ITEM	1
MANAGER'S REPORT #	18
COUNCIL MEETING	95/04/10

TO: CITY MANAGER 1995 APRIL 05

FROM: DIRECTOR PLANNING AND BUILDING OUR FILE: 01.215.5

SUBJECT: REGIONAL ICTS STUDIES: EVALUATION OF CORRIDORS AND TECHNOLOGIES

PURPOSE: To advise Council of an approach to respond to the Regional ICTS studies undertaken by the Crown Corporations Secretariat and BC Transit.

RECOMMENDATIONS:

1. **THAT** Council advise the Greater Vancouver Regional District Board of the need for a more comprehensive review of the ICTS studies and their relationship to the Livable Region Strategy, including an updated phasing strategy based on this review, to be coordinated by the Regional Administrative Advisory Committee with the involvement of BC Transit, prior to any position being taken by the GVRD Board in respect of the studies.

2. **THAT** Council initiate discussions leading to a continuing dialogue with the City of Vancouver with regard to the implementation of ICTS in the Lougheed/Broadway Corridor.

3. **THAT**a copy of this report be forwarded to Mayor G. Halsey-Brandt, Chair, GVRD Board of Directors.

4. **THAT** a copy of this report be forwarded to the Honourable G. Clark, Minister of Employment, and Investment and Mr. G. Leicester, General Manager, Long Range Planning, BC Transit.

REPORT

1.0 INTRODUCTION

1.1 Background

In 1994 August, the Crown Corporations Secretariat and BC Transit initiated a series of specific studies of Intermediate Capacity Transit Systems (ICTS) for three potential corridors in the Greater Vancouver area. These studies were intended to provide necessary information to assist in the development of a Transit Development Plan for the Vancouver Regional Transit System which ultimately would become integrated into the South Coast Transportation Plan to be developed by the Transportation Financing Authority (TFA).

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The three corridors reviewed by the ICTS studies had been previously identified by the Transport 2021 Project, a joint transportation study conducted by the Province and the GVRD culminating in a Medium Range and Long Range Plan for transportation in the Greater Vancouver Region. These corridors, as shown in Figure 1 ***attached***, included the following:

i) **Lougheed/Broadway** from Coquitlam Centre via the Lougheed Highway to Lougheed Town Centre along the Lougheed Highway through Burnaby and continuing via Broadway in Vancouver to Arbutus Street.

ii) **New Westminster/Coquitlam** from Columbia Street in New Westminster along North Road, Clarke Road, St. John's Street and the Barnet Highway to Coquitlam Centre.

iii) **Vancouver/Richmond** from Richmond Centre to downtown Vancouver via either Cambie or Granville Street, or the Arbutus line.

The studies were undertaken by the transportation consulting firms of ND Lea Associates (Broadway/Lougheed) and DelCan (New Westminster/Coquitlam, Vancouver/Richmond).

1.2 City of Burnaby Context

This report evaluates the results of the three ICTS studies for the City of Burnaby. Two of the corridors under study, the Lougheed/Broadway and the New Westminster Coquitlam, would be routed either through or adjacent to the City and thus would have a substantial impact on transportation and development in the community. As a major participant in the development of the SkyTrain line through South Burnaby, the City recognizes transit as a key component in an effort to manage growth and transportation.

This goal resurfaced in the recent process of developing the Livable Region Plan as the City of Burnaby emphasized that the growth targets proposed by the GVRD for Burnaby would not be achieved without priority development of the Lougheed/Broadway corridor for rapid transit. More specifically, the City of Burnaby has provided a response to the GVRD Board indicating a maximum additional growth capacity (from 1991) of 47,200 housing units, of which 23,500 housing units (50 percent) are located along the Lougheed/Broadway corridor, assuming an ALRT form of ICTS.

The results of the BC transit study of the three designated corridors is therefore of direct interest to the City of Burnaby in helping its assessment of the transit phasing strategy for the region, particularly in light of the Board's decision of 1994 December 9 which stipulated that the Lougheed/Broadway corridor had the lowest priority in terms of the adopted phasing strategy.

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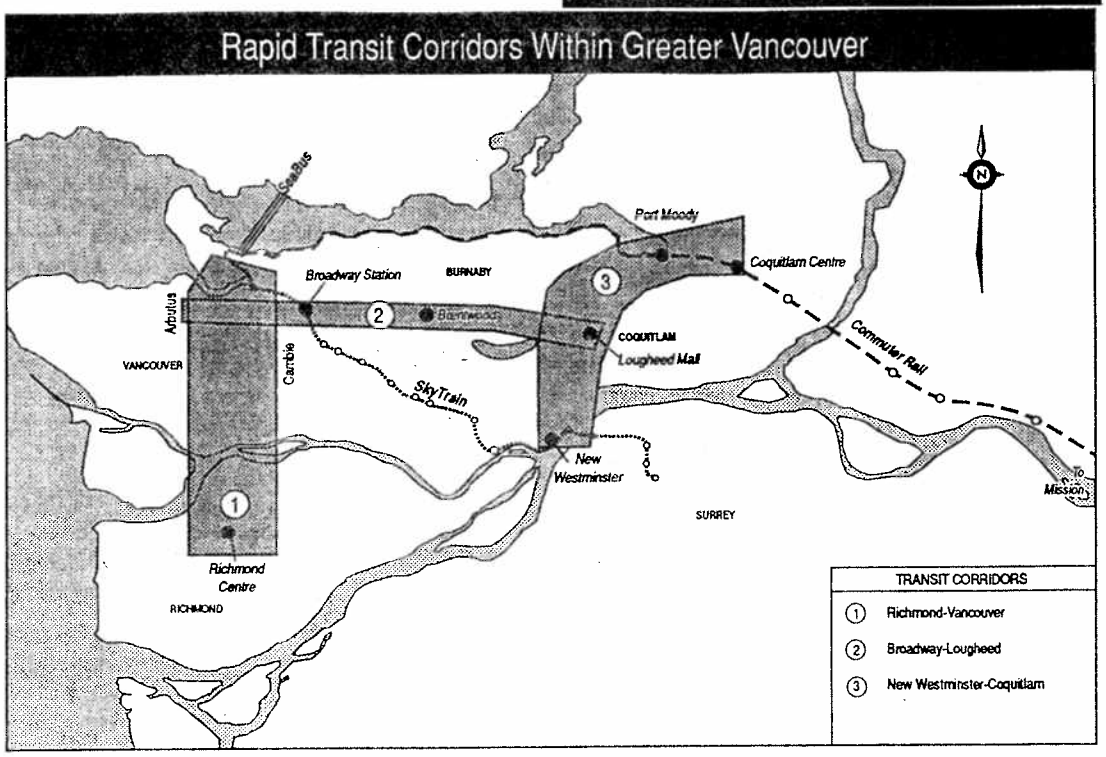

