
CITY OF KELOWNA

MEMORANDUM

Date: October 1, 2002
File No.: 5400-20 Abbott Street
To: City Manager
From: Transportation Manager
Subject: **Impact of Abbott Street Closure**
Report Prepared by: Traffic & Transportation Engineer

RECOMMENDATION:

THAT Council approve the re-opening of the left turns from Abbott St northwards to Highway 97 westbound and through traffic movements to Downtown upon completion of the Abbott Street Recreational Corridor.

Background

At the regular meeting of Council on Monday, January 14, 2002 the planned closure of Abbott Street during construction of the Abbott Street Recreation Corridor from Park Avenue to Harvey Avenue was discussed. Council adopted the following resolution:

THAT City Transportation staff monitor the traffic impact of closing Abbott Street between Park Avenue and Harvey Avenue during construction of the Abbott Street Recreational Corridor and report back to Council prior to reopening the road with a recommendation on whether to permanently remove the left turns from Abbott onto Harvey Avenue.

Councillor Blanleil suggested that staff should not come back with a recommendation to permanently remove the left turn movement unless they are confident that the public's needs for left turn access onto the highway in this area can be met by alternate intersections for the next 5-6 years.

Abbott Street was closed to traffic in July when construction commenced; this closure included removal of the northbound left turn from Abbott onto Harvey Avenue leading to the Okanagan Lake Bridge. Construction has proceeded on schedule and the reconstructed section of Abbott Street is due to reopen to traffic by the end of October 2002.

Traffic conditions prior to closure

The intersection of Abbott Street and Harvey Avenue is signalized with all twelve potential directions of vehicular movement served and with pedestrian movement provided for crossing at the north, east and south legs of the intersection. The left turn onto the Bridge served local traffic, traffic generated by the hospital, as well as a certain amount of traffic using Springfield Road/Cadder Avenue/Abbott Street to access the Bridge.

The Abbott Street corridor links City Park with other parks along the lakeshore and is a popular route for pedestrians, joggers, cyclists and roller-bladders. This led to conflicts between vehicles and other users, exacerbated at times by inappropriate vehicle speeds. The Recreation Corridor project will remove conflicts by separating vehicles from other recreational users, while the narrow lanes, speed humps and raised intersections (speed tables) will force motorists to drive slower.

Traffic counts taken by the City prior to closure showed 105 vehicles turned left from Abbott Street onto the Bridge in the morning peak hours, 155 vehicles per hour (vph) at midday and 300 vph in the afternoon commuter peak. Total traffic flow through the Abbott/Harvey intersection in the respective hours was 3875 vph, 3210 vph and 4500 vph. Data supplied by the Ministry of Transportation showed afternoon commuter peak hour flows through the intersection to be 4700 vph, with 335 vph northbound through and turning left from Abbott.

While other intersections along Highway 97 to the east of Abbott Street were busy, delays were not excessive. At Pandosy Street in particular (the next signalized intersection for northbound left turns travelling towards the Bridge) most vehicles cleared the intersection in the first or second cycle after reaching the end of the queue, assisted by a recently installed protected left turn arrow phase.

To summarize traffic conditions before the closure:

- 300 vehicles turn left from Abbott Street onto the Bridge in the commuter peak hour
- Abbott Street was the favoured route from the hospital
- Queue on Pandosy was short, with delays of 1-2 cycles.

Traffic conditions after closure

With Abbott Street closed, traffic wishing to access the Bridge from the south had to use alternate routes. Observations indicated that:

- Most diverted left turners moved to Pandosy Street
- Long queues were experienced on Pandosy, extending regularly to Sutherland Avenue and quite often further south, with long delays in reaching the Bridge
- Little diversion to Ellis and Richter Streets
- Long queues westbound on Harvey Avenue, regularly extending back to Ethel Street and at times extending back to Gordon Drive. The volume of westbound through traffic able to clear intersections along Harvey Avenue was restricted due to queues filling the entire downstream blocks. It is likely that this discouraged motorists from using Ellis, Richter and Ethel instead of Pandosy when travelling to the Bridge, despite the long queues on Pandosy.
- More traffic was accessing the Bridge from Abbott and Water Streets by travelling through the Downtown, with slow moving queues causing congestion along Bernard Avenue at times to Richter.

