

Re: PEDESTRIAN OVERPASS AT THE INTERSECTION OF CANADA WAY AND DOUGLAS ROAD

Following is a report from the Municipal Engineer on a pedestrian overpass at the intersection of Canada Way and Douglas Road. A report from the Director of Planning on this matter is attached.

ITEM	14
MANAGER'S REPORT NO.	41
COUNCIL MEETING	June 6/77

RECOMMENDATIONS:

1. THAT Item 17, Report No. 27, dated 12 April, 1977, be lifted from the table.
2. THAT a pedestrian overpass at the intersection of Canada Way and Douglas Road not be constructed at this time.
3. THAT the only work to be done at this location now be limited to the improvements that were recommended by the Traffic Safety Committee and adopted by Council on 28 March, 1977.
4. THAT the criteria and priority rating system for pedestrian overpasses as set out in the Municipal Engineer's report be adopted.
5. THAT the intersection be monitored for pedestrian and vehicular use for a period of one year after completing the recommended intersection improvements, and the question of a pedestrian overpass be reviewed at that time in light of the adopted criteria for priority of overpasses.
6. THAT in the event intersection improvements are to be carried out, the improvements be alternate #7 as outlined in the Planner's report.
7. THAT a copy of this report item be forwarded to the "Committee for a Safer Triangle."

* * * * *

TO: MUNICIPAL MANAGER 1 June 1977
FROM: MUNICIPAL ENGINEER
SUBJECT: CANADA WAY - DOUGLAS ROAD INTERSECTION

On 28 March, 1977, the Municipal Council, when dealing with a report from the Traffic Safety Committee on the possibility of a pedestrian overpass at the above-named intersection, tabled the matter to obtain further information on:

1. The cost of an overpass that was more compatible with the one proposed over Canada Way in front of the Municipal Hall.
2. The catchment area for the school that would use the overpass and how a District Improvement Program could be implemented.
3. How a system of warrants could be established for pedestrian overpasses in Burnaby.

As a result, Manager's report #27, Item 17, was presented to Council on 12 April, 1977, a copy of which is attached (Attachment #1--P. 141). In dealing with this report, the Municipal Council approved that if an overpass was authorized it would be financed pursuant to Section 589 and 590 of the Municipal Act, but referred the matter back for further information as follows:

- A. Report on a possible system of criteria that could be used for building pedestrian overpasses in Burnaby.

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(cont'd)

- B. To provide further detail and cost estimate for a pedestrian overpass.
- C. To report on alternative road patterns that may resolve the intersection problem which is resulting in a high incidence of motor vehicle accidents.

The further information as requested is submitted as follows:

A. Criteria for Pedestrian Overpasses

Since the pedestrian overpass has no undesirable effects, it was determined to be unrealistic to establish specific minimum warrants. Rather, it appeared more desirable to establish general criteria for their use and suggested procedures for determining the relative priority of individual pedestrian overpasses. In accordance with this concept, information on criteria and the determination of relative priorities for constructing pedestrian overpass facilities, are presented in this report.

(a) Criteria

It is recommended that the following possible criteria be considered in determining the need for a pedestrian overpass on a highway facility where there is no control of access.

1. The magnitude of the desire for a pedestrian overpass. This desire will generally originate with a citizen group, a school board, an official governing body, or some similar group.
2. The lack of a reasonable alternate route or mode for crossing pedestrians.
3. The availability within 660 feet of the proposed location of a traffic signal, stop sign control, or a pedestrian overpass which provides pedestrians with acceptable crossing opportunities.
4. The potential to prevent pedestrians from crossing at grade.
5. The practicality of constructing an overpass within existing physical conditions.
6. Traffic volumes and pedestrian volumes above those required to meet the standard warrants for the installation of a traffic signal, as set down in the Canadian (R.T.A.C.) Manual.

The exception to the above criteria would be overpasses that will be built from time to time as a requirement of a development permit and are established in many instances to service anticipated future heavy pedestrian corridors.

(b) Priority Rating System

Once having established the necessary criteria to justify building a pedestrian overpass, it was felt that some form of priority system would have to be established to satisfy a limited budget.

The system we have adopted is similar to the one used by the City of Seattle in establishing priority ratings for approved overpass installations. Overpasses are rated from a possible total of 100 points. There are three

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A. (b) (cont'd)
 primary parameters (volume, accidents, miscellaneous factors) where volume is judged the most important single factor and given a maximum weight of 40 points, as indicated on Attachment #7--P. 153. The accident history was given a maximum of 15 points. The remaining 45 points were subdivided among the miscellaneous factors with specific values assigned to items such as ages of pedestrians, street width, approach speed, etc.

At the present time, we have approximately twelve active crossing requests before us. While none meet all the criteria as set forth, we nevertheless ran a priority rating on each. These ratings are summarized on Attachment #8--P. 154, and would indicate the subject intersection as being rated tenth in priority of the twelve locations examined.

B. Detail and Costs for an Overpass at the Existing Intersection

The scale of the structure as reported on in our report of 6 April, 1977, has been reduced to that shown on Attachment #3--P. 148. The proposal is for a 6.0' wide structure with stairs that have a 1 foot section on one side "ramped" in order to walk bicycles up and over the structure. Attachment #3--P. 148 shows overpass alternates #1 and #2. The most apparent difference in these two alternatives is in the side railing treatment--Alternative #1 is an open railing with a "T" section design, while Alternative #2 is a "U" section with precast side facia panels in coloured concrete with an aluminum railing on top of the side panels. Alternative #1 is shown more clearly in an artist's rendering, which is on display in the Council Chambers, and Alternative #2 is shown in more detail on Attachment #4--P. 149. The Consulting Engineer, in transmitting the sketches 4 May, 1977 (Attachment #6--P. 151), has recommended overpass Alternative #1 because of its aesthetical attractions of openness and slenderness. Alternative #2 is more prone to vandalism (example: a person with a spray can of paint can deface the facia panels by merely leaning over the railing). Both Alternatives without ramps are estimated to cost \$94,200 and we concur with the Consultant's recommendations in favour of overpass Alternative #1, if one is to be built.

C. Study Alternative Road Patterns

The Director of Planning, in a companion report under the same Manager's Report Item, has studied seven possible road patterns that would improve the intersection and if such improvements were to be made, has determined that the pattern shown on Attachment #2--P. 147 would achieve the greatest improvement by eliminating the forked intersection and the hazardous left turn movement at Sprott Street and Canada Way.

If such improvement was to proceed it would require the acquisition of the Texaco property. Including this cost, plus road and traffic light relocation, plus a pedestrian overpass should it be considered essential, the total construction cost has been estimated as follows:

Property Acquisition, Roadwork and Traffic Light Relocation....	\$313,000.
Pedestrian Overpass (with ramps)	\$164,400.
	<hr/>
TOTAL	\$477,400.
	<hr/> <hr/>

C. (cont'd)

It will be noted from Attachment #2--P.147 that the acquisition of the Texaco property to improve the intersection would provide space for the construction of a spiral ramp access to the overpass in preference to stairs. Attachment #5--P.150 shows a view of the ramped overpass. Ramping was not possible in the original overpass alternative at the existing intersection because there is no room within the existing road allowance for ramping.

Conclusion

In view of the fact that the priority criteria for pedestrian overpasses does not give number one priority to this location, construction of an overpass is not recommended at this time. Because of the business disruption and the very high cost of reconstructing the intersection, it would seem advisable for the time being to implement only the intersection improvements recommended by the Traffic Safety Committee on 28 March, 1977, as follows:

1. Flashing amber warning lights be installed on Canada Way, east and west of Douglas Road, to better warn the motorist of the existence of traffic signals, as well as pedestrian use of the crossing.
2. An all-red clearance time of two seconds be provided for added time and safety factor.
3. Provide a thicker crosswalk delineation and paint advance warning of the crosswalk on the pavement.
4. Westbound motorists' view be improved by pruning tree branches.
5. A crosswalk be designated on the west side of Douglas Road across Sprott Street.

All of these improvements are in progress and, after completion, should be monitored for a period of one year; at that time a review would be conducted to see if an overpass is warranted, taking into account the priority criteria for pedestrian overpasses.

RECOMMENDATIONS:

1. THAT Item 17, Report No. 27, dated 12 April, 1977, be lifted from the table.
2. THAT a pedestrian overpass at the intersection of Canada Way and Douglas Road not be constructed at this time.
3. THAT the only work to be done at this location now be limited to the improvements that were recommended by the Traffic Safety Committee and adopted by Council on 28 March, 1977.
4. THAT the criteria and priority rating system for pedestrian overpasses as set out in this report be adopted.
5. THAT the intersection be monitored for pedestrian and vehicular use for a period of one year after completing the recommended intersection improvements, and the question of a pedestrian overpass be reviewed at that time in light of the adopted criteria for priority of overpasses.
6. THAT, in the event intersection improvements are to be carried out, the improvements be alternate #7 as outlined in the Planner's report.

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7. THAT a copy of this report item be forwarded to the "Committee for a Safer Triangle."

E.E. Olson
MUNICIPAL ENGINEER

VK:cmg
Atch.
c.c. () Planning Director
() Municipal Treasurer

M. JAGER'S REPORT NO. 17
27
COUNCIL MEETING Apr. 12/77

Re: PEDESTRIAN OVERPASS AT THE INTERSECTION OF CANADA WAY AND
DOUGLAS ROAD

On March 28, 1977, Council adopted the following recommendations in connection with its consideration of a report from the Traffic Safety Committee on a proposal to construct a pedestrian overpass at the intersection of Canada Way and Sprott Street:

"THAT Item 3 a) and 3 b) of the Traffic Safety Committee Report be tabled for a report on the cost and design, with a report to come back within two weeks, and

"THAT a report be prepared to see what the catchment area could come from and what and how a district improvement program could be implemented."

The following report from the Municipal Engineer contains information on the cost and design of the overpass. The Municipal Treasurer's attached report defines the catchment area and provides detailed information on how the overpass could be financed.

RECOMMENDATIONS:

1. THAT alternative road patterns be pursued by the Director of Planning as requested by the Traffic and Safety Committee; and
2. THAT a pedestrian overpass be held in abeyance at least until:
 - a. An evaluation of the benefits of the proposed signal changes is completed; and/or
 - b. The possibilities of an alternative road pattern have been resolved; and
3. THAT if Council authorizes construction of the pedestrian overpass, the method of financing as outlined in the Treasurer's report be adopted.
4. THAT a report be submitted to Council on the question of a system of warrants for building overpasses for possible use by Burnaby when sufficient information has been obtained from other areas.
5. THAT a copy of this report item be forwarded to the "Committee for a Safer Triangle".

* * * * *

6 April, 1977

TO: MUNICIPAL MANAGER
FROM: MUNICIPAL ENGINEER
SUBJECT: CANADA WAY AND DOUGLAS ROAD

At its regular meeting of 28 March, 1977, Council requested an input on:

1. The cost of an overpass at the captioned intersection that was compatible with the pedestrian overpass that was proposed over Canada Way in front of the Municipal Hall.
2. That a report be prepared to see what the catchment area could come from and what and how a district improvement program could be implemented.

(cont'd)

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ATTACHMENT No 1

ITEM 17
MANAGER'S REPORT NO. 27
COUNCIL MEETING Apr. 12/77

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At its regular meeting of 4 April, 1977, Council requested information on a third matter, viz.:

3. That a report be prepared indicating to Council how a system of warrants may be established for use in Burnaby.

In replying to item #1, we estimated the cost of a pedestrian structure similar in design to the one proposed in front of the Municipal Hall by prorating the latter structure estimate downward to a structure with an eight foot deck, 65 foot span, and two foot planters on each side. This structure, with stairs at either end, has been estimated to cost \$120,000. Such a structure would negate its use by bicycles and baby carriages unless the stairs were replaced by ramps. To install ramps would require the acquisition of the service station property on the north side of Canada Way, a property that has been valued at \$250,000. Assuming that there would be no cost to the Municipality to encroach into the school site, the cost of such an overpass would be \$370,000 (including full acquisition of the Texaco property) plus the added cost of a spiral ramp.

Item #2 is to be dealt with in a separate report to be submitted by the Treasurer.

Item #3 requires that the Engineering Department seek advice from other Municipal jurisdictions and agencies on what are used as warrants for overpasses in the industry. In this respect, the Department has already commenced making these inquiries.

In January of this year the Chairman of the Traffic and Safety Committee requested that the Planning Department look into the positive effects on the road and traffic patterns at the subject intersection if the Municipality acquired the Texaco gasoline station.

Such a report has not been finalized, although a fair amount of preliminary work has been done on various schemes, some of which, if implemented, would require relocation of the present suggested location of the overpass.

It is our opinion that the outcome of this study should be available prior to commitment of an overpass location.

If this course of action was upheld by Council, it would also give us an opportunity to evaluate the benefits of the signal revisions as recommended in the Consultant's report on the pedestrian overpass study, i.e. Conclusions and Recommendations, page 11, item 7.1(2). These signal revisions are now in progress.

This report has been prepared in consultation with the Planning Department and the Treasury Department.

RECOMMENDATIONS:

1. THAT alternative road patterns be pursued by the Planner as requested by the Traffic and Safety Committee.
2. THAT a pedestrian overpass be held in abeyance at least until:
 - (a) We have had an opportunity to evaluate the benefits of the proposed signal changes,
 - and/or (b) The possibilities of an alternative road pattern have been resolved.

ATTACHMENT No 1

ITEM	17
MANAGER'S REPORT NO.	27
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3. THAT a report be submitted to Council on the question of a system of warrants for building overpasses for possible use by Burnaby when sufficient information has been obtained from other areas.

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E.E. Olson
MUNICIPAL ENGINEER

HB:EEO:cmg

- c.c. () Planning Director
() Municipal Treasurer

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ATTACHMENT No 1

ITEM 17
MANAGER'S REPORT NO. 27
COUNCIL MEETING Apr. 12/77

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MANAGER'S REPORT NO. 41
COUNCIL MEETING June 6/77

6 April 1977

File: C4-16-2

TO: MUNICIPAL MANAGER

FROM: MUNICIPAL TREASURER

RE: PEDESTRIAN GRADE SEPARATION AT INTERSECTION OF
CANADA WAY AND DOUGLAS ROAD

The estimated cost of the above mentioned project as shown in Item 5.1.1 of the N.D. Lea & Associates report of March 1977 is \$56,000. A better quality structure more in keeping with the one proposed at the Municipal Hall crossing is estimated by the Municipal Engineer to cost \$120,000. This would have stairs rather than ramps because there is insufficient right-of-way to permit a ramp.

A structure of this type can be the subject of a by-law pursuant to Sections 616 and 617 of the Municipal Act whereby the cost or a portion of the cost may be charged to benefiting owners, either by a frontage tax or a rate on lands, lands and improvements, or on improvements only.

If the project does not require financing by borrowing, the Corporation may share in the cost. If borrowing is required, sharing may take place only to the extent of the cost of the capacity of the project in excess of that required for the area.

Ideally, this money should be borrowed, particularly if the more elaborate structure is selected, in which case the only share the Corporation would be justified in accepting would be the special tax on the exempt properties in the area.

Attached is a sketch of the Douglas Road School catchment area as established by the School District. The number of pupils currently in attendance is circled, e.g. (125P). The area bounded by Canada Way, Norland, the Freeway and Westminster Avenue is the land area involved. There are no children attending Douglas Road School who are resident north of the Freeway. The children south of Canada Way would have little or no use for the overpass. The properties east of Norland are already being assessed for the Municipal Hall overpass and should not be assessed further for the Douglas crossing.

ATTACHMENT N° 1

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The assessed values of lands in the described area are:

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Taxable	\$5,046,285	83.69%
Exempt	<u>983,040</u>	<u>16.31%</u>
	<u>\$6,029,325</u>	<u>100.00%</u>

If this project is financed over a ten year period at a 9% interest rate, the annual charges and mill rates required on the two types of structures would be:

	<u>\$56,000 structure</u>	<u>\$120,000 structure</u>
Annual levies	\$9,114	\$19,529
Mill rates	1.512	3.240
Taxes on land assessments of:		
\$ 6,670	\$10.08	\$21.61
8,500	12.05	27.54
10,650	16.10	34.51

There are 57 assessments below \$6,670, 173 between \$6,670 and \$8,500, 193 between \$8,500 and \$10,650, and 114 above \$10,650 in this area.