1. Richmond-Vancouver

a. Rapid Bus on Granville
b. Basic LRT on Cambie
c. Enhanced LRT on Arbutus
d. Enhanced LRT on Cambie
e. ALRT on Cambie

2. Broadway-Lougheed

a. Rapid Bus
b. Basic LRT
c. Enhanced LRT
d. ALRT

3. Coquitlam-New Westminster

a. Rapid Bus
b. LRT
c. ALRT

Date: 1995 04 10	City of Burnaby Planning & Building Dept.
Scale:	FIGURE 1 RAPID TRANSIT CORRIDORS WITHIN GREATER VANCOUVER
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2.0 ICTS TECHNOLOGIES

Intermediate Capacity Rapid Transit (ICTS) refers to a family of transit systems that fall between local on-street bus systems and heavy rail subway-type systems with capacities ranging from 4,000 - 20,000 passengers per hour. The studies assess the application of three generic types of ICTS in each corridor, including the following:

I) **light rail transit (LRT)** - a transit technology incorporating rail vehicles operating usually at grade sharing the right-of-way with other vehicles (Basic LRT) or separated from other vehicles (Enhanced LRT).

ii) **automated light rail transit (ALRT)** - these systems are completely separated from vehicles and pedestrians due to their automated operation and track level power supply. Guideway and stations are typically elevated or underground.

iii) **busway** - operates buses on separate rights-of-way with station and stopping areas. As busways consume more space than rail systems, they are generally not used in city centre applications.

The studies assessed the application of both LRT and ALRT ICTS technologies to the three corridor options. The study concluded that the busway technology should not be pursued due to the lack of available right-of-way in each corridor.

3.0 CORRIDOR EVALUATION

3.1 Factors Considered

The purpose of each study was to assess the implications of the alternative transit technologies in each corridor relative to the following factors:

(I) ridership
(ii) capacity
(iii) alignment and station locations
(iv) right-of-way requirements
(v) operating characteristics
(vi) travel times and service
(vii) traffic impacts
(viii) environmental impact
(ix) capital and operating costs
(x) staging and phasing strategies
(xi) system expandability, flexibility and integration.

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By assessing a diverse range of factors in a consistent format the ICTS studies provide the comprehensive review of rapid transit options that was not possible within the extensive mandate of the Transport 2021 Project.

3.2 Alignment and Station Locations

The ICTS alignments and station locations are shown in Figures 2, 3 and 4 for the Lougheed/Broadway, New Westminster/Coquitlam and Vancouver/Richmond corridors respectively. The following outlines the characteristics of the basic alignments considered by the studies:

i) **Lougheed/Broadway (Figure 2)** - assumed an alignment for ICTS using existing road rights-of-way including the Lougheed Highway from Coquitlam Centre to Lougheed Mall through Burnaby to Boundary Road and Broadway in the City of Vancouver to Arbutus Street. The Burlington Northern route in Burnaby or east Vancouver is not assessed. The Burnaby section included eight stations generally located at the intersections of major north/south roads with three stations serving the Brentwood Town Centre and two in the Lougheed Town Centre. All stations exhibit potential to become major development nodes.

ii) **New Westminster/Coquitlam (Figure 3)** - The alignment of ICTS in the New Westminster/Coquitlam corridor follows the route identified in previous BC Transit studies via East Columbia, Brunette, the BNR line to Lougheed Mall and continuing along North Road, the Miller Ravine and the Barnet Highway to Coquitlam Centre. Lougheed Mall station and the North Road route could potentially be located within Burnaby. Due to the steep grades in this corridor basic LRT running at grade was not considered feasible and was eliminated from further evaluation.

iii) **Vancouver/Richmond (Figure 4)** - The ICTS study assumes a Cambie Street alignment for either LRT (Basic or Enhanced) and ALRT technologies and a CP Rail Arbutus line alignment suitable for Enhanced LRT only. In Richmond the Granville Avenue-Lansdowne route to Richmond City Centre is assumed. In downtown Vancouver, LRT would terminate at the Burrard SkyTrain station and ALRT would terminate at Waterfront SkyTrain station. Stations in Vancouver and Richmond are incorporated at the intersection of all major east-west routes.

3.3 Operating Characteristics

i) Lougheed/Broadway Corridor

The operation of LRT in the Lougheed/Broadway corridor assumes the ultimate development of the Lougheed Highway to a six lane standard before LRT is operational. At grade or enhanced LRT could be routed in the centre or side of the Lougheed Highway or Broadway as shown in the **attached** Figure 5. Centre operation would necessitate more compact stations which may limit potential for integration with adjacent development, but have the advantage of

