

Cycling for Everyone

A Regional Cycling Strategy for Metro Vancouver

June 2011

Foreword

With careful planning and strategic investments, cycling can make a significant contribution towards addressing many transportation challenges that we face today. Cycling offers personal mobility and has environmental, financial, health, and social benefits. However, the bicycle is still viewed by some as a marginal mode of transport suitable only for a small minority of people who wear special clothing, are physically fit, and who possess the courage and willingness to ride with motor vehicle traffic on streets without separated bicycle facilities. The great cycling cities in Denmark, the Netherlands, and Germany teach us that cycling can become a mainstream mode of urban travel when it is comfortable for everyone.

Recently, TransLink joined agencies and government ministries in other countries at the Velo-City 2011 conference in Seville, Spain in calling on governments to turn more attention to cycling as a viable transportation option by signing the "Seville Charter." The charter was presented to the International Transport Forum in Leipzig, Germany in May 2011. And in 2012 TransLink, along with the City of Vancouver, will be co-hosting the Velo-City 2012 conference in Vancouver – the first time ever its been held outside of Europe.

Cycling for Everyone – A Regional Cycling Strategy for Metro Vancouver charts a path to make cycling more accessible to everyone. This vision was developed in partnership with a wide range of stakeholders from across Metro Vancouver and draws together actions for governments and agencies at all levels, the private sector, and community organizations.

The result of this collaborative process is an ambitious strategy to significantly increase cycling and improve cycling safety. TransLink looks forward to working with its partners and with the broader community to make the *Regional Cycling Strategy* a reality.



Ian Jarvis CEO
TransLink



Vision

By 2040, Metro Vancouver is renowned locally and globally as a cycling-friendly region where cycling is a desirable and mainstream transportation option because it is safe, convenient, comfortable, and fun for people of all ages and all cycling abilities.

Goal 1: More Cycling

More people cycle more often so that, by 2040, 15% of all trips less than 8 km are made by bicycle.

Goal 2: Safer Cycling

Cycling feels safer so that by 2040, 50% of all cycling trips are made by females. Cycling is safer so that by 2040, 50% fewer people are killed or seriously injured while cycling.



Table of Contents

FOREWORD	2
VISION	3
TABLE OF CONTENTS	4
INTRODUCTION	7
Relationship to other plans	9
Strategy Development	9
Cycling Benefits	10
1. THE STATE OF CYCLING IN METRO VANCOUVER	15
Funding	15
TransLink-Funded Programs	16
Key Cycling Outcomes	17
The Market for Cycling	20
Potential for Change	20
Challenges and Opportunities	22
Funding	22
Motor Vehicle Traffic	23
Travel Time	24
Physical Ability	24
Topography	24
Bicycle Security	24
Weather	24
Personal Security	24
2. VISION, GOALS & TARGETS	27
Vision	27
Goal 1 – More Cycling	27
Goal 2 – Safer Cycling	27
Achieving the Goals	27



3. THE STRATEGIES	29
The Bicycle Transportation Network	29
1. Cycling Network	31
Strategy 1.1: Make all roads safer for cycling	31
Strategy 1.2: Build low stress bikeways	32
Strategy 1.3: Develop a cohesive bikeway network	33
Strategy 1.4: Maintain bikeways in a state of good repair	34
Strategy 1.5: Make the bikeway network easy to navigate	35
2. Parking & End-Of-Trip Facilities	35
Strategy 2.1: Provide sufficient parking and end-of-trip facilities	35
3. Bicycle-Transit Integration	36
Strategy 3.1: Make it easy to combine cycling and transit trips	36
Strategy 3.2: Provide a seamless regional Public Bicycle System	36
Programs To Support Cycling	37
4. Education	37
Strategy 4.1: Provide cycling skills training	37
Strategy 4.2: Provide motorist training	38
Strategy 4.3: Educate transportation professionals	39
5. Encouragement	39
Strategy 5.1: Market cycling to improve its image	39
Strategy 5.2: Provide information, incentives, and support programs	39
6. Enforcement & Legislation	40
Strategy 6.1: Establish and enforce laws that protect vulnerable road users	40
Strategy 6.2: Reduce bicycle theft through enhanced enforcement	41
Implementation	42
7. Planning & Monitoring	42
Strategy 7.1: Integrate cycling into all land use and transportation planning	42
Strategy 7.2: Produce and regularly update cycling plans	42
Strategy 7.3: Monitor and evaluate progress	43
8. Funding	43
Strategy 8.1: Support cycling targets with commensurate funding	43
4. TRANSLINK'S ROLE	45
Next Steps	45



Introduction

TransLink is mandated to provide a regional transportation system that emphasizes walking, cycling, and transit as the priorities. To this end, *Cycling for Everyone – A Regional Cycling Strategy for Metro Vancouver* aims to guide cycling investment and programming across the region in order to significantly **increase cycling** and **improve cycling safety**.

This document describes the current state of cycling in Metro Vancouver, assesses the potential to increase cycling, articulates a clear vision, sets goals and measurable targets, and outlines a comprehensive package of strategies needed to achieve our goals. Following extensive consultation with a wide range of regional stakeholders, this *Strategy* aims to capture the entire range of actions required by all partners across Metro Vancouver in order to advance a unified and coordinated approach to generating more cycling and safer cycling.

The first two sections provide the results of several background studies that allowed us to understand where we are today and what we should be striving for in the future. The last two sections lay out the specific strategies to achieve our goals and the proposed next steps for TransLink.

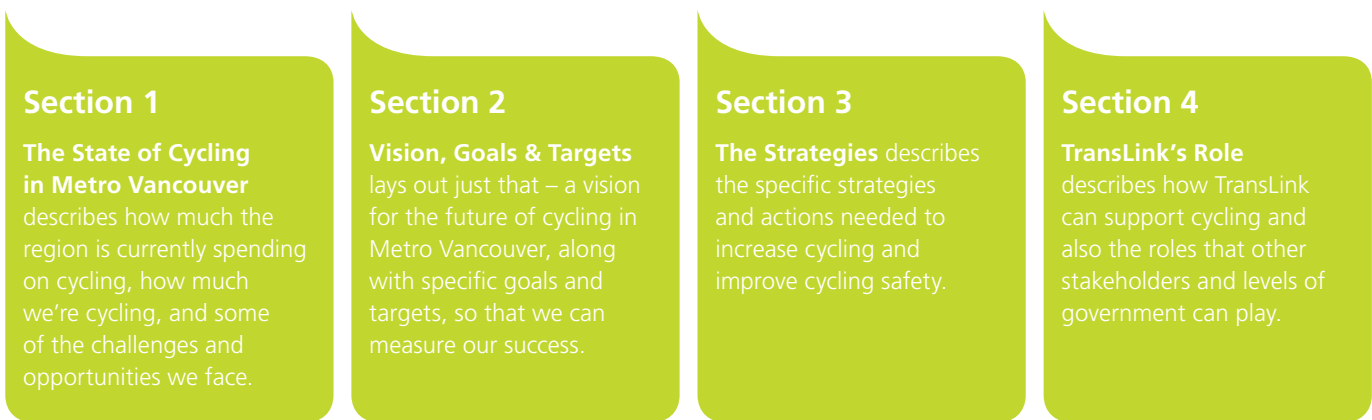
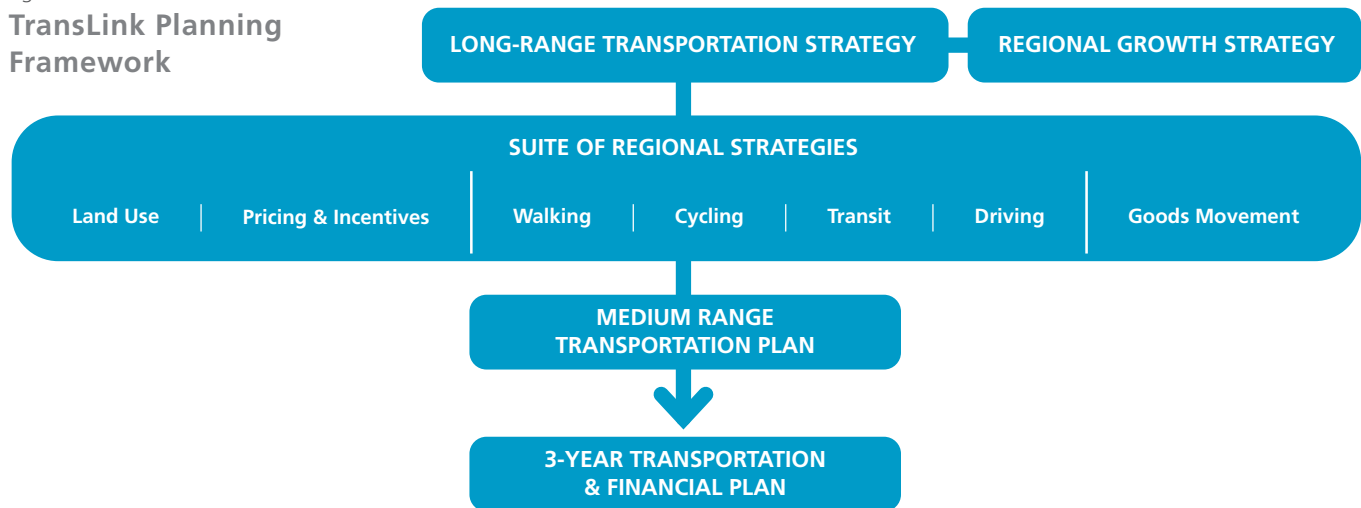


Figure 1

TransLink Planning Framework





Transport 2040 Goals

GOAL 1

Greenhouse gas emissions from transportation are aggressively reduced, in support of provincial and regional targets

GOAL 2

Most trips are by transit, walking, and cycling

GOAL 3

The majority of jobs and housing in the region are located along the Frequent Transit Network

GOAL 4

Travelling in the region is safe, secure, and accessible for everyone

GOAL 5

Economic growth and efficient goods movement are facilitated through effective management of the transportation network

GOAL 6

Funding for TransLink is stable, sufficient, appropriate, and influences transportation choices

Relationship to other plans

TransLink's 30-Year Transportation Strategy (*Transport 2040*) provides high-level policy direction and the *3-Year Financial and Transportation Plan* contains budgets and project implementation details. The *Regional Cycling Strategy* is one regional strategy nested between *Transport 2040* and the 3-Year Plan, which provides more focused regional-level policy direction around a specific mode or subject area.

This *Strategy* will guide TransLink's approach to cycling into the future. Since cycling in this region largely occurs on municipal or provincial roads, many of the critical actions outlined in this *Strategy* fall under those jurisdictions. Accordingly, the *Strategy* is not prescriptive but instead aims to provide a unified regional framework from which all partners can draw relevant strategies and actions for incorporation into their own plans and programs.

Strategy Development

TransLink prepared this *Strategy* through several parallel processes over an 18-month period:

- Internal guidance was provided by a multi-departmental Advisory Committee;
- Consultants provided technical inputs via a series of four background studies (see below);
- The Regional Bicycle Subcommittee (municipal staff) provided regular input;
- The Major Roads and Transportation Advisory Committee (transportation leads from each municipality) provided input at key milestones; and
- A 120-person multi-sector stakeholder group (business, community, environmental, health, educational, governmental) provided substantive input at three major stakeholder workshops.

After achieving a general consensus on strategic direction from municipal partners and the wider stakeholder group, TransLink staff incorporated all of the above inputs into the *Regional Cycling Strategy*.

