



ADMINISTRATIVE REPORT

Report Date: May 25, 2009
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Meeting Date: June 2, 2009

TO: Standing Committee on Transportation and Traffic
FROM: General Manager of Engineering Services
SUBJECT: Enhancements to City Bikeways

RECOMMENDATION

- A. THAT Council direct staff to review and implement measures to enhance the comfort and effectiveness of existing and planned bikeway and greenway networks by installing additional traffic calming measures, including diversionary and non-diversionary measures, on existing bikeways and that funding of \$1,200,000 be allocated to support this initiative; the sources of funding are to be:
- (a) \$192,000 from the TransLink 2009 Bicycle Infrastructure Capital Cost Sharing Program;
 - (b) \$264,000 from the 2007 Streets Basic Capital Budget (Greenways);
 - (c) \$87,000 from the 2009 Streets Basic Capital Budget (Neighbourhood Traffic Calming);
 - (d) \$657,000 from the 2009 Streets Basic Capital Budget (Bicycle Network).

Funding from the 2009 Streets Basic Capital Budget is subject to approval of the 2009 Basic Capital Budget.

- B. THAT Council direct staff to limit approvals of new motor vehicle crossings on to existing and planned bikeways and greenways unless, in the opinion of the City Engineer, alternate locations are not advisable due to safety considerations, transit operations, pedestrian conflicts or site and streetscape constraints.

- C. THAT Council approve implementation of bicycle routes along E 30th and 31st Avenues between Ontario Street and Windsor Street, along Windermere Street from Adanac Street to Hastings Street, and on Bridgeway between the Portside and Cassiar Bikeways to facilitate bicycle access to competition venues during the 2010 Winter Games, at a total cost of \$184,000; source of funding to be the 2009 Streets Basic Capital Budget (Bicycle Network), subject to approval of the 2009 Basic Capital Budget.

CITY MANAGER'S COMMENTS

The City Manager RECOMMENDS approval of the foregoing.

COUNCIL POLICY

The 1997 Transportation Plan, adopted by Council in May 1997, identifies cycling as one of the top-priority transportation modes within the City.

The 1999 Bicycle Plan, adopted by Council, identifies 12 action items to improve cycling in Vancouver, including a network of bicycle routes on local streets throughout the City.

In April 2005, Council approved the Community Climate Change Action Plan that identified the critical importance of encouraging and supporting active transportation if Vancouver is to meet its greenhouse gas reduction target for 2012.

SUMMARY

The City's local street bikeways make up much of the bicycle network outside the Downtown peninsula. They are popular and well-received, but some are accommodating significant non-local motor vehicle traffic that affects their overall comfort and efficiency for cyclists. Furthermore, adjacent redevelopment on some bikeways has incrementally degraded conditions for cyclists, especially where new driveways connect to the bikeways. Staff are seeking authority to implement measures to enhance the comfort and effectiveness of existing and planned bikeway and greenway networks by:

- Installing additional traffic calming measures, both diversionary and non-diversionary, on existing bikeways;
- Wherever possible and based on thorough staff review, limiting access from new developments on to existing and planned bikeways; and
- Reducing speed limits on local street bikeways to 30 km/h.

Residents on affected bikeways will be advised of pending traffic calming changes through a notification process and provided the opportunity to offer input prior to implementation. Non-diversionary measures (such as traffic circles) would be implemented permanently after notification of residents, whereas diversionary measures would be placed for a trial period (using temporary measures) prior to permanent installation. Staff would report to Council on a case-by-case basis only where significant issues and/or concerns arise prior to implementation or during the trial period.

Staff are also seeking approval to implement bicycle facilities to serve two competition venues during the 2010 Winter Games and to complement the existing bicycle network.

The initiatives described in this report will further the goals of the Greenest City Action Team by addressing *Quick Start Recommendation #24 - Make Streets Safer for Pedestrians and Cyclists*.

