The Climate is Right for Cycling and Walking
Climate Leadership Plan Submission - September 2015

Executive Summary

Cycling and walking are popular activities that have the potential to grow substantially and thus provide B.C. communities with more affordable transportation choices and economic opportunities.

With sufficient investment and policy support, cycling and walking can become practical options for many more people, leading to significantly improved fitness and reduced greenhouse gas (GHG) emissions, congestion, and traffic fatalities. Investing in cycling and walking will benefit the economy by increasing tourism, reducing healthcare costs, increasing workplace productivity, attracting talented workers, and reducing the societal costs of traffic fatalities and injuries.

There is broad public support for cycling improvements. In the B.C. on the Move Engagement Survey, 72% of respondents supported enhancing cycling infrastructure. Cycling is popular. Almost 70% of adults in BC ride a bicycle at least once a year, 42% at least once a month and 25% at least once a week. Many want to cycle more, with around 65% indicating they would ride more if there were separated bike lanes that protected them from traffic.

According to the 2011 National Household Survey, 42% of commutes are under 5 km, a reasonable cycling distance. In the Netherlands, electrically assisted bicycle trips average distance of 9.8 km each way, while regular bicycles average 6.3 km. In B.C. 65% of commutes are under 10 km, making them practical using an electric bicycle.

Where significant investments have been made, cycling has increased dramatically. Between 2008 and 2014, daily cycling trips by City of Vancouver residents almost doubled, increasing from 50,000 to 100,000. In the Central Okanagan, daily cycling trips increased by 43% from 2007 to 15,400 in 2013. Whistler’s bicycle commuting mode share was 8% in 2011, an increase of 31% since 2006.

Other jurisdictions are committing to significant increases in cycling. Paris, the host city of COP21, The United Nations Conference on Climate Change, is planning on increasing cycling from 5% to 15% of all trips by 2020 through investing in bicycle paths and other measures to encourage cycling.
Comprehensive Active Transportation Strategy

As part of Climate Leadership Plan implementation, we strongly recommend the Province to develop a comprehensive Active Transportation Strategy, including mode share & GHG reduction targets, infrastructure funding, improved standards, increased maintenance, education, promotion, motor vehicle speed control and changes to the Motor Vehicle Act, as a key component of a complete multi-modal transportation system for people of all ages and abilities.

This Strategy would complete the commitment made in the 2008 Provincial Transit Plan to “release a new, comprehensive cycling strategy to complement The Provincial Transit Plan.” Many of our peers have cycling strategies including Ontario, Washington and Oregon.

The Provincial Active Transportation Strategy should build upon and complement ambitious local and regional cycling and walking strategies. The Metro Vancouver Regional Cycling Strategy predicts that upon buildout, the cycling network in Metro Vancouver is expected to increase cycling from 1.8% of trips to 10% of trips at a cost of $850 million. The Capital Regional District Regional Pedestrian and Cycling Master Plan predicts cycling network buildout will increase cycling from 5.9% of trips to 15% of trips at a cost of $275 million.

2020 targets

Given the significant benefits of cycling and walking, we recommend the Province to work with regions, municipalities, cycling groups and other stakeholders to develop ambitious targets for cycling and walking based on a 10 year buildout. We recommend the 2020 targets comprise half the projected buildout increases. Based on the projected increases by TransLink and the CRD, we estimate a reasonable target for B.C. would be to increase trips by cycling to 7% by 2020.

2050 targets

As we are proposing current network plans be built out by 2025, we recommend that the Province work with regional districts and municipalities to develop new long-term active transportation plans. This plans should include 2050 targets with the further network enhancements and other measures including education and promotion that will be required to meet those targets.

Recommended Actions

1. Accelerated provincial investment in walking and cycling, totalling $100 million per year

Based on figures from several regions and cities around the Province, we estimate that at least $1.8 billion is required to complete cycling networks in B.C. communities. Much of this investment will also benefit those walking as well. At current investment rates, network buildout will take 30 to 50 years.

We recommend that the Provincial Government accelerate its cycling and walking investment to $100 million per year for the next 10 years. This, along with investment from the communities and the Federal Government will enable communities to build out their cycling networks by 2025.

This investment would enable the benefits of cycling to be realized sooner including significantly greater cumulative reductions in GHG emissions. By providing people with great alternatives to driving, this investment will help reduce the level of Carbon Tax needed to meet Provincial targets and thus lower the cost to individuals and businesses while providing other economic, environmental and social benefits.
This investment could be funded through various means including an increase in the Carbon Tax, a new gas tax focused on decreasing GHG emissions, reallocation of transportation funds, a cancelling of the tax cuts for those earning over $150,000, road pricing or general revenue.

a. Provincial Roads and Bridges - Dedicated funding for upgrading cycling and walking facilities;
   b. Bike BC and Complete Streets - Increased Bike BC cost sharing funding to complete cycling networks in communities and new cost sharing funding for complete streets with all-ages cycling facilities that are also safer and more comfortable for walking;
   c. Funding for Safe and Healthy Routes to School; and
   d. Cycle Tourism - Funding for trails and paths used by cycling and walking visitors and residents.

2. Cycling and Walking Facility Planning
   a. The adoption of evidence-based standards for cycling facilities that are both appropriate for all ages and abilities and higher-speed cycling;
   b. Policies and procedures to ensure these standards are followed on new projects;
   c. Policies and procedures to encourage Complete Streets on Provincial roads in communities; and
   d. Resources to enable communities to plan for and design high quality cycling and walking facilities.

3. Built Environment and Community Planning
   a. Prioritize and accelerate transportation investments in transit, cycling and walking that encourage development in compact mixed-use communities that enable people to drive less;
   b. Incentives and policies to encourage high quality cycling and walking networks in new developments; and
   c. Land use policies that encourage compact mixed-use communities that enable walking and cycling to be practical transportation choices for the majority of trips.

4. Education and Marketing
   Cycling education and promotion complement investments in cycling facilities increasing their use, improving safety and decreasing conflicts between road users.
   a. Universally available cycling safety skills training for children and adults with provincial funding;
   b. Improved and integrated cycling and driver education;
   c. Update and increase the distribution of cycling education material including Bike Sense;
   d. Educate people cycling and driving about new types of cycling facilities; and
   e. Increase funding for cycling marketing programs including Bike to Work Week.

5. Developing Super Cycleways
   Super Cycleways are high quality bicycle routes designed to reduce travel times and thus facilitate long distance (5-20 km) cycling trips. They would connect communities and major destinations including residential areas, concentrations of jobs, schools and public transit.
   a. Develop guidelines and best practices for Super Cycleways;
   b. Work with regions and municipalities to plan and implement Super Cycleways;
   c. Provide regions and municipalities with assistance to design Super Cycleways;
   d. Provide cost-shared funding for Super Cycleways.

6. Encouraging the Use of Electric Bicycles
   Electric bicycles can increase the number and length of cycling trips people make.
   a. Eliminate the PST on Electric Assist Bicycles;
   b. Introduce a rebate on electric bicycles similar to that on electric automobiles;
   c. Develop policies to encourage or mandate recharging outlets in bicycle parking facilities; and
   d. Conduct research to determine the potential of electric bicycles to reduce motor vehicle trips and kilometres.
7. **Lower Motor Vehicle Speeds**

Lower motor vehicle speeds can reduce GHG emissions, make cycling more comfortable especially for children and seniors while improving the safety of all road users.

- Blanket Speed Limits Below 50 km/h
- Default 30 km/h Speed Limit on Residential Streets
- Enforcement Policies Focused on Reducing Walking and Cycling Injuries and Fatalities;
- Funding for Enhanced Traffic Calming; and
- Encourage the Creation of Low Speed Communities;

8. **Cycling and Transit**

Cycling and walking complements transit by providing low-cost pollution free access to stations and stops. Replacing short transit trips with walking and cycling can free up funding for services to enable people to replace longer motor vehicle trips with transit.

- Improved cycling and walking access to transit hubs and stops; and
- Secure bicycle parking areas at all major transit hubs;

---

**About the British Columbia Cycling Coalition**

The British Columbia Cycling Coalition is the leading voice for better cycling in B.C. We work with governments, businesses and organizations across the province to enable more people to ride bicycles more often for transportation, recreation and tourism.

**Our Members**

Our member organizations represent thousands of people across the Province.

