

PRMS

ITEM	6
MANAGER'S REPORT NO.	63
COUNCIL MEETING	86/10/20

RE: SKYTRAIN ROUTES TO COQUITLAM

MUNICIPAL MANAGER'S RECOMMENDATION:

1. THAT the recommendation of the Director Planning & Building Inspection be adopted.

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TO: MUNICIPAL MANAGER 1986 October 09

FROM: DIRECTOR PLANNING & BUILDING INSPECTION Our File: 08.211

SUBJECT: SKYTRAIN ROUTES TO COQUITLAM

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RECOMMENDATION

1. THAT this report be received for information.

INTRODUCTION/SUMMARY

In a press release dated 1986 October 02, B.C. Transit released the outline of a feasibility study into extending SkyTrain service into Coquitlam. A copy of the press release and study outline is attached to this report. The study identifies two new preferred routes but does not select either - recommending further consultation and review. The southern route would extend the SkyTrain line from New Westminster along the Brunette/Lougheed corridor to Coquitlam Centre. This route is not an option for Burnaby as it does not serve the Lougheed Town Centre, an essential requirement provided for in previous plans.

The more cost effective northern route would follow a new, alignment generally along the Edmonds corridor to Lougheed Town Centre. This alignment would appear to meet the aims and objectives of the Municipality as well as offering the greatest potential benefit to transit, and regional transportation needs. At this stage we expect that with municipal and community involvement we will further define this new alignment and develop an implementation strategy that integrates the route into the community by mitigating any adverse impacts and maximizing community benefits. To this end staff will be working with B.C. Transit to define a SkyTrain alignment to Lougheed Town Centre along the Edmonds/Cariboo corridor and will report to Council on the results of such work.

COQUITLAM, B.C. - RAPID TRANSIT

R E P O R T

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1.0 BACKGROUND

Previous studies of rapid transit have made relatively specific proposals for the extension of service to the north-east sector. It had been proposed to extend the line from New Westminster to the Lougheed Mall via the Brunette interchange as an initial stage with subsequent extension north-east to Coquitlam Centre. The Municipality's Transportation Plan concept map reflects this design. The proposed alignment was to have a park-and-ride station, to intercept commuters at the Brunette interchange and a station integrated with a bus interchange in the immediate vicinity of the Lougheed Mall (Lougheed Town Centre). This station would capitalize on the 'core' density of development (residential and commercial) that already exists in the Town Centre area.

However the site that was originally chosen for park-and-ride at the Brunette interchange in the G.V.R.D. Rapid Transit Study has now been lost through development. B.C. Transit has recently developed a park-and-ride lot east of the Brunette interchange at King Edward. Not surprisingly B.C. Transit, in their reappraisal of the ALRT extensions, has also considered ALRT along the Lougheed Highway corridor (with a park-and-ride station at King Edward) to Coquitlam Centre. Such a route although relatively easy to implement in that the immediate corridor is largely undeveloped would be unacceptable to Burnaby as it completely bypasses the Lougheed Town Centre which has been developed to a high density on the understanding that it would ultimately be served by rapid transit.

The routing to Lougheed Town Centre via the Brunette interchange suffered from the criticism that it did not present rapid transit as an attractive means of travel to Downtown Vancouver and Metro-town because of the need to double back and dog leg via New Westminster. To overcome this problem B.C. Transit has considered a more direct alignment concept along the Edmonds corridor.

2.0 B.C. TRANSIT FEASIBILITY STUDY

While the alignments which B.C. Transit has evaluated may be considered as conceptual they are confirmed as technically feasible. B.C. Transit has been able to cost the development of the alternatives with some degree of certainty given the experience gained from the completion and operation of SkyTrain between downtown Vancouver and New Westminster. Transit ridership for each of the alternatives has been forecast on the basis of expected system operating characteristics using the new Regional Transportation System simulation model. An alignment to Lougheed Town Centre via the Edmonds corridor provides a much faster journey time to downtown than an alignment via New Westminster and the Brunette interchange (26 minutes versus 33). As a consequence it would also attract twice as many new riders to the ALRT and be significantly more cost effective than any other alternative.

