



CITY OF VANCOUVER

ADMINISTRATIVE REPORT

Report Date: July 13, 2010  
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VanRIMS No.: 08-2000-20  
Meeting Date: July 22, 2010

TO: Standing Committee on City Services and Budgets

FROM: General Manager of Engineering Services in consultation with the Directors of Real Estate and Legal Services

SUBJECT: Knight Street at 57<sup>th</sup> Avenue Left Turn Bays and 54<sup>th</sup>-57<sup>th</sup> Avenue Safety Improvements

**RECOMMENDATION**

- A. THAT Council approve the detailed design and construction of the Knight Street at 57<sup>th</sup> Avenue Left Turn Bays and related road safety geometric changes between 54<sup>th</sup> and 57<sup>th</sup> Avenues at a total project budget of \$6,200,000.

The sources of funding are proposed as follows:

For 2010 Property Purchases:

- |      |   |             |
|------|---|-------------|
| i.   | A4a) Unallocated Capital (for property purchases to be completed in 2010, subject to report back to Council)  | \$1,041,000 |
| ii.  | TransLink Minor Capital Program (TransLink share for property purchase)   | \$1,400,000 |
| iii. | 2006-2008 Streets Capital Budgets - Property Fund (A4e), and 2009 Capital Budget for Arterial Improvements - Clark/Knight Corridor (purchases of 1410 E. 58 <sup>th</sup> Avenue and 7228 Knight Street, respectively, acquired previously in advance of project) | \$359,000   |

For 2011 Construction (subject to approval of the 2011 Capital Budget):

- |     |   |             |
|-----|---|-------------|
| iv. | 2011 Streets Capital Budget for Arterial Improvements - Clark/Knight Corridor, subject to approval of the 2011 Streets Basic Capital Budget | \$1,342,500 |
| v.  | TransLink Minor Capital Program (TransLink share for  | \$1,342,500 |

	construction)	
vi.	Federal Border Infrastructure Fund	\$500,000
vii.	Insurance Corporation of British Columbia	\$215,000

- B. THAT Council grant the Director of Real Estate Services authority to proceed with property negotiations and to determine, in consultation with the General Manager of Engineering Services and Directors of Legal and Budget Services, the terms and conditions of agreements on which the required properties (see Appendix A) shall be acquired by the City provided that in no case shall the value for each individual property acquisition exceed \$100,000 without reporting back to Council; and that the Director of Real Estate Services be authorized to execute such documents (including without limitation, Contracts of Purchase and Sale and plans) as are necessary to complete such acquisitions. No legal rights or obligations shall arise or be created until all legal documentation is fully executed on terms and conditions to the satisfaction of the Directors of Real Estate and Legal Services.

### ***GENERAL MANAGER'S COMMENTS***

The General Manager of Engineering Services and Director of Budget Services RECOMMENDS approval of the foregoing; noting that approval of Recommendation B will reduce the administrative paperwork connected with reporting the additional twenty-nine small property acquisitions required to complete the acquisition phase and will allow for faster processing which is important to many potential sellers.

### ***COUNCIL POLICY***

Council approval is required to acquire or dispose of civic properties.

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

On January 15, 2002 Council approved the Victoria-Fraserview/Killarney Community Vision which provided a direction to improve conditions and safety on Knight Street for residents, pedestrians and transit users.

On April 20, 2003 Council approved the Clark-Knight Corridor Whole Route Analysis project to develop a corridor plan that would recommend improvements for pedestrians, transit users, residents and goods movement.

On March 29, 2005 Council approved the Clark-Knight Corridor Plan which outlined various measures to improve liveability and transportation safety along the corridor, including left turn bays on Knight Street at 57<sup>th</sup> Avenue.

### ***PURPOSE***

The purpose of this report is to:

- Report back on issues related to approval for property acquisition and construction of left turn bays on Knight Street at 57<sup>th</sup> Avenue (per RTS 4549):
  - Further public consultation on the project design,

- The possibility of redesignation of 57<sup>th</sup> Avenue to a neighbourhood collector,
  - Network analysis, and
  - A traffic calming plan.
- Seek authority for the Director of Real Estate Services to negotiate, in consultation with the General Manager of Engineering Services, the Directors of Legal and Budget Services the terms and conditions on an additional twenty-nine small acquisitions as outlined in Appendix A.
  - Request approval for construction of related road safety geometric changes on Knight Street between 54<sup>th</sup> and 57<sup>th</sup> Avenues.

