

REPORT
Regular Council Meeting
1986 July 07

File: 1763

THE CORPORATION OF THE DISTRICT OF BURNABY

REPORT OF THE TRANSPORTATION COMMITTEE

HIS WORSHIP, THE MAYOR
AND MEMBERS OF COUNCIL

Madam/Gentlemen:

RE: AN ALTERNATE TRUCK ROUTE TO GILLEY AVENUE

RECOMMENDATIONS:

1. THAT approval in principle be given to the Gilley Alternate alignment as a secondary arterial between the Marine Way/Tenth Avenue connector and Nineteenth Street (shown as Leg 4 in Figure 6 of the attached report) with connecting links to Edmonds Street and Griffiths Avenue (shown as Legs 5 and 6 respectively in Figure 6 of the attached report).
2. THAT the Conceptual Transportation Plan be amended (as shown on Figure 5 of the attached report) to reflect the following:
 - i) the proposed alignment of the Gilley Alternate between the Marine Way/Tenth Avenue connector and Nineteenth Street as a secondary arterial,
 - ii) the designation of Edmonds Street between Nineteenth Street and Canada Way as a secondary arterial.
3. THAT the Ministry of Transportation and Highways be requested to add the Gilley Alternate and Edmonds Street, between Nineteenth Street and Canada Way to the Ministry's Major Street Network for Burnaby in order to make them eligible for Revenue Cost Sharing.
4. THAT the section of the proposed Gilley Alternate between Marine Drive and Nineteenth Street (shown as Legs 2 and 4 on Figure 6 of the attached report) be designated for the first phase of the development at an estimated cost of \$6.8 million to permit the earliest declassification of Gilley Avenue as a truck route.
5. THAT the section of Byrne Road between Marine Drive and Marine Way (shown as Leg 1 on Figure 6 of the attached report) be designated for concurrent first phase development in order to permit time-consuming but essential preparatory work (preloading, property acquisitions and relocation of utilities) to be carried out at an estimated cost of \$1.1 million.
6. THAT staff make application under the Revenue Sharing Program for the first phase as outlined in Recommendations 4 and 5 above.
7. THAT an engineering consultant be retained to design the first phase including examination of all available options in crossing Byrne Creek, the B.C. Hydro Rail and the A.L.R.T. line.

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8. THAT the preliminary cost estimate of \$7.9 million for the first phase be included and prioritized in the context of the Municipality's 5 year capital budget.
9. THAT the implementation of the remaining components of the Gilley Alternate and the Marine Way/Tenth Avenue connector be included and prioritized within the context of the Implementation Program of the Conceptual Transportation Plan. (Completion of Leg 1 and initiation of Legs 3, 5 and 6 on Figure 6 of the attached report).

R E P O R T

The Transportation Committee, at their meeting held on 1986 June 26 received the attached report from the Director Planning and Building Inspection regarding an alternate truck route to Gilley Avenue and unanimously adopted the recommendations contained therein.

In adopting the above recommendations, the Committee recognized that the first and subsequent phases of both the Gilley Alternate and Marine Way-Tenth Avenue Connector proposals will have to be incorporated into the next 5 year capital budget review process and prioritized relative to other needs identified in the community.

Respectfully submitted,

Alderman G.H.F. McLean
Chairman

Alderman Egon Nikolai
Member

Alderman L.A. Rankin
Member

TO: Secretary,
Transportation Committee

1986 June 18

FROM: Director Planning &
Building Inspection

SUBJECT: AN ALTERNATIVE TRUCK ROUTE TO GILLEY AVENUE
=====

RECOMMENDATIONS:

THAT the Transportation Committee recommend the following to the Municipal Council:

1. THAT approval in principle be given to the Gilley Alternate alignment as a secondary arterial between the Marine Way/Tenth Avenue connector and Nineteenth Street (shown as Leg 4 in Figure 6) with connecting links to Edmonds Street and Griffiths Avenue (shown as Legs 5 and 6 respectively in Figure 6).
2. THAT the Conceptual Transportation Plan be amended (as shown on Figure 5) to reflect the following:
 - i) the proposed alignment of the Gilley Alternate between the Marine Way/Tenth Avenue connector and Nineteenth Street as a secondary arterial,
 - ii) the designation of Edmonds Street between Nineteenth Street and Canada Way as a secondary arterial.
3. THAT the Ministry of Transportation and Highways be requested to add the Gilley Alternate and Edmonds Street, between Nineteenth Street and Canada Way to the Ministry's Major Street Network for Burnaby in order to make them eligible for Revenue Cost Sharing.
4. THAT the section of the proposed Gilley Alternate between Marine Drive and Nineteenth Street (shown as Legs 2 and 4 on Figure 6) be designated for the first phase of development at an estimated cost of \$6.8 million to permit the earliest declassification of Gilley Avenue as a truck route.
5. THAT the section of Byrne Road between Marine Drive and Marine Way (shown as Leg 1 on Figure 6) be designated for concurrent first phase development in order to permit time-consuming but essential preparatory work (preloading, property acquisitions and relocation of utilities) to be carried out at an estimated cost of \$1.1 million.
6. THAT staff make application under the Revenue Sharing Program for the first phase as outlined in Recommendations 4 and 5 above.
7. THAT an engineering consultant be retained to design the first phase including examination of all available options in crossing Byrne Creek, the B.C. Hydro Rail and the A.L.R.T. line.
8. THAT the preliminary cost estimate of \$7.9 million for the first phase be included and prioritized in the context of the Municipality's 5 year capital budget.

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9. THAT the implementation of the remaining components of the Gilley Alternate and the Marine Way/Tenth Avenue connector be included and prioritized within the context of the Implementation Program of the Conceptual Transportation Plan. (Completion of Leg 1 and initiation of Legs 3, 5 and 6 on Figure 6).

SUMMARY:

This report recommends a Gilley Alternate alignment as a secondary arterial between the Marine Way/Tenth Avenue connector and Nineteenth Street with connecting links to Griffiths Avenue and Edmonds Street. This addition is considered supportive of both the Municipality's Transportation Policies and Conceptual Transportation Plan.

The first phase of construction proposed is for the section between Marine Drive and Nineteenth Street plus preparatory work on the section between Marine Drive and Marine Way. The completion of the section between Marine Drive and Nineteenth Street will provide an improved north-south truck route that will permit the declassification of Gilley Avenue as a truck route. The preliminary cost estimate for the first phase is \$7.9 million.

It is anticipated that the first phase will be eligible for revenue sharing. In the interim, it is proposed that the cost of the first phase be included and prioritized within the context of the Municipality's 5 year capital budget and that an engineering consultant be retained to design the first phase and refine the cost estimates.