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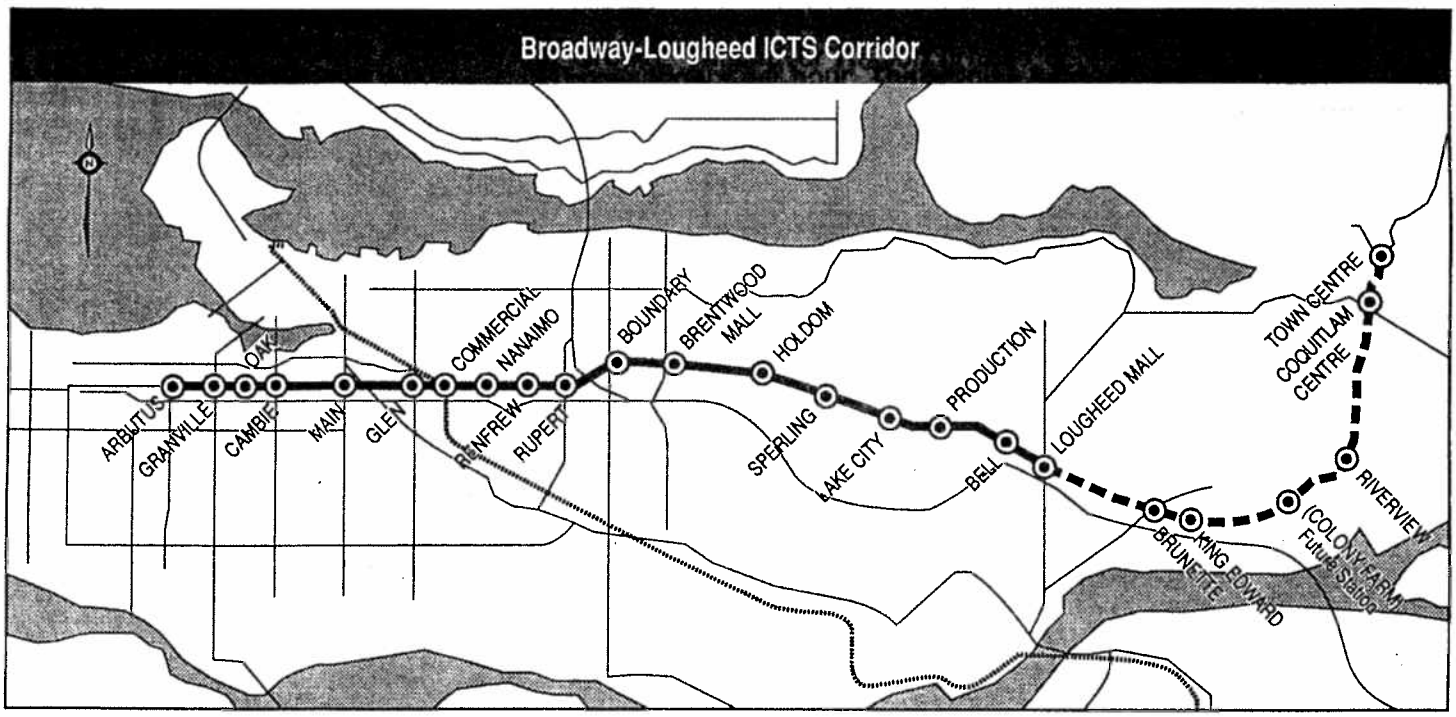

Route (Arbutus-Lougheed Mall)

Station

Lougheed Mall-Coquitlam Town Centre Extension Studied (CONCLUDED NOT TO BE FEASIBLE)

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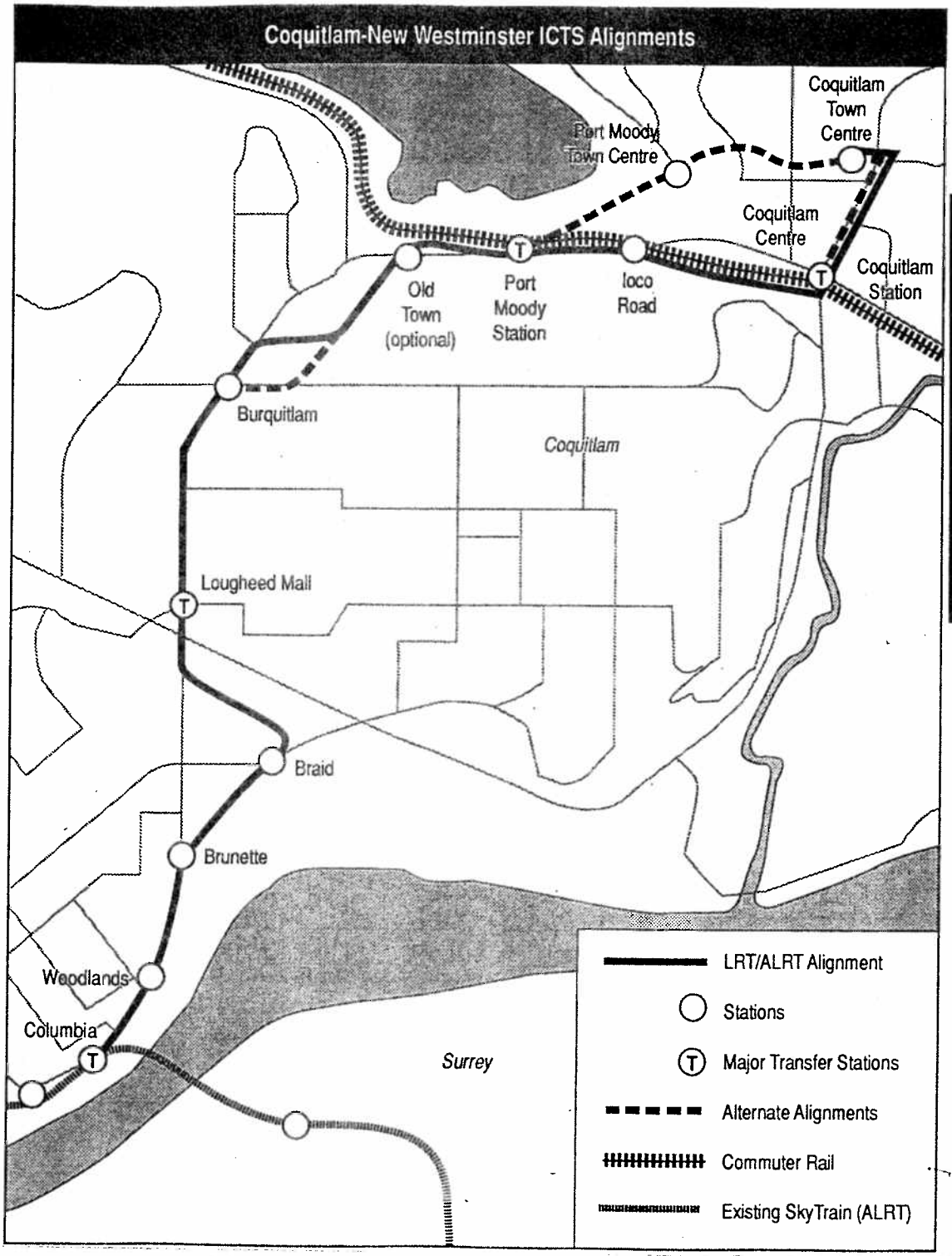
Date: 1995 04 10	City of Burnaby, Planning & Building Dept.
Scale:	FIGURE 2
Drawn By:	BROADWAY-LOUGHEED ICTS CORRIDOR



