

NO: R162

COUNCIL DATE: July 27, 2015

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## REGULAR COUNCIL

TO: **Mayor & Council**

DATE: **July 15, 2015**

FROM: **Fire Chief  
General Manager, Engineering**

FILE: **5460-80**

SUBJECT: **City of Surrey Traffic Pre-emption Plan**

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## RECOMMENDATION

The Fire and Engineering Departments recommend that Council:

1. That Cobra Electric Ltd. be engaged at an upset limit amount of \$168,000, including GST, for the outfitting of additional traffic controlled intersections within the Surrey jurisdiction “pre-emption” technology;
2. That the Ministry of Transportation and Infrastructure (BC MOTI) be engaged at an upset limit amount of \$264,000, including GST, for the outfitting of additional traffic controlled intersections within the Ministry controlled jurisdiction “pre-emption” technology; and
3. That Alberta Traffic Supply Ltd. be engaged at an upset limit in the amount of \$509,798.58, including GST, for the supply of Opticom fire pre-emption equipment.

## INTENT

The purpose of this report is to seek approval to award contracts for the outfitting of up to 203 traffic controlled intersections with pre-emption technology. This phase of the plan will provide pre-emption capability at all traffic controlled intersections within the City identified as impacting Emergency vehicle response times as well as firefighter, vehicle and pedestrian safety.

## BACKGROUND

Traffic signal pre-emption is technology that allows the normal operation of a traffic signal to be “pre-empted”, to assist in clearing traffic and to provide a green light for Emergency vehicles as they approach an intersection. Emergency vehicles are equipped with an optical strobe that communicates with a receiver at a “pre-empted” intersection. When activated by an approaching Emergency vehicle, the traffic pre-emption hardware will first, clear the intersection of vehicles and pedestrians through normally programmed signal changes, and then trigger the traffic lights to grant the right-of-way for the Emergency vehicle in the desired direction.

## DISCUSSION

The Surrey Fire Service is committed to continually evaluating and improving emergency response services to ensure public and firefighter safety is preserved while at the same time, working to reduce rising operating costs.

Upgrading the Traffic Pre-emption Plan to outfit an additional 203 intersections with pre-emptive technology represents a relatively low capital cost investment with minimal ongoing costs contained in the Engineering maintenance budget for traffic intersections.

Traffic pre-emption technology was first installed 25 years ago at several key intersections through collaboration with the City's Transportation Division and the Fire Service. Over time, additional intersections were identified and equipped with this technology, bringing the current number of partially or completely controlled intersections to 241; however, at the time Provincial Highways did not permit this technology to be installed.

A completely controlled intersection has the ability to detect a request for pre-emption from all directions of travel while a partially controlled intersection can only detect a request from one or two directions. Our request to upgrade 203 intersections includes 102 intersections currently without any pre-emption devices and 101 intersections with partially controlled intersections. The benefit of upgrading intersections so they can detect a request for pre-emption from all directions of travel is that the preferred route of travel of an emergency vehicle is not always predictable.

This will leave the City with 68 uncontrolled or partially controlled pre-emption intersections. At this time, the Surrey Fire Service does not recommend upgrading these 68 intersections since the likelihood of requiring pre-emption is low and does not justify the expense of retrofitting these intersections.

The present level of pre-emption currently in use has improved Fire Service efficiency, public safety, firefighter safety and reduced operational costs. As our City grows, emergency responses are increasingly affected by more traffic and congestion. Traffic congestion, population density, and an increase in intersections controlled by traffic lights, have been considered as factors in the analysis to support expanding the current Intersection Traffic Pre-emption Plan.

Expanding on the existing Traffic Pre-emption Plan will provide the following benefits:

- Improve public safety and firefighter safety;
- Improved Emergency vehicle response times; and
- Reduction in Fire Service response times means fire apparatus can effectively service greater areas.

By increasing the number of pre-emptive intersections, public safety will be enhanced, and Emergency Services will experience the benefits of reduced response times. Previous research (Garis, Nagaraj, et al, 2003) conducted simulation modelling that predicted that an increased level of pre-emption at strategic intersections (a limited number) would reduce response times by 3%. A post analysis review demonstrated an actual outcome in improved Emergency Vehicle Response Times of 4%.

This initiative is in keeping with the Surrey Fire Service's ongoing commitment to adopting best practices in providing a cost efficient service. The benefit of this investment will also strengthen the City's vision of a safe and green City. All intersections with new traffic lights have pre-emption installed as a requirement.

## **FUNDING**

Staff evaluated three quotes from three electrical contractors: Bayhill, TranWestern and Cobra Electric Ltd.; Cobra Electric Ltd. provided the most competitive price. Currently, Cobra Electric Ltd. holds the current Electrical Maintenance Contract with the City and maintains good performance.

29 intersections planned for installation of pre-emptive technology are at/on provincial highways and are under the jurisdiction of BC MOTI. BC MOTI has specified that all work done on roadways under their jurisdiction must be undertaken by them or their contractor.

The City has been installing Opticom fire pre-emption equipment in the City for 25 years. Other types of pre-emption equipment are not compatible with this system. The Opticom equipment has performed well and is cost competitive. As such, it is in the City's interest to continue to expand fire pre-emption with this equipment. Alberta Traffic Supply Ltd. is the sole authorized dealer of Opticom products in western Canada and thus, staff recommend award of the supply of Opticom fire pre-emption equipment to them.

