TRAFFIC AND TRANSPORTATION COMMITTEE
(TRANSPORTATION AND TRANSIT DIVISION)

HIS WORSHIP, THE MAYOR
AND COUNCILLORS

Re: Rezoning Reference #99-42
- Reconfiguration of the Intersection of Cameron and Beaverbrook

RECOMMENDATIONS:

1. **THAT** Council approve Option 1 as show on ***Figure 3 attached*** for the reconfiguration of the intersection of Cameron and Beaverbrook.

2. **THAT** Council approve an amendment to the Lougheed Town Centre Plan to incorporate the Option 1 intersection reconfiguration shown in ***Figure 3 attached***.

3. **THAT** a copy of the report be forwarded to those individuals who spoke on this issue at the Public Hearing in relation to Rezoning #99-42 or corresponded with the City.

REPORT

The Traffic and Transportation Committee (Transportation and Transit Division), at its meeting held on 2002 February 13 , received and adopted the *attached* report recommending an alternative option for the reconfiguration of the intersection of Cameron and Beaverbrook in relation to Rezoning Reference #99-42.

Respectfully submitted,

Councillor N. Volkow
Chair

Councillor D. Evans
Vice Chair

Councillor B. Der
Member

Copy: City Manager
Director Planning and Building
Director Finance
Director Engineering
Director Parks, Recr. & Cult. Services

TO: CHAIR AND MEMBERS
TRAFFIC AND TRANSPORTATION COMMITTEE 2002 February 8
(Transportation and Transit Division)

FROM: DIRECTOR PLANNING & BUILDING Our File: RZ 99-42

SUBJECT: REZONING REFERENCE #99-42
Reconfiguration of the Intersection of Cameron and Beaverbrook

PURPOSE: To recommend an option for the reconfiguration of the intersection of Cameron and Beaverbrook in relation to Rezoning Reference #99-42.

RECOMMENDATION:

1. **THAT** the Committee recommend to Council:

   a. **THAT** Council approve Option 1 as shown on ***Figure 3 attached*** for the reconfiguration of the intersection of Cameron and Beaverbrook.

   b. **THAT** Council approve an amendment to the Lougheed Town Centre Plan to incorporate the Option 1 intersection reconfiguration shown in ***Figure 3 attached.***

   c. **THAT** a copy of this report be forwarded to those individuals who spoke on this issue at the Public Hearing in relation to Rezoning #99-42 or corresponded with the City.

REPORT

1.0 INTRODUCTION

At its regular meeting of 2002 January 07, Council considered a report from the Planning and Building Department recommending First Reading be given to Rezoning Reference #99-42 to permit the construction of a townhouse development in the triangular area bounded by Noel Drive, Beaverbrook Drive and Cameron Avenue. A servicing requirement of the development involves the construction of a cul-de-sac on Cameron west of the intersection with Beaverbrook as shown in ***Figure 1 attached***. Arising out of the discussion on the rezoning, Council directed staff to report on the feasibility and advisability of the proposed cul-de-sac on Cameron and to examine alternatives to the proposed closure. This issue was also raised at the Public Hearing for the subject rezoning.

