



ADMINISTRATIVE REPORT

Report Date: April 29, 2009
Contact: Jerry Dobrovolny
Contact No.: 604.873.7331
RTS No.: 7838
VanRIMS No.: 08-2000-20
Meeting Date: May 5, 2009

TO: Standing Committee on Transportation and Traffic
FROM: General Manager of Engineering Services
SUBJECT: Burrard Bridge Lane Re-allocation Trial

CONSIDERATION

With the goal of increasing cycling and pedestrian safety while optimizing alternative modes of transportation across the Burrard Bridge, Council has directed staff to return with options for a trial lane re-allocation on the Burrard Bridge in 2009. In response to this direction, the following options are submitted for Council consideration:

A1. THAT staff implement a trial re-allocation of the two curb lanes of the Burrard Bridge between Cornwall Avenue and Pacific Street to provide northbound and southbound bicycle lanes on the bridge and that staff implement a number of modifications to the configuration and operation of the road network downtown and south of False Creek to accommodate these changes on the Burrard Bridge and to facilitate use of the Granville and Cambie Bridges, as described in this report.

OR

A2. THAT staff implement a trial re-allocation of the west curb lane of the Burrard Bridge between Cornwall Avenue and Pacific Street to provide a southbound bicycle lane on the bridge, with the east sidewalk continuing to be a shared by pedestrians and cyclists, and that staff implement a number of modifications to the configuration and operation of the road network downtown and south of False Creek to accommodate these changes on the Burrard Bridge and to facilitate use of the Granville and Cambie Bridges, as described in this report.

OR

A3. THAT staff implement a trial re-allocation of the west curb lane of the Burrard Bridge between Cornwall Avenue and Pacific Street to provide a southbound

bicycle lane on the bridge, convert the east sidewalk to an exclusive northbound bicycle path and direct all pedestrians to use the west sidewalk, and that staff implement a number of modifications to the configuration and operation of the road network downtown and south of False Creek to accommodate these changes on the Burrard Bridge and to facilitate use of the Granville and Cambie Bridges, as described in this report.

AND

- B. THAT staff implement a monitoring and evaluation program and provide an interim report to Council regarding the operation and results of the trial prior to September 30 2009.

AND

- C. THAT funding for a trial lane re-allocation on the Burrard Bridge, for related modifications to the City's road network, for a communications program and for a monitoring and evaluation program be provided to a maximum amount of \$1,450,000 from Streets Capital - Burrard Bridge Pedestrian & Cycling Improvements.

CITY MANAGER'S COMMENTS

The key question that the proposed trial will assist in answering is whether lane re-allocation(s) provide a viable, relatively low-cost solution to achieving the goals of this initiative: increasing the safety and capacity for cyclists and pedestrians crossing the Burrard Bridge, and continuing to shift toward an increased use by commuters of sustainable transportation modes, while maintaining an effective flow of vehicle traffic.

2006 Census data shows that combined walking and cycling represent more than 40% of the journey-to-work mode share from downtown and 20% from Kitsilano and Point Grey. Over the last decade, vehicle trips into the downtown core have decreased by 7%. In addition, city-wide statistics for the same time period show transit use has increased by 20%, walking has increased by 44% and cycling has increased by 180%. When the new Canada Line becomes operational later this year, it will provide another sustainable commuter option into the downtown core.

This trial is an important part of a sustainable transportation strategy and is a fundamental element of Council's Greenest City initiative. This trial also aligns with the City's Community Climate Change Action Plan, approved in 2005, which calls for active support and encouragement of sustainable commuting modes in order that the City meet its current greenhouse gas reduction targets by 2012.

This trial will also assist in addressing concerns being raised about the safety of the current Burrard Bridge configuration, in which pedestrians and cyclists share a common sidewalk on both sides of the roadway.

A 2008 memo to Council estimated that addressing the current space constraints through expansion of the Burrard Bridge sidewalks, including necessary repairs to existing

infrastructure, would cost approximately \$63M (at the anticipated time of construction in 2010/2011.) It is also important to note that bridge deck expansion would require a multi-year closure of one or more lanes to vehicle traffic during construction.

Other options, including creation of a new dedicated cyclist/pedestrian bridge, are estimated to be even more costly and even if feasible, will take a significant period of time to implement.

The proposed trial will provide Council with valuable data on the commuter and community impacts of lane reallocation prior to making a major financial commitment to an expansion of the bridge deck or a stand-alone cycling bridge.

Finally, past experience has indicated that a dedicated public education and awareness program will be a critical element of the trial being successfully sustained. The use of enhanced communications tools (including improved directional signage, new trip-planning tools, handheld access to Road Ahead information, and more robust use of public notification strategies) is essential to managing public expectations. The trial will also provide an early opportunity to test, evaluate and refine public communication strategies required to support the City's transportation changes during the 2010 Winter Games.

The one lane option represents a major step forward in improving safety, capacity and comfort for cyclists as well as increased safety for pedestrians. It has a much reduced impact on vehicle traffic compared to a two lane closure. Given the continuing roadwork still underway in the downtown core, it is an option which addresses safety and capacity issues for our cycling community while mitigating the degree of disruption for motorists. Its major disadvantage is a redirection of pedestrians. All options provide a very cost effective approach to improving cycling safety and capacity on the busiest bridge route over False Creek used by our cycling community.

A well planned and successful trial, which will require a robust communication strategy along with ongoing monitoring and evaluation, will obviate the need to spend capital funds (approximately \$30M) on widening the bridge or building a purpose built cyclist crossing

GENERAL MANAGER'S COMMENTS

Council has indicated the desire to assess the impact of re-allocating motor vehicle space on the Burrard Bridge to increase the space for pedestrians and bicycles. Staff have evaluated the options for such a trial assessment and prepared the plan described in this report.

The plan includes:

- physical barriers to separate bicycle lanes from traffic,
- traffic signal modifications,
- transit priority measures to minimize impacts on transit,
- measures to facilitate the re-routing of traffic to other False Creek crossings,
- a monitoring program to assess the impacts of the trial, and

- a communications program to provide public information on the purpose of the trial and to encourage transportation choices that will minimize the impact.

