REPORT
Regular Council Meeting
1989 April 17

THE CORPORATION OF THE DISTRICT OF BURNABY

TRAFFIC SAFETY COMMITTEE

HIS WORSHIP, THE MAYOR
AND ALDERMEN

REPORT OF THE TRAFFIC SAFETY COMMITTEE

Arising out of the Traffic Safety Committee meeting held 1989 April 04, the following is submitted for Council's consideration:

A. IMPERIAL STREET - GILLEY TO WALTHAM AVENUE
REQUEST FOR 30 KM/H SPEED LIMIT

RECOMMENDATIONS:

1. THAT a 30 km/h zone not be installed on Imperial Street between Gilley and Waltham Avenues.

2. THAT the crosswalk at Imperial Street and Randolph Avenue be reviewed upon completion of the new crosswalk regulation and standards option.

3. THAT the Parents Advisory Committee of Windsor School, 6166 Imperial Street, Burnaby, B.C., V5J 1G5 be sent a copy of this report.

R E P O R T

A letter dated 1989 January 30 was received from the Parent Advisory Committee of Windsor Elementary School, 6166 Imperial Street requesting placement of a 30 km/h speed zone on Imperial Street between Gilley and Waltham Avenues.

This request was referred to the Director Engineering who reported as follows:

"The installation of reduced speed limits on designated collector or arterial streets is not recommended by the Engineering Department. The reason for this position is that studies have shown that the posting of reduced speed limits on these type of streets does not accomplish the desired result. When installed, the restriction produces an increase in the number of violations without significantly changing the distribution of speeds (see Table below). It can also create a situation that is more hazardous than exceeding the speed limit. For example, observations on Duthie Avenue after the 30 km/h zone was installed noted that when some motorists chose to obey the 30 km/h limit others, who chose not to, passed them, even on a solid center line.

The following table compares two existing 30 km/h zones on collector streets; Duthie Avenue, whose 30 km/h zone is marked with oversize speed limit tabs under the blue pentagons and pavement markings, and Gilmore Avenue with Imperial Street which has an unposted 50 km/h speed limit.

INTERNAL DISTRIBUTION:
: - AGENDA - 1989 APRIL 17
: - COPY - ACTING MANAGER
- DIRECTOR ENGINEERING
- DIRECTOR PLANNING & BUILDING INSPECTION
- O.I.C., R.C.M.P.

	DUTHIE AVENUE	GILMORE AVENUE	IMPERIAL STREET
Speed	30 km/h	30 km/h	50 km/h
50th Percentile	46	40	43
85th Percentile	55	49	51
Average	45.2	40	44.1
Maximum	73	67	62
Minimum	23	25	29
Percent Exceeding Limit	94.5	87.6	17.5

Gilley Avenue, between Imperial Street and Kingsway, does not have a 30 km/h zone which is unnecessary as the speed of traffic in this block is governed by the stop signs at Imperial and the traffic signal at Kingsway. We conducted speed studies in this block during the summer when the 30 km/h zone is not in effect and found the average speed to be 29.2 km/h, with the maximum speed 38 km/h.

The volume of traffic on Imperial Street between Gilley and Randoplh Avenues has decreased. A count taken in 1983 recorded 10,946 vehicles during a 24 hour period and a similar count in 1987 recorded 8,405 vehicles.

The Municipality is currently involved in discussions with the Ministry of Transportation and Highways and all other Lower Mainland municipalities in a review of the design and placement of and warrants for pedestrian crossings. Some of the proposed changes will be contained within the Motor Vehicle Act and will be required by law, and others will be as the result of attempts to standardize the application and installation of pedestrian crossings. Upon completion of these discussions, we will be submitting a report to the Committee outlining the changes and what will be required for the Municipality to conform to them. Until such time, we are recommending that no changes be made in current policies and practices.

STAFF RECOMMENDATIONS TO THE TRAFFIC SAFETY COMMITTE:

1. THAT a 30 km/h zone not be installed on Imperial Street between Gilley and Waltham Avenues.

2. THAT the crosswalk at Imperial Street and Randolph Avenue be reviewed upon completion of the new crosswalk regulation and standards option.

3. THAT the Parents Advisory Committee of Windsor School be sent a copy of this report."

B. PEDESTRIAN SAFETY AWARENESS

RECOMMENDATION:

1. THAT Council support the proposal of R.C.M.P. Burnaby Detachment to sponsor a Pedestrian Safety Awareness Campaign in 1989.

