

2019 Green Bond Impact Report



A Message from our CFO



A lot has changed since the last Green Bond Impact Report. Most significantly the world, and our region have been propelled into a global pandemic. Although TransLink's immediate focus remains on providing essential transportation services, it is important that we don't lose sight of the efforts being made to become more environmentally sustainable. The climate crisis is real, and TransLink plays a critical role in leading the way to a low carbon, climate-resilient future.

TransLink continues to invest in projects that are financially and environmentally responsible. We have a total capital investment of over \$6.4 billion over 10 years from 2018 to 2027. This represents an unprecedented investment in transit and transportation and is the largest capital program in TransLink's history. It includes numerous system and program expansions, coupled with robust state of good repair projects. This historic level of investment in capital projects provides TransLink with opportunities to better serve more customers while demonstrating our commitment to environmental sustainability.

After the momentous success of TransLink's inaugural Green Bond issuance of \$400 million in November 2018, we issued a second offering of \$200 million in October 2019. The net proceeds are being used exclusively to finance clean transportation and energy efficiency projects.

Investors are increasingly integrating social and environmental criteria into their investment decisions. By investing in Green Bonds, TransLink will deliver tangible and sustainable outcomes, both financially and environmentally. We're proud to be a leader in this area, and excited about our ability to make real change.

I encourage you to learn more about TransLink through our [Accountability Report](#) and our Green Bond Program.

Sincerely,

Christine Dacre
Chief Financial Officer, TransLink

About TransLink

About TransLink

TransLink is the first transportation authority in North America to oversee a broad range of transportation modes, including bus, commuter rail (SkyTrain), cycling, walking, roads and more.



Bus



Seabus



Skytrain



Commuter Rail



Walking



Cycling



Roads



Bridges

1,800km²

TransLink covers 1,800 square kilometres.

452.9M

In 2019, total ridership accrued to 452.9 million boardings.

Key investment attributes include:

- More than \$5.4 billion in assets
- Strong fiscal management and investment-grade ratings
- Diversified and dedicated revenue sources
- Government-legislated entity
- Only issuing transportation authority in Canada

For more information about TransLink, please see our [Accountability Report](#).

Our Commitment to Sustainability

At TransLink, we're committed to fostering the development of a sustainable transportation system that aims to meet the needs of people, organizations, and businesses, and promotes the ecological, economic and social well-being of Metro Vancouver and beyond.

Our [Sustainability Policy](#) articulates TransLink's commitment to making sustainability a key factor in all our strategies, plans, business practices, decisions, and operations.



TransLink's sustainability efforts earned a Gold level under the American Public Transportation Association (APTA) Sustainability Commitment in 2012. TransLink was the first transportation agency in

North America to achieve this accolade. In 2016, TransLink was awarded Platinum level status, and was the first transportation agency in Canada to earn this level.

In October of 2018, the Mayors' Council and TransLink Board of Directors approved environmental sustainability targets to reduce greenhouse gas emission by 80 per cent by 2050 and to utilize 100 per cent renewable energy in all operations by 2050. Meeting TransLink's GHG reduction goals requires the implementation of cleaner, low carbon technologies, progressive policies and clean energy investments.

80% reduction of greenhouse gas emissions (GHGs)

BY 2050

100% utilization of renewable energy in all operations

BY 2050



TransLink Green Bond Program

In 2018, TransLink developed a Green Bond Program to finance the organization's capital spending.

This Green Bond Framework aligns with the International Capital Market Association (ICMA) Green Bond Principles, which promote integrity in the market through transparency, disclosure and reporting. In 2019, TransLink issued a second green bond, building off the success from the first issuance.

Net proceeds of both TransLink's Green Bond issuances were used to finance or refinance, in whole or in part, existing and future sustainable capital projects.

TransLink's Green Bond Framework received a [Second-Party Opinion](#) from Sustainalytics.

 SECOND-PARTY OPINION Evaluation date: October 1, 2018 Issuer Location: New Westminster, Canada
 SUSTAINALYTICS Sustainalytics is of the opinion that the TransLink Green Bond Framework is credible and impactful, and aligns with the four components of the Green Bond Principles 2018.

Reporting Periods

This Green Bond Impact Reporting period is January 1 – December 31, to align with TransLink's Accountability Report and most recent fiscal year. The 2019 Green Bond Use of Proceeds is reported as of August 31, 2020.

Use of Proceeds

Capital raised by the 2018 Green Bond and 2019 Green Bond have been used to fund portions of the Millennium Line Evergreen Extension, SkyTrain Station and rail network upgrades, new higher-capacity rail cars, Transit Centre upgrades, electric trolley fleet maintenance and new battery electric buses. As well as improvements to the cycling and walking infrastructure throughout the system including, bike parkades and BC Bike Parkway maintenance.

Where referenced, the Total Project Costs, represent total projects costs before external funding.

The use and management of the proceeds of Green Bonds are described in TransLink's Green Bond Framework, and can be found in the [Investor Relations](#) section of our website.

