



## CITY OF VANCOUVER

### ADMINISTRATIVE REPORT

Report Date: May 31, 2007  
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Meeting Date: June 12, 2007

TO: Standing Committee on Transportation and Traffic

FROM: General Manager of Engineering Services

SUBJECT: Cambie Street Bike Lanes

#### RECOMMENDATION

- A. THAT during Cambie Street reconstruction, northbound bike lanes be installed between 49<sup>th</sup> Avenue and 29<sup>th</sup> Avenue as described in this report at a cost of \$18,000, funded from 2006 Streets Basic Capital Budget for Bicycle Network Improvements.
- B. THAT during Cambie Street reconstruction, the northbound carriageway be widened by up to 1.4 meters between 29<sup>th</sup> Avenue and King Edward Avenue to accommodate a wide shared curb lane.
- C. THAT the Streets Operating Budget be increased by \$23,000 for Streets Maintenance annually to offset reductions in TransLink OMR funding as a result of these changes and by \$3,800 for Signage and Pavement Marking both without offset commencing in 2009 and subject to annual Budget Review.
- D. THAT as opportunities arise in conjunction with ongoing development, staff pursue the widening of the southbound carriageway on Cambie Street between King Edward Avenue and 49<sup>th</sup> Avenue to allow for a future bike facility.

## COUNCIL POLICY

On May 27<sup>th</sup>, 1997, Council approved the Vancouver Transportation Plan which emphasized the need to provide more comfortable cycling and walking environments. Regarding Cambie Street, the plan specifically states:

“To maintain the key connections with the region and good cross-city road links, some roads will need to continue to provide a relatively high level of service for car drivers. Roads which connect with bridges, freeway ramps, and major destinations generally carry the heaviest traffic today, and are likely to in the future. Many of these roads now have parking restrictions at peak times. Existing parking restrictions would likely remain, and some additional measures to improve traffic flow and safety may be justified. These arterial roads would probably not be appropriate for bus or bike lanes. Cambie, Oak, Kingsway, 1<sup>st</sup> Avenue, Grandview- 12<sup>th</sup> to Granville, are examples of these busiest roads which are important cross-city routes.”

On May 13<sup>th</sup>, 2003, Council reiterated its support for a Richmond/Airport-Vancouver (RAV) rapid transit line as a key element in helping the City achieve its environmental, transportation and liveability objectives as part of a comprehensive, carefully-developed, adequately-funded, long-term, regional strategic transportation plan. It was also approved that good bicycle access be provided at all stations and that providing bicycle access to and on the new Fraser River transit bridge be considered.

On October 19<sup>th</sup>, 2006, Council approved widening on Cambie Street from 49<sup>th</sup> Avenue to 29<sup>th</sup> Avenue and asked staff to report back on the implementation of bicycle lanes from Kent Avenue to 49<sup>th</sup> Avenue, about the potential for bicycle lanes between 49<sup>th</sup> Avenue and King Edward, and on bicycle facility issues between King Edward and the north end of the Cambie Street Bridge.

## PURPOSE

The purpose of this report is to report back to Council about incorporating bike lanes on Cambie Street, as requested in Recommendation E passed by Council on October 19<sup>th</sup>, 2006. Council's motion is included in Appendix A.

## DISCUSSION

The Council-approved 1997 Transportation Plan states that Cambie Street would likely not be appropriate for bike lanes. The Canada Line and the new pedestrian/bike bridge across the Fraser River will change the transportation network significantly in ways that suggest re-examining that policy.

### *A. Kent Avenue to King Edward Avenue*

Marked bike lanes can be achieved on most sections of Cambie Street between Kent Avenue and King Edward Avenue as part of the reconstruction of Cambie Street following Canada Line construction. The exceptions are for the southbound direction between King Edward and 49<sup>th</sup> Avenue and the northbound direction between 29<sup>th</sup> Avenue and King Edward. These two sections are described briefly below and are discussed in more detail in Appendix B.

### Southbound - King Edward to 49<sup>th</sup> Avenue

Bike lanes can not be implemented in the southbound direction between King Edward and 49<sup>th</sup> Avenue due to capacity constraints and cost. The curbs in this section are generally not affected by Canada Line construction and therefore the cost of moving the curbs is high -- \$1.2 million to \$3.6 million depending on the option. In addition, the afternoon peak period is busier than the morning peak and is more of a concern to the City because the southbound lanes facilitate traffic moving out of the City, relieving congestion on other streets. When the street is repaved the lane markings will be adjusted to provide wider curb lanes to improve conditions for cyclists where possible. Staff recommend pursuing opportunities to widen the southbound carriageway over time in conjunction with adjacent developments (Recommendation D).

### Northbound - 29<sup>th</sup> Avenue to King Edward

Staff are recommending widening the northbound carriageway between 29<sup>th</sup> Avenue and King Edward Avenue by up to 1.4 m into the median to provide for a bike friendly wide curb lane (Recommendation B). The new width will be able to accommodate a full painted bike lane. However, staff do not recommend painting a bike lane in this section at this time because this is a transition section. The wide curb lane will allow width for cyclists to travel comfortably to the Canada Line Station at King Edward Avenue. Terminating the marked bike lane at 29<sup>th</sup> Avenue will encourage cyclists to use the 29<sup>th</sup> Avenue bike lanes to divert to Yukon Street, a planned bikeway that will extend from 29<sup>th</sup> Avenue to the Cambie Bridge. The proposed widening into the median will require a Heritage Alteration Permit.

### Heritage Considerations, 49<sup>th</sup> to King Edward Avenue

In 1993, Vancouver City Council designated the central median of Cambie Street (Cambie Heritage Boulevard) between King Edward Avenue and SW Marine Drive as a heritage landscape. As such, any permanent or temporary modifications to the Cambie Heritage Boulevard require a Heritage Alteration Permit.

