Realizing the Benefits of Accelerated Investment in Cycling

Climate Change **Healthy Communities** **Economic Growth**

Submission to the Province of British Columbia

British Columbia Cycling Coalition
bccc.bc.ca

January 21, 2011

BRITISH COLUMBIA CYCLING COALITION
Cycling Advocates

About the BCCC

The British Columbia Cycling Coalition (BCCC) represents the interests of cyclists provincially and works to secure their recognition in policy and programs affecting transportational cycling.

The BCCC's member organizations represent thousands of cyclists across BC:

- Vancouver Area Cycling Coalition with local committees in Surrey, White Rock, the Tri-cities, the North Shore, New Westminster, Maple Ridge, Pitt Meadows, Burnaby, and Vancouver
- Greater Victoria Cycling Coalition
- Greater Nanaimo Cycling Coalition
- Cross Canada Cycle Tour Society
- Kelowna and Area Cycling Coalition
- Juan de Fuca Cycling Coalition
- Abbotsford Cycling Action Group
- Comox Valley Cycling Coalition
- BC Randonneurs Cycling Club

The recommendations in this document are also supported by the Greater Langley Cycling Coalition.

Contact

Jim Alix
Director, British Columbia Cycling Coalition
City Square, P.O. Box 47104
15-555 West 12th Ave.
Vancouver BC V5Z 3X7
james.alix@gmail.com
778-678-7080

Table of Contents

1 Executive Summary

The British Columbia Cycling Coalition (BCCC) is proposing a dramatic acceleration of the investment in cycling infrastructure including bicycle paths, separated bicycle lanes and other high quality bicycle facilities. This investment in infrastructure, accompanied by funding for education, promotion, and end-of-trip facilities, will enable residents and visitors of all ages and abilities to safely and conveniently cycle throughout the province, fostering healthier individuals and communities.

Through these recommendations, cycling can become a practical transportation alternative for more people, leading to significantly reduced greenhouse gas emissions, congestion, health care costs, and cycling fatality rates.

Making BC the North American leader in cycling will bring many economic benefits. They include:

- Boosting tourism and the local retail economy
- Increased tax revenue and jobs from the bicycle industry
- Increased worker productivity due to higher levels of physical fitness
- Attracting the skilled professionals required to build the businesses of the future who value the benefits of a healthy environment and physical fitness.
- Increased expertise in planning high quality cycling facilities which can be exported around the world

Approximately 50% of Metro Vancouver residents cycle at least occasionally, while 85% support government funding, planning, and promoting of cycling. Support is likely similar in the rest of British Columbia

A large expenditure on cycling facilities is required to make up ground lost through several decades of under-investment . The Netherlands, widely hailed as the world leader in cycling, spends approximately $40 per person per year on cycling. Several other jurisdictions with cycling levels similar to that of BC are matching or exceeding that level of investment including Winnipeg, Portland, Oregon and Sydney, Australia.

Based on a funding level of $40 per person per year, the BCCC recommends the province invest $175 million per year in cycling facilities in communities and on provincial roads around British Columbia. Initially, we recommend a four-year commitment totalling $700 million. This commitment will give municipalities and other partners the financial certainty necessary to encourage them to increase their capital plan allocations for cycling and build upon Province's innovative cycling, healthy community, and active living initiatives, such as ActNow BC, Bike BC, LocalMotion, and LiveSmart BC.

No other transportation investment of similar size can boast the potential to be enjoyed by people of all ages, in communities large and small, throughout the province. High quality cycling facilities that are attractive to a significant portion of the population such as bicycle paths and separated bicycle lanes can cost from $1 million to $4 million per km. This four year investment will enable the construction of hundreds of kilometres of high quality facilities in communities around the province, giving the majority of British Columbians access to great bicycle routes. Currently, an estimated total $20 million a year is being spent in the province on cycling infrastructure. At this current pace of investment, completion of a comparable cycling network in the province will take decades.

Importantly, cycling facilities also benefit those who don't ride a bicycle. Multi-use paths are used by pedestrians, in-line skaters, electric wheelchairs, personal mobility scooters, and skateboards. Traffic calming along bicycle routes benefits neighbourhoods, making streets safer for all pedestrians. But it has particular benefit for seniors, children, and the disabled. Bike lanes along busy streets calm traffic, enhancing the pedestrian environment and creating a more welcoming retail atmosphere.

Building on the success of Spirit of 2010 Trails and the Trans Canada Trail, a network of cycling routes linking communities and attractions throughout the province will also offer visitors and residences wonderful cycle touring experiences. This dramatic increase in cycling tourism could have significant economic benefits to rural BC communities. One only has to look to Québec for the local economic benefits that can be realized.

British Columbians of all ages were inspired by Ryder Hesjedal's top ten performance in the Tour du France. Athletes in cycling and other sports require safe cycling facilities to train on. People training for charity fundraising rides and events like the Grand Fondo also require safe cycling facilities. Improving cycling routes will not only make the sport safer and more enjoyable, that peace of mind can encourage more people to participate in clubs, organized rides, and charitable events.

2 Recommendations

To realize the benefits of increased cycling, the BCCC recommends the following to the Province of British Columbia:

Budget Related Measures

Infrastructure

1. A four year investment of $175 million dollars per year totalling $700 million to fund bicycle paths, separated bike lanes and other high quality cycling facilities; in communities and on provincial roads throughout BC.
2. Provide guidance for funding levels for 2011-2014, so municipalities can include sufficient matching funds for cycling projects in their capital funds.
3. Provide flexibility in funding for municipalities. Consider funding up to 100% of projects to ensure the timely implementation of high quality facilities in smaller communities.
4. Ensure funding is available to purchase abandoned rail right-of-ways so they can be converted to cycling and walking trails.
5. Implement, or give municipalities and TransLink the authority to implement, funding measures encouraging bicycle use, such as the carbon tax, gas tax, road pricing, tolls on existing infrastructure, parking tax, vehicle levies, and congestion pricing.
6. Ensure TransLink has the financial resources to accelerate its investment in cycling.
7. Ensure budgets for all new and upgraded highway, bridge, and rapid transit projects include sufficient funds to include high-quality cycling facilities.

Education

8. Improve safety through funding for cycling skills and safety education for children and adults totalling $5 million per year.

Promotion

9. Encourage cycling through funding for marketing and promotion totalling $5 million per year.
10. Provide funding to review and update the Motor Vehicle Act and other relevant legislation to improve the safety of cyclists and provide clarity to all road users. The cost of such a review has been estimated to be around $10 million dollars.

Bike Sharing

11. Provide capital and operational funding for shared bicycle systems in communities around BC.

Maintenance

12. Increase maintenance budgets for off- and on-road cycling facilities to enable the prompt removal of debris, snow, and ice and to ensure facilities remain in good repair allowing safe all weather cycling.

Professional Development

13. Provide funding for professional development including conferences, workshops, and courses to ensure there is the expertise necessary to design safe high-quality cycling facilities.