REPORT

1.0 BACKGROUND AND PURPOSE

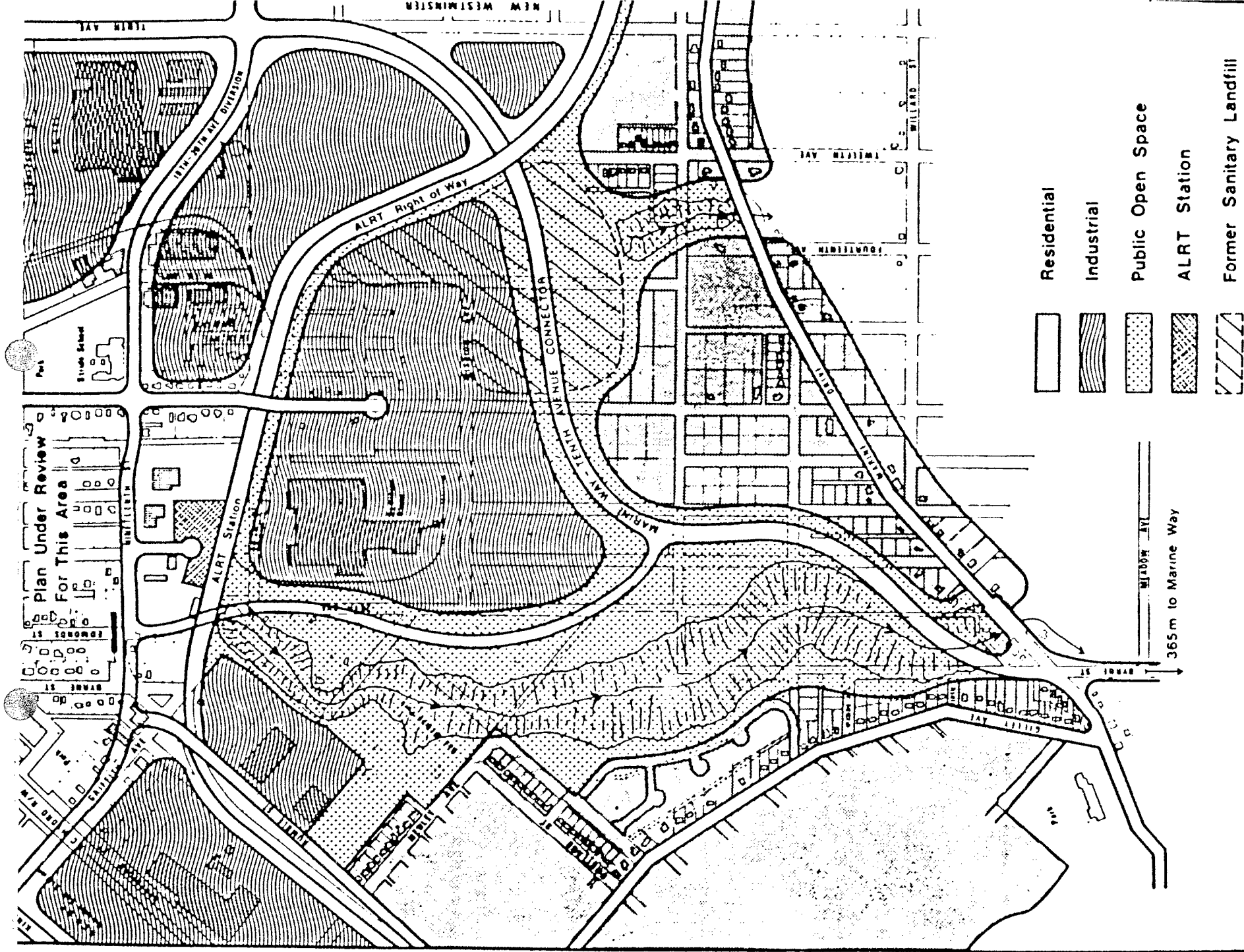
At its meeting of 1985 September 09, Council in considering a number of submissions relating to the use of Gilley Avenue as a truck route adopted the following recommendation:

"THAT the Transportation Committee be requested to review the Edmonds to Byrne Creek alignment as a possible alternative truck route to Gilley Avenue with this review to include consideration of the Griffiths/19th Street collector and following the Committee's review it bring forward a recommendation to Council."

The Transportation Committee, on 1985 October 10 considered a report from the Director Planning and Building Inspection on the subject recommending a Gilley Alternate and a broad land use concept for the area as outlined in Figure 1.

At that time, the Transportation Committee approved in principle the inclusion of the Gilley Alternate as an industrial collector in Burnaby's Conceptual Transportation Plan subject to a review of:

- (a) Whether the Gilley Alternate should be connected to Edmonds Street as part of the truck route network.
- (b) The use of the 19th Street/Griffiths Avenue connector to Kingsway as part of the truck route network.
- (c) Whether a temporary truck route could be implemented prior to the construction of the Gilley Alternate.



DRAFT

Stride Avenue Land Use Concept
Gilley Alternate and Marine Way -
Tenth Avenue Connector

Figure 1

1985 October 04

- (d) The steps required to implement the Gilley Alternate (e.g., time and cost estimates, eligibility for cost sharing, Fisheries' requirements, B.C. Parkway crossing, public information and phasing and financing of the project).

Figure 2 illustrates the Gilley Alternate alignment as approved in principle and its relationship to the proposed Marine Way/10th Avenue connection as presented to the Transportation Committee at its meeting of 1985 October 10.

Since the consideration of this matter by the Transportation Committee, the Dominion Glass facility has closed the manufacturing part of its operations. Prompted by this closure, a review of the land use for the Stride Avenue area was undertaken resulting in the Council adoption of a land use concept for the area as shown on Figure 3 on 1986 January 13. This land use concept provides for the residential development of the Stride Avenue area with no provision for industrial development south of the BC Hydro rail right-of-way. As a result of this review, the alignment of the proposed Marine Way/10th Avenue connector has been shifted southward as has the proposed Gilley Alternate - Marine Way/10th Avenue connector intersection. This revised configuration is also shown on Figure 3.

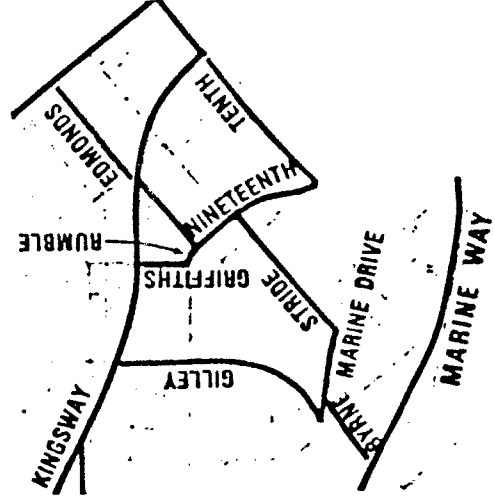
The main purpose of this report is to review the matters raised by the Transportation Committee and to ensure that the proposed Gilley Alternate is consistent with the Municipality's transportation policies and plan. This review will take the form of a question and answer format.

2.0 THE GILLEY ALTERNATE - A CONTEXT

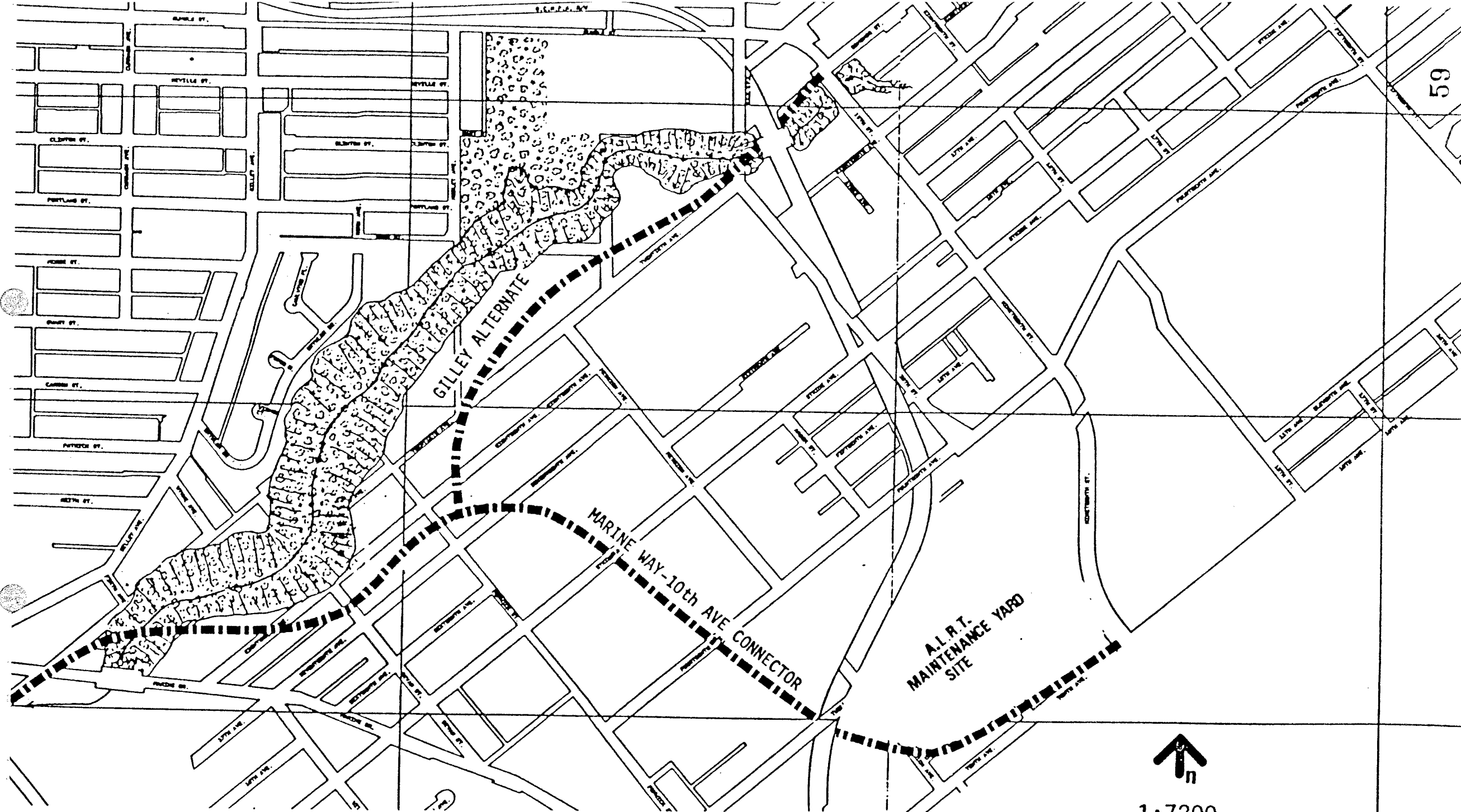
2.1 WHAT IS THE SITUATION WITH RESPECT TO EXISTING TRUCK ROUTES IN THE AREA?

