TransLink

2015 Transit Service Performance Review

VOLUME 1

TRANS LINK

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Executive Summary

TransLink manages Metro Vancouver's integrated regional transit network and regularly reviews and modifies transit service to better serve our customers. Our focus is on improving the customer experience and increasing ridership by maximizing the use of existing resources.

The 2015 Transit System Performance Review (TSPR) is a comprehensive review of ridership by route and time of day for bus, SeaBus, SkyTrain and West Coast Express. The TSPR informs the management of our integrated regional transit network and serves as a resource for staff at TransLink, our partner agencies and the public.

Ridership data in the TSPR was collected from a number of sources including automatic passenger counter (APC) units on buses and in Canada Line stations, turnstiles at SeaBus terminals and manual passenger counts on SkyTrain platforms. Data from our Compass Card system is not included in this year's report as the phased roll-out of Compass continued during 2015.

Service change highlights

Although total annual revenue hours across the region remain the same, in 2015 roughly 15,000 revenue service hours were strategically reallocated from routes at times when there is low demand to routes where customers need them most.

In 2015, service frequencies were increased to reduce overcrowding on a number of routes, including the 49, 100 and C23 in Vancouver; C28 in the Northeast Sector; 335 and 351 in the South of Fraser; and 403 and 410 in Richmond.

Improvements were made to the NightBus network to provide extended service hours and increased frequency. Additional trips were added to the N19, which parallels the Expo Line, to provide combined 24-hour service between Downtown Vancouver and Surrey. Service frequencies were also increased on most NightBus routes and some regular bus routes in the late evening.

No service changes were made to SeaBus, SkyTrain or West Coast Express in 2015.

Performance highlights

Trends identified during the 2015 Transit Service Performance Review include:

1. Bus boardings in all sub-regions grew or remained stable in 2015
2. Major bus routes across the region are experiencing above-average growth in boardings
3. Almost half of bus revenue hours with chronic overcrowding occur outside weekday peak periods
4. Average speeds of many bus routes are trending downward
5. SkyTrain passenger volumes have increased since 2011
6. Weekend passenger volumes on SkyTrain are similar to weekday volumes outside of peak periods

System-wide performance (2011-2015)

Ridership across all modes of the system continues to grow. From 2011, total journeys across the system increased 2.6 per cent from 233 million to 239 million, and total system-wide boardings increased 2.2 per cent from 356 million to 364 million.

SeaBus boardings have remained steady over the past few years with 6.1 million recorded in 2015. If these boardings were on a bus route, SeaBus ridership would rank tenth highest in the overall bus system.

SkyTrain passenger volumes at surveyed Canada, Expo and Millennium line stations have also increased by up to 28 per cent as compared to 2011 volumes. New data shows that weekend ridership is similar to weekday ridership outside of peak periods on all SkyTrain lines. West Coast Express boardings remain steady.

Ridership at the system-wide level is strongly impacted by external factors such as the local economy and transportation costs.

Sub-regional bus performance (2011-2015)

While the transit system functions as a regional network, we also analyze trends at the sub-regional level, where bus routes are grouped by geographic location. Variations in performance are expected due to differences in land use and transit network design, and localized impacts of changes to these factors are more evident at this level.

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

Burnaby/New Westminster annual bus boardings increased by six per cent, coinciding with a five per cent increase in annual revenue hours; much of that ridership increase occurred in 2015.

Ladner/South Delta/Tsawwassen experienced an increase of 0.5 million or 28 per cent in annual boardings, with a stable level of annual revenue hours from 2011 to 2015. Most of the ridership growth is concentrated in commuter-oriented services, which connect to the Canada Line. This increase also reflects boardings from the 2014 integration of previously unscheduled buses on route 620, to meet high customer demand from ferry passengers.

Maple Ridge/Pitt Meadows ridership remained stable and annual revenue hours decreased on community shuttle routes with low ridership.

North Shore ridership was stable and service hours increased by ten per cent due to the implementation of some projects identified in the 2012 *North Shore Area Transit Plan*. 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 decreased by four per cent, potentially due to Evergreen Extension construction impacts, despite an increase in 2,000 annual revenue hours.

Richmond experienced 4,000, or one per cent, fewer annual bus revenue hours as a result of ongoing adjustments after the introduction of the Canada Line. However, annual bus boardings grew by one million passengers, or six per cent.

South of Fraser experienced the largest increase of new service: 81,000 annual revenue hours were added to meet growing demand in this sub-region. The area also saw an increase in five million annual bus boardings since 2011, the highest growth in the region. South of Fraser has the second largest volume of bus boardings in the region.

