



TransLink
2014 Bus Service
Performance Review

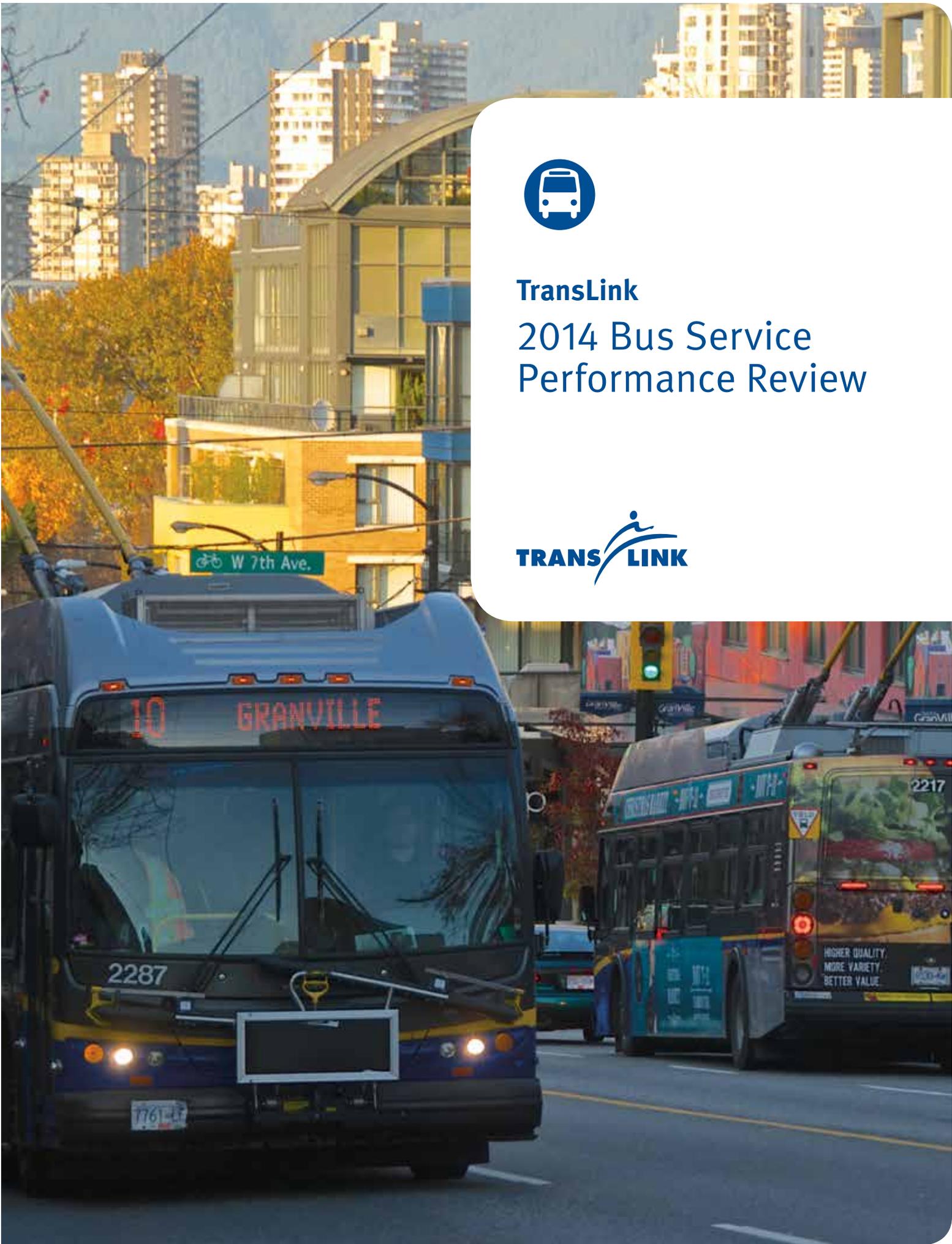


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Executive Summary

INVESTMENT IN BUS SERVICE IS HELPING MEET REGIONAL GROWTH NEEDS

TransLink produces an annual Bus Service Performance Review (BSPR) to help manage resources and improve bus service across the region. The Review tracks trends in ridership and service productivity for 219 bus routes with data from automatic passenger counters on buses. Key performance indicators are analyzed on three levels: across the entire system, within eight sub-regions and by each route.

In 2014, Metro Vancouver customers boarded our buses 229 million times, an increase of one million as compared to 2013, and an increase of nine million (four per cent) since 2010. System-wide boardings across all transit modes – a measure of 355 million – increased by one million since 2013 and eight million since 2010.

Total bus revenue hours across the region were stable in 2014, and more than 52,000 revenue hours were reallocated from routes with low customer demand to those with high demand. This is part of our service optimization program, which shifts bus revenue hours and vehicle fleet to better match demand.

The South of Fraser continued to see the largest year-over-year increase in customer boardings of any sub-region. TransLink responded to the growth of 1.2 million riders in 2014, or 5.5 million since 2010, by increasing the sub-region's bus service a total of 80,000 revenue hours or 13 per cent over the past four years.

Since 2010, we have reallocated 392,000 bus revenue hours to bring more service to more customers through more than 300 service improvements across Metro Vancouver.

More service for growing communities

TransLink's service investments led to new or faster services in growing communities, such as:

- Route 188 between Port Coquitlam and Coquitlam
- Route 503 between Surrey and Langley
- Route 555 between Langley, Surrey and New Westminster

In addition, new routes were introduced in the Northeast Sector (route 178), on the North Shore (route 227) and in Vancouver/UBC (route C18). Portions of routes 335 and C20 have been extended to serve new areas with growing customer demand.

Reducing crowding

Resources were reinvested to reduce crowding on more than 12 routes, including the 41, 49 and 99 B-Line in Vancouver; the 135 in Burnaby/New Westminster; and the 319 in the South of Fraser.

Finding efficiencies in the system

Managing our integrated transit network means balancing customer demand with access, with the resources available. This year, we adjusted more than 35 routes so that we can provide better service on routes with growing ridership demand.

Other efficiencies were also achieved by adjusting bus schedules to maximize customer-facing revenue hours.