The existing truck route pattern in the area surrounding the Stride Avenue area is relatively dispersed as is shown on the adjacent sketch. At present, truck access between the most southerly and central parts of the Municipality is made difficult by excessive grades on Gilley Avenue (max. 12%), Stride Avenue (max. 17%) and Griffiths Avenue (max. 14%). The grade problem is particularly severe on Stride Avenue and Griffiths Avenue where the maximum grades are immediately above their intersection with Marine Drive and Rumble Street respectively. This presents a safety and operational difficulty for truck traffic going both up and down these routes.


The estimated average weekday truck volumes on the routes providing southerly access in this section of the Municipality is summarized in the following table:



EXISTING TRUCK ROUTES



GILLEY ALTERNATE and MARINE WAY-10th AVE. CONNECTOR


 1:7200
 FIGURE 2.

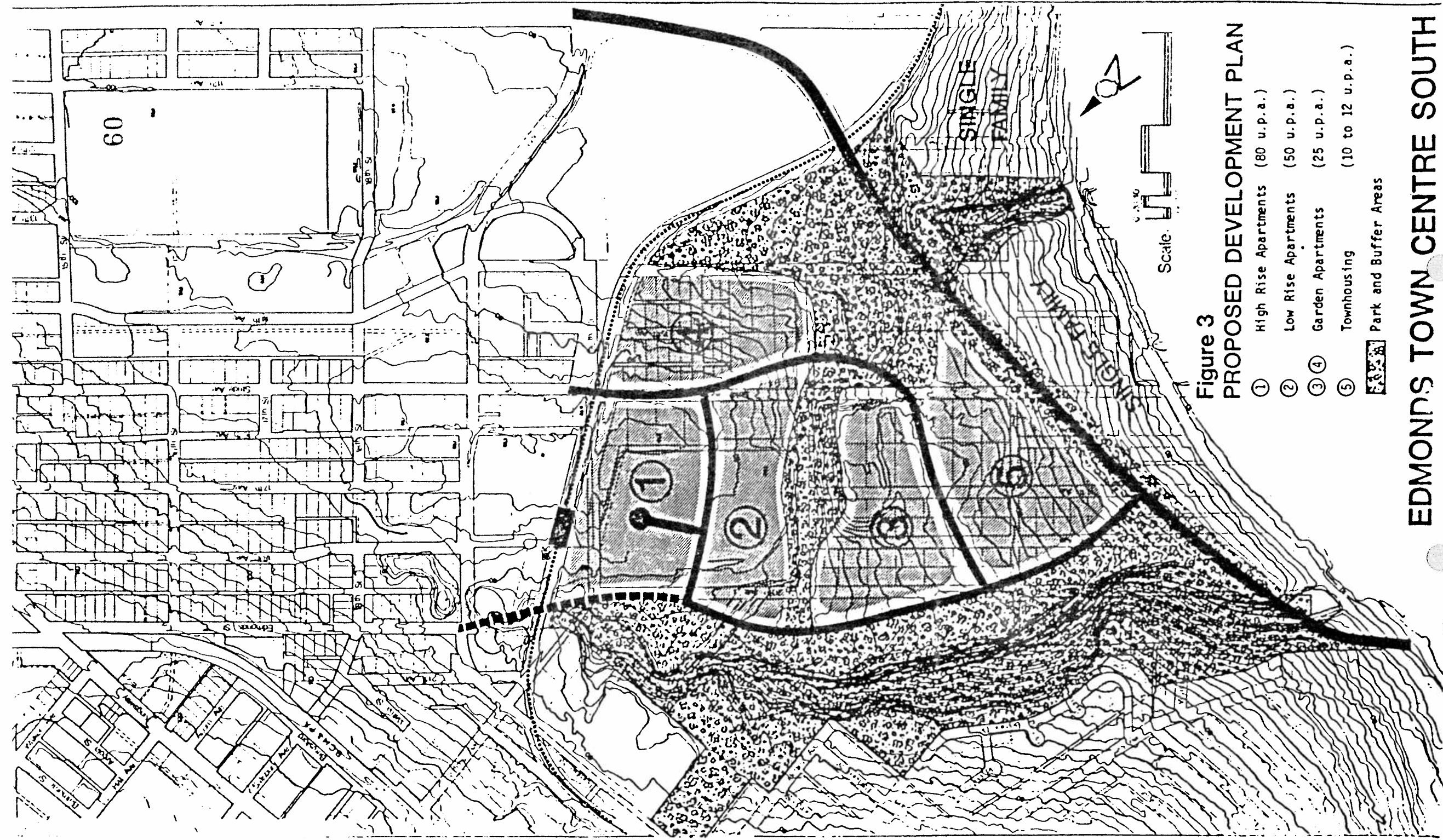



Figure 3

PROPOSED DEVELOPMENT PLAN

- ① High Rise Apartments (80 u.p.a.)
- ② Low Rise Apartments (50 u.p.a.)
- ③④ Garden Apartments (25 u.p.a.)
- ⑤ Townhousing (10 to 12 u.p.a.)
-  Park and Buffer Areas

EDMONDS TOWN CENTRE SOUTH

TABLE 1: ESTIMATED AVERAGE WEEKDAY TRUCK VOLUMES, SELECTED TRUCK ROUTES, 1985

| ROUTE | ESTIMATED TRUCK VOLUME (7:00H TO 18:00H) |
|--|---|
| 1. Gilley (south of Kingsway) | 170 |
| 2. Griffiths (south of Kingsway) | 40 |
| 3. Edmonds (south of Kingsway) | 200 |
| 4. Stride (betwn. Nineteenth and Marine Drive) | 90 |

2.2 WHAT IS THE PROPOSED TRUCK ROUTE NETWORK RELATING TO THIS AREA AS CONTAINED IN BURNABY'S CONCEPTUAL TRANSPORTATION PLAN?

Fundamental to the preparation of the Conceptual Transportation Plan for Burnaby are basic policies for the accommodation of internal and commuter traffic and the protection of residential neighbourhoods. As a general strategy, the plan provides for an arterial system that is concentrated to a clearly defined and improved network, rather than encouraging a dispersed system which would see a more widespread impact on residential areas.