The annual cost to the Municipality would be:

<u>\$56,000 structure</u>	<u>\$120,000 structure</u>
\$1,486.49	\$3,185.18

If this project is to proceed, an initiative pursuant to Sections 589 and 590 of the Municipal Act should be put.

There are large numbers of capital projects in Burnaby which require to be financed, and many of them must come from general revenue because there is no convenient way to borrow for them. Therefore, a borrowing authority, as in this case, should be taken advantage of whenever possible, especially when the project is of particular benefit to a specific section of the Municipality.

RECOMMENDATION

1. THAT Council consider this method of financing pedestrian overpasses in areas of the Municipality where an impost levy is impractical.

[Signature]
 MUNICIPAL TREASURER

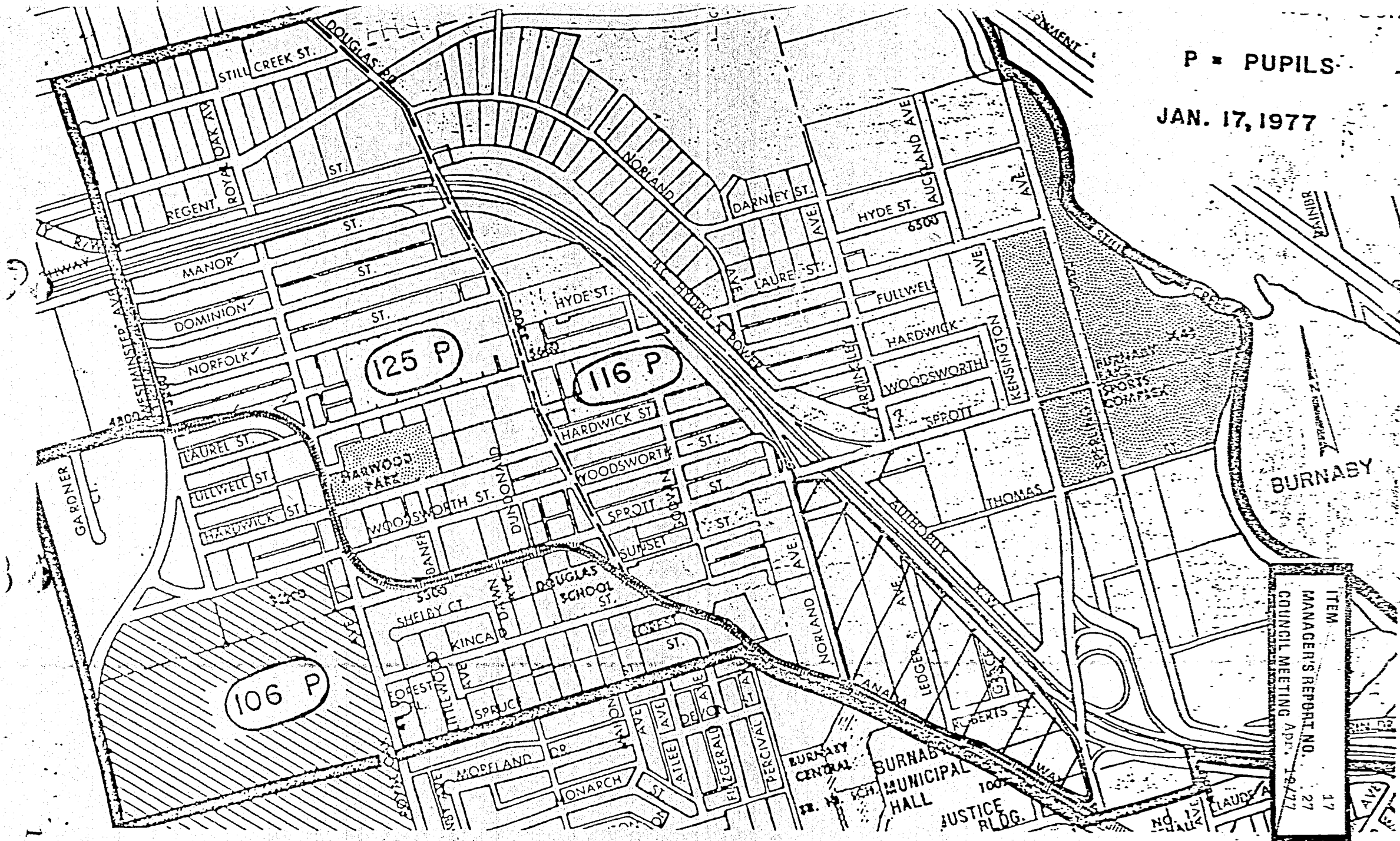
BM:gw
 Attach.

cc: Director of Planning
 Municipal Engineer

ATTACHMENT N° 1

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P = PUPILS
JAN. 17, 1977



ITEM
MANAGER'S REPORT NO. 27
COUNCIL MEETING APR. 18, 1977

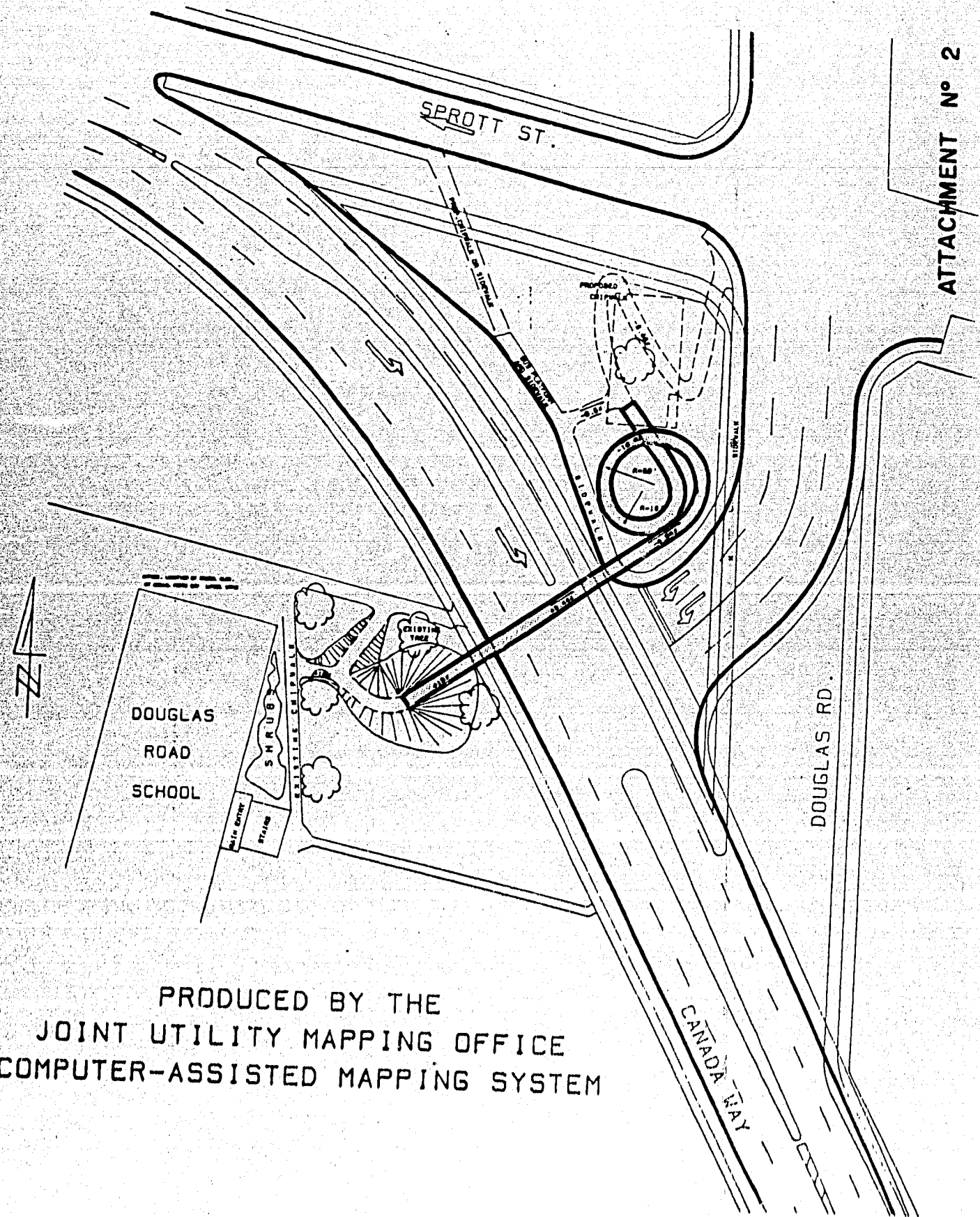
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THE DISTRICT

ATTACHMENT N° 1

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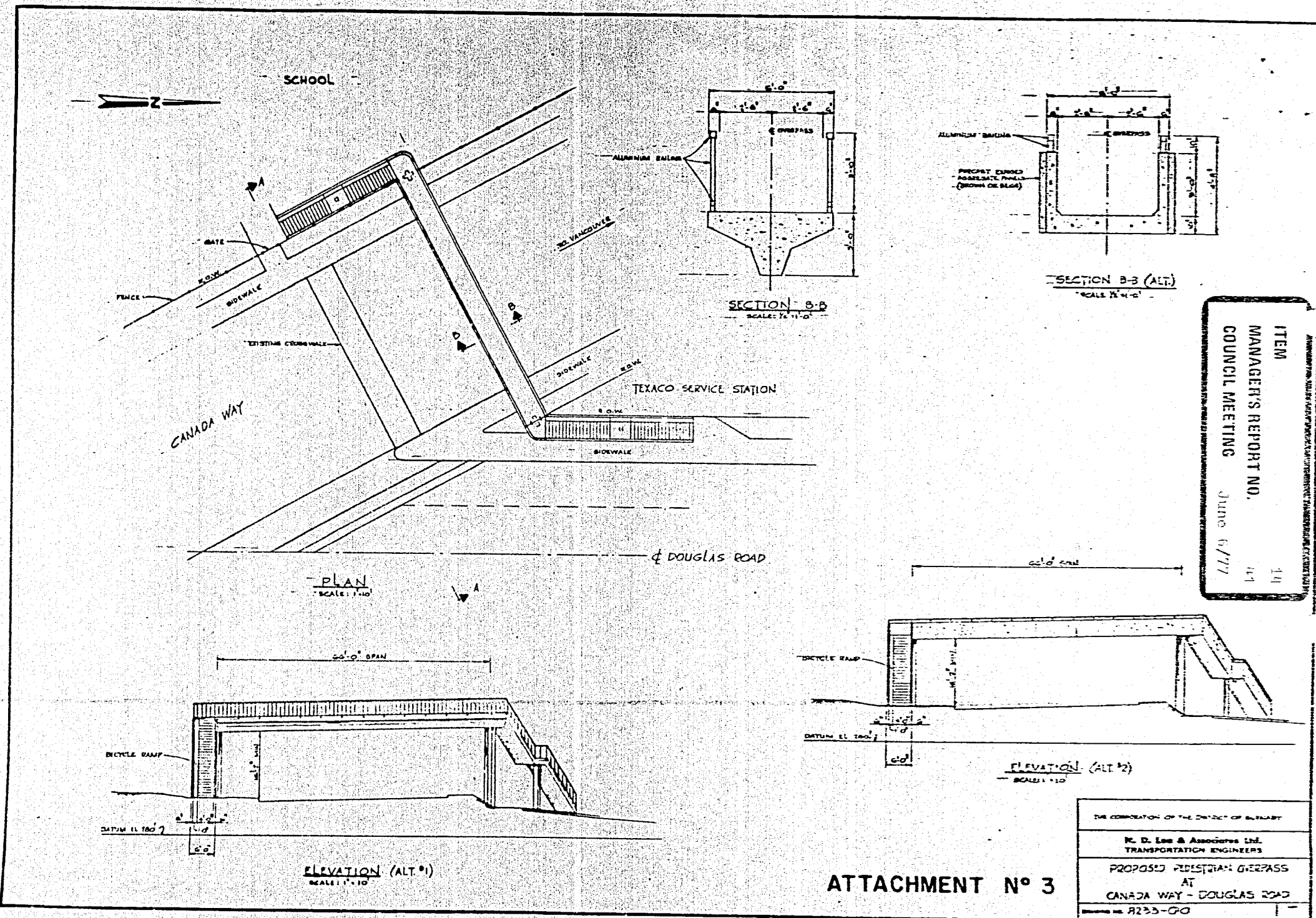
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ATTACHMENT No 2

PRODUCED BY THE
 JOINT UTILITY MAPPING OFFICE
 COMPUTER-ASSISTED MAPPING SYSTEM

PROPOSED INTERSECTION IMPROVEMENT
 DOUGLAS ROAD AT CANADA WAY



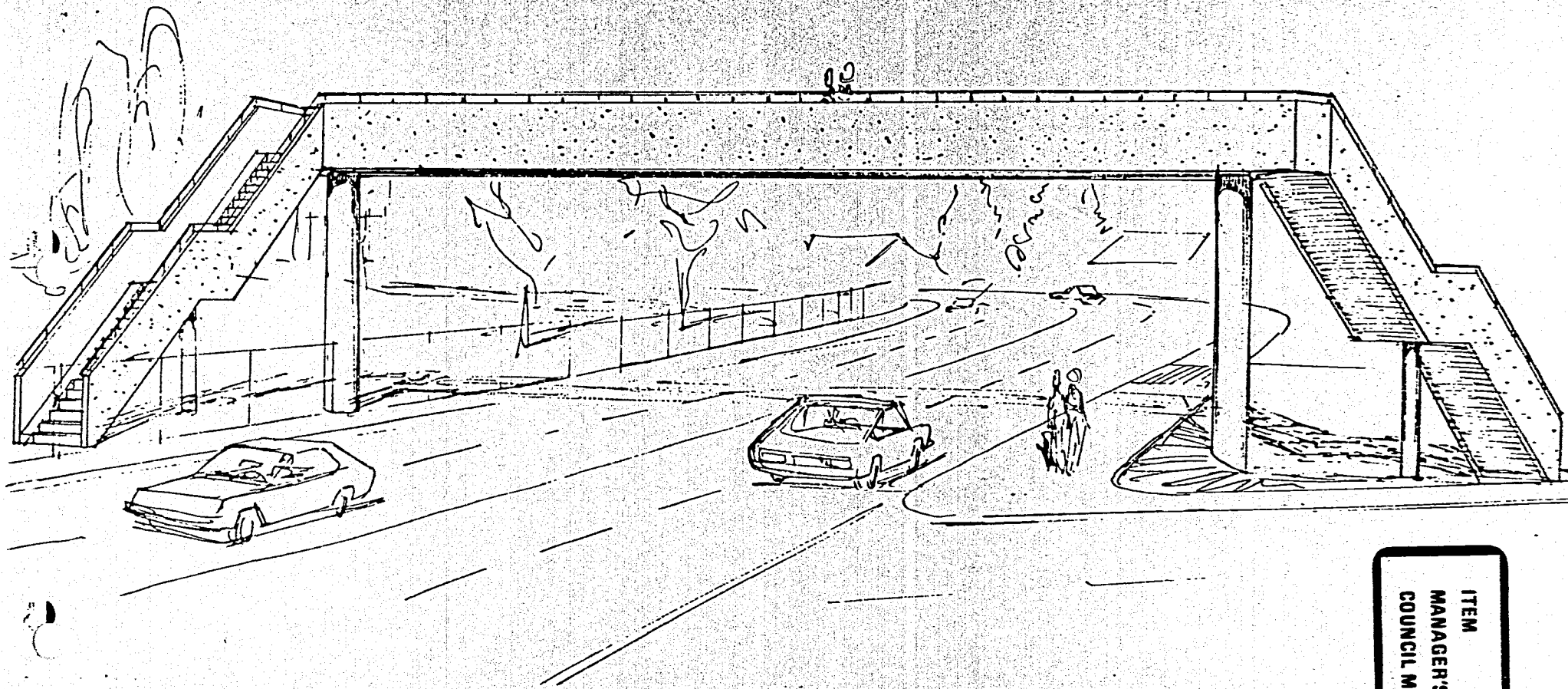
ITEM
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ATTACHMENT N° 3

THE CORPORATION OF THE DISTRICT OF SURREY
 R. D. Lee & Associates Ltd.
 TRANSPORTATION ENGINEERS
 PROPOSED PEDESTRIAN OVERPASS
 AT
 CANADA WAY - DOUGLAS ROAD
 DRAWING NO. R233-00

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MAY 1, 1977
 R. D. L.