## **BACKGROUND**

Clark Drive and Knight Street provide a vital transportation corridor through Vancouver. This eight-kilometer route extends from the Port of Vancouver on Burrard Inlet to the Knight Street Bridge at the Fraser River. It is a key regional connection between the Port, the city, the region, and the United States border, and is the most heavily used truck route in the City. The frequency of collisions along the Clark-Knight Corridor is among the highest in the City. The corridor also runs through single-family residential neighbourhoods for the majority of its length - there are schools, parks, commercial areas and a community centre along the route that make travel on and across the corridor essential for many local residents.

The Clark-Knight Corridor Plan approved by Council in 2005 (RTS 4549), strives to balance transportation safety, effective goods movement and livability along the corridor, furthering objectives of the Vancouver Transportation Plan and Community Visions. A key strategy in the Corridor Plan is to improve pedestrian conditions by relocating sidewalks away from the back of the curb where they are currently adjacent to moving traffic, to a more buffered location behind a new boulevard tree planting strip. New trees in both the boulevard and on medians also help reinforce the residential nature of the corridor and encourage more moderate vehicle speeds.

Included in Council's approval for the Corridor Plan was approval in principle for left turn bays on Knight Street at 57<sup>th</sup> Avenue, subject to a report back on further public consultation and the study of 57<sup>th</sup> Avenue for the possibility of redesignation to a neighbourhood collector, network analysis and a traffic calming plan.

Implementation of the plan has benefited from cost-sharing partnerships with the Insurance Corporation of BC, the federal Border Infrastructure Fund and TransLink. The following Projects are part of the Clark-Knight improvement projects that have recently been completed, or are upcoming.

### *Knight Street at 49<sup>th</sup> Avenue- Left Turn Bays*

Construction of the left turn bays was completed in 2008. The intersection of Knight at 49<sup>th</sup> had been for several years, one of the worst intersections in the City for collisions. Safety has been improved by installation of left turn bays as vehicles can now make safer turns. Pedestrian access to the intersection was improved as wider buffered sidewalks with boulevards were provided on both sides of Knight in conjunction with the left turn bays. In

addition to the new sidewalks, new boulevard trees were installed to improve the streetscape and aesthetic and safety improvements were made for the adjacent elementary school.

#### *Construction of Landscaped Median between 15<sup>th</sup> Ave and 21<sup>st</sup> Ave*

This project is scheduled for construction this summer. The median will serve as a refuge for pedestrians and cyclists crossing Knight Street, and help reduce cross-over collisions. Moreover, the streetscape beautification is expected to increase motorists' awareness of the adjacent residential neighbourhood and the need to drive more cautiously.

#### *Knight Street at 33<sup>rd</sup> Avenue- Left Turn Bays*

This safety project was approved by Council on November 3, 2009 and is scheduled to start construction this year. Similar to Knight at 49<sup>th</sup>, new sidewalks will be buffered by a boulevard tree planting strip. As part of this project, the existing 35<sup>th</sup> Avenue crosswalk will be relocated to 33<sup>rd</sup> Avenue for improved pedestrian safety (better sight lines and longer stopping distances for vehicles). New pedestrian paths and landscaping in Kensington Park will be constructed between 33<sup>rd</sup> and 37<sup>th</sup> Avenue to direct pedestrians to signalized crossing at those locations. Pedestrian access into the park will be improved with the addition of pedestrian lighting near 33<sup>rd</sup> Avenue.

#### *Clark-Knight Corridor Public Art Plan*

Staff from Planning, Engineering Services and the Public Art Program are working toward a Public Art Plan for the Clark-Knight Corridor. The Plan will be developed this year and will identify relevant themes, articulate the character of local areas and define opportunities for artists to work along the Corridor.

### ***DISCUSSION***

This report seeks approval to complete the last major left turn bay project identified in the Clark-Knight Corridor Plan. Construction of the Knight at 57<sup>th</sup> left turn bays is proposed to be combined with the adjacent realignment of the curve between 54<sup>th</sup> and 57<sup>th</sup> Avenues. This realignment was also identified in the Corridor Plan and is intended to improve safety by making it easier for large trucks to stay within their travel lanes as they negotiate the curve between 54<sup>th</sup> and 57<sup>th</sup> Avenues. Although Knight Street Bridge is a major regional road connection to the corridor, volumes entering Vancouver across the bridge have stayed relatively constant over the last ten years.

Due to the Clark-Knight Corridor's high truck and vehicle volumes, north-south bicycle movement is being accommodated on parallel local streets. The Woodland Drive bike way parallels the Clark Drive section, and the Inverness/Windsor and proposed Borden/Dumfries bike ways parallel the Knight Street section. Where east-west bike ways cross the corridor, cyclist crossing signals are provided.