PURPOSE

This report seeks Council authority to proceed with the implementation of measures on existing and planned local street bikeways to mitigate the negative impacts of motor vehicle traffic and to encourage residents of all ages and abilities to cycle for utilitarian and recreational purposes. It also seeks approval for implementation of bicycle facilities connecting existing bike routes to two Olympic and Paralympic competition venues for the 2010 Winter Games. This is to encourage spectators, volunteers and workforce to consider cycling as a travel option during the Games and to benefit the community post-Games.

BACKGROUND

The City's bike network has been under development since the 1980s and now includes a range of facilities throughout the City, including arterial bike lanes on many Downtown streets, a separated bike facility on Carrall Street, off-street pathways such as the Seawall, and local street bikeways on many residential streets primarily outside of the Downtown peninsula. Several arterial bike lanes and local street bikeways are under development, and additional separated bike lanes are being considered primarily for the Metro Core area.

To complement the network, the City undertakes annual programs to develop supporting measures, such as cyclist pushbuttons and end-of-trip facilities, including bike parking, to facilitate cycling within local neighbourhoods.

This report is specific to improvements on the existing local street portion of the bike route network. Improvements to other portions of the bike network will be dealt with in other reports.

For the 2009-2011 Capital Plan, approximately \$1.7 million is allocated annually toward bicycle network expansion and upgrades, and approximately \$1.3 million is directed toward greenways, which generally include cycling infrastructure. Some special projects, such as the Carrall and Central Valley Greenways, also include funding for cycling facilities separate from ongoing bicycle network and greenways funding. As well, staff continually seek external cost-sharing with agencies such as the Province and TransLink to supplement funding provided through City sources.

Around 1990, the City made a conscious decision to pursue a network of bike routes primarily on local residential streets, with a long-term goal of achieving a 1-km grid, similar in spacing and parallel to our major arterial streets. This approach was deliberately chosen for the following reasons:

- limited rights-of-way on most major roads to accommodate dedicated bicycle facilities without reduction in capacity and/or on-street parking; and
- the grid road network throughout much of the City provides the opportunity to establish a network of bikeways on residential streets parallel to major streets while serving the same destinations and preserving access to neighbourhoods and community facilities.

Since the program began, the City has developed over 250 lane-km of local street bikeways, which include a range of traffic calming measures, such as traffic circles and diverters, to discourage through travel by motor vehicles. On some bikeways, planned diversionary traffic calming measures (e.g., closures, right-in/right-out diverters, etc.) were placed temporarily at initial route implementation but removed after surveys of residents in the immediate vicinity of the measures indicated non-support.

So far, the local street bikeways have proven to be well-received and popular with cyclists. In fact, our model has been replicated in other cities across North America, including Portland, Oregon. Recent research suggests that, along with off-street pathways and separated bike lanes on major streets, traffic-calmed local streets have the highest potential to encourage more people to cycle.

However, in recent years staff have heard an increasing level of concern among cyclists and residents that motor vehicle traffic volumes and speeds are too high on some local street bikeways and that many potential cyclists, including children and seniors, are discouraged from riding by the potential for conflicts with motor vehicles. Anecdotal information suggests that some bike routes are attractive to short-cutting motorists because they provide relatively direct and unimpeded routes through neighbourhoods. As well, incremental redevelopment along some existing bikeways has degraded cycling conditions and made those routes less appealing and comfortable, especially where new driveways connect to the bikeways.

This report seeks authority to proceed with implementation of additional measures on the City's existing and planned bikeway network to further discourage through traffic and make the routes more appealing and comfortable for potential and existing cyclists of all ages and abilities.

The coming of the 2010 Winter Games presents an opportunity to encourage more residents to choose cycling as a means of getting around the City. To support this opportunity and to help the City achieve its traffic reduction targets, this report seeks authority to implement new bicycle routes to connect existing bikeways with two 2010 Winter Games competition venues and to benefit the community post-Games.

