



Greater Vancouver Transportation Authority

Burnaby/New Westminster Area Transit Plan Summary Report

February 2003

Draft

Burnaby/New Westminster Area Transit Plan Summary Report

PREFACE

This report is a summary of the Burnaby New Westminster Area Transit Plan (ATP), a project of TransLink in partnership with the Cities of Burnaby and New Westminster. The plan identifies specific transit service improvements to be implemented over three years from (2002 to 2004), and scopes out priorities for years four and five (2005 and 2006). The ATP is consistent with the funding available under TransLink's Three Year Transportation and Financial Plan (2002-2004) as well as the City of Burnaby and New Westminster's Official Community Plans and Transportation Plans.

Acknowledgement

TransLink would like to acknowledge the invaluable contribution of the Burnaby New Westminster Public Advisory Committee and Technical Advisory Committee in the development of the Burnaby New Westminster ATP. In addition, acknowledgement is extended to **IBI Group, Delcan, Ward Consulting, and McIntyre and Mustel Research** which provided technical assistance in preparing the Plan.

Members of the Public Advisory Committee

David Harvey, Director, Campus Development, BCIT
Joe Dobson, Executive Director, Heights Merchants Association
Jonathan Silveira, External Relations Officer, SFU
Larry Morgan, Senior Project Manager, Canada Lands Corporation
Leanne Mulrooney, Committee to Promote Accessible Conventional Transit (ComPACT)
Lee Gavel, Director, Campus Planning and Development, SFU
Marion Orser, New Westminster
Roofhafza Hazarat, New Westminster
Geoffrey Roberts, Simon Fraser Health Region

Members of the Technical Advisory Committee

Bob Glover
Manager, Transportation, City of Burnaby

Mark Allison
Transportation Planner, City of New Westminster

Steve Hayto
IBI Group

Ken Curry
Delcan

Steve Gardner
Ward Consulting

Bill Lambert, Program Manager
Project Planning, TransLink

Ken Chow
Transportation Planner, TransLink

Victor Gaspar
Marketing Research, TransLink

Vic Friesen
Technical Analyst, SkyTrain

David Clutton
Transportation Planner City of Burnaby

Thor Kuhlman
Transportation Engineer, City of New Westminster

Dave Roberts
IBI Group

Jami Koehl
McIntyre Mustel Research

Gavin Davidson
Transportation Planner, TransLink

Harjit Sidhu-Kambo
Transportation Engineer, TransLink

Judie Robertson
Service Implementation
Coast Mountain Bus Company

Jerry Parminter
Director, Burnaby Transit Centre
Coast Mountain Bus Company

In addition to the Summary Report, the following technical reports were prepared.

- Burnaby/New Westminster Area Transit Plan: Route Performance Memorandum Appendix: Detailed Route Analysis, May 2001
- Burnaby/New Westminster Area Plan: Bus Service Concepts Market Research Report, November 2001
- Summary of Public Comments from Open Houses, February 2002
- Burnaby/New Westminster Area Transit Plan: Final Technical Report, December 2002

Additional Copies and Information

Additional copies of this report and other technical reports can be obtained by contacting:

TransLink
Implementation Planning
#1600-4720 Kingsway
Burnaby, BC
V5H 4N2

Tel: (604) 453-4500
Fax: (604) 453-4628
Email: William.Lambert@translink.bc.ca

PURPOSE AND SCOPE

The Burnaby/New Westminster ATP is the fourth area transit plan to be developed in the past three years by TransLink. By the end of 2004, seven area transit plans will be completed covering all areas of the region. This Plan has been completed in partnership with the municipalities of Burnaby and New Westminster and with the support of Greater Vancouver Regional District (GVRD). The plan is the culmination of two years of public consultation and technical activities. Its completion was delayed as a result of the bus service strike from April to August 2001 during which plan development and stakeholder consultation activities were suspended.

The principal objectives of the plan are to:

- Identify short-term (1 to 3 year) transit service improvements and medium term (4 to 5 year) service priorities for Burnaby/New Westminster area, including both local service improvements within the subarea and regional services connecting Burnaby and New Westminster municipalities to other parts of the region; and
- Develop a coordinated strategy amongst TransLink and affected municipalities for implementing these transit service improvements and related support measures and actions.

The ATP has been developed to be consistent with TransLink's Three Year Transportation & Financial Plan approved by TransLink's Board in July 2002. The Three Year Plan identifies improvements to regional transportation services and facilities over the 2002 to 2004 period in six major program areas: Transit, the Major Road Network, Cycling, Commuting Options, AirCare and Intelligent Transportation Systems. This Plan is based on the funding package approved by the TransLink and GVRD Boards in November 2001, which provides a stable funding base that will allow significant investments in road and cycling infrastructure, expansion of the SkyTrain system and about a 3% per year increase in bus service levels.

The Burnaby/New Westminster ATP is intended to increase transit ridership and transit's market share of travel through a variety of improvements to transit services, improved passenger amenities and priority measures that allow buses to avoid traffic delays. The plan has three distinct components:

- Millennium Line and Bus Service Integration Plan (Year 2002) – In August 2002, the full Millennium SkyTrain Line was opened between Columbia Station in New Westminster and Commercial Drive Station in Vancouver. As part of this project, many local and regional bus services affecting north Burnaby were restructured and enhanced to provide more frequent and direct service connections to SkyTrain. This integration plan formed a major component of the ATP and TransLink's 2002 Transportation and Financial Plan.
- Years 2003-2004 Service Improvements – This phase of the Plan is comprised of local and additional regional service improvements to be implemented in years 2 and 3. Implementation of these improvements will be subject to their approval as part of TransLink's 2003 and 2004 Transportation and Financial Plans.
- Year 2005-2006 Service Priorities – This phase of the Plan includes further local and regional service improvement priorities that could be implemented in year 4 and 5,

subject to a future review of the Burnaby New Westminister Area Plan and the development and approval of TransLink's new long term strategic plan and funding strategy to be developed in 2003 and presented to the TransLink Board for approval in 2004.

The plan recommends specific transit improvements and a timetable for implementing them. The recommended improvements cover the following areas:

- Existing Services – The plan identifies opportunities to improve existing transit services through more frequent service, more direct routings, extended hours of service and upgraded transit facilities.
- New Services – The plan identifies new bus routes that could be implemented, including an extension of the existing #43 Joyce Station to UBC express service to Brentwood Mall and a new regional connector route linking Metrotown and the North Shore.
- Community Shuttles – The plan replaces local service using standard 40-foot buses with smaller, Community Shuttle buses to provide service that is more appropriate within local residential neighbourhoods.
- Transit Support Measures – The plan identifies opportunities for implementing improved transit priority measures (such as bus queue jumpers and traffic signal priority), bus stops, passenger shelters, pedestrian facilities and customer information to support existing and new transit services.

PROCESS

The Plan was developed over the fall 2000 to fall 2002 period and was interrupted during the bus and SeaBus strike from April to August in 2001. A substantial program of technical analysis, public consultation and marketing research was used to shape the plan.

A Public Advisory Committee, composed of local citizens and appointed by the municipal councils, played an instrumental role in the development of the plan and in providing advice on the public consultation process. A Technical Advisory Committee comprised of planning staff of the municipalities, TransLink and Coast Mountain Bus Company also provided significant direction in the technical development of the plan.

Ridership Surveys - Route by route ride check surveys undertaken in the fall of 2000 collected comprehensive data on passenger activity on transit routes serving Burnaby, New Westminister, the Northeast sector and Vancouver. IBI group developed a number of procedures to analyse the survey results and to calculate route performance measures. Findings are detailed in the Route Performance Memorandum and provided the basis for a number of proposed changes to frequency, vehicle capacity and hours of operation.

Public Consultation - Two rounds of public events were held to gather input from Burnaby New Westminister residents. The first series of public events was conducted in fall 2000 to obtain input on key issues and deficiencies with existing transit services and facilities. These open houses, attended by municipal and TransLink staff, took place at Royal City Centre, Lougheed Mall and British Columbia Institute of Technology and attracted approximately 800 participants and 400 comments.