Pedestrian conditions along the corridor, including access to the local commercial services near the intersection will be improved as wider sidewalks and boulevards will be provided on both sides of Knight Street. In addition to the new sidewalks, new boulevard and median trees will be planted to improve the streetscape(see map, Appendix B). The curve

re-alignment work will allow for approximately 1 more block of new sidewalks and boulevard trees to be added, compared to a typical left turn bays installation.

The intersection of Knight Street at 57<sup>th</sup> Avenue is one of the highest collision locations in the City. Between 2003 and 2007, there were 523 reported vehicle crashes resulting in 160 injuries at the intersection. Since 2000, north to westbound left turns have been restricted at the intersection of Knight and 57<sup>th</sup> (7am-7pm/ Monday to Saturday) due to safety concerns and impacts to intersection operation. However, demands to make a left turns into the area are still present - observations show that vehicles are shortcutting through the neighbourhoods south of 57<sup>th</sup> to make eastbound and westbound turns. Accordingly, left turn bays at this location will improve safety, reduce shortcutting, and improve goods movement to the Port of Vancouver through better travel time reliability from reduced vehicle weaving and collisions.

Experience gained from similar projects shows that left turn bays significantly reduce collisions without changing intersection capacity. Case studies of six City intersections indicated that left turn bays have reduced left turn collisions by 50-80% (see Appendix C). In all cases, traffic volumes stayed about the same and safety improved significantly after construction of the left turn bays. Left turn bays also reduce all intersection collisions significantly. The before and after construction of left turn bays at Knight Street & 41<sup>st</sup> Avenue intersection indicated that left turn bays have reduced all intersection collisions by 36% (see Appendix D).

#### *Traffic Calming Plan*

The neighbourhood south of 57<sup>th</sup> Avenue and west of Knight has shortcutting issues due to the left turn ban. Traffic calming measures such as speed humps on 61<sup>st</sup> Avenue, 59<sup>th</sup> Avenue, Ross Street, Borden Street and a pedestrian bulge on Fleming Street at 57<sup>th</sup> Avenue have been constructed to address some of the shortcutting issues (see Appendix E), but residents of Sunset neighbourhood suggest that these measures are not enough. By installing the left turn bays at 57<sup>th</sup> Avenue, shortcutting through this neighbourhood can be dealt with more effectively as safer left turns would be made at 57<sup>th</sup> Avenue. Once construction is complete, the northbound to westbound left turns will be banned on Knight Street at 61<sup>st</sup> and 62<sup>nd</sup> Avenues.

#### *Safety Changes between 54<sup>th</sup> and 57<sup>th</sup> Avenues*

Throughout the public process in 2004, there were resident complaints that large trucks track into adjacent lanes at the curving section north of 57<sup>th</sup> Avenue, creating a safety issue. Staff considered design options to improve the road alignment. As part of this project, the street geometry between 54<sup>th</sup> and 57<sup>th</sup> Avenues will be changed to make it easier for truck drivers to negotiate the curve while staying within their lane.

#### *Classification of 57<sup>th</sup> Avenue and Network Analysis*

Some residents have also expressed concerns regarding increased traffic on 57<sup>th</sup> Avenue. The 1997 Transportation Plan identified several secondary arterials in southeast Vancouver as candidates for reclassification to collector status, including 57<sup>th</sup> Avenue. Formal review of 57<sup>th</sup> has yet to occur. Fifty Seventh Avenue and other reclassification candidates and the related network analysis will be examined as part of the update of the City's Transportation Plan planned to commence in 2010.

### *Public Consultation*

As part of the process to prepare the Clark-Knight Corridor Plan, the City carried out a survey in May 2004 asking residents about their support for adding left turn bays to the intersection of Knight Street and 57<sup>th</sup> Avenue. In total, 89% of residents supported the installation of left turn bays on Knight Street at 57<sup>th</sup> Avenue (see Appendix F).

On December 10, 2009, staff carried out an Open House seeking further public consultation. At the Open House staff provided information on the proposed left turn bays on Knight Street at 57<sup>th</sup> Avenue and discussed all the traffic calming measures that have been installed in this neighbourhood to address some of the shortcutting issues.

Staff also presented an option for resolving ongoing shortcutting problems north of 57<sup>th</sup> Avenue through installation of a two-lane left turn design for 57<sup>th</sup> Avenue westbound onto Knight on trial basis. Traffic is shortcutting through this neighbourhood to avoid the lengthy left turn queue on 57<sup>th</sup> Avenue.