Recommendation B, the proposal to accommodate a northbound cyclist connection to the future King Edward Canada Line Station by widening the roadway between 29<sup>th</sup> and King Edward Avenue, will require that the Cambie Heritage Boulevard be narrowed by 1.4m. As this is an important transportation network enhancement, staff are recommending this improvement despite the implications to the Heritage Boulevard. The alternative would be to narrow the side boulevard on these blocks, which would result in the removal of 11 mature trees that currently provide a buffer from the traffic on Cambie Street for the adjacent residential properties. Narrowing the Cambie Heritage Boulevard, rather than the side boulevard, will not impact any median trees, and this widening has already been done on a temporary basis to accommodate Canada Line Construction.

Staff have investigated the possibility of creating southbound bike lanes by further narrowing the Cambie Heritage Boulevard. This additional narrowing to accommodate the bike lanes would impact a total of eight trees in localized sections of the central median. Seven of the eight trees would require pruning to accommodate the narrowing, and the remaining tree may require removal and/or transplantation. Five of the affected trees are cherry trees, four of which were donated to the city by the City of Yokohama and carry a 'valuable tree' designation as provided by the project arborists. A valuable tree designation considers

factors of age, historical significance and condition. The impacts of this proposal from a Heritage perspective are significant.

The Cambie Heritage Boulevard Society has been consulted in regards to these two proposals and has expressed opposition to both of these proposals.

### B. King Edward Avenue to Cambie Bridge

The following is in response to the Council motion, "FURTHER THAT staff report back on bicycle facility issues between King Edward and the north end of the Cambie Street Bridge".

Between King Edward Avenue and the Cambie Bridge, there are many different pre-construction configurations. Many of the sections vary greatly with the introduction of medians and left turn bays. Some typical cross-sections are shown in Figures 10 and 11.

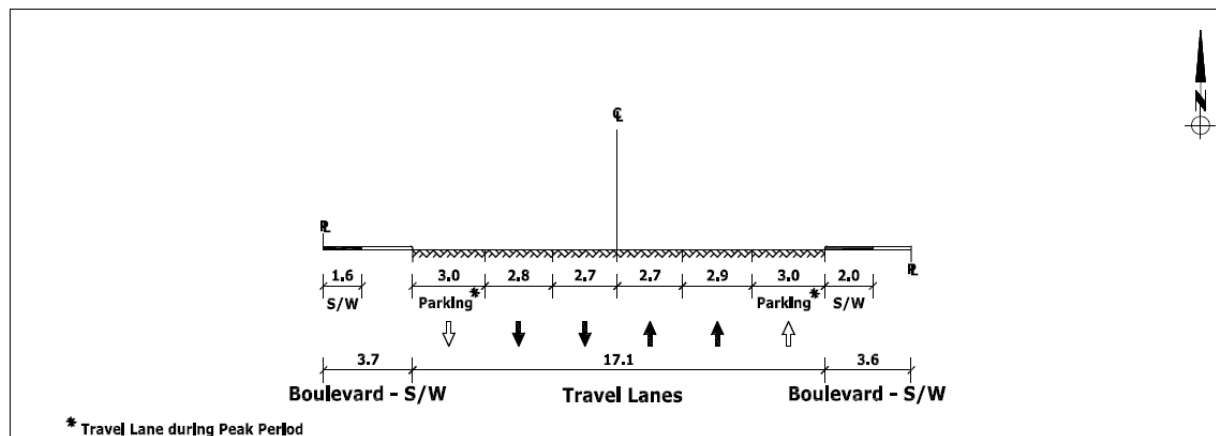


Figure 1: King Edward Avenue to 12<sup>th</sup> Avenue - Typical Pre-construction Configuration

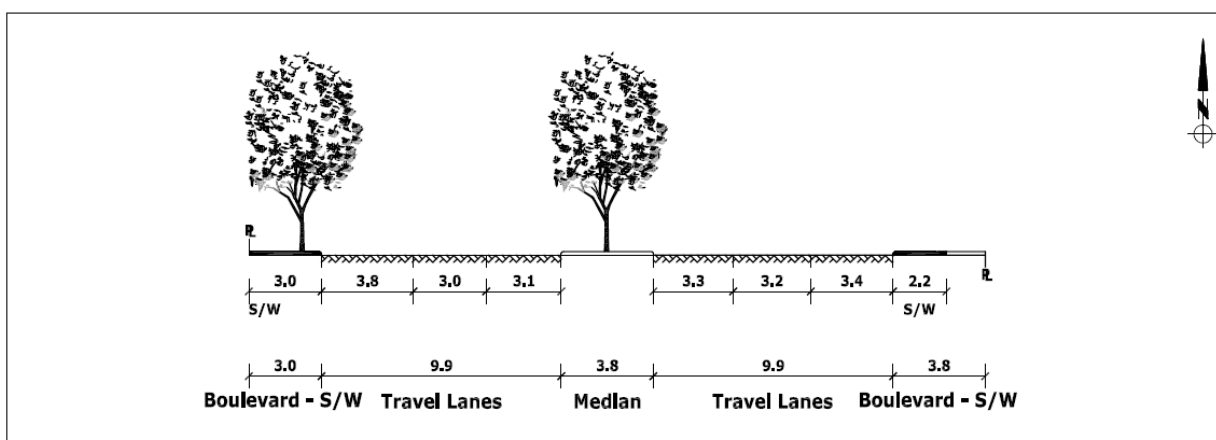


Figure 2: 12<sup>th</sup> Avenue to 6<sup>th</sup> Avenue - Typical Pre-construction Configuration

For much of this section of road, the right-of-way is 80' (24.4m). Where the right-of-way is 80' there are building lines in place to allow a 100' (30.5m) right-of-way in the future. As shown in Figure 1, a typical pre-construction configuration through the Cambie Village area,

the 80' right-of-way allows two narrow full time moving lanes in each direction, parking lanes that become moving lanes in the peak periods, and two 3.6m sidewalks. The dimensions of the lanes are smaller than typical City minimum.

The two potential options to achieve bike lanes between King Edward Avenue and the Cambie Bridge are to remove all peak hour parking restrictions and:

1. remove one parking lane to reallocate the space to bike lanes (Figure 3), or
2. remove one general purpose travel lane to reallocate the space to bike lanes (Figure 4).