<table>
<thead>
<tr>
<th>AMS Bike Co-op</th>
<th>BC Randonneurs Cycling Club</th>
<th>Bike to Work BC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comox Valley Cycling Coalition</td>
<td>Cross Canada Cycle Tour Society</td>
<td>Cycling Abbotsford</td>
</tr>
<tr>
<td>Trails BC</td>
<td>Greater Nanaimo Cycling Coalition</td>
<td>Greater Victoria Cycling Coalition</td>
</tr>
<tr>
<td>HUB Cycling (Metro Vancouver)</td>
<td>Island Pathways</td>
<td>Juan De Fuca Cycling Coalition</td>
</tr>
<tr>
<td>Kelowna Area Cycling Coalition</td>
<td>North Shore Safety Council</td>
<td>Oceanside Cycling Coalition</td>
</tr>
<tr>
<td>Penticton and Area Cycling Association</td>
<td>Powell River Cycling Association</td>
<td></td>
</tr>
</tbody>
</table>

**Our Programs**

- Bike Sense - The British Columbia Bicycle Operator’s Manual
- Kids on Wheels - An innovative program giving preschool children hands on experience with balance bikes
- BC Bikes - The annual conference bringing together cycling groups, government and business
- CyclotouringBC - Our initiative engaging government and business to promote and enable bicycle tourism

**Contact**

Richard Campbell  
Executive Director  
City Square, P.O. Box 47104, 15-555 West 12th Ave.  
Vancouver, BC, V5Z 3X7  
richard.campbell@bccc.bc.ca, 778.891.1764

bccc.bc.ca  
@bccycle  
bccycle
Table of Contents

Cycling is Popular 7
Cycling Progress in B.C.

Cycling Potential 9
Broad Support for Cycling Improvements
More People Will Cycle When Improvements are Made
Many Trips are Within Cycling Distance
Significant Room to Grow Cycling and Walking in B.C.

Mode Share Targets 11
Cost Effectiveness 12
Addressing the Barriers to Cycling 13
The Benefits of Cycling and Walking 14
System Dynamics Modeling (SDM)
Health Economic Assessment Tool (HEAT)
Calculating Distance Travelled
Combatting Childhood Obesity and Physical Inactivity
The Economic Benefits of Cycling
Cycle Tourism
Attracting Talent and Jobs
Workplace Productivity

Cycling and Walking Safety 18
The Cost of Fatalities and Injuries
Congestion
Protected Bike Lanes and Bikeways Improve Pedestrian Safety

Detailed Recommendations 19
1. Accelerated Provincial Investment in Cycling and Walking 19
   London
   Seville
   The Netherlands
   Munster, Germany
   Sydney, Australia
   Winnipeg
   Minneapolis
   Copenhagen
   1.a Provincial Roads and Bridges
   Cycling and Walking Audits
   1.b Increased Bike BC Funding and New Complete Streets Funding
   Inadequate Funding for Communities
   1.b.i Increase Bike BC funding allowed per project
   1.b.ii Helping Communities With Active Transportation Planning and Design
   1.c Funding for Safe and Healthy Routes to School
   1.d Cycle Tourism
2. Cycling and Walking Facility Planning
   2.a Adoption of Evidence Based Standards
       Provide physical separation where possible
       Provide sufficient shoulder width
       Intersections
       Roundabouts
   2.b New Provincial Projects
       Sea to Sky Highway
       The William R. Bennett Bridge (Kelowna)
       Pitt River Bridge
       Port Mann Bridge/ Highway 1 Expansion
       Recommendations
   2.c Provincial Roads Through Communities
       Recommendations
   2.d Planning and Design Resources

3. Built Environment and Community Planning

4. Education and Marketing
   4.a Cycling Skills Training
   4.b Motorist Training and Education
   4.c Bike Sense
   4.d Awareness of New Types of Facilities
   4.e Marketing

5. Developing Super Cycleways
   Copenhagen
   Recommendations

6. Encouraging the Use of Electric Bicycles

7. Lower Motor Vehicle Speeds
   7.a Blanket Speed Limits Below 50 km/h
   7.b Default 30 km/h Speed Limit on Residential Streets
   7.c Enforcement Policies Focused on Reducing Walking and Cycling Injuries and Fatalities
       Prioritizing Safety with Strict Speed Limit Enforcement
       Strict Enforcement at Night and When Visibility is Poor
       Strict Speed Limit Enforcement When Cyclists and Pedestrians Present
       Strict Speed Limit Enforcement In Rightmost Travel Lane
       Speed Enforcement Cameras
   7.d Funding for Enhanced Traffic Calming
   7.e Encourage the Creation of Low Speed Communities

8. Cycling and Transit
Cycling is Popular

Cycling is a popular activity with the potential for substantial growth. Around 70% of B.C. residents ride a bicycle at least once a year, 42% ride at least once a month and 25% ride at least once a week. People would like to cycle more: 65% saying they would ride more often if there were more bicycle paths separated from traffic.

As shown in the chart to the right, the vast majority of people cycle for recreation, sport and exercise. This reflects the reality that most communities in B.C. do not have cycling networks that facilitate safe, comfortable and convenient cycling for trips that have a specific destination. For recreational trips, however, people can simple pick a pleasant route without having to be concerned about finding a high quality bicycle route to a specific destination.

Typically, recreational cycling is around 6.6 times higher than commuter cycling. However, as shown in the following table, in areas that have better cycling networks, commuter cycling is up to 7 times the B.C. average essentially meaning that as many people cycle to work in those communities as cycle for recreation B.C. wide.

Cycling Progress in B.C.

Significant progress has been made in the communities that have invested in cycling.

In some areas in the City of Vancouver, cycle commuting mode share has risen to nearly 15%. Between 2008 and 2014, daily cycling trips by City of Vancouver residents almost doubled, increasing from 50,000 to 100,000. Sustainable transportation use accounted for 50% of trips in 2014, meeting the City’s 2020 target.

Whistler’s 40-kilometre paved Valley Trail network links key destinations of the Village and Upper Village, Creekside, other commercial centers, major parks, schools and neighbourhoods. The cycle

---

commuting mode share was 8% in 2011, an increase of 31% since 2006. Sections of the Whistler’s Valley Trail close to the Village regularly see over 300,000 users per year.

However, overall, little progress has been made in most of B.C., with commuting by bicycle only increasing from 1.98% in 2001 to 2.13% in 2011 reflecting a lack of investment in many communities.

In Metro Vancouver:

The fact of the matter is that not enough is being invested in cycling to achieve TransLink’s targets. Between 1996 and 2008, the region did not see any significant mode share increase. Only in the past few years has mode share increased slightly on a region-wide basis, and the increase has been primarily in the City of Vancouver, where significant network investments have been made.³

<table>
<thead>
<tr>
<th>Cycle Commuting Mode Share⁴</th>
<th>2006</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grandview Woodlands, Vancouver</td>
<td>11.30%</td>
<td>14.70%</td>
</tr>
<tr>
<td>Strathcona, Vancouver</td>
<td>9.20%</td>
<td>14.10%</td>
</tr>
<tr>
<td>South Cambie, Vancouver</td>
<td>9.80%</td>
<td>12.70%</td>
</tr>
<tr>
<td>West Point Grey, Vancouver</td>
<td>9.60%</td>
<td>11.80%</td>
</tr>
<tr>
<td>Victoria, City</td>
<td>9.50%</td>
<td>10.60%</td>
</tr>
<tr>
<td>Oak Bay, District</td>
<td>10.40%</td>
<td>10.20%</td>
</tr>
<tr>
<td>Whistler, District</td>
<td>6.10%</td>
<td>7.97%</td>
</tr>
<tr>
<td>Esquimalt, District</td>
<td>5.40%</td>
<td>6.40%</td>
</tr>
<tr>
<td>Saanich, District</td>
<td>5.20%</td>
<td>5.40%</td>
</tr>
<tr>
<td>Vancouver, City</td>
<td>3.70%</td>
<td>4.40%</td>
</tr>
<tr>
<td>Sidney, Town</td>
<td>4.60%</td>
<td>3.70%</td>
</tr>
<tr>
<td>Penticton, City</td>
<td>3.50%</td>
<td>3.50%</td>
</tr>
<tr>
<td>Kelowna, City</td>
<td>3.00%</td>
<td>3.50%</td>
</tr>
<tr>
<td>Courtenay, City</td>
<td>4.60%</td>
<td>2.40%</td>
</tr>
<tr>
<td>BC</td>
<td>2.00%</td>
<td>2.10%</td>
</tr>
<tr>
<td>Vernon, City</td>
<td>2.30%</td>
<td>1.80%</td>
</tr>
<tr>
<td>Metro Vancouver</td>
<td>1.70%</td>
<td>1.80%</td>
</tr>
<tr>
<td>Powell River, City</td>
<td>2.10%</td>
<td>1.30%</td>
</tr>
<tr>
<td>Canada</td>
<td>1.30%</td>
<td>1.30%</td>
</tr>
</tbody>
</table>

³ RCS, page 9
Cycling Potential

Broad Support for Cycling Improvements
There is broad public support for cycling improvements. In the B.C. on the Move Engagement Survey, 72% of respondents supported enhancing cycling infrastructure.5

Cycling and walking network improvements were a key theme at 32 of the B.C. on the Move Stakeholder Meetings:6

Participants supported improvements and expansion to cycling and pedestrian infrastructure as a critical way to improve connections within and between communities. Participants also noted that investment in cycling and pedestrian networks should consider safety and health improvements.