Vancouver/UBC ridership remained stable and annual revenue hours increased by six per cent to address overcrowding.

1. Overview

TransLink manages Metro Vancouver's integrated regional transit network and regularly reviews and modifies transit service to better serve our customers. Our focus is on improving the customer experience and increasing ridership by maximizing the use of existing resources.

A key tool in meeting these goals is the Transit Service Performance Review (TSPR). In 2015, we expanded the scope of our annual Bus Service Performance Review (BSPR) to include a review of ridership and service productivity for bus, SeaBus, SkyTrain and West Coast Express. Now called the Transit Service Performance Review, this review will inform the management of our transit network and guide decision-making regarding the allocation of transit service resources.

Ridership data for the TSPR was collected from a number of sources including automatic passenger counter (APC) units on buses and in Canada Line stations, turnstiles at SeaBus terminals and manual passenger counts on SkyTrain platforms.

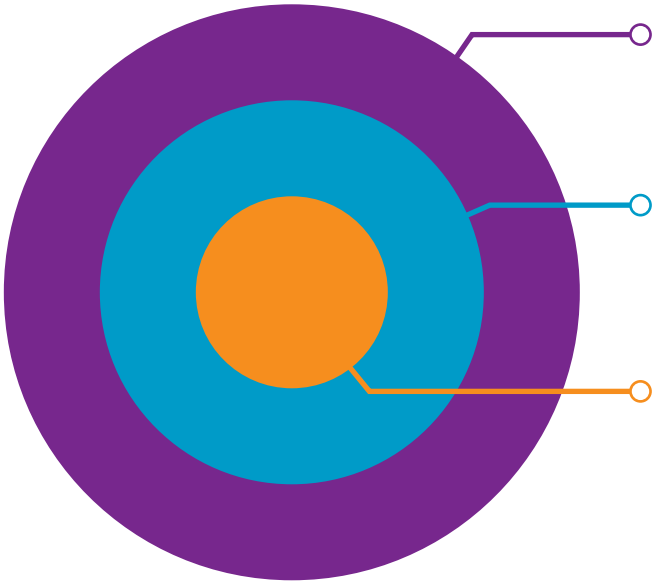
Data from our Compass system is not included in this year's report as the phased roll-out of Compass continued during 2015.

By regularly monitoring all modes in our transit network, we are able to adjust service to address issues such as overcrowding and recommend further proposals for public consultation and implementation.

Analyzing bus service performance

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

Levels of Bus Service Performance Analysis



SYSTEM-WIDE
We look at the whole system to identify big trends, and see how the system is doing from year to year.

SUB-REGIONAL
We examine bus services within eight areas in our region, to help us understand local trends in more detail.

ROUTE-BY-ROUTE
We look at every single route to see how they are performing individually.

BUS SYSTEM-WIDE ANALYSIS

The system-wide analysis looks at larger, macro-level trends in system performance over the last five years. Analysis at this level captures changes in ridership at the regional level. Many of the factors affecting the entire transit network are external, such as fuel prices and employment.

BUS 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, such as 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:

- 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

Routes which serve more than one sub-region are assigned to a single sub-region. Each route's designated sub-region is listed in its route summary.

BUS ROUTE-BY-ROUTE ANALYSIS

Route-by-route analysis provides details on how individual components of the system are performing. It also assesses the impacts that recent service changes have on each route and aids in identifying potential future adjustments.

Bus boardings and alightings (exits) are collected by automated passenger counter (APC) units, which are above the doors on approximately 20 per cent of the bus fleet; these buses are rotated throughout the system to collect data on each route.

In addition to performance measures included in previous years, the following were added for each route in 2015 (see *Appendix B* for further details):

- Capacity Utilization
- On-Time Performance
- Average Speed
- Bus Bunching

Appendix C (Volume 2) contains route summaries with key performance measures for each bus route in the system.

Analyzing SeaBus service performance

Turnstiles at the SeaBus terminals count the number of passengers boarding the vessel before each sailing. Due to the seasonal increase in service and ridership during the summer months, analysis was performed for both the summer and fall schedule periods.

Appendix D (Volume 3) contains a route summary with key performance measures for SeaBus.

Analyzing SkyTrain and West Coast Express service performance

All-day, manual passenger counts were conducted at 20 SkyTrain station platforms for all three lines on weekdays (Tuesday to Thursday) in fall 2015. Surveyors counted the number of passengers in each train car before the train departed the station.

In addition, all-day Saturday and Sunday counts were performed at 17 platforms in 2015. This is the first time that extensive weekend passenger counts have been conducted.

