

CITY OF BURNABY

TRAFFIC AND TRANSPORTATION COMMITTEE
(TRAFFIC SAFETY DIVISION)

*HIS WORSHIP, THE MAYOR
AND COUNCILLORS*

SUBJECT: PEDESTRIAN CROSSWALKS ASSOCIATED
WITH MAYWOOD SCHOOL

RECOMMENDATIONS:

1. **THAT** Council approve the installation of a pedestrian signal on Imperial Street at Gray Avenue at a cost of \$110,000.
2. **THAT** Council approve the conversion of the marked crosswalk on Central Boulevard at Bonsor Avenue to a special crosswalk at an estimated cost of \$40,000.
3. **THAT** a copy of this report be sent to the Maywood Community School Council, 4567 Imperial Street, Burnaby, BC V5J 1B7.

REPORT

The Traffic and Transportation Committee (Traffic Safety Division), at its open meeting held on 2002 January 15, received and adopted the attached report responding to concerns of parents for pedestrian safety at marked crosswalks in the vicinity of Maywood School.

Respectfully submitted,

Councillor D. Evans
Chair

Councillor B. Der
Vice Chair

Councillor G. Begin
Member

: COPY - CITY MANAGER - DIRECTOR ENGINEERING - DIRECTOR FINANCE

City of Burnaby

INTER-OFFICE COMMUNICATION

TO: TRAFFIC SAFETY COMMITTEE **DATE:** 2001 12 12
FROM: ASST. DIRECTOR ENGINEERING,
TRAFFIC & ENGINEERING SYSTEMS **FILE:** 55-04-04
SUBJECT: PEDESTRIAN CROSSWALKS ASSOCIATED WITH MAYWOOD SCHOOL
PURPOSE: To respond to the concerns of parents for pedestrian safety at three marked crosswalks in the vicinity of Maywood School.

RECOMMENDATION:

1. **THAT** Council approve the installation of a pedestrian signal on Imperial Street at Gray Avenue at a cost of \$110,000.
2. **THAT** Council approve the conversion of the marked crosswalk on Central Boulevard at Bonsor Avenue to a special crosswalk at an estimated cost of \$40,000.
3. **THAT** a copy of this report be sent to the Maywood Community School Council, 4567 Imperial Street, Burnaby, V5J 1B7.

R E P O R T

1.0 INTRODUCTION

At its 2001 June 05 meeting, the Traffic Safety Committee received correspondence from the Maywood Community School Parents Council expressing concern for pedestrian safety at three marked crosswalks close to Maywood Elementary School. The crosswalks are located on Imperial Street at Gray Avenue, Nelson Avenue at the BC Parkway, and Central Boulevard at Bonsor Avenue.

2.0 BACKGROUND

Both the Imperial at Gray and Central Boulevard at Bonsor crosswalks have been the subject of discussion at previous Traffic Safety Committee meetings with the reconfirmation of the existing control.

Staff have meet with school officials and concerned area residents on a number of occasions in order to gain a greater understanding of the specific concerns faced by pedestrians at these marked crosswalks. The primary concern is focussed on motorist disregard for pedestrians either waiting to, or crossing the roadway at the marked crossings.

3.0 CROSSWALK REVIEW

A review of each crossing location has confirmed the presence of all required signage and pavement markings. In addition, vehicle and pedestrian volumes have been collected and applied to the Pedestrian Crossing Control Manual evaluation warrants and application guidelines to determine the appropriate level of crossing protection required at each location.

The crosswalk warrant evaluation is based on the number of pedestrians and the delay they encounter. As traffic volumes increase, the frequency of safe crossing opportunities decreases and delay for pedestrians increases. The warrant assumes that the delay will be reduced as each successively higher order crossing protection increasingly forces drivers to yield to crossing pedestrians. It is noted, however, that devices such as “special” crosswalks and marked crosswalks do not increase the duty of the motorist to yield beyond the Motor Vehicle Act requirements that apply at all unmarked crosswalks at intersections. While signalized crossings provide the additional impetus for the driver to stop they will, on all but the busiest roads, increase pedestrian delay.