More People Will Cycle When Improvements are Made
Around 65% of British Columbian adults, 3 million people, say they would cycle more on improved cycling infrastructure including bicycle paths separated from traffic.

Many Trips are Within Cycling Distance
According to the 2011 National Household Survey, 42% of commutes are under 5 km, a reasonable cycling distance. Electric bicycles have the potential to increase the average cycling commute distance significantly. For example, in the Netherlands, the average bicycle commute is 6.3 km while the

---

6 Ibid. Page 8.
average electric bicycle commute is 9.8 km.\(^7\) In B.C., 65% of all commutes are under 10 km making them practical using an electric bike.

**Significant Room to Grow Cycling and Walking in B.C.**

The chart to the right illustrates the importance of cycling and walking in providing people with an alternative to driving. Transit use in British Columbia is only slightly below the European average. However, both cycling and walking in British Columbia are far below European levels indicating that there is much room to grow.

\(^7\) Electric Bicycle Report, Mobycon | The Region of Copenhagen, January, 2014, page 15.
Mode Share Targets

As shown in the table below, both Metro Vancouver and the Capital Regional District have ambitious mode share targets for their planned cycling networks. We recommend the 2020 targets be half the projected buildout increases.

For British Columbia, we expect the cycling potential is somewhat larger than Metro Vancouver as trip distances tend to be smaller and transit options are not as well developed. We simply scaled the targets for Metro Vancouver by ratio of the 2011 census mode shares (2.1%/1.8% * 10.0%) to arrive at the targets for B.C. While we feel that these are reasonable targets, we recommend that the Province develop more robust targets as part of a Provincial Active Transportation Strategy.

<table>
<thead>
<tr>
<th></th>
<th>Census 2011</th>
<th>Planned Buildout 2040</th>
<th>10 Year Buildout 2020</th>
<th>10 Year Buildout 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro Vancouver</td>
<td>1.8%</td>
<td>10.0%</td>
<td>5.9%</td>
<td>10.0%</td>
</tr>
<tr>
<td>CRD</td>
<td>5.9%</td>
<td>15.0%</td>
<td>10.5%</td>
<td>15.0%</td>
</tr>
<tr>
<td>B.C.</td>
<td>2.1%</td>
<td></td>
<td>6.9%</td>
<td>11.7%</td>
</tr>
</tbody>
</table>

9 Regional Pedestrian and Cycling Master Plan, Capital Regional District, https://www.crd.bc.ca/docs/default-source/regional-planning-pdf/Pedestrian-Cycling-Master-Plan/appendix_h_funding_and_implementation.pdf?sfvrsn=2
Cost Effectiveness

Cycling and walking investments are among the most cost-effective measures to reduce motor vehicle kilometres travelled and mode share as shown in the chart below.\(^\text{10}\)

Addressing the Barriers to Cycling

The barriers to cycling below have been confirmed in research including Cycling in Cities studies and polling commissioned by the BC Cycling Coalition.

### Barriers to Cycling

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

---

12 [http://bccc.bc.ca/reports/bc-cycling-poll.pdf](http://bccc.bc.ca/reports/bc-cycling-poll.pdf)
Addressing Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Measures</th>
</tr>
</thead>
</table>
| Safety and Comfort      | - Protected bike lanes along busy streets  
                          - Bike routes on quiet residential streets  
                          - Bike paths through parks and along lakes, rivers and the ocean  
                          - Wayfinding, maps and education to help people find routes they find safe and comfortable  
                          - Reduced motor vehicle speeds  
                          - Training that builds people’s confidence and skills                                                                 |
| Time, Effort and Distance | - A fine grained network serving all destinations  
                          - Routes along rail lines, highways or natural features with few intersections  
                          - Grade separation over or under highways and other barriers  
                          - Electric bicycles  
                          - Cycling and transit integration                                                                                      |
| Hills                   | - Electric bicycles  
                          - Routes with good grade management  
                          - Routes that avoid hills where possible                                                                 |
| Weather                 | - The above measures that reduce the Time, Effort and Distance also reduce exposure to weather  
                          - Properly graded surfaces that prevent puddling  
                          - Cycling and transit integration  
                          - Prompt ice and snow removal  
                          - Indoor or covered bike parking  
                          - Educating people on how to ride in the rain, ice and snow                                                            |
The Benefits of Cycling and Walking

We recommend all the environmental, health, economic and social benefits of measures to reduce GHG emissions be considered.

Various models exist to determine these benefits. We recommend that a variety of tools and methods be evaluated to determine what would be most accurate for British Columbia.

**System Dynamics Modeling (SDM)**

System dynamics modeling (SDM) incorporated the best available evidence to simulate five policy scenarios over the next 40 years in Auckland, New Zealand. Injury, physical activity, fuel costs, air pollution, and carbon emissions outcomes were compared using realistic policies, incorporating feedback effects, nonlinear relationships, and time delays between variables. The simulation model demonstrated the kinds of policies that would likely be needed to change a historical pattern of decline in cycling into a pattern of growth that would meet policy goals. The model projections suggested that transforming urban roads over the next 40 years, using best practice physical separation on main roads and bicycle-friendly speed reduction on local streets, would yield benefits 10–25 times greater than costs.14

**Health Economic Assessment Tool (HEAT)**

The WHO/Europe Health Economic Assessment Tool (HEAT)15 is designed to help conduct an economic assessment of the health benefits of walking or cycling by estimating the value of reduced mortality that results from specified amounts of walking or cycling.

**Calculating Distance Travelled**

When calculating potential GHG emissions reductions due to people switching trips to walking and cycling, total distance driven for those trips should be used, not the distance from the origin to the destination.

People drive further to:

- access parking, as parking is not always available right at the destination and accessing a parking space often requires driving around a parking structure or lot
- find on-street parking closer to the destination
- find less expensive parking
- avoid construction areas
- avoid congestion
- to use a road or highway that allows faster driving
- travel around traffic calming

Compilation studies found that drivers spend an average of 8 minutes “cruising” to find either less expensive or more convenient parking and that drivers looking for parking accounted for 30% of

---

15 http://www.heatwalkingcycling.org
traffic.\textsuperscript{16} These studies were in large cities around the world so local research is required to determine the impact of cruising in B.C. communities.

People walking and cycling can also access shortcuts not available to those driving.

Cycling and walking trips may also replace longer driving trips. For example, when people walk and cycle, they may choose to go to a shop, restaurant or cafe that is closer than if they chose to drive.

**Combatting Childhood Obesity and Physical Inactivity**

*A Strategy for Combatting Childhood Obesity and Physical Inactivity in British Columbia\textsuperscript{17},* by the Select Standing Committee on Health of the Legislative Assembly of BC, estimated that the direct and indirect cost of obesity and inactivity combined in British Columbia is likely in the range of one billion dollars\textsuperscript{17} a year and two to three times larger when including reduced productivity and increased susceptibility to illness and disease. This situation may become even worse if action is not taken to enable and encourage physical activity among children. The Committee stated "We also believe that schools, municipalities, and the Province must work together to ensure that every student in British Columbia has access to safe walking or cycling routes." The Strategy recommended the Government provide additional resources to promote cycling and to improve walking and cycling routes to schools and throughout communities.

**The Economic Benefits of Cycling**

**Cycle Tourism**

Oregon estimated that in 2012, cycling tourists contributed $400 million to their economy\textsuperscript{18} while cycle tourism in Europe is worth almost $60 billion per year. 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\textsuperscript{19}.

**Attracting Talent and Jobs**

Cities around North America are improving their bicycle networks to attract talent, companies and jobs.\textsuperscript{20}

“Biking is definitely part of our strategy to attract and retain businesses in order to compete in a mobile world,” says Minneapolis Mayor R.T. Rybak, as we glide across the Mississippi River on one of two bike-and-pedestrian bridges that connect downtown to the University of Minnesota. “We want

\textsuperscript{16} D Shoup, Cruising for Parking, Access, Spring 2007, \url{http://shoup.bol.ucla.edu/CruisingForParkingAccess.pdf}
\textsuperscript{17} (2006) \url{www.leg.bc.ca/cmt/38thparl/session-2/health/index.htm}
\textsuperscript{19} Route Verte (no date) *Economic spin-offs.* \url{www.routeverte.com/rv/index_e.php?page=retombees_e}
\textsuperscript{20} \url{http://www.yesmagazine.org/happiness/how-bicycling-is-transforming-business}
young talent to come here and stay. And good biking is one of the least expensive ways to send that message.”

Young people today are driving significantly less than previous generations, according to a flurry of reports. These young people represent the “creative class” talent pool that many companies covet. That’s why civic, business, and political leaders around the country are paying attention to the next generation’s wishes for lively, liveable places to work and play. This means ample transportation options like biking—not only for commuting to work, but also for recreation after work and, in some cases, over the lunch hour.