Canada Line stations also have APC units, usually located above stairs and escalators, which use sensors to count passengers entering and exiting each platform during all service hours. In the future, APC data will be supplemented with Compass data.

West Coast Express ridership is based on manual passenger counts taken over a three-day period.

Appendix E (Volume 3) contains line summaries with key performance measures for the Canada, Expo and Millennium lines and West Coast Express.

Appendix F (Volume 3) contains summaries with key performance measures for each SkyTrain station in the system.

METRIC COLOUR KEY

Percentages shown in tables throughout this summary report 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

Changes less than 1.5 per cent are considered neutral because normal fluctuations are to be expected in a large transit system with many influencing factors.

2. Planning Context in 2015

TransLink regularly monitors transit service performance and identifies opportunities to improve. We are focused on providing a good customer experience and serving more customers with the resources available. We have to balance this with our mandate to maintain access to transit for customers travelling in areas or time periods with low ridership.

Reinvesting existing resources

In 2015, we were able to maintain annual revenue hours across the region while we made some service more efficient and introduced new services into growing areas of demand. Service improvements were made possible because we shifted about 15,000 revenue hours from routes with low demand to routes where customers need them most. Since 2010, a total of 407,000 annual revenue hours have been reallocated.

Year	Strategic Reinvestment of Annual Revenue Hours
2010	52,000
2011	178,000
2012	56,000
2013	54,000
2014	52,000
2015	15,000
Total	**407,000**

Service change highlights

TransLink's service changes over the last few years have benefited customers across the region and have resulted in long-term positive effects across a number of performance indicators.

In 2015, only a small number of service hours were reallocated. Some routings were adjusted, but no routes were introduced or discontinued.

Service frequencies were increased to reduce crowding at specific times on a number of routes, including the 49, 100 and C23 in Vancouver; C28 in the Northeast Sector; 335 and 351 in the South of Fraser; and 403 and 410 in Richmond.

The NightBus network was also significantly improved. Additional trips were added to the N19, which parallels the Expo Line, to provide combined 24-hour service between Downtown Vancouver and Surrey. Service frequencies were also increased on most NightBus routes and some regular bus routes in the late evening.

We also adjusted some bus routes to provide better access and connectivity to SkyTrain and other bus routes. The 116 was rerouted to better serve an area of growing employment along the eastern portion of North Fraser Way in the Big Bend area of south Burnaby. The C23 in Vancouver and 395 in Langley are other examples of routes adjusted to improve connectivity to SkyTrain and bus exchanges.

Vehicles on three bus routes were also changed to better match ridership and non-revenue service hours were decreased through service scheduling efficiencies. Some additional revenue hours were added to improve running time reliability.

No service changes were made to SeaBus, SkyTrain or West Coast Express in 2015.

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, because the system is comprised of multiple modes and routes, across multiple municipalities and a service area of 1,800 square kilometres.

As shown in the table below, both total journeys and boardings for all transit modes have grown between 2011 and 2015. Also, as compared to 2014, total journeys and boardings are up 1.8 per cent and 2.1 per cent, respectively, in 2015. This increase is above the average annual population growth of 1.4 per cent. Factors positively affecting ridership may include population growth, rising tourism and one-zone fares on buses.

TransLink has endeavoured to serve current customers and grow ridership through implementing operational efficiencies and reallocating service hours to where they are best utilized. This has resulted in serving more customers with limited investments. However, additional investment in revenue service is required in order to achieve more substantial gains in ridership.

Total Transit Journeys and Boardings, 2011 - 2015

All Numbers in Millions	2011	2012	2013	2014	2015	Compound Annual Growth Rate [2011 - 2015]	1 Year Change [2014 - 2015]
Total Journeys*	233	239	234	235	239	**0.6%**	**1.8%**
Total Boardings*	356	363	355	357	364	**0.6%**	**2.1%**

**Including HandyDART*
Source: 2015 Year-End Financial and Performance Report.

***Journey**: A complete trip from origin to destination using one or more transit modes; one journey can be associated with multiple boardings if transfers are made between transit services.*

***Boarding**: One person entering one transit vehicle, excluding transfers between services. If a customer transfers between two vehicles (including different modes) to reach a destination, that person would generate two boardings.*

Sub-regional bus performance

In addition to analyzing performance of the overall bus system, the performance of the different sub-regions is also monitored. Variation in performance is expected due to a number of factors: different levels of customer demand, urban planning, land use and network design. Performance may change over time as these factors in each sub-region evolve.