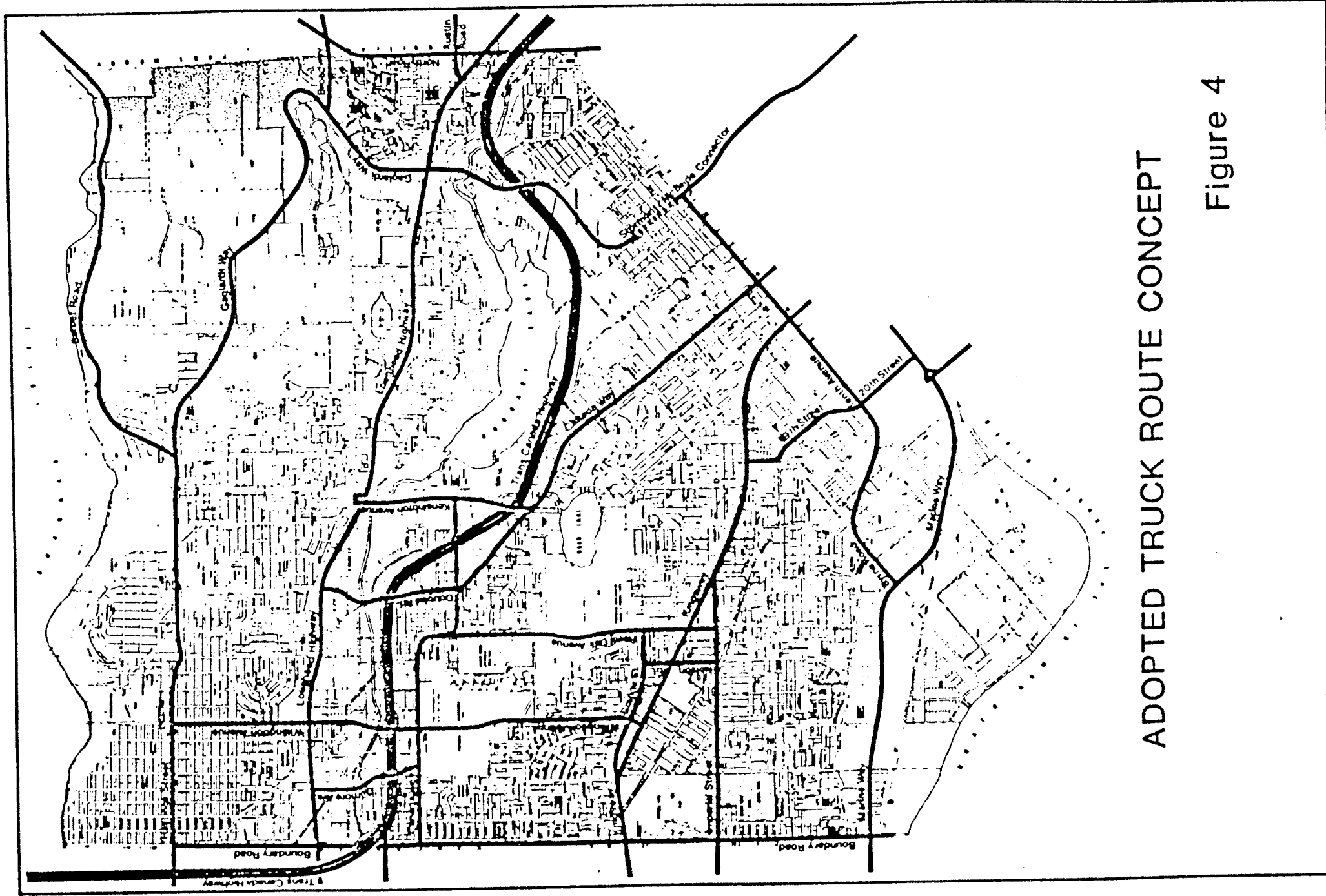
The approved truck route network based on this concept and contained within the Comprehensive Transportation Plan for Burnaby is shown on Figure 4.

This truck route network for the south slope area provides for only two north-south truck routes - one at each edge of the Municipality along Boundary Road and Tenth Avenue. Following the construction of the Marine Way/Tenth Avenue connector, it was to assume the truck route function of both Gilley and Stride Avenues. At that time, Gilley Avenue, Stride Avenue and Edmonds Street were to be declassified as truck routes. The final implementation of the truck route concept would lessen the direct accessibility between the central and southern portions of the Municipality.

As previously mentioned, the Transportation Committee on 1985 October 10 approved in principle the inclusion of the Gilley Alternate in the road network recognizing the merits of having a third, more direct industrial service route providing truck access primarily to and from the Big Bend industrial areas and the central areas of the Municipality.

2.3 HOW WOULD THE GILLEY ALTERNATE OPERATE AS A TRUCK ROUTE UNDER DIFFERING CONNECTING OPTIONS?

In its review of the report presented to the Committee's 1985 October 10 meeting, a request was made to review the desirability of connecting the Gilley Alternate to Edmonds Street and the 19th Street/Griffiths Avenue connector as part of the truck route network. In order to help assess this, truck volume and turning movement counts were taken at the following intersections:



ADOPTED TRUCK ROUTE CONCEPT

Figure 4

- a) Byrne Road and Marine Drive
- b) Gilley Avenue and Kingsway
- c) Rumble Street and Edmonds Street
- d) Rumble Street and Griffiths Street

The following table summarizes the estimated weekday truck volumes between 7:00h and 18:00h for the proposed Gilley Alternate and linking roads under different options.

TABLE 2: GILLEY ALTERNATE AND ASSOCIATED ROAD LINKS - ESTIMATED WEEKDAY TRUCK VOLUME UNDER DIFFERENT OPTIONS (07:00H TO 18:00H)

| ROAD LINK | TRUCK VOLUME | | | |
|---|--------------|---------------------|---------------------|---------------------|
| | EXISTING | OPTION 1 | OPTION 2 | OPTION 3 |
| 1. GILLEY (south of Kingsway) | 170 | N.A. (Declassified) | N.A. (Declassified) | N.A. (Declassified) |
| 2. GRIFFITHS (south of Kingsway) | 40 | 70 | 210 | 300+ |
| 3. EDMONDS (between Kingsway and Nineteenth) | 200 | 340 | 200 | N.A. (Declassified) |
| 4. STRIDE (between Nineteenth and Marine Drive) | 90 | N.A. (Declassified) | N.A. (Declassified) | N.A. (Declassified) |
| 5. GILLEY ALTERNATE | N.A. | 260 | 260 | 260 |

NOTES:

- Option 1: Gilley Alternate connected to Edmonds with Griffiths as is
- Option 2: Gilley Alternate connected to Edmonds with Griffiths improved
- Option 3: Gilley Alternate not connected to Edmonds with Griffiths improved. Under this option it is assumed that 50% of the Edmonds truck traffic would divert to an improved Griffiths and the remaining 50% to other links such as Tenth Avenue.

This table indicates that both Griffiths (with grade and alignment improvements) and Edmonds would have about equal usage if they were part of the designated truck route network (Option 2). Edmonds would be forced to assume a greater importance if Griffiths were not improved to reduce the sharp turn and severe grade at its intersection with Rumble Street (Option 1). This recognizes the much more gentle grades (about 6% max.) on Edmonds and the strong likelihood of even eastbound Kingsway truck traffic selecting this route to reach the Gilley Alternate over the Griffiths alternative with more severe grades. Under Option 3, an improved Griffiths Street would provide the sole connection southward from Kingsway to the Gilley Alternate.

From a review of the traffic counts taken and the potential connecting links to the Gilley Alternate, the following conclusions can be drawn:

- a) 60% of the trucks using Gilley Avenue have an origin/destination along Kingsway west of Gilley. Accordingly, if Gilley is declassified as a truck route, Griffiths would be the closest alternative.
- b) The Gilley Alternate with an improved Griffiths connection would increase travel distance for eastbound Kingsway truck traffic destined for Byrne Road by 1.2 km assuming Gilley Avenue would be declassified as a truck route. If trucks were forced to use Edmonds, (in the event Griffiths was not designated or improved to alleviate the excessive grades and poor alignment), then the same journey distance would be increased by a further 1.3 km.
- c) For westbound Kingsway truck traffic originating from the vicinity of Edmonds and destined for Byrne Road, the Gilley Alternate with connections to Griffiths and Edmonds would reduce travel distance for traffic presently using Gilley by about 1.5 km.

It can be concluded from the above that from the viewpoint of truck route spacing and serviceability, there would be merit for the Gilley Alternate to be connected to both the improved Griffiths and Edmonds Street links.

2.4 UNDER WHAT CONDITIONS COULD A DIRECT CONNECTION BE MADE BETWEEN THE GILLEY ALTERNATE AND EDMONDS STREET NORTH OF 19TH STREET?

