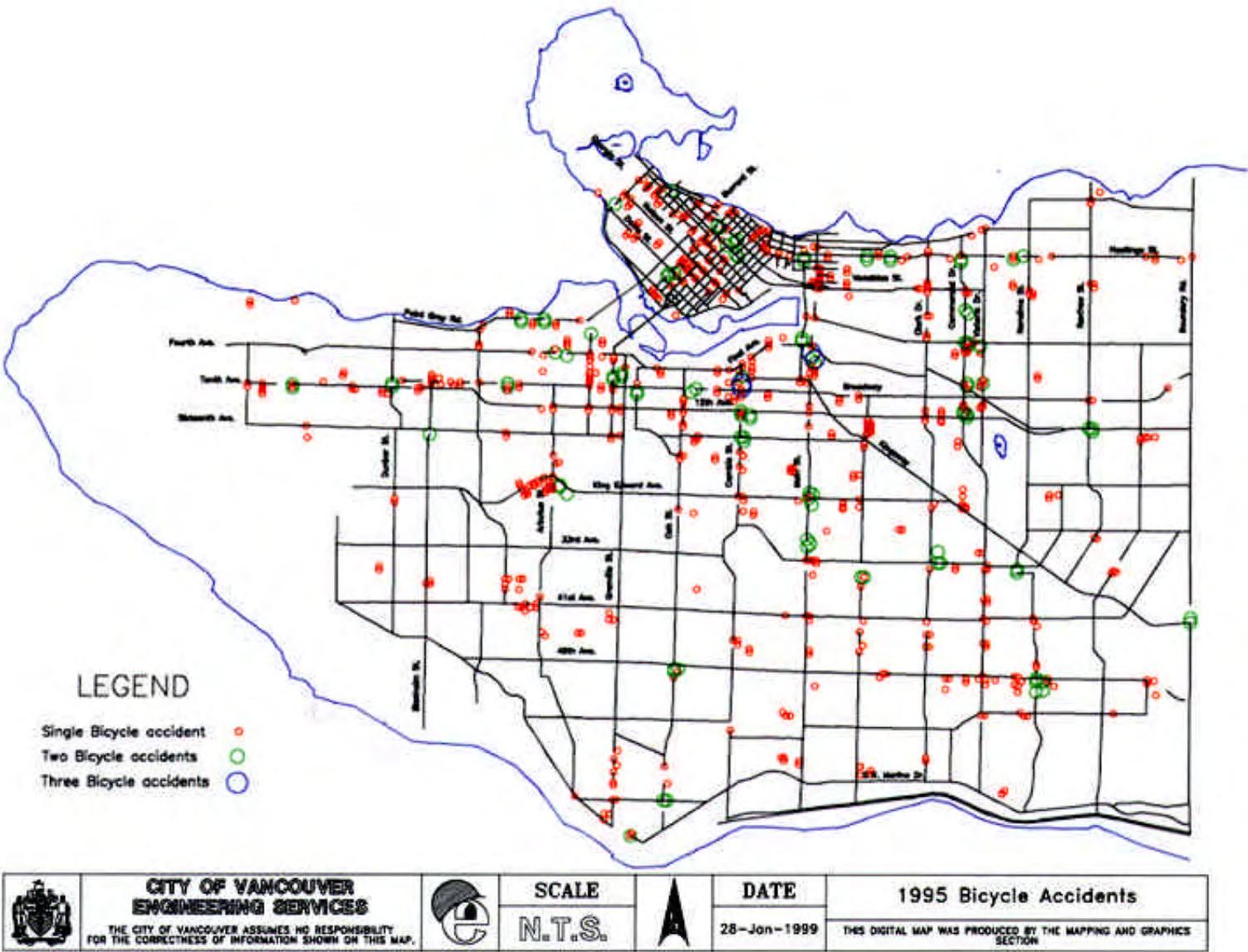
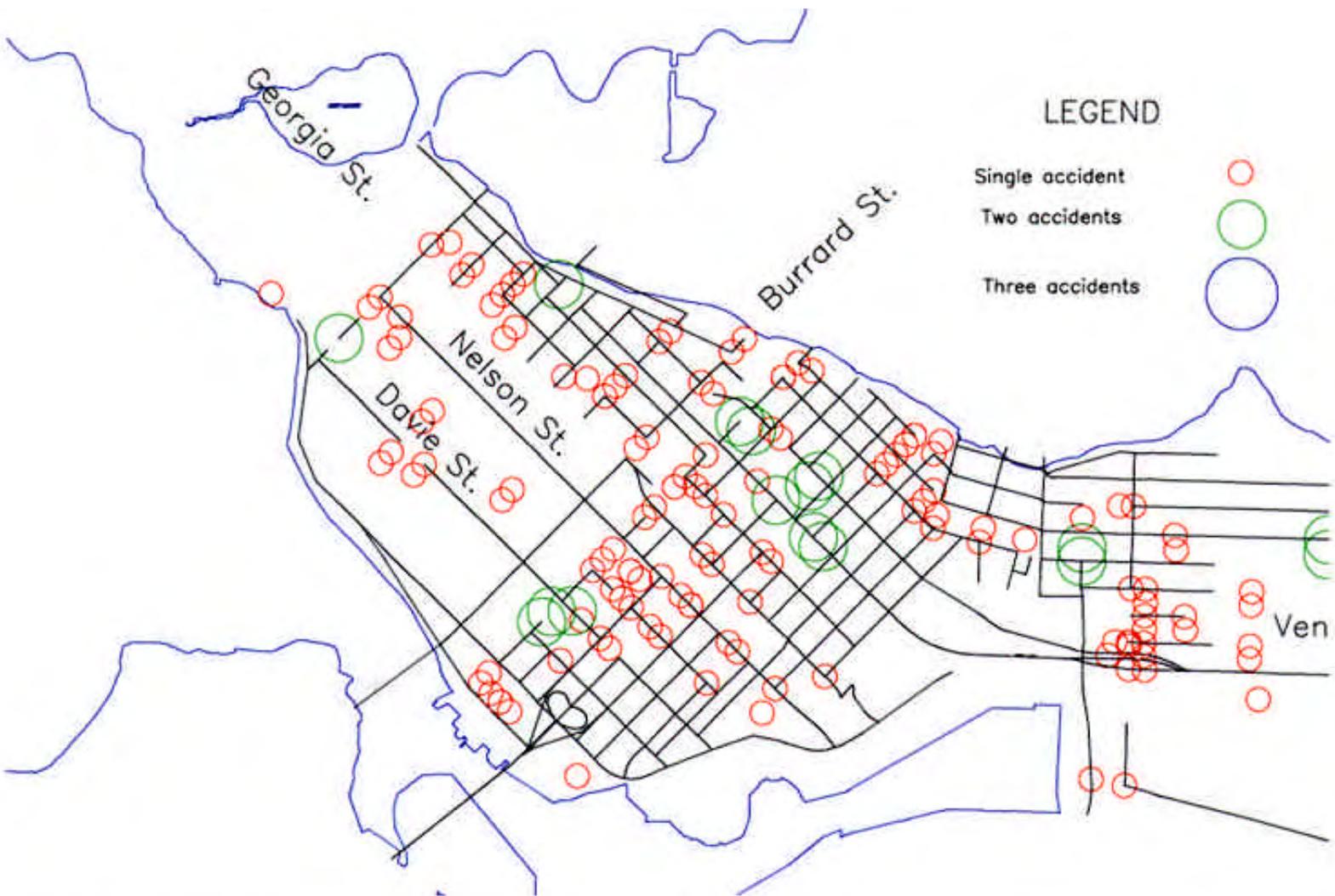


Figure 47: Downtown Bicycle Collisions – 1995



	CITY OF VANCOUVER ENGINEERING SERVICES <small>THE CITY OF VANCOUVER ASSUMES NO RESPONSIBILITY FOR THE CORRECTNESS OF INFORMATION SHOWN ON THIS MAP.</small>		SCALE		DATE	1995 Bicycle accidents downtown
			N.T.S.		28-Jan-1999	<small>THIS DIGITAL MAP WAS PRODUCED BY THE MAPPING AND GRAPHICS SECTION</small>

Figure 48: Vancouver Bicycle Collisions – 1996

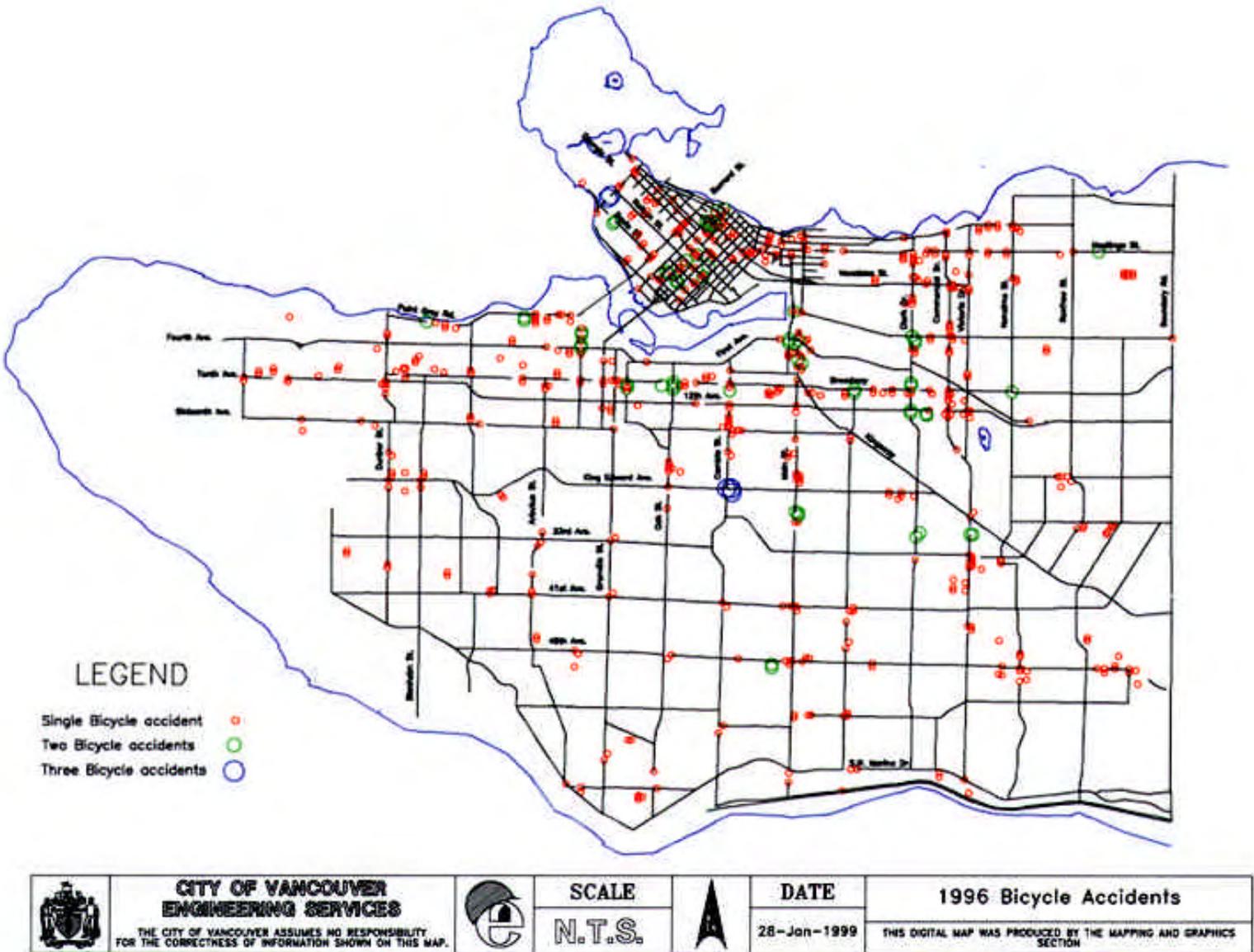
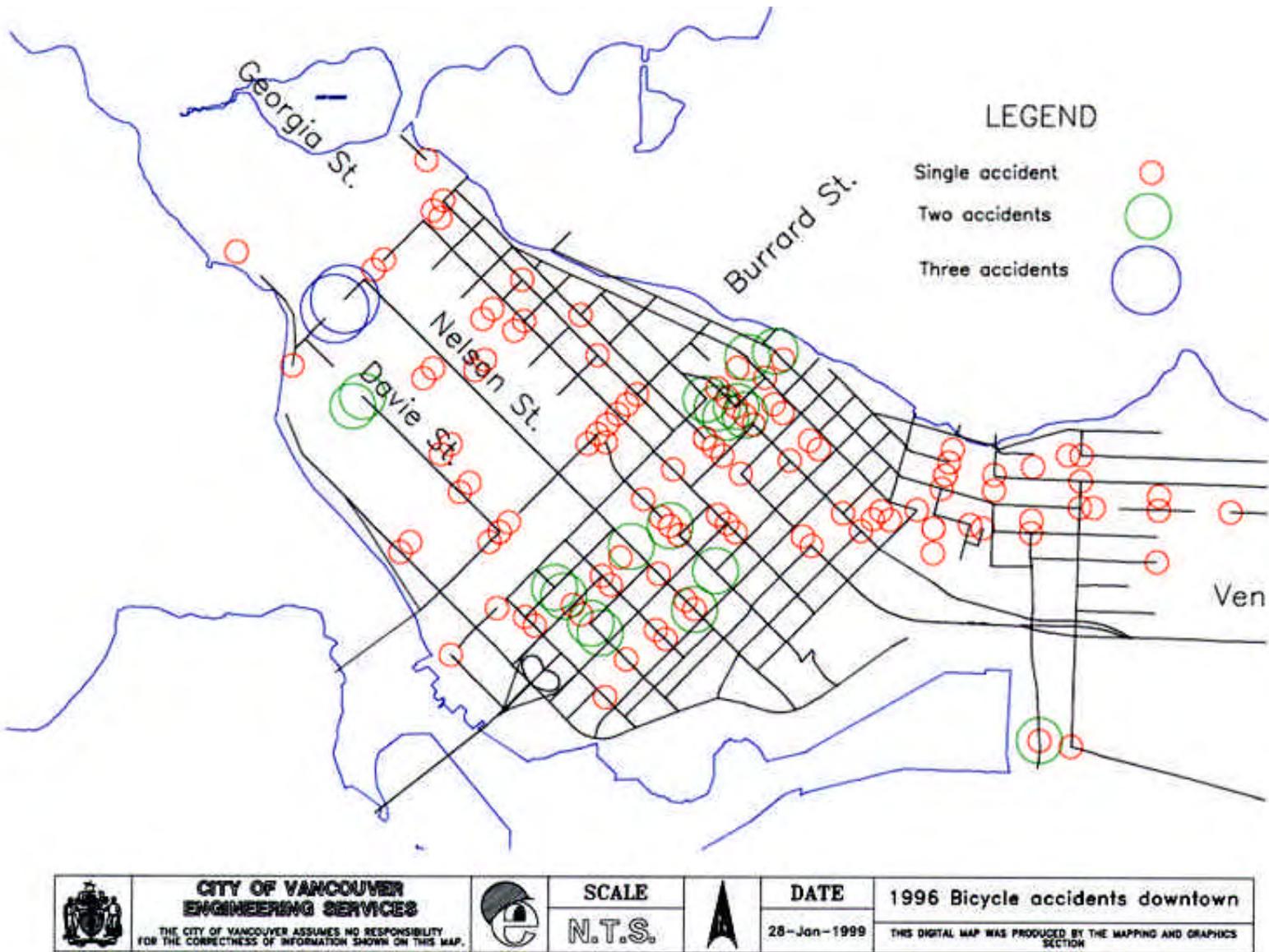


Figure 49: Downtown Bicycle Collisions – 1996



5.1.6 ICBC Bicycle Collision Reports

In addition to the Vancouver Police records, information for 1997 and 1998 collisions was obtained from accident claims made to the Insurance Corporation of British Columbia (ICBC). In 1997 and 1998 there were 307 accident claims in the City of Vancouver involving cyclists. Of those accident claims, 26 occurred on marked bicycle routes. Figure 50 shows the number of accidents reported on the various bike routes. In addition to accident locations, Figure 51 shows the breakdown of the cause and fault of the collisions.

Figure 50: 1997 and 1998 ICBC Claims Involving Cyclists on Vancouver Bicycle Routes

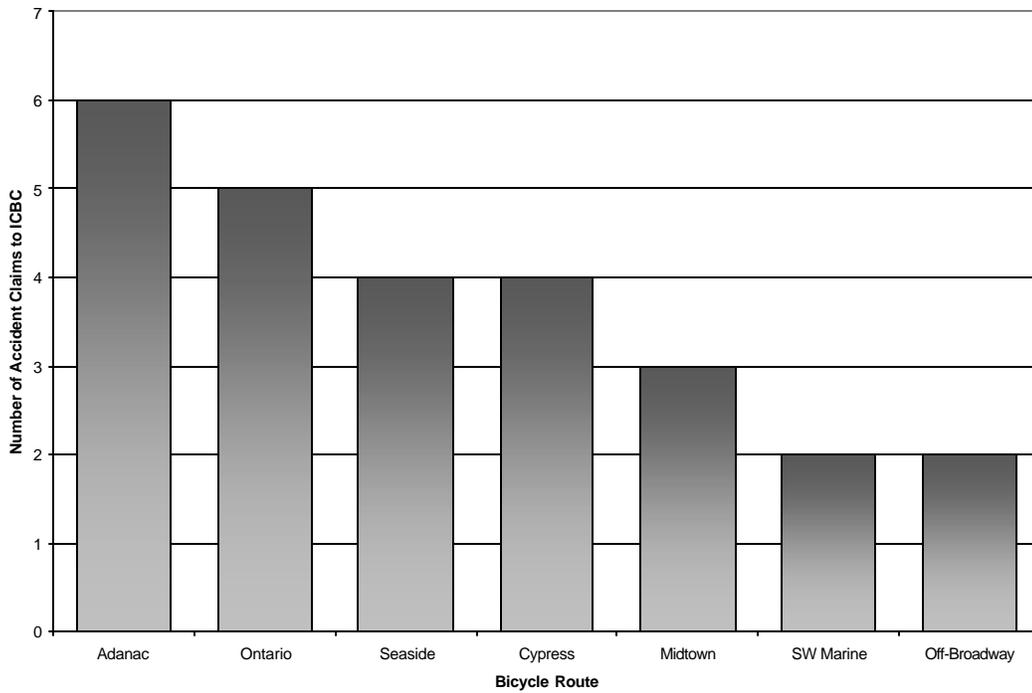
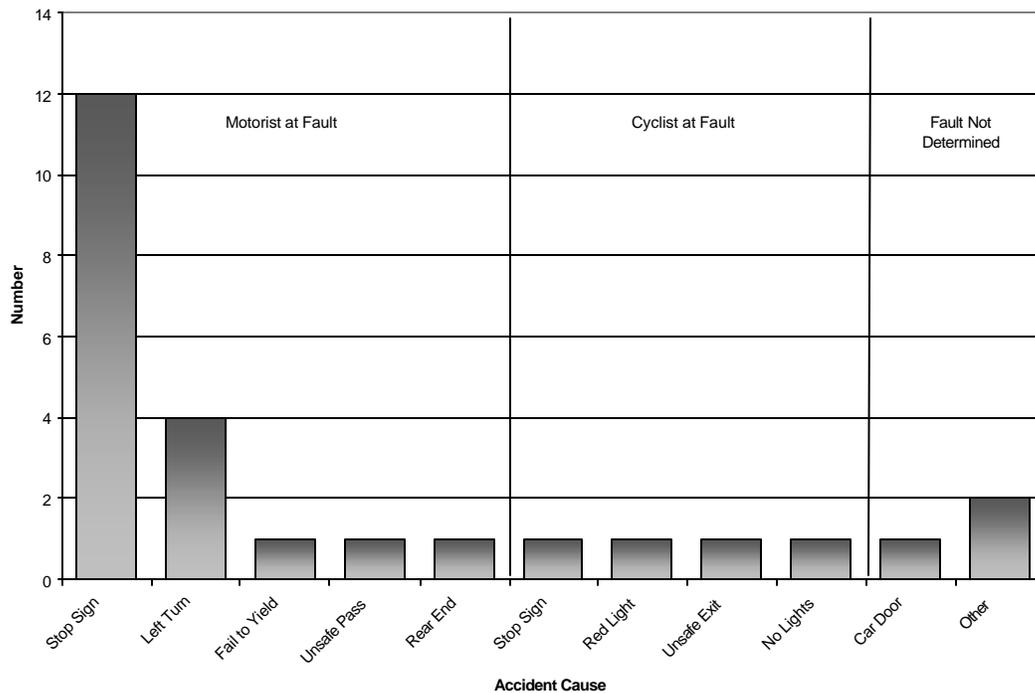


Table 50: 1997 and 1998 ICBC Claims Involving Cyclists on Vancouver Bicycle Routes ⁴⁹

Route	Number of ICBC Claims
Adanac	6
Ontario	5
Seaside	4
Cypress	4
Midtown	3
SW Marine	2
Off-Broadway	2
Total	26

Figure 51: Fault of 1997 and 1998 Collisions Involving Cyclists on Vancouver Bicycle Routes



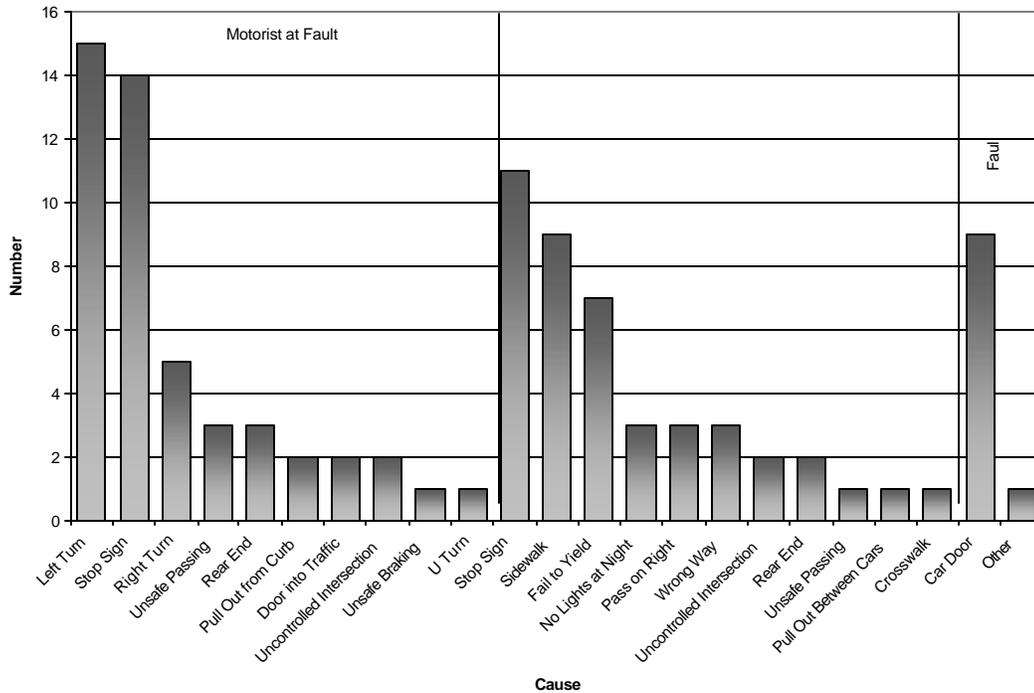
⁴⁹ Constable Bert Rainey, Vancouver Police Department Bicycle Squad

Table 51: Fault of 1997 and 1998 Collisions Involving Cyclists on Vancouver Bicycle Routes⁵⁰

	Fault		
	Motorist	Cyclist	Not Determined
Stop Sign	12	Stop Sign 1	Car Door 1
Left Turn	4	Red Light 1	Other 2
Fail to Yield	1	Unsafe Exi 1	
Unsafe Pass	1	No Lights 1	
Rear End	1		
Total	19	4	3

In addition to identifying the cause and fault of the collisions on bicycle routes, 100 random claims of the 307 claims made involving cyclists, were analyzed to determine if there is any trend in the accident data. Figure 52 illustrates the results of this analysis.

Figure 52: Fault of 100 Random ICBC Claims Involving Cyclists in 1997 and 1998



⁵⁰ Ibid.

Table 52: Fault of 100 Random ICBC Claims Involving Cyclists in 1997 and 1998⁵¹

		Fault			
Motorist		Cyclist		Not Determined	
Left Turn	15	Stop Sign	11	Car Door	9
Stop Sign	14	Sidewalk	9	Other	1
Right Turn	5	Fail to Yield	7		
Unsafe Passing	3	No Lights at Night	3		
Rear End	3	Pass on Right	3		
Pull Out from Curb	2	Wrong Way	3		
Door into Traffic	2	Uncontrolled Intersection	2		
Uncontrolled Intersection	2	Rear End	2		
Unsafe Braking	1	Unsafe Passing	1		
U Turn	1	Pull Out Between Cars	1		
		Crosswalk	1		
Total	48		42		10

Summary

The number and severity of collisions involving cyclists appears to be decreasing from the numbers in the 1980's and early 1990's. Generally, most collisions appear to occur on arterial streets and are concentrated at intersections. The downtown core has the greatest concentration of collisions, as cyclists and vehicles compete for road space. This further supports the need for a network of bike lanes downtown.

To ensure that collisions involving cyclists continues to decline and identify locations that require modifications to increase safety, cycling collisions should continue to be monitored.

Action 8: Monitor collisions involving cyclists to identify intersections or locations requiring modifications and to ensure a decline in the number and severity of bicycle collisions.

5.1.7 Bikeways and Crime Rates

As in other communities, crime prevention is a major concern for many residents. When a bicycle route is proposed for a neighbourhood, some residents feel that the increase in the number of cyclists will result in an increase in crime. This section will attempt to determine whether there is any correlation between crime and the presence of a bike route.

Methodology

To determine if there is a correlation between crime rates and bicycle routes, the aid of the Vancouver Police Department Crime Analysis Unit was enlisted. Crime statistics were obtained for the entire city for 1995, 1996 and 1997. In addition to statistics for the entire city, two smaller neighbourhoods were selected to determine whether a street with a bikeway had higher incidents of crime than other streets within the neighbourhood.

⁵¹ *Ibid.*

While statistics for theft of auto, theft from auto, mischief and burglary were available, for the brevity of this report only the statistics for residential break and enter are included. It must be noted that the results for other types of crime were similar to those of break and enter.

City-wide Residential Break and Enter Statistics

The following figures show the contour lines of residential break and enter in the City of Vancouver. Only the routes that existed in each year are shown. If there was correlation between the existence of the bike route and the number of break and enters, there would be definite identifiable contour lines appearing along the routes.

For the years 1995 through 1997, there appears to be no city-wide correlation between bicycle routes and incidents of break and enter. Incidents of break and enter appear to be more closely linked with adjacent land use, density and demographics, than by the presence of a bike route. While the denser neighbourhoods appear to have greater crime rates, it must be noted that the figures illustrate the number of reported incidents and don't factor in population densities. A more accurate picture of crime would be to have the incidents of crime per capita plotted, however this information was not available for this report.

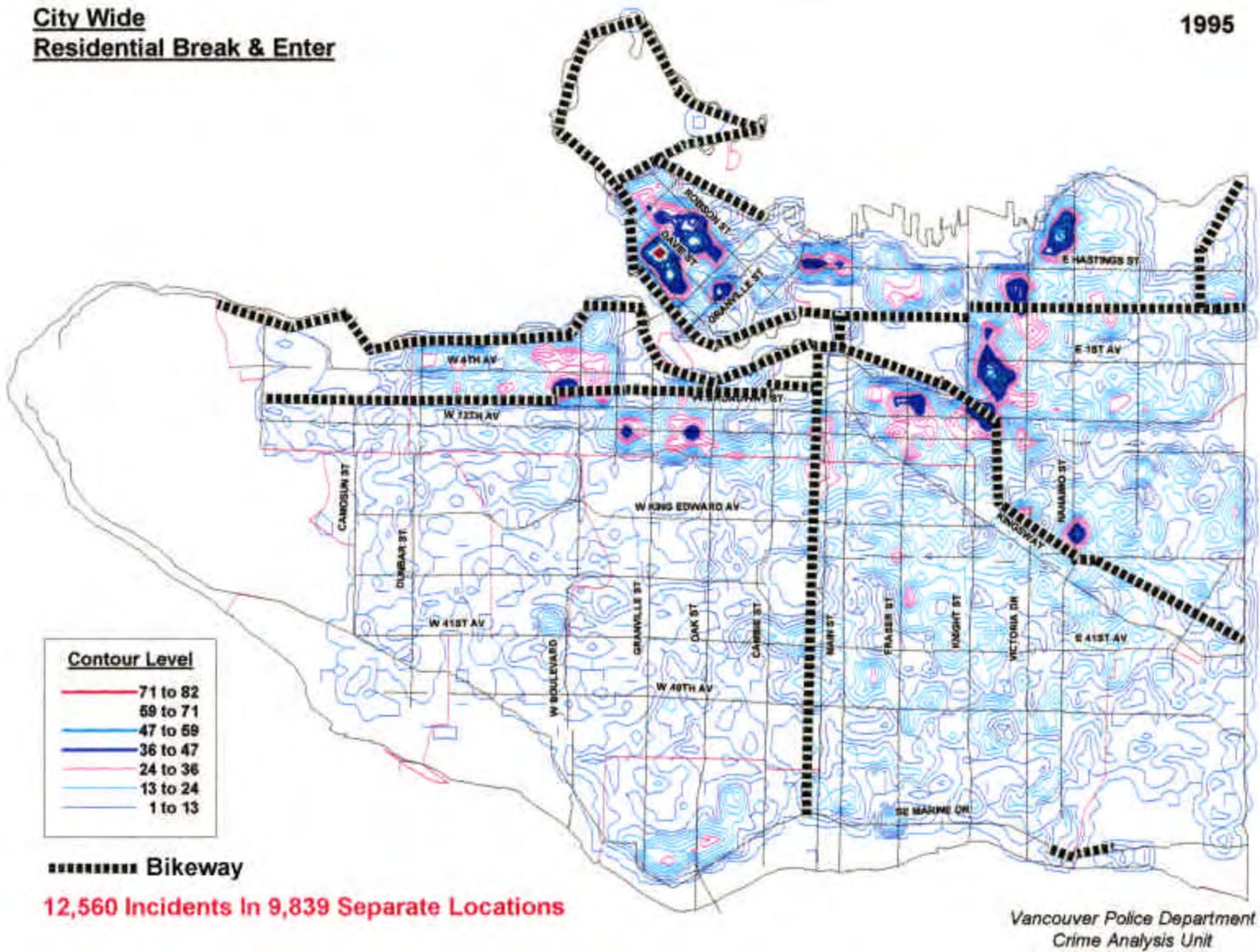


Figure 53: City-wide Residential Break and Enter – 1995

1996

**City Wide
Residential Break & Enter**

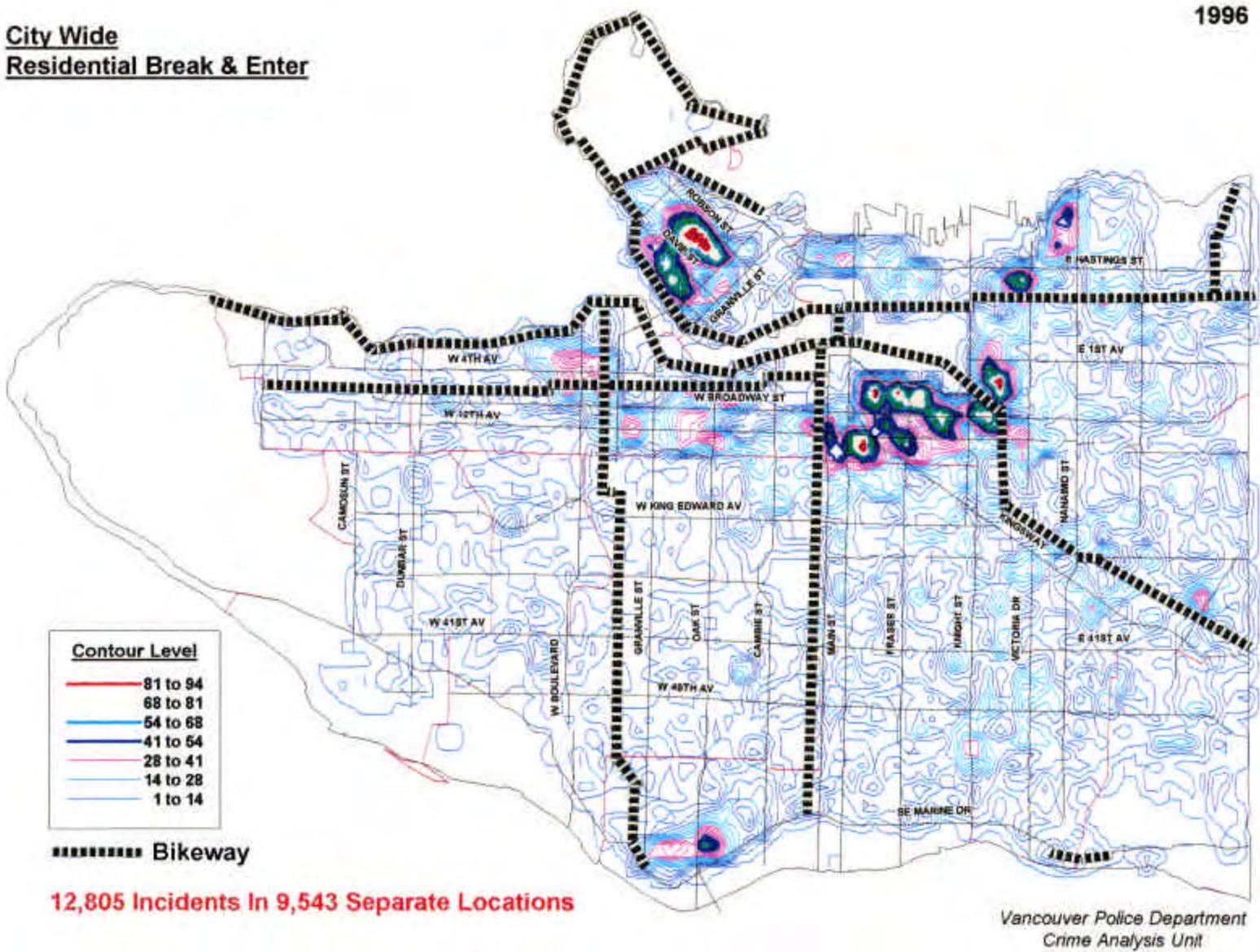


Figure 54: City-wide Residential Break and Enter – 1996

A Study of Two Local Neighbourhoods

In addition to the city-wide analysis, two neighbourhoods were selected to determine any differences between a street with a bikeway with other streets in the neighbourhood. Two neighbourhoods on different bikeways were selected that had remained relatively unchanged over the last few years (e.g. no major land use or density changes). Only the results for break and enter data are summarized below.