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Date: 1995 04 10	City of Burnaby, Planning & Building Dept. — FIGURE 3
Scale:	COQUITLAM/ NEW WESTMINSTER ICTS ALIGNMENTS
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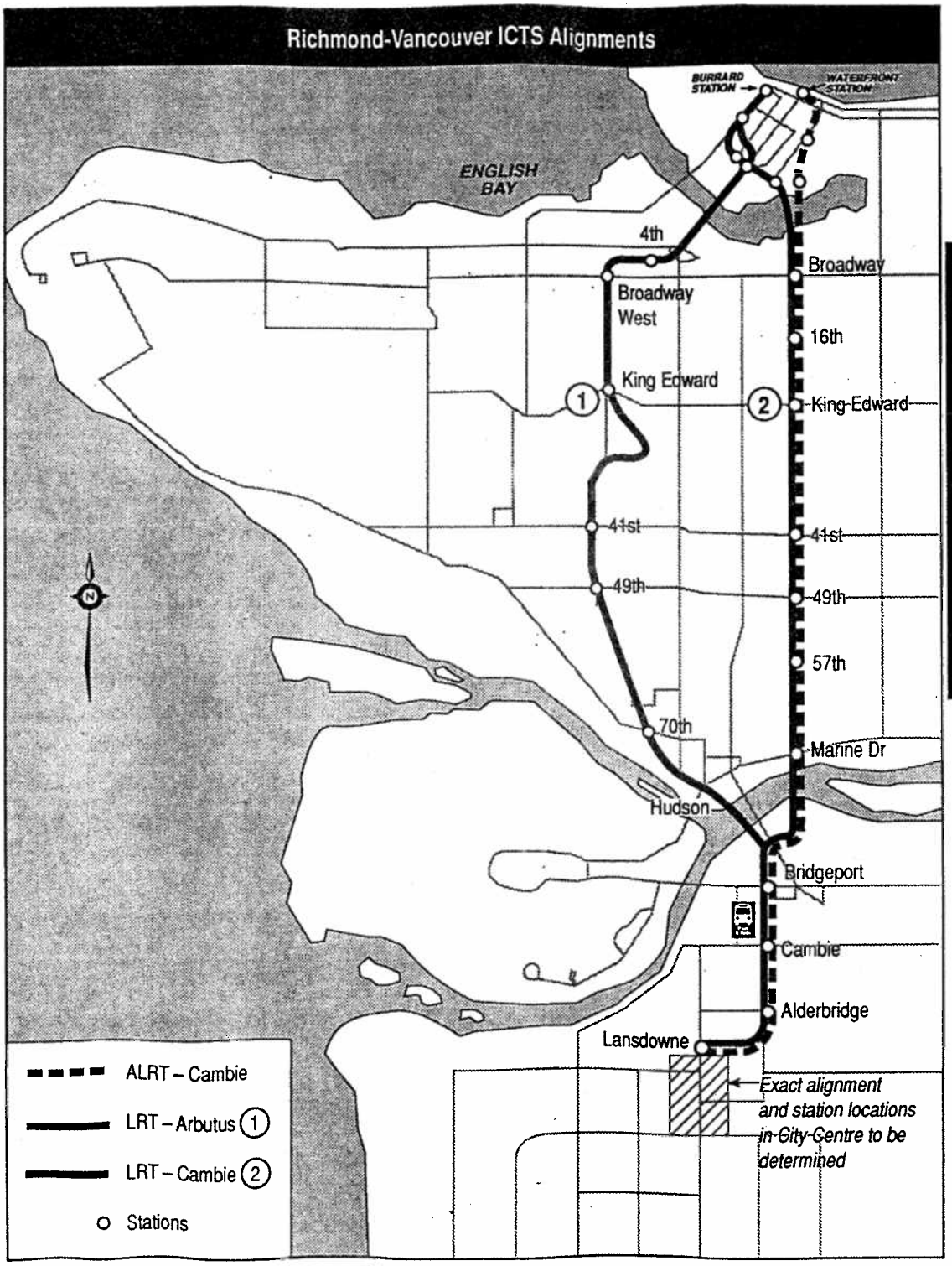