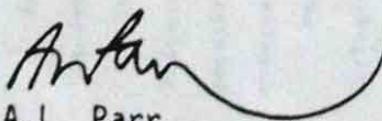
The extension of SkyTrain to Lougheed Town Centre via the Edmonds corridor provides the prospect of improved service to Metro-town and substantial external benefits that would accrue to the Municipality. The new line would substantially improve the accessibility of

transit in Burnaby in the Lougheed Town Centre, the developing Cariboo, East Burnaby and Edmonds Town Centre areas. The ridership attracted to transit by this link, more so than by any other extension, would substantially alleviate commuter traffic pressure on municipal streets. An alternative alignment that bypasses the Municipality and the Lougheed Town Centre provides no direct benefit to Burnaby.

At first glance some may argue that the potential for adverse environmental impact by the development of ALRT along the Edmonds corridor is so great that further consideration should be abandoned. However we are convinced that this would not be prudent. We believe that through a comprehensive design approach potential community concerns can be alleviated. To take advantage of the Edmonds corridor and the substantial benefits to Burnaby residents it will be necessary to integrate land use and transportation development with the development of SkyTrain on a comprehensive basis in order to deal with environmental impacts, provide a catalyst for revitalization of the Edmonds corridor, and ensure the market acceptability of the Cariboo lands development.

3.0 THE NEXT STEPS

At this stage the ALRT design that we have before us is no more than a conceptual representation - a dotted line on a map. B.C. Transit's analysis and our preliminary review confirms that the SkyTrain extension along the Edmonds corridor warrants serious consideration. The next logical steps would be for B.C. Transit and municipal staffs to work together to consider in some detail the SkyTrain alignment and station location. The objective would be to integrate SkyTrain into the fabric of the community so that negative effects are mitigated and the maximum benefit is derived. When the design alternatives are known they should be presented to Council for consideration and subsequently to a public forum. In B.C. Transit's press release the Minister indicates that she expects a decision early in the new year regarding a selection of alternative proposals. This implies an accelerated design/review process. It would be advantageous however if the decision on the design was made early so that the Municipality and B.C. Transit could define an ordered implementation strategy for SkyTrain extensions. Staff will further report to Council as the review process proceeds.


A.L. Parr
DIRECTOR PLANNING &
BUILDING INSPECTION

PL/mcb

cc: Director Engineering



BC Transit

FOR IMMEDIATE RELEASE
October 2nd 1986

Contact: Bob Egby 264-5020

TRANSIT STUDY SHOWS TWO POSSIBLE SKYTRAIN ROUTES TO COQUITLAM

The Hon. Rita Johnston, Minister of Municipal Affairs and Transit today released an outline of a BC Transit feasibility study into extending SkyTrain rapid transit into Coquitlam.

The Minister said the study identified two possibilities, the southern and northern routes.

The southern route proposes an extension from New Westminster's Fourth Street Station, along Brunette Avenue, paralleling the Fraser River to King Edward Station, and eventually, following the Lougheed Highway onto Coquitlam Centre.

The northern route proposes an extension from the existing SkyTrain line between Edmonds and Royal Oak stations, using an abandoned B.C. Hydro alignment along the Edmonds corridor, crossing Kingsway and Canada Way, north-east through the Robert Burnaby Park to a Station and Park and Ride at Highway #1's Cariboo Intersection, then onto another station in the vicinity of the Lougheed Mall. The proposed route would then follow North and Clark roads to a station at Burquitlam, then onto a Port Moody station, with a final destination at Coquitlam Centre.

The Minister described the report as "exciting" and said it recognizes a "positive, progressive future for the region."

Mrs. Johnston said the Study was commissioned early this year, and the proposals will be reviewed this fall with a decision expected early in the New Year.

The Minister said release of the Study is part of an overall strategy to provide fast, comfortable transit to all areas in the Lower Mainland.

