

CITY OF BURNABY

TRAFFIC AND TRANSPORTATION COMMITTEE
(TRAFFIC SAFETY DIVISION)

*HIS WORSHIP, THE MAYOR
AND COUNCILLORS*

H. PARKER/CURTIS STREET AT HOLDOM AVENUE

RECOMMENDATIONS:

1. *THAT* Council direct staff to request financial support from ICBC in the amount of \$7,000 to assist in the implementation of the first priority improvements as described in this report.
2. *THAT* Council direct staff to proceed with a detailed design and cost estimate for the second and third priority improvements as described in this report.
3. *THAT* a copy of this report be sent to Mr. Dean Buchanan of 5588 Meadedale Drive, Burnaby, B.C. V5B 2E8.

REPORT

The Traffic and Transportation Committee (Traffic Safety Division), at its meeting held on 1996 December 03, adopted the *attached* report identifying several improvements to the Parker Street/ Holdom Avenue intersection which address a variety of traffic safety concerns.

MEMBERS:

Mr. N. Smith
Mr. D. Berardine
Mrs. M. Canessa
Mr. E. Fourchalk
Ms. L. Kapp
Mrs. D. Mumford
Mr. D. Ramsbotham
Mr. D. Richardson
Mr. A. MacDonald

Respectfully submitted,

Councillor J. Young
Chairman

Councillor D. Evans
Member

: COPY - CITY MANAGER
- DIRECTOR ENGINEERING
- DIRECTOR FINANCE

City of Burnaby

INTER-OFFICE COMMUNICATION

TO: TRAFFIC SAFETY COMMITTEE DATE: 1996 11 25
FROM: ASST. DIRECTOR ENGINEERING, FILE: 55-01-04
TRAFFIC & ENGINEERING SYSTEMS
SUBJECT: PARKER/CURTIS STREET AT HOLDOM AVENUE
PURPOSE: To advise the Committee of the results of the review of the above intersection by the consulting firm G.D. Hamilton Associates.

RECOMMENDATIONS:

1. THAT staff request financial support from ICBC in the amount of \$7,000 to assist in the implementation of the first priority improvements as described in this report.
2. THAT staff proceed with a detailed design and cost estimate for the second and third priority improvements as described in this report.
3. THAT a copy of this report be sent to Mr. Dean Buchanan of 5588 Meadedale Drive.

REPORT

1.0 BACKGROUND

Attached to this report is the Executive Summary of a report titled "Traffic Operations Review for the Intersection of Holdom Avenue and Parker Street, Burnaby." This report was co-funded by the City of Burnaby and ICBC to identify safety improvements for this intersection. The complete report is available from the Assistant Director Engineering, Traffic and Engineering Systems for review by Committee members. The results of the study have been summarized below.

2.0 INTRODUCTION

The consultant's report recommends several improvements that address many of the safety concerns at this intersection. The recommendations have been prioritized in terms of overall effectiveness and ease of implementation. Each improvement has been estimated and includes a suggested level of funding support from ICBC to achieve a cost benefit ratio of 2:1. As outlined in the Executive Summary, the recommended improvements are as follows.

3.0 FIRST PRIORITY MEASURES

3.1 Optimize Traffic Signal Timings

Optimization of traffic signal timings has been recommended to improve intersection capacity, reduce traffic congestion, and, subsequently, reduce driver frustration and aggressive driving behaviour.

Staff are currently engaged in a comprehensive review of the traffic signal timings at all intersections along the Parker/Curtis corridor. A future report will detail the results of this review.

3.2 Improve Traffic Control Devices

The consultant has recommended that the existing 200mm diameter signal lenses be replaced with 300mm diameter lenses. The larger lenses have been used on all primary (overhead) traffic signal head displays at City owned intersections for the past several years. This intersection pre-dates the introduction of this standard. Also recommended is the installation of a second primary signal head on the westbound approach to improve visibility of the signal display on this approach.