Tax Incentives

14. Offer Provincial Government staff a cycling allowance when using their bicycle while conducting government business. Offer tax incentives for private firms and municipal governments to offer a similar allowance to their staff.
15. Establish a parking cash out law similar to that implemented in California[i] to ensure that cyclists, pedestrians, and transit riders receive an amount similar to any parking subsidy offered to those who commute by car.
16. Offer tax or other incentives to businesses that add secure bicycle parking, showers, and change rooms for their employees.

Access to Bicycles

17. Provide funding for initiatives that provide bicycles to people with low incomes.

3 Cycling is Popular

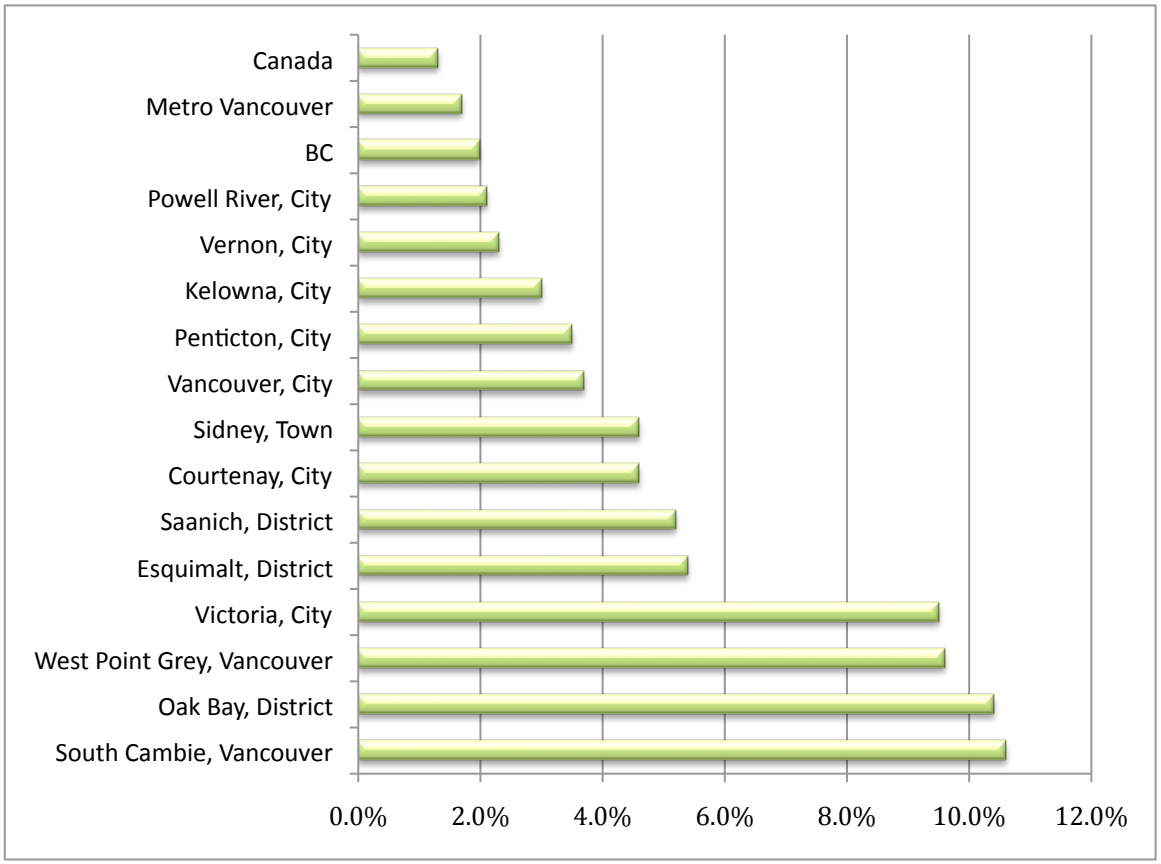
Cycling is a popular activity in British Columbia. In Metro Vancouver, for example, 61% of people own or have access to a bicycle, while almost half ride a bicycle[ii]

Table 1 - Cycling Frequency in Metro Vancouver

	% of Adults
Once a week or more (52+ times a year)	13%
Less than once a week but at least once a month (12 – 51 times per year)	12%
Less than once a month but at least once a year (1 – 11 times per year)	19%
Less than once a year	5%
Total	**49%**

While cycling levels in BC are significantly lower than in some other countries, in several communities in BC a significant number of people commute by bicycle.

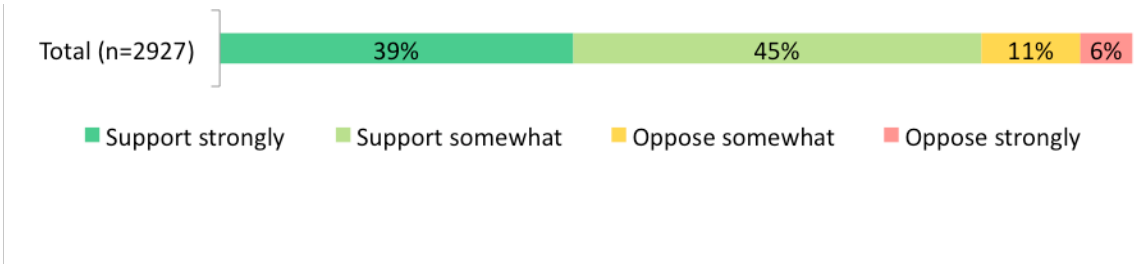
Figure 1 - Bicycle Commuting Mode Share



4 Support for Cycling Investment

As shown in the following figure, there is strong public desire for cycling improvements, with 84% of people supporting governments funding, planning, and promoting cycling.

Figure 2 - "Do you support or oppose TransLink and local municipal governments planning, funding, and promoting cycling as a way to get around Metro Vancouver?" (Base: TransLink Listens Panellists)[iii]



5 The Potential for Cycling in British Columbia

Participants in UBC's Cycling in Cities survey[1] indicated that routes separated from traffic would motivate them to cycle more. As there are such few routes in the province, dramatically increasing such routes should encourage more people to cycle more often.

