

BURNABY BICYCLE ADVISORY COMMITTEE

*HIS WORSHIP, THE MAYOR  
AND COUNCILLORS*

RE: GOVERNMENT AT CARIBOO ROAD: "RIGHT TURN ONLY" LANE

RECOMMENDATIONS:

1. **THAT** Council support the right turn only restriction on west bound at Government at Cariboo exempt cyclists and be signed accordingly; and that a bicycle symbol be placed on the road on the right turn lane approach.
2. **THAT** a copy of this report be sent to the Traffic Safety Division of the Traffic and Transportation Committee.
3. **THAT** a copy of this report be sent to Mr. Ken Timewell, 86 St. Georges Avenue, North Vancouver, B.C. V7L 3G7.

REPORT

The Bicycle Advisory Committee, at its Open meeting held on 2000 November 23, received the *attached* report providing a progress report regarding the continuing review of the provisions for cyclists at this intersection.

The Committee after extensive discussion arising from the report, requested that the report be amended to include a further recommendation that the right turn only restriction on west bound curb lane at Government to Cariboo exempt cyclists and be signed accordingly and supplemented by placing a bicycle symbol on the road on the right turn lane approach.

The Committee requests Council's support of the recommendations.

Respectfully submitted,

Councillor N. Harris  
Chair

: COPY - CITY MANAGER  
- DIRECTOR ENGINEERING  
- DIR. PLNG. & BLDG.

Mayor D. Drummond  
Vice Chair

City of Burnaby

INTER-OFFICE COMMUNICATION

**TO:** BICYCLE ADVISORY COMMITTEE **DATE:** 2000 11 22  
**FROM:** ASST. DIRECTOR ENGINEERING,  
TRAFFIC & ENGINEERING SYSTEMS **FILE:** 55-07-09  
**SUBJECT:** GOVERNMENT AT CARIBOO ROAD: "RIGHT TURN ONLY" LANE  
**PURPOSE:** To provide the Bicycle Advisory Committee with a progress report regarding the continuing review of the provisions for cyclists at this intersection.

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RECOMMENDATIONS:

1. **THAT** a copy of this report be sent to the Traffic Safety Division of the Traffic & Transportation Committee.
2. **THAT** a copy of this report be sent to Mr. Ken Timewell, 86 St. Georges Avenue, North Vancouver BC, V7L 3G7.

**R E P O R T**

**1.0 INTRODUCTION**

At the 2000 September 28 meeting, staff submitted a report to respond to correspondence to Council, referred to the Committee, requesting an exception for cyclists relative to the "right turn" lane on Government Street at Cariboo. That report is attached.

There were a number of issues discussed by the Bicycle Advisory Committee members regarding the intersection as to signage, a separate bicycle lane, options for a signal push button, a bike stencil in middle of road, an increase the width of roadway and the stop line changes within the intersection.

Arising from discussion, the following motion was adopted:

*"THAT the Bicycle Advisory Committee request that City staff continue to investigate the options to legitimize and encourage optimal bicycle and motor vehicle behaviour through this intersection and if necessary approach TAC (Transportation Association of Canada)."*

## **2.0 REVIEW OF DISCUSSED OPTIONS**

### **2.1 Intersection Widening**

As discussed in the previous report, the optimal solution would require physical improvements at this intersection in order to insert extra approach widths to allow for freer movement by cyclists. Government Road is constructed to a 14m (46 foot) width standard. This allows for the development of four 3.5m lanes through intersections. Although this lane width accords with the Burnaby Transportation Plan designation it requires cyclists to be assertive in lane positioning. The ideal, cycle friendly, lane layout discussed in the prior report would require widening through the intersection. There is no provision in the 5 Year Capital Plan for any road work at this location. However, redevelopment in the vicinity will, in all likelihood, be accelerated by the opening of the University SkyTrain station. The intersection would be considered a candidate for change in that context.

