



CITY OF VANCOUVER

Supports Item No. 2
CS&B Committee Agenda
July 21, 2005

ADMINISTRATIVE REPORT

Date: June 29, 2005
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TO: Standing Committee on City Services and Budgets
FROM: General Manager of Engineering Services
SUBJECT: Knight at 49th Avenue - Left Turn Bay

RECOMMENDATION

- A. THAT north and south bound left-turn bays on Knight Street at 49th Avenue as shown in Appendix 1 be approved for construction at an estimated cost of \$3,000,000 with funding from the following sources:
- 2003 Street Basic Capital for Clark-Knight Corridor Improvement \$1,250,000 (Order Group CB1EA4AX3X)
 - Cost- shared funding contribution from Translink \$1,250,000
 - Federal Border Infrastructure Fund \$500,000
- B. THAT Council grant the Director of Real Estate Services in consultation with the General Manager of Engineering Services, the authority to commence property negotiations for the acquisition of the road widening strips with reports back as necessary.
- C. THAT the Operating Budget for traffic signals, resurfacing and road markings be increased by \$3,500 annually without offset, commencing in 2006 and subject to budget review.

GENERAL MANAGER'S COMMENTS

The General Manager of Engineering Services RECOMMENDS approval of the foregoing.

COUNCIL POLICY

New roadway geometric designs are approved by Council.

On May 27th, 1997, Council approved the Vancouver Transportation Plan, which recommended that staff develop improvements for goods movement along Knight Street.

On March 29, 2005, Council approved the Clark-Knight Corridor Plan that recommended improvements to enhance the look and feel of the street, goods movement, pedestrian crossings, transit users, and approved "in principle" north and southbound Left Turn Bays on Knight St. at 49th Ave, and on Knight St. at 33rd Avenue.

PURPOSE

The purpose of this report is to obtain Council's approval for the construction of north and southbound Left Turn Bays (LTB) on Knight Street at 49th Avenue and to acquire the properties to complete the project.

BACKGROUND

Clark Drive and Knight Street provide a vital transportation corridor through Vancouver. It is the most heavily used truck route in the City and is a key regional connection between the Port, the City, the region, and the United States border.

It is this important transportation function that led to a direction in the 1997 Vancouver Transportation Plan to undertake improvements for goods movement, subject to a Whole Route Analysis (WRA) of the corridor. On March 29, 2005, Council approved the Clark-Knight Corridor Plan which, among many other projects, recommended the installation of north and southbound left turn bays on Knight at 49th Avenue.

Funding for this and some of the other Clark-Knight projects has been approved in the 2003-05 Capital Plan with funding already allocated in the 2003 Capital Budget. In addition to the approved City Funding, cost sharing opportunities from TransLink, ICBC, and the Federal Border Infrastructure Fund exist. Complete details on the Financial Implications are detailed in a later section of this report.

DISCUSSION

The intersection of Knight at 49th has been for several years, the worst intersection in the City for collisions. Between 1999 and 2004, there have been 859 reported vehicle crashes resulting in 349 injuries at the intersection.

There are many advantages for installing this left turn bay and signal phasing modifications:

- 1) it would improve safety by eliminating the need for through-traffic to change lanes near the intersection in order to by-pass left-turning vehicles;
- 2) dedicated left turn arrows in conjunction with LTB's help to reduce overall crashes including many of the most severe crash types.
- 3) protects the nearby neighbourhood from shortcutting;
- 4) it would help facilitate the flow of goods from Clark/Knight to the Port of Vancouver by improving the travel time reliability through reduced collisions;

Case studies of nine City intersections by ICBC indicated left-turn-bays can prevent 30% to 50% of all intersection collisions.

In a more recent study, staff analyzed collision data before and after the installation of the left-turn bay at Knight and 41st. Total collisions were reduced by 28% while injuries were reduced by 38%. Crash analysis shows that it is typically the more severe crashes that are reduced with the addition of LTB's and dedicated signal phasing. Overall capacity of the intersection was reduced by 3.1% in the am peak and 7.0% in the pm peak by adding a left turn arrow and reducing the percentage of green time for the through movements. This study was conducted using 1999 pre left turn bay and 2004 post left turn bay collision and traffic volume data. No allowance was made to the data for growth over the 5 year period.