3.3 Improve Pavement Markings

Marking of arrows to clearly indicate permitted lane use has been recommended to reduce weaving maneuvers. The marking of cross-hatching has been suggested as a means of discouraging the illegal passing on the right that occurs on the westbound approach. The marking of left turn lanes for north and southbound Holdom Avenue has been proposed to improve the level of service on these legs of the intersection and reduce the number of weaving maneuvers that occur on these approaches.

To further improve the visibility of pavement markings at this location, staff are proposing to use "Stamark" lining tape for the lane lines and traffic arrows within 60m of this intersection. This product has proven to offer far superior visibility, especially in adverse conditions, and service life to standard paint markings. It was introduced on several roads in Burnaby during the 1996 pavement rehabilitation program. The markings on Deer Lake Parkway between Canada Way and Gilpin Street were installed using this product.

3.4 Cost Estimate

These improvements have been summarized on Figure 1 attached to this report. The estimated cost of the first priority improvements is \$23,000. The consultant has recommended that ICBC contribute 30% towards these improvements. Staff recommend that ICBC be asked for \$7,000 in funding. Funding for the City share of these costs is available in the Signs & Markings component of the 1997 Provisional Operating Budget.

4.0 SECOND PRIORITY

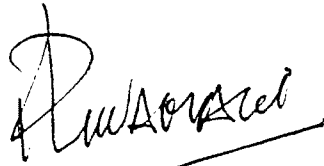
The consultant found that almost 50% of the collisions at this intersection occurred during wet conditions. Based on these findings, the consultant has recommended that pavement grooving be installed on the westbound approach to increase the pavements coefficient of friction during wet conditions. This improvement would improve vehicle stopping distances during wet conditions and could be expected to be most effective in reducing rear end collisions.

This improvement has been summarized on Figure 2 attached to this report. The cost of this improvement is \$7,000. The consultant has recommended that ICBC contribute 70% towards these improvements.

5.0 THIRD PRIORITY

The third priority includes the construction of a right turn traffic island and the construction of curbs on the east and westbound approaches to separate the parking lanes from travel lanes. Currently the separation of the westbound right turns and the parking lanes from through traffic is accomplished through the use of pavement markings and delineator posts. These passive devices are easily circumvented contributing to unsafe driving practises. Construction of these improvements would virtually eliminate the illegal passing on the right maneuvers that contribute to collisions in the vicinity of this intersection.