While the dual left turn proposed would convert one lane for this purpose, some participants were concerned that this could invite more traffic to use 57<sup>th</sup> Avenue. However, there was agreement that some action is necessary. To address shortcutting these residents sought consideration of other options. Staff will further study other options and conduct a formal survey of the neighbourhood on potential changes to address the short-cutting issue.

### *Property Purchase*

This report includes a recommendation to grant staff authority to commence remaining property negotiations and acquisition of properties required for this project. Properties at 1410 E. 58<sup>th</sup> Avenue and 7228 Knight Street were recently purchased when they became available on the market. A property at 1411 E. 58<sup>th</sup> Avenue was also purchased in 2005 when it became available on the market. These expenditures were approved by Council for pre-purchase in separate reports.

### ***FINANCIAL IMPLICATIONS***

The overall cost of this project is estimated to be \$6,200,000 over 2010 and 2011. Property acquisition will continue through 2010 and construction is proposed during 2011. As noted below, this project will receive significant cost-sharing from TransLink, the federal government and ICBC.

The sources of funding are proposed as follows:

**Property - \$2,800,000** (\$2,441,000 in acquisitions to be negotiated in 2010, subject to reports back to Council; \$359,000 acquired in advance)

- \$1,041,000 for the 2010 City share from 2009-2011 A4a Unallocated Capital for property purchases
- \$1,400,000 for the 2010 TransLink share from the TransLink Minor Capital Program

- \$359,000 from 2006-2008 Streets Capital Budgets - Property Fund and 2009 Capital Budget for Arterial Improvements - Clark/Knight Corridor (purchases of 1410 E.58<sup>th</sup> Avenue and 7228 Knight Street, respectively, acquired in advance of project)

Due to the uncertainty of the cash flow for property acquisitions (i.e. some purchases may not be concluded until after 2010), it was decided to allocate funding when negotiations are completed, rather than making the allocation through the 2010 Capital Budget. Property negotiations have commenced, and approval of funding from 2009-2011 A4a Unallocated Capital will be required, subject to report back to Council as negotiations are concluded.

#### Construction - \$3,400,000 (2011)

- \$1,342,500 from 2011 Streets Capital Budget, subject to approval of the 2011 Basic Capital Budget
- \$1,342,500 for the TransLink share from TransLink Minor Capital Program
- \$500,000 from Federal Border Infrastructure Fund
- \$215,000 from Insurance Corporation of British Columbia

Since construction is not planned to start until summer 2011, capital funding can be requested through the regular 2011 Capital Budget process. The TransLink Minor Capital Program funding is split between their 2005 program (\$1,925,000) and their 2010 program (\$892,500), and will go towards both property and construction costs.

To qualify for the Federal Border Infrastructure Fund financing, project construction must be complete by the end of March 2012. Accordingly, should completion of property acquisition delay the construction schedule past this time, it may be necessary to allocate additional City and TransLink funding (\$250,000 each) towards this project. Both the federal and ICBC cost-sharing can only be used on construction expenses (i.e. property costs excluded).

#### *CONCLUSION*

It is recommended that left turn bays on Knight Street at 57<sup>th</sup> Avenue and alignment improvements between 54<sup>th</sup> and 57<sup>th</sup> Avenue be constructed as shown in Appendix B, in order to improve traffic safety and reduce shortcutting. Meanwhile, a trial of dual left turn lanes on westbound 57<sup>th</sup> Avenue at Knight will be deferred pending further review of options to reduce local shortcutting.

The recommendation to acquire the additional properties at a value not to exceed \$100,000 for any one property will reduce Council and staff administrative processing time, and allow for a quicker process in completing the acquisitions of the required properties.