Four comprehensive technical reports provided guidance toward the development of this *Strategy*:

- 1 *Setting the Context* (2009): This document includes a review of experience elsewhere, highlighting successful initiatives. It also includes an analysis of conditions in Metro Vancouver, and concludes with an assessment of the "gaps" between current conditions and the future vision of cycling in the region.
- 2 *Cycling and End-of-Trip Facilities* (2009): This research explored several aspects of cycling behaviour and motivation as well as attitudes regarding cycling facilities. Specifically, the research measured frequency of cycling, barriers to cycling, the use of cycling with transit, and the perceived magnitude of bicycle theft. With respect to facilities, the research measured attitudes regarding the current bike locker program as well as reactions to other possible end-of-trip cycling facilities.
- 3 *Regional Cycling Network Background Study* (2010): This study proposes a strategic approach to expanding and improving the cycling network in Metro Vancouver. The study reviews the existing and planned bicycle networks; recommends the location and cost of different types of bicycle facilities; identifies the cycling conditions within sub-regions of Metro Vancouver; and identifies the overall investment and funding mechanisms needed to achieve cycling mode share targets.
- 4 *Bicycle Program Monitoring Study* (2010): The study recommends a systematic, regional program to monitor bicycle use throughout the region in order to track progress toward the *Regional Cycling Strategy*.



Cycling Benefits

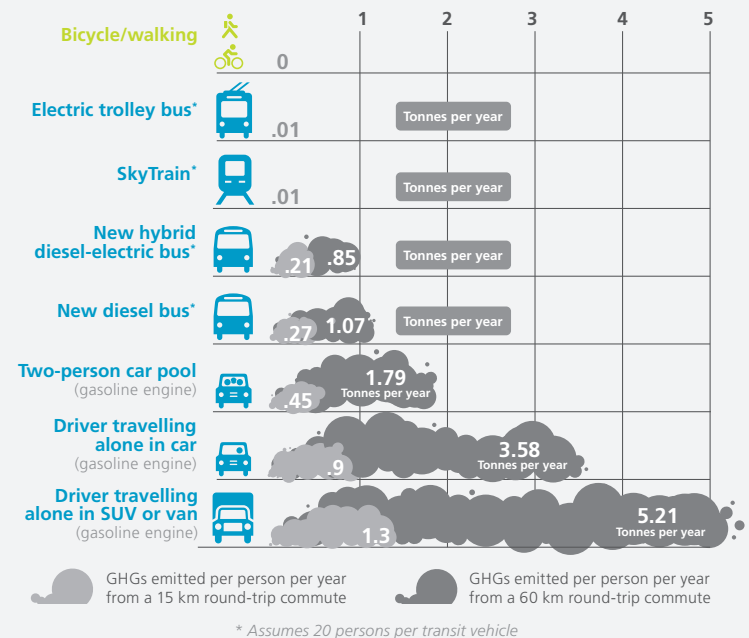
This *Regional Cycling Strategy* advances the goals of *Transport 2040* by promoting cycling safety and accessibility (Goal 4) and increasing cycling trips (Goal 2), which will in turn reduce greenhouse gas emissions from transportation (Goal 1). By helping to reduce congestion and encourage local trips, cycling also supports local economic growth (Goal 5). Indeed, cycling addresses many of our most pressing individual and societal challenges:

Emissions-free

Riding a bicycle produces no noise pollution, no smog-forming pollutants, and no greenhouse gas emissions. Increasing cycling is an important element to any vehicle emissions-reduction strategy.

Figure 2

Metro Vancouver commuting modes and GHG emissions



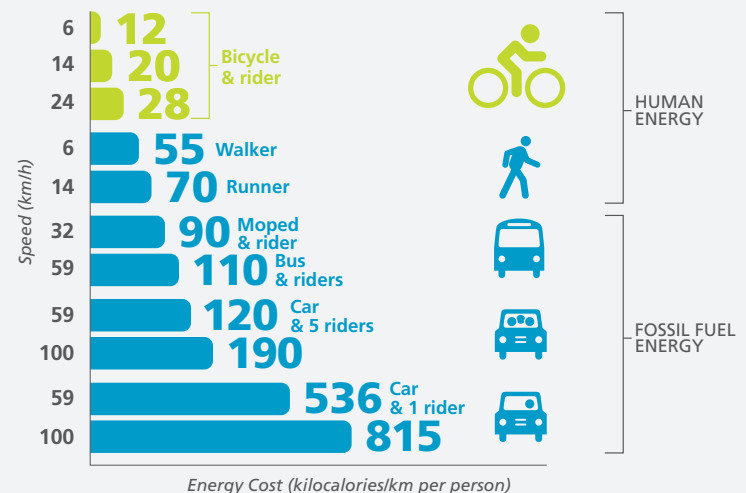
Energy efficient

Cycling is one of the most energy efficient modes of transportation. It consumes only human calories and no fossil fuel. Providing more and better cycling infrastructure will allow Metro Vancouver residents to choose this more energy-efficient mode of transportation.

Figure 3

Energy consumption by mode

Source: Wilson, David Gordon. 2004. *Bicycling Science*. London: The MIT Press. 166.

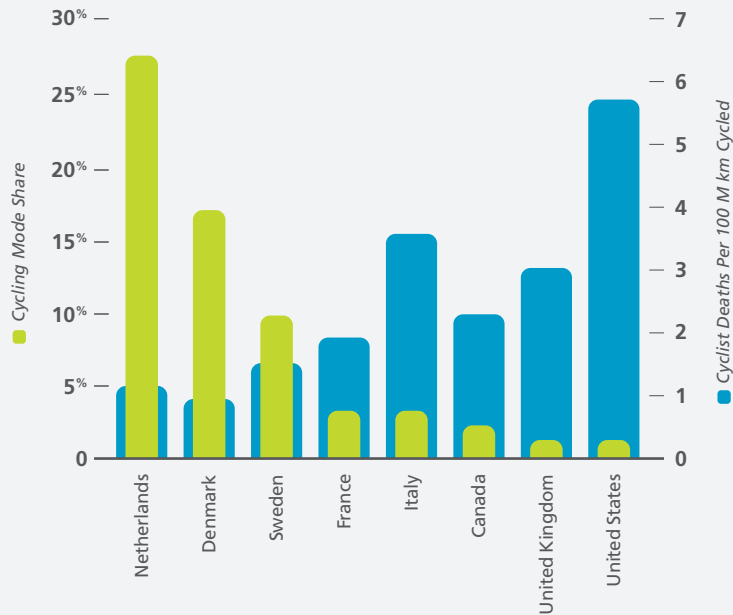


* Please note: All data presented in this document was collected by TransLink, unless otherwise noted.

Figure 4

Safety in numbers: relationship between cycling rates and traffic fatalities

Source: Pucher, J. and Buehler, R., "Making Cycling Irresistible: Lessons from The Netherlands, Denmark and Germany", *Transport Reviews*, July 2008



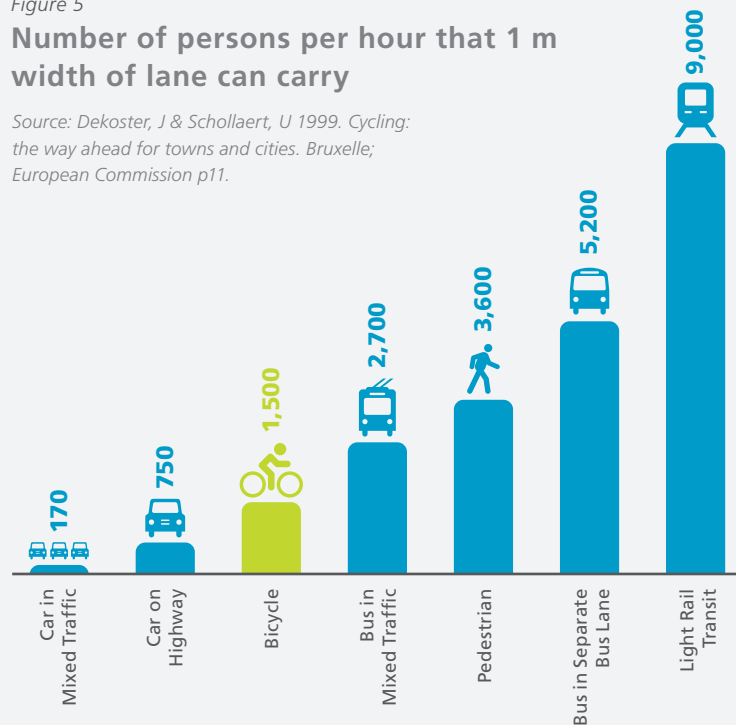
Safer

Communities with higher levels of cycling have fewer cycling fatalities. Although it may seem counter-intuitive, increased cycling leads to safer cycling, a concept known as "safety in numbers," because drivers expect to see cyclists on the road and are therefore looking out for them.

Figure 5

Number of persons per hour that 1 m width of lane can carry

Source: Dekoster, J & Schollaert, U 1999. *Cycling: the way ahead for towns and cities*. Bruxelles; European Commission p11.



Space Efficient

A bicycle requires much less space than a car. One car parking space can accommodate 10 parked bicycles. One travel lane on a typical road can accommodate 2,000 cars per hour or 14,000 bicycles per hour. Increasing cycling is an important strategy to optimize the use of the region's existing transportation network.

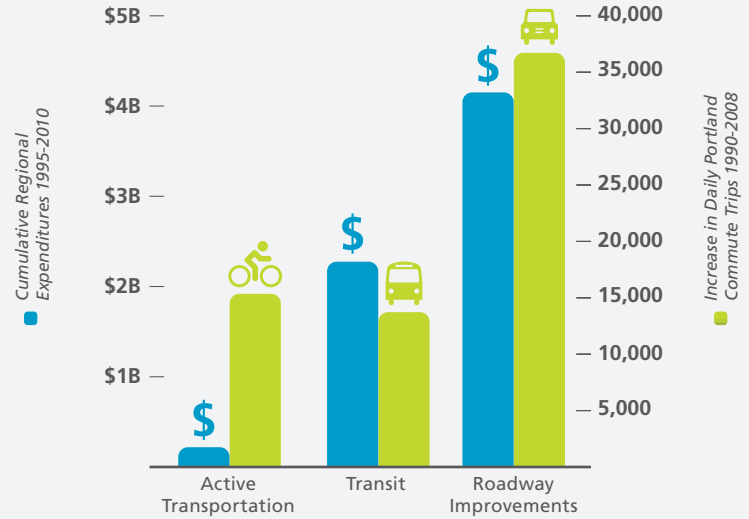


Cost-efficient

Cycling infrastructure costs less than infrastructure for motorized modes and significant increases in cycling can be achieved for smaller investments. Improving conditions for cycling is a financially responsible transportation strategy.

Figure 6

Regional expenditures and new trips in Portland, OR metro region



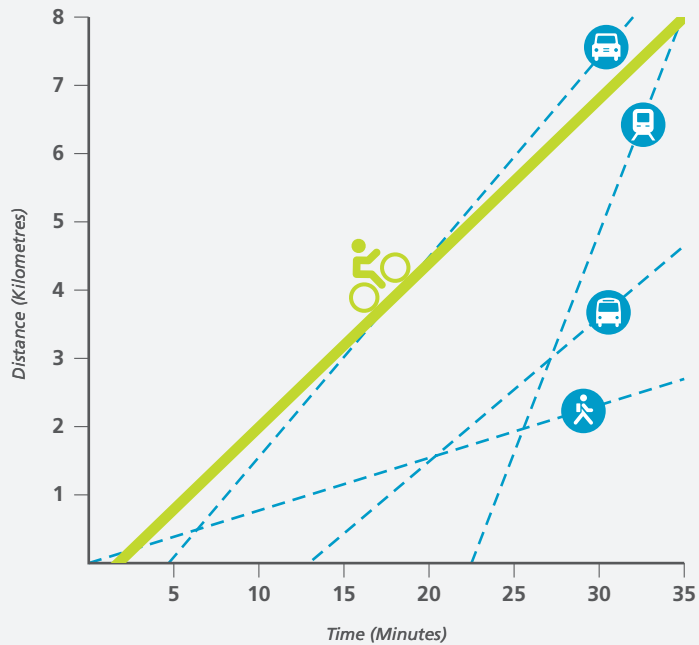
Source: Metro Regional Government (Portland, OR); American Community Survey.