The second round of public events was held in January 2002 at Brentwood Shopping Centre, Royal City Centre, Metrotown Mall, Lougheed Mall and Burnaby Transit Centre (for Coast Mountain Bus Company staff). These sessions were held to present potential bus service improvements and to receive feedback on these proposed changes. They attracted over 1000 participants and over 600 comments were received.

Input was also collected from the Technical and Public Advisory Committees, letters to TransLink and the municipalities, email submissions, and comment forms submitted through TransLink's website.

Marketing Research - McIntyre and Mustel Research conducted a two phased research project in 2001 on behalf of TransLink to test public acceptance of proposed transit service options. In the first phase of the research a random telephone survey was used to identify current and potential users of transit and to elicit participation in the second, concept-testing phase. Over 3000 interviews were completed in the first phase, about 1,400 of those agreed to participate in the second round and a total of 929 concept test interviews were completed. In the concept -testing phase, respondents were mailed a series of maps describing the service options. A week later they were called and asked about their potential usage of the proposed options. In addition, feedback from TransLink's on-going Customer Satisfaction Surveys concerning existing transit services in Burnaby and New Westminster was reviewed to help understand where improvements were needed.

Computer Modeling - A computer model of the regional transportation network was applied to assess the potential impact of the proposed transit service concepts and to test the impact of adjustments to these concepts. The findings helped to quantify overall ridership gains expected from the proposed changes and informed decisions when other investigations did not elicit a clear choice amongst various routing options.

MARKET ANALYSIS

Burnaby and New Westminster have recently matured into complete urban communities with a balance of jobs and population and a wide range of services and activities. Regional and town centers in the area are key building blocks in creating complete communities and offer office-based employment, shopping, entertainment, housing and community facilities, they include:

- Regional Town Centres
 - Metrotown
 - Downtown New Westminster
- Municipal Town Centres
 - Brentwood
 - Edmonds
 - Lougheed

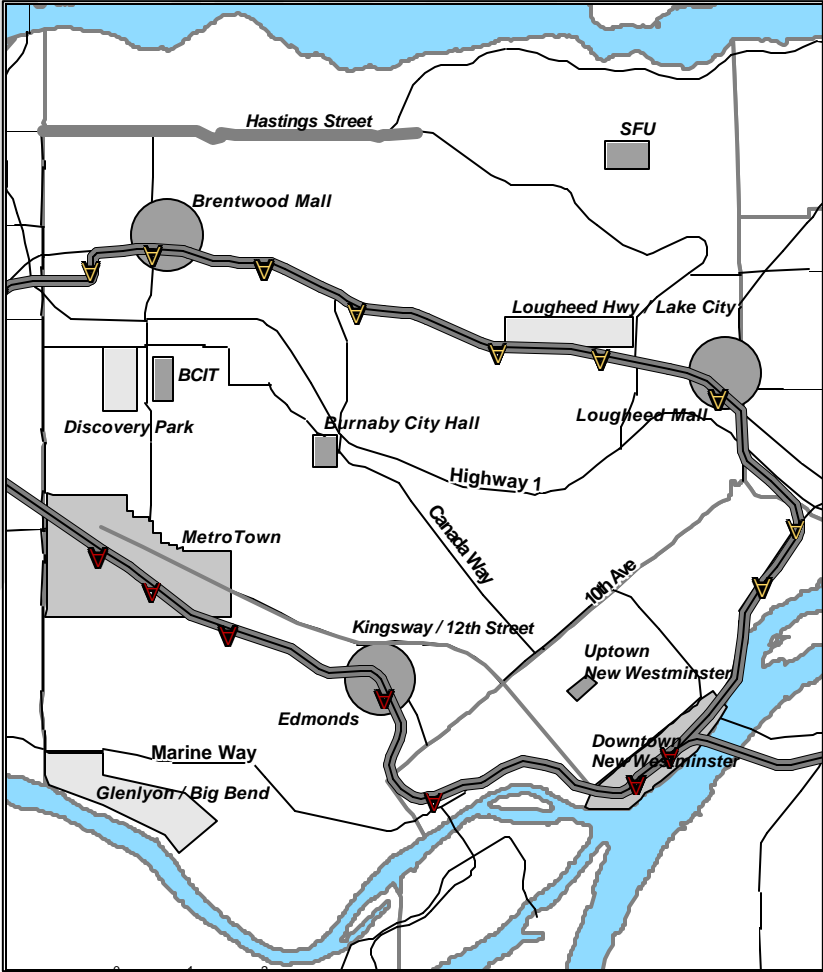
Clustering jobs, housing and activities at Regional and Municipal Town Centres provides the opportunity to serve these focal points with frequent transit service in a cost effective manner. All of the Centres incorporate SkyTrain Stations on the Expo or Millennium Lines.

Complementing the town centres are traditional commercial main streets, most notably Hastings Street and Kingsway-12th Street-Columbia Street and secondary centers including:

- Uptown New Westminster
- The Burnaby City Hall complex
- Simon Fraser University (SFU)
- British Columbia Institute of Technology (BCIT)

Finally there are several emerging business centers with considerable present and projected employment, namely, Lougheed Highway-Lake City, Willingdon Avenue-Canada Way-Discovery Place and the Big Bend area along the Fraser River. The following map illustrates the distribution of the activity centers in the study area, as well as the routing of the new Millennium SkyTrain Line.

Major Activity Centres and SkyTrain Routing



Burnaby has a population of 203,679 (2001) while New Westminster's is 56,904 (2001). Together they contain 12.5% of the GVRD's total population. Although the study area primarily includes stable and mature neighbourhoods the estimated average annual growth rates to 2006 for Burnaby and New Westminster (1.9% and 2.0%) are somewhat higher than the estimated growth rate for the GVRD as a whole (1.6%). Sub-areas with higher expected growth rates include Edmonds, Lougheed, Metrotown, and Brentwood Town Centres, Burnaby Mountain/SFU, Forest Grove and Cariboo Heights in Burnaby and the Woodlands area in New Westminster. These sub-areas could account for over 50% of the expected population growth in the study area. Most of the sub-areas are on the SkyTrain lines or major transit corridors.

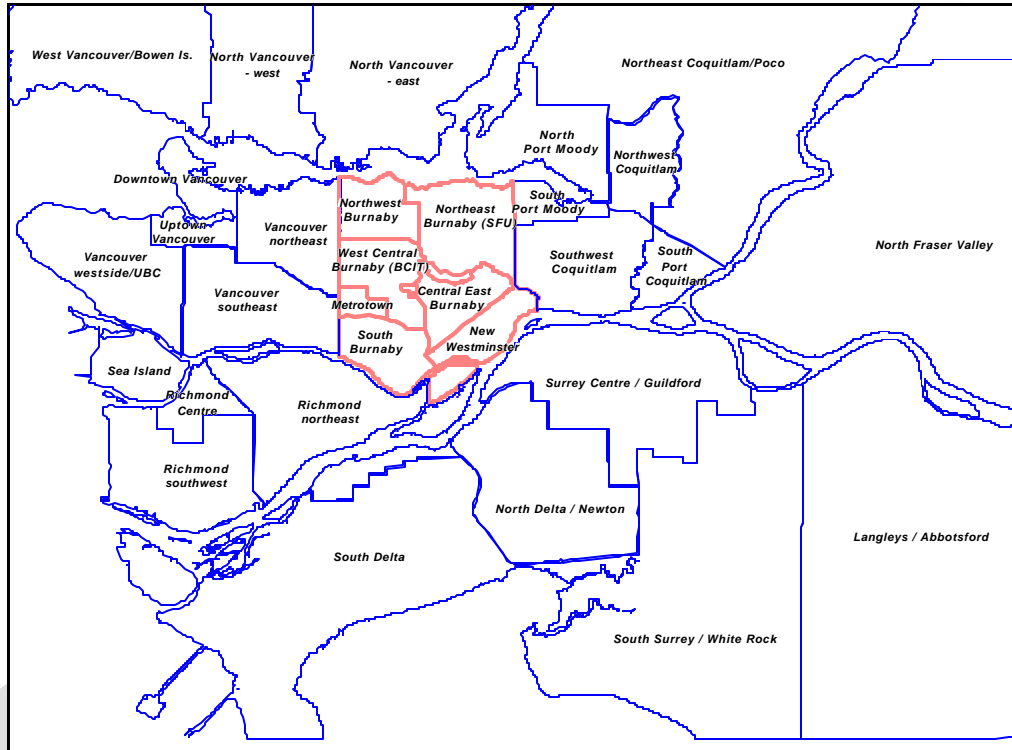
Burnaby and New Westminster account for 14.4% of the GVRD's employment. The expected growth rate for employment in the area (2%) is similar to that of the GVRD (1.9%). Annual job growth in the study area over the next 5 years is expected to be focused in the following areas:

- Metrotown (1000 jobs/year)
- Glenlyon / Big Bend (700 jobs/year)
- Lake City (700 jobs/year)
- Discovery Park/BCIT (300 jobs/year).