HIGHLIGHTS BY SUB-REGION – 2010 TO 2014

A summary of the four-year trends for bus service demand (boardings), service supply (revenue hours) and cost per boarded passenger, is organized by sub-region below.

Burnaby/New Westminster annual revenue hours, bus boardings and cost per boarded passenger remained stable. Cost per boarded passenger is \$1.33.

Ladner/South Delta/Tsawwassen experienced an increase of 0.6 million or 38 per cent in annual boardings and a decrease in cost per boarded passenger from 2010 to 2014. Most of the ridership growth is concentrated in commuter-oriented services, which connect to the Canada Line. This increase also reflects boardings from the integration of previously unscheduled buses, used as needed for high volumes of ferry foot traffic, into scheduled service on route 620. Cost per boarded passenger is \$2.68.

Maple Ridge/Pitt Meadows experienced an increase in ridership of 0.3 million or 11 per cent and a reduction in annual revenue hours in community shuttle services with low ridership. This resulted in a 14 per cent decrease in cost per boarded passenger from \$2.49 to \$2.14.

North Shore ridership is stable and service increased by 32,000 annual revenue hours or nine per cent in the delivery of priority initiatives identified in the North Shore Area Transit Plan to meet anticipated ridership demand. Cost per boarded passenger increased by seven per cent from \$1.55 to \$1.66. This result is typical with the introduction of new services and we expect customers to respond to the new services over time.

Northeast Sector annual boardings have remained stable despite a decrease of 6,000 annual revenue hours. Cost per boarded passenger in the sub-region has decreased by 11 cents or five per cent, partially due to the increased use of community shuttles which are more cost-effective during time periods with lower ridership, and is now \$1.99.

Richmond experienced 17,000 or five per cent fewer annual bus revenue hours as a result of ongoing adjustments after the introduction of the Canada Line. However, ridership grew by 1.6 million annual bus boardings, which resulted in a reduction by 15 per cent in the cost per boarded passenger from \$1.82 to \$1.55.

South of Fraser experienced the largest increase of new service, 80,000 annual revenue hours, coinciding with an increase of 5.5 million annual bus boardings since 2010, the highest growth in the region. As a result, cost per boarded passenger is now \$1.92. The volume of bus boardings in the South of Fraser surpassed that in the Burnaby/New Westminster sub-region.

Vancouver/UBC ridership remained stable and annual revenue hours increased by four per cent to address overcrowding. This investment resulted in a seven per cent increase in cost per boarded passenger. Even with this change, Vancouver/UBC remains the most cost-efficient of the eight sub-regions and has the lowest cost per boarded passenger at \$1.12.

1. Overview

TransLink regularly reviews and modifies transit service to promote system efficiency, effectiveness and productivity. TransLink's Bus Service Performance Review (BSPR) 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.

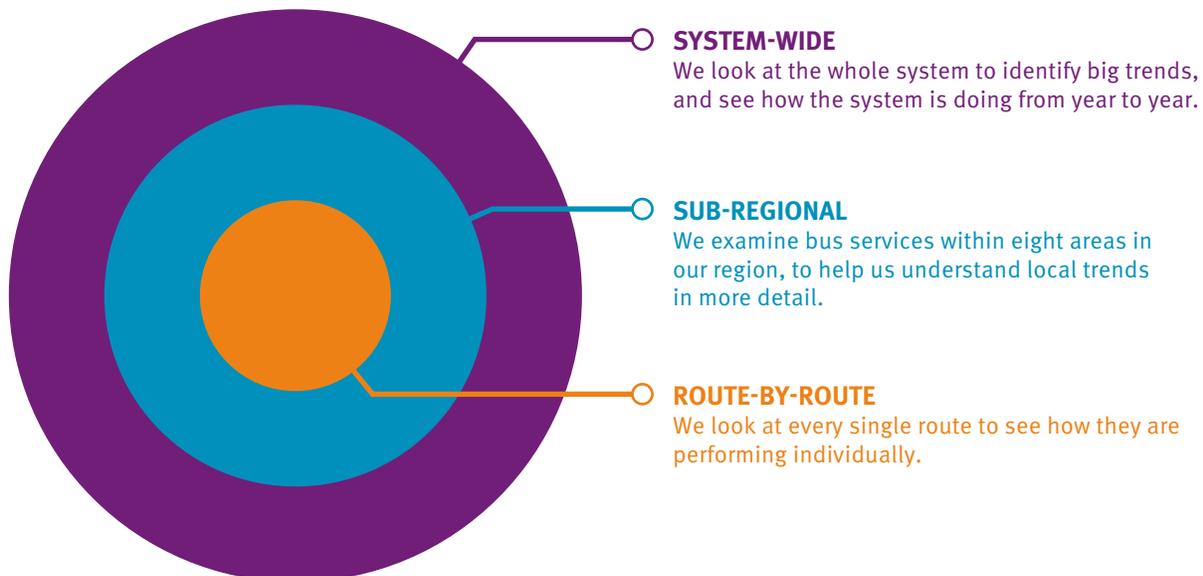
Transit ridership is impacted by many factors beyond TransLink's direct control: fuel prices, land use changes, employment levels, etc. This report demonstrates our efforts to adjust service to better meet the needs of the growing Metro Vancouver region with existing resources.

Analyzing bus service performance

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

In this document, percentages shown in tables are colour-coded as follows:

- **Green:** favourable change, greater than 1.5 per cent
- **Grey:** neutral change, less than 1.5 per cent
- **Red:** unfavourable change, greater than 1.5 per cent



SYSTEM-WIDE ANALYSIS

The system-wide analysis looks at larger, macro-level trends in system performance over the last five years. Metrics reviewed include revenue passengers, boardings and boardings per service hour. These values contribute to further analysis of the system on a sub-regional and route-by-route basis.

SUB-REGIONAL ANALYSIS

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 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 eight sub-regions; these are generally consistent with those used in TransLink's planning process.

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

ROUTE-BY-ROUTE ANALYSIS

This level of analysis provides details on how individual components of the system are performing. It also takes a look at the impacts recent service changes have on each route and aids in identifying potential future adjustments.

[Section 4](#) of this summary report presents highlights of specific service changes and their outcomes.

[Appendix C](#) contains a two-page route summary for each bus route in the system.