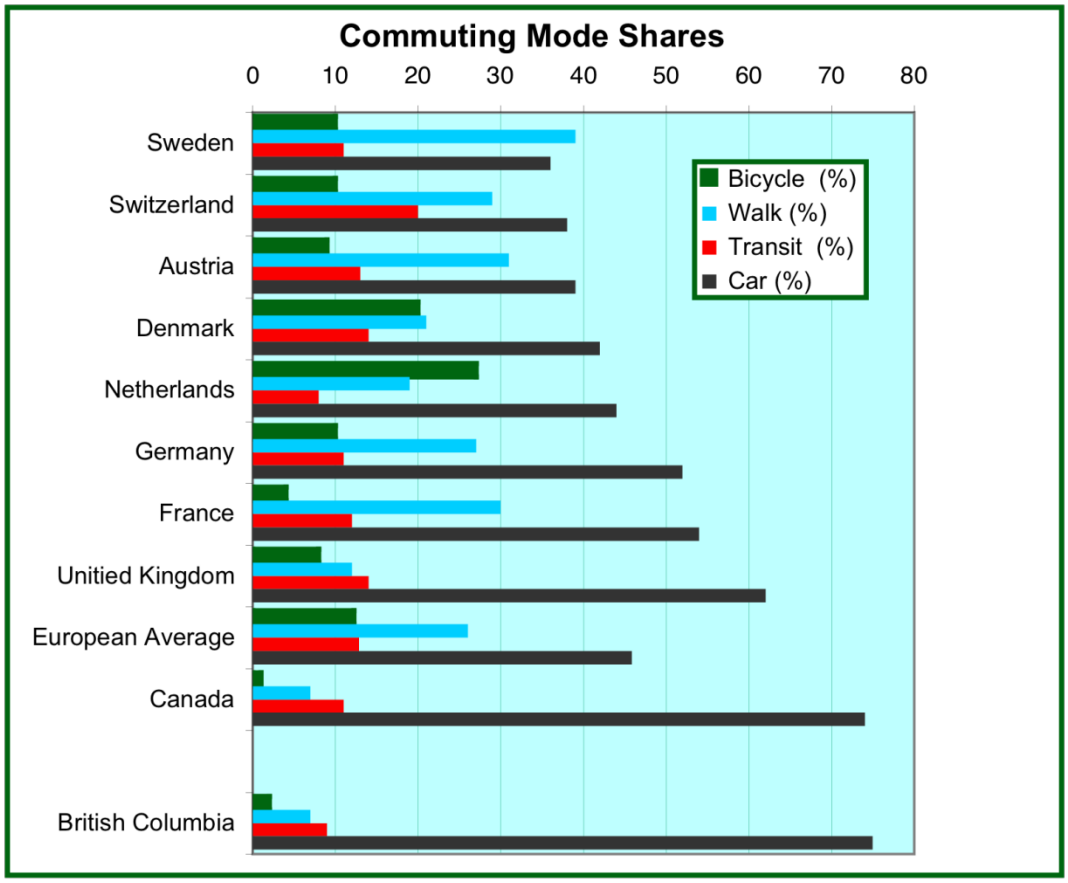
5.1 The Climate is Right

While wet and cold weather is an issue, many regions in Europe with climates similar to British Columbia, experience very high levels of cycling, as seen in the chart below. In fact, of all the provinces and states in North America, BC and the Yukon are tied for the highest levels of cycling. Despite popular misconceptions, cycling is also very popular in cities that have steep terrain. And with the growing popularity of electric-assist bicycles, overcoming hills is increasingly less of an issue for beginners or infrequent cyclists.

5.2 Cycling Elsewhere

The chart below illustrates the importance of cycling in providing people with an alternative to driving. Transit usage in British Columbia is only slightly below the European average. However, cycling in British Columbia is far below European levels. If cycling levels increased in BC to 10% of trips, automobile usage would decrease to near European levels.

[1] Cycling in Cities, http://www.cher.ubc.ca/cyclingincities/survey.html



6 The Benefits of Cycling

Cycling has many environmental, social, health and community benefits. The benefits of investing in cycling include:

- Cycling offers tremendous health benefits through exercise. Encouraging more people to cycle will significantly reduce the cost of health care.
- Reduced congestion
- Significant increases in cycling and thus reduction of GHG emissions can be realized by 2020
- Reduction in pollution and noise
- Improved traffic safety

The advantages of investing in cycling include:

- The funding required, while significantly greater than current levels, is modest compared to many other measures
- There are no technological barriers
- Many cycling facilities can also be used by pedestrians, in-line skaters, people in wheelchairs and scooters, cross-country skiers and snowshoers
- There is little, if any debate about the positive impacts of cycling
- Cycling is a proven solution in many other jurisdictions
- Leadership in championing a transportation solution that is practical for the majority of people in the world

The City of Sydney undertook a cost benefit analysis of their proposed investments in cycling. The benefits included congestion reduction, pollution reduction, reduced transportation costs, travel time reductions, reduced mortality, increased productivity and improved journey ambiance. The study concluded that "Relative to doing nothing, the development of the Inner Sydney Regional Bicycle Network is estimated to generate net economic benefits of $507 million in today's prices at a benefit cost ratio of 3.88."[iv]

Research from the UK indicates that each full time cyclists offers a benefit to society of approximately $2,000 to $5000 per year.[v]

6.1 Health Care

Encouraging more people to cycle will improve their health and significantly reduce health care costs. Exercise is a mitigating factor for a host of Illnesses like heart disease, stroke, lung disease, diabetes and some cancers and mental illnesses. More people cycling leads to improved health and reduced health care costs.

6.2 Healthy Communities

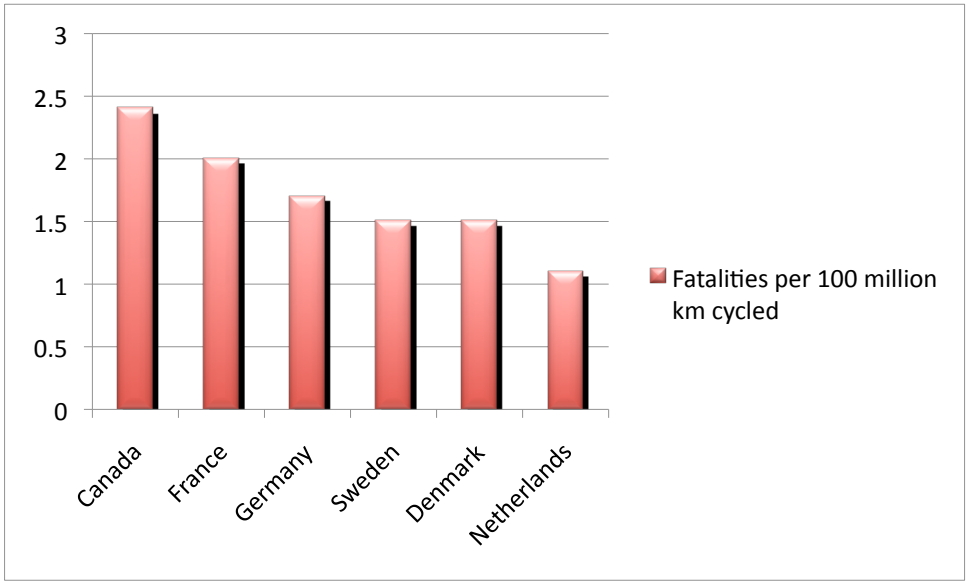
For low and medium density communities where the majority of trips are not of reasonable walking distance and frequent transit service is costly, cycling improvements can provide people with healthy transportation options in the near future.

6.3 Improved Safety

As detailed in the following figure, research strongly indicates that the safety of cyclists increases as facilities improve and the number of cyclists on roads increases. When

motorists expect cyclists on the road, they are more likely to drive carefully around them.

Figure 3 – Cycling Fatalities by Country[vi]



6.4 Climate Change

The accelerated completion of community bicycle networks will result in significant increases in the near-term realization of reductions in greenhouse gas emissions from now to 2020. More importantly, this accelerated completion will reduce automobile travel in the near future, when other efforts to reduce per kilometre emissions have yet to be fully realized.