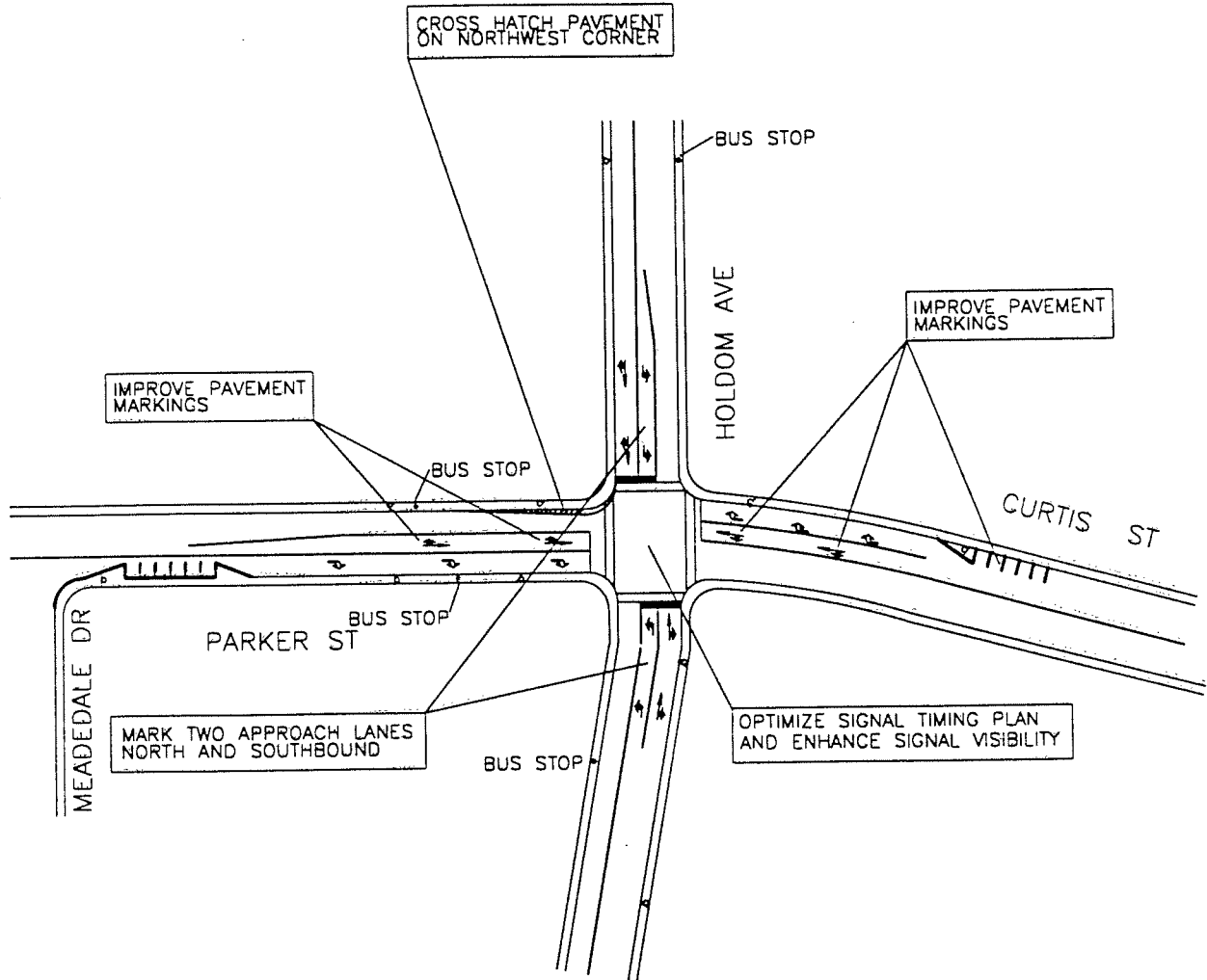
These improvements have been summarized on Figure 2 attached to this report. The consultant has estimated the cost of these improvements at \$20,000. The consultant has recommended that ICBC contribute 25% towards these improvements. However, as this estimate was prepared without the benefit of a detailed design which was beyond the scope of this report, staff recommend that a detailed design be prepared to allow for a more detailed construction estimate. Upon completion of this detailed design and estimate, staff will report back to the Committee.



~~ASST. DIRECTOR ENGINEERING,~~
TRAFFIC & ENG. SYSTEMS

BB:
Attach.