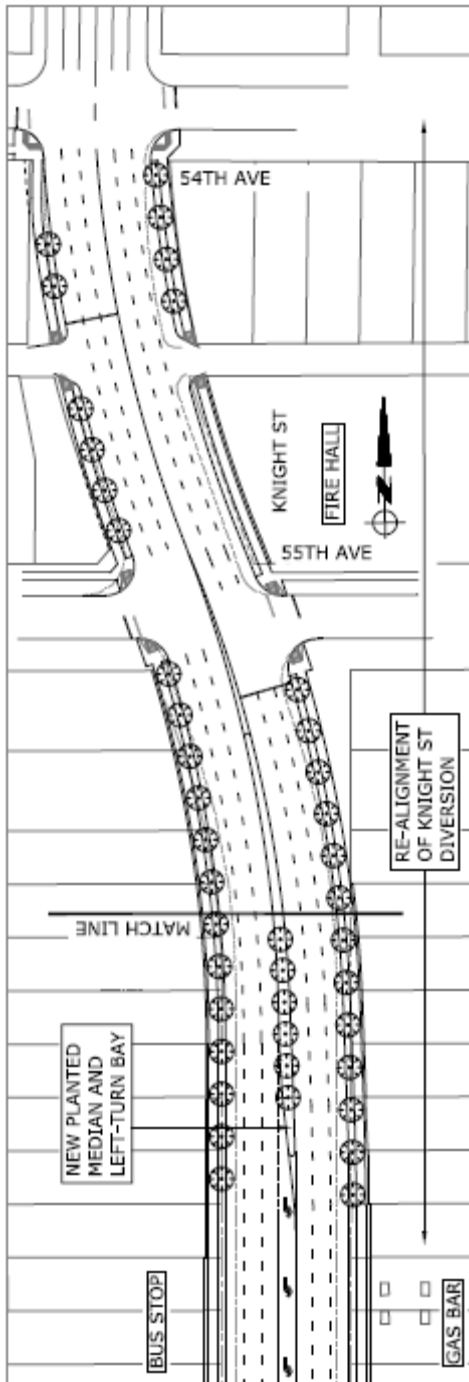
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Property

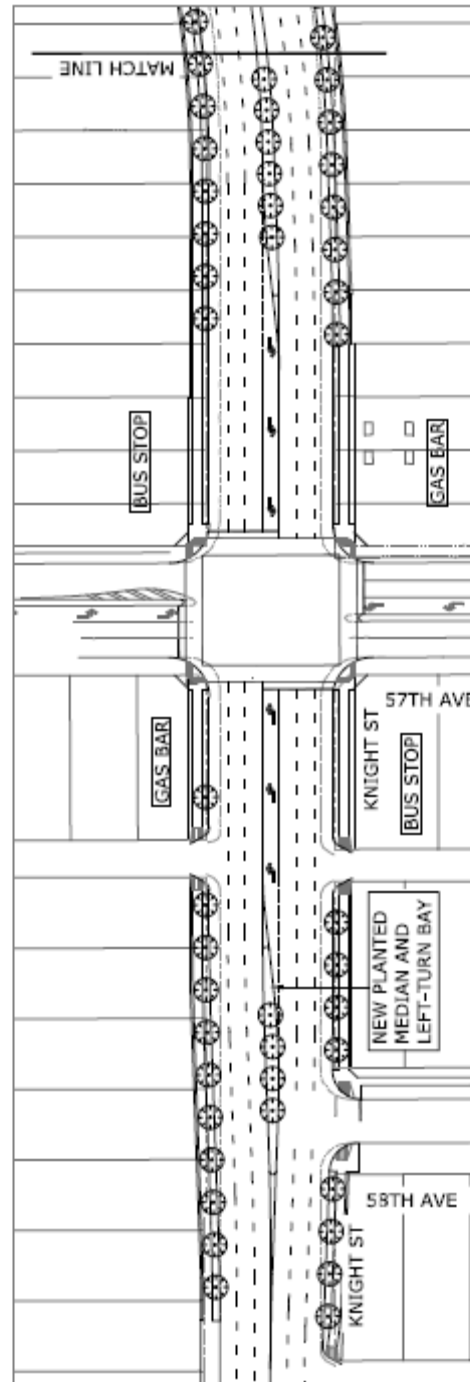
1. 7070 Knight Street - Lot F Blocks 29 to 31 District Lot 200 Plan 9987;
2. 1380 East 55<sup>th</sup> Avenue - Lot A of Lots 56 to 58 Blocks 29 to 31 District Lot 200 Plan 8343;
3. 7125 Knight Street - Lot B of Lots 56 to 58 Blocks 29 to 31 District Lot 200 Plan 8343;
4. 7159 Knight Street - Lot 59 Except That Part in Explanatory Plan 3945 Blocks 29 to 31 District Lot 200 Plan 1770;
5. 7177 Knight Street - Lot 60, Except Part in Explanatory Plan 3945, Blocks 29 to 31 District Lot 200 Plan 1770;
6. 7195 Knight Street - Lot 61 Except That Part in Explanatory Plan 3945 Blocks 29 to 31 District Lot 200 Plan 1770;
7. 7203 Knight Street - Lot 62, Except Part in Explanatory Plan 3945, Now Road, Blocks 29 to 31 District Lot 200 Plan 1770;
8. 7219 Knight Street - Lot 63 Except: The East 7 Feet (Now Road), Part (Road) Plan BCP19271; Blocks 29 to 31, District Lot 200 Plan 1770;
9. 7229 Knight Street - Lot 64, Except The East 7 Feet, Now Road, Blocks 29, 30 and 31 District Lot 200 Plan 1770;
10. 7243 Knight Street - Lot 65 Except The East 7 Feet, Now Road Blocks 29 to 31 District Lot 200 Plan 1770;
11. 7289 Knight Street - Lots 66, 67 and 68, Except The East 7 Feet of Each Now Road, and Lot 69 Except The East 7 Feet and The South 7 Feet Now Highways, All of Blocks 29 To 31 District Lot 200 Plan 1770;
12. 7178 Knight Street - Lot 51, Except The West 7 Feet, Now Road, Blocks 29 to 31 District Lot 200 Plan 1770;
13. 7196 Knight Street - Lot 50, Except The West 7 Feet , Now Road Blocks 29 to 31 District Lot 200 Plan 1770;
14. 7216 Knight Street - Lot 49 Except The West 7 Feet, Now Road Blocks 29 to 31 District Lot 200 Plan 1770;
15. 7248 Knight Street - Lot 46 Except The West 7 Feet, Now Road Blocks 29 to 31 District Lot 200 Plan 1770;
16. 7282 Knight Street - Lots 45, 44, 43 and 42, Except The West 7 Feet of Each, Now Road, All of Blocks 29, 30 and 31 District Lot 200 Plan 1770;