TransLink Green Bond Program



**CLEAN
TRANSPORTATION**



**ENERGY EFFICIENCY
AND CONSERVATION**



**RENEWABLE
ENERGY**

Impact Reporting

TransLink continues to raise capital to support environmental sustainability, with a focus on **Clean Transportation, Energy Efficiency and Conservation, and Renewable Energy**. TransLink uses the best available methodologies to select and report on project and program indicators that demonstrate a positive environmental impact. Program/Project environmental benefits are reported on for the year of the bond issuance and assumes total allocated proceeds.

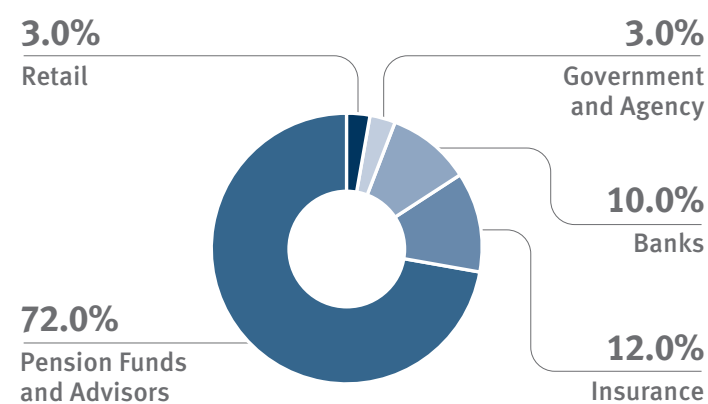
TransLink's Green Bond proceeds fund project categories that support the United Nations Sustainable Development Goals (UN SDGs).

PUBLIC TRANSIT PROJECTS	KEY PERFORMANCE INDICATORS	TRANSLINK GREEN BOND PROJECT CATEGORY			UNITED NATIONS SDGS	
Rapid Transit Projects – SkyTrain Extension SkyTrain Station Upgrades SkyTrain Operation and Maintenance Program Refurbishment and Purchases of New Rapid Transit Vehicles (Train Cars) Electric Bus Program Cycling and Walking Infrastructure	Ridership and GHG emissions	✓	✓	✓		
	Reduced/avoided (tCO ₂ e) due to mode shift					
	Air quality improvements					
	Energy saved per year (GJ/yr)					
	Renewable energy consumed (MWh/yr)					
	Support for biking infrastructure (km)					
BUILDING ENERGY EFFICIENCY IMPROVEMENTS	KEY PERFORMANCE INDICATORS	TRANSLINK GREEN BOND PROJECT CATEGORY			UNITED NATIONS SDGS	
SkyTrain Station Upgrades Transit Centre Energy Upgrades	Energy saved per year (kWh/yr)	✓	✓			
	Building energy efficiency (kWh/m ²)					

TransLink Green Bond Program 2018

Key Features of 2018 Green Bond

- On November 15, 2018, TransLink (Aa2/AA) successfully priced its inaugural Green Bond of **\$400 million**, making it the first transit authority in Canada to issue a Green Bond (ISIN:CA83740TAG28).
- The \$400 million **10-year bullet maturity bond** was priced with a coupon interest rate of 3.25 per cent, payable semi-annually until maturity on November 23, 2028.
- With orders from **42 investors**, the issue was over-subscribed. Investors with Green mandates and/or UN PRI (Principles of Responsible Investment) signatories represented 73 per cent of overall sales.
- Demand was primarily concentrated in Canada, with **92 per cent placed domestically**.



For the 2018 bond the net proceeds after issuance costs amounted to **\$397,824,000**

From December 2018 to June 2019, **100 per cent of the proceeds of this bond issuance have been released** from the segregated account, representing funds invested in eligible projects.

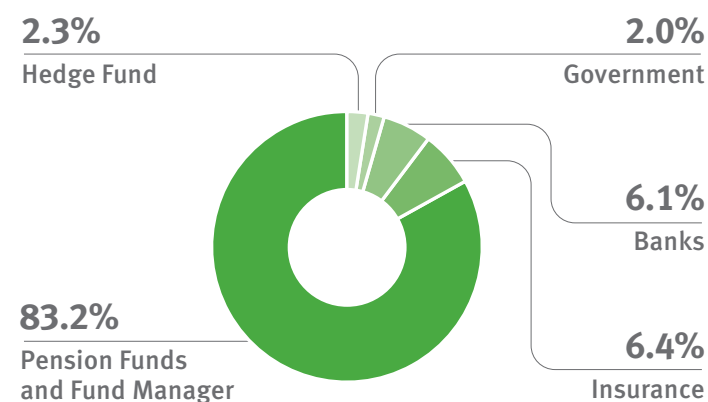
Program / Project Name	NET PROCEEDS DISBURSED (\$000s) *
Millennium Line Evergreen Extension	225,000
SkyTrain Station Upgrades	103,147
SkyTrain Operations and Maintenance Projects	44,371
Refurbishment and Purchases of New Rapid Transit Vehicles (Train Cars)	12,092
Electric Bus Projects	8,200
Transit Centre Energy Efficiency Upgrades	3,358
Cycling and Pedestrian Infrastructure	1,656
Total	397,824

* Allocation of 2018 Bond Net Proceeds amongst programs have been restated from 2018 Green Bond Impact Report.