Due to the recent slowdown in the regional economy, these growth rates may not be achieved in the short term. For example, the value of commercial and industrial building permits in the study area in 2001 was about half of the year 2000 value.

According to the 1996 Census "Journey to Work" dataset, 37% of the Burnaby / New Westminster employed labour force work at fixed locations within Burnaby / New Westminster, 48% work at fixed location in other parts of the Lower Mainland (primarily in Vancouver), the remaining 15% work at home or have no fixed place of work. In order to examine the journey-to-work data in more detail, the census tracts that make up the GVRD were grouped into sub-areas, as illustrated in the following diagram.

Map of Market Area Boundaries



Transit mode share from the study area to downtown Vancouver is almost 50%. This high percentage is a reflection of the high level of transit service to the downtown combined with other factors such as the high cost of parking. The areas with the next highest densities of employment, uptown Vancouver and Metrotown account for 18% and 16% respectively. The expansion of SkyTrain and improvements to regional and local bus services may offer opportunities to increase transit mode share to these destinations.

The majority (76%) of Burnaby / New Westminster residents who have a fixed place of work outside of the home stay in the Burrard Peninsula (Vancouver (39%), Burnaby (30%) or New Westminster (7%)). An additional 9% of the residents have their place of work south of the Fraser River, primarily in Surrey and Delta. The remainder have their regular place of work in Richmond (7%), the North Shore (4%) or in the Northeast Sector (4%). SFU and BCIT are also important destinations, with the potential to generate over 11,000 daily transit trips each in 2004. Universal Transit Pass (U-Pass) programs which would provide all students at these institutions with a deeply discounted 3 zone transit pass have the potential to increase these numbers by a further 30%.

KEY TARGET MARKETS

Overall, land use and travel pattern trends in Burnaby and New Westminster point to the following needs:

- Establish strong links to SkyTrain to increase ridership to Town Centres, and uptown and downtown Vancouver;

- Enhance services to SFU and BCIT in order to accommodate increasing ridership and in anticipation of an SFU U-Pass in 2003 and to BCIT in the plan period;
- Improve services to growing population and employment centres including, Edmonds, Lougheed and Brentwood Town Centres, Metrotown, Glenlyon / Big Bend, Lake City, Discovery Park and the downtown and Woodlands areas in New Westminister.

TRANSIT ISSUES

The transit issues section documents key transit issues identified through consultation activities involving municipal representatives, transit operating staff, stakeholders, transit riders and prospective customers. It takes into account research on land use, growth projections, travel demands, ridership data and anticipated impacts of the new SkyTrain Millennium Line and other major planned improvements.

Although TransLink has recently experienced a reduction in funds available for transit improvements, a number of projects that were planned or initiated before the funding reduction, remain in place. These projects include the following:

- Introduction of the SkyTrain Millennium Line, including the extension from New Westminister to Lougheed Mall and along Lougheed Highway and Broadway to Commercial Drive Station;
- New B-Line routes from Lougheed Mall to Coquitlam Centre, from downtown Vancouver to SFU (via Hastings Street) and from SFU to Production Way / University Station on the new Millennium Line; and
- A bus connection between Metrotown and Richmond Centre.

Transit issues identified need to be placed in the context of the above improvements.

Traditionally, much of the transit route network in Burnaby-New Westminister has been oriented in a radial pattern focused on Vancouver's Metropolitan core. This includes major corridors like Hastings, Lougheed, Canada Way and Kingsway-12th Street.

Designated transit nodes located at activity centers throughout Burnaby and New Westminister provide a link to the major radial corridors and a focal point for local routes. Local services have tended to operate on either a full or partial timed-transfer schedule. In south Burnaby and New Westminister, these nodes are located at SkyTrain stations, especially at Metrotown, Edmonds and downtown New Westminister. Other SkyTrain stations have taken on roles as hubs for regional connectors, particularly the 22nd Street Station. In this case, it is not because it is a town centre but because it is located near a bridgehead (Queensborough) conveniently located for connections to Richmond, North Delta and Annacis Island. In North Burnaby, Lougheed and Brentwood provide the intersects for local and regional bus routes.

The performance of the existing transit system was analysed using several sources of information including a comprehensive passenger boardings survey undertaken in 2000.

The best performing bus routes are those that serve major activity centers and/or travel on developed arterial corridors, including #145 SFU / Lougheed Mall, #99 Lougheed Mall / UBC, #135 SFU / Stanley Park, #130 Metrotown Station / Kootenay Loop, #123 New

Westminster Station / Stanley Park, #106 New Westminster Station / Metrotown, #100 New Westminster Station / Airport, #25 Brentwood Mall / UBC, and #144 SFU / Metrotown Station. The worst performing routes are short (often loop) routes that tend to serve lower density neighbourhoods. These routes include #102 (Fraserview / New Westminster Station), #103 (Quayside), #108 (8th Avenue / New Westminster Station), #114 (Burnaby South / Metrotown Station), #115 (Edmonds Station / Metrotown Station) and #137 (Capitol Hill / Hastings) and are prime candidates for consideration as community shuttle services and/or for major restructuring. The following table describes the performance of each of the routes.

Key issues were identified through the first round of public consultation. They include the need to:

Local Services:

- Improve frequency during peak travel periods and on weekends;
- Extend hours of operation during the week, on weekends and on holidays;
- Reduce crowding on buses serving high schools and post secondary schools;
- Reduce unreliable service and service connections on local routes;
- Redesign service to Burnaby's south slope to better serve east west travel and to improve service to Glenlyon Business Park;
- Increase the frequency of local east-west routes serving New Westminster;
- Continue to develop a grid system of routes in Burnaby, while taking into account the need to maintain the existing origin and destination pairs that customers seem to appreciate;
- Develop improved connections between Coquitlam and Burnaby in order to serve the growing number of work trips between these two communities;
- Maintain schedule reliability in Queensborough; and
- Increase use of Community Shuttle to serve routes with low ridership.

Regional Services:

- Develop for BCIT and SFU, fast, frequent connections to the new Millennium Line, and other parts of the region and attractive fare policies;
- Improve service to the new and growing high-tech employment areas;
- Improve service for employees of acute care facilities of Simon Fraser Health Region;
- Increase frequency on regional bus routes particularly during weekends and holidays;
- Extend hours of service during the week and on weekends and holidays; and
- Reduce crowding during peak hours on buses and SkyTrain.

Transit Support Measures:

- Improve accessibility, especially bus stop facilities, curb cuts and paved approaches for those in wheelchairs and clearer signage for those with visual impairments;
- Increase safety and security, particularly at SkyTrain stations and transit exchanges;
- Build more bus shelters with improved protection against the elements, improved lighting, sidewalks, telephones and well maintained garbage bins;
- Post schedule information and route maps at more bus stops;
- Increase bike racks on buses and lockers at SkyTrain and major transfer points;
- Add bus stops at various locations to better serve local residents;
- Improve lighting and availability of public washrooms at bus exchanges and SkyTrain Stations;
- Install turnstiles at SkyTrain stations to reduce fare evasion.

Transit Priorities:

- Make Hastings HOV lanes a bus-only facility;
- Add and extend bus only lanes and queue jumpers to reduce delays and improve service reliability, particularly southbound on Kensington Avenue north of Sprott Street and at Willingdon and Lougheed;
- Reduce turning delays at Royal Oak and Gilpin and at 8th Street and 6th Street; and
- Reduce left-turn delays and safety risks at Edmonds and Kingsway.