ITEM
MANAGER'S REPORT NO. 14
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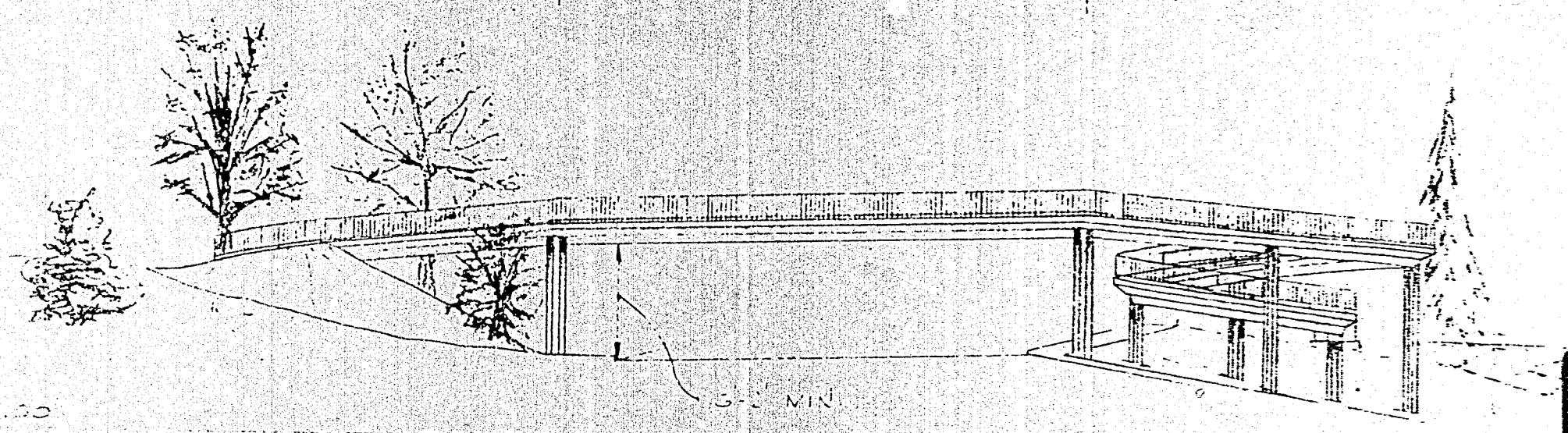
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ATTACHMENT N° 4

THE CORPORATION OF THE DISTRICT OF BURNABY
N. D. Lee & Associates Ltd. TRANSPORTATION ENGINEERS
SKETCH OF PROPOSED ALTERNATE #2 PEDESTRIAN OVERPASS AT CANADA WAY - DOUGLAS ROAD
DRAWING NO. 8233-011

SCALE 1" = 20'

76 SPAN



ELEVATION A-A

SCALE 1" = 20'

UNIT E. 280.00

150

ATTACHMENT Nº 5

ITEM	111
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N. D. Lea & Associates Ltd.
TRANSPORTATION ENGINEERS

1455 W GEORGIA ST. • VANCOUVER, B.C. • V6G 2T3 • CANADA
TEL: (604) 685-9381 • CABLE: LEACONSULT • TELE X: 04-55144

8233.02

May 4, 1977

Mr. E.E. Olson, P. Eng.
Municipal Engineer
The Corporation of the District of Burnaby
4949 Canada Way
Burnaby, B.C.
V5G 1M2

ATTENTION: Mr. V.N. Wiebe, P. Eng.

Dear Sir:

Re: Proposed Pedestrian Overpass -
Canada Way/Douglas Road Intersection

We are pleased to submit our revised drawings and architectural renderings for the above project. As per our instructions, we have avoided the use of standard components. Several structural shapes were considered and we here-with present two alternatives for your consideration.

Alternative #1 is a modified Tee-section with cruciform main columns and open aluminum railings. Buff or beige coloured concrete is proposed for all the members. Alternative #2 is a U-section with precast fascia panels in coloured concrete.

Both alternatives utilize precast members, erected on site, to minimize traffic problems. Precasting also offers superior product appearances as the casting is essentially done indoors.

We would recommend Alternative #1, the modified Tee-section, as it is aesthetically pleasing because of its slenderness and openness, thus obstructing the landscape to a lesser degree than the U-section. The Tee-section is also less prone to vandalism relative to the U-section.

Our estimate of the design of the structure and the preparation of contract documents ready for tender call is approximately two months from the date of authorization to proceed.

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Norman D. Lea, S.M.
J. A. C. Andrews, B.Sc.

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RECEIVED IN
ENGINEERING DEPT.

MAY - 4 1977

VNW	


ATTACHMENT N° 6

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The cost of the structure is estimated at \$94,200 which includes engineering and contingencies.

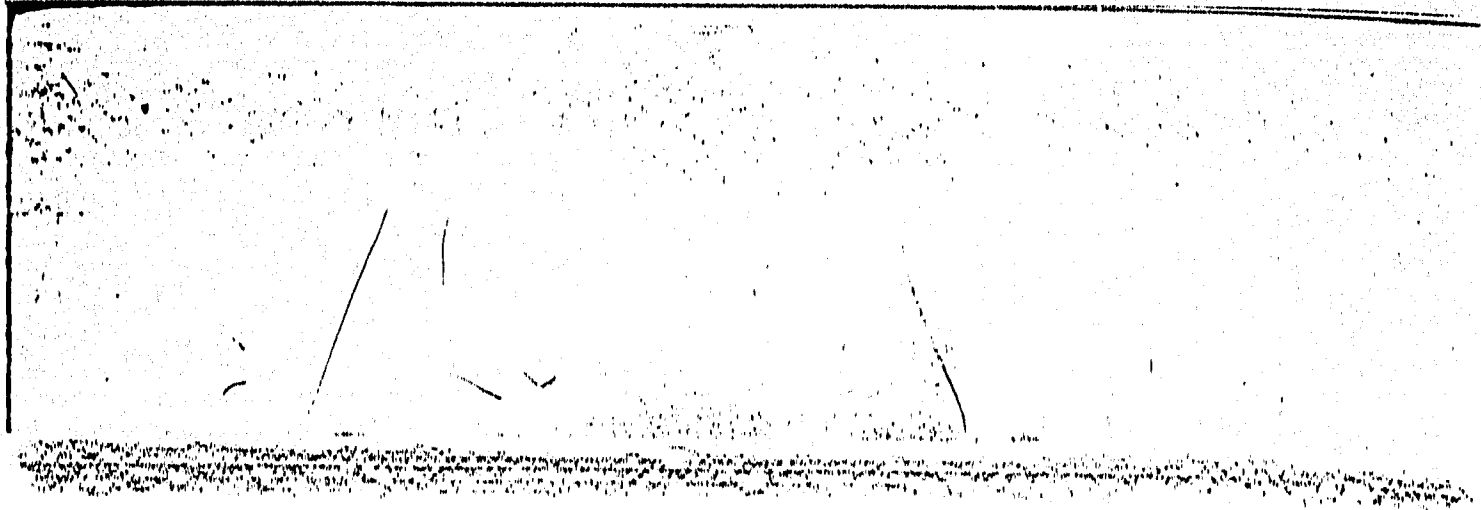
If we can be of further assistance, please do not hesitate to call upon us.

Yours truly,
N.D. LEA & ASSOCIATES LTD.


N. Walji, P. Eng.
Senior Engineer

NW/hc

ATTACHMENT N° 6



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ATTACHMENT N° 7

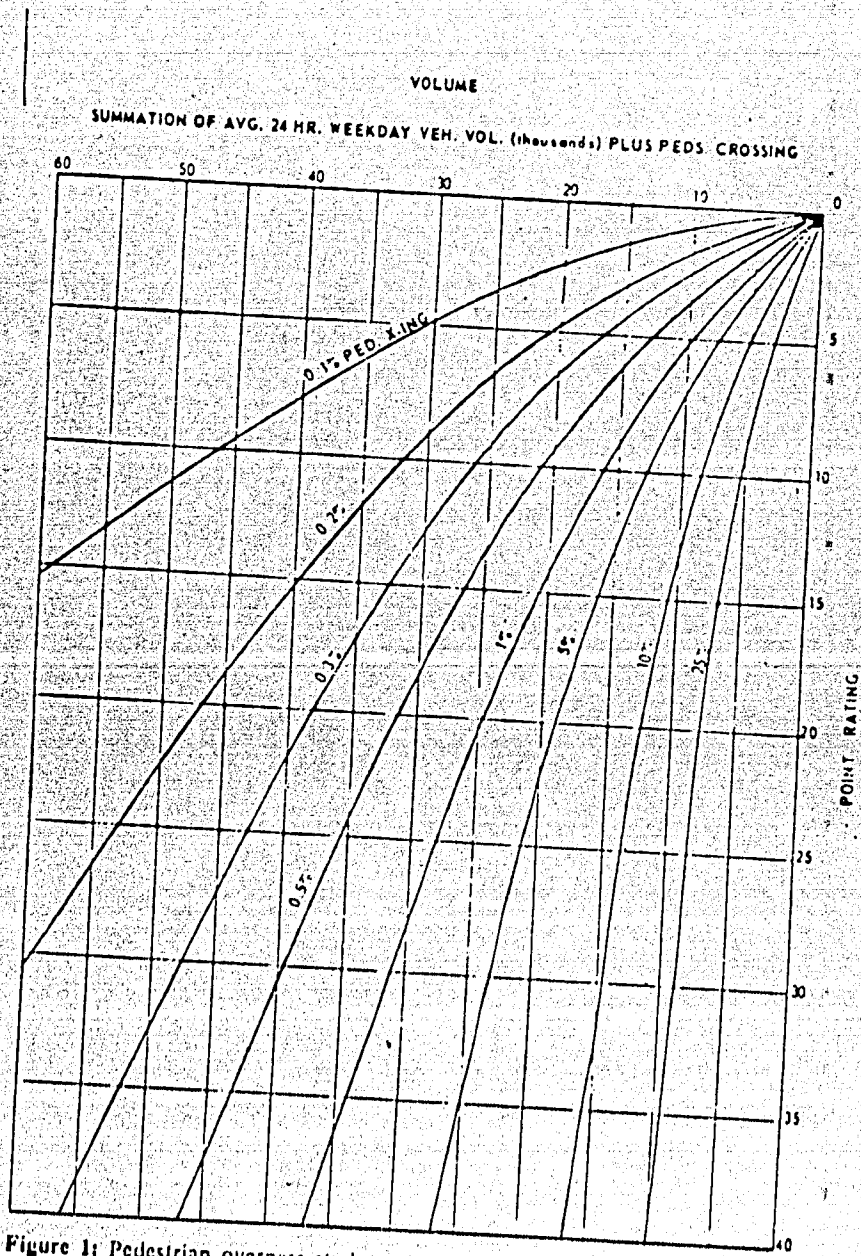


Figure 1: Pedestrian overpass study, volume point rating.

Location (Street crossed cross street)	A.W.D.T. Street crossed	16 Hr. Ped. Count	Total Ped. and A.W.D.T.	% Ped.	Vol. Pts.	Signal	No Ped. Acc. (5 yrs.)	Acc. Pts.	Miscellaneous Factors	Miscellaneous Points	Total	Rank
Canada Way & Douglas N. Xwalk.	13,000	600	13,600	5	11	Yes	3	9	Marked X School Child. Truck Route Speed Fact. Sight Width Grades	10 10 2 2 0 9 0	53	10
Canada Way & Edmonds N. Xwalk.	31,426	2,000	33,426	6.4	40	Yes	0	0	Marked X School child Truck Routes Speed Fact. Sight Width Grades	10 10 2 3 0 11 0	75	3
S. Xwalk.	19,947	2,000	21,947	10.0	40	Yes	4	12	Marked X School Child Truck Routes Speed Fact. Sight Width Grades	10 10 2 3 0 9 0	86	1
W. Xwalk.	14,307	2,000	16,307	14.0	40	Yes	2	6	Marked X School Child Truck Route Speed Fact. Sight Width Grades	10 10 2 0 0 9 0	77	2
Canada Way & Imperial S. Xwalk.	31,426	800	32,226	2.5	38	Yes	0	0	Marked X School Child Truck Route Speed Fact. Sight Width Grades	10 10 2 2 0 9 1	72	4

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ATTACHMENT N° 8

Location (Street crossed cross street)	A.W.D.T. Street crossed	16 Hr. Ped. Count	Total Ped. and A.W.D.T.	% Ped.	Vol. Pts.	Signal	No. Ped. Acc. (5 yrs)	Acc. Pts.	Miscellaneous Factors	Miscellaneous Points	Total	Rank
Hasting & Cliff W. Xwalk	19,061	600	19,661	3.1	17	No	2	6	Marked X School Child Truck Route Speed Fact. Sight Width Grades	10 10 2 2 0 13 0	60	7
Willingdon & Sardis S. Xwalk.	21,589	600	22,189	2.8	19	Patrol Act.	0	0	Marked X School Child Truck Routes Speed Fact. Sight Width Grades	10 10 2 0 0 9 0	50	11

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Location (Street crossed cross street)	A.W.D.T. Street crossed	16 Hr. Ped. Count	Total Ped. and A.W.D.T.	\$ Ped.	Vol. Pts.	Signal	No. Ped. Acc. (5 Yrs)	Acc. Pts.	Miscellaneous Factors	Miscellaneous Points	Total	Rank.
Marine & 12th W. Xwalk.	13,631	100	13,731	.73	6	No	0	0	Marked X School Child Truck Route Speed Factor Sight Width Grades	10 10 2 4 0 7 1	40	12
Willingdon & B.C.I.T. S. Xwalk	22,849	1400	24,249	6.1	35	No	2	6	Marked X School Child Truck Routes Speed Factor Sight Width Grades	10 0 2 3 0 12 0	29	5
Canada Way & 12th Ave. S. Xwalk	20,847	600	21,447	2.9	19	Patrol Act.	2	6	Marked X School Child Truck Routes Speed Fact. Sight Width Grades	10 10 2 2 0 9 1	39	8
Canada Way & Burris S. Xwalk.	29,548	700	30,148	2.0	31	Yes	0	0	Marked X School Child Truck Route Speed Fact. Sight Width Grades	10 10 2 3 0 9 1	36	3
Canada Way & Sperling N. Xwalk.	36,441	400	36,841	1.1	38	No	1	3	Marked X School Child Truck Routes Speed Fact. Sight Width Grades	0 0 2 2 0 9 0	54	9

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ATTACHMENT N° 8

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PRIORITY POINT SYSTEM

ATTACHMENT N° 8

Volume from graph:

i.e. - Approximate ADT under overpass 13,000
 Approximate No. of Ped. 16 Hrs. 600

40 % Ped. to Vehicle Traffic - $\frac{600}{13,000} \times 100 = 5\%$

of Points from graph = 11

15 Accident Points - 3 Per Ped. Accident
 5 Year Period.

- 12 Width $\frac{2}{10} \times W$; Width = No. Points
 - 10 Marked Crosswalk
 - 10 Elementary Crossing
 - 5 Speed Factor - 2 Pt. for every 5 M.P.H. over 30
 - 3 Sight Distance - 200' - 300' = 0
 150' - 200' = 1
 100' - 150' = 2
 0' - 100' = 3
 - 2 Truck Route - Give 2 points
 - 3 Grades - 1 point for every 5% grade increase on approach.
- 45 {

THE CORPORATION OF THE DISTRICT OF BURNABYPlanning Department
June 2, 1977

Our File: 08.640(C)

TO: MUNICIPAL MANAGER
FROM: DIRECTOR OF PLANNING
SUBJECT: CANADA WAY — DOUGLAS ROAD INTERSECTION

In dealing with the subject matter in Item 17, of the Municipal Manager's Report No. 27, at the Council Meeting of April 12, 1977, Municipal Council referred the matter back for the following further information:

- a) Report on a possible system of criteria that could be used for building pedestrian overpasses in Burnaby
- b) To provide further detail and cost estimate for a pedestrian overpass
- c) To report on alternative road patterns that may resolve the intersection problem which is resulting in a high incidence of motor vehicle accidents.

