

TO: CHAIR AND MEMBERS
PUBLIC SAFETY COMMITTEE

DATE: 2017 April 05

FROM: DIRECTOR ENGINEERING

FILE: 38000 20
Ref: Traffic Safety

SUBJECT: CROSSWALK – OAKLAND ST AT DUFFERIN AVE

PURPOSE: To review pedestrian safety concerns at the intersection of Oakland and Dufferin.

RECOMMENDATIONS:

1. **THAT** the Committee recommend to Council the installation of a roadside mounted special crosswalk on Oakland St at Dufferin Ave as detailed in this report.

REPORT

BACKGROUND

On 2016 December 06, the Traffic Safety Committee received correspondence from a resident about his concerns regarding pedestrian safety at the intersection of Oakland St and Dufferin Ave. The request for a crosswalk was referred to staff for review and report back.

A traffic engineering review has now been completed based on the standard Canadian warrant analysis procedure from the Transportation Association of Canada (TAC) and the findings are summarized herein.

Site Location

Figure 1 shows the location of the requested crosswalk at the unsignalized intersection of Oakland Street/Dufferin Avenue/Baffin Place. The nearest crosswalks along Oakland St are 620 m to the west at Royal Oak Ave and 570 m to the east at Gilley Ave.

A regular transit service *Route # 144-SFU to Metrotown* runs on Oakland St in both directions and provides service to the adjacent single family residential properties on both sides of Oakland St. A stop for eastbound buses is located on the south side just east of Dufferin. A stop for westbound buses is located on the north side approx. 130 m to the west of Dufferin. Pedestrians cross Oakland St to access these bus stops and trails in Deer Lake Park on the north side of Oakland St.

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Figure 1: Requested Crosswalk Location



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Existing Conditions

Oakland St is a Major Collector with one lane in each direction plus bike lanes. The posted speed limit is 50 km/h, however, operating speeds were found to be 60 km/h and higher. The road is 11 m wide and based on a typical walking speed of 1.2 m/sec it would take a pedestrian 9.0 seconds to cross the road. During the peak hours, there are not many gaps in the traffic stream that are 9.0 sec or longer.

Due to a bend in the road alignment to the east and west of Dufferin Ave, visibility is limited at the subject location. This presents difficulty for pedestrians crossing the street and for drivers making a left or right turn from Dufferin Ave and Baffin Pl onto Oakland St. The available sight distance is 160 m to the west and just over 100 m to the east of the requested crosswalk location. The sight distance is inadequate to the east due to the road curvature and roadside trees near the bridge over the Third Beach Creek approx. 60 m east of Dufferin Ave. To help address existing visibility issues, vegetation along the north side of Oakland St should be trimmed or removed.

Traffic Count

Traffic counts were undertaken in February 2017 at the Oakland St intersections at both Elgin Ave and Dufferin Ave for this review. Based on the counts, Oakland St carries about 1,300 and 1,600 vehicles two-way in the weekday a.m. and p.m. peak hours, respectively. The average pedestrian crossing demand combining the two locations was 10 pedestrians/hour and with a peak of 19 pedestrians/hour in the p.m. peak hour.

The majority of the pedestrians were found crossing Oakland St to access westbound buses toward Metrotown. These counts were undertaken in late February and therefore did not capture any significant pedestrian crossings related to nearby park trails. The actual pedestrian demands during the warmer months would likely be much higher than the counts obtained in February. Taking this increased trail use into account, the average hourly demand is projected to reach 20 pedestrians/ hour, with 30 pedestrians/ hour in the peak hour.

Crosswalk Warrant Analysis

The City follows the TAC standard crosswalk warrant analysis procedure. This takes into account crossing demands, traffic volumes, roadway geometrics, crash history and nearby traffic control and crossing features. This procedure ensures consistency throughout the City, addresses the safety of pedestrians, and meets driver expectations. A crosswalk warrant analysis was previously undertaken for this location in 2012, and at that time due to low demands the warrant thresholds for a formal crosswalk was not satisfied.

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Based on new count data and an updated warrant analysis, a marked crosswalk with zebra markings and roadside signs is warranted. However, considering the additional crossing distance due to bike lanes and limited visibility, advance Pedestrian Crosswalk Ahead Signs are required in both directions. Further taking the high approach speeds into account at this location, it is recommended that the roadside signs be reinforced with Rectangular Rapid Flashing Beacons (RRFB).

In terms of crosswalk location, the existing crossing demand is slightly higher at Elgin Ave compared to Dufferin Ave due to the westbound bus stop on the north side of Oakland St at Elgin Ave. However, a crosswalk at Elgin Ave is not recommended because visibility is inadequate for pedestrians. Therefore a crosswalk is recommended at Dufferin Ave based on the proposed relocation of the westbound bus stop from Elgin Ave to Dufferin Ave. This would help shift the majority of pedestrian crossings to the proposed crosswalk. The bus stop relocation will require confirmation with CMBC and TransLink, and would involve the relocation of two signs, a bench and a garbage bin.

It is further recommended that a concrete sidewalk be constructed along the north side of Oakland St between Elgin and Dufferin to facilitate pedestrian access to the relocated bus stop from the west. In addition, wheel chair ramps would be required at the Oakland St/Dufferin Ave/Baffin Pl intersection to make the proposed crosswalk accessible.

Conclusions

A marked crosswalk with roadside signs and pedestrian-activated yellow flashing beacons is recommended on Oakland St immediately east of Dufferin Ave. This is intended to enhance the safety of pedestrians accessing transit service and park trails.

The work items required to implement this include:

- a) A 3.0 m wide marked zebra crossing on Oakland St on the east side of Dufferin Ave;
- b) Four Pedestrian Crosswalk signs (RA-4), two back-to-back on each side of Oakland St;
- c) Two wheelchair ramps with corner waiting area on the north and south side of Oakland;
- d) Pedestrian Crosswalk Ahead advisory signs (WC-2R) approx. 130 m ahead of the crosswalk in both directions;
- e) Trimming/removal of vegetation on the north side of the Oakland, near the bridge over Third Beach Creek;
- f) Relocation of the existing westbound bus stop from Elgin to Dufferin subject to consultation with CMBC;
- g) Procurement and installation of RRFBs to reinforce the crosswalk signs with pedestrian push buttons; and
- h) A sidewalk on the north side of Oakland St between Elgin and Dufferin Ave.

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The cost to implement the above work is estimated to be \$100,000. This will be included in the 2018 Capital Budget for approval subject to resolution of the Public Safety Committee and Council. Staff will apply for funding contributions from the ICBC Road Improvement Program and TransLink's TRRIP program.



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

MH/DL/ac

Copied to: City Manager