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Date: 1995 04 10	City of Burnaby, Planning & Building Dept.
Scale:	FIGURE 4 RICHMOND/VANCOUVER ICTS ALIGNMENTS
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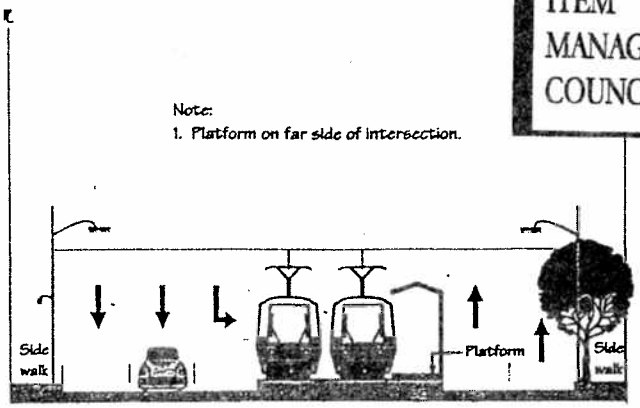
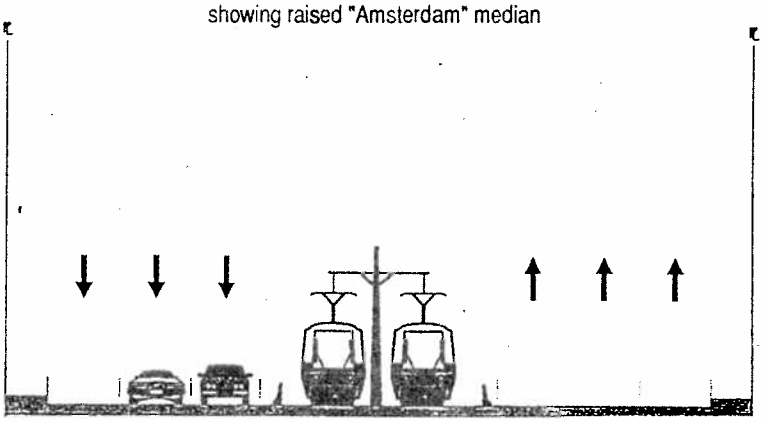
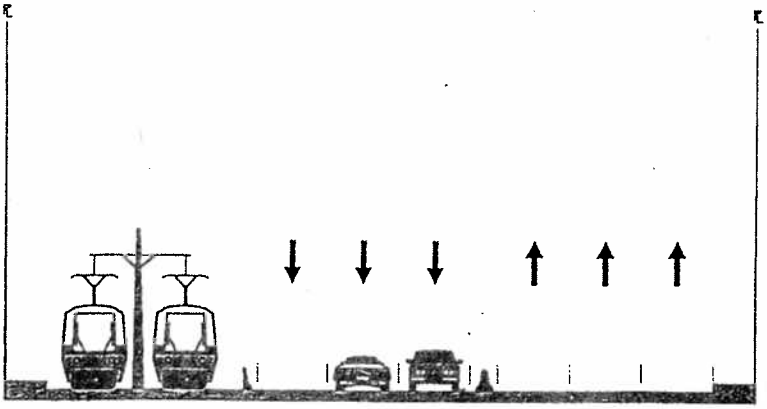


LRT on typical section of Broadway,
showing raised "Amsterdam" median



LRT on Lougheed Highway mid-block,
showing median operation



LRT on Lougheed Highway mid-block,
showing side operation

Date: 1995 04 10	City of Burnaby, Planning & Building Dept. — FIGURE 5
Scale:	LOUGHEED / BROADWAY CORRIDOR LRT ALIGNMENTS
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accommodating some access to adjacent developments at unsignalized intersections. Side operation could restrict all access to adjacent developments to signalized intersections where train and vehicle movements can be controlled. For Enhanced LRT, grade separation would be required at North Road, Gaglardi Way, Willingdon Avenue and Boundary Road to maintain traffic flow on major north/south streets in Burnaby.. From Burnaby's perspective, the grade separation of LRT at Willingdon Avenue and Gaglardi Way should be undertaken in conjunction with required reconstruction of the intersection to grade separate both vehicular movements and ICTS.

ii) New Westminster/Coquitlam

As only Enhanced LRT or ALRT were considered feasible for this corridor, ICTS would largely operate on a grade separated alignment. Approximately 5.5 km of the total 15.8 km from New Westminster to Coquitlam Centre would be grade separated.

Five grade separated sections were identified including the intersection of McBride Boulevard, across the BNR rail line, through the Miller Ravine, across Clarke Street and the CP Rail tracks and across the Barnet Highway.

iii) Vancouver/Richmond

The operation of at-grade basic LRT in the Cambie corridor assumed no grade separation at east-west cross streets in the City of Vancouver and the City of Richmond. For enhanced LRT on the Arbutus line, grade separations at 25th Avenue and 41st Avenue would be required. For the Cambie Street option an underground alignment from False Creek to 37th Avenue was assumed.

3.4 Traffic Impacts

Basic or Enhanced LRT within existing road rights of way would have an impact on traffic conditions in all prospective corridors. The report indicates that for the Lougheed/Broadway Corridor, widening of Lougheed Highway to a six lane standard would be required to accommodate ICTS and projected increases in general traffic growth. On Broadway in the City of Vancouver, the current six lane configuration would have to be reduced to four lanes. **It is therefore recommended that the City of Burnaby initiate discussions with the City of Vancouver with regard to the operational considerations of a Lougheed/Broadway ICTS line.**

In the New Westminster/Coquitlam corridor, as previously noted, extensive grade separation has been provided to accommodate LRT operation, but several sections of the LRT alignment operate within existing roads including North Road and East Columbia Street resulting in a loss of vehicle capacity. Between Vancouver and Richmond, a Basic LRT (at grade) would require the conversion of the middle traffic lanes to LRT operation with implications for existing parallel roadways. Enhanced LRT and ALRT assume extensive grade operation from the Cambie Bridge to 37th Avenue to reduce its impact on traffic flow.

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3.5 Travel Times

Travel time is a major determinant of the attractiveness of an ICTS technology. Travel times for both Rapid Bus and ICTS technologies in each corridor were calculated recognizing that travel time relative to the private vehicle is a major factor in attracting riders. A comparison of one way travel times for each corridor and technology is shown in Table 1.

TABLE 1

One Way Travel Times (Minutes)
All Corridors and Technologies

Technology	Lougheed/ Broadway[1]	New Westminster/ Coquitlam[2]	Vancouver/ Richmond[3]
Rapid Bus	40	40	33
Basic LRT	37	Not Feasible	32
Enhanced LRT	35	26	30
ALRT	25	22	24

1. Lougheed Mall to Arbutus Street **(18.5 km)**
2. New Westminster to Coquitlam Centre **(15.8 km)**
3. Vancouver to Richmond City Centre **(14.2 km)**

The results show that there is a relatively small improvement in travel time in both the Lougheed/Broadway and Vancouver/Richmond corridors by progressing beyond Rapid Bus to Basic LRT. In the Vancouver/Richmond corridor the implementation of ICTS using Basic LRT or Enhanced LRT yields minimal incremental travel time benefits.