Between 2011 and 2015, annual revenue hours remained stable in five sub-regions and increased in two sub-regions. During the same period, bus boardings remained stable in five sub-regions and increased in three sub-regions.

Finally, the median cost per boarded passenger remained stable in four sub-regions and decreased in two sub-regions. However, cost per boarded passenger increased in the North Shore, due to implementation of some projects identified in the 2012 Area Transit Plan, and in Vancouver/UBC because of service changes intended to reduce overcrowding. This is a measure of system efficiency but does not indicate actual total operating costs.

Additional figures are included in *Appendix A*.

Bus Service Performance by Sub-Region, 2011 - 2015

	Annual Revenue Hours (000's)			Annual Boardings* (Millions)			Median Cost per Boarded Passenger		
	2011	2015	Compound Annual Growth Rate	2011	2015	Compound Annual Growth Rate	2011	2015	Compound Annual Growth Rate
Burnaby/New Westminster	475	499	1%	32.0	33.9	1%	$1.36	$1.30	-1%
Ladner/South Delta/Tsawwassen	59	59	0%	1.8	2.3	5%	$2.72	$2.31	-4%
Maple Ridge/Pitt Meadows	89	83	-2%	3.0	3.0	0%	$2.48	$2.25	-2%
North Shore	357	393	2%	15.0	14.9	0%	$1.58	$1.80	3%
Northeast Sector	305	307	0%	14.0	13.4	-1%	$2.01	$1.98	0%
Richmond	300	296	0%	15.8	16.8	2%	$1.71	$1.61	-1%
South of Fraser	630	711	3%	31.3	36.3	4%	$1.91	$1.92	0%
Vancouver/UBC	1,449	1,532	1%	130.8	132.0	1%	$1.05	$1.15	2%
System-wide	**3,664**	**3,880**	1%	**243.7**	**252.7**	1%	**$1.37**	**$1.40**	1%

**Source: Automated Passenger Counter Data*

Route-by-route bus performance

TransLink has a mandate to serve a large customer base while still providing access to areas with lower customer demand. Bus services across the region serve a variety of functions within the transit network, and we expect different levels of performance from different routes.

Route specific performance data helps us 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 to make the best use of available resources.

Additional tables and graphs are included in *Appendix A*; route summaries are in *Appendix C*.

SeaBus route performance

For the first time, a SeaBus route summary has been prepared (*Appendix D*). SeaBus boardings have remained steady over the past few years with 6.1 million recorded in 2015. If these boardings were on a bus route, SeaBus ridership would rank tenth highest in the overall bus system.

SkyTrain and West Coast Express line and station performance

The Canada, Expo and Millennium lines and West Coast Express have also been reviewed on a line and station level for the first time (*Appendices E and F*).

SkyTrain passenger volumes at stations have increased by up to 28 per cent since 2011 and new data shows that weekend ridership is similar to weekday ridership outside of peak periods.

West Coast Express boardings remain steady. Both rail systems will experience changes in passenger travel patterns when the Evergreen Extension goes into service.

4. Performance Highlights

TransLink is working to provide better customer service and serve more customers. In order to achieve this, ongoing management of the transit network has become increasingly important.

This year's TSPR is our most comprehensive public review of service in TransLink's history. During our analysis, a number of trends were identified:

1. **Bus boardings in all sub-regions grew or remained stable in 2015**

2. **Major bus routes across the region are experiencing above-average growth in boardings**

3. **Almost half of bus revenue hours with chronic overcrowding occur outside weekday peak periods**

4. **Average speeds of many bus routes are trending downward**

5. **SkyTrain passenger volumes have increased since 2011**

6. **Weekend passenger volumes on SkyTrain are similar to weekday volumes outside of peak periods**

1. Bus boardings in all sub-regions grew or remained stable in 2015

More people across the region boarded buses in 2015 than in 2014, despite funding levels and revenue hours remaining relatively the same. The sub-regions with the greatest total annual boardings in 2014 also experienced the largest growth in additional boardings in 2015, while other sub-regions remained steady.

Burnaby/New Westminster and South of Fraser experienced the greatest percentage increase in bus boardings between 2014 and 2015. For Burnaby/New Westminster, this is in contrast to steady ridership levels from 2011 to 2014. Across the river, South of Fraser continued a multi-year trend of growth in bus boardings. Most of the growth in boardings in these two sub-regions was at bus stops along the Frequent Transit Network (FTN), where buses come every 15 minutes or better from early morning until 9 PM, seven days a week.

Vancouver/UBC also experienced a similar volume of growth in bus boardings, but the percentage increase was smaller due to the size of the sub-region.