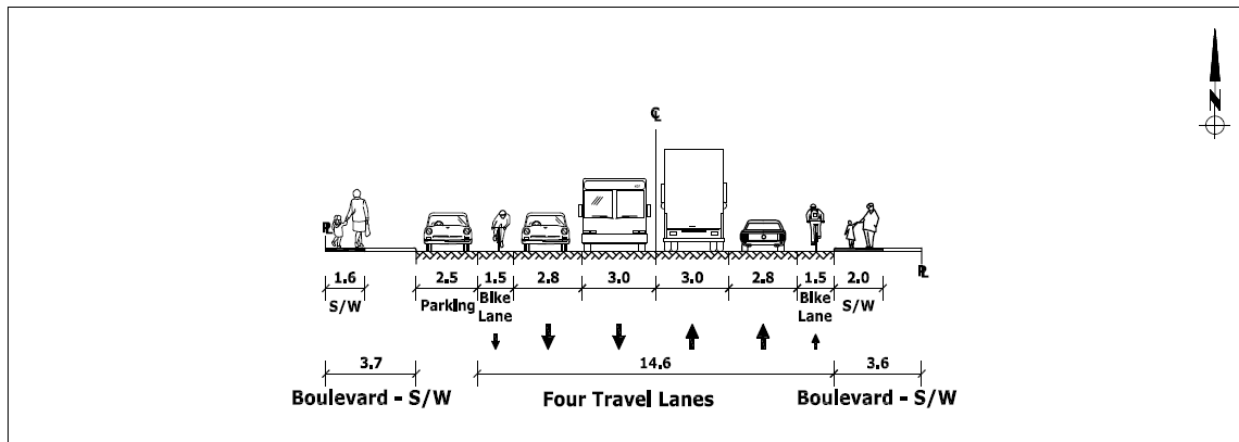


Figure 3: 12<sup>th</sup> Avenue to King Edward Avenue - Bike Lanes with Parking One Side

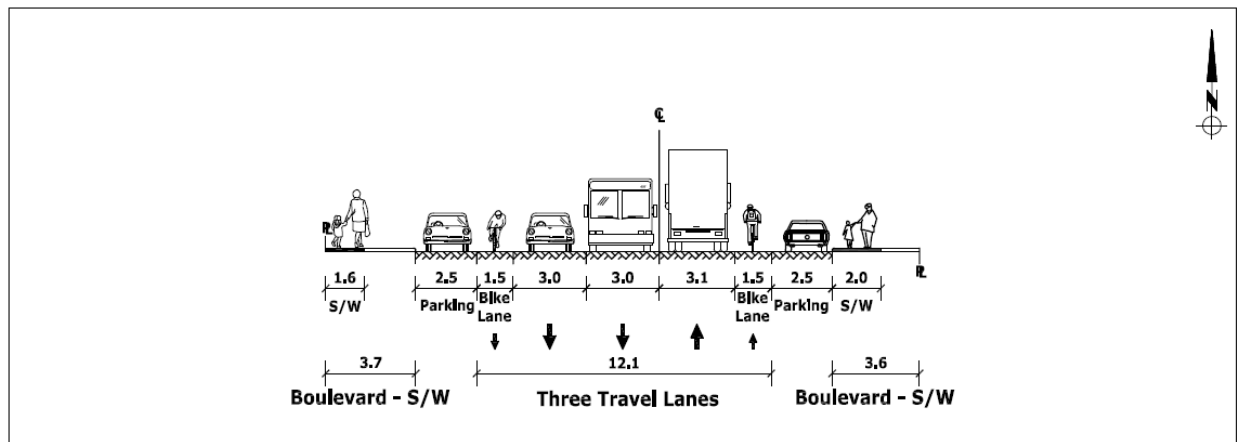


Figure 4: 12<sup>th</sup> Avenue to King Edward Avenue - Bike Lanes with Parking Both Sides

Businesses along Cambie Street value the street parking fronting their businesses. The Cambie BIA expressed some opposition to removing parking, but as of the time of report submittal, hadn't provided a formal response to the concept. Capacity would be lost by removing peak hour parking restrictions. The loss of parking would have a negative impact on pedestrians and businesses and the resultant loss of peak hour capacity could result in increased shortcutting through adjacent neighbourhoods. Because of this, the first option is not recommended.

Removing an additional travel lane to maintain parking is also not recommended, as it would reduce the peak hour capacity in one direction from three lanes to one lane. That one general purpose lane would be used for all turning movements and for parallel parking as well as driving. One moving lane of traffic is not adequate to serve the needs of a major arterial street such as Cambie Street.

North of 29<sup>th</sup> Avenue cyclists will have the option of using the proposed Yukon Bikeway (one block east of Cambie Street) or the Heather Bikeway (two blocks west of Cambie Street). The availability of these alternate routes reduces the need for bike lanes on northern Cambie Street.

Because of these issues, it is recommended that bike lanes not be implemented between King Edward and the Cambie Bridge. When long-term widening lines are achieved, the corridor could be reviewed for the potential for bike lanes. However, it should also be noted that the sidewalks through the Cambie Village are narrow and there is also a desire to use any additional width to improve the sidewalk conditions.

### *C. Cambie Bridge*

Improving conditions for pedestrians and cyclists crossing False Creek has been a City priority for many years. The False Creek Pedestrian and Cyclist Crossing Study was reported to Council in 2002 and was the result of an extensive public consultation process and technical study. The study investigated the possibility of incorporating bike lanes on the Cambie bridge deck, but recommended widening the western sidewalk to accommodate cyclists. It recommended a long term strategy for pedestrian and cyclist improvements across False Creek, including that the City, "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 third with a report back to Council for confirmation of these priorities after completion of the work on the Burrard Bridge". Staff continue to support the findings of this study.