Construction of the four kilometre SkyTrain route across the Fraser River to Surrey is currently under way, said the Minister, with stations at Fourth Street, New Westminster and Scott Road in Surrey. "That section will be ready for passenger service in late 1989," said the Minister, "and there is, of course, a Stage Two commitment to take SkyTrain to Whalley."

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SKYTRAIN EXTENSION TO COQUITLAM

TRANSIT PLANNING STUDY

SUMMARY REPORT

**BC TRANSIT
SKYTRAIN PROJECT
SEPTEMBER 25, 1986**

INTRODUCTION

A transit planning study for a SkyTrain extension to Coquitlam has been conducted to assess route options, costs and ridership for an extension to an ultimate destination of Coquitlam Centre. As shown in Figure 1, the envelope of alternatives is bounded by a northern route (Edmonds/Cariboo-North Road/Barnet Highway) and a southern route (Columbia/Brunette-Lougheed Highway). The object of this study was to determine the optimum combination of bus/SkyTrain service and then determine the preferred SkyTrain route and phasing of construction as a basis to proceed to consultations with affected municipalities and a preliminary engineering study.

ROUTE OPTIONS

Previous studies, including a 1983 report "ALRT To Surrey and Coquitlam", proposed an extension from the Fourth Street Station in New Westminster to Lougheed Mall via Brunette Avenue. This transit planning study has included this 1983 proposal as one of the alternatives in evaluating two sets of route options to Coquitlam Centre - Route options from New Westminster and Route options from Edmonds.

To determine the economic phasing of the extension, cost and ridership analyses were carried out for three routes that proceed about halfway to Coquitlam Centre - the Base Route (New Westminster to Lougheed Mall), the Columbia/Brunette Route (New Westminster to King Edward Station at the Lougheed Park'N Ride), and the Edmonds/Cariboo Route (Edmonds to Lougheed Mall). Even if construction of the extension to Coquitlam Centre is not viable within the 15 year planning horizon, analysis is important to identify the most advantageous future route to permit municipalities to preserve or otherwise maintain the most appropriate right-of-way.

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Route Options from New Westminster

As shown on Figure 2, route options from New Westminster would leave the "mainline" just after the Fourth Street Station in New Westminster and follow Columbia Street past Woodlands and the B.C. Penitentiary site, to the intersection with Brunette Avenue. Impact on residential property would be limited to where the guideway passes by some apartment blocks before crossing the Pattullo Bridge approaches. Two or three of the half-dozen commercial enterprises at the junction of Brunette Avenue and Braid Street may have to be demolished; the others would have their access restricted during construction. As both the Base and the Columbia/Brunette route options would follow Brunette Avenue, both would require extensive negotiations with either Burlington Northern or CPR or both to obtain an alignment. The Columbia/Brunette route would have a station at Cumberland Street which would serve the proposed single-to-medium density residential development on the B.C. Penitentiary site; the Base route would have a station with park-and-ride facilities at Brunette and Braid but this predominately industrial location is not conducive to higher-density residential development. From Brunette and Braid, the Base Route would turn west and follow Highway One to North Road, then turn north to a station in the vicinity of Lougheed Mall - the current focus of commercial expansions and development proposals. Using the centre of North Road would avoid the cost of acquiring the commercial properties on either side of the street but the additional traffic disruptions during construction may raise concerns from both merchants and area residents. From Brunette and Braid, the Columbia/Brunette route would turn east and follow existing rights-of-way to the King Edward Station at the Lougheed Park n' Ride.

For an extension of the Base Route beyond Lougheed Mall, the system could utilize the North Road/Barnet Highway Route but the lengthy travel time of this circuitous route to Coquitlam Centre makes this alternative unattractive.