Annual Bus Boardings by Sub-Region, 2011 - 2015

Sub-region	Annual Bus Boardings (Millions)					Compound Annual Growth Rate [2011 - 2015]	1 Year Change [2014 - 2015]
	2011	2012	2013	2014	2015		
Burnaby/New Westminster	32.0	31.7	32.4	31.9	33.9	1%	6%
Ladner/South Delta/ Tsawwassen	1.8	2.0	2.0	2.2	2.3	5%	4%
Maple Ridge/Pitt Meadows	3.0	3.1	3.1	3.1	3.0	0%	-1%
North Shore	15.0	15.1	14.9	14.7	14.9	0%	1%
Northeast Sector	14.0	14.4	13.8	13.4	13.4	-1%	0%
Richmond	15.8	16.5	16.6	16.7	16.8	2%	1%
South of Fraser	31.3	32.7	33.3	34.5	36.3	4%	5%
Vancouver/UBC	130.8	134.8	132.0	130.0	132.0	0%	2%
System-wide	**243.7**	**250.3**	**248.1**	**246.5**	**252.7**	1%	3%

Source: Automated Passenger Counter Data

2. Major bus routes across the region are experiencing above-average growth in boardings

System-wide total annual bus boardings have gradually increased since 2011 at an average rate of one per cent per year. However, across the region, a number of individual routes have seen stronger growth, between two to five per cent per year averaged over the last four years.

Many of these routes are well-established and among the network's busiest routes. Increased ridership on these routes is important due to the number of customers they serve and the level of resources needed. Because of their large baseline ridership, even small percentage changes in boardings can impact ridership at the sub-regional and system-wide levels. For example, on route 410 between Richmond and New Westminster, annual boardings increased by more than 900,000 between 2011 and 2015, which accounts for one-tenth of the system-wide growth in bus boardings during that period.

The following routes are among the top performers in their respective sub-regions and have seen above-average growth over the past four years:

Major Established Routes with Above-Average Growth in Annual Boardings

Route	Sub-Region	2015 Annual Boardings	Average Annual Growth Rate
49 Metrotown Stn/Dunbar/UBC	Vancouver/UBC	7,268,000	5%
106 Metrotown Stn/New West Stn	Burnaby/New Westminster	6,006,000	3%
169 Coquitlam Stn/Braid Stn	Northeast Sector	1,291,000	2%
240 Vancouver/15th St	North Shore	2,701,000	4%
319 Scott Rd Stn/Newton Exch	South of Fraser	4,307,000	4%
410 22nd St Stn/Railway	Richmond	5,982,000	4%
601 Bridgeport Stn/South Delta/Boundary Bay	Ladner/South Delta/Tsawwassen	1,060,000	4%
791 Haney Place/Braid Stn	Maple Ridge/Pitt Meadows	633,000	5%
System-wide			**1%**

The above routes share many characteristics that lead to their high performance. For example, these are longer routes that serve areas of strong demand and link major activity centres and transportation connection points. As ridership continues to grow on these routes and as resources allow, frequency can be increased, providing more capacity and better connections for customers to other routes and activity centres throughout the system.

Annual boarding trends for each bus route are included in the summaries in *Appendix C*.

DID YOU KNOW?

Some new routes introduced in 2012 and 2013 have double-digit average annual growth rates, which can be expected during the first few years of service.

- 96 B-Line: **+15%**
- 555: **+27%**
- 188: **+29%**

3. Almost half of bus revenue hours with chronic overcrowding occur outside weekday peak periods

The primary measure of customer comfort in transit service planning is passenger load. If the number of passengers on a bus is above crowding guidelines, it may mean a negative experience for the customer.

The Annual Revenue Hours (ARHs) with Overcrowding metric identifies bus services with chronic overcrowding. This performance indicator is based on the number of ARHs where the average peak passenger load—calculated for each route, day type, clock hour and direction—is above crowding guidelines (see *Appendix B*).

In 2015, there were 95,000 ARHs with overcrowding during weekday peak periods and 79,000 ARHs with overcrowding at all other times (including weekday and weekend). Overcrowding occurs during weekday peak hours because these are the time periods with maximum passenger demand, and the number of buses in service is limited to what is currently available in the fleet. However, additional service could be provided with the existing fleet in the off-peak periods to reduce chronic overcrowding if resources can be identified. Without new funding, resources could be reallocated from existing services with low demand to these overcrowded routes.