DISCUSSION

The City's bicycle network consists of a range of facilities totalling approximately 400 lane-kilometres, including off-street pathways, arterial bike lanes, shared-use lanes on major streets and local street bikeways. Since the early 1990s, the City has seen a tripling in the number of daily trips made by bicycle and over 10% of employed residents cycling to work in some neighbourhoods.

Although we have been relatively successful in encouraging cycling (compared to other large North American cities), staff have anecdotal evidence and recent academic research suggests that the existing network may not be appealing to the broadest population possible. This segment of the population, which has come to be known as the 'third wave' of cyclists, includes people who are interested in cycling for utilitarian needs, but are concerned about safety, primarily conflicts with motor vehicles. This is documented in a January 2009 article of the *Journal of Public Health Policy* ('Bicycling for Transportation and Health: The Role of Infrastructure') and UBC's 'Cycling in Cities' study. The UBC research indicates that the top three types of facilities favoured by the 'third wave' of cyclists are:

- off-street pathways separated from motor vehicles, such as the Seawall;
- separated bicycle lanes on arterial streets, such as the Carrall Greenway; and
- traffic-calmed local residential streets, such as the Ontario and Ridgeway Bikeways.

To ensure that the City's bikeway network meets the needs of this 'third wave' of cyclists, staff are seeking authority to improve the third facility type listed above - local street bikeways on residential streets - as described in the following sections.

Traffic Calming

The City has implemented traffic calming on all local street bikeways to date. However, some segments have less traffic calming than others and, in recent years, staff have heard an increasing level of concern among cyclists that motor vehicle traffic volumes on some segments are too high and that some potential cyclists are discouraged from riding by the potential for conflicts with motor vehicles. Staff have also heard about residents who have quit cycling because they were too concerned for their safety while riding on local street bikeways. Anecdotal information and traffic data suggest that some bike routes are attractive to short-cutting motorists because they provide relatively direct and unimpeded routes through neighbourhoods.

Some European cities have achieved significant growth in cycling traffic through the implementation of enhanced traffic calming on residential streets, such that bicycles become the priority mode of travel. In Vancouver, there exist many opportunities to implement enhanced traffic calming on existing bikeways to transform them into 'bike priority' streets by strongly discouraging through motor vehicle traffic.

To make cycling more effective and comfortable for cyclists of all ages and abilities and to improve one of the favoured facility types for potential cyclists, staff are seeking approval to implement additional diversionary and non-diversionary traffic calming on many of the City's bikeways, particularly where concerns about traffic volumes and speeds have been raised by cyclists and local residents.

Diversionary measures being considered include:

- partial and full closures
- diagonal diverters
- right-in/right-out diverters and variations of the same
- bicycle-permeable medians on arterial streets, including closures of existing median gaps to motor vehicles
- one-way streets with two-way cycling

Non-diversionary measures may include:

- traffic circles (typical practice where stop signs are located along bikeways)
- speed humps (where speed studies indicate issues)
- medians and corner bulges
- intersection realignments

Potential locations and traffic calming concepts have been identified by staff based on cyclist complaints, traffic and bicycle data and staff knowledge. These concepts reflect adjacent land uses and vehicular and emergency access needs for community amenities such as schools, community centres and sports facilities. Areas of concern and locations being

evaluated for traffic calming are shown in Appendix A. Traffic data (speeds, volumes, collisions) will be used to confirm and quantify issues prior to final selection of traffic calming measures and locations. Where necessary, staff will collect additional data prior to implementation and, in all cases, data will be collected after implementation to ensure that the desired objectives have been achieved. Wherever traffic calming measures are implemented, street lighting and accessibility will be reviewed and improved as necessary to meet current guidelines.