Neighbourhood 1: Cypress Bikeway

The first neighbourhood examined is bordered by East Boulevard, Granville Street, West 41st Avenue and West 49th Avenue. The Cypress Bikeway was constructed in 1996 and residential break and enter data was obtained for the years 1995, 1996 and 1997 to determine if the presence of the bikeway had any effect on crime in the neighbourhood.

As shown in Figures 56 to 58 there appears to be no correlation between residential break and enters and the presence of the Cypress Bikeway. For this neighbourhood, the location of incidents appears to be associated with the adjoining land use (apartment buildings, retail areas and high schools).

Neighbourhood 2: Ontario Bikeway

The second neighbourhood examined extends from Cambie Street to Fraser Street and from East 41st to East 49th Avenues. The Ontario Bikeway was constructed in 1995, however crime data is not available in contour form for 1994, so a "before and after" picture of the neighbourhood with and without the bikeway is not possible. However, if there was a correlation between the bikeway and crime, contours of high incidents of break and enter should appear in the data.

Contour lines of residential burglary were drawn for the neighbourhood and again, there appears to be no correlation between residential break and enter and the bikeway. See Figures 59 to 61.

Figure 56: Cypress St. – Residential Break and Enter, 1995 – One Year Prior to Bikeway Construction

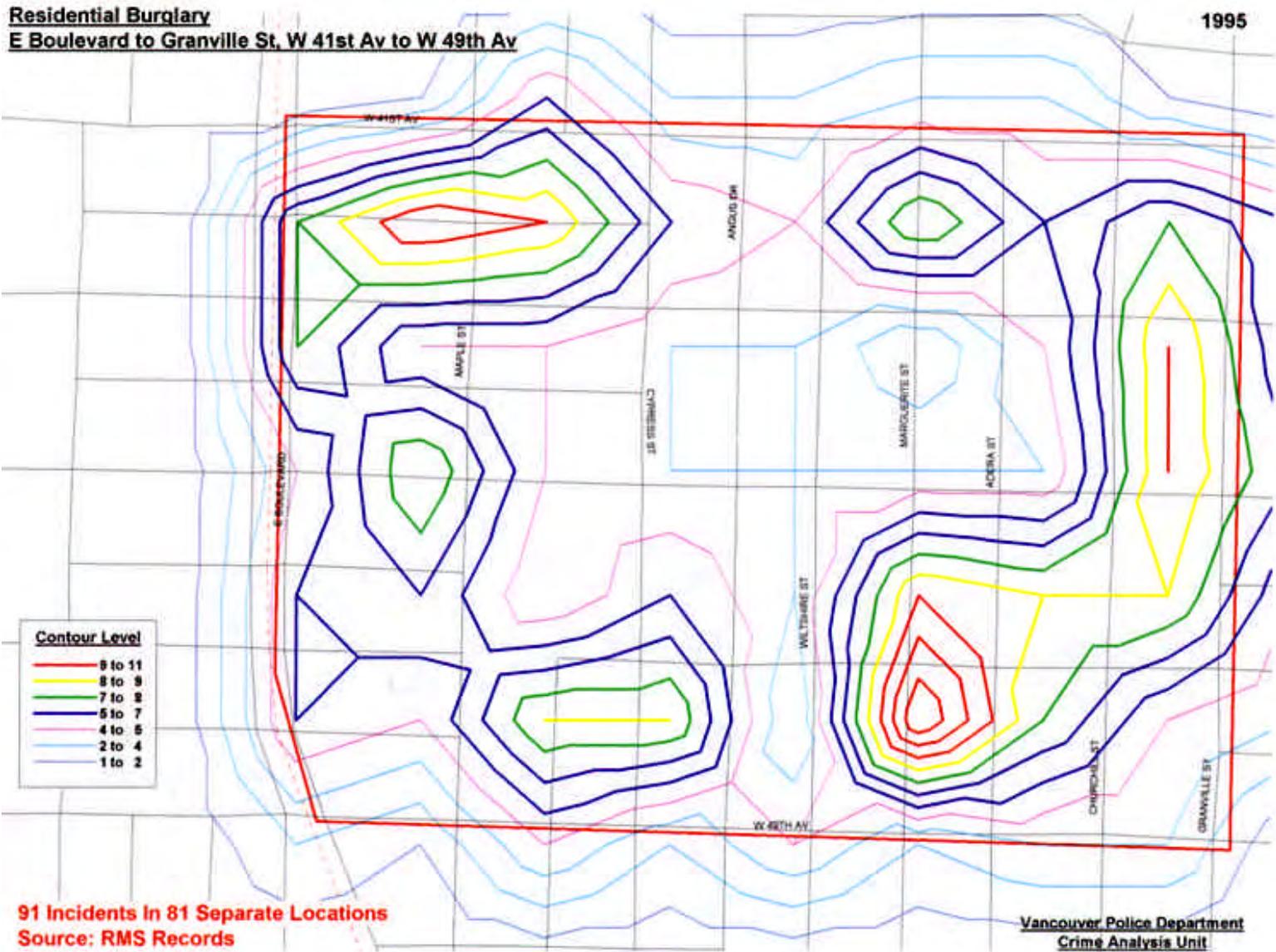


Figure 57: Cypress St. – Residential Break and Enter, 1996 – Year Bikeway Constructed

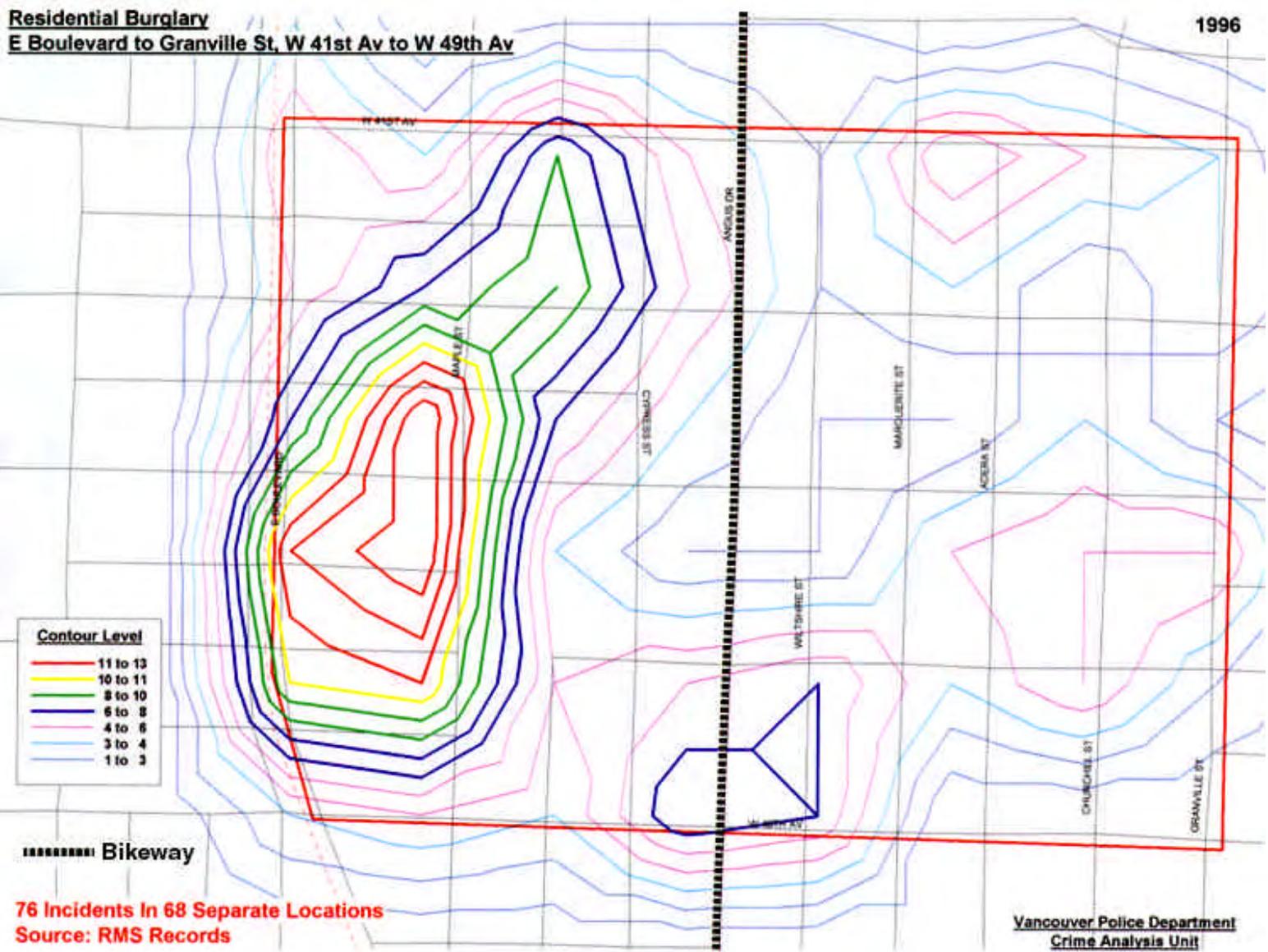


Figure 58: Cypress St. – Residential Break and Enter, 1997 – One Year After Bikeway Constructed

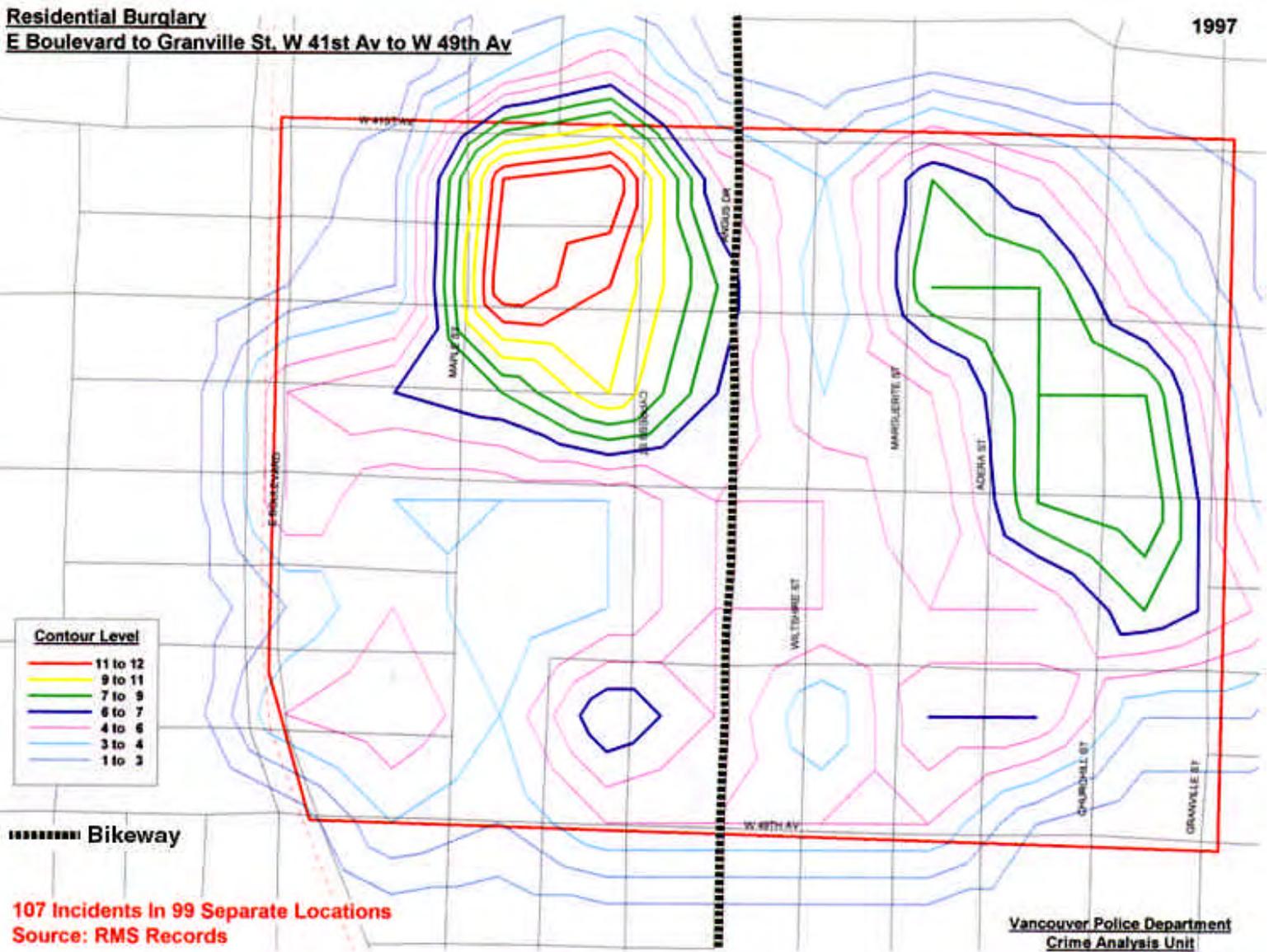


Figure 59: Ontario St. - Residential Break and Enter, 1995 – Year Bikeway Constructed

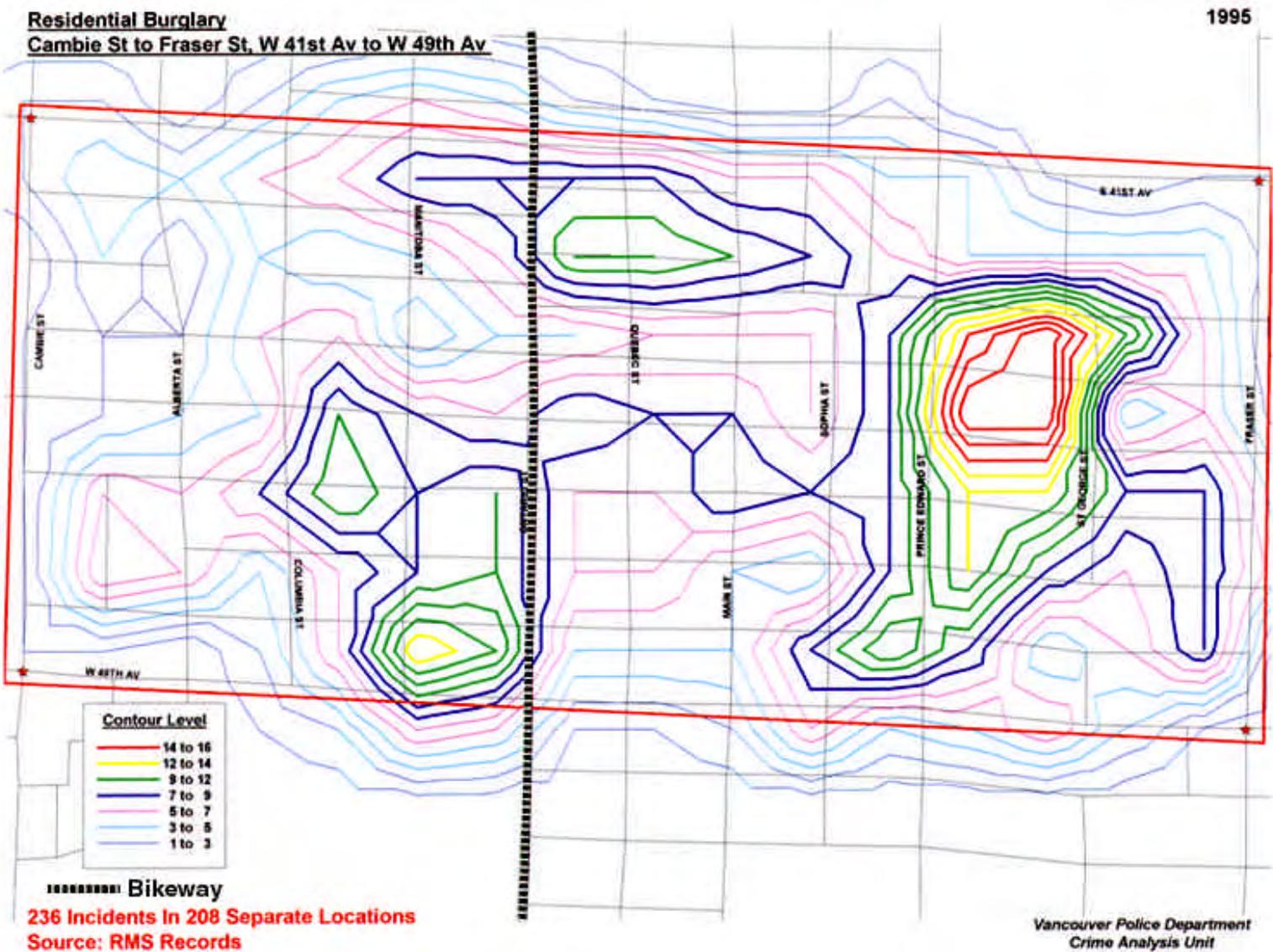
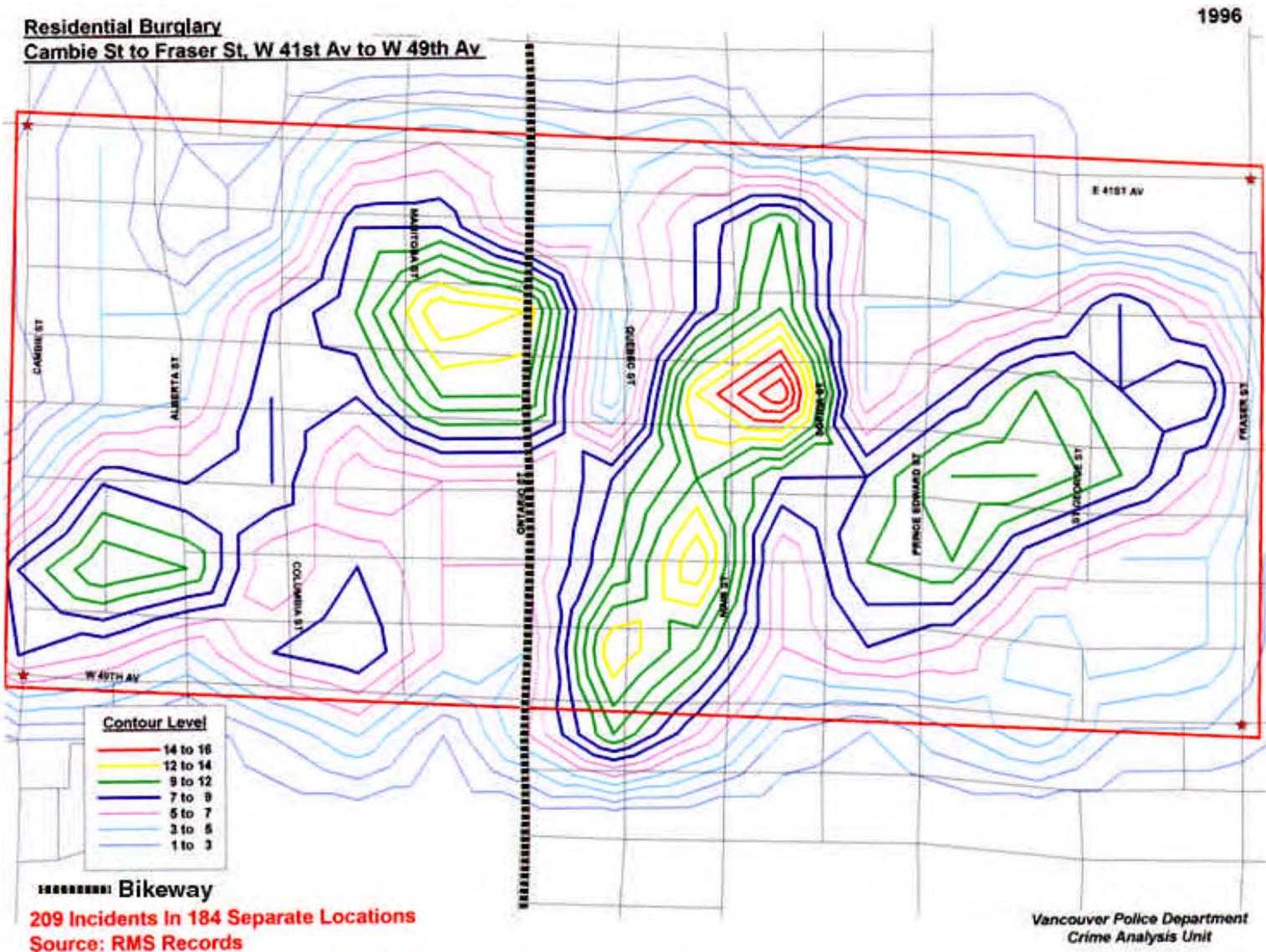


Figure 60: Ontario St. - Residential Break and Enter, 1996 – One Year After Bikeway Constructed



Summary

From the city-wide results and the two neighbourhoods studied, there appears to be no correlation between the presence of the bikeway and an increase in residential break and entry. However, crime statistics should continue to be analyzed to ensure there is no continued relation.

Action 9: Analyze crime statistics to ensure that there is a continued lack of correlation between crime and the presence of a bicycle facility.

5.1.8 Bikeways and Property Values

Another common question asked by residents when proposing a bicycle facility for their street, is the effect of the route on property values. These concerns include the fear that living along a bicycle route will reduce property values and that the route may attract undesirables and therefore decrease the liveability of the street.

Methodology

Originally, attempts were made to determine whether the assessed value and selling price of homes in three study areas had changed due to their location on a bikeway. However, the variables that affect property value are complex and a correlation between property values and bicycle routes is difficult to determine. After consultation with a local real estate assessment firm, a simple random opinion survey of realtors was determined to be a better indication of the effect of a bicycle route on the sale of a home.⁵²

Surveys were mailed in August and September of 1998 to 250 random real estate agents working within the City of Vancouver. Of the 250 surveys mailed out, 66 were returned yielding a 26% response rate. The following section summarizes the results of this realtor survey.

A copy of the realtor survey is given in Appendix B.

4 Houses - 1 Price \$575,000

In the heart of **Strathcona** and on the Adanac bike route. Three character houses and an old **corner store building** currently being rented as a location to Cold Squad. The two houses on the left which are on Jackson Street are original three bedroom homes, the house on the right is a huge five bedroom home and the corner store building is an open space on the ground floor (great for a studio) with two two bedroom suites above. Great view from the roof top which could be a deck. Four buildings for under **\$150,000 each**. Perfect for a partnership arrangement or a great investment in **Vancouver's historic Strathcona. On the corner of Jackson & Union.**

Sutton Group - Heritage West Realty

Figure 62: Real Estate Ad from the *Georgia Straight*

⁵² *The Effect of Greenways on Property Values and Public Safety*

Realtor Survey

The following questions were asked to obtain information regarding the respondents who replied to the realtor survey.

Age

Respondents were asked to indicate their age group. Of the surveys returned, 65 people indicated their age group and one did not. As shown in Figure 63, 67% of the respondents were between the ages of 35 and 54.

Figure 63: Realtor Age Profile

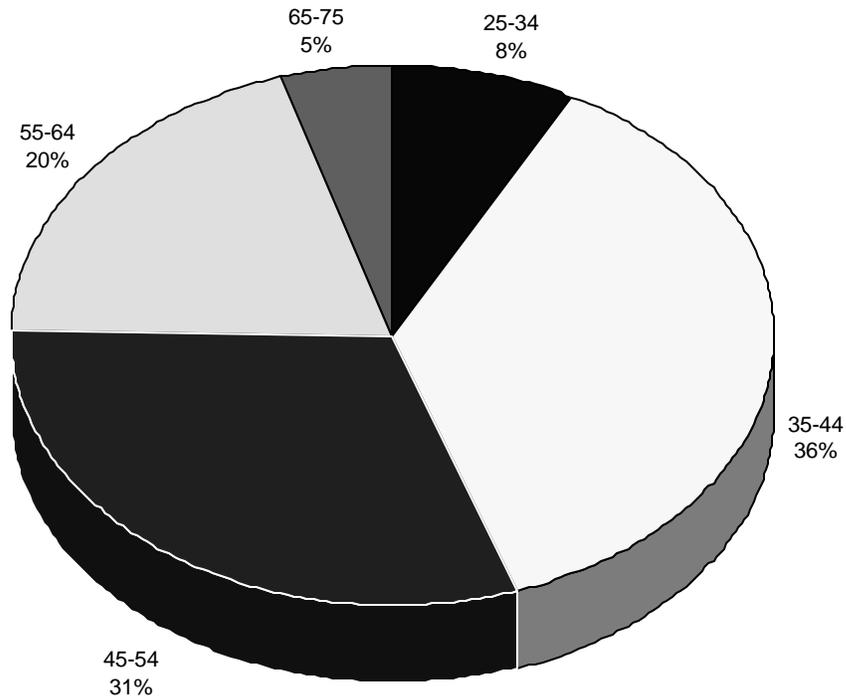


Table 63: Realtor Age Profile

Age Group	Count	Percentage
25-34	5	8%
35-44	24	37%
45-54	20	31%
55-64	13	20%
65-75	3	5%
Total:	65	100%

Gender

Respondents were asked to indicate their gender. Of the surveys returned, 51 people indicated their gender while 15 did not. Of those who responded, 65% were male and 35% were female, as shown in Figure 64.

Figure 64: Realtor Gender Profile

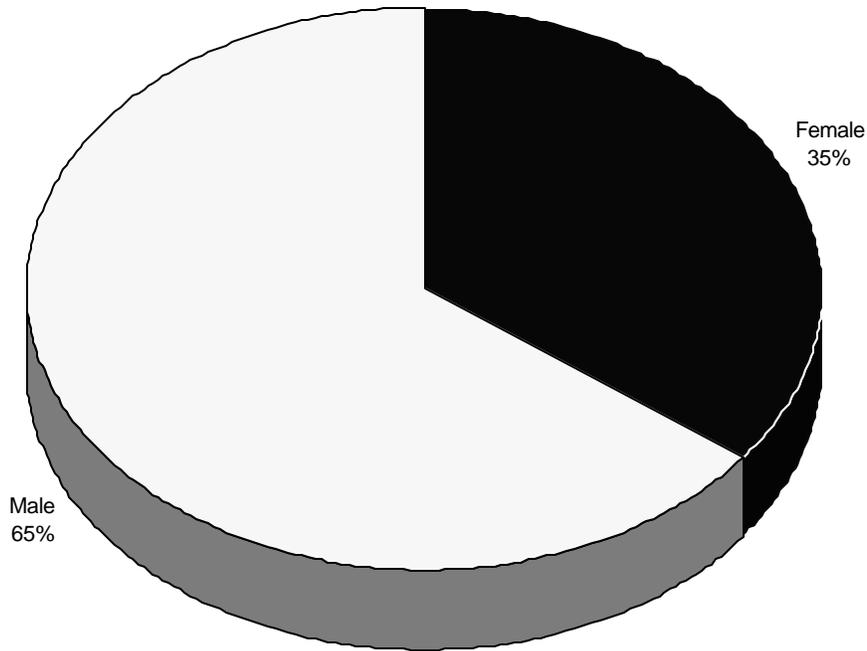


Table 64: Realtor Gender Profile

Gender	Count	Percentage
Female	18	35%
Male	33	65%
Total:	51	100%

From the results of these two questions, approximately two-thirds of the respondents are between the ages of 35 and 54 and two-thirds are male.

Bicycle Routes as a Community Amenity

To determine how the real estate community views the bikeways, realtors were asked their opinion of bicycle routes as an amenity to the communities around them. All 66 respondents answered this question.

The survey results, shown in Figure 65, indicate that the majority (85%) of realtors who responded view the bicycle routes as a community amenity.

Figure 65: Realtor Responses to “Are Bicycle Routes an Amenity to the Community Around Them?”

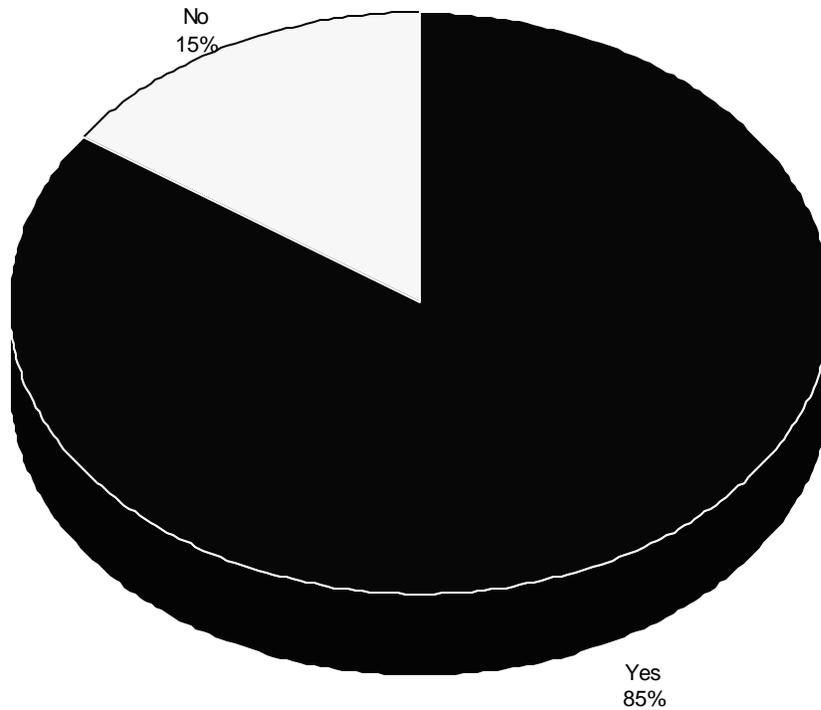


Table 65: Realtor Responses to “Are Bicycle Routes an Amenity to the Community Around Them?”

	Count	Percentage
Yes	56	85%
No	10	15%
Total:	66	100%

Bicycle Routes as a Selling Feature of the Home

Realtors were asked, if they were to sell a home near or adjacent to a bicycle route, would they use the route as a selling feature of the home. All 66 respondents answered this question.

Again a majority (65%) indicated that they would use the bicycle route as a selling feature of a home. It must be noted that several respondents indicated that their response to this question depended on the individual client and their client's lifestyle.

Figure 66: Realtor Responses to “Would you use a bicycle route as a selling feature of a home?”

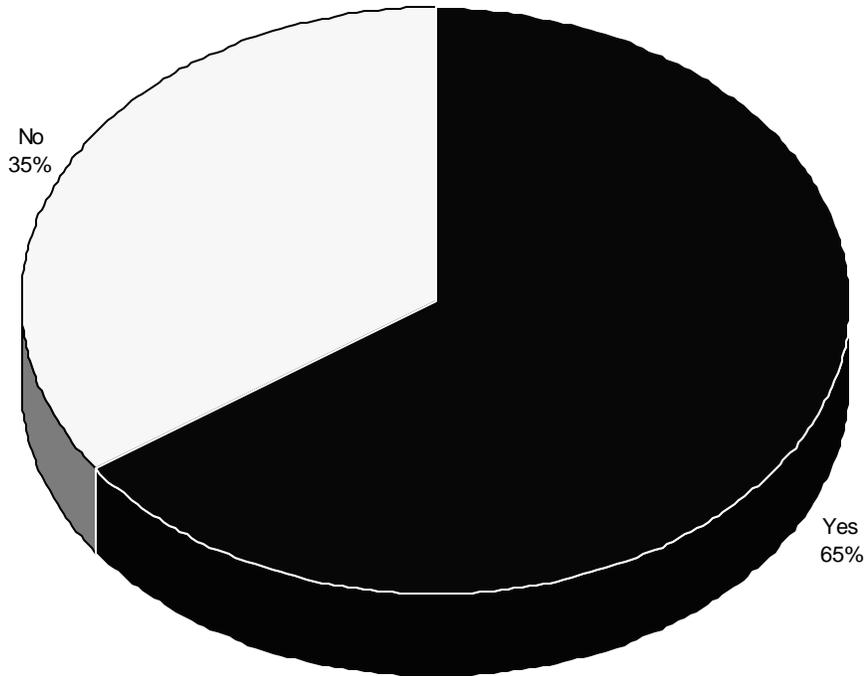


Table 66: Realtor Responses to “Would you use a bicycle route as a selling feature of a home?”

	Count	Percentage
Yes	43	65%
No	23	35%
Total:	66	100%

Property Value and Ease of Sale

Realtors were then asked if, in their opinion, bicycle routes affect the selling price and ease of sale of homes along and near a route. To determine if there is a difference, these questions were divided into two groups; homes along a route and homes within one block of the route.

Homes along a Bike Route

For homes along the bikeway, realtors were asked whether the route would have any effect on the ease of sale or the selling price of the home.

Ease of Sale

Of the surveys returned, 64 people responded to this question, and two did not. There appears to be no consensus on whether the route had any effect on the ease of sale of the home. However, 38% felt the route may make the home easier to sell, 34% felt it would have no effect and 20% felt it may make the home more difficult to sell. The results are illustrated in Figure 67.

Figure 67: Realtor Responses to “If a home is adjacent to a bicycle route, the route will:” (ease of sale)

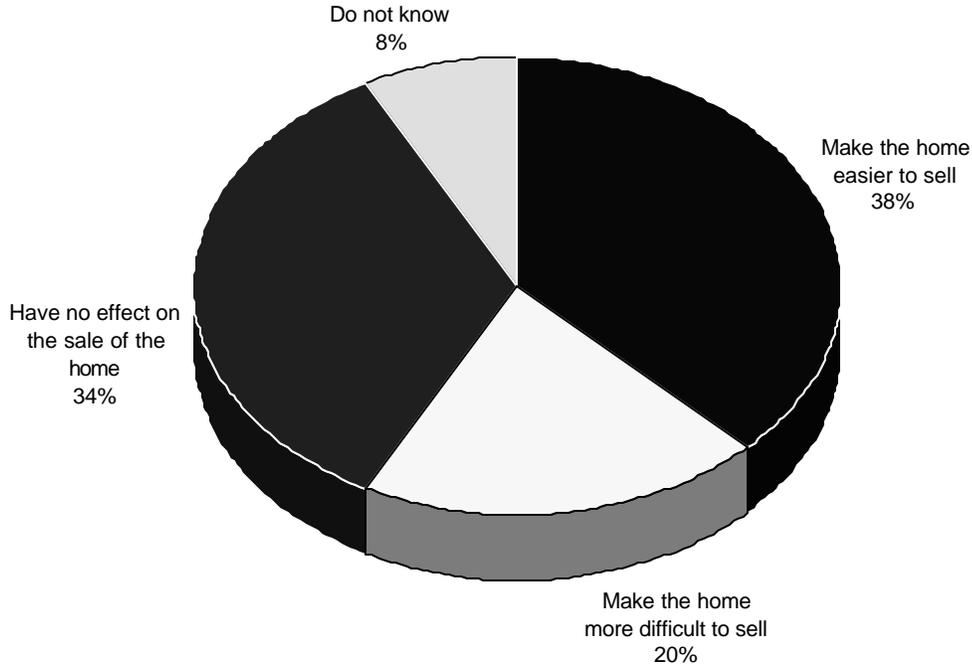


Table 67: Realtor Responses to “If a home is adjacent to a bicycle route, the route will:” (ease of sale)

	Count	Percentage
Make the home easier to sell	24	38%
Make the home more difficult to sell	13	20%
Have no effect on the sale of the home	22	34%
Do not know	5	8%
Total:	64	100%

Effect on Selling Price

Of the surveys returned, 65 people responded to this question, while one did not. The majority of the responses (62%) indicated that for homes on a bikeway, the route had no effect on the selling price of the home.