### **2.2 Intersection Operation**

The operation of this signalized intersection has been reviewed particularly with respect to the right turn only lane. The vehicular movement demand and the presence of the rail crossing on the Cariboo leg dictates the need to segregate vehicle movements. When the railway crossing is closed, the lane designations allow for the through movements on Government to be unimpeded while queuing occurs in the turning lanes. If the lanes were undesignated the closure of the rail crossing would result in hazardous lane changing as through vehicles in the blocked lanes attempted to bail out of the developing queue. This jockeying would be particularly hazardous to cyclists.

### **2.3 Signing and Other Measures**

There was a suggestion that bicyclists could be provided with activation buttons but the push button on the critical eastbound approach would have to be set well back in order to allow for requisite lane changing. In any case, the signal cycles with sufficient frequency that an additional bicycle "call" would not materially change delay.

The addition of signing would perhaps assist in raising driver awareness and staff will be installing "Share the Road" signing on the Government approaches to the intersection. The signing will utilize the highly retro-reflective sheeting which incorporates eye catching daytime fluorescence. Similar signing was first used on Imperial with some success. As discussed below the research on further options is continuing.

### 3.0 THE WIDER SEARCH

We have informally discussed the suggested cyclist exemption to the right turn only requirement with colleagues including cyclists and motorists and found no consensus as to its potential merit for improving safety.

A wider search of the issue on the Internet indicates an appreciation of the problem for cyclists caused by the right turn only lane. Apart from the suggestion that such lanes be minimized, there is no apparent solution. The Vancouver application of the exemption from the right turn only appears to be unique. Another novel application is apparently undergoing a more rigorous evaluation in Oregon. It involves the insertion of a marked cyclist position on the roadway at the intersection approach (similar to the "ideal" design shown on the attached report). In this experimental case, the lane width for the cyclist is taken from the left side of the right hand turn lane. It could equally be taken from the through lane by setting back the stop bar and placing a bicycle logo on the road ahead of the stop bar as discussed previously by Committee members. However the lane widths on Government may preclude cyclists working their way to the front of the queue to take advantage of these measures. We will be attempting to find the results of the Oregon trial if they are available.

While the right turn only lane is widely recognized as a dilemma for cyclists, the majority of solutions on the web revolved around the conventional approaches as shown in the attached Exhibit A. The requirement for cyclists to assert vehicle status at right turn only lanes was found in various government/cycle club handbooks (Exhibit B).

Perhaps the most controversial view of right turn lanes came from John Forester (a provocative expert/iconoclast in the cycling community). In his review of a paper on hazard weighting of roads for cycling, Forester wrote:

*"In contrast to the listing of right-turn only lanes as a detriment to cycling, they are a benefit for cyclists, because they move the right-turning motorists to the cyclist's right before the motorists turn right. That avoids the motorist-right-turn car-bike collision, which is about number 2 or 3 in the frequency of motorist-caused car-bike collisions."*<sup>1</sup>

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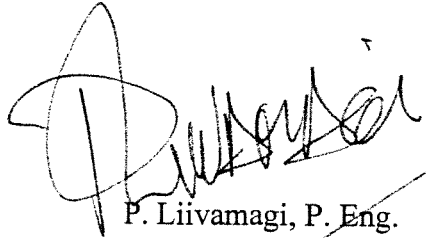
<sup>1</sup> Forester J. MS PE. Review of Davis, W. Jeffrey; Bicycle Test Route Evaluation for Urban Road Conditions; ASCE HPT Committee, November 1995

#### 4.0 DISCUSSION/CONCLUSION

This discussion has arisen from the suggestion by a correspondent to Council that cyclists travelling through, eastbound on Government would benefit from the implementation of an exception for cyclists with respect to the right turn only lane (to Cariboo southbound). It is by no means clear that the exception would increase safety. We have found no accepted standard, practice, consensus of opinion, post implementation study or data that would allow us to confidently recommend the cyclist exception to the right turn requirement. The City of Vancouver appears to be unique in implementing this type of installation. In the future, this may result in a wider local consensus of practice that ultimately leads to national standards/guidelines for installation.