All of these measures are intended to give the trial the greatest possible chance of success.

The trial has been designed to gather information in the spring, summer and fall, which each have their own traffic demand characteristics for the various transportation modes, in order to give the most complete data possible.

If Council instructs that the lane re-allocation trial proceed, staff will implement the plan described in this report, monitor the data, and the public response, and report back to Council for a final decision on repairs and upgrades to the Burrard Bridge early in 2010.

COUNCIL POLICY

On December 18, 2008 Vancouver City Council passed the following motion:

THAT Staff prepare a report and implementation plan by the end of February 2009, on options for lane re-allocation trials on the Burrard Bridge in 2009, including the following:

- *cost estimates, including queue jumper initiatives for public transit and emergency vehicles, recommendations for improved bicycle access on both the north and south ends of the bridge, schedule and duration of trials;*
- *recommendations for mid-trial evaluation;*
- *have a public education and awareness campaign involving all stakeholders;*
and
- *hold a public meeting by the end of January 2009 to gather input from all stakeholders.*

Walking and cycling are the City's highest priorities in the transportation plan, followed by transit and goods movement.

Council supports the provision of pedestrian and cycling facilities that encourage the use of non-motorized travel for commuting and recreational purposes.

Council has endorsed a long-term strategy for improving pedestrian and cycling crossings of False Creek, which includes the following policies related to the Burrard Bridge:

- Improve the safety and capacity of pedestrian and cycling routes along the three False Creek bridge corridors (Burrard, Granville and Cambie).
- Identify and include street, bridge end, and Seawall connections as part of any proposed improvements to the bridges
- Favour solutions that optimize usage, safety, quality of trip, cost, and minimize negative impacts on traffic, heritage, urban design and neighbourhoods.
- Undertake major improvements to the pedestrian and cycling environment on the deck or upper level of the Burrard Bridge first, Granville corridor second, and Cambie corridor third, with a report back to Council for confirmation of these priorities after completion of the work on the Burrard Bridge.

SUMMARY

At the request of Council, staff have developed plans to implement a trial re-allocation of one or two lanes on the Burrard Bridge during 2009. Alternative configurations to convert one or two vehicle lanes to cycling lanes have been reviewed and are discussed in this report. All options will result in improvements in the capacity and safety for cyclists using the Burrard Bridge and success will result in very significant cost avoidance (\$30M minimum) by obviating the need for investments in widening the bridge or creating a special purpose crossing for cyclists.

Converting two existing vehicle lanes into bike lanes, and returning the sidewalks to exclusive pedestrian use (Option 1), is the preferred option for optimizing results for cyclists and pedestrians and provides the best opportunity to assess the bi-directional impacts of lane re-allocation on transit, goods movement and general traffic. However, this option presents the most significant challenge for redirection of vehicular traffic, potential restriction of goods movement and interference with transit. Options 2 and 3 would have less effect on transit, goods movement and other vehicular traffic while still advancing safety and capacity for cyclists and pedestrians.

Option 2 would leave the east sidewalk in its current shared configuration. This option has the disadvantage of continuing the shared use of the east sidewalk by both cyclists and pedestrians, thus reducing the safety advantages of the other two options.

Option 3 would convert one southbound vehicle lane to a bike lane, but would direct all pedestrians to use the cyclist-free west sidewalk, allowing the east sidewalk to be provided for the sole use of northbound cyclists. This option also improves safety for pedestrians and cyclists and also mitigates the impact on transit, goods movement and other vehicular traffic. However, it does create inconvenience for pedestrians normally using the east side of the bridge.

Any of these options would be a step forward in enhancing the safety, capacity and quality of cycling across this bridge which has been shown to be the strongly favoured cycling route across False Creek.

PURPOSE

The purpose of this report is to respond to Council's instruction to report on a plan to implement a trial re-allocation of lanes on the Burrard Bridge.

BACKGROUND

In the last ten years, the city has completed a number of studies, reviewing dozens of options to improve walking and cycling on and near the Burrard Bridge and elsewhere in False Creek. This work is described in more detail in Appendix A. The long history associated with this challenge indicates the competing interests inherent in achieving these goals.

In 2005, staff recommended outward sidewalk widening as the best long term solution based on the following rationale:

Outward sidewalk widening can meet all the City's transportation goals for the Burrard Bridge, at some cost to heritage conservation.

Lane re-allocation can meet objectives for walking and cycling, but not without increasing traffic congestion, slowing goods movement and degrading transit service across the bridge.

Independent of the desire to improve walking and cycling facilities, the Burrard Bridge is in need of maintenance, repair and infrastructure upgrades at an estimated cost of \$25 to \$30 million. This work includes repairs to the spalling concrete of the existing sidewalks and railings and replacement of aging electrical systems.

In 2008, detailed design work for a widened sidewalk was completed. The cost to complete this work in 2010 was estimated at \$63 million, which includes the \$25 to \$30 million cost of needed maintenance, repair and infrastructure upgrades. Detailed designs and estimates have not been prepared for permanent lane re-allocation options or for infrastructure repairs only, so the cost estimates for these options are not as well refined.

Conceptual studies have been done to assess a dedicated cycling crossing of False Creek; the estimated cost of this option was significantly greater than the incremental \$30-\$35 million needed to widen the bridge.

Current transportation statistics for the Burrard Bridge are provided in Appendix B.

DISCUSSION

The re-allocation of lanes on the Burrard Bridge, if successful, would be the most cost effective option to improve safety, comfort and capacity for pedestrians and cyclists crossing the mouth of False Creek. The option of outward widening of the Burrard Bridge sidewalks is currently estimated to cost \$63 million. Both of these options could improve safety, comfort and capacity for pedestrians and cyclists on the bridge. Once construction was completed, the sidewalk widening approach would not affect motor vehicle traffic and would therefore have no negative impact on transit operations. This was the basis of the 2005 staff recommendation to proceed with sidewalk widening. However, the cost of this option (approximately \$30M) currently exceeds available funding.