Bus Annual Revenue Hours with Overcrowding by Time Period

Period	Time of Day	Annual Revenue Hours with Overcrowding	Sub-Total	% of Total
Weekday Peak	6-9 AM and 3-6 PM	95,000	95,000	**55%**
Weekday Off-Peak	All Other Hours	59,000	79,000	**45%**
Saturday	All Day	14,000		
Sunday	All Day	6,000		
Total			**174,000**	

It should be noted that this 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 issue. Also, in places where buses experience a high degree of unreliability, resulting in uneven passenger loads, passengers' experiences of overcrowding may not be captured by this metric.

DID YOU KNOW?

Of the 79,000 Annual Revenue Hours with overcrowding outside of weekday peak periods, 18,700 hours (24 per cent) are associated with route 49. TransLink is modifying this route in part to reduce overcrowding.

4. Average speeds of many bus routes are trending downward

A new metric in the 2015 TSPR tracks average speed for each bus route. While the speed will vary by location, direction, time of day, day of week and other factors, an average value for all trips throughout the year is used.

A bus route is trending downward in average speed if there were two consecutive years of decreases between 2013 and 2015; it is trending upward if there were two years of increases. System-wide, there were four times more routes with a downward trend in speed than with an upward trend. Six sub-regions had more routes trending downward than upward; only in Ladner/South Delta/Tsawwassen and Maple Ridge/Pitt Meadows were there more routes with average speeds trending upward than downward.

Some factors which could cause a decrease in speed include:

- Lane or speed reductions or detours caused by construction along the route
- Increased vehicle traffic along the route
- Increased boarding time due to increased passengers
- Increased street infrastructure such as intersections, traffic signals and crosswalks
- Increased traffic calming measures such as speed humps and lower speed limits

Factors which could cause an increase in speed include:

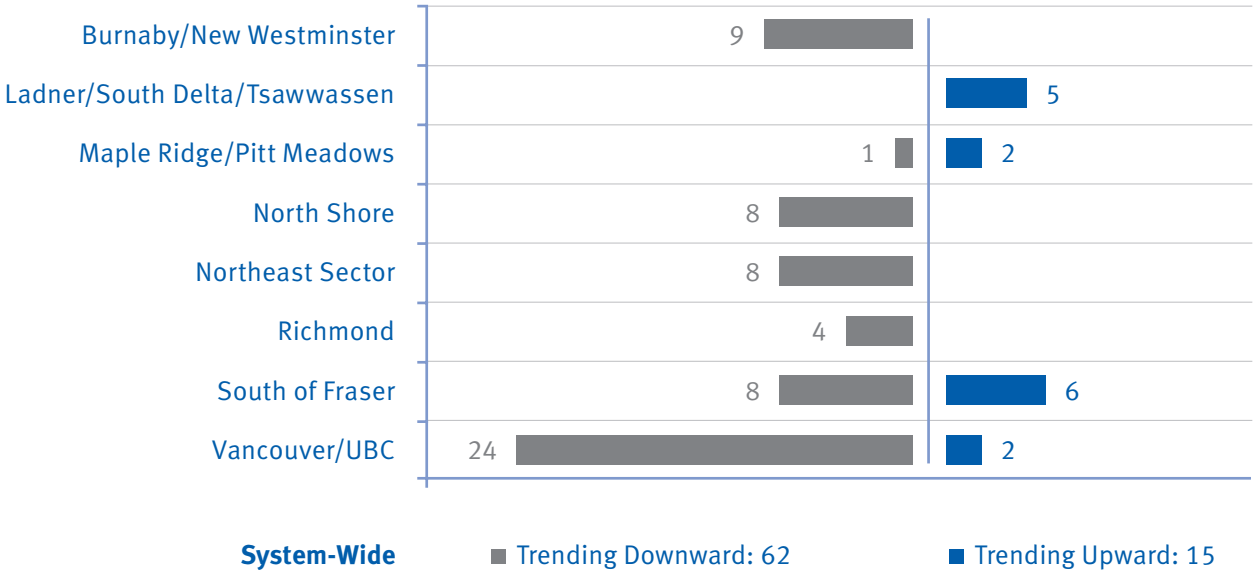
- Decreased crowding in the bus
- Decreased boarding time
- Increased bus stop spacing
- Increased use of transit priority measures such as dedicated lanes, queue jumpers and signal priority

While a change in speed may be as little as 0.1 km/h and undetected by most people, consistently decreased speed over time results in negative customer impacts and increased operating costs.

DID YOU KNOW?

Out of the 196 routes with speed data, approximately one out of three routes has an average speed that is trending downward.

