

CRITERIA	OPTION B1	OPTION B2	OPTION B3	OPTION G1	OPTION G6
<p>Usage</p> <ul style="list-style-type: none"> - Trip purpose - Demand (existing, latent & future) - Demographics - User Group - Capacity - Flexibility for various non-motorized modes - Integration / connectivity to other transport systems 	<ul style="list-style-type: none"> • Accommodates the existing and future high pedestrian/cyclist demands along Burrard Bridge (i.e. approximately 50% of the total demand across False Creek). Accommodates approximately 40% and 60% of the total pedestrian and cycling trips across False Creek respectively. • Serves primarily commuter traffic during the weekdays and recreational traffic during the weekend (i.e. approximately 55% of the total weekend recreational demand across False Creek); sidewalk extension allows for significant pedestrian/cyclist capacity increase. • Usage of this crossing will also be particularly high during special events in the False Creek area. • Primarily serves origin/destinations between the Arbutus to Granville, Kits Point, Macdonald to Arbutus, and UBC to Macdonald zones on the south and Downtown South, the CBD and West End zones on the north. • Allows for flexibility of usage by other non-motorized modes (e.g. skaters and wheelchairs) and good integration with existing bike lanes along Cornwall Avenue/Burrard Street on the south side of the bridge and Sea Side route on the north side. • The proposed 3 m (overall 6 m) outward sidewalk extension allows for significant pedestrian / cyclist capacity increase; however, the capacity at the towers will be constrained in the variations that provide limited or no capacity improvements at these "pinch points". • Enhanced route would likely integrate / connect with the tentative concepts of bike lanes on Burrard and Hornby as defined in the Downtown Transportation Plan. 	<ul style="list-style-type: none"> • Would accommodate the existing and future pedestrian / cyclist demand as in Option B1, however, the proposed 1.5 m (overall 3 m) inward sidewalk extension results in a smaller increase in pedestrian / cyclist capacity. • Serves primarily commuter traffic during the weekdays and recreational traffic during the weekend (i.e. approximately 55% of the total weekend recreational demand across False Creek); sidewalk extension allows for significant pedestrian/cyclist capacity increase. • Usage of this crossing will also be particularly high during special events in the False Creek area. • Primarily serves origin/destinations between the Arbutus to Granville, Kits Point, Macdonald to Arbutus, and UBC to Macdonald zones on the south and Downtown South, the CBD and West End zones on the north. • Allows for flexibility of usage by other non-motorized modes (e.g. skaters and wheelchairs) and good integration with existing bike lanes along Cornwall Avenue/Burrard Street on the south side of the bridge and Sea Side route on the north side. • Enhanced route would likely integrate / connect with the tentative concepts of bike lanes on Burrard and Hornby as defined in the Downtown Transportation Plan. 	<ul style="list-style-type: none"> • Although there is the potential for some shift in weekday commuter pedestrian/cyclist demand from the Burrard Bridge, the amount is not expected to be substantial given the nature of the new crossing and required connections to the existing commuter network system. • The new crossing is expected to primarily accommodate recreational traffic during the weekdays and particularly during the weekends. • Usage of this 6 m to 9 m wide crossing will also be particularly high during special events in the False Creek area. • Allows for flexibility of usage by other non-motorized recreational users (e.g. skaters and wheelchairs) by providing a good low level connection between the north and south Sea Side routes. • Although the new crossing would significantly increase the capacity for pedestrians and cyclists, depending on its required frequency of opening for the passage of marine vessels, the overall capacity could be considerably hindered. 	<ul style="list-style-type: none"> • The new crossing is expected to accommodate a significant amount of pedestrians (recreational users, tourists, shoppers) during the weekdays and particularly during the weekends from / to Granville Island and the southern downtown peninsula. • Potential for some shift in weekday commuter pedestrian/cyclist demand from the Granville Bridge, however, the required connections to the existing and future commuter network system at the north and south end and unfavourable grade changes would limit the cycling demand. • Primarily serves origins / destinations between the False Creek South zone and Downtown South, the CBD and West End zones. • Usage of this crossing will also be particularly high during special events in the False Creek area. • Allows for flexibility of usage by other non-motorized modes (e.g. skaters and wheelchairs) through the provision of elevators on both sides, and by providing a good connection between the north and south Sea Side routes. • The proposed 6 m wide new crossing would significantly increase the capacity for pedestrians and cyclists. 	<ul style="list-style-type: none"> • Accommodates the existing and future moderate pedestrian/cyclist demands along Granville Bridge (i.e. approximately 25% and 15% of the total demand across False Creek respectively). • Serves primarily commuter traffic during the weekdays and recreational traffic during the weekend (i.e. approximately 20% of the total weekend recreational demand across False Creek). • The 2 metre wide bike lanes (4 metres overall) or 3 metre wide sidewalks (6 metres overall) accommodates approximately 30% and 10% of the total pedestrian and cycling trips across False Creek respectively. • Primarily serves origin/destinations between the Arbutus to Granville and Granville to Oak zones on the south, and the CBD and Downtown South zones on the north. • Flexibility of usage by other non-motorized modes (e.g. skaters and wheelchairs) is somewhat limited due to the inability to provide a continuous separate bike lane connecting to/from the approach ramps, as well as the need to maintain cross-walks at these ramps. • The potential inability to provide a continuous separate bike lane connecting to/from the approach ramps could hinder the possibility of achieving new capacity over the entire length of the facility.