Impacts on parallel streets are a common concern with the implementation of diversionary traffic calming. However, bikeways are a City-wide amenity that benefit all residents and a reasonable level of diversion to parallel streets will be accepted. Portland Oregon uses an objective method to gauge reasonable levels of diverted traffic for parallel streets. This method allows for an increase of up to 150-200 vehicles per day (vpd) on low-volume streets (300 or fewer vpd). For streets with volumes higher than 300 vpd, the method allows for a proportional increase based on the existing daily volume, up to a maximum increase of 400-650 vpd for an existing volume of 2000 vpd. Beyond 2000 vpd, the acceptable proportional increase gradually declines to a point where no increase is acceptable beyond a starting volume of 3000 vpd, which would be considered high for a local street. Where diverted traffic exceeds these thresholds, additional traffic calming would be considered for the affected street(s).

Staff propose to use a similar objective approach for assessing diversionary traffic calming measures applied to bike routes. As such, staff will monitor traffic volumes on affected streets as concerns arise and may propose further traffic calming on a case-by-case basis to address issues that may arise.

In some locations, an incremental approach may be used to implement diversionary measures along bikeways. For example, a single measure may be implemented and monitored to determine impacts. If further reductions in through traffic are desired, then additional measures may be implemented.

Bikeway Speed Limits

Traffic speeds are also a concern for cyclists, as the severity of collisions between motor vehicles and cyclists increases exponentially with motor vehicle speed. To address this, staff will be implementing 30-km/h speed limits on local street bikeways, initially with signage where motor vehicle speeds present issues on existing bikeways.

Currently, the blanket speed limit for local streets is mandated by the Province to be 50 km/h unless posted otherwise. Changes to the blanket speed limit require amendments to the Motor Vehicle Act by the provincial legislature, but localized speed limit reductions, such as on bikeways, may be posted with appropriate signage. In addition to reducing speed limits on bikeways, staff will continue working toward legislative changes to allow municipalities authority to set local speed limits more easily.

Access for New Developments

As new developments occur throughout the City, access for underground parking and servicing is often consolidated at a single location for efficiency, to minimize impacts on the road network for other motorized traffic and to reduce conflicts with pedestrians. Generally, it is preferred to provide these accesses in rear lanes but, where this is not possible, access points

are often accepted on local streets. Access from arterial streets is generally a last option due to operational and safety concerns, as well as pedestrian conflicts. Unfortunately, where access is taken from a bike route, motor vehicle traffic can be concentrated on to the bikeway and can significantly degrade conditions for cyclists. Incremental redevelopment along a bikeway can have implications for the long-term viability of the bikeway if it is accompanied by increased traffic and vehicle conflicts.

Staff have generally attempted to minimize bikeway impacts by requesting that developments take access from laneways or streets other than bikeways. Staff recommend that motor vehicle access for future developments adjacent to existing or planned bikeways/greenways be located on streets or laneways other than the adjacent bikeway(s) or greenway(s). Access to and from existing and planned bikeways will be considered where alternate locations are, in the opinion of the City Engineer, not advisable due to transit operating needs, pedestrian conflicts, streetscape issues, site grading, vehicle safety, or potential impacts on major pedestrian corridors and commercial streets.

The existing and planned bicycle network is shown in Appendix B. Planned routes are subject to further review and change.

2010 Winter Games Bike Connections

Staff are seeking authority to develop bicycle facilities connecting the existing local street bikeway network to two competition venues for the 2010 Winter Games. These connections are outlined below and illustrated in Appendix C.

- A local street bikeway on E 30th and 31st Avenues between the Windsor and Ontario Bikeways would connect to the Vancouver Olympic and Paralympic Centre. This bikeway would incorporate two new traffic circles, as well as signage and pavement markings. This facility could be incorporated into a future permanent bikeway in this area of the City, with the Fraser Street crossing to be monitored for potential upgrades.
- A local street bikeway on Windermere Street between the Adanac Bikeway and Hastings Street would connect to Pacific Coliseum. Signal upgrades to accommodate cyclists at E Hastings Street are already underway, so this route requires only signage and pavement markings.
- Bike lanes would be installed on Bridgeway between the Cassiar and Portside Bikeways to facilitate bike access to Pacific Coliseum from the north and east. As part of this project, crossing improvements to accommodate cyclists, such as cyclist pushbuttons, crossbikes and/or bike boxes, would be provided at Cassiar Street (Highway 1).