Time-competitive

The bicycle, travelling at average speeds of 15 km/h, is well suited to short- and medium-length trips. Cycling is typically the fastest mode for trips less than 5 km. Since around 50% of all trips made in Metro Vancouver are less than 5 km, cycling is a time-competitive alternative to the automobile for about half of all trips made in the region.

Figure 7

Travel times by mode



Source: Deijster, J & Schollaert U. 1999. Cycling the way ahead for towns and cities. Bruxelles: European Commission. p11



Photo: Paul Krueger



1. The State of Cycling in Metro Vancouver

This section provides an overview of the state of cycling in Metro Vancouver in 2010 with respect to funding, infrastructure and programs to support cycling; and key cycling outcomes, including current cycling trips and cycling safety.

Funding

In recent years the provincial and local governments, along with TransLink, have together spent approximately \$30 million per year on cycling facilities and programs in Metro Vancouver. While this figure is substantial, it remains less than 1% of total transportation spending in Metro Vancouver. It is only about one-quarter the level of funding that major northern European cities direct to cycling.

TransLink provides regular funding for bicycle infrastructure through its Bicycle Program. Bicycle infrastructure has also been funded as a portion of major capital projects, such as the bicycle lanes on the Golden Ears Bridge.

While TransLink's investment has been significant and welcomed by municipalities, it represented only 20 per cent of the region's overall bicycle funding from 2007–2010. TransLink funding will represent only 10 per cent in 2011, due to budget cuts related to TransLink's funding stabilization plan.

If TransLink is to reach its 2040 goal of more than half the region's trips being made by non-automobile modes, more funding will need to be allocated toward cycling.

Table 1

TransLink bicycle program funding, 2000–2011

YEAR	Capital*	Operating**	Total
2000	\$1,845,700	—	\$1,845,700
2001	—	\$135,000	\$135,000
2002	\$1,000,000	\$135,000	\$1,135,000
2003	\$2,000,000	\$137,000	\$2,137,000
2004	\$3,000,000	\$150,000	\$3,150,000
2005	\$4,000,000	\$260,000	\$4,260,000
2006	\$5,000,000	\$340,000	\$5,340,000
2007	\$6,000,000	\$408,000	\$6,408,000
2008	\$6,000,000	\$525,000	\$6,525,000
2009	\$6,000,000	\$420,000	\$6,420,000
2010	\$6,000,000	\$133,200	\$6,133,200
2011	\$3,000,000	\$92,400	\$3,092,400
Total	\$ 43,845,700	\$ 2,735,600	\$ 46,581,300

* Capital funding does not include investments made by subsidiaries or funding contributed to cycling projects as a part of major capital investments.

** Operating expenditures do not include recoveries and contributions from other levels of government.



TransLink-Funded Programs

The Bicycle Transportation System

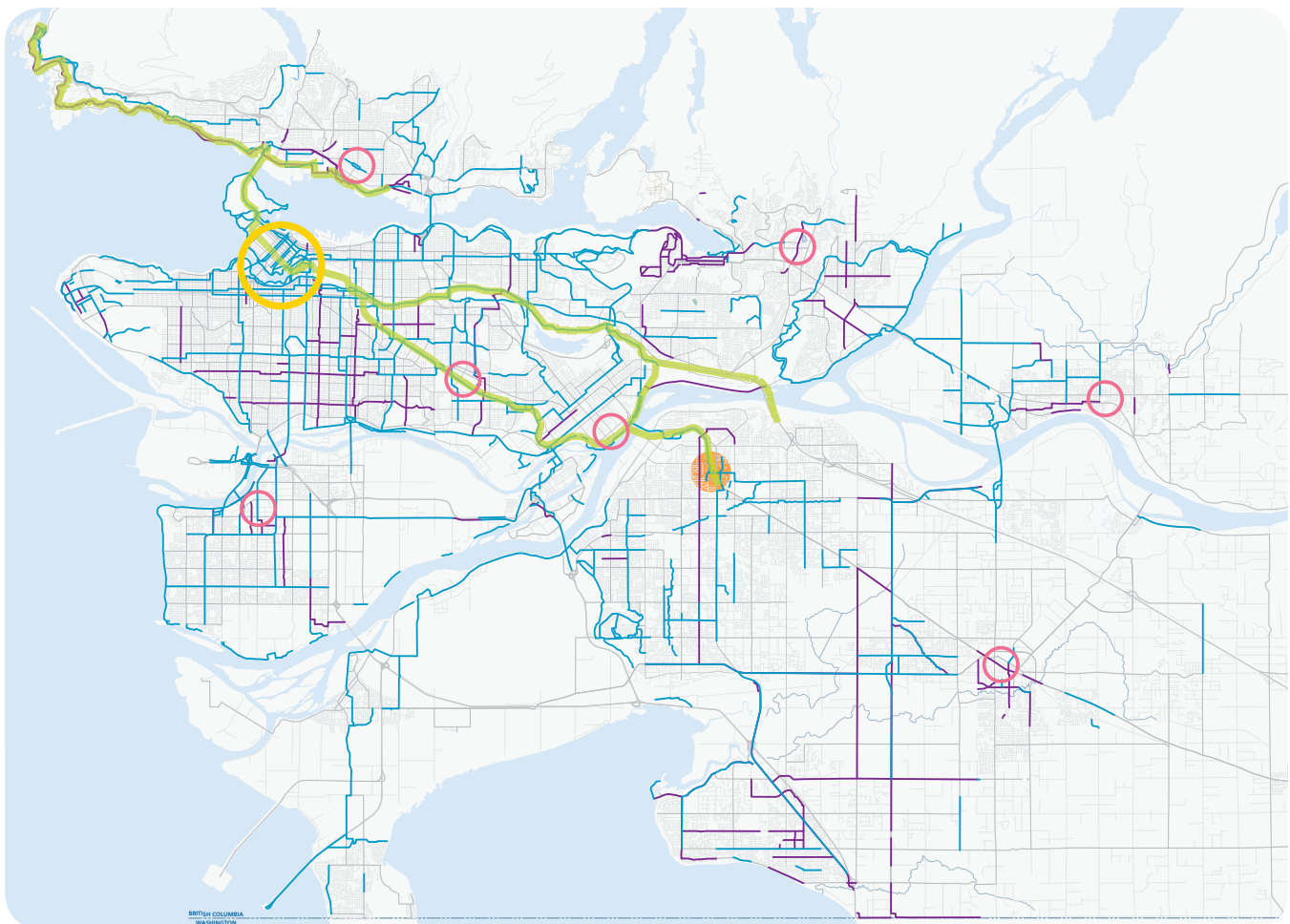
Figure 8 shows Metro Vancouver’s existing and near-term bikeway network. Existing bikeways total approximately 1,400 centre-line kilometres. About 10% of roads include a designated bikeway.

Since 2000, TransLink’s Bicycle Program has contributed to the construction of a regional cycling network through the following programs and projects:

- Bicycle Infrastructure Capital Cost-Sharing (BICCS) Program (annual program, with a 2010 budget of \$2.55 million);
- Canada Line Pedestrian and Bicycle Bridge (\$10 million over 3 years);
- Central Valley Greenway (\$5 million over 3 years – Bicycle Program + \$3.5 million TransLink Capital Funding);
- Studies and Research, including the *BC Parkway Upgrades Conceptual Design*, *Cycling in Cities*, and *Public Bicycle System Feasibility Study*;

Figure 8

Map of existing and planned bikeway network



LEGEND Existing and Planned Cycling Network – Short to Medium Term

- Existing Local Cycling Network
- Planned Local Cycling Network
- Regional Cycling Network (Existing & Planned)
- Metropolitan Core
- Proposed Surrey Metro Centre
- Regional City Centres

The line work on this map is conceptual and is not intended to represent any commitment on the part of TransLink, Metro Vancouver, municipalities or the Provincial Government.

- Bike racks to all new bus purchases and more than 500 bicycle lockers for major transit exchanges; and
- The *Metro Vancouver Cycling Map* providing a comprehensive guide to all municipal routes on a single map.

Bicycle-Transit Integration

100% of TransLink's transit fleet is accessible to bicycles. The majority of TransLink's transit services permit bikes on board during all hours of operations. The major exception is that bicycles are not permitted on the Expo and Millennium SkyTrain Lines during peak periods (towards downtown during the AM weekday commute and away from downtown during the PM weekday commute).

Public Bicycle System

Public Bicycle Systems (PBS) offer a fleet of public-use bicycles accessible at an affordable cost. Since one-way trips are

possible, the bikes provide a flexible option for daily travel needs. Once the network is extensive enough, public bicycles become an integral component of the public transportation system.

In 2008, TransLink commissioned a feasibility study which concluded that PBS is feasible in Metro Vancouver and outlined a number of important considerations. Discussions with our municipal partners about introducing a Public Bicycle System to Metro Vancouver are continuing.

Bicycle Parking

Bicycle parking racks are provided at all major transit hubs, and there are nearly 500 bike lockers currently available for rent at major transit exchanges throughout the transit network. This program is widely supported by customers.

Programs to Support Cycling

TransLink has been an on-going sponsor of the following programs:

- Bike-to-Work Week (June and November);
- Business for Bikes;
- Streetwise courses;
- Bike-to-School programs;
- Bike Valet;
- Bike Month; and
- PEDAL (bicycle maintenance education).

Monitoring and Evaluation

TransLink has intermittently collected information through market research on attitudes and preferences towards cycling, as well as mode share data through its Trip Diary.

Some of the information that TransLink has collected includes:

- Bike Month Awareness (annually);
- Bike-to-Work Week Survey (annually);
- Bicycle Usage and Attitudes Survey;
- Public Bicycle System Market Research; and
- Awareness and Usage of the Central Valley Greenway.

Monitoring and evaluation are an important component of understanding regional attitudes toward cycling, determining how TransLink can best use limited funding, and evaluating the impact of TransLink's investment in cycling infrastructure and programs.

Key Cycling Outcomes

Bicycle Trips

Metro Vancouver residents made 6.6 million trips per day in 2008, or 2.65 daily trips per person. Of all these trips, just under 2 per cent were by cycling. Although the number of daily bicycle

Table 2

Existing Metro Vancouver bikeway network (length by facility type)

Type	Description	Lane km
Off-Street Pathways	Bicycle-Only Path	514
	Multi-Use Path	
Cycle Tracks	Separated On-Street Path	4
Paved Shoulders	On-Street, Marked, Paved Shoulder	187
Neighbourhood Bikeways	Shared Low-Traffic Roadway	517
Marked Wide Curb Lanes	Shared Side-By-Side Car and Bicycle Lane	46
Bicycle Lanes	Striped Bike Lane On-Street	406
Total		1674



trips in the region actually increased by 22 per cent over 10 years, during the same period both the regional population and the number of daily trips (on all modes) also increased. Thus, there are more people on bicycles, but there are also more people in cars, so bike mode share remained constant.

This stable mode share masks two regional trends: moderate increases in bicycle mode share in the City of Vancouver on the one hand; and decreases in bicycle mode share in many of the fastest growing parts of the region.

In fact, cycling levels vary widely across the region as shown in Figure 12. Cycling mode shares are highest in the City of Vancouver where cycling accounts for 3.6 per cent of work trips. In several of the neighbourhoods surrounding downtown Vancouver, up to 12% of work trips are made by bicycle. Cycling levels outside of Vancouver/UEL are lower with an average bicycle mode share in the rest of the region of less than 1.0%.