This report of the Planning Department will address itself specifically to Item (c) --the alternative road patterns. Items (a) and (b) are included in the Municipal Engineer's report.

ALTERNATIVE ROAD PATTERNS

The alternative road patterns illustrated in the figures attached were assessed on the following basis:

1. The ability of the street pattern to best reflect the objectives of the conceptual pattern of streets as adopted by Council. Figure 1 illustrates the Amended Conceptual Road Network as adopted by Council on August 30, 1976.
2. The ability of the street pattern to facilitate pedestrian and driver safety.
3. The ability of the street pattern to best accommodate established travel patterns with the least disruption. Figure 2 illustrates the relative magnitude and clearly outlines the major travel patterns in Burnaby. Figure 3 illustrates the current "through" street pattern of the Douglas Road-Canada Way intersection. The circled areas represent intersection controlled with traffic signals while the "T" areas represent "stop" sign controlled intersections.
4. The ability of the street pattern to accommodate traffic demands. Figure 4 illustrates the approximate current traffic volume carried in the intersection area.
5. The ability of the street patterns to maintain established public transit routes. Figure 5 illustrates the current public transit routes in Burnaby.
6. The degree and facility with which access to private property is maintained by the street pattern. Figure 4 illustrates the approximate location of driveways to private properties.

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7. The degree to which the street pattern requires acquisition of private properties or portions thereof.

The illustrations are combinations of two diagrams for each alternate road pattern. The first diagram places the subject intersection area in perspective relative to the "through" street pattern, while the second diagram provides a closer look at the intersections involved. A reassignment of the traffic volumes which would pass through the intersections has been illustrated on several of these diagrams for comparative purposes.

The comparative assessment of the seven alternative street patterns is summarized in Table 1 following Figure 5.

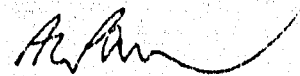
CONCLUSIONS

It is concluded that Alternate 7 street pattern best suits the criteria established. However, it should be mentioned that this alternative is likely the most expensive to implement because it involves acquisition of the Service Station triangle, reconstruction of the Douglas Road-Canada Way intersection, widening of Canada Way to accommodate a left-turn storage lane and bus bay on the north side of Canada Way and reconstruction (narrowing) of Sprott Street between Douglas Road and Canada Way. The residual of the service station island could be developed into a pleasant landscaped area.

The Planning Department believes that the street and intersection improvements presented in Alternate 7 could materially reduce the accident rate in this tri-intersection area. However, because the implementation of changes to the traffic control signals at the Douglas Road-Canada Way intersection now being completed could also significantly reduce the accident rate, it would appear reasonable that the least costly alternative should be monitored for a period of time to determine its effectiveness before considering changes in the road pattern.

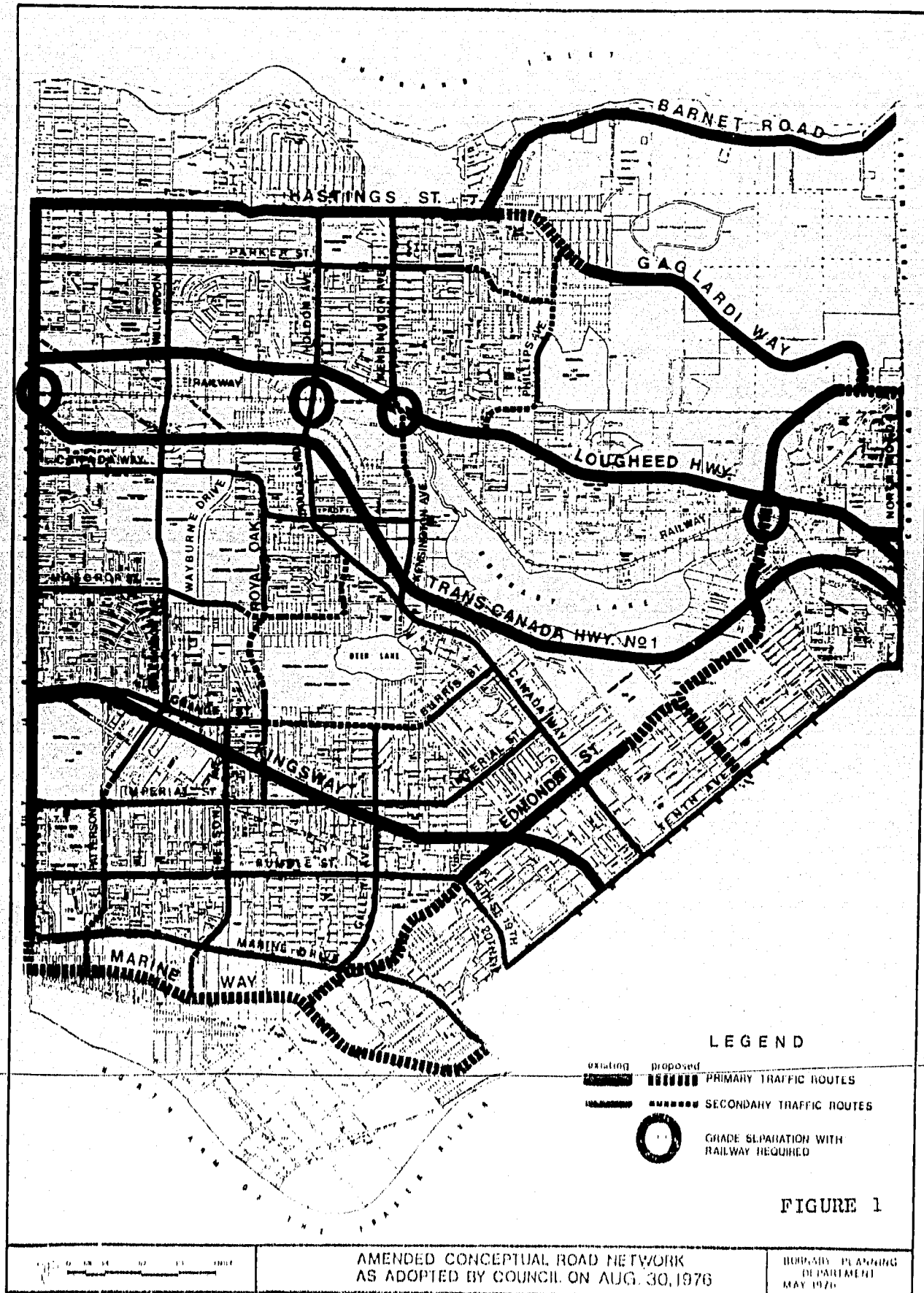
RECOMMENDATION

1. THAT should Council decide to implement changes to the road pattern as the means of ameliorating the problems experienced in the tri-intersection area then Alternate 7 road pattern be adopted.

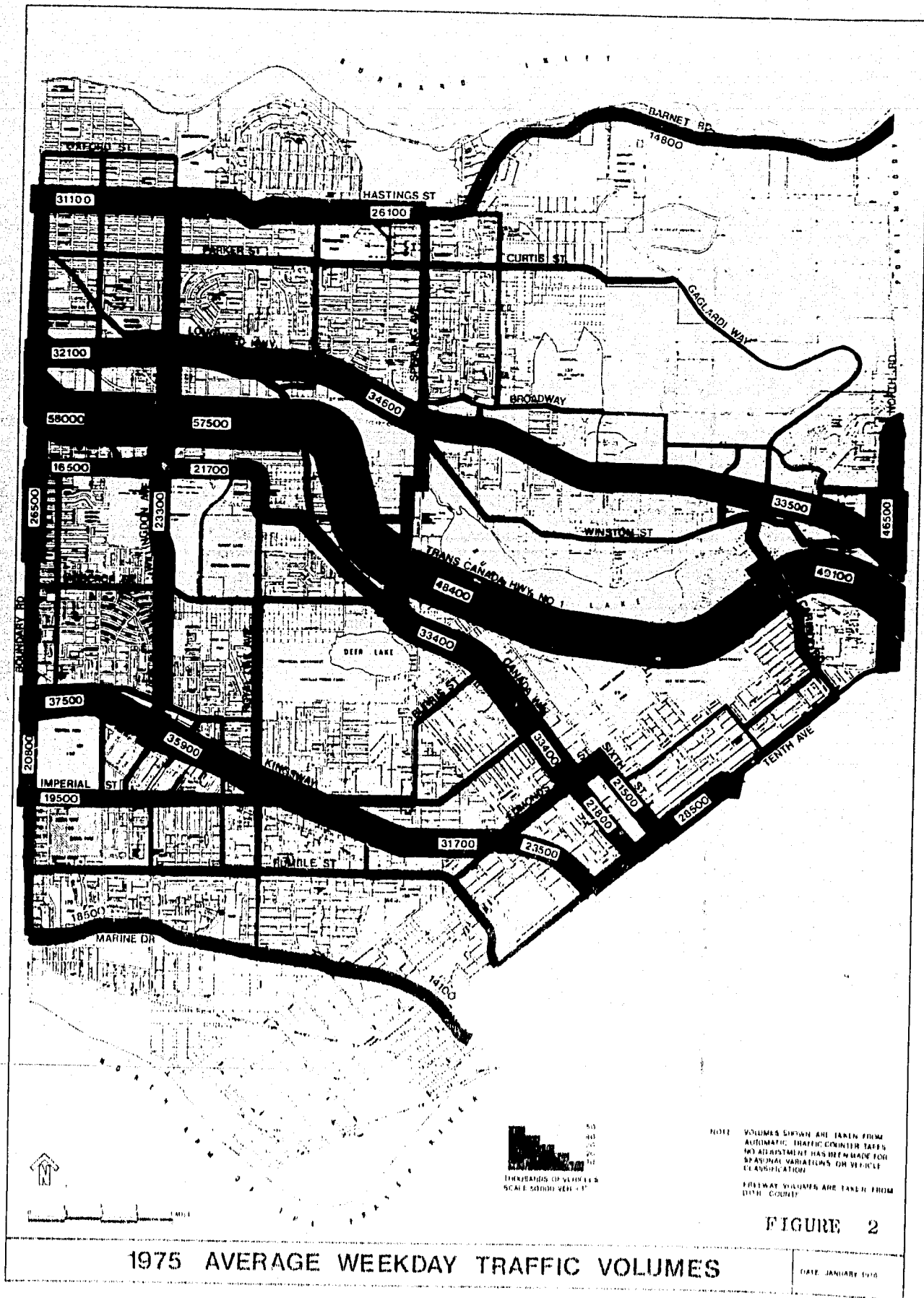

A. L. Parr
DIRECTOR OF PLANNING

WSS/dm
attachment
cc Municipal Treasurer
Municipal Engineer
Land Agent

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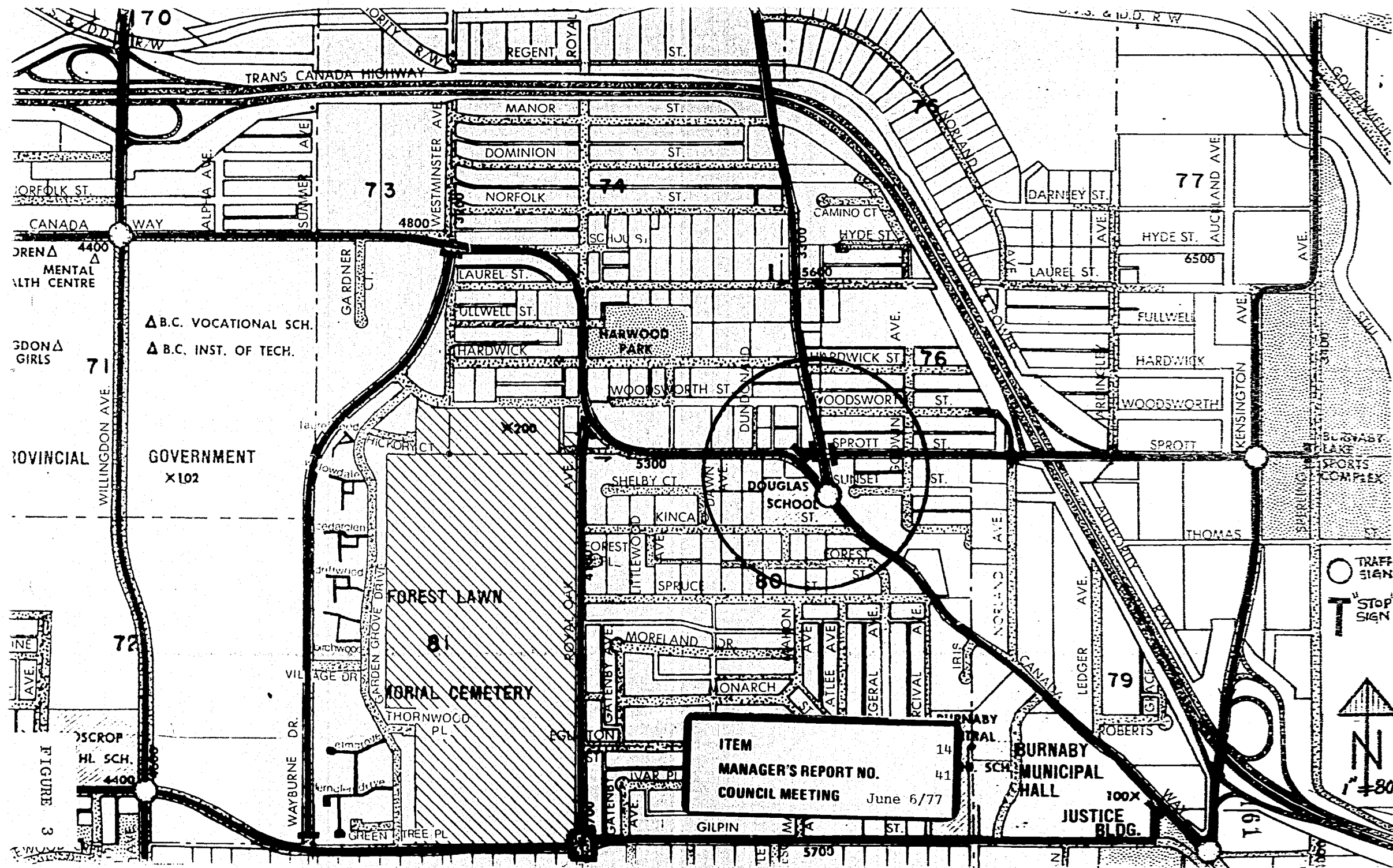