SERVICE CONCEPTS CONSIDERED & EVALUATION PROCESS

In response to the planned SkyTrain and B-Line improvements and based on a review of the market objectives and priorities, the performance of the current route structure, and feedback from the original round of consultation efforts, various service concepts were developed and reviewed. Two types of service options were developed:

- 1) Regional services that connect key destinations within the Burnaby / New Westminster area to other parts of the region; and
- 2) Local services that act as feeders to regional services and that provide basic transit service coverage.

There were seven specific regional services and fourteen different local services defined as potential routes for analysis. The concepts include:

1) Regional service improvements:

- A B-Line service to replace route #135 operating between SFU and downtown Vancouver on Hastings Street;
- A B-Line on Gaglardi Way between the Millennium SkyTrain line and SFU to replace route #145;
- An extension of route #43 operating between UBC and Joyce Street Station to BCIT and an upgrade to B-Line service quality;
- Increased service levels on Canada Way between downtown New Westminister and Brentwood Mall;
- Willingdon Avenue between Metrotown and Brentwood Mall with improved service to BCIT and an extension to the North Shore via Second Narrows Bridge;
- An extension of the route #112 that travels 12th Street, Columbia, and North Road connecting Edmonds town center, downtown New Westminister, and Lougheed mall.

2) Local service improvements:

- The service options developed for the north Burnaby area have the most significant changes relative to the current service structure. These changes respond to the market priority of providing good linkages between the Millennium SkyTrain line and adjacent residential areas and attempt to follow a grid pattern within the limitations imposed by topography and road network in the area.
- In central Burnaby, the options provide linkages between both SkyTrain lines and residential and employment concentrations in the sub-area. Once again topography, adjacent land uses, and the road network limits potential routings through the sub-area.
- The service options developed for south Burnaby address the requests by residents for improved east/west connectivity through the sub-area and the growth of employment and associated commuter trips to the Glenlyon and Big Bend commercial / industrial areas south of Marine Way.
- Within New Westminister the service options respond to routing changes requested by local residents and the need to improve the efficiency and effectiveness of selected local routes in the sub-area. Community shuttle operations are suggested for routes with relatively low existing ridership and limited growth potential.

The regional and local service options were assessed through both market research and the regional transportation planning model. The concepts used one of the following brands in the family of bus services offered by TransLink:

- i) **City Bus** - is the brand name adopted for the local bus services with frequent stops that currently operate throughout the region and include the trolley bus services. City Bus comprises most of the bus service provided by TransLink today and will continue to remain the major part of bus services.

- ii) **B-Line** - is a high frequency (minimum 10 minute headway during peak and midday periods on weekdays), limited stop bus service. The first B-Line service in the region – the '99' on Broadway/Lougheed – resulted in a dramatic increase in ridership.
- iii) **Express Coach** - is mainly aimed at the longer distance commuter market, using 'highway-type' buses to provide fast, comfortable service. To some degree, it is the bus equivalent of commuter rail. Existing Express Bus routes will be improved in the next 5 years using a new fleet of Express Coaches.
- iv) **Community Shuttle** - is used as a generic description for services which can range from a shared ride taxi through to vehicles as large as 30' long, operating on fixed route transit services. There is great demand for these types of services, particularly in suburban areas where demand densities do not warrant a traditional 40' bus.

Each of the service options were evaluated using a range of considerations, including:

- Deficiencies and opportunities associated with the existing route and nearby land uses;
- The specific service options developed in relation to the existing route;
- An assessment of market research results, the regional transportation model analysis, the feedback received during public consultation, and the resources required to implement the potential service changes.

These recommendations form the basis of the proposed ATP presented in the following section.

RECOMMENDED PLAN

The Transit Area Plan for Burnaby/New Westminster differs from previous Area Plans in that the timing for the implementation of many of the proposed new and revised bus transit services was largely dictated by the opening of the Millennium SkyTrain line in the fall of 2002. Therefore, the ATP for Burnaby/New Westminster can be divided into two parts: service changes that were implemented as part of the fall 2002 Transportation Plan to coincide with the opening of the Millennium SkyTrain line; and additional Area Plan elements that will be considered for implementation in subsequent years. These improvements address many of the issues raised by the general public and stakeholders throughout the development of the ATP.

Service changes required for integration with the Millennium SkyTrain line are listed in Exhibit 1. The service characteristics and proposed routings for these elements are presented in Exhibits 2 and 3. In addition there are a number of additional frequency adjustments and routing changes that warranted early implementation due to their positive impact on service levels and/or service efficiencies.

Phase 1 - 2002 Service Improvements

Overall, the 2002 Transportation and Financial Plan added approximately 23,000 annual service hours (or about 4%) on a net basis to the routes or sections of routes allocated to the Burnaby/New Westminster area. In addition to these hours, the Millennium SkyTrain Line adds approximately 40,000 annual hours of rapid transit service in the Burnaby/ New Westminster area. It should be noted that the average speed on the new SkyTrain sections in Burnaby/New Westminster is about 45 km/hr or about twice the average speed of many of the bus routes in the area. Therefore, the additional SkyTrain hours are equivalent to about 80,000 bus service hours, for a total net increase in transit service hours of 103,000 annual service hours (or about 17%).



The 2002 routing options described in Exhibits 1, 2 and 3 differ somewhat from the service options developed and tested through market research, transportation computer modeling and public consultations. The differences and the reasons for those changes are described in Appendix A.

Exhibit 1

2002 TRANSPORTATION PLAN ELEMENTS FOR BURNABY/NEW WESTMINSTER					
Route	Project Description	Key Reasons	Bus Type	Change in Annual Service Hrs	
				BNW	Outside Area
10	Revise routing and service levels of route #10 to coordinate with other services on Hastings Street.	Reduce duplication of service	Standard		(3,700)
25	Improve service on #25.	Improved service to BCIT	Standard	200	1,700
28	Modify routing of #28 to serve Gilmore Station in both directions.	Service integration with SkyTrain	Standard	3,700	
99	Eliminate Burnaby portion of #99 B-Line.	Reduce duplication of SkyTrain service	Articulated	(5,200)	(3,500)
101	Increase service levels of route #101 as part of integration with Millennium Line.	Improved connectivity	Standard	3,300	
102	Modify routing of #102 and extend service to serve Carnarvon and Agnes Streets complementing the service adjustment to #106.	Maintain service coverage to St. Mary's Hospital	Standard	(100)	
106	Improve frequencies on route #106 and straighten route for clarity and to improve customer travel times.	Respond to existing demand	Standard	2,600	
108	Modify routing of #108 as per #102 complementing the service adjustment to #106.	Maintain service coverage to St. Mary's Hospital	Standard	150	
110	Revise routing and improved frequencies on #110 to integrate with the Millennium Line.	Service integration with SkyTrain	Standard	3,700	
112	Extend route #112 to Lougheed Town Centre Station as part of the Millennium Line integration.	Service integration with SkyTrain	Standard	16,100	
23	Eliminate route #23 (to be replaced with improved service on #123).	Reduce duplication of service	Standard	(8,000)	(3,400)
123	Enhance frequencies on route #123, with shortened service between New Westminister Station and Hastings at Willingdon.	Reduce duplication of service	Standard	2,000	250
129	Revise the routing of #129 and #131 to integrate with the Millennium Line.	Service integration with SkyTrain	Standard	6,400	
130	Increase service level between Metrotown Stn and Brentwood Mall on route #130 (already in place).	Respond to existing demand	Standard	-	
133	Discontinue service on route #133 to minimize duplication with SkyTrain Millennium Line.	Reduce duplication of service	Standard	(3,000)	
134	Revise routing of #134 to integrate with the Millennium Line.	Service integration with SkyTrain	Standard	2,300	
35	Eliminate route #35 (to be replaced with improved service on #135).	Reduce duplication of service	Standard	(6,700)	(4,500)
135	Increase #135 service levels on Hastings Corridor and continue extending half of trips to Stanley Park until trolley extension is completed in late 2002.	Respond to existing demand	Articulated when available	15,500	10,300
136	Revise routing of #136 to integrate with the Millennium Line.	Service integration with SkyTrain	Standard	7,800	
144	Revise routing and service levels of #144 to integrate with the Millennium Line.	Service integration with SkyTrain	Standard	(400)	
145	Revise #145 route to operate between Production Station and SFU, at higher frequency and with articulated buses.	Service integration with SkyTrain, respond to expected demand	Articulated	5,500	
148	Eliminate portion of #148 between Lougheed Mall and New Westminister Station.	Reduce duplication of service	Standard	(11,000)	