Accordingly, staff are continuing to seek improvement measures for this intersection specifically, and more generally, the right turn only lane dilemma. We will report to the Committee as further progress is made. As an interim measure, we are installing "Share the Road" signing on the intersection approaches.

As the correspondence that triggered this review was initially forwarded by Council to the Traffic Safety Committee as well as this one, it is recommended that a copy of this report be forwarded to it as well as the correspondent.



P. Liivamagi, P. Eng.  
ASST. DIRECTOR ENGINEERING,  
TRAFFIC & ENG. SYSTEMS

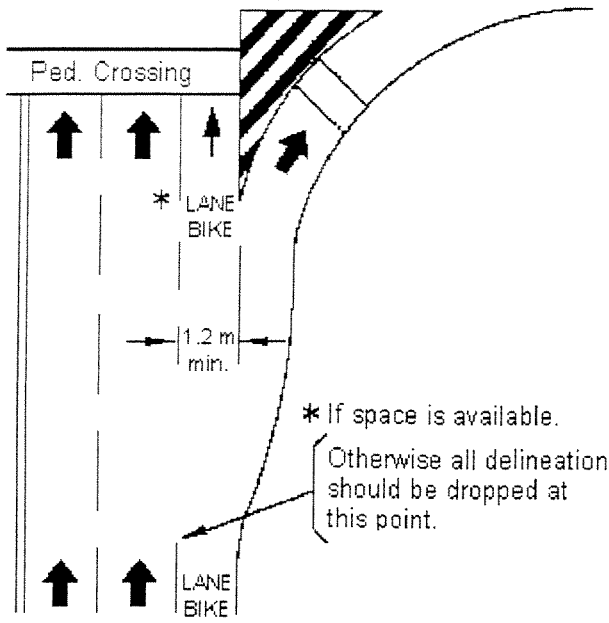
PL:jb  
Attach.

cc: City Manager  
Director Planning & Building

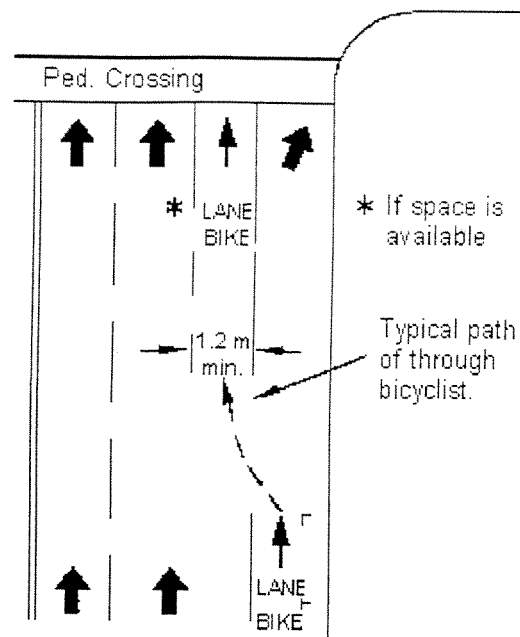
# Bike Lanes Approaching Motorist Right-turn-only Lanes

