

2013 Bus Service Performance Review

Summary Report



Contents

1. Overview	4	APPENDIX A – Report Definitions and Assumptions
Purpose of the Bus Service Performance Review.	4	
How We Analyze Bus Service Performance.	4	APPENDIX B – How to Read Route Summaries
2. Planning Context – Base Plans and the Focus on Optimizing Service	7	APPENDIX C – 2013 Route Summaries
3. Transit Service Performance	9	APPENDIX D – How Route Summaries are Created
Bus System Performance	9	
Sub-Regional Performance	11	
Route-by-Route Performance	15	
4. Service Change Highlights		
Vancouver / UBC – Line 025	17	
Burnaby / New Westminster – Line 106.	18	
North East Sector – Lines 159 / 169 / 177 / 188	19	
South of Fraser – 555 Hwy 1 Express Bus	20	
North Shore – Line 240.....	21	
Richmond – Line 410.....	22	
Maple Ridge / Pitt Meadows – Lines 701 / 791.	23	
South Delta / Ladner / Tsawwassen – Line 601	24	
5. Outlook for 2014 - 2015.....	25	

1. Overview

Purpose of the Bus Service Performance Review

TransLink regularly reviews and modifies transit service to promote system efficiency, effectiveness and productivity. TransLink's Bus Service Performance Review is used to inform the management of the transit network and guide decision-making regarding the allocation of transit service resources. The annual review tracks trends in bus ridership and service productivity.

Transit ridership is impacted by many external factors beyond TransLink's control: immigration, fuel prices, land use changes, land prices, employment levels, among others. This report demonstrates TransLink's efforts to accommodate the growing transit needs with existing resources through service optimization. The Service Optimization Program began in 2010, and it is the process where TransLink reviews service performance and determines how to continue to move more people more efficiently, while shifting service to areas that need it most.

How We Analyze Bus Service Performance

ANALYSIS AT MULTIPLE SCALES

The review of the bus-based transit network is conducted on three different scales: system wide, sub-regionally and route-by-route.

System wide Analysis

The system wide analysis looks at larger, macro-level trends in system performance. It provides an opportunity to determine a base line for comparing system values for boardings per revenue hour, capacity utilization and cost per boarded passenger. It also categorizes routes into top and bottom performers. These values contribute to further analysis of the system on a sub-regional and route-by-route basis.

While the transit system functions as a network, in some cases it is useful to review performance on a smaller, sub-regional basis. Through a sub-regional analysis we can better understand ridership and productivity

TransLink's Vision and Goals

As the integrated, multi-modal transportation authority for Metro Vancouver, TransLink plans and delivers the transit network to help meet the unique transportation needs of this region. Our vision is to create a better place to live built on transportation excellence. TransLink's strategic goals are outlined in the Regional Transportation Strategy. They reflect TransLink's critical role in managing a balanced transportation system to achieve regional goals for the environment, the economy, and our society.

trends at a more detailed level. This can be useful when identifying more localized impacts of major additions to the transit network, like the introduction of a new rapid transit line, a new B-Line service, or restructuring of service through an area transit plan.

For the purpose of this report, the Metro Vancouver area has been divided into 8 sub-regions (see below). These sub-regions are consistent with those used in TransLink's Area Transit Plan process, with the exception of Ladner / South Delta / Tsawwassen which has been separated from the South of Fraser to allow a more detailed analysis of ridership and performance in that area.

- Burnaby / New Westminster
- Ladner / South Delta / Tsawwassen
- Maple Ridge / Pitt Meadows
- South of Fraser (includes North Delta, Surrey, White Rock, and the City and Township of Langley)
- Northeast Sector (includes Anmore, Belcarra Coquitlam, Port Coquitlam and Port Moody,)
- North Shore (includes City and District of North Vancouver, West Vancouver, Bowen Island and Lions Bay)

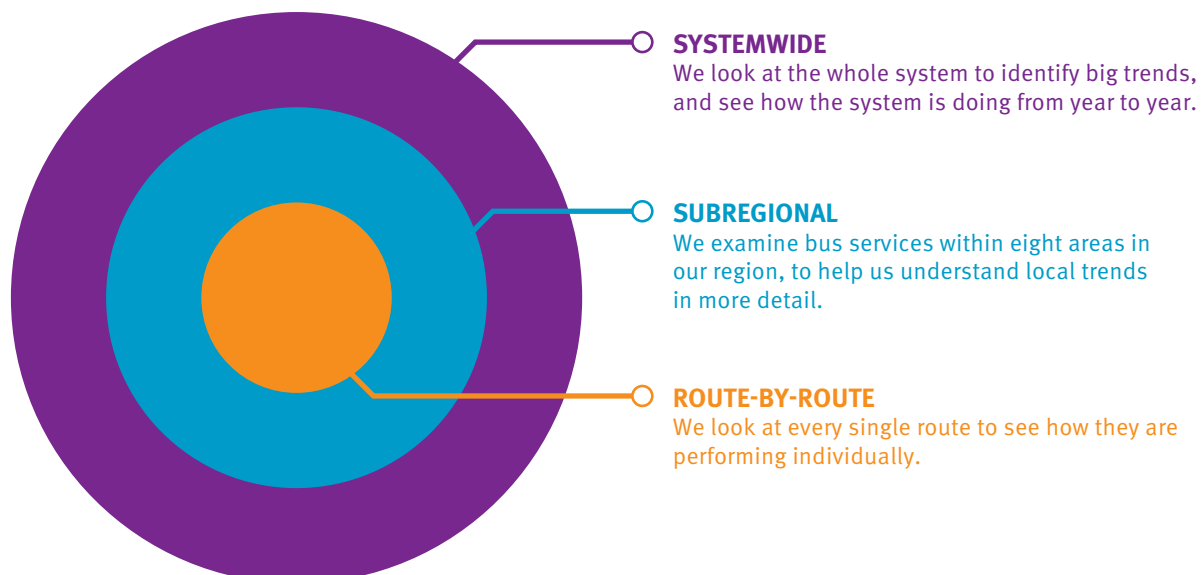
- Richmond (includes Sea Island)
- Vancouver / UBC

Route-by-Route Analysis

Analysis on a route-by-route basis gives an indication of how individual components of the system are performing. It also allows for the observation of specific service changes made in the past and their outcomes, and aids in identifying potential future service changes.

Individual transit services are evaluated with the same criteria as the system wide analysis.

A two page 'route summary' is prepared for each bus route in the system (see Appendix C); and Section 4 of this report presents highlights of specific service changes and their outcomes.



USING MULTIPLE PERFORMANCE INDICATORS

TransLink uses three performance indicators when measuring bus service performance. Each provides a slightly different view of how services are performing in terms of productivity and efficiency.