2002 Transportation Plan Elements for Burnaby/New Westminster Continued					
Route	Project Description	Key Reasons	Bus Type	Change in Annual Service Hrs	
				BNW	Outside Area
154/155	Modify routings of #154 and #155 at Braid Station and increase frequency to integrate with Millennium Line	Service integration with SkyTrain, respond to expected demand	Standard	1,000	(13,300)
156	Eliminate portion of #156 between Lougheed Mall and New Westminster Station.	Reduce duplication of service	Standard	(13,300)	

Exhibit 2- Service Characteristics of 2002 Transportation Plan Elements

Revised Routes	Map Code	Route Description	Hours of Operation (Weekday)	Frequency (Minutes Between Buses)			
				Peak Times (6-9:30am, 3:30-6pm)	Midday (9:30am-3:30pm)	Evening (after 6pm)	Weekend
10 Trollev		Kootenay Loop/ UBC	5:30am - 2:00am	10	15	No service east of downtown	15
25		UBC/ Brentwood Station	5:30am - 1:00am	6-10	15	15 (30 after 9pm)	15 (30 after 6pm)
28		Joyce Station/ Kootenay Loop/Phibbs Exchange/Cap College	5:30am - 1:00am	15	15	30	15 - 30 (30 after 6pm)
101		22 nd Street Station/ Lougheed Station	5:30am - 1:00am	20	30	30	30
102 (revised #102/106)		Fraserview/ New Westminster Station	6:00am - 8:00pm	30	60	60	60
106		New Westminster Station/ Metrotown Station	5:00am - 2am	10	12	20	12
108 (revised #106/108)		8th Avenue/ New Westminster Station	6:00am - 8:00pm	30	30	60	30
110		Metrotown Station/ Lougheed Station	5:30am - 1:00am	20	30	30	30
112		Edmonds Station/ Lougheed Station	5:30am - 2:00am	15	15	30	15 - 30 (30 after 6pm)
123		New Westminster Station/ Brentwood Station/ Kootenay Loop	4:30am - 2:00am	12	15	30	15 (30 after 6pm)
129		Metrotown Station/ Edmonds Station	5:30am - midnight	15	30	30	30
130		Metrotown Station/ Hastings	5:30am - 2:00am	5-8	10	30	10
		Metrotown Station/ Kootenay Loop		30	30	60	30
134		Brentwood Station/ Lougheed Station	5:30am - midnight	30	30	30	30
136		Lougheed Station/ Brentwood Station	5:30am - midnight	15	30	30	30
144		Metrotown Station/ SFU	5:30am - 1:00am	15	30	30	30
145		SFU/ Production Way - University Station	6:30am - 1:00am	7-8	12	15 (30 after 10pm)	15 (30 after 6pm)
154		22 nd Street Station/ Braid Station	5:30am - 1:00am	20	30	30	30
155		22 nd Station/ Braid Station	5:30am - 10:00pm	20	30	30	30

Phase 2 – 2003-2004 Recommended Service Improvements

The most significant changes to bus transit services in the Burnaby / New Westminster area will take place as part of the 2002 Transportation and Financial Plan. There are, however, additional transit service proposals that are recommended for implementation in subsequent years. These recommended changes are listed in Exhibit 4. The service characteristics of specific routes are presented in Exhibit 5 and the routings are illustrated in Exhibit 6.

The most significant of the additional ATP elements are as follows:

- Implementation of B-Line service on the Hastings corridor;
- Conversion of local New Westminster routes to Community Shuttle service;
- Restructuring of the routes serving the south slope of Burnaby.

The implementation of B-Line service on the Hastings corridor will not result in as dramatic a shift in bus passenger travel patterns as the implementation of the Millennium SkyTrain Line. It will however consolidate the status of the Hastings corridor as one of the key transit corridors in the region.












TransLink's Three Year Transportation and Financial Plan calls for the implementation of at least one Community Shuttle project in every sub-region of Greater Vancouver for a total of over 20 routes. Community Shuttle routes are intended to serve both low-density suburban neighbourhoods and small pockets of moderate density urban areas that cannot be effectively served by standard "City Bus" services. The local Routes #102, #103, and #108 in New Westminster fall into the latter category.

The restructuring of the routes serving the south slope of Burnaby will result in a small increase in service hours and will provide significantly improved east west service coverage and significantly improve service to the Glenlyon and Big Bend employment centres. Although there has been a slowdown in employment growth in these areas, it is important that improved transit be in place when growth does occur so that transit can provide a viable option for new employees.

Exhibit 4

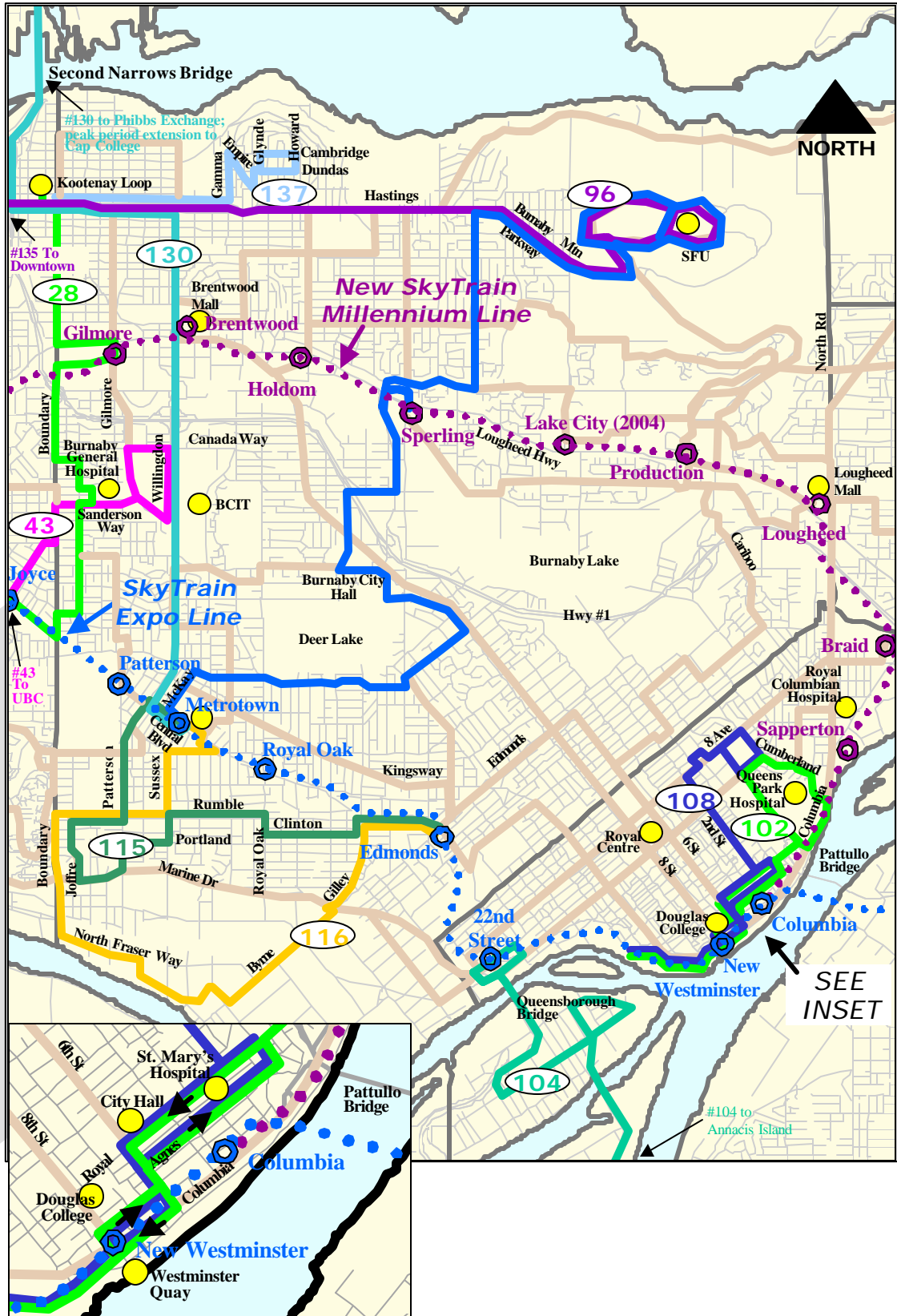
ADDITIONAL AREA PLAN ELEMENTS FOR BURNABY / NEW WESTMINSTER					
Route	Project Description	Key Reasons	Timing	Change in Annual Service Hrs	Change in Peak Buses
28, 130	Provide a new service between Metrotown and Phibbs Exchange / Capilano College by extending #130. Service would operate frequently in peaks and every 15 minutes in the daytime. Adjust route #28 and upgrade frequency on Willingdon.	North Shore Area Transit Plan; creates a strong north-south transit corridor connecting major transit destinations in the region	3-5 years	5,500	2
43	Extend #43 to accommodate demand increases from U-Pass programs at BCIT	Enhances service to key transit destination for school and work trips	3-5 years	3,500	2
96	Upgrade #135 to B-Line operations	SFU U-Pass program and residential development on Burnaby Mountain	2-4 years	-	-
102, 108	Replace routes #103, #102 and #108 routes with two community shuttle routes.	Matches type of service to level of demand; responds to community objectives	1-2 years	1,000	+3 minibus -3 std bus
104	Increase the frequency of #104 to Annacis Island to every 15 minutes throughout the peak periods. The frequency is already 15 minutes during the first half of the AM peak period. This improvement would extend the hours of this frequency of service as required.	Meet increases to existing demand	1-2 years	1,500	1
115	Redesign service to Burnaby's South Slope with a new Route #115 that replaces the existing Route #115 and parts of Route #114.	Respond to community objectives and improve service efficiency	1-2 years	-	-
116	Redesign service to Burnaby's South Slope with a new Route #116 that replaces the existing Route #116 and parts of Route #114.	Better serve Glenlyon and Big Bend employment centres and improve service efficiency	1-2 years	1,000	-
137	Convert #137 to Community Shuttle as part of Route #130 restructuring	Service is currently provided as an interlined branch of #130. The extension of #130 to the North Shore would be the catalyst for changing the brand of service on this route	3-5 years	-	+1 minibus -1 std bus
144	Revise routing to provide coverage on Grange Street between Nelson Av and McKay Av.	Improve service to high density residential areas	1-2 years	-	-
	Introduce a new service between Richmond City Centre and Metrotown via Cambie Road, Knight Street Bridge, 49th Avenue, Imperial and Willingdon. Service will operate every 20 minutes during the peak.	Richmond Area Transit Plan	1-2 years	10,500	7