Cycling rates also vary according to socio-demographic factors such as sex, age, and income. Regular cyclists are more likely to be male, have a university education, live in the City of Vancouver, and have a household income of more than \$60,000 per year.¹

In 2008, nearly three-quarters of bicycle trips in the region were made by males, and just over one-quarter by females. Studies from a variety of disciplines suggest that women are less willing to engage in risky behaviour, and evidently they are less likely to cycle when the only bicycle routes provided are on roads adjacent to vehicle traffic.²

Metro Vancouver is similar to other North American cities where men’s cycling trips

1. TransLink 2008 Trip Diary Survey
 2. Baker, Linda; "How to Get More Bicyclists on the Road", Scientific American, October 2008

Figure 9

24-hour mode share

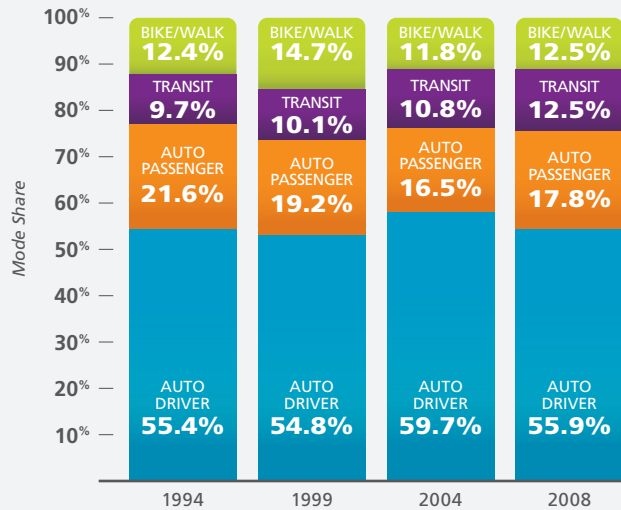


Figure 10

Cycling rates by income

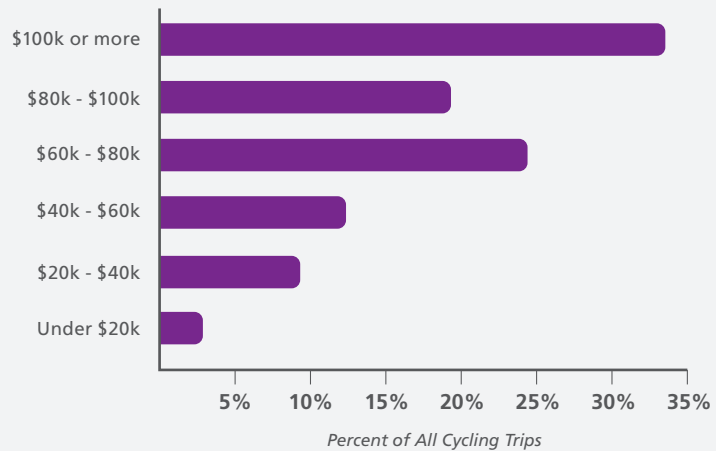


Figure 11

Proportion of all cycling trips made by women in Metro Vancouver

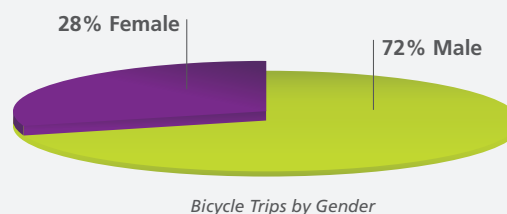
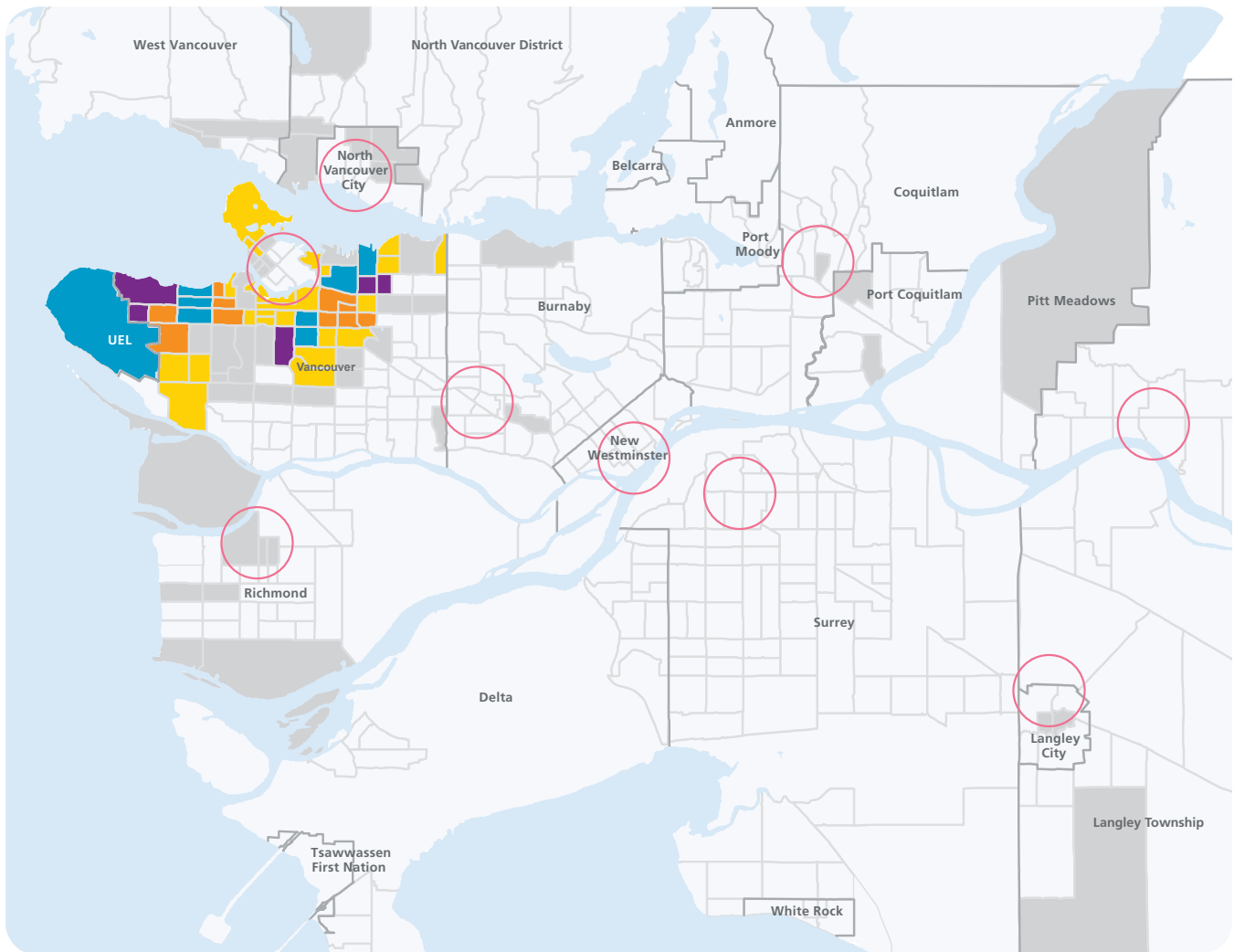


Figure 12
Bicycle share trips to work 2006 (census tract map)



LEGEND Bicycle Mode Share of Work Trips

	0-2%		2-4%		4-6%		6-8%		8-10%		10%+		Regional City Centres
--	------	--	------	--	------	--	------	--	-------	--	------	--	-----------------------

surpass women's by at least 2:1. In many Northern European cities, where urban cycling is well-provided for with extensive networks of traffic-protected bikeways, cycling is split evenly between women and men. In the Netherlands, where 27% of all trips are made by bike, 55% are made by women. In Germany, where

12% of all trips are by bike, 49% are made by women.³

The proportion of cycling trips made by women seems to indicate how safe the cycling network is perceived to be.

3. Baker, Linda; "How to Get More Bicyclists on the Road," Scientific American, October 2008

Cycling Safety

Between 2002 and 2006, Metro Vancouver saw an annual average of 810 reported vehicle collisions involving cyclists, representing 0.21 collisions for every 10,000 bicycle trips. Of the 810 reported collisions each year, an average of 2.5 resulted in the death of the cyclist.



REGULAR
CYCLIST

25%

A comparison across several North American and European countries shows that there is an inverse relationship between cycling mode share and cyclist death rates. The higher a region's cycling mode share is, the lower its rate of cycling deaths tends to be (see Figure 4).

The Market For Cycling

TransLink conducted market research in order to understand the different markets for cycling, the barriers that prevent people from cycling more often, and people's preferences for cycling facilities and services. This research suggests that Metro Vancouver adults can be grouped into one of three categories based on their inclinations towards cycling.

Not Interested in Cycling

On one end of the spectrum is the "not interested in cycling" group consisting of about one-third of adult residents. Individuals in this group currently do not own or have access to a bicycle and say that they are not interested in cycling at all in the future.

Regular Cyclists

On the other end of the spectrum is the "regular cyclists" group consisting of about one-quarter of adult residents who take at least one bicycle trip per week in at least one season. Some individuals in this group cycle even more frequently, most often for utilitarian purposes. While regular cyclists are generally comfortable riding on the road, most still prefer to ride away from motor vehicle traffic.

Interested but Concerned

The remaining majority of residents fall somewhere in the middle of the spectrum. This group is made up of:

INTERESTED BUT
CONCERNED

41%

- *Occasional cyclists* (13% of residents) who cycle at least one to three times per month in at least one season;
- *Infrequent cyclists* (9% of residents) who cycle at least once per year;
- *Potential cyclists* (19% of residents) who do not currently cycle but who are interested in taking up cycling.

These residents may want to cycle more frequently but are sometimes deterred by factors such as the lack of time, lack of physical fitness, and the need to carry heavy items.

The single greatest deterrent for this group, however, is concern about riding in motor vehicle traffic.

Target Market

In terms of increasing cycling and improving safety, the biggest gains can be had by strategically targeting this segment of residents who are "interested but concerned." Individuals in this group are interested in cycling, may already do some cycling and, given the right conditions, are likely to increase cycling trips. This 41% of Metro Vancouver residents would have the largest impact on reducing regional automobile trips if they converted some of their car trips to cycling.

In 2007, TransLink partnered with UBC researchers to examine 73 different factors that might influence the decision to cycle. The top six positive factors and the top six negative factors are shown in Table 3. The ranking of factors varies somewhat between the "regular cyclist" group and the "interested but concerned" group. For instance, regular cyclists place more of a premium on travel time savings relative to other modes and are less concerned about hills or distance.

NOT INTERESTED
IN CYCLING

34%

Otherwise, the priorities are remarkably consistent across both groups: attractive and well-maintained routes that are separated from motor vehicle traffic.

Strategies that address these negative factors will be most successful in motivating more people to cycle more often. The most important concerns to address relate to motor vehicle traffic. In particular, inattentiveness by motorists, traffic noise and air pollution, busy streets, and fast cars all ranked among the top deterrents to cycling. These negative factors ranked even higher than the specific fear of injury from a collision with a car.

Potential For Change

Metro Vancouver has great potential to increase cycling mode share. The climate allows for year-round cycling; regional land use plans encourage mixed use, high density town centres; and cycling and transit services are already reasonably well integrated. Most importantly, many of the motorized trips currently being made in the region are relatively short and can reasonably be switched to walking and cycling.

Given that non-work trips tend to be shorter and occur within one's own neighbourhood, there is a significant opportunity across the region to shift these non-work neighbourhood trips to bicycle.

Indeed, bicycles are most competitive for relatively short urban trips. As shown in Figure 14, the majority of all bicycle trips made in the region are less than 5 km, yet nearly three-quarters of trips (by all modes) which are under 5 km are currently made by motorized modes (Figure 15). The bicycle is well positioned to accommodate many of the shorter trips currently made by motorized modes.