R E P O R T

Council, at the regular Council meeting held 1989 February 20 received the Municipal Policing Quarterly Report covering 1988 October, November and December and subsequently referred the report to the Traffic Safety Committee for review.

The Committee, in reviewing the report, paid particular attention to the number of pedestrian fatalities in 1988. Of the nine pedestrians killed, the majority were elderly, dressed in dark clothing and at fault. Weather conditions were dark and wet.

R.C.M.P. Burnaby Detachment propose to launch a Pedestrian Safety Awareness Campaign in the Fall of 1989 and your Committee fully supports this initiative to educate pedestrians of all ages and reduce traffic fatalities in the Municipality.

C. FOURTEENTH AVENUE AT 19TH STREET REQUEST FOR TRAFFIC SIGNAL

RECOMMENDATION:

1. THAT Mr. David Sproule, Training and Safety Manager, B.C. Rapid Transit Company Ltd., 6800 14th Avenue, Burnaby, B.C., V3N 4S7 be sent a copy of this report.

R E P O R T

A letter was received from the Training and Safety Manager of B.C. Rapid Transit Company advising of a growing traffic problem and potential hazard at the intersection of 14th Avenue and 19th Street and requesting installation of a traffic signal at that location.

The Director Engineering reported that studies have been conducted for analysis of the subject intersection but the information has been held in abeyance pending the outcome of the Gilley Alternate review.

On 1989 February 27, Council approved the installation of a traffic signal at 19th Street and Stride Avenue which will be installed by Fall of this year. This signal would make a signal at 14th Avenue and 19th Street unwarranted due to its close proximity.

D. CLINTON STREET - BULLER TO PLUM AVENUES - SCHOOL CROSSWALK

RECOMMENDATIONS:

1. THAT the existing marked mid-block crosswalk on Clinton Street between Buller and Yule Avenues and the accompanying signage be removed.

2. THAT Mr. George A. Smith, 5807 Clinton Street, Burnaby, B.C., V5J 2N4 be advised of the decision of Council.

R E P O R T

A letter dated 1989 February 21 was received from Mr. Geo A. Smith, 5807 Clinton Street, suggesting the signing for the crosswalk on Clinton Street is inadequate as it does not clearly state the extent of the stopping or parking prohibition in the immediate vicinity.

Mr. Smith's concern was referred to the Director Engineering who reported as follows:

"Normal stopping restrictions on the approach to the crossing limit parking opportunities in front of Mr. Smith's residence.

The subject crosswalk is a marked mid-block crosswalk that is aligned with one of the main entrances to Clinton School. As the crosswalk is a marked crosswalk it is a legal crosswalk at all times and is used outside of normal school hours. The stopping restrictions are also in effect at all times and were installed in 1979 in response to concerns expressed about the limited sight distances caused by vehicles parked on the approaches to the crosswalk.

We conducted counts and observations of this crosswalk to determine its use by school children and found that during both the AM and PM peak school crossing periods the crosswalk is seldom used. We noted that the school has provided a patrol at the intersection of Clinton Street and Buller Avenue where the majority of the children are crossing.

As a result of our counts and observations we met with the Principal of Clinton School, Mrs. Hendy, to discuss the subject crosswalk and agreed that the best solution is the removal of the marked crosswalk. The Principal has been encouraging the use of the Clinton Street/Buller Avenue intersection including the provision of the school patrol at this location.

Before the removal of the crosswalk staff will be further reviewing the signing and regulation at the school including placement of the school zone pentagons, and parking/stopping restrictions immediately adjacent to the school, as well as posting the school area along Clinton, as a 30 km/h zone.

STAFF RECOMMENDATIONS TO THE TRAFFIC SAFETY COMMITTEE:

1. THAT the existing marked mid-block crosswalk on Clinton Street between Buller and Yule Avenues and the accompanying signage be removed.

2. THAT Mr. George A. Smith of 5807 Clinton Street be advised of the decision of Council."

E. HOLDOM AVENUE/BROADWAY AND HOLDOM AVENUE/LOUGHEED

RECOMMENDATION:

1. THAT left hand turns from Holdom Avenue southbound to Broadway and to Lougheed Highway be banned during the a.m. peak (07:00 to 09:00 h) on weekdays.

R E P O R T

Last autumn the Committee, concerned with traffic congestion problems at the Holdom/Lougheed and the Holdom/Broadway intersection immediately north, requested that staff examine possible solutions. In the ensuing discussion the scope of the problem was seen to be more far ranging, encompassing much of the residential corridor between Hastings and Lougheed, east of Holdom.