6.5 Workplace Productivity

There are significant benefits to employers of having staff that are physically active. Employees who participate in physical activities report fewer days off due to illness (by 6-32%), lower turnover rates, lower healthcare costs (by 20-55%) and increased productivity (by 2-52%) than non-physically active employees.[vii]

Commuting by bicycle allows the employee to build physical activity into their daily routine. With people's many responsibilities and daily time commitments, using active transportation may indeed be the only way they can get the daily physical activity they require. Commuting by active transportation may prove to be more acceptable and more cost-efficient than programmes that focus on activities at the work site during the day.[viii]

The ability of a physically active executive group to make complex decisions increases dramatically compared to non-exercisers. Studies suggest that those who exercise work at full efficiency all day, amounting to a 12.5% increase in productivity over those who do not exercise.[ix] In companies with employee physical activity initiatives, the improvements in productivity and reductions in absenteeism, turnover and injury can result in a benefit of $571 per worker per year.[x]

6.6 Cycling Tourism

Building on the success of Spirit of 2010 Trails and the Trans Canada Trail, a network of cycling routes linking communities and attractions throughout the province would offer visitors and residences wonderful cycle touring experiences. This investment can quickly transform British Columbia into a world leader in cycling tourism. This dramatic increase in cycling tourism will have significant economic benefits to many BC communities.
In addition to significantly reducing GHG emissions and increasing physical fitness levels, creating complete cycling networks in BC communities will enable cycling tourists of all ages and abilities to safely and conveniently access hotels, stores, restaurants, and tourist attractions thereby greatly enhancing their vacation experience. Routes through communities serve both residents and visitors alike.

Québec's Route Verte, a province-wide network of cycling routes, has proven to be very effective in attracting tourists from around the world and nearby states and provinces. In 2006 it is estimated that Route Verte users spent $134 million supporting over 2,800 jobs. This economic activity is estimated to generate more than $36 million in tax revenue for the provincial and federal governments.[xi]

The routes connecting communities will consist of low traffic minor roads, trails and wide shoulders, or paths along provincial highways. Ideally paths and trails would be paved to increase the length of the cycling season, increase rider comfort, decrease the physical effort required, improve safety and thus attract the largest number of cyclists possible.

6.7 Bicycle Sales

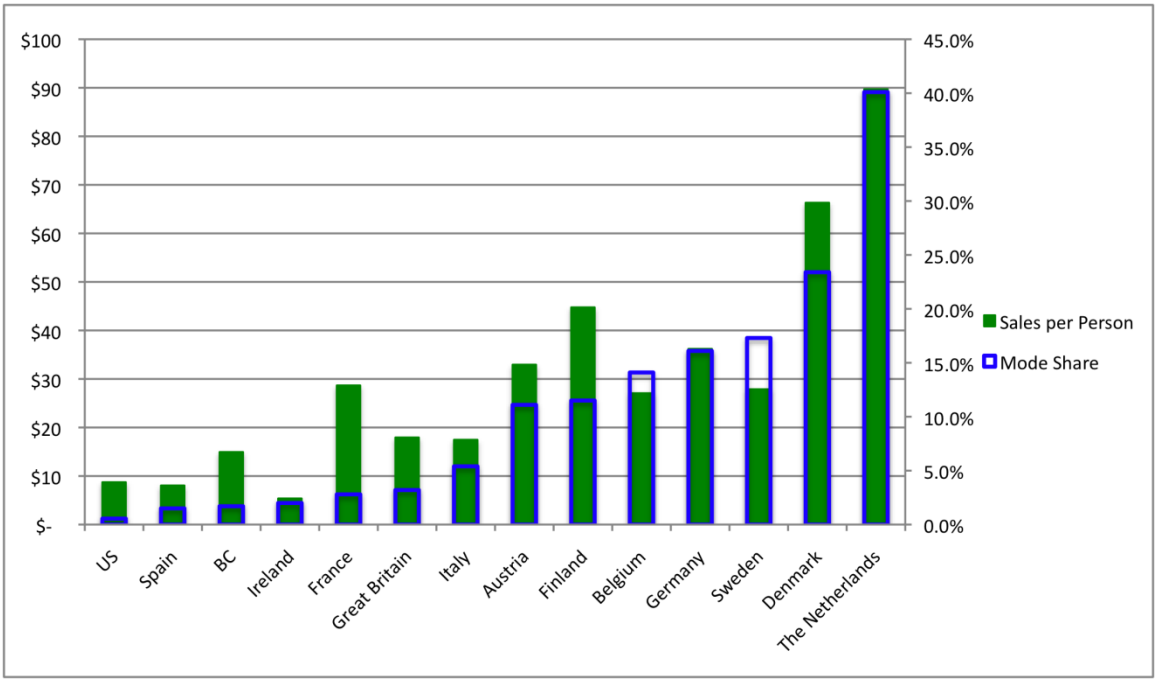
Bicycle sales including parts and accessories total approximately **$140 million** per year in the province[xii]. Sales in the independent bicycle dealer sector include:

- Bicycles: 55,000 units with a retail value of $33.3 million
- Parts and accessories: $40.5 million

Sales by large format retailers (Canadian Tire, Wal-Mart, etc.) are similar to those of the independent bicycle dealers

As shown in the figure below, bicycle sales tend to increase as bicycle usage increases.[xiii]

Figure 4 Bicycle Sales per Capita and Bicycle Mode Share[2]



6.8 Exporting Expertise

Already, BC firms are exporting expertise in the planning and development of walking and transit-oriented communities. As a North American leader in cycle commuting, BC is well positioned to expand this expertise to other communities, creating green jobs and positioning British Columbia as a world leader in green transportation and healthy communities.

6.9 Other Users

Investments in cycling facilities often benefit those who don't ride bicycles. Pedestrians, joggers, runners, in-line skaters, skateboarders and people using electric wheelchairs or personal mobility scooters use bicycle paths. In the snow, paths can be used by cross country skiers and snowshoers.

[2] Bicycle sales only. Does not include parts and accessories.

Safer and More Pleasant

Traffic calming along bicycle routes benefits neighbourhoods and makes streets safer for pedestrians and children. Bike lanes along busy streets calm traffic and improve the pedestrian environment. In New York City, pedestrian crashes were around 40% less deadly on streets with bike lanes.[xiv] Separated bicycle lanes (cycle tracks) improve air quality for pedestrians and cyclists by increasing the horizontal distance between traffic.[xv]

6.10 Jobs

A case study from Baltimore concludes that investments in cycling infrastructure creates the most employment for a given level of expenditure. While road construction projects create approximately 7 jobs per $1 million spending, pedestrian projects create over 11 jobs for the same level of spending, and bicycle projects create up to 14 jobs.[xvi]

7 Overcoming Barriers to Cycling

For the majority of people the primary barriers to cycling include a lack of safe cycling routes, weather, hills and distance. These barriers can be addressed through improved cycling facilities, maintenance, education, and end-of-trip facilities.