EXHIBIT A

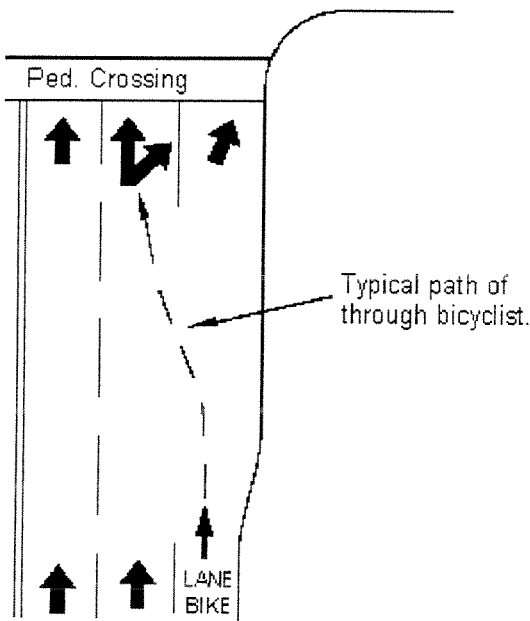
Return to  
Topic 1003



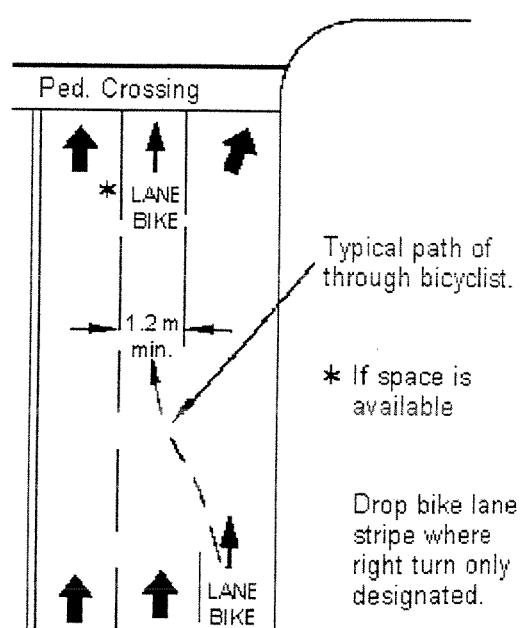
RIGHT-TURN-ONLY LANE



PARKING AREA BECOMES  
RIGHT-TURN-ONLY LANE



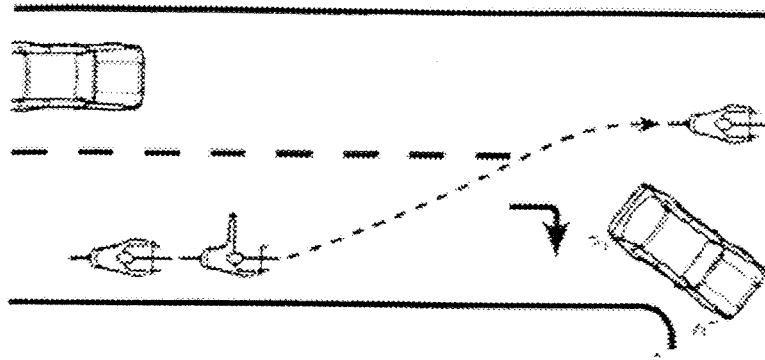
OPTIONAL DOUBLE  
RIGHT-TURN-ONLY LANE



RIGHT LANE BECOMES  
RIGHT-TURN-ONLY LANE

### Right-Turn - Only-Lane

To proceed straight through an intersection when the curb lane becomes a right-turn-only-lane, move to the right side through-lane well in advance of the right-turn-only-lane. Shoulder check, signal and move to the right side of the right through lane when an opening appears. Continue straight through the intersection.



a. Shoulder check b. Signal c. Move through lane.

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## City of Burnaby

INTER-OFFICE COMMUNICATION

TO: BURNABY BICYCLE ADVISORY COMMITTEE      DATE: 2000 09 19

FROM: ASST. DIRECTOR ENGINEERING,  
TRAFFIC & ENGINEERING SYSTEMS      FILE: 55-07-09

SUBJECT: Government at Cariboo Road 'right turn only' lane

PURPOSE: To respond to correspondence to Council, referred to the Committee, requesting an exception for cyclists relative to the "right turn" lane on Government Street at Cariboo.

RECOMMENDATION:

1. THAT a copy of this report be sent to Mr. Ken Timewell of 86 St. Georges Avenue, North Vancouver and the Traffic Safety Committee.