The Director Engineering reported as follows:

"Staff considered and rejected various means of gleaning origin-destination information and settled for a comprehensive intersection count programme. These intersection counts have been analyzed, and while they provide some further insight to understanding the growing congestion problem they offer no indirect solution to the more specific problem at the intersections of Holdom at Broadway and at Lougheed.

Observations and turning movement counts at these intersections indicate the following:

(i) There is a heavy demand for the left turn from Broadway westbound to Holdom southbound. Queuing results because Broadway is stop sign controlled while Holdom has through priority.

(ii) On the southbound approach to Lougheed Highway there are two lanes but left turning movements effectively pre-empt one lane forcing the heavy right hand turn to Lougheed westbound to contend with the southbound through movement.

(iii) The problem(s) described above appear to be confined to the weekday morning peak alone. At other times the intersections function as well as might be expected.

(iv) The scope for revising intersection priority/control at Broadway/Holdom is very limited because of the proximity of the intersection to Lougheed Highway. In any case part of the problem is at Lougheed/Holdom.

At this stage we believe that the problem can be mitigated if the left hand turns from Holdom southbound to Broadway and to Lougheed Highway were banned during the a.m. peak (07:00 to 09:00h) on weekdays.

This measure would allow for the fuller utilization of the southbound approach capacity on Holdom at Lougheed and enhance the opportunity for Broadway westbound left turns (to Holdom southbound). We do not believe that we would seriously inconvenience the relatively small number of left turners who would suffer the ban. Long distance commuters could access the Lougheed via the BNR overpass at Kensington while those travelling a shorter distance could travel southbound across Lougheed and circle back to access Lougheed eastbound.

We would of course monitor the intersections to determine the efficiency of this approach and whether further action is required.

STAFF RECOMMENDATION TO THE TRAFFIC SAFETY COMMITTEE:

1. THAT left hand turns from Holdom Avenue southbound to Broadway and to Lougheed Highway be banned during the a.m. peak (07:00 to 09:00 h) on weekdays."

F. YIELD SIGN CONVERSION

RECOMMENDATION:

1. THAT Council receive this report for information purposes.

REPORT

Staff report that, at a small number of locations throughout the Municipality, there are intersections where traffic is controlled by Yield signs. These signs were installed at locations where a stop sign was not warranted but some control was felt to be needed. In principle this application of yield signs as a 'junior' stop sign is appealing and works well in other countries where yield signs are a common form of control and stop signs are much less frequently applied. Here yield signs are predominantly used at merges and infrequently (if at all) at intersections. The City of Vancouver for example has no yield signs at intersections. This anamolous albeit legitimate use of yield signs results in driver confusion and, in a few locations, accidents. As a consequence staff will be removing yield signs and replacing them with stop sign control unless directed otherwise.

G. FELL AVENUE AT KITCHENER STREET AND FELL AVENUE AT WINCH STREET - PROPOSED CHANGE OF TRAFFIC CONTROL

RECOMMENDATIONS:

1. THAT stop signs be installed on Kitchener Street at Fell Avenue.

2. THAT stop signs be installed on Fell Avenue at Winch Street.

R E P O R T

The Director Engineering reported as follows:

"**Fell Avenue at Kitchener Street**

The existing traffic control at the intersection consists of yield signs that were installed in 1961 giving the right-of-way to Kitchener Street. Both streets are constructed to an 8.5 metre pavement standard curb-to-curb. Both streets to some extent function as local collectors but are not designated as such. Kitchener Street in the eastbound direction has and will continue to function as a bus route until 1989 September.

In response to complaints about the effectiveness of the yield signs, advance warnings of the yield signs were installed in 1985 December. In 1988, six reported accidents occurred at the intersection, one of which involved a cyclist. This history seems to indicate motorists' uncertainty when encountering these yield signs and demonstrates the need for a more positive type of traffic control. Since the accident history over the last three years is close to meeting the warrant adopted by the Traffic Safety Committee for the installation of a two-way stop, we feel this type of control is justified. Installing stop signs on Fell Avenue, however, could result in Kitchener Street functioning as a local collector. Therefore, we are recommending the installation of stop signs on Kitchener Street at Fell Avenue. If implemented, a brief transition period would ensue to allow motorists time to adjust.

Fell Avenue at Winch Street

The Committee-adopted warrant for stop sign control at isolated intersections has been met for the south leg of Fell Avenue. Our efforts to improve sight distance at the intersection have not reduced the frequency of right-angle collisions over the last year. In view of this, we are recommending stopping Fell Avenue in favour of Winch Street to discourage the use of Fell Avenue as a collector route.