2. Planning Context – Optimizing Service

TransLink annually reviews bus service performance and identifies opportunities to move more people more efficiently, while maintaining access to areas and time periods with low ridership. This is called service optimization, a program TransLink initiated in 2010.

Although total annual revenue hours across the region remain stable, more than 52,000 revenue hours were reallocated from routes with low demand to where customers need it most in 2014. 392,000 annual revenue hours have been reallocated since 2010.

Year	Strategic Reinvestment of Annual Revenue Hours
2010	52,000
2011	178,000
2012	56,000
2013	54,000
2014	52,000
Total	392,000

Highlights of service optimization

TransLink's service optimization program has benefited customers across the region, through more than 300 individual projects since the beginning of the program in 2010.

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.

In the past year, resources were reinvested to reduce crowding on more than 12 routes, including the 41, 49 and 99 B-Line in Vancouver, 135 in Burnaby/New Westminster and 319 in the South of Fraser. Resources have also been invested in routes 503 and 555 to provide faster service to growing communities in the South of Fraser sub-region.

During the same period, TransLink adjusted service on more than 35 routes to provide better service on routes with growing ridership demand, including the split of route 229 into two halves, with the new route 227 minibus serving the eastern portion. This change was identified in the [North Shore Area Transit Plan](#) vision.

Service optimization reinvestments in 2013 enabled the introduction of new services such as route 188 along Coast Meridian Road and David Avenue in the Northeast Sector, and the extension of route 335 to Newton Exchange along 72nd Avenue in Surrey. Both of these routes are performing well in the first full year after their current routes were introduced.

Other new routes include the 178 in the Northeast Sector, the 227 on the North Shore, the 503 in South of Fraser and C18 in Vancouver/UBC. Portions of route 188, C18 and C20 serve new areas of coverage.

TransLink also continued to better match vehicle sizes to ridership and decrease non-revenue service hours through service scheduling efficiencies.

IMPACT OF SERVICE CHANGES ON REGIONAL ALLOCATION OF BUS RESOURCES

In 2014, five out of the eight sub-regions had neutral or modest positive growth in annual bus revenue hours over the last year with three exceptions:

- **Ladner/South Delta/Tsawwassen** had an increase of four per cent or 2,000 annual revenue hours, primarily due to the integration of previously unscheduled buses, used as needed for high volumes of ferry foot traffic, into scheduled service on route 620.
- **Maple Ridge/Pitt Meadows** had a decrease of four per cent or 3,000 annual revenue hours resulting from service reductions on routes C43 and C44 during weekday middays and evenings and all day on Saturday due to low ridership.
- **Richmond** had a decrease of two per cent or 5,000 annual revenue hours as a result of continued adjustments to maximize the use of the Canada Line and reduction of duplicative bus services, primarily on routes 403, C93 and C96.

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

Sub-Region	Annual Bus Revenue Hours (ooo's)					Compound Annual Growth Rate* [2010 - 2014]	1 Year Change [2013 - 2014]
	2010	2011	2012	2013	2014		
Burnaby/New Westminster	474	475	475	476	484	1%	2%
Ladner/South Delta/Tsawwassen	56	59	57	57	59	1%	4%
Maple Ridge/Pitt Meadows	87	89	87	85	82	-1%	-4%
North Shore	348	357	360	379	380	2%	0%
Northeast Sector**	307	305	300	304	301	0%	-1%
Richmond	311	300	294	299	294	-1%	-2%
South of Fraser	622	630	643	691	702	3%	2%
Vancouver/UBC	1,449	1,449	1,476	1,467	1,502	1%	2%

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

**2013 revenue hours revised to reflect annualization of actual (previously estimated) schedule of new routes in December 2013

3. Transit Service Performance

System-wide performance

When reviewing the performance of the bus network it is important to put changes to service hours and passenger boardings in the context of the entire transit network. The following table summarizes the results between 2010 and 2014 for all transit modes. The source of system-wide ridership in the table below is different than in the rest of

the document; system-wide information is sourced from TransLink's financial data. The findings are consistent in scale and magnitude with the findings of the sub-regional and route-by-route analysis, which are based on automatic passenger counter data.

2010 – 2014 Financial and Service Performance Results

		2010	2011	2012	2013	2014	Compound Annual Growth Rate [2010 - 2014]	1 Year Change [2013 - 2014]
All transit modes	 System-wide Revenue Passengers (Millions)	218	232	238	233	233	1.8%	0.3%
	 System-wide Boardings (Millions)	347	353	362	354	355	0.6%	0.5%
	 System-wide Boardings per Service Hour	55	56	57	57	57	0.8%	-0.2%
Bus only	 Bus Boardings (Millions)	220	224	232	228	229	1.0%	0.6%
	 Bus Boardings per Service Hour	44	46	47	47	47	1.4%	-0.2%

Source: TransLink Financial Planning & TransLink System Analytics

After a ridership decrease in 2013, system-wide performance indicators for all transit modes were stable in 2014. System-wide productivity across all modes was maintained at 57 boardings per service hour. Over the

long term, the performance of the transit system as a whole presents a modest positive trend in boardings and productivity.

Sub-Region Map



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 is expected due to different levels of transit demand, urban structure, land use and network design.

Between 2013 and 2014, four of the eight sub-regions had minor fluctuations in bus boardings, two sub-regions had decreases, and two sub-regions had increases. Over the long-term, half of the sub-regions achieved significant ridership growth, and the other half experienced neutral growth. Significant changes between 2013 and 2014 include:

- **Ladner/South Delta/Tsawwassen** ridership increased by 10 per cent or 0.2 million boardings, primarily due to the integration of previously unscheduled buses,

used as needed for high volumes of ferry foot traffic, into scheduled service on route 620. (Boardings are only counted on scheduled trips.)

- **Northeast Sector** experienced a decrease of three per cent or 0.4 million boardings partially due to traffic congestion related to Evergreen extension construction.
- **South of Fraser** had an increase of four per cent or 1.2 million boardings across both established and recently introduced routes.
- **Vancouver/UBC** had a decrease of two per cent or two million boardings due in part to construction detours on Powell Street, Marine Drive Station, and the “Train2Main” SkyTrain shuttle at Main Street-Science World Station. All regular services resumed by April 2015.