Exhibit 5

SERVICE CHARACTERISTICS OF ADDITIONAL AREA PLAN ELEMENTS							
Revised Routes	Map Code	Route Description	Hours of Operation (Weekday)	Frequency (Minutes Between Buses)			
				Peak Times (6-9:30am, 3:30-6pm)	Midday (9:30am-3:30pm)	Evening (after 6pm)	Weekend
28		Joyce Station/ Kootenay Loop	5:30am- 1:00am	15	30	30	30
43 B-Line		UBC/ BCIT (extension)	6:30am- 9:30am & 2:30pm- 7:00pm	15	N/A	15 (until 7pm)	N/A
96 B-Line (revised #135)		SFU/ Burrard Station	5:30am- midnight	6-8	8-10	15 (30 after 10pm)	10 – 15 (30 after 6pm)
102 Community Shuttle (revised #102/ 103/ 106)		3RD Avenue & Quayside/ Royal Columbia	6:00am- 10:00pm	30	30	30	30
104		22nd Street Stn/ Annacis Island City Bus	5:30am-1am	15	30	30	30
108 Community Shuttle (revised #103/ 106/ 108)		3RD Avenue & Quayside/ 8th & McBride	6:00am- 10:00pm	30	30	30	30
115 (revised #114/ 115)		Metrotown Station/ Edmonds Station	6:00am- midnight	30	30	30	30
116 (revised #114/ 116)		Metrotown Station/ Edmonds Station	6:00am- 10:00pm	20	30	30	30
130		Metrotown Station/ Phibbs Exchange (Cap College in peak periods)	5:00am- 2:00am	5 (15 to Cap College)	7.5	15-30	10-20 (30 after 6pm)
137 Community Shuttle		Loop To/From Gamma & Hastings	6:00am- 10:00pm	30	30	60	30
144		Metrotown Station/ SFU	5:30am- 1:00am	15	30	30	30

Note: all routes are City Bus service unless otherwise noted.

Exhibit 6 - Map of Additional Area Plan Elements



Phase 3 – Priorities for Consideration in 2005-6

The 2002 Transportation Plan elements listed in Exhibit 1 and the ATP elements listed in Exhibit 4 and recommended for implementation in subsequent years were developed through analyses of existing travel patterns and the modeled impact of the Millennium SkyTrain Line. Given the dramatic impact that a rapid transit facility can have on travel patterns and the inherent limitations of a transportation planning model, it is very important that bus passenger activity and travel patterns be monitored in the study area more closely than in more stable areas of the transit system.

Some of the specific issues that should be monitored include:

- What are the preferred routes of access to SFU and are services allocated appropriately to these routes?
- What is the impact of the Millennium Line on travel patterns on Hastings corridor?
- What is the impact of the Millennium Line on cross town bus travel patterns in New Westminister on Routes #101, #154, and #155 and should the layout of these routes be reconsidered based on these patterns?
- Do the routings and frequencies of Routes #101, #110, #134, and #136 between Lougheed Station and Production Way / University Station match demand patterns in that sub-area?
- Is there sufficient passenger activity on Route #28 between Boundary Road and Gilmore Station as expected to justify the diversion of the route;
- Are both Routes #123 and #130 effectively used between Brentwood Station and Kootenay Loop?
- Are there requests for bus service on Lougheed Highway between Brentwood Station and Gilmore Station?

The monitoring of these issues will provide the basis for the update of this ATP.

Transit Support Measures

Burnaby and New Westminister have significant roles to play in ensuring the success of the ATP. They can undertake the following steps to encourage the use of transit and discourage travel by single occupant vehicles:

- Land Use Measures – As mentioned, the majority of the expected population and employment growth over the coming 5 years in Burnaby and New Westminister is expected to occur in sub-areas near SkyTrain lines or on major transit corridors. The municipalities should make every effort to ensure that pedestrian access to transit stops is direct, safe, comfortable and convenient.
- Transit Facilities – The municipalities have a key role to play in the provision of transit supportive facilities by working with TransLink and other agencies to:

- Provide transit priority measures on the road network (i.e. queue jumpers, bus lanes, and transit signal priority along key corridors and intersections) to improve the reliability and speed of transit services; and
- Improve passenger amenities through more and larger shelters, convenient access for the mobility impaired, lighting designed specifically for pedestrians and telephones at key locations.
- TransLink's Transit Related Road Infrastructure Program can be used to assist in funding transit facility improvements.
- Parking Management Strategies – Implement paid parking at all town centre and mall shopping and employment sites to encourage increased transit usage; and
- Dedicated Annual Funding – Municipalities can greatly assist in this support role by taking a proactive approach to the installation of pedestrian amenities.

Transit Priority Measures

Transit priority measures involve improvements to the roadway and traffic signal control system to provide priority to transit vehicles. Transit Priority improvements can be grouped into the following two categories:

- Physical Improvements, targeted to produce competitive transit travel times (i.e., through bus only or HOV lanes), and to bypass the effects of congestion bottlenecks (i.e., through bus queue jumpers).
- Transit Signal Priority (TSP) Improvements, targeted to reduce the effects of traffic signal delays, by providing priority to transit vehicles at signalized intersections.