Figure 5 - Barriers to Cycling[xvii]

	Regular Cyclists	Monthly Cyclists	Yearly Cyclists	< Yearly Cyclists	Potential (*n*=164)
Feel unsafe riding next to vehicles on the road	**36%**	**36%**	**36%**	**26%**	**27%**
Usual trip lengths too far	17%	24%[1]	20%	15%	11%[2]
Insufficient bicycle lanes	**22%[1]**	**17%**	**17%**	**9%[2]**	**11%[2]**
Poor weather	24%[1]	18%[2]	14%[2]	8%[3]	6%[3]
Lack of places to park/lock bike	15%[1]	10%	10%	8%[2]	10%
Lack of bicycle routes/trails	**14%[1]**	**11%[1]**	**9%[1]**	**10%[1]**	**4%[2]**
Health barriers	6%[1]	10%[1]	9%[1]	19%[2]	16%[2]
Terrain too steep or hilly	8%	11%	8%	12%	13%
Don't own a bicycle	<1%[1]	1%[1]	8%[2]	17%[3]	27%[3]
No place to shower/change	6%[2]	10%[1]	5%	4%	2%[3]
Bridges are dangerous to cross	**7%[1]**	**5%**	**3%[2]**	**0%[2]**	**3%[2]**
Poor road conditions/Potholes	**5%[1]**	**4%**	**1%[2]**	**2%[2]**	**2%[2]**
Cost of bicycle/Maintenance too much	1%[1]	2%[1]	1%[1]	9%[2]	9%[2]

7.1 Safe Bicycle Facilities

UBC's Cycling in Cities survey confirmed that cyclists of all ages and abilities prefer routes separated from traffic including **bicycle paths**, **multi-use paths,** and **separated bike lanes.**

The high quality cycling facilities such as bicycle paths, multi-use paths and separated bicycle lanes that are attractive to a significant portion of the population can cost $1-4 **million per km** especially if grade separation is required to cross barriers along the route.

A dramatic increase of funding from the provincial government would ensure that residents of all ages and abilities in communities around BC have access to such safe bicycle routes for daily trips, recreation, and sport.

7.2 Weather

Cycling in the snow and rain can be encouraged through good infrastructure, maintenance, end-of-trip facilities and parking

Infrastructure

- Lighting along roads and paths
- Roads and paths with good drainage to prevent puddles
- Non-slip surfaces on bridges and overpasses
- Design on bridges and overpasses to resist icing
- Shoulder and bike lane designs that do not collect debris

Maintenance

- Regular debris removal and sweeping
- Prompt ice and snow removal. In some jurisdictions, bicycle paths are cleared before many roads are.
- Resurfacing and repair of roads and paths
- Pruning and trimming of trees and greenery near paths
- A hotline to report maintenance issues

Parking and End-of-trip Facilities

- Covered parking for short-term parking on commercial streets and community facilities
- Indoor secure parking at workplaces, residences and schools
- Showers, change rooms and lockers to allow cyclists to allow cyclists to change into dry clothes
- Drying racks or rooms for wet cycling gear

7.3 Distance and Hills

Cycling over longer distances and in hilly areas can be encouraged through infrastructure improvements, end-of-trip facilities, education, promotion, and wayfinding signage.

Infrastructure

- Bicycle paths with limited stopping required. Often such paths can be sited along natural or man-made barriers such as rivers, coastlines, embankments, highways, and railways.
- Well graded paths with slopes of 5% or less

End-of-trip Facilities

- Showers and change rooms
- Bicycle parking with plug-ins to charge electric bicycles in bicycle parking

Education, Promotion and Wayfinding

People without significant cycling experience often overestimate the time and effort required to reach a destination. Education and promotion campaigns can help prepare people for longer rides and encourage people to try cycling longer distances. Maps and signage with average cycling times to popular destinations can help people realize that cycling can be quicker than they expect.

7.4 Increasing Access to Bicycles

Bike Sharing

Bike sharing systems provide people with bicycles for short-term use (usually under one hour) at popular destinations including transit stations, employment centres, shopping districts and community facilities. Yearly memberships typically cost between $50 and $100 and use is free for the first half-hour. Over 300 cities and towns around the world have bike sharing systems including Paris, London, Montreal, and Barcelona.

TransLink investigated the feasibility of shared bikes in Metro Vancouver.[xviii] The study found that while such systems have significant initial capital costs ($5,000-$10,000 per bicycle) and require on-going operating subsidies, they help achieve a variety of planning objectives, including congestion reduction, road and parking cost savings, consumer savings, improved transport for non-drivers, energy conservation, emission reductions, and improved public fitness and health.

Employees

Several countries offer tax incentives to encourage people to cycle to work.[xix]

In the UK, the company owns the bikes and the equipment and loans them to employees. The company writes off and deducts the expenses. At the end of the loan period, the company can offer the bike and the equipment to the employee at market value. Employers can pay up to 20 pence per mile tax free to employees who use their own cycles for work-related travels.

In 2001, a tax reform was implemented in Holland with the purpose of encouraging eco-friendly means of transport. This action meant that employers are now able to make company bikes, rainwear, and other cycle equipment available to employees without demanding any tax liability from them. Furthermore, an annual tax credit was introduced for the employees when using their own bike to work. In this way the employer can pay the employee €0.15 per kilometre tax free.

People with Low Incomes

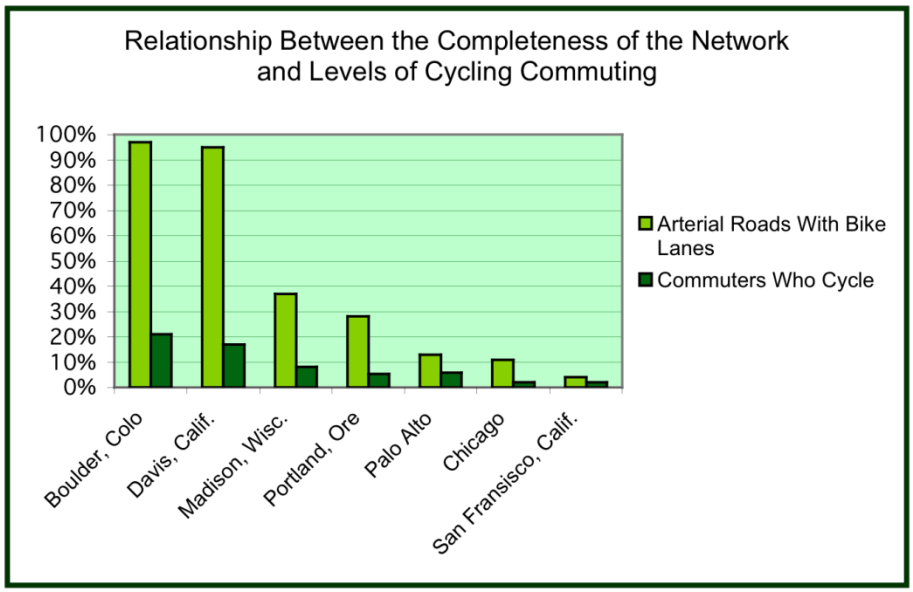
The Pedal Bike Depot in Vancouver refurbishes discarded bicycles and provides people with a workshop and expertise to repair their own bicycles. Many of the bicycles refurbished at the Depot are given away through the Free Bike Program. Depot staff works with community volunteers, who learn to repair bicycles while building them up for people in need.[xx]

8 Complete Networks

The value of complete bicycle networks is demonstrated in Davis, California and Boulder, Colorado. With around 20% of trips by bicycle, these communities have the highest levels of bicycle usage in North America.[xxi] This high level of cycling is facilitated by mature networks, which include bike lanes on almost all of their arterial roads and extensive off-road commuter bicycle paths.