In response to Council's resolution of December 18, 2008 City staff have developed a plan to implement a trial conversion of one or two lanes on the bridge. The primary benefit of a trial will be to better understand the impact of lane re-allocation on transit, goods movement and other motor vehicle traffic, and to determine whether the impacts on these modes are acceptable for the permanent solution.

Improvements to the walking and cycling facilities on the Burrard Bridge are key parts of a broader initiative to enhance the City's existing cycling network, consistent with the Vancouver Transportation Plan and the Downtown Transportation Plan, as well as the Greenest City initiative. Staff will also be reporting to Council with recommendations aimed at making the existing bicycle network safer and more attractive to cyclists. Work to expand the network will continue.

Lane Configuration

The Burrard Bridge currently has three northbound and three southbound vehicle lanes, each 3.0m (10 feet) wide. Sidewalks on each side of the bridge are generally 2.6m (8½ft) wide and are currently shared by cyclists and pedestrians.

A trial lane re-allocation could be implemented by converting one or both curb lanes to bicycle lanes, with options for the use of the sidewalks. Three options are described below:

1. Two (2) bicycle lanes, two (2) pedestrian-only sidewalks , four (4) motor vehicle lanes - The two existing general purpose curb lanes would be converted to bike lanes and physically separated from motor vehicle traffic with barriers, providing 2.0-2.5m wide northbound and southbound bike lanes on the roadway. Both sidewalks would return to the exclusive use of pedestrians.
2. One (1) bicycle lane, one (1) shared sidewalk, one (1) pedestrian-only sidewalk, five (5) motor vehicle lanes - One existing general purpose curb lane would be converted to provide space for cyclists on the roadway in the form of a single 2.0-2.5m wide lane on the roadway. Experience suggests that a southbound conversion may have the less impact on vehicular traffic than a northbound conversion. The sidewalk adjacent to the new bike lane would be available for the exclusive use of pedestrians. The other sidewalk would remain in the existing shared configuration. Such an operation would improve safety, comfort and capacity for southbound pedestrians and cyclists, while leaving northbound conditions unchanged for both. Pedestrian connections to the bridge would be unaffected.
3. One (1) road-level bicycle lane, one (1) bicycle-only sidewalk (east side), one (1) pedestrian-only sidewalk (west side), five (5) motor vehicle lanes - One existing general purpose curb lane would be converted to provide space for cyclists on the roadway in the form of a single 2.0-2.5m wide lane on the roadway. Experience suggests that a southbound conversion may have the less impact on vehicular traffic than a northbound conversion. All pedestrians would be directed to use the west sidewalk, which currently has almost twice the pedestrian use of the east sidewalk. The east sidewalk would be designated for the exclusive use of northbound cyclists. This arrangement would improve safety, comfort and capacity for all cyclists. It would remove pedestrian/cyclist conflicts on the sidewalk, increasing comfort for many pedestrians. However, some pedestrians who currently use the east sidewalk would have to make additional road crossings to cross False Creek.

Two additional lane configurations were reviewed but are not considered feasible for a trial:

- Two (2) bicycle lanes, five (5) motor vehicle lanes - One existing general purpose lane would be converted to provide 1.5-m bicycle lanes in each direction with no separation from motor vehicle traffic. 1.5-m bicycle lanes on the Burrard Bridge (adjacent to high-speed traffic and high curbs) would not meet Canadian guidelines for new cycling facilities, and may be less safe than the existing sidewalk operation. In fact, this option may deter cyclists from using the bridge.

- **Reversible motor vehicle lane** - In a configuration with five motor vehicle lanes, a centre reversible lane designed to accommodate changing directional traffic volumes would require the installation of extensive and complex traffic management measures and is therefore not possible as a trial measure in 2009. Lane management for reversible lanes on the Lions Gate Bridge and the Massey Tunnel extend 600-1000m in advance of the reversible lanes. Similar arrangements on Burrard Street could extend as far north as Robson Street and as far south as Broadway. The Lions Gate Bridge and Massey Tunnel do not have arterial street intersections within their lane management zones. Because the Burrard Bridge has fairly equal northbound and southbound traffic volume through most of the day, such an arrangement may not be effective even as a permanent measure.

The two-lane re-allocation (Option 1) has the following characteristics:

- **Enhanced pedestrian experience and safety.** The two-lane re-allocation allows for the removal of cyclists from both sidewalks, returning the sidewalks to their original use and eliminating pedestrian-bicycle conflicts for those who choose to walk across the bridge. Pedestrian volumes observed during the trial would therefore more likely reflect a permanent removal of cyclists from the sidewalks.
- **Enhanced cycling experience and safety.** A two-lane re-allocation would provide cycling facilities that meet current Canadian guidelines with increased capacity, safety and comfort in both directions. Cyclists could travel in both directions without concern for conflict with pedestrians or motor vehicle traffic on the bridge. Wider bike lanes mean that faster cyclists could pass other cyclists, particularly on the uphill segments, and would accommodate inline skating and bicycles with trailers. The provision of wider bike lanes separated from traffic may appeal more to recreational cyclists and could enable a complete cycling loop of False Creek via Burrard Bridge. Lastly, cyclist volumes observed during the trial are more likely to reflect a permanent provision of adequate separated cycling space.
- **Reduction in vehicular traffic capacity in both directions.** Both northbound and southbound vehicle capacity would be reduced from three to two lanes with resulting effects on goods movement, transit and other motorized traffic.
- **Improved ability to comprehensively assess impacts.** With a two-lane re-allocation, the effects of providing two vehicle lanes northbound and two vehicle lanes southbound can be fully assessed for the full period of the trial. This provides for a more complete assessment of impacts on transit, goods movement and general traffic, the central purpose of a trial.