### *D. Alternate Cycling Facilities*

Appendix D shows the current cycling network in the city along with some relevant future routes. Alternatives to Cambie Street Bike Lanes will be important, both to create a connection where cycling facilities can not be implemented on Cambie Street and since less experienced riders tend to feel more comfortable on local street facilities. The primary alternate routes are:

- Heather Street - Kent Avenue to 7<sup>th</sup> Avenue
- Ontario Street - Kent Avenue to 1<sup>st</sup> Avenue
- Yukon Street (future route) - 29<sup>th</sup> Avenue to Cambie Bridge

The Yukon Bikeway is initially proposed from 29<sup>th</sup> Avenue to 10<sup>th</sup> Avenue, but is planned to extend to the Cambie Bridge and the Canada Line station at 2<sup>nd</sup> Avenue. These connections for pedestrians and bikes will be completed as part of the station precinct plans.

The BAC has recommended that bike lanes extend from Kent Avenue to the north end of the Cambie Bridge (Appendix C).

### E. Capacity Considerations

The Canada Line is expected to attract 100,000 transit passengers per day, the majority of which will be existing transit users. There will also be new ridership generated by population growth, new developments along the line, and by former auto users attracted to the higher level of transit service on the Canada Line. This modal shift will result in approximately 1600 fewer vehicles using all north-south streets in the AM peak hour, which is the equivalent capacity of two vehicle travel lanes. The northbound Cambie bike lane will remove some AM peak hour capacity on Cambie Street.

Engineering Services staff will be conducting a review of options to reallocate this north-south corridor capacity as part of the next update to the Vancouver Transportation Plan.

Opportunities could include:

- Removal of rush hour parking restrictions, which would enable on-street parking for businesses and residents along north-south routes such as Granville, Oak, Cambie, Main and Fraser Streets.
- Reallocation of vehicle lanes on the same routes for other sustainable modes such as bicycle lanes and shared bus-bike lanes.

Despite the pending review, Cambie Street restoration offers a significant opportunity to provide a northbound arterial cycling connection up to the 29<sup>th</sup> Avenue Bikeway and the pending Yukon Bikeway. Because of this opportunity, staff recommend that rush hour parking restrictions be removed in the northbound direction from 33<sup>rd</sup> Avenue to 49<sup>th</sup> Avenue to allow the permanent installation of a northbound bicycle lane.

Cambie Street from Marine Drive to the north end of the Cambie Bridge is part of the Major Road Network (MRN), and therefore changes to capacity require Translink Support. Translink is currently reviewing the concepts and is expected to provide a formal response soon.

The following table summarizes the recommendations of this report.

Street Boundaries	Type of Facility		Capacity Implications	Existing Curb Lane Regulations
	Southbound	Northbound		
Kent Ave to W 49 <sup>th</sup> Ave	Bike lane beside full-time parking	Bike lane beside full-time parking	No change	Full-time parking
W 49 <sup>th</sup> Ave to W 33 <sup>rd</sup> Ave	Shared wide curb lane (where possible)	Bike lane beside full-time parking	AM northbound peak period - 3 lanes per direction reduced to 2	Parking Restrictions 7-9:30am northbound 3-6pm southbound
W 33 <sup>rd</sup> Ave to W 29 <sup>th</sup> Ave	Shared wide curb lane (where possible)	Bike lane adjacent to curb	No change	No Stopping Anytime
W 29 <sup>th</sup> Ave to King Edward Ave	Shared wide curb lane (where possible)	Shared wide curb lane	No change	Parking Restrictions 7-9:30am northbound No Stopping Anytime southbound
King Edward Ave to North Side of Cambie Bridge	No facility	No facility	No change	No change

The construction of this route is anticipated to begin in 2007 and be completed in 2009. This timeline is subject to coordinating efforts with other projects underway and/or planned in the area.

## FINANCIAL IMPLICATIONS

In October 2006, Council approved the following funding:

- \$170,000 for the incremental cost of widening the northbound carriageway between 49<sup>th</sup> Avenue and 29<sup>th</sup> Avenue, and
- \$45,000 for the cost of marking bike lanes between Kent Avenue and 49<sup>th</sup> Avenue

It is recommended that the following funding be approved:

- \$18,000 for signage and pavement markings to implement northbound bike lanes between 49<sup>th</sup> Avenue and 29<sup>th</sup> Avenue

Cambie Street is part of the Major Road Network (MRN). Decreasing the peak hour capacity by making parking permanent between 49<sup>th</sup> Avenue and 33<sup>rd</sup> Avenue will reduce funding from Translink by approximately \$23,000 per year. It is recommended that the Streets Operating Budget for Street Maintenance be increased by \$23,000 to cover the reduction in funding.

It is also recommended that the Streets Operating Budget for Signage and Pavement Marking be increased by \$3,800 annually without offset, commencing in 2009 and subject to annual Budget Review.

## CONCLUSION

It is recommended that northbound bike lanes be implemented on Cambie Street between Kent Avenue and 29<sup>th</sup> Avenue, and that southbound bike lanes be implemented on Cambie Street between 49<sup>th</sup> Avenue and Kent Avenue, as recommended in this report.

Staff have also concluded that it is not recommended to implement bike lanes on Cambie Street northbound from King Edward to the north end of the Cambie Bridge and southbound from the north end of the Cambie Bridge to 49<sup>th</sup> Avenue at this time.

\* \* \* \* \*



## October 19 2006 Council Recommendations

A. THAT Council approve the following improvements to Cambie Street from West 7<sup>th</sup> Avenue to West 64<sup>th</sup> Avenue to be coordinated with the restoration of the road following the construction of the Canada Line:

- i. Lengthening of the northbound to westbound left turn bay at West 10<sup>th</sup> Avenue,
- ii. Realignment of curbs and provision of a planted median from West 14<sup>th</sup> Avenue to West 17<sup>th</sup> Avenue
- iii. Installation of pedestrian bulges at the following locations:
  - a) Southeast corner of Cambie Street and West 18<sup>th</sup> Avenue
  - b) Northwest corner of Cambie Street and West 17<sup>th</sup> Avenue
  - c) Southeast corner of Cambie Street and West 17<sup>th</sup> Avenue
- iv. Elimination of the northbound to eastbound right turn channel and island at King Edward Avenue.

