



CITY OF VANCOUVER

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ADMINISTRATIVE REPORT

Report Date: April 29, 2008  
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Meeting Date: May 13, 2008

TO: Standing Committee on Transportation and Traffic  
FROM: General Manager of Engineering Services  
SUBJECT: 2008 Traffic Signal Program

**RECOMMENDATION**

- A. THAT Council approve the 2008 Traffic Signal Program and that the General Manager of Engineering Services be authorized to install and modify the pedestrian and traffic signals, as described in this report; the total program cost is \$1,585,000 with funding sources as follows:
- \$1,370,000 from the 2008 Street Capital Budget for Traffic Signals, subject to approval of the 2008 Basic Capital Budget
  - \$43,000 from 2006 Street Capital Budget for the Bicycle Network Program
  - \$172,000 contribution from ICBC.
- B. THAT an additional annual maintenance cost of \$15,000 be added to the 2009 Operations Budget without offset to the Traffic Signal Maintenance Program for ongoing maintenance related to the added plant, subject to the 2009 budget review process.

**COUNCIL POLICY**

Council approved the 2006-2008 Streets Capital Plan which provides funding for traffic signal installations.

On May 27, 1997, Council approved the Vancouver Transportation Plan which emphasizes the need for improved pedestrian facilities.

## SUMMARY

Council has approved funding as part of the 2006 - 2008 Streets Capital Plan for the Annual Traffic Signal Program. Funding requests included in this report account for one-third of the money approved in the three year Capital Plan. The recommended 2008 Traffic Signal Program is as follows:

A) Pedestrian-Controlled Signals	City	ICBC	TOTAL
A1) 12th Avenue at Vine	\$150,500	\$24,500	\$175,000
A2) 2nd Avenue at Yukon/Wylie	\$215,000	\$40,000	\$255,000
A3) Fraser at 10th Avenue	\$165,000*	\$10,000	\$175,000
A4) SW Marine Dr at Arbutus	\$164,500	\$5,500	\$170,000
A5) Venables at Raymur	\$188,000	\$37,000	\$225,000
Sub total	\$883,000	\$117,000	\$1,000,000

\* includes \$43,000 funding from 2006 Street Capital Budget for the Bicycle Network Program

## B) Full Signal

B1) Homer at Helmcken	\$160,000	\$55,000	\$215,000
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C) Signal Modifications	\$370,000	-----	\$370,000
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## FUNDING SUBTOTALS

2008 Signal Program Funding	\$1,370,000	
Bicycle Network Program Funding	\$43,000	
ICBC Funding		\$172,000

<b>TOTAL 2008 PROGRAM</b>	<b>\$1,585,000</b>
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## PURPOSE

The purpose of this report is to seek Council approval of the 2008 Traffic Signal Program as summarized in this report.

## BACKGROUND

The City of Vancouver relies on a surface street network to handle the majority of its transportation needs. Therefore, pedestrian, cyclist, transit and traffic signals are significant traffic management elements in the safe movement of people and goods. Each year, staff receive 100 to 150 requests for signals in the City. Detailed studies are undertaken to determine locations that require new or modified traffic signals.

The following factors are looked at as part of the detailed technical review: pedestrian volume, age and ability, and the nearest pedestrian crossings; traffic speed and volume, gaps in traffic and driver courtesy; surrounding land use, pedestrian generators such as bus stops and schools, street use such as bus routes and bikeways or greenways, road geometry, visibility, accessibility and input from the Police, ICBC and Translink. This information is then used to help prioritize locations throughout the City for new pedestrian-controlled signals and other improvements. After a careful review of these factors, a recommended Traffic Signal Program has been prepared.

## DISCUSSION

Council's top transportation priority is pedestrians, and five of the six recommended signals are pedestrian-controlled signals. These signals also benefit transit users as they improve access to bus stops and cyclists as all of these signals will include cyclist pushbuttons. The proposed vehicle signal will address pedestrian and traffic safety.

### A) Pedestrian-Controlled Signals - Recommended Locations

- |                           |                               |
|---------------------------|-------------------------------|
| A1) 12th Avenue at Vine   | A2) 2nd Avenue at Yukon/Wylie |
| A3) Fraser at 10th Avenue | A4) SW Marine Dr at Arbutus   |
| A5) Venables at Raymur    |                               |

### B) Full Signal - Recommended Location

- B1) Homer at Helmcken

Rationales for the recommended locations are included in Appendix A.