Table 3

Factors that influence the decision to cycle

Positive Factor	Rank
The route is away from traffic noise and air pollution	1
The route has beautiful scenery	2
The route has bicycle paths separated from traffic for the entire distance	3
The route is flat	4
Cycling to the destination takes less time than travelling by other modes	5
The destination is less than 5 km away	6

Negative Factor	Rank
The route is icy or snowy	1
The street has a lot of car, bus & truck traffic	2
Vehicles drive faster than 50 km/hr	3
The route has glass or debris	4
The risk from motorists who don't know how to drive safely near bicycles	5
Risk of injury from car-bike collisions	6

Figure 13

Bicycle mode share of work trips vs. non-work trips (by sub-area)

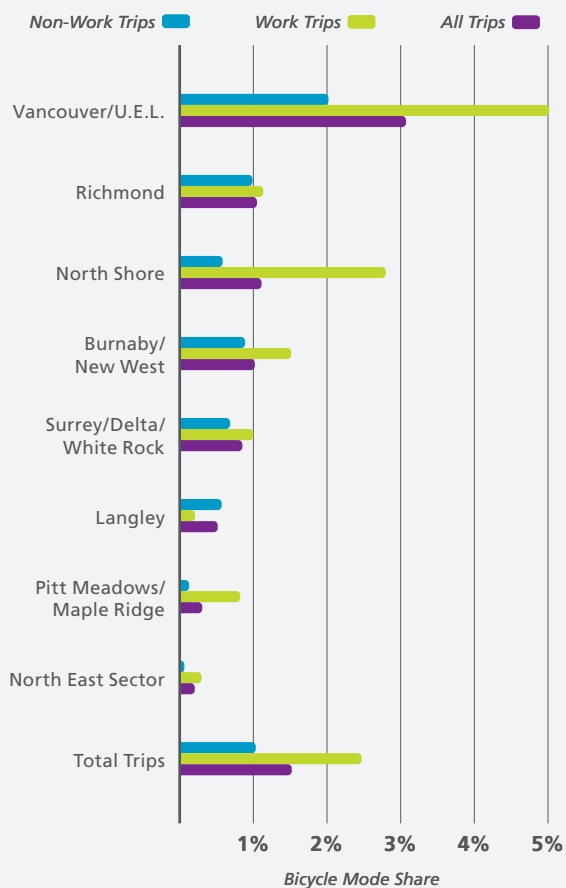


Figure 14

Distribution of bicycle trip distance (all trips)

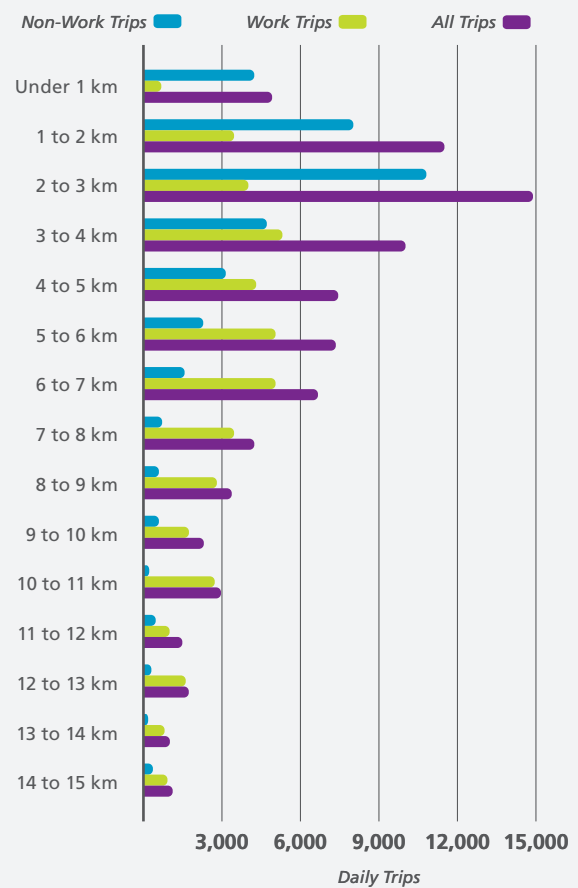
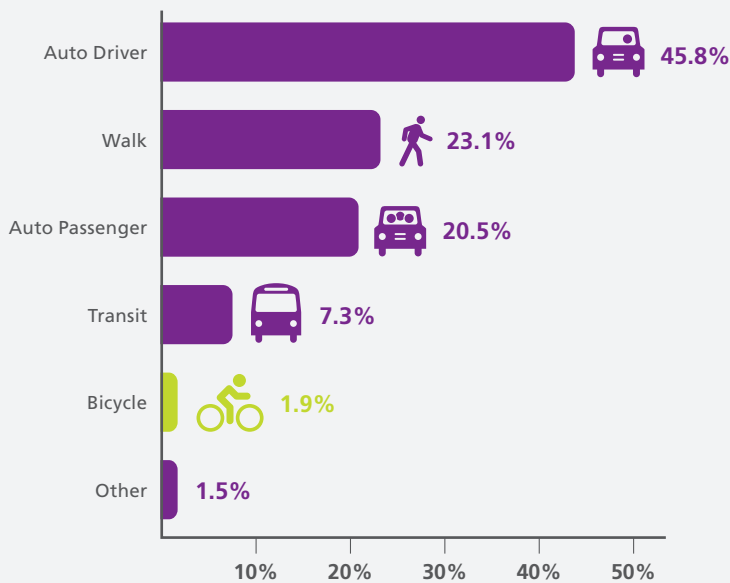




Figure 15

Mode shares for trips <5 km



In addition, evidence from Northern Europe suggests that as cycling conditions improve and bicycle routes provide faster, more direct connections, people are willing to travel longer distances by bicycle. In Metro Vancouver, while the majority of bicycle trips made in the region are under 5 km, an additional 22% are between 5 km and 8 km. Therefore the target range for trips that can be easily switched to cycling are trips under 8 km.

An analysis of travel data reveals that approximately 1.3 million of the 5.4 million daily motorized trips in this region can realistically be switched to cycling (and/or walking). These are the motorized trips that are:

- under 8 km in length;
- do not require trip chaining;
- are not carrying heavy loads;
- are made by people without physical disabilities; and
- are made outside of night-time hours.

Of these “switchable” trips, 50% could shift to cycling, a rate which is aggressive and has been demonstrated elsewhere. An ambitious program of cycling investment could result in a cycling mode share increase from 1.7% of all trips to within the range of **8–10%** of all trips and from 2.2% of all trips under 8 km to within the range of **15–20%** of these short- to medium-distance trips.

The *Regional Cycling Strategy* recognizes that to achieve this mode share increase, more focus is needed on the majority of Metro Vancouver residents who are interested in cycling more but who are concerned about their safety or unwilling to ride on “high-stress” roadways. Success depends on meeting the needs of this key target market – both through physical infrastructure changes and through supporting programs – so that cycling in Metro Vancouver feels welcoming to everyone.

Challenges and Opportunities

Funding

Challenge: Cycling is currently under-funded to achieve a greater mode share

In Metro Vancouver, funding for bicycle facilities and programs over the past decade has amounted to less than 1% of regional transportation spending. This is substantially less than the bicycle mode share of 1.7%. The most likely interpretation of these numbers is that the current bicycle mode share represents a “base level” of cycling, and that past investments in cycling facilities and programs have only been enough to maintain this “base level.” Substantial increases in funding are required if significant increases in the bicycle mode share are to be achieved. In order to achieve TransLink’s 2040 Vision that most trips in the region are by walking, cycling and transit, higher funding levels will be required. The specific amount needed will be detailed in the forthcoming *Regional Cycling Strategy Implementation Plan*.

Opportunity: Cycling infrastructure is much more cost efficient than other modes

Cycling infrastructure can be provided at a low cost relative to providing motorized vehicle infrastructure. Examples of TransLink project costs are provided in Table 4. By funding new cycling infrastructure and encouraging cycling, TransLink can accommodate the region’s growing transportation demand in a very cost-effective manner.

Motor Vehicle Traffic

Challenge: Fear/Stress

The fear and stress associated with riding a bicycle mixed in with motor vehicle traffic is the primary deterrent to cycling. According to TransLink market research, over 94% of current and potential cyclists in Metro Vancouver prefer to cycle away from motor vehicle traffic.

Opportunity: Safety in Numbers

This *Strategy* strongly emphasizes the need to provide low-stress cycling facilities protected from motor vehicle traffic as a way to improve both real and perceived traffic safety and increase the number of people cycling.

Ultimately, cycling is made safer simply by having more people on bicycles – a

well-documented phenomenon referred to as “**safety in numbers.**” This effect occurs because when cycling is more common, motorists increase their awareness, vigilance and anticipation of encountering someone on a bicycle. Although increasing levels of cycling may seem to generate more potential car-bicycle conflicts, this more complex traffic flow actually forces everyone to be more alert and careful – improving safety outcomes for all road users. Ultimately, strategies that increase cycling numbers should also contribute to greater cycling safety.

The countries in Table 5 with the highest mode shares and lowest fatality rates tend to also have a cohesive network of traffic-protected facilities. Places with no such networks tend to have low cycling mode shares and higher cycling fatality rates.

Reasons why the ‘safety in numbers’ effect occurs

- 1/ People who drive grow more aware of people cycling and become better at anticipating their behaviour.
- 2/ People who drive are also more likely to be ride bicycles themselves, which means that they are more likely to understand how their driving may affect other road users.
- 3/ More people cycling leads to greater public support for improving conditions for cycling.

Table 4

Comparison of costs to provide new infrastructure by mode

Type of Cost (Excluding Land Acquisition)	Cost (2009 dollars)
New off-street bike path	\$530/lane-metre*
New 4-lane road	\$3,260/lane-metre**

* Actual design and construction costs for the Central Valley Greenway, based on \$25.6 million for a 24 km, 2-lane path
 ** Estimated design and construction costs for a 250 metre at-grade section of the Murray-Clarke Connector in Port Moody

Table 5

Comparison of cycling mode share and cycling safety (by country)

Country	Cycling Mode Share	Cyclist Deaths per 100M km Cycled
Netherlands	27%	1.2
Denmark	18%	1.0
Sweden	10%	1.5
France	3%	2.0
Italy	3%	3.5
Canada	2%	2.4
UK	1%	3.0
USA	1%	5.7



Travel Time

Challenge: Distance

Another significant barrier preventing most Metro Vancouver residents from cycling more frequently is distance and time. Most people are only willing to spend about 20–30 minutes cycling for most trips. Therefore, at an average cycling speed of 15 km/h, most people will only cycle to destinations that are within about 5–8 km or less.

Opportunity: Supportive Land Use

Thanks to a land-use planning approach in this region that has long facilitated the development of compact, higher-density, mixed-use communities – the majority of trips made in Metro Vancouver are already less than 5 km. The opportunity to shift at least some of these trips to cycling is significant.

Physical Ability

Challenge: Unable to Ride a Bicycle

Some people are not able to ride a bicycle at all because of a physical disability or health reason. Many other people feel that they cannot ride a bicycle because they believe it requires a high degree of physical fitness.

Opportunity: Technology & Encouragement

With the help of adaptive technologies and electric-assist bicycles, some individuals with physical disabilities or health issues may be able to ride a bicycle. For the rest of the population – assuming that traffic-protected routes to nearby destinations are available – cycling is actually a relatively easy, low-impact activity that can be taken up by people with a wide range of ages, physical abilities and fitness levels.

Topography

Challenge: Hills

As shown in Table 3, availability of flat routes is the fourth most significant factor positively influencing the decision to cycle.

Opportunity: Network Design & Transit Integration

In areas with steep terrain, cycling routes can be designed to take advantage of the most gradual inclines or to meet up with transit facilities with secure bicycle parking.

Bicycle Security

Challenge: High Rates of Bicycle Theft

Bicycle theft is a major problem in most large Canadian cities, including Metro Vancouver. According to one TransLink survey, approximately 18% of current and potential cyclists had a bicycle stolen in the five years preceding the survey.⁴ About one-third of cyclists had avoided making trips by bicycle because of bike theft concerns, and the locations that were most concerning tended to be shopping centres, Downtown Vancouver, and Surrey.

Opportunity: Secure Parking & Enforcement

While bicycle theft is a symptom of larger social problems that cannot be tackled in isolation, theft can nevertheless be significantly reduced through a coordinated campaign of increased enforcement, increased access to secure parking options, and increased awareness of proper locking techniques.

Weather

Challenge: Cold & Wet

Most people prefer to ride their bicycles in warm, sunny weather. Cycling levels are up to four times higher in June than they are in December.

Opportunity: End-of-Trip Facilities

Although wet weather deters many people from cycling, given some experience and proper gear, it is possible to comfortably cycle in the rain. End-of-trip facilities that include places to change, shower, and hang clothes to dry can help encourage people to cycle in the rain.

