Supports Item No. 2
P&E Committee Agenda
July 8, 2010

CITY OF VANCOUVER

ADMINISTRATIVE REPORT

Report Date: June 24, 2010
Contact: Jerry Dobrovolny
Contact No.: 604.873.7331
RTS No.: 08747
VanRIMS No.: 08-2000-20
Meeting Date: July 8, 2010

TO: Standing Committee on Planning and Environment

FROM: General Manager of Engineering Services

SUBJECT: Burrard Bridge Reconfiguration and Structural Rehabilitation

RECOMMENDATION

THAT Council approve funding for the design of bridge rehabilitation work and permanent separated cycling paths on the Burrard Bridge at an estimated cost of $2.0 million, the source of funding to be:

i. $0.8 million from the 2010 closeout of 2006-2008 Streets Basic Capital – Major Projects – Burrard Bridge Cycling Improvements, and
ii. $1.2 million from pre-approved 2011 Streets Basic Capital - Burrard Bridge Cycling Improvements.

CITY MANAGER'S COMMENTS

The City Manager recommends approval of the foregoing.

COUNCIL POLICY

On November 3, 2009, Council endorsed a recommendation that staff report back with options for permanent Burrard Bridge configurations which do not include bridge widening.

SUMMARY

The Burrard Bridge is nearly eighty years old and is in need of substantial rehabilitation. The separated bike paths created on the Burrard Bridge in July 2009 have been successful in creating a safer, more popular cycling facility. Replacing the existing pre-cast concrete barriers with permanent modifications to the bridge could further improve both the cycling and walking environments on the bridge.

This report recommends retaining consultants to complete the design of the needed rehabilitation work and the implementation of permanent separated cycling paths.

PURPOSE

This report seeks Councils approval to retain consultants to complete the design of permanent separated cycling paths on the Burrard Bridge in coordination with needed rehabilitation of the bridge.

BACKGROUND

On May 7, 2009, Council directed staff to implement a re-allocation of the west curb lane of the Burrard Bridge to provide a southbound bicycle lane on the bridge, to convert the east sidewalk to an exclusive northbound bicycle path and to direct all pedestrians to use the west sidewalk.

On the weekend of July 10-13, 2009 changes were put in place on the Burrard Bridge and adjacent streets to create protected bike lanes on the bridge and connecting streets. On the morning of Monday, July 13 the new walking and cycling facilities were opened to the public.

In November 2009, staff provided a report which reviewed the findings resulting from the July 2009 bridge reconfiguration. These findings are included in Appendix A. Updates of cycling use and of a cited UBC safety study are provided in Appendix B. These show a sustained increase in bicycle trips and stronger evidence of improved safety.

Independent of the City's interest in improving cycling and walking facilities, this eighty year old bridge is in need of significant rehabilitation including substantial work to its sidewalks and outside railings.

On June 22, 2010, Council approved the 2010 Capital Budget and Closeouts, which included advance approval of $1.2 million from the 2011 Engineering Capital Budget for Burrard Bridge Cycling Improvements (funding approved in advance of funds to be expended in 2011, to ensure that appropriate procurement processes can be met ,i.e., to ensure the availability of funding prior to tendering contracts) and closeout funding reallocation of $0.8 million to 2009-11 Burrard Bridge Pedestrian & Cyclist Upgrades.

DISCUSSION

Bridge Rehabilitation

Major rehabilitation work has been deferred for a number of years in order to better coordinate with reconfiguration of the bridge deck. The needed rehabilitation includes, but is not limited to, the following:

- The complete replacement of the parapet railing
- Expansion joint replacements
- Deck testing and delamination survey
- Sidewalk testing and sidewalk overlay design

- Concrete restoration - underside
- Localised bridge strengthening
- Electrical upgrades - new distribution and lighting
- Access improvements to the underside of the bridge

In addition to these needed work items, a number of other improvements will be assessed, including:

- Bridgehead stair retrofit design for improved cycling access
- Restoration of pedestrian-scale posts and post-top lights
- Restoration of the brazier towers at the north and south ends of the bridge

Coordinating this rehabilitation work with modifications to provide permanent improvements to cycling and walking facilities will provide cost efficiencies and minimize the construction-related disruptions to pedestrian, cycling and vehicular traffic.