### C) Signal Modifications

This program provides funding for programs to modify or retrofit existing pedestrian and traffic signals to meet operational demands of the City street network. Many of these ongoing projects help address concerns forwarded by residents and other staff. The program is summarized below:

- |  |                          |
|--|--------------------------|
| C1) Pedestrian Indicators              | C2) Left-Turn Phasing    |
| C3) Audible signals                    | C4) Signal Modifications |
| C5) Intelligent Transportation Systems | C6) Tertiary Heads       |

Appendix B includes details of each item listed above.

## OTHER SIGNAL INSTALLATIONS

Signal installation and modifications may also be funded through other programs or agencies. Appendix C lists signals which are being constructed or reviewed due to private developments and through other projects such as Greenways, Bikeways, Community Visions, and Neighbourhood Centres. Additional reports will be forwarded to Council as these processes are completed.

## FINANCIAL IMPLICATIONS

The total cost of the 2008 Traffic Signal Program is \$1,585,000, of which \$1,370,000 will be funded from the 2008 Street Basic Capital for the Traffic Signal Program, subject to the approval of the 2008 Basic Capital Budget; \$43,000 from the 2006 Street Capital Budget for the Bicycle Network Program; and \$172,000 from ICBC.

Future Operating Budgets will be affected by increases in maintenance costs associated with the addition of new signals, signage, road marking, intersection traffic counts, and increased energy consumption. This year's Signal Program represents roughly a one percent increase in the plant of the Traffic Signal System. It is recommended that the 2009 Operating Budget for Traffic Signal Maintenance be increased by \$15,000 without offset to reflect the additional plant added through the Capital Program. This report is subject to the 2009 Budget Review.

## ENVIRONMENTAL IMPLICATIONS

The installation of pedestrian and cyclist activated signals is consistent with the City of Vancouver's sustainability goals, as these signals directly facilitate pedestrian, cyclist and transit modes of transportation.

## CONCLUSION

Staff recommend that Council approve the 2008 Traffic Signal Program as described in this report.

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## A) Pedestrian-Controlled Signals - Recommended Locations

### A1) 12th Avenue at Vine Street \$175,000

The intersection of 12th Avenue and Vine Street is located in a residential area with many multi-family residences. Connaught Park, home of the Kitsilano Community Centre, is located on the northwest corner of the intersection. The park is used for baseball, rugby, soccer, and other sports. Currently, there is a marked and signed crosswalk at the west crossing to assist pedestrians in crossing 12th Avenue. Field studies show that vehicle and pedestrian volumes are high during peak periods resulting in few gaps for pedestrians to cross. Field studies have confirmed that drivers tend to ignore pedestrians at this intersection. Over the past five years, there has been one ICBC reported vehicle-pedestrian collision at this intersection. ICBC will contribute \$24,500 towards the signal. The total City cost is \$150,500.

### A2) 2nd Avenue at Yukon Street / Wylie Street \$255,000

The intersection of 2nd Avenue at Yukon and Wylie Streets is currently an intersection of multiple streets in one junction with a marked and signed crosswalk to assist pedestrians in crossing 2nd Avenue. The complex intersection configuration makes it difficult for pedestrians to cross at this location. Staff have received numerous requests from businesses and residents in the area for a pedestrian-controlled signal. Field studies have shown that there were very few gaps in traffic for pedestrians to cross. Recently, there have been new developments in the area that have increased the number of pedestrians using this intersection. This intersection is located close to the Olympic Village - 2nd Avenue Canada Line Station and the new Southeast False Creek development. Over the past five years, there have been two ICBC reported vehicle-pedestrian collision at this intersection. There are proposed geometric changes to the intersection that will assist with the functioning of the signal. These proposed changes will be reported to Council along with proposed Canada Line station area improvements. ICBC will contribute \$40,000 towards the signal. The total City cost is \$215,000.