Developing Enhanced LRT in the New Westminster/Coquitlam corridor, however, reduces travel times by 14 minutes due to the lengthy grade separation in the corridor. Clearly the application of grade separation in a corridor, by improving travel time, increases the attractiveness of the system and thus the ridership. The ridership estimates outlined in the following section tend to support this conclusion.

3.6 Land Use and Development

3.6.1 Assumptions

The assumptions regarding growth in each corridor up to 2006 are critical in the determination of ridership. The estimation of ridership on Rapid Bus and ICTS is based on the population and employment in the corridor for future horizon years of 2006 and 2021.

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To estimate ridership for the year 2006, the ICTS studies assume growth in each corridor would be based on the GVRD population and employment estimates developed for the Livable Region Strategic Plan and applied in the Transport 2021 Medium Range Plan. While using GVRD population and employment estimates as a basis for ridership estimation, the ICTS studies include a separate market evaluation of the growth and development potential along each corridor.

3.6.2 Comparison with GVRD Estimates

I) Population

As shown in Table 2 below, population estimates developed by the market based approach are significantly higher than those used by Transport 2021 for the Vancouver/Richmond corridor for both 2006 and 2021 and for the New Westminster/Coquitlam corridor up to the year 2021 only. In the Vancouver/Richmond corridor, the GVRD has under-estimated growth relative to the market based approach, primarily because Richmond is not designated a high growth area in the Compact Metropolitan Strategy.

TABLE 2

Population Growth Comparison
ICTS Studies and Transport 2021
All Corridors

	ICTS Studies	Transport 2021	ICTS - T2021
Population Growth, 1991 - 2006			
New Westminster/Coquitlam	37,788	51,318	-13,530
Vancouver/Richmond	35,942	18,473	17,469
Lougheed/Broadway	39,285	86,279	-46,994
Population Growth, 1991 - 2021			
New Westminster/Coquitlam	76,207	70,316	5,891
Vancouver/Richmond	74,361	37,471	36,890
Lougheed/Broadway	89,611	107,944	-18,333

In the Lougheed/Broadway corridor, the GVRD population estimates substantially exceed the growth projected by the market based approach applied by the ICTS studies. However, as a basis for ridership estimation, the City of Burnaby has consistently maintained that even the GVRD population growth estimates are less than could be achieved in the Burnaby section of the Lougheed/Broadway corridor through active promotion of development by the City. A realistic growth target for 2021 population in the corridor has been estimated by the City of Burnaby at 131,400 compared to 107,900 by the GVRD and 89,600 by the ICTS studies.

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The City of Burnaby informed BC Transit in the early stages of its ICTS study that neither their market-based estimates, nor the GVRD's population projections for the Lougheed corridor in Burnaby reflected a realistic growth scenario, and that ridership estimates for the Lougheed/Broadway ICTS line would be substantially higher than that derived from the GVRD estimates used in the ICTS studies.

ii) Employment

Table 3 below provides a comparison between the ICTS Study and GVRD estimates of employment growth in the corridors to 2006 and 2021.

TABLE 3

Employment Growth Comparison
ICTS Studies and Transport 2021
All Corridors

	ICTS Studies	Transport 2021	ICTS - T2021
Employment Growth, 1991 - 2006			
New Westminster/Coquitlam	5,915	33,251	-27,336
Vancouver/Richmond	11,568	19,858	-8,290
Lougheed/Broadway	11,600	57,193	-45,593
Employment Growth, 1991 - 2021			
New Westminster/Coquitlam	12,879	50,946	-38,067
Vancouver/Richmond	22,047	38,660	-16,613
Lougheed/Broadway	20,485	86,576	-66,091

The "market driven" estimates of employment growth are substantially lower than the GVRD estimates for all corridors and both time periods up to 2006 and 2021. The difference results from the conversion of industrial land to residential uses assumed by the market based approach which was not adequately accounted for in the GVRD employment estimates. In Burnaby, the conversion of portions of the Brentwood and Lake City areas from industrial to residential due to the introduction of ICTS would result in a lower growth in employment in the Lougheed/Broadway corridor than projected by the GVRD depending on the future role of these areas as commercial centres.

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3.7 Ridership Estimates

3.7.1 Methodology

Ridership for each corridor was estimated using the EMME 2 transportation forecasting model. The model estimates traffic volumes and transit ridership on the regional road and transit network generated by population and employment allocated to over 400 traffic zones.

Ridership estimates for the year 2006 were developed based on population and employment estimates used by the GVRD in the development of the Transport 2021 Medium Range Plan. The assumed transportation networks for the year 2006 included ICTS only on the corridor under analysis, rapid bus in the other two corridors and commuter rail, Barnet-Hastings HOV lane and other improvements common to all three scenarios. The difference in assumptions used in the ICTS studies and Transport 2021 involved the application of less stringent Transportation Demand Management (TDM) measures by the year 2006 which would have the effect of reducing overall rapid transit ridership compared to Transport 2021.

3.7.2 Ridership by Corridor and Technology

Ridership estimates were prepared for the AM peak hour at the maximum load point (where passenger loads on the system are the highest) and the daily ridership for all four technologies within all corridors. Table 4 summarizes the results.

TABLE 4

Rapid Bus and ICTS Ridership
Year 2006
All Corridors

TECHNOLOGY	Lougheed/ Broadway	New Westminster/ Coquitlam	Vancouver/ Richmond
Rapid Bus			
Peak Hour	3,750	750	3,300
Total Daily	57,500	14,300	30,000
Basic LRT			
Peak Hour	4,150	Not feasible	4,000
Total Daily	69,200		34,500
Enhanced LRT			
Peak Hour	4,350	2,200	4,750-6,200
Total Daily	71,900	40,750	50,000
ALRT			
Peak Hour	5,800	3,000	6,600
Total Daily	96,000	55,000	67,300

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The implementation strategy underlying the corridor studies assumes that Rapid Bus would be developed in all three corridors to the maximum extent with the transition to ICTS at the threshold of Rapid Bus capacity of approximately 4,000 - 5,000 passengers per hour. Based on the ridership estimates, only two corridors, Lougheed/Broadway and Vancouver/Richmond in 2006 approach ridership levels in the range of 4,000 - 5,000 passengers per hour necessary to begin to consider ICTS technologies. This result suggests that assuming the GVRD growth estimates to 2006, ICTS is not warranted in the Coquitlam/New Westminster corridor until the period from 2006 to 2021.

