
TO: CITY MANAGER **DATE:** 2018 January 23

FROM: DIRECTOR ENGINEERING **FILE:** 38000 20
Ref: Traffic Safety

SUBJECT: CROSSWALK CONCERNS AT 7200 CARIBOO ROAD

PURPOSE: To assess the need for safety improvements at the crosswalk located at 7200 Cariboo Road.

RECOMMENDATIONS:

1. **THAT** Council approve the installation of a full traffic signal at the existing marked crosswalk at 7200 block Cariboo Rd, and the removal or relocation of an existing bus stop as detailed in this report.
2. **THAT** Council authorize the City Solicitor to bring forward a Capital Reserve Bylaw in the amount of \$450,000 to finance the proposed traffic signal.
3. **THAT** Council send a copy of this report to the numerous residents who expressed a concern about the existing crosswalk.

REPORT**BACKGROUND**

In 2017 the City received a number of requests for upgrades to the crosswalk at the 7200 block Cariboo Rd. Similar requests for a traffic signal at the intersection of Cariboo Rd and Cariboo Dr located 140 meters south of the crosswalk were also received. In response, a report recommending changes to the intersection of Cariboo Rd and Cariboo Dr was endorsed by the Public Safety Committee and approved by City Council on 2017 December 04. The recommendations included design modifications to the intersection to facilitate left turns from Cariboo Dr and slow vehicles along Cariboo Rd, the installation of a Speed Reader Board for northbound vehicles travelling in the downhill direction, and targeted speed enforcement by the RCMP. The analysis completed showed that a traffic signal was not warranted largely due the very low volume of vehicles and pedestrians crossing Cariboo Rd at Cariboo Dr. Currently the intersection modifications are being designed and construction is scheduled for later this year. The Speed Reader Board was installed on 2018 January 09.

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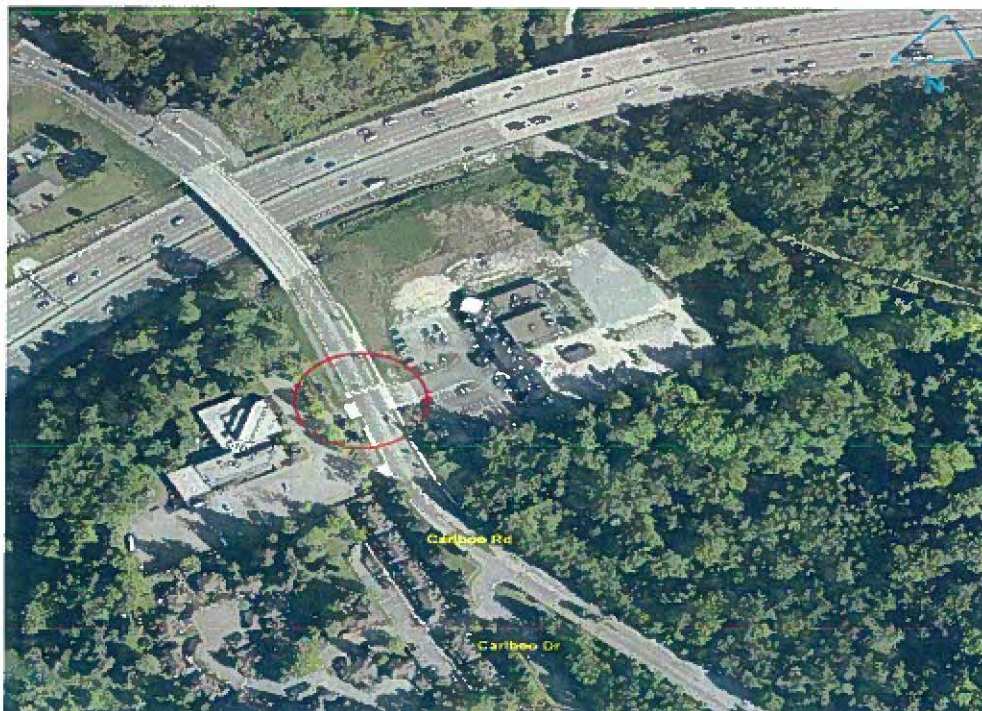
A review of the crosswalk at the 7200 block Cariboo Rd also began last year. The preliminary analysis showed that a traffic signal was not warranted again due to the very low volume of vehicles (30 vehicles/hour in the peak hour) and pedestrians (average of 3 pedestrians per hour) crossing Cariboo Rd. Tragically, a pedestrian was fatally struck at the crosswalk on 2018 January 17.