REPORT

## 1.0 INTRODUCTION

At its May 01 Council received correspondence from Mr. Ken Timewell who wrote that he was a North Shore resident who frequently cycled to Coquitlam via the Lougheed Highway. With SkyTrain construction cyclists have been detoured to the Winston/Government route. For much of its length this diversion is ideal for cyclists because it provides one generous lane of travel in each direction with minimal parking. At the Cariboo road intersection however the road is striped to provide two lanes on each approach. On the eastbound approach there is a through lane and the curbside lane is designated for right turn only traffic to Cariboo Road. Mr. Timewell's letter sought an exception for cyclists. As the correspondence dealt with both cycling and traffic safety it was referred by Council to the two committees dealing with these issues. The letter was placed on the agenda of both Committees with the notation below:

"NOTE: Staff have reviewed the concerns expressed by this cyclist relative to the Winston Cariboo intersection. Ideally we would prefer providing additional space to cyclists through the junction but road width is constrained. We are concerned that excepting cyclists from the right turn lane requirement would potentially result in an unwary cyclist being pinched by a right turning vehicle. The right turn lane designation is adequately signed and marked. There are no plans for striping four lanes on the Winston/Government route. We note that the correspondent is using this route during SkyTrain construction. When Lougheed is reconstructed post SkyTrain



cyclists will be provided with a continuous shoulder lane along both sides of the highway and preference measures at critical intersection approaches. Bicycle ockers will also be provided at stations. The gist of this note will be conveyed to Mr. Timewell. ”

The annotated correspondence was placed on the May 25 agenda of the Bicycle Committee and received by the Traffic Safety Committee at its June 20 meeting. The Bicycle Committee referred the correspondence to staff for a further report.

Subsequently, follow-up correspondence was received at the 2000 September 11 Council meeting questioning the City’s lack of response to his original letter, and raising a number of additional cycle related issues. That correspondence appears elsewhere on the Committee’s agenda.

Staff have contacted the correspondent by phone to explain the lag time for a response on this issue, and to also provide a response to the additional questions raised in the second letter to Council relative to the reconstruction of the Lougheed Highway following the completion of the SkyTrain project.

## 2.0 BACKGROUND REVIEW

### 2.1 Intersection Geometry

The Government / Cariboo intersection has a typical 'T' configuration which is illustrated in Diagram #1. Government Street is constructed to a 14.0 metre standard with curb and gutter both east and west of this intersection, while Cariboo Road is an interim roadway with a total width of 10.0 metres in the vicinity of the intersection. Both Cariboo and the Government/Winston route are classed as “major primary collectors” in the Burnaby Transportation plan. Neither of the roads is part of the “Cycle Network” or the “Truck Route” network (Winston is a truck route west of Brighton). Each of the roadways provides only one moving lane of traffic per direction except on the approach to signalized intersection where 2 lanes are striped (because of the proximity of the intersections Government is striped for 4 lanes between Brighton and Cariboo).

In a best case scenario, a dedicated cycle lane would be provided between the existing through and right turn lanes, similar to the illustrated example in the attached Diagram #2. The City has implemented a number of similar bicycle approaches at signals. Unfortunately, the current width of Government Street is insufficient for the installation of a dedicated cycle lane.

### 2.2 Intersection Volumes

Historically the higher vehicle flow has occurred along the Cariboo approach during the AM, while the eastbound Government approach handles the bulk of the PM traffic. Recent traffic volume counts have confirmed this pattern remains notwithstanding the rerouting of Lougheed Highway traffic during SkyTrain construction.

### 3.0 REVIEW OF THE PROPOSAL

The seasoned cyclist, such as the correspondent, travelling eastbound on E. Government would typically have to assert "vehicle" status in advance of the Government intersection and weave across the right turn traffic stream to a position flanking through traffic at the intersection. This position is similar to the position where, under more ideal circumstance, a dedicated bike lane would exist as shown in Diagram #2.