The two remaining corridors that could warrant transition to an ICTS technology by 2006 exhibit comparable levels of A.M. peak period ridership at the maximum load point. Implementing either LRT or ALRT technology in the Lougheed/Broadway or Vancouver/Richmond corridors generates ridership in the range of approximately 4,000 to 6,000 passenger per hour in the AM peak period. This level of ridership warrants transition to an ICTS technology and is comparable to ridership generated by the Vancouver to New Westminster SkyTrain line in its first full year of operation in 1987.

However, while **peak hour** ridership is significant for operational purposes to define the relationship of the level of usage to system capacity, **daily** ridership represents a more significant factor in evaluating the attractiveness of rapid transit in specific corridors. Unlike commuter rail, rapid transit in all three corridors provides continuous service throughout the day as an integral component of the overall transit system. Based on this criteria, the Lougheed/Broadway corridor serves the transit needs of substantially more riders than either of the other two corridors. Daily ridership of either LRT or ALRT in the Lougheed/Broadway corridor by 2006 would exceed that of the SkyTrain system achieved in the late 1980's after only 3 to 4 years of operation.

3.7.3 System Effectiveness

The effectiveness of an ICTS system in attracting ridership is generally measured relative to the length of the route. Rides per route kilometer calculated as the number of riders attracted to the ICTS system relative to the total length of the line provides a measure of average usage along the ICTS line. The ICTS Studies provide a comparison of all corridors and technologies with regard to system effectiveness as shown in Table 5.

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TABLE 5

System Effectiveness (Rides per Route Kilometer)
All Corridors and Technologies

TECHNOLOGY	Lougheed/ Broadway	New Westminster/ Coquitlam	Vancouver/ Richmond
Rapid Bus	3108	905	1863
Basic LRT	3740	Not feasible	2240
Enhanced LRT	3886	2579	3030-3958
ALRT	5789	3481	4739

Assessing the corridor and technologies in terms of system effectiveness leads to the conclusion that the Lougheed/Broadway corridor, applying either Rapid Bus or ICTS, is substantially more effective in attracting riders per unit length of line. The Vancouver/Richmond corridor is comparable in terms of system effectiveness with either Enhanced LRT or ALRT in the corridor, while the New Westminster/Coquitlam line does not approach comparable levels of rides per route kilometer with any technology.

In this regard, the Transport 2021 Medium Range Plan calculated passenger/kilometers travelled per route kilometer as a measure of the intensity of use of ICTS in the three corridors. The intensity of use measure is employed by the GVRD as an indicator of the degree to which ICTS in a particular corridor supports desirable land use changes or serves suburb to suburb connections to attract new transit riders. The GVRD evaluation of the ICTS Studies however cites this measure as an indicator that the New Westminster/Coquitlam corridor continues to support the Livable Region Strategy to a greater degree than other corridors. However, the GVRD evaluation uses the calculation of intensity of use in Transport 2021 rather than a revised calculation based on the ICTS Study ridership. While this calculation is not provided by BC Transit in the ICTS Studies, a revised calculation based on corridor ridership levels in the ICTS Studies would show an opposite result to the Transport 2021 Project - that ICTS in the Lougheed/Broadway corridor has the highest intensity of use and based on this measure is therefore superior in terms of serving land use.

3.8 Capital Costs

The capital costs of ICTS include the costs of fixed facilities (guideways, tunnels, bridges, stations and roadworks) property, vehicles and maintenance facilities. Table 6 summarizes the capital costs of Rapid Bus and ICTS for all corridors and technologies.

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TABLE 6
Capital Costs
All Corridors and Technologies
(1994 $ Millions)

TECHNOLOGY	Lougheed/ Broadway	New Westminster/ Coquitlam	Vancouver/ Richmond
Rapid Bus	$82.3	$62.3	$103
Basic LRT	561.9	Not Feasible	547
Enhanced LRT	588.1	558.7	820 - 1,078
ALRT	945.4	812.9	1,042

Implementation of Rapid Bus in all corridors is viewed as a cost effective alternative to the development of ICTS at a capital cost of LRT at $500 - $600 million compared to that of Rapid Bus ranging from $60 - $100 million. Due to higher costs for grade separated guideway and vehicles, ALRT in all corridors is substantially more costly than LRT, except in the Vancouver - Richmond corridor. In this corridor, Enhanced LRT and ALRT are more comparable in cost because both require costly grade separation in the Cambie alignment from the Cambie Bridge to 37th Avenue.

3.9 Cost Effectiveness

The cost effectiveness of ICTS in a particular corridor is a function of the number of riders attracted to the system relative to the capital costs of constructing the system. Cost per ride or cost per new rider are the primary measures of the cost effectiveness of rapid transit. Table 7 provides a comparison of the corridors and technologies in terms of cost per ride.

TABLE 7
Cost Effectiveness (Cost per ride)
All Corridors and Technologies

TECHNOLOGY	Lougheed/ Broadway	New Westminster/ Coquitlam	Vancouver/ Richmond
Rapid Bus	$1.04	$2.60	$2.05
Basic LRT	$3.03	Not Feasible	$5.90
Enhanced LRT	$3.03	$5.02	$5.82
ALRT	$3.56	$5.18	$6.35

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The analysis of cost per ride shows that the Lougheed/Broadway corridor provides the most cost-effective implementation of either Rapid Bus or ICTS. Either Basic LRT or Enhanced LRT could be implemented in the corridor at the same cost per ride while ALRT, although more expensive, provides a higher level of service commensurate with its higher costs. Due to the high costs of grade separation, LRT or ALRT in the Vancouver/Richmond corridor is not as cost effective as compared to the other corridors. The New Westminster/Coquitlam corridor also shows a substantially higher cost per ride than Lougheed/Broadway for implementation of LRT or ALRT.