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Quality of Trip					
<ul style="list-style-type: none"> - <i>Travel time</i> - <i>Efficiency</i> - <i>Access</i> - <i>User Safety</i> - <i>User comfort</i> 	<ul style="list-style-type: none"> • Provides a direct connection for the high pedestrian / cyclist origin/destinations between the Arbutus to Granville, Kits Point, Macdonald to Arbutus, and UBC to Macdonald zones on the south and Downtown South, the CBD and West End zones on the north. • Good accessibility to/from the existing bike lanes along Cornwall Avenue/Burrard Street on the south side of the bridge and Sea Side Route on the north side (however, less accessible to the Sea Side Route on the south side of the bridge). • Allows for separation of pedestrians / cyclists from vehicular traffic (as well as separation between pedestrians and cyclists with the 3 m outward sidewalk extension) for good user safety and comfort. This benefit is reduced at the bridge towers for the limited widening variation and is eliminated if no widening is considered at the bridge towers. • The frequent vehicular and pedestrian / cyclist use of the Burrard Bridge also allows for good personal security (particularly during evenings). 	<ul style="list-style-type: none"> • Provides a direct connection for the high pedestrian / cyclist origin/destinations between the Arbutus to Granville, Kits Point, Macdonald to Arbutus, and UBC to Macdonald zones on the south and Downtown South, the CBD and West End zones on the north. • The proposed 1.5 m inward sidewalk extension results in a narrower pedestrian/cyclist path than Option B1, and correspondingly, a reduced sense of user safety and comfort. • Good accessibility to/from the existing bike lanes along Cornwall Avenue/Burrard Street on the south side of the bridge and Sea Side Route on the north side (however, less accessible to the Sea Side Route on the south side of the bridge). • The frequent vehicular and pedestrian / cyclist use of the Burrard Bridge also allows for good personal security (particularly during evenings). 	<ul style="list-style-type: none"> • Circuitous routing for the high pedestrian / cyclist commuter origin/destinations between the Arbutus to Granville, Kits Point, Macdonald to Arbutus, and UBC to Macdonald zones on the south and Downtown South, the CBD and West End zones on the north; this circuitous routing will result in increased travel times. • However, provides good accessibility and a direct connection between the Sea Side routes along the north and south sides. • Allows for complete segregation of pedestrian/cyclists from vehicular traffic (as well as separation between pedestrian and cyclists) since a new crossing facility is provided solely for non-motorized users, resulting in good user safety and comfort. • However, the anticipated less frequent use of this new crossing (i.e. pedestrians and cyclists only) results in some personal security concerns (particularly during evenings). 	<ul style="list-style-type: none"> • Circuitous routing for the moderate pedestrian / cyclist origin / destinations between the Arbutus to Granville and Granville to Oak zones on the south, and the CBD and Downtown South zones on the north (plus 5% gradients). • However, provides reasonable accessibility and a direct connection between the Sea Side routes along the north and south sides as well as to/from Granville Island even though the ramp itself lands south of Granville Island. • Allows for complete segregation of pedestrian/cyclists from vehicular traffic (as well as separation between pedestrian and cyclists) since a new crossing facility is provided solely for non-motorized users, resulting in good user safety and comfort. • However, the anticipated less frequent use of this new crossing facility during the evenings results in some possible personal security concerns. 	<ul style="list-style-type: none"> • Provides a direct connection for the moderate pedestrian / cyclist origin / destination demands between the Arbutus to Granville and Granville to Oak zones on the south, and the CBD and Downtown South zones on the north. • Poor accessibility between the Sea Side routes along the north and south sides as well as to/from Granville Island. • Allows for separation of pedestrians / cyclists from vehicular traffic (as well as separation between pedestrians and cyclists) along the middle sections of the bridge only, resulting in good user safety and comfort in this area. • However, the potential inability to provide a continuous separate bike lane connecting to / from the approach ramps as well as the need to maintain cross-walks at these ramps, results in poor user safety and comfort along these sections. • The frequent vehicular use of the Granville Bridge allows for good personal security (particularly during evenings).