Conversely, without left-turn-bays, left-turning vehicles on Knight at 49th Avenue are causing serious concerns related to access and safety. Given the high volume of traffic on Knight Street, left turning vehicles are continuously blocking through-traffic in the left lane and often have poor visibility of oncoming traffic. Consequently the through-traffic would often make lane changes near the intersection in order to by-pass these left-turning vehicles, thereby creating potentially unsafe situations.

Pedestrian access to the intersection will be improved as wider sidewalks and boulevards will be provided on both sides of Knight in conjunction with the left turn bays. In addition to the new sidewalks, new boulevard trees will be installed to improve the streetscape in accordance with the Council approved Clark Knight Corridor Plan. Finally, \$20,000 will be dedicated towards public art within the scope of this project.

Sir Sanford Fleming Elementary School

As widening is necessary, land is required from the Fleming Elementary School site. With the closer proximity to Knight St., school staff and parents are concerned about increased noise levels and reduced air quality to the school environment. Through ongoing meetings with School Board administrators and the Principal, a mitigation package to minimize impacts is being developed.

A landscape architect from Engineering Services has been made available to develop design proposals such as a new entrance to the school grounds, a redesigned pathway parallel to Knight connecting the front yard to the back playground and approximately 18 new trees onsite. The proposal also incorporates a short retaining wall to provide safety improvements and public art opportunities. From other Engineering Capital programs, speed humps may be installed on Lanark St. between 47th and 49th Avenue; and, corner bulges may be installed on Lanark at 47th to improve pedestrian crossing conditions.

Consultations with the school and discussions with the School Board staff is expected to be completed by late Fall 2005.

Black Walnut Tree

Adjacent to Sir Sanford Fleming School and near the current roadway stands a Black Walnut tree. Many design configurations were tested to save this tree, but with its proximity to the current roadway and due to the proposed widening of the road, this tree will need to be removed. The tree has a trunk diameter of 0.6 metres and stands approximately 18 metres in height.

This section of street will be replanted with 8-10 new trees in the boulevard. Of the 18 trees proposed in the landscaping plan for Fleming Elementary, several will be more mature in order to provide similar mitigation benefits that school staff feels the existing walnut tree provides.

Public Comments

The Clark Knight Corridor Project survey of May 2004 asked residents directly:

'Do you support a Left-turn bay at Knight and 49th?'

In total, 93% supported the installation of this project with 86% of those living directly on Knight also in support. This initiative received the most support of any of the surveyed questions. Further to the survey of May 2004, a final open house was held on February 23, 2005 to unveil the proposed Clark/Knight corridor plan. Once again, support for the Left-turn bay projects was high.

Appendix 2 contains comments from the open houses and survey specific to the proposed project.

FINANCIAL IMPLICATIONS

The overall cost of this project is estimated to be \$3,000,000. Property acquisition will commence if this report is approved, but some acquisition has been done over the past years as improving this intersection has been a priority. If approved, property acquisition will begin immediately, and if successful, construction could commence in the fall of 2006.

Funding is available from three sources. The 2003 Capital Budget contains \$1,250,000 in allocated funding (located in order group CB1EA4AX3X order number 30006736). Translink has committed \$1,250,000 as matching funding through its Major Road Network Minor Capital fund. A further \$500,000 is available through the Federal Border Infrastructure fund.

In addition to these sources, ICBC will evaluate the project and will likely help fund a portion of the project. Their participation as a funding partner is contingent on Council approving this project. The amount of funding that may be offered will be based on the forecasted reduction of injuries and property damage.

FUNDING SOURCES	AMOUNTS
2003 Basic Capital	\$1,250,000
TransLink	\$1,250,000
Federal Border Infrastructure Fund	\$500,000
ICBC	To be determined
TOTAL	\$3,000,000