Boardings per Revenue Hour¹



Boardings per revenue hour¹ is a performance indicator, used in the transit industry, that measures the total volume of ridership as compared to the supply of transit service. In other words, boardings per revenue hour accounts for total passenger activity, those loading and disembarking the bus, and includes the amount of time that a vehicle is on the road. It does not take into consideration the differences in allowable passenger volume or operating cost for each vehicle type. For example, during peak periods articulated buses can accommodate 85 passengers, as compared to 55 passengers on 40' buses, or 20 passengers on minibuses. The boardings per revenue hour measure does not account for these differences. With this in mind, boardings per revenue hour should be used in conjunction with other performance indicators to give a more holistic view of service performance.

Capacity Utilization



Capacity utilization measures the total number of passenger boardings compared to the total number of spaces provided by the transit system.

Capacity utilization considers the size of the vehicle and measures passenger turnover or seats being used multiple times within the same bus trip. It is possible for capacity utilization to be greater than 100 per cent. This

would indicate a highly productive service with multiple passenger boardings and alightings using the same number of spaces. This measurement does not consider the length of time a vehicle is on the road. As such, it favors longer services, with a greater number of stops, which have a greater opportunity to generate passenger activity along the route. Ideal vehicle capacity is based on the Transit Service Guidelines for maximum number of passengers by bus type and time period.

Cost per Boarded Passenger



Cost per boarded passenger measures the cost of providing revenue service compared to the total number of passengers using that service [Annual Service Cost / Annual Boardings]. Cost per boarded passenger considers the length of time a vehicle is in service and the different operating costs per vehicle type. It also considers passenger boardings, but should not be confused with cost recovery as it does not include fare revenue from ridership.

Negative changes to cost per boarded passenger indicate cost savings, which have a positive effect on bus performance. For this reason, a negative trend under this metric is highlighted as a positive performance outcome in this report.

See Appendix A for further discussion on how performance indicators are calculated and updated every year.

¹ Boardings per revenue hour is different from boardings per service hour (service hours include trips to- and from- bus depots, called deadhead). This accounts for any differences between the values in this system performance review and values reported through the TransLink Transportation and Financial Plan.

2. Planning Context – Base Plans and the Focus on Optimizing Service

The 2014 Base Plan has an emphasis on reducing costs and spending wisely to move more people more efficiently using existing revenue sources.

Continued Focus on Optimization

In support of the organization's focus on efficiency and effectiveness, TransLink has been systematically reviewing the performance of the transit system and strategically reallocating service resources where they are most needed. The table below provides a summary of the resources (in annual revenue hours) strategically re-invested from lower performing services to higher performing services by calendar year:

Year	Strategic Re-investment of Annual Revenue Hours
2010	52,000
2011	178,000
2012	56,000
2013	54,000
Total	340,000

Schedule Efficiencies

Coast Mountain Bus Company also achieved other efficiencies including adjusting schedules to reduce route and driver down time, and rightsizing the vehicle fleet.

Rapid Transit Service Efficiencies

During 2013, weekend service levels on the Expo and Millennium lines were also adjusted to better reflect rider demand on the weekend.

Service Expansion

Service expansion projects implemented in 2013 include the introduction of the Highway 1 Express Bus service between Carvolth and Braid Station (route 555) and introduction of the 96 B-Line service; connecting Guildford, Surrey Central and Newton Exchange.

HIGHLIGHTS OF SERVICE OPTIMIZATION

TransLink's Service Optimization program has implemented over 300 individual projects since the beginning of the program in 2010. Service optimization measures have been implemented to benefit customers across the region. Resources have been reinvested to reduce crowding along route 410 in Richmond, on routes 25, 41 and the 99 B-Line in Vancouver, along route 106 in Burnaby / New Westminster and the 319 in the South of Fraser. Resources have also been invested in routes 239 and 240 as part of service optimization - aligned with the vision of the North Shore Area Transit Plan - and to strengthen interregional connections such as the 601 and 701 that serve South Delta / Ladner / Tsawwassen and Maple Ridge / Pitt Meadows respectively.

In 2013 service optimization reinvestments enabled the introduction of new services such as the 188 along Coast Meridian and David Avenue in the North East Sector, and the extension of the 335 Fleetwood to Newton Exchange along 72nd Avenue. These new services were introduced using existing resources made available through reductions to under-performing services.

More details on the outcomes of these transit service changes are available in Section 4: Service Change Highlights.

IMPACT OF SERVICE CHANGES ON REGIONAL ALLOCATION OF BUS RESOURCES

The optimization of service across the Metro Vancouver region has resulted in a long-term positive effect in transit service performance across a number of performance indicators.

The re-allocation of service from lower performing services to higher performing services has had some impact on the regional allocation of bus resources.

The table below shows that impacts in most sub-regions have been minor – between zero and two per cent – with four exceptions:

- Richmond experienced a decrease of 3.9% as a result of ongoing adjustments after Canada Line introduction;

- The North Shore received additional resources associated with service optimization and the implementation of projects outlined in the North Shore Area Transit Plan;
- South of Fraser received additional resources with the introduction of the new 555 Port Mann Express and 96 B-Line as approved in the 2013 Base Plan.
- Maple ridge / Pitt Meadows saw a reduction in Annual Revenue Hours of 2.3% (2,000 annual revenue hours). The cost savings were found as part of the optimization of bus schedules and do not affect customer-facing service time.

Impact of Service Changes on Regional Allocation of Bus-Based Transit Resources
















Sub-Region	Annual Revenue Hours (Bus Only)		% Change (2013 versus 2010)
	2010	2013	
Vancouver / UBC	1,449,000	1,467,000	1.2%
Burnaby / New Westminster	469,000	471,000	0.4%
Northeast Sector	307,000	312,000	1.6%
South of Fraser	629,000	698,000	11.0%
North Shore	348,000	379,000	8.9%
Richmond	309,000	297,000	-3.9%
Ladner / South Delta / Tsawwassen	56,000	57,000	1.8%
Maple Ridge / Pitt Meadows	87,000	85,000	-2.3%

3. Transit Service Performance

When reviewing the performance of the bus network it is important to put changes to service hours, fare revenue and passenger boardings in context of the entire transit network. The following table summarizes the results between 2010 and 2013 for all transit modes. The information is sourced from TransLink's Financial and Strategic Planning data.

The findings are consistent in scale and magnitude with the findings of the Bus Service Performance Review, which are based on Automatic Passenger Counter data.

2010 – 2013 Financial and Service Performance Results

		2010	2011	2012	2013	1 Year Change (2013 /2012)	3 Year Trend (2013 /2010)
All Transit Modes	 System wide Fare Revenue (\$ Millions)	\$410	\$431	\$446	\$478	 +7%	 +17%
	 System wide Boardings per Service Hour	55	56	57	57	 0%	 +4%
	 System wide Boardings (Millions)	347	353	362	354	 -2%	 +2%
Bus Only	 Bus Boardings (Millions)	220	224	232	228	 -2%	 +3%
	 Bus Boardings per Service Hour	44	46	47	47	 0%	 +6%

SOURCE: TRANSLINK FINANCIAL PLANNING & TRANSLINK SYSTEM ANALYTICS, NOT AUTOMATED PASSENGER COUNTER DATA.