The single-lane re-allocation with a shared east sidewalk (Option 2) has the following characteristics:

- **Enhanced cycling experience and safety for southbound cyclists** Northbound cyclists will still face the challenges of sharing the sidewalk with pedestrians.
- **Maintains a complete pedestrian sidewalk network.** Pedestrians on the west side of the bridge will have increased comfort and safety through exclusive use of the west sidewalk.

Pedestrians on the east side will have a more direct route than option 3 but will be required to continue to share the east sidewalk with cyclists.

- **Decreased impact on transit, goods movement, and vehicular traffic with no impact on northbound vehicle traffic; reduced capacity for southbound traffic with requirement for redirection to Granville and Cambie Bridges.**

The single-lane re-allocation with the east sidewalk converted to a bike path (Option 3) has the following characteristics:

- **Increased cycling capacity, safety and comfort in both directions.** Cyclists could travel in both directions without concern for conflict with pedestrians or motor vehicle traffic on the bridge
- **Enhanced pedestrian safety as cyclist/pedestrian conflicts on sidewalks are eliminated.** However the redirection of pedestrians on the east sidewalk will result in some inconvenience through additional road crossings and a slightly longer route.
- **Decreased impact on transit, goods movement, and vehicular traffic with no impact on northbound vehicle traffic; reduced capacity for southbound traffic with requirement for redirection to Granville and Cambie Bridges.**

At a public open house held in January 2009, both one-lane and two-lane options were presented. Re-routing all pedestrians to the west sidewalk was not discussed. The two-lane trial option (as opposed to one-lane) was preferred by nearly all attendees who supported lane re-allocation. The Bicycle Advisory Committee has passed a motion supporting a two-lane re-allocation. More information regarding the open house is provided in Appendix C.

Other key elements of a successful trial include:

Enhancing Transit Priority

To mitigate the impact on transit, staff have developed plans for transit queue jumping lanes to allow buses priority access onto the bridge according to which lane reallocation option is implemented. These measures, described in more detail in Appendix D, have been reviewed by and are supported by TransLink staff. Dedicated transit queue jumping lanes will also provide improved access to the bridge for emergency vehicles.

Modifying Intersections

The configuration and operation of the two intersections serving the bridge will be critical to the safe and effective implementation of a lane re-allocation trial. A number of measures are listed in Appendix D which improve pedestrian, cyclist and transit connections to the bridge. It should be noted that this list is not intended to be definitive. Details of intersection operations will continue to be refined up to and during the trial depending on the option chosen and in response to traffic conditions. It is expected that periodic modifications to intersection configurations and operation, as a result of ongoing monitoring and evaluation, will be an important component of a successful trial.

Redirecting Traffic

To further mitigate the effect of reduced vehicle capacity on the Burrard Bridge and the connecting road network, staff have and will continue to develop strategies to redirect traffic to the Granville and Cambie Bridges from those streets which historically serve the Burrard Bridge. As with the intersection modifications mentioned above, these measures will be subject to refinement up to and during the trial based on ongoing traffic monitoring and evaluation. Some are listed below.

- Signal timing changes, including pedestrian holds, to facilitate vehicle turns
- Curb modifications to facilitate vehicle turns (e.g. removal of one corner bulge at Thurlow and Davie to facilitate turns off Thurlow)
- Parking regulation changes

Monitoring and evaluation

A trial re-allocation of one or two traffic lanes to create bike lanes on the Burrard Bridge would provide empirical data regarding:

- The effects on transit service, goods movement, other motorized traffic and surrounding neighbourhoods of reducing vehicle lanes
- The change in cycling and walking volumes across the bridge through the chosen option.
- Any capacity or safety issues which become apparent concerning pedestrians or cyclists

A trial implemented by the spring would allow for monitoring of bridge operations through three seasons in a range of weather conditions and other seasonal variables.

Staff will develop a program to monitor pedestrian, cyclist, transit and other traffic on the Burrard, Granville and Cambie Bridges before and during the trial. The program will include monitoring of travel times and volumes of vehicles, bicycles and pedestrians. Details of a proposed monitoring plan can be found in Appendix E. As with other elements of the trial, the monitoring plan will be subject to modification as needed during the trial period. Information collected will be used to assess the effectiveness of trial measures and guide modifications.

FINANCIAL IMPLICATIONS

The estimated cost of implementing a two-lane re-allocation trial is \$1,450,000:

Purchase and installation of barriers and other traffic control	300,000
Removal of barriers (end of trial)	50,000
Transit priority measures	150,000
Other traffic signal modifications	100,000
Other roadway modifications	100,000

Traffic Monitoring	300,000
Communications	250,000
Contingency	200,000
Total	\$1,450,000

If Council chooses to implement a one-lane re-allocation, the total budget could be reduced by \$150,000 to \$1,300,000 due to a reduced need for barriers, transit priority measures and other traffic control for northbound vehicles.

It is proposed that funding be provided from the Streets Capital Accounts - Burrard Bridge Pedestrian & Cycling Improvements. At the present time, there is approximately \$10.4 Million remaining from funding that was carried forward from previous capital plans related to Burrard Bridge improvements. In addition, \$2.4 million approved in previous capital plans is available for railing repairs, and a further \$20 million was made available in the 2009-2011 Capital Plan. Combined, these provide approximately \$33 million of funding for repairs and improvements to the Burrard Bridge.

Traffic barriers are expected to have some salvage value and/or ongoing use by the City after the trial period.

PERSONNEL IMPLICATIONS

Staff time will be required to meet planning, implementation, communications, and monitoring objectives. Existing staff time is available for the planning and implementation functions. However, the magnitude of the monitoring and communications tasks, combined with staff commitments to other projects, including the 2010 Winter Games, mean that additional staff or outside resources will be needed. The duration of this additional staff requirement will be greater than that of the trial itself to accommodate pre-trial planning and post-trial assessment.