FIGURE 3

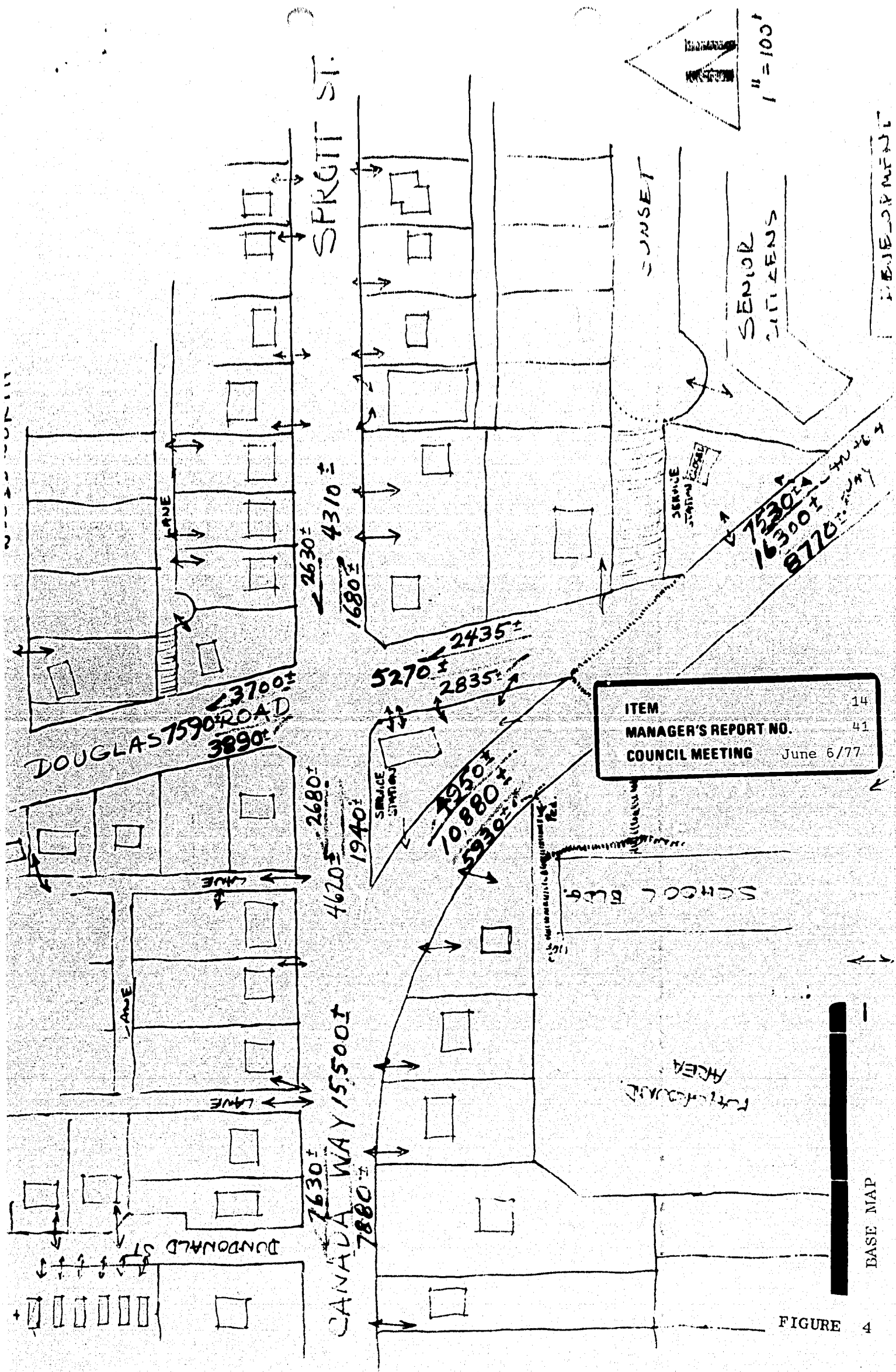


FIGURE 4

BASE MAP

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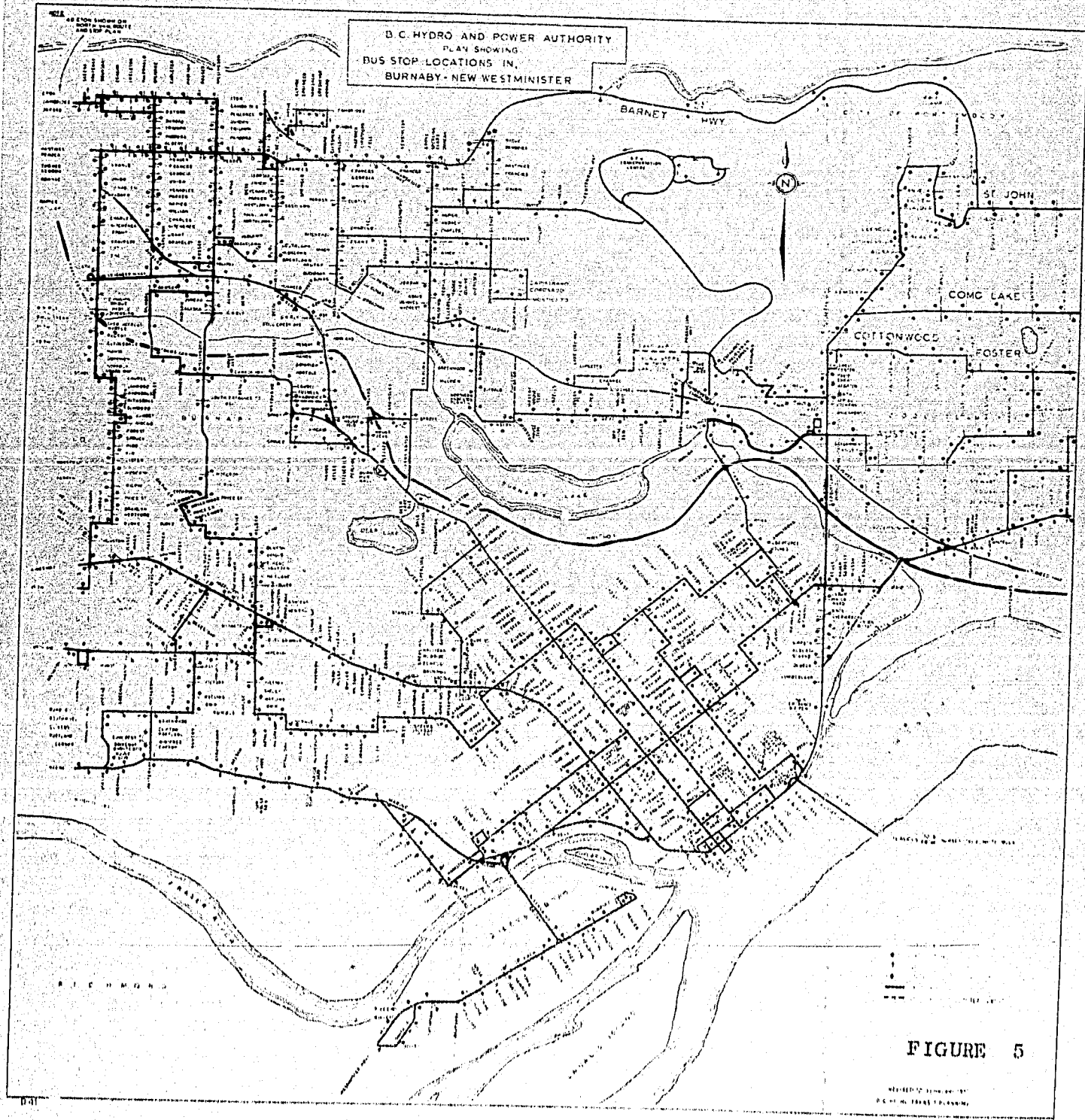


TABLE I

	Adherence to Conceptual Road Network	Effect on Safety	Effect on Established Travel Patterns	Degree of Accommodation of Traffic Demand	Effect on Bus Routes	Effect on Private Access	Property Acquisition Required	Remarks on Implementation
Alt. 1	Does not provide for north-south movement between Canada Way & Douglas Road	PED: Minimal change VEH: Substantial improvement*	Diverts traffic through residential area. Sprott Street becomes truck route if Douglas remains as truck route	Moderate	Rerouting required for Douglas bus	Minor	Minor Acquisition	*Proviso - reconstruction of road to reduce grades on Sprott and construct left turn lane at Canada Way and Sprott St. intersection.
Alt. 2	Does not provide for continuity in east-west movement along Canada Way-Sprott	PED: Minimal change VEH: Minimal improvement change	Diverts traffic through residential area	Moderate	None	Minor	None	This alternate assumes no left turns from Canada Way east bound to Douglas north bound and reverse
Alt. 3	Does not conflict with conceptual network	PED: Minimal change VEH: Moderate improvement change	Minimal	Adequate	Little or no effect	Minor to moderate	Service Station triangle required	Steep grade connection results with Douglas Road connection to Canada Way

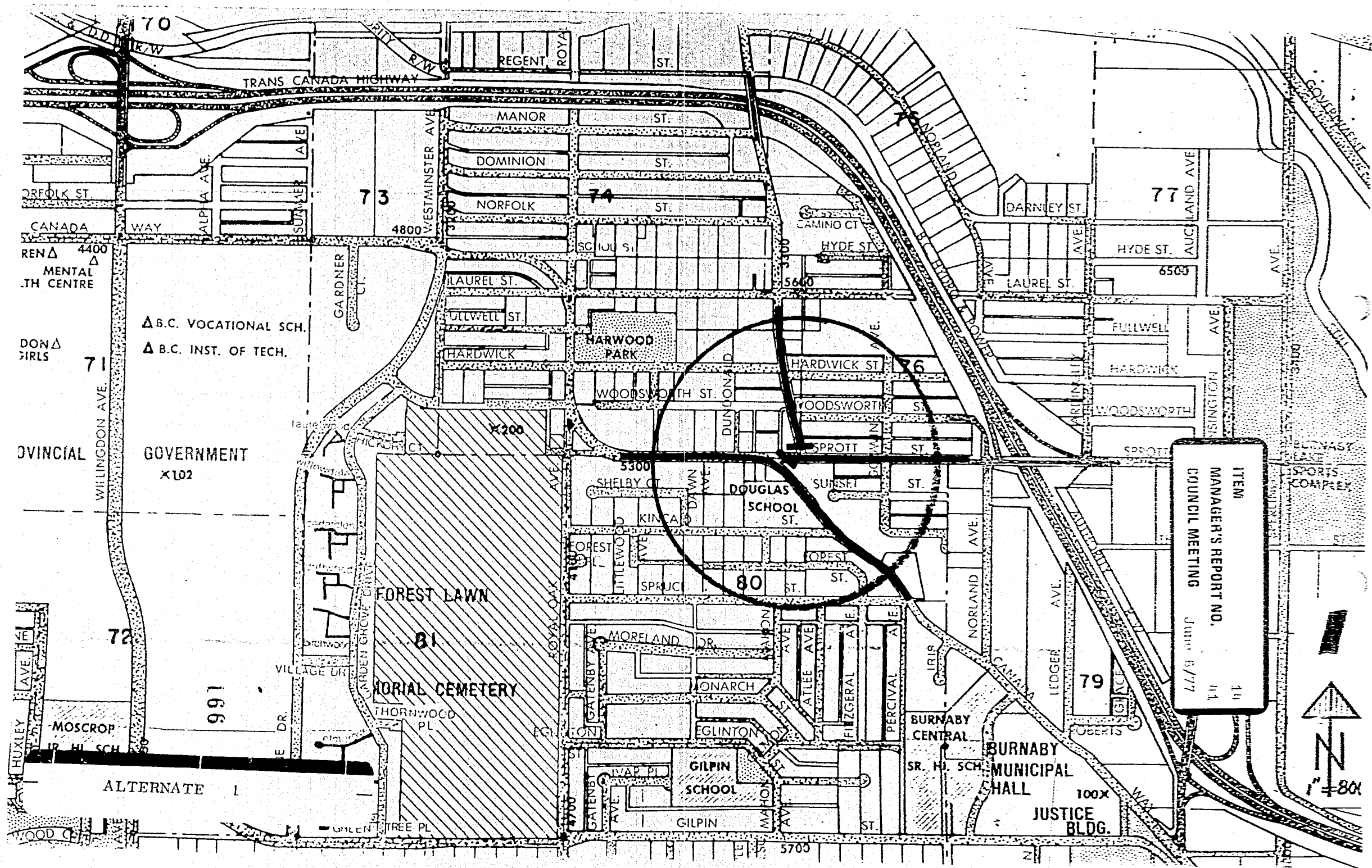
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TABLE I - Cont'd/

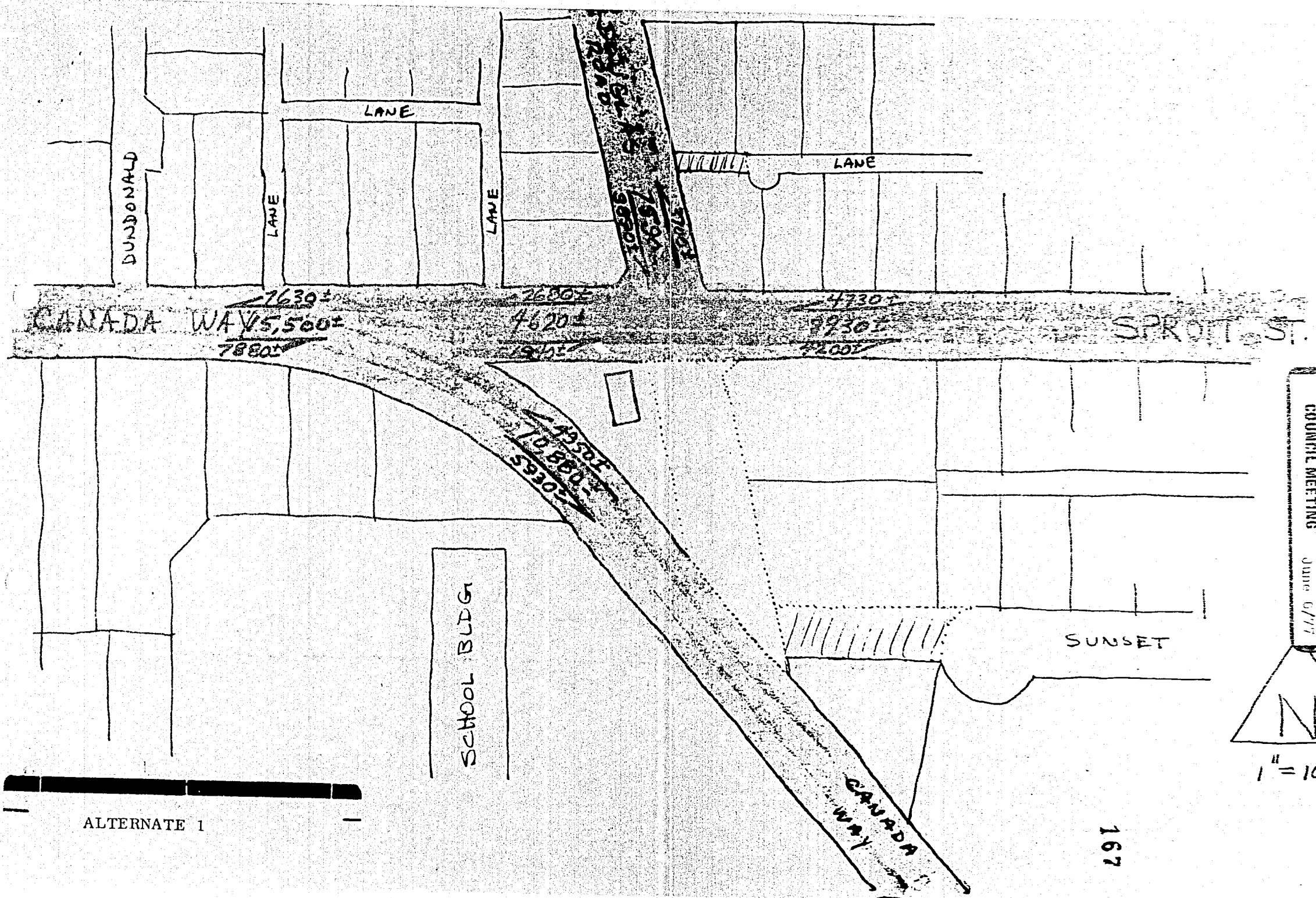
	Adherence to Conceptual Road Network	Effect on Safety	Effect on Established Travel Patterns	Degree of Accommodation of Traffic Demand	Effect on Bus Routes	Effect on Private Access	Property Acquisition Required	Remarks on Implementation
Alt. 4	Supports Conceptual Network	PED: Minimal Change VEH: Minimal Improvement Change	Diverts major travel flow from Canada Way through intersection	Possibly adequate if extensive traffic management measures are initiated	Diversion through intersection instead of direct on current route along Canada Way	Minor to moderate	Property acquisition associated with street reconstruction possible	*Proviso that major reconstruction of Canada Way-Sprott intersection and optimum traffic management is exercised at Douglas-Sprott intersection
Alt. 5	Does not provide need of north-south and east-west continuity of conceptual network	PED: Minimal chg. VEH: Substantial improvement	Diverts traffic through residential area. Sprott becomes truck route as in Alt. 1	Adequate	Rerouting required for Douglas bus	Moderate	Property for corner truncation required at Douglas-Sprott intersection	Service Station access is reduced to the point where acquisition may be necessary
Alt. 6	Does not support conceptual network	PED: Substantial improvement VEH: Substantial improvement	Wholly disruptive. Diverts traffic through residential area	Does not accommodate current travel demands	All Canada Way and Douglas Rd. bus routes would need to be rerouted to residential streets	Minimal	Corner truncations required at Douglas-Sprott intersections	Implementation not recommended
Alt. 7	Does not conflict with conceptual network	PED: Minimal chg. VEH: Significant improvement	Minimal change	Adequate	Little or no effect	Minimal	Service Station triangle required	Major widening required on Canada Way for left turn lane and bus bay