TransLink Green Bond Program 2019

Key Features of 2019 Green Bond

- On October 22, 2019, TransLink (Aa2/AA) successfully priced its second green bond, issuing a **C\$200 million** 31-year Green Bond (ISIN:CA83740TAH01)
- The \$200 million **31-year bullet maturity** bond was priced with a coupon interest rate of 2.65 per cent, payable until maturity on October 29, 2050.
- The transaction was oversubscribed and met with twice the amount of demand. **34 buyers participated.**
- A total of **17 “Dark Green” investors** (i.e. having specific Green funds or a Green mandate) participated, accounting for approximately 75 per cent of allocations on the transaction
- Demand was primarily concentrated in Canada, with over **85 per cent placed** domestically.



For the 2019 bond issuance, as of September 30, 2020 **\$153,964,994 (77.5%) of the total net proceeds of \$198,580,000** have been released to fund eligible project spending

It is anticipated that the remaining net proceeds will be dispersed by December 31, 2020.

Program / Project Name	TOTAL ALLOCATION (\$000s)	NET PROCEEDS DISBURSED (\$000s) **	FUNDS TO BE DISBURSED BY DEC 31, 2020 (\$000s)
SkyTrain Station Upgrades	45,194	39,859	5,335
SkyTrain Operation and Maintenance Program	52,962	34,336	18,626
Purchases of New Rapid Transit Vehicles (Train Cars)	23,505	21,951	1,554
Rapid Transit Projects – SkyTrainExtension	25,469	19,859	5,610
Transit Centre Energy Upgrades	14,167	13,073	1,094
Cycling and Pedestrian Walking Infrastructure	29,566	17,776	11,790
Electric Bus Program	7,717	7,111	606
Total	198,580	153,965	44,615

** Funds to be disbursed by Dec, 31, 2020 (\$000s). Actual allocation of funds to be disbursed may vary by Program/Project.

Rapid Transit Projects | Millennium Line Evergreen Extension

The Millennium Line Evergreen Extension opened in December 2016.

The extension added 11 kilometres of guideway and 6 new stations to our existing network to service Burnaby, Port Moody and Coquitlam. Boardings at the new Millennium Line Evergreen Extension stations have grown by one million since 2017.

The Millennium Line Evergreen Extension makes Metro Vancouver's SkyTrain network the world's longest fully-automated rapid transit system.



Green Bond Proceeds

\$398M¹

Total Project Cost

\$225M

2018 Green Bond Proceeds

Project Categories



Project Benefits	2018 Green Bond	2019 Green Bond
Ridership on the Evergreen Line increased by 5.7 per cent over 2018.	6,442,900 riders	6,814,800 riders
4.9 per cent increase in renewable energy used for propulsion ³	15,830 megawatts	16,600 megawatts
1% improvement in energy use per boarding in 2019 over 2018	2.45 kilowatts	2.43 kilowatts



In 2019, boardings increased on the Evergreen Line by **5.7 per cent over 2018**.

This is equivalent to taking **300 cars off the road** for a year²



¹ \$398M is the value of TransLink's project and TransLink's contribution. There was significant additional senior government contributions, for the portion of the project delivered by the province.

² Assumes a 10% mode shift

³ This assumes 93 per cent renewable energy from the BC Hydro grid in 2018, and 96 per cent for 2019. <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/BCHydro-Quick-Facts-20200831.pdf>

Rapid Transit Projects | Surrey Langley SkyTrain Project Development

The Surrey Langley SkyTrain Project

The Surrey Langley SkyTrain project will extend the Expo Line along Fraser Highway, improving connectivity and accessibility for residents and businesses south of the Fraser River with high-speed and frequent transit service.

The Surrey Langley SkyTrain will extend the Expo Line 16 kilometres from Surrey's King George SkyTrain station along Fraser Highway to 203 Street in the City of Langley.



Green Bond Proceeds

\$29.2M

Total Project Cost

\$19.0M⁴

2019 Green Bond Proceeds

Project Categories



Clean
Transportation



Renewable
Energy

⁴ \$25.5M was the total TransLink contribution for the “Rapid Transit Project” category. The specific amount for Surrey Langley SkyTrain is \$19.0M.

Project Benefits

The Surrey Langley SkyTrain will improve the transportation experience, increase access to opportunities and housing, support healthy communities and the environment, and spur economic development.



Supporting climate goals and reducing GHG emissions:

The proposed extension is projected to serve 62,000 daily riders in the year 2035. Assuming a 10 per cent mode shift, approximately 5,000 tonnes CO₂e GHG emissions will be avoided annually (around 1,100 cars off the road for a year). In 2050, there will be 71,200 estimated daily riders, which equates to approximately 5,800 tonnes of CO₂e avoided annually (around 1,250 cars off the road for a year).

Support Healthy Communities: SkyTrain runs on electricity with no operating emissions. Further most transit trips also involve walking or cycling at the start and end of journeys. Active transportation supports improved public health outcomes.

Increased Transit Capacity: SkyTrain can help meet long-term ridership demand along key corridors. The extension will provide

capacity to move 6,800 passengers per hour per direction — more than 10 times the capacity of bus service today — with the ability to add further capacity to address future growth.