STAFF RECOMMENDATIONS TO THE TRAFFIC SAFETY COMMITTEE:

1. THAT stop signs be installed on Kitchener Street at Fell Avenue.

2. THAT stop signs be installed on Fell Avenue at Winch Street."

H. INTERSECTION OF SPERLING AVENUE AND HALIFAX STREET

RECOMMENDATION:

1. THAT a fully actuated traffic signal be installed at the intersection of Sperling Avenue and Halifax Street.

R E P O R T

The Director Engineering reported as follows:

"The subject intersection has exhibited a poor accident record for the past few years. Until 1988 the accident rate was fairly constant, 9 in 1985, 9 in 1986, and 7 in 1987. In 1988 there were 17 accidents. As a comparison, the signalized intersection at Curtis Street and Sperling Avenue had 6 accidents in 1988 and the intersection of Kensington Avenue and Curtis Street, also signalized, had 4 accidents in 1988. Over the past few years several improvements have been made to the approaches on Halifax Street to ensure that drivers are aware of the presence of the stop signs.

Stop ahead signs and pavement markings have been installed and 75 cm instead of 60 cm stop signs are in place at this intersection. Visibility of these signs does not appear to be a factor in the high accident rate.

We conducted automatic and manual vehicle counts at this intersection and reviewed the warrants for both four way stop control and traffic signal control. A summary of the results of our analysis follows.

I Four Way Stop Control

This intersection was evaluated using the Counts P.C. computer program. This program provides an analysis of the traffic volumes, accident statistics and delay to vehicles based on the U.S. Federal Highway Administration warrant from the Manual on Uniform Traffic Control Devices (MUTCD), 1978.

This warrant has been used by Burnaby since its introduction and generally provides an accurate analysis of the intersection in question.

Four conditions must be satisfied in order for this warrant to be met.

1. At least five accidents in the past year of a type that may be reduced by four way stop control, such as right angle or turning collisions.

2. The total traffic travelling through the intersection must be at least 500 vehicles per hour for any 8 hours of an average weekday.

3. For the same 8 hours, the cross street traffic must be at least 200 vehicles per hour.

4. The delay to crossing vehicles must average 30 seconds per vehicle.

The Sperling Avenue and Halifax Street intersection satisfied the accident portion of the warrant but only 6 hours of the day met conditions 2 and 3. During our manual traffic counts, our staff observed that the average delay was less than 20 seconds which failed to satisfy condition 4.

In general, four way stops are most effective at intersections where traffic volumes are similar on the main and cross streets. Our automatic counts indicated volumes of 8800 vehicles per day on Sperling Avenue and volumes of 4100 on the east leg and 2500 on the west leg of Halifax. The differences are due to turning vehicles. Because of this disparity in traffic volumes, vehicles on Sperling Avenue may be unnecessarily delayed at times during the day when very little traffic present on Halifax.

Based on our observations, the traffic volumes and the warrant analysis, we concluded that a four way stop would not be suitable at this location.

II Traffic Signal

We evaluated this intersection for suitability to traffic signal control using the Roads and Transportation Association of Canada (RTAC) warrant and the U.S. Federal Highway Administration MUTCD warrants.

The RTAC warrant evaluates the intersection by assigning point values to accidents, traffic volumes, the possibility of coordinating the proposed signal with existing signal, and the possibility of drawing traffic to the new signal upon installation.

The warrant is considered satisfied when an intersection totals 100 points or more. Based on our calculations, this intersection totalled 88.1 points.

The Federal Highways Administration MUTCD warrants were also evaluated with our Counts P.C. computer program. There are 11 seperate warrants to be considered for each intersection, some of which are not applicable in each case. Of the applicable warrants, this intersection only satisfied the requirements of the peak hour volume warrant. A traffic signal should not be installed solely on the basis of this warrant.

Conclusion

This intersection has a very high accident rate in spite of previous attemts to enhance the visibility of the existing stops signs. There are no additional minor improvements that we can suggest to reduce the number of accidents.

The intersection is close to meeting the four way stop warrant but we have demonstrated that this control is not desirable due to the significant difference in traffic volumes on the two streets. The intersection is close to meeting the RTAC signal warrant and meets the peak hour volume warrant in the Federal Highways Administration MUTCD. Based on the comparison of accident rates with two of the nearest traffic signals, Curtis-Sperling and Curtis-Kensington, both intersections being similar in configuration to Sperling-Halifax, we can expect to reduce the number of accidents by the installation of a traffic signal. This traffic signal should be fully-actuated to allow the signal to adjust constantly to variations in traffic volumes and minimize delay to all vehicles and pedestrians using the intersection.

