

CITY OF BURNABY

TRAFFIC AND TRANSPORTATION COMMITTEE
(TRANSPORTATION AND TRANSIT DIVISION)

HIS WORSHIP, THE MAYOR
AND COUNCILLORS

Re: Canada Way/Sperling Intersection

RECOMMENDATIONS:

1. THAT Council approve the design concept for the Canada Way/Sperling intersection, including signalization, as shown in Figure 2.
2. THAT Council request a meeting with the Minister of Transportation and Highways on site to discuss the intersection improvements.
3. THAT a copy of this report be sent to the Burnaby Village Museum, Hart House Restaurant, Deer Lake Arts Centre, and the Burnaby Fire Department.

R E P O R T

The Traffic and Transportation Committee (Transportation and Transit Division), at its meeting held on 1994 September 14, adopted the attached staff report documenting the accident pattern at the Canada Way/Sperling intersection and recommending safety improvements to the intersection.

Respectfully submitted,

Members:

Mr. Ernest Neumann
Mr. Len Werden

Councillor D. Evans
Chairman

Councillor J. Young
Member

COPY - CITY MANAGER
- DIRECTOR ENGINEERING
- DIR. PLNG. AND BLDG.

TO: CHAIR & MEMBERS 1994 SEPTEMBER 8
TRAFFIC & TRANSPORTATION COMMITTEE
(Transportation and Transit Division)

FROM: DIRECTOR PLANNING & BUILDING OUR FILE: 08.640

SUBJECT: CANADA WAY / SPERLING INTERSECTION

PURPOSE: To document the accident pattern at the Canada Way/Sperling intersection, and recommend improvements to the intersection to improve safety.

RECOMMENDATIONS:

1. THAT the Traffic and Transportation Committee approve the design concept for the Canada Way/Sperling intersection, including signalization, as shown in Figure 2.
2. THAT the Traffic and Transportation Committee request a meeting with the Minister of Transportation and Highways on site to discuss the intersection improvements.
3. THAT a copy of this report be sent to the Burnaby Village Museum, Hart House Restaurant, Deer Lake Arts Centre, and the Burnaby Fire Department.

REPORT

1.0 BACKGROUND

The discussions between the City of Burnaby and the Ministry of Transportation and Highways regarding the installation of a signal at the intersection of Canada Way/Sperling have been ongoing for the past decade. In the late 1980s, the City of Burnaby approached the Ministry of Transportation and Highways regarding the installation of a traffic signal at Canada Way/Sperling, and the development of channelisation to separate turning vehicles from the through traffic on Canada Way. In response to the City's request for intersection upgrades, the Ministry cited the proximity of Sperling to the existing signalised intersection of Canada Way/Kensington as an impediment. The Ministry recommended that any signalization on Canada Way between Burriss and Kensington be at Chiselhampton.

With the continuing development in the Deer Lake area, including the Burnaby Village Museum, and the Arts Centre, the demand for safe access to and from Canada Way has increased. Staff have had numerous calls from both the museum and the fire department

regarding accidents at the Canada Way/Sperling intersection.

In 1993, a development proposal was submitted for the area to the north of Canada Way between Sperling and Clayton, as shown in Figure 1. City staff proposed that a major reconstruction of the intersection including signalization would be required to provide for safe left turns into and out of the development. This report describes the intersection project, and summarises the most recent discussions with the Ministry of Transportation and Highways regarding the installation of a signal.

2.0 Intersection Improvements

2.1 Need for Improvements

Because of the high number of accidents at the Canada Way/Sperling intersection, the City of Burnaby has required that major reconstruction take place to provide left turn channelisation, and that a signal be installed to facilitate left turning into and out of both the north and south legs of Sperling.

The City has accident statistics dating back to 1990. As shown in Table 1 below, the majority of these accidents are rear-end type accidents where a vehicle is hit from behind while waiting to turn or queuing at the intersection.

Table 1 Reported Accidents at Canada Way/Sperling

YEAR	TYPE OF ACCIDENT			TOTAL
	Rear End	Intersection/ Right Angle	Other	
1990	14	4	1	19
1991	13	7	2	22
1992	7	5	1	13
1993	7	2	2	11
1994 *	11 *	3	0 *	14 *

* 1994 to date (up to the end of August)

As is evident from the data presented, the accident rate at the intersection of Canada Way/Sperling is relatively high, with an average of just over 16 accidents per year between 1990 and 1993. The number of reported accidents each year has decreased somewhat since

1991. However, considering that we have data for only 3/4 of 1994, the accident rate this year will likely be higher than either 1992 or 1993.