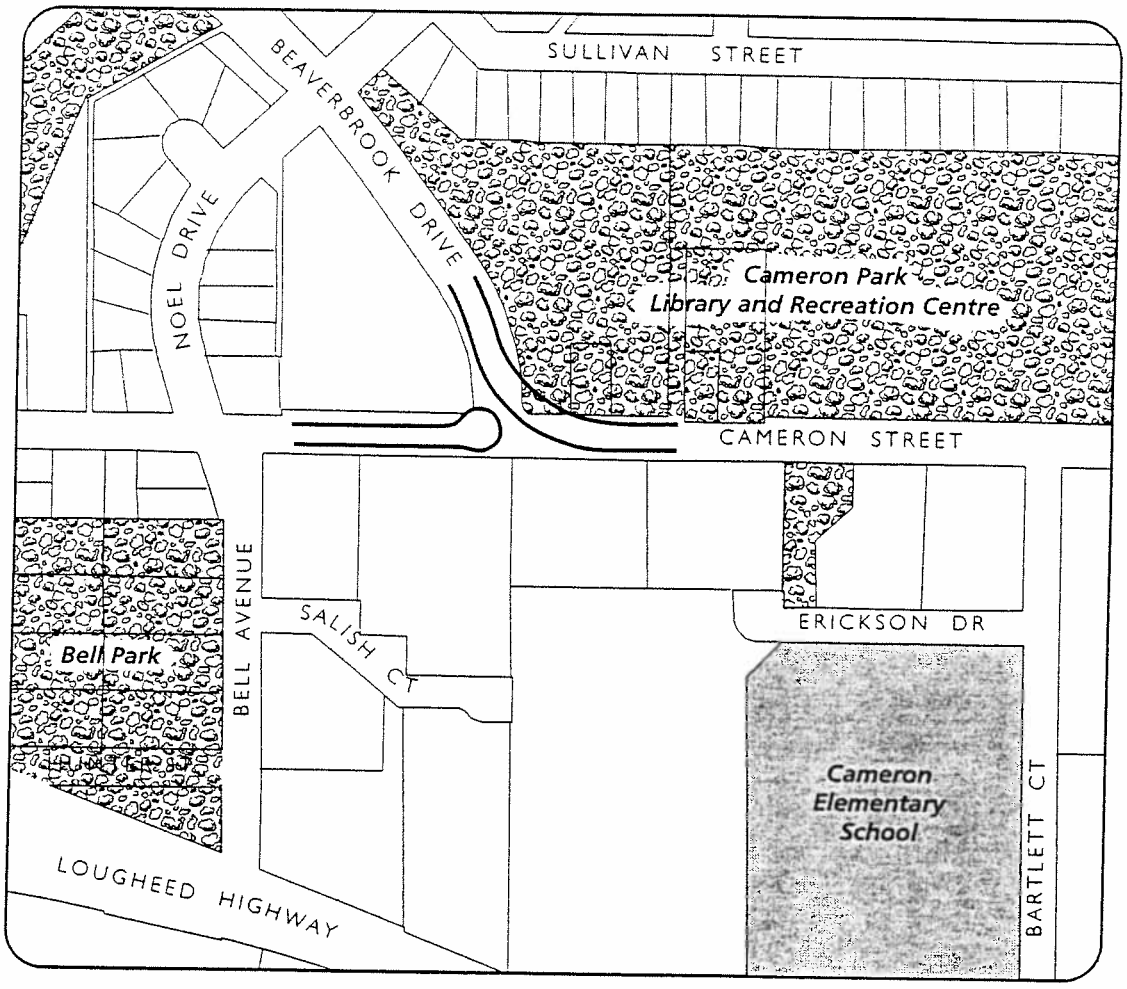

Figure 1

Current Plan:
Beaverbrook realignment / Cameron closure

City of Burnaby

PLANNING & BUILDING DEPARTMENT

2002 January

H/Nevison/Projects/Transportation/Cameron Beaverbrook

Subsequently at its regular meeting of 2002, February 4 Council approved an approach recommended by staff which involved a reassessment of the original Lougheed Town Centre Plan configuration for the intersection of Cameron and Beaverbrook with the Cameron closure. Council was provided with two options for reconfiguring and signalizing the intersection. The more detailed assessment of these options were to be the subject of a report to the Traffic and Transportation Committee (Transportation and Transit Division).

This report responds to the direction of Council.

2.0 LOUGHEED TOWN CENTRE PLAN

The current servicing requirements for the proposed townhouse development (Rezoning #99-42) include the intersection of Cameron and Beaverbrook being reconfigured as defined in the Lougheed Town Centre Plan as shown in ***Figures 1 and 2 attached.*** This configuration involves the proposed realignment of Beaverbrook and the closure of Cameron west of Beaverbrook to reduce commuter traffic on Cameron, decrease traffic congestion in the Cameron/Noel/Beaverbrook triangle and improve access within the town centre area.

The Lougheed Advisory Committee, which was formed to help prepare the Lougheed Town Centre Plan for consideration by Council, endorsed a two-part approach to address the problem of commuter "rat running" through the area. This problem was primarily related to commuters using Bell and Cameron as a by-pass route to Austin and North Road. The first part involved undertaking road improvements on routes such as Lougheed, Gaglardi Way, and Austin to encourage commuter traffic to stay on these designated arterial routes. The second part involved discouraging traffic from using Cameron by making the commuter route from Bell to Cameron less convenient and somewhat more circuitous by closing Cameron west of Beaverbrook.

The realignment of the Beaverbrook "sweep" to Cameron and its construction to a four-lane standard was designed to help provide a continuous collector road of sufficient capacity to meet current and future needs for access within the town centre area. Cameron, east of Beaverbrook, has been designated as a Major Collector-Primary in the Burnaby Transportation Plan which provides for its development to a 14 m. pavement surface accommodating four travel lanes. The provision of a four-lane standard on the section of Cameron between Beaverbrook and the driveway access to the Library was to allow traffic to move more smoothly through the town centre area, while not specifically accommodating the Bell to Cameron to North Road movement. Under the current road reconfiguration in the Lougheed Town Centre Plan, a pedestrian activated traffic signal would enable the Urban Trail/pedestrian crossing of Beaverbrook at Cameron.

When the Lougheed Town Centre Plan was prepared with extensive public input and subsequently adopted, the Advisory Committee endorsed a two-part approach to reduce