IMPLEMENTATION PLAN

By May 2009, Canada Line construction affecting traffic on Cambie Street and Cambie Bridge will be largely completed. Construction on Granville Street will continue between Davie Street and the waterfront but will be complete between Pacific and Davie Streets. Several special events affect and are affected by Burrard Bridge operations, including the Vancouver Marathon and the Celebration of Light. Staff will develop a detailed implementation plan which accommodates these and other events. Implementation is feasible within four to eight weeks of Council approval of a plan.

COMMUNICATIONS PLAN

The communication plan will:

1. ensure the public understands the goals of the initiative: safety for pedestrians and cyclists, a shift in sustainable modes of transportation, and cost savings
2. ensure the public understands the links between this initiative and broader council priorities and policies - the Greenest City initiative, the 10 year Transportation plan, public safety and fiscal prudence
3. ensure the public has ready access to key information (through various modes) in regard to implementation of the plan including: traffic changes and travel

- alternatives (especially around the downtown core) as far in advance of the trial as possible
4. ensure the public have the opportunity to generate ongoing feedback which can be factored into the ongoing evaluation of the initiative

The trial also provides an early opportunity to promote and test messages about the Integrated Transportation Plan for the 2010 Winter Games.

More information on the Communication Plan is provided in Appendix F.

CONCLUSION

At the request of Council, staff have developed a plan to implement a trial lane re-allocation on the Burrard Bridge during 2009. Several alternative configurations to convert one or two vehicle lanes were reviewed and are presented. All options provide a varying level of improvement in safety and capacity for cyclists and pedestrians with varying impact on transit, goods movement and vehicular traffic. All options present the opportunity to assess these issues in a cost effective way, potentially mitigating significant capital expenditure. Whichever option is chosen by council, a robust communication and evaluation strategy will be essential to maximize success of the trial.

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Previous False Creek and Burrard Bridge Pedestrian and Cyclist studies

False Creek Pedestrian and Cyclist Crossing Study

This 2001 study reviewed the feasibility of False Creek crossing options for pedestrians and cyclists and their associated costs and impacts. The more than thirty options were considered including new bridges (several sites were reviewed), improvements to the False Creek ferry system and modifications to all three existing bridges.

vancouver.ca/engsvcs/transport/falsecreekstudy

The key findings of this report related to the Burrard Bridge were:

1. The Burrard Street Bridge should be given the highest priority for improvement.
2. Those improvements should be at the bridge deck level either through widening the sidewalks outside the existing railing or narrowing the roadway.

The consultant recommended that further design work be pursued in the form of a "deck level of Burrard Bridge" study. The goal of the study would be to examine deck level options to determine a permanent solution that would address the short and long term transportation needs along the corridor.

2002 Staff Report

In 2002, staff recommended a strategy for making improvements to the pedestrian and cycling environments across False Creek, which identified the Burrard Bridge as the highest priority and which favoured solutions that optimize usage, safety, quality of trip, cost, and minimize negative impacts on traffic, heritage, urban design and neighbourhoods.

2005 Staff Report

In July 2005, a staff report described the transportation goal for the Burrard Bridge as follows:

The transportation goal of this project is to improve pedestrian and cycling facilities on the Burrard Bridge to support the City's sustainability goals by encouraging people to adopt alternative transportation modes including walking, cycling and transit. Accordingly, changes to the Burrard Bridge sidewalks should do the following:

- *Increase bridge capacity for pedestrians and cyclists*
- *Improve, or at least maintain, transit service*
- *Minimize impacts on goods movement, high occupancy vehicles and other bridge users*
- *Meet Canadian guidelines for new cycling facilities*
- *Accommodate high volumes of cyclists and pedestrians*
- *Serve recreational and commuter cyclists*

- *Accommodate in-line skaters and emerging sustainable transportation modes*
- *Address existing safety concerns*

The 2005 report concluded that the re-allocation of two lanes “would allow for the construction of pedestrian and cycling facilities which would meet long-term walking and cycling demand and would conform to Canadian guidelines for cycling and mixed-use facilities.” However, computer modelling done at the time indicated that the re-allocation of one or two lanes “would interfere with transit service, slowing bus operations in both northbound and southbound directions, as well as adding to traffic congestion in Kitsilano and West End neighbourhoods.” The report also noted that re-allocating a single vehicle lane to create two narrow bike lanes would “fail to meet minimum Canadian guidelines for cycling lane width”.

The July 2005 report included a staff recommendation to proceed with outward sidewalk widening, an option which staff believe would meet all the transportation goals noted above. Council of the day did not support that recommendation and directed staff to prepare for a trial lane re-allocation to be implemented in the spring of 2006. In December 2005, that direction was changed by Council and staff were directed to complete a detailed design and cost estimate for outward sidewalk widening. That work was completed in 2008.

2005 False Creek Bridge Travel Study

In the summer and fall of 2005, staff collected comprehensive data on the three False Creek bridges, including vehicle and transit travel times, vehicle occupancy and type and the number of pedestrians, cyclists and vehicles using the bridges.

2008 Council Motion

On December 18, 2008 Vancouver City Council passed the following motion:

THAT Staff prepare a report and implementation plan by the end of February 2009, on options for lane re-allocation trials on the Burrard Bridge in 2009, including the following:

- *cost estimates, including queue jumper initiatives for public transit and emergency vehicles, recommendations for improved bicycle access on both the north and south ends of the bridge, schedule and duration of trials;*
- *recommendations for mid-trial evaluation;*
- *have a public education and awareness campaign involving all stakeholders;*
and
- *hold a public meeting by the end of January 2009 to gather input from all stakeholders.*

Current Transportation Conditions

Today, between 8000 and 9000 people cross the Burrard Bridge every hour in peak periods (8am-9am and 5pm-6pm). Approximately half are alone in their cars, one in seven is travelling with others in cars (i.e. car pools), one in five is in a bus, and one in ten is walking or cycling.