Ridership estimates for 2013 indicate a decline likely due in part to the 2013 fare increase and background economic factors. Fare revenues increased by \$32 million dollars, or 7%, between 2012 and 2013, contrasted with a reduction of 8 million in system wide boardings (-2% across all modes), within the same period.

Despite this short-term dip in system wide boardings, productivity across all modes was maintained at 57 boardings per revenue hour. This was due to service optimization efforts within the rail and bus systems. Initiatives include reductions to weekend service along Expo/Millennium lines by three per cent of total SkyTrain service hours; and adjustments to bus schedules to better manage non-revenue time which does not affect customer service levels.

The performance of the transit system – all modes – presents a long-term positive trend in terms of boardings and productivity, which grew by two and four per cent respectively between 2010 and 2013. Similarly, bus boardings grew three per cent and bus productivity, in boardings per service hour, grew six per cent within the same period.

TransLink will continue to monitor the performance of the transit system to determine if the downturn is a short-term change due to the 2013 fare increase or a longer-term trend.

BUS SYSTEM PERFORMANCE

Analysis of the bus system provides an opportunity to determine average system values for performance indicators like boardings per revenue hour, capacity utilization and cost per boarded passenger (see Appendix A for definitions).

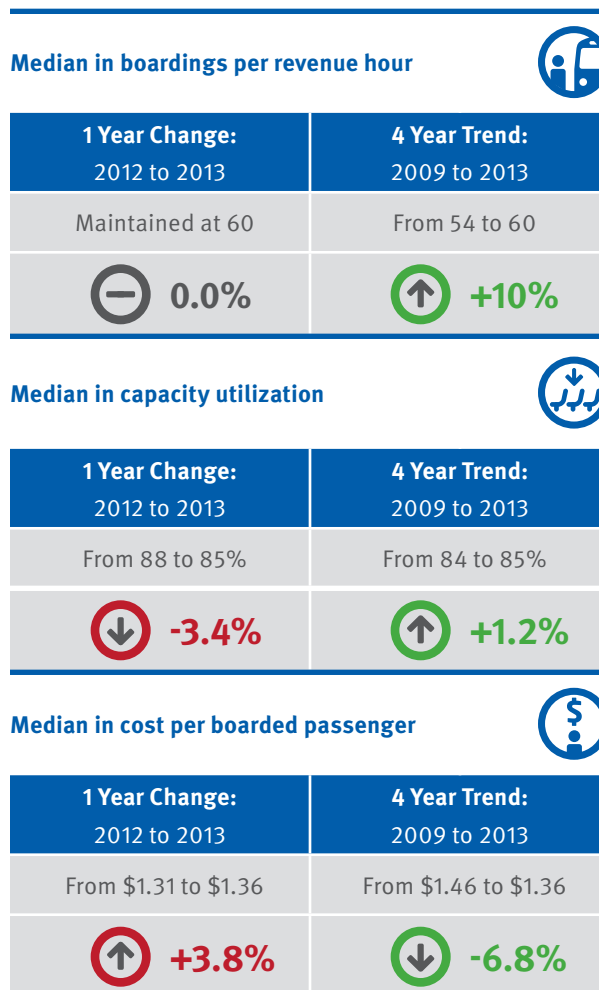
OVERALL FINDINGS ON BUS SYSTEM PERFORMANCE

The review of Bus System Performance confirms a four-year trend of positive gains in performance indicators. However, during 2013, the performance of the bus system experienced a slight downturn in capacity utilization and cost per boarded passenger as compared to 2012,

likely associated with the 2013 fare increase. Key findings between 2012 and 2013 include:

- Median boardings per revenue hour remained steady at 60;
- Median capacity utilization figures decreased to 85% from 88%;
- Median cost per boarded passenger increased by 3.8% to \$1.36 from \$1.31.

TransLink will continue to monitor the performance of the bus system to determine if the downturn is a short-term change due to the 2013 fare increase or a longer-term trend. The following figure summarizes trends in performance within the bus system:





Sub-Regional Performance

In addition to analyzing performance of the overall bus system, the performance of different sub-regions is also tracked. Variation in performance across sub-regions is expected due to different levels of transit demand, urban structure, land use and network design.

OVERALL FINDINGS ON SUB-REGIONAL PERFORMANCE









The findings on sub-regional bus performance are aligned with those from the system wide analysis. Several sub-regions experienced a small reduction in bus ridership between 2012 and 2013; however, most sub-regions have achieved long-term gains between 2010 and 2013. Key findings are discussed as follows:

- All sub-regions, with the exception of Burnaby / New Westminster, have seen a three-year trend of positive gains in annual boardings (2013 vs 2010).
- Boardings in Ladner / South Delta / Tsawwassen; South of Fraser; Maple Ridge / Pitt Meadows; and Richmond grew more than 10% between 2010 and 2013. The compound annual growth rate² in these four sub-regions is higher than three per cent per year, making them the fastest growing areas in terms of bus boardings.
- Between 2012 and 2013, all sub-regions experienced either loss in ridership or marginal growth (less than 2.5%). TransLink will continue to monitor ridership to determine if the downturn is a short-term change due to the 2013 fare increase or a longer-term trend.

The following table summarizes sub-regional trends in ridership within the bus system:

² The compound annual growth rate indicates how much ridership growth is experienced on average, per year, within the given sub-region.

2010 – 2013 Bus Ridership Trends by Sub Region

Sub-region	Annual Bus Boardings (Millions)				Compound Annual Growth Rate*	1 Year Change [2013 / 2012]	3 Year Change [2013 / 2010]
	2010	2011	2012	2013			
Vancouver / UBC	129.4	130.8	134.8	132.0	1%	-2%	 2%
Burnaby / New Westminster	32.3	32.0	31.7	32.4	0%	2%	 0%
Northeast Sector	13.5	14.0	14.4	13.8†	1%	-4%†	 2%
South of Fraser	29.0	31.3	32.7	33.3	5%	2%	 15%
North Shore	14.7	15.0	15.1	14.9	1%	-1%	 2%
Richmond	15.1	15.8	16.5	16.6	3%	1%	 10%
Ladner / South Delta / Tsawwassen	1.6	1.8	2.0	2.0	6%	-1%	 21%
Maple Ridge / Pitt Meadows	2.8	3.0	3.1	3.1	4%	1%	 11%

* The compound annual growth rate indicates ridership growth experienced on average, per year, within the given sub-region

† 2013 ridership in the Northeast Sector does not include positive effects from the opening of new services (e.g. 188) in Dec. 2013

As discussed above, most sub-regions presented a long-term trend of positive gains in annual boardings since 2010. Increased boardings on the bus system – 3 per cent growth between 2010 and 2013 – along with optimization of bus services resulted in a reduction in cost per boarded passenger in most sub-regions; only Vancouver / UBC and South of Fraser experienced small increases in cost per passenger.