Chicago Mayor Rahm Emanuel was elected on an aggressive platform of bringing new tech and creative businesses to the city. He scored a major coup with Google-Motorola Mobility’s announcement that it was moving more than 2,000 jobs from a suburban campus to the heart of the city. “One of the things that employees look [at] today is the quality of life and quality of transportation because of the ease that comes with it”

**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.²¹

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 programs that focus on activities at the work site during the day.²²

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.²³ 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.²⁴

---

Cycling and Walking Safety

The British Columbia Road Safety Strategy 2015 and Beyond states that while motor vehicle occupant fatalities have decreased significantly, “Since 2002, there has been virtually no progress in achieving better injury and fatality outcomes for pedestrians and cyclists, who are among the most vulnerable and least protected types of road users.”25 As shown in the table below, B.C. has significantly higher rates of cycling fatalities than several European countries.

<table>
<thead>
<tr>
<th></th>
<th>B.C.</th>
<th>Germany</th>
<th>Denmark</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatalities per 100 million km</td>
<td>2.6</td>
<td>1.7</td>
<td>1.5</td>
<td>1.1</td>
</tr>
</tbody>
</table>

The Cost of Fatalities and Injuries

Based on research by Transport Canada, the societal cost of a traffic fatality is estimated to be around $15 million dollars while that of an injury is around $50,000.27 Thus the average of 60 walking and cycling fatalities have a societal cost of around $900 million per year. The motor vehicle collisions injuring 1,500 cyclists and 2,400 pedestrians cost around $185 million per year. While numbers are not tracked on cyclists injured in incidents not involving motor vehicles, a study of emergency room visits in Vancouver and Toronto indicates around the same number of cyclists are injured due to falls and collisions with hazards, cyclists and pedestrians.26 As well, the ICBC statistics above do not include collisions with the open doors of parked cars which the above study indicates amount to around 20% of injuries involving moving motor vehicles. Thus, likely around an additional 1,800 cyclists are injured in BC at a cost of around $90 million per year.

The total cost to BC society of pedestrian and cycling injuries and fatalities amounts to around $1,175 million per year

Congestion

In addition to the really high human costs, serious injuries and fatalities to people walking and cycling can block busy roads and bridges for hours, significantly interrupting the flow of goods and causing frustration to all road users. It is estimated that up to 25% of congestion is caused by collisions.

Protected Bike Lanes and Bikeways Improve Pedestrian Safety

26 K Teschke et al, 2013
Research has confirmed that the separated bike lanes and bicycle paths that encourage more people to cycle are also the safest facilities for cycling. Separated bike lanes can reduce sidewalk cycling, which is dangerous for both people walking and cycling, by up to 80%. Many of the measures taken in conjunction with protected bike lanes result in fewer injuries to pedestrians and motor vehicle occupants as well by 29:

➔ Reducing crossing distances;

➔ Making it easier to know which direction cars are coming from - by reducing the number of mixed traffic lanes, protected bike lane projects effectively break each pedestrian street crossing into manageable stages, all of which include tightly defined vehicle movements;

➔ Adding dedicated turning phases, preventing conflicts with turning vehicles; and

➔ Reducing traffic weaving - By removing excess traffic lanes, drivers are less likely to be able to swerve around a vehicle stopped for a pedestrian.

Investments in traffic calming and signals as part of bikeway projects also improve pedestrian safety.

---

Detailed Recommendations

1. Accelerated Provincial Investment in Cycling and Walking

The investment required to improve walking and cycling facilities on Provincial roads and bridges; the significant unrealized economic potential of cycle tourism; the high societal cost of cycling and walking injuries and fatalities; and the benefits of investments in cycling facilities for pedestrian safety have prompted us to include pedestrian facilities within our funding recommendations bringing the yearly amount to $100 million per year for ten years.

With additional funds of $75 million per year from local, regional and federal governments for a total of $180 million per year, this will bring the level of funding to near the $40 per person per year seen in countries such as the Netherlands that have high levels of cycling and walking and low fatality rates. The UK government realizes that this is the level of funding required and has been increasing funding towards that level.

As shown in the table below, we have found cost estimates for cycling networks in Metro Vancouver, the Capital Regional District, the Central Okanagan and a few other communities totalling $1.132 billion. Assuming the cost per person will be similar in other communities, we estimate the cost for cycling networks in all B.C communities to be on the order of $1.8 billion. Over ten years, this amounts to around $40 per person per year. While formal estimates are recommended for the other communities, as the known estimates cover 63% population of the Province, there is a strong case for increased investment immediately.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Capital Cost (millions)</th>
<th>Population</th>
<th>Cost per person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro Vancouver</td>
<td>$850^31</td>
<td>2,300,000</td>
<td>$370</td>
</tr>
<tr>
<td>CRD</td>
<td>$275</td>
<td>360,000</td>
<td>$764</td>
</tr>
<tr>
<td>Central Okanagan</td>
<td>$83</td>
<td>180,000</td>
<td>$462</td>
</tr>
<tr>
<td>City of Castlegar</td>
<td>$1.6</td>
<td>7,259</td>
<td>$220</td>
</tr>
<tr>
<td>City of Chilliwack</td>
<td>$27</td>
<td>78,000</td>
<td>$346</td>
</tr>
<tr>
<td>City of Kamloops</td>
<td>$13</td>
<td>86,000</td>
<td>$153</td>
</tr>
<tr>
<td>City of Kelowna</td>
<td>$38</td>
<td>117,000</td>
<td>$325</td>
</tr>
<tr>
<td>Sub Total</td>
<td>$1,132</td>
<td>2,907,098</td>
<td>$389</td>
</tr>
<tr>
<td>Rest of Province</td>
<td>$659</td>
<td>1,692,902</td>
<td>$389</td>
</tr>
<tr>
<td>Total for BC</td>
<td>$1,791</td>
<td>4,600,000</td>
<td>$389</td>
</tr>
<tr>
<td>Total for BC</td>
<td>$1,880</td>
<td>4,600,000</td>
<td>$409</td>
</tr>
</tbody>
</table>

The cycling plans have not been evaluated for their completeness nor for the quality of the proposed networks. Several of these plans likely need updating to include all ages and abilities cycling facilities. This will likely result in somewhat increased costs. More details including links to the plans at:

https://docs.google.com/spreadsheets/d/1cbdDX0_zPApdk7mVUWrOrW-Gz8YubXjOb-907EYoc5E/edit?usp=sharing

^31 Does not include the cost of upgrades to Ministry of Transportation and Infrastructure facilities.

^32 Only includes the cost of regionally significant connections in communities and the Central Okanagan is currently updating its Active Transportation Plan. Thus it is expected that the cost could increase significantly.
As summarized in the following table, jurisdictions around the world are investing significant amounts in cycling infrastructure. Some, such as the Netherlands, already have high cycling mode shares and require investment to address capacity and safety issues. Most of the others, having cycling mode shares lower than many BC communities, have committed to dramatically increase cycling in a short period of time.

**Bicycle Funding and Mode Share**

<table>
<thead>
<tr>
<th>Location</th>
<th>Investment (millions)</th>
<th>Start</th>
<th>End</th>
<th>Years</th>
<th>Per Person per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amsterdam</td>
<td>$652</td>
<td></td>
<td></td>
<td></td>
<td>$41</td>
</tr>
<tr>
<td>Copenhagen</td>
<td>$38</td>
<td>2016</td>
<td>2019</td>
<td>4</td>
<td>$11</td>
</tr>
<tr>
<td>Berlin</td>
<td>$237</td>
<td>2015</td>
<td>2020</td>
<td>6</td>
<td>$7</td>
</tr>
<tr>
<td>Winnipeg</td>
<td>$334</td>
<td>2015</td>
<td>2035</td>
<td>20</td>
<td>$25</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>$18</td>
<td>2010</td>
<td>2010</td>
<td>1</td>
<td>$48</td>
</tr>
<tr>
<td>Vancouver</td>
<td>$25</td>
<td>2010</td>
<td>2011</td>
<td>2</td>
<td>$20</td>
</tr>
<tr>
<td>Surrey</td>
<td>$13</td>
<td>2010</td>
<td>2011</td>
<td>2</td>
<td>$20</td>
</tr>
<tr>
<td>London</td>
<td>$619</td>
<td>2013</td>
<td>2015</td>
<td>3</td>
<td>$27</td>
</tr>
</tbody>
</table>

**Cycling Investment Levels**

London

Mayor Boris Johnson announced as part of an Olympic Legacy for all Londoners, he will more than double London’s cycling budget to $619 million over the next three years. In 2015, they will be spending $224 million per year on cycling, or around $28 per person. This will fund more Dutch-style bicycle lanes and paths separated from traffic on busy streets as well as intersection improvements.

and routes on quiet streets. "Timid, half-hearted improvements are out – we will do things at least adequately, or not at all." The goal is to double the number of cycling trips over the next 10 years.

They plan on creating "Mini-Hollands" in the outer suburbs increasing dedicated cycling funding from $3 million to $100 million transforming between one and three by focusing the funding there. They will also fund pilot Cycle to School programs and cycling education for children and adults.