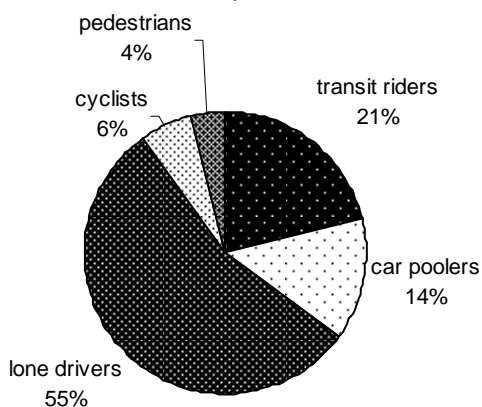


Fig. 1 - Burrard Bridge Peak Hour Travel Mode (Aug 2005 study)

Growth of cycling and walking on the Burrard Bridge, which increased 30-40% between 1996 and 2001, appears to have plateaued in recent years. In contrast, cycling growth in the city at large has continued to grow. Cycling mode share in large parts of Kitsilano and Point Grey is 10-12%. Combined walking and cycling mode share in Kitsilano and Point Grey is 18-21%.

Vehicular traffic volumes on the Burrard Bridge show only a mild directional bias. The peak direction volumes are approximately 25% higher than traffic volumes in the non-peak direction. Both northbound and southbound volumes grow steadily for most of the day.

Pedestrian and cyclist volumes are higher on the Burrard Bridge than on either the Granville or Cambie Bridges.

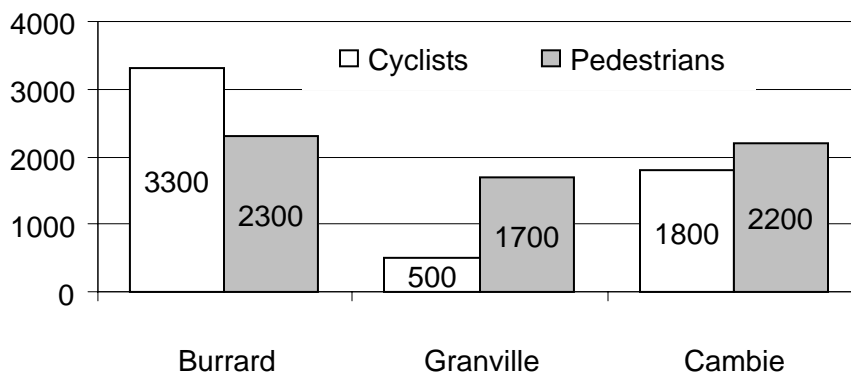


Fig. 2 - Daily Pedestrian and Cyclist Volumes on False Creek Bridges (Aug 2005 study)

Public Consultation

On January 31, 2009 a public open house was held at the Roundhouse Community Centre. It was advertised earlier that week in three local newspapers. Several stakeholder organizations which had previously been involved with transportation issues on the Burrard Bridge were notified directly.

Graphic displays of three concepts for lane re-allocation were presented:

- 1) both curb lanes converted to create northbound and southbound bike lanes separated from vehicle traffic by a barrier
- 2) a single northbound curb lane converted to create a northbound bike lane separated from vehicle traffic by a barrier
- 3) a single southbound curb lane converted to create a southbound bike lane separated from vehicle traffic by a barrier

City staff were available to answer questions. Comments were solicited.

Staff estimated that 300-400 people attended the open house. 184 written comments were received.

Of the 184 comments received at the open house:

- 129 (70%) expressed support for lane re-allocation,
- 23 (13%) expressed opposition for lane re-allocation, and,
- 32 (17%) provide comment without expressing support or opposition.

Of the 129 comments expressing support for lane re-allocation:

- 102 (79%) expressed a preference for re-allocating two lanes
- 2 (2%) expressed a preference for re-allocating one lane
- 25 (19%) expressed no preference regarding the number of lanes to re-allocate

Staff have met with the Bicycle Advisory Committee to review the same concepts that were presented at the open house. The Committee supported a two-lane re-allocation trial and provided commentary regarding several specific elements of the implementation plan.

Intersections and Connecting Streets

The configuration and operation of the two intersections serving the bridge will be critical to the safe and efficient implementation of a lane re-allocation trial. A number of measures are listed below which will form the basis of modified intersection operations. It should be noted that this list is not intended to be definitive. Details of intersection operations will continue to be refined up to and during the trial. A number of these measures would not be needed if a one-lane re-allocation trial were implemented.

1. Transit Lane on Cornwall Avenue, Cypress to Burrard - to provide queue jumping for transit, the third eastbound lane on Cornwall will become a dedicated transit lane from its introduction at Cypress to the bridge.
2. Transit Lane on Burrard Street, 1st to Cornwall - to provide queue jumping for transit, the third northbound lane on Burrard (adjacent to an existing bike lane) will become a dedicated transit lane from 1st to the bridge.
3. Parking Regulation Changes on Burrard Street, Broadway to 1st - to limit the capacity of the road network to feed traffic to the Burrard Bridge and to encourage use of other bridges, existing peak period regulations will be modified or removed to maintain two northbound lanes of general purpose traffic on Burrard, north of Broadway. A dedicated right-turn lane may be introduced at 4th to facilitate vehicle re-routing to Granville Bridge.
4. Southbound Transit Lane on Burrard Street, Pacific to bridge abutment - to provide enhanced queue jumping for transit, the existing southbound bus lane on Burrard will be extended approximately 50m south of Pacific.
5. Northbound Transit Lane on Burrard Street, bridge abutment to Pacific - a short bus lane will be provided approaching the Burrard and Pacific intersection to aid busses destined for the far-side bus stop on Burrard at Pacific.
6. Pacific to Burrard right-turn slip lane - this eastbound to southbound slip lane will be reduced from two lanes to one.
7. Burrard to Pacific right-turn slip lane - this northbound to eastbound slip lane will be re-configured to maintain a single vehicle and to create a bicycle lane connecting to Hornby Street to provide enhanced cycling access to the downtown bicycle network from the Burrard Bridge.
8. Pacific to Burrard left-turn lanes - one of two existing left turn lanes will be eliminated to accommodate the addition of the bicycle lane noted above
9. Bus phases added to Burrard/Pacific and Burrard/Cornwall signals - dedicated signal phases could be added to hold other traffic while permitting buses to proceed, but at the cost of overall intersection capacity. Further analysis or early trial monitoring will precede implementing such measures. Translink staff have requested that the signal phases be provided from the start of the trial on both Burrard Street approaches to the bridge to address concerns related to buses merging through curves in the roadway.