The table below presents bus-service supply (revenue hours), bus-service demand (boardings) and their corresponding cost per boarded passenger, organized by sub-region. Key findings between 2010 and 2013 are discussed as follows:









Vancouver / UBC increased ridership by 2% with a 3.9% increase in cost per boarding due to increased investments in annual revenue hours (more bus service) to address chronic overcrowding. This remains the sub-region with the lowest cost per boarded passenger.

Burnaby / New Westminster annual revenue hours and annual bus boardings remained the same; however, it experienced a 3.2% reduction in cost per boarded passenger, partially due to cost savings resulting from increased utilization of mini-buses.

Northeast Sector revenue hours increased by 1.6% and cost per boarded passenger decreased by 4.2%. This could be due to a 2.2% increase in ridership and changes in vehicle type from conventional bus to minibus service.

South of Fraser experienced the highest growth in annual passenger boardings (4.3 million or 15%) and received a significant amount of new service (11% growth in annual revenue hours). Cost per boarded passenger decreased by 1.7%.

2010 – 2013 Bus Service Performance by Sub-Region

Sub-region	Annual Revenue Hours (1000's)			Annual Boardings* (Millions)			Median Cost per Boarded Passenger		
	2010	2013	% Change	2010	2013	% Change	2010	2013	% Change
Vancouver / UBC	1,449	1,467	1.2%	129.4	132.0	2.0%	\$1.04	\$1.08	 +3.9%
Burnaby / New Westminster	469	471	0.4%	32.3	32.4	0.3%	\$1.34	\$1.29	 -3.2%
Northeast Sector	307	312	1.6%	13.5	13.8	2.2%	\$2.08	\$1.99	 -4.2%
South of Fraser	629	698	11.0%	29.0	33.3	15.0%	\$1.93	\$1.90	 -1.7%
North Shore	348	379	8.9%	14.6	14.9	2.0%	\$1.53	\$1.69	 +10.3%
Richmond	309	297	-3.9%	15.1	16.6	9.8%	\$1.80	\$1.52	 -15.6%
Ladner / South Delta / Tsawwassen	56	57	1.8%	1.6	2.0	20.6%	\$2.86	\$2.55	 -10.8%
Maple Ridge / Pitt Meadows	87	85	-2.3%	2.8	3.1	11.4%	\$2.47	\$2.25	 -8.7%

* Source: Automated Passenger Counting Data

Richmond received 3.9% fewer annual revenue hours as a result of ongoing adjustments after the introduction of the Canada Line. Combined with a 9.8% growth in ridership, this has resulted in a 15.6% reduction in cost per boarded passenger.

Maple Ridge / Pitt Meadows thanks to schedule efficiencies that do not affect customer-facing service; this sub-region experienced a reduction of annual revenue hours of -2.3%. Ridership increased by 11.4%, primarily concentrated in commuter-oriented services – which had unused capacity – leading to an 8.7% decrease in cost per boarded passenger. TransLink will continue monitoring to ensure that overcrowding is not a concern in these services.

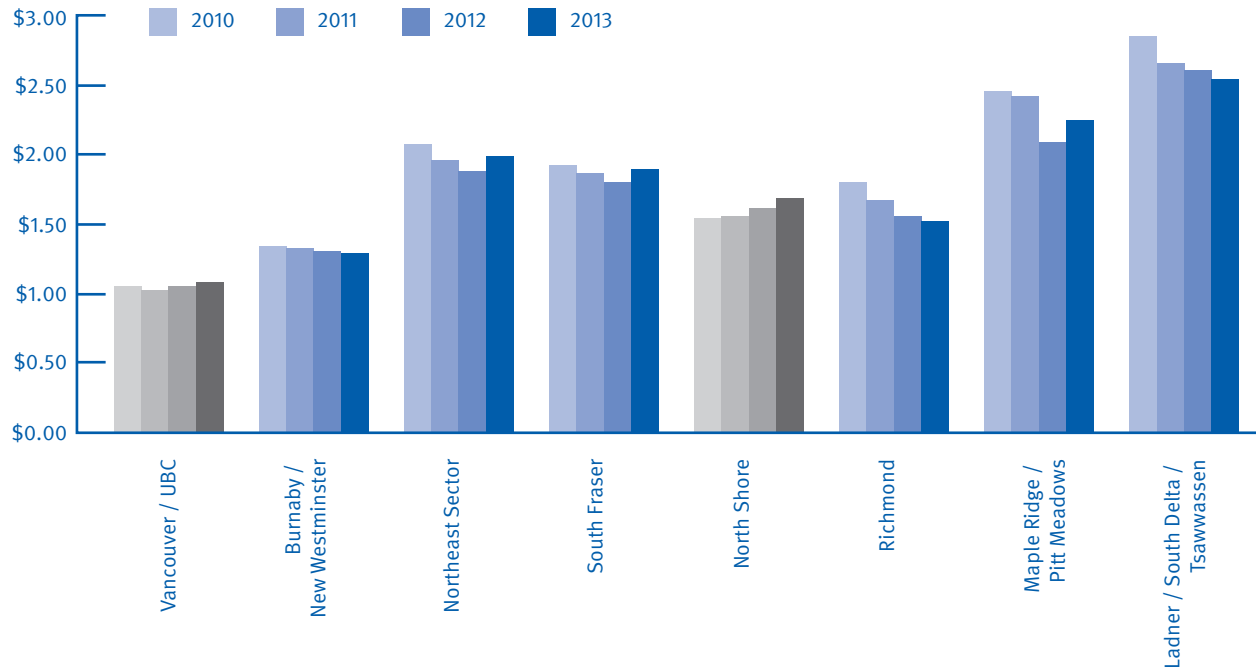
North Shore³ received additional resources (8.9% increase in annual revenue hours) to support ridership growth (2.0%), service optimization, and delivery of initiatives outlined in the North Shore Area Transit Plan. The resulting 10.3% increase in cost per boarded passenger indicates that service investments may require more time to be utilized.

Ladner / S. Delta / Tsawwassen bus revenue hours remained the same and ridership increased by 20.6%. This growth is concentrated in commuter-oriented services, which connect to the Canada Line and had unused capacity, resulting in a 10.8% reduction in cost per boarded passenger. TransLink will continue monitoring to ensure that overcrowding is not a concern in the area.