cc: City Manager



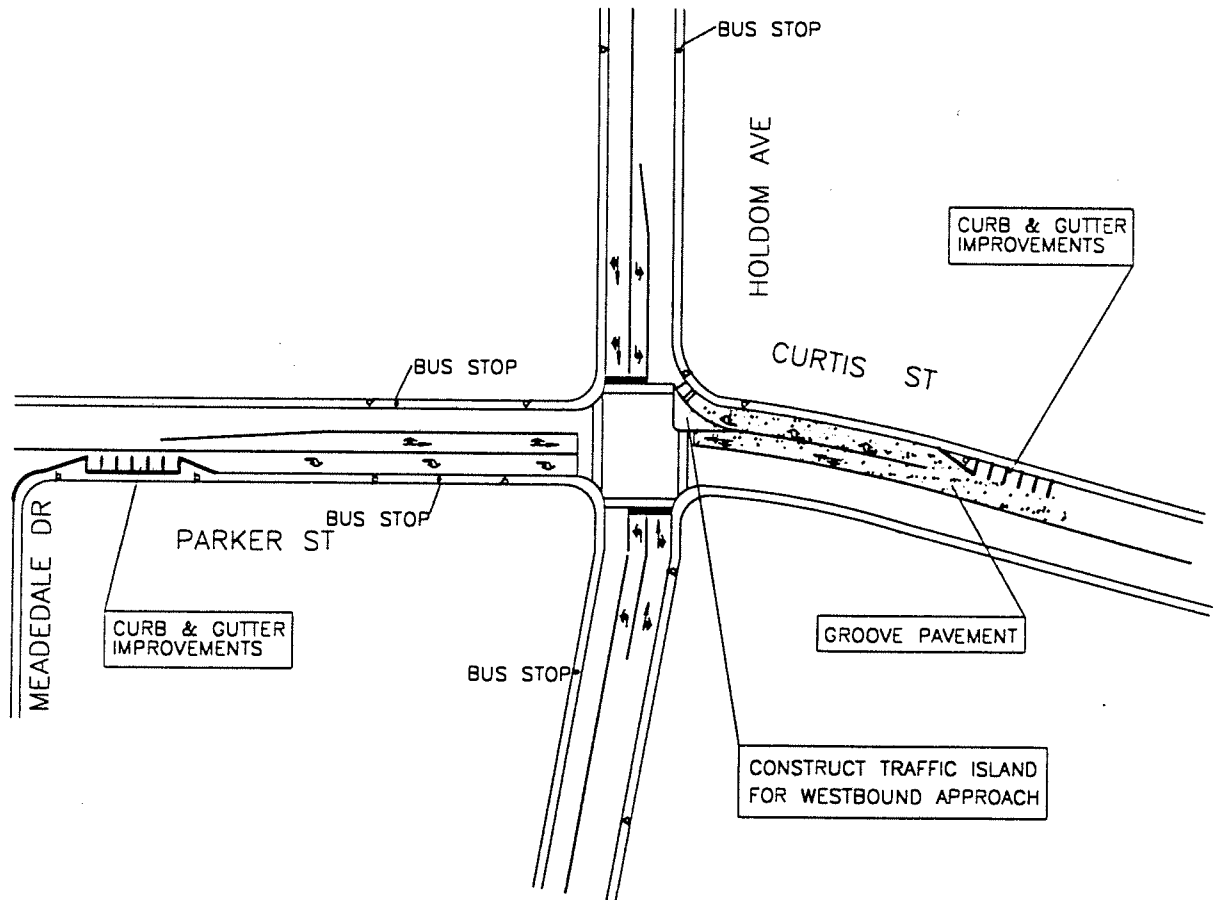
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NO.	DATE	REVISION



FIGURE 1 PRIORITY 1: OPERATIONAL IMPROVEMENTS (SCHEMATIC)

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FIGURE 2 PRIORITY 2 & 3: GEOMETRIC IMPROVEMENTS (SCHEMATIC) 104

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APPRV'D BY: CDL	DATE: 96-11-26	

EXECUTIVE SUMMARY

The intersection of Holdom Avenue and Parker Street has been identified by the City of Burnaby as a location with a relatively high collision rate. Therefore, a comprehensive traffic operations review was initiated by the City and the Insurance Corporation of British Columbia (ICBC), with the goal of improving the safety of traffic operations at this location.

A systematic approach was followed to determine the traffic operational deficiencies at the study intersection. Traffic count data was reviewed, and the intersection capacity was evaluated. Summaries of reported motor vehicle collisions were reviewed and a traffic conflict survey was conducted at the study intersection. As required by ICBC, an economic evaluation of the improvement requirements was conducted to determine the potential for ICBC to invest in implementing the recommended improvements.

Based on the findings of the traffic operations review, the deficiencies identified for the intersection of Holdom Avenue and Parker Street are:

- Insufficient capacity for several movements during the afternoon peak period.
- Inconspicuity of signal heads.
- Weaving conflicts involving through vehicles attempting to avoid delays behind left-turn vehicles.
- Rear-end collisions and conflicts involving westbound vehicles.
- Left-turn opposing collisions and conflicts from all approaches.

