



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** October 2, 2019
From: Lloyd Bie, P.Eng.
 Director, Transportation **File:** 10-6450-08-01/2019-Vol 01
Re: **Steveston Highway-Constable Gate Intersection Operations**

Staff Recommendation

That the report titled “Steveston Highway-Constable Gate Intersection Operations” dated October 2, 2019, from the Director, Transportation be received for information.

Lloyd Bie, P.Eng.
 Director, Transportation
 (604-276-4131)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Engineering	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

At the March 20, 2019 meeting of the Public Works and Transportation Committee, staff were directed to:

look at options for the intersection at Constable Gate and Steveston Highway to improve traffic and pedestrian flow coming off Constable Gate.

This report responds to the referral.

This report supports Council's Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

6.3 *Build on transportation and active mobility networks.*

Analysis

Existing Conditions

Constable Gate is a local street serving a single family neighbourhood that forms a T-intersection on the north side at Steveston Highway approximately 300 m west of Gilbert Road. There are approximately 130 properties in the Constable Gate catchment area. Steveston Highway is a four-lane major arterial. The current level of traffic control at the intersection is a special crosswalk for pedestrians on the east leg. The adjacent intersections of No. 2 Road and Gilbert Road at Steveston Highway are fully signalized.

As part of the referral to staff, it was noted that residents of the neighbourhood have expressed concern about delays experienced during the peak period for motorists turning onto Steveston Highway, particularly those making a left turn to travel southbound to eastbound. Although the adjacent traffic signals create gap opportunities, some delay is still experienced by traffic on Constable Gate. In addition to traffic volumes on Steveston Highway, residents also identified traffic speeds as a concern for both motorists and pedestrians using the special crosswalk.¹

To fully assess options to improve the traffic conditions, the following analysis was undertaken:

- intersection traffic signal warrant,
- review of neighbourhood road network for alternate access/egress route, and
- potential realignment of travel lanes on Steveston Highway.

Intersection Traffic Signal Warrant

An intersection upgrade to a full traffic signal is prioritised based on a technical warrant analysis and other factors including crash history, proximity to schools, road classification, traffic volumes, and proximity of other signalized crosswalks and intersections.

¹ Per the minutes for Item 1 of the March 20, 2019 meeting of the Public Works and Transportation Committee, which can be accessed at: https://www.richmond.ca/city-hall/council/agendas/pwt/2019/032019_minutes.htm.

A traffic signal warrant was performed based on traffic counts collected in June 2019. The study results indicate that a full traffic signal is not warranted based on existing traffic volumes and the crash history at the intersection. This result confirms the analysis performed in 2016, which also indicated that an upgrade of the existing special crosswalk to a full signal was not warranted.

Staff also performed field observations on June 5, 2019 of vehicle wait times on Constable Gate. Only one vehicle had a wait time exceeding two minutes (124 seconds) during the study period. Surveys indicated that during the morning and afternoon peak times, five of the approximately 50 motorists experienced delays between 60 to 100 seconds to turn left onto Steveston Highway. During the midday, five of the 25 motorists experienced delays between 60 to 125 seconds. All other motorists waited less than 60 seconds.

These findings are typical of local streets that intersect with arterial roadways with no traffic signal. The traffic volume generated by this small and contained catchment area is relatively low despite Constable Gate being the only means of access to the adjacent street system.

The operation of the existing special crosswalk was also reviewed and its performance is adequate to handle the pedestrian volume crossing Steveston Highway. No further changes to the existing special crosswalk are warranted at this time.

Potential Utilization of Internal Neighbourhood Fire Lane

There is an internal fire lane/neighbourhood walkway secured on road dedication located between Hogarth Drive and Reynolds Drive (Attachment 1). The existing width is sufficient for conversion to allow two-way vehicle movements such that residents from the Constable Gate neighbourhood could access Gilbert Road via Gainsborough Drive as an alternative route. Staff do not recommend conversion of the fire lane at this time for the following reasons:

- single family homes adjacent to the fire lane will be impacted by the addition of traffic;
- increased traffic through both the north and south neighbourhoods may be experienced as new road options are available for access and egress to both catchment areas; and
- neighbourhood short-cutting north and south of the fire lane may occur.

Should this option be pursued in the future, neighbourhood consultation would be conducted to confirm support.

Potential Realignment of Travel Lanes on Steveston Highway

A review of the road geometry on Steveston Highway in this block indicates that there is not sufficient physical space to introduce a centre turn lane at Constable Gate within the existing road right-of-way. To enhance access for motorists onto Steveston Highway, staff then explored the option of reducing the lane widths (as a form of “road diet”) on Steveston Highway at the intersection with Constable Gate to encourage slower operating speeds, which in turn will allow traffic from Constable Gate to better judge Steveston Highway traffic flow for gap opportunities.²

² Road diet is the term used by transportation professionals in reference to road narrowing or reallocation of road space in order to accommodate alternate modes of transportation or to slow vehicle speeds.

As Steveston Highway is a significant local and regional major arterial road, maintaining the people-moving capacity is an important consideration. A number of studies have shown that narrowing lane widths is an effective tool to decrease the potential for speeding without compromising road capacity and throughput.³

Concurrently, staff are developing a revised cross-section with narrower travel lanes for Steveston Highway between Shell Road and Mortfield Gate to improve road safety and better accommodate construction of a multi-use path and treed boulevard on the south side as part of the Council-approved 2019 Capital Plan. This project is currently in preliminary design with construction to follow after design completion. Future phases will extend the multi-use path on Steveston Highway further west to connect to the recently constructed multi-use path on No. 2 Road south of Steveston Highway as well as to Railway Avenue to connect to the Railway Greenway. The revised cross-section with narrower travel lanes for Steveston Highway between Shell Road and Mortfield Gate is planned to be carried through to Railway Avenue to improve road safety along the entire corridor.

The section of the Steveston Highway multi-use path from Mortfield Gate to No. 2 Road will be included in the 2020 Capital Plan for Council's consideration. Should this project be approved by Council, the narrower lane widths along Steveston Highway will be implemented from Mortfield Gate to No. 2 Road, which includes the intersection at Constable Gate. Implementation of this road diet on Steveston Highway is anticipated in 2021/2022 should Council approve the capital project.

Financial Impact

None.

Conclusion

Staff have reviewed traffic operations at the intersection of Steveston Highway and Constable Gate and determined that a full traffic signal is not warranted based on existing traffic volumes. To improve opportunities for motorists to access Steveston Highway from Constable Gate and improve road safety for all users, a road diet to narrow the vehicle lane widths on Steveston Highway from Mortfield Gate to No. 2 Road may be implemented should Council approve a candidate multi-use path project to be presented for Council's consideration as part of the 2020 Capital Plan.



Sonali Hingorani, P.Eng.
Transportation Engineer
(604-276-4149)
JC:jc



Joan Caravan
Transportation Planner
(604-276-4035)

Att. 1: Internal Fire Lane/Neighbourhood Walkway

³ *The British Columbia Community Road Safety Toolkit*, which can be accessed at:
<https://www2.gov.bc.ca/assets/gov/driving-and-transportation/driving/publications/resource-kit-community-road-safety-toolkit-module2.pdf>.

Internal Fire Lane/Neighbourhood Walkway