Appendix C also illustrates other interim bicycle routes required to accommodate pedestrian and cyclist detours due to security-based road closures.

FINANCIAL IMPLICATIONS

Staff are seeking a funding allocation of \$1,200,000 to implement enhancements to existing bikeways and greenways throughout the City as detailed in this report. The sources of funding are as follows:

- (a) \$192,000 from TransLink 2009 Bicycle Infrastructure Capital Cost Sharing Program;
- (b) \$264,000 from 2007 Streets Basic Capital Budget (Greenways);
- (c) \$87,000 from Debenture funding from the 2009 Streets Basic Capital Budget (Neighbourhood Traffic Calming);
- (d) \$617,500 from Development Cost Levy funding from the 2009 Streets Basic Capital Budget (Bicycle Network); and
- (e) \$39,500 from Debenture funding from the 2009 Streets Basic Capital Budget (Bicycle Network).

Funding from the 2009 Streets Basic Capital Budget is subject to approval of the 2009 Basic Capital Budget. Consideration will also have to be given to the operational impact of this expanded cycling infrastructure in the development of the 2010 Operating Budget.

Staff are pursuing additional cost-sharing funds from TransLink's Bicycle Infrastructure Capital Cost Sharing program, ICBC's Road Improvement Program and various Provincial and Federal programs. To date, staff have secured \$192,000 in TransLink funding, but additional external funding will be sought.

The total cost to complete bicycle connections to 2010 Winter Games competition venues is estimated at \$184,000, the source of which will be Debenture funding from the 2009 Streets Basic Capital Budget (Bicycle Network), subject to approval of the 2009 Basic Capital Budget.

PERSONNEL IMPLICATIONS

Staff time will be required to undertake data review, preliminary and detailed design, community consultation and outreach, and monitoring. To expedite the necessary field reviews, data analysis and design development, additional temporary design staff will be needed.

IMPLEMENTATION PLAN

Subject to public notification and construction crew availability, it is anticipated that non-diversionary measures will be implemented in 2009.

As outlined in the Communications Plan below, diversionary measures would be implemented on a temporary basis in summer 2009. In the absence of significant community opposition during the trial period, staff anticipate implementation of permanent measures in 2010.

Connections to 2010 Games venues will be implemented in summer or fall of 2009.

COMMUNICATIONS PLAN

Staff presented this project to the Bicycle Advisory Committee on April 15, 2009. The BAC adopted a motion of support, included in Appendix D.

Staff are proposing a public notification process for all traffic calming measures, whereby residents on affected bikeways will be notified about the pending changes. Non-diversionary measures would be implemented on a permanent basis if no significant concerns are identified prior to construction.