B. THAT the total cost of \$380,000 to implement the improvements in A. be funded from the 2006 Streets Basic Capital for Design and Construction of Geometric and Safety Modifications on Arterial Streets.

C. THAT, commencing in 2008, the annual Operating Budget for Signage be increased by \$1,150, without offset and subject to 2008 Budget Review, for maintenance of the new signs and pavement markings.

D. THAT Council approve the funding of \$170,000 from the City's 2006 Streets Basic Capital for Bicycle Network to widen the east roadway of Cambie Street:

- i. From West 49<sup>th</sup> Avenue to West 37<sup>th</sup> Avenue, a widening of up to 0.4 metres,
- ii. From West 33<sup>rd</sup> Avenue to West 37<sup>th</sup> Avenue, a widening of up to 1.1 metres, and
- iii. From West 33<sup>rd</sup> Avenue to West 29<sup>th</sup> Avenue, a widening of up to 1.4 metres,

To align the curb line to provide consistent lane widths, to provide sufficient road space for vehicles to navigate the curved roadway, and to provide sufficient space for general vehicles to share with cyclists.

E. THAT Council approve the implementation of bicycle lanes on Cambie Street between Kent Avenue and 49<sup>th</sup> Avenue and report back on how that implementation might be achieved; FURTHER THAT staff report back on the implementation of bicycle lanes from 49<sup>th</sup> Avenue to King Edward; and

FURTHER THAT staff report back on bicycle facility issues between King Edward and the north end of the Cambie Street Bridge.

F. THAT funding of \$45,000 for the implementation of these bike facilities and parking changes be provided from 2006 Streets Basic Capital for Bicycle Network.

G. THAT, commencing in 2008, the annual Operating Budget for Signage be increased by \$4,500, without offset and subject to 2008 Budget Review, for maintenance of the new signs and pavement markings.

### Cambie Bike Lanes - Kent Avenue to 49<sup>th</sup> Avenue

The following is in response to the motion, "THAT Council approve the implementation of bicycle lanes on Cambie Street between Kent Avenue and 49th Avenue and report back on how that implementation might be achieved".

#### *Kent Avenue to Marine*

The section of Cambie Street between Kent Avenue and SW Marine Drive is changing dramatically due to the construction of the Canada Line station and the columns for the elevated guideway. A typical configuration is shown in Figure 1, accommodating in each direction:

- a general purpose travel lane,
- a bike lane, and
- a parking lane where possible.

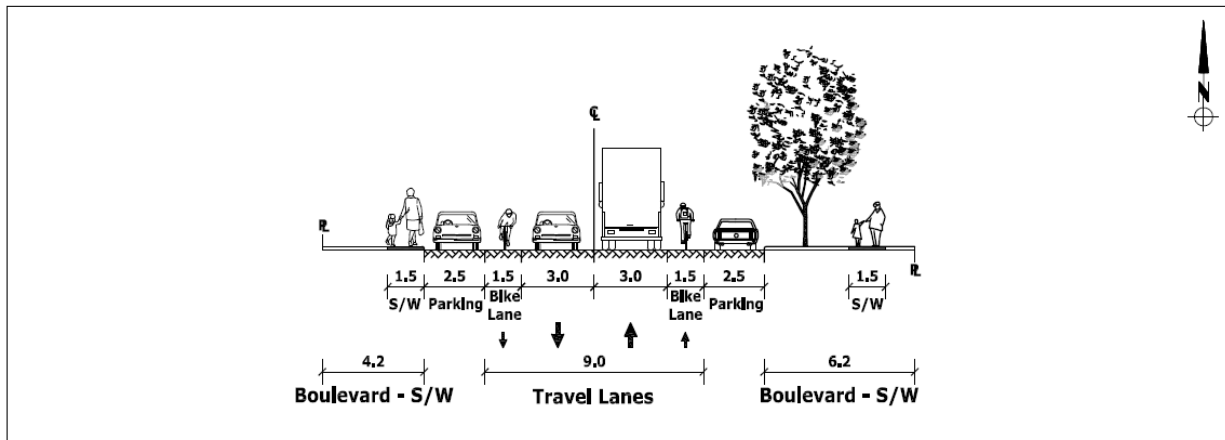


Figure 1: Kent Avenue to SW Marine- Recommended Typical Configuration

- Between SW Marine Drive and 49<sup>th</sup> Avenue, the existing paved widths of both the northbound and southbound carriageways are typically 10.7m, with a pre-construction configuration shown in Figure 2.

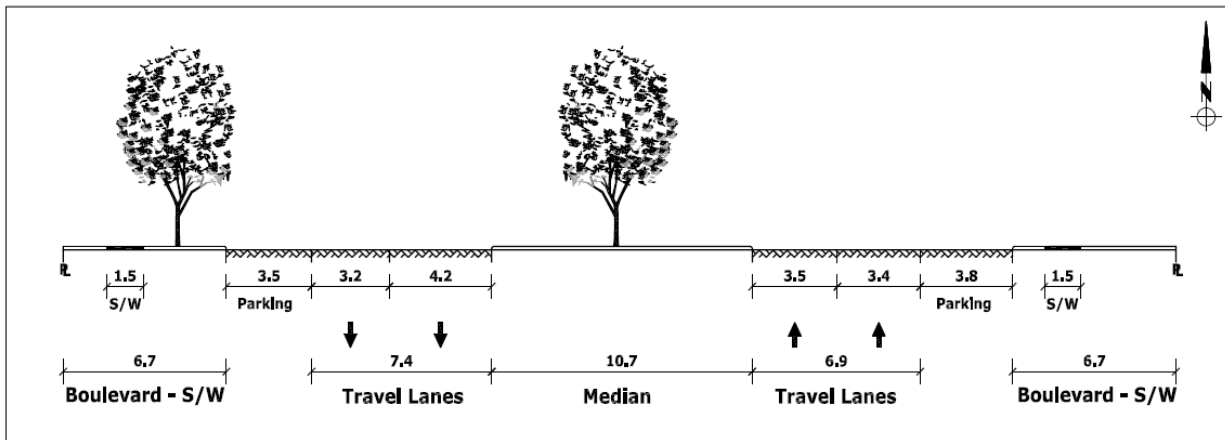


Figure 2: SW Marine to 49<sup>th</sup> Avenue - Typical Pre-construction Configuration

As shown in Figure 3, this allows the road to be remarked to allow:

- a 2.5 m parking lane,
- a 1.8 m bike lane, and
- two 3.2 m general purpose travel lanes.