The following day, a crash between a cyclist and left turning vehicle occurred in the vicinity of the crosswalk, but it is believed to be unrelated to the use of the crosswalk. On 2018 January 20, another pedestrian at the crosswalk was struck by a vehicle that left the scene. Although the RCMP investigations of the recent crashes have not been completed, the recommendations in this report are being advanced because of the set of extraordinary circumstances and the need to provide a timely response to the safety concerns.

SITE LOCATION

Figure 1 shows the location of the subject crosswalk at the 7200 block Cariboo Rd. It is 100 metres south of the Trans-Canada Hwy overpass and 140 metres north of the 'T'-intersection of Cariboo Rd and Cariboo Dr. The crosswalk is marked with zebra stripes along the pavement and has side and overhead mounted signs. It is directly north of two driveway accesses. The driveway on the west side of the road leads to the Cariboo Hill Temple and Salvation Army offices. The driveway on the east side of the road leads to the Cariboo Road Christian Fellowship. Transit bus stops are located on both sides of Cariboo Rd near the crosswalk.

Figure 1: Location of crosswalk at 7200 Cariboo Rd



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EXISTING TRAFFIC CONDITIONS

Cariboo Rd is a Major Collector carrying 1,340 vehicles per direction for a total of up to 2,670 vehicles in both directions in the peak hour. At the crosswalk, there is a single traffic lane and bike lane in each direction, and a left turn bay for vehicles turning into the adjacent driveways. The crosswalk is located in a straight, flat section of roadway to maximize visibility, but the roadway curves 80 meters to the south and rises uphill at a grade of about 8%. 80 meters north of the crosswalk, the road rises slightly up to the Highway overpass with a slight curvature. The limited sight condition is mitigated with the presence of advance pedestrian crossing warning signs 65-75 meters in advance and overhead signs located above the crosswalk.

Traffic speed information from the recently installed Speed Reader Board has shown that northbound downhill vehicles along Cariboo Rd are travelling at an average speed of approximately 60 km/h during most of the day, and rising significantly in the very early morning hours when few vehicles are on the road. The 85th percentile speed (the speed at which 85% of all vehicles are travelling below) is approximately 70 km/h, again rising significantly above this in the very early morning hours. Northbound traffic is continuing to travel above the speed limit of 50 km/h, despite the installation of the Speed Reader Board as a warning.

A review of crash data provided from ICBC along the 7200 block of Cariboo Rd within the last 5 years (2012-2016) revealed 3 were in the vicinity of the crosswalk all related to rear end crashes. There were no crashes resulting in injuries to pedestrians or cyclists. Crash data from 2017 is not available from ICBC, however based on complaints received from the public there is reason to believe that they may have increased compared to prior years.

The usage of the bus stops located near the crosswalk on either side of the Cariboo Rd was also reviewed and the number of bus boardings and alightings correlate strongly to the pedestrian counts obtained. It appears that the majority of pedestrians using the crosswalk are transit users.

ASSESSMENT

Although the circumstances surrounding the two recent pedestrian crashes are still under RCMP investigation, there are some conclusions that may be drawn from available information. High traffic speeds as evidenced by the Speed Reader Board may be a significant and contributing factor. Both pedestrian crashes occurred when conditions were dark suggesting that the visibility of pedestrians is also a factor. Also known is the fact that traffic volumes using Highway 1 have increased because of the elimination of tolls last year in September. This likely has increased traffic volumes along roads like Cariboo Rd that lead to and from the Highway. Traffic counts will be scheduled to verify this potential change. What has been determined is that traffic volumes have increased by about 14% along Cariboo Rd during peak periods between 2014 and 2017 (prior to tolls being removed from the Highway).

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All of the above factors combined with the horizontal and vertical curvature of the road north and south of the crosswalk could negatively impact the operation of the marked crosswalk that has functioned reasonably in the past. Poor driver compliance (not stopping for pedestrians waiting to cross the crosswalk) has also been observed in the field under good conditions. All of the foregoing suggests that enhancements to the existing crosswalk are necessary despite the fact that a traffic signal may not be technically warranted.