**Seville**

Seville demonstrated the advantages of rapidly building cycling facilities. In four years, they invested $42 million to complete a network of 78 km separated bike lanes throughout the city. In addition, they also installed a 2,500 bicycle bike sharing system. As a result, bicycle mode share increased from 0.2% to 6.6% and cycling trips increased from 2,500 to 70,000 per day. Perhaps more importantly, it is now quite common to see children cycling in the city.\(^{34}\)

**The Netherlands**

Dutch government expenditure on cycling has now reached an annual level of 487 million Euros per year.\(^{35}\) 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.\(^{36}\)

**Sydney, Australia**

The City of Sydney is investing $71 million over 4 years to build a 200km cycling network including 55km of separated cycleways.\(^{37}\) 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.

**Winnipeg**

Winnipeg’s Active Transportation Strategy approved in 2015, estimated network buildout will cost $334 million.\(^{38}\) The Strategy also highlighted the importance of staff resources:

> Evidence from cities across North America clearly demonstrate that having several staff members dedicated exclusively to walking and cycling is critical to enabling walking and cycling. An analysis of the 40 largest U.S. cities shows that cities with larger staff, both in count and per capita, have higher levels of bicycling than cities with smaller staffs.

\(^{35}\) [http://hembrow.blogspot.com/2010/05/487-million-euros-for-cycling.html](http://hembrow.blogspot.com/2010/05/487-million-euros-for-cycling.html)
\(^{36}\) Ibid, p i.
\(^{38}\) [http://www.winnipeg.ca/publicworks/MajorProjects/ActiveTransportation/WalkBikeWinnipeg/pdf/strategy_summary.pdf](http://www.winnipeg.ca/publicworks/MajorProjects/ActiveTransportation/WalkBikeWinnipeg/pdf/strategy_summary.pdf)
In 2010, Winnipeg invested $20.4 million in capital funding to build an extensive active transportation network throughout the city. 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. 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 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.

1.a Provincial Roads and Bridges

In consultation with our members and through working with Ministry staff on issues including access to the Ironworkers Memorial Bridge and the Stanley Park Causeway, we have come to realize an ongoing program to audit, prioritize, plan and fund upgrades to cycling and walking facilities on Provincial roads and bridges is needed. This will help streamline safety improvements, create efficiencies for Ministry staff, and result in consistently high quality infrastructure. The Province should provide resources to municipalities and regional districts to do the same on their facilities. These improvements will require significant investment over the next ten years. Improvements to the Causeway will cost around $7 million and further investment will be required to improve the connections to Vancouver cycling routes. Access improvements on the south side of the IWMB alone are estimated to cost in the order of $15 million. The cost to improve access to the Alex Fraser Bridge will likely be even more. These bridges and their connections are key regional cycling routes that need safety improvements to serve their users.

---

39 [http://www.winnipeg.ca/publicworks/MajorProjects/ActiveTransportation/HikeItBikeItLikelt.asp](http://www.winnipeg.ca/publicworks/MajorProjects/ActiveTransportation/HikeItBikeItLikelt.asp)

40 [http://www.ci.minneapolis.mn.us/bicycles/Ch8Funding.pdf](http://www.ci.minneapolis.mn.us/bicycles/Ch8Funding.pdf)

41 [http://www.ci.minneapolis.mn.us/bicycles/Ch1Intro.pdf](http://www.ci.minneapolis.mn.us/bicycles/Ch1Intro.pdf)

Cycling and Walking Audits
We strongly recommend that audits of cycling and walking facilities, maintenance procedures and cycling and walking collisions on Provincial Roads and Bridges be undertaken as part of the implementation of the BC Transportation Plan. The audits should include:

➔ cycling and walking counts;
➔ the width and condition of cycling facilities;
➔ hazard identification;
➔ identification of areas where debris collects;
➔ identification of destinations popular with locals and visitors;
➔ maintenance procedures; and
➔ details of all cycling and walking collisions, fatalities and injuries including those not involving motor vehicles.

Our members have identified some Provincial facilities that require cycling and walking improvements including the:

➔ Agassiz-Rosedale Bridge
➔ Ironworkers Memorial Bridge Access
➔ Alex Fraser Bridge and Access
➔ Sea to Sky Highway Shoulder Widening and Hazard removal
➔ Southern End of Stanley Park Causeway
➔ Lougheed Hwy - Coquitlam, Maple Ridge, Mission, Deroche to Harrison Mills
➔ Highway 4 to Tofino - Sutton Pass to the Visitor Centre at the T junction
➔ Kamloops - a paved path between Valleyview and Barnhartvale that parallels Hwy 1
➔ North Shuswap - a trail paralleling the highway from Squilax to Anglemont
➔ Roads connecting the University of British Columbia and the City of Vancouver

We will continue to identify such facilities and bring them to the attention of MoTI. We expect there are many more across the Province and thus encourage the Ministry to actively audit its infrastructure.

1.b Increased Bike BC Funding and New Complete Streets Funding

Inadequate Funding for Communities
Communities across the province have produced extensive cycling network plans. Unfortunately, due to lack of funding, these cycling networks may not be complete for 20 to 30 years. For instance:

➔ Surrey’s cycling plan that includes over 400 km of additional bike lanes and paths. With current funding, it plans on completing around 12 km per year, but has indicated that additional funding from senior levels of government would speed implementation of the plan.

43 http://www.thenownewspaper.com/travel/Ambitious+strategy+aims+cycling+lanes/6991514/story.html
The Pedestrian & Cycling Master Plan - Capital Regional District estimated the cost of upgrading the bicycle network to attract people of all ages and abilities is around $275 million.

In order to meet its 2040 targets, TransLink has estimated that completing all-ages cycling networks around the region is at least $850 million.

Increased Bike BC funding and a new funding for Complete Streets would enable communities across B.C. to complete their cycling networks and improve cycling and walking safety.

Along with the increased funding, we also recommend:

1.b.i Increase Bike BC funding allowed per project

- Especially with the increased cost of facilities designed to attract people of all ages and abilities, the per project amount provided by Bike BC and other cost sharing programs needs to be increased to enable these projects to be built and make it worthwhile for communities to submit funding applications. As well, for regionally significant projects, Bike BC funding should be available for up to 75% of project costs.

1.b.ii Helping Communities With Active Transportation Planning and Design

Many communities in B.C. could use resources and funding to assist with the development of cycling network plans and with the design of cycling facilities. Many existing plans need to be updated as they were completed before it was widely recognized that cycling facilities separated from traffic attract more people of all ages and abilities to cycling and can be safer than unseparated facilities. As well, existing network plans often do not include implementation plans with cost estimates making it less likely that they will be implemented in a reasonable period of time.

The BEAT (Built Environment for Active Transportation) program is a good example of a program which assisted communities both with funding and expertise to develop active transportation plans.

- We recommend an updated and expanded BEAT or similar program to help plan cycling and walking networks and design facilities in communities.

1.c Funding for Safe and Healthy Routes to School

We strongly support the recommendation of the Select Standing Committee on Health in A Strategy for Combatting Childhood Obesity and Physical Inactivity in British Columbia Report that:

- “the government provide resources to local governments and school boards to develop and promote safe routes to school programs and provide additional resources to assist municipalities to address existing walking and cycling infrastructure deficiencies relating to the safe routes to school program.”

---

1.d Cycle Tourism

Building on the success of Spirit of 2010 Trails and the Trans Canada Trail, a network of cycling and walking routes linking communities and attractions throughout the province will also offer visitors and residences wonderful low carbon experiences. This dramatic increase in tourism will have significant economic benefits to rural and urban BC communities. We are encouraged by recent Provincial investment in the Okanagan Rail Trail.

Recommendations

1. A comprehensive, province-wide, paved BC cyclotouring network of on-road and off-road cycling facilities designed to appeal globally to cyclists, non-cyclists, families, seniors, and non-risk takers to tour BC with their bicycles.
2. Widening of highway shoulders to exceed BC’s April 2000 Cycling Guide
   a. Width conducive to entice non-cyclists, families and risk-adverse cyclists to tour on bicycle
   b. Relocation of rumble strips to underneath the outside lane’s white line
   c. Shoulder sweeping every 6 weeks between April and October
   d. Wider shoulders on accents and descents exceeding 4%
   e. Maintaining quality shoulder pavement surfaces at level that attract people to cyclotour
3. Development program for rail trails and off-road trails between cities, including acquiring rail corridors
4. Support and grow multi-modal cyclotouring in BC
   a. 24-hour, on call George Massey Tunnel shuttle service
   b. 3 bike racks on buses and allowing bicycles in buses when not fully loaded
   c. Expand bike racks on ferries
   d. Cycling access facilities to airports and at airport facilities and services for shipping bicycles by air.
2. Cycling and Walking Facility Planning

We recommend that the design of the facilities build upon the experience from Europe, where designs encourage people of all ages and abilities to cycle or to combine cycling with transit instead of driving.