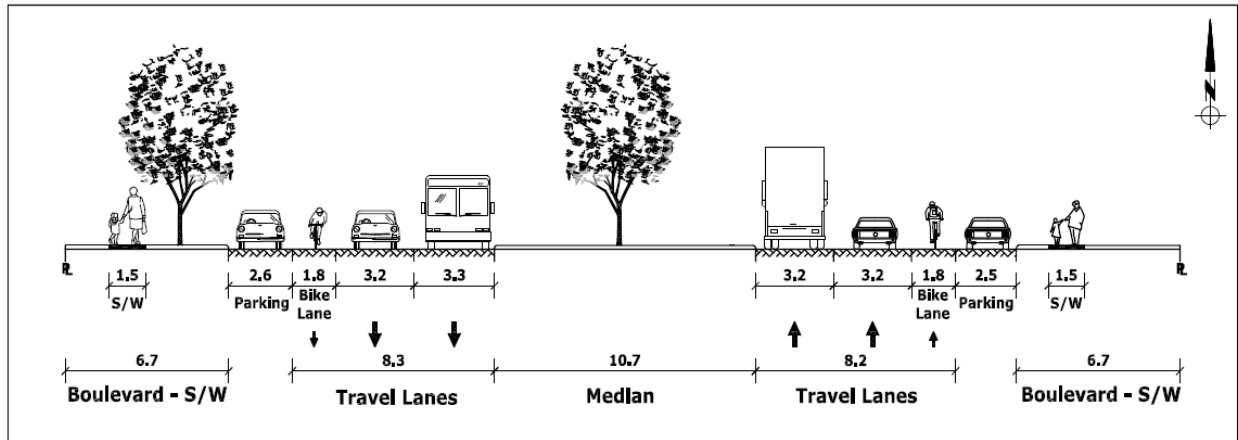


Figure 3: SW Marine to 49<sup>th</sup> Avenue - Recommended Typical Configuration

During reconstruction, this configuration could be installed at a minimal cost, since pavement markings will be re-installed following construction.

*49<sup>th</sup> Avenue to King Edward Avenue*

The following is in response to the motion, "FURTHER THAT staff report back on the implementation of bicycle lanes from 49th Avenue to King Edward".

A typical cross-section of Cambie between 49<sup>th</sup> Avenue and King Edward Avenue is shown in Figure 4. Morning peak period parking restrictions provide for three northbound travel lanes. Afternoon peak period restrictions provide for three southbound travel lanes.

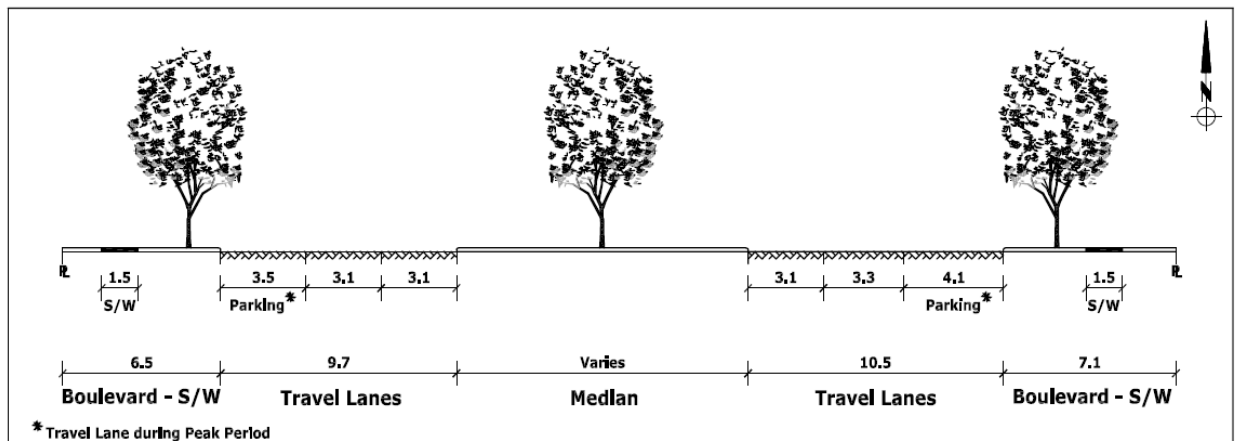


Figure 4: 49<sup>th</sup> to King Edward Avenue - Typical Pre-construction Configuration

There are two general ways in which bike lanes could be installed between 49<sup>th</sup> Avenue and King Edward Avenue:

1. Make parking permanent by removing rush hour parking restrictions and constructing a cross section as shown in Figure 5, which would require some roadway widening and which would include:
  - a 2.5 m parking lane,
  - a 1.8 m bike lane, and
  - two 3.2 m general purpose travel lanes.