Count data from “during construction” conditions was collected in mid-August by the City and at the end of July by the Ministry of Transportation (MoT). City counts in the p.m. commuter peak indicated a drop in westbound through traffic, while total traffic entering the intersection was 3900 vph. This was a drop of 600 vph; 360 vph of this could be attributed to Abbott Street closure, with capacity limitations on other approaches constraining diverted traffic.

MoT counts during construction showed southbound right turns from Abbott Street (i.e. Downtown to Bridge) increasing from 400 vph to 600 vph and westbound through and right turns increasing from 2050 to 2200 vph. However, the queuing on Harvey, Pandosy and Bernard/Abbott indicated that demand exceeded capacity, either at the Abbott Street intersection or on the approach to the Bridge, or both. Where two westbound lanes are available on the Bridge throughout the peak period, the capacity of the Abbott Street intersection is the limiting factor.

Traffic crossing the Bridge grew rapidly during the Nineties, from average 38,000 vehicles per day in 1990 to 49,000 vpd in 1998. Although growth has been slower in recent years summer traffic in 2002 was 3.3% higher than in 2001, at an average of 52,000 vpd. This resulted in further congestion on the east side of the Bridge as the Ministry had to implement additional lane changes to manage traffic.

Evaluation of the impact of Abbott Street Closure

From the City staff perspective:

- The results are consistent with the traffic modeling provided to City Council in October, 2000. The modeling indicated that closing Abbott Street left turns without other improvements elsewhere would result in congestion on Pandosy and, with future community growth, also on Richter.
- Closure of the left turn from Abbott Street onto the Bridge diverts 300 vph in the p.m. peak onto other routes, in particular Pandosy Street. Long queues and delays result, increasing driver frustration, vehicle-operating costs, energy use and vehicle emissions as vehicles crawl or idle for extended periods. Delays on Pandosy St also appeared to contribute to undesirable diversion of traffic through Downtown streets. With continued growth of the community, the region and tourist traffic, the long delays and queues can be expected for longer periods in the year.
- Implementation of the Abbott Street Recreational Corridor project separates vehicular traffic from recreational users, removing conflicts. Traffic calming measures will slow traffic down, further improving safety and decreasing the impact of passing traffic. Closure of the left turn onto the Bridge is therefore not an urgent requirement.
- Elimination of left turns from Abbott Street is planned for implementation when a 5-lane Bridge and the one-way couplet are implemented, and thus capacity on the Highway and on intersecting routes has been increased.
- Closure of the left turns off Abbott without a suitable replacement will result in traffic on Pandosy operating at level of service F (failure). This level is not consistent with the Council approved Transportation Plan.

Ministry of Transportation perspective

- Queue build-up on Harvey Avenue is increasing. The 300 vph removed from Abbott Street cannot be accommodated elsewhere.
- The need to accommodate pedestrian crossing movements at Harvey/Abbott intersection limits the opportunity to adjust signal timings in response to the Abbott Street closure. The available capacity at Abbott Street therefore is underutilized.
- Abbott Street delivers significant volumes of traffic to the Bridge without impacting on other intersections on Highway 97.
- Congestion within the core area will continue to increase. Until an alternate street system is constructed, closure of the south leg of Abbott will result in increasing delays on both Highway 97 and the City street system.

CONCLUSION:

The closure of the northbound left turn movement from Abbott Street at Harvey Avenue has increased congestion on Harvey Avenue and resulted in long queues and delays on Pandosy Street and Bernard Avenue. The capacity lost by this closure cannot be retrieved by diverting traffic to other routes. Traffic growth will cause increasing congestion until a new Bridge is constructed and the capacity of north-south routes intersecting with Harvey Avenue is increased. At that time it has been proposed that Abbott Street south of Harvey Avenue be restricted to right-in and right-out movements.

Transportation Division staff, with the support of the Ministry of Transportation, recommend that Abbott Street be re-opened upon completion of the current Recreation Corridor project and that all movements, including left turns from Abbott Street onto Harvey Avenue be permitted.

Ron Westlake, P.Eng.
Transportation Manager

John Vos
Director of Works & Utilities