A direct connection of the Gilley Alternate to Edmonds Street as an extension of the truck route network would result in Edmonds Street assuming a secondary arterial status. Due to the possible impact of such a road on the adjacent residential area and the potential future extension of this route to link with the Stormont/McBride connector, the adopted Conceptual Transportation Plan for Burnaby did not make provision for Edmonds Street being part of the arterial road network. This, to a large degree, influenced the recommendation contained in the 1985 October report not to make a direct connection to Edmonds Street.

Since the adoption of the Conceptual Transportation Plan and even since the 1985 October meeting of the Transportation Committee, there have been a number of proposed land use changes in the Edmonds/Rumble/Nineteenth Street area. In light of these changes, a key consideration is whether a Gilley Alternate connection to Edmonds would be beneficial and if so, could it be accommodated in a way consistent with the Transportation Policies. The following points will address these two aspects:

- a) The previous section concluded that an Edmonds Street connection to Gilley Alternate would be beneficial purely from a truck route spacing and servicing viewpoint.

- b) The Edmonds SkyTrain station serves the south-east sector of the Municipality with Edmonds Street providing a principal means of access to and from the station for both buses and cars. Presently, Edmonds Street as a designated major residential collector would be developed to a 36 foot curb to curb pavement width which represents a minimum standard for one moving lane in each direction plus on-street parking. The use of the Gilley Alternate and Edmonds Street to and from the Edmonds station and the Edmonds Commercial centre on Kingsway would benefit from the wider 46 foot curb to curb standard associated with a secondary arterial roadway.
- c) A direct connection from the Gilley Alternate to Edmonds Street would provide the new multi-family residential area south of the ALRT tracks with a more direct means of access to the Edmonds commercial centre.
- d) From a road grade perspective, the direct Edmonds Street connection would provide an additional much less severe alternative to the Nineteenth/Griffiths Avenue route.
- e) Edmonds Street (between Kingsway and Nineteenth Street) is designated for RM3 multi-family residential development on its west side in the adopted Kingsway/Edmonds Area Plan. On the east side of Edmonds, the proposed Edmonds ALRT station area concept (presently tabled by Council) provides for re-development of the existing single family dwellings for multi-family apartment purposes. This proposed change in land use designation would enable mitigative measures to be employed consistent with Council adopted sound criteria (H.U.D standards) and any other sound attenuation/buffering standards incorporated within the re-development guidelines to be developed for this area. This re-development proposal on the east side of Edmonds Street would involve the last remaining two blocks of single family development between Nineteenth Street and Kingsway. It is our understanding that Council concerns with the Edmonds ALRT station area concept focused on elements of the proposed road pattern and that there were no expressed major concerns regarding the Concept's proposed land use aspects.

2.5 IF EDMONDS STREET WERE TO BE CONNECTED TO THE GILLEY ALTERNATE, HOW FAR ALONG EDMONDS STREET SHOULD THE SECONDARY ARTERIAL DESIGNATION BE EXTENDED?

If the Gilley Alternate were connected to Edmonds as a truck route, the Conceptual Transportation Plan designation of Edmonds between Kingsway and Nineteenth Street as a major residential collector would have to be amended to a secondary arterial to accommodate truck traffic. Under this scenario, it is considered imperative that the secondary arterial designation for Edmonds Street not be extended beyond Canada Way. This is to ensure the integrity of the Conceptual Transportation Plan by maintaining the continuous, peripheral arterial road system, which in this instance would be the Tenth Avenue connection to the Stormont/McBride connector.

The Gilley Alternate/Edmonds connection and secondary arterial designation up to Canada Way would be viewed as an internal Municipal truck route providing an improved linking of the southern part of the Municipality with the south-central and central areas.

The road width requirement on Edmonds between Kingsway and Canada Way would not change under a secondary arterial status as the typical pavement width for secondary arterials is the same as for commercial/industrial collectors (46' curb to curb), which is the current designation for this segment of Edmonds.

3.0 THE PROPOSAL AND ITS IMPLEMENTATION

3.1 GIVEN THE REVIEW OF THE CONCEPTUAL TRANSPORTATION PLAN, TRUCK MOVEMENTS, TRUCK ROUTES, EXISTING AND PROPOSED LAND USE, HOW SHOULD THE GILLEY ALTERNATE BE INCORPORATED INTO THE TRANSPORTATION PLAN?

The preceding review has concluded that the addition of a Gilley Alternate as a secondary arterial with connections to Griffiths Avenue and Edmonds Street to the Municipality's Conceptual Transportation Plan would be both appropriate and beneficial.

The relationship of this proposal to the Municipality's adopted Conceptual Transportation Plan is shown on Figure 5. Nineteenth Street/Griffiths Avenue is already a designated secondary arterial. The addition to the Transportation Plan is therefore a secondary arterial east of Byrne Creek Ravine linking the Marine Way/Tenth Avenue Connector to Edmonds Street. On Edmonds Street, the secondary arterial designation terminates at Canada Way. The proposed standard for the secondary arterial would be 46 feet curb to curb.

3.2 CAN THE GILLEY ALTERNATE AND THE MARINE WAY/TENTH AVENUE CONNECTOR BE PHASED, AND IF SO, HOW?

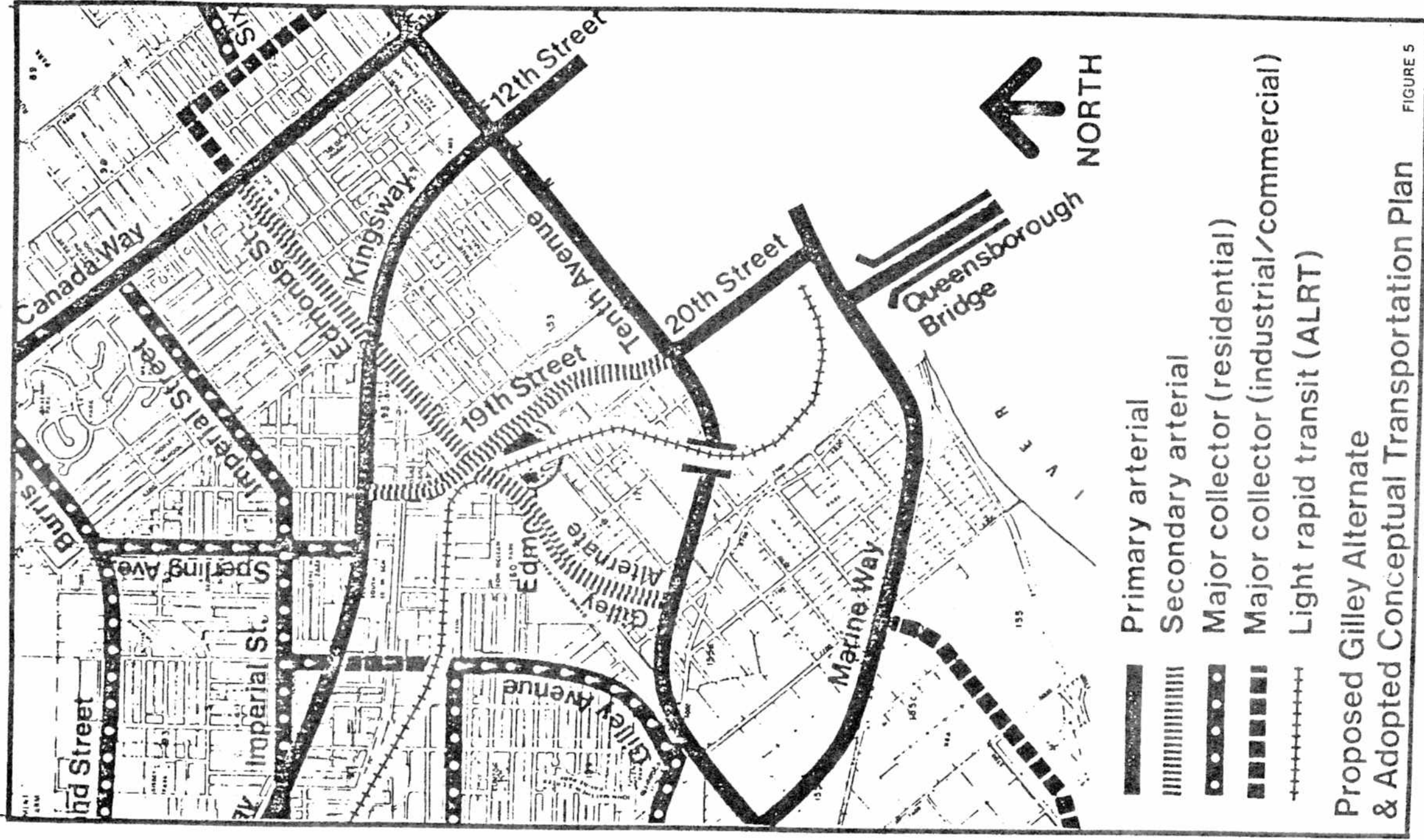
The road network through the area can logically be considered as a number of inter-related components. These components are shown on Figure 6 and are described as follows:

MARINE WAY/TENTH AVENUE CONNECTOR:

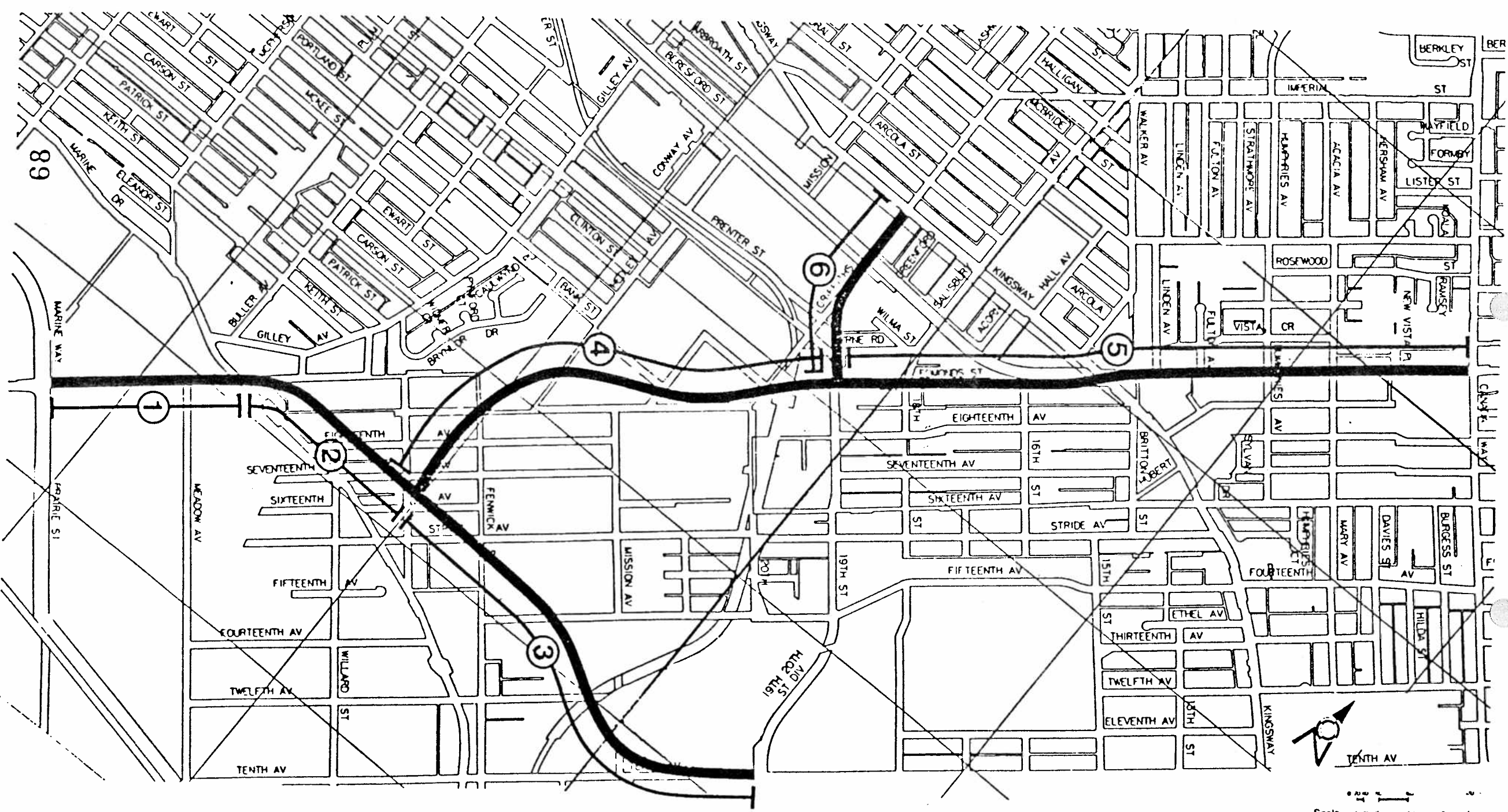
- Leg 1 - Marine Way to Marine Drive.
- Leg 2 - Marine Drive to the intersection of the Gilley Alternate.
- Leg 3 - The intersection of the Gilley Alternate to Tenth Avenue.

GILLEY ALTERNATE:

- Leg 4 - Marine Way/Tenth Avenue connector to Nineteenth Street.
- Leg 5 - Edmonds Street from Nineteenth Street to Canada Way.
- Leg 6 - Nineteenth Street/Griffiths connection from Edmonds Street to Kingsway.



Proposed Gilley Alternate
 & Adopted Conceptual Transportation Plan FIGURE 5



COMPONENTS OF GILLEY ALTERNATE AND MARINE WAY / TENTH AVE. CONNECTOR

Figure 6

Depending on the status of land acquisitions, construction costs and service requirements, different combinations of the road network can be implemented over a phased period.

The following 'ballpark' estimates for the six legs of the arterial road network have been prepared for comparative purposes and to gain an appreciation of the 'order of magnitude' of the costs for financing and phasing purposes.