TSP measures can be implemented relatively inexpensively when compared to the property and construction costs associated with implementing physical transit priority improvements. Depending on the traffic signal controller capabilities and availability of communications infrastructure, TSP can be implemented for approximately \$1000 to \$5000 per bus and \$15,000 to \$50,000 per intersection.

In 1997, benefits of TSP measures were initially demonstrated by BC Transit along the Route 123 corridor, which led to a full implementation for the 98 B-Line bus rapid transit system on Granville Street in Vancouver and on No. 3 Road in Richmond.

The Burnaby / New Westminster area already has two corridors with significant transit priority measures incorporating physical improvements: the Burnet / Hastings HOV lanes and the Willingdon Avenue HOV lane project. Changes to the vehicle occupancy requirements in the Burnet-Hastings corridor (currently 2 plus) may be considered in the near future. In addition, TransLink and the City of Burnaby are investigating the extension of the Willingdon Avenue HOV lanes and the application of TSP strategies along that corridor.

The 1998 Burnaby Transportation Plan defines an HOV Network for the city. In addition to the Barnet / Hastings and Willingdon corridors the network includes the following corridors with significant bus transit volumes:

- Burnaby Mountain Parkway;
- Kingsway;
- Gaglardi Way; and
- Marine Way as a potential HOV corridor, primarily for carpools and vanpools.

The HOV network is conceptual at this stage and does not include any specific definition of the transit priority components within each corridor. The timing of the implementation of the HOV network within Burnaby has not been finalized to date. Timing for implementation of the HOV and bus lane network should be finalized and funding identified as soon as possible in order to allow transit improvements identified in this report to achieve their maximum potential.

In addition to major corridor initiatives, site-specific transit priority measures can be highly cost effective. Recently completed projects of this nature include:

- A curb lane bus-only queue jumper on westbound Lougheed Highway between Gaglardi and Production to facilitate access to the Production Way SkyTrain Station;
- A bus queue jumper and exclusive bus phase northbound on Holdom at Lougheed Highway to minimize delays and address potential safety issues for buses accessing the Holdom SkyTrain Station.

TransLink staff have reviewed a number of other locations in the study area where there are traffic congestion delays and/or safety issues that impact transit operations. The expected delay at these locations was estimated through a combination of field work and a review of transit survey data. The specific routes and the number of buses impacted at these locations were identified. The ride check survey data were used to estimate the number of passengers affected by the traffic delay. The potential benefits of implementing transit priority measures at these locations was estimated based on two components:

- Saving of bus time – this component was valued at \$75 per hour as a measure of operating cost savings and some contribution to a reduction in capital costs;
- Passenger travel time savings – these savings were based on an average value of time of \$10 per hour. This value was deemed appropriate since the delay occurs during the peak period and predominately affects trips to work.

Exhibit 7 lists the locations evaluated to date that have expected annual benefits in excess of \$5,000. The annualized value of these benefits would in many cases be sufficient to offset the capital costs of the transit priority measure. The locations in Exhibit 8 are listed in descending order of estimated annual benefit.

TransLink and municipal staff should continue to use this approach to assess the need for transit priority measures and allocate available resources to beneficial projects.

Geometric changes to the road network and site specific transit priority measures may also be required to facilitate the implementation of revised transit routings. The proposed

route restructuring in south Burnaby will require improvements to Byrne Road and possible revisions to signal operations and intersection geometrics at Boundary Road and Rumble.

Exhibit X6

TRANSIT PRIORITY MEASURES WITH MEASURABLE ANNUAL BENEFITS										
Location	Problem	Direction of Travel	Time Period	Delay (min)	Routes Affected	# of Buses/Weekday	Average Passenger Load	Annual Cost of Bus Delay	Annual Cost of Passenger Delay	Transit Priority Measure
6 th Ave at Stewardson Way	Traffic queuing	WB	AM	3.5	154	6	20	\$ 13,125	\$ 33,250	Queue jumper (in progress)
					155	6	18			
Columbia St. at McBride Boul.	Traffic queuing	NB	PM	3.5	112	8	20	\$ 8,750	\$ 23,333	Queue jumper
6th Ave. at 8th Street	Traffic queuing	EB	PM	1.5	154	6	24	\$ 5,625	\$ 19,500	Bus activated signal/queue jumper warranted?
					155	6	28			
WB Hastings to SB Duthie	Delay turning left	WB	PM	1	144	12	30	\$ 3,750	\$ 15,000	Bus activated left turn signal
8th Ave. at McBride Boul.	Traffic queuing	EB	PM	3	154	6	10	\$ 5,625	\$ 7,500	Queue jumper
6 th Ave. at 6 th Street	Left turn delay	EB	PM	1	154	6	10	\$ 3,750	\$ 9,000	Queue jumper
						101	6			
NB Rosser to EB Hastings	Delay turning right	NB	PM	1	130	16	8	\$ 5,000	\$ 5,333	Bus Activated Signal
8th Ave. at 8th St.	Traffic queuing	WB	AM	1.5	101	6	20	\$ 2,813	\$ 7,500	Queue jumper
Kensington at Sprott	Turning delay	SB to WB	AM	1	110	6	10	\$ 4,375	\$ 5,833	Queue jumper
						144	8			
6 th Ave. at Cumberland	Traffic queuing	EB	PM	1	102	4	10	\$ 3,125	\$ 4,917	Queue jumper
						155	6			
Gilpin to Royal Oak	Delay turning left	WB to SB	AM & PM	0.67	110	12	12.5	\$ 3,015	\$ 4,196	Bus activated signal (installed or in progress)
6th Street at Royal Avenue	Buses delayed at intersection	SB	PM	0.5	106	11	18	\$ 1,719	\$ 4,125	Queue jumper and lane marking
Burnaby City Hall Bus Loop to Deer Lake Parkway	Delay turning left	WB to SB	AM	0.5	110	6	12	\$ 2,188	\$ 3,500	Bus activated signal
						144	8			

Resource Requirements & Performance Targets

TransLink has applied the regional transportation model to develop transit ridership and mode share projections for Burnaby and New Westminster in 2004, based on a transportation network that includes the regional and local transit service improvements in 2002 to 2004. The planned service improvements, ridership and projected transit market share of travel are shown in the following Table.

Transit ridership in Burnaby and New Westminster is projected to increase significantly between 2002 and 2005 in response to planned service improvements. By the end of 2004 TransLink will add the following resources:

- 47,000 annual revenue train hours of rapid transit (20% increase in SkyTrain hours) ;
- 46,000 hours of annual bus service hours (7% increase);
- 16 more peak buses (12% increase); and
- Bus operating and debt service costs will increase by about \$4 million (8% increase).

Key targets for transit trips to, from and within Burnaby New Westminster to be achieved by the plan before the end of 2004 are:

- Increasing the number of peak hour transit trips by 23% or about 2,500 trips;
- Increasing the total number of transit trips made annually from 32.9 to 40.6 million trips, or by 23%;
- Increasing transit's share of trips during the AM peak hour from 11% to 12.7%;
- Increasing transit's share of trips between Central Broadway and Burnaby New Westminster from 18.2% to 22.8% or by 25%.

The model results indicate that ridership increases will be higher in percentage terms than planned service improvements. Consequently the cost per transit ride is projected to drop from \$1.58 to \$1.37, a 13% decrease. The cost per new ride is also projected to be relatively low at \$1.39. These results suggest that despite significant service improvements, transit service will remain cost efficient.

Results from rider satisfaction surveys early in 2002 on routes serving Burnaby New Westminster indicate that prior to service changes undertaken as part of the 2002 Transportation Plan, bus services were meeting expectations in terms of direct routes with few transfers and exceeding expectations in terms of overcrowding and trip duration.

As indicated in the following Table, the score for direct routes was 8.4 out of 10, with customers placing an importance of 8.4 on this attribute. The score for overcrowding was 7.3 with customers placing an importance of 7.2 on this attribute and trip duration received a score of 8.4 with an importance of 7.8.

All other attributes received scores that were less than customers' expectations. Frequency received a score of 7.5 with an importance of 8.6, and on time service received a score of 7.9 with an importance of 8.5.