Funding will come from Surrey Fire Services NCP funds \$650,000 and Engineering Transportation Budget \$292,000.

### **SUSTAINABILITY CONSIDERATIONS**

The recommendations of this report align with the Sustainability Charter's vision to "efficiently move people and goods" and to "be a safe community". By reducing response times and minimizing the long-term operational Fire Service expansion costs, it specifically supports Charter Goal under the following specific elements:

- EC3: Sustainable Infrastructure Maintenance and Replacement; and
- EC4: Sustainable Fiscal Management Practices.

### **CONCLUSION**

Implementation of pre-emptive technology at up to 203 intersections will improve public and first responder safety and reduce emergency vehicle response times. It is also a cost effective way to reduce long term operational fire services expansion costs. The Fire and Engineering departments recommend that council approve the award of contracts to implement these works as described in this report.

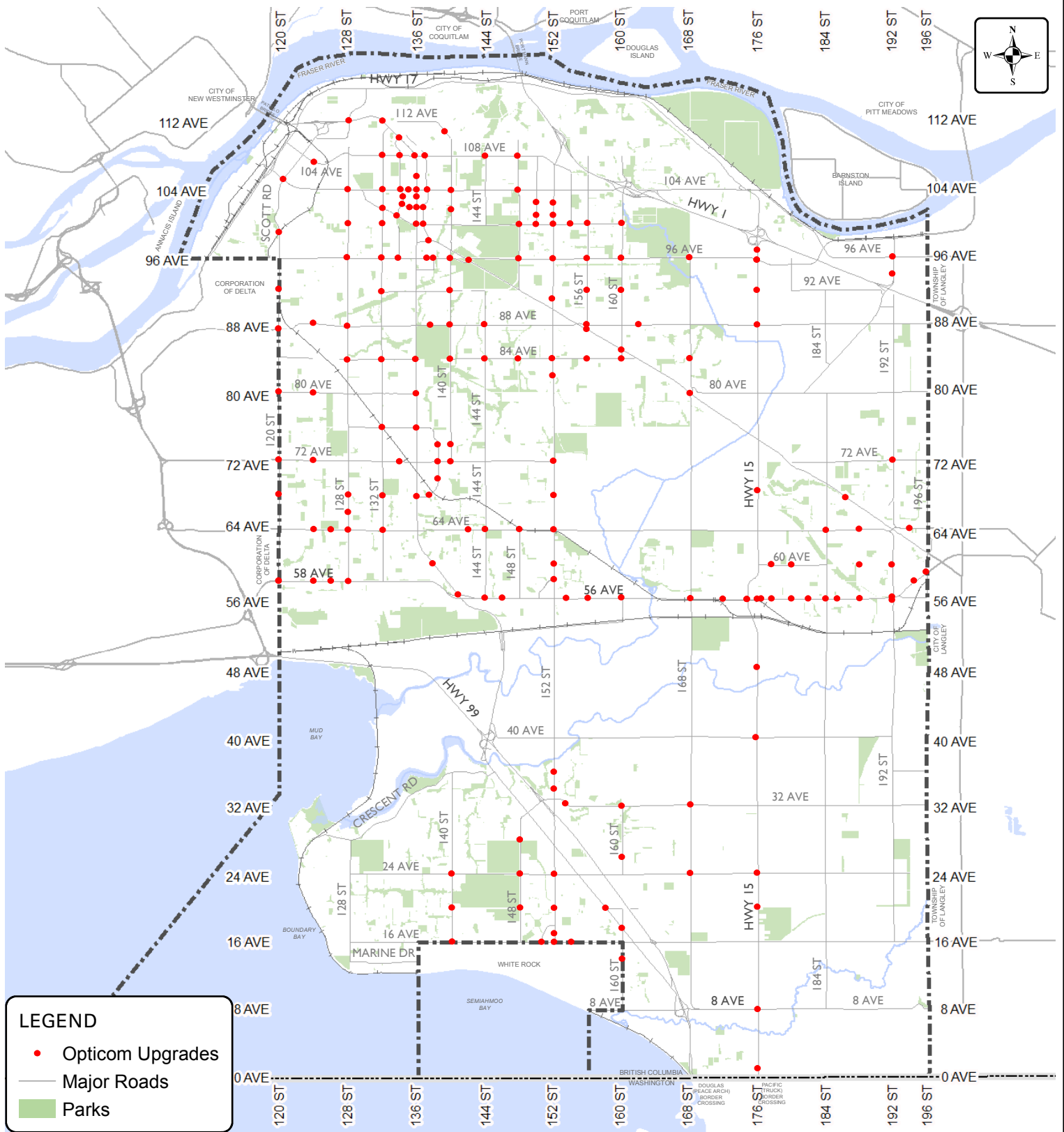
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### **Appendix I - Opticom Installation Locations**

# APPENDIX I



Produced by GIS Section: 05-Jun-2015, JJR



## OPTICOM UNIT UPGRADE RECOMMENDATION

## ENGINEERING DEPARTMENT