TABLE 3: ESTIMATED COSTS FOR GILLEY ALTERNATE AND MARINE WAY/TENTH CONNECTOR

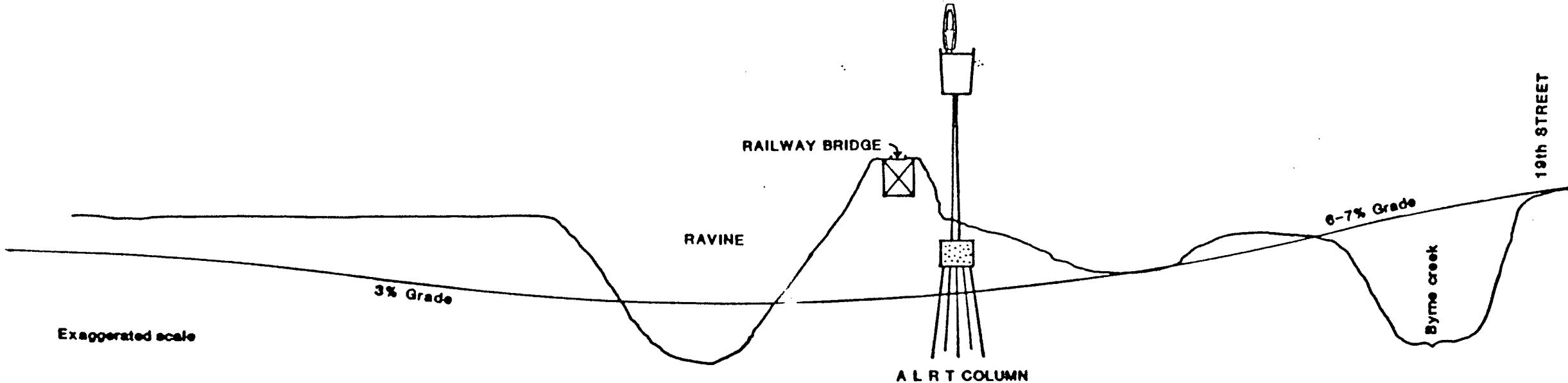
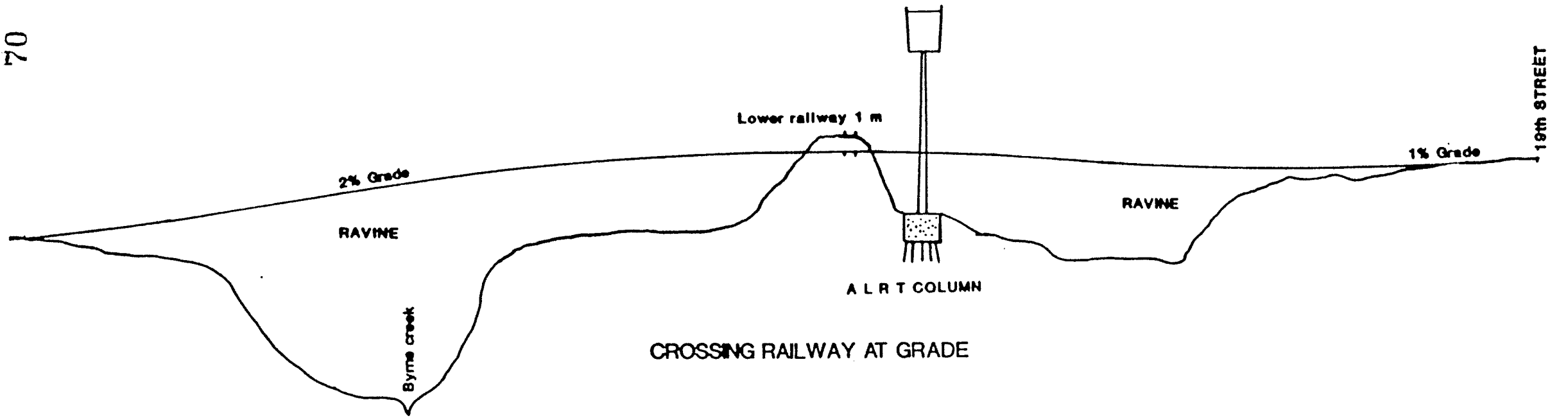
| ROAD LINK | CONSTRUCTION COSTS | PROPERTY ACQUISITION COSTS | TOTAL COSTS (ROUNDED) |
|------------------|--------------------|----------------------------|-----------------------|
| Leg 1 | \$1.5 million | \$ 400,000 * | \$1.9 million |
| Leg 2 | \$2.4 million | \$ 180,000 | \$2.6 million |
| Leg 3 | \$3.3 million | - | \$3.3 million |
| Leg 4 (Option A) | \$2.9 million | \$ 650,000 | \$3.6 million |
| (Option B) | \$4.0 million | \$ 650,000 | \$4.7 million |
| (Option C) | \$3.6 million | \$ 620,000 | \$4.2 million |
| Leg 5 | \$0.6 million | - | \$0.6 million |
| Leg 6 | \$0.6 million | \$1,400,000 | \$2.0 million |

Note: Option A: At grade with B.C. Rail with culverting of Byrne Creek.
 Option B: At grade with B.C. Rail with bridge over Byrne Creek.
 Option C: Underpass of B.C. Rail

*: Assumes partial acquisitions possible with no injurious effects

Depending on the method of crossing the Byrne Creek Ravine and the B.C. Hydro Rail, the total costs of the Gilley Alternate and the Marine Way/Tenth Avenue Connector would vary between \$14.0 million and \$15.1 million. Three options for crossing Byrne Creek and the B.C. Hydro Rail were examined in an attempt to reduce costs and satisfy the objectives of the Ministry of Environment and B.C. Hydro Rail. Figure 7 illustrates two diagrammatic sections of these options. From a road operational viewpoint, the at-grade option requires signals at the rail line, has better grades and can be accommodated between two of the ALRT guideway support columns when compared to the grade separated option. With respect to the grade separated option, the road grade between the ALRT line and Nineteenth Street is approximately 7% and in underpassing the rail line could potentially affect the foundations of two of the ALRT guideway support columns. Section 3.5 and 3.6 addresses the comments of the Ministry of Environment and B.C. Hydro Rail with respect to these options.

It is our view that given the magnitude of the total costs and the fact that property acquisitions are required in four of the six legs, a phased construction would be most appropriate.



Exaggerated scale

GILLEY ALTERNATE PROFILE

Figure 7

A recommendation as to the most appropriate first phase of the project would obviously relate to the evaluating criteria that are utilized in making such a judgment. Given Council's direction and primary objective of providing a replacement to Gilley Avenue as a truck route, Legs 2 and 4 (see Figure 6) which would join Marine Drive with Nineteenth Street would be the minimum construction required. Leg 2 is 570 metres in length and is part of the Marine Way/Tenth Avenue connector. It connects with Marine Drive at grade with a bridge crossing of Byrne Creek. The maximum grade of this section is 6%. Leg 4 is 1290 metres in length and is located east of Byrne Creek Ravine with a maximum grade of 7.7%.

The Gilley Alternate is proposed as an internal truck route providing a connection between the central areas of the Municipality with the developing Big Bend area and Marine Way. For the Gilley Alternate to be effective, a key connection is therefore that section of Byrne Road between Marine Way and Marine Drive (Leg 1, Figure 6). This section which is presently developed only to a 20 foot standard is considered unsatisfactory and in constant need of repair. Accordingly, it is essential that an early start be made on the difficult and time consuming aspects of property acquisitions, preloading and relocation of utilities. If is for these reasons that the preparatory works for this section between Marine Way and Marine Drive should be undertaken concurrently with Legs 2 and 4 (see Figure 6). The estimated costs of these works on Leg 1 is \$1.1 million.

The other Legs could be implemented as additional funds are made available and would improve the efficiency of the Gilley Alternate as follows:

- Leg 3 - Intersection of the Gilley Alternate to Tenth Avenue. This section will complete the Marine Way/Tenth Avenue connector. The Regional Transportation model has estimated that if the Gilley Alternate and the Tenth Avenue connector were constructed, the traffic volumes on the Tenth Avenue connector would be approximately twice that of the Gilley Alternate. While the Gilley Alternate has an important Municipal role, the Marine Way/Tenth Avenue connector has a regional significance and will still be required as part of the Municipality's peripheral arterial road network.
- Leg 5 - Edmonds Street from Nineteenth Street to Canada Way. Edmonds Street (between Nineteenth Street and Kingsway) in this section has a 20 foot cap. The proposed improvement (46 feet curb to curb) can be accommodated in the existing right-of-way with a maximum grade of 6%. For that section between Kingsway and Canada Way the pavement width would remain unchanged.
- Leg 6 - Nineteenth Street/Griffiths connection from Edmonds Street to Kingsway. The proposed improvements in this section are to improve the grades of Griffiths to a maximum of 9% and its super-elevation at the Rumble Street intersection.

3.3 WILL THE GILLEY ALTERNATE AND THE MARINE WAY/TENTH CONNECTOR BE ELIGIBLE FOR REVENUE SHARING?

The Marine Way/Tenth connector is part of the agreed to Major Street network between Burnaby and the Province. As such, the Ministry of Transportation and Highways has advised that they would consider a revenue sharing application for the Marine-Way/Tenth connector under the normal procedure.

With respect to the Gilley Alternate, the Ministry has advised that if the Gilley Alternate is connected to Edmonds Street it will consider adding the route to Burnaby's Major Street Network in order to make it eligible for the Revenue Sharing Program. The Ministry has also advised that if the Gilley Alternate were not connected to Edmonds Street, it would not be eligible for revenue sharing.

3.4 HOW COULD THE LIKELY FIRST PHASE OF THE GILLEY ALTERNATE BETWEEN MARINE DRIVE AND NINETEENTH STREET BE FINANCED?

Normally, funding for major roads is provided by borrowing from internal reserves with repayment over 20 years at prevailing interest rates.

The first phase of the Gilley Alternate, roughly estimated to cost between \$7.3 to \$8.4 million including land acquisitions, will also likely be financed by borrowing from internal capital reserves, provided that there are sufficient reserve balances and that the project receives the priority with respect to other capital projects that have to be funded from the reserves.

It may also be funded by external borrowing. In both cases, borrowing has to be approved by the Minister of Municipal Affairs and may require ratepayer approval in advance. In either case, repayment of the loan has to be funded through general revenues.