A signal would provide for safe access to the proposed development north of Canada Way, and would improve access to the facilities located on Deer Lake Avenue south of Canada Way such as the Burnaby Village Museum, Hart House Restaurant, Arts Centre, and other uses.

Another reason for requesting a signal at the Canada Way/Sperling intersection is to increase safety for pedestrians using the bus stop on the north side of Canada Way who wish to cross to the Burnaby Village Museum or the 7-11 on the south side of the road.

2.2 Design

The intersection design shown in Figure 1 would provide left turn channelization to accommodate left turns into both Sperling south providing access to the Deer Lake area, and Sperling north providing access to Firehall #1 and the Clayton - Rayside area. The left turn bays would reduce the number of rear-end accidents caused by vehicles turning left from the through lane.

Signalization of the intersection is required to accommodate left turns out of Sperling from the Clayton - Rayside and Deer Lake areas. The more dangerous right angle accidents caused by these movements would be addressed by signalization.

2.3 Funding

The cost of these intersection improvements is estimated at approximately \$700,000, and would be funded by the City of Burnaby and future developments in the Clayton - Rayside area.

3.0 Development Proposal

The most recent discussions with the Ministry of Transportation and Highways regarding the intersection of Canada Way/Sperling, began in Spring 1993 with regard to the development of the area to the north of Canada Way bounded by Canada Way, Clayton and Chiselhampton. The development consists of a total of 79 units to be constructed in three phases, as follows:

Phase 1:	23 Units
Phase 2:	46 Units
Phase 3:	10 Units

The Ministry of Transportation and Highways requested that a traffic study be conducted for the development, paying particular attention to the operation of a signal located at either Canada Way/Sperling or Canada Way/Chiselhampton.

4.0 Traffic Study

In the Fall of 1993, Hamilton Associates was retained by the developer to conduct a traffic study for the development. Hamilton Associates analysed the projected traffic patterns for two scenarios: with a signal at Canada Way/Sperling; and with a signal at Canada Way/Chiselhampton. The study was completed in the Spring of 1994, and the main conclusions were summarised in tabular format by the consultant, and shown in Table 2 below.

Table 2 Main Conclusions Drawn from Consultant's Traffic Study

CRITERIA	SCENARIO 1: Traffic signal at Canada Way and Sperling Avenue	SCENARIO 2: Traffic signal at Canada Way and Chiselhampton Street
Capacity Performance	Same	Same
Traffic Demand	Preferred	
Arterial Progression	Same	Same
Anticipated Queuing		Marginally Preferred
Horizontal Alignment		Preferred
Neighbourhood Impacts	Preferred	

The table summarises the main findings of an exhaustive analysis of arterial progression and signal analysis. The Consultant found that the capacity of a signal at Canada Way/Sperling was similar to that of a signal at Canada Way/Chiselhampton; however, due to increased development south of Canada Way in the Deer Lake area, there is more demand for a signal at Sperling than at Chiselhampton.

When the consultant analysed the expected traffic volumes to assess the impact of a signal on arterial progression along Canada Way, he found that installing a signal at either location would have little impact on Canada Way. The potential for queuing from the Canada Way/Kensington intersection to Sperling Avenue, favours a signal at Chiselhampton.

Another aspect considered by the consultant was the horizontal alignment of Canada Way in the vicinity of the two intersections. Between Kensington and Sperling, there is a sharp curve on Canada Way, whereas Chiselhampton intersects a straight section of Canada Way. When considering only horizontal alignment, Chiselhampton would be the preferred location for a signal. However, if a signal was installed at Canada Way/Sperling, advance warning signals could be installed on the east-bound approach on Canada Way.

In his analysis of the preferred location for a signal, the consultant considered its impact on the area network. The only connection between Sperling and Chiselhampton through the residential area to the south of Canada Way is via Rugby Street, a quiet residential street. The City of Burnaby would not encourage such a connection because of the impact on Rugby Street. Therefore, if a signal was installed at Chiselhampton, it would serve neither the Deer Lake area nor the residential area to the south of Canada Way. In that case, the intersection of Canada Way/Chiselhampton is not an acceptable location from an access or neighbourhood perspective.

5.0 Signal Warrant

The Consultant's traffic study was reviewed by the Ministry of Transportation and Highways in the Spring of 1993. The Consultant had analysed the signal warrant from a traffic volume perspective based on the Manual of Uniform Traffic Control Devices published by the Transportation Association of Canada. Based on this calculation, the signal is warranted at either Canada Way/Chiselhampton or Canada Way/Sperling intersection from a traffic volume perspective. A signal at the intersection of Canada Way/Sperling, however, would handle more turning movements than one at Chiselhampton; therefore, Sperling would be the preferred location.