CRITERIA	OPTION B1	OPTION B2	OPTION B3	OPTION G1	OPTION G6
<p>Cost / Construction</p> <ul style="list-style-type: none"> - Capital costs - Operating costs - User costs - Environmental impacts - Construction duration / disruption 	<ul style="list-style-type: none"> • Capital cost of construction approximately \$10.1 million. • Minor additional operating cost associated with a wider bridge structure. • Minimal environmental impacts associated with construction, except noise due to the proximity of 1000 Beach Avenue. • Measures will be needed during construction to prevent demolition debris from falling into the water. • Construction duration is estimated at 18 months. • During demolition and craneage operation, one to two lanes in the vicinity of the work will need to be closed for working space, creating a constriction in bridge traffic flow (including diversion of pedestrian / cyclist traffic to the opposite side of the bridge). • A separate study is required to confirm capacity of existing bridge to accept additional loads. No allowance in the costings has been made for existing bridge load capacity upgrades. 	<ul style="list-style-type: none"> • Capital cost of construction approximately \$3.25 million. • No significant additional operating cost. • No significant environmental impacts associated with construction. • Construction duration is estimated at 6 to 9 months. • If traffic is channelled into the "final" traffic lane arrangement at the outset of construction, then any disruption will be perceived as minimal. 	<ul style="list-style-type: none"> • Capital cost of construction approximately \$11.9 million. • High associated operating cost required to operate the opening/closure of the bridge for passage of marine vessels, including maintenance and regular inspection (anticipated to be \$350,000+). • Some environmental impacts associated with construction are expected due to marine impacts and noise. Construction of the south approaches below the existing steel truss will require works in the water. • Construction can be expected to be completed within a period of 12 to 18 months. Some disruption of marine traffic can be expected if bridge components are delivered by barge. • The centre movable span will likely require modifications to the bridge pier to accommodate anchorage points, bridge seating and bridge machinery. • A separate study is required to confirm the capacity of the existing bridge substructure to accept additional loads. Capital costs do not allow for existing bridge capacity upgrades. • Marine vessels to be constrained within a limited width navigable channel by buoys / dolphins. If floating buoys or markers are used, the cost will be low but possible impact with the bridge cannot be prevented. If a piled dolphin or fendering arrangement is used, the cost will be substantial but may also require significant changes in the way marine traffic is managed in the vicinity of the bridge. 	<ul style="list-style-type: none"> • Capital cost of construction approximately \$11.1 million. • Operating cost associated with maintenance of the new crossing, especially with the installation of elevators. • Some environmental impacts associated with construction are expected due to (some) marine impacts and noise. • Construction duration is estimated between 12 and 18 months, with some disruptions to marine traffic and pedestrian traffic (on Granville Island). • The suspended portion of the structure, when fully loaded applies about 40 tons at each larger location (8 metre centre). This represents a significant, imposed load on the existing bridge. • A separate study is required to confirm capacity of the existing bridge to accept the additional load. • No allowance in the costing has been made for existing bridge load capacity upgrades. 	<ul style="list-style-type: none"> • Capital cost of construction approximately \$2.2 million. • No significant additional operating cost. • No significant environmental impacts associated with construction. • Although only a short construction duration is required, there will be vehicular traffic disruptions.