2010 – 2014 Bus Ridership Trends by Sub-Region

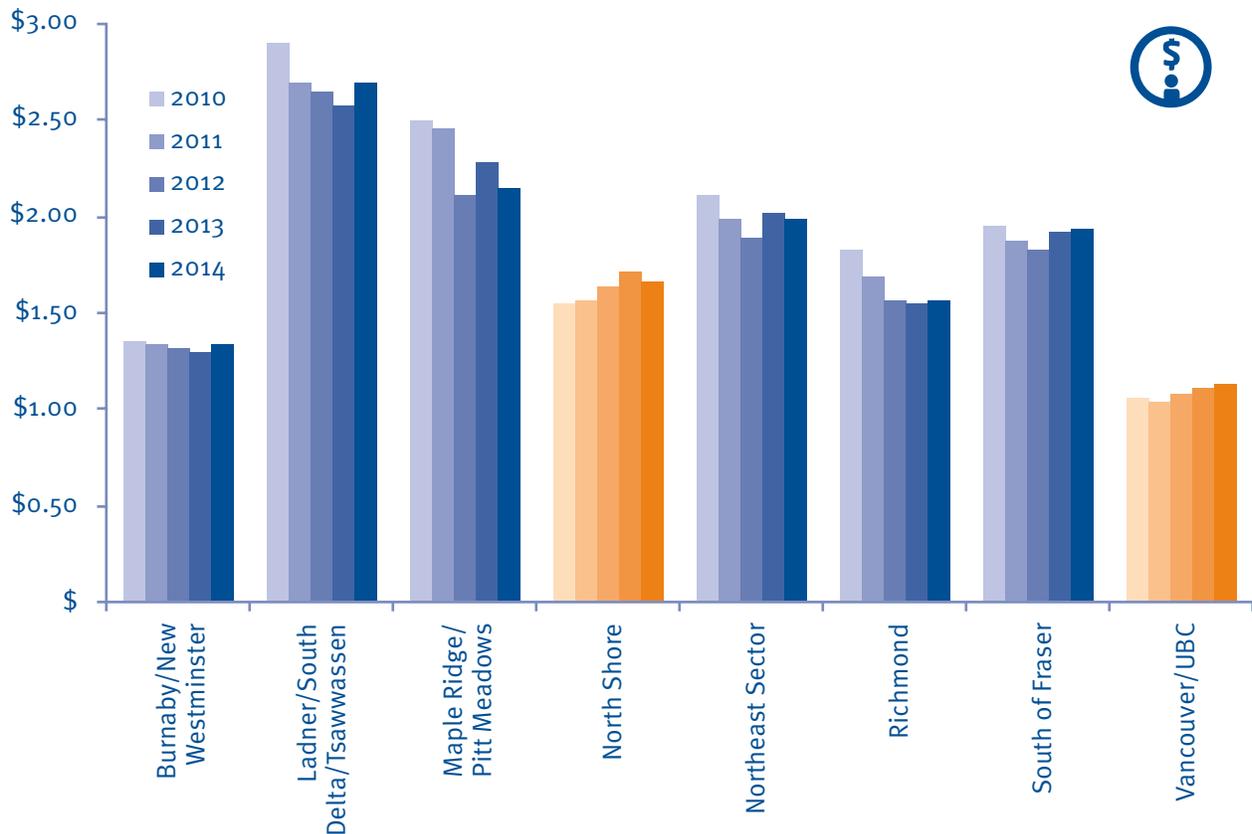
Sub-Region	Annual Bus Boardings (Millions)					Compound Annual Growth Rate [2010 - 2014]	1 Year Change [2013 - 2014]
	2010	2011	2012	2013	2014		
Burnaby/New Westminster	32.3	32.0	31.7	32.4	31.9	0%	-1%
Ladner/South Delta/Tsawwassen*	1.6	1.8	2.0	2.0	2.2	7%	10%
Maple Ridge/Pitt Meadows	2.8	3.0	3.1	3.1	3.1	2%	-1%
North Shore	14.7	15.0	15.1	14.9	14.7	0%	-1%
Northeast Sector	13.5	14.0	14.4	13.8	13.4	0%	-3%
Richmond	15.1	15.8	16.5	16.6	16.7	3%	1%
South of Fraser	29.0	31.3	32.7	33.3	34.5	4%	4%
Vancouver/UBC	129.4	130.8	134.8	132.0	130.0	0%	-2%

*2014 Boardings reflect additional ridership from integration of unscheduled buses used for special events into scheduled service on route 620.

Over the past five years it has become more cost-effective to provide bus service in most sub-regions except for Vancouver/UBC and the North Shore. These two sub-regions are further discussed later in this summary.

Generally, sub-regions with higher population and employment densities have lower costs per boarded passenger. For example, the costs per boarded passenger in Vancouver/UBC and Burnaby/New Westminster are less than half of that in Ladner/South Delta/Tsawwassen.

2010 - 2014 Median Cost per Boarded Passenger by Sub-Region*



*Sub-regions highlighted in blue experienced reductions, while those highlighted in orange experienced increases in cost per passenger (between 2010 and 2014).

The following is a summary of the four-year trend of bus service supply (revenue hours), bus service demand (boardings) and cost per boarded passenger, organized by sub-region.

Burnaby/New Westminster had little change in annual revenue hours, annual bus boardings, and cost per boarded passenger.

Ladner/South Delta/Tsawwassen experienced a notable increase in annual boardings and decrease in cost per boarded passenger. Most of the ridership growth was in regional commuter routes and not in local routes.

Maple Ridge/Pitt Meadows also experienced an overall increase in annual boardings. However, due to low ridership on some routes, a reduction in annual revenue hours in minibus services resulted in a more favourable cost per boarded passenger.

In the **North Shore**, implementation of recommendations in the Area Transit Plan has increased investments. Ridership growth is responding more slowly, resulting in a higher cost per boarded passenger.

The **Northeast Sector** had neutral growth in revenue hours and boardings, but the median cost per boarded passenger improved, partially due to the increased use of minibuses, which are more cost-effective during time periods with lower ridership.

Richmond ridership grew by 1.6 million annual boardings, which resulted in a reduction in cost per boarded

passenger from \$1.82 to \$1.55. Overall bus revenue hours decreased due to ongoing adjustments to better complement Canada Line service.