The Ministry of Transportation and Highways uses its own signal warrant procedure modelled on the Institute of Transportation Engineers (I.T.E.) procedures published by Prentice Hall, New Jersey. Under the I.T.E. warrant, the requirement for a signal is considered under both "traffic volume" and "accident history". The warrant calculation does not support a signal in either location due to insufficient volume on either Sperling or Chiselhampton during the peak periods. Therefore, the Ministry of Transportation and Highways does not support a signal at either location due to it not being warranted based on their standards.

The I.T.E. warrant procedure specifies that one or more of the warrants must be met before a signal can be installed. One of the warrants considered is that of accident history.

The accident portion of the signal warrant is split into three sections, as follows:

- Part A. Remedial Measures: The Ministry requires that other less restrictive methods of dealing with the accident problem are tried before a signal be installed.
- Part B. Accident History: The Ministry wishes to see at least 5 correctable accidents in a 12 month period before installing a signal.
- Part C. Traffic Progression: The Ministry is concerned that existing traffic progression is not "severely impacted" by the addition of a signal.

The following discusses each of these sections relative to the Canada Way/Sperling intersection.

Part A Remedial Measures

Staff met with staff from the Ministry of Transportation and Highways to discuss the accident warrant at Canada Way/Sperling. The Ministry requires that, even if a significant accident problem can be demonstrated, some form of "remedial measure" be tried before installing a signal. In the case of Canada Way/Sperling, there are few measures which could be tried. The Ministry suggested the following:

1. Change the signal timing at both Kensington and Burris to increase the number of gaps in the traffic flow at Sperling.

This "remedial measure" could be tried, but it would impact the capacity of the Canada Way/Kensington intersection. Therefore, in the interest of providing the best level of service for vehicles using Canada Way, this type of "remedial measure" would be detrimental to flow on Canada Way.

2. Restrict turning movements at Canada Way/Sperling.

Restricting turning movements at Canada Way/Sperling would severely restrict access for residents of both the area to the north of Canada Way, and the existing residential area south of Canada Way, as well as the Deer Lake area. Therefore, from the perspective of the City of Burnaby, this "remedial measure" is not feasible.

Therefore, the "remedial measures" portion of the accident warrant cannot be fulfilled due to there being no feasible remedial measures.

Part B Accident History

When performing the accident warrant portion of the signal warrant, the Ministry considers only the previous 12 months of accident data. If there are more than five "correctable" accidents in that time period, then Part B of the accident warrant is met. By "correctable accidents", the warrant means accidents which could be prevented by installing a signal. In the case of the Canada Way/Sperling intersection, right angle accidents caused by turning vehicles choosing insufficient gaps in the Canada Way flow to perform their turns would be considered "correctable" by a signal.

Along with the total number of accidents at Canada Way/Sperling, the number of correctable accidents has also decreased. Therefore, following the Ministry's warrant consideration of the previous 12 months, a signal would not be warranted at this time.

Part C Traffic Progression

Part C of the warrant deals with traffic progression. In its traffic study, Hamilton Associates analysed the impact of a signal on progression, and found it to be minimal.

After considering all three parts of the accident warrant, Ministry staff have concluded that a signal is not warranted at Canada Way/Sperling. The City of Burnaby wishes to have a signal installed to deal with the difficult access currently afforded to both area residents and visitors to the Deer Lake facilities, and to increase safety for all users of the intersection.

6.0 CONCLUSION

Canada Way is a Provincial Highway between 10th Avenue and Kensington. The City of Burnaby has had ongoing discussions with the Ministry of Transportation and Highways regarding necessary upgrades to provide better access to the Clayton - Rayside area and to reduce the high accident rate at Canada Way/Sperling. The Ministry is reluctant to allow a signal at this location due to its proximity to the existing signal at Canada Way/Kensington.

In late 1993, a development proposal for the area to the north of Canada Way between Sperling and Clayton was submitted to Council. The proposal prompted renewed discussion with the Ministry regarding the provision of safe access both to the development and to the Deer Lake area.

The developer hired Hamilton Associates, a Transportation Engineering Consulting firm, to perform a traffic impact study for the development. The consultant, under direction from both the City of Burnaby, and the Ministry of Transportation and Highways, paid particular attention to the operation of Canada Way with a signal installed at either Canada Way/Sperling, or Canada Way/Chiselhampton.

The consultant's study showed that a signal in either location would have minimal impact on Canada Way. The installation of a signal at Sperling, however, would be preferred due to its also serving the area to the south of Canada Way in the vicinity of Deer Lake. The Consultant, using the Transportation Association of Canada's signal warrant methodology, found that a signal at either location would be warranted to provide safe access.