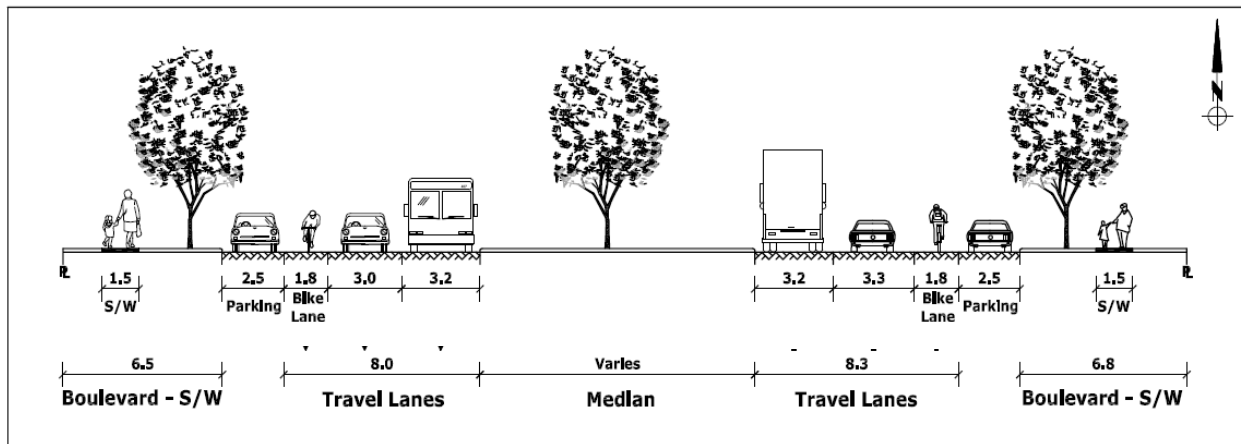


Figure 5: 49<sup>th</sup> Ave to King Edward Avenue - Bike Lanes with Full-time Parking

2. Remove all parking and re-mark the road to allow a bike lane. There are several ways in which this could be done, but one configuration, shown in Figure 6, would include:
  - a 2.0m bike lane,
  - two 3.4 m driving lanes, and
  - a painted gore area along the median, varying from 0.9 to 1.5m.

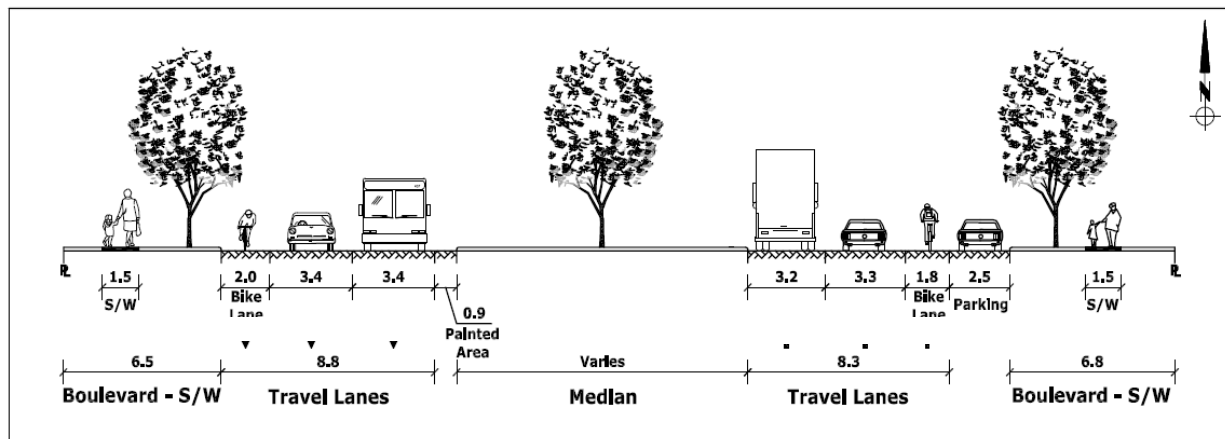


Figure 6: 49<sup>th</sup> Ave to King Edward Avenue - Bike Lanes with Parking Removed on West Side

49<sup>th</sup> Avenue to King Edward Avenue - Northbound Carriageway

The northbound carriageway has had new curb locations approved by Council, which will be implemented upon restoration of the road following Canada Line construction. On Cambie Street, as is typical throughout the City, the morning has a lower peak traffic volume than the afternoon. Because of this, the third northbound travel lane in the morning is less critical than the third southbound travel lane in the afternoon and removing the morning parking restrictions to allow a bike lane would likely not have serious capacity implications, provided four lanes are maintained at the approach to major intersections to separate left and right turns from through traffic.

Between 49<sup>th</sup> Avenue and 33<sup>rd</sup> Avenue, staff recommend that the peak hour parking restrictions be removed and that full time parking and bike lanes be installed for the northbound carriageway, as shown in Figure 7. This would provide a bike lane and also allow residents and businesses to retain access to on-street parking.

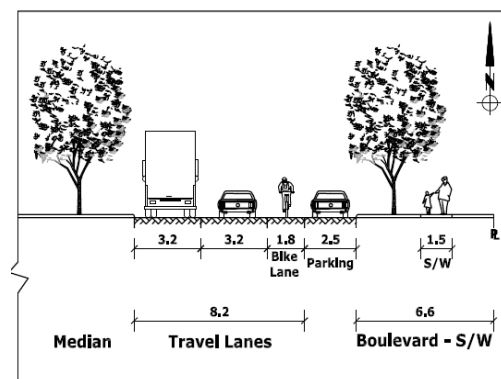


Figure 7: 49<sup>th</sup> to 33<sup>rd</sup> Avenue - Recommended Typical Configuration for East Carriageway

Between 33<sup>rd</sup> Avenue and 29<sup>th</sup> Avenue, Cambie acts as both a north-south and east-west arterial due to the discontinuity of 33<sup>rd</sup> Avenue, as shown in Figure 8.