South of Fraser experienced the highest growth in ridership and increase in revenue hours to meet growing demand. There were 5.5 million additional annual bus boardings and 80,000 annual revenue hours of new service. Cost per boarded passenger has decreased slightly over five years. The volume of bus boardings in the South of Fraser now surpasses that in Burnaby/New Westminster.

Additional revenue hours have been invested to reduce crowding in **Vancouver/UBC**, which led to an increase in cost per boarded passenger, although it remains the most cost-efficient of the eight sub-regions.

2010 – 2014 Bus Service Performance by Sub-Region

	Annual Revenue Hours (ooo's)			Annual Boardings* (Millions)			Median Cost per Boarded Passenger		
	2010	2014	Compound Annual Growth Rate	2010	2014	Compound Annual Growth Rate	2010	2014	Compound Annual Growth Rate
Burnaby/New Westminster	474	484	1%	32.3	31.9	0%	\$1.35	\$1.33	0%
Ladner/South Delta/Tsawwassen	56	59	1%	1.6	2.2	7%	\$2.89	\$2.68	-2%
Maple Ridge/Pitt Meadows	87	82	-1%	2.8	3.1	2%	\$2.49	\$2.14	-4%
North Shore	348	380	2%	14.7	14.7	0%	\$1.55	\$1.66	2%
Northeast Sector	307	301	0%	13.5	13.4	0%	\$2.10	\$1.99	-1%
Richmond	311	294	-1%	15.1	16.7	3%	\$1.82	\$1.55	-4%
South of Fraser	622	702	3%	29.0	34.5	4%	\$1.95	\$1.92	0%
Vancouver/UBC	1,449	1,502	1%	129.4	130.0	0%	\$1.05	\$1.12	2%

*Source: Automated Passenger Counter Data

OVERCROWDING

A new performance indicator introduced in 2014 is “Annual Revenue Hours (ARHs) with Overcrowding.” This overcrowding measurement is based on the number of ARHs where the average peak passenger load, at the hourly level for each direction of service for each route, is above crowding guidelines.

Crowding guidelines, which are based on the vehicle type(s) used for each route and time of day, are included in [Appendix A](#).

This performance indicator is intended to identify ARHs in which there are services with chronic overcrowding.

The measure does not reveal all instances of overcrowding because it relies on averages of sample trips by hour. Customers may still experience overcrowding on some trips, but they may not be captured here if it is not a prolonged and significant issue.

Where resources are available, additional revenue hours and buses are reallocated in order to reduce overcrowding.

2012-2014 Annual Revenue Hours with Overcrowding

Sub-Region	2012			2014			Change in % of ARHs with Overcrowding
	Total ARHs	ARHs with Overcrowding	% of ARHs with Overcrowding	Total ARHs	ARHs with Overcrowding	% of ARHs with Overcrowding	
Burnaby/ New Westminster	475,000	15,100	4%	484,000	12,200	3%	-1%
Ladner/ South Delta/ Tsawwassen	57,000	900	2%	59,000	1,700	3%	1%
Maple Ridge/Pitt Meadows	87,000	1,700	2%	82,000	0	0%	-2%
North Shore	360,000	5,800	2%	380,000	2,500	1%	-1%
Northeast Sector	300,000	4,300	1%	301,000	2,300	1%	-1%
Richmond	294,000	6,100	2%	294,000	13,900	5%	3%
South of Fraser	643,000	21,800	4%	702,000	13,900	2%	-2%
Vancouver/ UBC	1,476,000	109,600	8%	1,502,000	124,900	8%	1%

Note: Excludes contracted services (operated by West Vancouver Blue Bus, Bowen Island Community Transit and First Transit) and ARHs with no APC sampling.

System-wide, the percentage of annual revenue hours with overcrowding remained stable between 2012 and 2014. Only about one quarter of the 219 routes has revenue hours with overcrowding; these routes exist throughout the system. The ten most crowded routes are listed in the next section, and metrics for each route are included in [Appendix C](#).

The largest per cent increase in crowding can be found in the Richmond sub-region. The majority of the overcrowding increase is linked to route 410, where we made investments in service but ridership grew at a faster rate.

The data indicates that Maple Ridge/Pitt Meadows experienced the largest per cent decrease in crowding. However, this may be attributed to low sampling and the smaller level of ARHs in this sub-region as compared to others.

The South of Fraser had the second largest per cent decrease in crowding. This coincides with investments made through the service optimization program in recent years. This sub-region received an increase of 80,000 annual revenue hours since 2010.

Crowding in all other sub-regions remained relatively stable.



Route-by-route performance

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 to make evidence-based decisions for service reductions and service reinvestments.

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

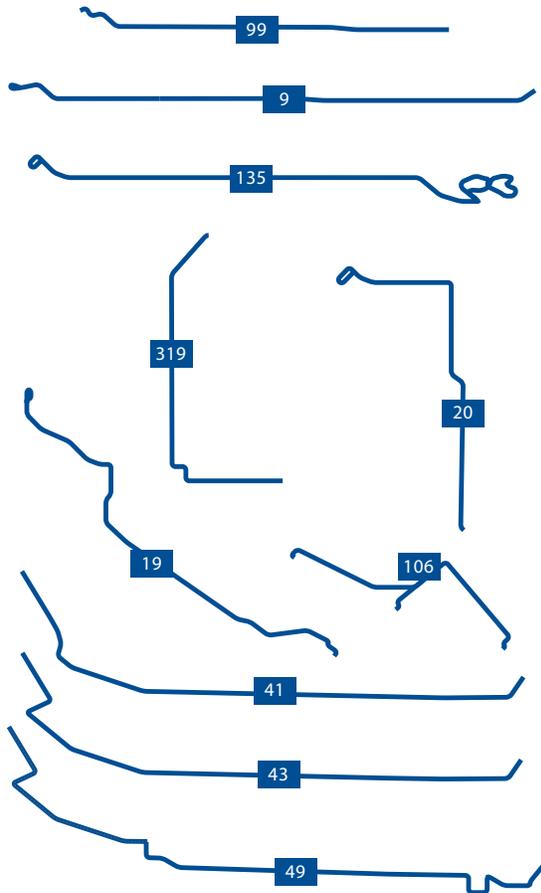
identifying future opportunities for strategic reinvestment.