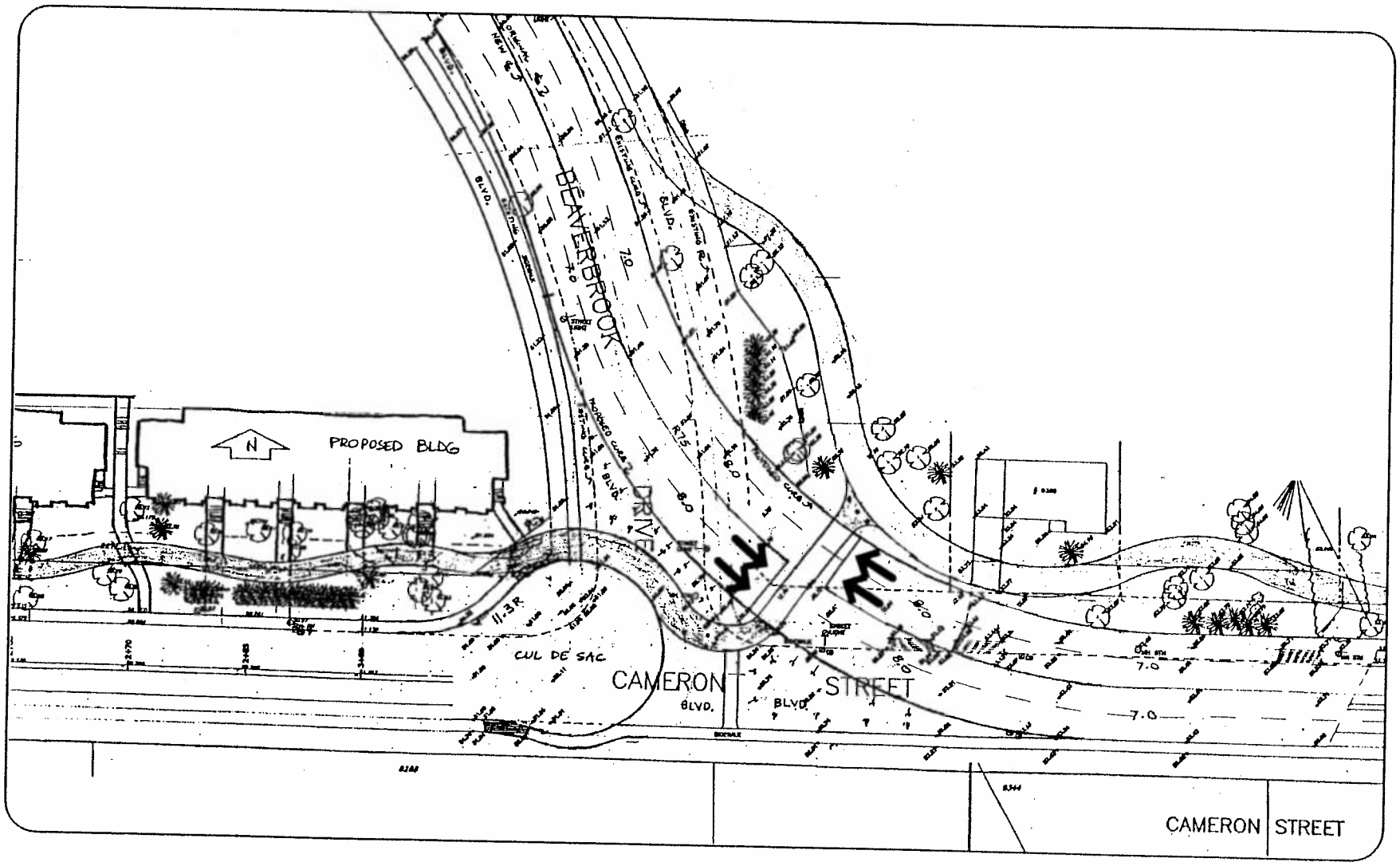

Figure 2

Lougheed Town Centre Intersection Configuration

City of Burnaby

PLANNING & BUILDING DEPARTMENT

2002 January

H/Nevison/Projects/Transportation/Cameron Beaverbrook

commuter traffic on Cameron: road improvements to reduce delay and encourage traffic to remain on the arterial roads like Lougheed, Gaglardi Way, and Austin and the closure of Cameron Avenue west of Beaverbrook. The second part of this strategy involved discouraging traffic from using Cameron by making the "rat-running" route from Bell to Cameron longer, more time consuming and less convenient by closing Cameron west of Beaverbrook.

In the intervening years since the development of the Lougheed Town Centre Plan, major improvements have been made to the transportation network in and near the town centre area to accommodate traffic growth on the arterial system including the signalization of Broadway and Gaglardi, the construction of the Broadway Connector and the reconstruction of Lougheed and Gaglardi intersection. These have helped restrain commuter traffic flows on Cameron. In the future, planned improvements to Lougheed Highway between Austin and North Road and upgrading of the intersections of Austin and North Road will also help reduce the delay on the arterial system. A series of traffic signal controlled intersections along Cameron, including a new signal at the entrance of the Lougheed Mall, as recommended in the Lougheed Town Centre Plan, will also help discourage commuter through movements. Transit improvements, particularly the Millennium SkyTrain Line, should help restrain the growth in automobile commuter trips along the Lougheed Corridor.

Against this changed transportation context, it is appropriate to reassess the Beaverbrook Cameron intersection configuration adopted in the Lougheed Town Centre Plan, particularly the closure of Cameron west of Beaverbrook, to determine whether it continues to be the appropriate course of action for the future development of the town centre.

3.0 INTERSECTION CONFIGURATION OPTIONS

The Lougheed Town Centre Plan incorporated a configuration for the intersection of Cameron and Beaverbrook which included a closure of Cameron west of Beaverbrook to reduce commuter traffic through the town centre and a realignment of Beaverbrook to Cameron to eliminate the existing T- intersection. This proposal was advanced recognizing that Cameron closure would be somewhat of an impediment to local access within the town centre.

Staff have undertaken a review of a number of possible intersection configuration options and are of the opinion that keeping Cameron at Beaverbrook open has merit in terms of neighbourhood access issues. As a result of our review, there are two options considered worthy of further consideration in relation to their respective benefits. These are shown on ***Figures 3 and 4 attached*** respectively and are generally described as follows:

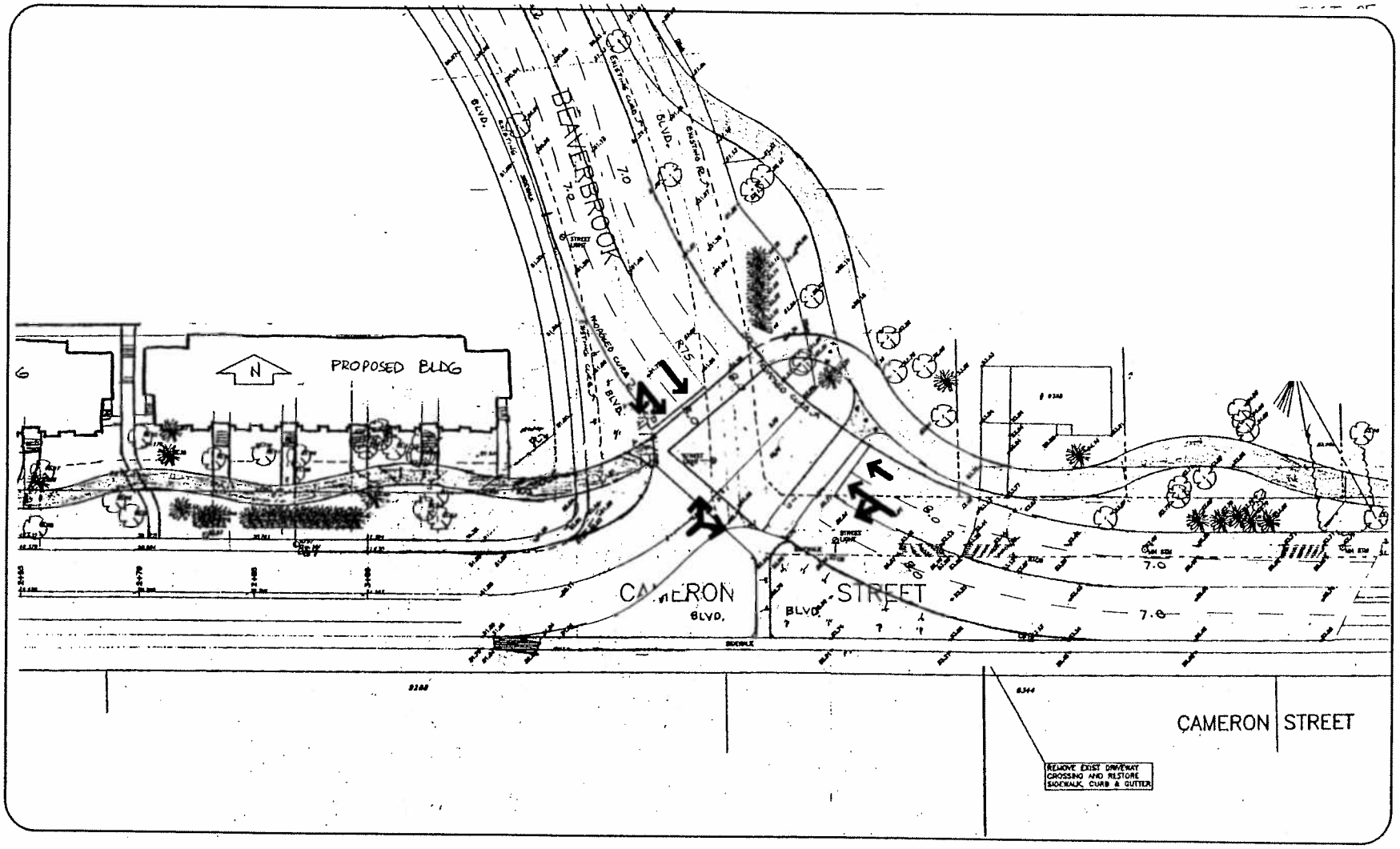

Figure 3
Option 1

Signalized Cameron / Beaverbrook Intersection with Beaverbrook realignment

City of Burnaby

PLANNING & BUILDING DEPARTMENT

2002 January

H/Nevison/Projects/Transportation/Cameron Beaverbrook

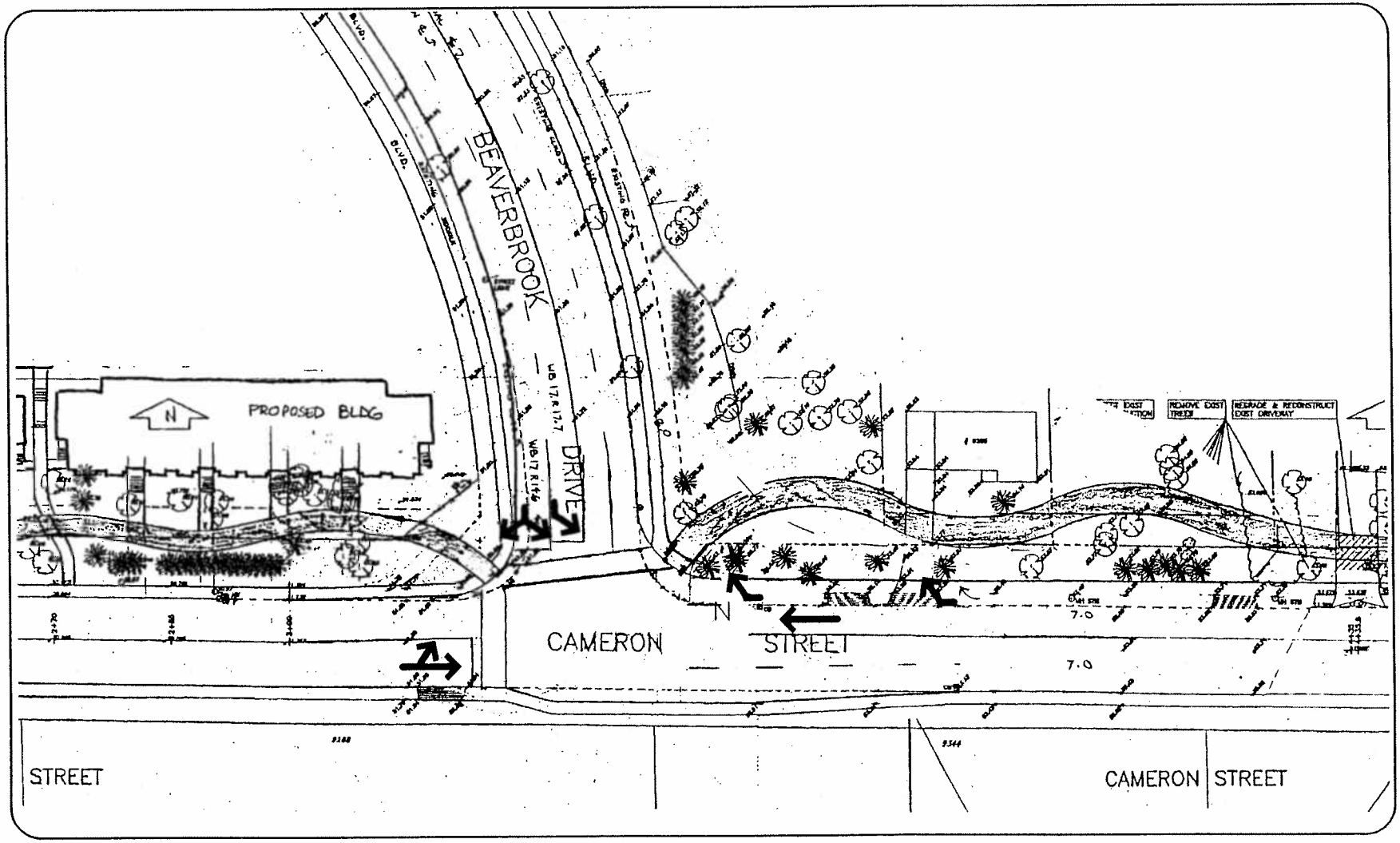

Figure 4
Option 2

Signalized Cameron / Beaverbrook Intersection with no Beaverbrook Realignment

City of Burnaby
PLANNING & BUILDING DEPARTMENT

2002 January
H/Nevison/Projects/Transportation/Cameron Beaverbrook

- **Option 1** ***(Signalized Cameron/Beaverbrook Intersection with Beaverbrook Realignment)***