The Ministry, however, is still reluctant to install a signal at Canada Way/Sperling, and has demonstrated, using its own warrant system based on the Institute of Transportation Engineers method, that a signal is not warranted at either location from a volume perspective. Also, because the Ministry's accident warrant includes the requirement for remedial measures to be tried before a signal is installed, it will not agree to the installation of a traffic signal at Canada Way/Sperling.

The intersection reconstruction proposed by the City of Burnaby is required to provide safe access for existing and future residents of the Clayton - Rayside area. Studies have shown that upgrading the intersection of Canada Way/Sperling to provide a traffic signal and left turn

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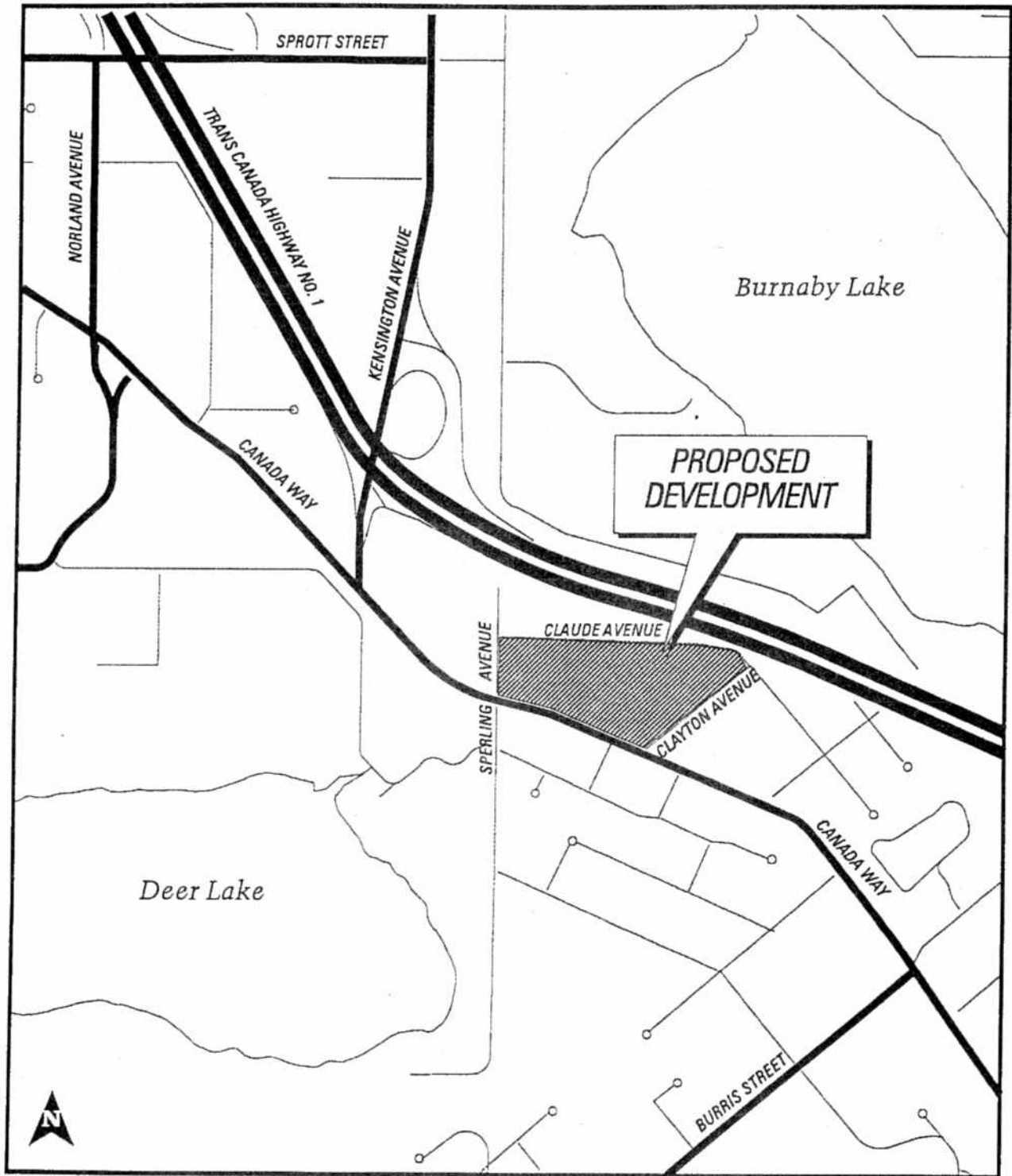
channelisation would reduce the number of both right angle and rear-end accidents, and would not impact flow on Canada Way. Therefore, staff recommend that Council urge the Minister of Transportation and Highways to reconsider the Ministry staff's recommendation dealing with the treatment of the Canada Way/Sperling intersection, and that the intersection be improved as soon as possible to reduce the high accident rate.