Reduced Travel Times: Travel time from Langley City Centre to King George SkyTrain Station are projected to be approximately 22 minutes, with trains departing every 6-8 minutes during peak times. This is more than 25 minutes faster than current local bus service, and more than 10 minutes faster than express bus service in the corridor.

Increase Access to Opportunities and Housing: More transit options provide more choice for commuters to help them move around the region. Further capital transit projects will encourage higher-density mixed-use development uses around SkyTrain stations.

Support Economic Development: Major transit infrastructure projects help grow our economy by spurring development, land-use change and creating diverse job opportunities through increasing business access to the region's labour force.

SkyTrain Station Upgrades

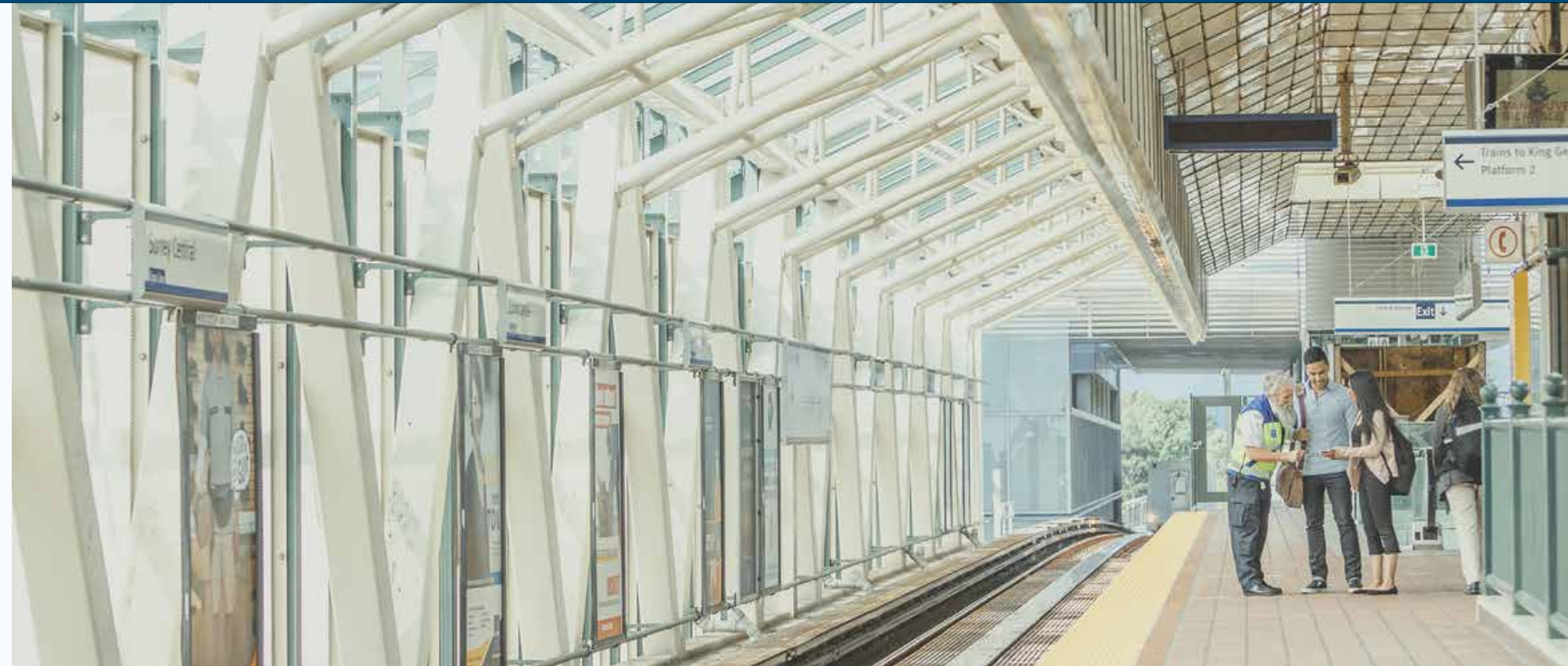
Expo Line has been integral to the region since it launched

Increased passenger demand has spurred progressive extension in 1989, 1990 and 1994 to add five additional stations and bring the line to King George in Surrey.

Improvements are necessary to ensure the Expo Line continues to meet the needs of the region's growing population. The Expo Line Upgrade Strategy provides recommendations to increase capacity on the Expo Line to match projected demand. The strategy also supports the Provincial Transit Plan to double the capacity of the line. Significant station upgrades are required to meet infrastructure needs.

The SkyTrain Station upgrades may include but are not limited to:

- New, upgraded EcoMod elevators and escalators to improve passenger access
- Improved LED lighting, extending roof structures, and new platform tiling
- Improved integration of pedestrian, bicycle, bus, and SkyTrain transportation modes
- Installation of bike parkades at the stations
- Relocated BC parkway path to provide separation for cyclists and pedestrians improving safety



Green Bond Proceeds

\$324.2M

Total Project Cost

\$148.3M

2018 Green Bond Proceeds	\$103.1M
2019 Green Bond Proceeds	\$ 45.2M

Project Categories

-  **Clean Transportation**
-  **Energy Efficiency and Conservation**
-  **Renewable Energy**

Program Benefits



Upgrades have led to increased station capacity, supporting growth in ridership and access to clean transportation

2019 Green Bond

3.2%

In 2019, SkyTrain ridership was 114.8 million boardings, an increase of 3.2 per cent over 2018.