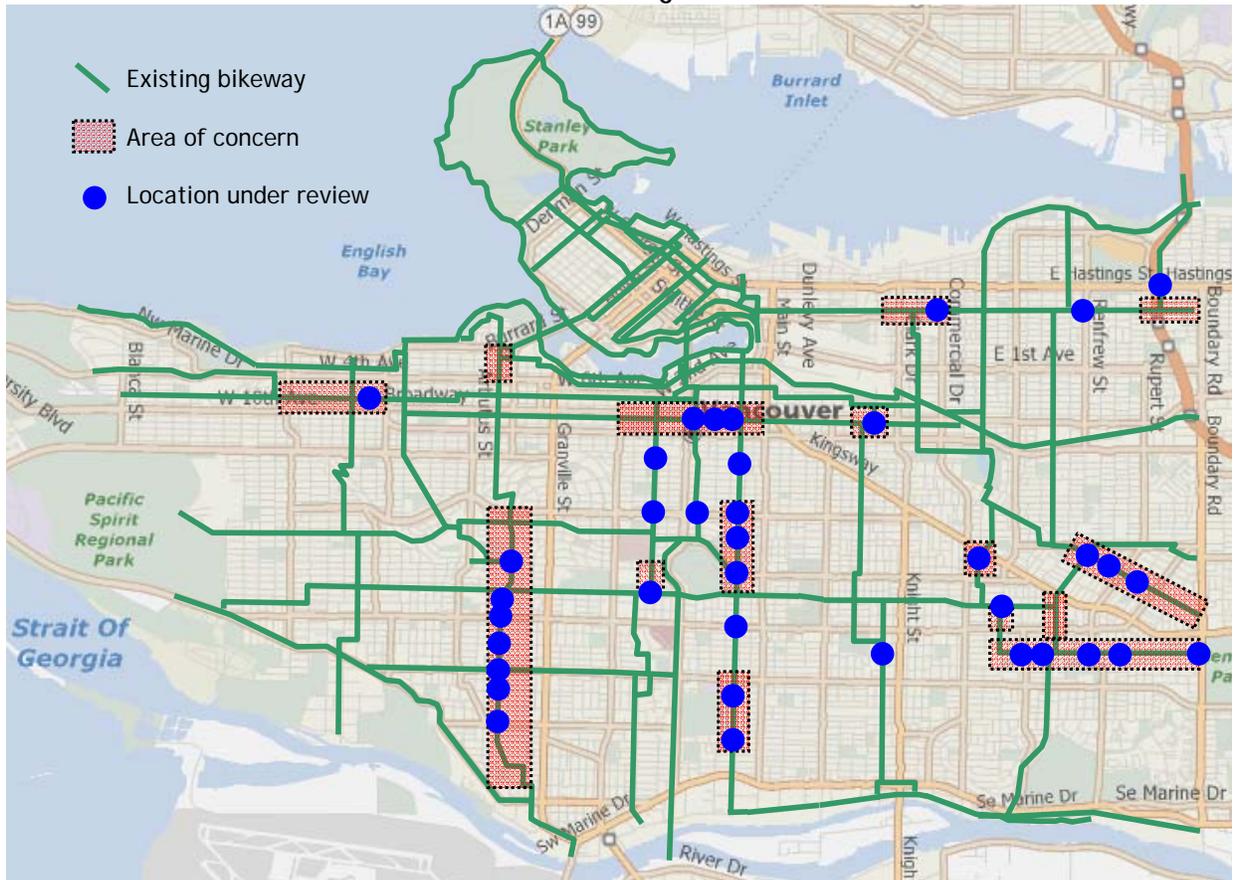
For diversionary measures, residents on affected bikeways would be notified and temporary physical measures would be placed for a trial period (minimum six months). Staff will report back on a case-by-case basis on diversionary measures that generate significant concern, but will otherwise implement diversionary measures on a permanent basis after the trial period and if concerns can be addressed.