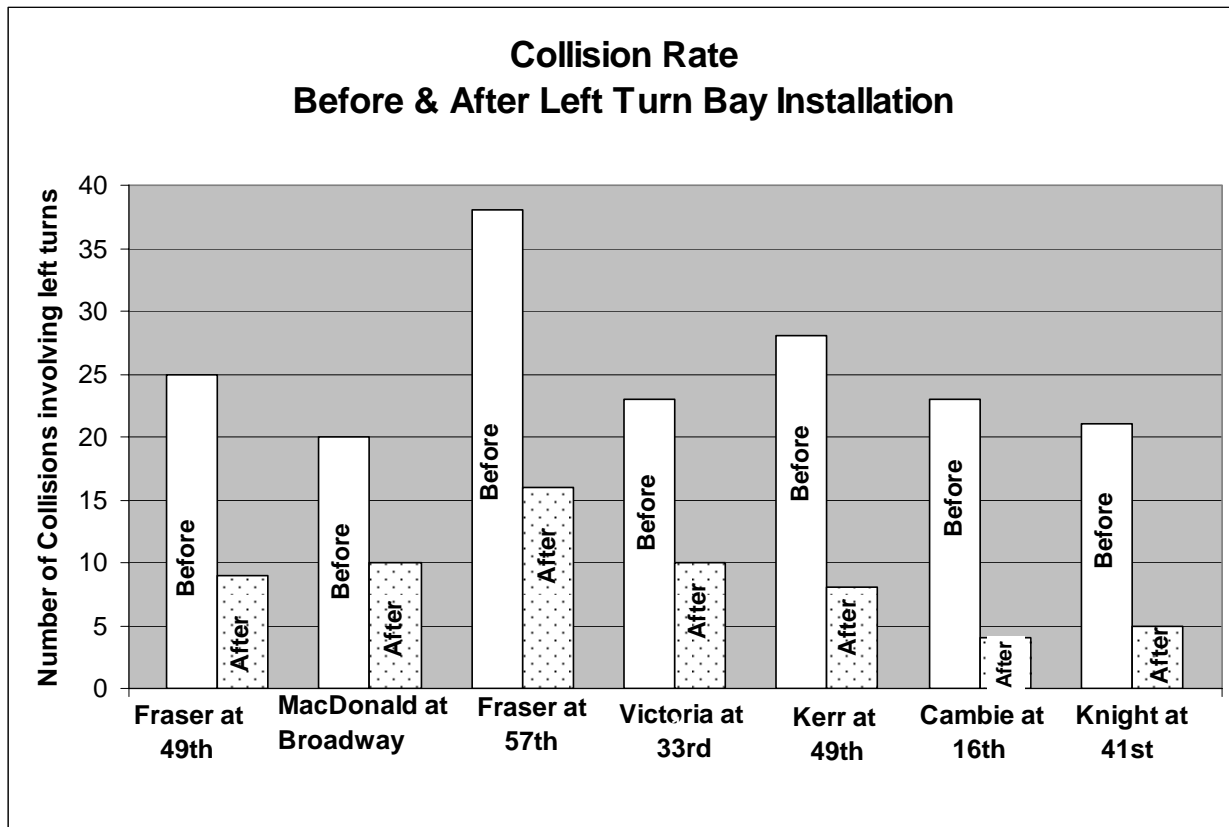
17. 7309 Knight Street - Lot 7 Except: Firstly; South 3 Feet Secondly; Part Shown in Plan LMP33282 Block 23 District Lot 200 Group 1 New Westminster District Plan 7942;
18. 7329 Knight Street - Lot 8 Block 23 District Lot 200 Plan 7942;
19. 7349 Knight Street - Lot 9 Block 23 District Lot 200 Plan 7942;
20. 7369 Knight Street - Lot 10 Block 23 District Lot 200 Plan 7942;
21. 7389 Knight Street - Lot 11 Block 23 District Lot 200 Plan 7942;
22. 7407 Knight Street - Lot 12 Block 23 District Lot 200 Plan 7942;
23. 7425 Knight Street - Lot 13 Block 23 District Lot 200 Plan 7942;
24. 7441 Knight Street - Lot 14 Block 23 District Lot 200 Plan 7942;
25. 7457 Knight Street - Lot 15 Block 23 District Lot 200 Plan 7942;
26. 7475 Knight Street - Lot 16 Block 23 District Lot 200 Plan 7942;
27. 1387 East 59<sup>th</sup> Avenue - Lot 17 Block 23 District Lot 200 Plan 7942;
28. 1404 East 57<sup>th</sup> Avenue - Lot G Except: That Part on Plan LMP33540 of Lot 1 Block 22 District Lot 200 Group 1 New Westminster District Plan 11699;
29. 7476 Knight Street - Lot O of Lot 4 Blocks 21 and 22 District Lot 200 Plan 8728;