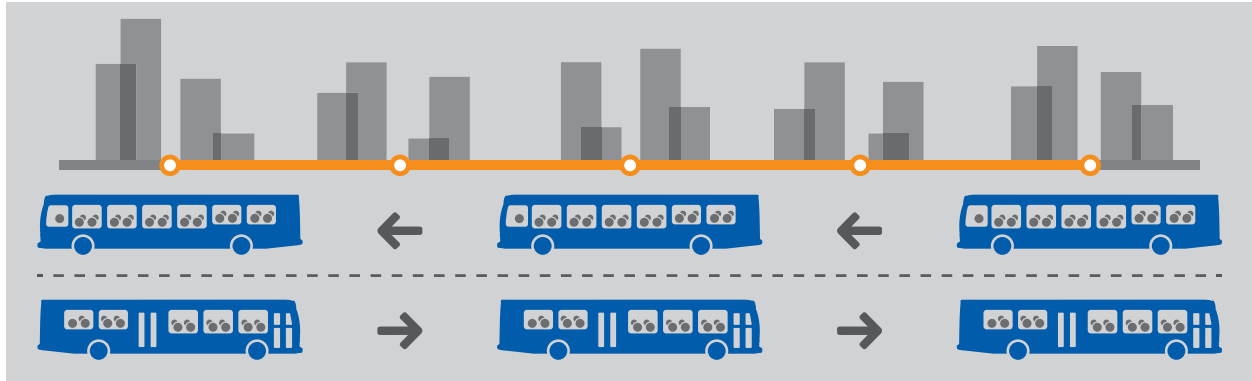
³ Due to data availability issues, the bus performance evaluation of the North Shore does not include West Vancouver Services.

The following figure summarizes the above discussion by presenting sub-regional performance trends in cost per boarded passenger between 2010 and 2013:

**2010 – 2013 Sub-regional Trends in Bus Performance*
(Cost per Boarded Passenger)**



*Sub-regions highlighted in blue experienced reductions, while those highlighted in black experienced increases in cost per passenger (2013 vs 2010)



Route-by-Route Performance

Analysis on a route-by-route basis gives an indication of how individual components of the network are performing. A route-by-route analysis is also an opportunity to understand the impacts of service optimization. It allows observation of specific service changes made in the past and their outcomes, and aids in identifying future opportunities for strategic re-investment. A detailed summary for each route in the network has been prepared.

Three appendices have been prepared to document the route-by-route analysis:

- **Appendix A** includes information on assumptions, definitions, performance indicators, and methodological improvements implemented in 2013;
- **Appendix B** includes instructions on how to read route summaries;
- **Appendix C** includes all 217 route summaries; and
- **Appendix D** includes the methodological details on how route summaries are prepared.

The criteria by which individual transit services are evaluated are related to the performance thresholds determined through the system wide analysis. In this manner, the analysis of the transit system on all

three Levels: system wide, sub-region and by route, is consistent and coordinated.

Bus services across the region serve a variety of functions within the transit network, and TransLink expects different levels of performance from different routes. Many low performing services are maintained in order to maintain basic access to the transit network in lower demand areas.

At the same time, TransLink has a mandate to maximize the use of existing resources and utilizes this data to identify the highest and lowest performing services under different categories and indicators, and makes evidence-based decisions for service reductions and service reinvestments.

The following section highlights the outcomes of some of the most significant service changes across the region.

4. Service Change Highlights

As part of the ongoing management of the transit network, between 2010 and 2013 TransLink re-invested approximately 340,000 annual revenue hours⁴ in over 300 individual service changes across the region. This section features the outcomes of some key service changes and includes at least one service change per sub-region. Highlights include service optimization projects, the delivery of Area Transit Plan priorities and expansion projects. To see the detailed route-by-route outcomes of all service changes please refer to the route summaries in Appendix C.

⁴ The large majority of 340,000 revenue hours are associated with service optimization projects and include some resources associated with the delivery of priorities identified in the North Shore Area Transit Plan, but do not include expansion projects outlined in TransLink's Financial Base Plan

Vancouver / UBC – Line 025 – Service Improvements to Address Overcrowding



SERVICE CHANGE:

Based on passenger counts, heavy passenger loads and overcrowding were observed Monday to Friday during peak periods and Saturdays between 9AM and 6PM.

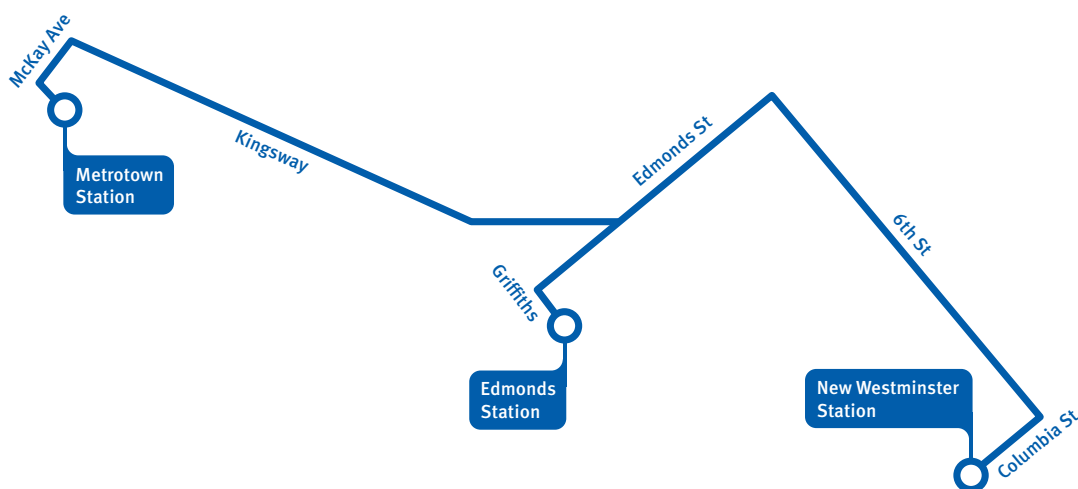
In response, TransLink improved service frequency during a variety of time periods to reduce overcrowding in September 2011 and June 2012. These improvements represented an 8.2% increase in revenue hours.

OUTCOMES:

- Reduced overcrowding throughout the week;
- Passenger boardings grew 9.4% between 2011 and 2013;
- Route productivity was maintained at approximately 80 boardings per revenue hour;
- Cost per boarded passenger was maintained at approximately \$1.23, which confirms that this bus service is moving more people, with less overcrowding, at a stable cost.

025 Brentwood Station / UBC		2011	2013	Change
	Annual revenue hours	75,800	82,000	+8.2%
	Annual boardings	5,984,000	6,545,000	+9.4%
	Boardings per revenue hour	79	80	+1.1%
	Cost per boarded passenger	\$1.24	\$1.23	-1.1%

Burnaby / New Westminster – Line 106 – Improvements to Address Overcrowding



SERVICE CHANGE:

Based on passenger counts, heavy passenger loads and overcrowding were observed Saturday during the midday time period.