Personal Security

Challenge: Fear of Violence

Many individuals are not comfortable cycling alone after dark or in isolated areas since they feel more vulnerable. Parents may not allow their children to cycle alone out of fear for their safety. This challenge is more pronounced on isolated off-street paths with poor lighting and during the winter months when it gets dark early.

Opportunity: Good Design

To address this challenge, bicycle routes (especially off-street paths) can be designed according to good Crime Prevention Through Environmental Design (CPTED) principles including good sightlines, appropriate lighting, positive activities, and natural surveillance through “eyes on the street.”

4. Cycling End-of-Trip Facilities Survey (TransLink, 2009)





2. Vision, Goals & Targets

Vision

By 2040, Metro Vancouver is renowned locally and globally as a cycling-friendly region where cycling is a desirable and mainstream transportation option because it is seen as safe, convenient, comfortable, and fun for people of all ages and all cycling abilities.

Goal 1 – More Cycling

More people cycle more often so that, by 2040, 15% of all trips less than 8 km are made by bicycle.

Cycling is best suited to short- and medium-distance trips. Since many external factors such as the distribution of population and job growth have a strong influence on trip distances, it is more useful to measure progress on Goal 1 against those trips for which cycling can actually compete. Currently 2.2% of all trips less than 8 km are made by bicycle.

Goal 2 – Safer Cycling

Cycling feels safer so that, by 2040, 50% of all cycling trips are made by females. Cycling is safer so that, by 2040, 50% fewer people are killed or seriously injured while cycling.

In terms of substantive traffic safety, it is unacceptable that anyone should be killed or seriously injured while cycling in Metro Vancouver. The proportion of cycling trips made by females is an important indicator to measure how safe cycling conditions are perceived to be. Currently, less than one-third of bicycle trips in Metro Vancouver are made by females.

Achieving the Goals

The rest of this document outlines the strategies that are needed to achieve the goals of more cycling and safer cycling including how to:

- Build the **Bicycle Transportation Network** (cycling routes, parking, bicycle-transit integration, public bicycle system);
- Deliver **Programs to Support Cycling** (education, encouragement, enforcement); and
- Manage **Implementation** (planning, funding, monitoring & evaluation).

The strategies contained in these sections are not exclusive to TransLink but rather provide a common regional framework for all partners across Metro Vancouver. To achieve the Vision and Goals articulated above, effective coordination and engagement is needed between municipalities; Metro Vancouver; TransLink; the province; the private sector; community organizations; academia; educators; and law enforcement agencies.



3. The Strategies

The strategies are outlined in three broad categories, described in detail in this section:

- The Bicycle Transportation Network
- Programs to Support Cycling
- Implementation

The Bicycle Transportation Network

The availability of comfortable routes for cycling is a prerequisite to increasing cycling and improving cycling safety. These investments can be optimized with supporting infrastructure such as bicycle parking and end-of-trip facilities; bicycle-transit integration; initiatives such as Public Bicycle Systems; and promotional, educational, and enforcement campaigns.

Metro Vancouver is a diverse region comprising a range of different communities, each with a different potential for increasing cycling and making cycling safer. Therefore a “one-size-fits-all” approach is not appropriate. Instead, the bicycle transportation system should be tailored to the specific needs and opportunities of each local context.

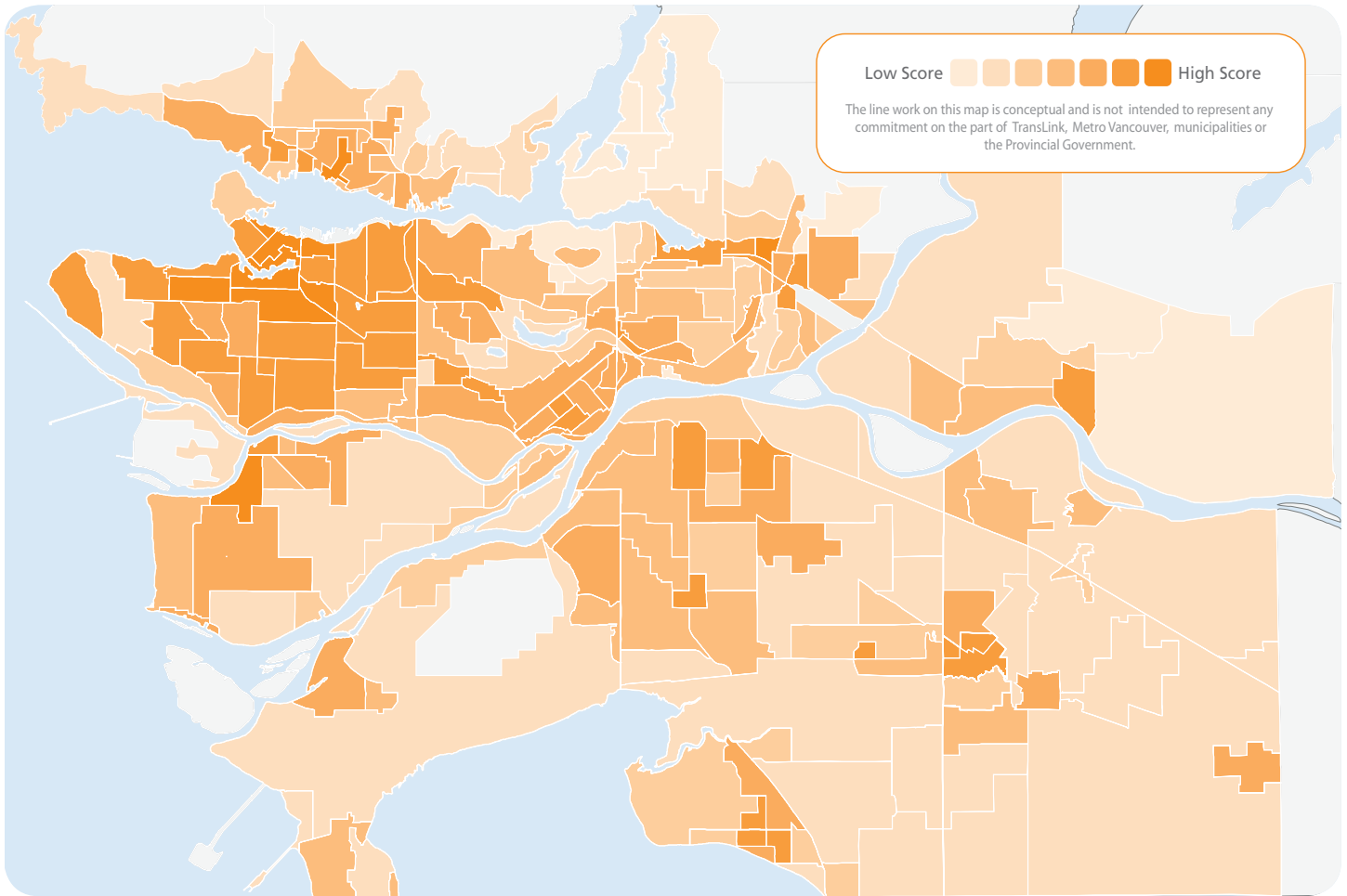
To this end, TransLink collaborated with its municipal partners on a GIS methodology that helps us to understand differing cycling conditions across the region. The analysis suggests ways to tailor measures to different local contexts and points to areas with the highest potential for increasing cycling.

Figure 16 shows cycling potential across Metro Vancouver. The areas with the highest cycling potential (greatest likelihood of increased cycling) are relatively flat; have a dense, well-connected street network; a good mix of land uses; and relatively higher densities. The highest scoring areas generally correspond with the Regional City Centres as designated in the *Regional Growth Strategy*.

The strategies and actions listed below should be applied in a context-sensitive manner across the region, according to an assessment of local conditions and an understanding in each area of the best opportunities to increase cycling.



Figure 16
Potential for increased cycling (by cycle zone)



1. Cycling Network

Cycling networks are an essential – as well as the most visible – element in determining the region’s bicycle friendliness. More than 20% of variability in cycling mode share across this region is directly attributable to the quality of the cycling network.⁵ Improving cycling conditions – both on general roadways and on designated bikeways – is one of the most important actions that governments can take to increase cycling and improve cycling safety.

Strategy 1.1: Make all roads safer for cycling

Roads in Metro Vancouver have been designed primarily to facilitate the high-speed movement of motor vehicles, so much of the existing road network is hostile to cycling. People riding bicycles have access to most public roads and paths within the region (except where cycling is explicitly forbidden) and ultimately people will need to cycle on these roads to reach many of their destinations. Accordingly, all roads where cycling is permitted should be made safer for cycling.

The road system should be designed with cyclists in mind and should reduce the likelihood of injury.

Actions

This *Strategy* recommends that street designs emphasize accommodating cyclists by including the following:

- 1.1.1** Reduce motor vehicle volumes and speeds on **local streets** using these measures as appropriate:
 - a. bicycle-permeable traffic diversion and traffic calming measures;
 - b. speed limits of 30 km/h; and
 - c. residential “home zones” or “woonerfs” where pedestrians and cyclists have legal priority over motorized traffic.
- 1.1.2** Provide attractive cycling facilities in **city centres** by implementing:
 - a. low speed “shared space streets”;
 - b. car-free zones; and
 - c. reallocation of road and parking space to traffic-protected cycling facilities and sidewalks.
- 1.1.3** Make **intersections** safer for cycling through treatments including:
 - a. removing channelized right-turn lanes;
 - b. installing curb bulges to reduce crossing distances;
 - c. reducing turning radii to reduce vehicle turning speeds; and
 - d. using pavement markings to highlight conflict zones.
- 1.1.4** Improve cycling capacity, connectivity, and safety in the development of **regional** and **provincial road networks** including:
 - a. providing cycling facilities on regional and provincial roads where possible; and
 - b. providing parallel routes where cycling is not permitted on specific stretches.

5. Cycling Network Study (TransLink, 2010)



Photo: Paul Krueger

Strategy 1.2: Build low-stress bikeways

In addition to making all roads safer for cycling, constructing designated facilities for cycling (bikeways) is a priority. In North America, bicycles have typically been treated as though they were cars and have been required to integrate with high-speed motorized traffic. In reality, bicycles are a distinct class of vehicle that require their own facilities, protected from high-speed motor vehicles through the use of traffic calmed local streets, bike lanes, cycle tracks on arterials and off-street paths.

Level of comfort (or lack of stress) is the most important factor influencing an individual's decision to cycle. Accordingly, the range of bikeway design solutions should be based on user comfort – which is most significantly affected by motor vehicle traffic. The higher the volume and speed of adjacent motor vehicle traffic, the greater the degree of separation and protection that is required for cyclists to feel comfortable.

Actions

- 1.2.1 Build bikeways according to the **Transportation Association of Canada (TAC) guidelines** for the construction of bicycle facilities.
- 1.2.2 To supplement TAC, adopt **bikeway design guidelines** based on user comfort (such as those shown in Table 6) where the most desirable facilities are those most protected from high-speed and high-volume motor vehicle traffic.

Table 6

Bikeway Facility Classifications

		Roadway Volume	
		Local Street motor vehicle volumes < 300 vehicle per hour	Major Street motor vehicle volumes > 300 vehicles per hour
Level of Comfort	Class 1 Comfortable for All Cyclists	<ul style="list-style-type: none"> Neighbourhood street bikeway w/ extensive traffic calming & crossings at every major street 	<ul style="list-style-type: none"> Off-street path Cycle track (on-street lane separated from traffic)
	Class 2 Comfortable for Most Cyclists	<ul style="list-style-type: none"> Neighbourhood street bikeway w/ moderate traffic calming & crossings at most major streets 	<ul style="list-style-type: none"> Bicycle lane Paved shoulder
	Class 3 Comfortable for Experienced Cyclists	<ul style="list-style-type: none"> Neighbourhood street bikeway w/ no traffic calming & few crossings at major streets 	<ul style="list-style-type: none"> Wide curb lane

Strategy 1.3: Develop a cohesive bikeway network

Bikeways are most useful when they are well-connected to form a cohesive and legible network providing direct and convenient routes to major destinations. One of the key elements that influences mode choice and cycling route choice is the spatial image, or mental map, that people have of their surroundings. An easy-to-understand network of highly visible bikeways that follow logical routes will tend to attract more cyclists.