### A3) Fraser Street at 10th Avenue \$175,000

The intersection of Fraser Street and 10th Avenue is located in the Mount Pleasant neighbourhood along the 10<sup>th</sup> Avenue Bicycle Route. Staff have had numerous requests from users of the bicycle route and residents living in the area for a signal at this location to assist cyclists and pedestrians wishing to cross Fraser Street. Field studies have shown that a large volume of cyclists cross at this intersection. Over the past five years, there has been one ICBC reported vehicle-pedestrian collision at this intersection. ICBC will contribute \$10,000 towards the signal. The total City cost is \$165,000 of which \$122,000 will be funded from the 2007 Traffic Signal Program and \$43,000 from the Bicycle Network.

**A4) SW Marine Drive at Arbutus Street \$170,000**

On January 23rd, staff attended the ARKS (Arbutus Ridge / Kerrisdale / Shaughnessy) City Plan Committee meeting and the subsequent ARKS Traffic and Transportation Subcommittee meeting on February 6th, 2008. At these meetings, residents and committee members had the opportunity to provide staff with feedback on intersections they felt were priorities for signals in their community. This location was identified as a priority for the ARKS area. This intersection is in the middle of a 1650m stretch with no traffic signals, the longest stretch along an arterial in the City. Arbutus Park is located on the NW corner of the intersection. McKechnie Elementary School is located north of the intersection. Field studies have shown that there were very few gaps in traffic for pedestrians to cross at this intersection. ICBC will contribute \$5,500 towards the signal. The total City cost is \$164,500.

**A5) Venables Street at Raymur Avenue \$225,000**

The intersection of Venables Street and Raymur Avenue is located in the Strathcona neighbourhood, next to the Strathcona Park. Currently, there is a marked and signed crosswalk at the west crossing to assist pedestrians in crossing Venables Street. Staff have received numerous requests from businesses and residents in the area as well as a petition for a pedestrian-controlled signal. Field studies have shown that there were very few gaps in traffic for pedestrians to cross. There is a bus stop located on the north side of the intersection. The intersection is located just east of a curve in Venables Street which limits pedestrian and motorist visibility. Over the past five years, there has been one ICBC reported vehicle-pedestrian collision at this intersection. ICBC will contribute \$37,000 towards the signal. The total City cost is \$188,000.

**B) Full Signal - Recommended Location**

**B1) Homer Street at Helmcken Street \$215,000**

The intersection of Homer Street and Helmcken Street is located in a busy commercial/residential neighbourhood in Yaletown. Staff have received numerous requests from businesses and residents in the area for a traffic signal. Traffic and pedestrian counts and potential conflicts at this intersection indicate that a full traffic signal is the most appropriate traffic control for this intersection. If approved, this location would complement the Comox-Helmcken Greenway, the downtown portion of the Central Valley Greenway, which was approved in principal by Council as part of the City of Vancouver's Greenways Plan. ICBC will contribute \$55,000 towards the signal. The total City cost is \$160,000.

**C) Signal Modifications \$370,000**

**C1) Pedestrian Indicators \$15,000**

Pedestrian indicators provide "walk" and "don't walk" indications for pedestrians at signalized intersections. Existing signals that do not have pedestrian indicators are reviewed and retrofitted each year. It is recommended that funding for two suitable locations at an average cost of \$7,500 be approved for 2008.

**C2) Left-Turn Phasing \$100,000**

The City receives many requests for left-turn flashing arrows at existing traffic signals. They are best suited at intersections with left-turn bays and high left-turn volumes which cannot clear during gaps in opposing traffic flow. This program also provides funding for the addition of detectors in the left-turn bay so the length of the left-turn phase responds to demand. Locations to be implemented in 2008 will be prioritized on a Citywide basis.

**C3) Audible Signals \$50,000**

Audible signals provide visually disabled pedestrians with an indication of when to cross the roadway at signalized intersections. Vancouver has more audible signals than any other Canadian city with over 341 locations completed as of March 2008. Funding of \$50,000 is recommended to install audible signals at existing signalized intersections. The priority of installation is established by user requests, land use, and nearby transit facilities in consultation with local advocacy groups, the CNIB, and the Vancouver School Board.

**C4) Signal Modifications \$55,000**

There are routine modifications required on the present signal plant from time to time. Some examples of the modifications are:

- adjustment of signal timings in the local controllers;
- visibility improvements of existing signal equipment by the relocation or addition of signal heads;
- the modification of overhead signs;
- modifications to hardware and software for the controllers; and
- purchase of computer hardware and software to allow staff to better manage the existing signal system, utilize database software to inventory pedestrian and vehicle information, and to handle increasing requests from the public for traffic related data.