Pedestrian and cycling facilities

The arrangement of a two-way pedestrian sidewalk and a southbound on-road protected bicycle lane on the west side of the bridge has served pedestrians and cyclists well since being implemented in July 2009. Safety and comfort for both groups has improved, and cycling volumes are up (see Appendices A and B).

There are two weaknesses of the current west side arrangement that a renovation of the bridge could address:

- Permanently installed barriers could consume less road space and be more aesthetically compatible with the bridge than the existing pre-cast concrete barriers.
- The existing bike lane, which currently provides only the minimum width needed for passing, could be widened.

The east sidewalk, which now serves only northbound cyclists, provides a safer, more comfortable facility for cyclists. To provide this, pedestrians have been prohibited from this sidewalk. The pre-cast concrete barriers placed on the sidewalk have reduced the usable space such that, for much of the bridge, there is insufficient width to permit cyclists to pass one another. Reconstruction in a permanent form may provide an opportunity to address this weakness.

In assessing any options which are developed the following criteria will be considered:

- compliance with current codes and design guidelines
- compatibility with bridge aesthetics
- heritage conservation principles
- implications for ongoing bridge maintenance
- flexibility with respect to future changes in bridge use
- cost

FINANCIAL IMPLICATIONS

The cost for consulting engineering and other design and construction period services required for the reconstruction of the sidewalks, installation of permanent bike lane separation and rehabilitation of other bridge elements is estimated at $2.0 million. The proposed funding sources are:

i. $0.8 million from the 2010 closeout of 2006 -2008 Streets Basic Capital – Major Projects – Burrard Bridge Cycling Improvements (A3a) (RTS 8697, approved June 22, 2010); and
ii. $1.2 million from 2011 Streets Basic Capital - Burrard Bridge Cycling Improvements pre-approved in June 2010 (RTS 8697).

PERSONNEL IMPLICATIONS

Staff time will be required to meet planning and construction management objectives. Existing staff time is available for the planning function. However, the magnitude of the construction management tasks, combined with staff commitments to other projects, means that additional staff or outside resources will be needed. The duration of this additional resourcing will extend through to the completion of construction.

CONCLUSION

The barriers installed on the Burrard Bridge in July 2009 have been effective in creating separated bike paths on the bridge, but were not intended as a permanent measure. Permanent modifications to the bridge could provide better cycling and walking facilities. Such changes can be incorporated into a major rehabilitation of this aging structure.

Staff recommend proceeding with detailed design of:

- A rehabilitation package to address a number of age-related problems, and,
- A permanent implementation of sidewalk and bike path arrangements similar to the current trial configuration.

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Burrard Bridge Bike lane Trial, Fall 2009

Excerpt from "Burrard Bridge Bike Lanes Status Report, Fall 2009" (RTS 08127):

Pedestrians

All pedestrians crossing the Burrard Bridge must now use the west sidewalk, which is no longer shared with bicycles. Most feedback from pedestrians has been positive, citing the comfort and safety of a pedestrian only route. Some have objected to the closure of the east sidewalk to pedestrians. The number of walking trips across the bridge has not … changed noticeably.

Cyclists

Cyclists can now cross the bridge on northbound and southbound bike paths, separated from both vehicles and pedestrians. Feedback from cyclists has been overwhelmingly positive. Cyclists feel much safer separated from other bridge users.

Cycling volumes are up appreciably. Between July 13 and September 30, 26% more bicycle trips were made over the bridge than would have been made had the reconfiguration not happened. This amounts to an additional 70,000 bike trips. Growth on weekends has been the most dramatic, with volumes up 40-70%. Since Labour Day, the number of new trips has fallen when compared with summer usage, but remains above the level which would be expected on an unchanged bridge.

New cycling trips are not evenly distributed across age and gender lines. Trips by women are up 31%, compared to 23% for men. Anecdotally, many more children are seen cycling across the bridge.

Transit

Transit operations appear to be unaffected by the bridge changes. According to a TransLink analysis of bus running times before and after the reconfiguration "there is little to no negative effect on bus running time since the introduction of the bike lane".