Heavily used pedestrian signals are also disruptive to traffic signal coordination and optimization. When the desired pedestrian crossing location is close to signalized crossings/intersections, there is often the opportunity for the pedestrian to divert to the nearby signal or realize the crossing opportunities derived from signal generated gaps in the traffic stream. Accordingly the pedestrian crossing control manual directs that a pedestrian signal should be used only when **all** of the following criteria have been met:

- a. Pedestrian volumes are high and sufficient gaps in vehicular traffic are not available to accommodate the pedestrian demand.
- b. The crosswalk location is a minimum of 200m (400m preferred) from an adjacent traffic control signal or special crosswalk.
- c. Traffic volumes do not warrant full vehicular signals.”

As noted, the pedestrian crossing protection warrant is based on a comparison between pedestrian demand and implicitly pedestrian delay. Accordingly, we try to gather data at periods of high pedestrian demand as well as high vehicle flow. The number of pedestrians used in the warrant evaluation includes an additional weighting for children, seniors and persons with disabilities.

3.1 Nelson at BC Parkway

This marked crosswalk is the pedestrian link across Nelson Avenue along the BC Parkway alignment. In addition to standard markings, it is provided with an overhead illuminated sign that also downlights the marked crosswalk.

During the site inspection staff noted that the visibility of the illuminated overhead signs are slightly obscured by the SkyTrain guide way for traffic approaching from the north. In order to improve the visibility of these signs, staff have made arrangements to have them lowered.

The evaluation warrant indicates sufficient demand to justify the installation of a marked crosswalk during only one of the six hours of data collection. It is noted that this marked crosswalk was installed to provide Motor Vehicle Act crosswalk protection for Parkway users as this is a mid block location rather than to meet warrants. Hence, it would appear that the current marked crosswalk is a sufficient level of crossing protection at this location.

3.2 Imperial at Gray

This overhead illuminated crosswalk has been the subject of a report to the Traffic Safety Committee at its meeting of March, 2000. That and two subsequent staff reviews of the pedestrian demand at this crossing indicated a much lower level of pedestrian activity than that recorded most recently. Given that the catchment area for Maywood School does not extend south of Imperial Street, it would seem that this crosswalk would not necessarily be utilized by school related pedestrians. However, the most recent data does indicate a significant increase in pedestrian usage during the times immediately before and after school.

When recent data is applied to the warrant, the recommended levels of crossing protection range from no control to a pedestrian signal. The signal warrant is met by the (weighted) number of pedestrians during the times before and after school hours.

While there is sufficient demand to suggest a pedestrian signal at this location, the application guidelines require a minimum separation of 200m (400m preferred) between any existing traffic signal and the proposed pedestrian signal. In the case of the Imperial and Gray intersection adjacent signals along Imperial Street are at Sussex Avenue, some 350m to the west, and also at Central Boulevard only 170m to the east. Both locations have been indicated on Diagram #1 attached.

3.3 Central at Bonsor

Originally this dual crosswalk was installed as part of the Metrotown Bicycle Loop to provide a connection to the BC Parkway. Overhead backlit signs with downlighting are provided over the crosswalks. The collected data indicates a substantial variation in

pedestrian activity at this location by the time of day. Site observations confirm that this crossing is used by students and parents en route to and from Maywood School and during these times, the warrant analysis suggests a "special crosswalk" during the morning and a pedestrian signal during afternoon as crossing protection. However, outside of these times the current level of protection would be considered adequate.

The adjacent signalized intersections are 130m to the west and 200m east of Bonsor Avenue along Central Boulevard as illustrated in the attached Diagram #1.

4.0 CONCLUSION

The review of the three crosswalks of concern to the parents at Maywood School confirms that the level of protection at the BC Parkway crossing at Nelson Avenue is appropriate. It is also noted that the diversion of Parkway users destined for the school to the Nelson/Imperial signalized intersection is a minor one.