Figure 68: Realtor Responses to “If a home is adjacent to a bicycle route, the route will:” (selling price)

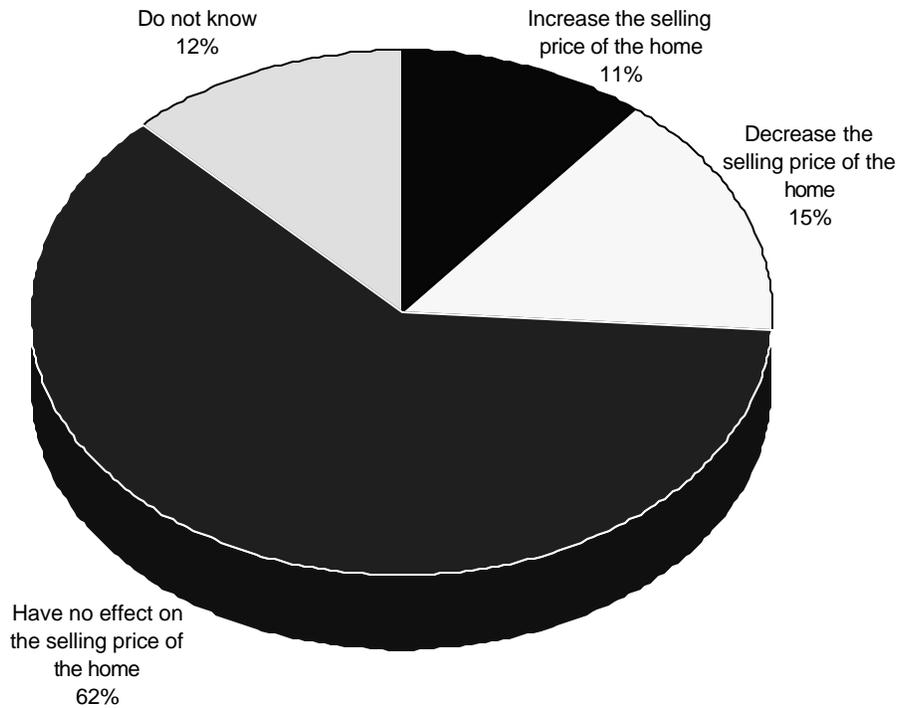


Table 68: Realtor Responses to “If a home is adjacent to a bicycle route, the route will:” (selling price)

	Count	Percentage
Increase the selling price of the home	7	11%
Decrease the selling price of the home	10	15%
Have no effect on the selling price of the home	40	62%
Do not know	8	12%
Total:	65	100%

Homes Within a Block, But not on a Bike Route

For homes within one block of the bikeway, realtors were asked whether the route would have any effect on the ease of sale or the selling price of the home.

Ease of Sale

Of the surveys returned, 65 people responded to this question, and one did not. There appears to be no consensus on the effect of the bikeway on the sale of the home. Of those who responded, 49% felt that there was no effect on the sale of the home, 40% felt the route would make the home easier to sell and only 3% felt it would make the home more difficult to sell, as shown in Figure 69.

Figure 69: Realtor Responses to “If a home is within a block of, but not adjacent to a bicycle route, the route will:” (ease of sale)

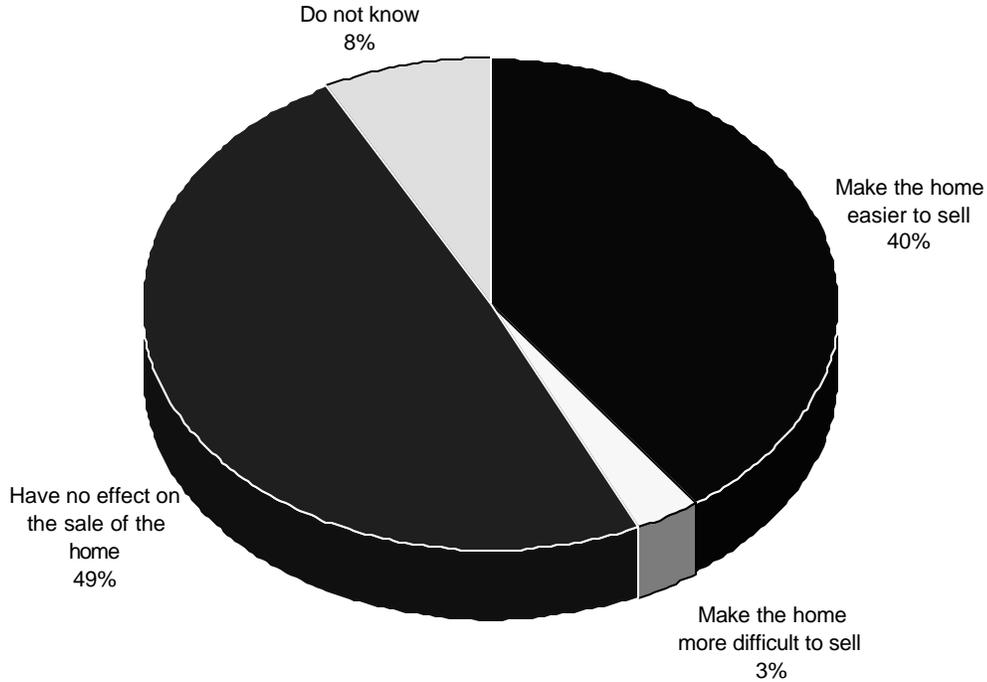


Table 69: Realtor Responses to “If a home is within a block of, but not adjacent to a bicycle route, the route will:” (ease of sale)

	Count	Percentage
Make the home easier to sell	26	40%
Make the home more difficult to sell	2	3%
Have no effect on the sale of the home	32	49%
Do not know	5	8%
Total:	65	100%

Effect on Selling Price

Of the surveys returned, 65 people responded to this question, while one did not. The majority of the responses (77%) indicated that for homes within a block of a bikeway, the route had no effect on the selling price of the home.

Figure 70: Realtor Responses to “If a home is within a block of, but not adjacent to a bicycle route, the route will:” (selling price)

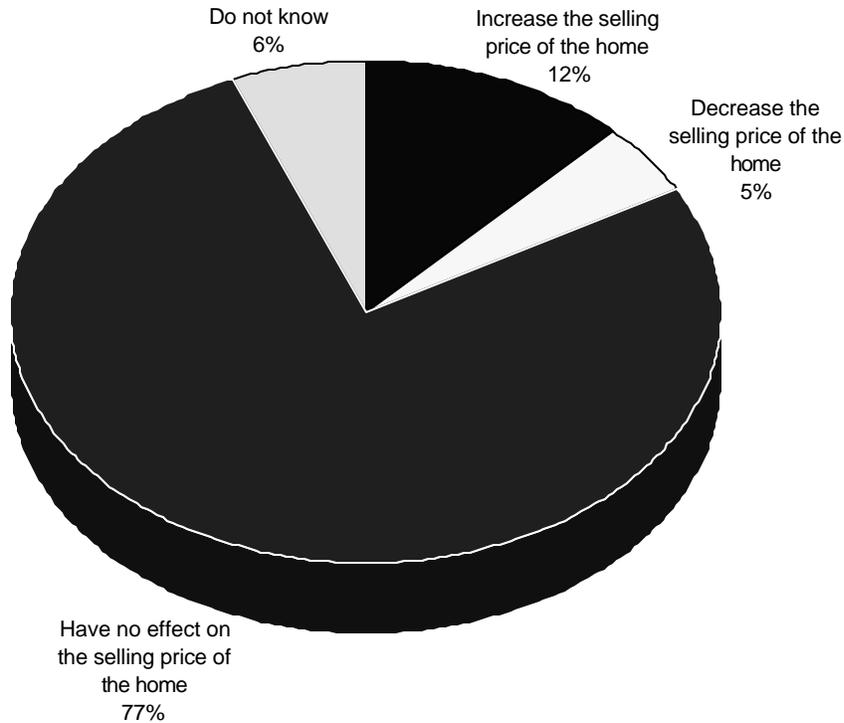


Table 70: Realtor Responses to “If a home is within a block of, but not adjacent to a bicycle route, the route will:” (selling price)

	Count	Percentage
Increase the selling price of the home	8	12%
Decrease the selling price of the home	3	5%
Have no effect on the selling price of the home	50	77%
Do not know	4	6%
Total:	65	100%

Summary

The results of the realtor survey indicate that 85% of realtors feel that bicycle routes are an amenity to the community around them and that 65% of them would use the route as a selling feature of the home. The survey results indicate that the ease of sale of a home is not affected or made easier when it is located along a bike route. In addition, the majority of respondents indicated that bike routes have no effect on the selling price of the homes along the route.

From this information, it appears that while the majority of realtors feel that bike routes are an amenity to communities around them, their presence does not affect the selling price of homes on or around them, but may improve their ease of sale.

5.2 Public Input

To obtain feedback from residents and cyclists regarding the effectiveness of the bikeway network, two surveys and an open house were conducted. One of the surveys targeted cyclists using the bicycle facilities and the other targeted residents living along the bikeways.

5.2.1 Cycling Survey

To get a better understanding of the effectiveness of the bicycle network and the needs of cyclists, a survey was conducted through August and September of 1998.

The survey was publicized through advertisements placed in local papers and through several electronic mediums such as the Better Environmentally Sound Transportation

Listserve, the ubc.club.cycling list-serve and bc cycling newsgroups. In addition, the survey was featured in stories in several local newspapers.

Surveys were available through the mail, for pick-up or on the City's

web site in an on-line form. Surveys were also handed out on the Adanac, Off-Broadway, Ontario and Cypress bike routes during the week of September 8, 1998. A total of 1784 surveys were returned. The following section summarizes the results of the cycling survey.

A copy of the survey is given in Appendix B.

Cyclist Profile

To determine the characteristics of cyclists responding to this survey, respondents were asked about their age and gender.

Age

Respondents were asked to indicate their age by selecting one of several age group ranges. A total of 1720 indicated a range, 64 did not respond. Those who did not respond are not included in Figure 72.

Figure 71: Cycling Survey Advertisement

CITY OF VANCOUVER

Bicycling in Vancouver **Vancouver Cycling Survey**

Do you like existing bikeways? How are we doing? Here is your opportunity to shape the future of cycling in Vancouver.

The City is doing a comprehensive study of bicycling in Vancouver. As part of this study, we are surveying cyclists and residents for their opinions of cycling conditions and facilities. Survey results will be reported to Vancouver City Council in the Fall and will help determine future directions for cycling in the city.

To get a copy of the survey, call the Cycling Hotline at 871-6070, or email cycling@city.vancouver.bc.ca. An on-line version of the survey is available on the web at www.city.vancouver.bc.ca/engsvcs/transport/cycling/cycsurve.htm

Send your completed survey by Sept. 14, 1998, to:
Bike Survey, Neighbourhood Transportation Branch
7th floor, City Hall, 453 West 12th Avenue
Vancouver, BC V5Y 1V4

FOR MORE INFORMATION:
Forrest Klotzbach, 873-7916
forrestk@city.vancouver.bc.ca

Figure 72: Cyclist Age Profile

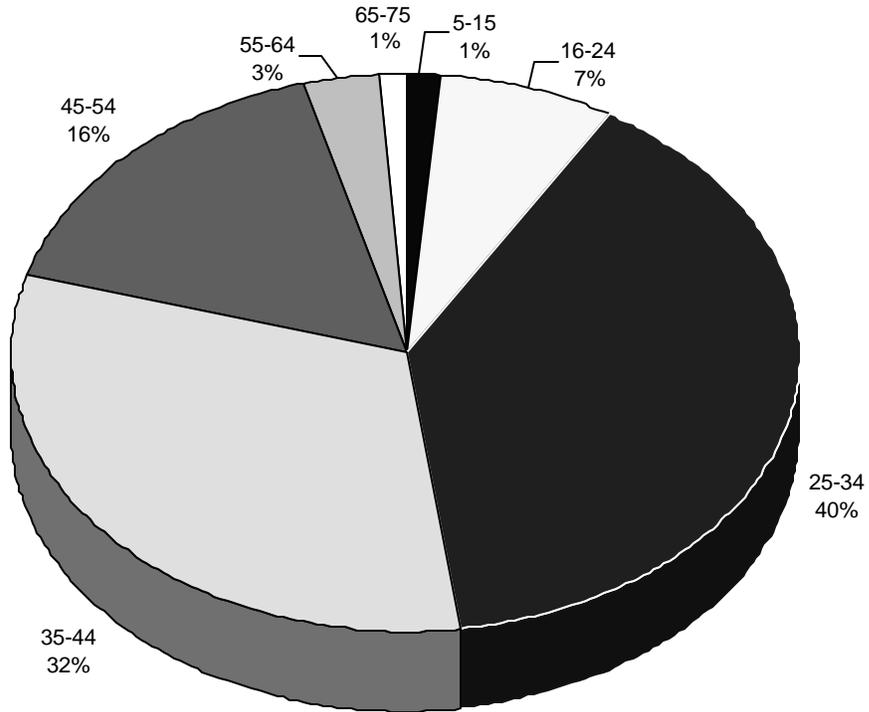


Table 72: Cyclist Age Profile

Response	Count	Percentage
5-15	24	1%
16-24	125	7%
25-34	673	39%
35-44	544	32%
45-54	280	16%
55-64	54	3%
65-75	18	1%
75+	2	0%
Total:	1720	100%

The vast majority of cyclists who responded (72%) are between the ages of 25 and 44.

Comparison of Age Profile with 1992 GVRD Bicycle Study

To determine if the age profile of respondents corresponds to the profile from other cycling surveys, the results were compared with the 1992 GVRD Bicycle Study. Figure 73 illustrates that the age groups of cyclists between the two studies are indeed similar.

Figure 73: Comparison of Age Profiles Between the 1998 Vancouver and 1992 GVRD Surveys

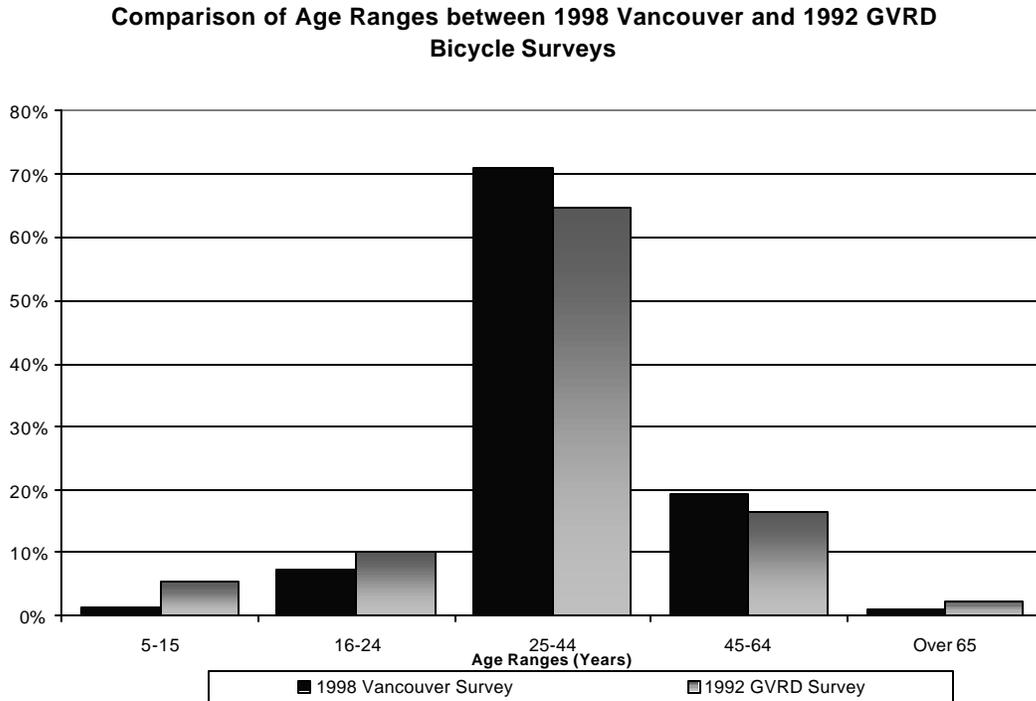


Table 73: Comparison of Age Profiles Between the 1998 Vancouver and 1992 GVRD Surveys⁵³

Response	1998 Vancouver Survey	1992 GVRD Survey
5-15	1%	5%
16-24	7%	10%
25-44	71%	65%
45-64	19%	16%
Over 65	1%	2%

Gender

Respondents were asked to indicate their gender. Of the 1784 surveys returned, 1394 indicated their gender. The remaining 390 did not answer the question and are not included in the figure.

⁵³ Greater Vancouver Regional Bicycle Survey Final Report

Figure 74: Cyclist Gender Profile

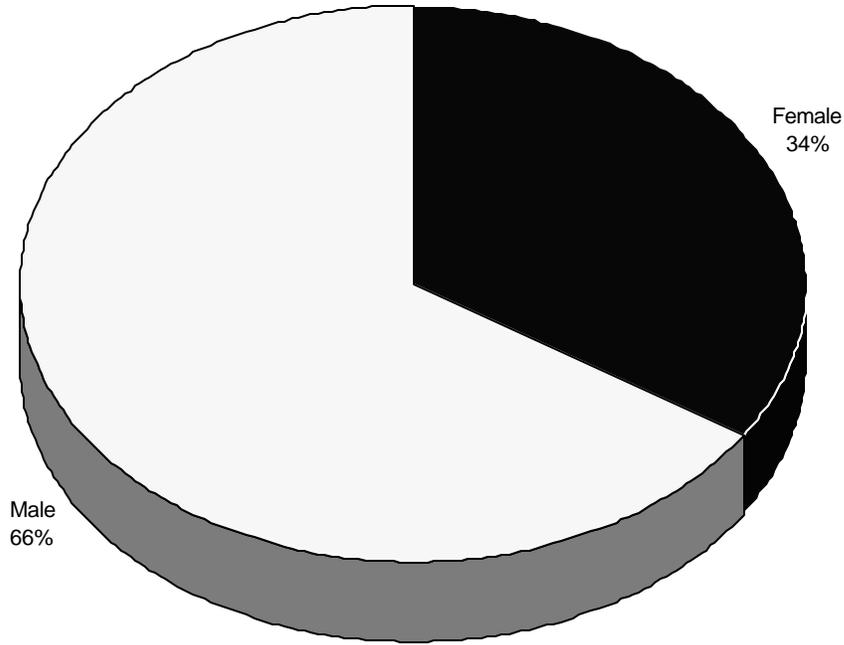


Table 74: Cyclist Gender Profile

Response	Count	Percentage
Female	477	34%
Male	917	66%
Total:	1394	100%

Of the 1394 cyclists who responded, approximately two-thirds were male.

Comparison of Gender With 1992 GVRD and 1987 Vancouver Cycling Surveys

To determine if the gender profile of respondents corresponds with that of other surveys, the results were compared with the 1992 GVRD Bicycle Study and the 1987 Vancouver Cycling Survey. Figure 75 illustrates that the gender breakdown of cyclists between the three studies is quite similar.

Figure 75: Comparison of Gender Between 1998 Vancouver, 1992 GVRD and 1987 Vancouver Cycling Surveys

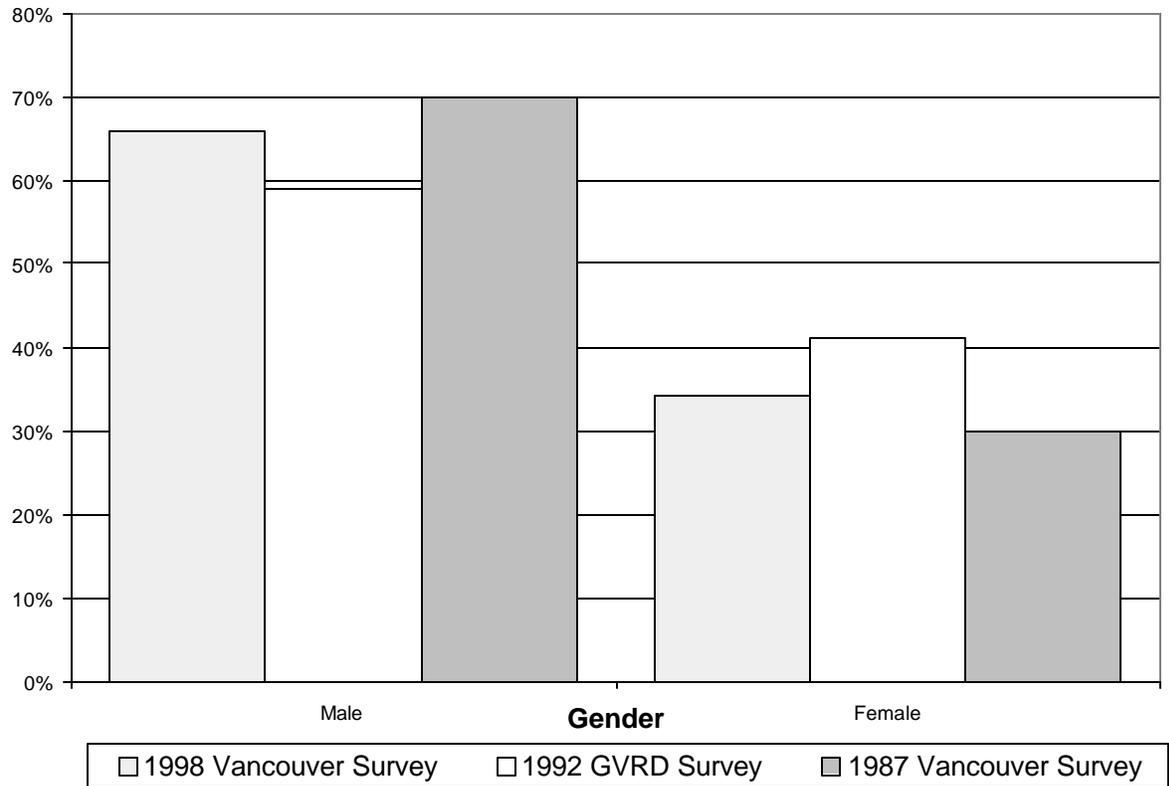


Table 75: Comparison of Gender Between 1998 Vancouver, 1992 GVRD and 1987 Vancouver Cycling Surveys^{54 55}

Gender	1998 Vancouver Survey	1992 GVRD Survey	1987 Vancouver Survey
Male	66%	59%	70%
Female	34%	41%	30%

Frequency of Bicycle Use by Trip Purpose

To understand their cycling characteristics, respondents were asked to indicate how often they use their bicycle for purposes such as commuting to work, commuting to school, personal trips, for fitness and for other purposes. Of the responses, 1777 indicated that they participated in at least one form of cycling activity daily.

⁵⁴ Greater Vancouver Regional Bicycle Survey Final Report

⁵⁵ Vancouver Comprehensive Bicycle Plan

Figure 76: Cyclist Responses to “How often do you use your bicycle for the following purposes?”

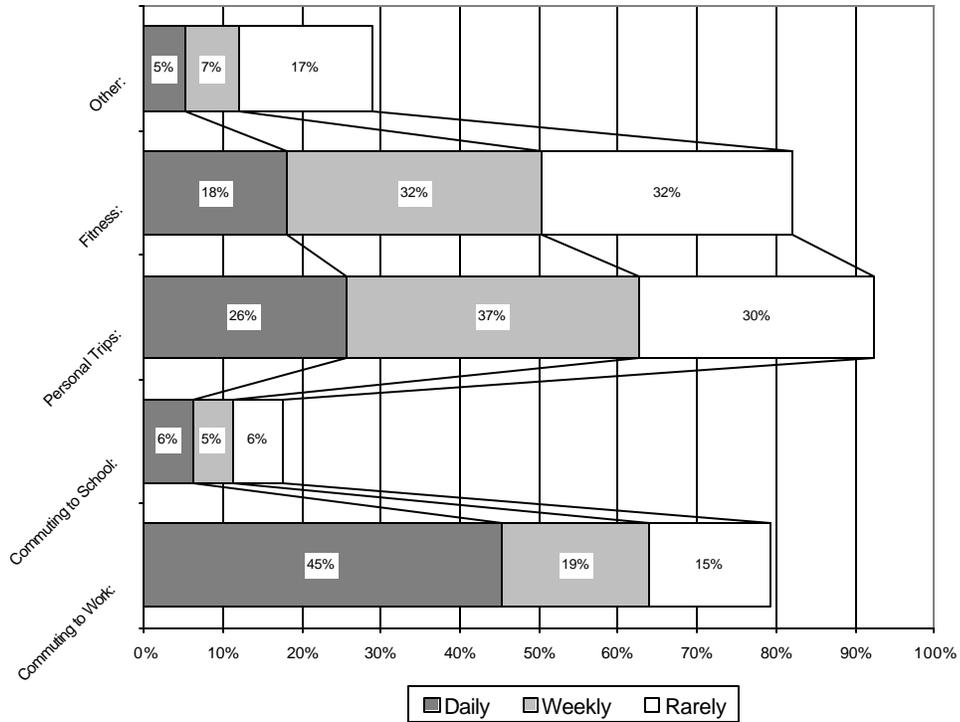


Table 76: Cyclist Responses to “How often do you use your bicycle for the following purposes?”

Purpose	Daily		Weekly		Rarely	
Commuting to Work:	866	45%	380	19%	131	15%
Commuting to School:	117	6%	102	5%	53	6%
Personal Trips:	490	26%	755	37%	251	30%
Fitness:	344	18%	657	32%	269	32%
Other:	98	5%	139	7%	143	17%
Total:	1915	100%	2033	100%	847	100%

Frequency of Bicycle Route Use

To understand what route cyclists are using, respondents were asked how often they used the existing City of Vancouver bikeways. From the results shown in Figure 77, the Off-Broadway, Seaside, Adanac, Ontario and Cypress Bikeways appear to be the most frequently used among respondents.

Figure 77: Cyclist Responses to “How often do you use the following bikeways?”

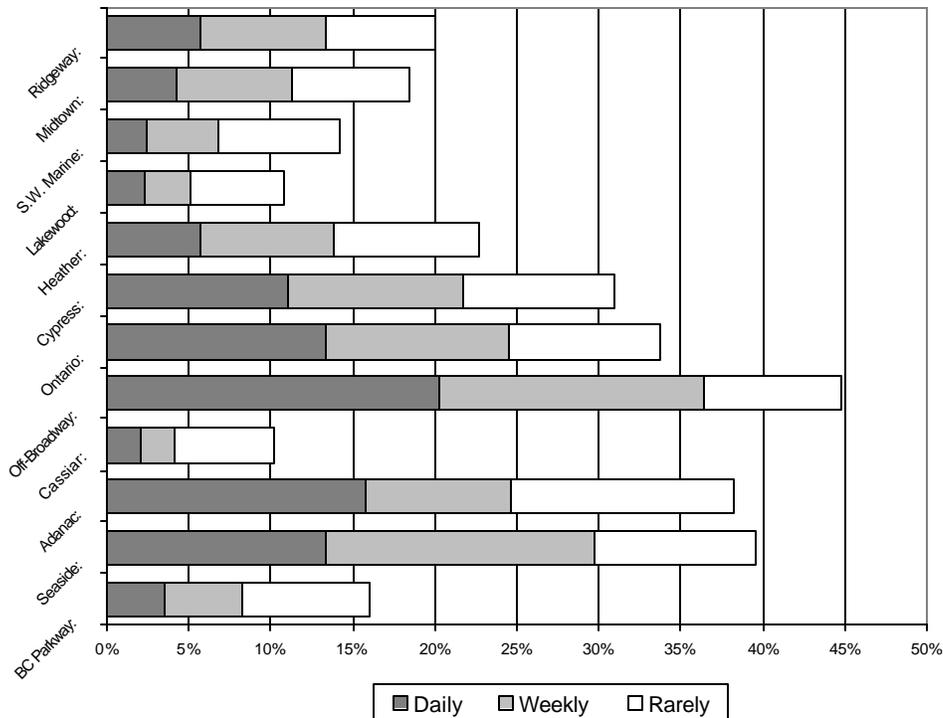


Table 77: Cyclist Responses to “How often do you use the following bikeways?”

Bikeway	Daily		Weekly		Rarely	
	Count	Percentage	Count	Percentage	Count	Percentage
BC Parkway:	50	4%	152	5%	381	8%
Seaside:	187	13%	525	16%	485	10%
Adanac:	221	16%	286	9%	664	13%
Cassiar:	29	2%	66	2%	301	6%
Off-Broadway:	284	20%	517	16%	412	8%
Ontario:	187	13%	360	11%	453	9%
Cypress:	155	11%	340	11%	455	9%
Heather:	80	6%	261	8%	437	9%
Lakewood:	32	2%	91	3%	283	6%
S.W. Marine:	35	3%	139	4%	368	7%
Midtown:	59	4%	226	7%	358	7%
Ridgeway:	80	6%	244	8%	331	7%
Total:	1399	100%	3207	100%	4928	100%

Selecting only those who responded that they cycle daily, the following figure shows the routes cycled daily. Figure 78 indicates that the Off-Broadway, Adanac, Seaside, Ontario and Cypress Bikeways are among the most popular. It should also be noted that these are the older, more established routes.

Figure 78: Route Use Based on Respondents Who Cycle Daily

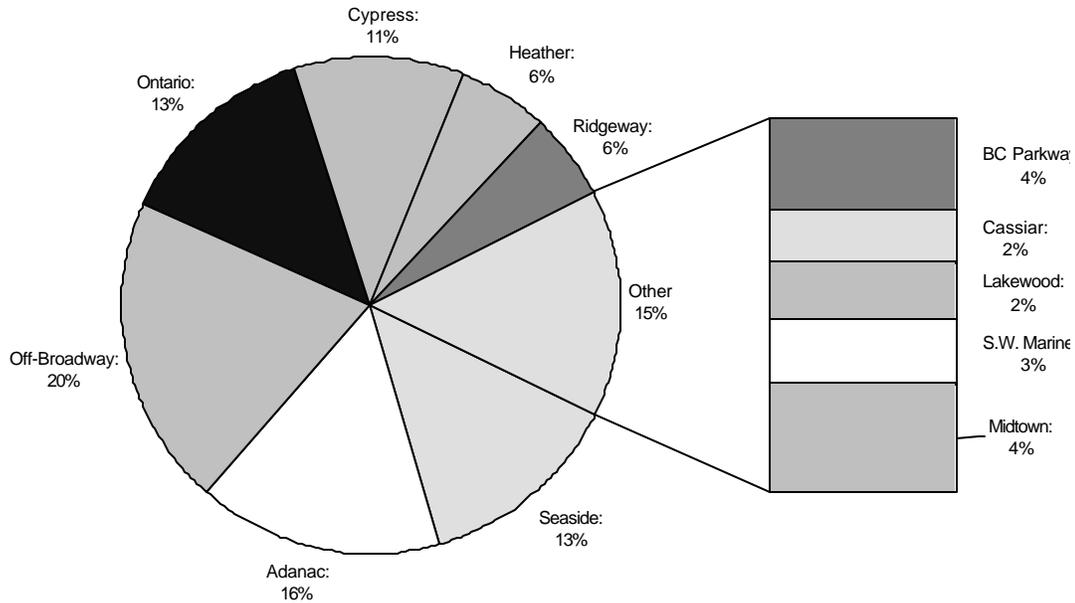


Table 78: Route Use Based on Respondents Who Cycle Daily

Bikeway	Daily	
	Count	Percentage
BC Parkway:	50	4%
Seaside:	187	13%
Adanac:	221	16%
Cassiar:	29	2%
Off-Broadway:	284	20%
Ontario:	187	13%
Cypress:	155	11%
Heather:	80	6%
Lakewood:	32	2%
S.W. Marine:	35	3%
Midtown:	59	4%
Ridgeway:	80	6%
Total:	1399	100%

Factors That Discourage Respondents from Cycling More Often

Respondents were asked what discouraged them from cycling, and what factors could increase the likelihood of their using a bicycle more often. 1702 cyclists responded to this question, many listing multiple factors, resulting in 2409 being cited. The four most common factors that discourage cyclists from cycling more often were traffic, weather, personal safety and lack of transit connections. These responses are similar to the results of other local cycling studies.

The most common responses to this question are listed in Figure 79.

Figure 79: Cyclist Responses to “What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?”

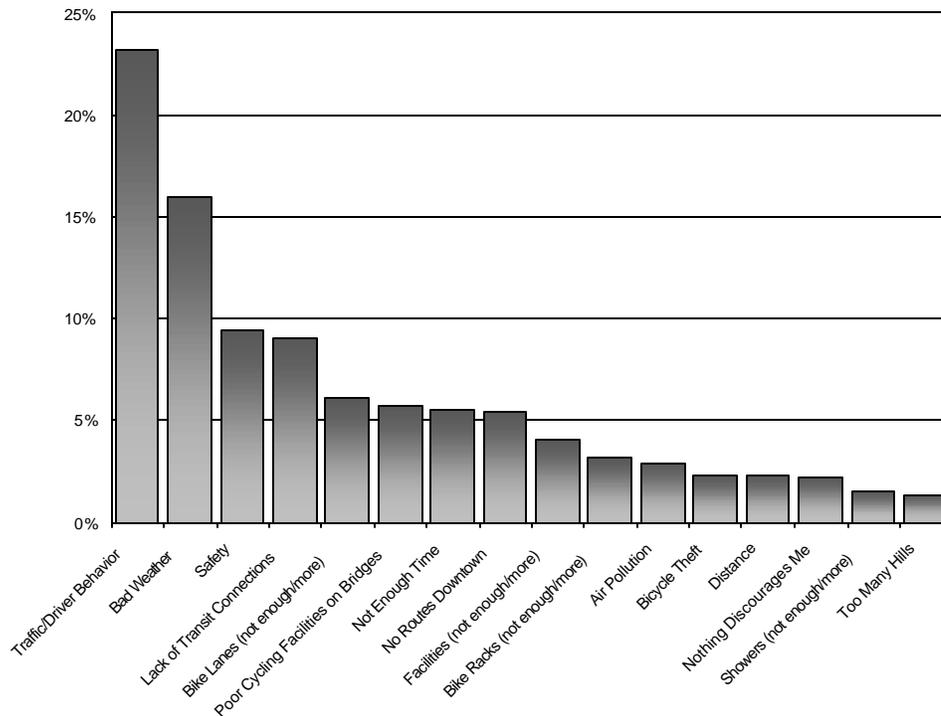


Table 79: Cyclist Responses to “ What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?”