2.a Adoption of Evidence Based Standards

The best North American design standards for bicycling are those of the National Association of City Transportation Officials (NACTO). To encourage people to cycle, and to minimize the need for reconstruction of facilities to better standards at a later date, these standards should be adopted in B.C. Designs should also incorporate the experience of cycling countries. For example, there are many excellent bridge and underpass examples in the Netherlands. Standards and guidelines should be updated as needed to reflect the latest research and experience gained in the implementation and operation of other facilities.

New and upgraded cycling and walking facilities will likely be in place for at least the next 50 years. As such, these facilities need to be designed for future demand assuming a significant increase in cycling and accounting for expected population growth.

Facilities should be designed to:

- Attract people of all ages and abilities including children and seniors;
- Safely accommodate inexperienced cyclists;
- Safely enable the higher-speed cycling required for cycle touring, long-distance commuting, exercise and training on bridges, approaches, connections between communities, and other essential links;
- Safely accommodate a range of human powered and light-weight electric devices including wheelchairs, mobility scooters, skateboards, in-line skates, cargo bikes, bicycles with trailers; and tandem bicycles;
- Minimize conflicts between all users including cyclists, pedestrians and drivers;
- Separate cyclists and pedestrians especially where cycling speeds or user volumes are high;
- Provide sufficient shy distance from hazards based on cyclist speed;
- Eliminate exposed fencing and barriers poles that could cause a crash or severely injure a cyclist;
- Minimize collection of water or debris;
- Accommodate anticipated cyclist speeds and volumes;
- Have grades of 3% or less to minimize effort and reduce downhill speeds; and
- Provide ample sightlines to allow users to see each other in time to avoid collisions.

Provide physical separation where possible

On roads and highways with high traffic volumes or speeds, it is highly desirable to physically separate the cycling facilities from motor vehicle traffic.

The preferred cycling facilities from highest to lowest are:

1. High quality bike paths set apart from a highway right-of-way, particularly if they involved a substantive decrease in distance or grade;
2. High quality bike paths within highway rights-of-way, with safe and efficient crossings at intersecting roads;
3. Physically separated bike lanes, preferably directional and properly integrated into intersection design;
4. Bike lanes separated from traffic with posts;
5. Bike lanes separated from traffic with a painted buffer;
6. Sufficiently wide paved shoulders or painted bike lanes that are well maintained and kept free of road debris, ideally only where traffic speeds are low (<60 km/h), realizing that in rural areas separation may not be always possible.

That said, it is realized that separation is not always possible or may take time to plan, design and fund. We encourage the Ministry to take advantage of road rehabilitation and upgrade projects to improve shoulder width and surface to provide immediate cycling improvements, even if the long-term vision is to provide separation.

In sections of highway with numerous high volume intersections, one-way facilities on both sides of the road are preferred. In sections with few intersections, two-way cycling facilities on one side are acceptable. Ideally the facility should be continuous on one side of the highway as much as possible to minimize at-grade crossings of the highway.

**Safely accommodate higher speed cycling**
Paths and protected bike lanes should be designed to safely accommodate expected cycling speeds. On bridges, approaches and long downhill sections, paths and protected bike lanes should accommodate high speed cycling through:

➔ A design speed of 60 km/h;
➔ One-way paths on both sides with convenient access from all directions to encourage one-way cycling to avoid head-on collisions;
➔ Ideally a 1.5m or at least a minimum 1m shy distance separating the travel surface of paths and shoulders from hazards including signposts, fence poles, light standards; utility boxes, trees and street furniture;
➔ Ensuring adequate sightlines; and
➔ Designing the facility to not pool water and collect debris;

**Provide sufficient shoulder width**
Sufficient shoulder width should account for the following factors:

➔ Speed of traffic on the adjacent roadway;
➔ The volume of buses, large trucks and RV’s, considering wind turbulence and off-tracking on corners;
➔ Significant cross-winds and grades (cyclists need more space when climbing or negotiating cross-winds and avoiding obstacles when descending);
➔ The presence and condition of rumble strips, drainage grates and road-side barriers, all of which can reduce usable space, introduce hazards and collect debris; and
➔ How frequently debris accumulates and how quickly it is cleared.
Intersections

➔ At high volume intersections, cyclists and pedestrians should be signal-protected from right and left turning vehicles;
➔ Markings and colourised surfaces should be used to indicate conflict areas;
➔ On cycling routes, people should be allowed to ride through intersections without dismounting.

The Burrard Cornwall intersection features protected bike lanes and signal phases protecting people walking and cycling from turning vehicles.

Roundabouts

➔ For higher volume and speed roundabouts, grade-separation for cyclists and pedestrians is preferred. In the Netherlands, cycling underpasses are common;
➔ Where there is no grade separation, roundabouts should contain protected outer lanes for cyclists and sidewalks for pedestrians.

Assen, Netherlands roundabout with excellent safety record - Only 4 minor car crashes in 5 years. No crashes involving people walking or cycling.45

2.b New Provincial Projects

Over the past two decades, the majority of Provincial infrastructure projects have accommodated cycling. These projects have resulted in significant network improvements around the Province.

However, projects implemented as design-build Public Private Partnerships (P3) have proven to be challenging with the results often being less than ideal for cycling. Typically, MoTI has done a good job consulting with the cycling community during the initial phase of the project producing reference designs that provide good cycling accommodation.

The problems have occurred during the design-build phase where the actual design bears little resemblance to the reference design, often resulting in significantly worse accommodation of cycling. As well, the accommodation of cycling during the construction period has often been inadequate.

Sea to Sky Highway

→ Shoulders as narrow as 0.9 metres when the standard for 80 kph road is 2.2m and the promised width was 1.5m;
→ Hazards, including drain grates not level with the shoulder surface;
→ Improperly installed rumble strips reducing the effective width of the shoulder to 1.3m, increasing the risk to cyclists.

**The William R. Bennett Bridge (Kelowna)**
→ The reference design included pedestrian/bike paths on both sides of the bridge. This would have allowed easier access to the bridge by both pedestrians and cyclists. After the P3 partner redesigned the bridge, only a two way pedestrian/cycling facility on one side of the bridge remained;
→ The surface is unacceptably rough, causing health impacts for some cyclists;
→ The slopes on the elevated section of the bridge are steep, discouraging potential cyclists.

**Pitt River Bridge**

46
→ Cycling access is much more circuitous than the old bridge and the reference design;
→ Hairpin turns, increasing the risk of cycling falls;
→ Poor construction management, including unmarked drop-offs of at least 0.2m in the cycling detours that could have resulted in serious injury.

**Port Mann Bridge/ Highway 1 Expansion**
→ The path on the new Port Mann Bridge is only 3m wide, when the standard for a two-way shared path is 4m plus 0.5m shy distance on both sides. The result will be increased risk of head-on cycling collisions, which could result in serious injuries or fatalities due to high speeds on the long downhill sections;
→ An opportunity to provide a direct traffic-free connection as part of the project to the Central Valley Greenway was missed. The current route involves a detour of almost 1 km on a truck route through an industrial area requiring crossing busy United Blvd twice and also currently requires travelling along United Blvd for a kilometre.

**Recommendations**
→ Ensure a high standard of cycling facilities are written into project requirements that meet or exceed the reference design;
→ Provide sufficient financial incentives to ensure that cycling facilities meet or exceed that of the reference design;
→ Both the private partner and the overseeing authority should have cycling and pedestrian facilities experts on their teams that are intimately involved in the design and implementation of the project;
→ Feedback should be sought from the cycling community up to and including the final project design;
→ There should be a complete audit of the final construction to ensure that all standards have been met and that the cycling facilities are safe to use; and
→ Avoid design-build projects until and unless these issues are resolved.

---

2.c Provincial Roads Through Communities

From 2007 to 2010 the BC Healthy Living Alliance (BCHLA) worked with 24 local governments and 15 Aboriginal communities on the ‘Built Environment and Active Transportation (BEAT)’ initiative. From that experience, they know that Provincial highways act as real barriers to walking and cycling. It can be very challenging for local communities and to implement measures that would enhance the pedestrian and cycling environment but more responsiveness, flexibility and overall support from the Ministry of Transportation and Infrastructure (MoTI) would make a measurable difference.47

**Recommendations**

➔ Adopt all ages and abilities cycling facilities as the default standard for MoTI roads through communities;

➔ Improve MoTI’s processes for working with local governments to lower speeds, place safety-related signage and improve cycling and pedestrian environments and crossings on highways within communities;

➔ Allocate funding to plan and implement cycling and walking improvements on MoTI roads through communities.

2.d Planning and Design Resources

Best practices in cycling planning and design have been rapidly evolving over the last decade in light of the strong evidence that facilities that are separated from traffic encourage more people to cycle and are safer. As well, fitting cycling facilities into existing street right-of-ways can be challenging due to space and other constraints.