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

- Appendix A – Assumptions, definitions, performance indicators, and methodological improvements implemented in 2014;
- Appendix B – Instructions on how to read route summaries;
- Appendix C – 219 route summaries; and
- Appendix D – Methodological details on how route summaries are prepared.

The following figures illustrate the routes that are ranked in the top and bottom 25 of all three key performance indicators (boardings per revenue hour, capacity utilization, and cost per boarded passenger):

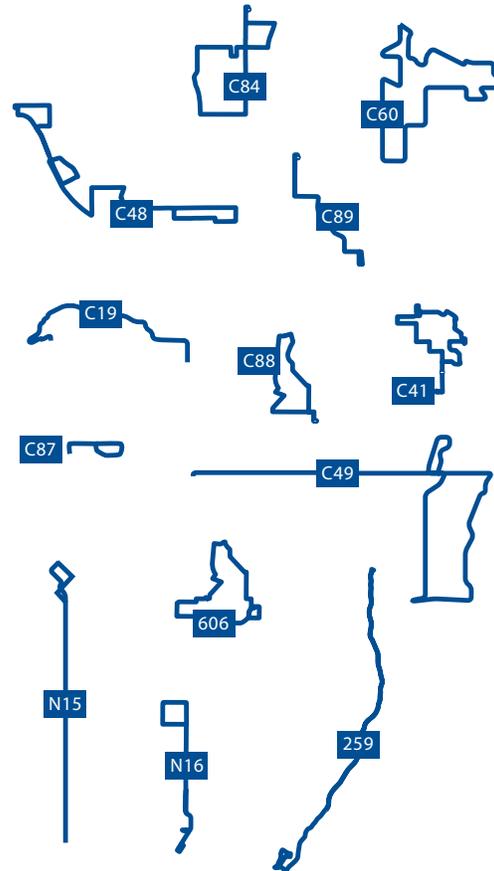
Services that Appear in the Top 25 of all Three Key Performance Indicators:



Common characteristics:

- Direct, simple and consistent routing
- Serve areas of strong demand
- Key destinations at both ends and along the route
- Designed to maximize ridership

Services that Appear in the Bottom 25 of all Three Key Performance Indicators:



Common characteristics:

- Circuitous, indirect routing
- Serve lower-density, vehicle-oriented areas
- Limited destinations along the route
- Provide basic access to the transit network

Most Crowded Routes (Annual Revenue Hours with Overcrowding)

Rank	Route	2013			2014			
		Total ARHs	ARHs with Overcrowding	% of ARHs with Overcrowding	Route	Total ARHs	ARHs with Overcrowding	% of ARHs with Overcrowding
1	099	96,300	43,000	44%	099	104,700	45,000	43%
2	049	66,800	28,000	41%	049	67,900	31,000	45%
3	041	84,800	15,000	18%	025	84,100	18,000	22%
4	502	53,100	8,000	16%	041	88,000	14,000	16%
5	025	82,000	8,000	10%	410	83,100	11,000	13%
6	135	68,200	5,000	8%	130	44,000	5,000	11%
7	130	42,100	4,000	10%	502	43,600	5,000	11%
8	410	83,000	4,000	5%	135	72,900	5,000	6%
9	033	31,800	3,000	8%	043	16,600	4,000	24%
10	320	32,800	2,000	7%	084	31,000	3,000	9%

The table above lists the ten most crowded routes in the network, ranked by the number of ARHs where customers experience chronic overcrowding. In general, TransLink's investments in bus service as part of the service optimization program have reduced crowding, but ridership continues to increase on many of these already crowded bus routes.

On route 41 in Vancouver/UBC, a series of frequency improvements were made in summer 2014 to address overcrowding on weekends. By adding more frequent service on Sundays, overcrowding on average dropped from eight hours each Sunday in 2013 to one hour in 2014.

In fall 2013, we introduced the 96 B-Line in Surrey to add capacity to a very busy corridor and reduce overcrowding on the 320. In 2014, the 320 is no longer one of the top ten most crowded routes.

In summer 2014, route 503 was introduced as an express service between Surrey Central and Aldergrove and the 502 was truncated at Langley Centre. The separation of routes allowed for customers making shorter trips to remain on the 502 and customers making longer trips to take the 503. This investment of revenue hours into the 503 reduced overcrowding on the 502.

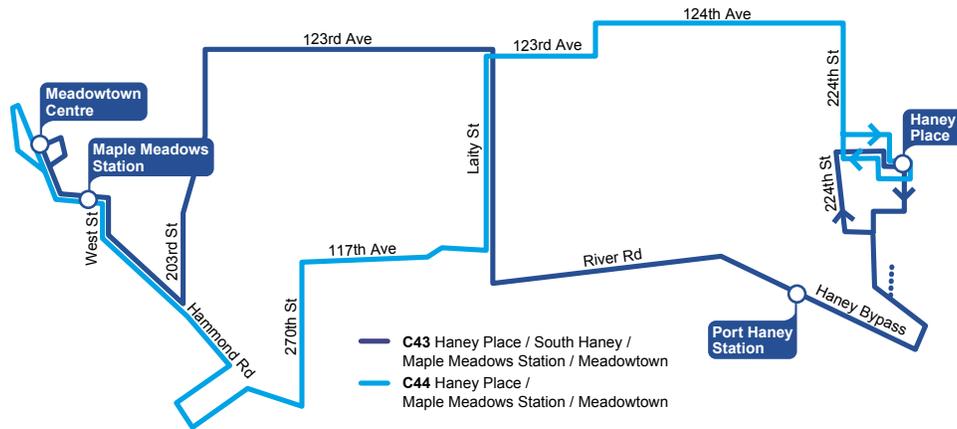
4. Service Change Highlights

As part of the ongoing management of the transit network, TransLink reinvested approximately 392,000 annual revenue hours¹ in over 300 individual service changes across the region between 2010 and 2014. This section features the outcomes of some key service

changes. Highlights include service optimization projects, the delivery of Area Transit Plan priorities and enhancing existing routes to serve new areas. Detailed route-by-route outcomes of all service changes are in the route summaries in Appendix C.