Factor	Count	Percentage
Traffic/Driver Behavior	557	23%
Bad Weather	384	16%
Safety	227	9%
Lack of Transit Connections	218	9%
Bike Lanes (not enough/more)	148	6%
Poor Cycling Facilities on Bridges	138	6%
Not Enough Time	132	5%
No Routes Downtown	131	5%
Facilities (not enough/more)	97	4%
Bike Racks (not enough/more)	76	3%
Air Pollution	70	3%
Bicycle Theft	55	2%
Distance	54	2%
Nothing Discourages Me	53	2%
Showers (not enough/more)	36	1%
Too Many Hills	33	1%
Total	2409	100%

Facilities Available at Respondent’s Destination

To get an understanding of the end-of-trip facilities available to cyclists, respondents were asked to indicate what facilities were available for them to use at their destinations and what they would like to have available. 1686 respondents answered this question, while 98 did not. Again many respondents indicated several facilities were available, resulting in 2082 responses to this question. Despite the fact that it was the most common response, only 37% of cyclists have bicycle racks available when they reach their destination. This information supports Action Item 4, to provide more bicycle racks in the downtown core and in commercial areas.

Figure 80: Cyclist Responses to “When you arrive at your destination, what facilities are available for you to use?”

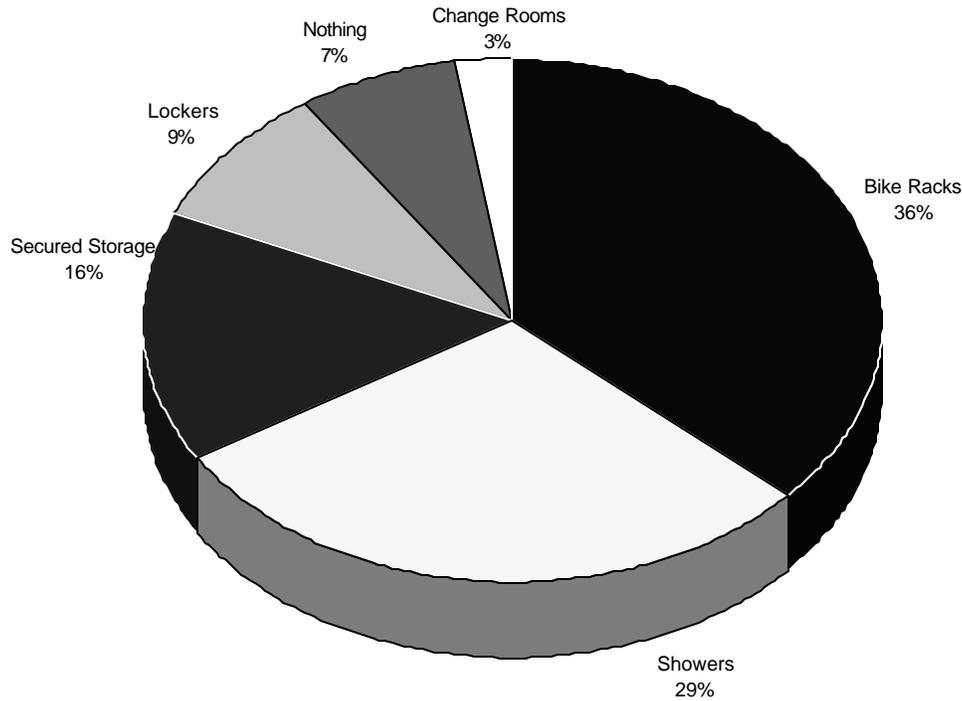


Table 80: Cyclist Responses to “When you arrive at your destination, what facilities are available for you to use?”

Response	Count	Percentage
Bike Racks	764	37%
Showers	614	29%
Secured Storage	325	16%
Lockers	183	9%
Nothing	142	7%
Change Rooms	54	3%
Total:	2082	100%

Facilities Respondents Would Like to Have Available at Their Destination

Of the 1748 surveys, 1543 responded to this question, while 205 did not. Of those who responded, 523 people indicated that they would like to have showers at their destination, 481 would like to have secured storage and 473 would like to have bicycle racks available at their destination.

Figure 81: Cyclist Responses to “What facilities would you like to have available at your destination?”

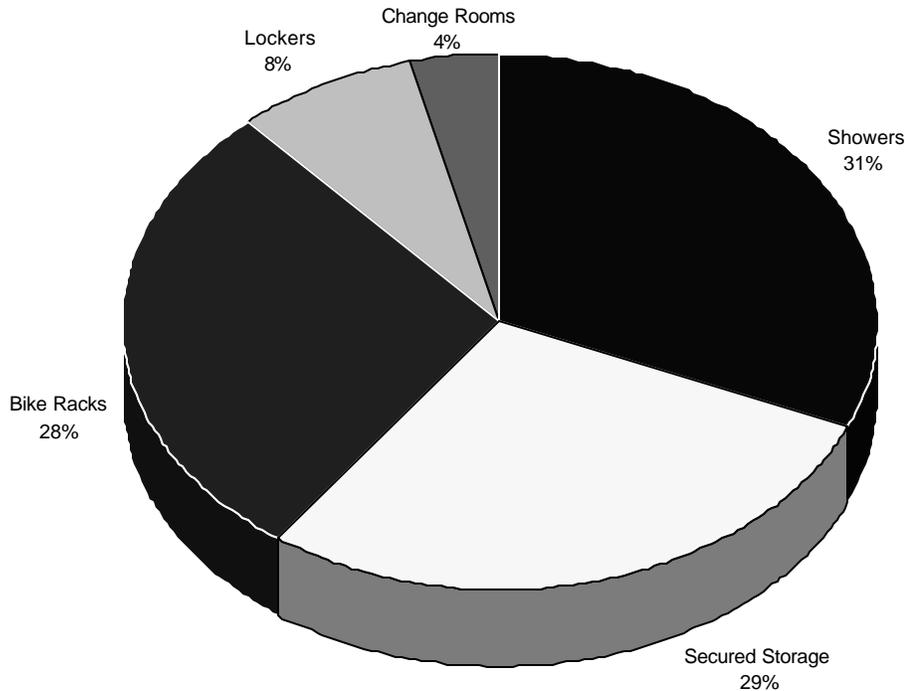


Table 81: Cyclist Responses to “What facilities would you like to have available at your destination?”

Response	Count	Percentage
Showers	523	31%
Secured Storage	481	29%
Bike Racks	473	28%
Lockers	127	8%
Change Rooms	66	4%
Total:	1670	100%

Bicycle Trip Distances

To get a better understanding of the distances cycled, respondents were asked to indicate what percentage of their cycling trips were various distances one way. While the average response was that 35% of cycling trips were from 0 to 5 km one way, it is surprising that the average person

indicated that 29% of their cycling trips are from 10 to 30 km and that 10% of trips are greater than 30 km. This information is contrary to the belief that most cycling trips are within 5 km of home.

Figure 82: Distances Cyclists Cycled (One Way) as a Percentage of Total Cycling Trips

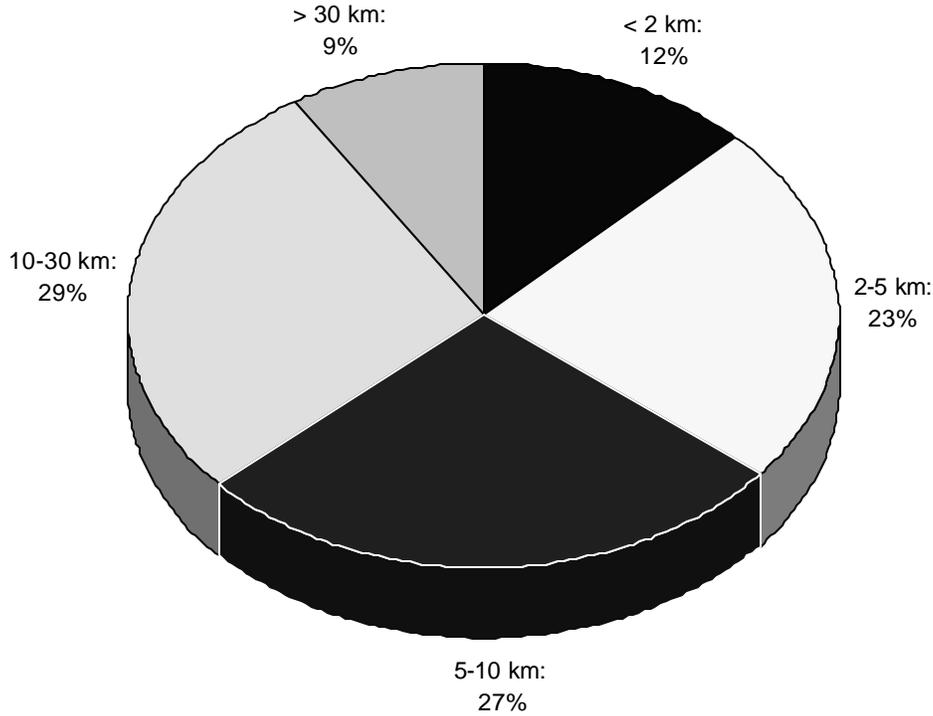


Table 82: Distances Cyclists Cycled (One Way) as a Percentage of Total Cycling Trips

Distance	Response Avg.	Percentage
< 2 km:	15	12%
2-5 km:	28	23%
5-10 km:	33	27%
10-30 km:	33	28%
> 30 km:	11	9%
Total	119	100%

Preferred Cycling Facilities

To get an understanding of their preferences, respondents were asked to rank in order the types of bicycle facilities they preferred. Of all the first choice preferences, bikeways were the most popular response at 35%. However, when we examine the combined total of the top three rankings, bikeways and bike lanes are the preferred type of bicycle facility with respondents.

This information supports the City’s efforts to provide a network of locally integrated bikeways. However, the information also indicates that the network of locally integrated bikeways should be supplemented with a network of bicycle lanes to provide an alternate facility in areas where bikeways are impractical and to provide more choices for cyclists.

Figure 83: Cyclist Responses to “What types of bicycling facilities would you prefer? (Please rank in order of preference.)”

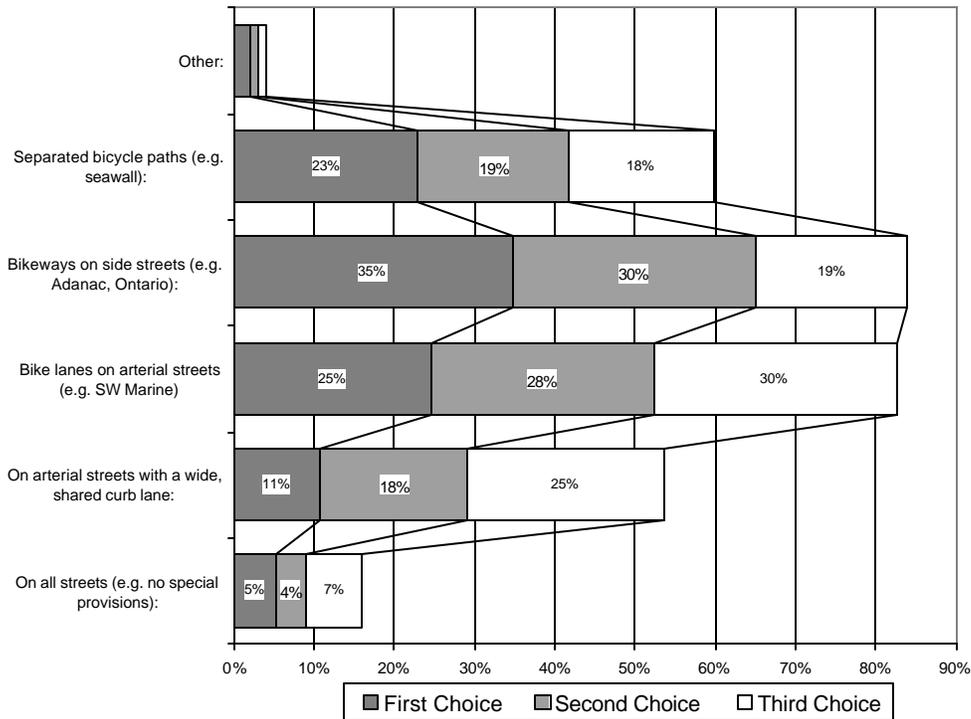


Table 83: Cyclist Responses to “What types of bicycling facilities would you prefer? (Please rank in order of preference.)”

Response	Rank					
	1		2		3	
On all streets (e.g. no special provisions):	85	5%	59	4%	103	7%
On arterial streets with a wide, shared curb lane:	181	11%	278	18%	358	25%
Bike lanes on arterial streets (e.g. SW Marine):	413	25%	424	28%	437	30%
Bikeways on side streets (e.g. Adanac, Ontario):	583	35%	463	30%	275	19%
Separated bicycle paths (e.g. seawall):	386	23%	288	19%	258	18%
Other:	35	2%	14	1%	15	1%
Total:	1683	100%	1526	100%	1446	100%

Features of Existing Bikeways Respondents Liked

To understand what works well on the routes for cyclists, respondents were asked to indicate what they liked about existing bikeways. The responses in Figure 84 indicate that cyclists like the fact that the bikeways are traffic calmed and have cyclist push buttons installed at traffic signals. In addition,

several people indicated that they like that bikeways tend to be safer, better landscaped and more aesthetically pleasing than arterial streets.

Figure 84: Cyclist Responses to “What features or aspects of existing Bikeways (e.g. Adanac, Off-Broadway, etc.) do you like?”

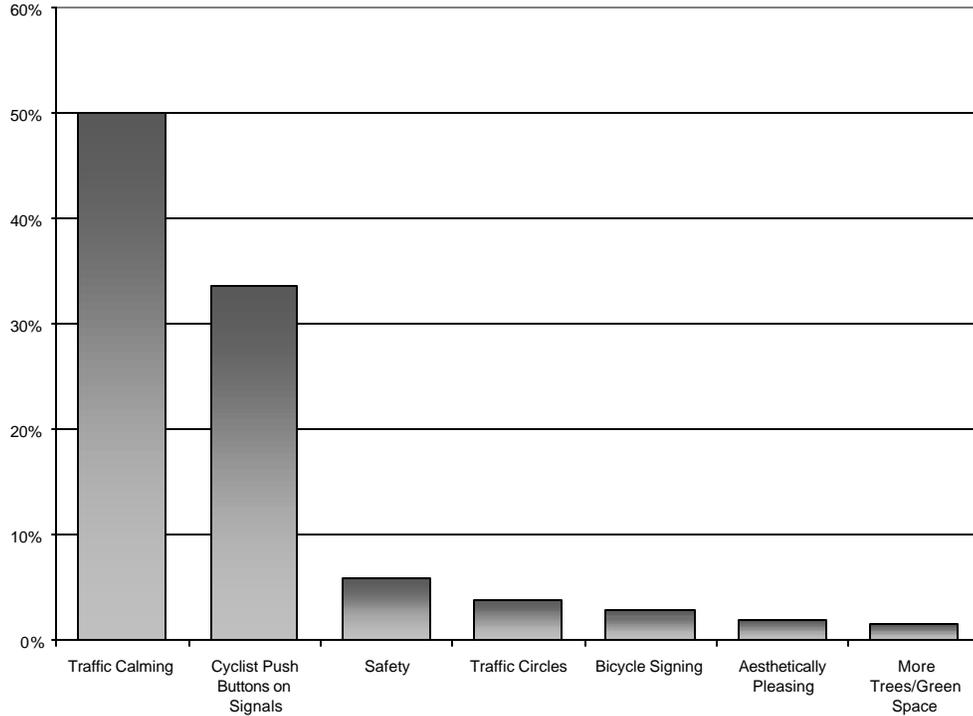


Table 84: Cyclist Responses to “What features or aspects of existing Bikeways (e.g. Adanac, Off-Broadway, etc.) do you like?”

Response	Count	Percentage
Traffic Calming	944	50%
Cyclist Push Buttons on Signals	633	34%
Safety	111	6%
Traffic Circles	74	4%
Bicycle Signing	55	3%
Aesthetically Pleasing	38	2%
More Trees/Green Space	30	2%
Total:	1885	100%

Features of Existing Bikeways Respondents Disliked

When asked about what they disliked about existing bikeways, respondents indicated that they disliked traffic on the street and the fact that the routes were slower than arterial streets.

Figure 85: Cyclist Responses to “What features or aspects of existing bikeways do you dislike?”

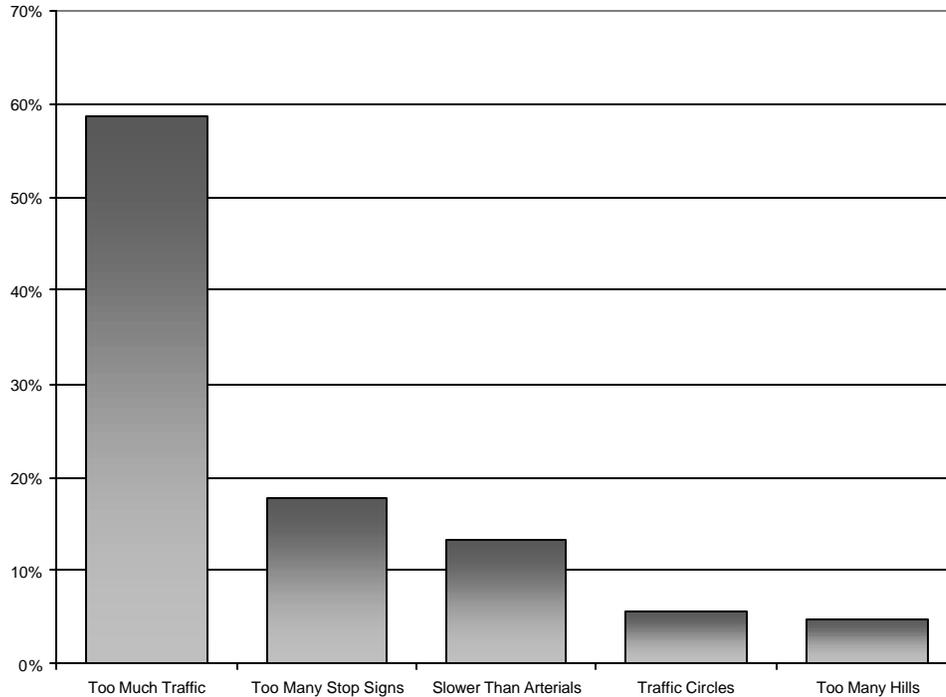


Table 85: Cyclist Responses to “What features or aspects of existing bikeways do you dislike?”

Response	Count	Percentage
Too Much Traffic	577	59%
Too Many Stop Signs	175	18%
Slower Than Arterials	130	13%
Traffic Circles	55	6%
Too Many Hills	47	5%
Total:	984	100%

Influence of Vancouver’s Bicycle Network on Frequency Respondents Cycled

Cyclists were questioned about whether Vancouver’s bicycle route network has had an influence on the amount that they cycle. 1702 cyclists responded to this question, while 82 did not. Of those who responded, 68% indicated that the bicycle network has had some influence on the amount that they cycled. It must be noted that several of the people who responded that the network had no influence on the amount they cycled, qualified their response by stating that they appreciated the network but they currently cycle as much now as they had before the network was created.

Figure 86: Cyclist Responses to “Vancouver’s bicycle network has had (choose one):”

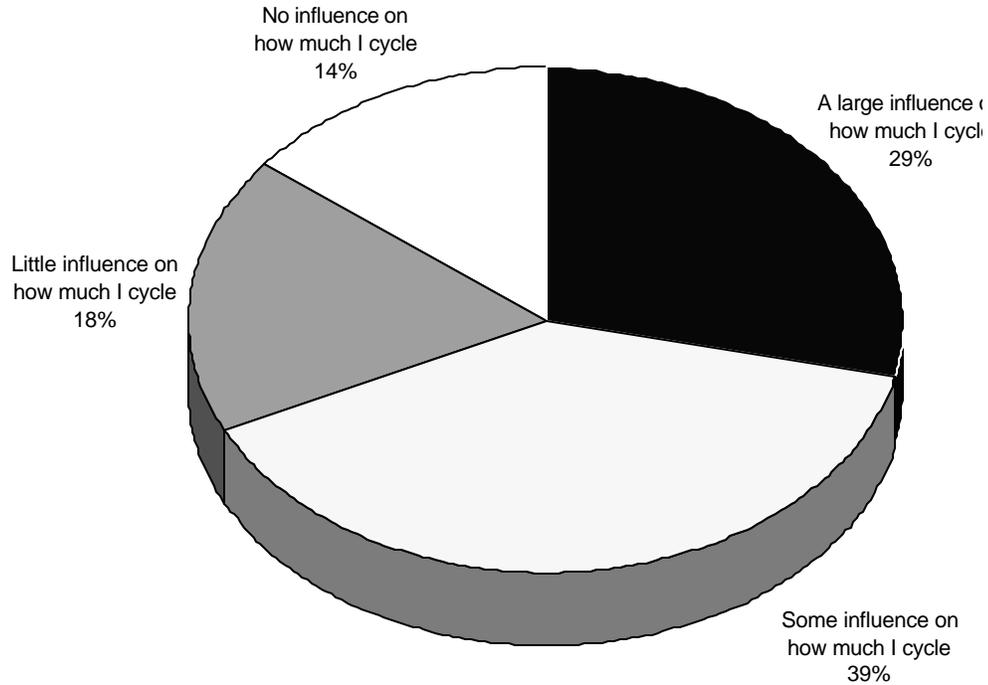


Table 86: Cyclist Responses to “Vancouver’s bicycle network has had (choose one):”

Response	Count	Percentage
A large influence on how much I cycle	487	29%
Some influence on how much I cycle	668	39%
Little influence on how much I cycle	302	18%
No influence on how much I cycle	245	14%
Total:	1702	100%

Respondents’ Preferences for Bicycle Routes

To help determine where to focus future bicycle route development, cyclists were asked to indicate where they would like to have bicycle facilities. Of the 898 responses to the question the most common response was the downtown core (25%), better facilities on bridges (14%) and bike lanes on Burrard Street (10%).

Figure 87: Cyclist Responses to “Where would you like to see cycling routes in Vancouver?”

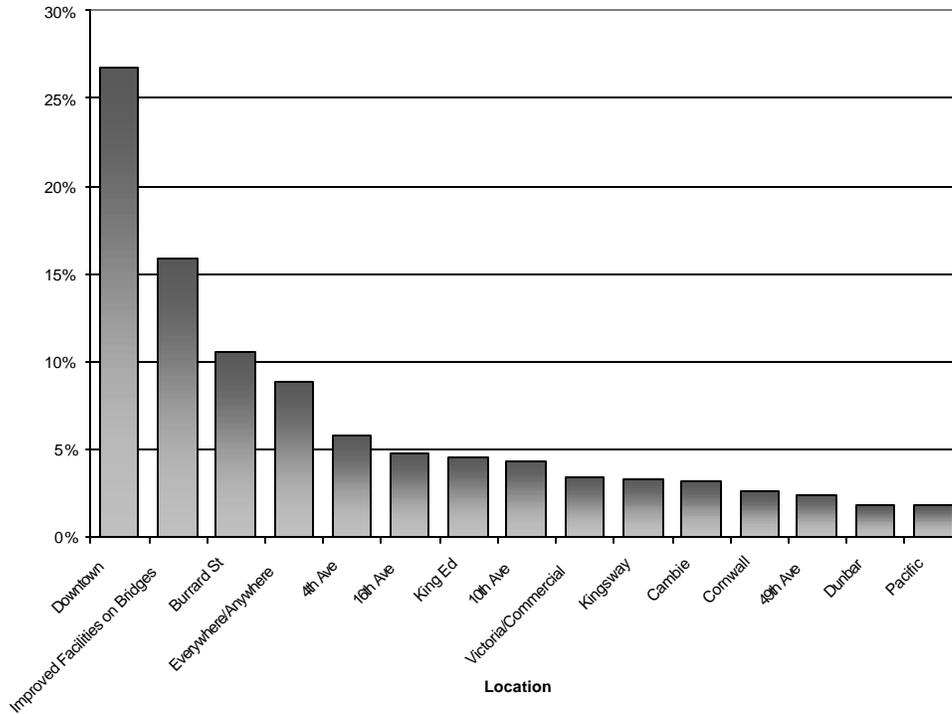


Table 87: Cyclist Responses to “Where would you like to see cycling routes in Vancouver?”

Response	Count	Percentage
Downtown	240	27%
Improved Facilities on Bridges	142	16%
Burrard St	95	11%
Everywhere/Anywhere	80	9%
4th Ave	52	6%
16th Ave	43	5%
King Ed	41	5%
10th Ave	39	4%
Victoria/Commercial	31	3%
Kingsway	30	3%
Cambie	28	3%
Cornwall	23	3%
49th Ave	22	2%
Dunbar	16	2%
Pacific	16	2%
Total:	898	100%

Bike Map Use

To determine how well the City’s cycling map is being distributed and received, respondents were asked whether they had a copy of the map. Of the 1784 surveys returned, 1640 responded while 144 did not. Of those who responded, 59% indicated that they had a copy of a cycling map and 41% did not.

Figure 88: Cyclist Responses to “Do you have a copy of the City’s ‘Cycling in Vancouver’ brochure or other cycling map?”

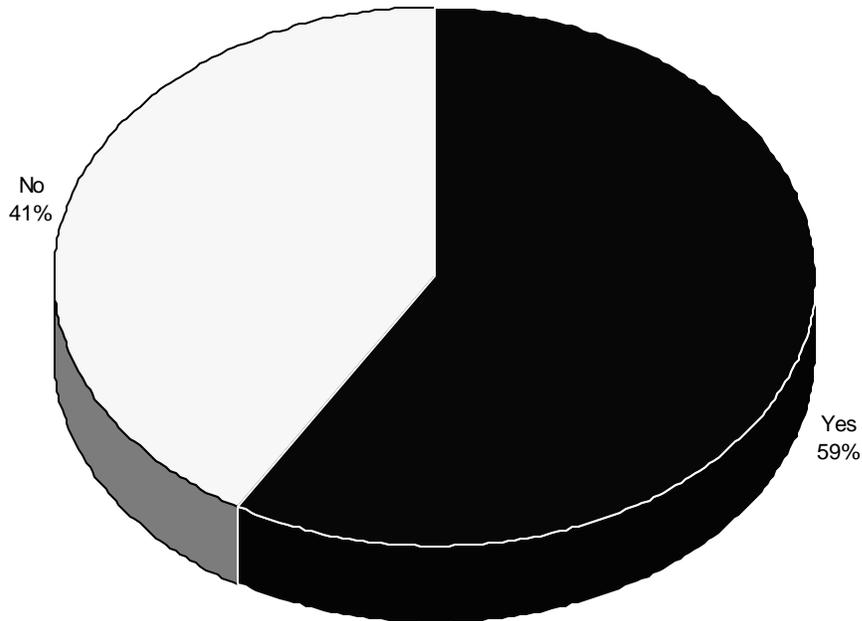


Table 88: Cyclist Responses to “Do you have a copy of the City’s ‘Cycling in Vancouver’ brochure or other cycling map?”

Response	Count	Percentage
Yes	1029	59%
No	723	41%
Total:	1752	100%

Helmet Use

Respondents were asked to indicate how often they used a helmet when cycling. As illustrated by Figure 89, 90% of respondents indicated that they always wear a helmet. It must be noted that the majority of respondents appear to be commuter cyclists and are more likely to wear a helmet than a recreational cyclist.

Figure 89: Bicycle Helmet Usage

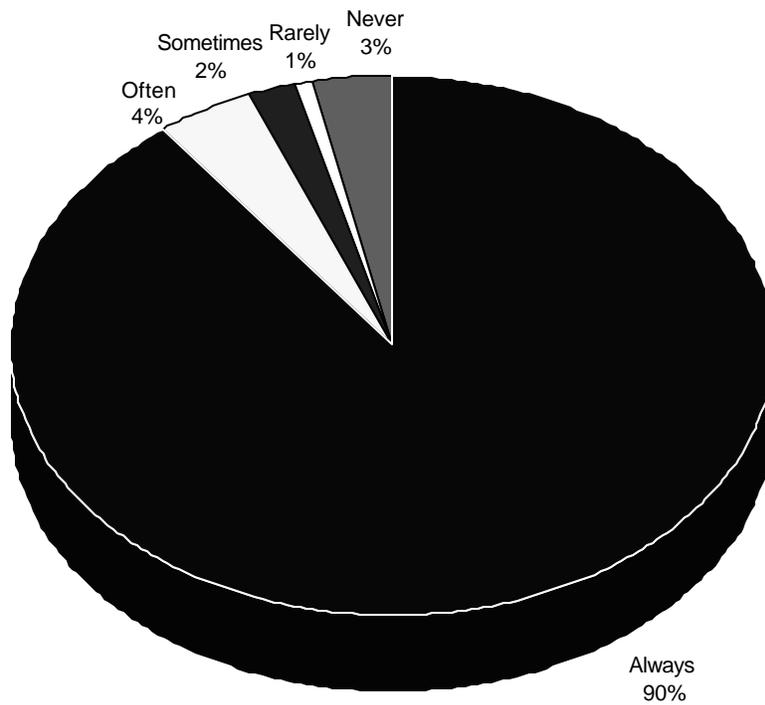


Table 89: Bicycle Helmet Usage

Response	Count	Percentage
Always	1558	90%
Often	73	4%
Sometimes	36	2%
Rarely	14	1%
Never	58	3%
Total:	1739	100%

5.2.2 Resident Survey

Residents living directly on existing bikeways were polled for their opinions on cycling and living along a bicycle route. In total, 9588 surveys were delivered to residents living along the residential sections of the fourteen existing bikeways in Vancouver and 1,863 surveys were returned. This represents a 19% response rate.

In addition to questions regarding their opinions of the bikeway, residents were also asked about their cycling habits. Many of the questions are similar to those asked of cyclists so that a comparison between the two groups could be made. The survey results are summarized in the following section.

Respondent Profile

Age

Respondents were asked to indicate their age by selecting one of several age group ranges. A total of 1791 indicated a range, while 72 did not respond to the question are not included in the figure below.

Figure 90: Resident Age Profile

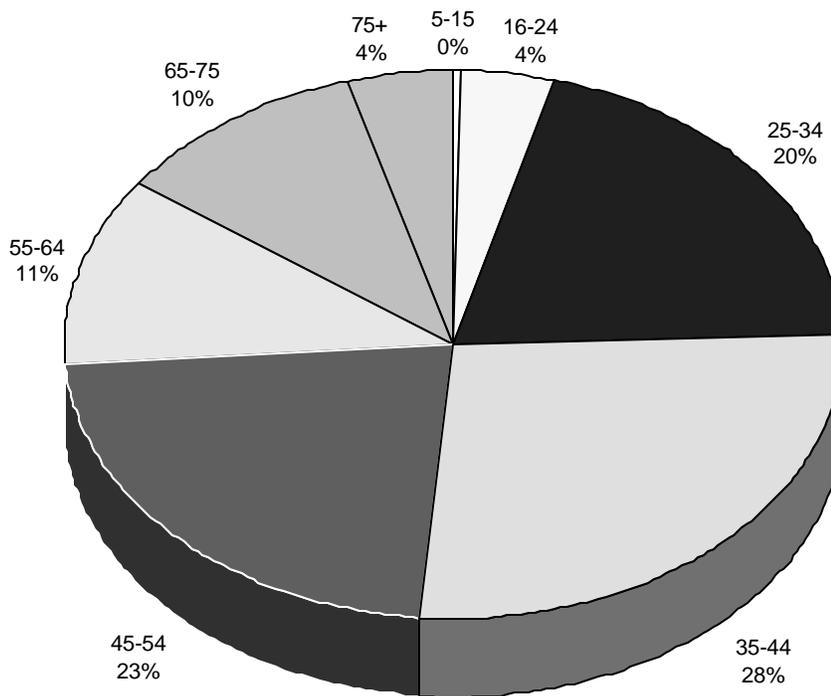


Table 90: Resident Age Profile

Response	Count	Percentage
5-15	5	0%
16-24	70	4%
25-34	364	20%
35-44	486	27%
45-54	404	22%
55-64	203	11%
65-75	188	10%
75+	80	4%
Total:	1800	100%

Approximately 50% of the residents who responded are between the ages of 35 and 54.

Gender

In addition to age, residents were asked to indicate their gender. Only 1381 responded, while 482 did not. Of the residents who did respond, 51% were female and 49% were male. This information corresponds with the 1996 census data that indicates that 51% of Vancouver’s population is female.

Figure 91: Resident Gender Profile

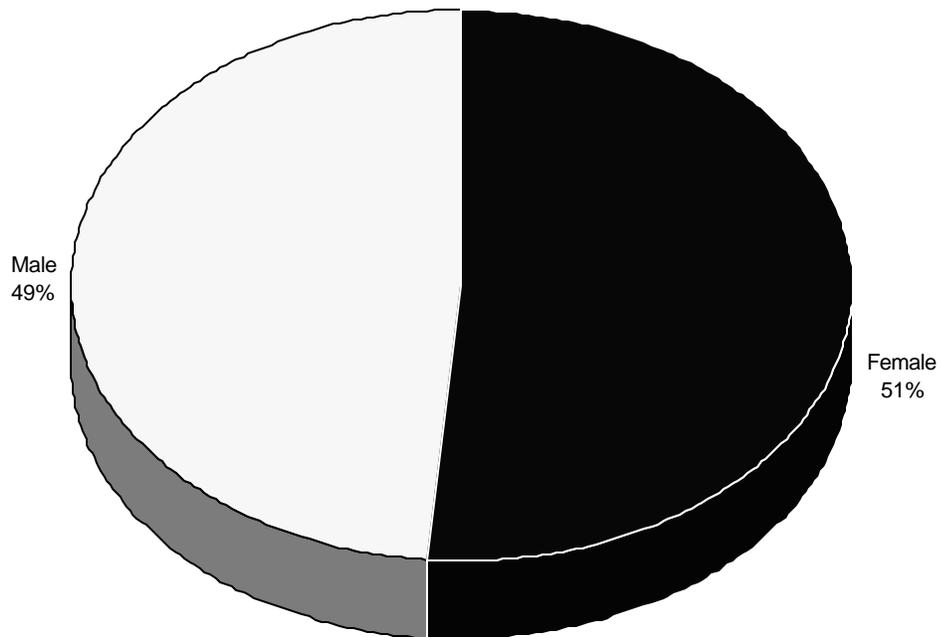


Table 91: Resident Gender Profile

Response	Count	Percentage
Female	708	51%
Male	673	49%
Total:	1381	100%

Bicycle Route Along Resident’s Dwelling

To get an understanding of where they were responding from, residents were asked to indicate the route that they lived on. A total of 1815 residents responded to this question, while 48 did not.

Figure 92: Resident Responses to “Which bicycle route do you live along?”