Resources to help design cycling and walking facilities would be especially for smaller communities who often don’t have staff that can focus on active transportation.

3. Built Environment and Community Planning

Decreasing the distances that people have to travel is critical to enabling them to choose to walk and cycle. The majority of walking trips and cycling are under 2km and 5km respectively.

As the Climate Action Plan states:

Smart planning, with compact communities, energy-efficient buildings and more clean transportation alternatives, is the way of the future.

The European Union’s Climate Plan identifies Spacial Planning as the most effective measure to reduce transportation related GHG emissions over the longer term.48

---


As many B.C. communities are expected to grow significantly by 2050, it is critical to develop strong policies and incentives that encourage development take place in areas where walking and cycling are possible for the majority of trips.

**Recommendations**

A. Prioritize and accelerate transportation investments in transit, cycling and walking that encourage development in compact mixed-use which enable people to drive less;

B. Incentives and policies to encourage high quality cycling and walking networks in new developments; and

C. Policies that encourage compact mixed use communities that enable walking and cycling to be practical transportation choices for the majority of trips;

**4. Education and Marketing**

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. There is strong support for cycling safety education for children and adults in B.C. with 58% saying that it is important with only 17% saying that it is not important.49

Enabling travel choice is a complex interrelated process requiring awareness, recognition, trial, confidence-building and habitualisation. Education and marketing 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.

**4.a Cycling Skills Training**

Efforts are underway to encourage the adoption of Bike Right, a coordinated bike skills training framework, unifying a variety of initiatives including Streetwise Cycling Courses, Ride the Road high school cycling curriculum, Workplace Cycling Education, CAN-Bike and RideLife, into a single, comprehensive BC standard. Provincial funding would be very instrumental in helping this initiative move forward and making cycling education universally available.

This would be a first for North America but experience from the UK 'Bikeability' initiative shows that coordinated training led to 22% of trainees in London stating they cycled a lot more afterwards. While initially 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 help address public concerns about cyclist behaviour.

---

Bike Right broadly accessible youth cycling education, will enable the next generation of British Columbians to choose the bicycle as a safe, sustainable, lifelong form of transportation.

Bike Right is a made-in-BC comprehensive framework for youth cycling education that has been written with the input of broad and diverse array of stakeholders representing dozes of communities around the province.

Please see the BC Bike Right Network Climate Leadership Plan submission for a more detailed explanation of the framework.

Ride the Road is HUB’s complete cycling educational program to empower and enable 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.

Streetwise Cycling Courses provide adult education in community centres around Metro Vancouver, resulting in a 142% increase in cycling post-course and an additional significant increase in cycling in poor weather.  

Kids on Wheels is the BC Cycling Coalition’s new initiative to introduce preschool children to cycling through hands on experience with balance bicycles and cycling related toys and books.  

---

50 [https://bikehub.ca/bike-education](https://bikehub.ca/bike-education)
51 [http://bccc.bc.ca/kids_on_wheels](http://bccc.bc.ca/kids_on_wheels)
4.b Motorist Training and Education
The responsibilities of motorists and cyclists and safety tips for sharing the road should be enhanced in driver education programs, courses and remedial programs.

4.c Bike Sense
The British Columbia Cycling Coalition assumed responsibility for Bike Sense (http://bikesense.bc.ca), the British Columbia Bicycle Operator's Manual from the Greater Victoria Cycling Coalition in late 2014. The Bike Sense Workshop, also in late 2014, brought fifty cycling education experts together from around the Province to discuss and plan the future of Bike Sense. We are currently developing plans to update the material to reflect the latest safety research and broaden the distribution of Bike Sense and other cycling educational material.

4.d Awareness of New Types of Facilities
As new types of facilities such as separated bike lanes, 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.

4.e Marketing
A $5 million per year program of targeted promotion and awareness activities would broaden and consolidate current projects including; Bike to Work Week, Bike to School 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.

5. Developing Super Cycleways
Super Cycleways (also know as Bicycle Superhighways) are high standard and continuous paved bicycle routes designed to reduce travel times and thus facilitate long distance (5-20 km) cycling trips. They connect communities and major destinations including residential areas, concentrations of jobs, schools and public transit.52

Features include:
➔ Separate, high standard paths reserved for cycling separated from pedestrians and motor vehicles
➔ Two-way cycleway, separate lanes, 3.0 to 4.0m wide depending on volumes
➔ Design speeds of up to 40km/h on flat sections, higher on downhill
➔ Requirements for maximum grades and minimum curve radii.
➔ High operating and maintenance standards including frequent snow, ice and debris removal
➔ Grade separated crossings of major roads and highways
➔ Few stops
➔ Lighting
➔ Greenwaves - Traffic signals synchronized to average cycling speeds

Keys to success is cost-sharing funding from senior levels of government and a coordinating body that can help ensure that routes are of a consistent high quality across jurisdictions.

While even with Super Cycleways, the mode share of longer trips by bicycle will be lower than that of shorter trips, the benefits of longer trips by bike are much greater both from a transportation and an environmental point of view. For example, one 15km bike trip replacing a car trip has 5 times the GHG emissions reductions as a 3km. Basically getting 1% of 15km trips by bike will have pretty much the same benefits as 5% of 3km trips by bike.

Super Cycleways have been implemented or are being planning in countries including:

➔ Netherlands: 15 implemented, 20 planned
➔ London: 12 planned
➔ Australia: planned in Perth, Adelaide and Brisbane
➔ Munich: 14 planned

**Copenhagen**

A total of 28 routes with 467 km of cycle paths are planned in the Copenhagen region. Eleven of these will be ready by the end of 2018. It’s a remarkable story of regional cooperation, forged by one big city and 21 of its smaller suburban neighbors, who came together around a common vision for moving commuters from using their cars to riding their bicycles.

Ironically, this regional success started with a failure. Back in 2007, city leaders in Copenhagen began looking for a way to reduce automobile congestion in the city center. They aimed to do what London and Stockholm did around the same time: create a “congestion charge” on cars entering the city.

Protests kicked up from the municipalities around Copenhagen. Their citizens would be particularly burdened by the extra cost to go to work or do other errands in the city. The project was dumped. With no congestion toll in sight, Copenhagen decided to tackle the problem from a completely different angle. Instead of deterring driving, why not encourage biking?

In some ways, the bike plan benefitted from the failed attempt at the congestion charge. For one thing, it was more of a “carrot” than a “stick” so the suburban communities were more open to it. One result of all this participation is that the cycling network includes a number of suburb-to-suburb routes. It’s not all hub-and-spoke routes radiating out from Copenhagen.

If inclusiveness was one goal, another was to dream big. Streuli didn’t want the original vision to be hampered by worries about cost. This freed the planners to develop innovative ideas like timing stop lights at road crossings to favor bikes rather than cars. Another idea was to include “conversation lanes” wide enough for two people to ride side-by-side and talk.

---


To encourage municipal participation, a cost-sharing structure was set up. Municipalities only pay half of the construction costs. Most of the other half is covered by a subsidy from a national fund for supporting bicycling.

A six-person secretariat was also set up as a neutral body to administer the project. Policy is set by a steering committee made up of executive-level civil servants from all participating municipalities. A project group consisting of traffic planners and other more technical people meets four times a year.

Possible Super Cycleways for British Columbia include upgraded:

- BC Parkway
- Central Valley Greenway
- Portside Greenway
- North Shore Spirit Trail
- Lochside Trail
- Galloping Goose
- E and N Trail

**Recommendations**

A. Develop guidelines and best practices for Super Cycleways  
B. Work with regions and municipalities to plan and implement Super Cycleways  
C. Provide regions and municipalities with assistance to design Super Cycleways  
D. Provide cost-shared funding for Super Cycleways

**6. Encouraging the Use of Electric Bicycles**

Electric bicycles have the potential both to increase the number of cycling trips that people make as well as increase the average length of those trips. Electric bicycles also help decrease the effort required to climb hills and carry heavy loads.

Electric bicycles also can increase the amount people cycle as they grow older. In 2013, a survey reported that 5 percent of the total population in The Netherlands owned an e-bike. Among those 60+, the ownership level was 10 percent.\(^{55}\) And that part of the population really use their pedal assisted models as they ride twice as much kilometers compared to the 60+ cyclists with a regular bike. The increase is greater among women 60+ with electric bicycles accounting for 24% of their bicycle kilometres.\(^{56}\)

In 2014, 21% of all bicycles sold in the Netherlands were electrically assisted. The Dutch ride a total of 14.5 billion kilometers on their bikes annually. That number is growing every year mainly because of the use of e-bikes. 12% of all travelled kilometers by bikes are on electric ones.\(^{57}\) Dutch who have an

---

e-bike ride 22% more kilometres per week and the average commuting distance rose from 6.3 to 9.8 kilometres for people who use the e-bike.