  As shown in ***Figure 3 attached,*** this option would allow full movements from Cameron (west of Beaverbrook) by providing a signalized intersection, with Cameron entering Beaverbrook with a right angle configuration. The realignment of Beaverbrook with the "sweep" into Cameron is identical to that provided for in the Lougheed Town Centre Plan option. On the Beaverbrook and Cameron (east side) legs of the intersection, there would be two moving lanes in each direction with turning movements as illustrated on **Figure 3**. A "bulge" on the southern edge of the intersection is incorporated to restrict the eastbound Cameron leg to one shared lane for right and left turns. The crossing of the Urban Trail and pedestrian movements across the intersection is handled by the traffic signal-controlled intersection.

- **Option 2:** ***(Signalized Cameron/Beaverbrook Intersection With No Beaverbrook Realignment)***

  Option 2 is shown on ***Figure 4 attached***. The current T- intersection configuration would be maintained but with full signalization and turning movements. The two major movements between Cameron and Beaverbrook (east of Beaverbrook) would require 90 degree left and right turns and include dual left turn lanes from Beaverbrook to Cameron eastbound.

  Provision for pedestrian crossings of the intersection is shown on **Figure 4**. There would be no crosswalk on the east side of the intersection to allow a more efficient operation of the intersection.

  Option 2 would require the same road right-of-way dedication for the Cameron Street widening east of Beaverbrook as in the case of Option 1 and the Lougheed Town Centre Plan configuration.

3. EVALUATION OF THE OPTIONS

3.1 Evaluation Criteria

An evaluation of the current configuration in the Lougheed Town Centre Plan and the two options are summarized for each option in the following sections. The Plan configuration and the two options are evaluated in terms of the following criteria:

- capability to reduce commuter traffic
- local traffic access through the Cameron/Beaverbrook intersection
- the safety of cyclists and pedestrians crossing the intersection
- access to and from the neighbourhoods in the Lougheed Town Centre particularly Sullivan Heights and the Bell/Cameron area

- access into and out of driveways on Cameron Street and on Noel Drive
- impact on the park area

3.1.1 Commuter Traffic Reduction

Through an analysis of current traffic volumes on Cameron originating from North Road, it is estimated that 1,200-1,500 vehicles travel through the area in the A.M. Peak Period (6-9 A.M.). Of these, approximately two thirds or 800-1000 use the Cameron/Beaverbrook/Eastlake route and approximately one third, or 400- 500 vehicles, use the Cameron/Bell route. There is a generally similar number experienced during the P.M. Peak (3-6 p.m.). On a daily basis, it is estimated that up to 2000 vehicles use the Bell/Cameron route to travel through the area to and from North Road. These 2000 vehicles represent approximately 15% of the total 14,700 vehicles per day using Cameron.

Taking into account the major road improvements completed on the Lougheed Highway, Broadway and Gaglardi Way in recent years, it is estimated that about 25% of the Lougheed/North Road through-trips would revert back to the arterial system with the additional delay associated with a closure of Cameron. Therefore the Lougheed Town Centre Plan intersection configuration incorporating the closure of Cameron west of Beaverbrook could be expected to reduce the through-traffic on Cameron east of Beaverbrook by 500 vehicles a day. As shown in ***Figure 5 attached***. daily traffic volumes on Cameron east of Beaverbrook would decline from the current 14,700 vehicles to 14,200 vehicles.

The closure of Cameron would however result in additional traffic volumes along Noel Drive between Cameron and Beaverbrook.

Option 1 incorporating the curb bulge on the eastbound approach from Cameron to Beaverbrook would help constrain the capacity of Cameron west of Beaverbrook to accommodate eastbound movements. Under both Option 1 and Option 2 signal timing would be adjusted (2/3 priority for the Beaverbrook to Cameron (east of Beaverbrook) to limit the capacity for movements along Cameron between Bell and Beaverbrook. It has been estimated that with the provision of the intersection bulge and the signalization timing priority for the Beaverbrook movements, that the current eastbound volumes of traffic on Cameron west of Beaverbrook can be kept to current levels for both options. Neither Option 1 or 2 would significantly constrain westbound movement along Cameron to Bell in the AM Peak period. Overall, the original Lougheed Town Centre option provides the best constraint to commuter flows along Cameron.