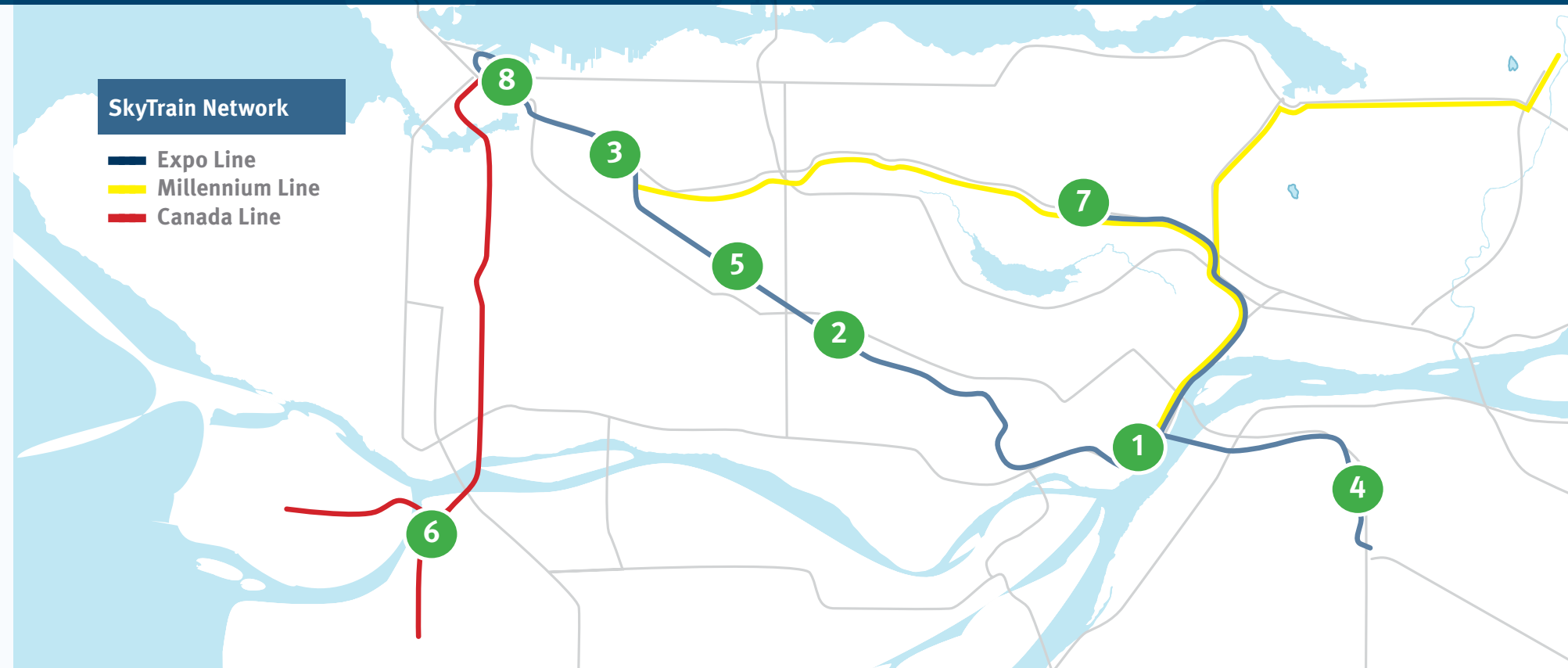
4.0%

In 2019, greenhouse gas emissions from our SkyTrain Stations were 4 per cent lower over 2018, **a reduction of 6,200 gigajoules.**

SkyTrain Station Upgrades

TransLink's two green bond issuances have supported upgrades at the following stations:

- 1 New Westminster**
Completed
November 2016
- 2 Metrotown**
Completed
March 2018
- 3 Commercial-Broadway**
Completed
February 2019
- 4 Surrey Central Station**
Completed
February 2019
- 5 Joyce-Collingwood**
Completed
June 2019
- 6 Canada Line Capstan Station Design**
In progress
- 7 Expo and Millennium Line Signage and Station Fixture Replacement**
In progress



8 Expo Line Escalator Replacements In progress

TransLink is replacing 37 escalators at numerous SkyTrain Stations along the Expo Line and at select West Coast Express stations as part of the TransLink Maintenance and Repair Program. This critical investment will keep escalators operating safely and reliably for customers as well as provide clean transportation and improve energy efficiency within our system.

EcoMode Escalator Features

- Reduce escalator energy consumption between 20 to 40 per cent from standard models
- Achieve 96% efficiency (compared to 85% or less of standard escalators)
- Reduce maintenance oil consumption by 97%
- Utilize LED lighting, improving lighting efficiency



SkyTrain Operations and Maintenance Projects

At 79 kilometres, SkyTrain is the oldest and longest automated, driver-less, electric, light rapid transit, system in the world.