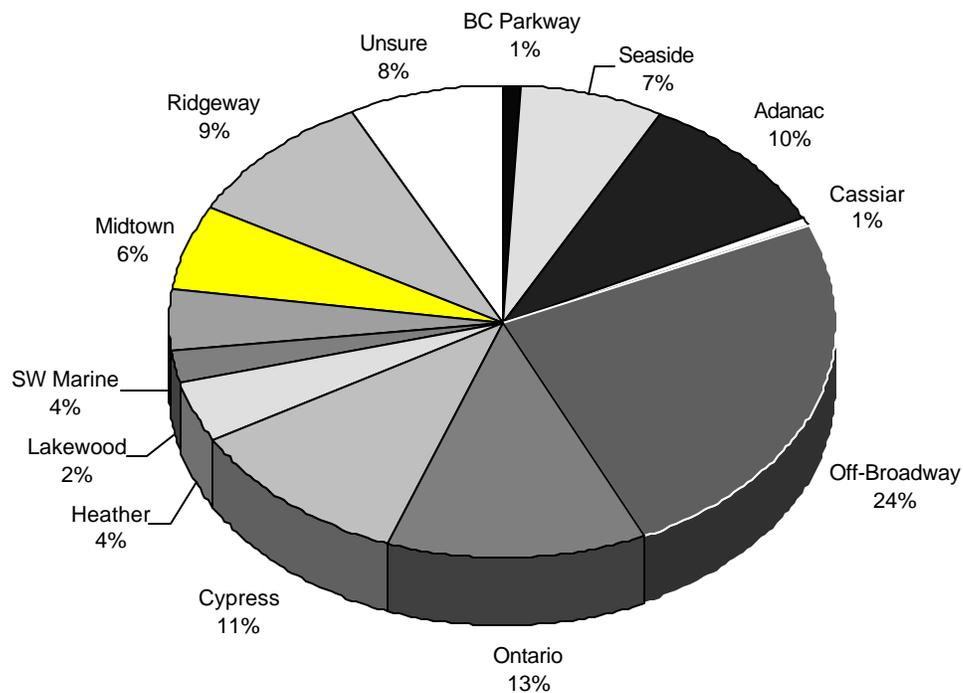


Table 92: Resident Responses to “Which bicycle route do you live along?”

Response	Count	Percentage
BC Parkway	16	1%
Seaside	125	7%
Adanac	182	10%
Cassiar	10	1%
Off-Broadway	448	25%
Ontario	227	13%
Cypress	201	11%
Heather	79	4%
Lakewood	36	2%
SW Marine	76	4%
Midtown	108	6%
Ridgeway	170	9%
Unsure	137	8%
Total:	1815	100%

The Off-Broadway bikeway had the most residents respond to this survey, while the BC Parkway and Cassiar Bikeways had the least responses. It is interesting to note that 8% of those who responded where unsure of the bicycle route that they lived along. Further analysis of the surveys produced Figure 93. Of the residents who were unsure of the route that they lived along, most were along the Midtown/Ridgeway, Seaside and BC Parkway routes.

Figure 93: Actual Route that Residents Who Answered “Unsure”, Live Along

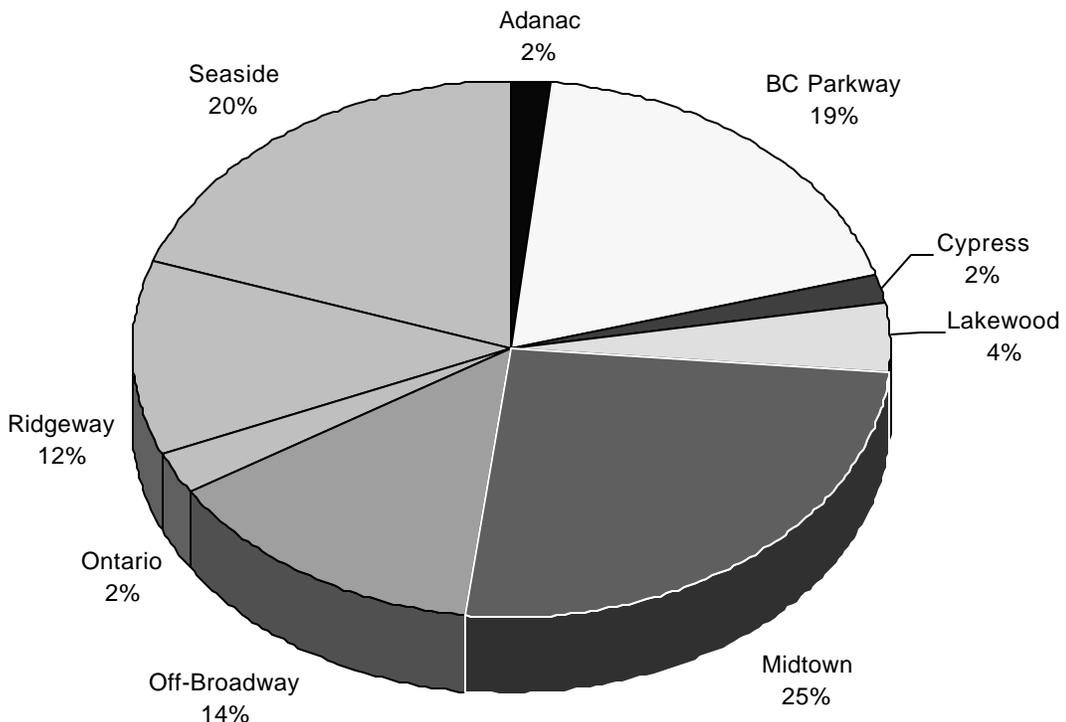


Table 93: Actual Route that Residents Who Answered “Unsure”, Live Along

Route	Count	Percentage
Adanac	2	2%
BC Parkway	23	19%
Cypress	2	2%
Lakewood	5	4%
Midtown	31	26%
Off-Broadway	17	14%
Ontario	3	2%
Ridgeway	14	12%
Seaside	24	20%
Total:	121	100%

Residents’ Cycling Activity

To determine the level of their cycling activity, residents were asked if they considered themselves an active cyclist. A total of 1798 responses to this question were received. Of those, 39% of residents indicated that they were active cyclists, while 61% indicated that they were not.

Figure 94: Resident Responses to “Would you say that you are an active cyclist?”

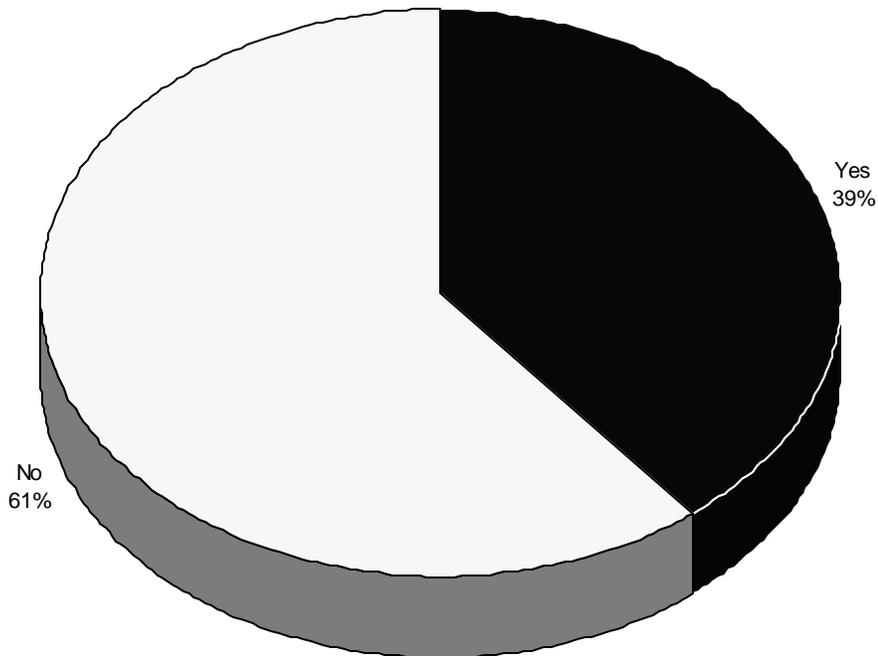


Table 94: Resident Responses to “Would you say that you are an active cyclist?”

Response	Count	Percentage
Yes	703	39%
No	1095	61%
Total:	1798	164%

Frequency of Bicycle Use by Trip Purpose

To determine the frequency and purpose, residents were asked to indicate how often they used their bicycle for the various purposes. Of those who responded that they used their bicycle daily, 182 or 34% stated that they commuted to work by bicycle daily.

Figure 95: Resident Responses to “How often do you use your bicycle for the following purposes?”

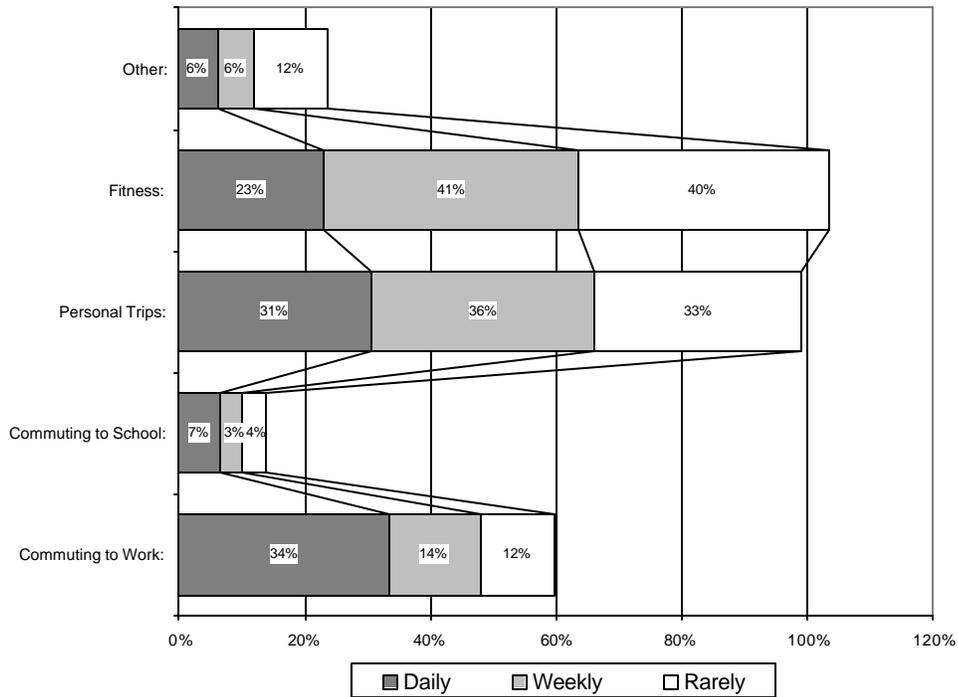


Table 95: Resident Responses to “How often do you use your bicycle for the following purposes?”

	Daily		Weekly		Rarely	
Commuting to Work:	182	34%	137	14%	102	12%
Commuting to School:	36	7%	33	3%	30	4%
Personal Trips:	166	31%	340	36%	278	33%
Fitness:	125	23%	387	41%	338	40%
Other:	34	6%	54	6%	100	12%
Total:	543	100%	951	100%	848	100%

Factors That Discourage Residents from Cycling More Often

Residents were asked to indicate the factors that discourage them from using their bicycle more often. It is not surprising that of the 1543 responses received, the most common discouraging factors are traffic (36%), weather (12%), not enough time (12%) and safety (9%). These responses are very similar to those cited by cyclists.

Figure 96: Resident Responses to “What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?”

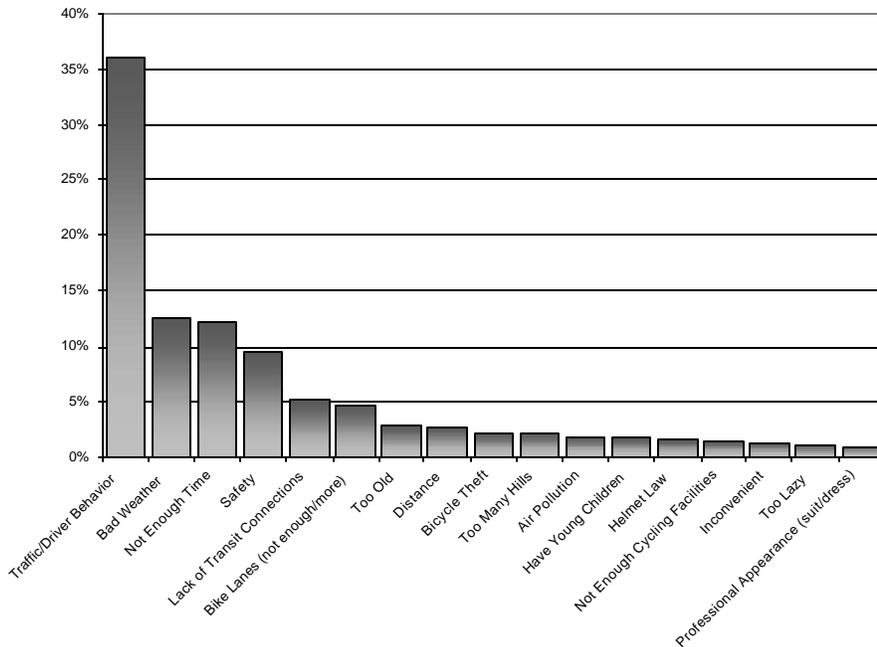


Table 96: Resident Responses to “What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?”

Response	Count	Percentage
Traffic/Driver Behavior	555	36%
Bad Weather	192	12%
Not Enough Time	187	12%
Safety	146	9%
Lack of Transit Connections	80	5%
Bike Lanes (not enough/more)	72	5%
Too Old	44	3%
Distance	42	3%
Bicycle Theft	34	2%
Too Many Hills	33	2%
Air Pollution	29	2%
Have Young Children	27	2%
Helmet Law	25	2%
Not Enough Cycling Facilities	23	1%
Inconvenient	21	1%
Too Lazy	17	1%
Professional Appearance (suit/dress)	16	1%
Total:	1543	100%

Bicycle Trip Distances

Residents were then asked to indicate the percentage of their cycling trips at various distances one way. While the average response was that 48% of cycling trips are between 0 and 5 km one way, 41% of the trips were between 5 and 30 km and 11% were over 30 km. These results, like those of cycling survey, are surprising in that the assumption is that the majority of the cycling trips are within 5 km of home.

Figure 97: Distances Residents Cycled (One Way) as a Percentage of Total Cycling Trips

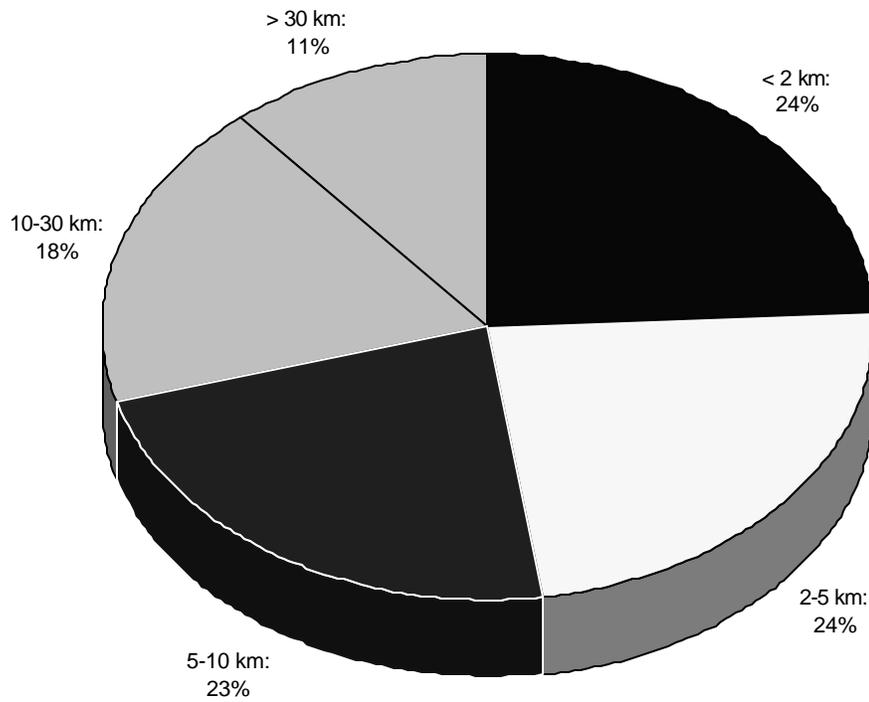


Table 97: Distances Residents Cycled (One Way) as a Percentage of Total Cycling Trips

Response	Average Response	Percentage
< 2 km:	49	24%
2-5 km:	48	24%
5-10 km:	47	23%
10-30 km:	37	18%
> 30 km:	23	11%
Total:	204	100%

Effect of Bicycle Route Development on Residents' Bicycle Use

To determine the effect of the City's bicycle network on their cycling activity, residents were questioned whether the network has had any influence on the amount they cycle. A total of 1623 responses were received for this question, with 43% of residents stating that the network has had some influence, 16% said that it had little influence and 41% said that the network had no influence on the amount they cycle.

Vancouver’s Bicycle Network

Figure 98: Resident Responses to “Vancouver’s bicycle network has had (choose one):”

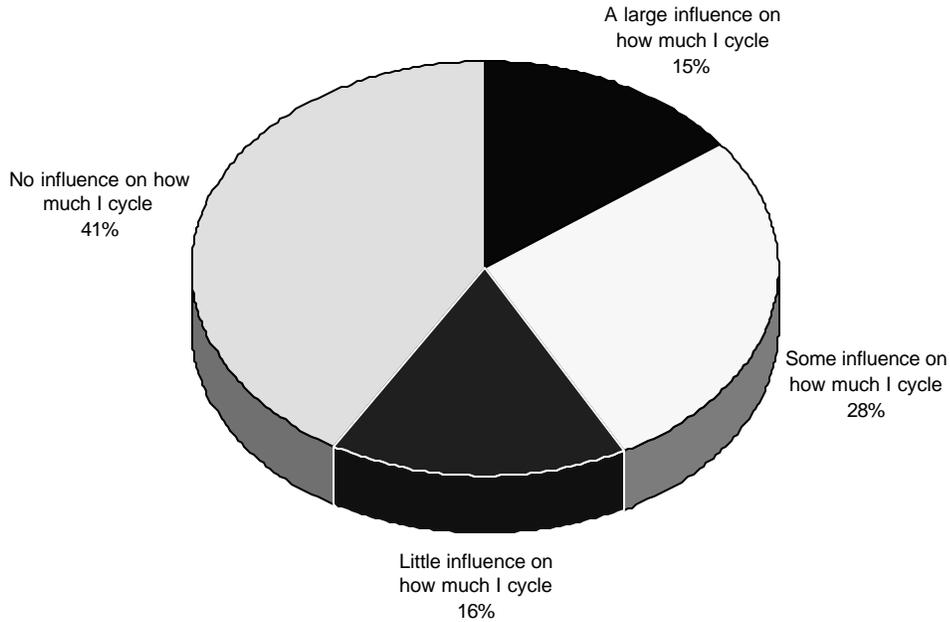


Table 98: Resident Responses to “Vancouver’s bicycle network has had (choose one):”

Response	Count	Percentage
A large influence on how much I cycle	239	15%
Some influence on how much I cycle	448	28%
Little influence on how much I cycle	263	16%
No influence on how much I cycle	673	41%
Total:	1623	100%

Living on the Bicycle Route

Similar to the previous question, residents were asked about the influence of living on a bikeway and the amount they cycle. Similar results were received for this question with 37% indicating that living on the bikeway had large influence on the amount they cycled. Conversely, 46% stated that living on the route had no influence on the amount they cycled.

Figure 99: Resident Responses to “Living along the bikeway has had (choose one):”

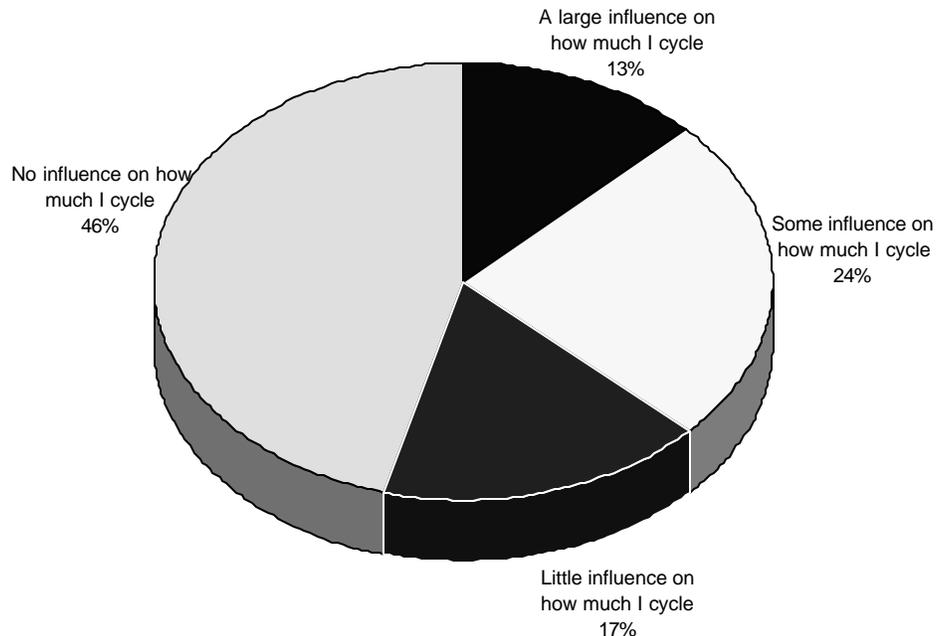


Table 99: Resident Responses to “Living along the bikeway has had (choose one):”

Response	Count	Percentage
A large influence on how much I cycle	204	13%
Some influence on how much I cycle	392	24%
Little influence on how much I cycle	274	17%
No influence on how much I cycle	740	46%
Total:	1610	100%

Opinion of Effect of Bicycle Route on Real Estate

In addition to the information gathered from the realtor survey, residents were asked similar questions regarding the effect of the bikeway and property values.

Dwelling Type

To understand where they lived, residents were asked to indicate the type of home they lived in. Of the 1806 responses to this question, 52% indicated that they lived in single-family homes, 22% live in strata title homes and 14% live in apartments. Of the 4% who responded “other”, many noted that they lived in suites or apartments in single-family homes.

Figure 100: Resident Responses to “What type of home do you live in?”

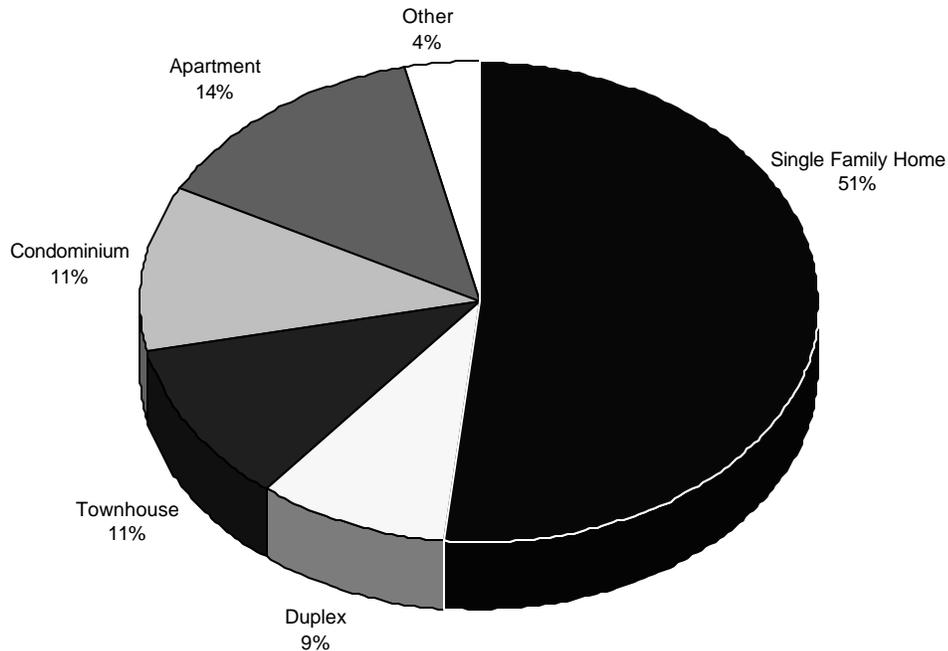


Table 100: Resident Responses to “What type of home do you live in?”

Response	Count	Percentage
Single Family Home	931	52%
Duplex	167	9%
Townhouse	197	11%
Condominium	199	11%
Apartment	247	14%
Other	65	4%
Total:	1806	100%

Effect of Route on Selling Price

Residents were asked to indicate their opinion of the effect of the bikeway on their property values. A total of 1757 people responded, while 106 did not. Of those who responded, 69% did not know or indicated that the bikeway had no effect on their property values. Of the remaining 31%, 19% felt the bikeway would increase the value of their home and 12% felt that the bikeway would decrease the price of their home.

Figure 101: Resident Responses to “If you were to sell your home today, do you think that being on a bike route would: (selling price)”

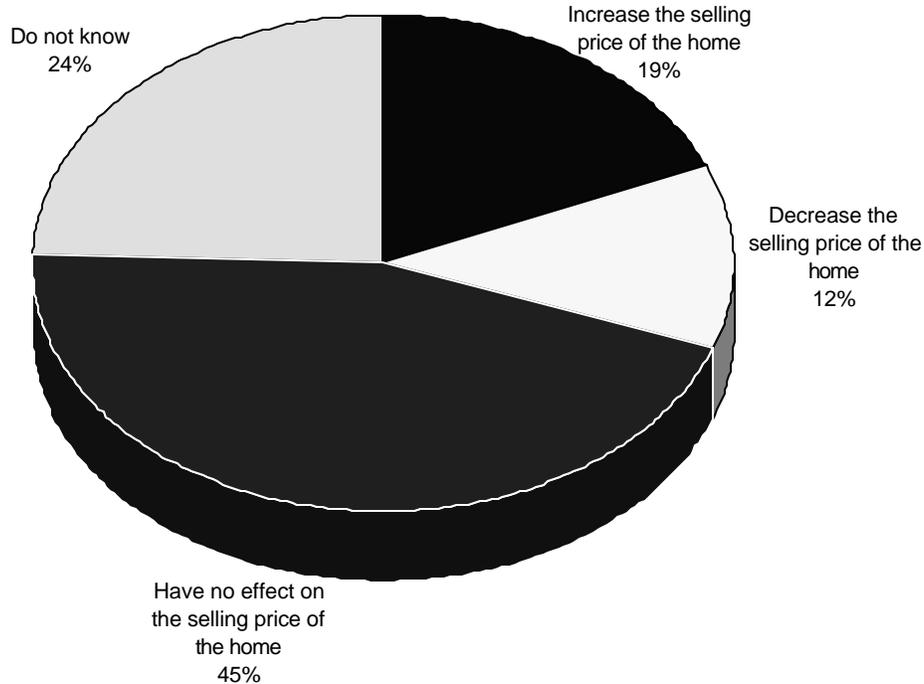


Table 101: Resident Responses to “If you were to sell your home today, do you think that being on a bike route would: (selling price)”

Response	Count	Percentage
Increase the selling price of the home	329	19%
Decrease the selling price of the home	208	12%
Have no effect on the selling price of the home	792	45%
Do not know	428	24%
Total:	1757	100%

Effect of Route on Ease of Sale

In addition to the effect on property values, residents were asked about the effect of the bikeway on the ease of sale of their home. Of the 1763 responses, 67% did not know or felt that the bikeway would have no effect on the ease of sale of their home. In addition, 22% felt the route would make their home easier to sell and 12% felt the route would make the home more difficult to sell.

Figure 102: Resident Responses to “If you were to sell your home today, do you think that being on a bike route would:” (ease of sale)

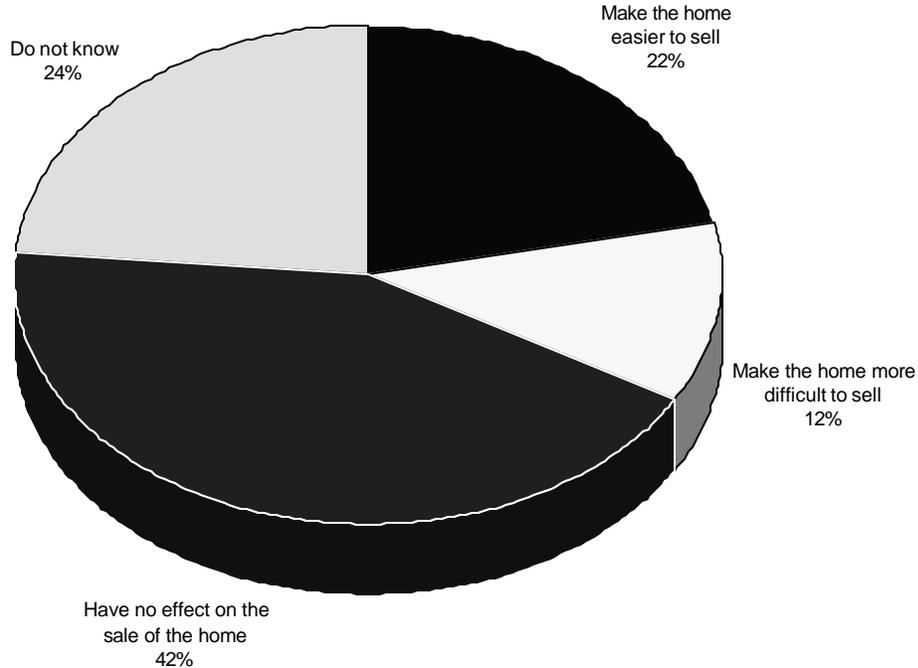


Table 102: Resident Responses to “If you were to sell your home today, do you think that being on a bike route would:” (ease of sale)

Response	Count	Percentage
Make the home easier to sell	381	22%
Make the home more difficult to sell	208	12%
Have no effect on the sale of the home	759	43%
Do not know	415	24%
Total:	1763	100%

Opinions about Living on a Bikeway

To determine how they felt about living on a route, residents were asked to indicate the positive and negative aspects about living on a bikeway. A total of 773 responses to this question were received, of which 80% were positive responses and only 20% were negative. Of the positive responses, residents indicated that the bikeway has made the street safer and quieter, reduced traffic and increased the “sense of community”. Conversely traffic, noise and cyclists not obeying traffic laws were cited as some of the negative aspects of the bikeway.

It is interesting to note that some people indicated that the bikeway reduced traffic and noise, while others felt that the bikeway had increased traffic and noise. Fortunately more residents felt the bikeway had reduced traffic and noise than those who felt that these increased.

Figure 103: Resident Responses to “How do you feel about living on a bicycle route? What, if any, would you say are the positives and negative aspects of living along a bicycle route?”

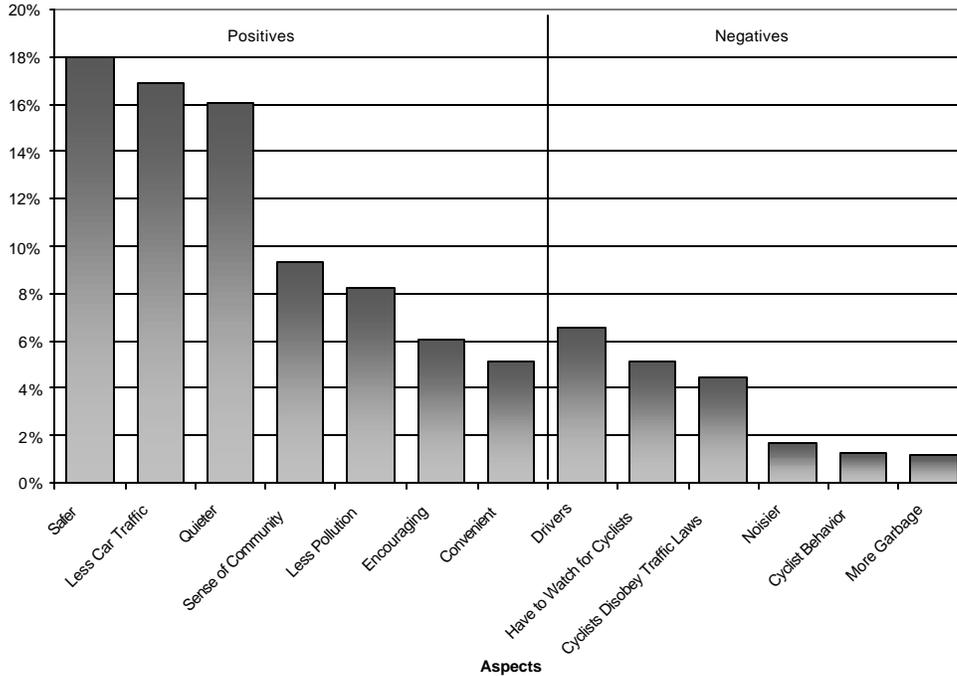


Table 103: Resident Responses to “How do you feel about living on a bicycle route? What, if any, would you say are the positives and negative aspects of living along a bicycle route?”

Positives			Negatives		
Response	Count	Percentage	Response	Count	Percentage
Safer	140	18%	Drivers	51	7%
Less Car Traffic	131	17%	Have to Watch for Cyclists	40	5%
Quieter	125	16%	Cyclists Disobey Traffic Laws	35	5%
Sense of Community	72	9%	Noisier	13	2%
Less Pollution	64	8%	Cyclist Behavior	10	1%
Encouraging	47	6%	More Garbage	9	1%
Convenient	40	5%			
			Total:	777	100%

Specific Comments on Traffic Measures

Residents were asked to comment on specific traffic measures that were installed as part of the bikeway. Figure 104 shows the results of this question, with most people commenting on traffic calming measures and signals installed with the bikeway.

Figure 104: Resident Responses to “Do you have any specific comments about any of the traffic measures installed as part of the bikeway?” (positive or negative)

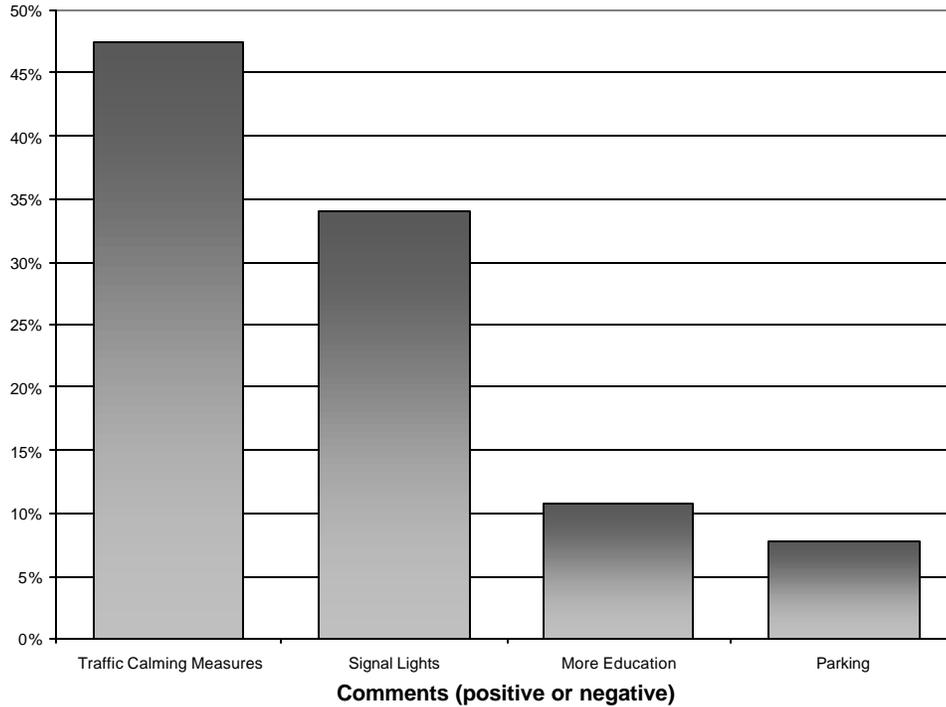


Table 104: Resident Responses to “Do you have any specific comments about any of the traffic measures installed as part of the bikeway?”