For an extension beyond King Edward Station, the Columbia/Brunette route would follow the Lougheed Highway through Essondale and Riverview to a station on the existing BC Transit park'n ride/bus loop facility. Intermediate stations would be provided at Cape Horn and Pitt River Road intersections. This Lougheed Highway route would traverse sparsely-developed areas of low-density industrial, institutional and residential use where single-family developments continue to be the focus of new proposals. A few residences on the west side of Lougheed Highway near Coquitlam Centre would be impacted by this alignment.

Route Options from Edmonds

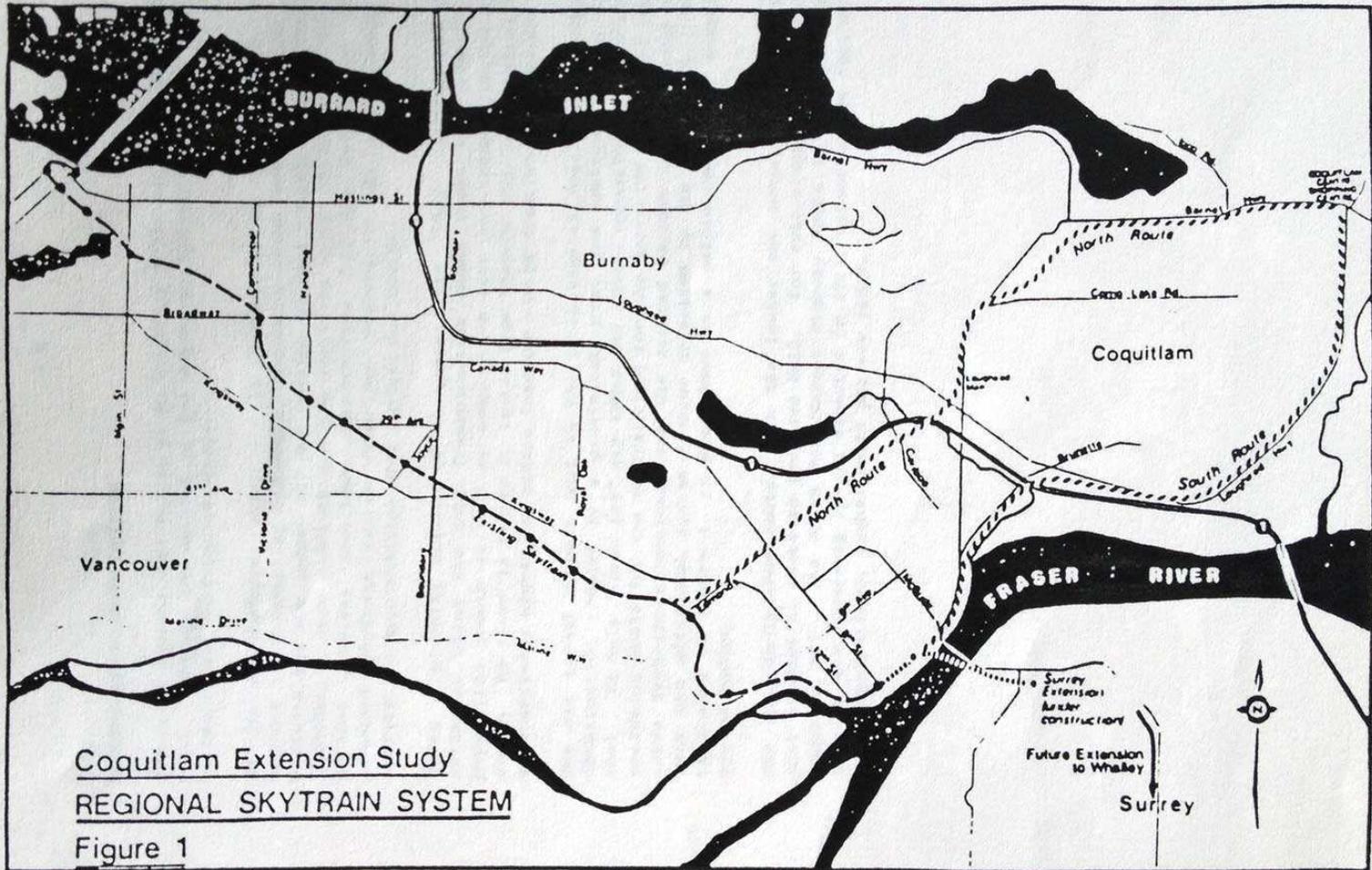
As shown in Figure 3, this route would leave the existing line just before the Edmonds Station and use the abandoned B.C. Hydro alignment to the old Edmonds Loop. However, the line would encounter residential property even if the old right-of-way were utilized as one condominium development has been built very close to the south side of the R.O.W. and there are now three major high rise apartments on the north side. After crossing Kingway, the line would follow Edmonds to a station at Canada Way. Since this section is primarily secondary commercial operations with the occasional old residential property, the extension could provide an opportunity to redevelop these properties to screen the SkyTrain from nearby residences and to provide off-street parking. Most of the newer structures are adequately set back from the street. After the Canada Way station, the line would continue north-east, enter Robert Burnaby Park at Sixth Street and follow a proposed highway alignment through the undeveloped portion of both the park and the George Derby Veterans Affairs Hospital to a station south of the Stormont Interchange on Highway 1. Not only would this Cariboo Station provide a large Park & Ride lot with convenient access to Highway 1, Burnaby has plans for approximately 1500 units of medium density housing in the area. The line would then continue on a relatively high elevated section crossing Cariboo Road, the Brunette River, the Burlington Northern Railway and Highway 1. The route would proceed through a heavily-developed residential area to a station in the vicinity of Lougheed Mall.