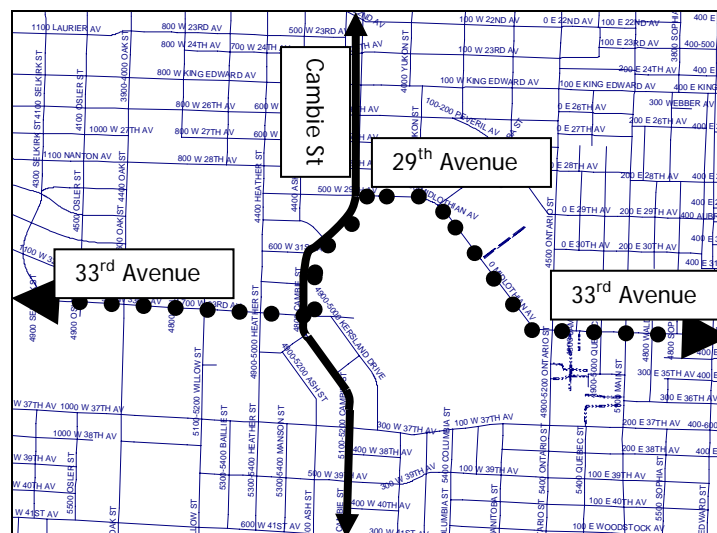


Figure 8: Arterial Network at Cambie St and 33<sup>rd</sup> Avenue

Prior to construction of the Canada Line, parking was not allowed on the eastern side of the road. There is little need for parking in this section since it fronts Queen Elizabeth Park, so the following configuration, shown in Figure 9, is recommended for this section:

- a 1.8m bike lane, and
- three travel lanes (3.1m, 3.0m, 3.2m)

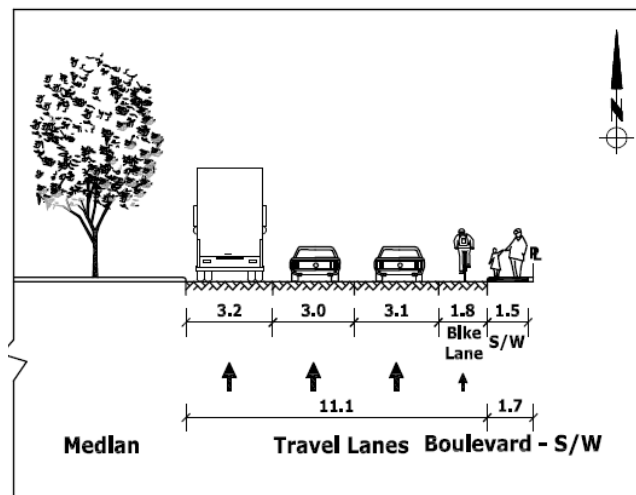


Figure 9: 33<sup>rd</sup> to 29<sup>th</sup> Avenue - Bike Lanes with No Parking

Between 29<sup>th</sup> Avenue and King Edward Avenue, a northbound bike lane with full time parking could be implemented by removing rush hour parking regulations. This would provide a cycling connection to the King Edward Canada Line station, and to a connection along King Edward to the proposed Yukon bikeway. A widening of up to 1.4m would be required to allow the future implementation of a bike lane.

In this section the curbs along the centre median have been removed for the tunnel construction, so the widening can be achieved at no cost to the City. The curbs were not removed along the east side boulevard to preserve several healthy, mature trees. Because of this, it is recommended that any widening take place by narrowing the heritage boulevard. The alternative option would be to narrow the east side boulevard which would require the removal of approximately 11 significant, mature trees and cost approximately \$800,000 to \$1,200,000. Modifications to the Heritage Boulevard would require that the City obtain a Heritage Alteration Permit to conduct this change.

It is recommended that the roadway be widened by 1.4m to allow a bike connection between 29<sup>th</sup> Avenue and King Edward Avenue, but that it not be marked as a bike lane at this time. The wide curb lane will allow width for cyclists to travel comfortably to the Canada Line Station at King Edward Avenue. Terminating the marked bike lane at 29<sup>th</sup> Avenue will help encourage cyclists to divert to the Yukon Bikeway, which is planned to extend from 29<sup>th</sup> Avenue to the Cambie Bridge.

### 49<sup>th</sup> Avenue to King Edward Avenue - Southbound Carriageway

Between King Edward Avenue and 49<sup>th</sup> Avenue, there are significant impediments to implementing southbound bike lanes. Retaining a third peak hour travel lane is more important than in the northbound direction, both because the peak period volumes are higher and because the afternoon movements facilitate traffic movement out of the city, relieving congestion on other city streets. Additionally, the existing roadway is not wide enough to accommodate bike lanes without either removing parking or a travel lane.

The carriageway could be widened to 10.5m to allow a configuration shown in Figure 5. This width could be achieved by widening the road into either the centre boulevard or the side boulevard. The cost of widening into the Heritage Boulevard would be approximately \$100,000 to \$150,000 per block (\$1.2 million to \$1.8 million in total). Because of utilities, poles, trees, and other constraints, widening into the side boulevard would cost approximately \$200,000 to \$300,000 per block (\$2.4 million to \$3.6 million in total). Because of the reduction of peak hour capacity and the high cost, this option is not recommended.

The other option would be to re-mark the roadway as shown in Figure 6 by removing parking. This is not recommended at this time because of impacts to parking for residents and businesses and because of impacts to the peak capacity of the road.

There will likely be major development in the Oakridge area over the coming years which could provide an opportunity for developer-funded curb relocations on the southbound carriageway, and could help extend the proposed southbound bike lanes to the Midtown Bikeway at 37<sup>th</sup> Avenue.

It is recommended that the southbound carriageway between King Edward and 49<sup>th</sup> Avenue be reinstated as it was pre-construction, except that bike-friendly wide curb lanes be created where possible.

BAC Resolution of May 18, 2005 Regarding the RAV Rapid Transit Project

5. Reports of Subcommittees

(a) Bicycle Network Subcommittee

Peter Stary, Engineering Services, distributed the notes from the May 3, 2005, meeting and provided an overview. Committee actions are noted below under the specific topic headings:

1) RAV Rapid Transit Project

RESOLVED

THAT the Bicycle Advisory Committee recommends that, in regard to proposed bicycle facilities associated with construction of the RAV line along the Cambie Street right-of-way:

- a preferred bike lane design for the full length of Cambie from Kent Avenue to the north end of Cambie Bridge be developed; and
- in view of the additional transportation capacity provided by RAV that the reduction of space for cars on Cambie be supported in accordance with Vancouver Transportation Plan and Cool Vancouver objectives and to create space where needed by bicycles.

CARRIED UNANIMOUSLY