¹ The large majority of 392,000 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

Maple Ridge/Pitt Meadows – Routes C43/C44 – Customer Demand



What we did:

In September 2014, service was adjusted to better match ridership demand.

In 2012, cost per boarded passenger was \$4.89 and \$3.70 on the C43 and C44, respectively. Peak passenger loads during the midday on weekdays were between 3-5 passengers per trip.

Frequency was reduced on both the C43 and C44 from every 30 minutes to every 60 minutes during midday and evening periods on weekdays and all day on Saturdays.

Outcomes:

- Boardings per revenue hour increased by 28 per cent between 2012 and 2014.
- Cost per boarded passenger decreased by 22 per cent.
- Ridership decreased slightly and will be monitored in future reports.
- 3,500 annual revenue hours were reallocated to reduce crowding on other routes.

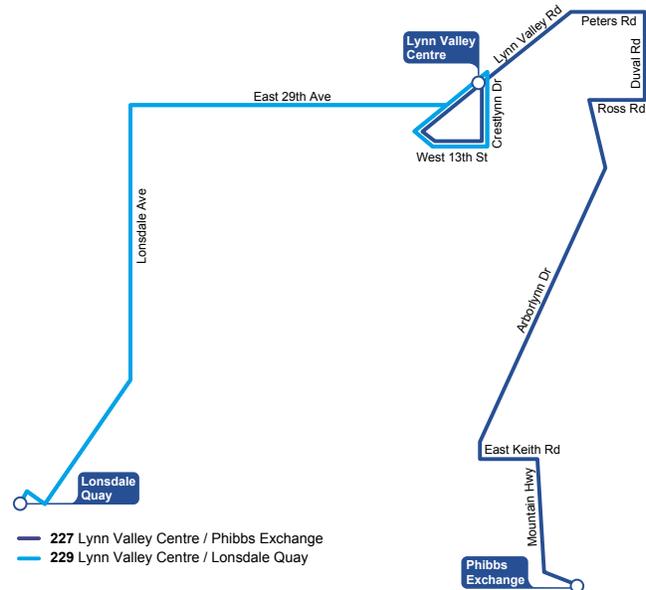
Routes C43/C44		2012	2014	Change
	Annual revenue hours	14,400	10,900	-24%
	Annual boardings	208,000	202,000	-3%
	Boardings per revenue hour	14	19	28%
	Cost per boarded passenger	\$4.23	\$3.28	-22%

North Shore – Routes 227/229 – Network Architecture and Vehicle Conversion

What we did:

In 2012, the North Shore Area Transit Plan identified an opportunity to match capacity to ridership demand, improving service cost-effectiveness.

In December 2013, the 229 was split into two: a modified route 229 and a new route 227. The new 227 operates with community shuttle vehicles between Lynn Valley Centre and Phibbs Exchange via Lynn Canyon Park to better match ridership demand. The 229 now terminates at Lynn Valley Centre.



Outcomes:

- Customers benefit from increased reliability and service with cost-effective community shuttles to meet demand.
- Ridership increased by 11 per cent between 2012 and 2014.
- Cost per boarded passenger decreased by 14 per cent.
- Route 229 is now ranked the eighth highest performing route in both boardings per revenue hour and cost per boarded passenger (system-wide).

Routes 227/229	2012 [229]	2014 [227/229]	Change
Annual revenue hours	13,900	15,200	9%
Annual boardings	1,018,000	1,126,000	11%
Boardings per revenue hour	73	74	1%
Cost per boarded passenger	\$1.35	\$1.16	-14%

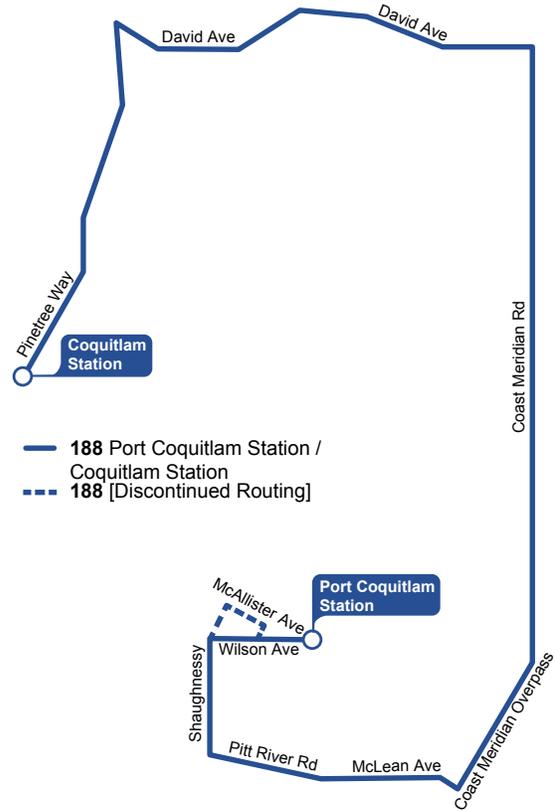
Northeast Sector – Route 188 – New Service

What we did:

In December 2013, TransLink introduced route 188 using existing resources reallocated through the service optimization program.

Outcomes:

- Customers have access to a new service along portions of David Avenue, Coast Meridian Road (near Burke Mountain), and over the Coast Meridian Overpass.
- Key performance indicators ranked in middle among all routes in system in just the first full year of service.
- Further service improvements are anticipated in conjunction with the Evergreen extension opening in 2016.