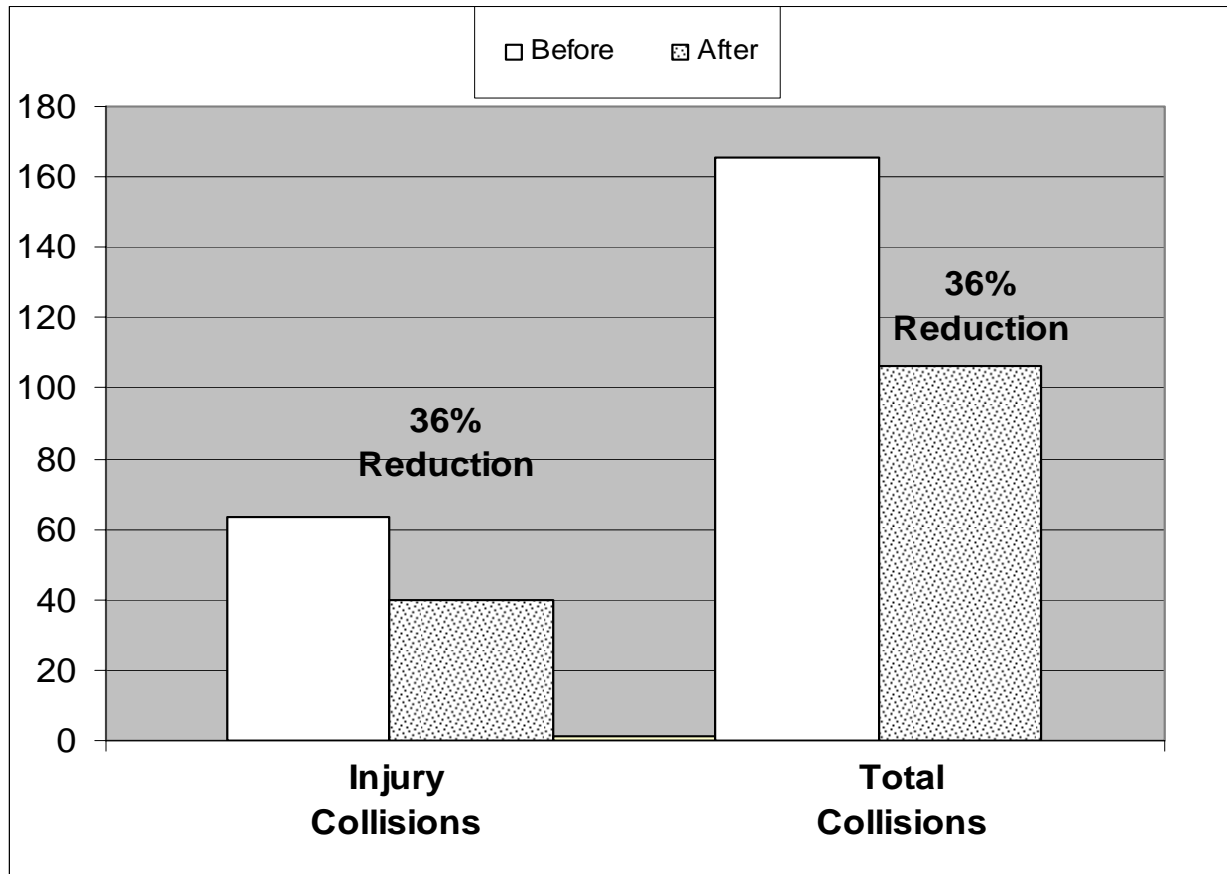
KNIGHT ST FROM 54TH AVE TO 57TH AVE  
RE-ALIGNMENT