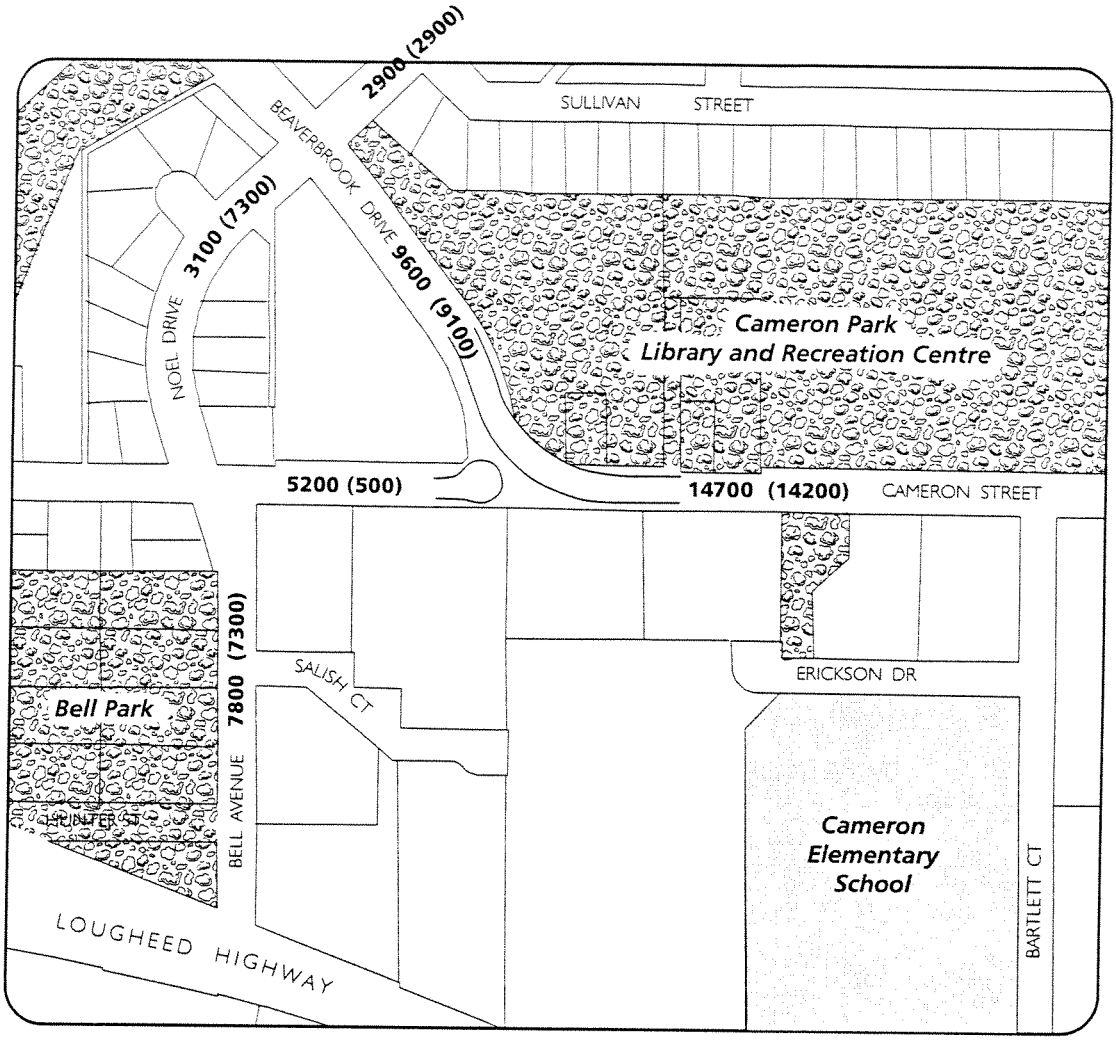

Figure 5
Lougheed Town Centre Intersection Configuration
Change in Average Weekday Traffic Volumes 2002

WITHOUT CLOSURE (WITH CLOSURE)

City of Burnaby

PLANNING & BUILDING DEPARTMENT

2002 January

H/Nevison/Projects/Transportation/Cameron Beaverbrook

Should commuter through traffic along Cameron between Lougheed and North Road be identified as a problem in the future, it would be possible under Option 1 to readily adapt the intersection configuration to include the Cameron cul de sac west of Beaverbrook.

Best Option: Lougheed Town Centre Plan
Next Best: Option 2

3.1.2 Access through the Cameron Beaverbrook Intersection

Beaverbrook and Cameron are the main streets internal to the residential and commercial areas of the town centre. As such, the capability of the intersection to function efficiently with minimal delay to the major movements is important to accommodate local access within the town centre.

The Lougheed Town Centre Plan configuration with the realignment of Beaverbrook and the closure of Cameron west of Beaverbrook has the advantage of eliminating one leg of the current T intersection, thus removing an existing capacity constraint. With the likely reduction in commuter traffic and the added capacity, this configuration would best accommodate local access within the town centre now and in the future.

Under Options 1 and 2, the introduction of a traffic signal reduces the capacity of the Beaverbrook/Cameron intersection in comparison to the free flowing Lougheed Town Centre Plan configuration. Notwithstanding, it is considered that Option 1 has the necessary capacity to accommodate current and future local traffic volumes through signal phasing times. Because of the two lane accommodation for the right turn movement from Cameron to Beaverbrook, Option 1 provides an increased capacity of approximately 1730 vehicles per hour to accommodate the approximately 825 vehicles that currently make this movement during the AM Peak hour. However, because Option 2 provides only one lane for the Cameron to Beaverbrook westbound movement, this would further constrain the capacity of the intersection for this important movement. With current traffic volumes of 825 vehicles per hour, the AM peak period making this movement would approach the projected capacity of 870 vehicles per hour. As such, the intersection would begin to fail and traffic queuing would develop in a few years under Option 2. This is a fundamental shortcoming of Option 2.

Best Option: Lougheed Town Centre configuration
Next Best: Option 1

3.1.3 Urban Trail/Pedestrian Safety

Under the Lougheed Town Centre Plan configuration and Options 1 and 2, the Urban Trail and pedestrian crossing on the north side of Cameron would be taken at a pedestrian-signalized crossing of the Beaverbrook/Cameron intersection. Under all options, cyclists and pedestrians would cross Beaverbrook with the appropriate traffic stopped. The realignment of Beaverbrook to Cameron sweep has been designed to accommodate a maximum posted speed of 50 kph.encouraging vehicles to slow down through the curve thereby maintaining safety for both cyclists and pedestrians. These configurations offer low potential for conflict between cyclists/pedestrians and vehicles, although under Option 2, there would some conflict between those crossing and vehicles wishing to make a right turn on red from westbound Cameron to Beaverbrook. This problem would be greatly accentuated if a free flowing right turn lane from Cameron to Beaverbrook were included as part of Option 2, necessitating a pedestrian island within the intersection. For this reason, the additional right turn lane has not been included in Option 2. A pedestrian crossing of Cameron at the east side of the intersection has also not been included because of overall capacity implications it would have at the intersection.