CONCLUSION

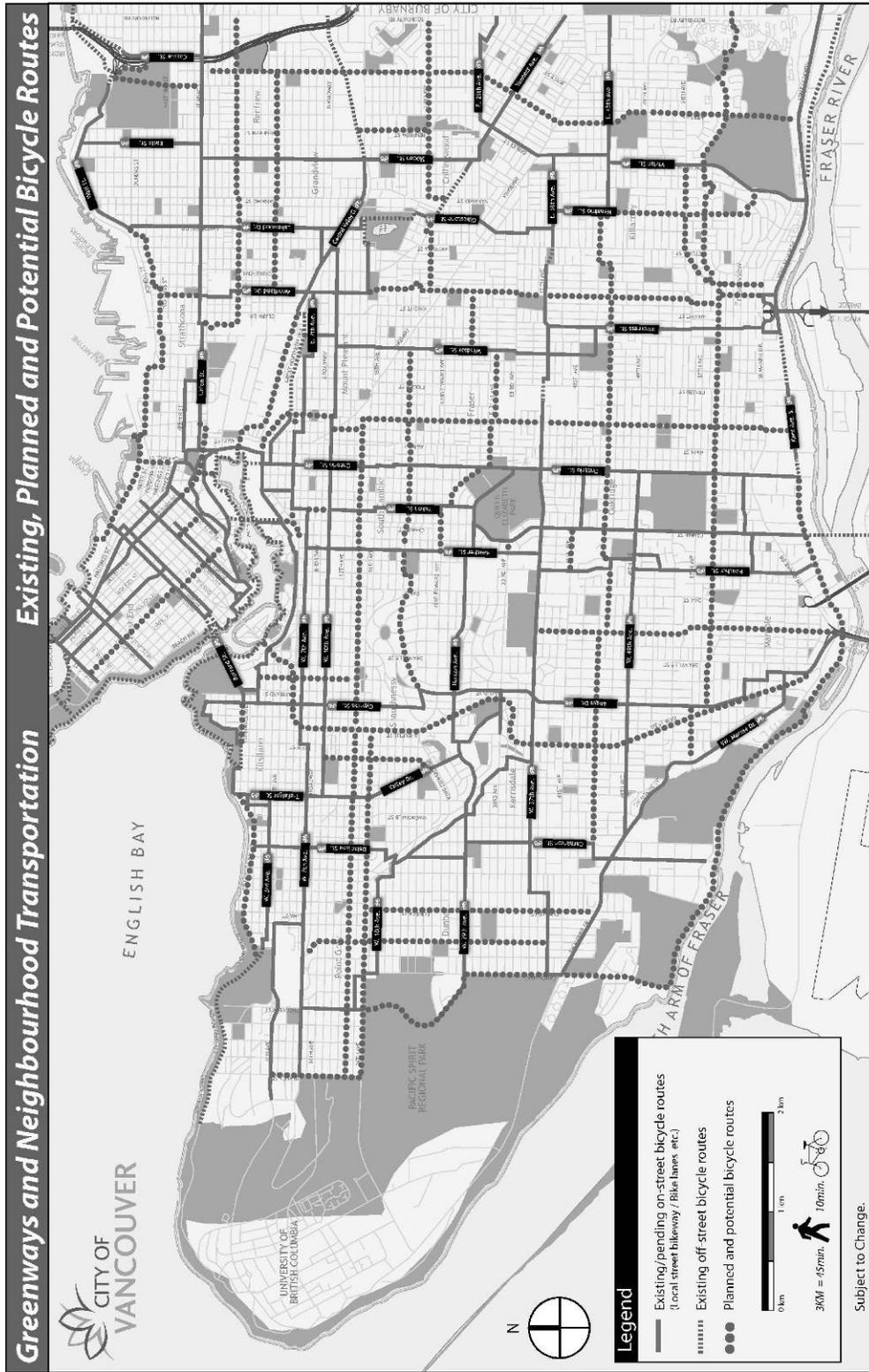
The implementation of additional traffic calming measures, limitation of motor vehicle access to new developments from the bikeway and greenway network, and reduction of speed limits on local street bikeways will provide a more appealing and comfortable cycling network to encourage more people of all ages and abilities to use their bicycles to travel around the City. The development of bicycle connections to 2010 Winter Games competition venues will encourage spectators, volunteers and workforce to cycle to these venues and help the City to achieve its target reductions in motor vehicle traffic during the Games. It will also provide long-term benefit for the community and cycling network.