For an extension beyond Lougheed Mall, a route from Edmonds could approach Coquitlam Centre via either of two viable routes - the North Road/Barnet Highway route or a Lougheed Highway route. The North Road/Barnet Highway route would follow North Road to Clark Road and proceed along Clark Road to a station near the Burquitlam Shopping Centre. The line would leave Clark Road turning east to reach Miller Park and follow the Miller Ravine into Port Moody. Through Port Moody, the line would run along or adjacent to the Barnet Highway with one station near the Port Moody town centre and a second station near the Ioco Road intersection. The line would continue east in either the Barnet Highway corridor or on the CPR right-of-way to the existing BC Transit park n'ride/bus loop in the south-west quadrant of the Barnet/Lougheed Highway intersection. The Lougheed Highway route would proceed east along the Lougheed Highway to the King Edward Station and from there follow the previously-described Lougheed Highway Route to Coquitlam Centre.

Current development proposals and existing community plans in the municipalities of Burnaby, Coquitlam, and Port Moody favour the Edmonds/Cariboo route to Lougheed Mall and the North Road/Barnet Highway extension to Coquitlam Centre as the proposed stations are already centres of both commercial and high-density residential developments, thus offering substantially greater development opportunities and greater possibilities for innovative financing alternatives. There would be significant community impacts along this route.

Building the north route may negate or delay the need for two future highway developments - adding two additional lanes either to Highway No. 1 or to the Barnet Highway.