STAFF RECOMMENDATION TO THE TRAFFIC SAFETY COMMITTEE:

1. THAT a fully-actuated traffic signal be installed at the intersection of Sperling Avenue and Halifax Street."

I. PHILLIPS AVENUE AND WINSTON STREET

RECOMMENDATIONS:

1. THAT the R.C.M.P. be asked to increase radar surveillance at the subject intersection.

2. THAT Colin W. Bennett, Vice President and Secretary Treasurer, Freightliner of Canada Ltd., 4242 Phillips Avenue, Burnaby, B.C., V5A 2X3, receive a copy of this report.

R E P O R T

A letter was received from Freightliner of Canada Ltd., 4242 Phillips Avenue, Burnaby regarding the volume and speed of traffic, particulary travelling east on Winston Street passing Phillips Avenue.

This matter was referred to the Director Engineering who reported as follows:

"The subject intersection is currently stop-sign controlled with Winston Street having the right of way. Winston Street is designated industrial major collector and constructed to a 14 metre pavement standard curb-to-curb. The north leg of Phillips Avenue is a minor residential collector and constructed to a 6 metre interim pavement standard. The south leg of Phillips Avenue is an industrial service road and constructed to a similar interim pavement standard.

Traffic volumes obtained for the intersection in 1989 February were as follows:

Winston Street	13,600 V.P.D.	(Weekday only)
Phillips Avenue (north leg)	4,000 V.P.D.	" "
Phillips Avenue (south leg)	2,000 V.P.D.	" "

An evaluation of the intersection for traffic signal warrants presented in the "Manual on Uniform Traffic Control Devices", endorsed by the Institute of Traffic Engineers (I.T.E.) produced the following summarized results:

1. Warrants relating to large volumes of conflicting traffic, gaps for safe pedestrian crossing and accident prevention, were not met. This was largely due to low sidestreet volumes for the majority of the day, few pedestrians and only three reported accidents in the last three years deemed correctable by traffic signal installation.

2. Warrants involving the possible need to interrupt continuous traffic to provide gaps for the sidestreet, and peak period delay to the sidestreet were met. It should be noted that almost any sidestreet intersecting with a high volume collector or arterial could meet these warrants.

A second evaluation of the intersection for the traffic signal warrant presented in the "Uniform Traffic Control Devices for Canada" manual, endorsed by the Roads and Transportation Association of Canada (R.T.A.C.), produced these summarized findings:

1. The installation of a traffic signal could result in an overall net increase in intersection accidents because of the usual increase in rear-end collisions associated with this type of control.

2. Crossing gap, intersecting volume, vehicle delay, and vehicular stop analyses included in this warrant yielded high priority points for signal installation. Again, we have found from past experience that an intersection that is more than two Kilometres in any direction from any other signalized intersection and handles a high mainstream volume will almost certainly meet 100% of the priority points required.

The intersection does not meet either the R.T.A.C. or I.T.E. endorsed warrants for a multi-way stop sign installation. Multi-way stops are most effective when installed on intersecting streets that have close to equal approach volumes. The mainstreet-sidestreet volume split is approximately 70/30 in this case and would be condusive to low compliance by motorists in off-peak hours.

Observations that were made during peak periods indicated that the difficulties that vehicles were having exiting the south leg of the intersection, happened primarily in the evening rush hour. The two main causes of these difficulties appeared to be the geometrics of the intersection and the excessive speed of traffic on Winston Street. A possible alternative egress point for Freightliner of Canada employees who make up the majority of motorists exiting onto Winston Street would be at Remi Place, a "T" intersection with better sight distance characteristics. In order to achieve this, Freightliner of Canada would be required to dedicate and construct a portion of roadway in conformance with the subdivision plans for the area (See Appendix 'A' attached).

STAFF RECOMMENDATIONS TO THE TRAFFIC SAFETY COMMITTEE:

1. THAT the R.C.M.P. be asked to increase radar surveillance at the subject intersection.

2. THAT Colin W. Bennett, Vice President and Secretary Treasurer, Freightliner of Canada Ltd., 4242 Phillips Avenue, Burnaby, B.C., V5A 2X3, receive a copy of this report."

Respectfully submitted

Alderman J. Young
Chairman