Response	Count	Percentage
Traffic Calming Measures	190	48%
Signal Lights	136	34%
More Education	43	11%
Parking	31	8%
Total:	400	100%

Perceived Liveability of Street

To determine the perceived effect of the bikeway on a street, residents were asked to rate the liveability of their street. Of the 1671 responses to this question 38% of respondents felt that the liveability of the street had increased since the bikeway had been implemented. Of the remaining responses, 47% felt that the liveability of the street had not changed, while 15% felt that it had decreased.

Figure 105: Resident Responses to “Since your street has become a bikeway, would you say that the liveability of the street has:”

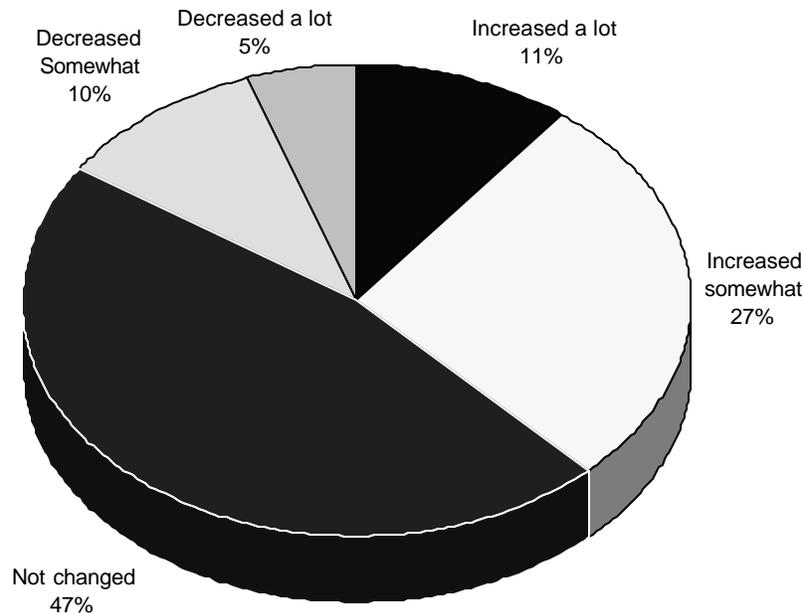


Table 105: Resident Responses to “Since your street has become a bikeway, would you say that the liveability of the street has:”

Response	Count	Percentage
Increased a lot	177	11%
Increased somewhat	452	27%
Not changed	784	47%
Decreased Somewhat	171	10%
Decreased a lot	87	5%
Total:	1671	100%

Perceived Bicycle Volumes

Many times, the perception of residents is that there are very few cyclists using a street to warrant the creation of a bikeway. To get an idea of the residents’ perceptions of bicycle volumes, respondents were asked to indicate the change in cyclists using their street since the bikeway was implemented.

An overwhelming 85% of residents indicated that the number of bicyclists has increased since their street had become a bikeway. Only 15% felt that the number of cyclists had not changed and only 15 responses of the total 1659 felt the number of bicyclists had gone down.

Figure 106: Resident Responses to “Since your street has become a bikeway, would you say that the number of bicycles has:”

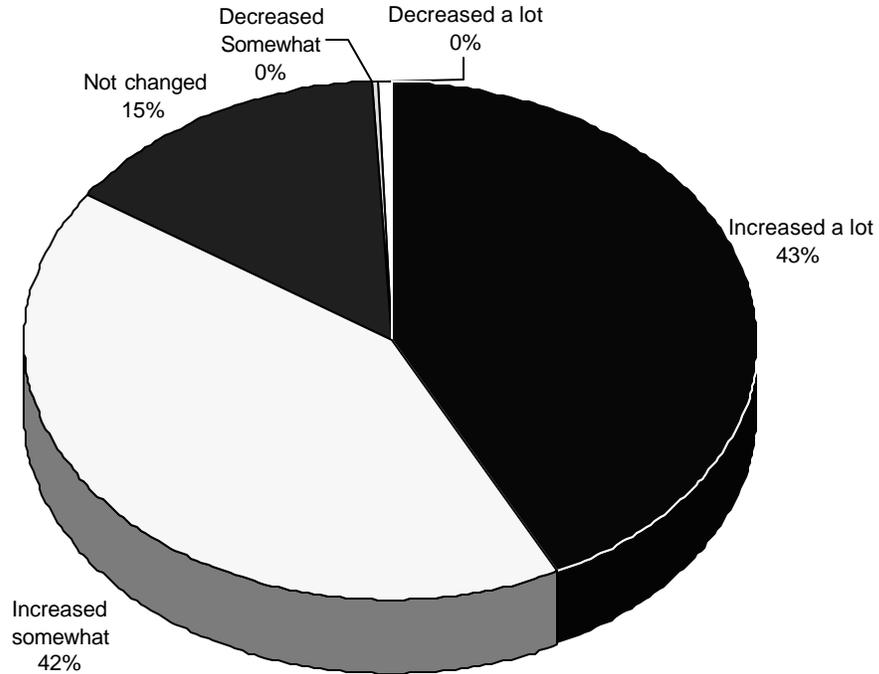


Table 106: Resident Responses to “Since your street has become a bikeway, would you say that the number of bicycles has:”

Response	Count	Percentage
Increased a lot	710	43%
Increased somewhat	700	42%
Not changed	243	15%
Decreased Somewhat	8	0%
Decreased a lot	7	0%
Total:	1668	100%

Perceived Effect of Bikeway and Traffic Volume

Another common concern of residents is that the implementation of a bikeway will bring an increase in motor vehicle traffic. Residents were asked about their perception of the volume of traffic on their street. Of the 1658 responses, the majority of residents felt that the volume of automobile traffic had not changed since their street had become a bikeway. Of the remaining responses, 19% felt that traffic had decreased while 22% felt that traffic had increased.

Figure 107: Resident Responses to “Since your street has become a bikeway, would you say that the number of automobiles has:”

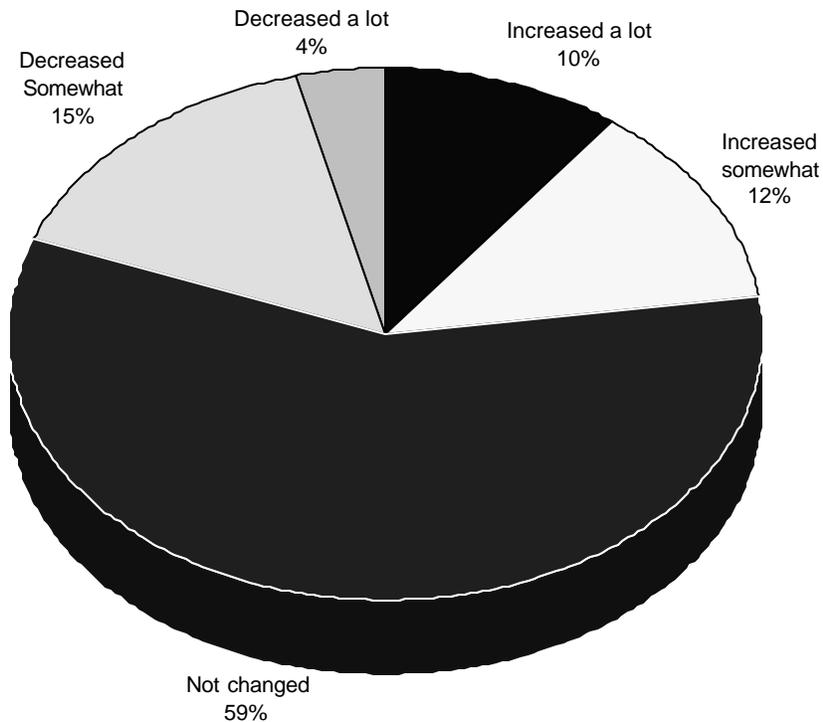


Table 107: Resident Responses to “Since your street has become a bikeway, would you say that the number of automobiles has:”

Response	Count	Percentage
Increased a lot	173	10%
Increased somewhat	205	12%
Not changed	969	58%
Decreased Somewhat	256	15%
Decreased a lot	63	4%
Total:	1666	100%

Bike Map Use

The following question was asked to determine if residents had a cycling map or other cycling brochure. Of the 1764 responses, 78% of residents indicated that they did not have a map, while 22% did.

Figure 108: Resident Responses to “Do you have a copy of the City’s ‘Cycling in Vancouver’ brochure or other cycling map?”

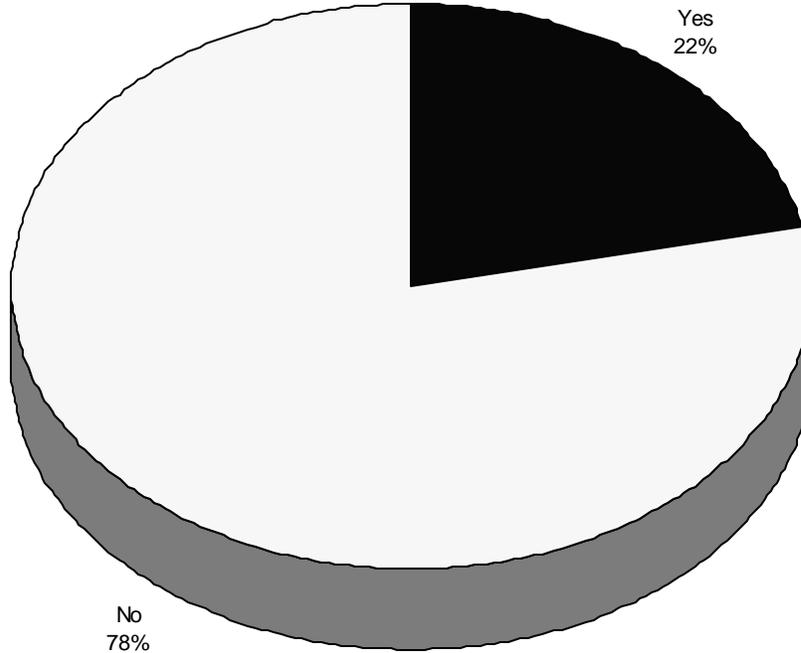


Table 108: Resident Responses to “Do you have a copy of the City’s ‘Cycling in Vancouver’ brochure or other cycling map?”

Response	Count	Percentage
Yes	385	22%
No	1387	78%
Total:	1772	100%

Helmet Use

To determine the level of helmet usage, residents were asked to indicate how often they used a helmet when cycling. As with cyclists, the vast majority of respondents indicated that they always wear a helmet when cycling.

Figure 109: Bicycle Helmet Usage

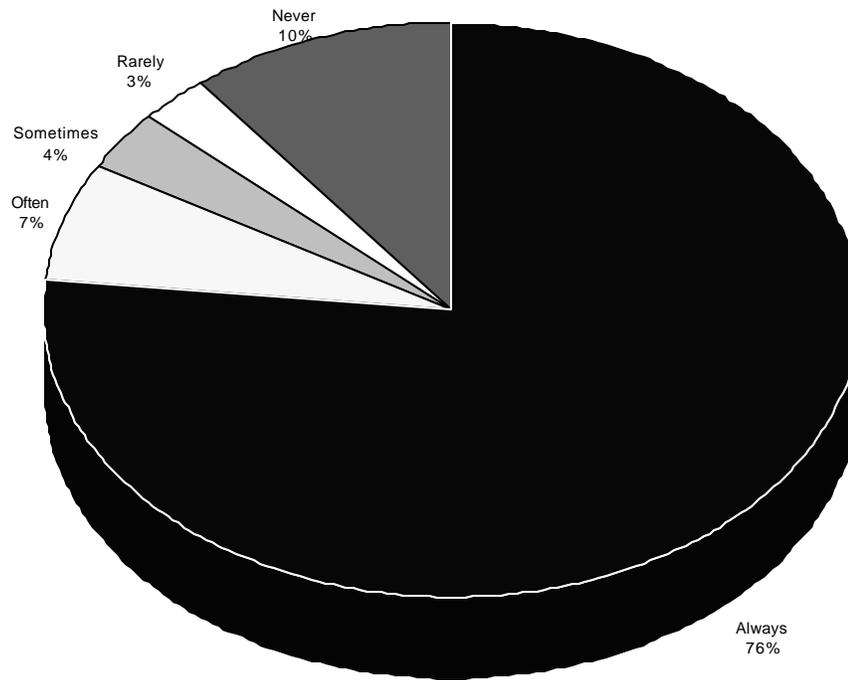


Table 109: Bicycle Helmet Usage

Response	Count	Percentage
Always	1060	77%
Often	92	7%
Sometimes	49	4%
Rarely	38	3%
Never	145	10%
Total:	1384	100%

5.2.3 Comparison Between Cyclist and Resident Surveys

Respondent Profile

To determine the similarities and differences between the two groups, the following section compares the results between the cyclist and resident surveys.

Age

As we can see from Figure 110, when compared together the cyclists who responded to this survey are generally younger than the residents who responded.

Figure 110: Comparison Between Cyclist and Resident Ages

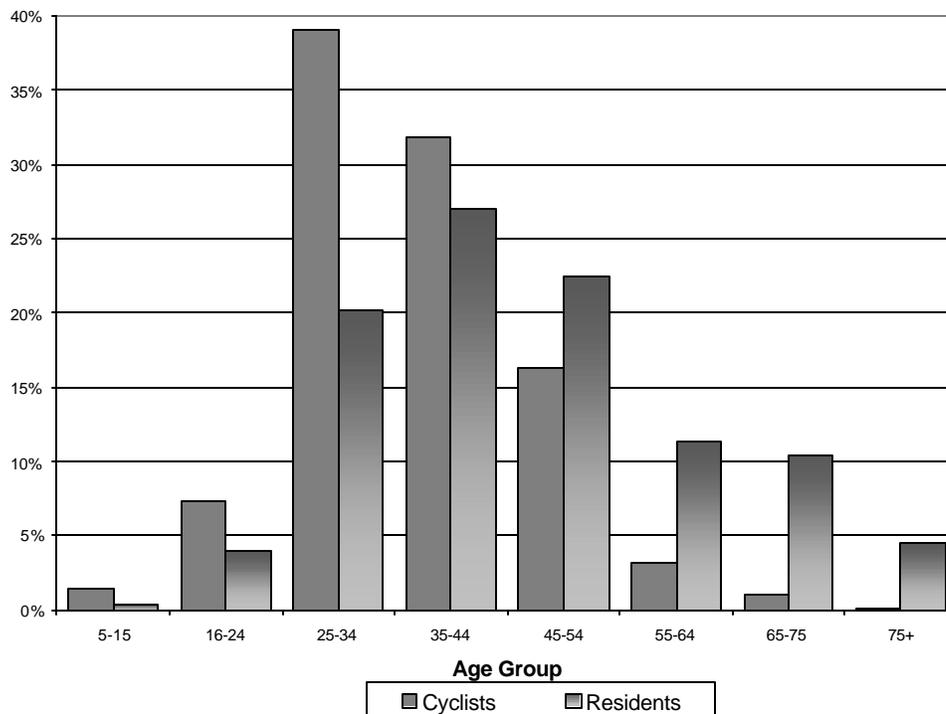


Table 110: Comparison Between Cyclist and Resident Ages

Response	Cyclists		Residents	
	Count	Percentage	Count	Percentage
5-15	24	1%	5	0%
16-24	125	7%	70	4%
25-34	668	39%	363	20%
35-44	544	32%	486	27%
45-54	277	16%	403	22%
55-64	54	3%	203	11%
65-75	17	1%	188	10%
75+	2	0%	80	4%
Total:	1711	100%	1798	100%

When compared with 1996 Census data, the results from the two surveys indicate that the cyclists and residents who responded to the surveys are generally skewed towards the 25-54 age group and under represented in the younger and older age groups. Figure 111 illustrates that 87% of respondents to the cycling survey and 70% of respondents to the resident survey are between the ages for 25 and 54, compared to only 51% of residents in the census data.

Figure 111: Comparison Between Cyclist and Resident Ages With 1996 Census Data For Vancouver

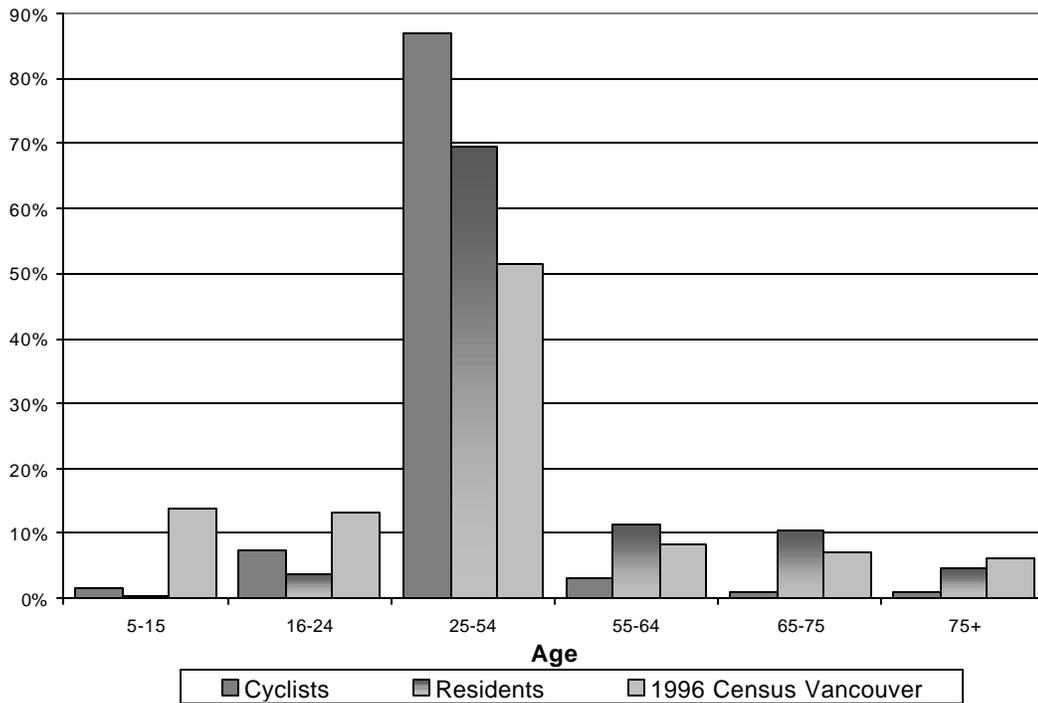


Table 111: Comparison Between Cyclist and Resident Ages With 1996 Census Data For Vancouver⁵⁶

Age Group	Cyclists	Residents	1996 Census Data
5-15	1%	0%	14%
16-24	7%	4%	13%
25-54	87%	70%	51%
55-64	3%	11%	8%
65-75	1%	10%	7%
75+	1%	4%	6%

Gender

When we compare the gender of the respondents to the two surveys, we see that the results of the resident survey are very similar to those of the 1996 census. However, the cyclist survey indicates

⁵⁶ Statistics Canada, "Statistics for Vancouver (City), British Columbia"

that there are two male cyclists for every female cyclist. This ratio of male to female cyclists is consistent with other local cycling studies conducted.

Figure 112: Comparison of Cyclist and Resident Gender with 1996 Census Data for Vancouver

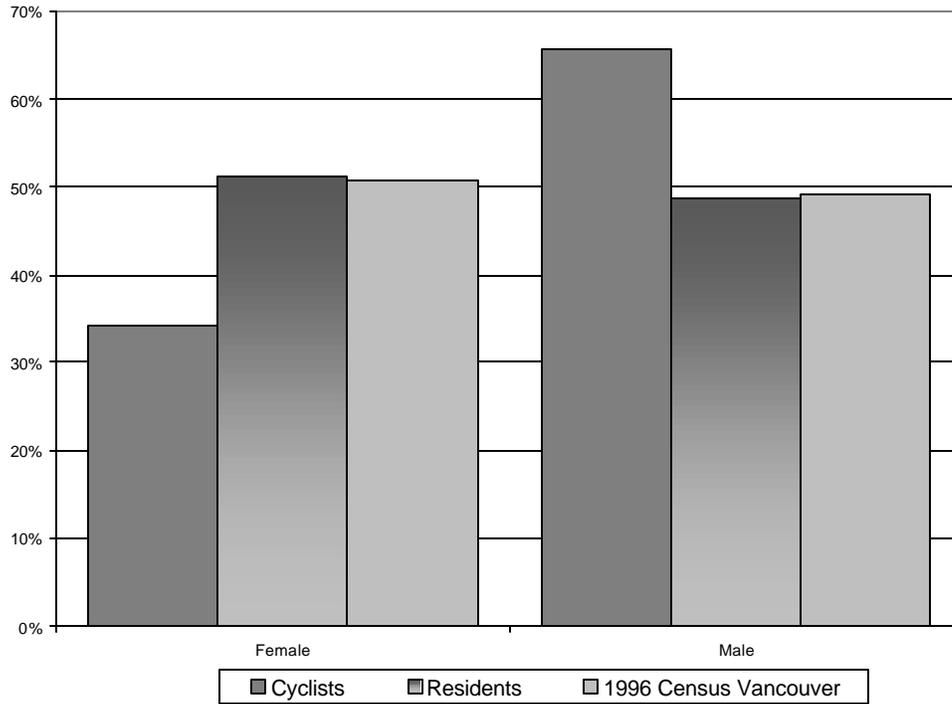


Table 112: Comparison of Cyclist and Resident Gender with 1996 Census Data for Vancouver⁵⁷

Response	Cyclists		Residents		1996 Census Vancouver
	Count	Percentage	Count	Percentage	
Female	474	34%	706	51%	51%
Male	911	66%	673	49%	49%
Total:	1385	100%	1379	100%	100%

⁵⁷ *Ibid.*

Cycling Activity

Frequency of Bicycle Use by Trip Purpose

Figure 113: Comparison of Bicycle Trip Frequency

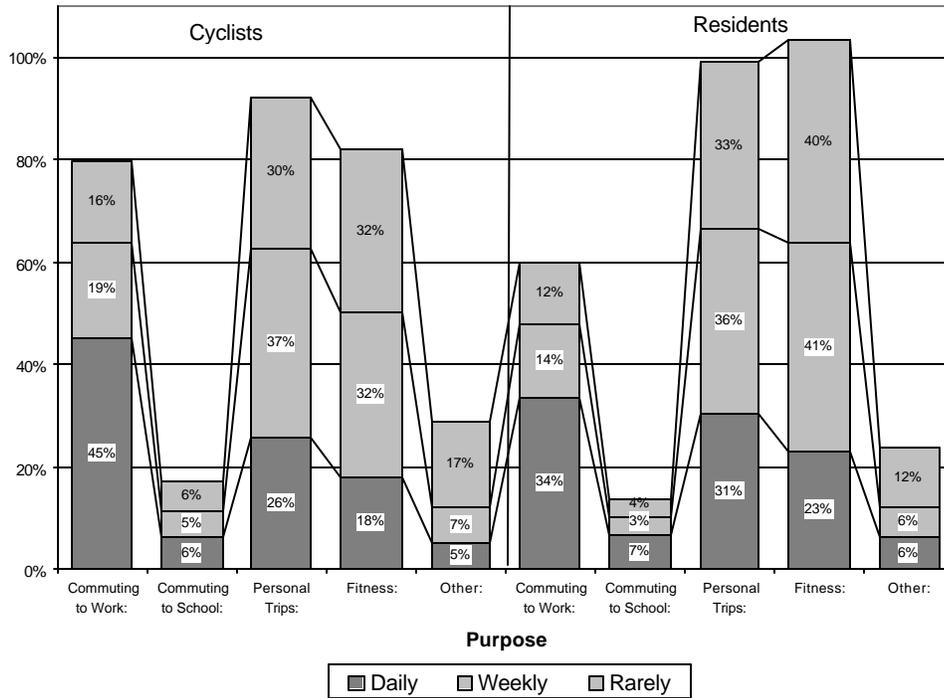


Table 113: Comparison of Bicycle Trip Frequency

Cyclists	Daily		Weekly		Rarely	
Commuting to Work:	862	45%	378	19%	132	16%
Commuting to School:	117	6%	101	5%	53	6%
Personal Trips:	490	26%	748	37%	251	30%
Fitness:	344	18%	651	32%	269	32%
Other:	98	5%	137	7%	144	17%
Sum	1911	100%	2015	100%	849	100%
Residents						
Commuting to Work:	182	34%	137	14%	102	12%
Commuting to School:	36	7%	33	3%	30	4%
Personal Trips:	166	31%	340	36%	278	33%
Fitness:	125	23%	386	41%	338	40%
Other:	34	6%	54	6%	100	12%
Sum	543	100%	950	100%	848	100%

Frequency of Bicycle Route Use

Factors That Discourage Respondents from Cycling More Often

Figure 114: Comparison of Factors that Discourage Respondents from Cycling More Often

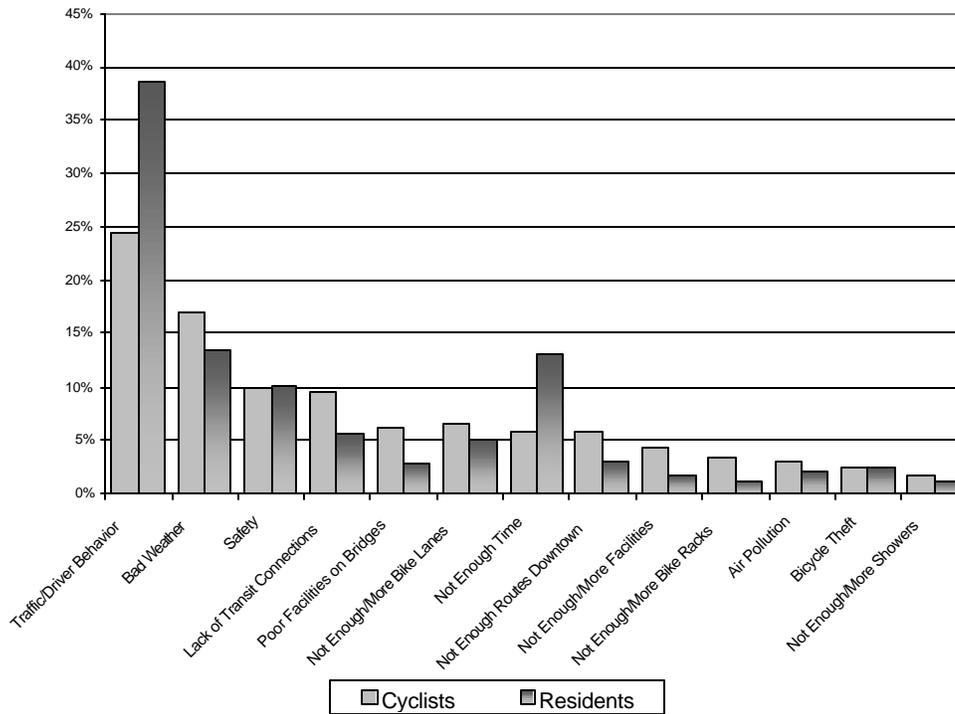


Table 114: Comparison of Factors that Discourage Respondents from Cycling More Often

Response	Cyclists		Residents	
	Count	Percentage	Count	Percentage
Traffic/Driver Behavior	557	25%	555	39%
Bad Weather	384	17%	192	13%
Safety	227	10%	146	10%
Lack of Transit Connections	218	10%	80	6%
Poor Facilities on Bridges	138	6%	41	3%
Not Enough/More Bike Lanes	148	7%	72	5%
Not Enough Time	132	6%	187	13%
Not Enough Routes Downtown	131	6%	42	3%
Not Enough/More Facilities	97	4%	23	2%
Not Enough/More Bike Racks	76	3%	17	1%
Air Pollution	70	3%	29	2%
Bicycle Theft	55	2%	34	2%
Not Enough/More Showers	36	2%	16	1%
Total:	2269	100%	1434	100%

Influence of Vancouver’s Bicycle Network on Frequency Respondents Cycled

Figure 115: Resident Responses to “Vancouver’s bicycle network has had (choose one)”:

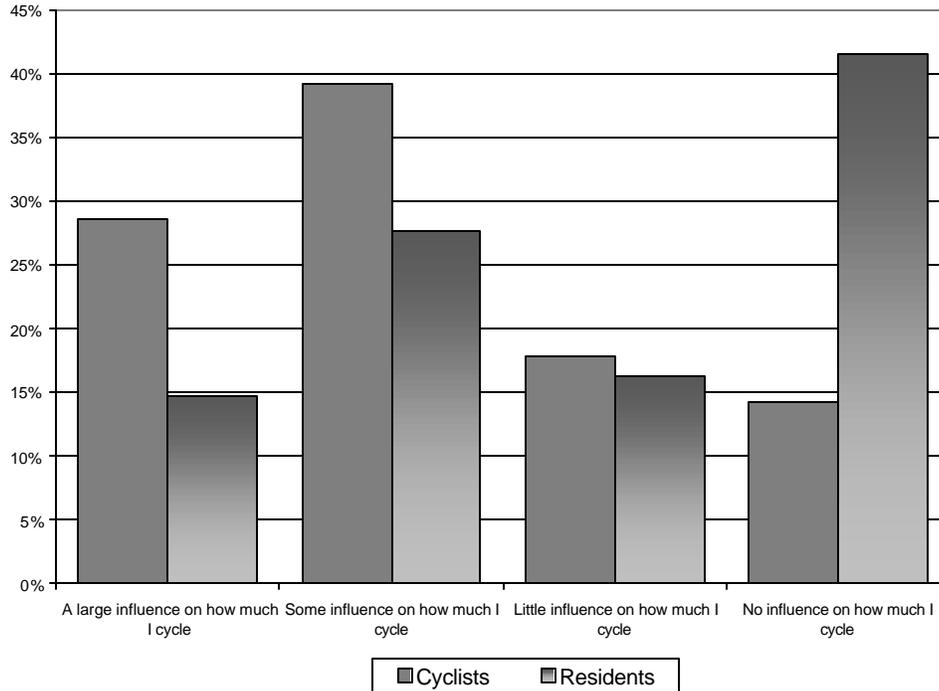


Table 115: Resident Responses to “Vancouver’s bicycle network has had (choose one)”:

Response	Cyclists		Residents	
	Count	Percentage	Count	Percentage
A large influence on how much I cycle	485	29%	239	15%
Some influence on how much I cycle	663	39%	447	28%
Little influence on how much I cycle	303	18%	263	16%
No influence on how much I cycle	242	14%	672	41%
Total:	1693	100%	1621	100%

Helmet Use

Figure 116: Comparison of Helmet use between Cyclists and Residents

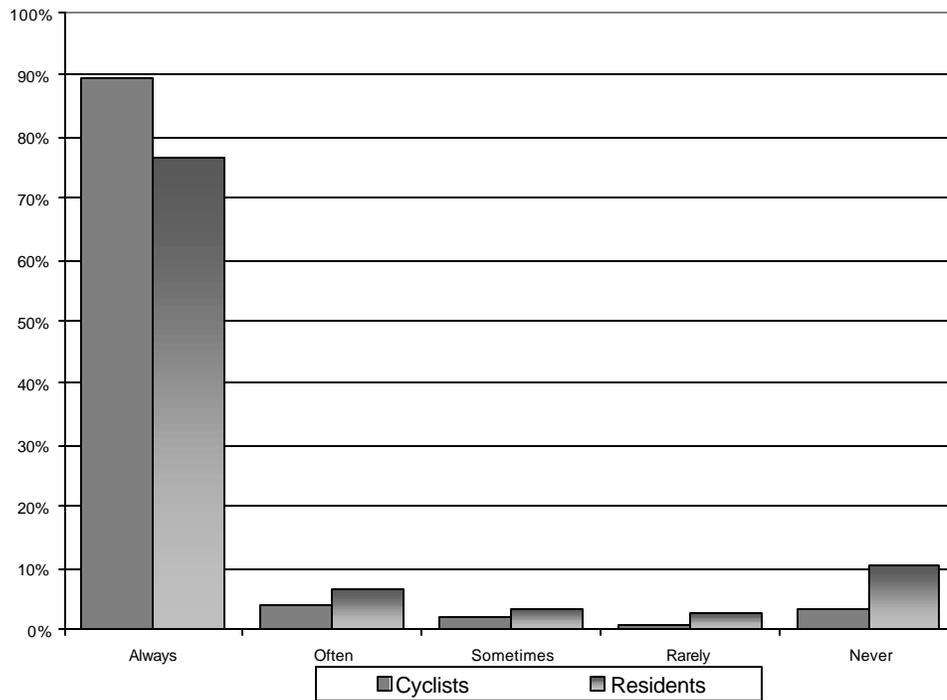


Table 116: Comparison of Helmet use between Cyclists and Residents

Response	Cyclists		Residents	
	Count	Percentage	Count	Percentage
Always	1558	90%	1058	77%
Often	73	4%	92	7%
Sometimes	36	2%	49	4%
Rarely	14	1%	38	3%
Never	58	3%	145	10%
Total:	1739	100%	1382	100%

Bike Map

Figure 117: Comparison of bike map ownership between Cyclists and Residents

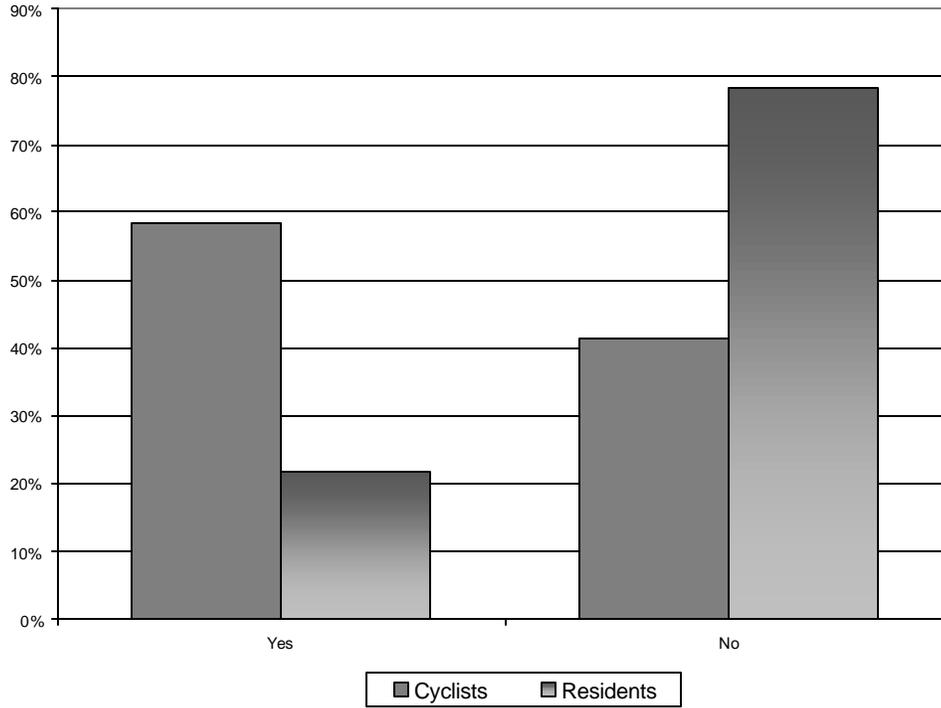


Table 117: Comparison of bike map ownership between Cyclists and Residents

Response	Cyclists		Residents	
	Count	Percentage	Count	Percentage
Yes	1021	59%	385	22%
No	721	41%	1385	78%
Total:	1742	100%	1770	100%

6 Conclusions and Recommendations

The general conclusions from the review are that the bicycle network is generally seen as a positive benefit to both the residents and cyclists of Vancouver. There is a strong desire by cyclists to have a network of interconnected bicycle routes in the downtown core to complement the network of bikeways that has been constructed to date.