It connects major hubs across Metro Vancouver including Vancouver, Burnaby, Coquitlam, New Westminister and Surrey. Utilizing BC Hydro's renewable electricity grid, skytrain provides customers with a zero-emission transportation option for travelling throughout the region.



Green Bond Proceeds

\$97.4M

2018 Green Bond Proceeds	\$44.4M
2019 Green Bond Proceeds	\$ 53.0M

Project Categories



Clean Transportation



Energy Efficiency and Conservation



Renewable Energy

Program Benefits

2019 Green Bond



In 2019, SkyTrain operations **utilized 141,000 megawatt hours of renewable energy**

Using a 10% mode shift, the benefits of customers using SkyTrain instead of a single-occupancy vehicle reduces **approximately 26,000 tonnes of CO₂e**

This is equivalent to **taking 5,200 cars off the road** for a year²



SkyTrain **GHG emissions in 2019 remained consistent with 2018** (approximately 1,500 tonnes CO₂e); however, ridership increased by 3.5 million boardings over 2018.

3.0%

This means there was a **3 per cent improvement in GHG emissions per boarding** in 2019.

Maintaining our SkyTrain system is critical to ensuring a reliable, clean transit network. SkyTrain Operations and Maintenance Projects include:

Power system upgrades Upgrades to operations and maintenance centres, mainline power, and control systems to support more frequent train service and longer trains.

Running rail and rail pad replacement As part of our commitment to keeping the system in a state of good repair, approximately 5,000 linear metres of running rail, and an average of 7,800 rail pads, are replaced every year.

Automatic train control system upgrades This provides automatic driverless SkyTrain operations on the electric rail network, supporting mode shift away from personal vehicles, and reducing GHGs and other air pollutants.

Traction and propulsion power upgrades The SkyTrain power supply and distribution system is made up of electric propulsion power substations, which is fed through BC Hydro's utility service. This service provides TransLink with electricity derived from a clean renewable energy source.

Refurbishment and Purchase of New Rapid Transit Vehicles | Train Cars

The average SkyTrain car operates more than 180,000 kilometres every year, reducing personal vehicle usage, and lowering associated greenhouse gas and air pollutant emissions.

This program included 80 new rail cars (56 Mark III and 24 Hyundai Rotem), as well as the refurbishment of 36 existing rail cars. Note, the use of proceeds for the refurbishment of rail cars were from the 2018 Green Bond issuance only.



Green Bond Proceeds

\$372.4M

Total Project Cost

\$35.6M

2018 Green Bond Proceeds	\$12.1M
2019 Green Bond Proceeds	\$23.5M

Project Categories



Lifetime Program Benefits

 **80 new rail cars**

will increase capacity by approximately **10 per cent** on the Expo Line, **23 per cent** on the Millennium Line, and **30 per cent** on the Canada Line, adding **8,200 additional spaces** per peak hours in both directions on all three SkyTrain lines

We estimate a reduction of **500 tonnes of CO₂e** through mode shift.⁵

This is equivalent to taking **100 cars off the road** for a year²



New Mark III Rail Car Benefits

Energy efficiency is improved from previous models due to; the combination of lightweight aluminum train car material, a linear induction motor (LIM) propulsion system, as well as highly effective regenerative braking that enables the reuse of energy released during braking.



Refurbishment of Mark I Rail Car Benefits

- New LED lighting improves energy efficiency
- Upgraded LIM improves energy efficiency from previous models



⁵ Estimating 180,000 km per new rail car, 10 per cent mode shift factor and 10.3L/100 km fuel efficiency

Transit Centre Energy Upgrades

TransLink's seven transit centres are the hubs of Metro Vancouver's bus transit system. Each transit centre serves as a maintenance, fueling and bus washing facility for the bus fleet it houses.

These transit centres are key to sustaining our operations to serve our customers.

To keep the transit systems running as efficiently as possible, TransLink consistently identifies areas of improvement, with a major focus on energy consumption.

TransLink is an active participant in BC Hydro's, PowerSmart⁶ program, which incentivizes program members to reduce energy waste and improve efficiency. A facilities energy management system is also incorporated, which tracks real-time energy data at transit centres. This monitors energy consumption and identifies areas to improve efficiency.



Green Bond Proceeds


\$17.6M

2018 Green Bond Proceeds **\$3.4M**
2019 Green Bond Proceeds **\$14.2M**

Project Categories

-  **Energy Efficiency and Conservation**
-  **Renewable Energy**

Program Benefits

PROJECT LOCATION AND DESCRIPTION	COMPLETION DATE	ENERGY SAVINGS (2017 TO 2019)	% IMPROVEMENT (2017 TO 2019)
West Vancouver Transit Centre PowerSmart lighting upgrades	November 2016	111,064 kWh	9 %
Richmond Transit Centre Lighting upgrade	March 2018	196,800 kWh	20 %
Vancouver Transit Centre PowerSmart lighting upgrades	February 2019	1,501,200 kWh	21 %
Surrey Transit Centre & Port Coquitlam Transit Centre PowerSmart lighting upgrades and door replacements	February 2019	+110,400 kWh	+2 %
SeaBus Terminals Building envelope rehab and construction	June 2019	224,600 kWh	13 %
Program Total		 1,923,264 kWh in savings (equivalent to about 230 homes' electricity use for one year)	