In Summer 2012, TransLink improved service frequency in the midday on Saturdays, representing a 2.5% increase in revenue hours.

OUTCOMES:

- Reduced overcrowding in the midday Saturdays;
- Passenger boardings grew 1.5% between 2011 and 2013;
- Productivity was maintained at approximately 103 boardings per revenue hour;
- Cost per boarded passenger was maintained at approximately \$0.95, which confirms that this bus service is moving more people, with less overcrowding, at a stable cost.

106 Metrotown Stn / New Westminster Stn		2011	2013	Change
	Annual revenue hours	52,000	53,300	+2.5%
	Annual boardings	5,419,000	5,500,000	+1.5%
	Boardings per revenue hour	104	103	-1.0%
	Cost per boarded passenger	\$0.94	\$0.95	+1.0%

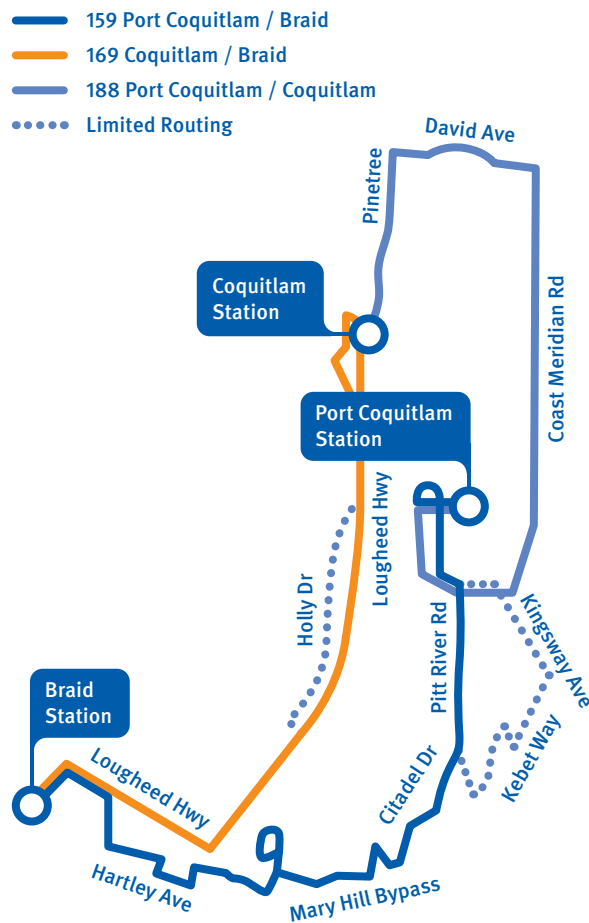
North East Sector – Lines 159 / 169 / 177 / 188 – Service Reallocation

SERVICE CHANGE:

In 2011, TransLink identified that the reduced activity at the Riverview Hospital facility impacted 177 ridership. It was also noted the 159 service duplicated the 169 service along Lougheed Hwy. In December 2013 TransLink discontinued the 177 and rerouted the 159 and 169 to reduce duplicate routes and maintain service coverage. Service hours saved were re-invested into the introduction of the new 188 service which bridges a gap in the transit network along Coast Meridian and David Avenue and serves the base of Burke Mountain.

OUTCOMES:

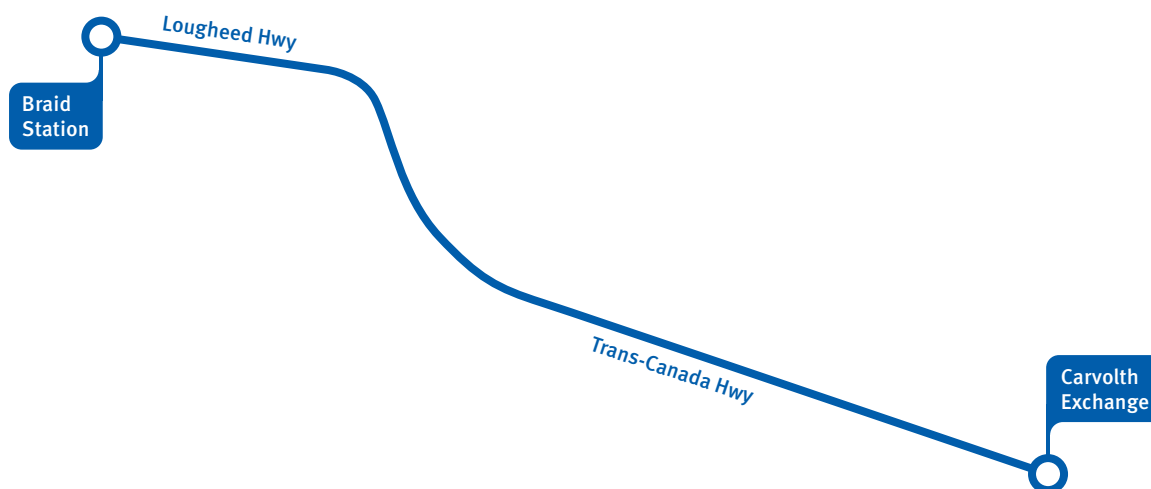
- New 188 service was introduced using existing resources;
- Reduced annual service cost by 10.6%, in part due to the use of mini-buses along route 188 during off-peak periods;
- Passenger boardings grew 11.8% between 2011 and 2013;
- Productivity grew 17%; from 49 to 57 boardings per revenue hour;
- Cost per boarded passenger was reduced by 20.1% from \$2.00 to \$1.60, which confirms that these services are serving more people at a lower cost.



North East Sector	2011 [159 / 169 / 177]	2013 [159 / 169 / 188*]	Change
Annual revenue hours	45,500	43,500	-4.4%
Annual boardings	2,234,000	2,498,000	+11.8%
Boardings per revenue hour	49	57	+17.0%
Cost per boarded passenger	\$2.00	\$1.60	-20.1%

*Annual ridership on line 188 was expanded based on Dec 2013

South of Fraser – 555 Port Mann Express – Service Expansion



SERVICE CHANGE:

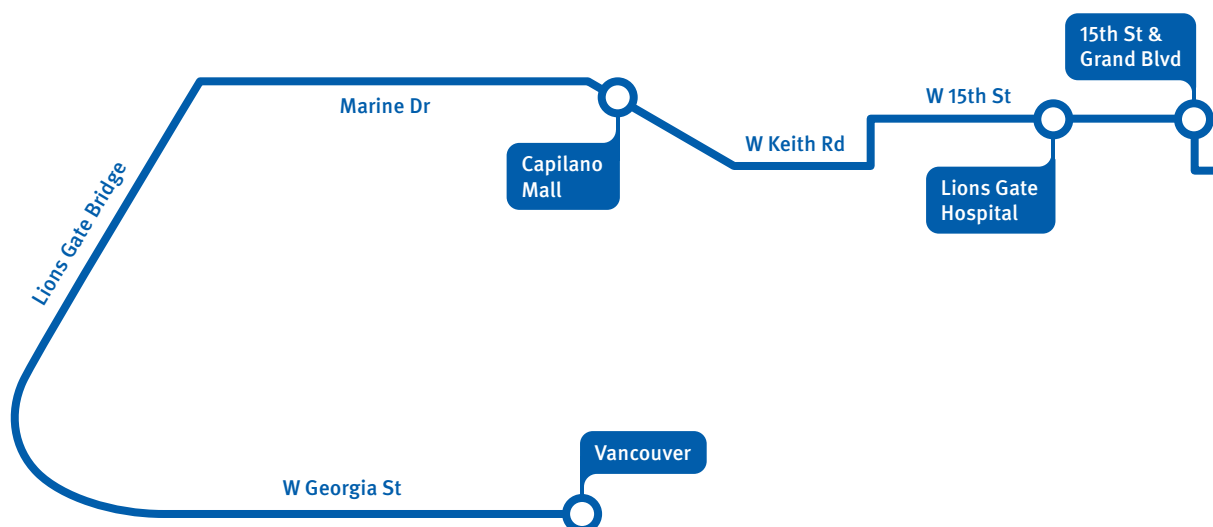
The 2013 Base Plan allocated resources for service expansion along Highway 1, between Carvolth Exchange and Braid Station. The 555 Port Mann Express was introduced on December 1, 2012 providing transit service over the Port Mann Bridge for the first time in over 25 years. This line connects residents from North Langley and the Fraser Valley to the regional SkyTrain system.

OUTCOMES:

- The introduction of the 555 has generated an additional 420,000 annual boardings in this corridor (30% growth when considering all four routes);
- Some reduction in service productivity due to increased capacity in the corridor;
- Ridership is expected to grow over time and TransLink will continue monitoring passenger volumes and will adjust service as needed.

South of Fraser		2011 [501 / 509 / 590]	2013 [501 / 509 / 555 / 590]	Change
	Annual revenue hours	31,400	44,100	+40.4%
	Annual boardings	1,414,000	1,834,000	+29.7%
	Boardings per revenue hour	45	42	-7.6%
	Cost per boarded passenger	\$2.18	\$2.36	+8.3%

North Shore – Line 240 – Improvements to Address Overcrowding



SERVICE CHANGE:

Based on actual ridership information, heavy passenger loads and overcrowding were observed Saturdays between from 9AM to 9PM.

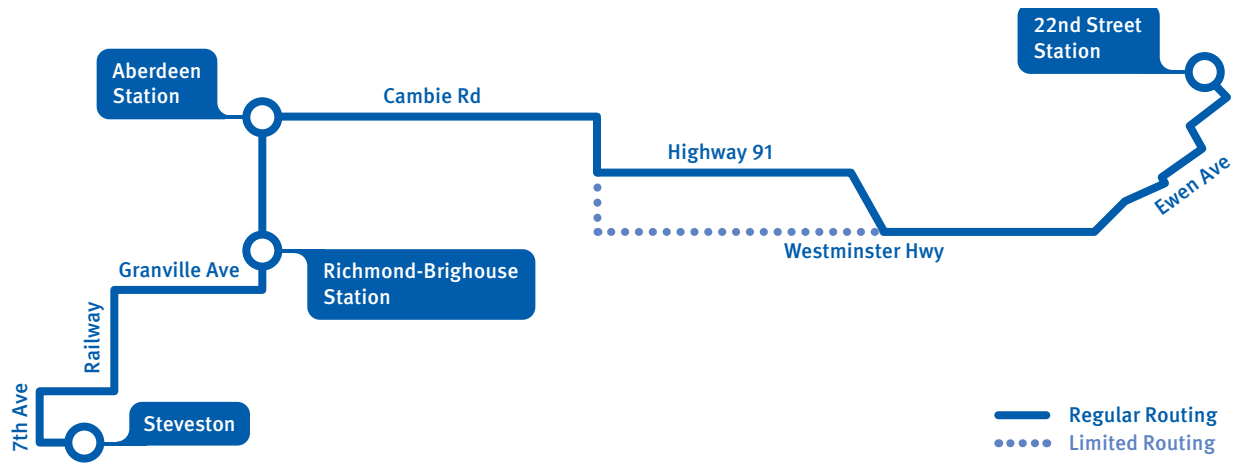
In response, TransLink increased frequency of service during high volume time periods. This service optimization change was implemented in September 2012, aligned with the Vision of the North Shore Area Transit Plan, and represented a 7% increase in revenue hours.

OUTCOMES:

- Reduced overcrowding on Saturdays;
- Ridership grew 2.7% between 2011 and 2013;
- Due to increased investment, boardings per revenue hour declined slightly to 76 from 80;
- TransLink will continue monitoring passenger volumes and adjust service frequency as needed.

240 Vancouver / 15th Street		2011	2013	Change
	Annual revenue hours	31,500	33,700	+7.0%
	Annual boardings	2,505,000	2,573,000	+2.7%
	Boardings per revenue hour	80	76	-4.0%
	Cost per boarded passenger	\$1.23	\$1.28	+4.2%

Richmond – Line 410 – Improvements to Address Overcrowding



SERVICE CHANGE:

Based on ridership information, heavy passenger loads and overcrowding were observed Monday to Friday during peak periods and Saturdays between 3PM and 6PM.

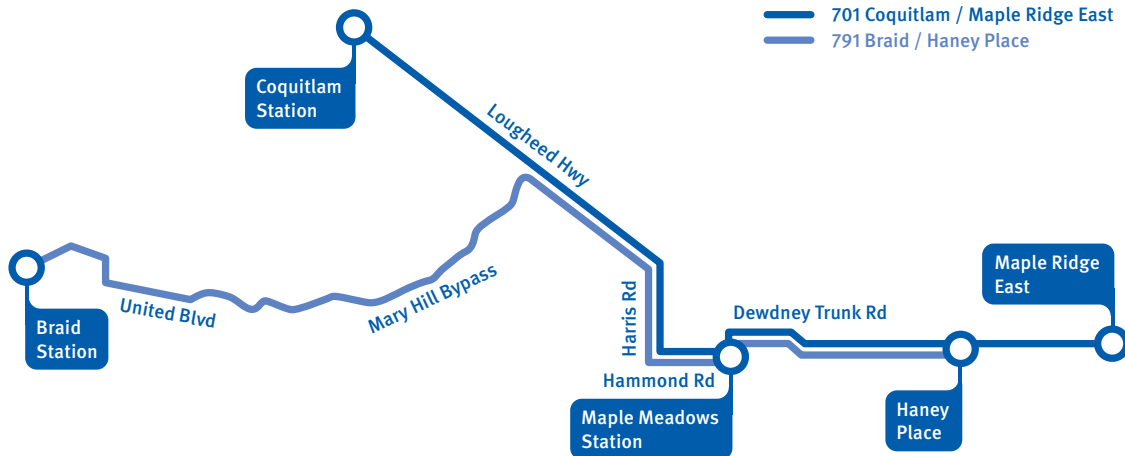
As a result, in 2012, TransLink increased service frequencies throughout the week to address overcrowding. This service improvement represented a 12.2% growth in annual revenue hours.