Route 188	2014	Rank
 Annual revenue hours	11,700	101 of 219
 Annual boardings	409,000	107 of 212
 Boardings per revenue hour	35	131 of 212
 Cost per boarded passenger	\$2.14	112 of 212

South of Fraser – Routes 332/335 – Network Architecture

What we did:

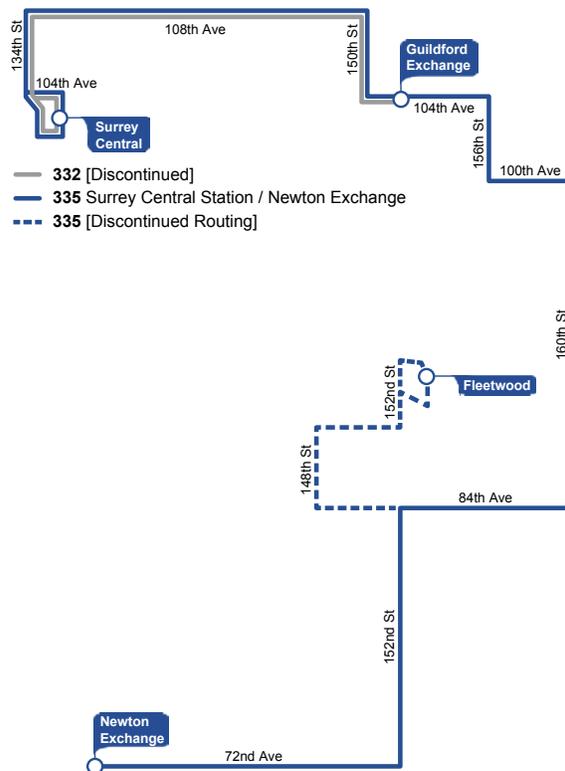
In September 2013, route 332 was combined with route 335 to eliminate a duplicate route between Surrey Central Station and Guildford Exchange.

In addition, the southern terminus of route 335 was relocated from Fleetwood to Newton Exchange in order to provide better connections to other routes like the 96 B-Line and offer additional coverage on portions of 72nd Avenue.

Minor service changes to expand service hours were also made in December 2013.

Outcomes:

- Revenue hours increased by 15 per cent.
- Annual boardings increased by 28 per cent after the routes were combined and extended to Newton.
- Cost per boarded passenger decreased by ten per cent between 2012 and 2014.



Routes 332/335		2012 [332/335]	2014 [335]	Change
	Annual revenue hours	21,300	24,600	15%
	Annual boardings	1,456,000	1,863,000	28%
	Boardings per revenue hour	68	76	11%
	Cost per boarded passenger	\$1.46	\$1.31	-10%

Vancouver/UBC – Route 041 – Overcrowding



What we did:

Based on passenger counts, heavy passenger loads and crowding were observed on Saturdays between 6 AM and 9 PM and Sundays/Holidays between 9 AM and 9 PM.

Beginning in June 2014, TransLink improved service frequency on Saturdays and Sundays/Holidays to reduce crowding.

Outcomes:

- Since 2012, there has been an eight per cent increase in revenue hours to better manage overcrowding.
- Revenue hours with overcrowded vehicles on Sundays/Holidays decreased from 39 per cent to four per cent.
- The slight decrease in total ridership will be monitored in future reports.
- Route 041 remains among the top five performing routes in the system.

Route 041		2012	2014	Change
	Annual revenue hours	81,800	88,000	8%
	Annual boardings	8,590,000	8,447,000	-2%
	Boardings per revenue hour	105	96	-9%
	Cost per boarded passenger	\$0.94	\$1.03	10%
	Revenue hours with overcrowding (Sundays/Holidays)	39%	4%	-35%

Vancouver/UBC – Routes C18/C20/C22 – Network Architecture

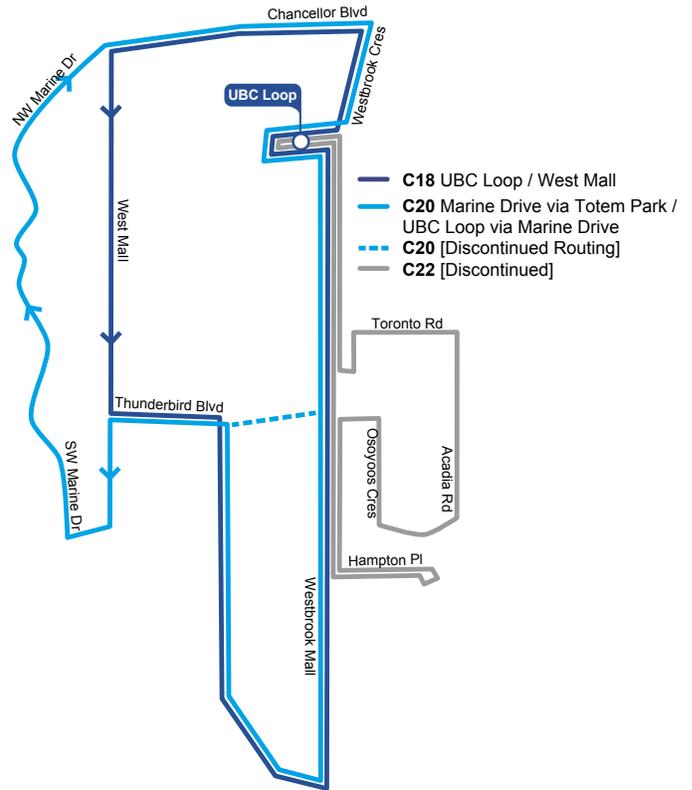
What we did:

In 2012, C22 was among the lowest performing routes in the system with a cost per boarded passenger of \$5.57.

In close collaboration with UBC, TransLink developed two more productive routes to better meet the needs of customers using the services. As a result, route C22 was discontinued and route C18 was introduced in December 2013.

Outcomes:

- Annual revenue hours increased by 24 per cent to accommodate a growing ridership made possible through the service changes.
- New routes are direct, simple and consistent, serving areas of strong demand and key destinations.
- Total annual boardings on the two UBC routes increased 66 per cent.
- Cost per boarded passenger decreased 26 per cent.
- Customers have better access to the south end of campus, including Wesbrook Village.



Routes C18/C20/C22		2012 [C20/C22]	2014 [C18/C20]	Change
	Annual revenue hours	6,300	7,800	24%
	Annual boardings	179,000	297,000	66%
	Boardings per revenue hour	28	38	34%
	Cost per boarded passenger	\$2.16	\$1.61	-26%

5. Outlook for 2015-2016

The 2014 Base Plan and Outlook outlines strategic initiatives, transportation programs and services that TransLink will deliver in 2015 and 2016 using existing revenue sources.

TransLink continues to focus 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](#).

As resources allow, TransLink's Network Management program will continue to optimize service based on the results of the 2014 Bus Service Performance Review and recommend further proposals for public consultation and implementation in 2015 and 2016.

Acknowledgements

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