Residents can simply get on their bicycles with confidence knowing there will always be a safe route to their destination.

Figure 6 - Network Completeness



9 Proposed Investment Level

Cycling has been severely underfunded for the last several decades. The result of this under funding is a severe lack of bicycle routes that the average British Columbian feels comfortable riding on. Accelerated funding will allow the creation of the high-quality facilities needed for cycling to be as safe and as convenient as driving for many daily trips.

Based on experience the elsewhere shown in Table 2, we are proposing an investment $40 per person per year amounting to **$175 million** per year for BC.

Over four years, an investment of $700 million would enable the construction of several hundred kilometres of high quality facilities in communities around the province providing the majority of British Columbians with access to great bicycle routes.

This investment will dramatically increase cycling mode share throughout the province making British Columbia the leader in cycling in North America. The recently complete study "Cycling in Cities", indicates that cyclists and potential cyclists prefer separated paths and lanes.[3] Such separated facilities cost between $1 and $4 million per km depending on terrain and surrounding land use thus the investment required to complete a high-quality network of bicycle routes will be greater than previously expected. This accelerated funding from the province will allow currently planned facilities to be completed to this higher standard and thus avoid the need for expensive upgrades in the future.

9.1 Investment Elsewhere

As summarized in the following table, jurisdictions around the world are investing significant amounts in cycling infrastructure. Some such as the Netherlands and Copenhagen already have high cycling mode shares and require investment to address capacity and safety issues. Others, such Winnipeg and Sydney, Australia, that cycling mode shares lower than BC many communities, have committed to dramatically increase cycling in a short period of time.

Table 2 - Cycling Funding Elsewhere

	Investment (millions)	Start Year	End Year	Per Person per Year[4]
Netherlands	$652	On going		**$41**
Munster	$112	1981	1992	**$38**
Sydney	$71	2009	2012	**$100**
Portland	$613	2010	2030	**$51**
Winnipeg	$20	2010	2010	**$32**
Minneapolis	$18	2010	2010	**$48**
Copenhagen	$15	2011	2011	**$27**

The Netherlands

Dutch government expenditure on cycling has now reached an annual level of 487 million euros per year.[xxii] Much money is now being spent on improving regional routes, for longer distance commuters, which leads to higher rates of cycling to work.

Munster, Germany

Munster, Germany (population 270,000) increase cycling trips up from 29% in 1981 to 43% in 1992 with an investment in cycling facilities of $112 million in today's dollars.[5]

[3] Cycling in Cities, http://www.cher.ubc.ca/cyclingincities/survey.html
[4] Dollar amounts are in 2010 equivalent Canadian dollars.
[5] Ibid, p i.

Sydney, Australia

The City of Sydney is investing $71 million over 4 years to build a 200km cycling network including 55km of separated cycleways.[xxiii] Currently one per cent of trips into the city are made on bicycle - the city aims to increase this number by 10 per cent by 2016.

Portland, Oregon

Portland's recently approved 20 year bicycle plan contains bicycle paths and other cycling infrastructure that is estimated to cost $613 million. Funding sources are being explored.[xxiv]

Winnipeg

In 2010, Winnipeg invested $20.4 million in capital funding to build an extensive active transportation network throughout the city.[xxv] The funding came from the three levels of government (the City, Province and Federal governments each contributing one-third, or $6.8 million). This active transportation program involves the creation of 35 projects that range from multi-use pathways to bike boulevards. Almost all of these projects are bicycle routes.

Minneapolis

In Minneapolis, over $50 million was spent between 2000 and 2009 contributing to bicycle commute work trips more than doubling from 1.9% in 2000 to 4.3% in 2008.[xxvi] An additional $18 million is budgeted for bicycle facilities and programs in 2010. This includes federal investment through the Non-Motorized Transportation Pilot (NTP) program. From 2000 to 2009 total bikeway mileage in the city increased from 95.5 miles to 127.8 miles. An average of $2 million per bikeway mile was spent during this period. The 2010 Bicycle Master Plan that aims to increase mode share to 10% by 2020[xxvii] will require an additional $500 million to complete and an additional $300,000 per year will be needed for maintenance. Non-infrastructure programs including education and promotion will cost $2 million per year to sustain.

Copenhagen

Already Copenhagen stands out among other cities for its cycling infrastructure, counting more than 390 kilometres of bike paths. Between 2006 and 2010, it spent DKK 250 million in bike infrastructure and an extra 75 million kroner were allotted for 2011. Within the city, 55 percent of all commuters already travel by bike. Their goal is to hike the percentage of suburban commuters cycling to and from the city from the 37 percent it is today to over 50 percent by 2015.[xxviii]

10 Investment Scenarios

To illustrate the benefits of accelerated investment in cycling, some of the environmental, health and economic benefits were estimated for the following scenarios:

Base - $20 million per year ongoing (Province, Municipalities, Federal, TransLink)
20 Years – Base + $35 million per year for 20 years ($700 million additional)
4 Years - Base + $175 million per year for 4 years ($700 million additional)

Information on mode share estimates for the scenarios can be found in Appendix A.

As detailed in the following table, investing $700 million over 4 years instead of 20 years could increase yearly reductions of GHG emissions by 0.1 mega-tonnes and double the cumulative reduction in greenhouse emissions in the period from 2010 to 2020. As per kilometre emissions are projected to decrease over time, the sooner the cycling mode share is increased, the greater the cumulative reduction in driving related GHG emissions. Details of GHG emissions estimation can be found in Appendix B.

The cumulative health care savings from 2010-2020 could double. Note that this only includes the benefit from increased physical activity. It does not include benefits from reductions in automobile related injuries or pollution reductions. Details of health care cost estimation can be found in Appendix C.

Table 3 - Health and Environmental Benefits (2020)

Scenario	Bicycle Mode Share	Daily Bicycle Trips (thousands)	Yearly Emission Reductions in 2020 (mt)	2010-2020 Cumulative Emission Reductions (mt)	2010-2020 Cumulative Emission Reductions (millions)	2010-2020 Cumulative Health Care Cost Savings (millions)
Base	2.8%	455	0.05	0.3	$14	$17
20 Years	4.0%	656	0.12	0.7	$34	$41
4 Years	**5.8%**	**935**	**0.22**	**1.6**	**$81**	**$93**

As detailed in the table below, cumulative bicycle industry sales are estimated to increase by almost $600 million from 2010 to 2020 over the base scenario. For details on these estimates, refer to Appendix D. If the HST is not repealed, it may be possible to finance all or some of the proposed investment through bicycle related HST revenue.