A recent Norwegian study\(^{58}\) found electric bicycles increased cycling trips from 0.9 to 1.4 per day, distance from 4.8 km to 10.3 km and, as a share of all transport, from 28% to 48%, whereas with the control group there was no increase in cycling. The effect of the electric bicycles increased with time, indicating a learning effect among users, and was greater for female than for male cyclists.

The Norwegian study also found that before trying electric bicycles, participants were willing to pay an average of $200 more than a regular bicycle. That increased to $300 after they had used electric bicycle. As a result Norway, politicians are debating removing the sales tax on electric bicycles.\(^{59}\)

This indicates that rebates and a PST exemption would be useful in encouraging electric bicycle use in British Columbia.

**Recommendations**

A. Eliminate the PST on Electric Assist Bicycles
B. A rebate on electric bicycles similar to the rebate on electric cars
C. Policies to encourage or mandate recharging outlets in bicycle parking
D. Develop a network of Super Cycleways and other routes that enable the safe use of electric bicycles
E. Work with electric bicycle manufacturers and retailers to develop programs and events that allow people to experience electric bicycles

**7. Lower Motor Vehicle Speeds**

Lower speed limits, traffic calming and enhanced enforcement can reduce GHG emissions by making cycling more attractive and reducing vehicle emissions per kilometre while also reducing the cost of motor vehicle injuries.

Lowering speed limits can be very effective in reducing GHG emissions, without generating this rebound effect of increasing transport volume. Enhanced speed limit enforcement can have a comparable effect as has been illustrated where concerted efforts have been made in this respect.\(^{60}\)

According to Transport Canada, B.C. has higher traffic fatality rates than the Canadian average\(^{61}\). Transport Canada also states "Research indicates that a 1% reduction in speed results in reducing the

\(^{58}\) A Fyhri, N Fearnley, Effects of e-bikes on bicycle use and mode share, Transportation Research Part D: Transport and Environment, Volume 36, May 2015, Pages 45–52


\(^{61}\) Transport Canada, 2011
likelihood of a fatal collision by 5% (OECD, 2008). Therefore, a downward shift in the distribution of driving speeds for all drivers would be beneficial not just for those speeding on highways.”

Research shows that pedestrian and cyclist fatalities increase dramatically in collisions where the speed of the motor vehicle is greater than 30 km/h⁶².

From the British Columbia Casebook for Injury Prevention⁶³

Speed-cameras, speed calming such as lowered speed limits, and environmental modifications such as road bumps are effective at reducing speed-related injury and death.

It is forecasted that speed calming efforts will result in 30% fewer transport-related deaths and 50% fewer injuries. Speed cameras result in a forecasted reduction of 15% of speed-related injury and death. These reductions rely on an investment in environmental modifications and enforcement of road safety laws, however the benefit of lives saved and injuries avoided is more than four times the cost of enforcement. Over 5 years, over $61 million will be saved with these investments. Over 20 years, well over $266 million will be saved.

7.a Blanket Speed Limits Below 50 km/h

Currently, the Motor Vehicle Act sets a blanket speed limit for municipalities (i.e. the default speed limit when no speed limit signs are present) of 50 km/h. Thus, municipalities must place a sign on every block where the speed limit is less than 50 km/h. This can be rather unwieldy and expensive.

Municipalities should be able to set blanket speed limits less than 50 km/h within their boundaries. This change, in combination with traffic calming, would make residential streets safer for children, seniors, pedestrians, cyclists and motorists.

In 2009, the Union of BC Municipalities endorsed resolution B19 ENABLING LEGISLATION TO ALLOW MUNICIPALITIES TO CREATE BLANKET SPEED ZONES.⁶⁴

7.b Default 30 km/h Speed Limit on Residential Streets

In addition to allowing blanket speed limits below 50 km/h, the Motor Vehicle Act should be updated to make default speed limit on residential streets 30 km/h. This would save municipalities the expense of adding speed limit signs and would enable cost-effective educational programs.

7.c Enforcement Policies Focused on Reducing Walking and Cycling Injuries and Fatalities

Prioritizing Safety with Strict Speed Limit Enforcement

In many other jurisdictions (e.g. NSW and Victoria, Australia), prioritizing safety has led to strong enforcement of speed limits resulting in drivers complying with designated speeds, saving lives and

---


⁶⁴ http://www.ubcm.ca/assets/Resolutions~and~Policy/Resolutions%20Excerpted%20from%20Convention%20Minutes%202009.pdf
reducing accidents and property damage. The speed review process is an opportunity to similarly prioritize safety and compliance with laws.

**Strict Enforcement at Night and When Visibility is Poor**
Cyclist and pedestrian fatality rates increase significantly at night and during the fall and winter when weather limits visibility. Speed limits and other traffic laws should be enforced more strictly in areas where there are people walking and cycling. Campaigns should emphasize that drivers should go slower than posted speed limits when conditions and visibility are poor.

**Strict Speed Limit Enforcement When Cyclists and Pedestrians Present**
Another option would be a policy of strict speed limit enforcement when cyclists are present on a highway. This could also apply when there are stopped or parked vehicles on the shoulder or pedestrians walking on the shoulder or roadway.

**Strict Speed Limit Enforcement In Rightmost Travel Lane**
Strict speed limit enforcement in the rightmost travel lane would improve cyclists' safety while allowing higher speeds for motor vehicle in the left lane(s), where present. This may make passing slower vehicles easier for motorists as well.

**Speed Enforcement Cameras**
The targeted use of fixed and mobile speed enforcement cameras that do not impede cyclists or other road users should be considered on dangerous sections of road with cycling facilities that are inadequate for actual motor vehicle speeds and where other means of enforcement are problematic. As these sections of road likely have missing or substandard shoulders, pulling vehicles over can be dangerous both for the occupants of the vehicles and for the police officers. The vehicles may also block the shoulders, requiring cyclists to enter travel lanes. In any case, speed enforcement cameras should not be seen as a substitute for the upgrading of inadequate and unsafe cycling facilities.

Speed cameras have been found effective in reducing crashes, injuries and fatalities\(^65\). Transport Canada (Transport Canada 2011) states that “… greater speed enforcement is key. Speed cameras and red light cameras could be implemented more widely across the country and their usage publicized.”

**7.d Funding for Enhanced Traffic Calming**
While in some cases, lower speed limits and increased enforcement will be sufficient to decrease motor vehicle spaces, in many cases, traffic calming and enhanced road design will be required to ensure lower speeds. Given all the health, safety, environmental and community benefits of lower speeds, the Provincial Government should help fund enhanced traffic calming.

**7.e Encourage the Creation of Low Speed Communities**
In addition to making cycling and walking more attractive, safe and comfortable, small lightweight Neighbourhood Electric Vehicles\(^66\) can be used when motor vehicle speeds are 40 km/h or less. With their lower weights and speeds, these vehicles are much more fuel efficient than motor vehicles that

---


must protect their occupants from high speed collisions. These devices enhance low-cost mobility for those who are unable or choose not to cycle or walk.

Low Speed Communities could also be ideal for piloting fleets of low-speed lightweight shared automated vehicles. This would encourage the development of such technology in B.C. helping to place B.C. as a leader in this industry of the future.

In B.C. on the Move, the Province committed to:\(^67\):
Work with ICBC to explore choices to use slow-moving vehicles and other mobility devices in smaller communities

While focusing on our aging population in B.C. on the Move, in many cases, the appeal of such communities will be of interest to people of all ages.

Opportunities include:
➔ Island communities
➔ University and College Campuses
➔ Small towns
➔ Neighbourhoods within larger cities
➔ Resort communities
➔ Retirement communities
➔ Innovation zones
➔ Large new developments
➔ Airports

Such areas can also be very attractive to tourists.

Mackinac Island is a popular resort area and tourist destination in Michigan. Motorized vehicles have been prohibited on the island since 1898, with the exception of snowmobiles during winter, emergency vehicles, and service vehicles. Travel on the island is either by foot, bicycle, rollerblade, in-line skate or horse-drawn carriage.\(^68\)


\(^68\) https://en.wikipedia.org/wiki/Mackinac_Island
8. Cycling and Transit
Cycling compliment transit enabling more people to access transit hubs and stations at a lower cost than providing bus service and park and rides.

From the Metro Vancouver Regional Cycling Strategy Implementation Plan:

While transit will continue to be the best investment for longer distance travel within the region, many short-distance trips can be more cost-efficiently accommodated with cycling investments. In fact, nearly two-thirds of all trips within the region are less than 8km—a comfortable cycling distance for many— but currently only 2.2% of these trips are made by bicycle. By increasing cycling mode share, TransLink can free up capacity on the transit system to accommodate the growing shift from automobiles to transit – and do so at far less expense than major transit capacity investments.69

Recommendations

A. Secure bicycle parking areas at all major transit hubs
B. Improved cycling and walking access to transit hubs and stops

69 http://www.translink.ca/~media/ Documents/cycling/regional_cycling_strategy/rcs_implementation_plan_june_2013.ashx, page 8