4.0 CONCLUSIONS

4.1 Summary of Results

The Regional ICTS Studies were undertaken by the Crown Corporations Secretariat and B.C. Transit to provide a consistent body of information on potential ICTS corridors and technologies as a basis for input to the development of a Ten Year Transit Development Plan. In this respect, the City of Burnaby has supported the need for the studies as a means to provide an objective evaluation of the proposed rapid transit corridors especially with regard to the Lougheed/Broadway option. This report has reviewed the information in the ICTS studies and the results can be summarized as follows:

(I) intermediate capacity transit (either LRT or ALRT) can be implemented in all corridors with the exception of Basic LRT in the Coquitlam/New Westminster corridor.

(ii) enhanced LRT or ALRT in the Lougheed/Broadway corridor would provide the best level of service for transit users while reducing traffic impacts on major north/south streets in Burnaby.

(iii) operation of LRT or ALRT in the Lougheed/Broadway corridor would require development of the Lougheed Highway to a six lane standard to accommodate future growth in general traffic.

(iv) the introduction of ICTS significantly improves travel times over Rapid Bus in all corridors with the exception of the Vancouver/Richmond corridor, where it provides only a marginal travel time saving.

(v) as the ridership estimates in the ICTS Study are derived from GVRD Compact Metropolitan Growth population and employment projections, they are fully compatible with the Livable Region Strategic Plan, but are lower than would result from the City of Burnaby population estimates.

(vi) either Rapid Bus or ICTS in the Lougheed/Broadway corridor would attract the highest peak hour and daily ridership and would provide the most effective transit option measured by rides per route kilometer.

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(vii) either Basic or Enhanced LRT can be implemented in the Lougheed/Broadway corridor for substantially lower cost than ALRT although the cost effectiveness of either LRT or ALRT in terms of cost per ride is comparable. With either technology the Lougheed/Broadway corridor offers the most cost effective implementation of ICTS.

The results of the ICTS Studies clearly show that while either LRT or ALRT can be implemented in all three corridors, the Lougheed/Broadway corridor under the Compact Metropolitan Growth scenario attracts the highest ridership and offers the most cost-effective implementation of ICTS. Moreover, by attracting the highest number of rides per kilometer, ICTS on Lougheed/Broadway would be more intensively used than ICTS in the other two corridors. **Based on these results, which indicate that ICTS in the Lougheed/Broadway corridor is more effective in land use shaping, there is a clear need for a more extensive review of the conclusions of the Transport 2021 Medium Range Plan, especially with respect to rapid transit phasing.**

4.2 GVRD Review Process

The Strategic Planning Committee of the GVRD will be considering a report on the BC Transit functional studies of rapid transit corridors at its next meeting on 1995 April 12. A draft of that report was presented to the Technical Advisory Committee for its consideration at its meeting of 1995 March 29. The expressed intent is to have the report of the Strategic Planning Committee forwarded to the GVRD Board at its next meeting on 1995 April 28.

In dealing with this subject matter at its meeting of 1995 April 05, the Regional Administrative Advisory Committee (RAAC) passed a motion recommending to the Strategic Planning Committee that it defer discussion of the ICTS studies for a period of one month to allow additional opportunity for member municipalities and technical review groups to consider and comment on the studies.

The report to the Committee provides a brief overview of the BC Transit functional studies and concludes that the multiple account evaluations produced by the studies are incomplete and not final. It further maintains that "the accounts included in the studies appear to place insufficient importance on the regional development and transportation policies of the Board".

The Regional Manager's report identifies the critical issue as whether rapid transit investment is to make the most efficient use of the available dollars to increase the efficiency of the present transit system or whether it is to help shape the regional growth in a manner that will achieve broader development and livability goals. **It is the view of the City of Burnaby , however, that both objectives are desirable and should not be considered in isolation of each other. In other words, an investment that achieves the best balance of both objectives would be worthy of priority support.**

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The report further concludes that **"the Board's decision of 1994 December 9 reflects the latter objective, and there is nothing in the information provided by BC Transit to date that would refute that view".**

As a result of the conclusions from the Regional Manager, one of the primary recommendations of the report is that the Strategic Planning Committee recommend that the GVRD advise the Premier that,

> *"analysis of the (BC Transit) studies suggests that the Board remain with its decision of December 9, 1994 that the New Westminster - Coquitlam rapid transit line should be the first of three lines to be constructed in the medium term in order to meet the Board's growth management and transportation objectives".*

The City of Burnaby finds this recommendation not supportable and somewhat perplexing in view of the BC Transit studies. The results of the BC Transit report clearly demonstrate the superior ridership, cost-effectiveness and intensity of use characteristics of the Lougheed/Broadway line. Furthermore, no evidence has been provided by the GVRD in their analysis of the ICTS studies that would substantiate the claim that a New Westminster -Coquitlam line would continue to be superior in furthering the land use objectives of the Livable Region Strategic Plan. The results of the ICTS Studies indicate that the Lougheed/Broadway Corridor would play a significant role in achieving the objectives of the Regional Strategic Plan based on its Compact Metropolitan scenario. Furthermore, the extension of the Lougheed/Broadway ICTS line to Coquitlam Centre uses a common alignment from Lougheed Mall to Coquitlam Centre when comparing it to the New Westminster/Coquitlam corridor. It follows therefore that the land use benefits from an alignment from Lougheed Mall to Coquitlam Centre are common to both corridors. Apart from linkage and connectivity benefits, the alignment from New Westminster to Lougheed Mall would offer only marginal land use generation along the length of the corridor.

In view of the above, it is the position of the City that there is a need for a more comprehensive review of the ICTS studies and their relationship to the Livable Region Strategy, including a recommended phasing strategy, to be coordinated by the Regional Administrative Advisory Committee with the involvement of BC Transit, prior to any position being adopted by the GVRD Board in respect of the studies.

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D.G. Stenson, Director
PLANNING AND BUILDING

RG:JSB\db
Attachments
cc: Deputy City Manager - Corporate Services
Deputy City Manager - Human Resources
Director Engineering
Director Finance
Director Recreation & Cultural Services