In the rider satisfaction survey undertaken in the fourth quarter of 2002, after the opening of the Millennium SkyTrain, scores for a number of bus service attributes dropped, including trip duration, frequency of service, on-time service, bus overall service and even overall SkyTrain service satisfaction. Only direct routes and overcrowding remained stable. These results are surprising given that bus frequencies improved or remained the same on every route within Burnaby New Westminster except for Route #144 midday weekday service (as a result of an expected shift of demand to SkyTrain and Route #145 for trips between Metrotown and SFU). It is also surprising, given that trip duration and reliability improved for the majority of transit users traveling to, from and within Burnaby New Westminster. The drop in satisfaction may however reflect dissatisfaction over the increased number of transfers required with the introduction of SkyTrain and the reduction in direct bus service to downtown Vancouver.

Over time customer satisfaction ratings are expected to improve as customers become habituated to the new travel patterns and as customers begin to appreciate the speed and reliability of a transit system that is fully integrated with improved SkyTrain.

The transit ridership and customer satisfaction targets described above will be monitored and reported regularly over the next three years and will be used to identify adjustments to specific services and resource levels that may be needed.

RIDER SATISFACTION RATINGS AND TARGETS				
Rider Satisfaction Ratings prior to and directly after Area Plan Implementation			Performance Targets-	
Attribute	Qtr 1 2002	4th Qtr/2002	4th Qtr/2003	4th Qtr/2004
Direct Routes	8.4	8.4	8.4	8.4
Trip Duration	8.4	8.3	8.4	8.5
Frequency of Service	7.5	7.2	7.5	7.6
On Time Service	7.9	7.6	7.9	7.9
Overcrowding	7.3	7.3	7.3	7.3
Bus Overall	8.1	7.7	7.8	7.9
SkyTrain Overall	8.3	8.0	8.3	8.4

RESOURCE REQUIREMENTS & RIDERSHIP TARGETS					
	2000 Base Service	2004. Base Service	2004 with BNW Plan Improvements	% Change (Plan vs. 2000 Base)	% Change (Plan vs. 2004 Base)
Resources					
Annual Bus Service Hours	628,700	643,000	675,000	7%	5%
Peak Buses	131	136	147	12%	8%
Annual Total Bus Cost (\$ millions)	\$51.89	\$53.25	\$55.87	8%	5%
Annual Fare Revenue (\$ millions)	\$58.89	\$69.27	\$72.67	23%	5%
Performance Targets					
AM Peak Hour Ridership					
-From Burnaby/New Westminster	3,833	4,606	4,751	24%	3%
-To Burnaby/New Westminster	3,407	4,093	4,302	26%	5%
-Within Burnaby/New Westminster	3,731	4,195	4,491	20%	7%
Total	10,971	12,894	13,544	23%	5%
Annual Ridership to/from BNW (mil)	32.9	38.7	40.6	23%	5%
Annual New Transit Trips (mil)	n/a	5.8	7.72		
Rides per Service Hour	52.4	60.2	60.2	15%	0.1%
Cost per Ride	\$1.58	\$1.37	\$1.37	-13%	0.1%
Cost per New Ride			\$1.39		
Cost Recovery***	113%	130%	130%	15%	0%
AM Peak Hour Transit Market Shares					
All Trips to/from BNW	11%	12.1%	12.7%	16%	5%
Trips originated from BNW	14.3%	15.8%	16.3%	14%	3%
Trips Destined to BNW	9.3%	10.7%	11.2%	21%	5%
Trips Within BNW	10.2%	10.7%	11.5%	12%	7%
Trips to/from Metrotown	17.6%	18.3%	19.1%	8%	4%
Trips to/from Downtown New Westminster	25.1%	25.4%	25.7%	2%	1%
Trips to/from BCIT	19.0%	20.4%	23.4%	23%	15%
Trips to/from SFU	23.2%	26.4%	27.0%	16%	2%
Trips to/from Edmonds	14.1%	16.7%	16.9%	20%	1%
Trips to/from Lougheed	11.0%	11.6%	12.1%	10%	5%
Trips to/from Brentwood	8.9%	10.4%	11.4%	28%	105
Trips Between Downtown Vancouver & BNW	43.1%	46.8%	47.5%	10%	1%
Trips Between Central Broadway	18.2%	22.0%	22.8%	25%	3%
Trips Between NE Sector & BNW	7.2%	7.3%	7.3%	1%	1%

* Total cost includes bus operating and debt service costs, but does not include any SkyTrain costs

** Annual new transit trips represent new transit trips versus 2000 Base Service

*** Cost recovery does not account for costs associated with operation of SkyTrain and West Coast Express

Appendix A

The following list describes the differences between the service options chosen for implementation in fall 2002 and those tested through research, transportation computer modeling and public consultations. The reasons for the difference between the options originally tested and those implemented is also provided.

Routes #10 & #123

The original concept for Route #123 (New Westminster Station / Stanley Park) was to split the route at Brentwood Station and to have the Vancouver portion of the route fulfill the service requirements of Route #10 (UBC / Hastings / Downtown) east of downtown Vancouver. Although the regional model suggests that Brentwood Station will be a major transfer point; this concept would potentially force an additional transfer on passengers traveling between the Canada Way corridor and the Hastings corridor within Burnaby. In addition, the original concept would reduce effective utilization of the trolley fleet. Therefore, the proposed routing for Route #123 is through Brentwood Station to a terminal at Kootenay Loop with transfers available there to both the east side of Vancouver and the North Shore. Route #10 would retain its current routing with some reduction in service, offset by an increase in service on Route #135 (SFU / Stanley Park).

Routes #102, #103, & #108

Given the demand characteristics of these routes, the long-term strategy is to convert them to Community Shuttle operations. The implementation of this type of service is not possible within the time constraints of the 2002 Transportation Plan; however, in response to community requests to relocate Route #106 (New Westminster Station / Metrotown) off Carnarvon Street, Routes #102 (Fraserview / New Westminster Station) and #108 (8th Avenue / New Westminster Station), will be restructured within downtown New Westminster to provide service coverage to St. Mary's Hospital in place of Route #106. These revisions to Routes #102 and #108 are proposed to remain once the routes are converted to Community Shuttle operations.

Route #110

In response to community requests the proposed rerouting of Route #110 (Metrotown Station / Lougheed Station) off Bond Street and Nelson Avenue has been dropped. It is proposed that the objective of providing transit service on Grange Street between Nelson Avenue and McKay Avenue be met through a future minor adjustment to Route #144 (SFU / Metrotown Station).

Routes #114, #115, and #116

given the time constraints of the 2002 Transportation Plan and the slow down of development in the Glenlyon / Big Bend employment area, the restructuring of routes in South Burnaby were included in the second part of the ATP. It is proposed that these changes be made in 2003.

Route #130

The North Shore ATP recommended that Route #130 (Metrotown Station/ Kootenay Loop) be used to provide service to the North Shore in place of Route #28 Joyce Station/Capilano College). This recommendation is supported by the Burnaby/ New Westminster ATP; however, the successful implementation of this service change will require transit priority measures at Hastings and Cassiar to ensure that traffic congestion to and from the Second Narrows Bridge does not significantly impact remaining operations on Route #130. Therefore, this change is not included in the 2002 Transportation Plan but remains part of the ATP recommendations for the longer term (3 to 5 years).

Route 134

There are two adjustments to Route #134 (Brentwood Station / Lougheed Station) relative to the originally tested option: an extension of the route in the east to provide service along Lougheed Highway between Lougheed Station and Production Way Station, and the truncation of service on Sperling Avenue between Curtis Street and Hastings Street. The objective of the first change is to provide service coverage to some high-density residential developments on Lougheed Highway between Production Way and Austin Road. This change will have limited impact on resource requirements. The second change is required because the existing road network is unable to accommodate a right hand turn bus movement from eastbound Hastings Street to southbound Sperling Avenue without encroaching on the northbound lanes. This change will cause difficulties for passengers wanting to access Routes #160 (Vancouver / Port Coquitlam Station) and #135 from Sperling Avenue. It is considered a temporary solution as the City Burnaby seeks to resolve the problem.