It is important to provide a cohesive, well-connected bikeway network across the region. To augment the basic network of local bikeways, a network of major bikeways that connect urban centres will help to reinforce important high-volume local routes and serve longer-distance commuting and recreational trips.

To effectively coordinate land use and transportation investments and optimize returns on cycling investments, the bikeway network should be finer-grained in urban centres and areas of high cycling potential.

Actions

- 1.3.1 Develop the **bikeway network such that network density** is higher in urban centres and areas of high cycling potential; moderate in areas of moderate cycling potential; and lower in areas of lower cycling potential.
- 1.3.2. Coordinate with regional partners to define and implement a **Major Bikeway Network (MBN)** generally consistent with Figure 17. The MBN will:
 - a. parallel the rapid transit network and provide high-quality connections to transit stations, urban centres and regional transportation gateways;
 - b. consist primarily of Class 1 and 2 bikeways (see Table 7);
 - c. be distinctly marked and identified through consistent design elements and a coordinated wayfinding system; and
 - d. integrate with Metro Vancouver’s Regional Recreational Greenway Network and existing inter-regional trails and bikeways.

Table 7

Approach to Bikeway Network Design

		Network Design	
		Bikeway Spacing	Bikeway Classifications
Urban Designation	Urban Centres	200m	Class 1
	General Urban (high cycling potential)	300m	Class 1 & 2
	General Urban (low cycling potential)	800m	Class 2 & 3
	Non-Urban	1600m +	Class 2 & 3



Figure 17

Concept for a Major Bikeway Network



LEGEND — Existing and Potential Future Major Bikeway Network

The line work on this map is conceptual and is not intended to represent any commitment on the part of TransLink, Metro Vancouver, municipalities or the Provincial Government.

Strategy 1.4: Maintain bikeways in a state of good repair

People on bicycles are vulnerable to potholes, uneven paving, grit, glass, leaves, and garbage on the road surface – far more so than when on foot or in a motorized vehicle.

For Metro Vancouver residents, a route that has glass or debris was ranked as one of the top five deterrents to cycling.⁶ Regular maintenance and cleaning of bikeways is critical to increasing cycling trips and retaining existing users.

Actions

- 1.4.1** Routinely **maintain** and **rehabilitate** bikeways so that cycling surfaces are smooth and free of debris.

6. Cycling in Cities – deterrents to cycling

Strategy 1.5: Make the bikeway network easy to navigate

A seamless, easy-to-understand regional cycling wayfinding system (including directional signage, maps, and trip-planning tools) is important to help people find the network and confidently navigate from place to place. TransLink market research reveals a strong preference from residents to receive more information about the bikeway network via the web, followed by printed maps and information boards along cycling routes.

Actions

- 1.5.1 Coordinate a common regional cycling **wayfinding system** including agreed-upon protocols for route naming and the consistent design and application of route markings and cycling signage.
- 1.5.2 Produce and regularly update a coordinated set of cycling **network maps** for the region and its sub-areas.
- 1.5.3 Make bicycle **trip planning information** widely accessible through integrated on-line trip planning tools that take advantage of current social media technology.

2. Parking & End-Of-Trip Facilities

People need a place to securely park their bicycle when they reach their destination – whether for five minutes or for the entire day. Following concerns over traffic safety, trip distances, and weather – a lack of place to park and lock one’s bicycle is the next most important barrier to cycling cited by Metro Vancouver residents. Despite advances in bicycle-locking technology, the risk of bicycle theft is still a significant deterrent to cycling in this region and so security is an important consideration in the provision of bicycle parking.

Strategy 2.1: Provide sufficient parking and end-of-trip facilities

Bicycle parking facilities come in dozens of formats that offer varying levels of convenience and security. People running short errands tend to prefer the higher convenience of on-street racks whereas people who are parking their bicycle for a longer period are more willing to sacrifice convenience in favour of higher security bicycle lockers, enclosed bicycle cages, and staffed “bicycle stations.” Longer distance bicycle commuters also need convenient access to shower, changing, and gear storage facilities.

Actions

- 2.1.1 Make early investments to install a **sufficient amount** of the **right mix** of bicycle parking facilities to meet anticipated future demand, particularly at transit stations, Park-and-Ride lots and other transportation exchanges.
- 2.1.2 Actively **monitor parking utilization** in private and public bicycle parking facilities in order to effectively manage supply and optimize resources.
- 2.1.3 Use **legislation** to require that new and existing private development provides adequate bicycle parking and end-of-trip facilities.
- 2.1.4 Ensure that any publicly accessible secure bicycle parking facility can provide **on-demand access** and is seamlessly integrated with the **electronic smart card**.





3. Bicycle-Transit Integration

Together, bicycles and transit make for a powerful combination. Cycling cost-effectively extends the catchment area for transit services and provides fast and flexible mobility to customers at the beginning and end of their transit trips.



Strategy 3.1: Make it easy to combine cycling and transit trips

The ability to transport one's bicycle on public transit greatly improves the attractiveness of both transit and cycling. While it is important to offer a public transit fleet that is 100% accessible to bicycles, ultimately the number of bicycles that can be regularly transported is limited by space constraints on transit vehicles: buses and trains can only safely carry a small number of bicycles per trip. Accordingly, as demand for bicycle-transit integration grows, secure bicycle parking at stops and stations can help to facilitate bicycle-transit trips on a much larger scale.

Actions

- 3.1.1 Ensure that the public transit fleet is **100% accessible** to bicycles and work to increase the bicycle carrying capacity of transit vehicles.
- 3.1.2 Ensure that the **Major Bikeway Network includes safe, convenient and legible connections to, transit stations and exchanges.**
- 3.1.3 Ensure that transit facilities offer sufficient amounts and the right mix of **bicycle parking** including secure on-demand parking at every rapid transit station and major bus exchange and covered racks at major transit stops.
- 3.1.4 Ensure **transit stations** and exchanges clearly indicate desired bicycle circulation in these more complex operating environments.

Strategy 3.2: Provide a regional Public Bicycle System

Providing a Public Bicycle System that is well integrated with conventional public transit is another effective way to facilitate bicycle-transit trips on a much larger scale. There are a number of areas throughout the region where a Public Bicycle System would be viable. These are the areas of high cycling potential – places that are both sufficiently bicycle-friendly and that generate many short trips in multiple directions. Many options exist for delivery and management of a Public Bicycle System. No matter how it is delivered, it should appear to the user as a coherent and seamless regional system integrated with transit.

Actions

- 3.2.1 Provide a seamless regional Public Bicycle System that operates in areas of high cycling potential, that is accessed via the **regional smart card**, and that is **well-integrated** with conventional public transit.

Programs To Support Cycling

Improving cycling infrastructure is necessary but not sufficient on its own to attract large numbers of new people to cycling and significantly improve cycling safety. A suite of supporting education, encouragement, and enforcement programs is required to realize the goals of this *Strategy*.

4. Education

Bicycle handling skills, knowledge of traffic rules, and cycling etiquette are essential to improving safety, as is giving attention to cycling within motorist training and testing. Expanded formal training for transportation and cycling professionals will spread knowledge on how to build and support bicycle-friendly communities.

Strategy 4.1: Provide cycling skills training to improve cyclist safety and confidence

A US-wide study found that cyclists are at fault in roughly one-third of bicycle-motor vehicle collisions.⁷ Few people have had any formal cycling skills training – new and infrequent riders may not understand the rules of the road as they apply to cycling. Proper cycling skills training for all residents can address the knowledge gap.

The proportion of elementary and high school trips made by bicycle has been declining over the past decade, an important indicator of trends in future cycling rates.

The most effective way to provide universal cycling skills training is to incorporate it into the elementary school curriculum, as is done in Denmark, the Netherlands, Germany, and the United Kingdom. In this way, the next generation is more likely to cycle frequently and to have a higher level of cycling competence and awareness.

While some excellent elementary school cycling-skills programs are currently offered in this region, the Ministry of Education, school districts, TransLink, municipalities, and community organizations must work together to scale up these smaller initiatives into a comprehensive province-wide school cycling skills program. Metro Vancouver is an ideal testing ground to develop, pilot, and implement such a program.

Actions

- 4.1.1 Work with the Canadian Cycling Association and local skills-training service providers to develop, refine, and adopt a **cycling skills training standard** upon which to gauge cycling ability and upon which to base all cycling skills training.
- 4.1.2 Support an ongoing program to **train the trainers** so that there is an adequate pool of trainers who are certified to deliver cycling skills training.

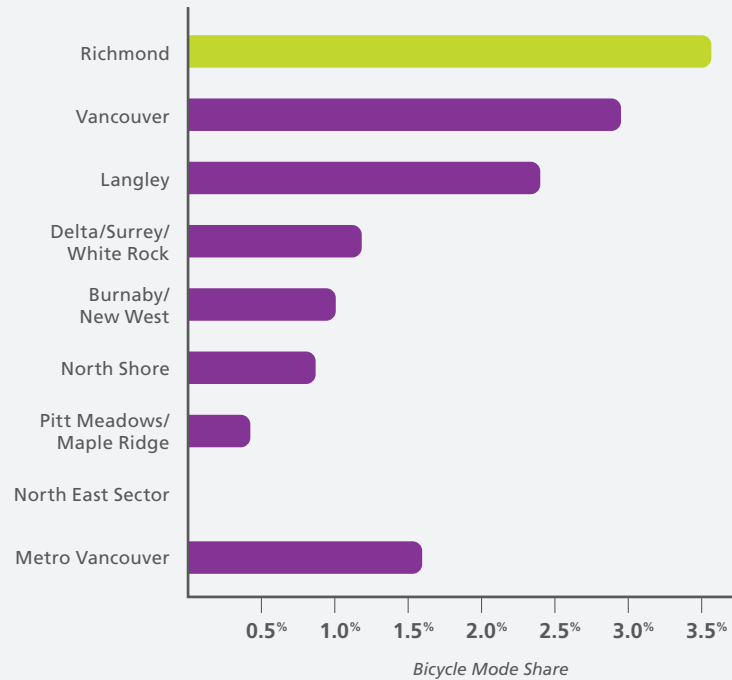


7. Reducing Collisions Involving Bicycles, http://safety.transportation.org/htmlguides/bicycles/types_of_probs.htm



Figure 18

Proportion of school trips made by bicycle (historical by sub-area)



- 4.1.3** Incorporate cycling skills training and testing into the core **elementary school curriculum** so that all children are able to cycle in a safe and confident manner before reaching high school.
- 4.1.4** Deliver a regular program of cycling skills training **courses for adults** at multiple skill levels, including courses for women only and courses in other languages as needed.

Strategy 4.2: Provide motorist training to improve cycling safety

In North America, only 1% of questions on driver examinations relate to interactions with people on foot and bicycle. In contrast, more than 50% of questions on driver examinations in Northern Europe relate to interactions with people on foot and bicycle. Including a greater emphasis on vulnerable road users in both driver training and testing can help to increase driver awareness, vigilance, and expectation of cyclists.

Actions

- 4.2.1** Work with ICBC to make cycle safety awareness a key component of all **driver training** courses and examinations in British Columbia, including for commercial licenses.

Strategy 4.3: Educate transportation professionals

Transportation planning and engineering professionals are responsible for building the bicycle transportation system. However, this field of design is relatively young and is still rapidly evolving in North America. So that this region is equipped to design and build the transportation system that it wants, local design professionals need regular professional development opportunities to increase their cycling expertise.

Actions

- 4.3.1 Coordinate with regional partners and existing service providers to deliver regular bicycle facility design **professional development** opportunities including conferences, courses, and workshops.

5. Encouragement

Many people are receptive to the idea of cycling or cycling more frequently but might need some encouragement to actually change their behaviour. Ultimately, encouragement is a relatively inexpensive way to optimize use of existing cycling infrastructure.