Number of Routes with Trending Changes in Average Speed by Sub-Region, 2013-2015

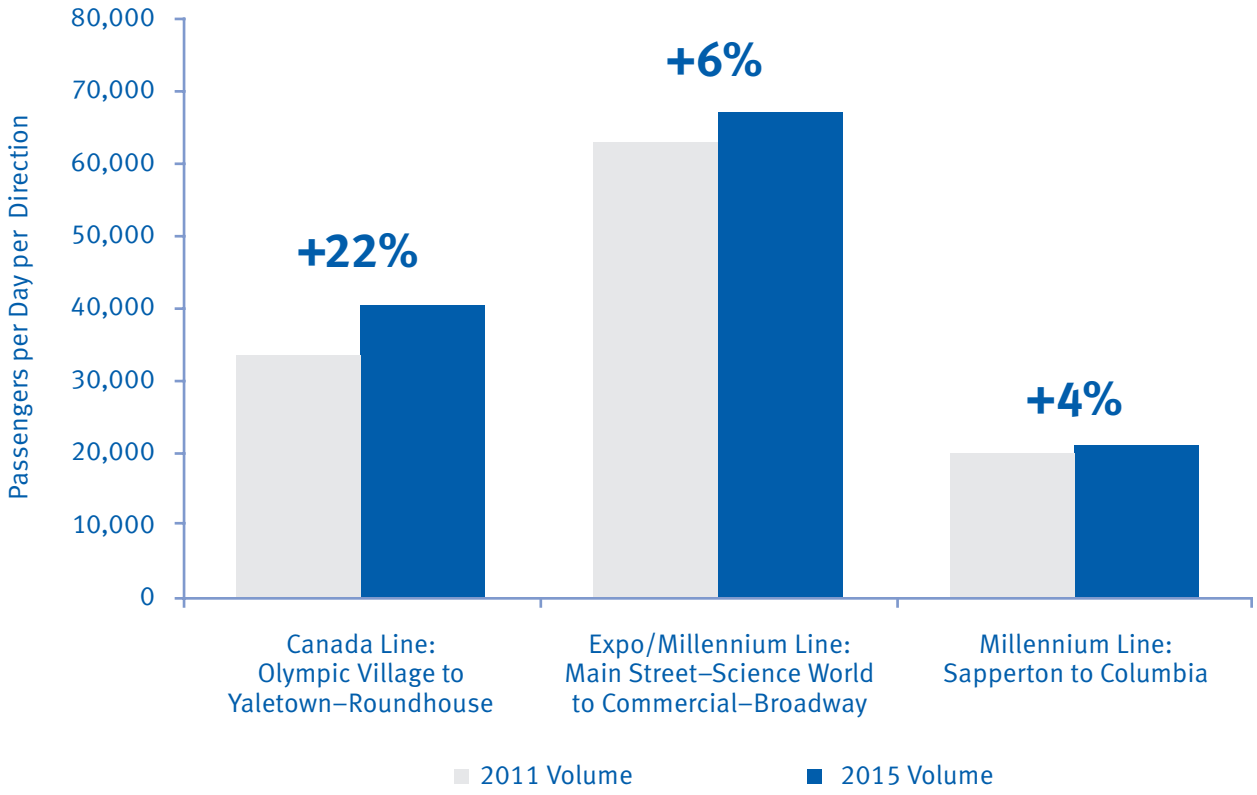


Note: Routes with stable average speed or with incomplete data are not shown.

5. SkyTrain passenger volumes have increased since 2011

Weekday, all-day passenger volumes on the Canada, Expo and Millennium lines increased up to 28 per cent at 19 out of 20 station platforms surveyed, despite stable weekday service levels between 2011 and 2015. Passenger volumes were counted manually in each train car before the train departed the station. Volumes on the Canada Line had a greater per cent growth than those on the Expo and Millennium lines, but the shared section of the Expo and Millennium lines, between Waterfront and Columbia stations, had the largest absolute volumes.

Weekday All-Day Total In-Train Passenger Volumes at Peak Load Points, 2011-2015



DID YOU KNOW?

Renfrew to Commercial–Broadway has a higher passenger volume than Sapperton to Columbia during the peak hour, but Sapperton to Columbia has a higher all-day total.

The 16 Canada Line stations have APC data for passengers entering and exiting each station. Templeton, Olympic Village, Langara-49th Avenue and Aberdeen Stations had the greatest percentage growth in the number of exiting passengers on weekdays. These stations are adjacent to or near major residential and commercial developments built between 2011 and 2015 and, with the exception of Templeton, also connect to major bus routes with growing ridership. For comparison, Vancouver City Centre is the busiest Canada Line station with 16,100 passenger exits per weekday in 2015.