Monitoring Program

Before and during a trial re-allocation of lanes on the Burrard Bridge, a monitoring program will measure the following:

- Pedestrian volumes on the Burrard, Granville and Cambie Bridges
- Bicycle volumes on the Burrard, Granville and Cambie Bridges
- Vehicle volumes on the Burrard, Granville and Cambie Bridges

- Transit travel times across the Burrard, Granville and Cambie Bridges
- Private vehicle travel times across the Burrard, Granville and Cambie Bridges

- Vehicle occupancy on the Burrard, Granville and Cambie Bridges

City staff will work with TransLink and Coast Mountain Bus Company staff to collect some of this data.

This work will likely include the installation of permanent pedestrian and bicycle count stations on the Burrard and perhaps the Granville and Cambie Bridges. Where permanent stations prove infeasible, other methods of collecting this data are available.

Data collected will form the basis of a mid-trial report to Council.

Communications Planning Framework

INFORMATION CAMPAIGN TO SUPPORT A SUSTAINABLE COMMUTING PILOT FOR THE BURRARD BRIDGE

PURPOSE

The purpose of this planning framework is to describe the approach City staff will take to develop a public education and awareness campaign that involves all stakeholders to support a pilot of lane reallocation on the Burrard Bridge in 2009.

BACKGROUND

- On December 18, 2008, Council asked to staff to report back on options for a lane reallocation trial on the Burrard Bridge. In that motion, Council cited a July 2005 council direction (*Burrard Bridge Sidewalk Capacity Improvements for Pedestrians and Cyclists*) that included, as part of staff's assessment of lane reallocation options, a request for:
 - *A focused communication campaign to alert automobiles and trucks to alternative routes in preparation for the April 2006 changes; and*
 - *Intensive promotion of cycling and walking across the Bridge, focused on a mid-April 2006 launch, utilizing the social marketing strategies, consultants, and data of the Climate Change Action Plan*
- These Council directions recognize and reiterate the need for a comprehensive information campaign that ensures Vancouver drivers understand the best route alternatives during the pilot, *and* ensures all City residents and visitors are fully aware of, and actively encouraged to take advantage of, a new and significant opportunity to travel more safely, comfortably and sustainably over one of Vancouver's signature bridges.
- In 1996, a proposed six-month lane reallocation trial on the Bridge was abandoned after one week. The lack of effective public communications is often cited by both staff and elected officers as a contributing factor. As the Council report stated at the time:

"There was a standard complaint that there was simply not enough information or advance warning...()...many people were surprised by the installation, and had little understanding of the role of the bike network and the importance of developing alternatives to the single occupant vehicle."
- There have been many changes in transportation planning, and public transportation choices, over the past 13 years. In 1997, the City introduced a 10-year transportation plan focussed, in part, on creating more comfortable walking and cycling options. By 2007, statistics showed the number of bike trips in the City had tripled, vehicle trips in and out of the downtown core had decreased, and transit use had increased over this 10 year time-frame, an outcome consistent with the desired change in commuter behaviours.
- In early 2009, the Mayor announced the Greenest City initiative, a comprehensive approach that builds on the City's transportation planning, and encourages the exploration and adoption of a wide range of environmental, economic and social strategies to foster a prosperous and sustainable City for all people living, working and visiting here.

- More than 30 options for improving cycling and pedestrian crossing at the Burrard Bridge location have been explored by the City's engineering department over the past 13 years; all of them have large cost implications or require resolution of significant issues, such as land claims.

SITUATIONAL ANALYSIS

- With its iconic architecture and spectacular views for people traveling by foot, bicycle, car and bus, the Burrard Bridge has high cultural value to Vancouver, and is one of the City's most popular transportation choices.
- For commuters, the bridge often provides the most direct access in and out of the downtown peninsula and west side to homes, businesses, public institutions and educational facilities.
- In addition to being highly popular, the bridge is a significant historic landmark, and a prominent feature of many of City's local and international marketing efforts.
- For the past 10 years, a key element of the City's transportation plan has been to reduce the City's carbon footprint by encouraging and creating better walking and cycling options. The City's desire to address public concerns regarding the safety and comfort of cycling or walking over the Burrard Bridge has been well-documented.
- Statistics show more people are choosing to walk, cycle or take transit in and out of the downtown core, while fewer are choosing to drive a vehicle. Transit riders have also increased over the past 10 years, an increase anticipated to continue as the new Canada Line becomes operational. The recently announced Greenest City initiative builds on this momentum.
- Anecdotal evidence from the cycling community, as well as comments from the open house held in January of this year, suggests that the current shared sidewalk arrangement is a deterrent to more people choosing more sustainable commuting across the bridge.
- Of all the various options considered to address cycling and walking concerns about the bridge, converting one or two curb lanes currently dedicated to vehicles is by far the quickest and most cost-effective to implement.

CHALLENGES & OPPORTUNITIES

Challenges

- The Burrard Bridge is a bridge of choice for many residents and visitors, whether they are traveling by foot, bike, car, transit, or traveling for recreational or commuting purposes. All these different types of travellers can be expected to feel a strong sense of ownership of the bridge, and their preferred method of travel over it.
- Of the many options explored to better accommodate the full range of users (cyclists, walkers, drivers, transit riders, wheelchair users, etc.) more safely and comfortably on the bridge, there has been much public debate, but little consensus, on how to best achieve this goal.
- The cost of trying to accommodate all demands by current and potential users by making permanent structural changes to the existing bridge, or by creating a new alternative bridge crossing, would represent a significant and long-term burden for Vancouver

taxpayers. Widening the bridge deck is estimated at \$35 million, in addition to the \$30 million currently estimated for non-related bridge repairs.