Best Options: Lougheed Town Centre configuration and Option 1

3.1.4 Access to/from Neighbourhoods

As part of the Public Hearing discussions, the issue of access into and out of the Sullivan Heights and Cameron/Bell residential areas was raised with regard to the Lougheed Town Centre Plan intersection configuration with the closure of Cameron west of Beaverbrook. The closure would redirect all traffic movements on Cameron west of Beaverbrook to Noel Drive and to the Noel Drive/Beaverbrook intersection. Based on currents traffic counts, this would increase two-way daily traffic volumes on Noel Drive between Cameron and Beaverbrook from the current 3,100 vehicles to an estimated 7,300 vehicles (see **Figure 5**). It is therefore acknowledged that while the residents on the south side of Cameron Between Noel and Beaverbrook would benefit from a significant reduction in volumes, there would be a corresponding increase for the residents on Noel Drive.

The effect of the Cameron closure on access to the Sullivan Heights area is linked to the capability of the intersection of Noel and Beaverbrook to accommodate the increased turning movements at the intersection that would result. A review of the intersection capacity at this location shows that if new lane markings within the available right-of-way are provided at the approaches to the Noel/Beaverbrook intersection as shown in ***Figure 6 attached***, the intersection would have sufficient capacity to accommodate the increased volumes of diverted traffic. With Cameron closed, the right turning movement from Noel to Beaverbrook would use about 90

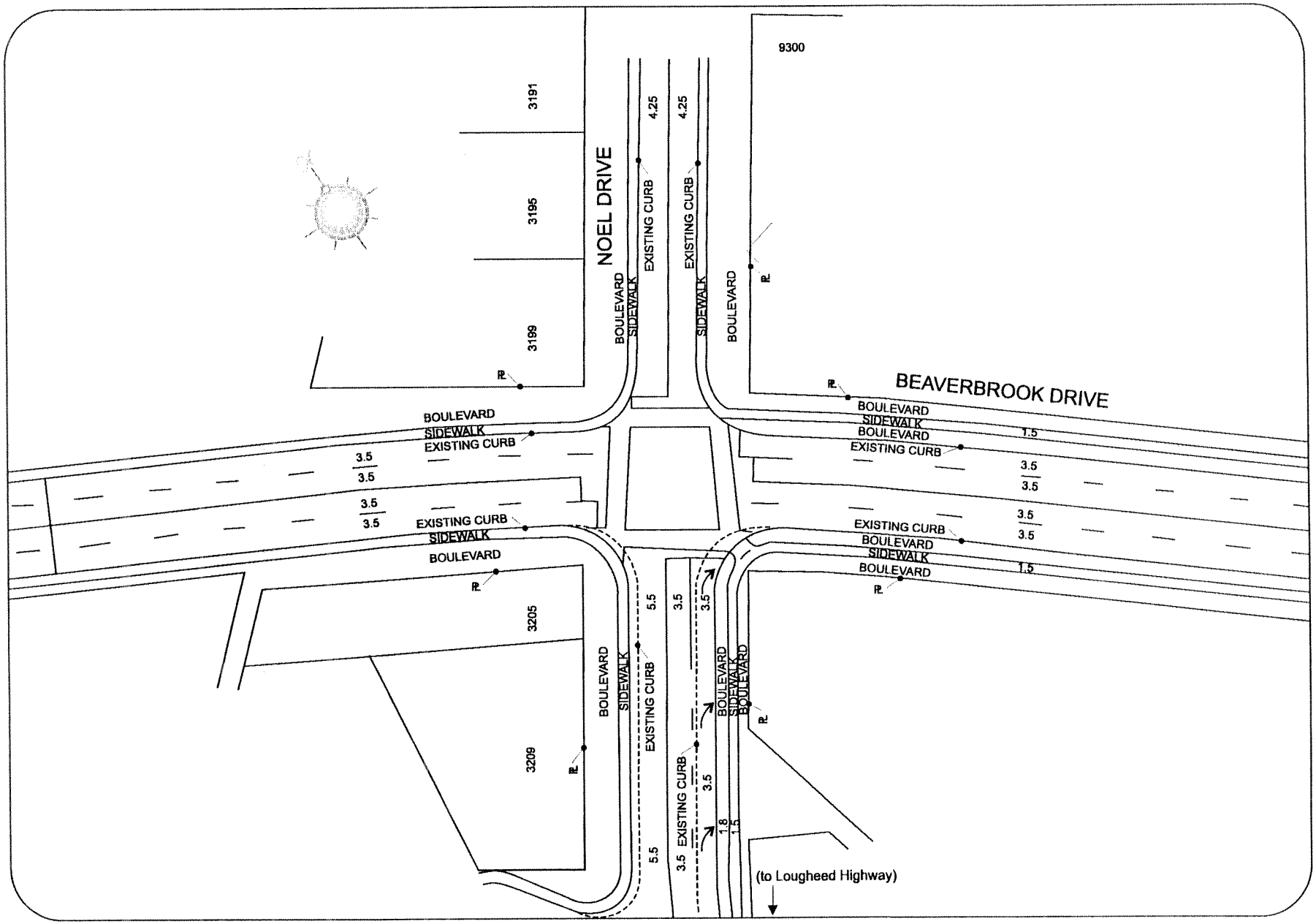

Figure 6

Beaverbrook Noel Drive
Intersection Reconfiguration

City of Burnaby
PLANNING & BUILDING DEPARTMENT

percent (including traffic from the townhouse development related to Rezoning #99-42) of the capacity of the added marked right turn lane. Any queuing would occur within that lane. The straight through northbound movement from Noel, as well as the left turn movement to Beaverbrook would have substantial excess capacity. Therefore, access to and from the Sullivan Heights area which is required through this intersection is not regarded as a significant issue. It is clear that Options 1 and 2 would result in lower volumes at this intersection in comparison to the Lougheed Town Centre option. This is particularly the case with respect to the right turn volumes at the Noel/Beaverbrook intersection.