Vehicles

Neither the Burrard nor the Granville Bridge has seen appreciable changes in the number of daily vehicle crossings. The first few days following the re-configuration on Burrard saw some redistribution of traffic to Granville, but that had returned to pre – trial status within a week. As with buses, general vehicle travel times along Burrard Street are unchanged. Driving trips which approach the north end of the bridge from the east along Pacific are longer by about 30 seconds during peak periods. The most noticeable change to vehicle travel times is for trips approaching the north end of the bridge from the west along Thurlow or Pacific. Accessing the bridge from Georgia Street via Thurlow and Pacific now takes an average 1½ minutes longer in the morning peak period and 3 minutes longer in the afternoon.

Safety

The City has received many comments from pedestrians and cyclists who believe that the Burrard Bridge is now safer. Preliminary findings from a University of British Columbia cycling safety study indicate that accident rates have decreased. [Appendix B provides an update of the findings of this study.]

In a nine week period in the summer of 2008, three cyclists where injured on the Burrard Bridge severely enough to attend Emergency at Saint Paul's or Vancouver General Hospital. Two of these incidents involved collisions between cyclists and pedestrians with the cyclist falling into the roadway. In the same nine week period in 2009, since the re-configuration, only one cyclist attended Emergency. This southbound cyclist fell onto the adjacent sidewalk after colliding with a wrong-way cyclist.

It needs to be emphasized that these safety-related findings are preliminary, as they are based on small sample sizes and a short study period. A longer study is warranted. Staff continue to work with the UBC researchers running this study.

Business

Businesses in the downtown core do not appear to have been affected. The Downtown Vancouver BIA has polled its members twice to solicit input regarding the bridge trial. There has been no response to these polls, suggesting that these businesses do not perceive any change.

Closer to the bridge, two retailers on Hornby Street have seen drive-by traffic reduced in front of their shops. They have requested that a safety-related vehicle right-turn restriction at Pacific and Hornby be removed. Reinstating this right-turn would create a situation where, in peak hours, approximately 250 vehicles would turn across the path used by up to 200 cyclists. Staff have reviewed options beyond the previous and current arrangements, and are confident that the current arrangement, with vehicle right-turns prohibited, is the safest possible.

Neighbourhoods

Re-direction of traffic onto Howe and Beach, related to the new right-turn restriction at Pacific and Hornby, has been a concern of residents of Beach Avenue. The re-direction of this traffic is considered by staff to be an acceptable consequence of increasing cyclist safety at Pacific and Hornby. Traffic volumes on these streets remain within norms for downtown residential streets.

Eastbound traffic queues are a concern for some residents of Pacific, west of Burrard. This queuing is a consequence of the reduced capacity of the Pacific to Burrard Bridge right-turn which resulted from introducing the protected bike lane. The length of these queues appears to have diminished since the summer, possibly as some drivers are choosing other routes across False Creek.

Status Report Update, Spring 2010

The following provides an update to the "Burrard Bridge Bike Lanes Status Report, Fall 2009" which was based on data available as of September 30, 2009.

Cyclists

Since the end of September 2009, cycling use on the Burrard Bridge has exhibited seasonal trends typical of bike routes throughout Vancouver. Cycling volumes across the city reached a low during the week of December 28 through January 3, but grew steadily through January and February. Over 45,000 bike trips where made over the Burrard Bridge during the Winter Games (February 12-28, 2010). Since then, bike use on the bridge has returned to October 2009 levels. In March, April and May 2010, 40,000 (28%) more bicycle trips were made over the bridge than would have been expected without the separated bike lanes.

Safety

Findings from a University of British Columbia cycling safety study indicate that accident rates on the Burrard Bridge have decreased since the introduction of separated bike lanes on the bridge.

In a twenty week period during the summer and fall of 2008 (July 14 through November 30), four adult cyclists were injured on the bridge severely enough to attend Emergency at Saint Paul's or Vancouver General Hospital. Two of these incidents involved collisions between cyclists and pedestrians with the cyclists falling into the roadway. In the same twenty week period in 2009 (July 13 through November 29), following the re-configuration of the bridge, the number of cycling trips was up over 20%, but only one cyclist attended Emergency. This southbound cyclist fell onto the adjacent sidewalk after colliding with a wrong-way cyclist.

During the twenty week study period in 2009, approximately 450,000 cycling trips were made over the Burrard Bridge.

While the data suggest improved safety, these findings are based on small sample sizes and can not be considered conclusive.

Background information regarding this study is available (as of June 2010) at:
www.cher.ubc.ca/cyclingincities/injury.html