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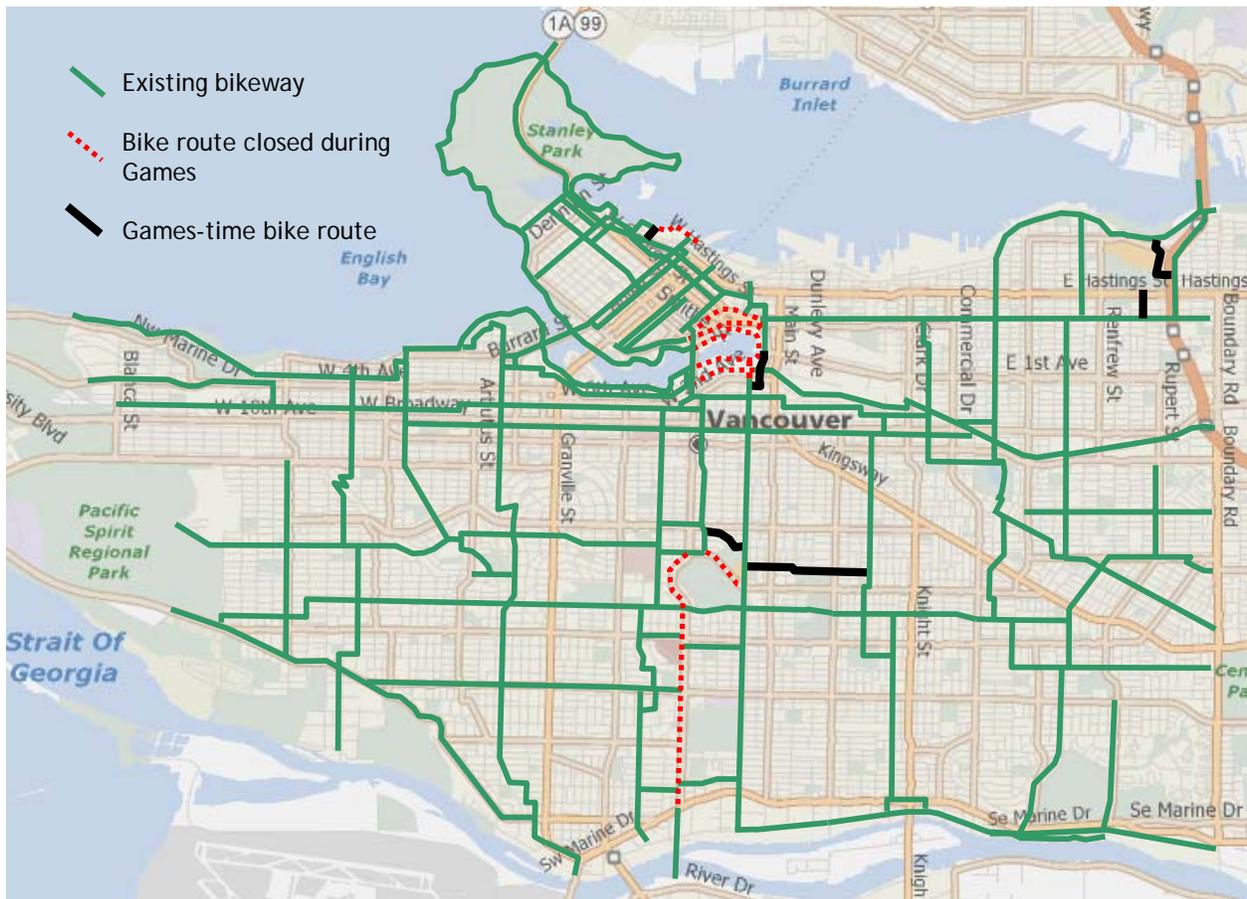
Potential Locations for Additional Traffic Calming



Existing and Planned Bike Network



2010 Winter Games Bicycle Network



Bicycle Advisory Committee Motion

At its meeting on April 15, 2009, the Bicycle Advisory Committee

RESOLVED

THAT the Bicycle Advisory Committee supports:

- additional traffic calming for existing local street bikeways,
- 30-km/h speed limit on bike routes,
- increased signage and lighting, and
- where alternatives exist, new development will not provide access from bike routes;

as well as other measures to mitigate the impacts of motor vehicle traffic on existing and planned bikeways.

CARRIED UNANIMOUSLY