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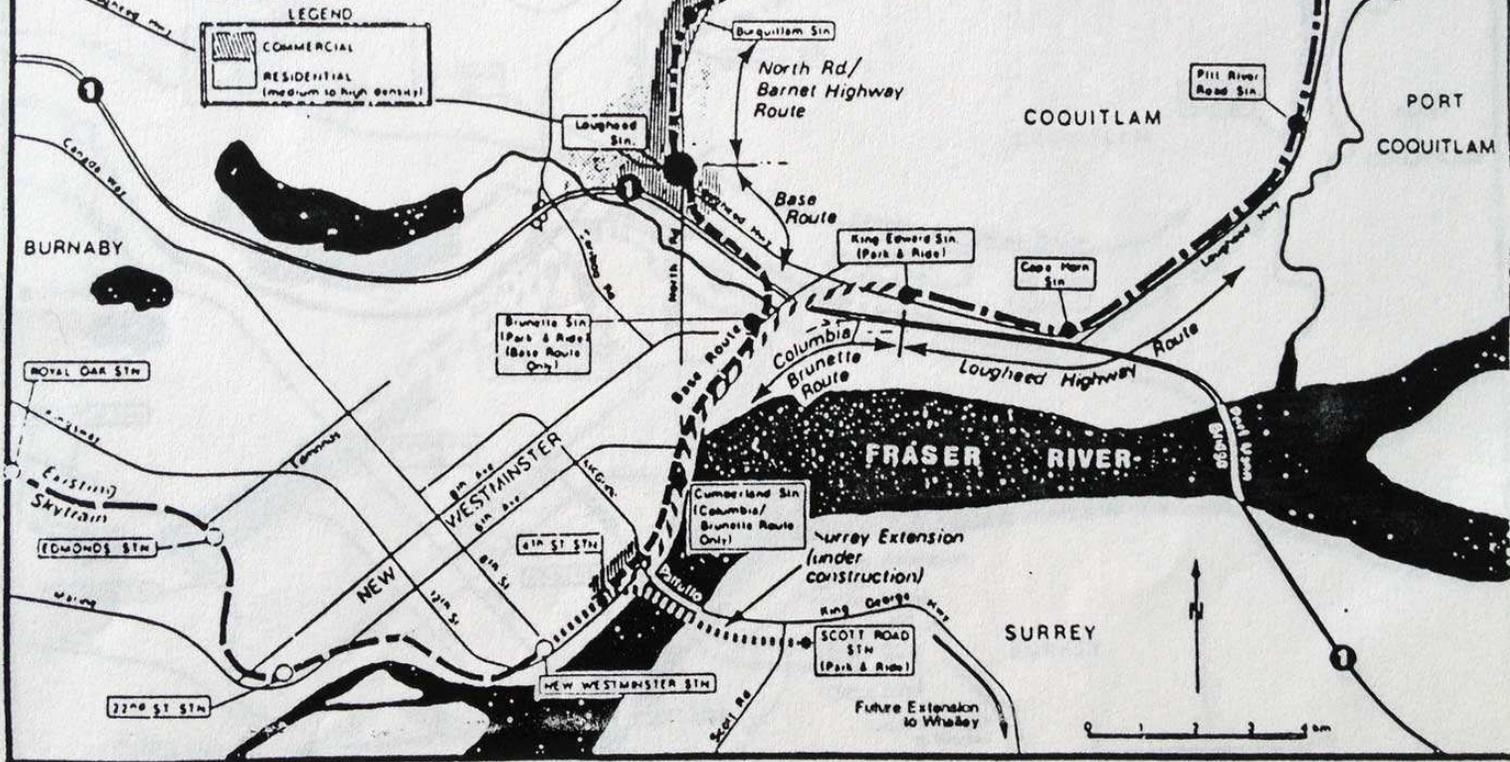
Coquitlam Extension Study
REGIONAL SKYTRAIN SYSTEM

Figure 1

Coquitlam Extension Study

ROUTE OPTIONS FROM NEW WESTMINSTER

Figure 2



COMPARISON OF ROUTE OPTIONS

All route options were tested on BC Transit's Train Performance computer model which confirmed the ability of the motors on the present train configuration to handle all anticipated grades.

As the bus-SkyTrain integration is fundamental to the evaluation of route options in determining ridership, operating costs and the capital costs of stations and bus loops, all bus service changes necessary to accomplish this integration were examined and the resulting costs estimated. The Edmonds/Cariboo provides excellent opportunities for bus integration while the proposed SkyTrain routes from New Westminster do not provide optimal integration opportunities with current bus routes.

Using a planning horizon of 15 years (year 2011), transit ridership was estimated using the GVRD Transportation Model which is based on regional population growth as well as comparative auto and transit travel times and costs. As shown in Figure 4, routes from Edmonds show lower travel times and substantially higher new riders than the routes from New Westminster.