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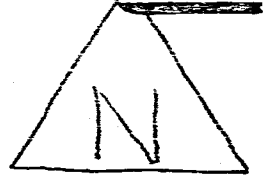


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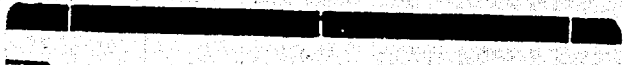




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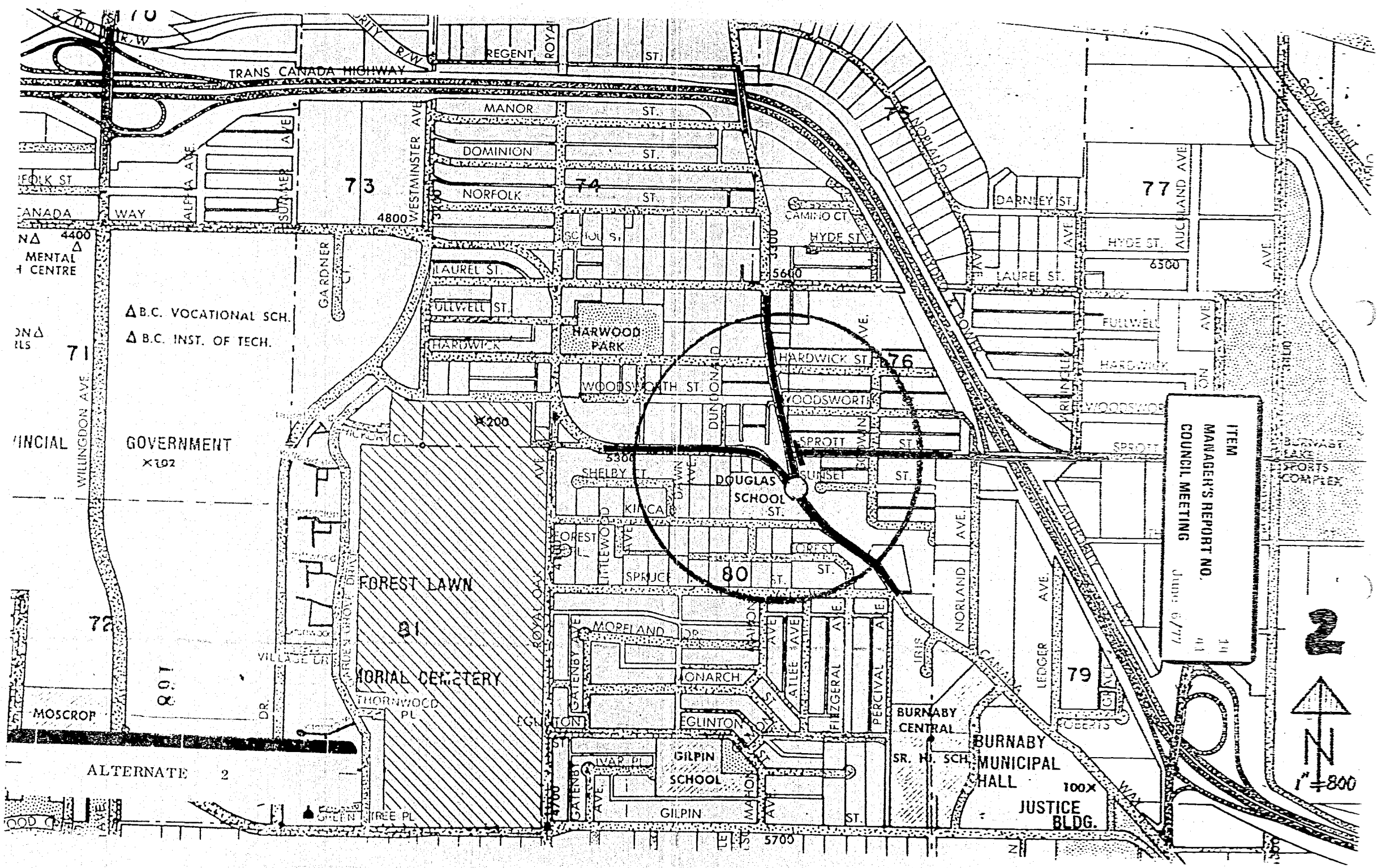


1" = 100'

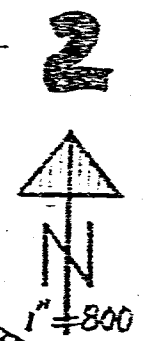


ALTERNATE 1

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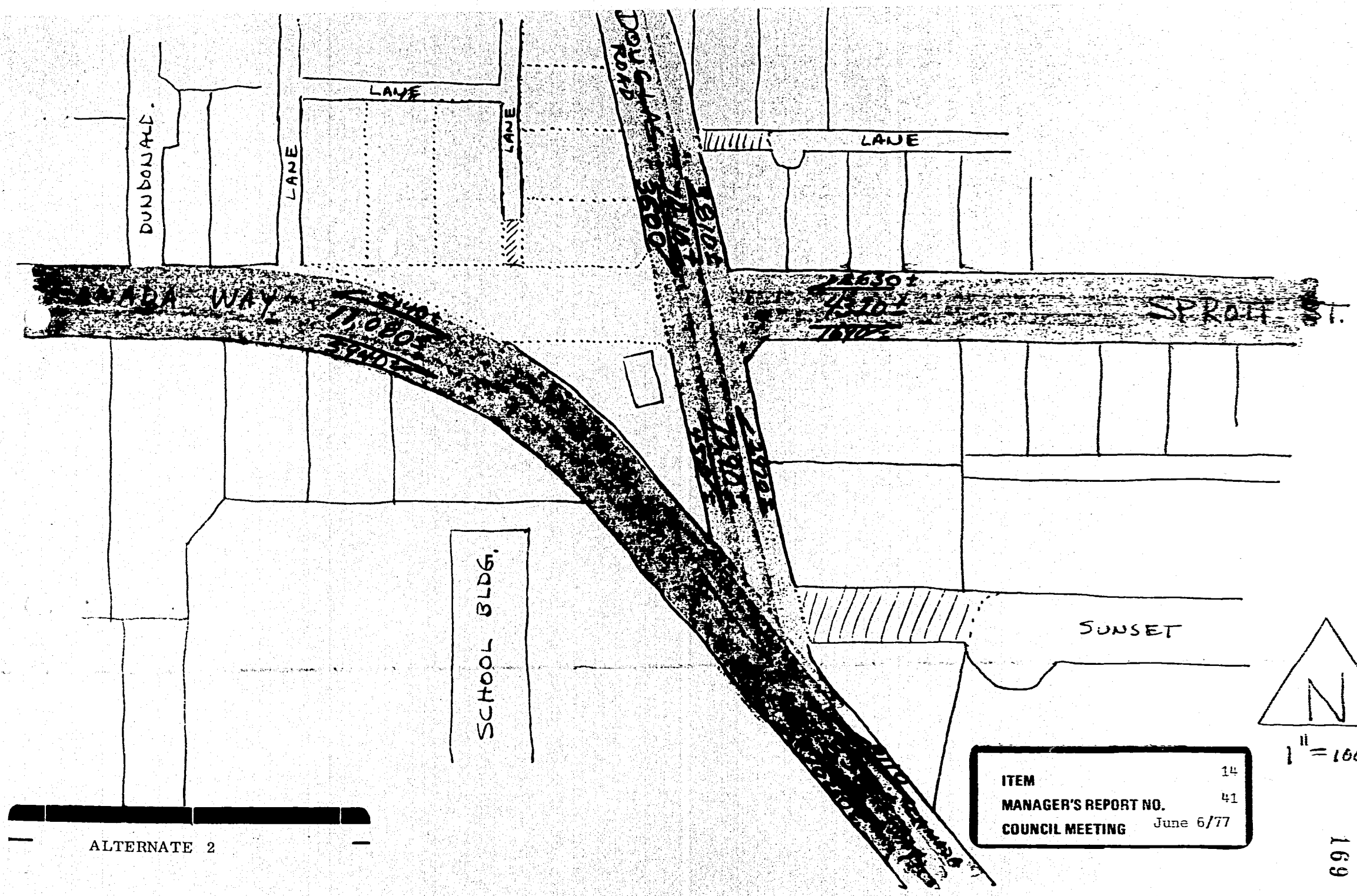


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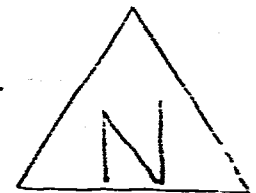
ALTERNATE 2

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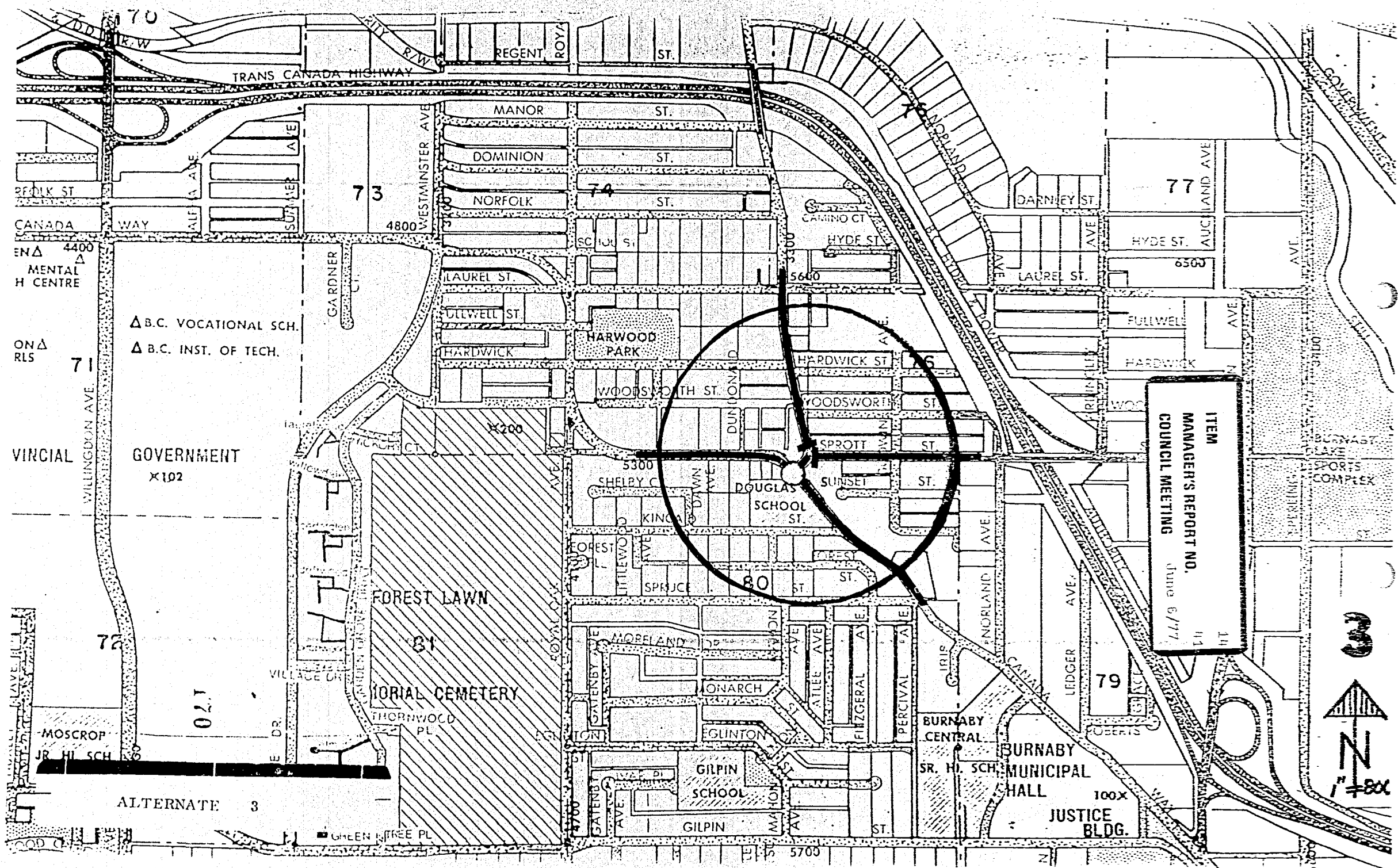
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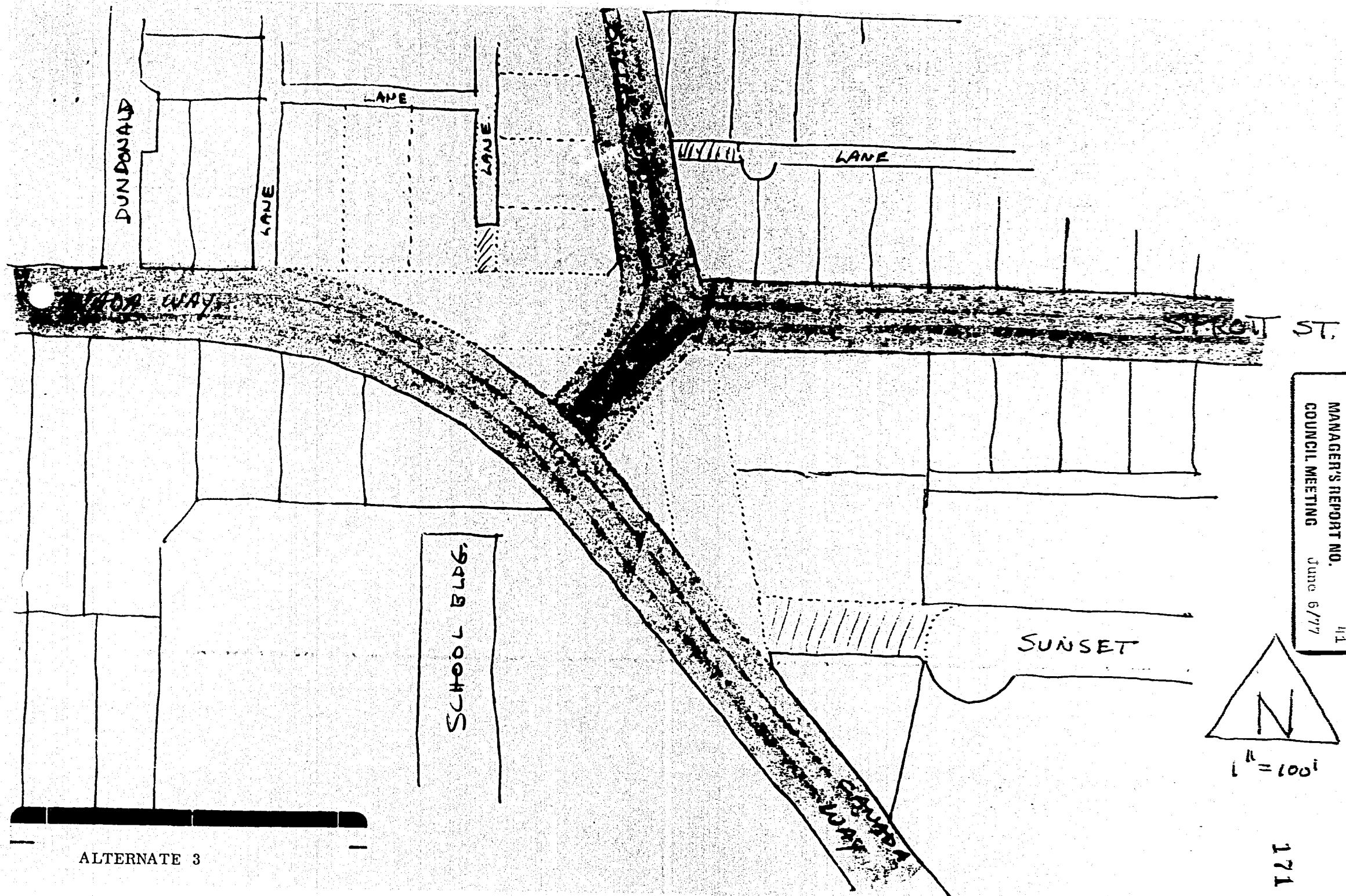
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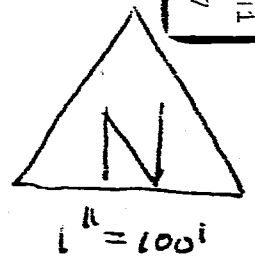
1" = 160'