An exception to the right turn requirement would also require the cyclist to assert vehicle status within the right turn queue except, presumably, the cyclist would not weave across the queue to flank the through movement. In not doing so the cyclist must be confident about blocking "right turn on red" opportunities for following traffic on some occasions. To not do so would require the cyclist to either proceed against the red or position himself at the right and slightly ahead of stopped through traffic. The latter position is similar to the one described above.

Our concern rests with the less knowledgeable cyclist who would typically approach the intersection as close to the curb as possible and during heavy traffic probably elect to travel through the intersection as a pedestrian. An exception for cyclists would potentially further cloud the choice of options for this cyclist leaving him stranded against the curb by right turning vehicles. A more unfortunate circumstance would have the novice cyclist assume, to his peril, that the right turn vehicles will yield to his exceptional permission to go straight through.

### 4.0 A COMPARISON WITH VANCOUVER

In his recent correspondence Mr. Timewell cites Broadway at Cambie as an example of a location where the cyclist exception to a mandatory right turn lane works. Staff have made observations at both the Cambie/Broadway and Cariboo/Government intersections during PM peak periods to reappraise our initial conclusions relative to Mr. Timewell's first letter as quoted above.

First we note that Cambie has a higher density of through to right turn traffic. Most northbound cyclists approached the intersection from curbside with about half electing to use the sidewalk and the pedestrian phase to cross Broadway. Cyclists using the right turn exception generally utilized gaps in the right turn traffic to proceed rather than taking a central position as a vehicle in the right turn lane.

On the Government eastbound approach to Cariboo we counted eleven cyclists during 75 minutes of observation. This accounted for about 50% of the cyclists entering the intersection during this period. Five of the eleven cyclists turned right to southbound Cariboo with six continuing through. Two did so by assuming a "legally correct" position in the through lane. One took a central position in the through lane while the remaining three moved through gaps in right turning vehicles as observed on Cambie. All cyclists entering the intersection did so safely and without incident.

## 5.0 DISCUSSION AND CONCLUSION

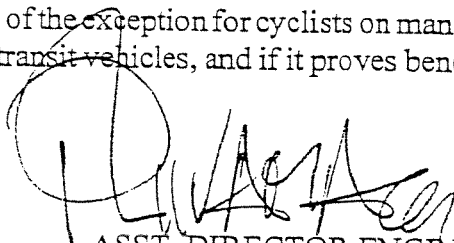
Although exemptions for cyclist in 'right turn only' lanes have been implemented within the City of Vancouver, staff remain unconvinced that a similar treatments is necessarily appropriate at the Government / Cariboo intersection.

The intersections are not comparable in character, setting or usage. We would assume that the motorist using Broadway and Cambie are more used to the presence of cyclists perhaps allowing for some reduction in the vigilance required by cyclists. It is not apparent whether a net safety benefit would accrue from the cyclist exception to the right turn requirement. In Vancouver it is not used as might be expected and we would not wish to encourage a more "casual" usage of the Government junction.

We note theoretically that there is little difference between the safest position for a cyclist in a right turn lane who wishes to continue through the intersection, and the ideal location for a cyclist in a through lane. However, the latter option, minimizes the potential for confusion and conflict especially by less experienced cyclists.

Primarily we would also note, that the current marking of the Government / Winston corridor as a cycle detour will exist only until the completion of SkyTrain infrastructure works. Following this, cyclists will be permitted back onto Lougheed Highway and enjoy the benefit of a 2.4m joint use paved shoulder with dedicated approaches at major intersections..