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Traffic Impacts					
<ul style="list-style-type: none"> - Marine impacts - Vehicles / buses - Ferry systems 	<ul style="list-style-type: none"> • No impacts on vehicular traffic, marine traffic or ferry operations since the existing bridge vehicular lanes and navigational clearances are maintained. 	<ul style="list-style-type: none"> • Vehicular traffic impacts since one lane on the Burrard Bridge is removed (likely a northbound lane). • Currently approximately 3150 vph northbound during the AM peak and 2850 vph southbound during the PM peak. • No impacts on marine traffic or ferry operations since the existing navigational clearances are maintained, plus does not "compete" with ferries. 	<ul style="list-style-type: none"> • No impacts on vehicular traffic since the existing Burrard Bridge is maintained. • On a typical sunny Sunday, up to approximately 195 marine vessels (17% of the total marine traffic) may be affected by the low level crossing. • On a typical rainy weekday, up to approximately 45 marine vessels (13% of the total marine traffic) may be affected by the low level crossing. • Private ferry patronage may potentially be affected by the new crossing. 	<ul style="list-style-type: none"> • No impacts on vehicular traffic since the existing Granville Bridge is maintained. • Minimal impacts on marine traffic are expected since no vessels above 21 metres (70 feet) in height were reported during the marine surveys. Vessels over this height would be impacted. • Private ferry patronage would be affected by the new crossing (particularly given its connection at Granville Island). 	<ul style="list-style-type: none"> • Some vehicular traffic impacts since two lanes on the Granville Bridge main sections are removed (one lane in each direction). • Currently approximately 3350 vph northbound during the AM peak and 3150 vph southbound during the PM peak. • No impacts on marine traffic or ferry operations since the existing navigational clearances are maintained, plus does not "compete" with ferries.

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Neighbourhood Integration					
<ul style="list-style-type: none"> - <i>Neighbourhoods</i> - <i>Properties</i> - <i>Land use</i> - <i>Environmental</i> - <i>Economic / development</i> - <i>Views and shadowing</i> 	<ul style="list-style-type: none"> • Potential neighbourhood and property impacts on the northeast side (i.e. at 1000 Beach Ave. and future daycare) due to the close proximity of the proposed outward sidewalk extension. • Results in shadowing effects on the northeast side, plus possibly violates the North Burrard Bridgehead planning guideline requiring a minimum 10 m clearance to adjacent buildings. • Specifically impacts on approximately 67 residential units at 1000 Beach Avenue. Shadowing effects and / or decrease in separation public / private space for residential units, plus office and retail spaces. (Set back of approximately 6 m (20 feet), 9 m (30 feet), and 12 m (40 feet) would change to 3 m (10 feet), 6 m (20 feet), and 9 m (30 feet) respectively). Shadowing impact on future day care - set back from bridge reduced from approx. 6 m (20 feet) to 3 m (10 feet). • Some potential environmental impacts associated with noise to residents on the northeast side, resulting from the close proximity of the proposed sidewalk extension. 	<ul style="list-style-type: none"> • No potential neighbourhood/property impacts or shadowing effects on the northeast side since changes would be made to the existing road deck. • Environmental impacts (i.e. air quality and noise) associated with increased traffic congestion resulting from elimination of one of the existing vehicular lanes. This may be partially off-set by traffic pattern changes and modal shift. 	<ul style="list-style-type: none"> • Potential First Nations land claim issues on south side (CPR Y lands). • Potential noise impacts for 1000 Beach / Burrard Avenue Marina due to operation of the draw bridge. • Views under Burrard Bridge to English Bay would be affected. 	<ul style="list-style-type: none"> • Impact to existing building (ex Granville Island Diner) on the south side, just north of the entrance to Granville Island. Elimination of several parking spaces and loading zones in front of building. • Livability impacts associated with noise to the Seniors' residents on the northwest side of the bridge. Specifically, 4 - 6 units at 1515 Granville Street. Cycling ramps would be approx. 6 m (20 feet) from Seniors' Building over existing parking area. • Shadowing impact on Building 11 on Granville Island. 	<ul style="list-style-type: none"> • No potential neighbourhood / property or economic/development impacts since no changes to the existing Granville Bridge structure are proposed. • Potential environmental impacts (i.e. air quality and noise) associated with some possible increased traffic congestion as a result of elimination of two of the existing vehicular lanes (one in each direction). This may be partially off-set by traffic pattern changes and modal shift.