⁶ <https://www.bchydro.com/powersmart/business/programs.html>

Transit Centre Energy Upgrades

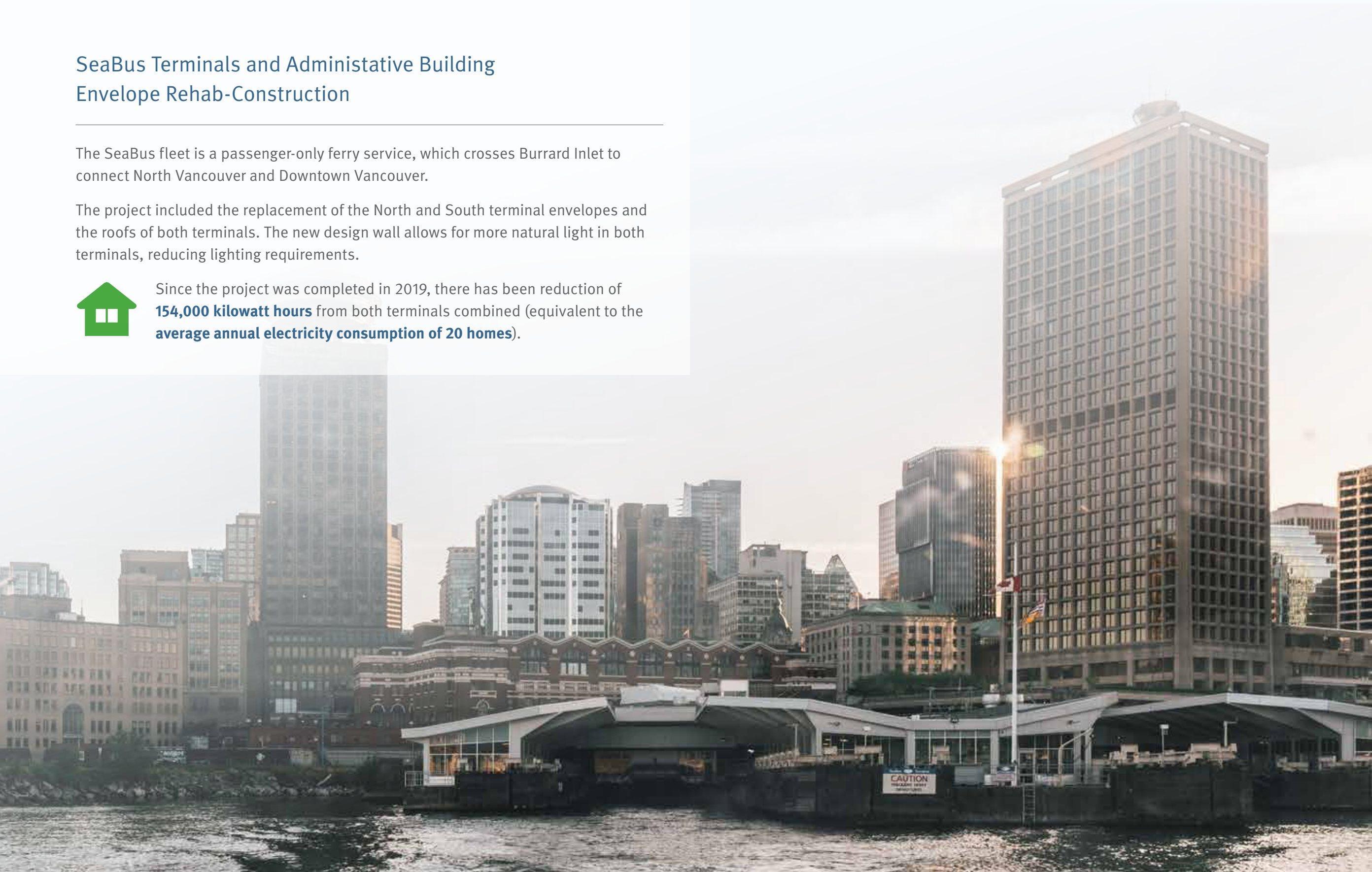
SeaBus Terminals and Administrative Building Envelope Rehab-Construction

The SeaBus fleet is a passenger-only ferry service, which crosses Burrard Inlet to connect North Vancouver and Downtown Vancouver.

The project included the replacement of the North and South terminal envelopes and the roofs of both terminals. The new design wall allows for more natural light in both terminals, reducing lighting requirements.



Since the project was completed in 2019, there has been reduction of **154,000 kilowatt hours** from both terminals combined (equivalent to the **average annual electricity consumption of 20 homes**).



Cycling and Walking Infrastructure

TransLink partners with municipalities and other stakeholders to improve zero emission, active transportation infrastructure throughout the region.