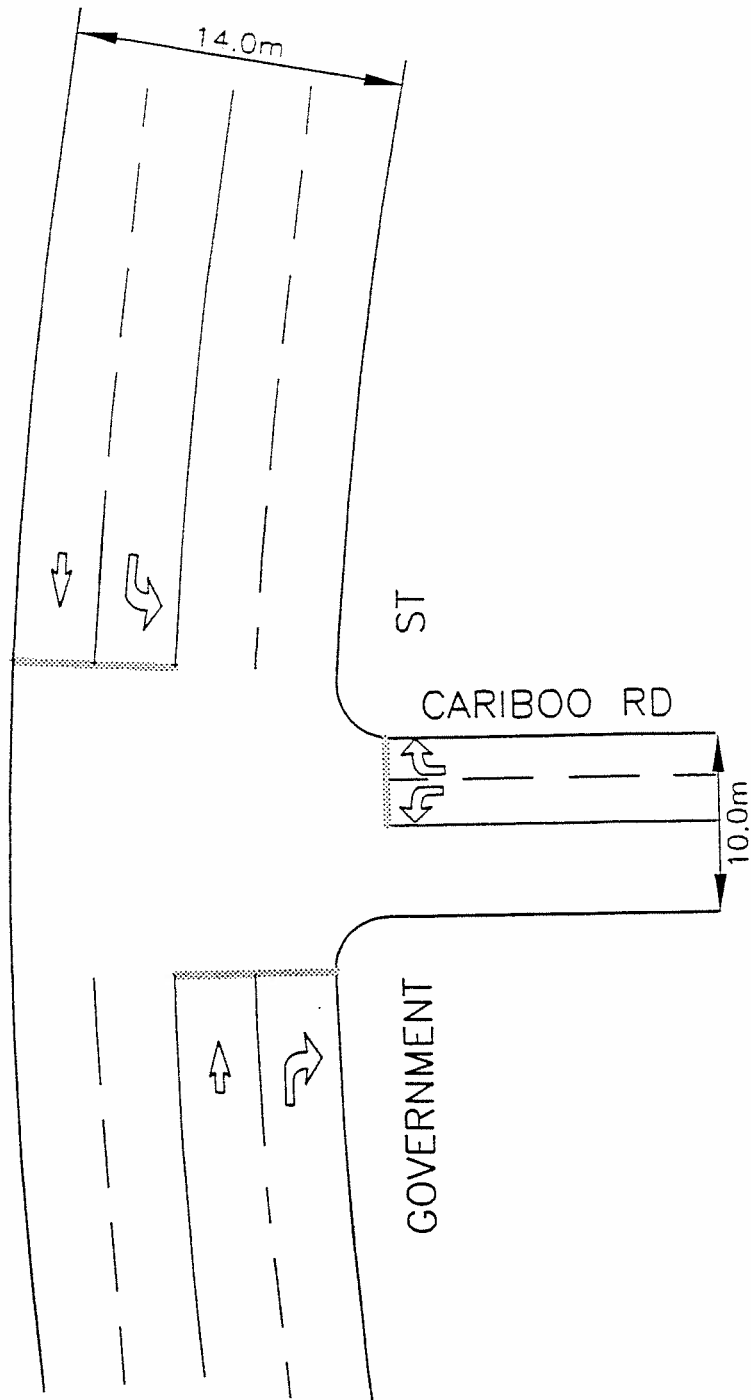
Staff will continue to monitor the effectiveness of the exception for cyclists on mandatory right turns. This type of exception is extensively given to transit vehicles, and if it proves beneficial for cyclists we would expect similar widespread usage.



ASST. DIRECTOR ENGINEERING,  
TRAFFIC & ENG. SYSTEMS

AE:

cc: City Manager



28

NO.	DATE	REVISION

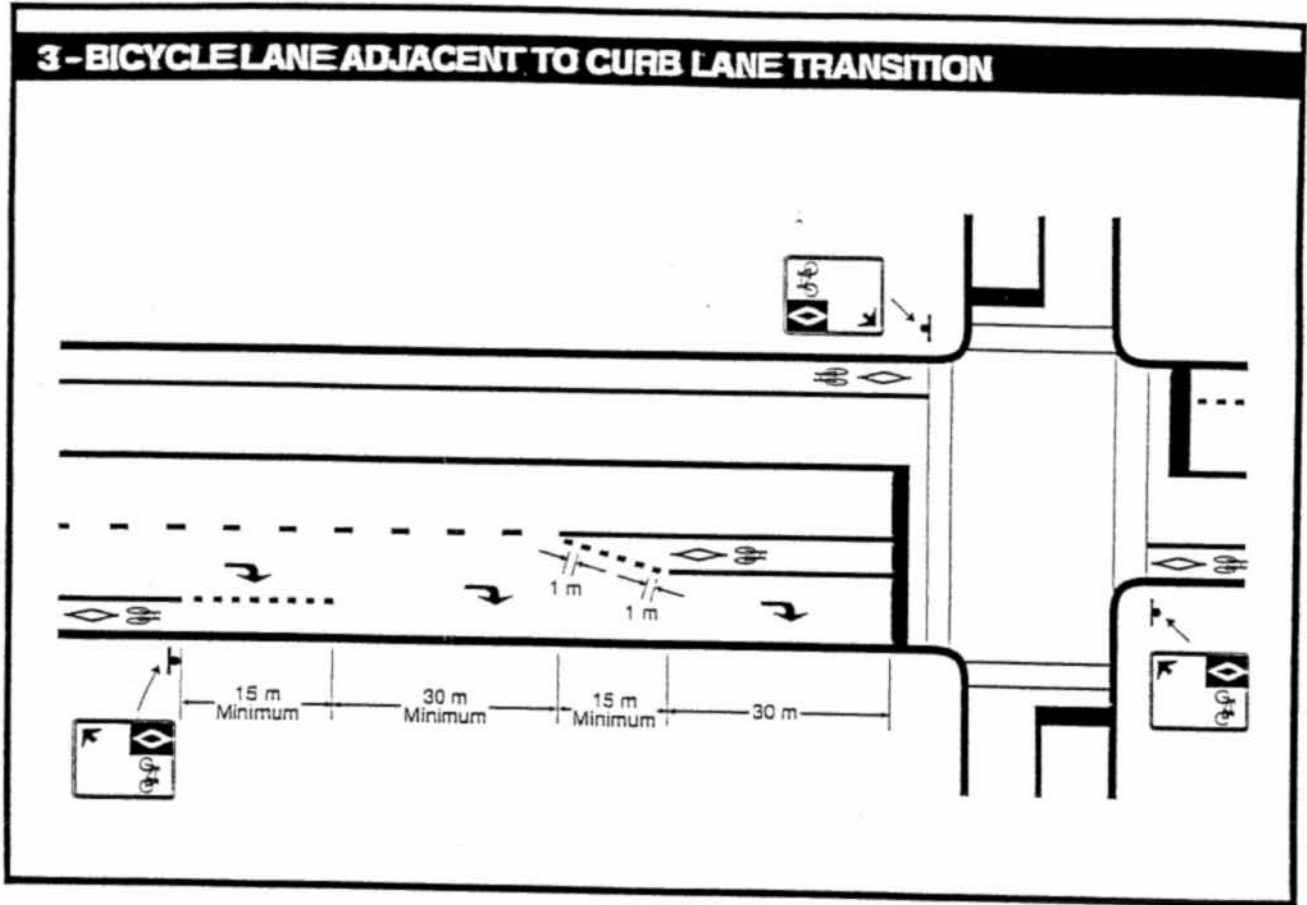


DIAGRAM 1  
GOVERNMENT RD/CARIBOO RD  
INTERSECTION

DRAWN BY: G.FUNK | SCALE: N.T.S.  
APPRV'D BY: | DATE: 00-09-20

**A 550**

### 3 - BICYCLE LANE ADJACENT TO CURB LANE TRANSITION



29

NO.	DATE	REVISION



City of  
**Burnaby**  
ENGINEERING DEPARTMENT

DIAGRAM 2  
TAC RECOMMENDED BICYCLE THRU LANE

DRAWN BY: G.FUNK | SCALE: N.T.S.  
APPRV'D BY: | DATE: 00-09-20

**A** 550a