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Urban Design / Appearance					
<ul style="list-style-type: none"> - Heritage - Aesthetics - CoV image - Additional public amenity / space 	<ul style="list-style-type: none"> • The Burrard Bridge is a very significant heritage resource (Category A evaluation) that is of high historic and symbolic value to the City of Vancouver. • Potential significant compromise to the Burrard Bridge's heritage value and aesthetics from both the perspectives of the Road Gate and Sea Gate <i>partis</i> (i.e. monumentality, symmetry and containment). • For the Road Gate <i>parti</i>, the following primary elements could experience potentially high impacts – "torch" pylons, concrete towers (if also widened at this point), concrete handrails, curved retaining walls, perceived width of roadway and views from the bridge. • For the Sea Gate <i>parti</i>, the following primary elements could experience potentially high impacts – concrete piers, concrete handrails, gradual sweep of rising roadbed and views of the bridge. • Maintains the bridge's current image as a City gateway to downtown and False Creek areas as there are no significant changes to the bridge's external appearance. • With the proposed 3 m sidewalk extension, the opportunity for additional public amenity/space is available (e.g. benches and rest areas / viewing points). 	<ul style="list-style-type: none"> • The Burrard Bridge is a very significant heritage resource (Category A evaluation) that is of high historic and symbolic value to the City of Vancouver. • Least intrusive option from a heritage and aesthetics point of view, however, there may be some impacts to the Road Gate and Sea Gate <i>partis</i> (based on the proposed configuration). • For the Road Gate <i>parti</i>, the following primary elements could experience some potential impacts – "torch" pylons (assumed local outside widening), curved retaining walls and perceived width of roadway. • For the Sea Gate <i>parti</i>, the following primary element could experience some potential impacts – sweep of rising roadbed (assumed local outside widening at the "torches"). • Maintains the bridge's current image as a City gateway to downtown and False Creek areas as there are no significant changes to the bridge's external appearance. • With the proposed 1.5 m inward sidewalk extension, there is less opportunity for additional public amenity/space available. 	<ul style="list-style-type: none"> • The Burrard Bridge is a very significant heritage resource (Category A evaluation) that is of high historic and symbolic value to the City of Vancouver. • Some potential significant compromise to the Burrard Bridge's heritage value and aesthetics from the perspective of the Sea Gate <i>parti</i> only, where distinguishability will be a major consideration. • For the Road Gate <i>parti</i>, no impacts since the existing Burrard Bridge roadway surface will not be altered. • However, for the Sea Gate <i>parti</i>, the following primary elements could experience some potentially high impacts – concrete towers, gradual sweep of the rising roadbed and views of the bridge. • Opportunity to enhance / degrade the existing features of the bridge with respect to the current image provided. • With the new low level crossing, there is good opportunity for additional public amenity/space available (e.g. benches, rest areas / viewing points, parking, etc.) both along the bridge and the bridge ends. 	<ul style="list-style-type: none"> • No heritage impacts since Granville Bridge is not considered a heritage bridge structure (also, existing roadway surface will not be altered). • Aesthetically, the view of the existing bridge will be affected by the new suspended crossing facility, particularly as viewed from the water and shores. • With the new crossing facility, there is opportunity for additional public amenity/space available (e.g. benches, rest areas, parking, etc.), particularly at the bridge ends. • Opportunity to enhance / degrade the existing features of the bridge with respect to the current image provided. 	<ul style="list-style-type: none"> • No heritage impacts since Granville Bridge is not considered a heritage bridge structure. • No significant aesthetic impacts associated with the removal of two vehicular lanes along the bridge (conversely, no significant enhancements either). • With the removal of two vehicular lanes and given the nature of the bridge, there is limited opportunity for additional public amenity/space available. • Maintains the bridge's current image as there are no significant changes to the bridge's external appearance.



FINDINGS & RECOMMENDATIONS

The False Creek Pedestrian and Cycling Crossings Study has explored a range of options to improve pedestrian and cycling facilities in the False Creek area in an effort to ultimately encourage more cycling/walking to and from Downtown Vancouver. These recommended improvements will assist the City of Vancouver in achieving their future transportation goals.