Further, local access to and from the residential neighbourhoods accessing Bell and on Cameron west of Beaverbrook to the Lougheed Town Centre and its related facilities in the eastern segments of Cameron would be more circuitous through the Noel/Beaverbrook intersection that would be necessary with the closure of Cameron.

Best Options: Option 1 and Option 2

3.1.5 Driveway Access

An issue raised by residents in the Lougheed Town Centre Plan process was the difficulty of making left turns in and out of driveways on Cameron east of Beaverbrook due to the continuous stream of traffic on the two lanes of Cameron during rush hours. The introduction of a signalized intersection at Cameron and Beaverbrook under Options 1 and 2 will assist in creating breaks in the traffic stream providing more opportunities to make left turns into and out of driveways. The future introduction of a signal at Cameron and the Lougheed Mall entrance will further assist in this regard.

Regarding driveway access to residential properties on Noel between Cameron and Beaverbrook and on Cameron between Noel and Beaverbrook, the Lougheed Town Centre Plan configuration would improve driveway access for the residents living on Cameron west of Beaverbrook. However, the increased traffic on Noel Drive between Cameron and Beaverbrook that would result from the Cameron closure would mean longer waiting times to make turns into and out driveways along Noel Drive during peak periods. From this perspective, the existing driveways along Noel and the designated Noel Drive access to the townhouse development proposed in Rezoning #99-42 would benefit from Cameron remaining open under Options 1 and 2.

Best Options: Option 1 and Option 2

3.1.6 Park Impacts

To realign Beaverbrook with Cameron as proposed under the Lougheed Town Centre Plan configuration and Option 1, 220 sq. metres of property from the southwest corner of Cameron Park would be required as would the removal of 11 trees from the northeast corner of Beaverbrook and Cameron. Option 2 would require no property taking from the park and the removal of 2 trees.

Best Option: Option 2

4.0 CONCLUSION

The following table summarizes the relative meirts of the three alternatives for the Beaverbrook/Cameron intersection in relation to the criteria identifed.

Table 1 Evaluation Summary

Criteria	Intersection Configuration Options		
	Lougheed Town Centre Plan Configuration	*Option 1 Full Signalization Beaverbrook Realignment*	*Option 2 Full Signalization No Beaverbrook Realignment*
Reduction in Commuter Traffic on Cameron 2002	Best	Next Best	-
Access Through Cameron/Beaverbrook Intersection	Best	Next Best	(Significant Deficiency)
Urban Trail/Pedestrian Crossing Safety	Best	Best	-
Access to/ from Neighbourhoods	-	Best	Best
Driveway Access	-	Best	Best
Park Impacts	-	-	Best

As previously outlined, the Lougheed Town Centre Plan provided for the future closure of Cameron west of Beaverbrook to help curtail commuter through movements through the town centre along Cameron between Lougheed Highway and North Road. In addition, the plan also sought to provide adequate local access to and from and within the town centre area. This report has concluded that the Lougheed Town Centre Plan intersection

configuration provides the best deterrent to commuter movements through the town centre of the options reviewed. However, the overall reduction that would be achieved is estimated to be about only 10 percent, or 500 vehicles, of the total daily traffic on Cameron west of Beaverbrook. Furthermore, this reduction from the closure of Cameron west of Beaverbrook results in a significant increase in traffic on Noel Drive between Cameron and Beaverbrook.

Option 2 does have many attributes in relation to the factors considered. However, it simply does not address the capacity needs at the Beaverbrook/Cameron intersection. For this reason, staff cannot support this alternative.

While Option 1 does not achieve the highest rating for restricting commuter through traffic, it is considered a manageable alternative in this regard. Overall, it represents a superior solution in relation to other factors and does not impose a significant barrier to desired movements within the town centre area. In relation to the current closure proposal, it removes the need to detour significant traffic up Noel Drive between Cameron and Beaverbrook, takes pressure off the Noel/Beaverbrook intersection, provides more direct access to the town centre for the Salish Court neighbourhood and promotes more breaks in the traffic along Cameron through the introduction of an additional full signal intersection. For the proposed townhouse development at Noel and Cameron, it reinforces the access/egress point on Noel Drive. However, it is acknowledged that with Option 1 the current traffic volumes on Cameron between Noel Drive and Beaverbrook would remain. The phasing of the traffic signal timing and the introduction of a single left/right turn lane at the intersection would be designed to help ensure that volumes remain manageable.

Given the above, staff would recommend that Option 1 as shown on **Figure 3** be approved by Council for the reconfiguration of the Beaverbrook/Cameron intersection. Concurrently, it is also recommended that Council be requested to incorporate this intersection adjustment within the Lougheed Town Centre Plan.

With Council's approval of these recommendations, staff will make the necessary adjustments to the servicing requirements associated with Rezoning #99-42. Specifically, the applicant would be responsible for the reconfiguration of Cameron Street at the south-west leg of the intersection. As with the case under the Cameron closure proposal, the City will need to cost share the remainder of the intersection improvements with the developer. This will be the subject of a further report to Council at the appropriate time.

J.S. Belhouse, Director
PLANNING AND BUILDING

JSB:RG:sa
Attachments(6)

cc: City Manager
Director Finance
Director Parks, Recreation and Cultural Services
Director Engineering