Through the municipal cost-sharing programs, TransLink contributes up to 75 per cent of eligible capital costs for infrastructure upgrades. This may include new or improved travel lanes, left-turn lanes, road safety and efficiency improvements, pedestrian and bike signals, bikeways, multi-use paths, sidewalks, curb ramps, and street crossing improvements. From 2017 to 2019, TransLink has committed approximately \$129 million towards more than 102 km of cycling infrastructure and 25km of pedestrian improvement projects across the region.

Green Bond Proceeds

\$31.2M

2018 Green Bond Proceeds **\$1.7M**
2019 Green Bond Proceeds **\$29.5M**

Project Categories



**Clean
Transportation**



**Energy Efficiency
and Conservation**



With the development and focus on active transportation at TransLink, the BC Parkway is an increasingly important facility for walking and cycling. The benefits of these projects include:

- Maintenance of cycling infrastructure on BC Parkway - the 26-kilometre multi-use path that roughly parallels the SkyTrain system
- Reduction of GHG emissions and other air pollutants, due to customer use of the cycling network (instead of using cars)
- Installation of 250 new bike stations and parkades at 6 SkyTrain Stations, increasing capacity to 300 bike stations
- Installation of electrical infrastructure to support e-bikes

Program Benefits



1 kilometre

Average trip length in the region for **walking**



4.5 kilometres

Average trip length in the region for **cycling**

2019 Green Bond

Opening five new Bike Parkades
(from Q4 2019 to Q2 2020)

Planning of the **“next-generation” self-serve bike lockers** to be delivered by end of 2021

Design works for bike counters to be installed over the next 6-12 months

BC Parkway design upgrades completed

Preliminary designs completed for **upgrades to BC Parkway intersections** with public roadways at ten locations

Cycling and Walking Infrastructure



The BC Parkway is a 26-kilometre, multi-use path that roughly parallels the Expo SkyTrain Line, connecting Surrey City Centre, New Westminister, South Burnaby, and Vancouver



A conceptual design report for improvements to the BC Parkway provides guidance for the BC Parkway upgrade process and will be used to prioritize improvements.

BC Parkway Renovation Work

As part of TransLink's investments in cycling infrastructure, there were pavement and curb upgrades at select locations along the BC Parkway from fall 2019 until summer 2020. This work was completed as part of the TransLink Maintenance and Repair Program.

Electric Bus Projects | Electric Trolley Buses Program

TransLink’s electric trolley bus system has been in operation since 1948 and serves some of Vancouver’s densest neighbourhoods.



It consists of 262 electric trolley buses, all of which have zero (tail pipe) emissions. Maintaining the trolley overhead infrastructure is key in retaining clean, zero-emission transportation options for TransLink customers.

To maintain the 315 kilometres network of trolley wires and buses, the service is reliant on regular electric trolley bus equipment upgrades and replacements, trolley bus overhead pole installation, power rectifier upgrades, wire replacement and bus maintenance. The ongoing upgrades also improve energy efficiency throughout the system.

Green Bond Proceeds

\$15.9M


2018 Green Bond Proceeds **\$8.2M**
2019 Green Bond Proceeds **\$7.7M**

Project Categories

-  **Clean Transportation**
-  **Renewable Energy**

Program Benefits

60.5M
In 2019, there were **60.5 million boardings** on the trolley bus fleet

 **Utilized 32,000 megawatt hours of renewable energy**

2019 Green Bond

Zero tailpipe air pollutants

(i.e., particulate matter, nitrogen oxides, non-methane hydrocarbons)

98 per cent reduction in GHG emissions compared to diesel bus equivalent kilometres

Avoided an estimated **17,000 tonnes of CO₂e annually** by operating electric trolleys versus diesel buses

Electric Bus Projects | Battery-Electric Buses

As part of the environmental sustainability strategy for the bus fleet, TransLink plans to begin electrifying buses and procuring on-route and depot charging infrastructure.

Over the next decade, TransLink can transition approximately 50 per cent of the bus fleet to clean, zero-emission electric buses. If TransLink were to purchase only zero-emission battery-electric buses throughout the next decade (635 buses⁸), lifecycle GHG emissions could be reduced by over 40 per cent (~90,000 tonnes CO₂e).

TransLink is one of three agencies in Canada that is participating in a test project of battery-electric buses and on-route charging infrastructure. In October 2019, TransLink launched four battery-electric buses as part of a 2.5-year demonstration project.⁹ The purpose of this demonstration is to test interoperability between bus and charger manufacturers, and to collect data on bus performance, maintenance and overall customer experience.



Program Benefits



400 tonnes less CO₂e

When in full service, the four battery-electric buses will result in **400 tonnes of CO₂e avoided** annually compared to standard diesel buses



150,000 litres less fuel

When in full service, the annual reduction will be approximately **150,000 litres of diesel fuel**

Zero tailpipe air pollutants

(i.e., particulate matter, nitrogen oxides, non-methane hydrocarbons)

Reduction in noise pollution

(battery-electric buses are quieter than conventional buses)

⁷ Based on TransLink's bus replacement program. ⁸ Canadian Urban Transit Research and Innovation Consortium (CUTRIC) demonstration project. <https://cutric-crituc.org/translink-launches-battery-electric-bus-pilot-as-part-of-cutrics-pan-canadian-integration-trial/>



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