The net annual transit cost is the total capital cost plus interest during construction reduced by a provincial grant and converted to an annualized cost. To this "lease fee" are added the annual operating costs which are the operating costs for the SkyTrain and for the increased bus feeder capacity to serve SkyTrain extensions less the reduced express bus operating costs and less the additional system revenue generated by the new riders. This cost, tabulated in Figure 4, is also shown as a percentage of the annual transit system budget.

The Edmonds-Cariboo route, with the lowest net annual transit cost, is the most economical route to Lougheed Mall. For extensions of this route beyond Lougheed Mall, the North Road/Barnet Highway Route is the more economical. Even at the ridership levels expected in 2011, extensions to Coquitlam Centre have substantially higher costs per new rider.

FIGURE 4

COMPARISON OF ROUTE OPTIONS

<u>ROUTE:</u>	<u>BASE ROUTE</u>	<u>COLUMBIA/ BRUNETTE</u>	<u>EDMONDS/ CARIBOO</u>	<u>COLUMBIA/ BRUNETTE- LOUGHEED HIGHWAY</u>	<u>EDMONDS/ CARIBOO- NORTH RD/ BARNET HWY</u>	<u>EDMONDS/ CARIBOO- LOUGHEED HIGHWAY</u>
<u>FROM:</u>	<u>NEW WESTMINSTER</u>		<u>EDMONDS</u>	<u>NEW WESTMINSTER</u>		<u>EDMONDS</u>
<u>TO:</u>	<u>LOUGHEED MALL</u>	<u>KING EDWARD</u>	<u>LOUGHEED MALL</u>	<u>COQUITLAM CENTRE</u>		
<u>TRAVEL TIME</u>						
TRAVEL TIME TO DOWNTOWN FROM TERMINUS (MINS)	33	33	26	40	39	42
TRAVEL TIME SAVINGS (MINS)						
- VS. AUTO	13	15	19	3	5	3
- VS. BUS	23	23	30	15	18	14
NEW RIDERSHIP (M. PER YEAR)	1.2	1.3	2.5	3.3	4.9	4.3
<u>COSTS</u>						
TOTAL CAPITAL COST (\$M1986) (SEE NOTE 1)	\$186	\$164	\$179	\$417	\$445	\$524
NET ANNUAL TRANSIT COST (\$M PER YEAR) (SEE NOTE 2)	\$18.6	\$15.5	\$14.7	\$40.1	\$42.2	\$49.6
<u>FINANCIAL ANALYSIS</u>						
NET ANNUAL TRANSIT COST/PER NEW RIDER	\$15.49	\$11.90	\$5.88	\$12.15	\$8.61	\$11.52

NOTES:

- (1) Includes Property, Construction and Vehicles. All guideway elevated; all stations centre platform. Prior to adding interest and applying provincial grant for 50% of land costs and civil works. Does not include allowances for either disruptions to existing system or inflation.
- (2) Interest added and Provincial grant applied. SkyTrain operating costs, bus savings and additional revenue included.

FIGURE 5

SUMMARY OF ROUTE OPTIONS TO LOUGHEED MALL/KING EDWARD

	<u>BASE ROUTE</u>	<u>COLUMBIA/ BRUNETTE</u>	<u>EDMONDS/ CARIBOO</u>
TRAVEL TIME TO DOWNTOWN (MINUTES)	33	33	26*
NET ANNUAL COST (M\$/A)	\$18.6	\$15.5	\$14.7*
NEW RIDERSHIP (MILLIONS)	1.2	1.3	2.5*
COST/NEW RIDER	\$15.49	\$11.90	\$5.88*
DEVELOPMENT POTENTIAL	MODERATE	LOW	HIGH*
COMMUNITY IMPACT	MODERATE	LOW*	HIGH
PROPERTY ACQUISITION	MODERATE*	MODERATE*	HIGH

*BEST

CONCLUSIONS

The Edmonds/Cariboo Route to Lougheed Mall offers the most effective method of serving the Coquitlam area. This route has not only the lowest cost per new rider but also the greater development potential. It also has a greater potential for negative community impact.

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