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ALTERNATE 3

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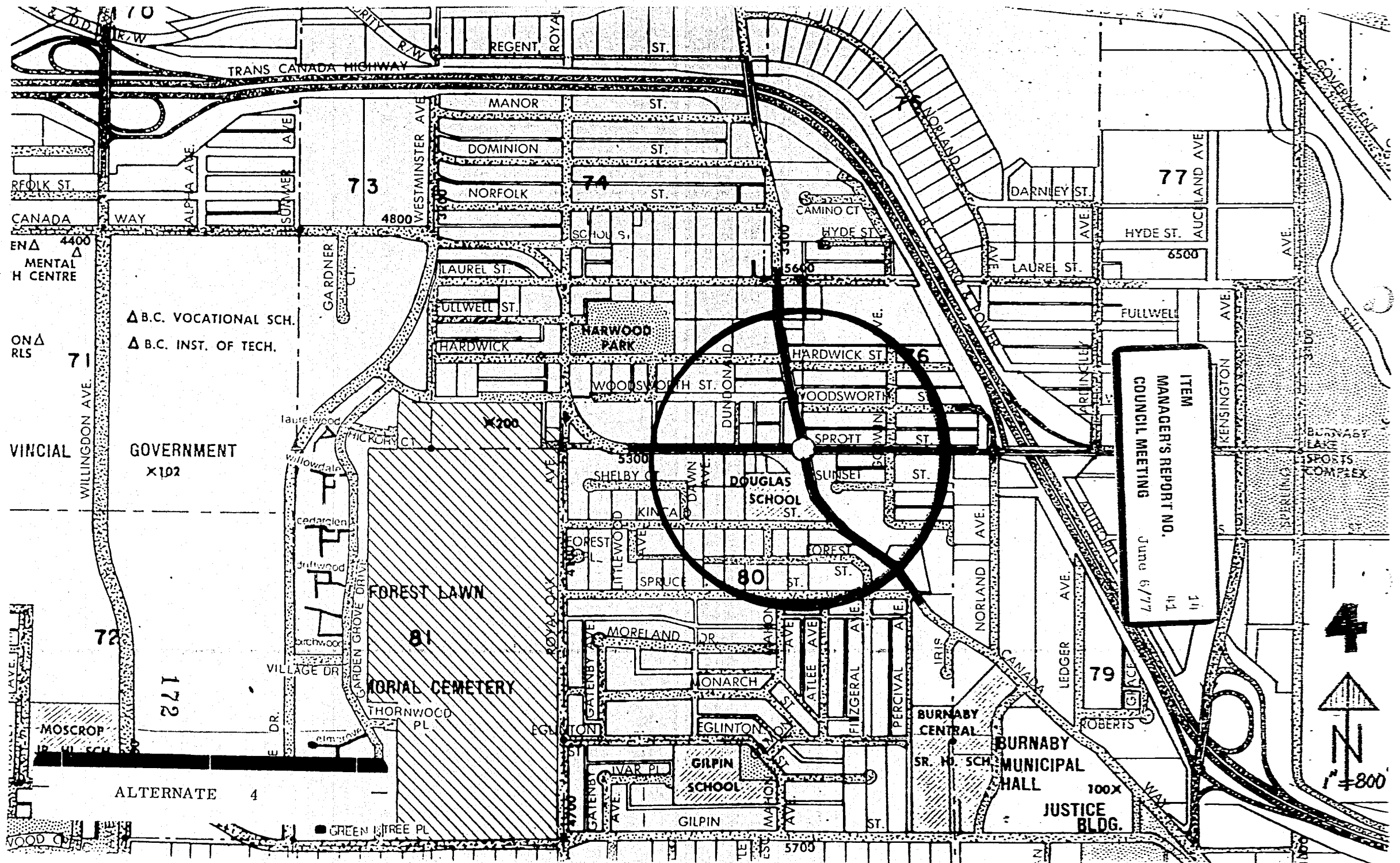
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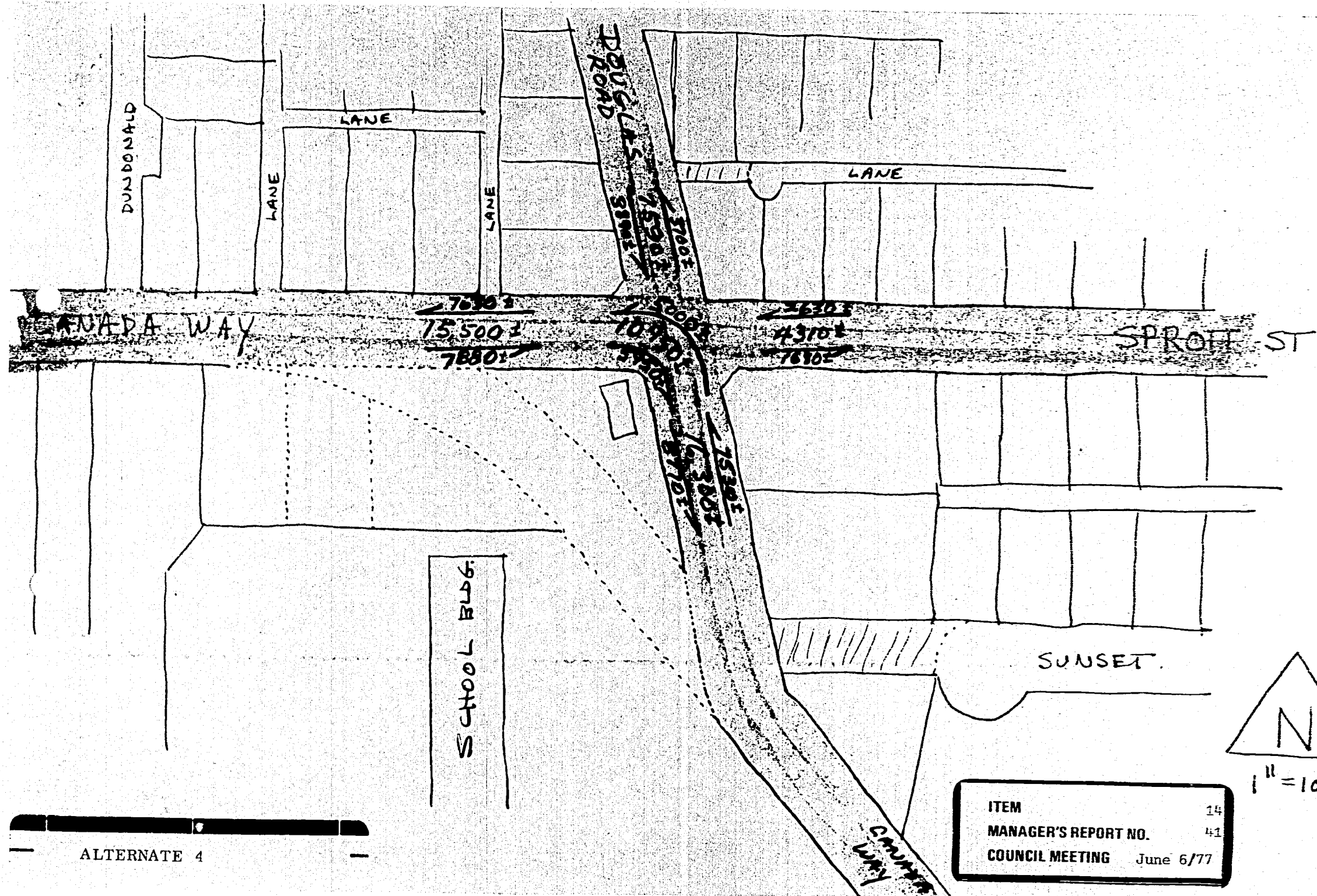
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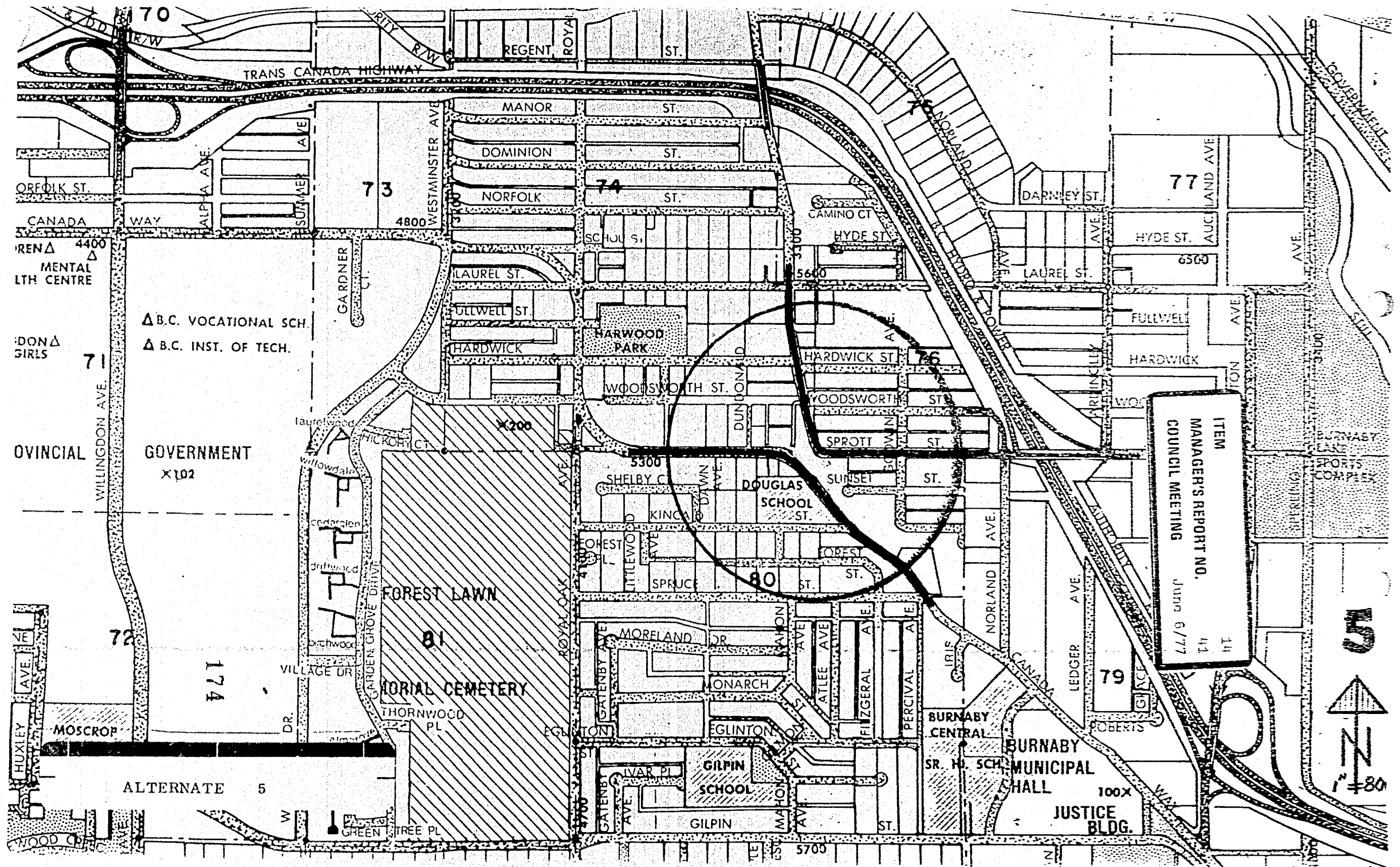
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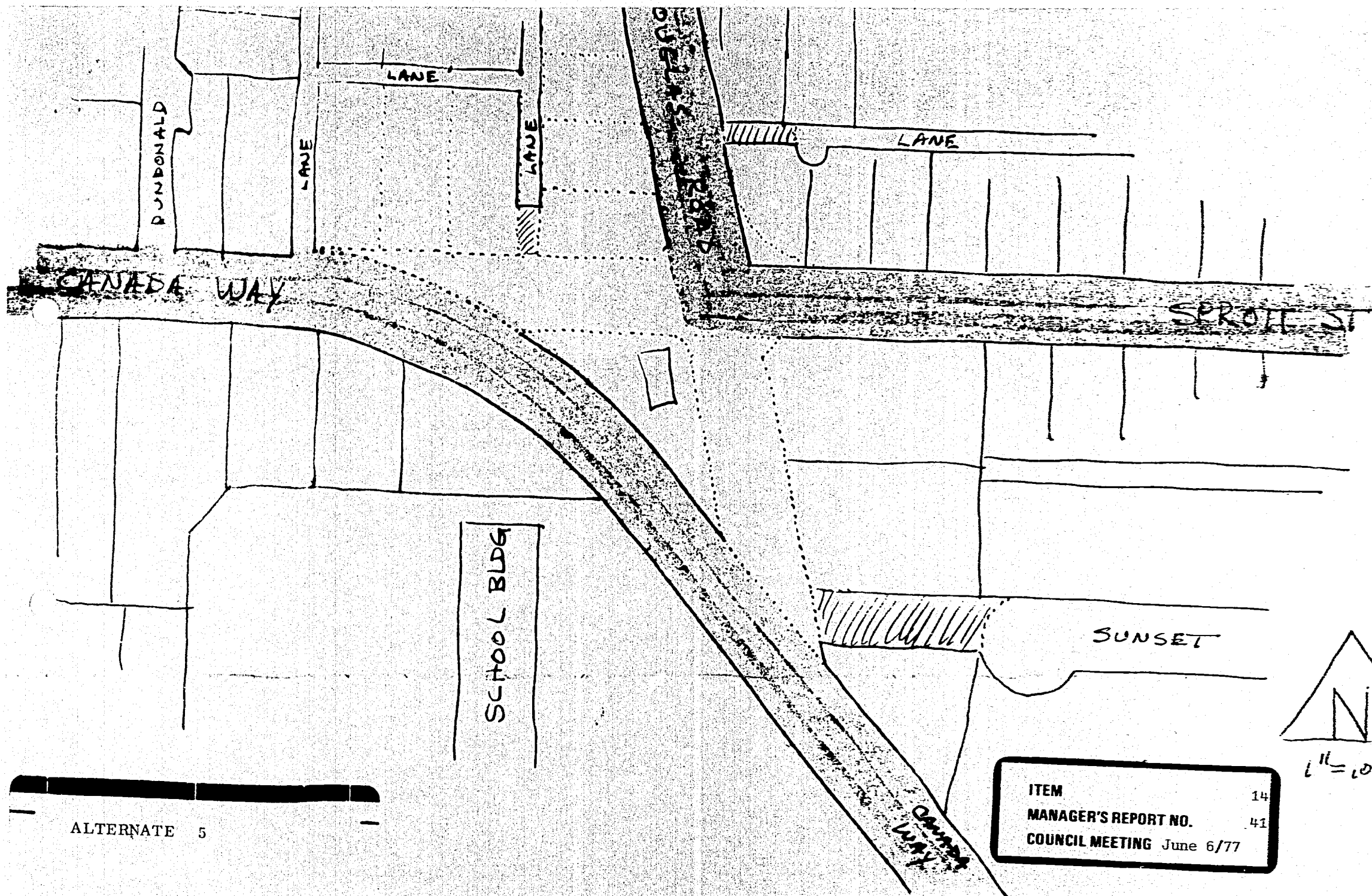
SUNSET