Canada Line Stations with Greatest % Change in Exits, 2011-2015

Station	Weekday Exits, Fall 2011	Weekday Exits, Fall 2015	Change	% Change
Templeton	2,500	3,100	**600**	**24%**
Olympic Village	3,000	3,600	**600**	**20%**
Langara-49th Avenue	6,600	7,600	**1,000**	**15%**
Aberdeen	3,700	4,200	**500**	**14%**

6. Weekend passenger volumes on SkyTrain are similar to weekday volumes outside of peak periods

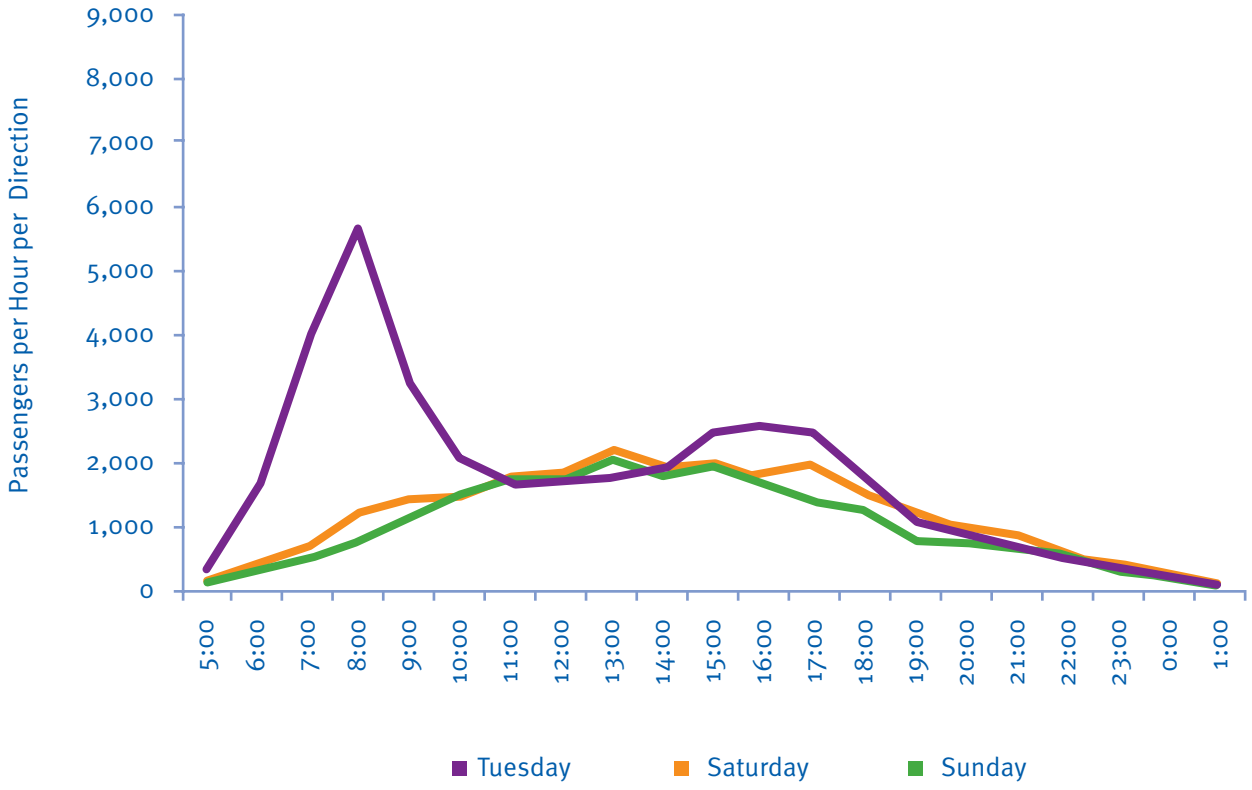
In 2015, all-day passenger volumes were counted on weekends for the first time on all three SkyTrain lines.

The graphs below compare weekday and weekend hourly passenger volumes, in trains travelling to Waterfront at locations near the midpoints of the Canada Line and the shared section of the Expo and Millennium lines.

On all three days, hourly passenger volumes increased in the morning and afternoon, then decreased in the evening and night in a similar pattern with the exception of the ridership spikes during weekday peak periods.

Despite trains running less frequently on weekends, midday passenger volumes on weekends are also consistent with those on weekdays. This suggests that customers are regularly making trips on SkyTrain for purposes other than commuting.

Hourly Passenger Volumes from King Edward to Broadway–City Hall (Canada Line)



Hourly Passenger Volumes from Royal Oak to Metrotown (Expo and Millennium Lines)