- Any long-term changes to the structure of the bridge to more safely accommodate increased bike and pedestrian traffic will require short-term disruptions. Necessary, but non-related, bridge repairs will also create traffic disruptions. Given the important role of the bridge in supporting the 2010 Games transportation plan, timing of either repairs, structural changes, or a lane reallocation trial is a significant consideration.

Opportunities

- Evidence and experience demonstrate that residents and visitors alike want to safely and comfortably cycle and walk over the Burrard Bridge, for both commuting and recreational purposes, and will make use of alternatives to driving, if available. More research is required to understand what factors will motivate people to either choose more sustainable choices for themselves or, at least, to support decisions that will facilitate safer travel for others.
- Many first-tier world cities have or are considering extensive bike routes and integrated, sophisticated and/or culturally attractive bicycling features, (such as Copenhagen's dedicated signalling system or Manhattan's Waterfront Greenway.). The Burrard Bridge lane reallocation would raise Vancouver's profile, and significantly leverage the marketability of our own signature feature (allowing priority access for pedestrians and cyclists to Vancouver's spectacular waterfront and several key tourist and recreational destinations.)
- The introduction of a dedicated bike lane could have the ancillary effect of creating wider, dedicated pedestrian sidewalks, making the bridge a much safer and more pleasant option for walkers, families, wheelchairs and strollers, and playing a key role in Vancouver's Greenest City efforts.
- The introduction of a dedicated bike lane, in concert with an effective motor vehicle strategy, would be a much more cost-effective solution to make the bridge safer and more user-friendly for cyclists and pedestrians—while still accommodating a necessary flow of vehicle traffic over the bridge. Millions of tax dollars needed for a capital expenditure on a new or altered bridge could also be avoided (and at a time when finances are especially challenging), and valuable lessons learned which will be relevant to transportation demand management during the 2010 Winter Games.
- Consistent with Greenest City goals, successful implementation of this option has the potential to help create a more sustainable city overall, by reducing the carbon footprint of, as well as exhaust and emission levels in, the City's downtown core.
- Summertime is also the best time to institute a pilot such as this, due to lower traffic volumes and favourable weather, which will allow people try out the new lane under favourable conditions.

AUDIENCES

The Burrard Bridge is widely used, for a vast number of reasons, by many living in, working in, and visiting Vancouver. Target audiences include, but are not limited to:

- Neighbourhood residents and business operators (and BIAs) on both sides of the Bridge

- Current and potential recreational pedestrian and cycle path users (walkers, cyclists, families, tourists, running groups, seniors' programs, walking tour operators, etc)
- Current and potential bicycle and pedestrian commuters
- Vehicle drivers
- TransLink and transit users
- Employers of current and potential bicycle and pedestrian commuters
- Media outlets
- Tourism agencies and operators

COMMUNICATIONS OBJECTIVES

Working closely with community and partner agencies, the objectives of the City's communications activities would be:

- To encourage and facilitate the use of a dedicated bike/pedestrian lane for residents and visitors who want to take advantage of the Burrard Bridge's convenient access to many key Vancouver amenities
- To motivate more Vancouver residents to use the bridge's dedicated bike/pedestrian pathways as part of their normal commuter route to and from work
- To help encourage motorists to consider alternatives to commuting or traveling to tourism destinations over the Burrard Bridge, and change routes by providing accurate, timely information on nearby alternative routes
- To also encourage unaccompanied motorists to consider alternatives to commuting or traveling alone in their vehicles such as car pooling or trying sustainable modes instead.
- To help encourage recreational motorists who are "touring" or traveling to tourist destinations to avoid using the Burrard Bridge by providing them with easy or scenic alternative routes to their destinations

COMMUNICATIONS ACTIVITIES & TACTICS

Corporate Communications will issue a Request for Proposals, contingent on council approval, for a full-service communications and marketing agency to work with City staff to develop and implement of a comprehensive information campaign based on the framework outlined above. Key elements of the campaign would include (but would not be limited to):

- Stakeholder/sponsor engagement (e.g.: working with tourism, corporate, advocacy and community agencies to host events, collaborate on promotional and social marketing activities in order to reduce costs, widen distribution, etc.)
- Community and media events (e.g.: maximizing opportunities to encourage sustainable commuting choices through promotional events with Bike to Work Week, Bike Month, Commuter Challenge, Clean Air Day, Active Health Day, and other significant opportunities)
- Paid media campaigns (based on a sound analysis of the most cost-effective strategies for reaching target audiences)
- Web-based campaign (including a significant vancouver.ca website upgrade to feature integrated cycling maps, improved RoadAhead functionality, better routing information)

via feeds to mobile phones, stronger linkages with agencies such as Translink and Tourism Vancouver for related user information)

- Collateral material development, which may include a bridge banner; community posters; testimonials from bike/pedestrian lane users; and direct mail materials to affected neighbourhoods
- Independent qualitative and quantitative research and evaluation measures to ensure communications dollars are being spent effectively, helping to facilitate a shift toward sustainable commuting, and expanding knowledge of user, resident and business opinions.

TIMELINES

To be finalized. Will be aligned with key milestones approved by Council.

BUDGET

The activities and tactics listed above provide a general overview of the key elements of the information campaign: stakeholder engagement; community and media events; use of web and social networking tools; distribution of collateral materials such as posters, bike bells, etc, and earned media, such as drive-time radio buys.

Wherever possible, public education and awareness costs would be leveraged through partnership arrangements with community, advocacy, corporate or other agencies.

A final breakdown of strategies and costs for each of the various tools and tactics developed to support information-sharing with the key audiences identified above would be an expected deliverable of a competitively-selected agency of record.

A maximum of \$175,000 would be made available for the creative services, advertising, market research and community partnerships required to support the public information goals for the project. Approximately \$75,000 would be reserved for project management and event support at the staff level, bringing the total budget allocation for a public information campaign to \$250,000.