Should revenue sharing be available, the Province would normally contribute 50% of the cost. If, for example, the cost of the first phase were \$7,900,000 (Leg 2, Leg 4, Option C and preparatory work Leg 1), the loan would be for \$3,950,000 after revenue sharing and the repayments would add approximately \$400,000 per year to the tax draw for 20 years, assuming 8% interest, or approximately \$465,000 per year assuming 10% interest.

If no revenue sharing were available, the full amount would have to be borrowed internally and the repayment over 20 years would add approximately \$800,000 per year to the tax draw in the years 2 through 20, assuming 8% interest, or approximately \$930,000 per year assuming 10% interest. Repayments in years 1 and 21 would be one-half of these annual amounts.

Financing from external sources could be 1% to 3% higher than the cost of internal borrowing and the repayments proportionately greater.

3.5 HOW DOES THE MINISTRY OF ENVIRONMENT VIEW THE GILLEY ALTERNATE?

The Ministry was requested to review two design options of the Gilley Alternate. One to cross the B.C. Hydro tracks at grade and one that would underpass the tracks. They have commented as follows:

'Presently Byrne Creek supports resident and sea-run cutthroat trout along with some rearing coho salmon fry. The long term plan is to maintain these trout populations and re-introduce a small coho salmon run under the auspices of a local Salmonid Enhancement Project once the relocation of lower Byrne Creek has been completed and stabilized.

Over the years, fish habitat in the Byrne Creek system has degraded to the point where it is now more or less confined to the area downstream of the Griffiths Avenue right-of-way. A recent field inspection confirmed that fish habitat between 19th Street and the SkyTrain/B.C. Hydro Rail right-of-way is marginal at best.

In view of the above and because of the need to retain the existing fisheries habitat in Byrne Creek to meet our management objectives, we are opposed to any watercourse alterations below the Griffiths Avenue right-of-way. We therefore wish to register our objections regarding the Level Crossing option which would, in effect, result in further habitat loss.

We have no objections in principle regarding the Underpass option provided the downstream water quality is not adversely affected either during or after construction. These concerns can best be dealt with at the Water Approval stage.'

In summary then, the Ministry would not have any objections to a Gilley Alternate provided the water quality and fish habitat of Byrne Creek are preserved below Griffiths Avenue. From the preliminary design work undertaken, Option C and Option B as outlined in Table 3 would appear to best meet the objectives of the Ministry.

3.6 HOW DOES B.C. HYDRO RAIL VIEW THE GILLEY ALTERNATE?

B.C. Hydro Rail has advised that of the two options described in 3.5 above, the at-grade proposal which requires lowering of the mainline, passing and spur track to the Dominion Glass site appears feasible. However, from their viewpoint, a grade separated crossing is preferred. This is also represented by Option C.

3.7 WHERE WOULD THE B.C. PARKWAY CROSS THE GILLEY ALTERNATE?

The B.C. Parkway has been constructed along the Griffiths Avenue and Twentieth Street rights-of-way. How and where the B.C. Parkway will ultimately cross the Gilley Alternate can be better determined when a more detailed design of the Gilley Alternate is prepared. In any event, the B.C. Parkway and the Gilley Alternate should be able to be appropriately integrated at their point of crossing.

3.8 CAN A TEMPORARY TRUCK ROUTE BE IMPLEMENTED PRIOR TO THE CONSTRUCTION OF THE GILLEY ALTERNATE?

The implementation of a temporary truck route cannot be recommended as it is not considered cost-effective and would not advance the declassification of Gilley Avenue as a truck route by any appreciable degree.

A temporary truck route would still require the construction of the Gilley Alternate to a point north of Mission Avenue to ensure the road has acceptable grades. At this point, it will be necessary to link the Gilley Alternate to Stride Avenue while the construction of the section that crosses Byrne Creek, and the B.C. Hydro Rail proceeds.

Rather than constructing the temporary link to Stride Avenue, it is considered more cost-effective to proceed directly with the connection of the Gilley Alternate to Nineteenth Street.

4.0 CONCLUSIONS

This review has concluded that the Gilley Alternate with connections to Griffiths Avenue and Edmonds Street should be designated as secondary arterials (46 feet curb to curb) in Burnaby's Conceptual Transportation Plan. On Griffiths Avenue the secondary arterial designation should terminate at Kingsway and on Edmonds Street at Canada Way. This proposed amendment to the Transportation Plan is considered appropriate for the following reasons:

- (a) Improved truck route spacing in the Municipality's overall truck route network in response to an identified internal Municipal need.
- (b) The continuous peripheral primary arterial road system to accommodate commuter traffic and protect residential neighbourhoods would be maintained in this area with the Marine Way/Tenth connection to the Stormont/McBride connector.
- (c) Appropriate environmental protection can be instituted in the presently undeveloped but designated multi-family area east of the Gilley Alternate.
- (d) Nineteenth Street and Griffiths Avenue is already a designated secondary arterial.
- (e) The proposed pavement width (46 feet curb to curb) can be accommodated within the existing Edmonds Street right-of-way. It is anticipated that the re-development of the land on either side of Edmonds Street between Nineteenth Avenue and Kingsway will enable satisfactory mitigative measures to be employed. Edmonds Street between Kingsway and Canada Way is a designated commercial/industrial collector in the adopted Transportation Plan. The change in designation for this part of Edmonds Street to a secondary arterial would not change the current pavement width.
- (f) The Edmonds ALRT station is provided with better access from both the north and south.
- (g) The proposed multi-family residential development of the Stride Avenue area will have a more direct access to the Edmonds commercial centre.
- (h) The Edmonds Street link would provide for a more direct bus link to the Edmonds ALRT station from the north.

(i) The declassification of Gilley Avenue and Stride Avenue will be possible with the construction of the first phase of the Gilley Alternate.


Because of the estimated high costs (\$14.0 - \$15.1 million including property acquisitions) and the property acquisitions required for the whole Gilley Alternate - Marine Way/Tenth Avenue road network, a first phase that connects Marine Drive with Nineteenth Street is recommended. With the construction of this phase, Gilley Avenue will be able to be declassified as a truck route. A concurrent first phase to undertake essential and time-consuming preparatory work on Byrne Road between Marine Drive and Marine Way is also recommended.

Estimated costs for the proposed first phase are between \$7.3 million and \$8.4 million. The difference in costs relate to the crossing of the B.C. Hydro Rail and Byrne Creek at its northern end. Both the Ministry of Environment and B.C. Hydro Rail favour the grade separated crossing (Leg 4, Option C) which costs approximately \$600,000 more than the at-grade crossing of the rail and culverting of Byrne Creek (Option A) and approximately \$500,000 less than the at-grade crossing of the rail with a bridge across Byrne Creek (Option B). Option B would likely also meet the Ministry of Environment's objectives. However, with the grade separated crossing the intersection with Nineteenth Street is at a steeper (7% vs 1%) grade and its potential impact on the foundations of two of the ALRT columns are undetermined at this time. Given these factors, it is recommended that an engineering consultant be retained to design the first phase of the Gilley Alternate including examination of all available options in crossing the B.C. Hydro Rail, the A.L.R.T. line and Byrne Creek.

In that the first phase will likely be eligible for revenue sharing, it is recommended that this process be initiated with the Provincial Government. In the interim, it is recommended that the preliminary cost estimate of \$7.9 million for the first phase that incorporates a grade separation of the B.C. Hydro Rail be included in the Municipality's 5 year capital budget. A more precise cost estimate will be available following the engineering design and the Province's response to our revenue sharing application.

The remaining components of the Gilley Alternate and the Marine Way/Tenth Avenue connector (completion of Leg 1 and initiation of Legs 3, 5, and 6 on Figure 6) can be implemented and linked to the proposed first phase as available funds dictate. Accordingly, it is recommended that these remaining components be included and prioritized within the context of the Implementation Program of the Conceptual Transportation Plan.

The Director Engineering concurs with the recommendations of this report.


A. L. PARR
DIRECTOR PLANNING &
BUILDING INSPECTION

BLS/JSB/jce
Attach.

cc: Director Engineering
Municipal Solicitor
Director Finance