The warrant evaluation indicates that the demand by school oriented pedestrians at the Imperial/Gray marked crosswalk warrants a pedestrian signal. However, this crosswalk is only 170m from the Central Boulevard signal which is 30m less than the acceptable minimum. As Imperial Street is an arterial street and there is no feasible alternative crossing location (one which would increase separation), it is recommended that a signal be installed. It is recognized that outside of peak traffic hours the signal will increase pedestrian delay. A signal will cost approximately \$110,000. and there is no funding available for it at this time. Accordingly, if approved, it would be budgeted for installation in 2003. In the interim, staff will review whether it is feasible to convert the manual crosswalk to a "special crosswalk" standard on a temporary basis. A special crosswalk would add pedestrian activated flashing amber lights to the overhead signing. The cost of this temporary modification would be \$20,000. as a conduit crossing of Imperial would be required. A portion of this cost would offset some of the cost of signalization.

While pedestrian crossing demand at the dual crosswalks on Central Boulevard at Bonsor Avenue is higher than at Imperial Street, the lighter traffic flow allows for more safe crossing opportunities. While the warrant analysis suggest a pedestrian signal in the after school hour, a special crosswalk is indicated as sufficient for the two other peak hours of measurement (a marked crosswalk warrant is met during other hours). Again it is noted that the Bonsor Avenue crosswalk location significantly violates signal spacing application guidelines. In particular, it is noted that the adjacent signal to the west is only 130m to the west (while guidelines suggest 400m as desirable and 200m as a minimum). It is noted that the average spacing between signals on Central Boulevard through the Metrotown core is 165m.

Accordingly, staff propose conversion of the Bonsor Avenue crossing to a "special crosswalk" at an estimated cost of \$40,000. This installation would be budgeted for in 2003. It is expected that this crossing will be reviewed with the Central Boulevard extension west of Willingdon Avenue. It is noted that special crosswalks have not been utilized in Burnaby since the pioneering installation at Royal Oak Station. However, we anticipate that understanding of this device has increased with increasing usage in other jurisdictions.

5.0 CONCLUSION

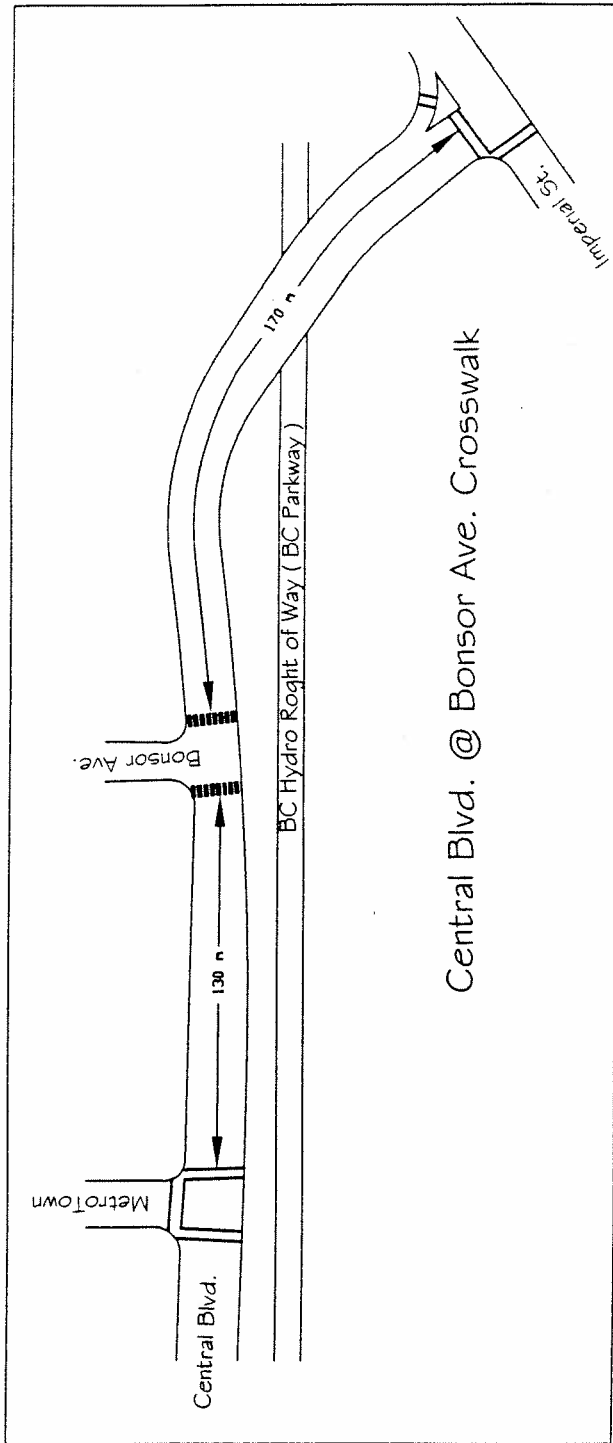
Our review of the three crosswalks that have been a source of concern to Maywood School parents results in our recommending the installation a pedestrian signal to replace the existing crosswalk of Imperial Street at Gray Avenue at a cost of \$110,000. In addition, it is proposed that the crosswalk(s) of Central Boulevard at Bonsor Avenue be upgraded to operate as special crosswalks at a cost of \$40,000. If approved, these items would be introduced in the 2003 budget year for installation.