CLAUDE



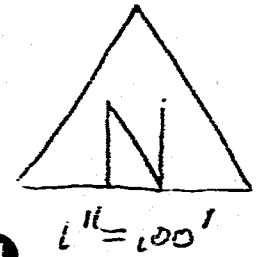




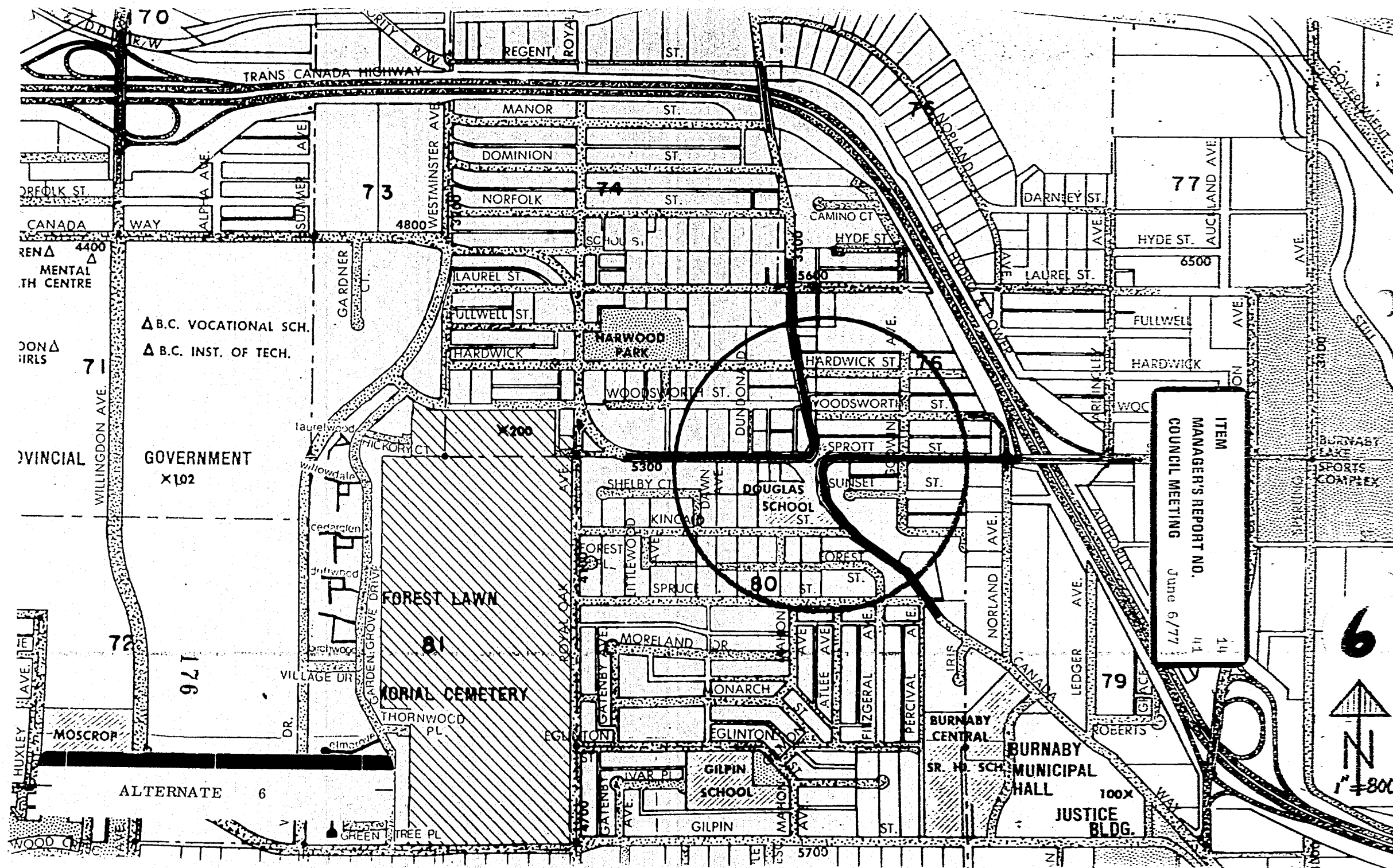


ALTERNATE 5

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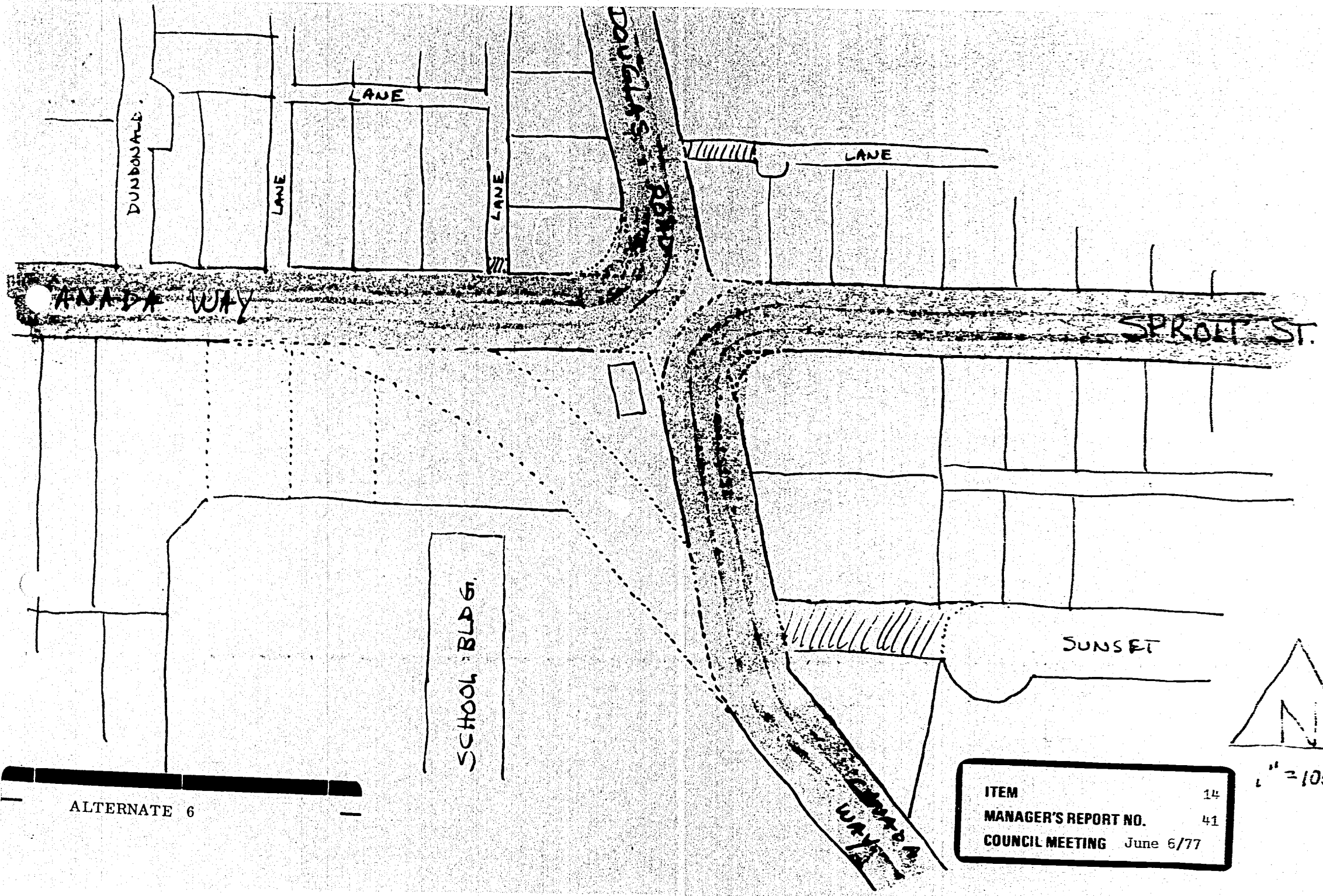


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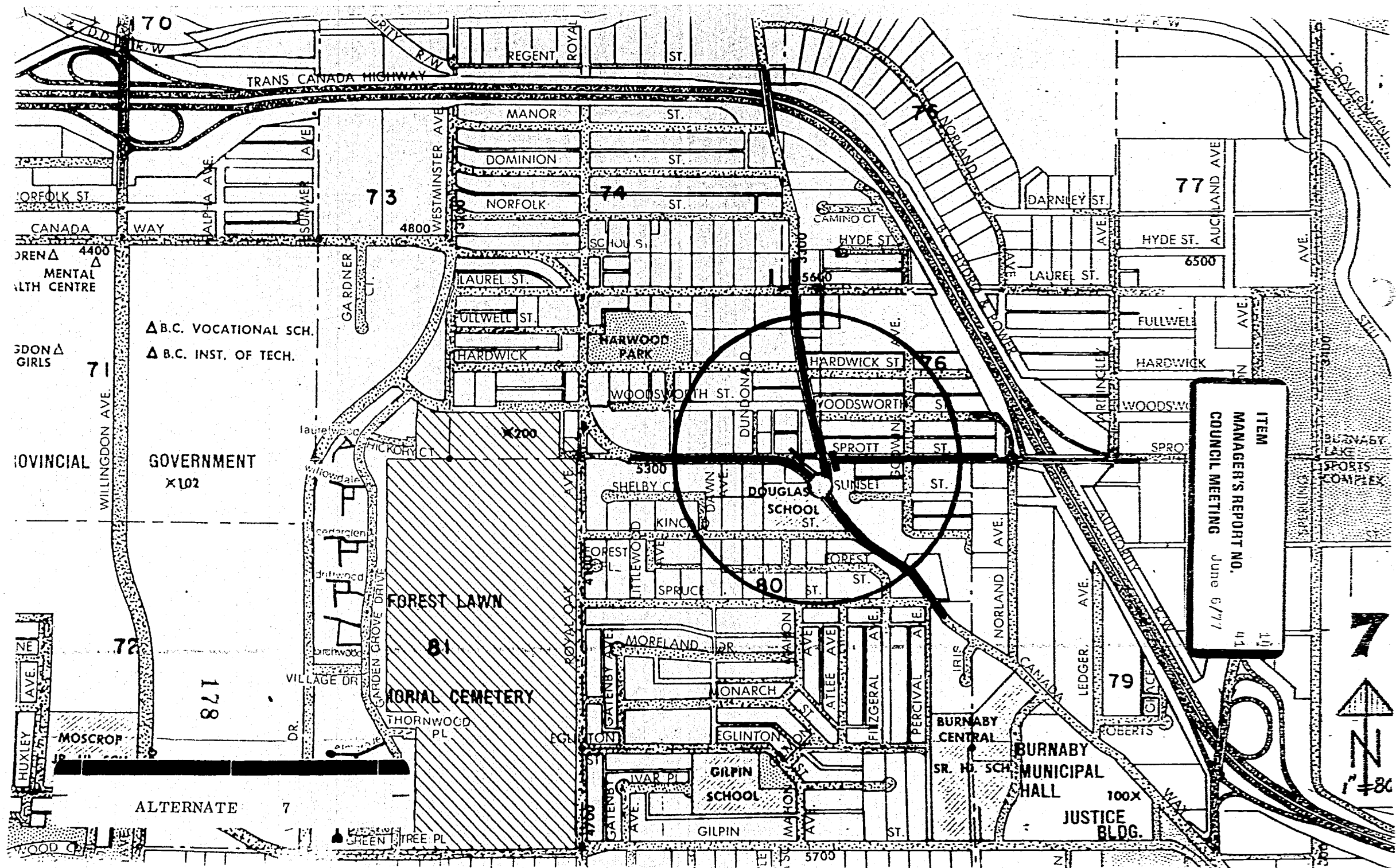
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 1" = 800'



ALTERNATE 6

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MANOR ST.

DOMINION ST.

NORFOLK ST.

NORFOLK ST.

CANADA WAY

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MENTAL HEALTH CENTRE

SDON Δ GIRLS

Δ B.C. VOCATIONAL SCH.

Δ B.C. INST. OF TECH.

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LAUREL ST.

FULLWELL ST.

HARDWICK

HARWOOD PARK

WOODSWORTH ST.

SPROTT ST.

SHELBY CT.

KING ST.

FOREST ST.

LITTLEWOOD AVE

SPRUCE ST.

ROYAL OAK AVE

EGLETON ST.

GILPIN ST.

MAHON ST.

GILPIN SCHOOL

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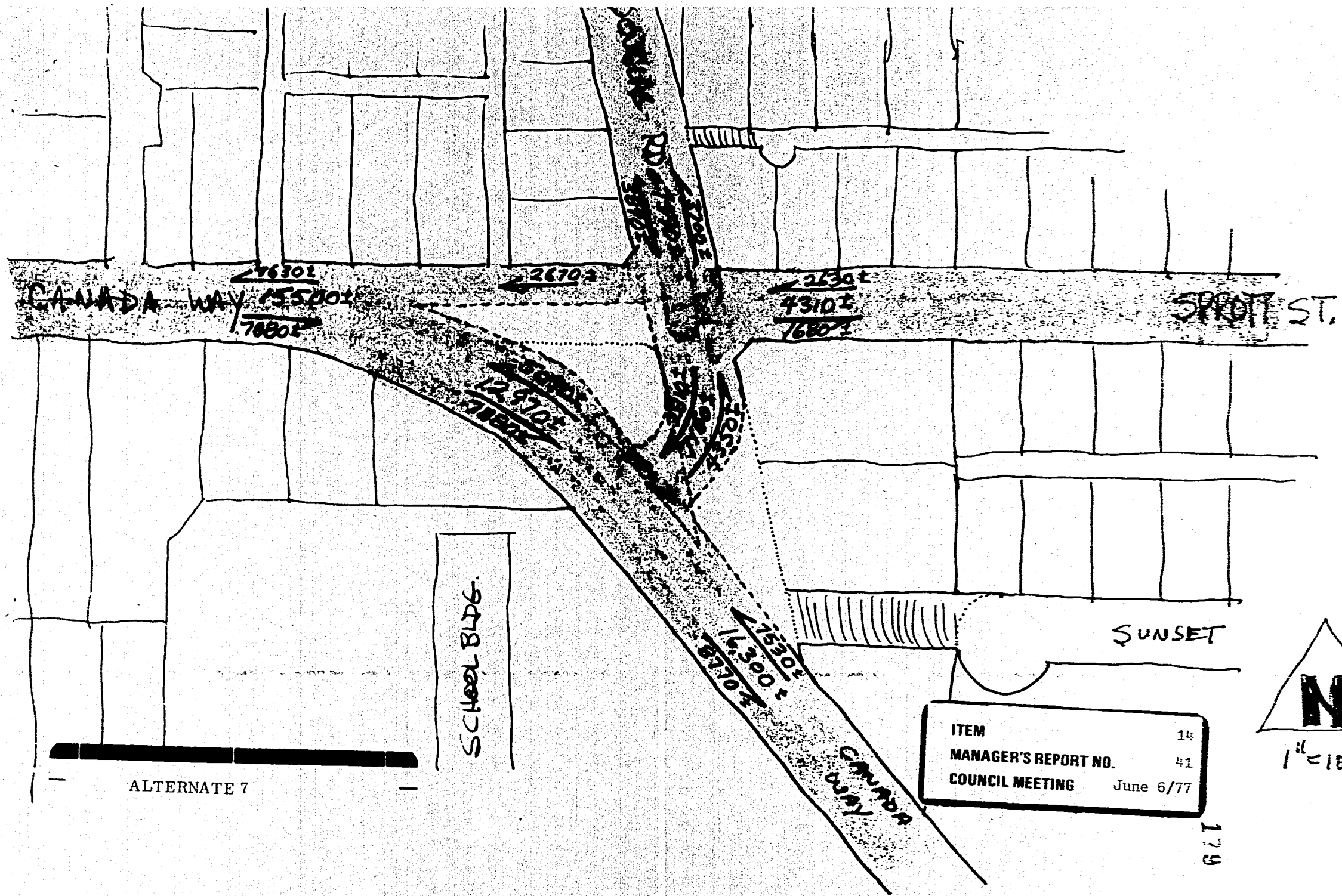
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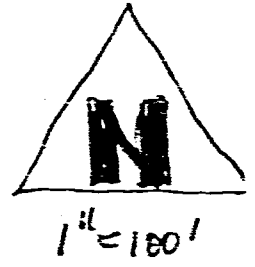
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ALTERNATE 7

SCHOOL BLDG.

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