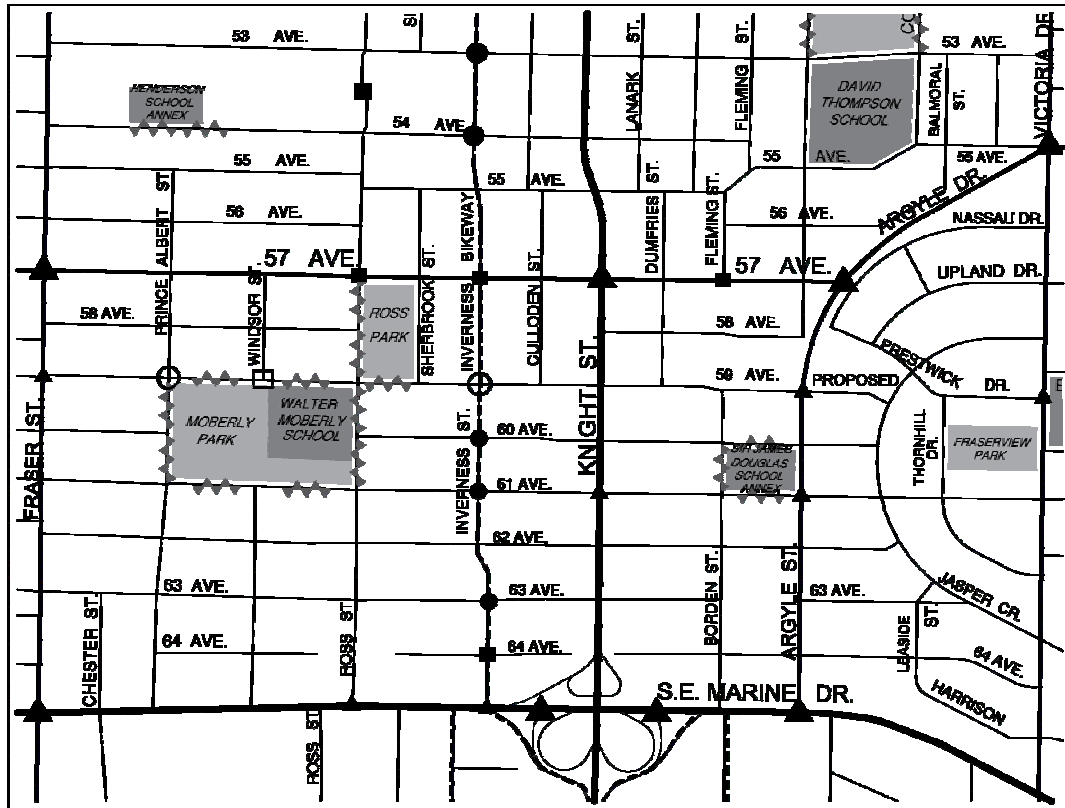
KNIGHT ST AT 57TH AVE  
LEFT-TURN BAYS DESIGN



### Collision Rate Before and After Left Turn Bay Installation



### Traffic Calming Measures



- Legend**
- PRIMARY ARTERIAL STREETS
  - SECONDARY ARTERIAL STREETS
  - SCHOOLS
  - PARKS
  - ▲ PEDESTRIAN-ACTUATED TRAFFIC SIGNAL
  - TRAFFIC SIGNAL
  - EXISTING TRAFFIC CIRCLES
  - PROPOSED TRAFFIC CIRCLES
  - ⌒ SPEED HUMPS
  - EXISTING GREENWAYS & BIKEWAYS
  - EXISTING BULGES AND DIVERTERS
  - PROPOSED BULGES AND DIVERTERS

**Resident Survey - Left turn Bays, Knight and 57<sup>th</sup>**

	Survey Total	Live Directly on Clark-Knight Street (subset)	Live Within 7 block radius (subset)	Live Outside 7 block radius (subset)
Stay as is	11% (43/378)	20% (12/60)	8% (22/267)	18% (9/51)
Left turn bay, north and south legs	89% (335/378)	80% (48/60)	92% (245/267)	82% (42/51)