Table 4 - Bicycle Industry Sales

Scenario	2010-2020 Cumulative Industry Sales (millions)	2010-2020 Cumulative HST (millions)
Base	$1,974	$237
20 Years	$2,152	$258
4 Years	**$2,565**	**$308**

11 Funding Partners

Funding partners in this accelerated investment include municipalities, TransLink and the Federal Government. The province is ideally positioned to provide leadership in the accelerated investment in cycling facilities.

11.1 Province of BC

From the point of view of reducing greenhouse gas emissions, revenue from the carbon tax, gas tax, and road pricing would be preferred to other forms of revenue. The province could also defer investments in road expansion to advance the investments in cycling infrastructure. Improved transit, cycling facilities and the creating of more compact communities will likely eliminate or delay the need for such expansion. Funding for cycling infrastructure can also be used as an incentive for municipalities to create compact pedestrian, cycling and transit oriented communities.

11.2 Municipalities

Municipalities should be encouraged increase their levels of funding, but given their small range of funding sources, their percentage of the total funding should be expected to be significantly lower than it is today. In a province where many regions are experiencing extremely high housing costs, increasing property taxes to funding cycling improvements is less than ideal. Depending on the project, the municipal contribution could range from 20-50%. We recommend that the province provide a higher percentage of funding for projects that are completed to a higher standard, to encourage the building of high quality facilities including cycle tracks along arterials and bicycle paths.

Additional cycling funding opportunities for municipalities should be announced soon so such funding can be considered in 2013-2016 capital plans. Municipalities, should however, be encouraged to shift funding from road construction to bicycle and pedestrian route construction.

11.3 TransLink

We urge the provincial government to either ensure TransLink has sufficient funding sources to increase cycling funding or provide additional funding needed for cycling improvements in the region.

11.4 Federal Government

Any increases in federal funding could be used to further accelerate funding or to decrease the contributions required from other partners. The provincial government is ideally positioned to negotiate with the federal government with regards to increased federal funding for cycling. The BCCC will work with other cycling organizations across Canada to encourage the federal government to provide increased funding.

12 Marketing and Education

It is critical that cycling become a part of more people's everyday transport choice if we are to meet provincial transportation and GHG emissions reduction goals. Facilitating adult cyclists who will commute, undertake short shopping trips, or visit friends by bike will in turn normalize cycling – supporting an environment where their children continue to cycle into adulthood. Enabling travel choice is a complex interrelated process requiring awareness, recognition, trial, confidence-building and habitualisation. Marketing and education are intrinsically linked to developing the demand to maximize the use and benefit of investments in infrastructure. There are many examples from around the world such as Safe Routes to School, workplace travel plans, and smarter travel towns where targeted promotion, skills, and infrastructure improvements combine to create sustained and dramatic changes in local travel choice and public attitudes.

12.1 Marketing

A $5 million program of targeted promotion and awareness activities would broaden and consolidate current projects including; Bike to Work Week, Bike Month, and the Commuter Challenge. Increased investment would allow development of publicity campaigns and specific projects such as toolkits for schools and employers to encourage cycle commuting, specific projects aimed at groups where cycling is below average and a 'share the road' initiative to increase mutual respect and awareness. Establishing a promotional program for cycling as transport will also generate aggregated impacts by strategic cooperation with other agencies around the co-benefits of cycling as an activity including for preventative health care, green tourism, and sports.

Other possible initiatives include the marketing of cycling tourism both inside and outside the province.

12.2 Education

Cycling Skills Training

A further $5 million invested in a coordinated program of bike skills training could unify a variety of excellent but fragmented initiatives including Streetwise, Ride the Road, CAN-Bike and RideLife, into a single, comprehensive BC standard. This would be a first for North America but experience from the UK 'Bikeability' initiative shows that coordinated training lead to 22% of trainees in London stating they cycled a lot more afterwards. While focused at schools, a certification process for cycle training to a single BC standard could also provide a service to businesses and individuals. Coordinated action on cycle skills would also address public concerns about cyclist behaviour as part of any Share the Road type publicity.

Ride the Road is the Vancouver Area Cycling Coalition’s complete cycling educational program to empower and enable secondary students to commute to school safely and

confidently while learning the value and benefits of biking as a reliable and practical mode of transportation. The program shows encouraging results. Post course surveys indicate a significant increase in cycling levels and confidence with cycling in traffic.

Motorist Training and Education

The responsibilities of motorists and cyclists and safety tips for sharing the road should be included in driver education programs, courses and remedial programs.

Awareness of New Types of Facilities

As new types of facilities such as separated bike lanes, bike boxes, crossbikes, bicycle traffic signals, traffic circles and roundabouts are introduced, efforts should be undertaken to ensure motorists, cyclists and pedestrians know how to safely use these facilities and interact with each other.

Appendix

A – Scenario Mode Share Estimates

The mode share estimates for the scenarios are based on cost per trip estimates by Transport for London based on experience in European cities. The London estimates ranged from $404 million for 450,000 million trips per day to $114 million for 90,000 trips per day ($1267 per trip). Accounting for inflation, a cost of $1,500 per each additional in a 24 hour period is used for the scenarios. This was then used to calculate the incremental mode share improvement based on an average of 3.2 trips per person by all modes.

Note that the mode share estimates are sensitive to a variety of factors including the density of communities, network connectivity, barriers requiring grade separation, disincentives to automobile travel including gas prices, parking supply, parking prices, road pricing and economic conditions. As a result, the cycling mode share resulting from a given level of investment could be significantly higher or lower than the estimates. For example, London experienced a 30% increase in cycling trips following the introduction of congestion pricing. The reallocation of road space for cycling facilities may also decrease the cost of attracting new cyclists.

B – Greenhouse Gas Emissions Reductions Calculations

It is assumed in the calculation of GHG emissions reductions that an increase in cycling will lead to a corresponding decrease in automobile use. While some people are likely to switch from transit to cycling, this will leave more space on buses and trains for other people to switch to transit from driving. Some people will likely also switch from walking to cycling. However, a significant portion of the facilities built to improve cycling conditions will also improve conditions for pedestrians and thus encourage people to walk instead of drive.

In the determination of total GHG emissions, an emission level of 411 grams of CO2 per km is used for 2007 while a target of 324 grams of CO2 per km is used for 2016. This is determined as follows:

- The average GHG intensity for light duty vehicles for BC was 295 grams CO2 per km in 2005 and estimated to be 231 grams CO2 per km in 2016 based on the anticipated implementation of the California tailpipe standards that the

Provincial Government has committed to.[6] Beyond 2016, the GHG intensity was assumed to decline linearly at the same rate per as between now and 2015.

- City emissions are around 17% greater than average emissions. This was calculated from average fleet fuel economy numbers.
- The extraction, refining, and transportation of gasoline increases emissions by around 20%[7].