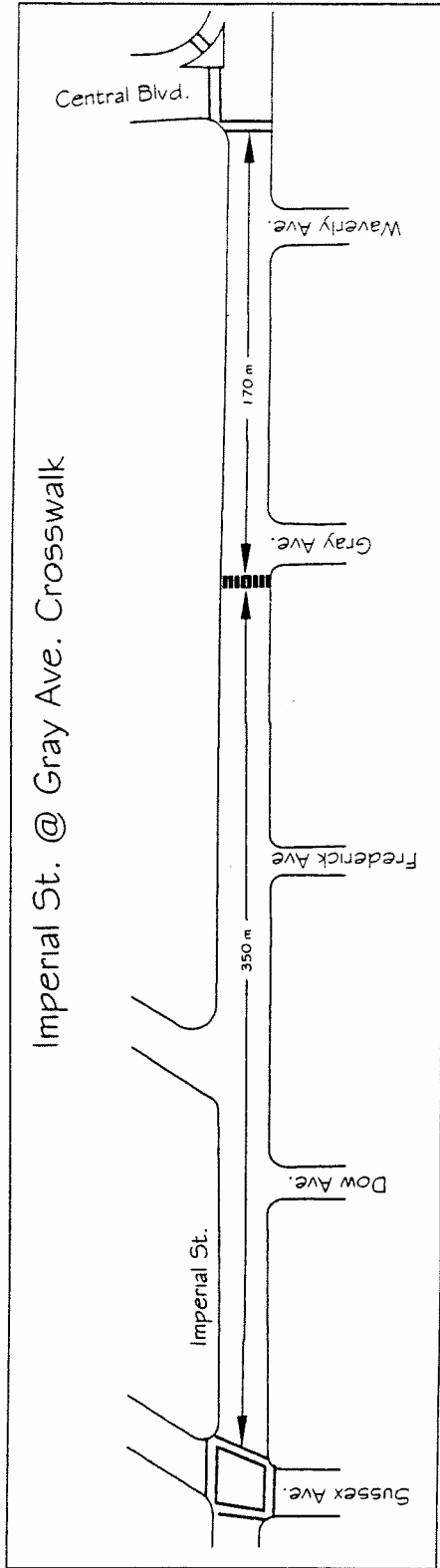
P. Lijvamaagi, P. Eng.
ASST. DIRECTOR ENGINEERING,
TRAFFIC & ENGINEERING SYSTEMS

AE
Attach.

cc: City Manager



Central Blvd. @ Bonsor Ave. Crosswalk



Imperial St. @ Gray Ave. Crosswalk

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Diagram #1

Imperial @ Gray & Central @ Bonsor Crosswalks

DRAWN BY: A.K.E

SCALE: N.T.S.

APPRV'D BY: P.L.

DATE: 01/10/29

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