The following sections outline the conclusions of the review.

6.1 Route Development

In 1992, the *Bicycle Network Study* identified the need for a bicycle network that consists of local integration, arterial integration and bicycle paths to appeal to cyclists of varying skill levels. As local integration was identified as the priority bicycle facility to pursue to appeal to the majority of cyclists, it has been the focus of our bike route development to date.

Of the originally proposed bikeway network, approximately 60% of the routes have been constructed. While the exact locations of some of the routes have been modified from the original proposal, the general corridors have been maintained where possible. Route locations generally changed to reflect input from the public.

While the initial grid system of bikeways is about 2/3 complete, a finer grid of bikeways, approximately one to two kilometres between routes, should be established to ensure all areas of the city have bikeways that connect major destinations.

Action 10: Develop the bicycle network to ensure a grid of bikeways approximately one kilometre apart.

However, integration of cyclists into the existing arterial street network has proven to be a greater challenge. Vancouver's road network is generally narrow and parking and physical space constraints make retrofitting bicycle facilities difficult. Bicycles should be accommodated on arterial streets where practical, and be included in the planning of new and reconstructed streets.

Action 11: Enhance accommodation for bicycles on arterial streets where practical, and provide for cyclists in the planning and design of new and reconstructed arterial streets.

This Action Item supports the Transportation Plan's Cycling Initiative C3.⁵⁸

6.1.1 Proposed Network

Based on suggestions identified by cyclists, respondents to the cycling survey, and the Transportation Plan, a proposed network has been developed for the city of Vancouver, including the downtown core (see Figure 118).

⁵⁸ Vancouver Transportation Plan, page 45

The proposed network should complete Vancouver's bicycle route system and make the City highly accessible by bike. The proposed network is intended as a guideline and further route details are subject to public consultation and detailed design on a route by route basis.

In addition to the routes constructed to date, Figure 118 shows the proposed future routes to be developed. These routes have been identified by cyclists (the BAC and BNSC), the Transportation Plan and cycling survey respondents.

Figure 118: Proposed Bicycle Facilities

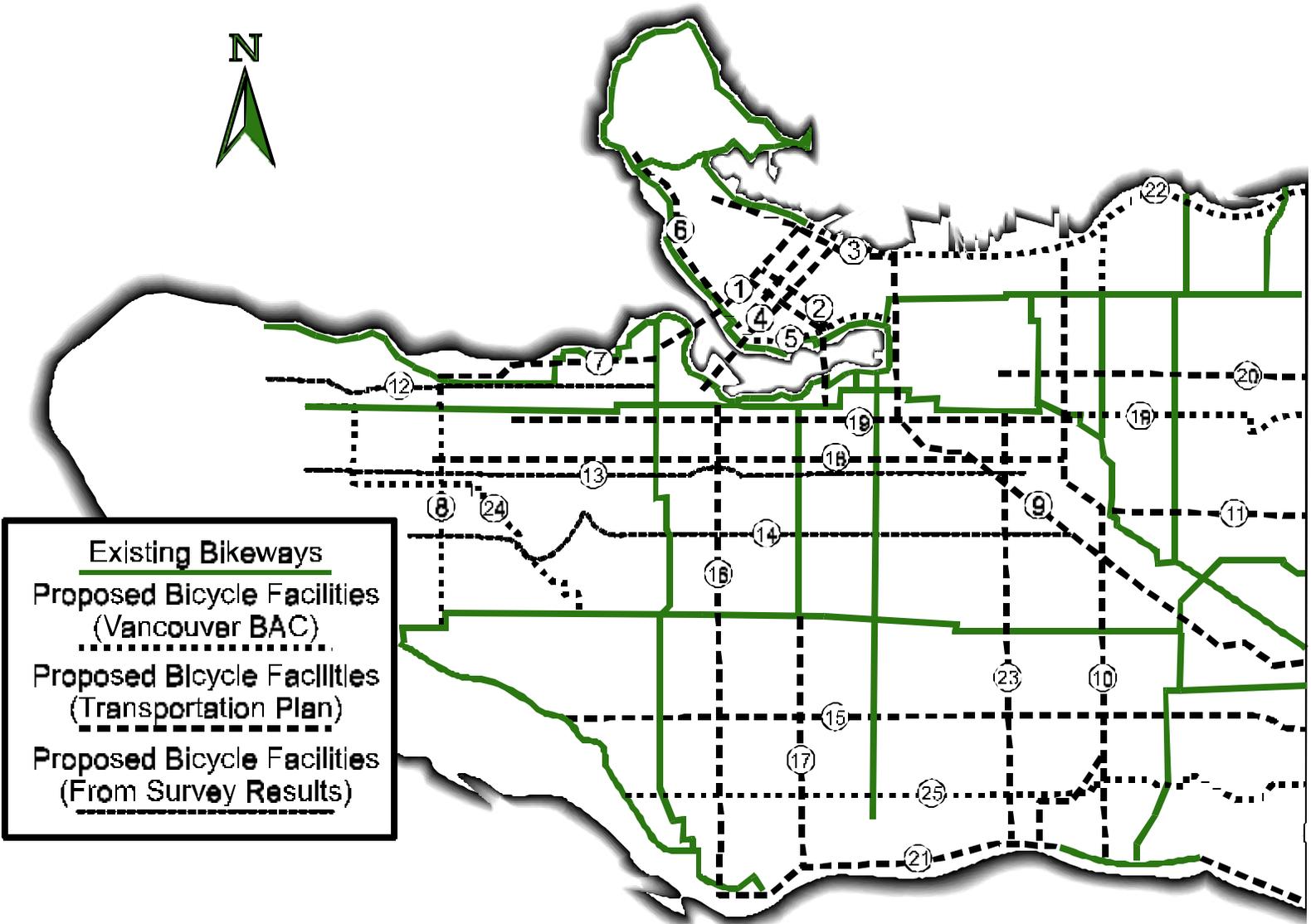


Table 118: Proposed Bicycle Facilities

Proposed Bicycle Facilities			
Bike Lanes			
1	Burrard	9	Kingsway
2	Smithe/Nelson	10	Victoria/Commercial
3	West Hastings/Pender	11	22nd Avenue
4	Howe/Seymour	12	4th Avenue
5	Pacific	13	16th Avenue
6	Beach	14	King Edward
7	Cornwall/Pt. Grey	15	49th Avenue
8	Dunbar		
Bikeways			
16	Hudson Corridor	21	Kent
17	Heather Corridor	22	Burrardview/Lakewood
18	14th/15th Corridor	23	Ross/Windsor Corridor
19	Off-Broadway	24	Ridgeway West
20	1st/2nd Corridor	25	59th Corridor

6.1.2 Proposed Downtown Network

The bicycle network for the Downtown Peninsula should receive some priority as it is one of the more important destinations for work and recreation. Because of the competition for scarce road space and the diversity of stakeholders within the downtown, a downtown bike network should be further refined as part of the upcoming Downtown Transportation Plan. Based on feedback received in this review, bike lanes are the preferred facility for accommodating cyclists downtown.

Figure 119 shows a preliminary Downtown Bicycle Network.

Figure 119: Proposed Downtown Bicycle Network

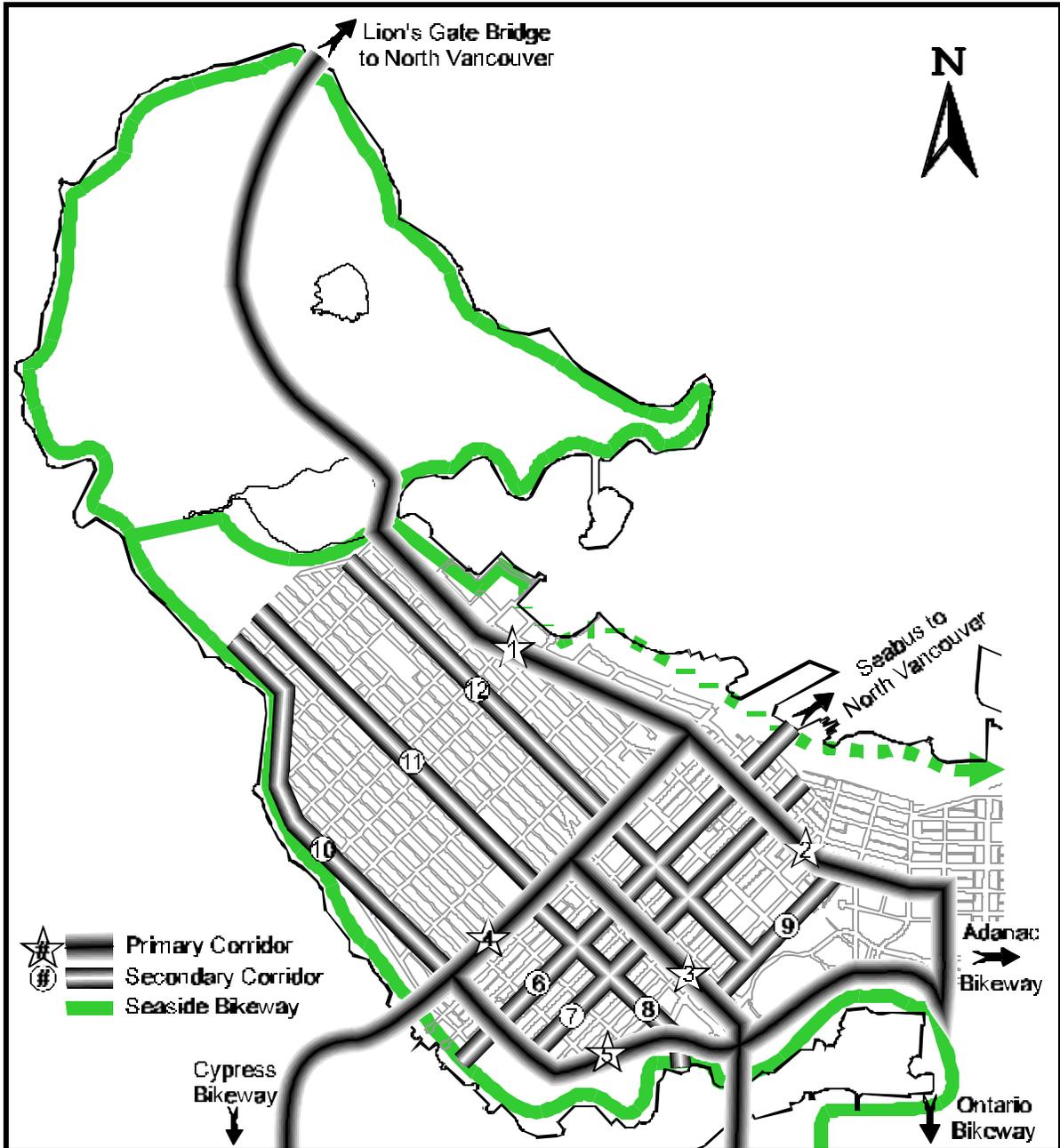


Table 119: Proposed Downtown Bicycle Network

Proposed Downtown Bicycle Network	
1 Georgia Corridor	7 Homer Corridor
2 Pender Corridor	8 Helmcken Corridor
3 Smithe/Nelson	9 Beatty Street
4 Burrard Corridor	10 Beach Avenue
5 Pacific Avenue	11 Comox Street
6 Howe/Seymour Corridor	12 Robson Street

Action 12: Plan and construct a network of bike lanes in the downtown core, in conjunction with the Downtown Transportation Plan.

This Action Item supports the Transportation Plan's Cycling Initiative C1.⁵⁹

⁵⁹ *ibid.*

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Glossary

- Arterial Street A street that generally has two or more moving lanes, traffic signals, may be designated a truck or bus routes, and is intended to serve traffic moving through an area.⁶⁰
- Bikeway Generally, a quiet side street that is designated for bicycle use, where bicycles are integrated with local traffic. There is no visual or physical barrier between bicycles and automobiles; however, traffic calming measures are used to reduce vehicular traffic and favour bicycle movements.⁶¹
- The majority of Vancouver's bicycle network is comprised of bikeways. The Adanac and Off-Broadway Bikeways are two examples.
- Bicycle Lane A separate lane designated for bicycles on existing roadways. A bicycle lane is generally delineated by a painted line, but may be separated from other traffic lanes by texturing, colouring, or by a physical barrier such as a curb. The lane is generally identified with signs and/or with bicycle stencils painted on the lane.⁶²
- SW Marine Bike Lanes are an example of a bicycle lane in Vancouver.
- Bicycle Path A separate facility from which all motorized traffic is excluded. Bike paths can be of two types: bicycle only and multiple use paths. Generally, these routes are designed for slow, recreational riding.⁶³
- The Seaside Route along the Seawall is an example of a multiple use, recreational bicycle path.
- Bicycle Route Any road or facility that is signed for bicycle use. A bicycle route is signed because it provides continuity with other cycling facilities or because it is a preferred route through a busy corridor.⁶⁴
- A bicycle route may be any combination of signed bike paths, bikeways, bike lanes or greenways and other streets which provides cyclists with a suggest route between destinations.⁶⁵
- End-of-Trip Facilities Facilities available to cyclists when they arrive at their destination. End of trip facilities may include showers, change rooms, lockers, secured bicycle storage or racks.
- Greenway A linear public corridor that connects parks, nature reserves, cultural features, historic sites, neighbourhoods and retail areas, often along either natural corridors like river or ocean fronts or along rail rights-of-way or

streets shared for transportation.⁶⁶ Greenways provide a pleasant environment for both pedestrians and cyclists.

The completed portion of the Ridgeway Greenway along 37th Avenue, from Granville to Knight Streets, is an example of a Greenway.

Local Street

A local street is a primarily residential street that is used by residents of the neighbourhood.⁶⁷ Generally, vehicle volumes are low and traffic is local in nature.

Modal Split

The number of trips by each mode of transportation, expressed as a percentage.⁶⁸

Mode

A method of transportation, such as walking, cycling, transit or driving.⁶⁹

Traffic Calming

The use of physical measures to influence traffic movements within a neighbourhood. The objectives of traffic calming may vary from improving traffic safety through the use of stop signs and traffic circles, or may involve diverting traffic from one street to another using diversionary measures such as medians and street closures.⁷⁰

⁶⁰ *The City of Vancouver Transportation Plan 1997, page 57*

⁶¹ *Bicycle Network Study, page 10*

⁶² *Community Cycling Manual, Facilities Design page 5*

⁶³ *Ibid., Facilities Design page 5*

⁶⁴ *Ibid., Facilities Design page 5*

⁶⁵ *The City of Vancouver Transportation Plan 1997, page 57*

⁶⁶ *Greenways/Public Ways, page vii*

⁶⁷ *The City of Vancouver Transportation Plan 1997, page 58*

⁶⁸ *Ibid., page 58*

⁶⁹ *Ibid., page 58*

⁷⁰ *Ibid., page 58*

Index

A

Adanac Bikeway ____ 1, 19, 20, 31, 32, 33, 34, 35, 36, 43, 44, 45, 46, 53, 54, 55, 57, 58, 60, 90, 95, 96, 97, 103, 111, 112, 175, 176
 Air Pollution _____ 11, 98, 115, 122
 Arbutus Street _____ 1, 20, 176

B

BC Parkway _____ 19, 96, 97, 111, 112, 176
 Better Environmentally Sound Transportation (BEST) _____ 3, 6, 18, 90
 Bicycle
 Counts _____ 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 61, 124, 125
 Hotline _____ 15, 16
 Lanes _____ 1, 5, 10, 11, 25, 69, 98, 101, 102, 105, 106, 115, 175, 176, 177
 Map _____ 13, 14, 15, 107, 126, 127, 136, 177
 Parking By-law _____ 9, 18, 155
 Paths _____ 1, 5, 25, 102
 Racks _____ 11, 18, 19, 28, 99, 100, 177
 Routes _____ 5, 6, 7, 13, 15, 19, 20, 21, 26, 31, 57, 66, 68, 69, 70, 81, 83, 85, 89, 90, 98, 115, 175, 177
 Bicycle Advisory Committee (BAC) _____ 3, 4, 7, 8, 9
 Bicycle Network _____ 1, 3, 4, 7, 9, 19, 20, 21, 22, 23, 28, 30, 90, 104, 105, 116, 117, 134
 Bicycle Network Subcommittee (BNSC) _ 4, 7, 10
 Bike to Work Week (BTWW) _____ 3, 13, 18
 Bikeways _____ 1, 4, 9, 10, 11, 19, 25, 28, 29, 31, 34, 43, 44, 46, 48, 53, 54, 56, 57, 59, 69, 74, 81, 83, 85, 86, 87, 88, 90, 95, 96, 101, 102, 103, 104, 108, 111, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 175, 176, 177
 Adanac Bikeway _____ 1, 19, 20, 31, 32, 33, 34, 35, 36, 43, 44, 45, 46, 53, 54, 55, 57, 58, 60, 90, 95, 96, 97, 103, 111, 112, 175, 176

BC Parkway _____ 19, 96, 97, 111, 112, 176
 Cassiar Bikeway ____ 1, 96, 97, 111, 112
 Crime _____ 31, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81
 Cypress Bikeway ____ 20, 55, 56, 59, 74, 75, 76, 77, 90, 95, 96, 97, 111, 112, 175, 177
 Heather Bikeway ____ 1, 96, 97, 111, 112, 175
 Lakewood Bikeway _ 1, 96, 97, 111, 112
 Livability _____ 123, 124
 Midtown/Ridgeway Bikeway _____ 9, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 56, 57, 96, 97, 111, 112
 Off-Broadway Bikeway__ 54, 55, 58, 90, 95, 96, 97, 103, 111, 112
 Ontario Bikeway _____ 1, 19, 74, 78, 79, 80, 90, 95, 96, 97, 111, 112, 175, 176
 Seaside Bike Route__ 19, 95, 96, 97, 111, 112, 175, 176
 Sunrise Bikeway ____ 20, 96, 97, 111, 112
 SW Marine Bike Lanes _ 96, 97, 111, 112
 Bridges _____ 8, 98, 105, 106, 115
 Burnaby, City of _____ 6, 9, 14
 Burrard Street _____ 105, 106, 175, 177
 By-laws
 Bicycle Parking By-law _ 9, 18, 155
 Street and Traffic By-law 18, 151

C

Cambie Street _____ 41, 74, 175, 176, 177
 Cassiar Bikeway ____ 1, 96, 97, 111, 112
 Collisions _____ 59, 60, 61, 63, 64, 65, 66, 67, 68, 69
 Counts
 Bicycle _____ 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 61, 124, 125
 Vehicle _____ 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 57, 58, 59, 125, 126
 Crime _____ 31, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81
 Cycling British Columbia_ 4, 5, 17
 Cycling Network Program 5, 20, 23
 Cypress Bikeway ____ 20, 55, 56, 59, 74, 75, 76, 77, 90, 95, 96, 97, 111, 112, 175, 177

D

Downtown _____ 5, 10, 11, 47, 50, 52,
63, 65, 106, 177
Downtown Cyclists' Network (DCN) _____ 5

E

Education _____ 1, 8, 11, 13, 123, 177
Encouragement _____ 1, 8, 11, 13
Enforcement _____ 1, 8, 11, 13
Engineering _____ 1, 4, 7, 8, 9, 11, 19, 28,
31

F

Facilities _____ 25, 26, 99, 100
Bicycle Paths _____ 1, 5, 25, 102
Bike Lanes _____ 1, 5, 10, 11, 25, 69,
98, 101, 102, 105, 106, 115, 175, 176,
177
Bikeways _____ 1, 4, 9, 10, 11, 19,
25, 28, 29, 31, 34, 43, 44, 46, 48, 53,
54, 56, 57, 59, 69, 74, 81, 83, 85, 86,
87, 88, 90, 95, 96, 101, 102, 103, 104,
108, 111, 117, 118, 119, 120, 121, 122,
123, 124, 125, 126, 175, 176, 177

G

Georgia Street _____ 175, 177
Granville Street _____ 5, 9, 74, 145, 175, 176,
177
Greater Vancouver Regional District (GVRD) 6,
8, 47, 91, 92, 93, 94
Greenways _____ 9, 19, 26, 27, 81, 176

H

Heather Bikeway _____ 1, 96, 97, 111, 112, 175
Helmets _____ 18, 107, 108, 127, 128,
135
By-law _____ 18
Hotline _____ 15, 16

K

Knight Street _____ 9, 145

L

Lakewood Bikeway _____ 1, 96, 97, 111, 112
Local Integrated Bikeways Standards _____ 10

M

Main Street _____ xv
Map _____ 13, 15, 126, 127, 136
Midtown/Ridgeway Bikeway _____ 9,
36, 41, 42, 43, 44, 45, 46, 56, 57, 96, 97,
111, 112
Municipal Bicycle Committee (MBC) _____ 6, 8

N

North Vancouver, District and City of _____ 14

O

Oak Street _____ 175
Off-Broadway Bikeway _____ 54, 55, 58, 90, 95,
96, 97, 103, 111, 112
Ontario Bikeway _____ 1, 19, 74, 78, 79, 80,
90, 95, 96, 97, 111, 112, 175, 176

P

Parking Enforcement _____ 13, 16, 17
Pedestrians _____ 1, 9, 47, 175, 176
Pender Street _____ 175, 176, 177
Property Values _____ 31, 81, 84, 85, 118,
119, 120
Ease of Sale _____ 85, 86, 87, 88, 89,
120, 121
Selling Price _____ 81, 85, 86, 87, 88,
89, 120

R

Real Estate
Ease of Sale _____ 85, 86, 87, 88, 89,
120, 121
Property Values _____ 31, 81, 84, 85, 118,
119, 120
Selling Price _____ 81, 85, 86, 87, 88,
89, 120
Regional Bicycle Task Force (RBTF) _____ 6
Reports
Bicycle Network Study _____ 1, 4, 7, 9, 19, 20,
21, 24, 26, 60

Bicycle Parking Standards Study ____ 9
 Comprehensive Bicycle Plan _____ 1, 3,
 8, 9, 11, 13, 94
 Transportation Plan__ 8, 10, 28, 47
 Richmond, City of____14

Vehicle Volumes ____ 32, 33, 34, 35, 36, 37,
 38, 39, 40, 41, 42, 43, 57, 58, 59, 125, 126

S

Safety _____ 4, 69, 97, 103, 114,
 122, 176, 177
 Seaside Bike Route__19, 95, 96, 97, 111,
 112, 175, 176
 Sidewalks _____28, 175
 Signs_____8, 19, 28, 29, 103, 104,
 175, 177
 Speed Humps _____177
 Speeding_____175
 Stencils_____19, 28, 29
 Sunrise Bikeway ____20, 96, 97, 111, 112
 Surveys
 Cyclist _____ 90, 91, 92, 93, 94,
 116, 129, 130, 167
 Realtor _____ 81, 82, 89, 118, 165
 Resident _____ 108, 128, 129, 130,
 171
 SW Marine Bike Lanes _ 96, 97, 111, 112

W

Weather _____ 98, 115

T

Traffic _____1, 8, 10, 11, 29, 31, 43,
 48, 57, 59, 97, 98, 102, 103, 104, 114, 115,
 121, 122, 123, 125, 175, 176, 177
 Calming_____ 1, 10, 57, 103, 122,
 123, 176, 177
 Traffic Signals
 Cyclist Push Buttons 103
 Traffic Signals
 Bicycle and Pedestrian Activated ____ 1, 5,
 11, 29, 102, 122, 123, 176, 177
 Cyclist Push Buttons 102
 Transit_____1, 7, 8, 11, 47, 97, 98,
 115, 176, 177
 TransLink _____6, 20

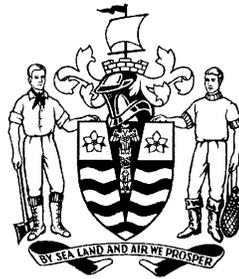
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Vancouver Area Cycling Coalition (VACC).....6
 Vancouver Bikeway Network Group (VBNG) 4,
 7
 Vancouver Police Department (VPD) ____ 13,
 16, 17, 59, 67, 69

**Appendix A: City of Vancouver Cycling Related By-laws
Street and Traffic By-law, as it Pertains to Cyclists**

CITY OF VANCOUVER

BRITISH COLUMBIA



STREET AND TRAFFIC BY-LAW

**This By-law is printed under and
by authority of the Council of
the City of Vancouver**

**(Consolidated for convenience only
to March 30, 1999)**

#11188v4

DRIVER MUST HAVE HAND ON STEERING DEVICE

41. No person shall drive a vehicle without having at least one hand on the steering device, and no person shall operate a bicycle without having at least one hand on the handle bars.

SLOW MOVING VEHICLES

59. The driver of every slow moving vehicle shall drive such vehicle as close as possible to the right hand edge or curb of any street unless it is impracticable to travel on such side. For the purpose of this section a bicycle shall be regarded at all times as a slow moving vehicle.

BICYCLES

60. No person shall ride any bicycle upon any sidewalk except where posted by signs.
- 60A. No person shall ride a bicycle upon a street while wearing headphones, or any other manufactured device capable of transmitting sound, over or in close proximity to both ears, except that this prohibition shall not apply to the wearing of a device designed and worn for the purpose of improving the wearer's ability to hear sounds emanating from outside of the device.
- 60B. No person shall ride a bicycle upon a street unless the bicycle is equipped with a bell capable of being used as a warning.
- 60C. The various paths and ways shown and described by either a thick black solid line or a thick black dashed line on the plans attached to this By-law as Schedule C are, pursuant to Section 124(1) of the *Motor Vehicle Act*, hereby designated for the purposes of sections 60D and 60E.
- 60D. No person shall operate or ride as a passenger on a bicycle on any path or way shown on Schedule C unless the person is properly wearing a bicycle safety helmet that has been designated under or complies with the standards and specifications of the *Motor Vehicle Act*.
- 60E. No parent or guardian of a person under the age of 16 years shall authorize or knowingly permit the person to operate or ride as a passenger on a bicycle on any path or way shown on Schedule C unless the person is properly wearing a bicycle safety helmet that has been designated under or complies with the standards and specifications of the *Motor Vehicle Act*.
- 60F. A police officer may arrest without warrant any bicyclist whom the officer finds committing a breach of any provision of this by-law if such person fails to stop and state his or her proper name and address when so requested by the police officer.

#11156v4

Parking By-law, as it Pertains to Cyclists

Section 2

Section 2 Definitions

Words used in this By-law shall have the meaning assigned to them by sections 2, 9 and 10.5 of the Zoning and Development By-law unless otherwise stated and except as provided below.

In this By-law, unless the context otherwise requires:

Bicycle Space means a space for the parking of one bicycle either outside or inside a structure;

Bicycle Space, Class A means a bicycle space primarily designed to provide long-term parking for employees or residents of the building;

Bicycle Space, Class B means a bicycle space primarily designed to provide short-term transient parking for persons who are not residents or employees of the building;

Co-op Housing means a non-profit, subsidized housing project operated by a co-operative association in accordance with the Co-operative Housing Program (1986 revision) administered by the Canada Mortgage and Housing Corporation;

Heritage Site means any site designated as a Provincial heritage site or a municipal heritage site under parts 2 and 3 respectively of the Heritage Conservation Act;

High-Branched Tree means any species of tree which at reasonable maturity and without severe pruning does not have branches lower than three metres from the ground;

Loading Space means a space for the loading or unloading of a vehicle either outside or inside a building or structure but does not include manoeuvring aisles and other areas providing access to the space;

Parking Area means an open area of land other than a street or lane, principally used or intended to be used to provide access to, and space for, the parking, loading or storage of motor vehicles, and which may include bicycle spaces, but does not mean an area providing no more than four parking spaces accessory to a residential use;

Parking Garage means a structure or a portion of a structure principally used or intended to be used to provide access to, and space for, the parking, loading, or storage of motor vehicles, and which may include bicycle spaces, but does not mean a structure providing no more than four parking spaces accessory to a residential use;

Parking Space means a space for the parking of one motor vehicle either outside or inside a building or structure, but does not include manoeuvring aisles and other areas providing access to the space;

Passenger Space means a space for the standing of a vehicle for the purpose of discharging or taking on passengers and includes **Class A and Class B passenger spaces**.

Passenger Space, Class A means a designated space, clear of any driving or manoeuvring aisles or means of emergency egress, for loading passengers to or from an automobile.

Passenger Space, Class B means a designated space, clear of any driving or manoeuvring aisles or means of emergency egress, for loading passengers to or from a custom transit vehicle.

Section 6 Off-street Bicycle Space Regulations

6.1 Number of Bicycle Spaces

6.1.1 General Requirements

In all districts, the number of spaces required for the off-street parking of bicycles shall be calculated according to section 6.2.

6.1.2 Bicycle Space Requirement Exemptions

The required number of off-street bicycle spaces need not be provided where any additions, alterations or changes of use to a building existing on October 17, 1995 would, in total, result in an increase of less than 10 percent of the number of spaces required before the additions, alterations or change in use.

6.1.3 Uses Not Listed

If a use is not listed in the tables, the number of bicycle spaces shall be calculated on the basis of a similar use as determined by the Director of Planning.

6.1.4 Multiple-Use Developments

For the purposes of this section uses with the same formula for determining required bicycle spaces shall be considered to be of the same class. If a development contains parking for more than one use as listed in section 6.2, the total number of bicycle spaces shall be the sum of the bicycle spaces required for the various classes of uses calculated separately and, unless otherwise permitted by the Director of Planning, in consultation with the City Engineer, taking into account the time-varying demand of uses, a bicycle space required for one use shall be deemed not to meet the requirement for any other use in that development.

6.1.5 Floor Area Calculation

Where gross floor area is used to calculate the number of required bicycle spaces, it shall be calculated in the same manner as the floor space ratio of the applicable district schedule or official development plan.

6.1.6 Rounding of Fractional Numbers

Where the calculation of total required bicycle spaces results in a fractional number, the nearest whole number shall be taken, unless specified otherwise in section 6.2. A fraction of one-half shall be rounded up to the next whole number.

6.2 Table or Number of Required Off-Street Bicycle Spaces

Bicycle spaces shall be required for any buildings classified in column 1 in accordance with the corresponding standards listed in column 2.

Section 6

	Column 1 Building Classification	Column 2 Required Bicycle Spaces	
		Class A	Class B
6.2.1	Dwelling		
6.2.1.1	Dwelling Uses, except as provided for in sections 6.2.1.2, 6.2.1.3 and 6.2.1.4.	No Requirement.	No Requirement.
6.2.1.2	Multiple Dwelling, Infill Multiple Dwelling, or three or more dwelling units in conjunction with another use, except as provided for in sections 6.2.1.3 and 6.2.1.4.	A minimum of 1.25 spaces for every dwelling unit.	A minimum of 6 spaces for any development containing a minimum of 20 dwelling units.
6.2.1.3	Multiple Dwelling or three or more dwelling units in conjunction with another use located within the area bounded by Cypress Street, W. 49th Avenue, Larch Street and W. 37th Avenue, except as provided for in section 6.2.1.4; Dwelling Units with a gross floor area less than 37 square metres, except as provided for in section 6.2.1.4; Residential Unit associated with and forming an integral part of any artist studio.	A minimum of 0.75 space for every dwelling unit.	A minimum of 6 spaces for any development containing a minimum of 20 dwelling units.
6.2.1.4	Three or more dwelling units designated solely for senior citizens' housing under the provisions of the National Housing Act or the Housing Construction (Elderly Citizens) Act, or similar use.	A minimum of 0.25 space for every dwelling unit.	A minimum of 6 spaces for any development containing a minimum of 20 dwelling units.
6.2.2	Institutional		
6.2.2.1	Special Needs Residential Facility - Community Care Class B; Special Needs Residential Facility - Group Living; Detoxification Centre.	A minimum of 1 space for every 100 beds.	No requirement.
6.2.2.2	Hospital or other similar use.	A minimum of 1 space for every 25 employees on a maximum work shift.	A minimum of 6 spaces at each public entrance.

Section 6

	Column 1 Building Classification	Column 2 Required Bicycle Spaces	
		Class A	Class B
6.2.2.3	School - Elementary or Secondary; School - University or College	A minimum of 1 space for every 25 employees and for secondary schools, universities or colleges, 0.4 space for every 10 students on a maximum attendance period.	A minimum of 0.6 space for every 10 students on a maximum attendance period except that elementary schools shall provide a minimum of 1 space for every 20 students.
6.2.2.4	Church, chapel, place of worship, or similar place of assembly.	No requirement.	A minimum of 6 spaces.
6.2.2.5	Ambulance Station; Child Day Care Facility; Social Service Centre; Special Needs Residential Facility - Community Care Class A; Special Needs Residential Facility - Congregate Housing.	No requirement.	No requirement.
6.2.3	Cultural & Recreational		
6.2.3.1	Community centre, hall, club, activity centre or similar place of assembly; Casino - Class 1; Library, gallery, museum or aquarium.	A minimum of 1 space for each 500 square metres of floor area used for assembly purposes.	A minimum of 6 spaces for any portion of each 1,500 square metres of floor area used for assembly purposes.
6.2.3.2	Theatre, auditorium, stadium, arena, or similar place with spectator facilities.	No requirement.	A minimum of 6 spaces for any portion of each 300 person seating capacity.
6.2.3.3	Fitness centre.	A minimum of 1 space for each 250 square metres of gross floor area.	A minimum of 6 spaces for any portion of each 500 square metres of gross floor area.
6.2.3.4	Billiard hall; Arcade; Bowling Alley; Curling Rink.	No requirement.	A minimum of 6 spaces for any portion of each 40 tables, games, alleys or ice sheets.
6.2.3.5	Artist Studio, without residential component. (See section 6.2.1.3 for requirement for Residential Unit associated with and forming an integral part of an artist studio.	No requirement.	No requirement.