A range of potential enhancements were considered for the crosswalk. One is upgrading it to a Special Crosswalk with illuminated overhead signs with down lighting and pedestrian activated flashing beacons. This is the minimum recommended. It would help alert drivers to the presence of pedestrians crossing the street and improve pedestrian visibility at the crosswalk. Another option is to upgrade the crosswalk with a pedestrian signal. This will require all traffic to stop when the signal is red to allow pedestrians to cross safely. The last option is to upgrade the crosswalk with a full traffic signal. This option has the added benefit of assisting exiting traffic from the adjoining driveways. Both the pedestrian and full traffic signal would include advanced warning signs advising motorists to prepare to stop when flashing in advance of the signal turning red. Due to the high traffic speeds and sight line limitations along Cariboo Rd, the feature of an advanced warning sign is advantageous. The advance warning signs would also help prevent any rear end crashes that may be attributable to vehicles stopping abruptly for pedestrians waiting to cross. It should be noted that a full traffic signal located at a private driveway is not typical, but the circumstances are unique in that a fully protected pedestrian crossing is desirable at this location given the recent events and all the other factors highlighted above.

It is recommended that a full traffic signal be installed at the crosswalk because it would provide the added benefit of facilitating vehicles exiting from the adjacent driveways. Although there is no crash history related to that particular movement, concerns have been expressed. These concerns have also been expressed for vehicles turning left from Cariboo Drive, but unlike Cariboo Drive there are limited opportunities to facilitate a left turn exit from both driveways. To provide an added benefit to the surrounding community, it is recommended that the City pursue discussions with the property owner at 7195 Cariboo Road to request a connection across their parking lot to allow traffic from the adjoining Housing Co-op at 7251 Cariboo to access the new proposed traffic signal. These discussions may lead to other options or opportunities that would maximize traffic safety in the area.

During the review of traffic conditions along Cariboo Rd, it was observed that pedestrian access to the existing northbound bus stop located about 100m south of the Cariboo Dr is very poor. There are no marked crosswalks and the speed of traffic is very high as noted earlier. Although a median along the road provides some refuge for pedestrians if they cross mid-block, it is not recommended. Since significant safety enhancements are proposed for the existing crosswalk, it is recommended that this bus stop be removed or relocated as required, and transit users from the east side of Cariboo Rd (most likely from the Housing Co-Op) be redirected to the existing transit stops located adjacent to the existing crosswalk. Although walking distance for some transit users may increase, it would be the safest option.

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The recommended changes would be coordinated with Coast Mountain Bus Company and advance notification would be provided to the community.

IMPLEMENTATION

The installation of a traffic signal will be completed this year. The urgency of the recommended changes is mitigated by the interim changes already underway at the existing crosswalk and along Cariboo Rd. This includes the installation of: a Special Crosswalk with illuminated overhead signs with down lighting and pedestrian activated flashing beacons, flashing beacons on top of existing pedestrian crosswalk ahead signs, electronic variable message boards to advise motorists to slow down in advance of the crosswalk, reflective pavement markers to highlight roadway lane lines, and additional and brighter street lights above the crosswalk. These have been or will be installed by the first week in February.

The RCMP will be continuing their targeted speed enforcement efforts along Cariboo Road, especially during inclement weather and dark conditions. A pedestrian education and awareness campaign will also be undertaken in cooperation with ICBC to reinforce the need for pedestrians to be visible at night.

CONCLUSIONS

The installation of a full traffic signal at the existing crosswalk located at 7200 Cariboo is recommended at an estimated cost of \$450,000. Funding for this unplanned project will be included in the 2018 Annual Financial Plan. It is recommended that Council authorize the City Solicitor to bring forward a Capital Reserve Bylaw in the amount of \$450,000 to finance the proposed traffic signal. Funding contributions from the ICBC Road Improvement Program will be sought to help offset some of the City's cost. In addition, it is recommended that the northbound bus stop along Cariboo Rd located 100 meters south of Cariboo Dr be removed or relocated and transit users be redirected to use the existing bus stops adjacent to the existing crosswalk. These bus stop changes can be completed within existing budgets. The above changes will significantly enhance pedestrian crossing safety along Cariboo Rd and will be implemented this year as soon as possible.



for Leon A. Gous, P. Eng., MBA
DIRECTOR ENGINEERING

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Copied to: Director Public Safety & Community Services
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