A number of improvement strategies were formulated to ameliorate these identified deficiencies. The strategic plan was to reduce the risk of collisions and conflicts by optimizing the capacity of the intersection, improving the traffic control devices and improving the geometry.

1. Optimize Capacity

Optimizing the capacity of the intersection within the existing geometry will reduce the amount of congestion and collision risk during the peak periods. In addition, driver frustration and aggressive driver behaviour may be reduced. To optimize capacity, the City of Burnaby could revise the signal timing plan and mark additional lanes on the north and south approaches. The cost of these improvements is minimal since the traffic signal controls can accommodate the required timing changes and the additional lanes could be marked within the existing pavement width.

2. Improve Traffic Control Devices

Traffic control devices guide motorists through intersections safely and efficiently. An improvement in these devices may reduce driver confusion which may lead to fewer collisions. At the intersection of Holdom Avenue and Parker Street, it is recommended that the visibility of the traffic signals be enhanced and the pavement markings be improved.

The visibility of the traffic signals could be enhanced by increasing the size of the heads from a 20 centimetre lenses to 30 centimetre lenses for the red, amber and green signal indications. It is expected that the larger signal heads will reduce the number of rear-end and crossing collisions.

Several improvements to the intersection lane markings were recommended to reduce collisions and conflicts. The first recommendation is to use pavement arrows to mark the permitted movements on the eastbound and westbound through and left-turn lanes. This improvement may reduce the number of weaving conflicts on these approaches. To deter motorists from using the westbound right turn lane as a through lane it is recommended that cross hatching be used on the pavement in the northwest corner of the intersection. A third recommendation with respect to pavement markings is to fully delineate the parking spaces on the eastbound and westbound approaches. This improvement is expected to reduce the number of rear-end conflicts and collisions while contributing to the proper channelization of traffic.

3. Improve Roadway Geometry

Another method of increasing the safety of the intersection is to improve its geometry. To improve the geometry of the study intersection, it is recommended that the pavement be grooved and a right-turn island be constructed for the westbound approach.

The westbound approach has a steep grade and a horizontal curve. To reduce the average stopping distance for vehicles on this approach, pavement grooving is recommended on Curtis Street. Almost 50 percent of the collisions at the study intersection occurred when the pavement surface was wet. Pavement grooving will improve the performance of the pavement during wet conditions by increasing the pavement's coefficient of friction. This improvement is expected to reduce the number of rear-end collisions.

To reduce weaving conflicts on the westbound approach, it is recommended that a right-turn island be constructed to separate the right-turn vehicles from the through and left-turn lane. This could be accomplished by widening the approach and constructing a traffic island at the northeast corner of the intersection.

Based on the recommended improvements to the study intersection, three priorities were developed. The priorities consist of combinations of independent improvements.

The City of Burnaby's first priority should be to optimize the signal timing plan, mark additional lanes on the north and south approaches, improve the pavement markings and enhance the signal visibility. These improvements are expected to reduce collisions by 15 to 20 percent. The cost of the first priority improvements is estimated at \$23,000. It is recommended that ICBC contribute between \$7,000 and \$10,000 to obtain a return on investment ratio of at least 2:1.

The City's second priority should be to groove the pavement on the westbound approach. The cost of this improvement is estimated at \$7,000. ICBC could invest between \$5,000 and \$7,000 for this improvement and obtain the desired return on investment.

The third priority for the City of Burnaby should be to provide a right-turn island for the westbound approach. The cost of this improvement is estimated at \$20,000. To obtain the desired rate of return for this priority it is recommended that ICBC contribute between \$5,000 and \$7,000.

By improving the lane channelization and signal visibility, the number of collisions and conflicts at the intersection of Parker Street and Holdom Avenue is expected to decrease. If all of the recommended improvements are implemented, ICBC may consider investing between \$15,000 and \$20,000 towards the improvement of the Holdom Avenue and Parker Street intersection.