KEY FINDINGS:

#1. Improvements in the Burrard Street Bridge Corridor – this corridor should be given the highest priority, in particular, Options B1 (Outward Sidewalk Extension on Both Sides) and Option B2 (Inward Sidewalk Widening on Both Sides). This corridor and options are preferable for the following reasons:

- Pedestrian and cycling demand is currently high, and will continue to be high, along this corridor.
- Options B1 and B2 are strong candidates from a trip usage and quality of trip perspective.
- Significant safety issues currently exist due to the limited sidewalk width, high demand, and shared usage. It is important that these issues are addressed in the near-term.

#2. Improvements in the Granville Street Bridge Corridor – there is a need to better connect the north and south shores of False Creek and Option G1 (New Crossing Facility Suspended Beneath Bridge) holds great potential for the following reasons:

- A new crossing fills the void for an improved connection for both recreational users and commuters between the north and south shores of False Creek.
- A new crossing facility improves accessibility between Granville Island and downtown.

- A new crossing significantly improves user comfort for those currently using the Granville Street Bridge Corridor.

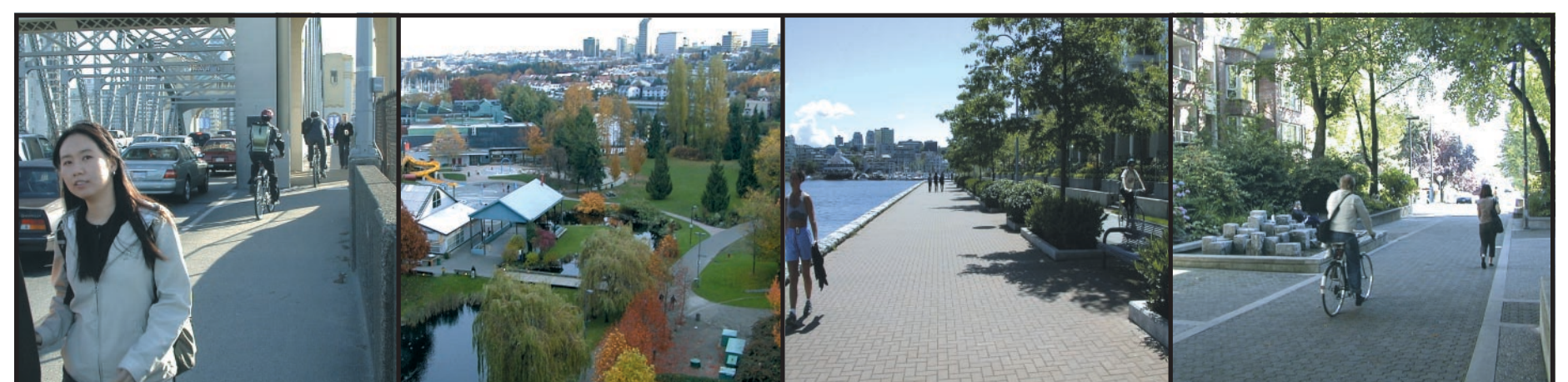
RECOMMENDATIONS:

#1. Burrard Street Bridge Corridor – further evaluation of Options B1 and B2 should be undertaken to better understand their full costs and benefits, such as impacts to traffic flow and the heritage aspects of the bridge structure, and to take the conceptual configurations to a more detailed design level.

#2. Granville Street Bridge Corridor – further evaluation of Option G1, which considers the possibility of a new crossing facility suspended underneath the existing bridge, to better understand how it would best ‘fit’ within the Granville Island area and to assess the structural feasibility of such a crossing.

#3. ‘Toolbox of Local Improvements’ – all future studies should consider the range of local improvements in ensuring all facility improvements are seamless, safe, and convenient for pedestrians and cyclists.

#4. Cambie Street Bridge Corridor – with the planned developments in the eastern parts of False Creek, further evaluation of Options C2 (Outward West Sidewalk Extension) and C4 (Adjust Lanes to Provide Southbound Bike Lane) should be considered in the longer-term.



YOUR OPINION COUNTS...

Thank you for your participation and interest in this study. Please take the time to share your ideas, questions, and comments with the resource team members in attendance... or, complete one of the Comment Forms available.



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