Section 6

	Column 1 Building Classification	Column 2 Required Bicycle Spaces	
		Class A	Class B
6.2.4	Office		
6.2.4.1	Office Uses	A minimum of 1 space for each 750 square metres of gross floor area.	A minimum of 6 spaces for any development containing a minimum of 2,000 square metres of gross floor area.
6.2.5	Retail & Service		
6.2.5.1	Retail and Service Uses, except as provided for in sections 6.2.5.2 and 6.2.5.3.	A minimum of 1 space for each 750 square metres of gross floor area.	A minimum of 6 spaces for any development containing a minimum of 1,000 square metres of gross floor area.
6.2.5.2	Hotel.	A minimum of 1 space for every 30 dwelling, housekeeping or sleeping units, or any combination thereof.	A minimum of 6 spaces for any development containing a minimum of 75 dwelling, housekeeping or sleeping units, or any combination thereof.
6.2.5.3	Bed & Breakfast Accommodation; Funeral Home.	No requirement.	No requirement.
6.2.6	Manufacturing, Transportation & Storage, Utility & Communication Uses, Wholesale		
6.2.6.1	Manufacturing Uses; Transportation and Storage uses; Utility and Communication Uses; Wholesale Uses.	A minimum of 1 space for each 1,000 square metres of gross floor area in the building or 1 space for every 25 employees on a maximum work shift, whichever is the greater.	No requirement.
6.2.7	Parking		
6.2.7.1	Parking Uses.	As determined by the Director of Planning in consultation with the City Engineer.	As determined by the Director of Planning in consultation with the City Engineer.
6.2.8	Agricultural		
6.2.8.1	Agricultural Uses.	No requirement.	No requirement.

Section 6

6.3 Class A Bicycle Spaces**6.3.1 Application**

The requirements of this section 6.3 apply where Class A bicycle spaces are required, and Class A bicycle spaces shall be in compliance with section 6.3.

6.3.2 Bicycle Room Requirement

All required Class A bicycle spaces shall be provided in a separate bicycle room located within a building, except that

- (a) the spaces can be in a building which provides parking for motor vehicles for one particular residential unit only, instead of in a bicycle room, or
- (b) the spaces can be provided in a building in a chain-link compound which complies with sections 6.3.14, 6.3.15, and 6.3.16 instead of in a bicycle room, or
- (c) the spaces can be provided in a building or private parking area in numbered bicycle lockers which comply with sections 6.3.17, 6.3.18 and 6.3.19 instead of in a bicycle room.

6.3.3 Bicycle Room Security

The bicycle room shall have solid opaque walls. All of the interior of the bicycle room shall be visible from the entry door. A motion-activated security light enclosed in a tamper-proof housing shall be provided in each room.

6.3.4 Bicycle Room Doors

Entry doors to the bicycle room shall be a minimum of 75 centimetres in width. Both door and frame shall be constructed of steel. The door shall be hinged on the inside unless hinges are tamper-proof, and shall have a security window constructed of a laminate of tempered glass and polycarbonate in a steel frame for permanent visual access. The entry door shall have a separate lock and key or programmed entry system.

6.3.5 Bicycle Room Size

The bicycle room shall be designed to accommodate a maximum of 40 bicycles, except that this number can be increased to 120 if the room is compartmentalized using industrial-grade chain-link fence (see 6.3.14) with lockable industrial-grade chain-link doors into enclosures containing a maximum of 40 bicycles.

6.3.6 Bicycle Room, Compound, or Locker Access

The bicycle room, compound, or lockers shall be located no lower than the first complete parking level below grade and shall have direct access to outside, except that a location more than one level below grade may be permitted where an elevator is supplied offering direct access to outside. There shall be no stairs on the access route, except that the Director of Planning may allow stairs provided a wheel ramp of a minimum width of 150 millimetres is provided without cutting into the stair tread.

6.3.7 Bicycle Room, Compound, or Locker Lighting

Lighting in the bicycle room, compound, or locker area shall provide vertical illumination at floor level of a minimum level of 160 lux, with true colour and a uniformity ratio of at most 3:1.

Section 6**6.3.8 Bicycle Room, Compound, or Locker Supervision**

The entry door to a bicycle room or bicycle compound, or bicycle lockers, shall be within sight of building or parking security, where such exists, an elevator, or an entrance.

6.3.9 Bicycle Space Size

All required Class A bicycle spaces shall have a minimum vertical clearance of 1.9 metres, shall be a minimum of 0.6 metre in width and shall be

- (a) a minimum of 1.8 metre in length if the bicycles are to be placed horizontally; or
- (b) a minimum of 1.0 metre in length if the bicycles are to be placed vertically.

6.3.10 Bicycle Space Access

All required Class A bicycle spaces shall be independently accessible by means of an aisle of a minimum width of 1.2 metres, except that the Director of Planning, in consultation with the City Engineer, may permit a lesser width, to an absolute minimum of 0.9 metre, where the bicycle spaces served are provided more than the minimum required width. All access shall have a minimum vertical clearance of 1.9 metres.

6.3.11 Bicycle Rack and Bicycle Locker Requirement

All required Class A bicycle spaces shall require a bicycle rack with individually numbered spaces or a numbered bicycle locker.

6.3.12 Bicycle Rack Design and Security

Class A bicycle space racks shall be constructed of sturdy theft-resistant material and shall have secure theft-resistant anchoring to the floor or ground. The bicycle rack shall support the bicycle frame above the centre of gravity and shall enable the bicycle frame and front wheel to be locked with a U-style lock.

6.3.13 Horizontal and Vertical Bicycle Spaces

A minimum of 50 percent of the required Class A bicycle spaces shall provide for the bicycles to be placed horizontally on the floor or ground. Vertical bicycle space racks shall support the bicycle without the bicycle being suspended on the wheels.

6.3.14 Bicycle Compound Security

The bicycle compound shall extend from floor to ceiling, and have industrial-grade chain-link walls and door with a non-reflective coating. The walls and door shall be reinforced by full-height solid steel bars 13 millimetres minimum diameter or square section, spaced no more than 150 millimetres apart, and welded one to another by at least two crossbars no more than 1,200 millimetres apart, or constructed to provide equivalent or greater security. Supports shall be attached to floor and ceiling with tamper-proof or concealed boltheads or nuts. Industrial grade chain-link shall be No. 7 gauge or heavier.

6.3.15 Bicycle Compound Doors

Entry doors to the bicycle compound shall comply with section 6.3.4., except that no window is required, and the door may be constructed of reinforced chain-link as per section 6.3.14. The lockset or programmable entry shall be placed in a steel plate box welded to the door structure. The

Section 6

supporting post shall be detailed to receive the striker plate. The doorway shall be detailed to prevent access to the latch from lockside with boltcutters.

6.3.16 Bicycle Compound Size

The bicycle compound shall be designed to accommodate a maximum of 40 bicycles.

6.3.17 Bicycle Locker Location

Bicycle lockers shall be located in a private parking area, parking garage, bicycle room, bicycle compound, or as provided for in section 6.3.2.(a).

6.3.18 Bicycle Locker Design and Security

Bicycle lockers shall be constructed of solid, opaque, and theft-resistant material with a lockable door which opens to the full width and height of the locker. Bicycle locker edges shall be secured with no exposed fittings or connectors. Bicycle lockers shall be weather-proof if located where exposed to the elements.

6.3.19 Bicycle Locker Size

The minimum inside dimensions of a bicycle locker shall be

- (a) 0.6 metre in width at the door end,
- (b) 0.2 metre in width at the end opposite to the door,
- (c) 1.8 metres in length, and
- (d) 1.2 metres in height.

6.4 Class B Bicycle Spaces

6.4.1 Application

The regulations of this section 6.4 apply where Class B bicycle spaces are required, and Class B bicycle spaces shall be in compliance with section 6.4.

6.4.2 Bicycle Rack Requirement and Space Size

All required Class B bicycle spaces shall be provided in racks which provide a minimum width of 0.3 metre for each bicycle, except as provided for in section 6.4.6.

6.4.3 Bicycle Space Access

All required Class B bicycle spaces shall be independently accessible by means of an aisle with a minimum width of 1.2 metres which is separate from pedestrian access. There shall be unrestricted access behind the space of a minimum length of 0.5 metre.

6.4.4 Bicycle Rack Design and Security

Class B bicycle space racks shall be constructed of sturdy theft-resistant material and shall have secure theft-resistant anchoring to the floor or ground. The bicycle rack shall support the bicycle frame above the centre of gravity and shall enable the bicycle frame and front wheel to be locked to the rack with a U-style lock.

Section 6

6.4.5 Bicycle Rack Location

Class B bicycle space racks shall be provided in a convenient, well-lit location that provides visual surveillance by occupants of the building the racks are intended to serve. If the racks are not readily visible to visitors to a site, directional signage to the racks shall be provided.

6.4.6 Bicycle Lockers

Bicycle lockers can be provided for required Class B bicycle spaces instead of bicycle racks, provided the lockers are numbered and are in compliance with sections 6.3.18 and 6.3.19.

6.5 Clothing Lockers

6.5.1 Where Class A bicycle spaces are required for a non-dwelling use, a minimum number of clothing lockers equal to 0.7 times the minimum number of required Class A spaces shall be provided for each sex, and shall be a minimum of 45 centimetres in depth, 30 centimetres in width and 90 centimetres in height.

[See Section 3.6.4.4 of the Building By-law for shower and other change facilities required when the number of required Class A bicycle spaces exceeds 3.]

Appendix B: Surveys

Realtor Survey

Engineering Services: City Hall, 453 West 12th Avenue, Vancouver, British Columbia, Canada V5Y 1V4, (604) 873-7323, Fax (604) 873-7200



City of Vancouver

General Manager
D.H. Rudberg, P.Eng.

Deputy City Engineer
B.D. MacGregor, P.Eng.

Transportation
I. Adam, P.Eng.

Water, Sewers & Yards
S.L. Plewes, P.Eng.

Assistant City Engineers

Streets
D.D. Brynildsen, P.Eng.

Electrical & Equipment Services
P.E. Judd, P.Eng.

Solid Waste & Information Services
B.J. Davies, P.Eng.

July 30, 1998

File No. 3654

Dear Realtor,

CITY OF VANCOUVER 1998 BIKEWAY REALTOR SURVEY

The City of Vancouver is reviewing cycling facilities in Vancouver. As part of this study, we would like your opinion of the effect of bike routes on property values. To assist us, please complete the enclosed questionnaire and return it in the self-addressed, postage paid, return envelope.

You have been selected at random to receive this questionnaire. If you are aware of other additional realtors who would like to complete this survey, please photocopy and pass a copy along to them.

If you complete your survey and return it before September 14th, 1998, you will be entered in a draw for prizes such as two tickets to an upcoming performance of *Chicago* at the Queen Elizabeth Theatre or golf at Queen Elizabeth Park.

Please return your completed survey in the attached, self-addressed, return envelope, or fax it to 871-6192. Surveys must be returned no later than **September 14th, 1998.**

Thank you for taking the time complete and return the survey. If you have any questions, please contact the Bicycle Hotline by phone (871-6070), fax (871-6192) or email (cycling@city.vancouver.bc.ca).

Yours truly,

Ian Adam, P.Eng.
Assistant City Engineer
Transportation Division

FPK/

PRINTED ON RECYCLED PAPER

Neighbourhood
Transportation
Branch



City of Vancouver
1998 Bikeway Realtor Survey

Give us your feedback on cycling in
Vancouver.
Please return before **September 14th, 1998**

1. In your opinion, are bicycle routes an amenity to the community around them?

Yes No

2. When you are trying to sell a home near or adjacent to a bicycle route, do you/would you use the route as a selling point?

Yes No

3. If a home is adjacent to a bicycle route, the route will (choose one):

Make the home easier to sell
 Make the home more difficult to sell
 Have no effect on the sale of the home
 Do not know

4. If a home is adjacent to a bicycle route, the route will (choose one):

Increase the selling price of the home
 Decrease the selling price of the home
 Have no effect on the selling price of the home
 Do not know

5. If a home is within a block of, but not adjacent to a bicycle route, the route will (choose one):

Make the home easier to sell
 Make the home more difficult to sell
 Have no effect on the sale of the home
 Do not know

6. If a home is within a block of, but not adjacent to a bicycle route, the route will (choose one):

Increase the selling price of the home
 Decrease the selling price of the home
 Have no effect on the selling price of the home
 Do not know

7. Please indicate your age group and gender:

5-15	<input type="checkbox"/>	45-54	<input type="checkbox"/>	
16-24	<input type="checkbox"/>	55-64	<input type="checkbox"/>	Male <input type="checkbox"/>
25-34	<input type="checkbox"/>	64-75	<input type="checkbox"/>	Female <input type="checkbox"/>
35-44	<input type="checkbox"/>	75+	<input type="checkbox"/>	

Thank you for taking the time to fill out this survey. To verify this survey and add your name to the draw for tickets for a performance of "Chicago" at the Queen Elizabeth Theatre or for golf at Queen Elizabeth Park, please include your name, address and phone number below.

To be eligible for the draw, surveys must be returned before **September 14, 1998**

(All information will remain CONFIDENTIAL).

Name: _____ Address: _____
 City: _____ Postal Code: _____
 Phone Number: _____

Return to: Neighbourhood Transportation Branch, 7th Floor, City Hall, 453 W. 12th Avenue, Vancouver, B.C.,
 V5Y 1V4, fax 871-6192

Please Return before September 14th, 1998

Cyclist Survey

Engineering Services: City Hall, 453 West 12th Avenue, Vancouver, British Columbia, Canada V5Y 1V4, (604) 873-7323, Fax (604) 873-7200



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Electrical & Equipment Services
P.E. Judd, P.Eng.

Solid Waste & Information Services
B.J. Davies, P.Eng.

July 30, 1998

File No. 5271-4

Dear Cyclist,

CITY OF VANCOUVER 1998 CYCLING SURVEY

The City of Vancouver is reviewing cycling facilities in Vancouver. As part of this study, we would like your opinion of the current state of cycling in Vancouver and the direction you would like the City to take. To assist us, please complete the enclosed questionnaire and return it in the self-addressed, postage paid, return envelope.

If you complete your survey and return it before September 14th, 1998, you will be entered in a draw for prizes such as two tickets to an upcoming performance of *Chicago* at the Queen Elizabeth Theatre or golf at Queen Elizabeth Park.

Please return your completed survey in the attached, self-addressed, return envelope, or fax it to 871-6192. Surveys must be returned no later than **September 14th, 1998**.

Thank you for taking the time complete and return the survey. If you have any questions, please contact the Bicycle Hotline by phone (871-6070), fax (871-6192) or email (cycling@city.vancouver.bc.ca).

Yours truly,

Ian Adam, P.Eng.
Assistant City Engineer
Transportation Division

FPK/

Neighbourhood
Transportation
Branch



City of Vancouver
1998 Cycling Survey

Give us your feedback on cycling in
Vancouver.
Please return before **September 14th, 1998**

1. How often do you use your bicycle for the following purposes?

	Daily (4-5 days per week)	Weekly (1-3 days per week)	Rarely (1-2 days per month)	Never
Commuting to Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commuting to School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal Trips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fitness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How often do you use the following bikeways?

	Daily	Weekly	Rarely	Never
BC Parkway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seaside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adanac	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cassiar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Off-Broadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ontario	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cypress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lakewood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S.W. Marine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Midtown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ridgeway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. What discourages you from cycling more often? What factors could increase the likelihood of your using a bicycle more often?

4a. When you arrive at your destination, what facilities are available for you to use? (i.e. bike racks, secured storage, showers, etc.)

4b. What facilities would you like to have available at your destination? (i.e. bike racks, secured storage, showers, etc.)

5. Generally, where do you cycle from, and where do you cycle to?

e.g. Vancouver (1st/Victoria) to UBC (16th/ Westbrook Mall)

6. Generally, what percentage of your cycling trips are the following distances (one way)?

_____ %	< 2 km
_____ %	2-5 km
_____ %	5-10 km
_____ %	10-30 km
_____ %	> 30 km
100%	Total

7. What types of bicycling facilities would you prefer? (Please rank in order of preference.)

On all streets (e.g. no special provisions) _____

On arterial streets with a wide, shared curb lane _____

Bike lanes on arterial streets (e.g. SW Marine) _____

Bikeways on side streets (e.g. Adanac, Ontario) _____

Separated bicycle paths (e.g. Seawall) _____

Other: _____

8a. What features or aspects of existing Bikeways (e.g. Adanac, Off-Broadway, etc.) do you like?

please turn over....

8b. What features or aspects of existing Bikeways do you dislike?

9. Vancouver's bicycle network has had (choose one):

- A large influence on how much I cycle
- Some influence on how much I cycle
- Little influence on how much I cycle
- No influence on how much I cycle

10. Are there any specific cycling problems or concerns along your preferred cycling routes?

11. Where would you like to see cycling routes in Vancouver? (Please mark choices on map below.)

12. Do you have a copy of the City's "Cycling in Vancouver" brochure or other cycling map?

- Yes
- No

13. When cycling, how often do you wear a helmet?

- Always
- Often
- Sometimes
- Rarely
- Never

14. Please indicate your age group and gender:

- 5-15
- 16-24
- 25-34
- 35-44
- 45-54
- 55-64
- 64-75
- 75+
- Male
- Female

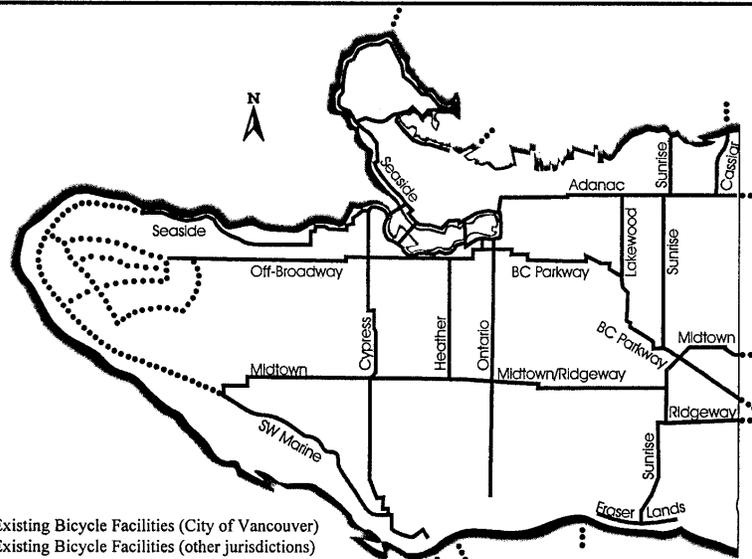
Thank you for taking the time to fill out this survey. Although optional, to verify this survey and add your name to the draw for tickets for a performance of "Chicago" at the Queen Elizabeth Theatre or for golf at Queen Elizabeth Park, please include your name, address and phone number below.

To be eligible for the draw, surveys must be returned before **September 14th, 1998**
(All information will remain CONFIDENTIAL).

Name: _____ Address: _____

City: _____ Postal Code: _____

Phone Number: _____



Return to: Neighbourhood Transportation Branch, 7th Floor, City Hall, 453 W. 12th Avenue, Vancouver, B.C., V5Y 1V4, fax 871-6192

Please Return before **September 14th, 1998**

CS1

Resident Survey

Engineering Services: City Hall, 453 West 12th Avenue, Vancouver, British Columbia, Canada V5Y 1V4, (604) 873-7323, Fax (604) 873-7200



City of Vancouver

General Manager
D.H. Rudberg, P.Eng.

Deputy City Engineer
B.D. MacGregor, P.Eng.

Transportation
I. Adam, P.Eng.

Water, Sewers & Yards
S.L. Plewes, P.Eng.

Assistant City Engineers

Streets
D.D. Brynildsen, P.Eng.

Electrical & Equipment Services
P.E. Judd, P.Eng.

Solid Waste & Information Services
B.J. Davies, P.Eng.

July 30, 1998

File No. 3654

Dear Resident,

CITY OF VANCOUVER 1998 BIKEWAY RESIDENT SURVEY

The City of Vancouver is reviewing cycling facilities in Vancouver. As part of this study, we would like your opinion of living along a bike route. To assist us, please complete the enclosed questionnaire and return it in the self-addressed, postage paid, return envelope.

If you complete your survey and return it before September 14th, 1998, you will be entered in a draw for prizes such as two tickets to an upcoming performance of *Chicago* at the Queen Elizabeth Theatre or golf at Queen Elizabeth Park.

Please return your completed survey in the attached, self-addressed, return envelope, or fax it to 871-6192. Surveys must be returned no later than **September 14th, 1998**.

Thank you for taking the time complete and return the survey. If you have any questions, please contact the Bicycle Hotline by phone (871-6070), fax (871-6192) or email (cycling@city.vancouver.bc.ca).

Yours truly,

Ian Adam, P.Eng.
Assistant City Engineer
Transportation Division

FPK/

PRINTED ON RECYCLED PAPER

Neighbourhood
Transportation
Branch



City of Vancouver
1998 Bikeway Resident Survey

Give us your feedback on cycling in
Vancouver.
Please return before **September 14th, 1998**

1. Which bicycle route do you live along?

- | | | | |
|--------------|--------------------------|-----------|--------------------------|
| BC Parkway | <input type="checkbox"/> | Heather | <input type="checkbox"/> |
| Seaside | <input type="checkbox"/> | Lakewood | <input type="checkbox"/> |
| Adanac | <input type="checkbox"/> | SW Marine | <input type="checkbox"/> |
| Cassiar | <input type="checkbox"/> | Midtown | <input type="checkbox"/> |
| Off-Broadway | <input type="checkbox"/> | Ridgeway | <input type="checkbox"/> |
| Ontario | <input type="checkbox"/> | Unsure | <input type="checkbox"/> |
| Cypress | <input type="checkbox"/> | | |

cycle to?

e.g. Vancouver (1st/Victoria) to UBC (16th/Westbrook Mall)

2. Would you say that you are an active cyclist?

- Yes No

3. How often do you use your bicycle for the following purposes?

- | | Daily
(4-5 days
per week) | Weekly
(1-3 days
per week) | Rarely
(1-2 days
per month) | Never |
|---------------------|---------------------------------|----------------------------------|-----------------------------------|--------------------------|
| Commuting to Work | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Commuting to School | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Personal Trips | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fitness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

7. Generally, what percentage of your cycling trips are the following distances (one way)?

- | | |
|---------|----------|
| _____ % | < 2 km |
| _____ % | 2-5 km |
| _____ % | 5-10 km |
| _____ % | 10-30 km |
| _____ % | > 30 km |
| 100% | Total |

4. How often do you use the following bikeways?

- | | Daily | Weekly | Rarely | Never |
|--------------|--------------------------|--------------------------|--------------------------|--------------------------|
| BC Parkway | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Seaside | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Adanac | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cassiar | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Off-Broadway | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ontario | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cypress | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Heather | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lakewood | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| S.W. Marine | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Midtown | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ridgeway | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

8. Vancouver's bicycle network has had (choose one):

- A large influence on how much I cycle
 Some influence on how much I cycle
 Little influence on how much I cycle
 No influence on how much I cycle

5. What discourages you from cycling more often?
What factors could increase the likelihood of your using a bicycle more often?

9. Living along the bikeway has had (choose one):

- A large influence on how much I cycle
 Some influence on how much I cycle
 Little influence on how much I cycle
 No influence on how much I cycle

10. If you were to sell your home today, do you think that being on a bike route would (choose one):

- Increase the selling price of your home
 Decrease the selling price of your home
 Have no effect on the selling price of your home
 Do not know

11. If you were to sell your home today, do you think that being on a bike route would (choose one):

- Make the home easier to sell
 Make the home more difficult to sell
 Have no effect on the sale of the home
 Do not know

6. Generally, where do you cycle from, and where do you

Please turn over...

12. What type of home do you live in? (choose one):

- Single family home
- Duplex
- Townhouse
- Condominium
- Apartment
- Other: _____

13. How do you feel about living along a bicycle route?
What, if any, would you say are the positive and negative aspects of living along a bicycle route?

14. Do you have any specific comments about any of the traffic measures installed as part of the bikeway?

15. Since your street has become a bikeway, would you say that the liveability of your street has:

- Increased a lot
- Increased somewhat
- Not changed

- Decreased somewhat
- Decreased a lot

16. Since your street has become a bikeway, would you say that the number of bicycles has:

- Increased a lot
- Increased somewhat
- Not changed
- Decreased somewhat
- Decreased a lot

17. Since your street has become a bikeway, would you say that the number of automobiles has:

- Increased a lot
- Increased somewhat
- Not changed
- Decreased somewhat
- Decreased a lot

18. Do you have a copy of the City's "Cycling in Vancouver" brochure or other cycling map?

- Yes
- No

19. When cycling, how often do you wear a helmet?

- Always
- Often
- Sometimes
- Rarely
- Never

20. Please indicate your age group and gender:

- 5-15
- 16-24
- 25-34
- 35-44
- 45-54
- 55-64
- 64-75
- 75+
- Male
- Female

Thank you for taking the time to fill out this survey. To verify this survey and add your name to the draw for tickets for a performance of "Chicago" at the Queen Elizabeth Theatre or for golf at Queen Elizabeth Park, please include your name, address and phone number below.

To be eligible for the draw, surveys must be returned before **September 14th, 1998**
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Name: _____ Address: _____
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Return to: Neighbourhood Transportation Branch, 7th Floor, City Hall, 453 W. 12th Avenue, Vancouver, B.C., V5Y 1V4, fax 871-6192

Please Return before **September 14th, 1998**

Res

Appendix C: Open House Comments

- Comment:** Really good path under new sky train over passes as part of sky train guide way. Between False Creek crossings - pedestrian/cyclist bridge over False Creek under Granville Bridge. Bike lanes on Cornwall. Make 10th Avenue a bikeway. Bike lanes downtown now!! Finish seawall. Widen sidewalk on Georgia Viaduct.
- Comment:** Pender Street bike lane needs to be done. Thoughtful comments about car stuff using/coming from bike lane money. Speed limits on a bike lane should reflect bikes not cars. Speeding bikes and speeding cars should both receive speeding tickets but speeding cyclists won't cause the same damage to others that speeding cars will. Speed bumps are something I want more of as a car driver and a cyclist. No one wants speeding cars. Great session.
- Comment:** Great stuff Forrest. Keep up the great work. Allocation of money: when can we begin to see money moved from items like left turn bays to bike lanes? Public support is high for bike lanes-let's move faster. Granville is a better choice for a ?? style treatment than Burrard in my opinion. You should prepare an emergency communications plan to deal with the contingency of a cyclist being injured or killed right after a major bike lane is implemented in case the forces of evil start to raise a stink. Better bikeways, more (any) bike lanes.
- Comment:** A brick wall separating the sidewalk from the traffic would be nice on Cambie Bridge.
- Comment:** Great presentation Forrest - you go guy! My # 1 concern is automobile traffic. There is a desperate need for bike lanes downtown (Burrard and Georgia are my preference) and also a need to get cars off the bike routes. In many areas there is nothing to discourage cars. Heather is terrible and so is off-Broadway especially between Cypress and Oak Street. The City should set an acceptable number of cars on the bike routes and when that number is exceeded (say 25% per hour) measures should be taken to reduce it. The City should develop car-free areas. For example, a real greenway downtown i.e.) A street in the west end with no car traffic and no car traffic in the south east False Creek sustainable community.
- Comment:** Speed bumps on bikeways. Please avoid putting on hills as Adanac Perhaps leave a slot in the bump wide enough for a bike to avoid the bump. I would like to see improved on/off access to the east side sidewalk on Cambie Bridge, right now there is only one on/off access point to the sidewalk - please just cut a few sections in the concrete sidewalk/road barrier. Cornwall/Point Grey bikeway is a must! I know this is a tough one but this would really improve rider ship numbers. The Cornwall/Macdonald intersection has been made worse since the westbound left turn lane was marked forcing the rest of the west bound traffic into the narrow right lane along with bikes. Third Ave - get rid of all those stupid stop signs at every other block. This was made a pseudo bike route and then a few months later the stop signs messed the street. However, this route is just a poor excuse for inaction on the Cornwall/Point Grey route. Develop a decent downtown network! Enough of the rants, thanks for everything you have done to improve cycling in the city!
- Comment:** Completion of existing bike routes i.e. refuge islands on wide arterials intersecting with bike routes. Cornwall Ave is a missing link between West End and Jericho/Spanish Banks. Seaside route doesn't work as recreational cyclists will not travel uphill at Kits to cycle down 4 blocks later! Kent Ave is not linked to Ontario. Marine Drive is a terrible place to cross.
- Comment:** I am glad that the City continues to examine ways to improve cycling conditions in Vancouver. Meetings like this one are heartening. The experience of actually cycling continues to be harrowing, degrading and very dangerous. (I live downtown). I would just ask that the City aim for on-road improvements downtown SOONER rather than later. Traffic and motorist aggression downtown seems to be worsening daily. Cyclists and pedestrians are no longer a "narrow interest group" downtown and the City needs to put teeth to protecting our right to get around safely in our own neighbourhoods. Thank you for continuing this dialogue, I look forward to safer streets for everyone!
- Comment:** It seems to be to be SAD and PATHETIC that this is one of the most BEAUTIFUL cities in the world and yet there are almost no streets (putting aside the recreational routes, the Sea Wall and the suburban cul-de-sacs) where it is safe for children to ride a bicycle. A gentleman tonight said this was an issue that only concerned a small interest group. IT IS NOT. The major urban planning issue for the next century will be

reducing suburban sprawl and re-invigorating and designing the urban core. If this is to happen, it is essential to encourage families into the central city (downtown and central suburbs). This cannot happen without the kind of traffic calming that makes the streets safe for kids, pedestrians and bicycles.

Comment: I would like or it would be good to see the Pender bicycle lane happen. It would provide a good connection to Adanac which I use regularly. I would also like to see the existing BC Parkway improved as it seems to have signage and crossing problems. I enjoy using Ontario bike route (it seems to work well).

Comment: Bike networks is very good and definitely a success downtown. However, some comments for improvement. The bike network must be connected downtown. The Pender Street initiatives are very good but must be part of a whole plan. There is still too much "cheater" motorist traffic on the existing bikeways. More "definite" implementation and more enforcement is required. Thank you.

Comment: The bikeways are great; I use them but they are a baby step. We need to have much more of the transportation infrastructure in Vancouver reallocated to cycling. There are a very large number of people who say they would cycle if the infrastructure for cycling existed. The explosion in the car traffic situation is a crisis situation in Vancouver and must be addressed forthwith in a forthright manner. Cycling provides a solution to the traffic problem that is negatively affecting the quality of life in Vancouver. At the moment cycling in Vancouver is a dangerous prospect. Cyclists are not protected from the dangerous amount and type of traffic. Parked cars are given a higher priority than cyclists. Safety and progress. This is quite ridiculous.

Comment: It is encouraging to see that the bicycle program has made a lot of progress in just the last few years. Even more encouraging is the number of bicycle commuters I saw along the Adanac route in the 20 minutes of cycling on my way to this meeting. Keep up the good work. We are counting on you.

Comment: Thank you. Semi-actuated signals and pavement markings are very much appreciated. The bikeway routes as designed thus far you can stop now. NO thanks for: Bike lanes anywhere and especially in the downtown core. They are not necessary for cyclist commuters. The last thing we need is restriction on our movement that is mandated by pavement markings. What is needed is more space in right-hand lanes and restriction of motorized traffic by removing car lanes, encouragement of LRT, bus use. The cement blocks in the middle of Arbutus and Macdonald as you cross 7th Ave. I will send more comments on E-mail. Thanks in general also for bicycle parking facilities. NEEDS 1) more bike parking 2) continued public encouragement activities 3) cyclist and motorist education about vehicular cycling.

Comment: Although Vancouver has taken many steps toward improved cycling there still seems to be too much attention given to not disrupting the status quo. If the priorities in transportation are pedestrian, bike, transit, car then more aggressive action should be taken to make pedestrian, bike projects a reality. I have heard too many time its just a matter of time - 10 years is time enough; the policy is there implementation needs to be stepped up. Thank you for your continued efforts.

Comment: I greatly appreciate the presentation this evening. Given what the city has to work with, they have done an adequate job up to this point. I am extremely encouraged by the various proposals, especially Pender Street and Greenway project. I would like to see more done with traffic control on bikeways, especially motorists who use bikeways as shortcuts. At times I feel this situation makes it safer to ride on a main street.

Comment: You guys are doing a great job. With the meeting being held downtown, obviously there's going to be an audience emphasis on downtown. We do also need a better network and connections to east and south of here.

Comment: BIKELANES DOWNTOWN NOW! Then, calm traffic on the bikeways - especially off-Broadway.

Comment: Objections to bikes on existing SkyTrain seem groundless! 1st Ave overpass to Clark is very dangerous. Cornwall route links through Seawall at Granville Island, False Creek - 6th or 1st Ave East. Good meeting.

Comment: I would like to see a connection between the seaside route and the east end of Robson St. via the north pedestrian-bike ramp off the Cambie Street Bridge. The two are separated by only 100 metres of stairways. (Along BC Place stadium) This access to the downtown core along Robson Street is ideal for

commuters using Cambie Street and Seaside route which connects to Adanac. (See map on comments sheet).

Comment: The city year after year comes out with fairly similar public opinion surveys regarding transportation. Cyclist have always said they want bike lanes downtown. Why is the city continually stalling. Start building the lanes and give your PR team a break.

Comment: Encouraging!! Will need to continue providing well connected bike lanes. Push buttons and signals are great and accessible. Bike lanes with traffic to be encouraged as well as specific greenways and limited car access routes. Need more public information awareness on bike routes. Bike route maps are great and wonderful!! Speed bumps and traffic calming structures help. Increase bicycle-parking spaces. Encourage business to have bike facilities to park. Increase downtown core bike route access, but still maintain some percentage of resources for promotion and transit access.

Comment: Pender St bike lane is a high priority. Downtown Vancouver routes (bike lanes) are a priority. The seaside bike route from Jericho to Kits doesn't necessarily accommodate users - Cornwall is still used and needs to be improved. Review existing routes and correct problems e.g. off Broadway. Distribute Bike maps at all libraries, rec. centres, large work places, (GGCs) perhaps on buses. Encourage bike racks on city boulevard for short-term parking. In the report highlight that \$ for construction of city routes and roads comes from property taxes included in rents.

Comment: Good presentation. Looking forward to seeing the report. I like the comprehensiveness of your approach. It doesn't make sense to put a system together piece meal. Incremental, yes, but you need to keep the whole package in view.

Comment: That the city do a test to check if the wind tunnel idea is a possibility. That the speed limit is adjusted to 30km/ph on residential streets. That speed humps be installed. That car traffic be one way downhill on the bikeways.

Comment: Great job with the survey. Some priorities to pursue please! 1) Shorter light activated pedestrian/cyclists signal lights 2) bike racks in front of businesses 3) reduce speeds on bikeways 4) bike lanes downtown.

Comment: - Thanks - Great!

Comment: Street name signs with bicycle on them should have the bicycles better highlighted. For example on a green sign with white letters have the bicycle in black on a yellow square.

Comment: Good job on bikeway program. Include statistics of % of cyclists. Put future emphasis on downtown routes. You will never spend enough on the bikeway program.

Comment: Signage is very important! Cambie Street bridge southbound has terrible signage. Also, the positioning of signs - example: sign for off-Broadway on Cypress is after the bike route intersection. Why not before? So you see it before you pass it. Is there a bylaw to prohibit blowing leaves etc. onto the roadway. This is a safety concern. Coordinate bike lanes with traffic restrictions - ex. From Burrard Street Bridge southbound to Cypress there is no left turn for cars but cyclists need to turn left there. Signage to tell cyclists how to turn left there. Short term \$100 -downtown network - 60% other routes - 20% Education/promotion - 20%. Great work, now I hope we see these needs addressed in the very near future!

Comment: Post no biking signs on Granville Street bridge sidewalks and Georgia Viaduct sidewalks.