OUTCOMES:

- Accommodated 614,000 additional annual boardings, 12.1% growth between 2011 and 2013;
- Maintained productivity at approximately 69 boardings per revenue hour;
- Maintained a \$1.43 cost per boarded passenger;
- Stable productivity and cost per boarded passenger is a noteworthy success in light of significant service reinvestments. It confirms that this route is serving many more people at a stable cost.

410 Railway / 22nd Street Station		2011	2013	Change
	Annual revenue hours	74,000	83,000	+12.2%
	Annual boardings	5,076,000	5,690,000	+12.1%
	Boardings per revenue hour	69	69	-0.1%
	Cost per boarded passenger	\$1.43	\$1.43	+0.1%

Maple Ridge / Pitt Meadows – Lines 701 and 791 Service Improvement and Schedule Optimization



SERVICE CHANGE:

The 701 and 791 are commuter-oriented services linking Maple Ridge / Pitt Meadows, Coquitlam and New Westminster.

In 2010, TransLink improved service frequency on the route 791 and during 2011 and 2012 found schedule efficiencies on both the 701 and 791, these schedule savings did not affect frequency of service and helped to maintain revenue hours at 2010 levels despite the increased frequency of service.

OUTCOMES:

- No change in annual revenue hours despite increased frequency along 791;
- Since 2010 ridership grew by 12.8%;
- Increased boardings per revenue hour (12.8%);
- Decreased cost per boarded passenger (-11.3%), which confirms that these lines are serving many more people with the same resources;
- TransLink will continue monitoring passenger volumes and adjust service frequency as needed.

Maple Ridge / Pitt Meadows Commuter Services		2011 [701 / 791]	2013 [701 / 791]	Change
	Annual revenue hours	54,000	54,000	0%
	Annual boardings	2,374,000	2,677,000	+12.8%
	Boardings per revenue hour	44	50	+12.8%
	Cost per boarded passenger	\$2.23	\$1.98	-11.3%

South Delta / Ladner / Tsawwassen – Line 601 – Service Optimization

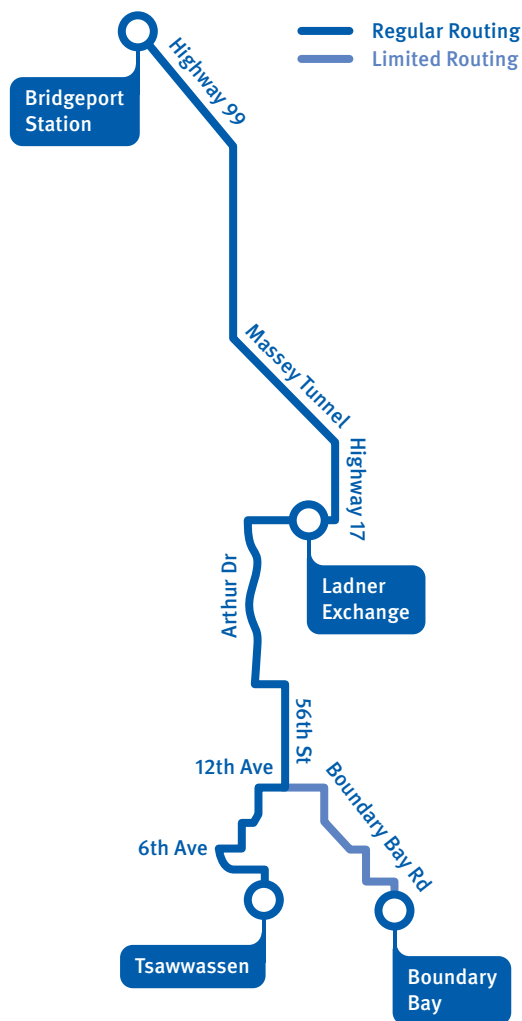
SERVICE CHANGE:

Line 601 provides transit connections between South Delta and Bridgeport Station, enabling residents to connect to the Canada Line or reach destinations in Richmond.

During 2011, TransLink optimized this service by reducing service frequency during Saturdays and increasing service frequency during weekday evenings. The service reduction and reinvestment maintained annual revenue hours at the same levels.

OUTCOMES:

- This cost neutral project accommodated ridership growth of 8.8% between 2011 and 2013, likely associated with the opening of the Canada Line;
- Increased productivity by 8%;
- Reduced cost per boarded passenger by -7.4%, which confirms that this route is serving more passengers at a more attractive cost, using the same resources;
- TransLink will monitor passenger volumes and adjust service frequency as needed.



601 South Delta / Bridgeport Station		2011	2013	Change
	Annual revenue hours	27,400	27,600	+0.7%
	Annual boardings	923,000	1,004,000	+8.8%
	Boardings per revenue hour	34	36	+8.0%
	Cost per boarded passenger	\$2.91	\$2.69	-7.4%

5. Outlook for 2014 – 2015

The current 2014 Base Plan and Outlook outlines strategic initiatives, transportation programs and services that TransLink will deliver between 2014 and 2015 using existing revenue sources.

The 2014 Base Plan and Outlook focuses on maximizing the use of existing resources and operating with the resources available. As such, service optimization will continue to be an ongoing component of TransLink's Network Management program.

Through this program TransLink will continue to seek productivity gains by re-allocating transit services in 2014 and 2015.

Throughout 2014 and 2015, TransLink's Network Management program will:

- Continue to optimize service based on the results of the 2013 Bus Service Performance Review;
- Subject to approval, implement service changes as outlined in the 2014 Bus Service Optimization-Public Consultation Summary Report completed in spring 2014. These changes are aimed at improving the effectiveness of bus services through changes to route structure;
- Recommend further optimization proposals for public consultation and implementation in 2015;
- Study and consult on projects that may result from the Northeast Sector Area Transit Plan and Downtown Bus Service Review.

ACKNOWLEDGEMENTS

This document was prepared by TransLink's Network Management Group: **Peter Klitz** (Project Manager), **Aldo Nunez** (Project Lead), under the direction of **Jeff Busby** (Senior Manager, Project Development and Network Management) and **Sany Zein** (Director of Infrastructure and Network Management).

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For more information and resources:

Visit our website at translink.ca/networkmanagement

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