D.G. Stenson, Director
PLANNING AND BUILDING

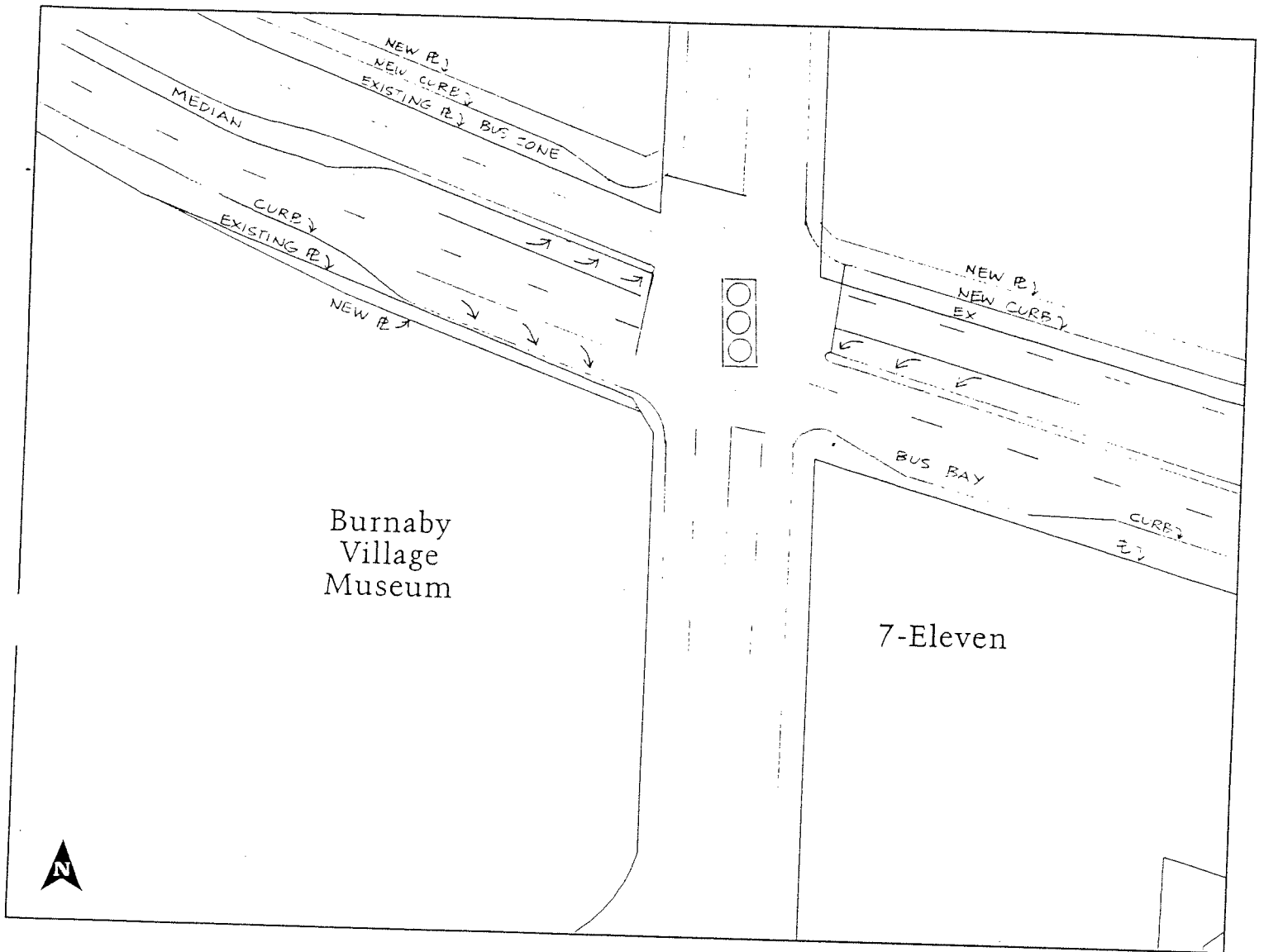
DAB/

cc. Director Engineering
Director Finance
Director Administrative and Community Services
Director Parks and Recreation



Proposed Development

Figure 1



Canada Way / Sperling Avenue

FIGURE 2