#### C5) Intelligent Transportation Systems \$100,000

Intelligent Transportation Systems (ITS) are the development and application of technology to optimize the effectiveness of the existing street infrastructure. Additionally, ITS provides information to road users to help them make smarter travel choices. Examples of ITS funded through this program include:

- traffic monitoring cameras which provide images to the City's Road Ahead webpage;
- automated traffic counters and related data transfer equipment; and
- hardware and software modifications related to the Traffic Signal Management System to help optimize the signal network.

#### C6) Tertiary Heads \$50,000

Since 1994, the City has been cost-sharing with ICBC the upgrade of existing signalized locations for improved signal visibility. These upgrades include the addition of a third signal head and have achieved significant reduction of traffic collisions at many high-accident intersections. Throughout the coming year, staff will continue to pursue further support from ICBC. This funding partnership will allow the City to continue to install tertiary signal heads at high volume/high collision intersections. ICBC funding has yet to be determined.



### Signal Improvements Funded Through Other Projects

New signal installations and upgrades to existing signals through Greenways and Bikeways are listed below. The following locations have been approved by Council and are expected to be built this year.

- Oak and 28<sup>th</sup> - new signal - 29<sup>th</sup> Avenue Bicycle Route
- Balaclava and SW Marine - new signal - Balaclava Bicycle Route
- Balaclava and 4<sup>th</sup> - new signal - Balaclava Bicycle Route
- Heather and 70<sup>th</sup> - new signal - Heather Bikeway extension
- Main and 1<sup>st</sup> - new signal - Central Valley Greenway
- Quebec and 1<sup>st</sup> - new signal - Central Valley Greenway
- King Edward and Quesnel - new signal - Ridgeway West Greenway

The following locations are under review at this time and have yet to go through neighbourhood consultation, the Bicycle Advisory Committee and approval by Council.

- Knight and 28<sup>th</sup> - under review - 28<sup>th</sup> Avenue Bicycle Route
- Fraser and 28<sup>th</sup> - under review - 28<sup>th</sup> Avenue Bicycle Route
- Ontario and 16<sup>th</sup> - under review - Ontario Bicycle Route
- Dumfries and 33<sup>rd</sup> - under review - Borden-Dumfries Bicycle Route
- Prince Edward and 33<sup>rd</sup> - under review - Prince Edward Bicycle Route
- Prince Edward and 41<sup>st</sup> - under review - Prince Edward Bicycle Route
- Victoria and Upland - under review - 59th Avenue Bikeway/Greenway
- Argyle and 59<sup>th</sup> - under review - 59th Avenue Bikeway/Greenway
- Knight and 59<sup>th</sup> - under review - 59th Avenue Bikeway/Greenway
- Main and 45<sup>th</sup> - under review - 45<sup>th</sup> Avenue Bicycle Route
- Knight and 45<sup>th</sup> - under review - 45<sup>th</sup> Avenue Bicycle Route

### Signal Locations to be Funded by Developers

There are locations where, in accordance to the rezoning agreements or as a condition of development approval, signals may be installed at the expense of the developer. These are locations where existing conditions are satisfactory but as a direct result of the developments, future conditions may be affected and signals will be required to accommodate pedestrians and traffic. Future signal locations to be funded through the development process are as follows:

- Grandview Hwy and Natal St - new signal - Canadian Tire
- Yukon and 7<sup>th</sup> - new signal - Canadian Tire & Grosvenor Developments
- Cambie and 8<sup>th</sup> - new signal - Crossroads Development
- Canada Place and Burrard - new signal - Vancouver Convention Centre Expansion Project
- Canada Place and Thurlow - new signal - Vancouver Convention Centre Expansion Project
- 1st Ave at Wylie - new signal - South East False Creek
- 1st Ave at Columbia - new signal - South East False Creek
- 1st Ave midblock between Columbia and Manitoba - new signal - South East False Creek
- 1st Ave at Manitoba - new signal - South East False Creek
- 1st Ave at Ontario - new signal - South East False Creek