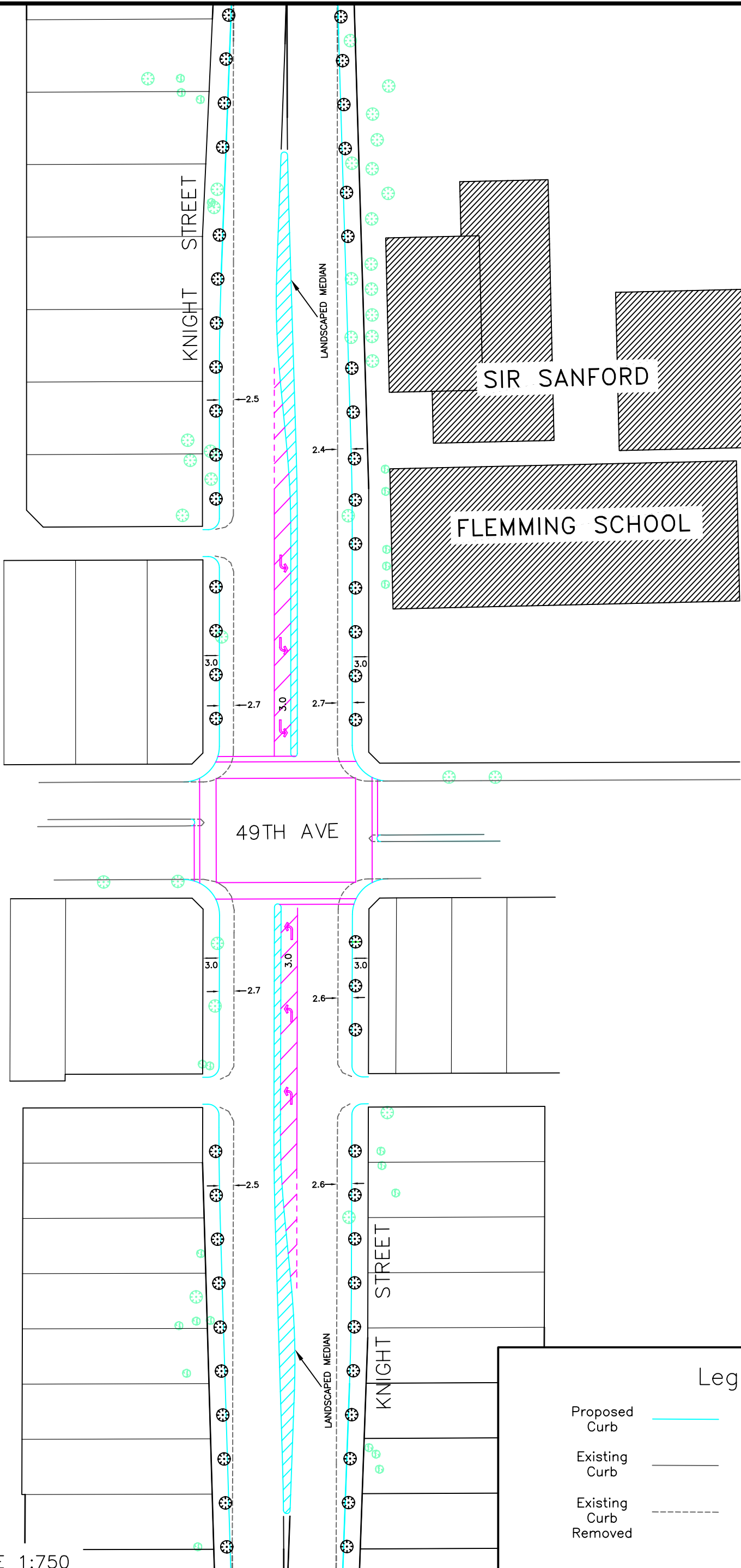
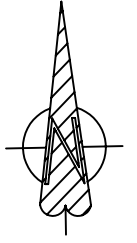
CONCLUSION

It is recommended that the installation of left-turn bays and signal modifications on Knight at 49th Avenue proceed as shown in Appendix 1, in order to improve traffic safety and reliability of goods flow to and from the Port.

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APPENDIX 1

KNIGHT ST. AND 49TH AVE. PROPOSED LEFT TURN BAYS



Legend			
Proposed Curb		Proposed Median	
Existing Curb		Proposed Left Turn Bay	
Existing Curb Removed		Existing Tree	
		Proposed Tree	

SCALE 1:750

APPENDIX 2

COMMENTS PERTAINING TO PROPOSED LEFT TURN BAYS ON KNIGHT AT 49th

The following comments were received as part of the Clark Knight Whole Route Analysis from June 2003 to February 2005 - Surveys and Open Houses.