Strategy 5.1: Market cycling to improve its image

Effective marketing programs can influence behaviour and change attitudes by strategically promoting different messages that will resonate with each market segment. Those Metro Vancouver residents who are “interested but concerned” may respond well to images of safe cycling, especially of women and children, and encouragement to try leisure cycling. After some cycling experience, individuals may respond well to health messages, encouraging them to try more and longer trips by bicycle. Messages promoting convenience, time-savings, and cost issues may also encourage more trips by bicycle.

Actions

- 5.1.1 Conduct regular **market research** to understand what messages will most effectively promote cycling to each of the different market segments in Metro Vancouver with a specific focus on **women**.
- 5.1.2 Conduct regular **media campaigns** to encourage more cycling and to improve its image.
- 5.1.3 Coordinate marketing and promotion efforts amongst all partners to ensure **consistent messaging** and efficient use of resources.
- 5.1.4 In all bicycle facility project budgets, include funds for **post-construction marketing**.
- 5.1.5 Hold **community events**, festivals, and rides to encourage and celebrate cycling.



Strategy 5.2: Provide information, incentives, and support programs

Bicycle and walking encouragement programs have tended to be implemented in Metro Vancouver by small community groups such as cycling organizations and advocacy groups. These programs can help increase cycling rates by encouraging new cyclists to try it out. Travel impacts tend to be greatest during a particular campaign, but the experience can lead participants to long-term changes in travel habits.



Actions

- 5.2.1 Deliver programs such as TravelSmart that provide personalized travel counselling including **cycling advice and support** to residents, schools, and workplaces.
- 5.2.2 Provide **consistent funding** for specific programs that encourage first-time or infrequent cyclists to try out cycling, such as Bike-to-Work Week and Bike-to-School programs.

6. Enforcement & Legislation

The *BC Motor Vehicle Act* specifies the rules of the road for cars and bicycles as well as the penalties associated with breaking these rules. Police agencies play a critical role in enforcing these laws, helping to ensure that roads are safe for all users, and that vehicles (including bicycles) are protected from theft.

Strategy 6.1: Establish and enforce laws that protect vulnerable road users

Some road users are more vulnerable to death and injury by collision and should therefore be given special attention in road safety policy. While people travelling by automobile are surrounded by a protective steel shell, people travelling by foot, bicycle, scooter, skateboard, wheelchair, moped or motorcycle lack any significant external protection. Children, seniors, and people with disabilities are also especially vulnerable when travelling by these modes.

In the countries of Northern Europe, and more recently in Oregon, these types of users have been categorized as “vulnerable road users” and traffic laws and enforcement practices have been modified to provide them with enhanced protection. This important legal concept is not yet in use in British Columbia.

Actions

- 6.1.1 Investigate opportunities to apply the legal concept of “**vulnerable road users**” to the *BC Motor Vehicle Act* along with relevant legislation.
- 6.1.2 Change the name of the *BC Motor Vehicle Act* to reflect its concern with traffic safety for all road users (not just motorized) and amend the Act to:
 - a. clarify the distinct needs, rights and responsibilities of the different classes of road users;
 - b. provide **enhanced legal protection** for vulnerable road users; and
 - c. allow and clearly define conditions to implement road safety measures such as speed limits (Action 1.1.1).
- 6.1.3 Amend criminal legislation to create **enhanced penalties** (including non-criminal alternatives) for motorists who kill or injure vulnerable roadway users.
- 6.1.4 Implement **enforcement practices** to target behaviour that endangers vulnerable roadway users.

Strategy 6.2: Reduce bicycle theft through enhanced enforcement

Law enforcement practices can help to reduce another major deterrent of cycling: bicycle theft. TransLink market research reveals that two in 10 cyclists experienced a theft in the last five years. Of those who had a bicycle stolen, 23% did not replace the bicycle for a year and an additional 32% for longer than one year. Tackling bicycle theft is an important measure to help increase cycling.

Actions

- 6.2.1 Amend the Canadian Criminal Code to create **enhanced penalties** for bicycle theft as a special class of theft.
- 6.2.2 Establish a **regional bicycle theft task force** to research, implement and coordinate programs and enforcement practices to reduce bicycle theft including:
 - a. a regional bait-bike program; and
 - b. regional cooperation and resourcing of bicycle theft investigations.
- 6.2.3 Develop a **public information campaign** on how to properly lock a bike in order to reduce the chances of it being stolen including:
 - a. proper locking technique; and
 - b. types of locks that are the least vulnerable to tampering.





Implementation

The previous two sections provide the substantive content of the *Regional Cycling Strategy*: the comprehensive suite of strategies and actions that, taken together, will help realize the goals of **more cycling** and **safer cycling**. However, making these strategies and actions a reality requires effective planning, including ongoing monitoring, adequate funding from all partners, and strategic investment. This section describes the implementation of the *Regional Cycling Strategy*.

7. Planning & Monitoring

TransLink holds the unique mandate to coordinate, guide and enable municipalities to undertake regional transportation strategies, which is important for creating a cohesive system and consistent monitoring methodologies.

Strategy 7.1: Integrate cycling into all land use and transportation planning

Cycling accommodates a much higher share of trips in Northern European countries in large part because it has been integrated as a key component of all land use and transportation planning for the past 50 years. Communities are planned based on walking and cycling distances and road space is allocated to accommodate all modes, including cycling.

In contrast, consideration of cycling has been largely absent from most land use and transportation planning in North America – until recently. While most urban roads in this region are now built with sidewalks, very few roads are built or have been retrofitted with dedicated cycling facilities. To remedy this historic imbalance, cycling should be integrated at the outset into all relevant planning processes and programs for new development.

Actions

- 7.1.1** Make **land use planning** decisions that prioritize convenient walking and cycling distances. Specifically, focus the majority of growth and development within designated urban centres and development areas along the Frequent Transit Network so that many destinations are within easy walking and cycling distance.
- 7.1.2** Adopt a “**complete streets**” approach to roadways, ensuring that all roads are planned and operated to enable safe, attractive, and comfortable travel for all modes, including cycling.
- 7.1.3** Ensure that all major transportation **infrastructure projects**, including roads, bridges, and rapid transit, are planned and funded at the outset to include safe, attractive, and comfortable walking and cycling facilities.

Strategy 7.2: Produce and regularly update cycling plans

Bicycle plans, whether stand-alone documents or integrated as chapters within larger transportation or community plans, should be reviewed and updated regularly to ensure that they remain relevant.



Actions

- 7.2.1 Prepare local and regional cycling plans that are generally **consistent with the approach** outlined in this *Strategy*.
- 7.2.2 Review and **update relevant cycling plans** at least every five years.

Strategy 7.3: Monitor and evaluate progress

Currently, monitoring of bicycle volumes and associated data is done on an ad hoc basis, with individual municipalities collecting data for their own area. Less than one quarter of regional municipalities have a formalized and on-going bicycle data collection program.

A regionally coordinated regime of data collection and monitoring is necessary in order to evaluate progress towards the goals of more cycling and safer cycling and to investigate the impact of specific infrastructure, program and policy changes.

Actions

- 7.3.1 Coordinate between partners to define and monitor the key input, output, context, and **performance indicators**.
- 7.3.2 Produce an annual public summary document that reports on the performance indicators and provides an analysis of **progress towards the goals** of more cycling and safer cycling.

8. Funding

Strategy 8.1: Support cycling targets with commensurate funding and strategic investments

Low-cost policy measures can make important contributions towards achieving the targets set out in this *Regional Cycling Strategy*. However, given the historic under-funding of cycling, any significant progress will require a commitment of increased, stable funding to construct cycling facilities and deliver programs to support cycling. To optimize returns on investment, these funds should be targeted strategically, building the right types of facilities in the right types of locations.

Actions

- 8.1.1 **Allocate a share of transportation funding** to cycling commensurate with stated transportation and cycling goals and targets.
- 8.1.2 Target cycling investment within each municipality towards areas that will **optimize cycling ridership** (e.g. areas of higher cycling potential) and towards facilities that will optimize both real and perceived safety (e.g. more traffic-protected).



4. TransLink's Role

The broad range of strategies and actions thus far represent a comprehensive picture of what is needed to achieve the Vision and Goals. Making progress on these actions requires the coordinated effort of many different partners across the region from governments to the private sector to community organizations (see Table 8). As the regional transportation authority, TransLink has a role to play in providing an overarching framework, in the form of this *Regional Cycling Strategy*, to help coordinate these diverse efforts.

As shown in Table 8, TransLink also has a more direct long-term leadership role to play in several specific areas including:

- Providing funding for municipal cycling infrastructure through the BICCS Program;
- Providing funding and coordination support for the development of a Major Bikeway Network of regional routes (Strategy 1.3);
- Ensuring that the bikeway network is easy to navigate with a consistent system of bicycle wayfinding (Strategy 1.5);
- Making it easy to combine cycling and transit trips (Strategy 3.1);
- Ensuring that any Public Bicycle System is regionally coordinated (Strategy 3.2);
- Helping to scale up a school-based cycling skills training program (Strategy 4.1);
- Delivering bicycle marketing campaigns (Strategy 5.1) and integrating cycling into other travel demand management programs (Strategy 5.2); and
- Coordinating a regional bicycle monitoring program (Strategy 7.3).

Next Steps

As a region, we have made great improvements to the bicycle-friendliness of our communities over the past decade. However, we still have a long way to go to achieve the ambitious Vision and Goals set out in this *Regional Cycling Strategy*. In summary, to achieve these goals, we must continue to work with our partners to:

- 1 Coordinate planning and delivery of cycling infrastructure through strong regional partnerships;
- 2 Increase cycling funding to support our targets;
- 3 Build the right kind of facilities (to optimize safety) in the right locations (to optimize ridership);
- 4 Promote cycling with targeted education, encouragement, and enforcement programs; and
- 5 Monitor, measure, learn, and adjust.

Moving forward, TransLink will use the *Regional Cycling Strategy* as a foundation to inform the development of its medium- and near-term implementation plans. Likewise, we encourage all of our partners to view this document as a consistent regional foundation upon which to build their own more detailed implementation plans. Together, we can help make our common Vision of "Cycling for Everyone" a reality.



Table 8

Regional Cycling Strategy roles

Strategy	TransLink	Municipalities	Province	Metro Vancouver	Developers	Business	Bicycle Industry	NGOs / Community	Academia/Educators	Law Enforcement
1. Cycling Network										
1.1 Make all roads safer for cycling	○	●	●	○	○					○
1.2 Build low-stress bikeways	○	●	●	○	○					
1.3 Develop a cohesive bikeway network	●	●	○	○				○		
1.4 Maintain bikeways in a state of good repair		●	●	○	○					
1.5 Make the network easy to navigate	●	●	○	○						
2. Parking & End-Of-Trip Facilities										
2.1 Provide sufficient bicycle parking & facilities	○	●	○	○	○	○				
3. Bicycle-Transit Integration										
3.1 Seamlessly integrate with transit	●	○	○	○						
3.2 Provide a Public Bicycle System	○	●	○				○			
4. Education										
4.1 Provide cycling skills training	○		○				○	●	●	
4.2 Provide motorist training	○		●							○
4.3 Educate transportation professionals	○		○						●	
5. Encouragement										
5.1 Market cycling	●	●	○			○	○	○		
5.2 Provide information, incentives, and programs	●	●	●			○		○		
6. Enforcement										
6.1 Establish and enforce bicycle-friendly legislation	○	●	●							○
6.2 Run programs to reduce bicycle theft	○	○	○							●
7. Planning & Monitoring										
7.1 Integrate cycling into all urban planning	●	●	●	●						
7.2 Regularly update cycling plans	●	●	●							
7.3 Monitor and evaluate progress	●	●	●					○	○	○
8. Funding										
8.1 Support targets with commensurate funding	●	●	●							

●—Primary ○—Supporting

For more information, go to **translink.ca**
and click on the “Cycling” tab.