Cycling tends to replace short automobile trips in cities and towns. The average trip by bicycle is estimated to be 3.2 km. Emissions are greater for the first few kilometres of a trip especially for cold starts thus it is likely that per kilometre emissions reductions from replacing automobile trips with bicycle trips is greater than the average city emissions per kilometre used here to determine emissions reduction. Many documents state emissions from such short trips can be up to twice that of average emissions. The underlying research behind this claim could not be found thus the impact on the emissions reductions due to cold starts could not be accurately estimated.

C - Health Care Cost Reductions Estimation

In 2001, the health care costs of physical inactivity were estimated to be $211 million in British Columbia.[8] Assuming this cost escalated with the increase in average per capita costs from $2,481 in 2001 to $4,085 in 2006[9], the cost of physical inactivity would be $347 million in 2006.

As people who cycle engage in other forms of physical activity, not all of the benefits of increased physical fitness can be attributed to cycling. An estimated 34% [10] of the benefits of increased physical fitness can be attributed to cycling for transportation purposes.

D – Bicycle Industry Sales Estimates

Some portion of bicycle sales are due to the use of bicycles in sports such as racing and mountain biking. To account for this when calculating the increase in cycling due to increased bicycle mode for transportation, an attempt to separate the sport related sales out was made. The United States has a very low cycling mode share of 0.6% and

[6] M. Horne, Pembina Institute, via e-mail.
[7] Macedo et al, “Assessment of greenhouse gas emissions in the production and use of fuel ethanol in Brazil”, http://www.unica.com.br/i_pages/files/gee3.pdf, Government of the State of São Paulo, 200, p 32
[8] Colman and Walker, "The Cost of Physical Inactivity in British Columbia", http://www.healthservices.gov.bc.ca/prevent/pdf/inactivity.pdf, B.C. Ministry of Health Planning, 2004, p 18
[9] “National Health Expenditure Trends, 1975-2006”, http://secure.cihi.ca/cihiweb/products/national_health_expenditure_trends_1975_2006_e.pdf, Canadian Institute for Health Information, p 34
[10] By dividing 100 by the total percentage of people engaged in the nineteen most popular forms of physical activity excluding the one we are trying to find, we can obtain an estimate of the amount of physical activity that can be attributed to a particular form of physical activity. This estimate assumes equal benefits for all forms of physical activity. These percentages are taken from the National Population Health Survey, Statistics Canada, 1998/1999.

yet bicycle sales are relatively high. Thus, it would be reasonable to assume that most of the bicycle sales result from the use of bicycles for sports. As such, the US mode share and bicycle sales were subtracted from those of Canada and European[xxix] countries with similar economic conditions to that of Canada then the bicycle sales per 1% mode share was calculated. To error on the conservative side, a value at the low end of the range of $2.30 of bicycle sales per 1% mode share was used.

To estimate the value total industry sales of bicycles, parts and accessories, the bicycle sales were multiplied by 2.1. The current ratio of total sales to bicycle sales is 2.2 in BC; the value of 2.1 was used to error on the conservative side.

Endnotes

[i] "California's Parking Cash-Out Law", http://www.arb.ca.gov/planning/tsaq/cashout/cashout.htm State of California, 2006.
ii 2010 Bike Month Survey, Mustel Group, July 2010.
iii Ibid, 13.
[iv] http://www.sydneymedia.com.au/asset/2/upload/AECOM_Report_April_2010.pdf, vi.
[v] http://www.dft.gov.uk/cyclingengland/site/wp-content/uploads/2009/03/planning-for-cycling-report-10-3-09.pdf and http://www.transformscotland.org.uk/towards-a-healthier-economy.aspx
vi http://policy.rutgers.edu/faculty/pucher/TransportPolicyArticle.pdf, 269
[vii] World Health Organization, Economic Benefits of Physical Activity, (http://www.who.int/hpr/physactiv/economic.benefits.shtml), 2003.
[viii] Shephard, "A critical analysis of work-site fitness programmes and their postulated economic benefits", Medicine and Science in Sports and Exercise, 24(3) , 1992.
[ix] Health Canada, The Business Case for Active Living, (http://www.hc-sc.gc.ca/hppb/fitness/work/impact_e.html), 2004.
[x] World Health Organization, Economic Benefits of Physical Activity, 2003. $513 in 2003 dollars adjusted by CPI to $571 in 2010 dollars.
[xi] http://www.routeverte.com/ang/facts.lasso?page=retombees
xii Bicycle Trade Association of Canada (BTAC)
xiiiEuropean Bicycle Sales from http://www.colibi.com/docs/issuu/European%20Bicycle%20Market%20&%20Industry%20Profile%20-%202009%20edition.pdf Canadian from BTAC.
[xiv]http://www.nyc.gov/html/dot/downloads/pdf/nyc_ped_safety_study_action_plan.pdf , 23.
[xv] http://bikeportland.org/2010/10/28/study-cycle-tracks-mean-better-air-quality-for-bikers-walkers-41754
[xvi] http://www.bikeleague.org/resources/reports/pdfs/baltimore_Dec20.pdf
xvii TransLink Listens Cycling End-of-Trip Facilities Survey, NRG Research Group, Aug. 14, 2009, 5.
xviii http://www.translink.ca/site-info/document-library-result.aspx?id={0044F9A5-BECB-4C4D-9FD0-E3D32D8E9A7F}|{D191F5C3-2E4D-4937-9EDC-578A1FC50285}|{6B6CD0F7-D14F-4C72-BDFC-A9DA1E4C3919}|{A7685FAD-DB49-43D5-AC93-C5BF73CA5061}|{9AC16684-25D3-4938-9C83-07EB6DBA83CE}&ref={48F61830-22A1-4F90-804A-83C0C9A9D367}
xix http://www.cycling-embassy.dk/2010/07/12/tax-incentives-for-bike-commuting/
xx http://www.pedalpower.org/?q=the_bike_depot
xxi N. Keates, Building a Better Bike Lane, http://online.wsj.com/article/SB117823466296891497.html, Wall Street Journal, May 4, 2007, W1.
[xxii] http://hembrow.blogspot.com/2010/05/487-million-euros-for-cycling.html

[xxiii] http://www.cityofsydney.nsw.gov.au/AboutSydney/ParkingAndTransport/Cycling/CycleNetwork/default.asp
[xxiv] http://www.bizjournals.com/portland/stories/2010/02/08/daily43.html
[xxv] http://www.winnipeg.ca/publicworks/MajorProjects/ActiveTransportation/HikeItBikeItLikeIt.asp
[xxvi] http://www.ci.minneapolis.mn.us/bicycles/Ch8Funding.pdf
[xxvii] http://www.ci.minneapolis.mn.us/bicycles/Ch1Intro.pdf
[xxviii] http://www.expatica.com/nl/news/news_focus/Copenhagen-plans-super-highways--for-cyclists_116307.html?ppager=0
[xxix] http://www.colibi.com/docs/issuu/European%20Bicycle%20Market%20&%20Industry%20Profile%20-%202009%20edition.pdf