- 1. I do not support widening the lanes from Powell to Marine with the planting of additional trees. Wider roads encourage speeding and truly will be a waste of tax dollars. People already drive too fast and recklessly on Knight/Clark. I would rather see advance green-left turn bays installed especially at the notorious intersection of 49th and Knight, and at 57th and 33rd. This allows for safer driving and many precious lives would have been saved.
- Knight and 49th: "protected" left turn only signals to be provided at all four locations of intersection; controlled right turn signals to be provided.
- Definite traffic problems along 49th and 57th. Very high morning
- eliminate all parking on Knight street to allow for 6 lanes. Left turn bays, north/south on all major intersection
- advance left turn green lights should be installed for Knight & 49th on North, West, South & East legs. Also for North & South of Knight and 57th
- 57th is suppose to be down-graded to a "collector" route. I am strongly opposed to any left-hand turn bays on Knight @ 57th Ave. I think the city should concentrate its effort/\$\$ on both bays @ 49th & 33rd
- I can't see how you could widen the street especially between 47 and 49. I have already had my wall damaged by a car hitting it. Also we can not walk on the front street as we get blown over by the trucks. The lanes are too close to the sidewalks. The school put up signs asking the motorists to slow down but no one pays attention. There must be another truck route. They could use that isn't residential
- Left turn bays are badly needed at Knight & 33rd, 49th and 57th. With just a few people making a left turn at those intersections and a bus or a slow-moving truck, Knight street becomes a one lane street. With the amount of traffic the goes through there, that is insane. With left turn bays, traffic should flow better and possibly less people speeding down the side streets to avoid those congested intersections. (I should know because I am one of those frustrated motorists). I will not take 20-30 minutes sitting in traffic to drive down Knight street from 41st to marine drive when I can do it in half that time going down side streets past the locals parks and schools. The problem has gotten so bad that even these routes are getting overcrowded.
- Install turn signal lights at the bays on 33rd. & 49th.Avenues.

- Request all left-turn drivers to use main avenues (such as King Edwards, 33rd, 41st, 49th & 57th) to access to local streets, after installed left-turn bays in north & south legs. That will improve the traffic flow & accident rate on Clark-Knight Street Corridor.
- We need turn signals at Knight & 49th.
- where is all this money coming from? and what is up with this art? who is going to look at art, driving playing dodge tag with trucks, also where is money coming from for this so called art, and going to maintain it. lets just stick with basics and get left turn bays in at 33rd and 49th if there is room.
- Do not put left turn bays in @ 49th Ave. & Knight you will make even difficult for kids to cross Knight St to go to Fleming school no way should they have to cross another lane.
 - . Will affect health of students with increased air pollution & noises @ Fleming school
 - . Left turn bays will encourage heavier traffic on Knight St. & will be it even more dangerous for pedestrians
 - . Left turn bays do nothing to force people out of cars. Why not take left lane as it is & make it the left turn lane. Put in advance left turn signal without adding another lane.
 - . Widening Knight @ 49th would like entail taking some of schoolgrounds of Fleming. This is totally unacceptable.
- I like the ideas on the left turn bays 33rd & Knight - all 4 directions and let turn at 49th & 57th north and south. Like the bikeway on Dumfries.
- I believe there is a warrant for left turn signals o 49th Ave. going southbound on Knight St. Can you confirm if this is the case?
- Overall a good program. Rt-turn diverters & definite the left-turn bays @ 59th & 49th & 33rd essential for traffic flow. I do think that the implementation of some sort of noise reductions & trees is more important than prettifying Knight St with banners or artwork that won't come, considering essential function of this road - ie supply. May I suggest that prettifying go into the neighbourhoods on both sides of the road
- Bike path is Borden/Fleming perfect. However Between 37 & 55th should be on Argyle & Fleming. Joins up schools& large parks. Also preserves elevation between 49th & 37th Help traffic congestion on Victoria at 41st & 49th shopping areas. If it is closer to Victoria use existing lights at these 41 & 49 intersections. RAV needs to be built sooner to alleviate Knight Bridge traffic volumes. 49th left turn bays needs to be urgently built. 430 bus needs left turn westbound to southbound to stay on schedule. 430 frequency too poor 3 - 40 minutes before 7am too impractical. Use smaller buses at higher

frequencies! Westbound 57th to southbound Knight left turns heavily backed up need solutions.

- The left turn bays are great - currently - traffic between 25th & Marine & 49 57 has to be funnelled into 2 (or sometimes 1) lane. These are real problems. As for pedestrians safety at schools (I think crossings @ 37th, 49th, & 62nd → I believe you need pedestrian crossings over the roads. Also medians wherever possible especially on curves (54th → 57th) on 14th → 16th? Is there anyway to have truck lane(s)? - anything to separate big trucks from Cars. I believe trucks do need emission and noise testing to be on the road. Homeowners and design is fine - the trucking industry needs to get their act together here.